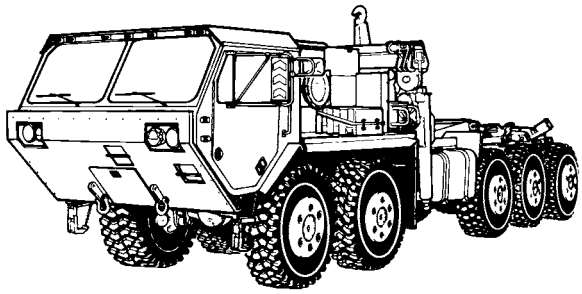
TM 9-2320-364-34-3

THIS MANUAL SUPERSEDES TM 9-2320-364-34-3 DATED 01 AUG 1999, INCLUDING ALL CHANGES.

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE VOLUME III

PALLETIZED LOAD SYSTEM



MODEL M1074/M1075

NSN 2320-01-304-2277
NSN 2320-01-304-2278

DISTRIBUTION RESTRICTION A:
Approved for public release;
distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is a colorless, odorless, DEADLY POISONOUS gas and when breathed deprives body of oxygen and causes SUFFOCATION. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Permanent BRAIN DAMAGE or DEATH can result from severe exposure.

The following precautions MUST be followed to ensure personnel are safe whenever personnel heater or main or auxiliary engine is operated for any purpose.

- DO NOT operate personnel heater or engine of vehicle in enclosed area without adequate ventilation.
- DO NOT idle engine for long periods without ventilator blower operation. If tactical situation permits, open hatches.
- DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment doors removed unless necessary for maintenance purposes.
- NEVER sleep in a vehicle when the heater is operating or the engine is idling.
- BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, IMMEDIATELY EVACUATE AND VENTILATE the area. Affected personnel treatment shall be: expose to fresh air; keep warm, DO NOT PERMIT PHYSICAL EXERCISE; if necessary, give artificial respiration as described in FM 12-11 and get medical attention.
- BE AWARE; neither the gas particulate filter unit nor field protection mask for nuclear-biological-chemical protection will protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

WARNING

Blowing transmission oil can cause injury to eyes. Safety goggles must be worn when testing transmission oil pressure switch.

WARNING

Adhesive causes immediate bonding on contact with eyes, skin, or clothing and also gives off harmful vapors. Wear protective goggles and use in well-ventilated area. If adhesive gets in eyes, try to keep eyes open; flush eyes with water for 15 minutes and get immediate medical attention.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

WARNING

During pressure tests, ensure air pressure is drained to 0 psi (0 kPa) before taking off air compressor line or taking off any cover plates. If pressure is not released, plates or line could blow off and harm personnel. Air tanks have greater than 30 psi (207 kPa) in them. Do not drain air tanks with any part of body in air spray path. Skin embolisms and/or debris in eyes can occur from released pressure.

WARNING

Allow engine to cool before performing troubleshooting maintenance. If necessary use insulated pads and gloves. Hot engine components will burn and cause injury to personnel.

WARNING

All personnel must stand clear during lifting operations. A swinging or shifting load may cause injury or death to personnel.

WARNING

High pressure hydraulics [oil under 3675 psi (25,339 kPa) pressure] operate this equipment. Refer to vehicle operator and maintenance manuals for hydraulic oil pressure. Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in injury to personnel.

WARNING

Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.

WARNING

Do not get under LHS when disconnecting or connecting connectors and hoses. A hydraulic malfunction could cause LHS to lower causing serious injury or death.

WARNING

The LHS hydraulic system operates at oil pressures up to 3625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

WARNING

Middle frame and hook arm combined weight is 2100 lbs (953 kg). Hook arm cylinders weigh 210 lbs (95 kg) each. Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

High pressure hydraulics [oil under 3000 psi (20,685 kPa) pressure] operate this equipment. Refer to vehicle operator and maintenance manuals for hydraulic oil pressure. Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in injury to personnel.

WARNING

Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

WARNING

If matchmarks are not aligned during installation of yoke, erratic steering will result. Erratic steering can cause serious injury or death to personnel.

WARNING

Use care when disconnecting intergear link. If it falls, it will cause injury to personnel.

WARNING

The truck steering operates with 3000 psi (20,685 kPa) hydraulic pressure. A high pressure hydraulic oil stream can pierce a body and cause severe injury to personnel. Never disconnect any high pressure hydraulic oil line or fitting without first dropping pressure to zero.

WARNING

Do not stand in front of vehicle when testing air box pressure. Brakes could fail and vehicle could move forward causing injury or death.

WARNING

Do not remove the radiator cap when the engine is hot; steam and hot coolant can escape and burn personnel.

WARNING

Use a clean thick waste cloth or like material to remove the cap. Avoid using gloves. If hot water soaks through gloves, personnel could be burned.

WARNING

Moving engine components can cause severe injury. Keep away from alternator belts and pulleys while engine is running.

WARNING

Never use fuel to clean parts. Fuel is highly flammable. Serious injury to personnel could result if fuel ignites during cleaning.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury to personnel.

WARNING

Steam cleaning creates hazardous noise levels and severe burn potential. Eye, skin, and ear protection is required. Failure to comply may result in injury to personnel.

WARNING

Solvents used with a spray gun must be used in a spray booth with filter. Face shield must be used by personnel operating spray gun. Failure to comply may result in injury to personnel.

WARNING

CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

- ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
- DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
- DO NOT use CARC paint without adequate ventilation.
- NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby, and requirements of TC 9-237 strictly followed.

WARNING

On direct contact, uncured silicone sealant irritates eyes. In case of contact, flush eyes with water and seek medical attention. In case of skin contact, wipe off and flush with water.

WARNING

Engine/transmission assembly weighs 3946 lbs (1791 kg). Attach suitable lifting device of adequate capacity for removal or installation to prevent possible injury to personnel.

WARNING

Use extreme care when installing engine/transmission assembly. Ensure engine/transmission assembly does not swing and damage equipment.

WARNING

Air compressor weighs 115 lbs (52 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Ensure cradle is fully supported upon removal of four screws and lockwashers or cradle may fall and cause injury to personnel.

WARNING

Transmission weighs 1050 lbs (477 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Transmission weighs 1023 lbs (477 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Cylinder head weighs 182 lbs (83 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Use extreme care when removing or installing spring retainers. Spring retainers are under tension and can act as projectiles when released suddenly. Ensure proper eye protection is worn to prevent injury to personnel.

WARNING

Use extreme care when compressing, releasing, removing, or installing springs. Springs are under tension and can act as projectiles when released. Ensure proper eye protection is worn to prevent injury to personnel.

WARNING

Vibration damper may fall from crankshaft and may cause injury to personnel.

WARNING

Ensure there are no personnel working under truck while performing this task. Engine will be supported by lifting device. If lifting device fails, engine may fall and cause severe injury or death to personnel.

WARNING

Lifting device is attached to support engine. Ensure lifting device is positioned snug to engine lifting bracket to prevent engine from falling. Failure to comply may result in injury or death to personnel.

WARNING

Lifting device must remain in place and truck must be properly tagged until after installation of this task is performed. Failure to comply may result in engine falling causing severe injury or death to personnel.

WARNING

Driveshafts can weigh up to 100 lbs (45kg). Properly support driveshafts when removing screws. After screws and brackets are removed, driveshafts can fall and may cause injury to personnel.

WARNING

Use extreme care when removing spring from oil cooler adapter plate. Spring is under tension and can act as a projectile when released. Ensure all personnel wear proper eye protection to prevent possible injury to personnel.

WARNING

Ensure all debris is kept clear of blower during removal. Failure to comply may result in damage to equipment.

WARNING

Blower lobes turn freely. Ensure fingers, jewelry, and hair are kept clear of rotors in blower. Failure to comply may result in severe injury to personnel.

WARNING

Blower weighs 71 lbs (32 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Gloves must be used when handling turbocharger insulation blanket. Turbocharger insulation blanket is made of fiberglass and may cause skin irritation. Failure to comply may result in injury to personnel.

WARNING

Gloves must be used when handling insulation blanket. Insulation blanket is made of fiberglass and may cause skin irritation. Failure to comply may result in injury to personnel.

WARNING

Turbocharger weighs 57 lbs (26 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Use extreme care when turning rotating assembly. Rotating assembly is sharp and injury to personnel may result.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.

WARNING

Bottom tank assembly weighs 82 lbs (37 kg). Ensure bottom tank is fully supported prior to removal or installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Top tank assembly weighs 76 lbs (35 kg). Ensure top tank assembly is fully supported prior to removal or installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Use extreme care when removing tester. Sudden release of pressure can cause injury to personnel.

WARNING

Allow engine to cool before removing harness to avoid injury to personnel.

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear safety goggles/glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush with large amounts of water for at least 15 minutes and get immediate medical attention.

WARNING

Middle frame weighs 2500 lbs (1135 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

After removing wires and cables from battery terminals, ensure no contact is made with battery terminals, other wires, cables or any metal surface to prevent damage to parts, personal injury, or death.

WARNING

Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when preforming maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged.

WARNING

Upon installation of all wires and cables, ensure no contact is made with battery terminals or other wires and cables. Strap wires and cables away from battery terminals and other wires and cables as required to prevent damage to parts, personal injury, or death.

WARNING

Do not drain transmission fluid while transmission is hot. Injury to personnel may result.

WARNING

Driveshaft weighs 90 lbs (41 kg). The aid of an assistant is required to prevent possible injury to personnel.

WARNING

Ensure one screw is left in place behind lifting bracket in flywheel. Screw is intended to secure flywheel until lifting device is in place. Failure to comply may result in serious injury to personnel and damage to equipment.

WARNING

Flywheel weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

During flywheel removal, torque converter turbine can remain attached to flywheel or remain on transmission. Use care to prevent torque converter turbine from falling. If torque converter turbine stays attached to flywheel, lockup clutch may fall out of transmission. Use care to prevent lockup clutch from falling. Failure to comply may result in serious injury to personnel and damage to equipment may occur.

WARNING

Flywheel weighs 175 lbs (79 kg). Use extreme caution when dropping flywheel. Keep feet and hands out from under flywheel to avoid injury to personnel.

WARNING

Transfer case weighs 1500 lbs (681 kg). Attach lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Remove and install one transfer case support bracket at a time. Removing both transfer case support brackets at same time will cause transfer case to fall causing damage to parts or severe injury or death to personnel.

WARNING

Axle No. 1 and No. 2 weighs 1,950 lbs (885 kg). Use jackstands to support axles. Failure to do so could result in injury to personnel.

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

WARNING

Axle No. 1 weighs 1950 lbs (885 kg). Attach a transmission jack prior to removal or installation. The axle must be chained to the transmission jack or an out of balance condition may result. Failure to comply may result in serious injury or death to personnel.

WARNING

Keep fingers out of beam holes. Failure to comply could result in serious injury to personnel.

WARNING

Axle No. 2 weighs 1907 lbs (866 kg) (without brake drums). Attach a transmission jack prior to removal or installation. The axle must be chained to the transmission jack or an out of balance condition may result. Failure to comply may result in serious injury or death to personnel.

WARNING

Pivot and spindle assembly weighs 90 lbs (41 kg). Support pivot and spindle assembly prior to removal to prevent possible injury to personnel.

WARNING

Trailing beam assembly weighs 150 lbs (68 kg). Attach a suitable lifting device to axle end of trailing beam assembly prior to removal or installation to prevent possible injury to personnel.

WARNING

Main fuel tank weighs between 50 to 700 lbs (23-318 kg) depending on the quantity of fuel inside. Support main fuel tank with suitable lifting device prior to removing mounting hardware to prevent possible injury to personnel.

WARNING

Axle No. 3 weighs 1780 lbs (808 kg). Attach a suitable lifting device prior to removal or installation to prevent possible injury to personnel. Axle housing must be chained to lifting device to prevent an out of balance condition when longitudinal torque rod is removed. Axle could roll out of control causing serious injury or death to personnel.

WARNING

Ensure axle is fully supported by jackstands prior to removing hydraulic jack from trailing beam assembly. Failure to comply may result in injury to personnel.

WARNING

Keep hands and feet clear of Axle No. 3 until Axle No. 3 is secured by longitudinal torque rod. Failure to comply may result in injury to personnel.

WARNING

Axle No. 4 weighs 1925 lbs (874 kg). Attach a transmission jack prior to removal or installation. The axle housing must be chained to transmission jack or an out-of-balance condition may result. Failure to comply may result in serious injury or death to personnel.

WARNING

The truck end of torque rod must not be removed. Axle No. 4 and 5 share mounting hardware for longitudinal torque rod. If hardware is removed from crossmember, an out-of-balance condition for both axles will result. Any personnel under axle No. 5, which is not secured at this time, could be seriously injured or killed.

WARNING

Axle No. 5 weighs 1905 lbs (865 kg). Attach a transmission jack prior to removal or installation. The axle housing must be chained to transmission jack or an out-of-balance condition may result. Failure to comply may result in serious injury or death to personnel.

WARNING

Brake shoes may be coated with dust. Breathing this dust may be harmful to your health. Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury or death to personnel.

WARNING

Brake assembly weighs 80 lbs (36 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Brake assembly will swing out on Axles No. 1 and 2 when overhead lifting device is used and screws are removed. Support brake assembly during removal or injury to personnel may result.

WARNING

Use care when removing or installing brake springs. Brake springs are under spring tension and can act as projectiles when released and could cause severe injury to personnel.

WARNING

Ensure braided hose is cool prior to removal or injury to personal may result.

WARNING

Wheel hub assembly weight 115 lbs (52 kg). Support wheel hub assembly with suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

The steering hydraulic system operates at oil pressures up to 3000 psi (20,685 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not remove castle nut from drag link before applying upward pressure on drag link. Serious injury to personnel or damage to equipment may result.

WARNING

Stand clear of tires while turning them. Failure to do so may result in injury or death to personnel.

WARNING

Do not turn relief plunger out more than flush with end of steering gear cover. Plunger could blow out and spray hydraulic oil, causing serious injury to personnel.

WARNING

Steering gear weighs 190 lbs (86 kg). Ensure steering gear is properly supported upon removal from truck. Failure to comply may result in severe injury to personnel.

WARNING

Front steering gear needs to be supported on transmission jack with two wooden blocks located in front of front steering gear. Wooden blocks should be 4 by 6 by 11 in. and 2 by 4 by 11 in. and should be positioned as shown. Failure to comply may result in steering gear falling from transmission jack and causing injury to personnel.

WARNING

Pitman arm is under pressure. Parts can act as projectiles when released and could cause severe eye injury to personnel.

WARNING

Intermediate steering gear weighs 170 lbs (77 kg). Attach lifting device prior to removal to prevent injury to personnel.

WARNING

Steering gear weighs 165 lbs (75 kg). Attach lifting device prior to removal to prevent possible injury to personnel.

WARNING

Cab weighs 1700 lbs (772 kg). Attach suitable lifting device prior to removal or installation of cab support to prevent possible injury to personnel.

WARNING

Rear crossmember weighs 220 lbs (100 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Power module frame weights 275 lbs. (125 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Ensure truck frame is securely supported before removing spring assembly. If truck falls, serious injury to personnel or death may result.

WARNING

Do not stick fingers in pin holes. Injury to personnel may result.

WARNING

Front spring assembly weighs 208 lbs (94 kg). Rear spring assembly weighs 175 lbs (79 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Air bags may still be pressurized even though air pressure gauge reads 0 psi. Remove air line slowly to allow air to escape. Failure to comply may result in air line blowing off causing serious injury to personnel.

WARNING

Ensure truck is securely supported before removing equalizer beams. If truck falls, serious personal injury or death may result.

WARNING

Two equalizer beams and cross tube weigh 445 lbs (202 kg) assembled. Each equalizer beam weighs 212 lbs (96 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Equalizer beam weighs 212 lbs (96 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Force required to remove beam end bushings and beam center bushing may exceed 30 tons (27 metric tons). Use of a press of 60-ton (54 metric tons) capacity or more is required to remove and install bushings. Use care when pressing out bushings to prevent serious personal injury or death. Always wear eye protection to prevent injury when operating press.

WARNING

Rust preventive contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

WARNING

Trailing beam bracket weighs 83 lbs. (38 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Do not drain coolant if water temperature gage reads above 180 degrees F (82 degrees C). Contact with steam or hot coolant will result in serious injury to personnel.

WARNING

Always wear eye protection and protective clothing when handling glass. Failure to comply may result in injury to personnel.

WARNING

Fender weighs 74 lbs (34 kg). Use an assistant to remove to prevent possible injury to personnel.

WARNING

LHS control box weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

The crane hydraulic system operates at oil pressures up to 3100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

WARNING

Crane weighs 4,700 lbs (2,134 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Boom weighs 2100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Erection cylinder weight 78 lbs (35 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

One pin secures erection cylinder, tension cylinder, and mast. Be careful to drive out pin only as far as needed to remove erection cylinder, or other components may fall, causing injury to personnel.

WARNING

Lift cylinder weighs 122 lbs (55 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

One pin secures both lift cylinders and mast. Be careful to drive out pin only as far as needed to remove selected cylinder and prevent possible injury to personnel.

WARNING

Ensure boom is fully supported by the LHS hook. Failure to support boom with LHS hook will cause boom to drop and may result in serious injury or death to personnel.

WARNING

Long pin also holds in mast and erection cylinder. Be careful to drive out pin only as far as needed to remove tension cylinder to prevent possible injury to personnel.

WARNING

Mast weighs 109 lbs (49 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Telescope cylinder weighs 70 lbs (32 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Hoist assembly weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

When second spring is released, cable follower may fly up against bracket. Keep hands and face away from this area, or injury to personnel may result.

WARNING

Turntable weighs 150 lbs (68 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Gear weighs 135 lbs (61 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Subframe weighs 1420 lbs (645 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Swing drive gear reducer weighs 140 lbs (64 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Four valve bank weighs 75 lbs (34 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Outrigger cylinder weighs 115 lbs (52 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Using HOIST control lever, crane should lift test weight a maximum of 1 in. (2.5 cm) before Overload Sensing System (OSS) disables hoist. If hoist lifts test load higher than 1 in. (2.5 cm), OSS is not functioning correctly and crane has failed load test. Perform Follow-On Maintenance and notify GS Maintenance.

WARNING

The winch hydraulic system operates at oil pressures up to 3675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

WARNING

Hook weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Hook arm weighs 1100 lbs (499 kg). Attach suitable lifting device prior to installation prevent possible injury to personnel.

WARNING

The LHS hydraulics system operates at oil pressures up to 3675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

WARNING

Middle frame weighs 1000 lbs (454 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Compression frame weighs 4200 lbs (1907 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

LHS main manifold bracket assembly weighs 120 lbs (54 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Main hydraulic pump weighs 215 lbs (98 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Never stand in front of main hydraulic pump during lifting. Hydraulic pump can swing out of door and cause serious injury to personnel.

WARNING

Prolonged contact with lubricating oil, MIL-L-7808 may causes skin rash. Skin and clothing that come in contact with lubricating oil should be thoroughly washed immediately. Saturated clothing should be removed immediately. Areas in which lubricating oil is used should be well ventilated to keep fumes to keep fumes to a minimum.

WARNING

Hook arm cylinders weighs 210 lbs. (95 kg). Attach suitable lifting device prior to removal, installation, or lifting to prevent possible injury to personnel.

WARNING

Ensure hook arm assembly is supported with wooden block prior to removal to prevent possible injury to personnel.

WARNING

Middle frame, hook arm and hook have a combined weight of 2,300 lbs. (1,044 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Oil will spray from cylinder manifold ports when rod is moved in or out. Cover ports with two cleaning cloths to prevent oil from spraying. Failure to comply may result in injury to personnel.

WARNING

Sharp edges of exhaust pipe could cause injury to personnel.

WARNING

Sharp edges of exhaust tube could cause injury to personnel.

WARNING

Battery box weighs 75 lbs (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

WARNING

Upon installation of all wires and cables, ensure No contact is made with battery terminals or other wires and cables. Strap wires as required to prevent injury or death to personnel or damage to equipment.

WARNING

200 AMP alternator weight 75 lbs (34 kg) Use an assistant to prevent possible injury.

WARNING

Always disconnect battery ground cable or power source before working on electrical components or injury to personnel may result. Discharge capacitors as noted. If personnel receive an electrical shock, get immediate medical attention.

WARNING

Machine gun ring front support weighs 55 lbs (25 kg). Attach suitable lifting device prior to installation to prevent injury to personnel.

WARNING

Machine gun ring weighs 295 lbs (134 kg). Attach suitable lifting device prior to installation to prevent injury to personnel.

WARNING

Starter weighs 73 lbs. (33 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Engine weighs 2600 lbs (1180 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Keep out from under engine when lifting. If engine slips, sways, or falls, serious injury or death may result.

WARNING

Diesel fuel is flammable. Do not perform this procedure near fire, flame or sparks. Injury or death to personnel could result.

WARNING

When installing lifting device, keep hands clear of rotors to prevent injury to personnel.

WARNING

Cylinder head with lifting device weighs 182 lbs (83 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Flywheel housing weighs 187 lbs (85 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Keep hands clear of gears when loosening nuts to prevent injury to personnel.

WARNING

Vibration damper may drop off crankshaft and may cause injury to personnel.

WARNING

Crankshaft weighs 185 lbs (84 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Control valve cover is under spring tension. Use extreme care when removing cover. Control valve cover may project when released suddenly. Ensure proper eye protection is worn to prevent injury to personnel.

WARNING

Slave piston is retained by spring under compression. Ensure proper eye protection is worn to avoid injury to personnel.

WARNING

Spring is under extreme tension. Wear proper eye protection. Spring may shoot out and cause injury to personnel.

WARNING

Avoid contact with steam. Steam can cause burns, blindness, and other serious injury. Ensure the wearing of protective aprons, gloves, and safety goggles when using live steam or injury to personnel may result.

WARNING

When making this pressure test, make sure personnel are protected against pressurized air and oil from possible rupture or leak in hose or fitting on cylinder head or injury to personnel may result.

WARNING

Some chemical agents (detergents, solvents, alkalis, etc.) may irritate skin or be harmful to the eyes. Others must only be used with adequate ventilation. When working with potentially harmful chemical substances, read and heed the warnings on the product labels and follow prescribed safety precautions. When working with any potentially harmful substance - including live steam, hot water, and compressed air - wear appropriate safety equipment (face shield, gloves, apron, etc.) if required, and use extreme care to avoid injury to personnel.

WARNING

Wear proper eye protection to protect against stream of pressurized water from leak or rupture of fitting, hose, or oil cooler core to prevent injury to personnel.

WARNING

Use care when removing or installing piston rings. Piston rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

WARNING

High pressure steam can blow particles into eyes, can cause severe burns, and creates hazardous noise levels. Eye, skin, and hearing protection is required.

WARNING

Engine block weighs 732 lbs (332 kg). Attach suitable lifting device before removal to prevent possible injury or death to personnel.

WARNING

Be careful when using high air pressure. Ensure connections and seals are tight before applying pressure. High air pressure can blow out parts, hoses or debris with force. Explosive force can damage equipment and cause injury to personnel.

WARNING

Keep out from under engine when lifting. If engine slips, sways or falls, serious injury or death may result.

WARNING

Keep hands and fingers clear of rotors. If rotors turn, fingers may get caught between rotors and result in injury to personnel.

WARNING

Use care when removing retaining pin. Spring behind plug is under tension. Wear proper eye protection to avoid personal injury.

WARNING

Use care when replacing valve plug. Spring behind plug is under tension. Wear proper eye protection to avoid personal injury.

WARNING

Use care when replacing valve stop. Spring behind stop is under tension. Wear proper eye protection to avoid injury to personnel.

WARNING

Cover is under spring pressure. Wear proper eye protection to avoid personal injury.

WARNING

Washer is under spring tension. Wear proper eye protection to avoid injury to personnel.

WARNING

Torque converter housing weighs 100 lbs (45 kg). Attach suitable lifting device for removal or installation to prevent possible injury to personnel.

WARNING

When screws are removed, oil pump will fall. Make sure that assistant firmly supports oil pump inside torque converter housing to prevent personal injury or damage to parts.

WARNING

Forward clutch and turbine shaft assembly weighs 67 lbs (30 kg). Attach suitable lifting device for removal or installation to prevent possible injury to personnel.

WARNING

Use extreme caution when dropping forward clutch assembly. Keep feet and hands out from under parts to avoid personal injury.

WARNING

Ensure personnel wear heat resistant gloves prior to heating PTO gear with propane torch. Failure to comply may result in severe injury or death to personnel.

WARNING

Use extreme caution when dropping fifth clutch housing. Keep feet and hands out from under fifth clutch housing to avoid injury to personnel.

WARNING

Make sure all personnel stand clear when releasing pressure on spring compressor. Retaining ring can cause personal injury if not properly seated in retaining ring groove.

WARNING

Front planetary carrier assembly weighs 54 lbs (25 kg). Attach suitable lifting device for removal to prevent possible injury to personnel.

WARNING

Use extreme care when removing lifting bracket. Sun gear shaft, main shaft and gear fit loosely and may fall out and cause injury to personnel or damage to parts.

WARNING

Do not lift rear planetary assembly by ball bearing on rear end. Bearing may come off and planetary may fall resulting in personal injury or damage to equipment.

WARNING

Keep fingers away from inside of transmission housing while installing rear carrier assembly or injury to personnel may result.

WARNING

Planetary differential assembly weighs 160 lbs (73 kg). Use suitable lifting device to prevent possible injury to personnel.

WARNING

Planetary carrier assembly weighs 85 lbs (39 kg). Use the aid of an assistant to turn differential case over to prevent injury to personnel.

WARNING

Rear shaft assembly weighs 100 lbs (45 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Rear housing weighs 210 lbs (95 kg). Attach suitable lifting device before removal or installation to prevent possible injury to personnel.

WARNING

Center shaft assembly weighs 145 lbs (66 kg). Attach suitable lifting device before removal or installation to prevent possible injury to personnel.

WARNING

Upper shaft assembly weighs 115 lbs (52 kg). Attach suitable lifting device before removal or installation to prevent possible injury to personnel.

WARNING

Differential shaft assembly weighs 100 lbs (45 kg). Use an assistant during removal or installation to prevent possible injury to personnel.

WARNING

Differential housing weighs 90 lbs (41 kg). Attach suitable lifting device before removal or installation to prevent possible injury to personnel.

WARNING

Front housing weighs 200 lbs (91 kg). Attach suitable lifting device before removal to prevent possible injury to personnel.

WARNING

To prevent injury to personnel or equipment damage, make sure chains will not slip off shaft assembly during lifting operation.

WARNING

Assembled portion of upper shaft assembly weighs 100 lbs (45 kg). Use an assistant to prevent possible injury to personnel.

WARNING

Axle No. 3 weighs 1780 lbs (807 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel. Chains must be attached to axle housing to prevent an out of balance condition when axle is lifted. Axle could roll out of control causing serious injury or death to personnel.

WARNING

Brake drum weighs 132 lbs (60 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Spring in air brake chamber is very powerful and is under tension. Failure to cage air brake chamber before removal will release tension of spring abruptly and could result in injury to personnel.

WARNING

Air brake chamber can only be unscrewed a maximum of one turn. Otherwise, incorrect brake operation could result.

WARNING

Wheel hub assembly weighs 115 lbs (52 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Brake assembly weighs 80 lbs (36 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Seal race is extremely hot. Do not touch seal race without protective gloves or severe burns to hands could result.

WARNING

Pivot and spindle assembly weighs 90 lbs (41 kg). Use the aid of an assistant to prevent possible injury to personnel.

WARNING

Differential assembly weighs 198 lbs (90 kg). Attach a suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Differential and bevel gear weighs 70 lbs (32 kg). Attach a suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Prussian Blue Dye is poisonous and can burn skin on contact. Over exposure to dye can cause heart and skin problems, dizziness and unconsciousness.

WARNING

Differential assembly weighs 450 lbs (204 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Split torque weighs 62 lbs (28 kg). The aid of an assistant is required to prevent possible injury to personnel.

WARNING

Split torque weighs 62 lbs (28 kg) without flange assembly and 75 lbs (34 kg) with flange assembly. The aid of an assistant is required to prevent possible injury to personnel.

WARNING

Properly support spindle during removal. Failure to comply may result in injury to personnel.

WARNING

Differential assembly weighs 500 lbs (227 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Front housing weighs 90 lbs (41 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Ring and pinion assembly weighs 60 lbs (27 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Self-recovery winch weighs 980 lbs (445 kg). Attach suitable lifting device prior to removal or installation to prevent injury to personnel.

WARNING

Left side and right side mount weigh 48 lbs (22 kg). Ensure hands and fingers are kept clear of left side and right side mounts during removal. Failure to comply may result in serious injury to personnel.

WARNING

Ensure fingers do not get caught between secondary planetary carrier and ring gear or injury to personnel may result.

WARNING

Wheel end assembly weighs 200 lbs (91 kg). Support wheel end assembly with suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Internal pistons are under moderate spring tension. Keep pistons compressed when installing locknut. Failure to comply may result in injury to personnel.

WARNING

Exhaust manifolds and engine parts are hot. Use care to prevent personal injury.

WARNING

Use care when removing or installing springs. Springs are under tension and can act as projectiles when released and could cause severe eye injury.

WARNING

Alternator weighs 75 lbs (34 kg). Use the aid of an assistant to prevent possible injury to personnel.

WARNING

Engine weighs 2,600 lbs (1,180 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Keep out from under engine when lifting. If engine slips, sways, or falls, serious injury or death may result.

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

WARNING

Accumulator testing and charging can expose personnel to high pressure nitrogen. Use of proper safety equipment is required to prevent serious injury or death.

WARNING

Accumulator testing and servicing can expose personnel to high pressure nitrogen. Use of proper safety equipment is required to prevent serious injury or death.

WARNING

High pressure hydraulics [oil under 3700 psi (25,512 kPa) pressure] operate this equipment. Refer to truck operator and maintenance manuals for hydraulic oil pressure. Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in injury to personnel.

WARNING

To prevent corrosion, parts should be dipped in rust preventive within two hours of degreasing.

WARNING

Approved hearing protection devices and protective goggles must be worn when performing tasks. Failure to comply may result in injury to personnel.

WARNING

Fan may engage without warning. do not place any part of body in area of fan operation. Failure to do so may result in injury or death to personnel.

WARNING

Use care when removing or installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

WARNING

Release air pressure prior to opening container or injury to personnel could result.

WARNING

Upper container weighs 222 lbs (101 kg). Attach lifting device prior to removal or installation to prevent injury to personnel.

WARNING

Transmission assembly weighs 1,061 lbs (482 kg). Attach lifting device prior to removal or installation to prevent injury to personnel.

WARNING

Protective goggles must be worn when drilling holes. Failure to comply may result in injury to personnel.

WARNING

Upper container weighs 250 lbs (114 kg). Attach lifting device prior to removal or installation to prevent injury to personnel.

WARNING

Transfer case weighs 1,388 lbs (630 kg). Attach lifting device prior to removal or installation to prevent injury to personnel.

WARNING

Axle No. 3 weighs 1,780 lbs (807 kg) and Axle No. 4 weighs 1,925 lbs (873 kg). Use jackstands to support axles. Failure to do so could result in injury to personnel.

WARNING

Driveshafts can weigh up to 100 lbs (45 kg). Properly support driveshafts when removing screws. After screws and brackets are removed, driveshaft can fall and cause injury to personnel.

WARNING

Pivot and spindle assembly weighs 90 lbs (41 kg). Use the aid of an assistant to prevent possible injury to personnel.

WARNING

Wheel end assembly weighs 300 lbs (136 kg). Support wheel end assembly with suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

The trailing beam assembly weighs 150 lbs (68 kg). Attach a suitable lifting device to truck end of trailing beam assembly prior to removal or installation to prevent possible injury to personnel.

WARNING

Axle No. 3 weighs 1780 lbs (808 kg). Attach a suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Keep fingers out of trailing beam assembly holes. Failure to comply could result in serious injury to personnel.

WARNING

Trailing beam assembly weighs 150 lbs (68 kg). Attach a hydraulic jack to axle end of air suspension beam assembly prior to installation to prevent possible injury to personnel.

WARNING

Main fuel tank weighs 50 to 700 lbs (23 to 318 kg) depending on the quantity of fuel inside. Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Axle No. 4 and Axle No. 5 share mounting hardware for longitudinal torque rods. Both axles must be supported during removal of screws and locknuts or axles may fall. Failure to comply may result in injury or death to personnel.

WARNING

Spindle is heavy. Properly support spindle during disassembly or serious injury to personnel may occur.

WARNING

Seal race is extremely hot. Do not tough seal race without protective gloves or severe burns to hands could result.

WARNING

Ensure crankcase cover is fully supported before removing screws. Failure to comply may result in crankcase cover falling causing injury to personnel.

WARNING

Upper container weighs 480 lbs (218 kg). Attach lifting device prior to removal to prevent injury to personnel.

WARNING

Allow cable to slowly retract. Cable is under tension and can snap back rapidly. Ensure that proper eye protection is used. Failure to comply may result in serious injury to personnel.

WARNING

Allow engine to cool before performing this procedure or injury to personnel may occur.

WARNING

Engine must be cool before performing maintenance. Failure to comply may result in injury to personnel.

WARNING

Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

WARNING

Mounts weigh 48 lbs (22 kg). Ensure hands and fingers are kept clear of left side and right side mounts during removal and installation. Failure to comply may result in serious injury to personnel.

WARNING

Do not use brake drum that exceeds maximum wear specification. Failure to comply may result in brake failure and serious injury or death to personnel.

WARNING

Brake drum weighs 134 lbs (61 kg). Use lifting device or aid of an assistant to lift drum. Failure to comply may result in injury to personnel.

WARNING

Do not loosen locknuts more than one full turn. Failure to do so may cause steering gear to fall and cause injury or death to personnel.

WARNING

All personnel must stay clear of cab when lifting is in progress. Failure to comply may result in injury or death to personnel.

WARNING

Inner-mid section weighs 1,000 lbs (454 kg). Attach suitable lifting device prior to removal to prevent injury to personnel.

WARNING

Do not stick fingers under section to remove wear pads, or injury to hands may result.

WARNING

Outer-mid section weighs 800 lbs (363 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

- Fly section weighs 450 lbs (204 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.
- Keep fly section level or structural section will fall out. Move fly section slowly. Keep assembly as level as possible during removal. Failure to comply may cause injury to personnel.

WARNING

Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Unsafe torching practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to heat metals. Protective clothing, gloves, and goggles must be worn; adequate protective equipment used; and a suitable fire extinguishers kept nearby. Failure to comply may result in severe injury to personnel.

WARNING

At least 0.06 in. (1.5 mm) of clearance is required between highest spot on fly section and bottom of wear pad or section may not operate properly. Damage to equipment may result.

WARNING

Boom weighs 2,100 lbs (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

WARNING

Ensure charging cylinder contains dry nitrogen. Dry nitrogen tanks are marked with one or two black bands. Certain other gasses can cause accumulator to explode. Failure to comply may result in injury to personnel.

WARNING

Compression frame weighs 800 lbs (363 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

WARNING

Screws are extremely hot. Do not touch screws without protective gloves or severe burns to hands could result.

WARNING

The main hydraulic system operates at oil pressures up to 3,675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

WARNING

Cylinder weighs in excess of 210 lbs (95 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.

WARNING

Left front support bracket weighs 98 lbs (44 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Box assembly weighs 92 lbs (42 kg). Ensure box assembly is properly supported prior to removal to prevent possible injury to personnel.

WARNING

Right front support bracket weighs 98 lbs (44 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Front support assembly weighs 660 lbs (300 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Stow weldment weighs 410 lbs (186 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Rear guide assembly weighs 70 lbs (32 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Rear roller bracket weighs 155 lbs (70 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Rear roller brackets weigh 150 lbs (68 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Right strut bracket assembly weighs 80 lbs (36 kg). Attach suitable lifting device to prevent possible injury to personnel.

WARNING

Horizontal roller weighs 75 lbs. (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

WARNING

Lifting frame weighs 1,600 lbs (704 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

WARNING

Container lock could drop suddenly if not supported. Failure to comply may result in injury to personnel.

WARNING

Tip of removal tool is very sharp. Use caution when using tool. Failure to comply may result in injury to personnel.

WARNING

Gloves must be used when handling turbocharger cover. Turbocharger cover is made of fiberglass and may cause skin irritation. Failure to comply may result in injury to personnel.

WARNING

Components in each valve bore are spring-loaded and must be compressed while removing retaining pin. Ensure proper eye protection is worn to avoid injury to personnel.

WARNING

Rear planetary carrier assembly weighs 86 lbs (39 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

WARNING

Rear cover weighs 98 lbs (44 kg). Attach suitable lifting device for removal or installation to prevent possible injury to personnel.

WARNING

Ensure that upward lifting force is applied to the holding fixture before screws are removed or transfer case may shift downward causing personal injury or damage to equipment.

WARNING

Press on inner diameter of bearing or equipment damage may result.

WARNING

Parts of the brake assembly may be coated with brake dust; breathing this dust can harm personnel.

- Use a filter mask approved for use against asbestos dust.
- Never use compressed air or dry brush to clean these assemblies.
- Use an industrial type vacuum cleaner with a high-efficiency filter system to remove dust.
- Use water and a soft bristle brush or cloth to remove dirt or mud.

WARNING

Differential gear weighs 70 lbs (32 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

WARNING

Axle No. 3 weighs 2,048 lbs (808 kg). Attach a suitable lifting device prior to removal or installation to prevent possible injury to personnel. Axle housing must be chained to lifting device to prevent an out of balance condition when longitudinal torque rod is removed. Axle could roll out of control causing serious injury or death to personnel.

LIST OF EFFECTIVE PAGES

Insert latest changed pages. Destroy superseded pages.

NOTE

The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by shadowed or screened areas, or by miniature pointing hands.

Dates of issue for original and changed pages are:

Original..... 30 November 2005

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TECHNICAL MANUAL
No. 9-2320-364-34

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 30 November 2005

Direct Support and General Support Maintenance Manual

PALLETIZED LOAD SYSTEM

MODEL M1074/M1075
NSN 2320-01-304-2277
NSN 2320-01-304-2278

Current as of 31 October 2005

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028-2 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM." The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or email your letter, DA Form 2028, or DA Form 2028-2 directly to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-LC-LPIT, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

TABLE OF CONTENTS

This manual supersedes TM 9-2320-364-34-3, 01 August 1999.

TABLE OF CONTENTS (CONT).

HOW TO USE THIS MANUAL

This manual is designed to help maintain the Model M1074/M1075 Palletized Load System (PLS) truck. Listed below are some special features included in this manual to help locate and use the needed information:

- A front cover table of contents is provided for quick reference to chapters and sections that will be used often.
- Warning, caution, and note headings, subject headings, and other essential information are printed in bold type making them easier to see.
- The maintenance tasks describe what must be done to the truck before starting the task (Equipment Condition), and what must be done to return the vehicle to operating condition after the task is finished (Follow-On Maintenance).
- The Appendixes are located at the end of the manual. They contain a reference guide to other manuals, a list of expendable supplies and materials, and other material for maintaining the PLS truck.
- In addition to text, there are exploded-view illustrations showing how to take a component off and put it back on. Cleaning and inspection procedures are also included as required.
- Chapters 13 through 19 of this manual cover Direct Support Maintenance for each PLS truck system.

Follow these guidelines when using this manual:

- Read all WARNINGS and CAUTIONS before performing any procedure.
- The equipment conditions found in the maintenance procedures are of a general nature and the mechanic may be able to perform only certain steps within a procedure to accomplish the equipment condition.

CHAPTER 13

FRAME MAINTENANCE

13-1. DIRECT SUPPORT FRAME MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for replacing frame components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

13-2. FRONT CAB SUPPORT REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

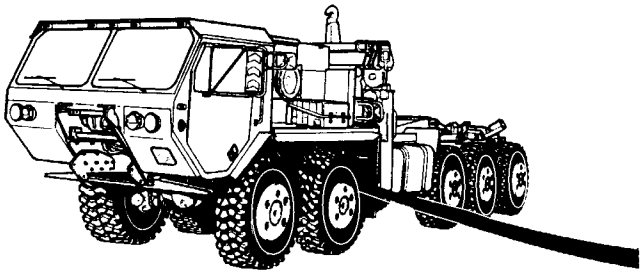
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Lifting Device, Minimum Capacity 1700 lbs
(772 kg)
Wooden Block (2) (Appendix C)

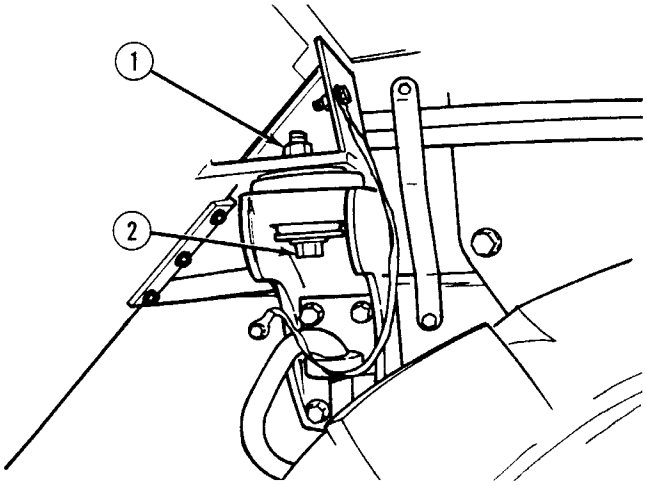
Materials/Parts
Solution, Soap (Item 67, Appendix B)
Locknut (24) (Item 166, Appendix E)
Locknut (8) (Item 168, Appendix E)
Locknut (2) (Item 188, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Gun mount assembly removed (if equipped),
(TM 9-2320-364-20)
Skid plate structure removed,
(TM 9-2320-364-20)
Air reservoir No. 1 removed,
(TM 9-2320-364-20)
Electric horn removed, (TM 9-2320-364-20)
Front blackout light removed,
(TM 9-2320-364-20)

a. Removal.

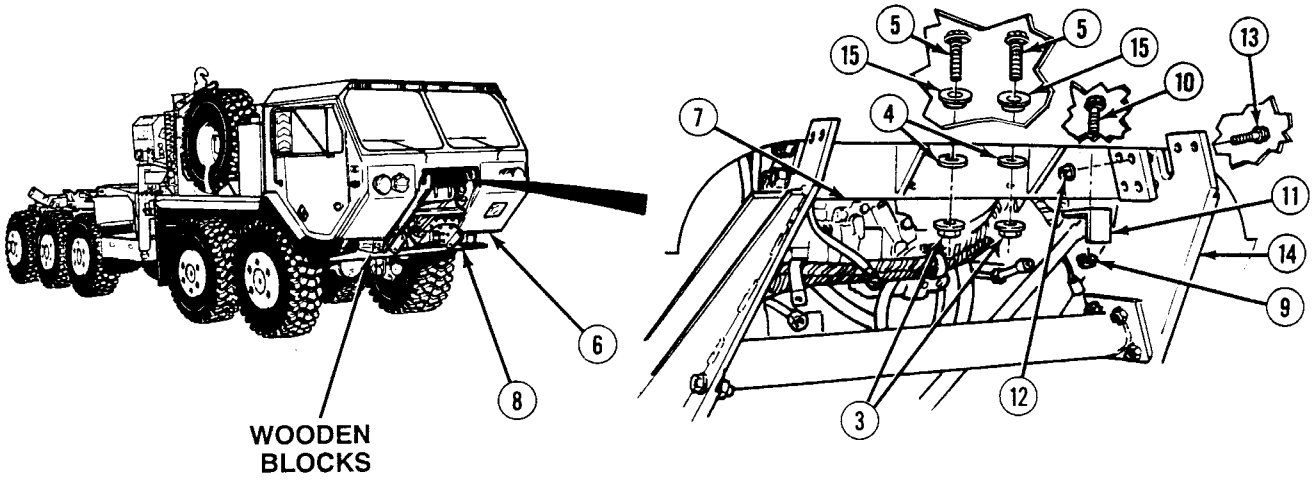




NOTE

Do not remove locknuts and screws from rear back mounts.

(1) Loosen two locknuts (1) on rear cab mount screws (2).



(2) Remove two locknuts (3) and washers (4) from screws (5). Discard locknuts.

(3) Remove two screws (5) from inside of cab (6) and cab mounting bracket (7).

WARNING

Cab weighs 1,700 lbs (772 kg). Attach suitable lifting device prior to removal of cab support to prevent possible injury to personnel.

(4) Using lifting device, support front of cab (6) and install wooden blocks between bottom of cab (6) and skid plate crossmember (8).

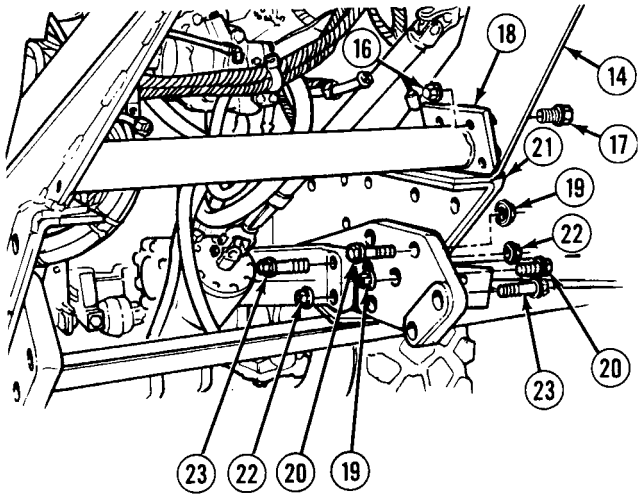
(5) Remove two locknuts (9), screws (10) and bracket (11) from cab mounting bracket (7). Discard locknuts.

(6) With the aid of an assistant, remove eight locknuts (12), screws (13) and cab mounting bracket (7) from right and left side brackets (14). Discard locknuts.

(7) Remove two mounts (15) from cab mounting bracket (7).

(8) With the aid of an assistant, remove eight locknuts (16), screws (17) and crosstube (18) from left and right side brackets (14). Discard locknuts.

(9) With the aid of an assistant, remove ten locknuts (19) and screws (20) from right and left side bracket (14) and frame (21). Discard locknuts.

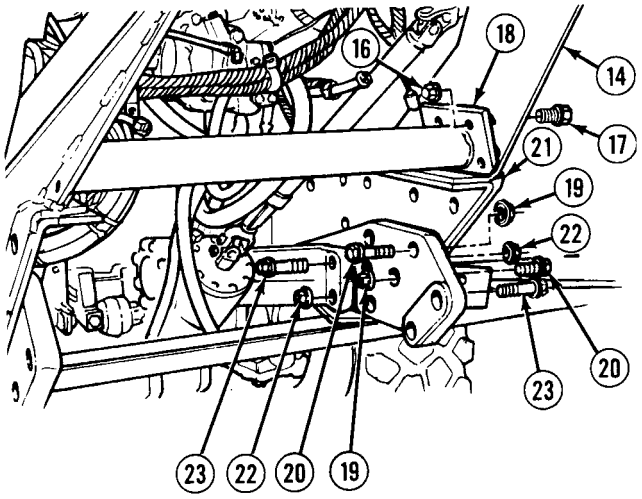


13-2. FRONT CAB SUPPORT REPLACEMENT (CONT).

NOTE

Cab may need to be shifted from side to side to remove bottom screws from side brackets.

(10) With the aid of an assistant, remove four locknuts (22), screws (23) and right and left side brackets (14) from frame (21). Discard locknuts.



b. Installation.

NOTE

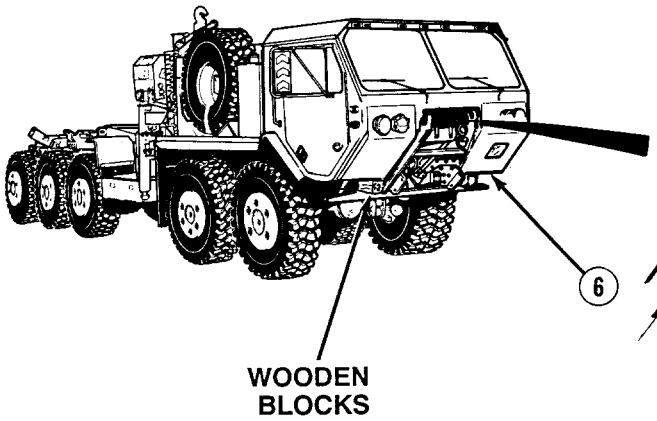
Cab may need to be shifted from side to side to install bottom screws from side brackets.

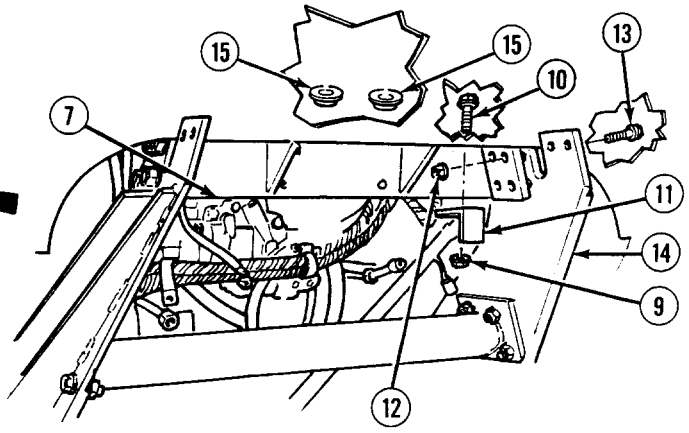
(1) With the aid of an assistant, position right and left side brackets (14) on frame (21) with four screws (23) and locknuts (22).

(2) With the aid of an assistant, install ten screws (20) in right and left side brackets (14) and frame (21) with ten locknuts (19).

(3) Tighten four locknuts (22) on screws (23).

(4) With the aid of an assistant, install crosstube (18) between right and left side brackets (14) with eight screws (17) and locknuts (16).

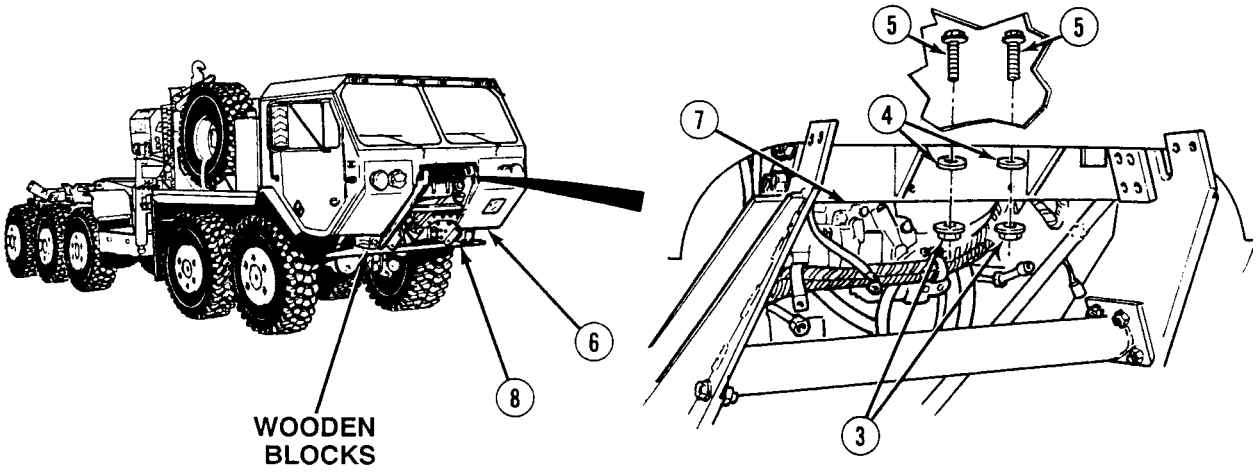




(5) Apply soap solution to two mounts (15) and install on cab mounting bracket (7).

(6) Install bracket (11) on cab mounting bracket (7) with two screws (10) and locknuts (9).

(7) With the aid of an assistant, install cab mounting bracket (7) between right and left side brackets (14) with eight screws (13) and locknuts (12).



WARNING

Cab weighs 1,700 lbs (772 kg). Attach suitable lifting device prior to installation of cab support to prevent possible injury to personnel.

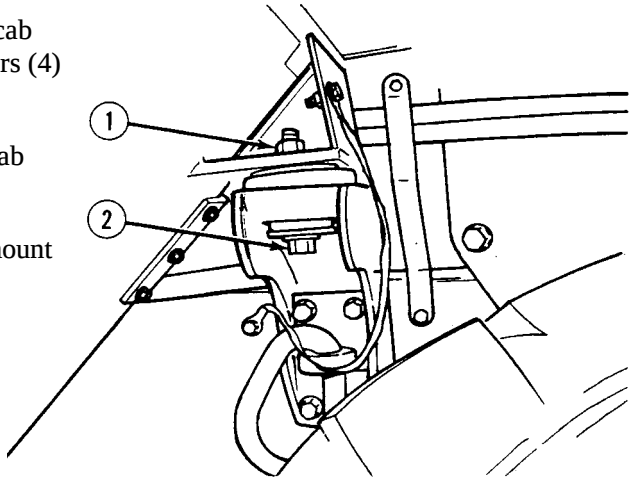
(8) Remove wooden blocks from between bottom of cab (6) and skid plate crossmember (8).

(9) Lower cab (6) on cab mounting bracket (7).

(10) Install two screws (5) in cab (6) and cab mounting bracket (7) with two washers (4) and locknuts (3).

(11) Remove two locknuts (1) from rear cab mount screws (2). Discard locknuts.

(12) Install two locknuts (1) on rear cab mount screws (2).



c. Follow-On Maintenance:

- Install Air Reservoir No. 1, (TM 9-2320-364-20).
- Install front blackout light, (TM 9-2320-364-20).
- Install electric horn, (TM 9-2320-364-20).
- Install skid plate structure, (TM 9-2320-364-20).
- Install machine gun mount, if equipped, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-3. FRONT TOW EYE AND CROSS BRACE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

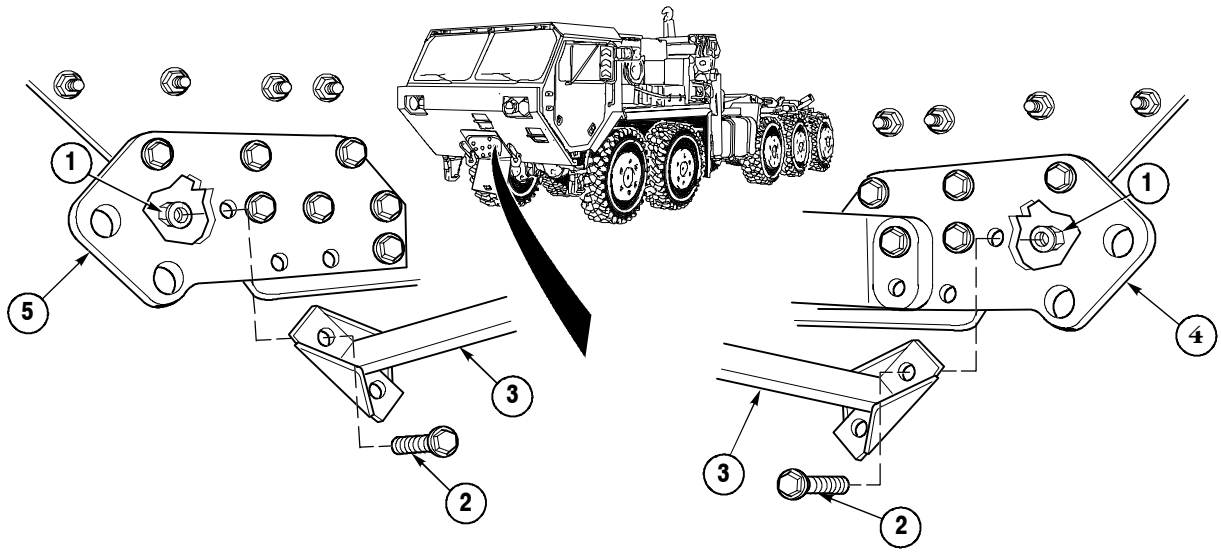
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Combination 1 1/8 in.
(Item 255, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)

Materials/Parts
Tags, Identification (Item 72, Appendix B)
Locknut (18) (Item 167, Appendix E)

Personnel Required
Two

Equipment Condition
Wheels chocked, (TM 9-2320-364-10)
Front self recovery winch guide removed,
(if equipped), (TM 9-2320-364-20)
Skid plate crossmember removed,
(TM 9-2320-364-20)

a. Removal.



NOTE

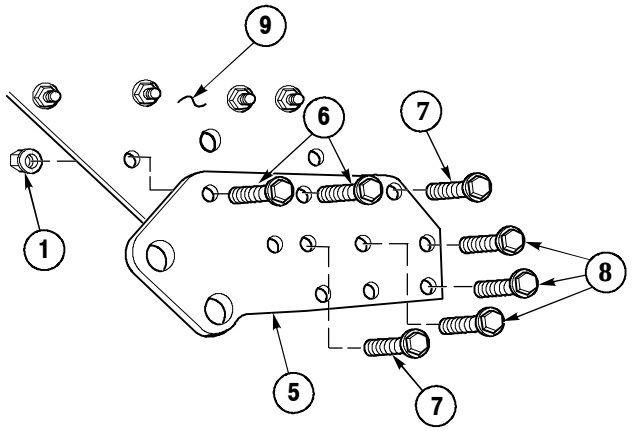
Tag and mark all screws prior to removal.

(1) Remove two locknuts (1), screws (2) and cross brace (3) from left tow eye (4) and right tow eye (5). Discard locknuts.

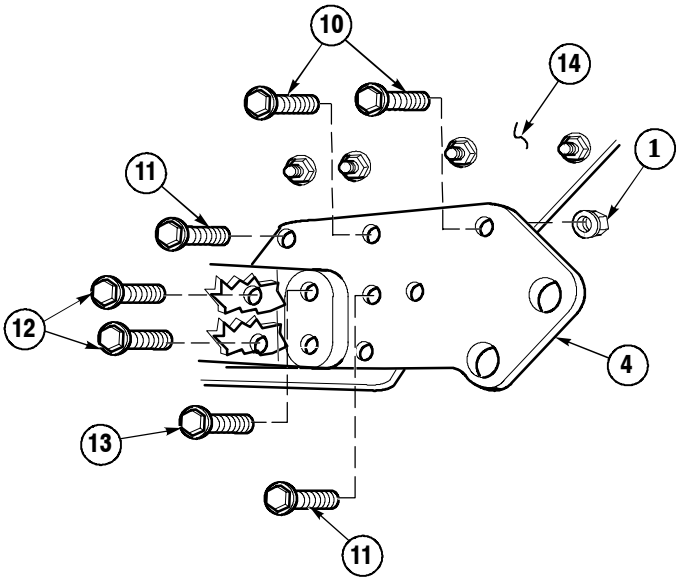
NOTE

If truck is equipped with a self-recovery winch, only remove five screws and locknuts in Step (2).

(2) Remove seven locknuts (1), two screws (6), screws (7), three screws (8) and right tow eye (5) from frame (9). Discard locknuts.



(3) Remove seven locknuts (1), two screws (10), screws (11), screws (12) and screw (13) from left tow eye (4) and frame (14). Discard locknuts.



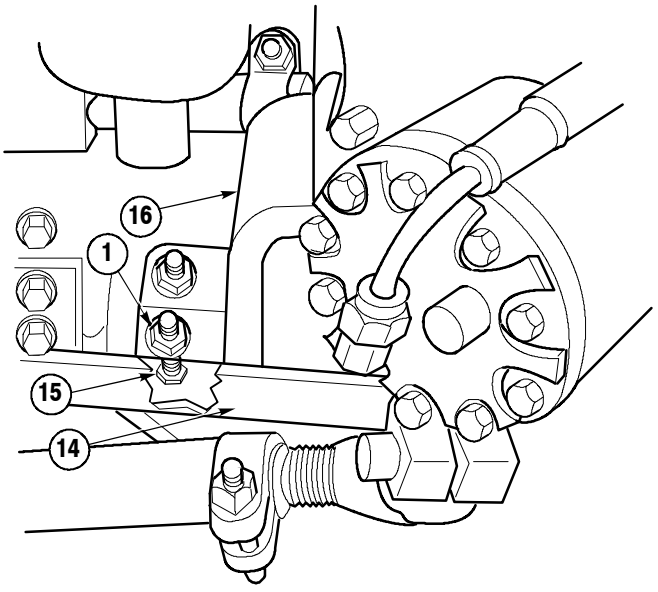
WARNING

Do not loosen locknuts more than one full turn. Failure to do so may cause steering gear to fall and cause injury or death to personnel.

NOTE

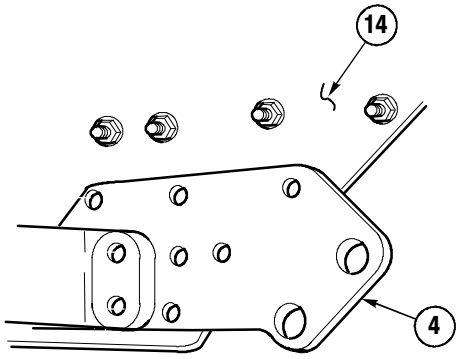
Loosening two nuts on steering gear mounting bracket is to relieve tension on left tow eye.

(4) Loosen two locknuts (1), one full turn on screws (15), and steering gear mounting bracket (16) and frame (14).



13-3. FRONT TOW EYE AND CROSS BRACE REPLACEMENT (CONT).

(5) Remove left tow eye (4) from frame (14).



b. Installation.

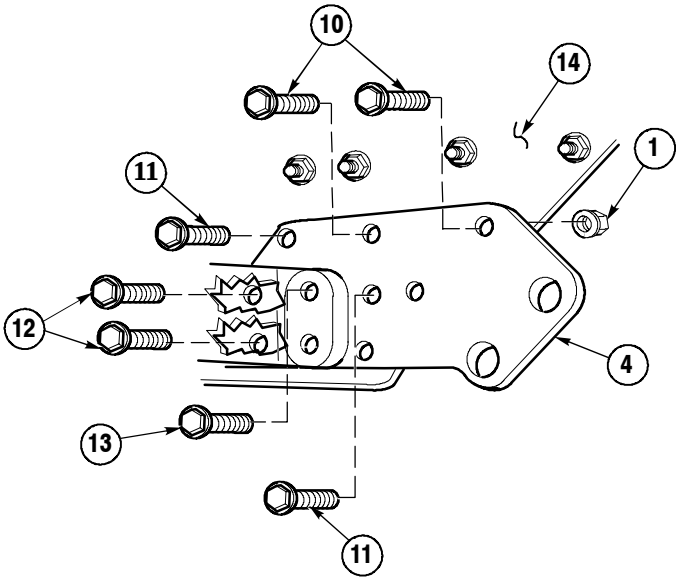
NOTE

All screws must be installed in original locations.

(1) Install left tow eye (4) on frame (14) with two screws (10), screws (11), screws (12), screw (13) and seven locknuts (1).

(2) Deleted.

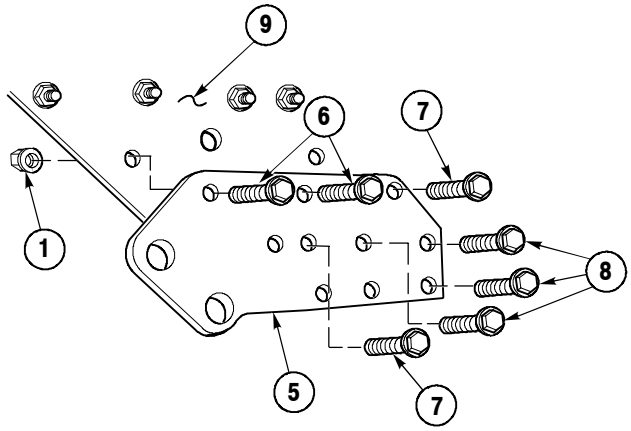
(3) Install two locknuts (1) on screws (15).

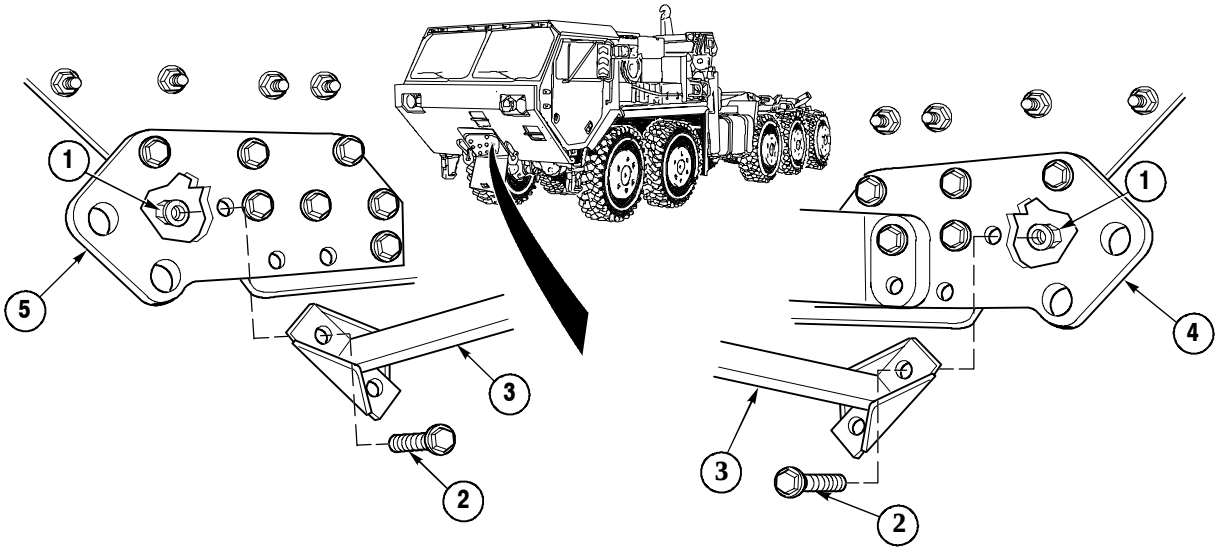


NOTE

If truck is equipped with a self-recovery winch, only install five screws and locknuts in Step (4).

(4) Install right tow eye (5) on frame (9) with two screws (6), screws (7), three screws (8) and seven locknuts (10).





(5) Install cross brace (3) between right tow eye (5) and left tow eye (4) with two screws (2) and locknuts (1).

c. Follow-On Maintenance.

- Install skid plate cross member, (TM 9-2320-364-20).
- Install front self recovery winch guide, (if equipped), (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-4. REAR CAB SUPPORT REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

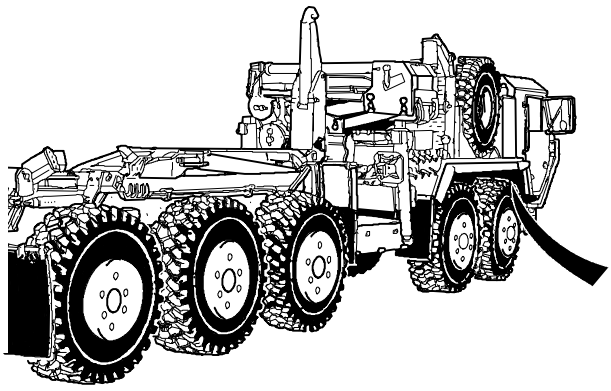
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Jack, Hydraulic, Hand (Item 128, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wooden Block (2) (Appendix C)

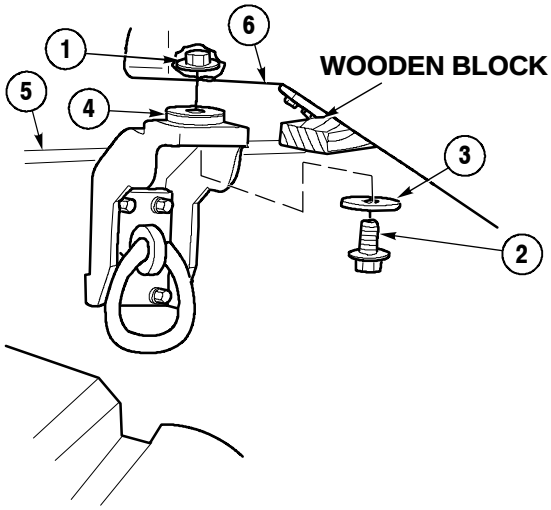
Materials/Parts
Solution, Soap (Item 67, Appendix B)
Locknut (8) (Item 166, Appendix E)
Locknut (2) (Item 188, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





NOTE

Both rear cab supports are removed the same way. Right side shown.

(1) Remove locknut (1), screw (2) and washer (3) from rear mount (4). Discard locknuts.

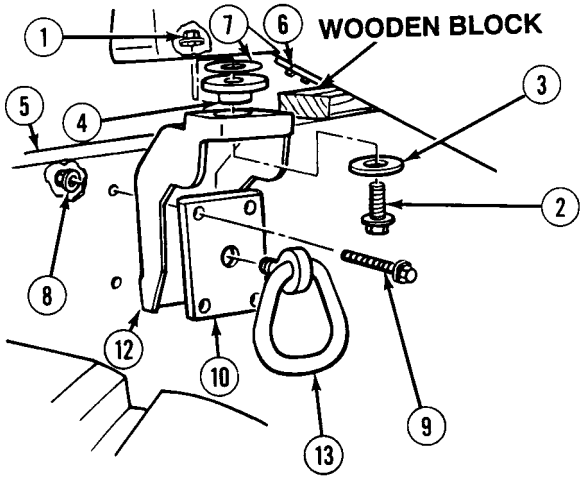
WARNING

Cab weighs 1,700 lbs (772 kg). Use hydraulic jack prior to removal of cab support to prevent possible injury to personnel.

(2) Using hydraulic jack, raise rear of cab and install wooden block between frame (5) and crosstube (6).

NOTE

Number of spacers vary. Note number of spacers prior to removal.



(3) Remove spacer (7) from mount (4).

(4) With the aid of an assistant, remove four locknuts (8), screws (9), ring bracket (10) and rear cab mounting bracket (12) from frame (5). Discard locknuts.

(5) Remove mount (4) from rear cab mounting bracket (12).

(6) Remove tie down ring (13) from ring bracket (10).

b. Installation.

(1) Install tie down ring (13) in ring bracket (10).

(2) Spray soap solution on cab mount (4) and rear cab mounting bracket (12).

(3) Install cab mount (4) in rear cab mounting bracket (12).

NOTE

Install number of spacers as noted prior to removal.

(4) Position spacers (7) on mount (4).

(5) With the aid of an assistant, install rear cab mounting bracket (12) and ring bracket (10) on frame (5) with four screws (9) and locknuts (8).

WARNING

Cab weighs 1,700 lbs (772 kg). Use hydraulic jack prior to installation to prevent possible injury to personnel.

(6) Using hydraulic jack raise rear of cab and remove block between frame (5) and crosstube (6).

(7) Lower rear of cab on rear cab mount (4).

(8) Install washer (3) and screw (2) to rear mount (4) with locknut (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-5. FRONT CROSSMEMBER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

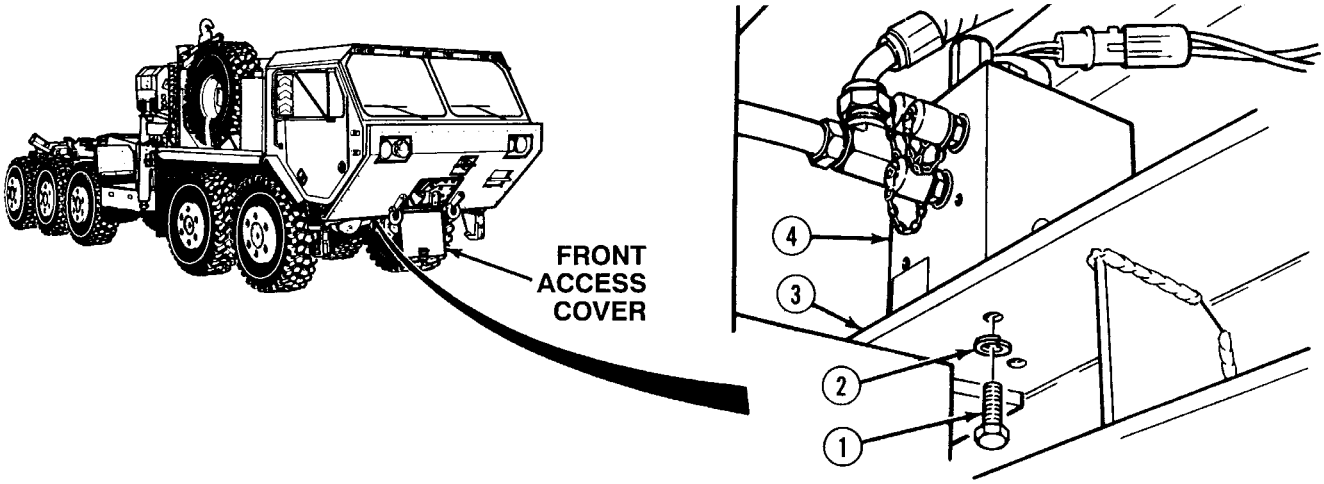
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)

Materials/Parts
Locknut (24) (Item 166, Appendix E)
Lockwasher (2) (Item 252, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Lateral torque rod removed, (Axle No. 1) (Para 14-8)
Axle No. 1 shock absorber removed,
(TM 9-2320-364-20)
Axle No. 1 shock absorber mounts removed,
(TM 9-2320-364-20)
Front gladhand bracket removed,
(TM 9-2320-364-20)

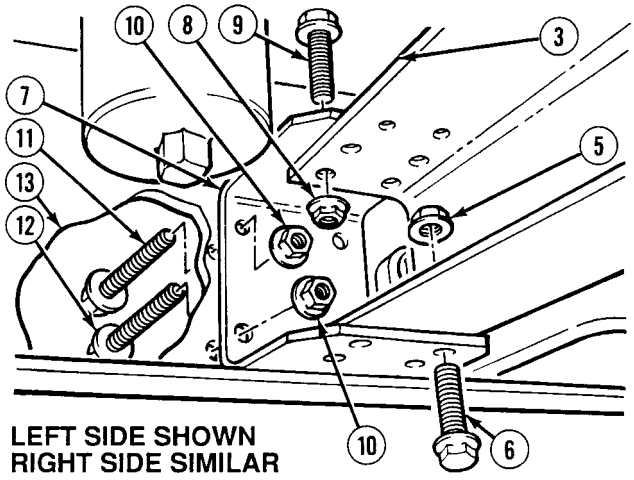
a. Removal.



(1) Open front access cover.

(2) Remove two screws (1) and lockwashers (2) from front crossmember (3) and manifold (4). Discard lockwashers.

(3) Remove eight locknuts (5) and screws (6) from bottom of front crossmember (3) and two front crossmember brackets (7). Discard locknuts.



NOTE

- To remove upper locknuts and screws, place socket on upper locknuts and insert a extension through the bottom bolt holes into the socket.
- Front crossmember bracket bolts may have to be loosened 1/2 in. (12.7 mm) so extension can fit through bottom bolt holes.

(4) With the aid of an assistant, remove eight locknuts (8), screws (9) and front crossmember (3) from two front crossmember brackets (7). Discard locknuts.

(5) With the aid of an assistant, remove eight locknuts (10), four screws (11), four screws (12) and front crossmember brackets (7) from frame (13). Discard locknuts.

b. Installation.

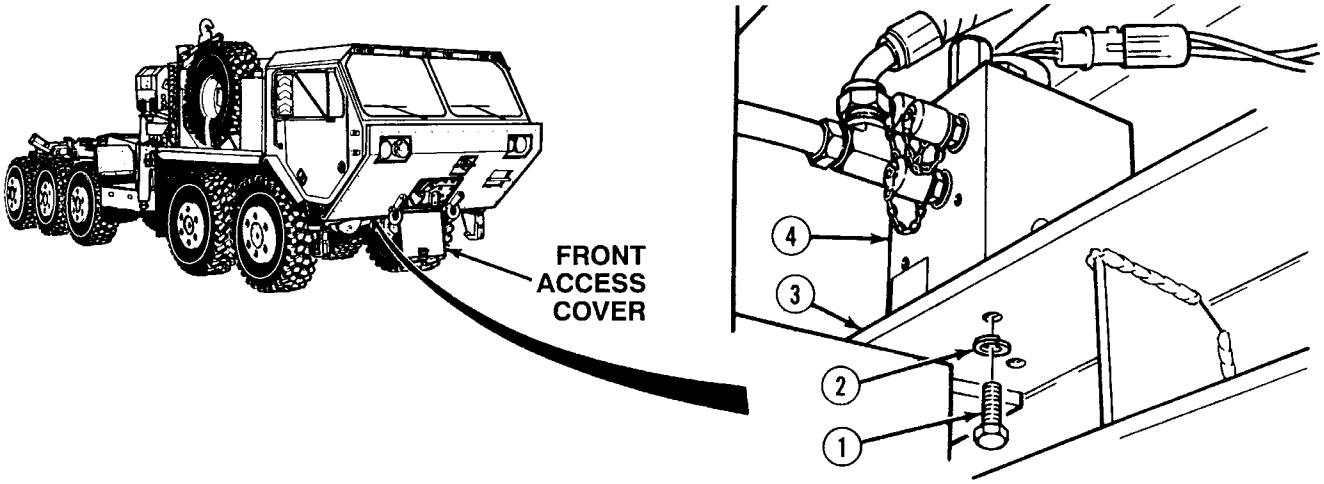
(1) Install front crossmember brackets (7) on frame (13) with four screws (11), four screws (12) and eight locknuts (10).

(2) With the aid of an assistant, position front crossmember (3) in front crossmember brackets (7) with eight screws (9) and locknuts (8).

(3) With the aid of an assistant, install eight screws (6) in bottom of front crossmember brackets (7) and front crossmember (3) with eight locknuts (5).

(4) With the aid of an assistant, tighten eight locknuts (8) on screws (9).

13-5. FRONT CROSSMEMBER REPLACEMENT (CONT).



(5) Install manifold (4) on front crossmember (3) with two lockwashers (2) and screws (1).

(6) Close front access cover.

c. Follow-On Maintenance:

- Install Axle No. 1 shock absorber mounts, (TM 9-2320-364-20).
- Install Axle No. 1 shock absorber, (TM 9-2320-364-20).
- Install lateral torque rod, (Axle 1) (Para 14-8).
- Install front gladhand bracket, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT.

This task covers:

a. Front Tandem Crossmember Removal
b. Upper Left Gusset Replacement
c. Lower Left Gusset Replacement
d. Upper Right Gusset Replacement
e. Lower Right Gusset Replacement
f. Front Tandem Crossmember Installation
g. Follow-On Maintenance

INITIAL SETUP

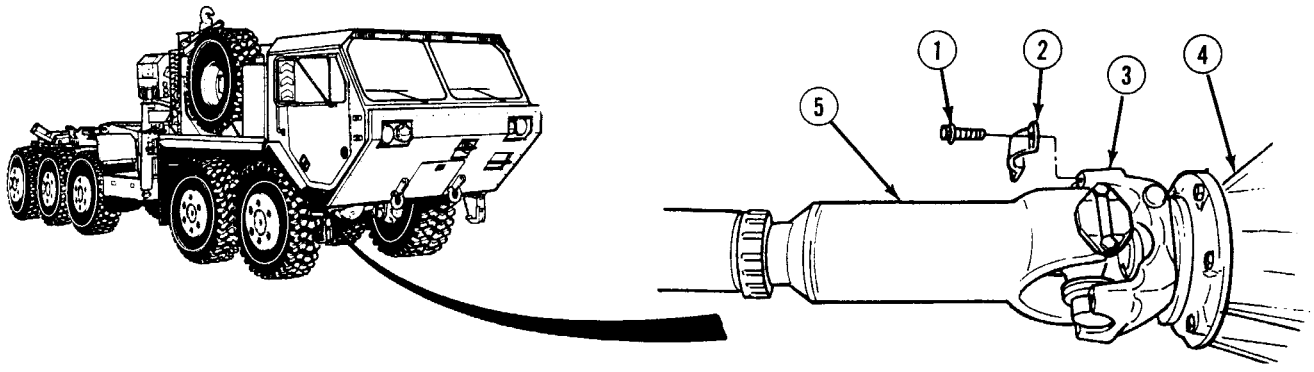
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 237, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 269, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 272, Appendix F)

Materials/Parts
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (2) (Item 165, Appendix E)
Locknut (32) (Item 166, Appendix E)
Locknut (16) (Item 167, Appendix E)
Screw (4) (Item 532, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Right front fender skirt removed,
(TM 9-2320-364-20)
Left front fender skirt removed,
(TM 9-2320-364-20)
Service brake relay No. 1 removed,
(TM 9-2320-364-20)
Longitudinal torque rod removed, (Axle No. 2)
(Para 14-9)

a. Front Tandem Crossmember Removal.



SHOWN LOOKING UP.

NOTE

Tag and mark screws prior to removal.

(1) Remove four screws (1) and two straps (2) from yoke (3) on Axle No. 1 (4). Discard screws.

(2) Disconnect front end of driveshaft (5) from yoke (3) on Axle No. 1 (4).

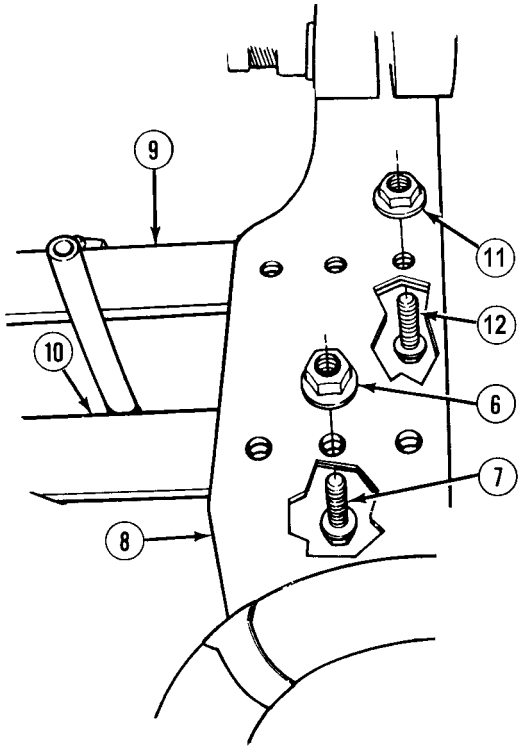
13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

NOTE

Crossmember is removed the same way on both sides. Left side shown.

(3) Remove four locknuts (6) and screws (7) from bottom gusset (8) and crossmembers (9) and (10). Discard locknuts.

(4) Remove eight locknuts (11) and screws (12) from bottom gusset (8) and crossmembers (9) and (10). Discard locknuts.



(5) With the aid of an assistant, remove two locknuts (6) and screws (7) from top gusset (13) and crossmember (10). Discard locknuts.

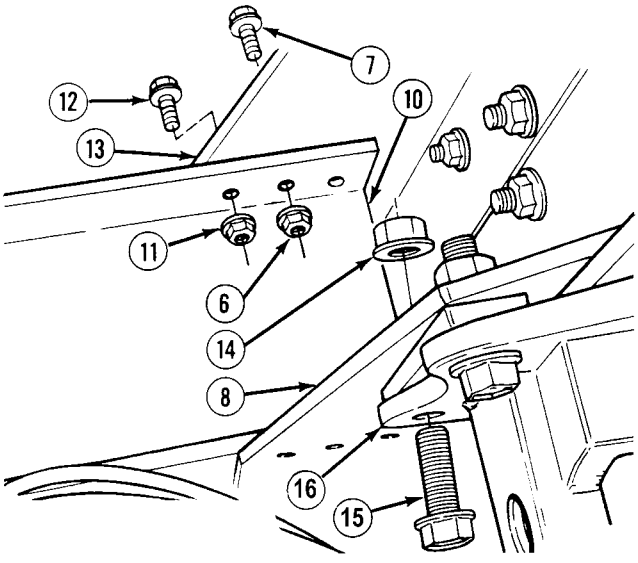
NOTE

Only remove locknuts from top gussets, insert extension rod through holes in bottom gussets.

(6) With the aid of an assistant, remove four locknuts (11) and screws (12) from top gusset (13) and crossmember (10). Discard locknuts.

(7) Remove locknut (14) and screw (15) from spring hanger bracket (16). Discard locknut.

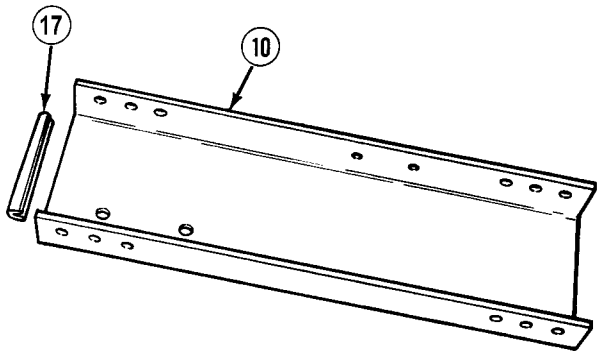
(8) Remove crossmember (10) from gussets (13) and (8).



NOTE

Perform Step (9) only if quickedge is damaged.

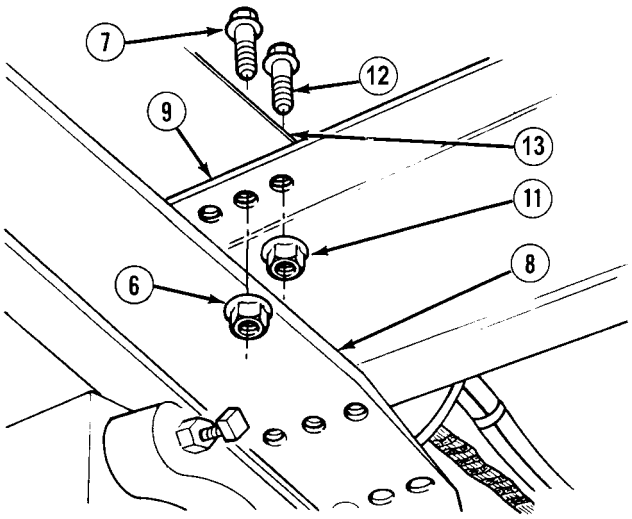
(9) Remove quickedge (17) from right side of crossmember (10).



(10) With the aid of an assistant, remove two locknuts (6) and screws (7) from top gusset (13). Discard locknuts.

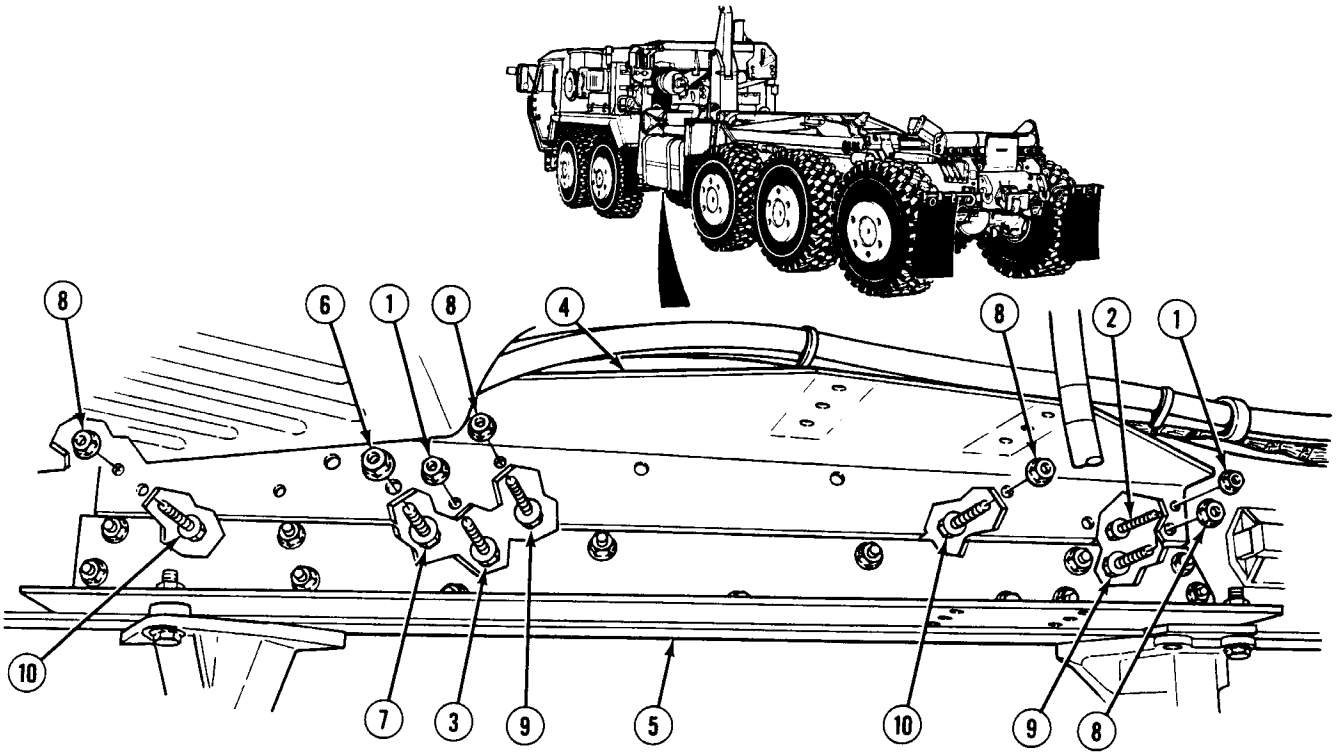
(11) With the aid of an assistant, remove four locknuts (11) and screws (12) from top gusset (13). Discard locknuts.

(12) Remove crossmember (9) from gussets (13) and (8).



13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

b. Upper Left Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

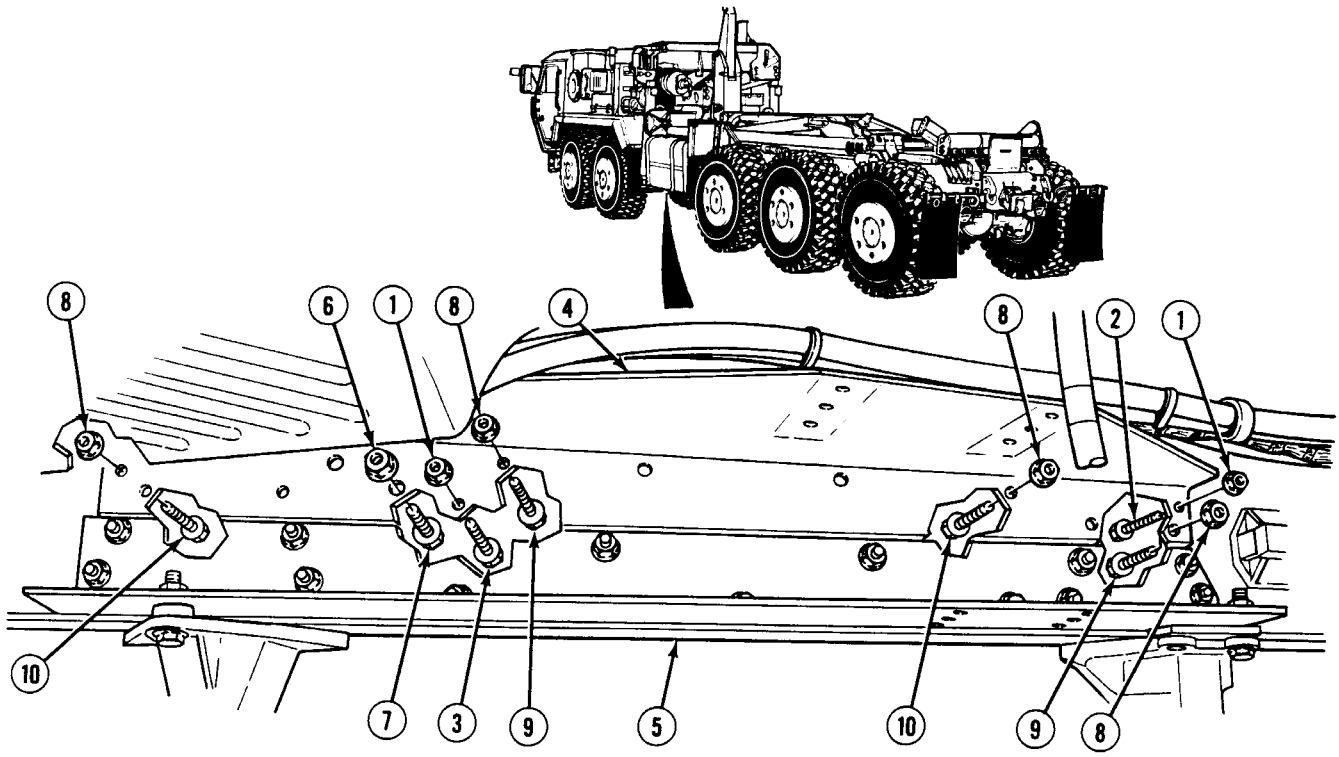
NOTE

Tag and mark all screws prior to removal.

(a) With the aid of an assistant, remove two locknuts (1), screw (2) and screw (3) from upper gusset (4) and frame (5). Discard locknuts.

(b) With the aid of an assistant, remove two locknuts (6) and screws (7) from upper gusset (4) and frame (5). Discard locknuts.

(c) With the aid of an assistant, remove nine locknuts (8), six screws (9), three screws (10) and upper gusset (4) from frame (5). Discard locknuts.



(2) *Installation.*

NOTE

All screws must be installed in original location.

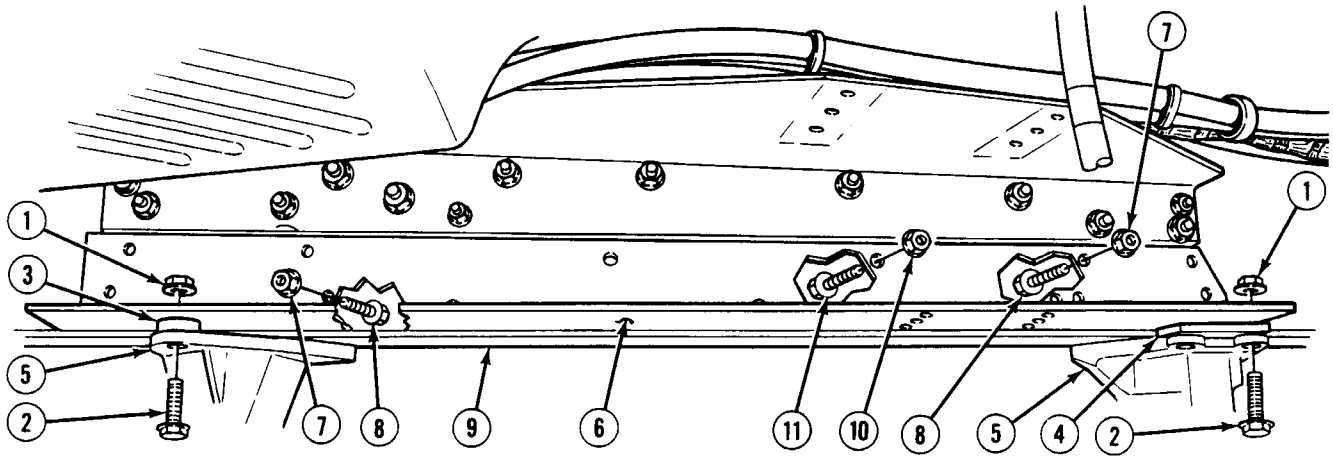
(a) With the aid of an assistant, position upper gusset (4) on frame (5) and install six screws (9) and three screws (10) with nine locknuts (8).

(b) With the aid of an assistant, install two screws (7) in frame (5) and upper gusset (4) with two locknuts (6).

(c) With the aid of an assistant, install screw (3) and screw (2) in frame (5) and upper gusset (4) with two locknuts (1).

13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

c. Lower Left Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

NOTE

Tag and mark all screws prior to removal.

(a) Remove three locknuts (1) and screws (2) from spacers (3) and (4), spring mounts (5) and lower gusset (6). Discard locknuts.

(b) With the aid of an assistant, remove eight locknuts (7) and screws (8) from spring mounts (5), frame (9) and lower gusset (6). Discard locknuts.

(c) With the aid of an assistant, remove five locknuts (10), screws (11), spacers (3) and (4) and lower gusset (6) from frame (9). Discard locknuts.

(2) *Installation.*

NOTE

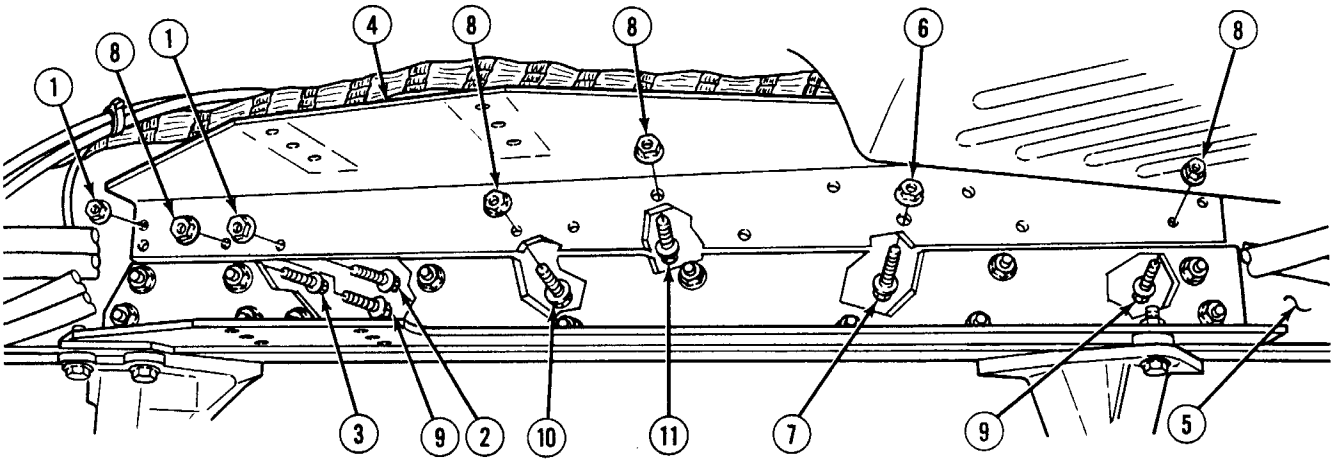
- Ensure all spacers are on top of spring mounts before installing lower gusset.
- All screws must be installed in original location.

(a) With the aid of an assistant, position spacers (3) and (4) and lower gusset (6) on frame (9) and install five screws (11) with five locknuts (10).

(b) With the aid of an assistant, install eight screws (8) in spring mounts (5), frame (9) and lower gusset (6) with eight locknuts (7).

(c) Install two screws (2) in spring mounts (5), spacers (3) and (4) and lower gusset (6) with two locknuts (1).

d. Upper Right Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

NOTE

Tag and mark all screws prior to removal.

(a) With the aid of an assistant, remove three locknuts (1), two screws (2) and screw (3) from upper gusset (4) and frame (5). Discard locknuts.

(b) With the aid of an assistant, remove two locknuts (6) and screws (7) from upper gusset (4) and frame (5). Discard locknuts.

(c) With the aid of an assistant, remove nine locknuts (8), four screws (9), two screws (10), three screws (11) and upper gusset (4) from frame (5). Discard locknuts.

(2) *Installation.*

NOTE

All screws must be installed in original locations.

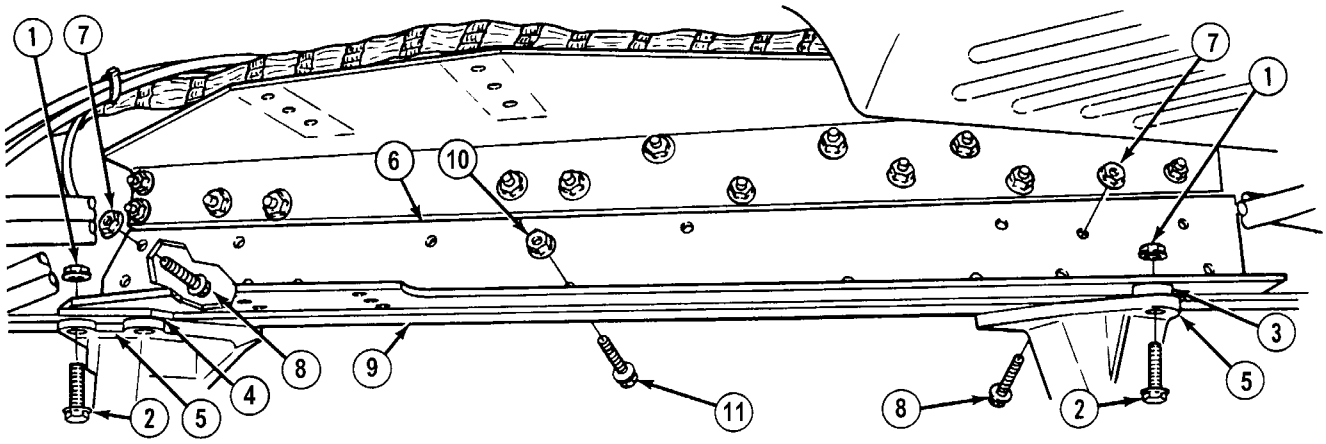
(a) With the aid of an assistant, position upper gusset (4) on frame (5) and install four screws (9), two screws (10) and three screws (11) with nine locknuts (8).

(b) With the aid of an assistant, install two screws (7) in frame (5) and upper gusset (4) with two locknuts (6).

(c) With the aid of an assistant, install two screws (2) and screw (3) in frame (5) and upper gusset (4) with two locknuts (1).

13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

e. Lower Right Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

NOTE

Tag and mark all screws prior to removal.

(a) Remove three locknuts (1) and screws (2) from spacers (3) and (4), spring mounts (5) and lower gusset (6). Discard locknuts.

(b) With the aid of an assistant, remove eight locknuts (7) and screws (8) from spring mounts (5), frame (9) and lower gusset (6). Discard locknuts.

(c) With the aid of an assistant, remove five locknuts (10), screws (11) and lower gusset (6) from frame (9). Discard locknuts.

(2) *Installation.*

NOTE

- Ensure all spacers are on top of spring mounts before installing lower gusset.
- All screws must be installed in original locations.

(a) With the aid of an assistant, position spacers (3) and (4) and lower gusset (6) on frame (9) and install five screws (11) with five locknuts (10).

(b) With the aid of an assistant, install eight screws (8) in spring mounts (5), frame (9) and lower gusset (6) with eight locknuts (7).

(c) Install three screws (2) in lower gusset (6), spacers (3) and (4) and spring mounts (5) with three locknuts (1).

f. Front Tandem Crossmember Installation.

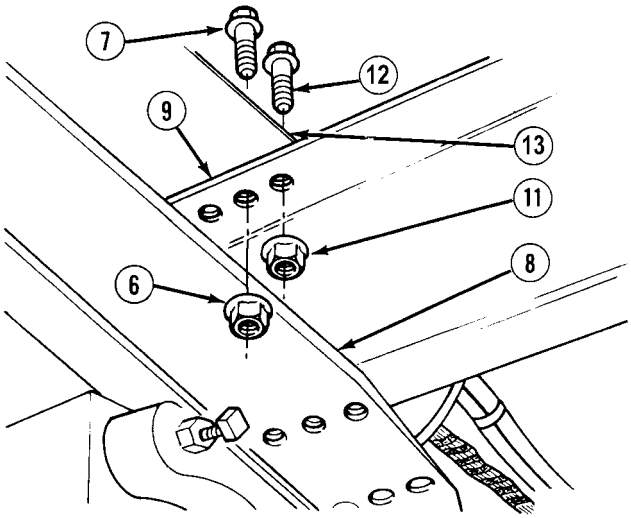
NOTE

All screws must be installed in original locations.

(1) With the aid of an assistant, position crossmember (9) between gussets (13) and (8).

(2) With the aid of an assistant, install four screws (12) and locknuts (11) in gusset (13), (8) and crossmember (9).

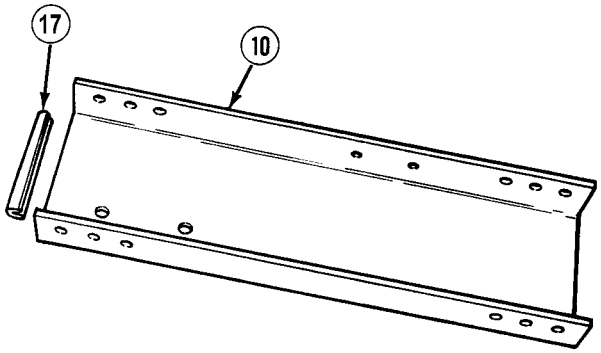
(3) With the aid of an assistant, install two screws (7) and locknut (6) in gusset (13), (8) and crossmember (9).



NOTE

Perform Step (4) if quickedge was removed.

(4) Install quickedge (17) on right side of crossmember (10).



13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

NOTE

Crossmember is installed the same way on both sides. Left side shown.

(5) With the aid of an assistant, position crossmember (10) between gussets (13) and (8).

(6) Install screw (15) and locknut (14) in spring bracket hanger (16).

NOTE

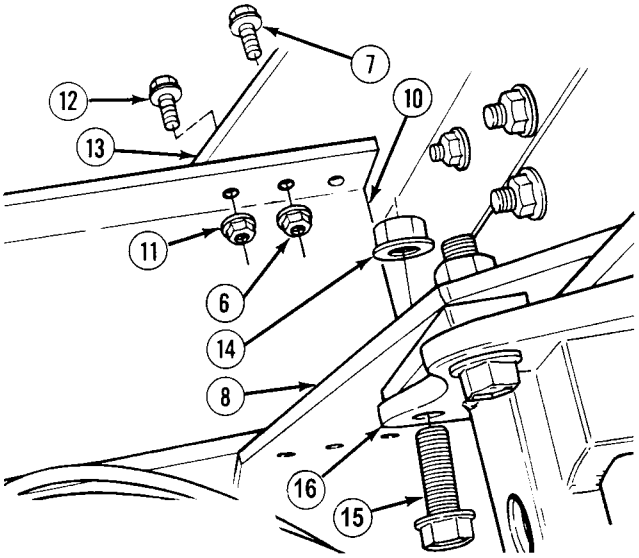
To install locknuts in top gusset and crossmember, position extension rod through holes in bottom gusset and crossmember.

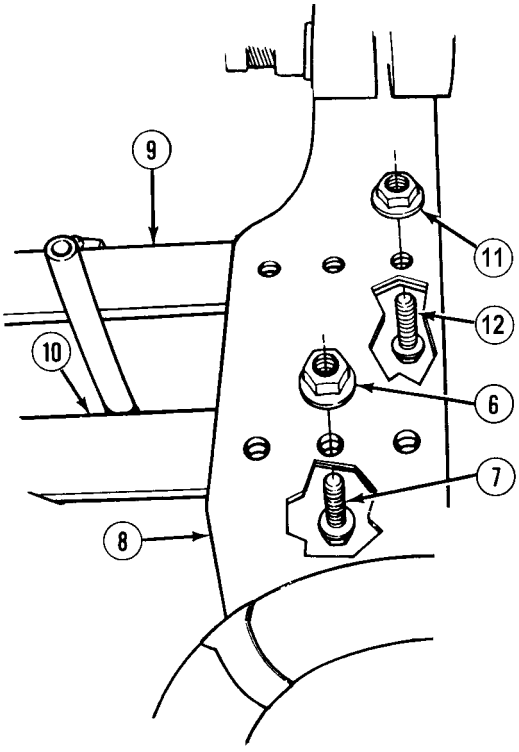
(7) With the aid of an assistant, install four screws (12) and locknuts (11) in top gusset (13) and crossmember (10).

(8) With the aid of an assistant, install two screws (7) and locknuts (6) in top gusset (13) and crossmember (10).

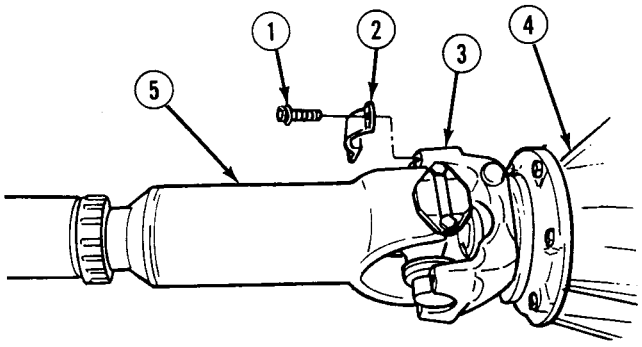
(9) With the aid of an assistant, install eight screws (12) and locknuts (11) in bottom gusset (8) and crossmembers (9) and (10).

(10) With the aid of an assistant, install four screws (7) and locknuts (6) in bottom gusset (8) and crossmembers (9) and (10).





(11) Position front end of driveshaft (5) on yoke (3) of Axle No. 1 (4).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(12) Apply sealing compound to threads of screws (1).

(13) Install two straps (2) and four screws (1) on driveshaft (5) and yoke (3) of Axle No. 1 (4). Tighten screws to 60 lb-ft (81 N·m).

g. Follow-On Maintenance:

- Install lateral torque rod (Axle No. 2), (Para 14-9).
- Install service brake relay No. 1, (TM 9-2320-364-20).
- Install left front fender skirt, (TM 9-2320-364-20).
- Install right front fender skirt, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-7. INTERMEDIATE CROSSMEMBER NO. 1 REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

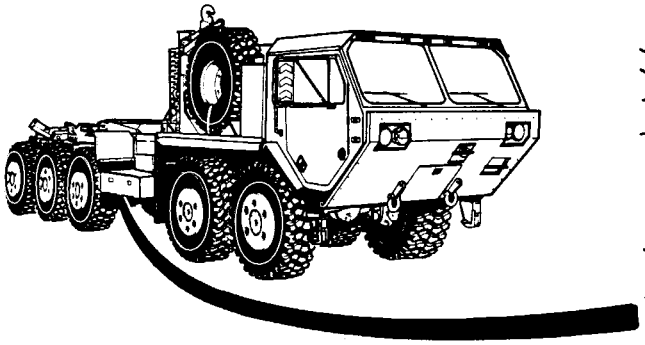
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

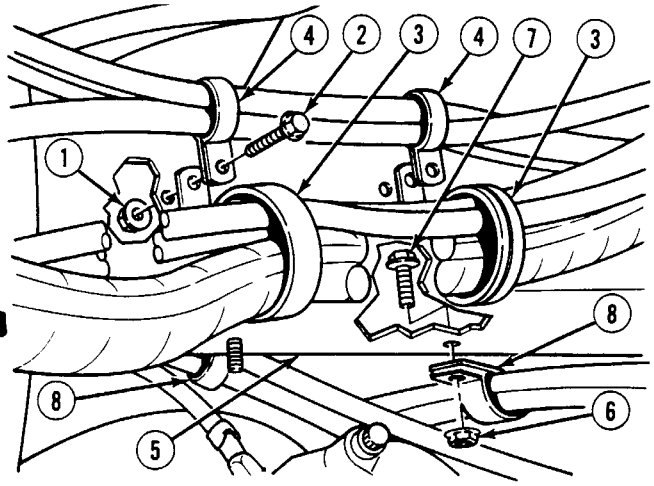
Materials/Parts
Cable Ties (Item 9, Appendix B)
Locknut (24) (Item 166, Appendix E)
Locknut (Item 167, Appendix E)
Locknut (7) (Item 176, Appendix E)
Locknut (2) (Item 177, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Driveshaft between Axle No. 2 and transfer case removed, (TM 9-2320-364-20)
No. 2 and No. 3 air reservoirs removed, (TM 9-2320-364-20)
Crane removed (if equipped), (Para 16-2)
Auxiliary fuel tank removed (if equipped), (TM 9-2320-364-20)

a. Removal.



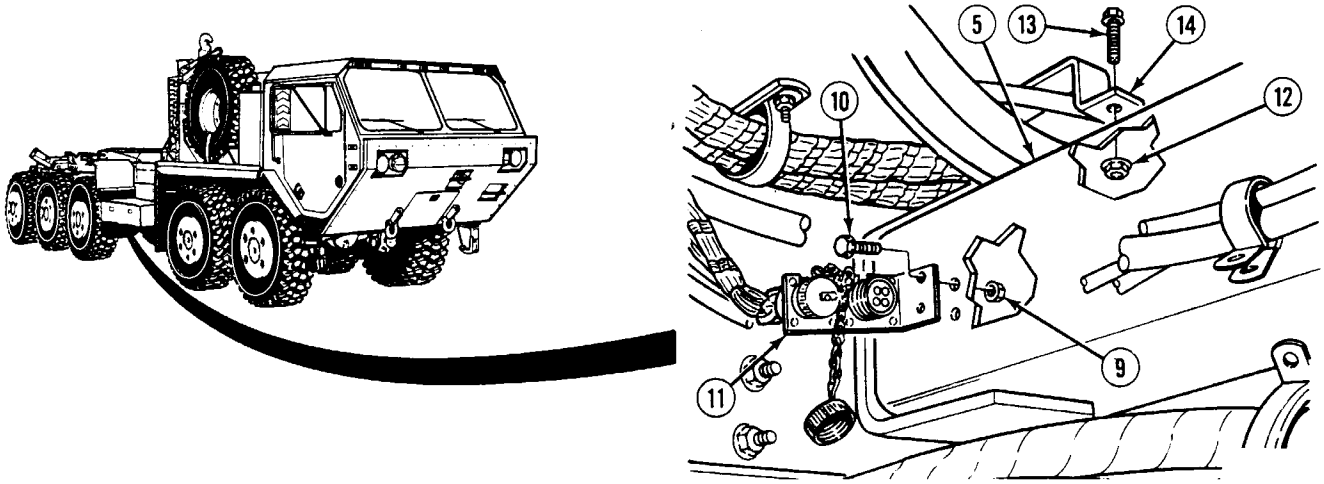


NOTE

Remove cable ties as required.

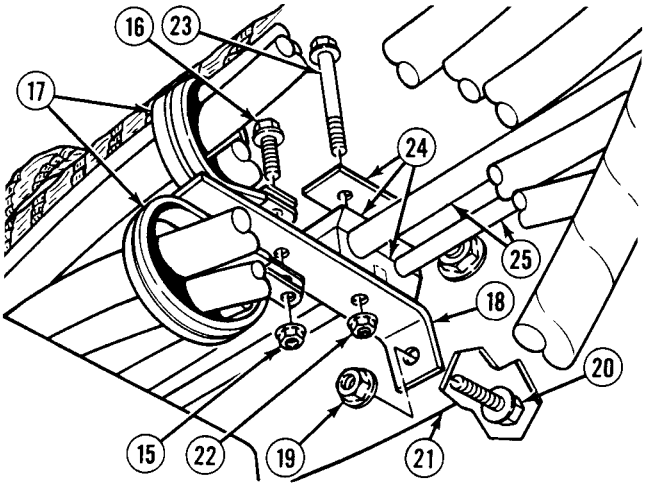
(1) Remove two locknuts (1), screws (2), cushion clips (3) and cushion clips (4) from crossmember (5). Discard locknuts.

(2) Remove two locknuts (6), screws (7) and cushion clips (8) from crossmember (5). Discard locknuts.



(3) Remove two locknuts (9), screws (10) and bracket (11) from crossmember (5). Discard locknuts.

(4) Remove locknut (12), screw (13) and bracket (14) from crossmember (5). Discard locknut.



NOTE

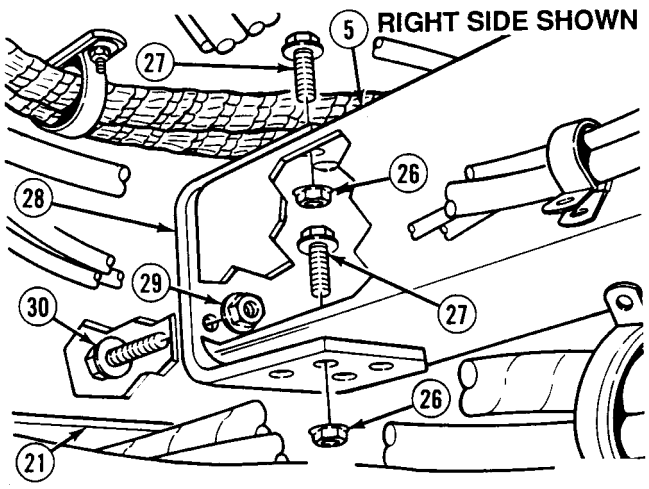
Trucks equipped with cranes use existing bracket mounting screws.

(5) Remove locknut (15), screw (16) and two cushion clips (17) from bracket (18). Discard locknut.

(6) Remove locknut (19), screw (20) from frame (21) and bracket (18). Discard locknut.

(7) Remove locknut (22), bracket (18), screw (23) and clamp assembly (24) from hydraulic tubes (25). Discard locknut.

13-7. INTERMEDIATE CROSSMEMBER NO. 1 REPLACEMENT (CONT).



(8) Remove eight locknuts (26) and screws (27) from bottom of two brackets (28) and crossmember (5). Discard locknuts.

(9) With the aid of an assistant, remove eight locknuts (26) and screws (27) from top of two brackets (28) and remove crossmember (5). Discard locknuts.

(10) Remove crossmember (5) from bracket (28).

(11) With the aid of an assistant, remove eight locknuts (29), screws (30) and two brackets (28) from frame (21). Discard locknuts.

b. Installation.

NOTE

Install cable ties as required.

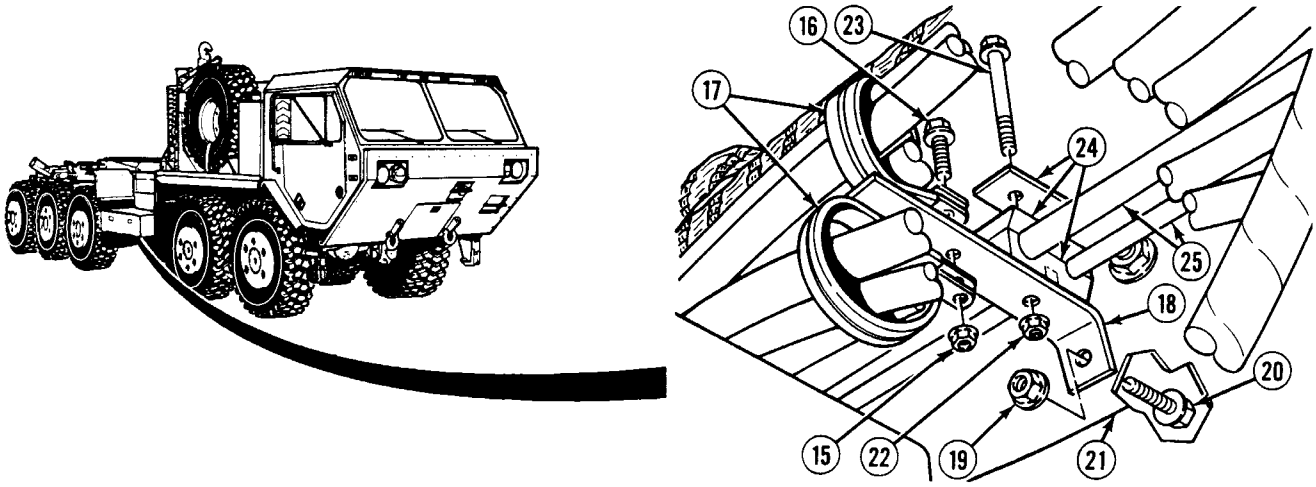
(1) With the aid of an assistant, install two brackets (28) on frame (21) with eight screws (30) and locknuts (29).

(2) Position crossmember (5) in two brackets (28).

(3) With the aid of an assistant, position eight screws (27) in top of two brackets (28) and crossmember (5) with eight locknuts (26).

(4) With the aid of an assistant, install eight screws (27) in bottom of two brackets (28) and crossmember (5) with eight locknuts (26).

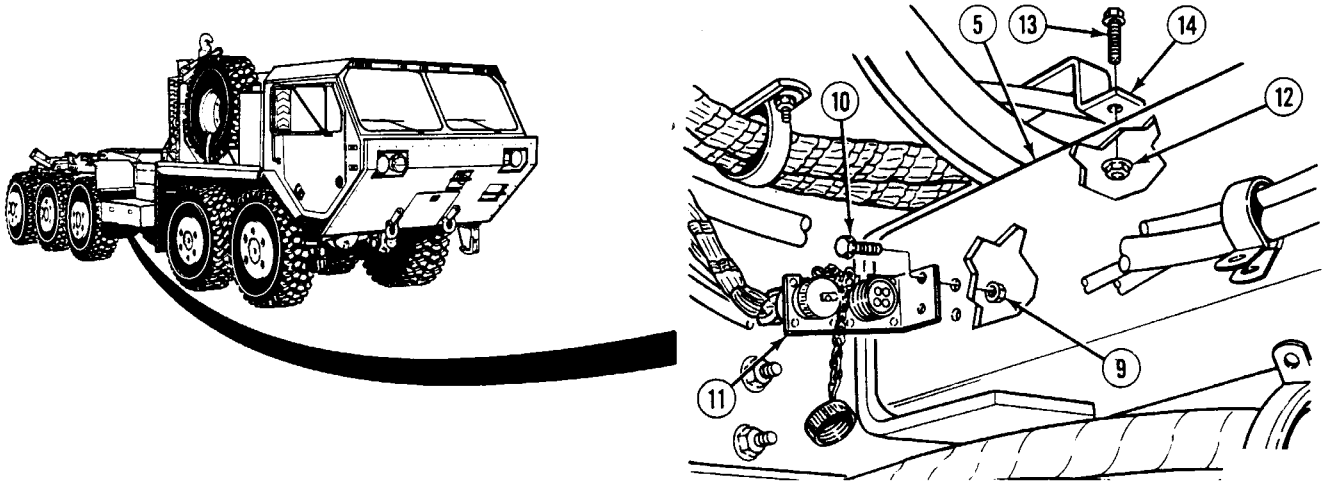
(5) Tighten eight locknuts (26) on screws (27) in top of two bracket (28).



(6) Install hydraulic tubes (25) in clamp assembly (24) on bracket (18) with screw (23) and locknut (22).

(7) Install bracket (18) on frame (21) with screw (20) and locknut (19).

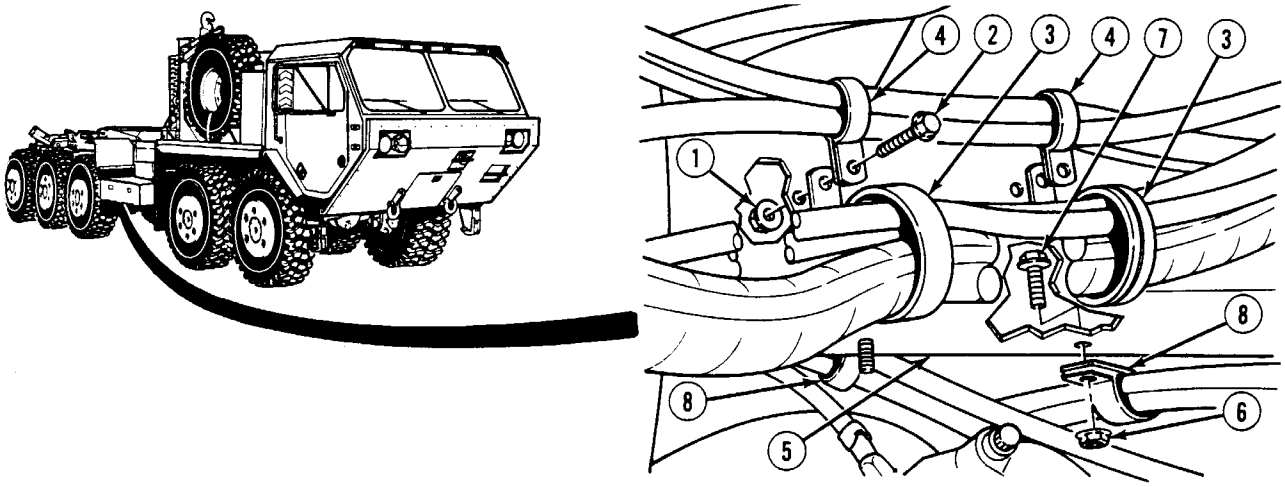
(8) Install two cushion clips (17) on bracket (18) with screw (16) and locknut (15).



(9) Install bracket (14) on crossmember (5) with screw (13) and locknut (12).

(10) Install bracket (11) on crossmember (5) with two screws (10) and locknuts (9).

13-7. INTERMEDIATE CROSSMEMBER NO. 1 REPLACEMENT (CONT).



(11) Install two cushion clips (8) on crossmember (5) with two screws (7) and locknuts (6).

(12) Install two cushion clips (4) and cushion clips (3) on crossmember (5) with two screws (2) and locknuts (1).

c. Follow-On Maintenance:

- Install auxiliary fuel tank (if equipped), (TM 9-2320-364-20).
- Install crane (if equipped), (Para 16-2).
- Install air reservoirs No. 2 and No. 3, (TM 9-2320-364-20).
- Install drive shaft between Axle No. 2 and transfer case, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-8. INTERMEDIATE CROSSMEMBER NO. 2 REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

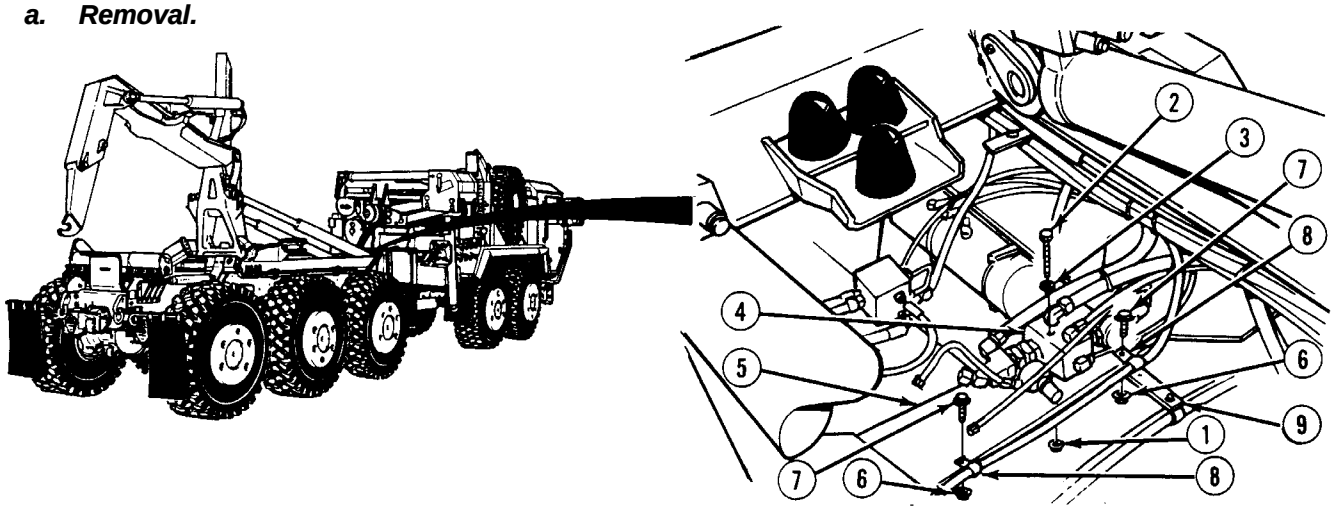
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Locknut (16) (Item 166, Appendix E)
Locknut (12) (Item 167, Appendix E)
Locknut (4) (Item 176, Appendix E)

Personnel Required
Two

Equipment Condition
LHS fully extended, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Torque rod removed (between crossmember and Axle No. 3), (Para 14-8)
Stowage box removed, (TM 9-2320-364-20)
Ball valve removed, (TM 9-2320-364-20)

a. Removal.



NOTE

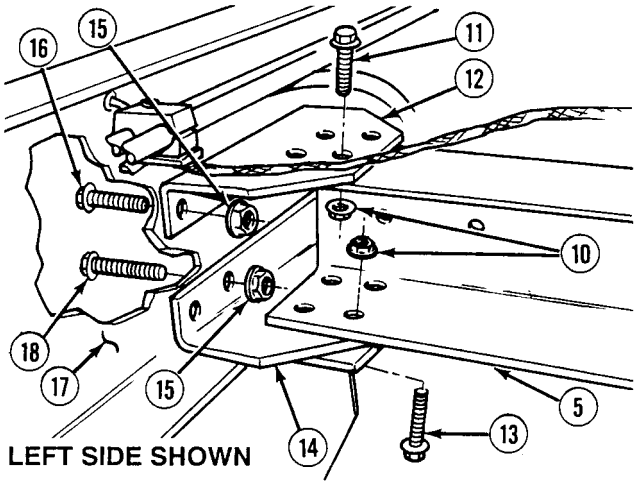
Remove cable ties as required.

(1) Remove two locknuts (1), screws (2) and washers (3) from manifold (4) and crossmember (5). Discard locknuts.

(2) Tie manifold (4) out of the way with cable ties.

(3) Remove two locknuts (6), screws (7), two cushion clips (8) and bracket (9) from crossmember (5). Discard locknuts.

13-8. INTERMEDIATE CROSSMEMBER NO. 2 REPLACEMENT (CONT).



(4) Remove eight locknuts (10) and screws (11) from upper brackets (12) and crossmember (5). Discard locknuts.

(5) Remove eight locknuts (10) and screws (13) from lower brackets (14) and crossmember (5). Discard locknuts.

(6) With the aid of an assistant, remove crossmember (5) from upper and lower brackets (12) and (14).

(7) Remove four locknuts (15) and screws (16) from upper and lower brackets (12) and (14) and frame (17). Discard locknuts.

NOTE

Center hole in top right bracket is left open for stowage box installation.

(8) Remove eight locknuts (15), screws (18) and upper and lower brackets (12) and (14) from frame (17). Discard locknuts.

b. Installation.

NOTE

- Center hole in top right bracket is left open for stowage box installation.
- Install cable ties as required.

(1) Install upper and lower brackets (12) and (14) on frame (17) with eight screws (18) and locknuts (15).

(2) Install four screws (16) in frame (17) and upper and lower brackets (12) and (14) with four locknuts (15).

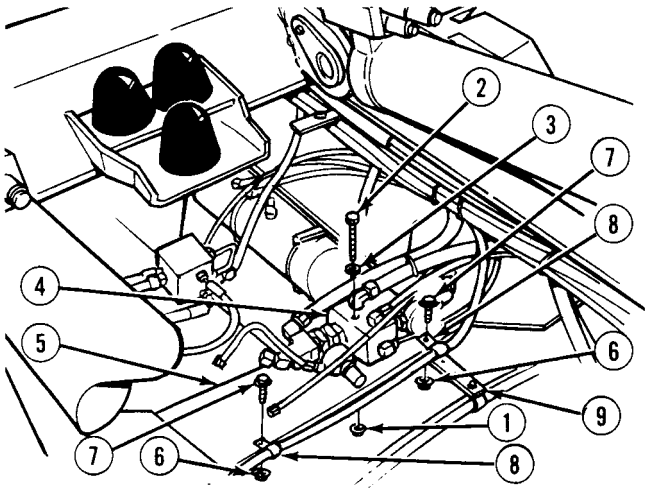
(3) With the aid of an assistant, position crossmember (5) in upper and lower brackets (12) and (14).

(4) Install eight screws (13) in lower brackets (14) and crossmember (5) with eight locknuts (10).

(5) Install eight screws (11) in upper bracket (12) and crossmember (5) with eight locknuts (10).

(6) Install screws (7), two cushion clips (8) and bracket (9) on crossmember (5) with two locknuts (6).

(7) Install two screws (2), washers (3) and manifold (4) on crossmember (5) with two locknuts (1).



c. Follow-On Maintenance:

- Install ball valve, (TM 9-2320-364-20).
- Install stowage box, (TM 9-2320-364-20).
- Install torque rod (between crossmember and Axle No. 3), (Para 14-8).
- LHS in transit position, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-9. INTERMEDIATE CROSSMEMBER NO. 3 REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

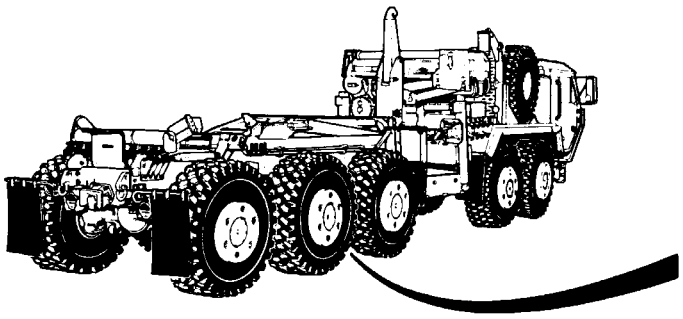
INITIAL SETUP

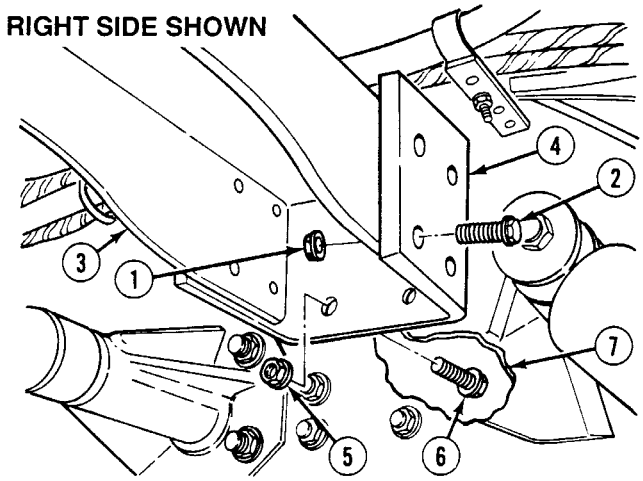
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheel chocked, (TM 9-2320-364-10)

Materials/Parts
Locknut (24) (Item 166, Appendix E)

a. Removal.





(1) Remove sixteen locknuts (1), screws (2) and crossmember (3) from two crossmember brackets (4).

(2) Remove eight locknuts (5), screws (6) and two crossmember brackets (4) from frame (7).

b. Installation.

(1) Install two crossmember brackets (4) on frame (7) with eight screws (6) and locknuts (5).

(2) Install crossmember (3) in two crossmember brackets (4) with sixteen screws (2) and locknuts (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT.

This task covers:

a. Rear Tandem Crossmember Removal
b. Upper Left Gusset Replacement
c. Lower Left Gusset Replacement
d. Upper Right Gusset Replacement
e. Lower Right Gusset Replacement
f. Rear Tandem Crossmember Installation
g. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)

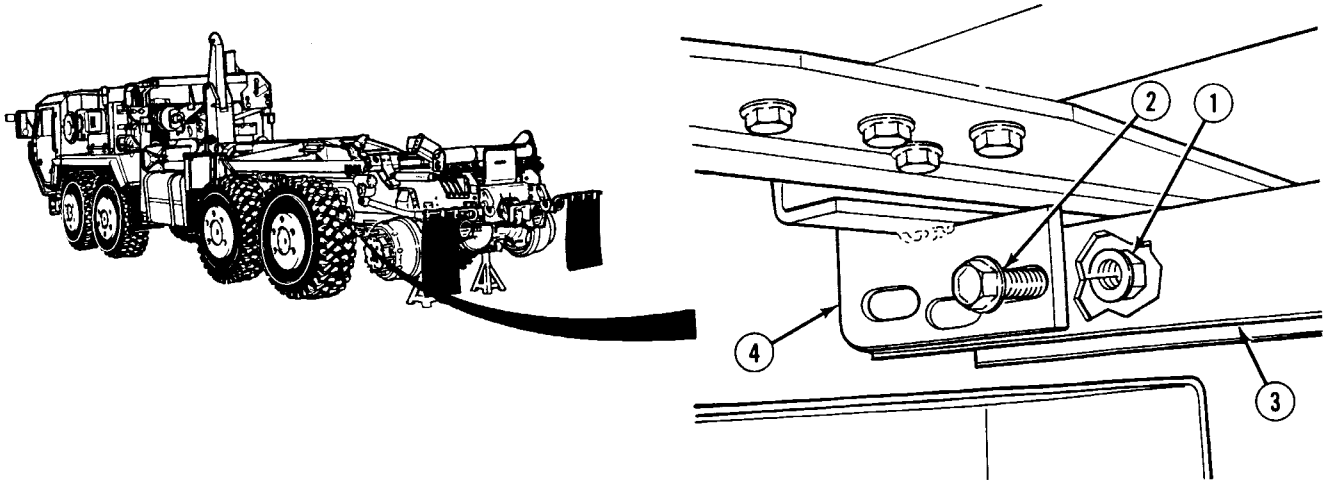
Materials/Parts
Adhesive (Item 1, Appendix B)
Cable Ties (Item 9, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (78) (Item 166, Appendix E)
Locknut (22) (Item 167, Appendix E)
Locknut (6) (Item 176, Appendix E)
Locknut (Item 210, Appendix E)
Quickedge Molding (Item 458, Appendix E)
Setscrew Assembly (4) (Item 627, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Air system drained, (TM 9-2320-364-10)
Drive shaft between Axle No. 4 and No. 5 removed, (TM 9-2320-364-20)
Axle No. 4 and No. 5 longitudinal torque rods removed, (Para 14-9)
Load sensing valves removed, (TM 9-2320-364-20)
Spring brake relay valve No. 2 removed, (TM 9-2320-364-20)
Rear steering gear removed, (for left gusset only) (Para 12-11)
Rear Cable Tensioner Removed, (if equipped with SRW), (TM 9-2320-364-20)
Tractor protection valve removed, (for upper right gusset only) (TM 9-2320-364-20)
Service brake relay No. 3 removed, (TM 9-2320-364-20)
Axle No. 5 tires removed, (TM 9-2320-364-10)
Reverse alarm removed (for lower right gusset only), (TM 9-2320-364-20)

13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

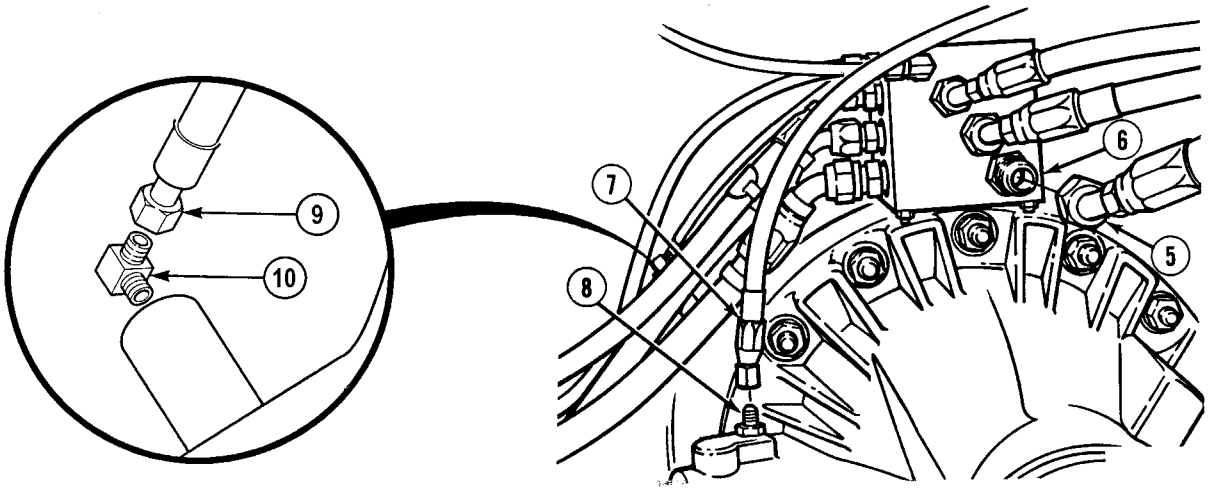
a. Rear Tandem Crossmember Removal.



NOTE

- Remove cable ties as required.
- Tag and mark hoses prior to removal.

(1) Remove six locknuts (1), screws (2) and hard lift crossmember (3) from each end of hard lift bracket (4). Discard locknuts.

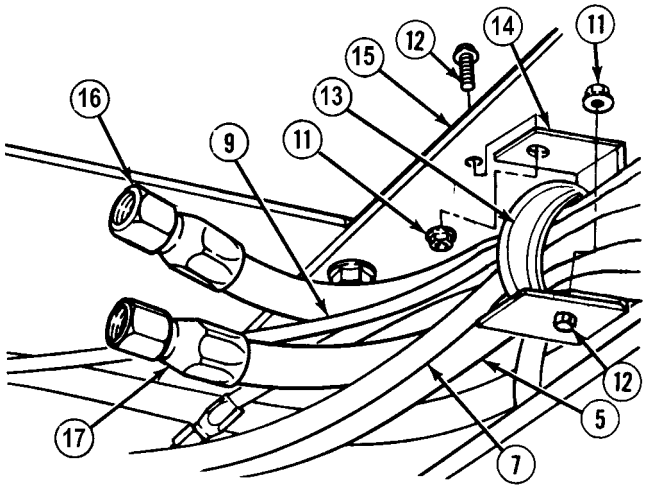


(2) Remove air line 2872 (5) from fitting (6), air line 2338 (7) from fitting (8) and vent line 2893 (9) from fitting (10).

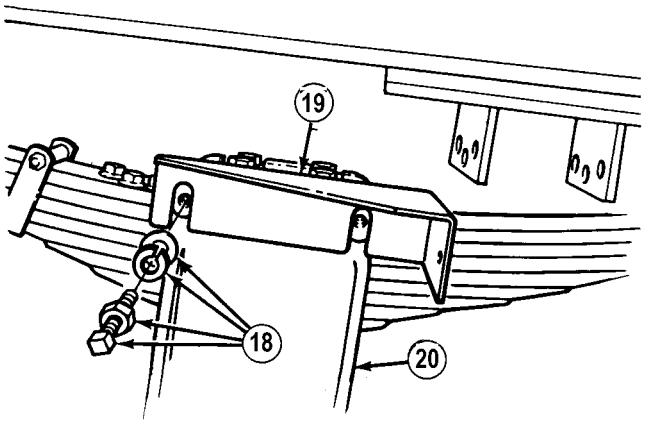
(3) Remove four locknuts (11), screws (12) and clips (13) from brackets (14) and rear tandem crossmember (15). Discard locknuts.

(4) Remove two locknuts (11), screws (12) and brackets (14) from rear crossmember (15). Discard locknuts.

(5) Route air lines 2872 (5), 2338 (7), 2144 (16), 2368 (17), and vent line 2893 (9) through rear tandem crossmember (15).



(6) Remove four set screw assemblies (18) and two brackets (19) from spring mounts (20). Discard setscrew assemblies.

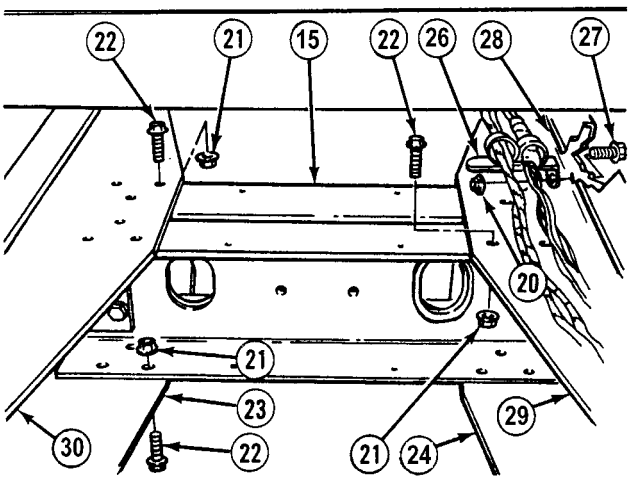


(7) With the aid of an assistant, remove twelve locknuts (21) and screws (22) from bottom of rear lower gussets (23) and (24) and rear tandem crossmember (15). Discard locknuts.

(8) Remove locknut (25), bracket (26) and screw (27) from frame (28). Discard locknut.

(9) Position bracket (26) away from rear tandem crossmember (15).

(10) With the aid of an assistant, remove twelve locknuts (21) and screws (22) from rear upper gussets (29) and (30) and rear tandem crossmember (15). Discard locknuts.



13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

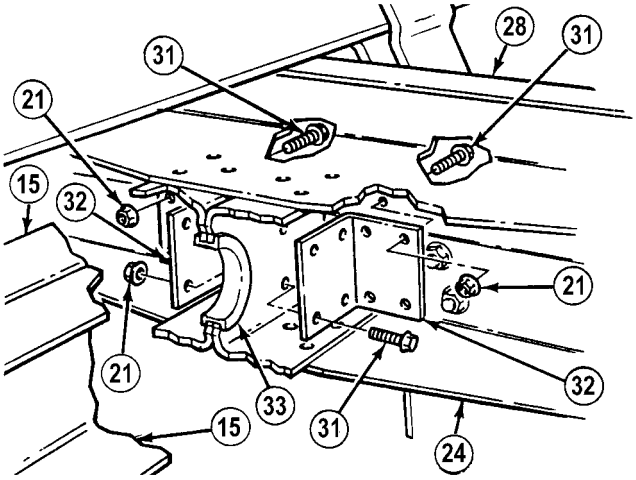
(11) With the aid of an assistant, remove four locknuts (21) and screws (31) from two angles (32) and rear tandem crossmember (15). Discard locknuts.

NOTE

If rear cable tensioner was removed, Step (12) will only remove six screws and locknut.

(12) With the aid of an assistant, remove eight locknuts (21), screws (31) and two angles (32) from right rear tandem gusset (24) and frame (28). Discard locknuts.

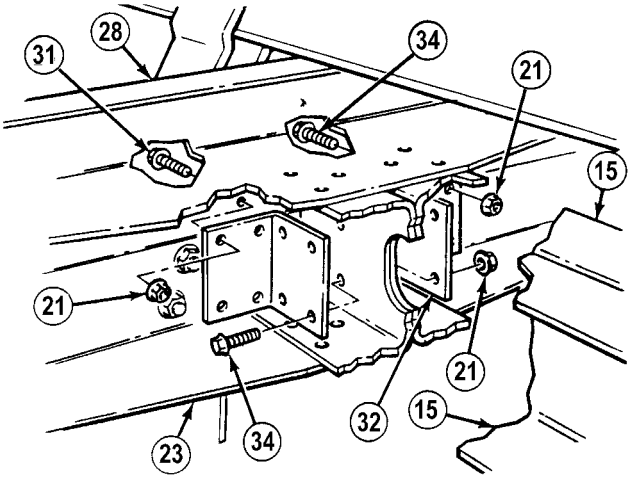
(13) Remove quick edge (33) from rear tandem crossmember (15). Discard quick edge.



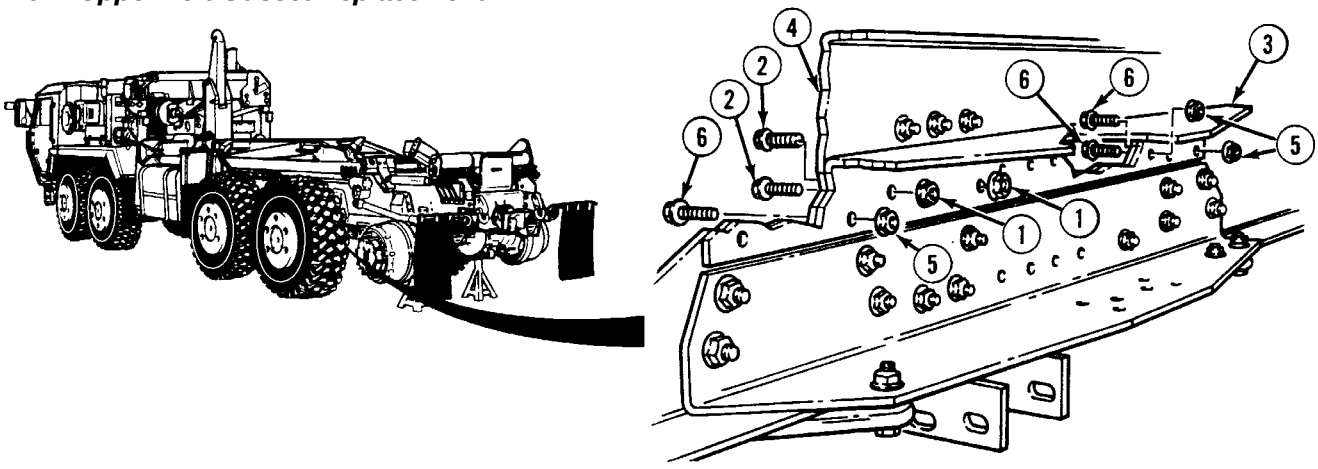
(14) With the aid of an assistant, remove four locknuts (21) and screws (34) from two angles (32) and rear tandem crossmember (15). Discard locknuts.

(15) With the aid of an assistant, remove six locknuts (21), two screws (31), four screws (34) and angles (32) from left rear tandem gusset (23) and frame (28). Discard locknuts.

(16) Remove rear tandem crossmember (15) from right and left rear tandem gussets (23) and (24).



b. Upper Left Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

NOTE

Tag and mark all screws prior to removal.

(a) With the aid of an assistant, remove two locknuts (1) and screws (2) from upper gusset (3) and frame (4). Discard locknuts.

(b) With the aid of an assistant, remove five locknuts (5), screws (6) and upper gusset (3) from frame (4). Discard locknuts.

(2) *Installation.*

NOTE

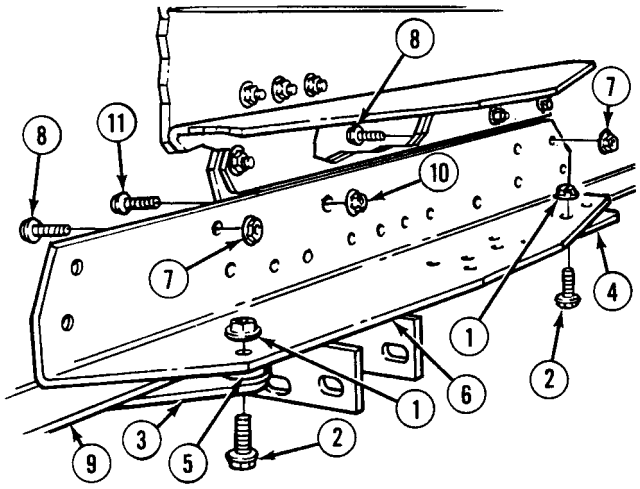
All screws must be installed in original locations.

(a) With the aid of an assistant, position upper gusset (3) on frame (4) and install five screws (6) with locknuts (5).

(b) With the aid of an assistant, install two screws (2) in frame (4) and upper gusset (3) with two locknuts (1).

13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

c. Lower Left Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

NOTE

Tag and mark all screws prior to removal.

(a) Remove three locknuts (1) and screws (2) from spring mounts (3), spacers (4) and (5) and lower gusset (6). Discard locknuts.

(b) With the aid of an assistant, remove eight locknuts (7) and screws (8) from spring mounts (3), frame (9) and lower gusset (6). Discard locknuts.

(c) With the aid of an assistant, remove three locknuts (10), screws (11) and lower gusset (6) from frame (9). Discard locknuts.

(2) *Installation.*

NOTE

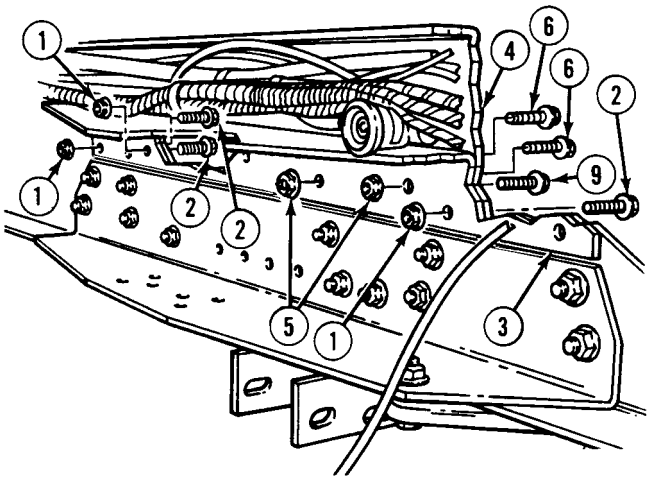
- Ensure all spacers are on top of spring mounts before installing lower gusset.
- All screws must be installed in original locations.

(a) With the aid of an assistant, position lower gusset (6) and spacers (4) and (5) on frame (7) and install three screws (11) with locknuts (10).

(b) With the aid of an assistant, install eight screws (8) in spring mounts (3), frame (9) and lower gusset (6) with eight locknuts (7).

(c) Install three screws (2) in lower gusset (6), spacers (4) and (5) and spring mounts (3) with three locknuts (1)

d. Upper Right Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

NOTE

Tag and mark all screws prior to removal.

(a) With the aid of an assistant, remove five locknuts (1) and screws (2) from upper gusset (3) and frame (4). Discard locknuts.

(b) With the aid of an assistant, remove two locknuts (5), screws (6) and upper gusset (3) from frame (4). Discard locknuts.

(2) *Installation.*

NOTE

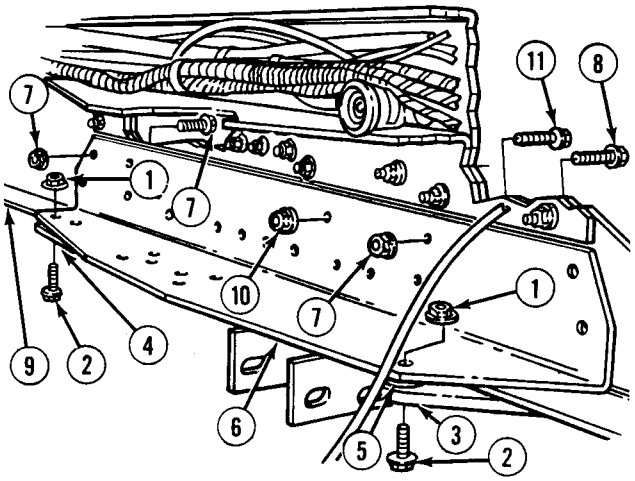
All screws must be installed in original locations.

(a) With the aid of an assistant, position upper gusset (3) on frame (4) and install five screws (2) with locknuts (1).

(b) With the aid of assistant, install two screws (6) in frame (4) and upper gusset (3) with two locknuts (5).

13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

e. Lower Right Gusset Replacement.



(1) *Removal.*

CAUTION

Do not remove upper and lower gussets at the same time. Removal of both gussets could cause damage to vehicle parts due to possible shifting.

NOTE

Tag and mark all screws prior to removal.

(a) Remove three locknuts (1) and screws (2) from spring mounts (3), spacers (4) and (5) and lower gusset (6). Discard locknuts.

(b) With the aid of an assistant, remove eight locknuts (7) and screws (8) from spring mounts (3), frame (9) and lower gusset (6). Discard locknuts.

(c) With the aid of an assistant, remove three locknuts (10), screws (11) and lower gusset (6) from frame (9). Discard locknuts.

(2) *Installation.*

NOTE

- Ensure all spacers are on top of spring mounts before installing lower gusset.
- All screws must be installed in original locations.

(a) With the aid of an assistant, position spacers (4) and (5) and lower gusset (6) on frame (9) and install three screws (11) with five locknuts (10).

(b) With the aid of an assistant, install eight screws (8) in spring mounts (3), frame (9) and lower gusset (6) with eight locknuts (7).

(c) Install three screws (2) in lower gusset (6), spacers (4) and (5) and spring mounts (3) with three locknuts (1).

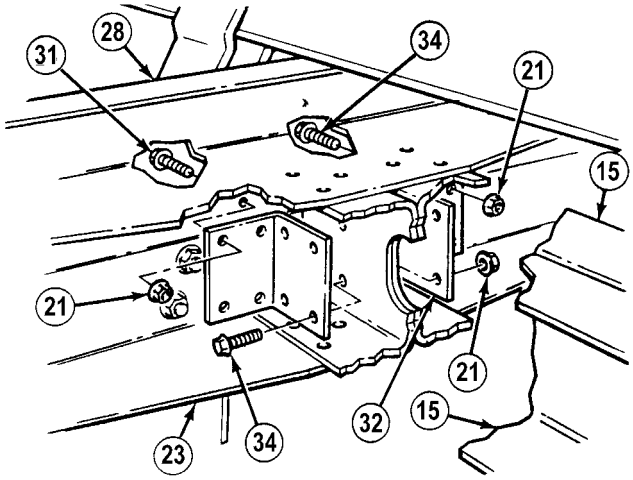
f. Rear Tandem Crossmember Installation.

NOTE

Install cable ties as required.

(1) Position rear tandem crossmember (15) in right and left rear tandem gussets (23).

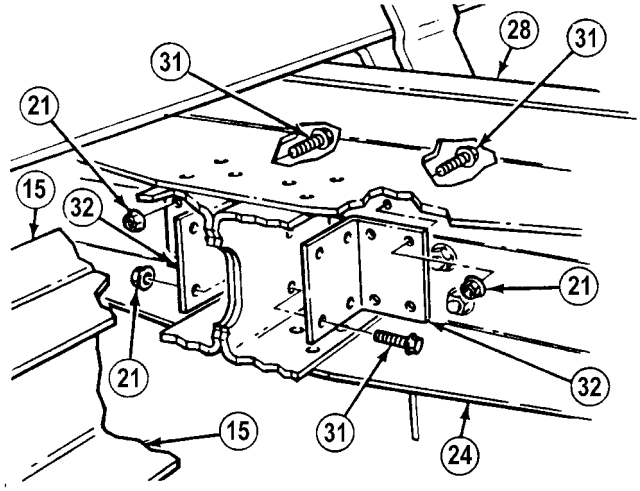
(2) With the aid of an assistant, install two left side angles (32) on rear tandem crossmember (15), left side gusset (23) and frame (28) with eight screws (34), two screws (31) with ten locknuts (21).



NOTE

If rear cable tensioner was removed, Step (3) will only install ten screws and locknuts.

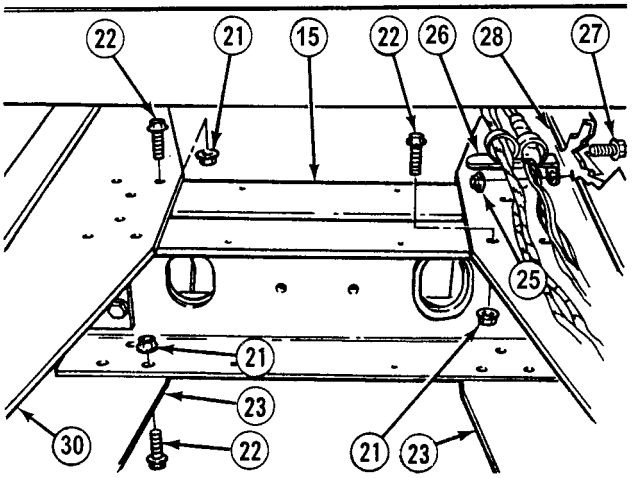
(3) With the aid of an assistant, install two right side angles (32), on rear tandem crossmember (15), right side gussets (24) and frame (28) with twelve screws (31) twelve locknuts (21).



(4) With the aid of an assistant, install twelve screws (22) in rear upper gussets (30) and rear tandem crossmembers (15) with twelve locknuts (21).

(5) Install twelve screws (22) in rear lower gussets (24) and rear tandem crossmember (15) with twelve locknuts (21).

(6) Install bracket (26) on frame (28) with screw (27) and locknut (25).

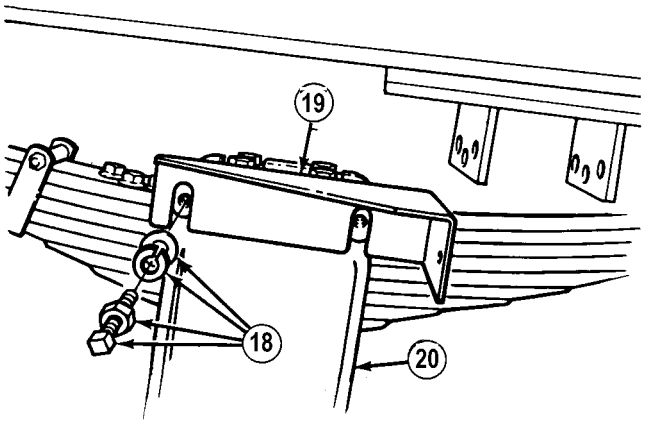


13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

NOTE

Ensure locknuts on setscrew assemblies are backed off.

(7) Install two brackets (19) on spring mounts (20) with four set screws assemblies (18). Tighten locknuts on set screw assemblies until lockwashers are compressed.



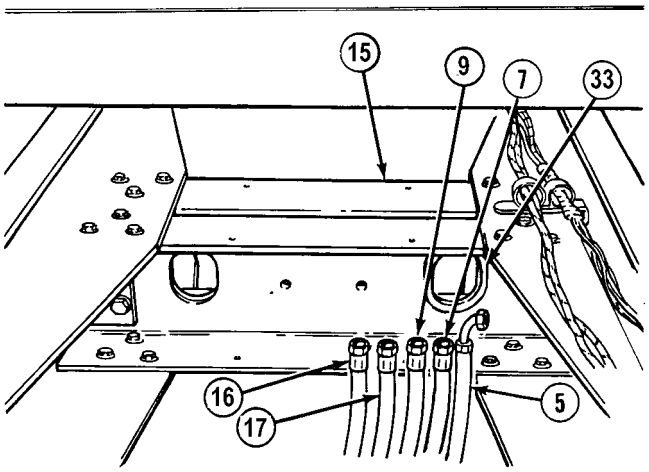
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(8) Apply adhesive to quick edge (33).

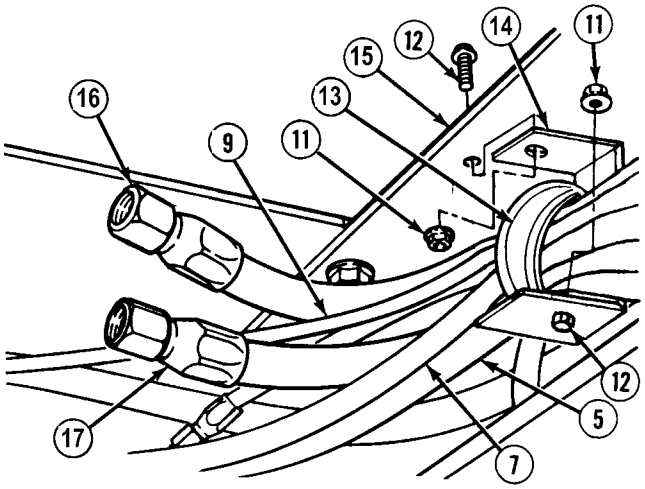
(9) Install quick edge (33) in right side of rear tandem crossmember (15).

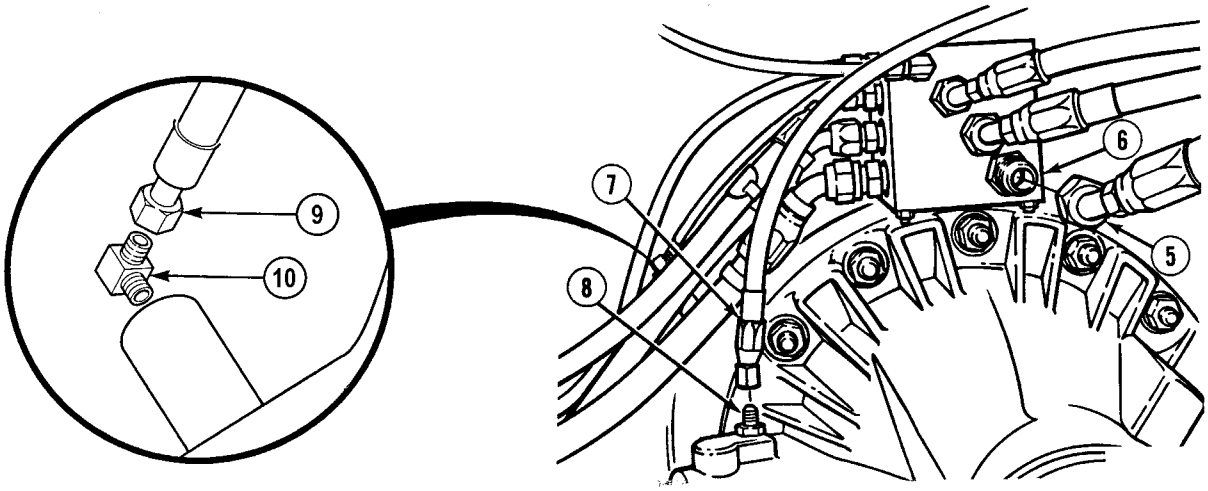
(10) Position air lines, 2338 (7), 2872 (5), 2144 (16), 2368 (17) and vent line 2893 (9) through quick edge of rear tandem crossmember (15).



(11) Install two brackets (14) on both sides of rear tandem crossmember (15) with two screws (12) and locknuts (11).

(12) Install four clips (13) on air lines 2872 (5), 2338 (7), 2144 (16), 2368 (17), vent line 2893 (9), brackets (14) and rear tandem crossmember (15) with four screws (12) and locknuts (11).





(13) Install air line 2872 (5) on fitting (6), air line 2338 (7) on fitting (8) and vent line 2893 (9) on fitting (10).

13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

NOTE

Center hard lift crossmember between hard lift brackets.

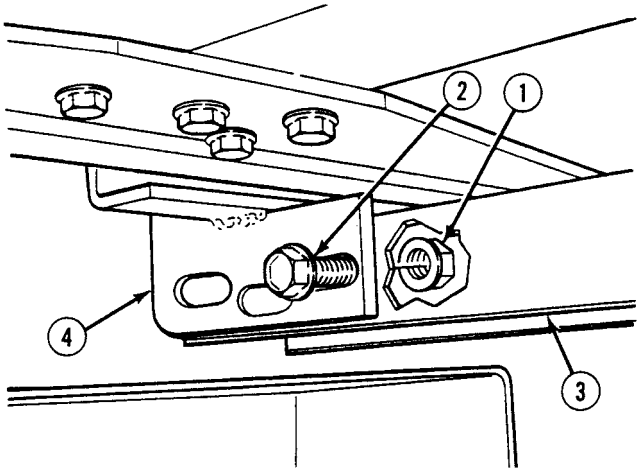
(14) Position hard lift crossmember (3) in each end of hard lift bracket (4).

NOTE

Tighten rear locknuts with an extension through front bracket holes.

(15) Install six screws (2) in rear of hard lift bracket (4) with six locknuts (1).

(16) Install six screws (2) in front of hard lift bracket (4) with six locknuts (1).



g. Follow-on Maintenance:

- Install spring brake relay valve No. 2, (TM 9-2320-364-20).
- Install load sensing valves, (TM 9-2320-364-20).
- Install Axle No. 4 and No. 5 longitudinal torque rods, (Para 14-9).
- Install drive shaft between Axle No. 4 and No. 5, (TM 9-2320-364-20).
- Install service brake No. 3, (TM 9-2320-364-20).
- Install tractor protection valve, (TM 9-2320-364-20).
- Install rear cable tensioner, (if equipped with SRW) (TM 9-2320-364-20).
- Install rear steering gear, (Para 12-11).
- Install reverse alarm, (TM 9-2320-364-20).
- Install Axle No. 5 tires, (TM 9-2320-364-10).
- Start engine and build air pressure to 125 psi (861 kpa). Check air lines and fittings for leaks.
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-11. REAR CROSSMEMBER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

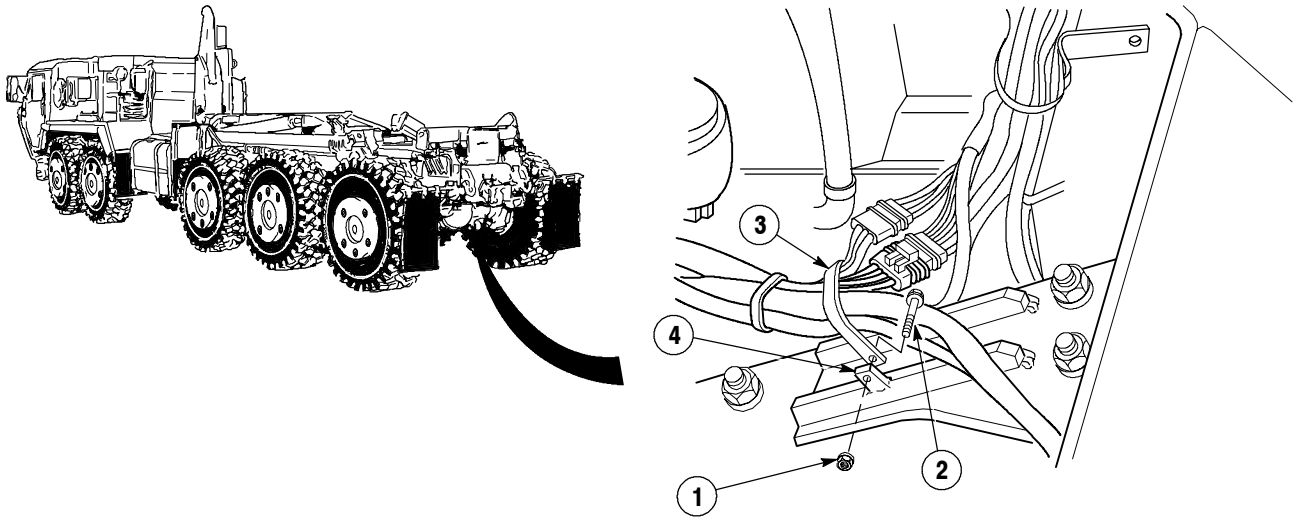
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 220 lbs
(100 kg)

Materials/Parts
Locknut (4) (Item 166, Appendix E)
Locknut (16) (Item 167, Appendix E)
Locknut (2) (Item 176, Appendix E)
Locknut (4) (Item 210, Appendix E)

Personnel Required
Two

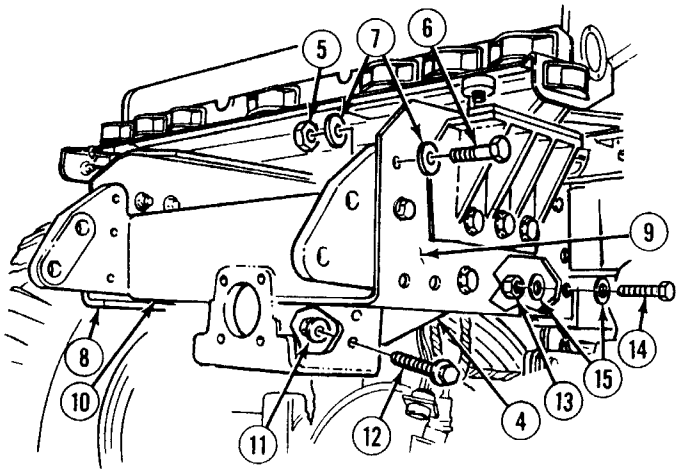
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Self guided coupler hitch removed,
(TM 9-2320-364-20)
Mud flap brackets removed,
(TM 9-2320-364-20)
Rear cable guide removed (if equipped),
(TM 9-2320-364-20)
Bumper stop bracket removed,
(TM 9-2320-364-20)
Back-up lamp removed, (TM 9-2320-364-20)
Trailer LHS electrical connector bracket
removed, (TM 9-2320-364-20)
Emergency gladhand bracket removed,
(TM 9-2320-364-20)
Service gladhand bracket removed,
(TM 9-2320-364-20)

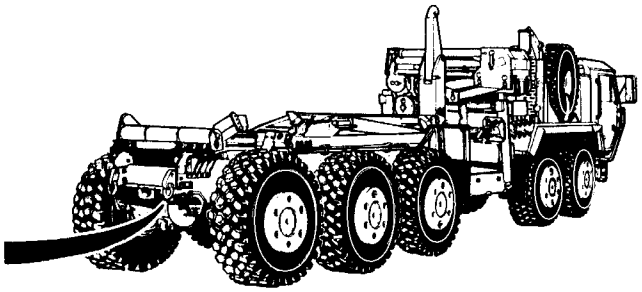
a. Removal.



(1) Remove locknut (1), screw (2) and cushion clip (3) from right brace (4). Discard locknut.

13-11. REAR CROSSMEMBER REPLACEMENT (CONT).





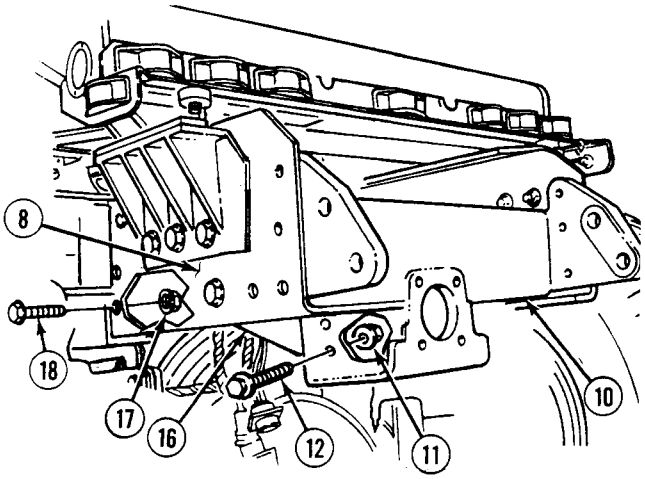
(2) With the aid of an assistant, remove four locknuts (5), screws (6) and eight washers (7) from left side of frame (8), right side of frame (9) and rear crossmember (10). Discard locknuts.

(3) Remove three locknuts (11) and screws (12) from right brace (4) and rear crossmember (10). Discard locknuts.

(4) Remove two locknuts (13), screws (14), four washers (15) and right brace (4) from right side frame (9) and rear crossmember (10). Discard locknuts.

(5) Remove three locknuts (11) and screws (12) from left brace (16) and rear crossmember (10). Discard locknuts.

(6) Remove three locknuts (17), screws (18) and left brace (16) from left side frame (8) and rear crossmember (10). Discard locknuts.



(7) With the aid of an assistant, remove four locknuts (19) and screws (20) right side frame (9), left side frame (8) and rear crossmember (10). Discard locknuts.

WARNING

Rear crossmember weighs 220 lbs (100 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(8) Attach lifting device to rear crossmember (10).

(9) With the aid of an assistant, remove six locknuts (21) and screws (22) from right side frame (9), left side frame (8) and rear crossmember (10). Discard locknuts.

(10) With the aid of an assistant, remove rear crossmember (10) from right side frame (9) and left side frame (8).

b. Installation.

WARNING

Rear crossmember weighs 220 lbs (100 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

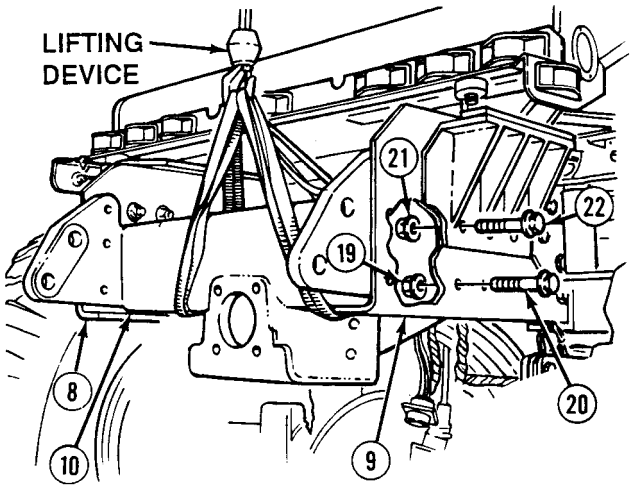
(1) Attach lifting device to rear crossmember (10).

(2) With the aid of an assistant, position rear crossmember (10) between right side frame (9) and left side frame (8).

(3) With the aid of an assistant, position six screws (22) in right side frame (9), left side frame (8) and rear crossmember (10) with six locknuts (21).

(4) Remove lifting device from rear crossmember (10).

(5) With the aid of an assistant, position four screws (20) in right side frame (9), left side frame (8) and rear crossmember (10) with four locknuts (19).



13-11. REAR CROSSMEMBER REPLACEMENT (CONT).

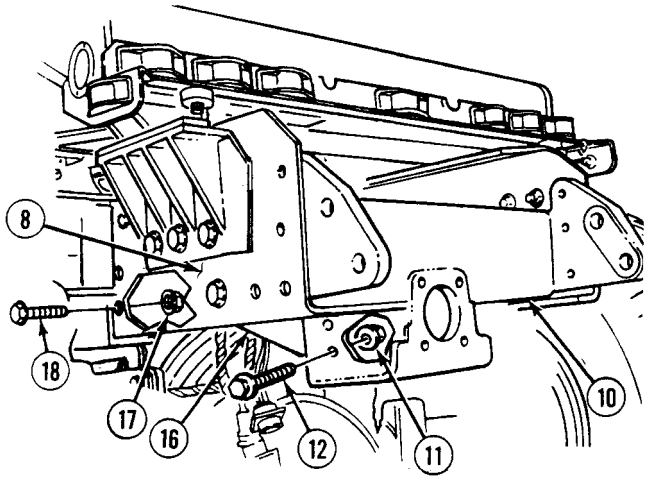
(6) Position left brace (16) on left side frame (8) with three screws (18) and locknuts (17).

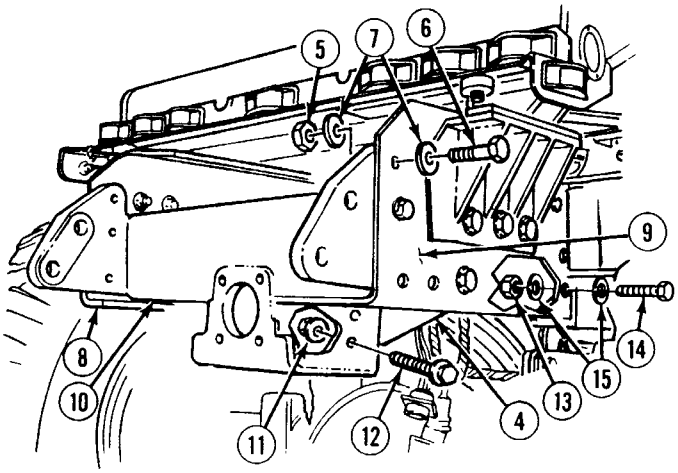
(7) Position left brace (16) on rear crossmember (10) with three screws (12) and locknuts (11).

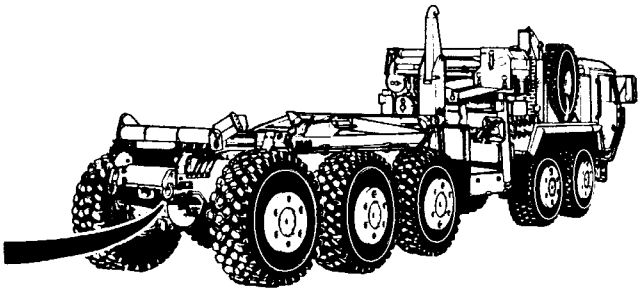
(8) Position right brace (4) on right side frame (9) with four washers (15), two screws (14) and locknuts (13).

(9) Position right brace (4) on rear crossmember (10) with three screws (12) and locknuts (11).

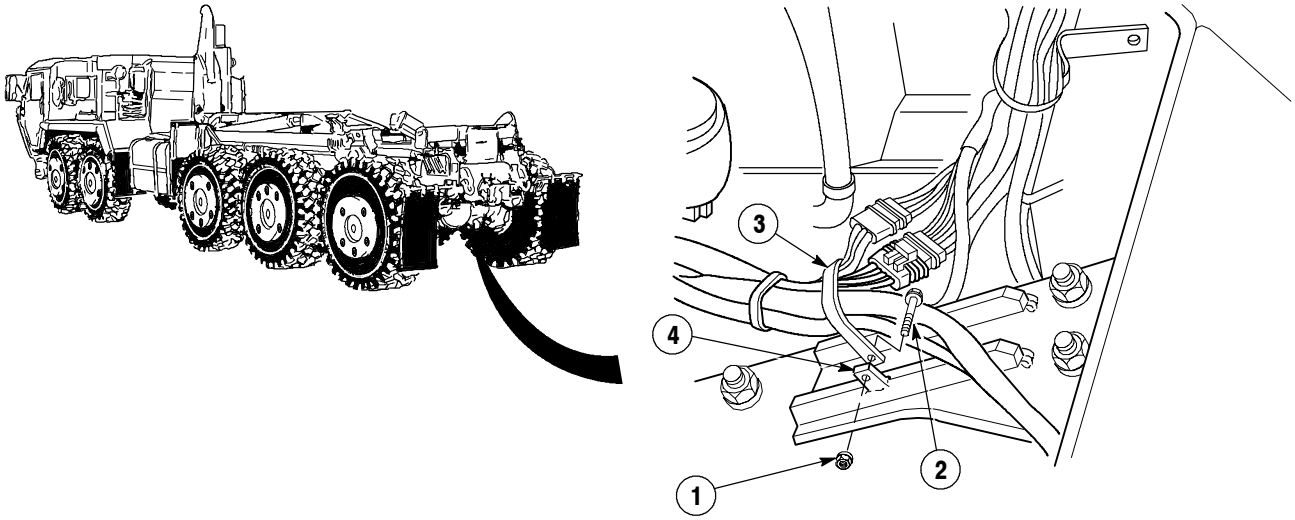
(10) Install eight washers (7), four screws (6) and locknuts (5) in left side frame (8), right side frame (9) and rear crossmember (10). Tighten to 300 lb-ft (407 N·m).







(11) Tighten six locknuts (21), four locknuts (19), three locknuts (17), two locknuts (13) and six locknuts (11) on left side frame (8), right side frame (9) and rear crossmember (10).



(12) Install cushion clip (3) to right brace (4) with screw (2) and locknut (1).

c. Follow-On Maintenance:

- Install service gladhand bracket, (TM 9-2320-364-20).
- Install emergency gladhand bracket, (TM 9-2320-364-20).
- Install trailer LHS electrical connector bracket, (TM 9-2320-364-20).
- Install back-up lamp, (TM 9-2320-364-20).
- Install bumper stop bracket, (TM 9-2320-364-20).
- Install mud flap brackets, (TM 9-2320-364-20).
- Install hitch, (TM 9-2320-364-20).
- Install rear cable guide (if applicable), (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

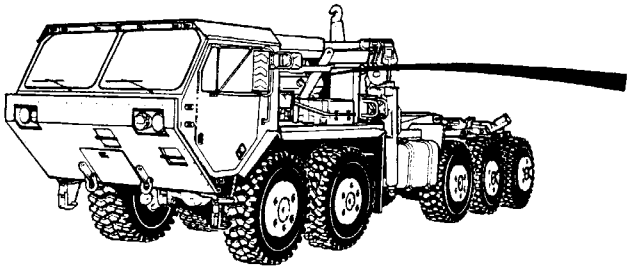
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum 300 lbs (136 kg)

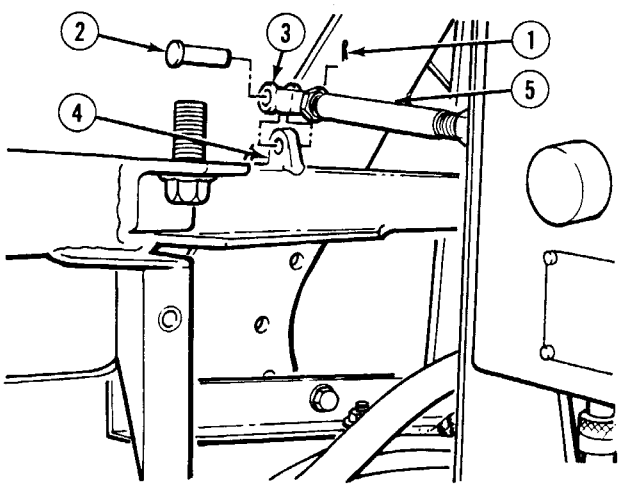
Materials/Parts
Cable Ties (Item 9, Appendix B)
Sealing Compound (Item 54, Appendix B)
Locknut (12) (Item 166, Appendix E)
Locknut (4) (Item 167, Appendix E)
Locknut (4) (Item 169, Appendix E)
Locknut (5) (Item 176, Appendix E)
Locknut (2) (Item 201, Appendix E)
Locknut (6) (Item 210, Appendix E)
Lockwasher (Item 275, Appendix E)
Pin, Cotter (Item 420, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Air cleaner skirt removed, (TM 9-2320-364-20)
Cooling skirt removed, (TM 9-2320-364-20)
Air cleaner assembly removed,
(TM 9-2320-364-20)
Slave receptacle removed, (TM 9-2320-364-20)
DUVAC panel removed (145 AMP only),
(TM 9-2320-364-20)
Polarity protection control panel removed
(200 AMP only), (TM 9-2320-364-20)
Battery box wiring removed,
(TM 9-2320-364-20)
Steering reservoir removed,
(TM 9-2320-364-20)
Engine/transmission removed, (Para 3-4)

a. Removal.



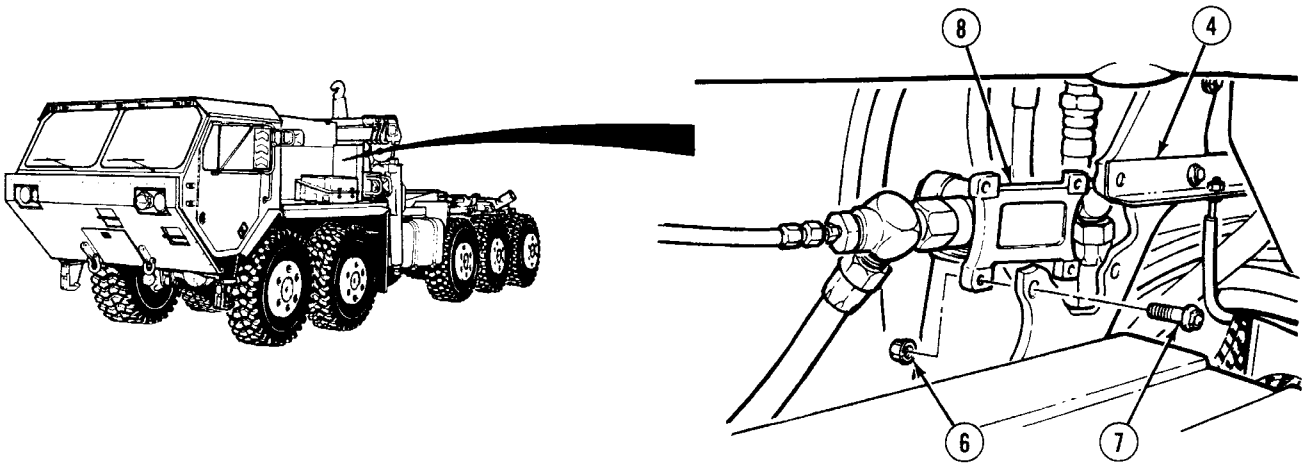


NOTE

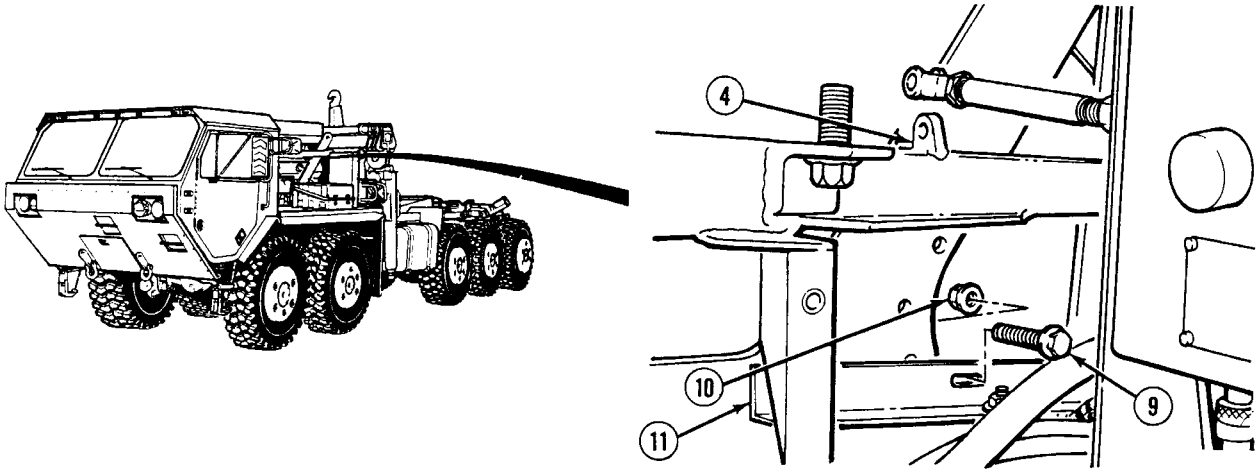
Note location of cable ties and remove as required.

(1) Remove cotter pin (1), pin (2) and clevis (3) from power module frame (4). Discard cotter pin.

(2) Position clevis rod assembly (5) clear of the power module frame (4).

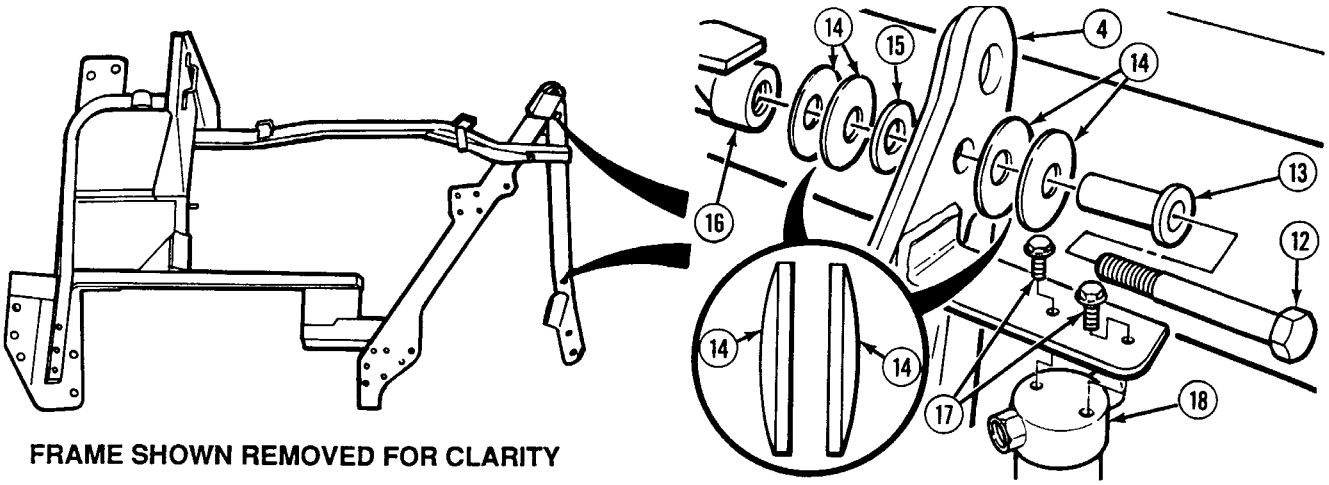


(3) Remove four locknuts (6), screws (7) and transmission filter assembly (8) from power module frame (4). Discard locknuts.



(4) Remove screw (9), locknut (10) and bracket assembly (11) from power module frame (4). Discard locknut.

13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).



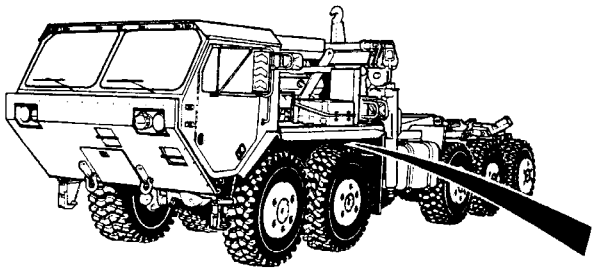
FRAME SHOWN REMOVED FOR CLARITY

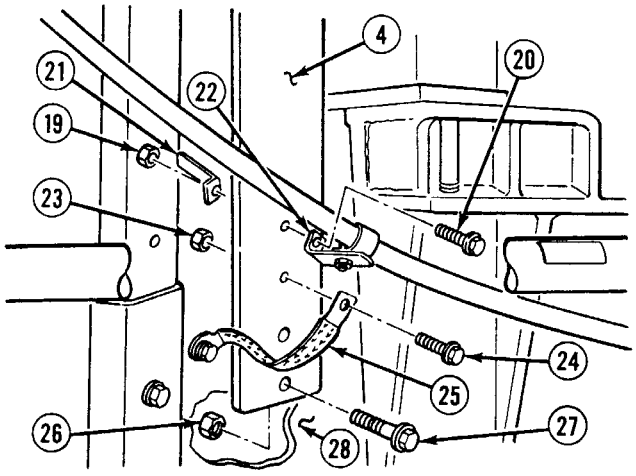
NOTE

Lower and upper spreader bar assemblies are removed the same way. Upper one is shown.

(5) Remove screw (12), sleeve (13), four washers (14) and washer (15) from spreader bar assembly (16) and power module frame (4).

(6) Remove two screws (17) and position steering filter assembly (18) clear of power module frame (4).

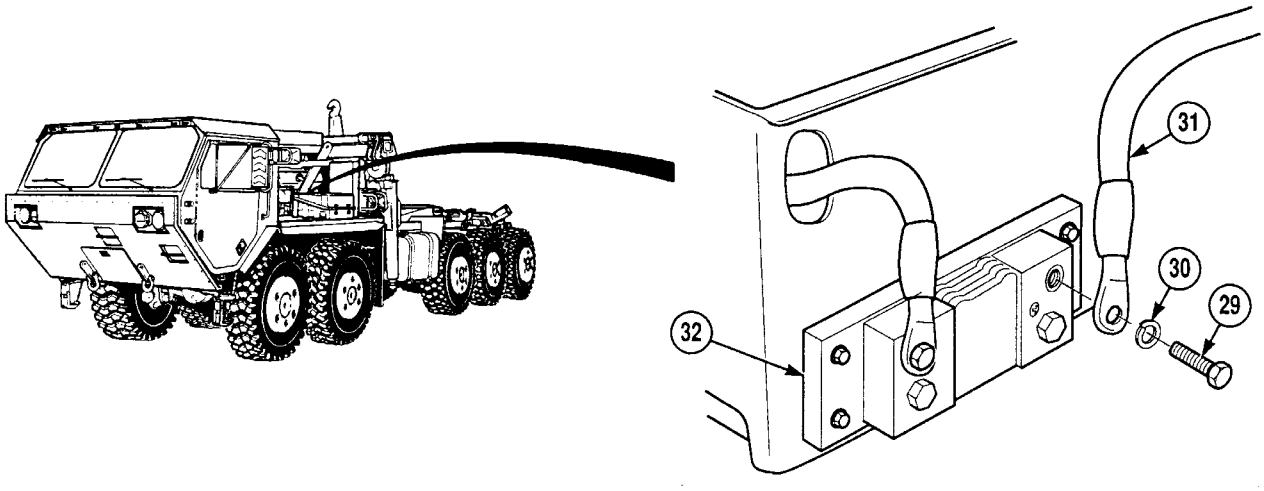




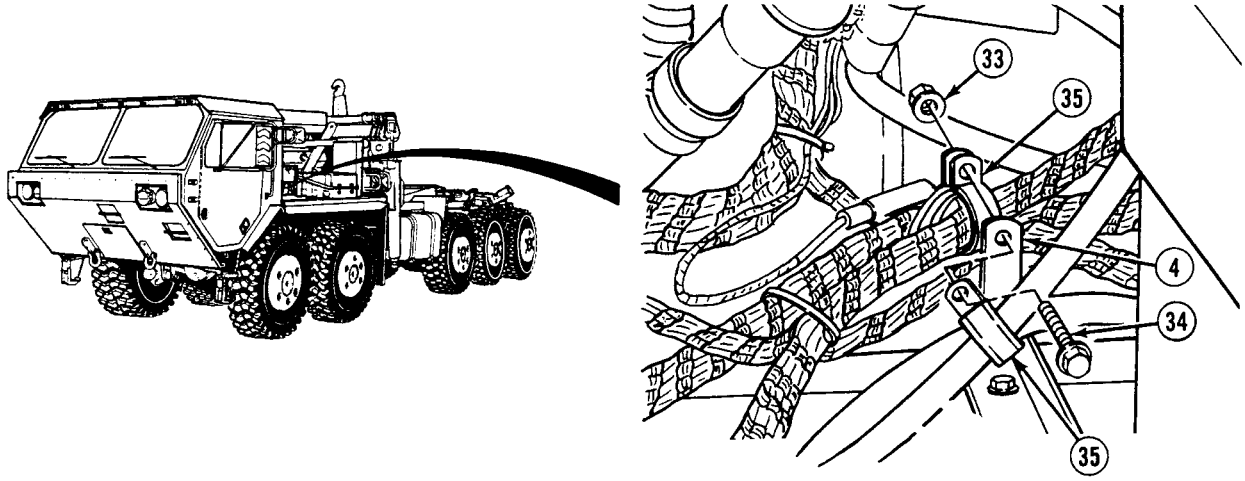
(7) Remove locknut (19) and screw (20) and position brackets (21) and (22) clear of power module frame (4). Discard locknut.

(8) Remove locknut (23), screw (24) and ground strap (25) from power module frame (4). Discard locknut.

(9) With the aid of an assistant, remove two locknuts (26) and screws (27) from power module frame (4) and frame (28). Discard locknuts.



(10) Remove screw (29), lockwasher (30) and ground cable 1138 (31) from shunt (32). Discard lockwasher.

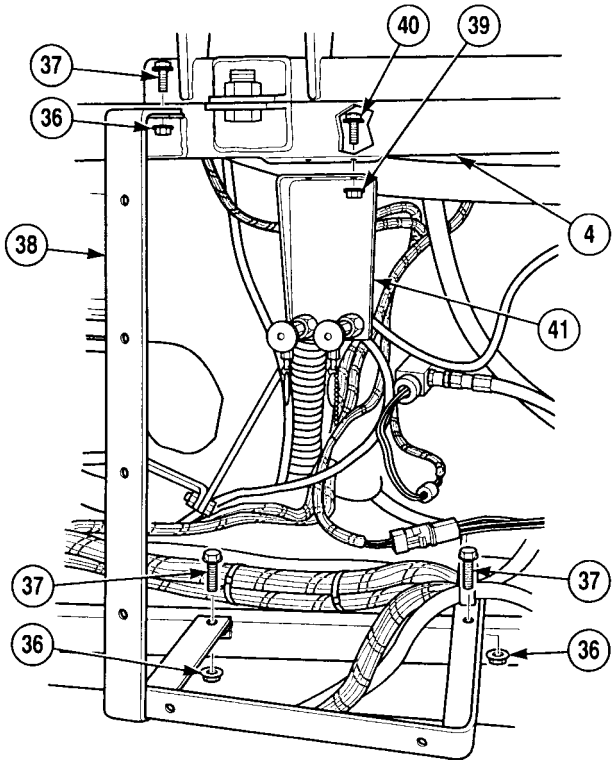


(11) Remove locknut (33) screw (34) and two cushion clips (35) from power module frame (4). Discard locknut.

13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

(12) Remove three locknuts (36), screws (37) and side panel bracket (38) from power module frame (4). Discard locknuts.

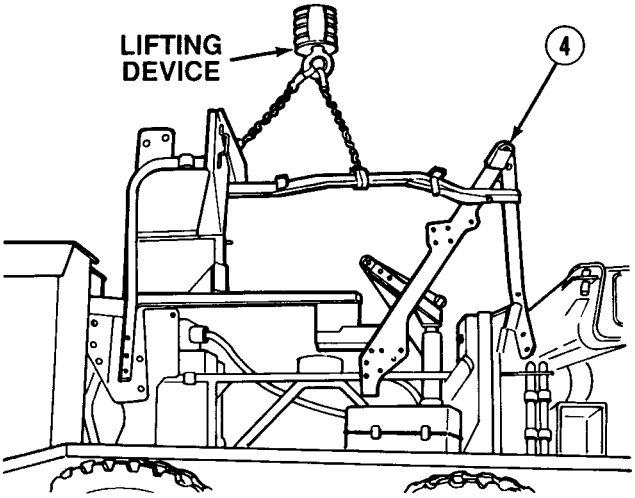
(13) Remove two locknuts (39), screws (40) and sampling valve bracket (41) from power module frame (4). Discard locknuts.

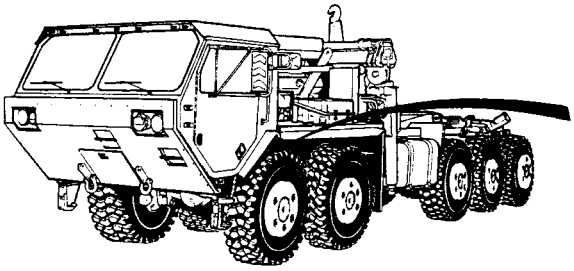


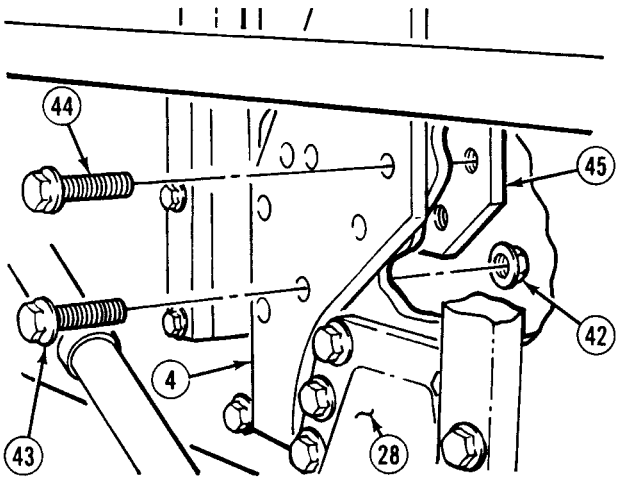
WARNING

Power module frame weights 275 lbs. (125 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(14) Attach lifting device to power module frame (4).

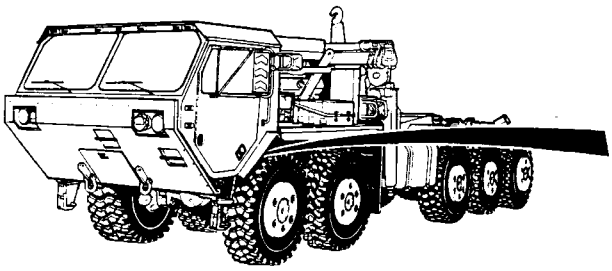


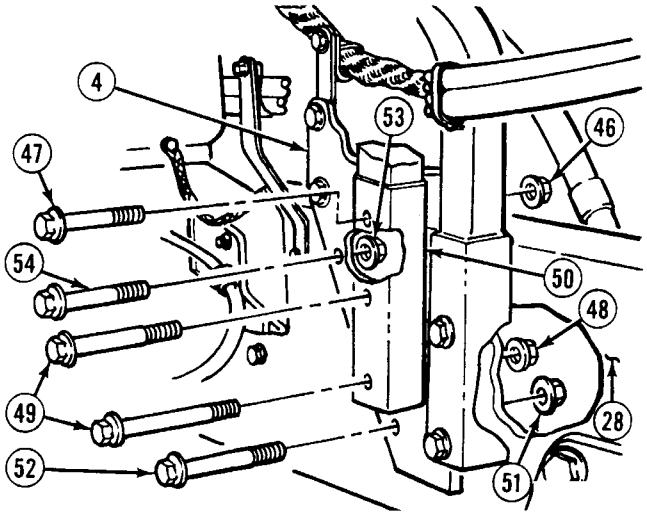




(15) With the aid of an assistant, remove two locknuts (42) and screws (43) from power module frame (4) and frame (28). Discard locknuts.

(16) With the aid of an assistant, remove five screws (44) and plate (45) from power module frame (4) and frame (28).





(17) With the aid of an assistant, remove locknut (46) and screw (47) from power module frame (4). Discard locknut.

(18) With the aid of an assistant, remove two locknuts (48), screws (49) and channel (50) from power module frame (4) and frame (28). Discard locknuts.

(19) With the aid of an assistant, remove two locknuts (51) and screws (52) from power module frame (4) and frame (28). Discard locknuts.

(20) With the aid of an assistant, remove three locknuts (53) and screws (54) from power module frame (4) and frame (28). Discard locknuts.

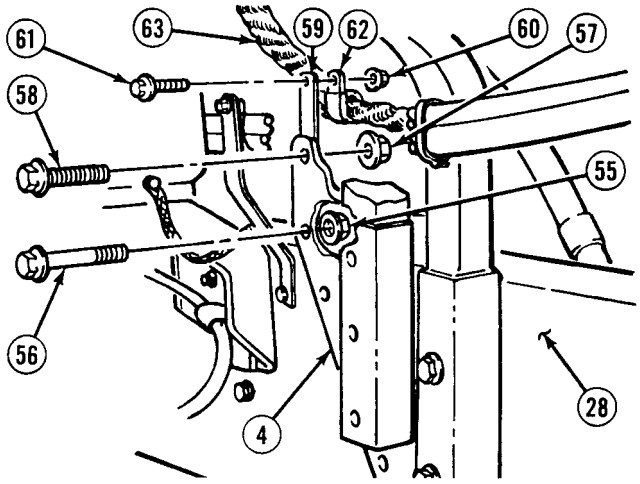
13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

(21) Remove three locknuts (55) and screws (56) from power module frame (4). Discard locknuts.

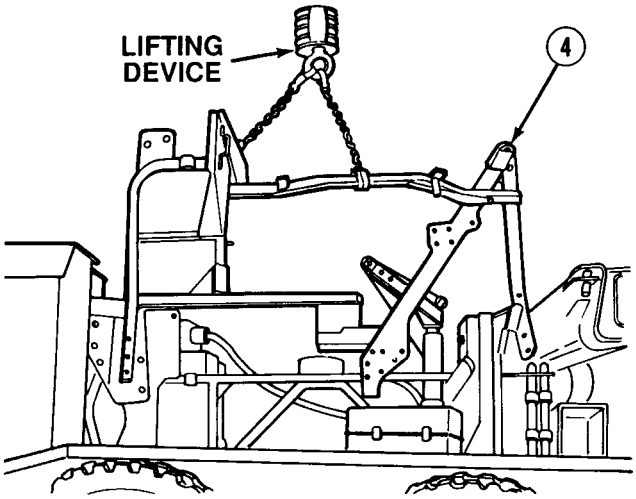
(22) Remove locknut (57), screw (58) and bracket (59) from power module frame (4). Discard locknut.

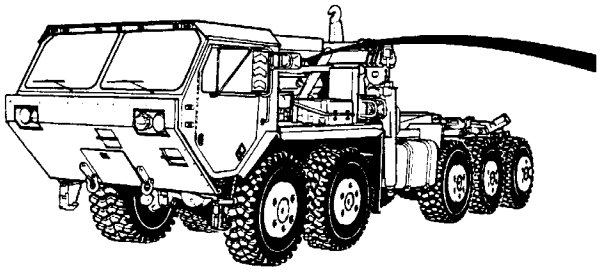
(23) Remove locknut (60), screw (61), cushion clip (62) and bracket (59) from wiring harness (63). Discard locknut.

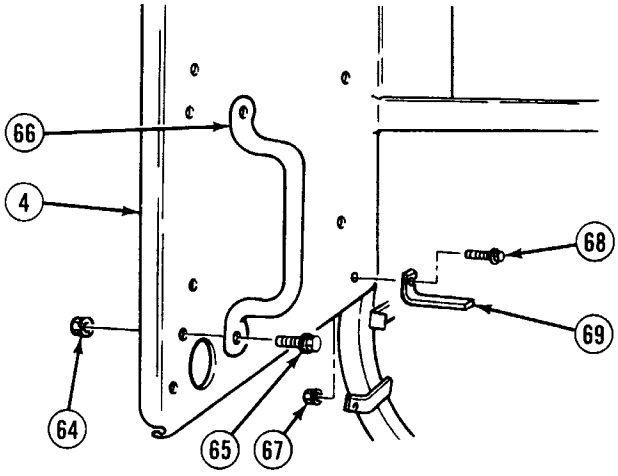
(24) Position wiring harness (63) clear of power module frame (4).



(25) With the aid of an assistant, remove power module frame (4) from truck.







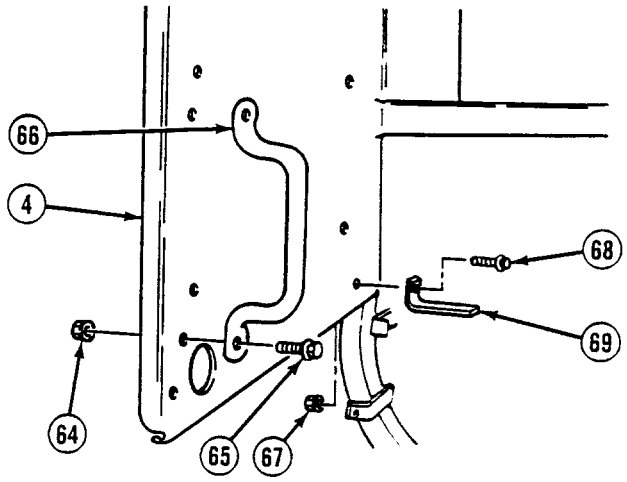
(26) Remove two locknuts (64) and screws (65) and handle (66) from power module frame (4). Discard locknuts.

(27) Remove locknut (67), screw (68) and bracket (69) from power module frame (4). Discard locknut.

b. Installation.

(1) Position bracket (69) on power module frame (4) and install with screw (68) and locknut (67).

(2) Position handle (66) on power module frame (4) and install with two screws (65) and locknuts (64).

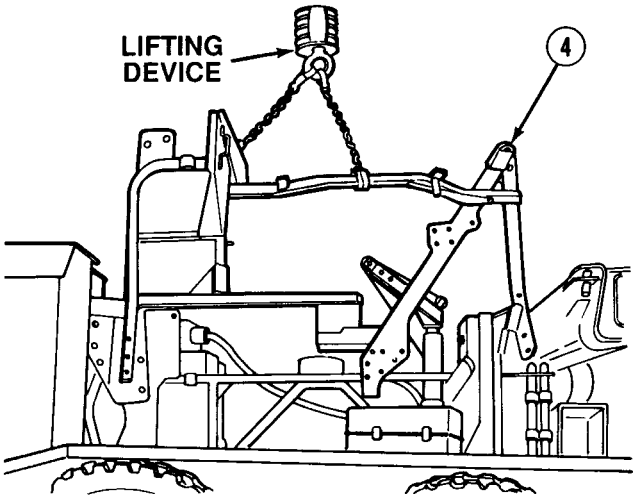


WARNING

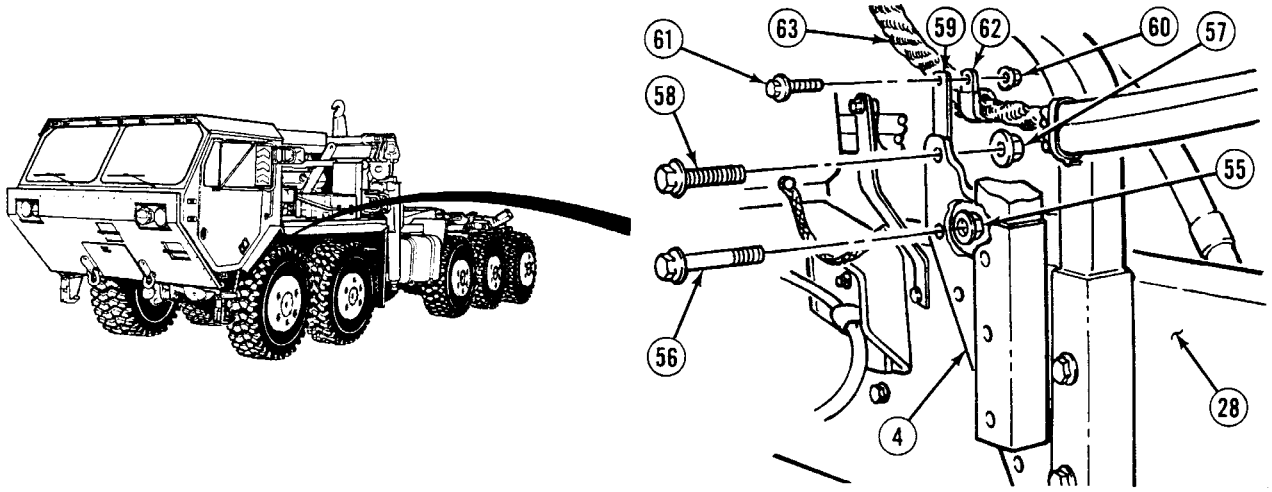
Power module frame weighs 275 lbs (125 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(3) Attach lifting device to power module frame (4).

(4) With the aid of an assistant, install power module frame (4) in truck.



13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

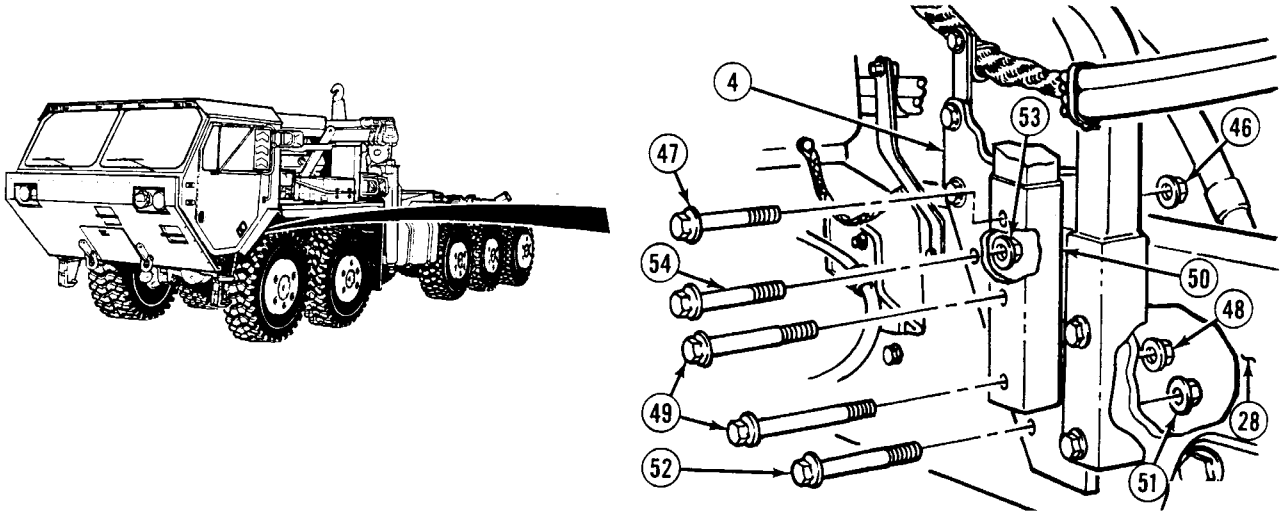


(5) Position three screws (56) and locknuts (55) to power module frame (4) and frame (28).

(6) Position bracket (59) to power module frame (4) with screw (58) and locknut (57).

(7) Install cushion clip (62) on wiring harness (63).

(8) Position cushion clip (62) on bracket (59) and install with screw (61) and locknut (60).

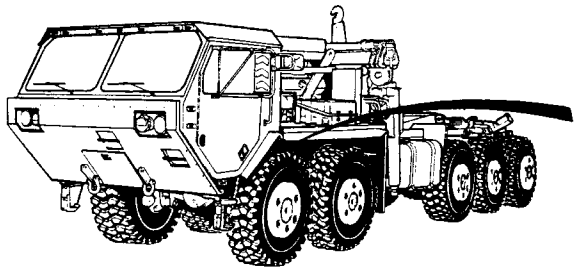


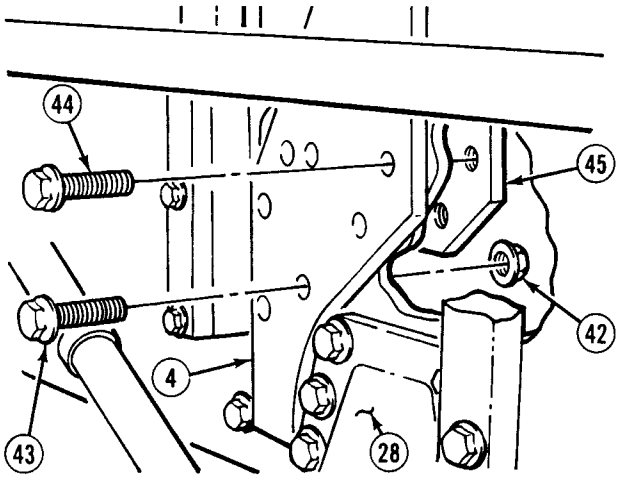
(9) Position three screws (54) and locknuts (53) to power module frame (4) and frame (28).

(10) Position two screws (52) and locknuts (51) to power module frame (4) and frame (25).

(11) Position two screws (49), locknuts (48) and channel (50) to power module frame (4) and frame (28).

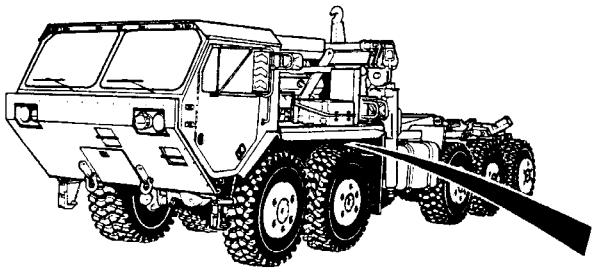
(12) Position screw (47) and locknut (46) to power module frame (4) and frame (28).

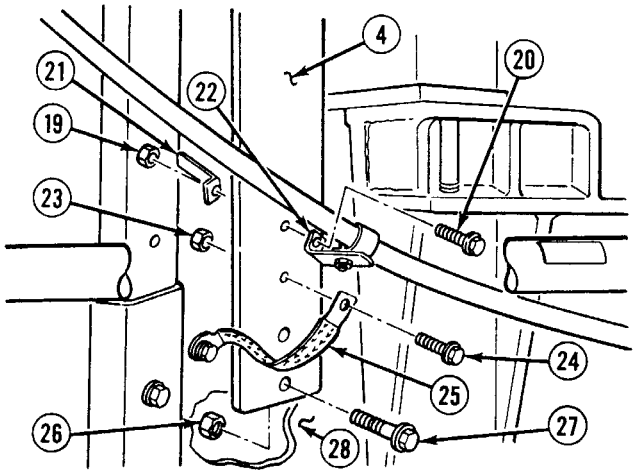




(13) Position five screws (44) and plate (45) to power module frame (4) and frame (28).

(14) Position two screws (43) and locknuts (42) to power module frame (4) and frame (28).



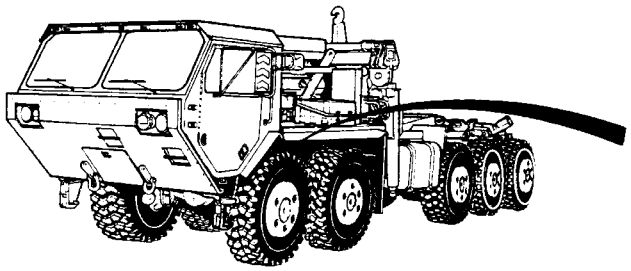


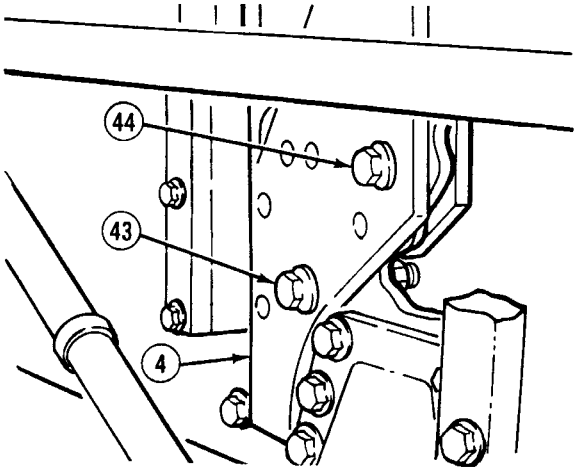
(15) Install two screws (27) and locknuts (26) to power module frame (4) and frame (28).

(16) Install ground strap (25), screw (24) and locknut (23) to power module frame (4) and frame (28).

(17) Install brackets (22) and (21), screw (20) and locknut (19) to power module frame (4).

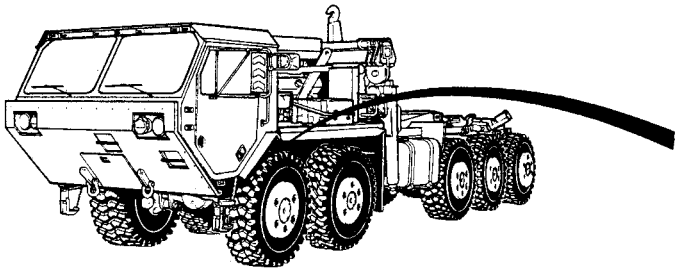
13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

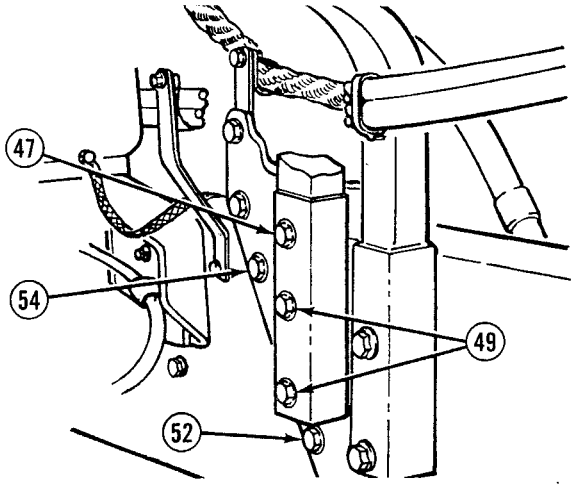




(18) Tighten five screws (44).

(19) Tighten two screws (43).



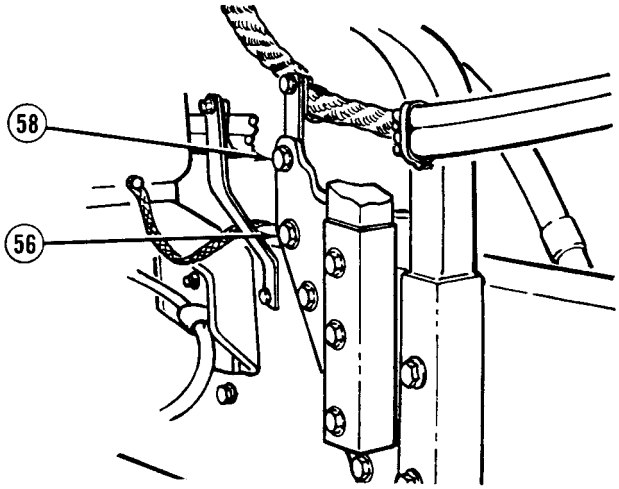


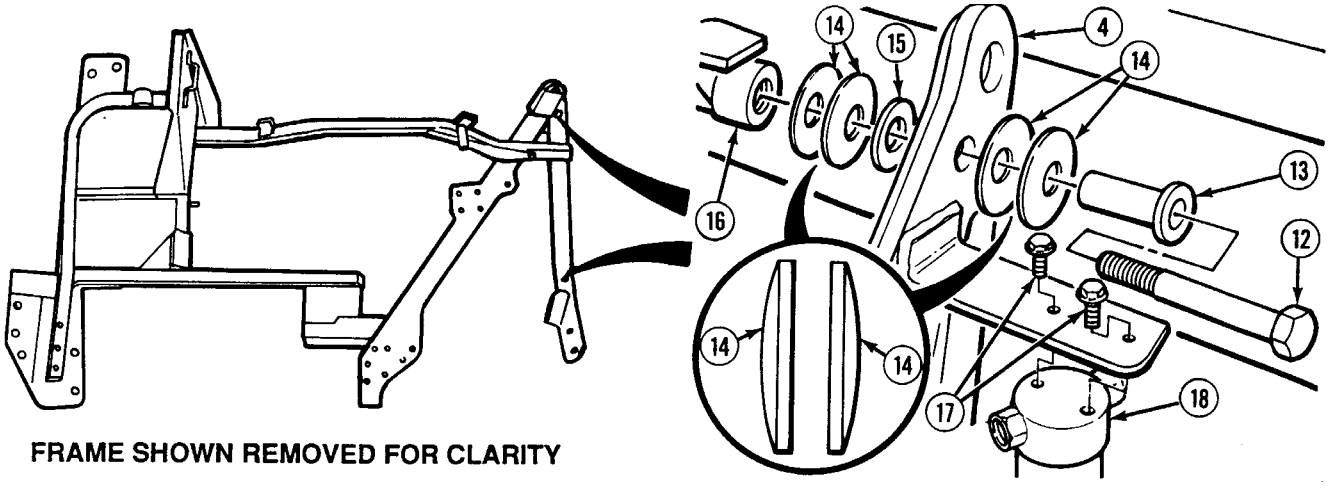
(20) Tighten two screws (49) and screw (47).

(21) Tighten two screws (52).

(22) Tighten three screws (54).

(23) Tighten four screws (56) and (58).





FRAME SHOWN REMOVED FOR CLARITY

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(24) Apply sealing compound to threads of screw (12).

NOTE

Lower and upper spreader bar assemblies are installed the same way. Upper one is shown.

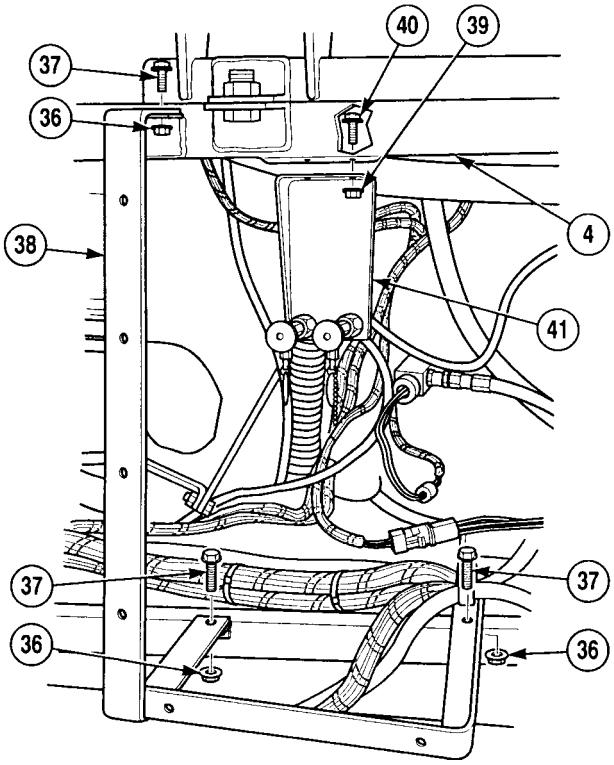
(25) Install lower spreader bar assembly (16) with four washers (14), washer (15), sleeve (13) and screw (12) to power module frame (4). Tighten to 128 lb-ft (174 N·m).

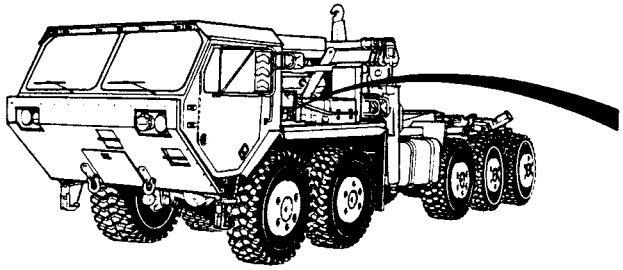
(26) Install steering filter assembly (18) on power module frame (4) with two screws (17).

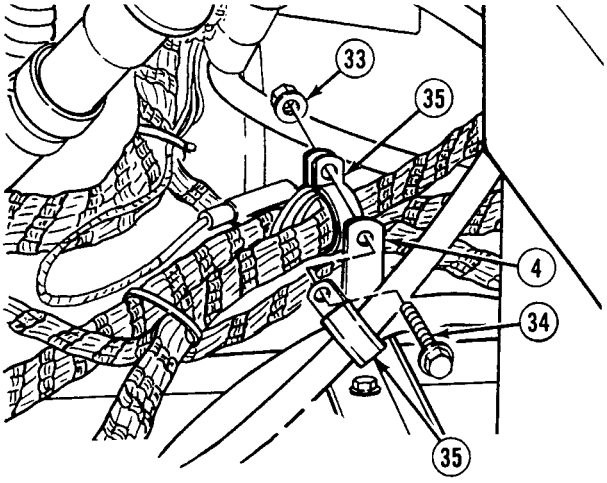
13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

(27) Install sampling valve bracket (41) on power module frame (4) with two screws (40) and locknuts (39).

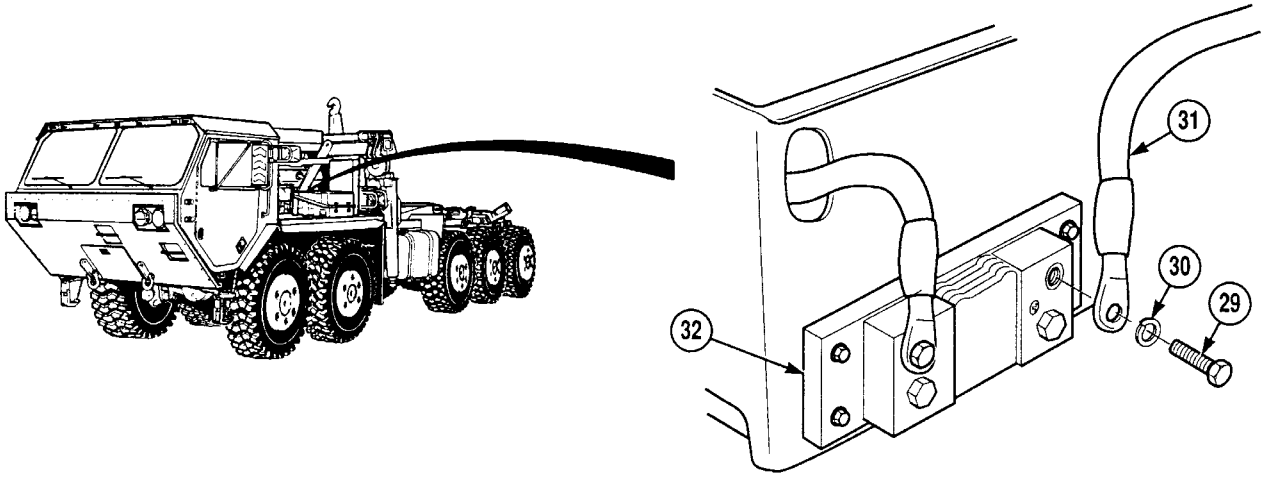
(28) Install side panel bracket (38) on power module frame (4) with three screws (37) and locknuts (36).



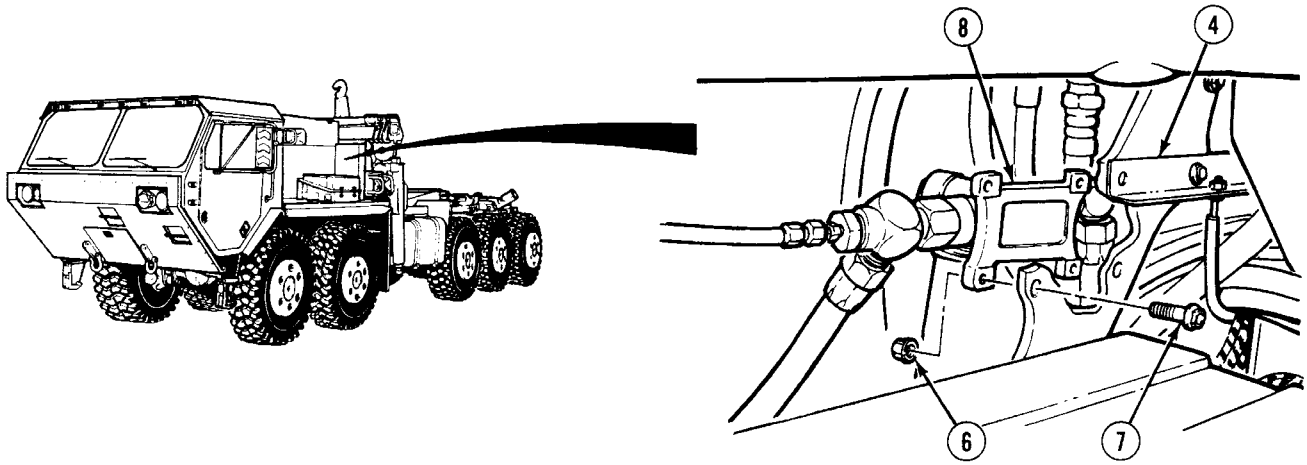




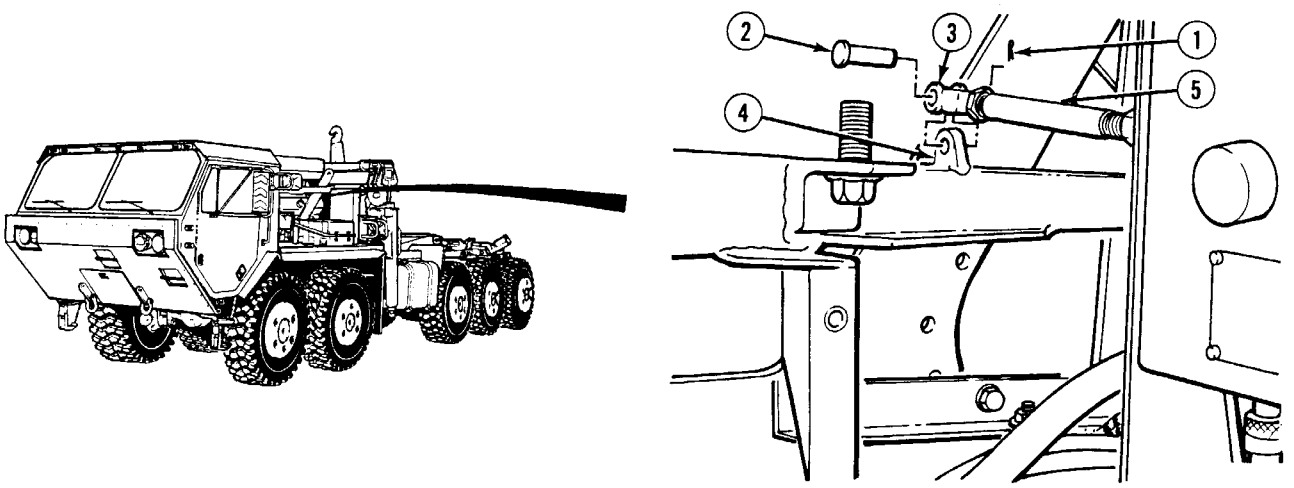
(29) Install two cushion clips (35) on power module frame (4) with screw (34) and locknut (33).



(30) Install ground cable 1138 (31) on shunt (32) with screw (29) and lockwasher (30).



(31) Install screw (7), transmission filter assembly (8) and locknut (6) to power module frame (4).



(32) Position clevis rod assembly (5) and install clevis (3), pin (2) and cotter pin (1) to power module frame (4).

13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

c. Follow-On Maintenance:

- Install engine/transmission, (Para 3-4).
- Install steering reservoir, (TM 9-2320-364-20).
- Install battery box wiring, (TM 9-2320-364-20).
- Install DUVAC panel (145 AMP only), (TM 9-2320-364-20).
- Install polarity protection control panel (200 AMP only), (TM 9-2320-364-20).
- Install slave receptacle, (TM 9-2320-364-20).
- Install air cleaner assembly, (TM 9-2320-364-20).
- Install cooling skirt, (TM 9-2320-364-20).
- Install air cleaner skirt, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Wrench, 1-7/8 in. (Item 265, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum 300 lb (136 kg)
Wooden Block (2) (Appendix C)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 54, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (4) (Item 165, Appendix E)
Locknut (12) (Item 166, Appendix E)
Locknut (4) (Item 167, Appendix E)

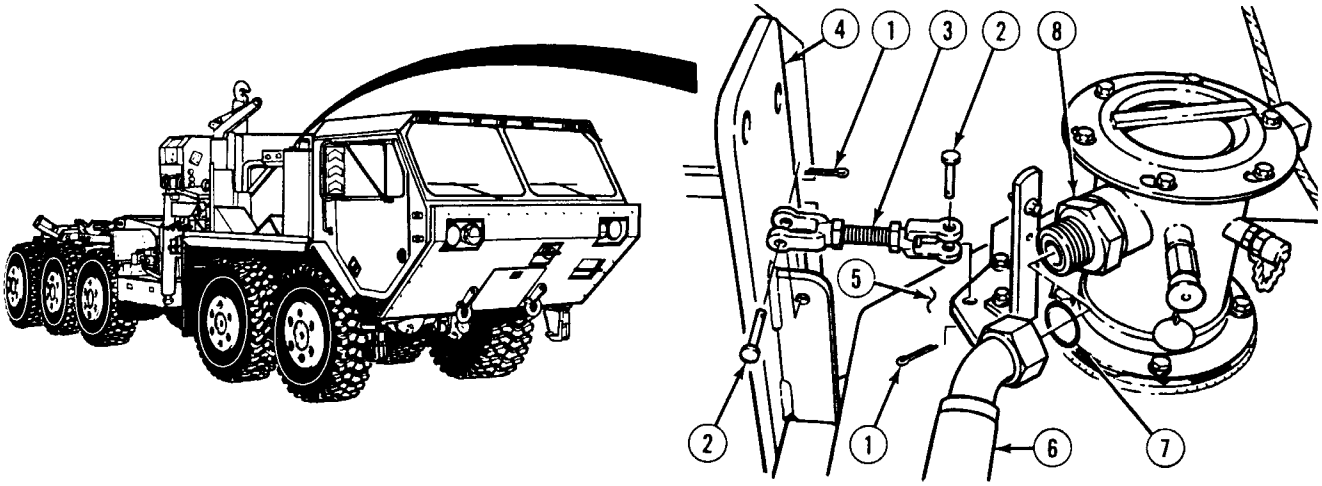
Materials/Parts - Continued
Locknut (Item 210, Appendix E)
Packing, Preformed (Item 363, Appendix E)
Packing, Preformed (2) (Item 387, Appendix E)
Pin, Cotter (4) (Item 420, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Muffler removed, (TM 9-2320-364-20)
Hydraulic reservoir drained,
(TM 9-2320-364-20)
Coolant hoses removed, (TM 9-2320-364-20)
Right hand baffle removed,
(TM 9-2320-364-20)
Engine/transmission removed, (Para 3-4)

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

a. Removal.

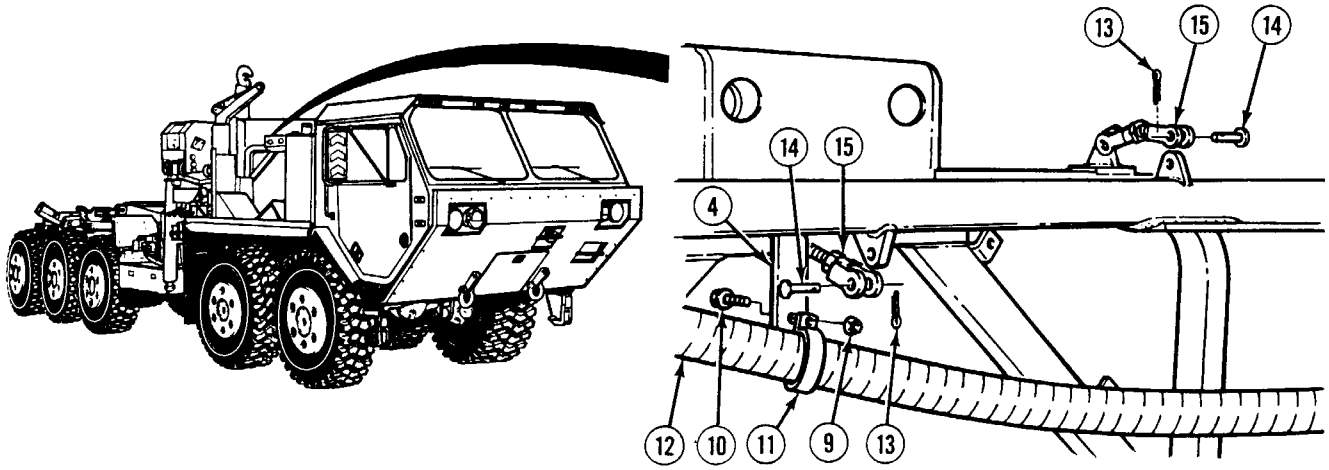


NOTE

- Remove cable ties as required.
- Cap and plug all hoses after removal.
- Tag and mark all hoses prior to removal.

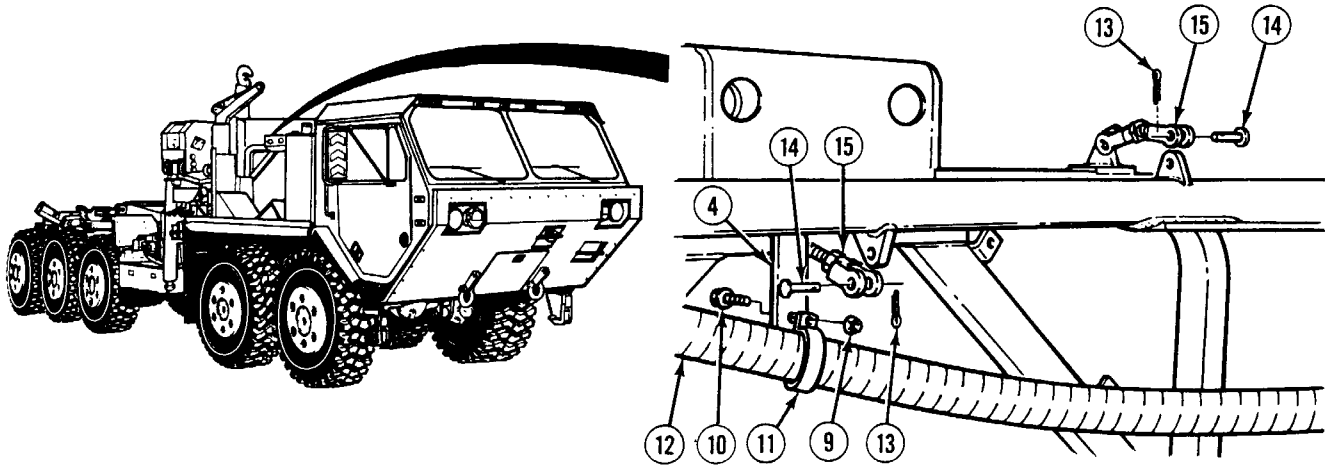
(1) Remove two cotter pins (1), pins (2) and clevis assembly (3) from power module frame (4) and hydraulic reservoir (5). Discard cotter pins.

(2) Remove hose 2773 (6) and preformed packing (7) from fitting (8). Discard preformed packing.



(3) Remove locknut (9), screw (10) and cushion clip (11) from power module frame (4). Discard locknut.

(4) Position hose 2918 (12) clear of power module frame (4).

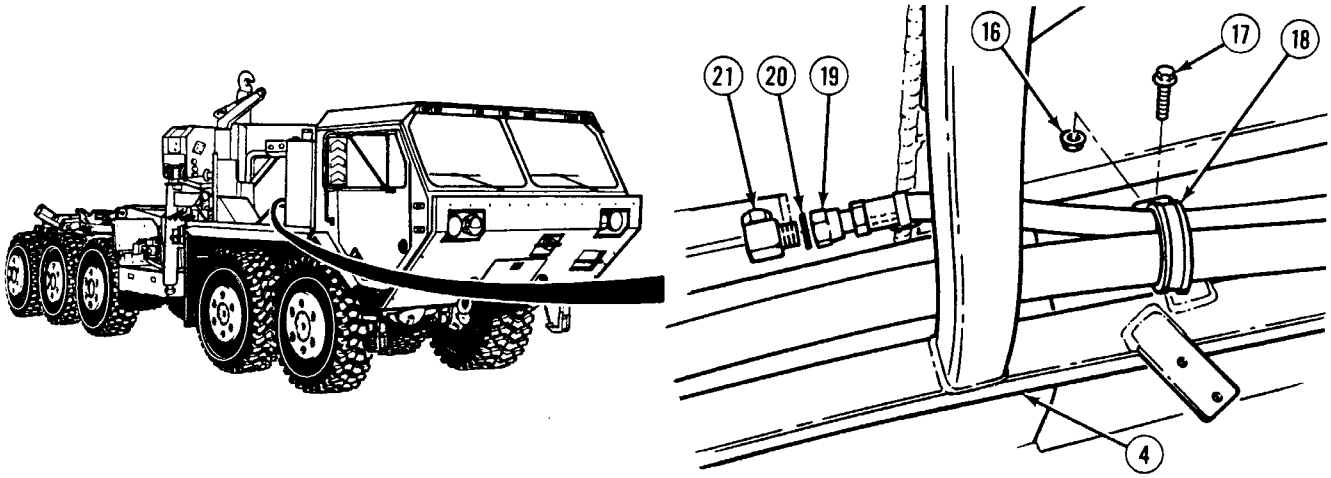


NOTE

After removal of clevis assembly, allow clevis assembly to hang from spare tire mount.

(5) Remove two cotter pins (13), pins (14) and clevis (15) from power module frame (4). Discard cotter pins.

(6) Position clevis (15) clear of power module frame (4).



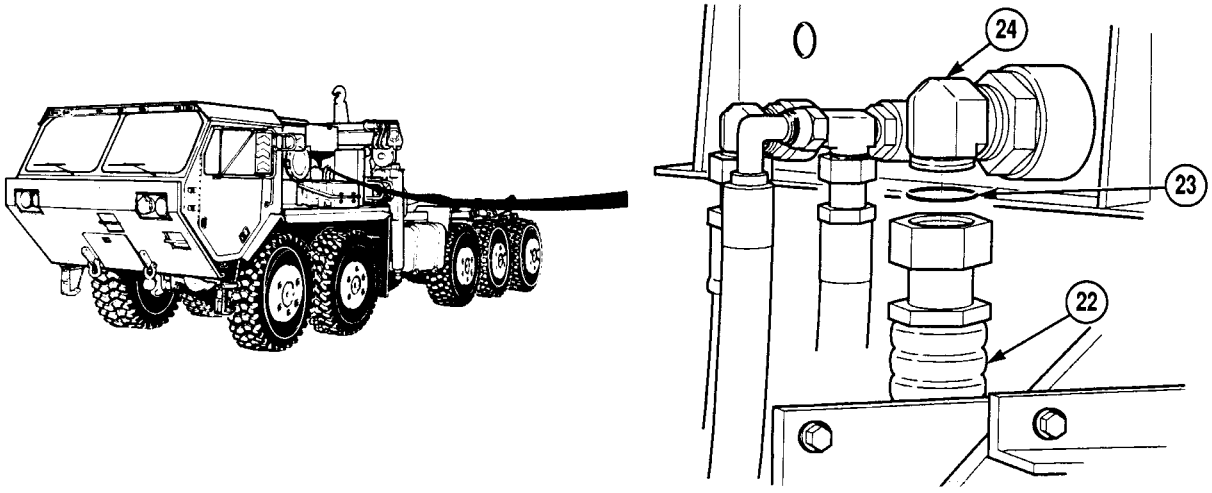
(7) Remove locknut (16), screw (17) and cushion clip (18) from power module frame (4). Discard locknut.

NOTE

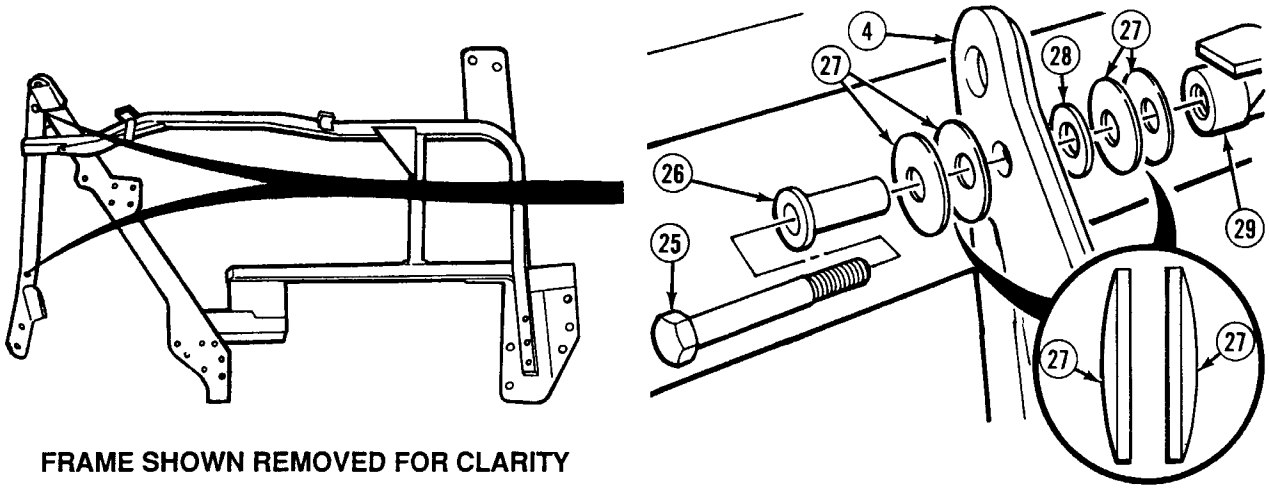
Step (8) is performed only when truck is equipped with crane. If truck is not equipped with crane, go on to Step (9).

(8) Remove hose 2694 (19) and preformed packing (20) from elbow (21). Discard preformed packing.

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).



(9) Remove hose 2278 (22) and preformed packing (23) from elbow (24). Discard preformed packing.



FRAME SHOWN REMOVED FOR CLARITY

WARNING

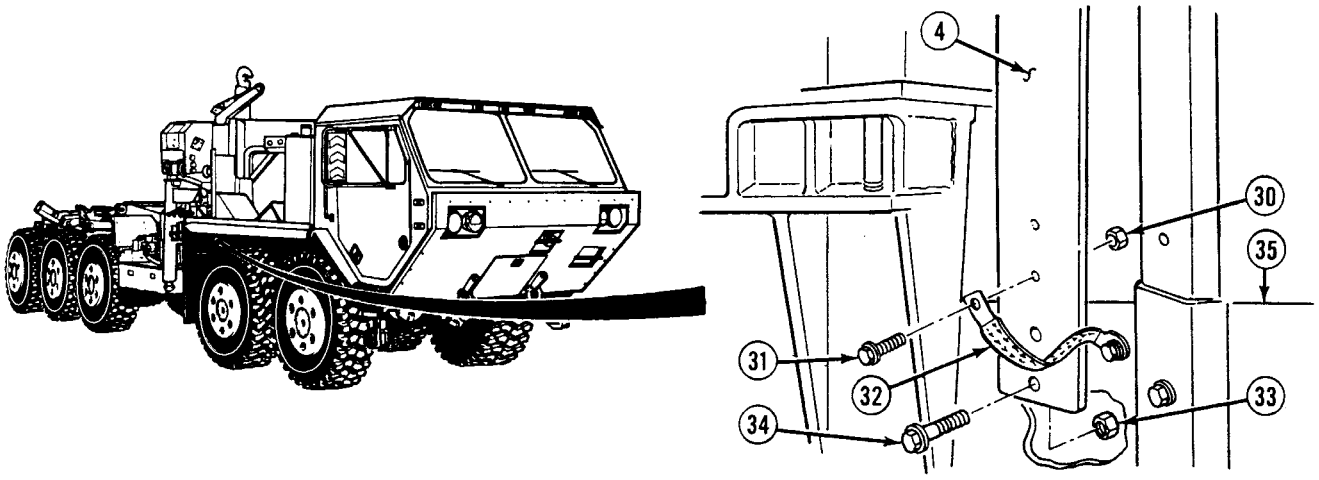
Power module frame weighs 275 lbs (125 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(10) Attach lifting device to power module frame (4).

NOTE

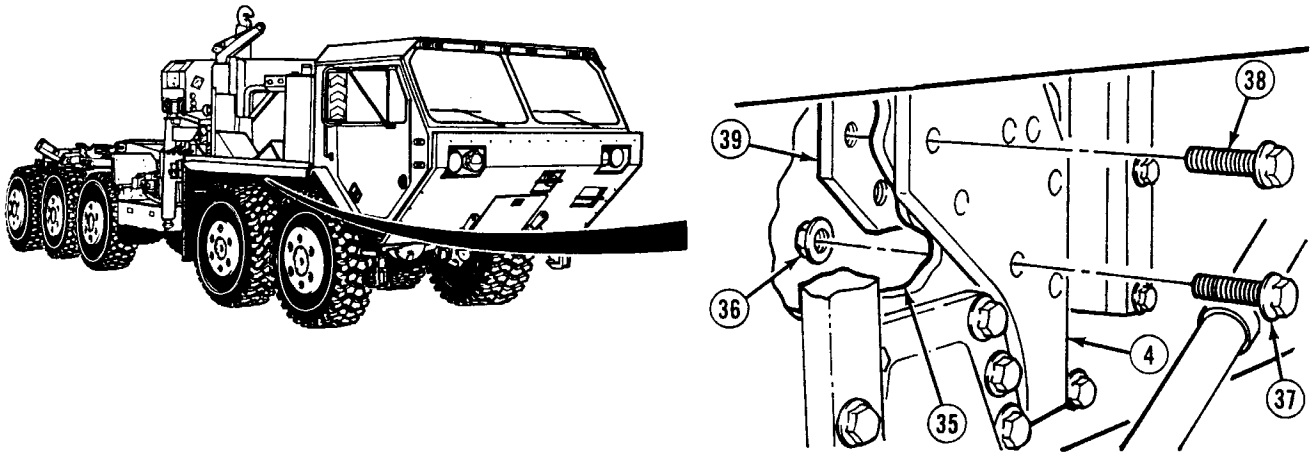
Lower and upper spreader bar assemblies are removed the same way. Upper one is shown.

(11) Remove screw (25), sleeve (26), four washers (27) and washer (28) from spreader bar assembly (29) and power module frame (4).



(12) Remove locknut (30), screw (31) and ground strap (32) from power module frame (4). Discard locknut.

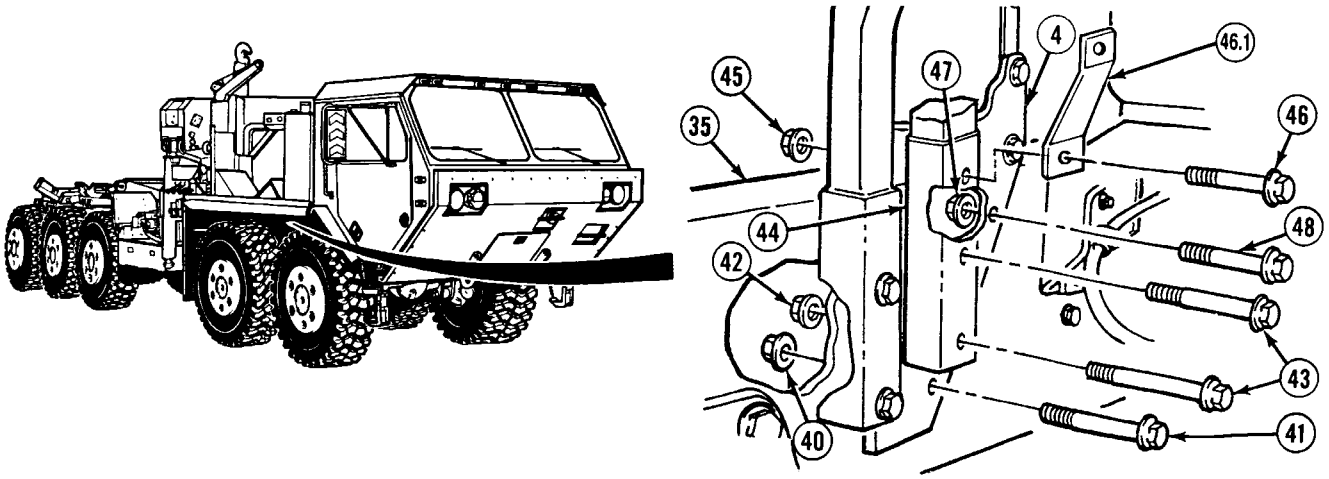
(13) Remove two locknuts (33) and screws (34) from power module frame (4) and truck frame (35). Discard locknuts.



(14) Remove two locknuts (36) and screws (37) from power module frame (4) and truck frame (35). Discard locknuts.

(15) Remove five screws (38) and plate (39) from power module frame (4) and truck frame (35).

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

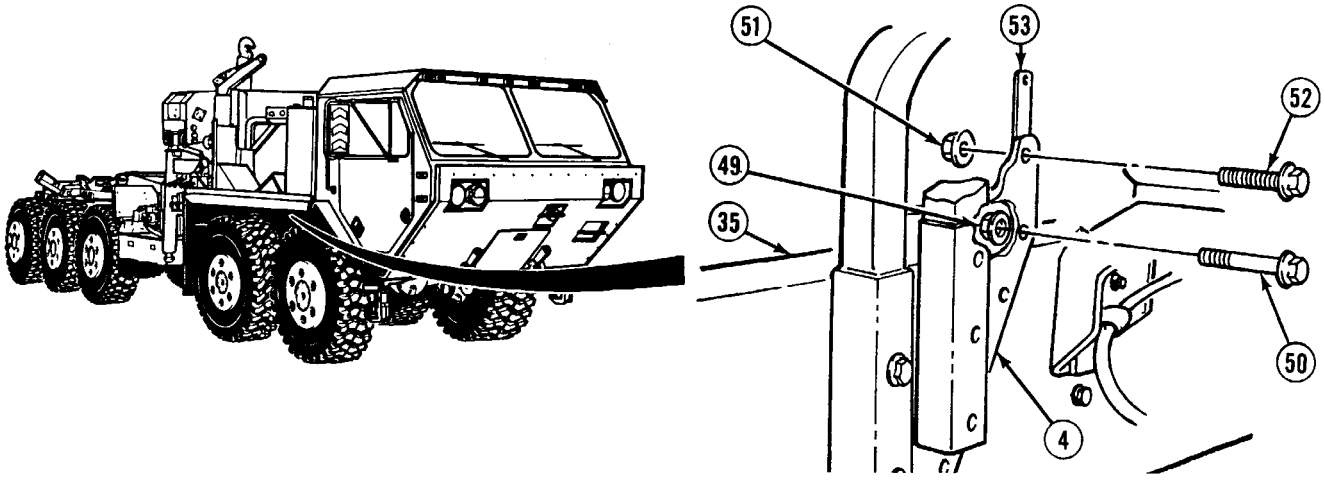


(16) Remove two locknuts (40) and screws (41) from power module frame (4) and truck frame (35). Discard locknuts.

(17) Remove two locknuts (42) and screws (43) from channel (44), power module frame (4) and truck frame (35). Discard locknuts.

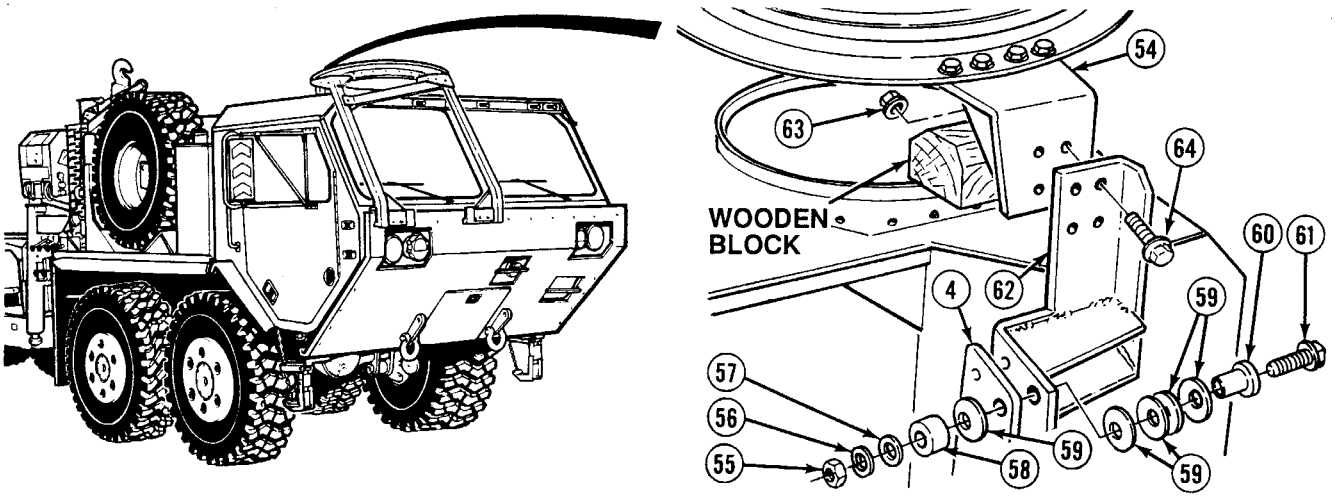
(18) Remove locknut (45), screw (46), bracket (46.1) and channel (44) from power module frame (4) and truck frame (35). Discard locknut.

(19) Remove three locknuts (47) and screws (48) from power module frame (4) and truck frame (35). Discard locknuts.



(20) Remove three locknuts (49) and screws (50) from power module frame (4) and truck frame (35). Discard locknuts.

(21) Remove locknut (51), screw (52) and bracket (53) from power module frame (4). Discard locknut.



NOTE

If truck is equipped with machine gun ring, perform Steps (22) through (24).

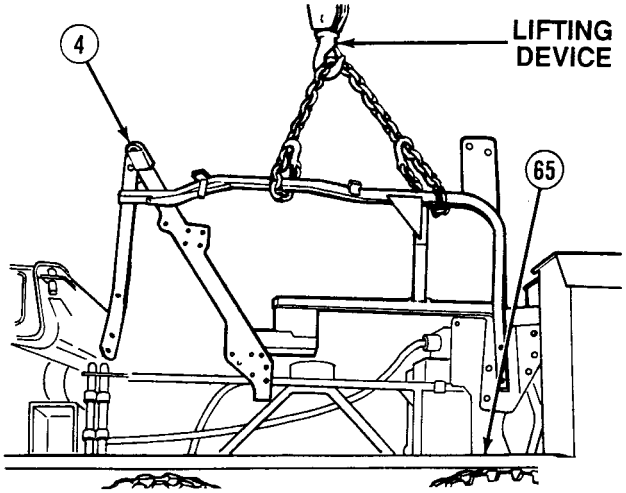
(22) Support rear of machine gun ring mount (54) with wooden block.

(23) Remove nut (55), lockwasher (56), washer (57), spacer (58), six spring washers (59) sleeve (60) and screw (61) from power module right frame (4) and machine gun ring rear support (62). Discard lockwasher.

(24) Remove four locknuts (63), screws (64) and machine gun ring rear support (62) from machine gun ring mount (54). Discard locknuts.

(25) With the aid of an assistant, remove power module frame (4) from truck (65).

(26) Remove lifting device from power module frame (4).

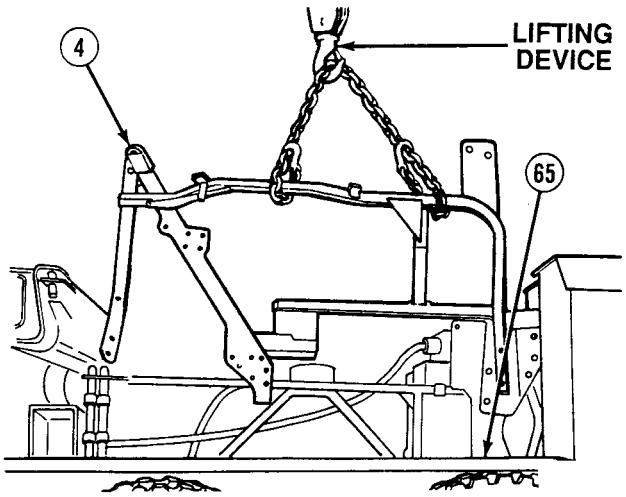


13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

b. Installation.

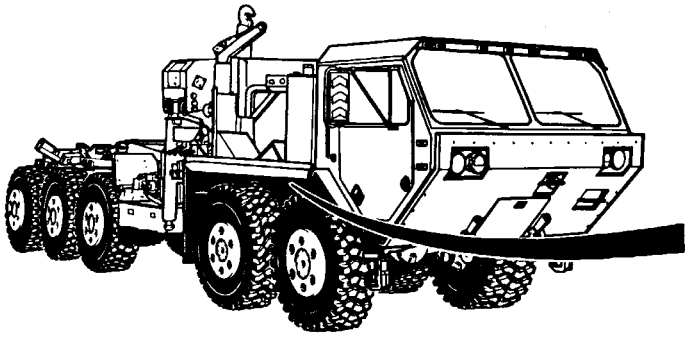
WARNING

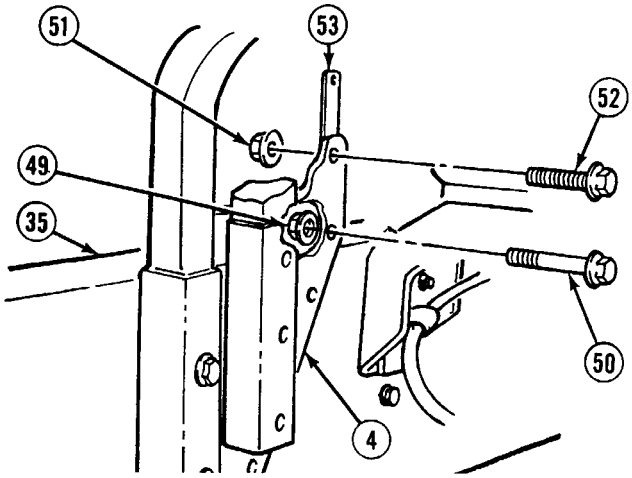
Power module frame weighs 275 lbs (125 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



(1) Attach lifting device to power module frame (4).

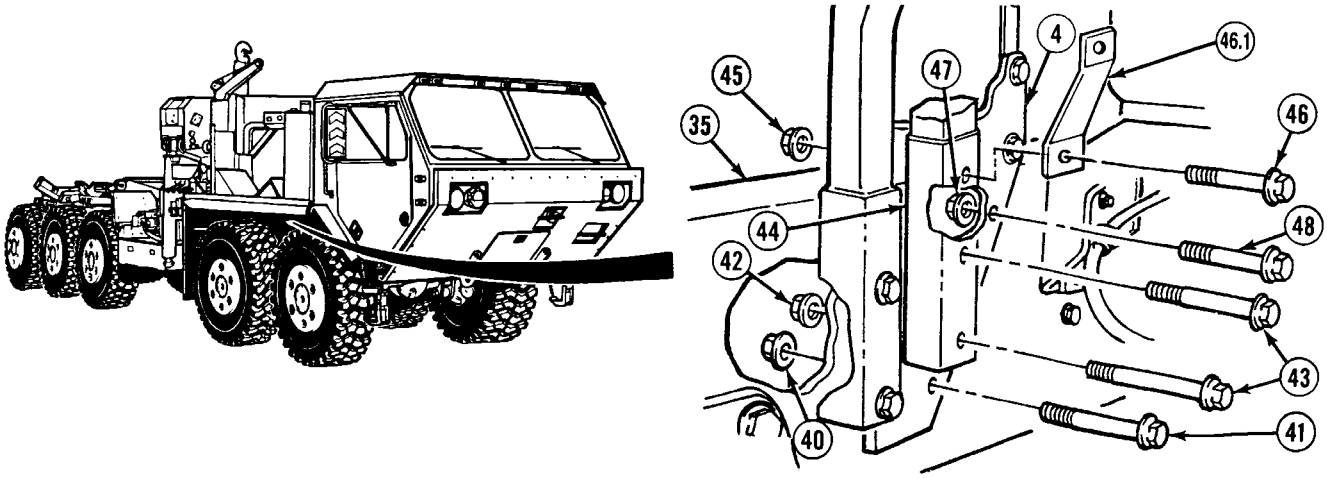
(2) With the aid of an assistant, position power module frame (4) on truck (65).





(3) Position bracket (53), screw (52) and locknut (51) on power module frame (4).

(4) Position three screws (50) and locknuts (49) in power module frame (4) and truck frame (35).

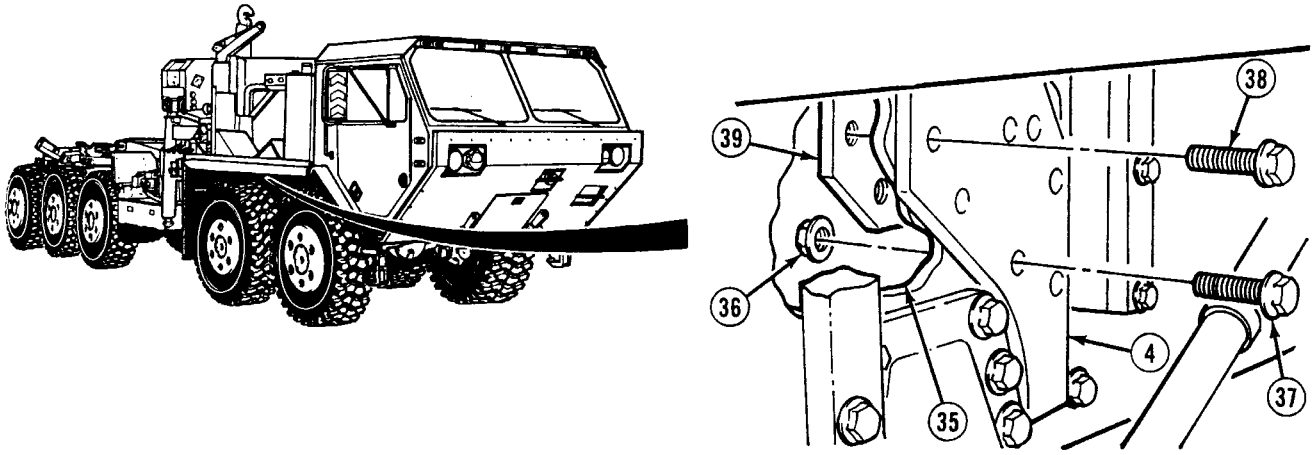


(5) Position three screws (48) and locknuts (47) in power module frame (4) and truck frame (35).

(6) Position screw (46), bracket (46.1) and locknut (45) in channel (44), power module frame (4) and truck frame (35).

(7) Position two screws (43) and locknuts (42) in channel (44), power module frame (4) and truck frame (35).

(8) Position two screws (41) and locknuts (40) in power module frame (4) and truck frame (35).



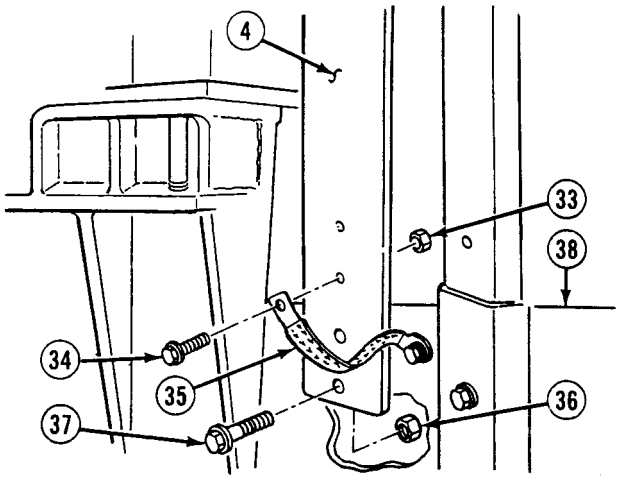
(9) Position plate (39) and five screws (38) in power module frame (4) and truck frame (35).

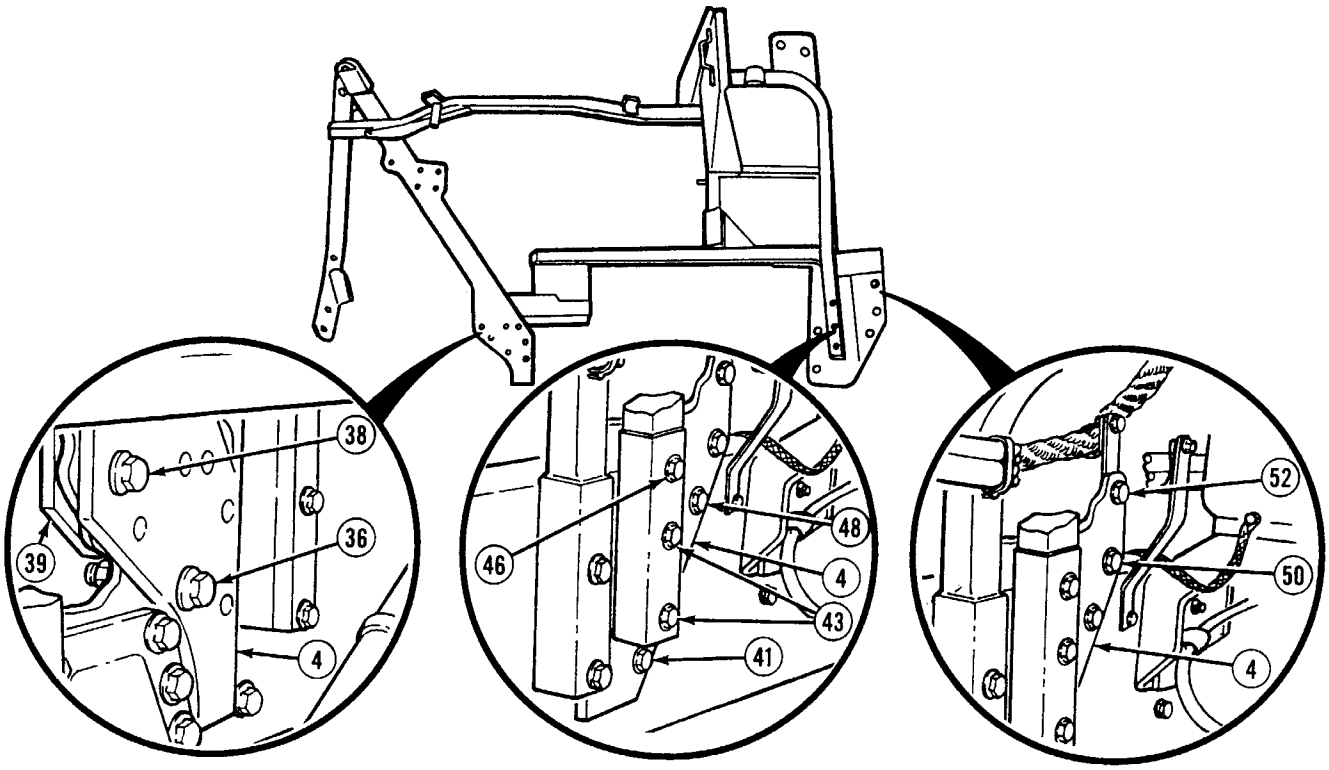
(10) Position two screws (37) and locknuts (36) in power module frame (4) and truck frame (35).

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

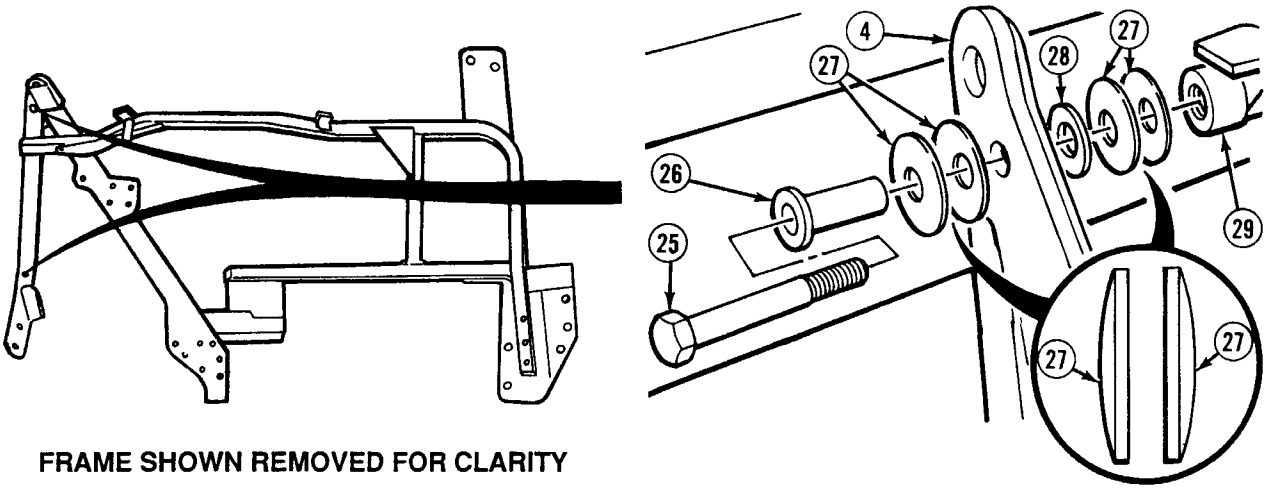
(11) With the aid of an assistant install two screws (34) and locknuts (33) in power module frame (4) and truck frame (35).

(12) Install screw (34), locknut (33) and ground strap (35) on power module frame (4).





(13) With the aid of an assistant, tighten screws (36), (38), (41), (43), (46), (50) and (52) on plate (39) and power module frame (4).



FRAME SHOWN REMOVED FOR CLARITY

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(14) Apply sealing compound to threads of screws (25).

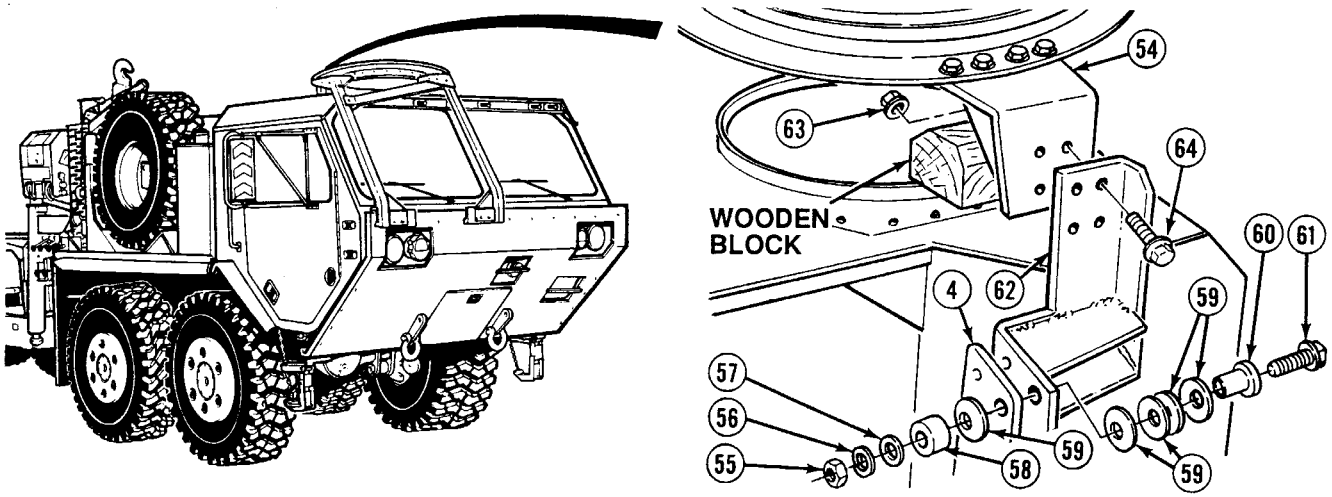
NOTE

Lower and upper spreader bar are installed the same way, upper one is shown.

(15) Install washer (28), four washers (27), sleeve (26) and screw (25) in spreader bar assembly (29) and power module frame (4). Tighten to 128 lb-ft (174 N·m).

(16) Remove lifting device from power module frame (4).

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).



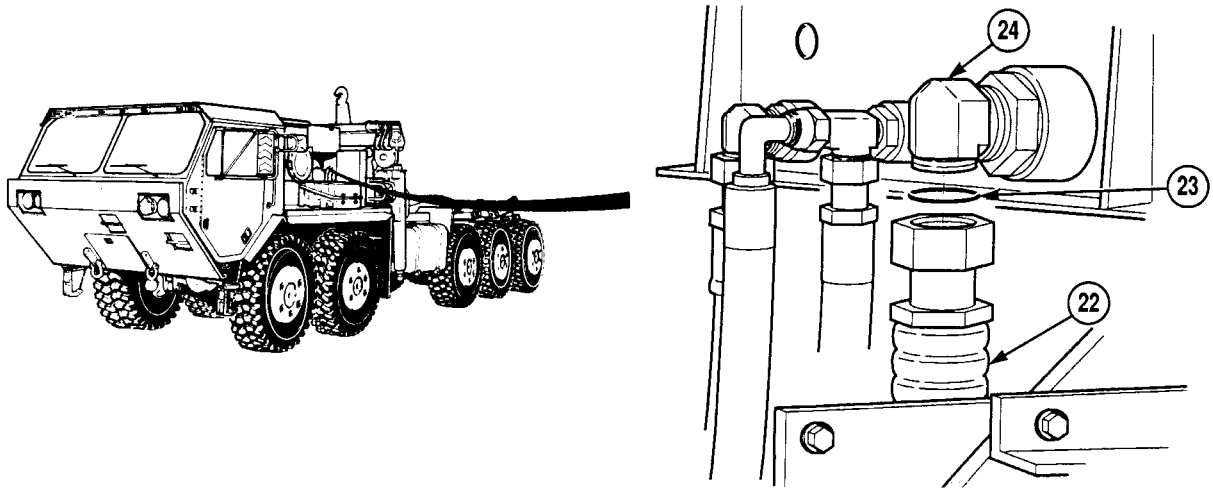
NOTE

If truck is equipped with machine gun ring, perform Steps (17) through (19).

(17) Install machine gun ring rear support (62) on machine gun ring mount (54) with four screws (64) and locknuts (63).

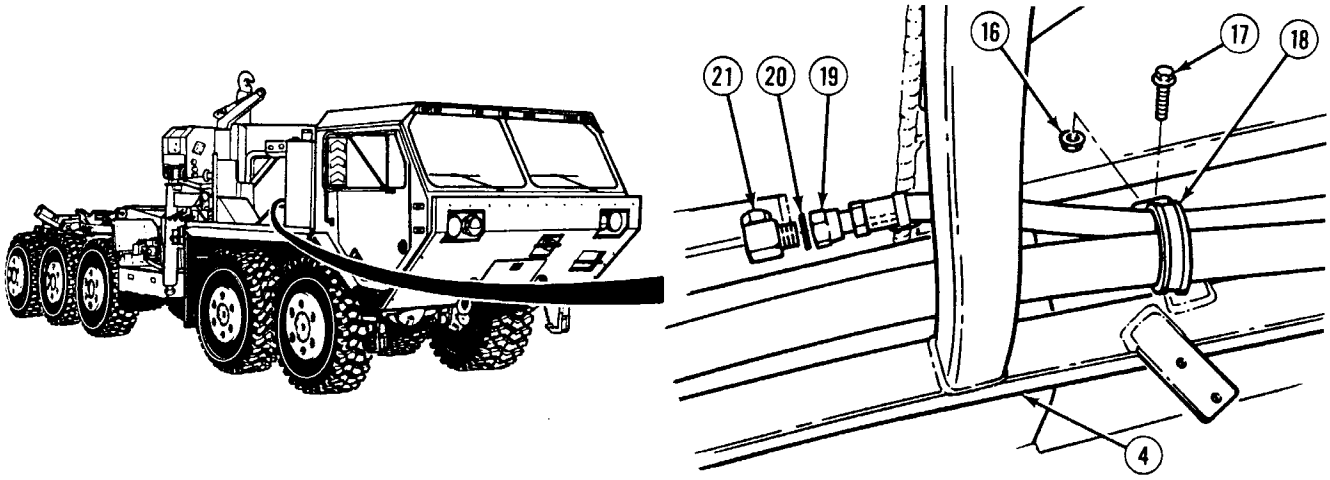
(18) Install screw (61), sleeve (60), six spring washers (59), spacers (58), washers (57), lockwashers (56) and nut (55) on power module frame (4). Tighten to 170 lb-ft (231 N·m).

(19) Remove wooden block from under machine gun ring (54).



(20) Apply hydraulic oil to preformed packing (23).

(21) Install preformed packing (23) and hose 2278 (22) on elbow (24).



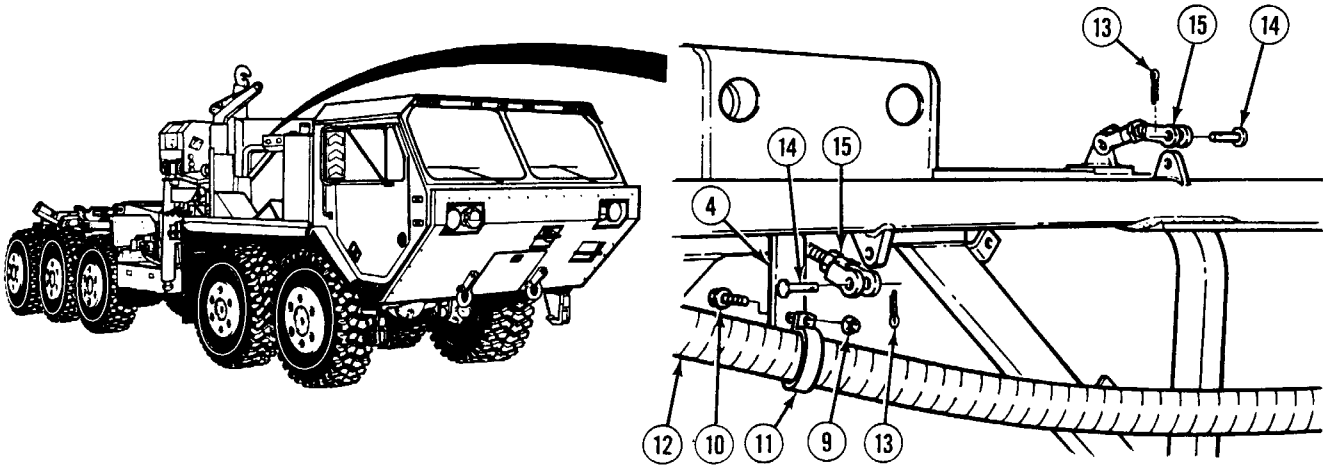
NOTE

Steps (22) and (23) are performed only if truck is equipped with crane. If truck is not equipped with crane, go on to Step (24).

(22) Apply hydraulic oil to preformed packing (20).

(23) Install preformed packing (20), hose 2694 (21) on elbow (23).

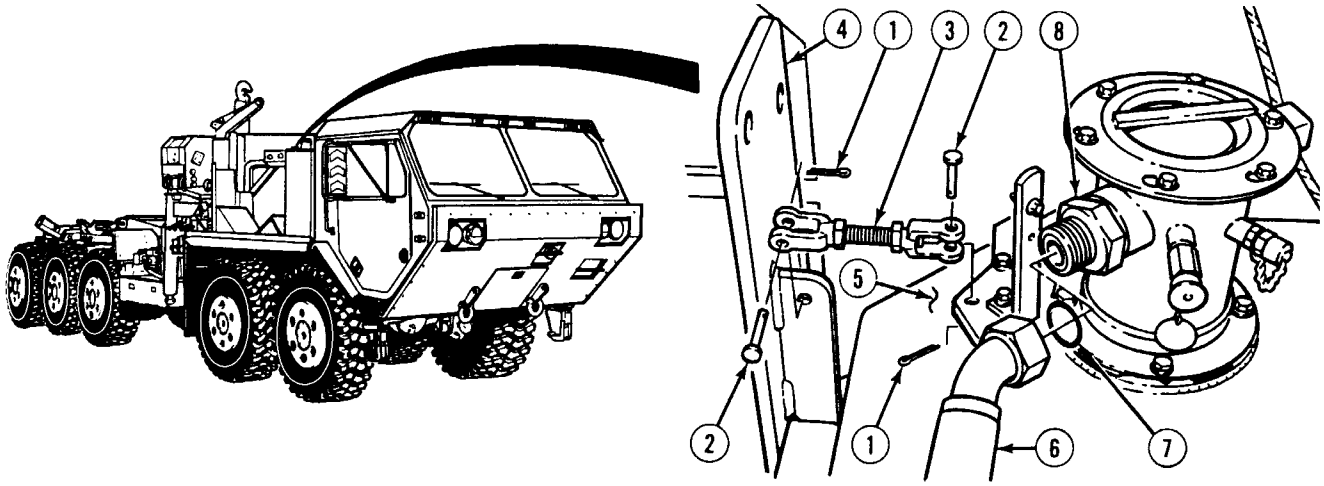
(24) Install screw (17), cushion clip (18) and locknut (16) on power module frame (4).



(25) Install two clevis (15), pins (14) and cotter pins (13) on power module frame (4).

(26) Install cushion clip (11), hose 2918 (12), screw (10) and locknut (9) on power module frame (4).

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).



(27) Apply hydraulic oil to preformed packing (7).

(28) Install preformed packing (7), and hose 2773 (6) on fitting (8).

(29) Install clevis assembly (3), two pins (2) and cotter pins (1) on power module frame (4) and hydraulic reservoir (5).

c. Follow-On Maintenance:

- Install engine/transmission, (Para 3-4).
- Install muffler, (TM 9-2320-364-20).
- Install coolant hoses, (TM 9-2320-364-20).
- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Install right side baffle, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-14. FRAME INSPECTION.

This task covers:

a. Inspection b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheel chocked, (TM 9-2320-364-10)

Personnel Required
Two

a. Inspection.

WARNING

- There are a number of conditions that could cause truck frame to become warped or twisted. Any attempt to mechanically straighten truck frame, beyond that of loosening attachment fittings to relieve stress in cross memebers and re-tightening to proper torque, shall be performed by a company that has proper equipment and experience in straightening large truck frames. If performed improperly, frame can be damaged or weakened, making it unsafe.
- Frame rails are heat-treated and can be weakened if heated or welded on.

(1) Inspect frame for evidence of scraped paint, missing fasteners, components that have shifted, bent cross memebers, shifted bolt joints of cross members.

NOTE

It may be necessary to loosen adjacent fasteners to allow components to move.

(2) If evidence of damage exists, loosen/remove suspect fasteners per applicable paragraph to see if frame springs back to original position.

(3) If components return to specified locations, install new mounting hardware and torque as required.

(4) If evidence of frame twist or warpage still exists, perform following measurements in Table 13-1.If frame rail exceeds these limits, frame rail requires straightening or replacement.

Table 13-1. Frame Specifications

Inspection	Tolerance
Overall length of frame rail	400.62 ± 0.06 inches
Vertical distance between flanges	13.25 ± 0.12 inches
Width of flanges on channel	3.25 ± 0.25 inches
Material thickness on channel	0.375 ± .01 inches
Angle between the flange/web	90 ± 1 inches
Bow in the main rail (Lateral)	± 0.375 inches in 20 feet
Camber in the main rail (Vertical)	± 0.125 inches in 20 feet
Web flatness	± 0.065 inches (measured with straight edge across height of section)

b. Follow-On Maintenance.

- Align and adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

13-15. GEAR REDUCER MOUNT REPLACEMENT (M1075 ONLY).

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

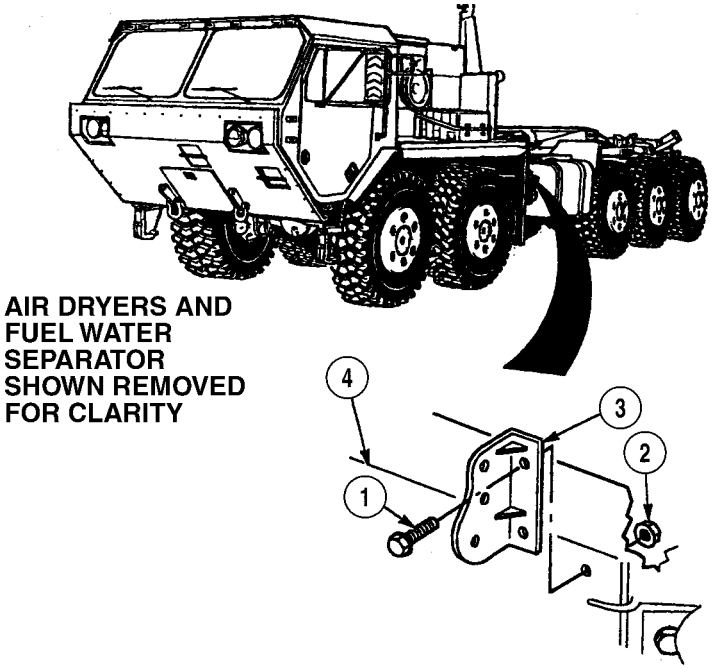
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Personnel Required
Two

Tools and Special Tools
Locknut, (2) (Item 93, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheel chocked, (TM 9-2320-364-10)
Gear reducer removed (Para 12-6)

a. Removal.



(1) With the aid of an assistant, remove two screws (1), two locknuts (2) and gear reducer mount (3) from frame (4). Discard locknuts.

b. Installation.

(1) With the aid of an assistant, install gear reducer mount (3) on frame (4) using two screws (1) and locknuts (2).

c. Follow-On Maintenance.

- Install gear reducer, (Para 12-6).
- Remove wheel chocks (TM 9-2320-364-10).

END OF TASK

CHAPTER 14

SPRINGS AND SHOCKS MAINTENANCE

14-1. DIRECT SUPPORT SPRINGS AND SHOCKS MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing and servicing spring and shock components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

14-2. TANDEM SPRING HANGER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

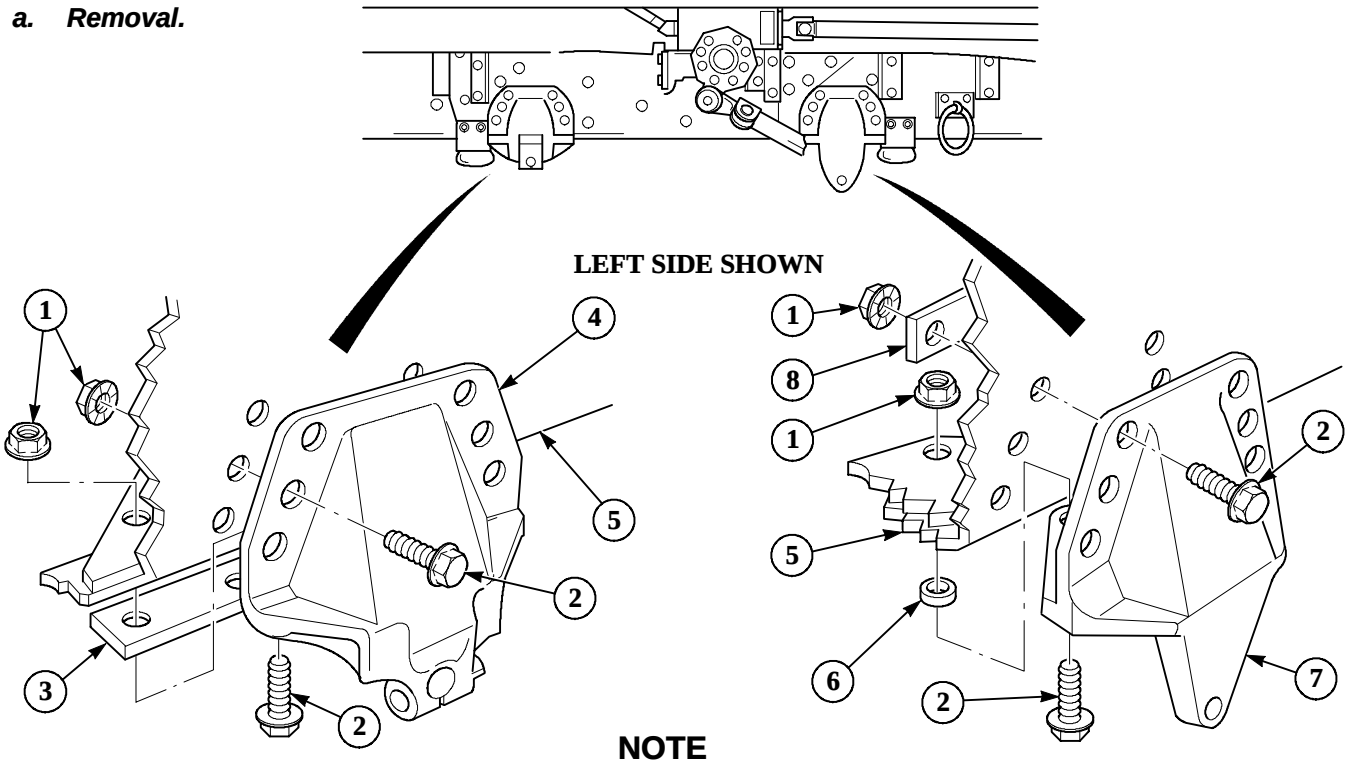
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Locknut (15) (Item 166, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Front and/or rear springs removed, (Para 14-3)

a. Removal.



NOTE

- Front and rear spring hangers are removed the same way. Front is shown.
- Bracket is located on front left rear spring hanger only.
- Two screws holding bracket are longer on front left rear spring hanger only.

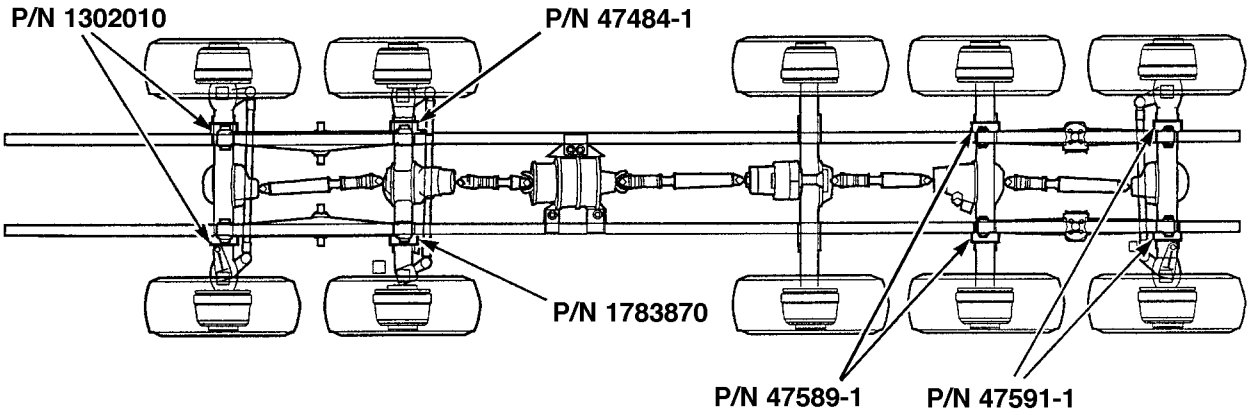
(1) Remove two locknuts (1), screws (2) and spacer plate (3) from bottom of front spring hanger (4) and frame (5). Discard locknuts.

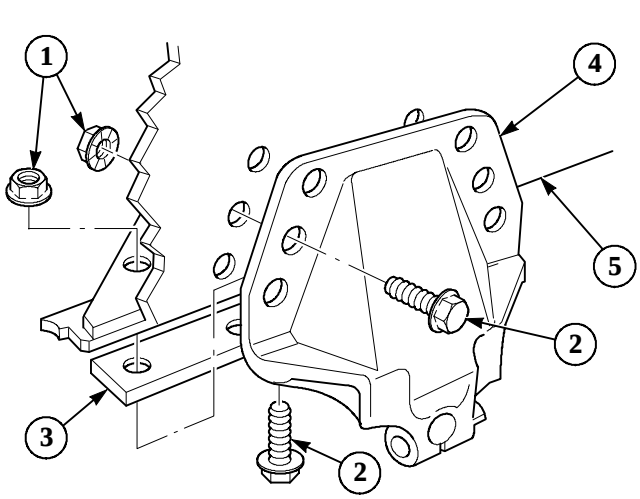
(2) With the aid of an assistant, remove six locknuts (1), screws (2) and front spring hanger (4) from frame (5). Discard locknuts.

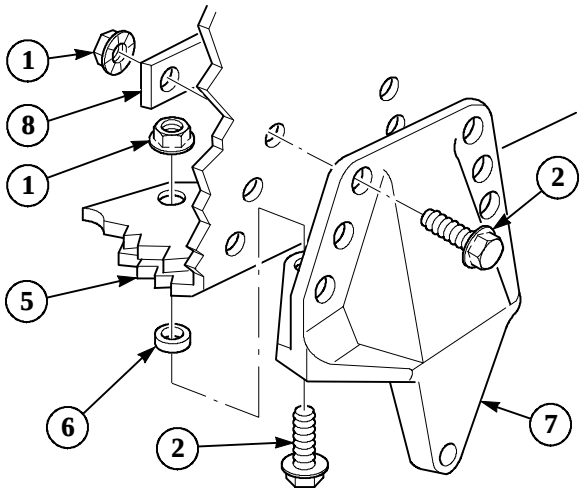
(3) Remove locknut (1), screw (2) and washer (6) from bottom of rear spring hanger (7) and frame (5). Discard locknut.

(4) With the aid of an assistant, remove six locknuts (1), screws (2), bracket (8) and rear spring hangers (7) from frame (5). Discard locknuts.

b. Installation.







NOTE

- Refer to above illustration for proper spring hanger identification.
- Bracket is located on front left rear spring hanger only.
- Two screws holding bracket are longer on front left rear spring hanger only.

(1) With the aid of an assistant, install rear spring hangers (7) and bracket (8) on frame (5) with six screws (2) and locknuts (1).

(2) Install washer (6) between frame (5) and rear spring hanger (7) with screw (2) and locknut (1).

(3) With the aid of an assistant, install front spring hangers (4) on frame (5) with six screws (2) and locknuts (1).

(4) Install spacer plate (3) between frame (5) and front spring hanger (4) with two screws (2) and locknuts (1).

c. Follow-On Maintenance:

- Install springs, (Para 14-3).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

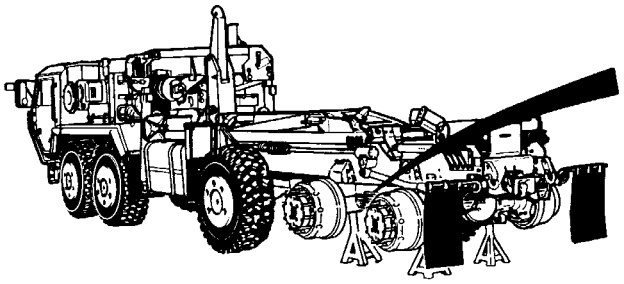
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Jack, Stabilizer (2)
(Item 130, Appendix F)
Jackstand (6) (Item 132, Appendix F)
Punch, Drift (Item 179, Appendix F)
Wrench, Combination 1-1/2 in.
(Item 260, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 208 lbs
(94 kg) for front spring assembly
Lifting Device, Minimum Capacity 175 lbs
(79 kg) for rear spring assembly
Lifting Device, Minimum Capacity 4 tons
(3632 kg) for raising equalizer beam

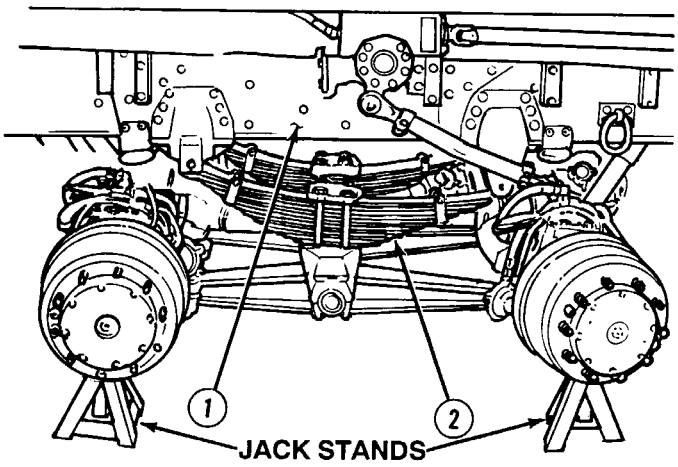
Materials/Parts
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)
Locknut (2) (Item 212, Appendix E)
Lockwasher (4) (Item 267, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Wheels/tires removed, (TM 9-2320-364-10)
Axle No. 4 shock absorbers disconnected
(rear springs only), (TM 9-2320-364-20)
Axle No. 5 lateral torque rod disconnected
(rear springs only), (Para 14-8)

a. Removal.





WARNING

Ensure truck frame is securely supported before removing spring assembly. If truck falls, serious injury to personnel or death may result.

NOTE

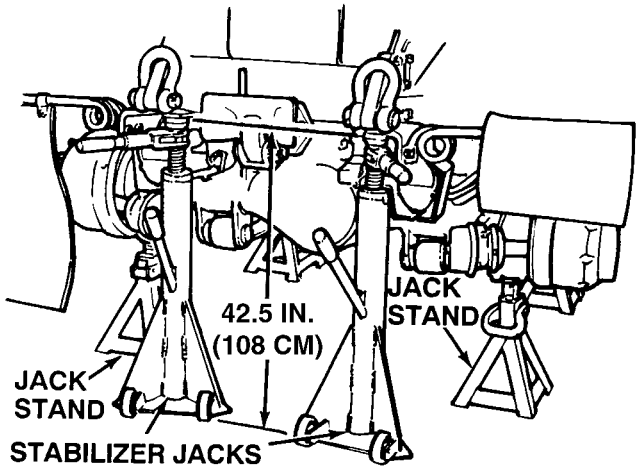
- Front and rear spring assemblies are removed in the same way, with some minor differences. These differences are noted in the text of this task.
- Left and right sides are removed in the same way. Left rear spring assembly is shown.
- Even if only one spring assembly is being replaced, both frame rails need to be raised evenly to the same height. Failure to raise both frame rails to the same height make installation of spring assembly very difficult.

(1) Using lifting device, raise each frame rail (1) until weight of truck is off spring assembly (2).

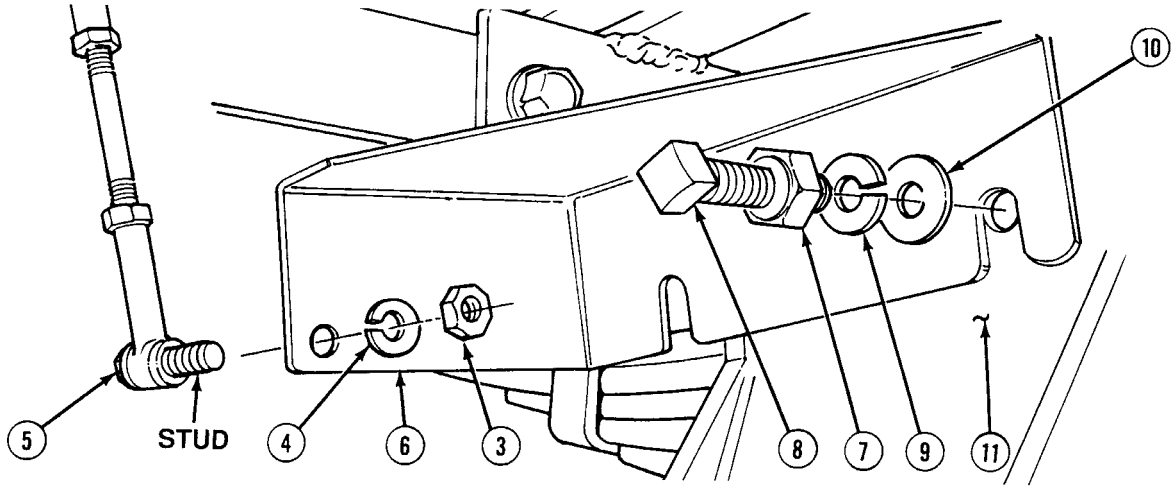
NOTE

Stabilizer jacks must be adjusted to 42-1/2 in. (108 cm) high.

(2) Position stabilizer jack under each frame rail (1) and lower frame rails onto stabilizer jacks.



14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT (CONT).



NOTE

Perform Steps (3) and (4) only when removing rear spring assembly.

(3) Remove nut (3) and lockwasher (4) from both studs of rod assemblies (5). Discard lockwasher.

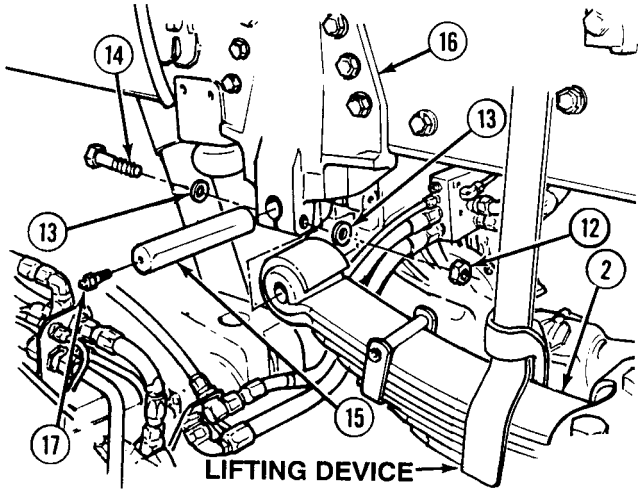
(4) Disconnect rod assemblies (5) from each bracket (6).

NOTE

Bracket and washers apply only when removing rear spring assembly.

(5) Loosen two nuts (7) and remove bracket (6), two screws (8), nuts (7), lockwashers (9) and washers (10) from bracket (11). Discard lockwashers.

(6) Remove two locknuts (12), four washers (13) and two screws (14) from spring assemblies (2). Discard locknuts.



WARNING

Do not stick fingers in pin holes. Injury to personnel may result.

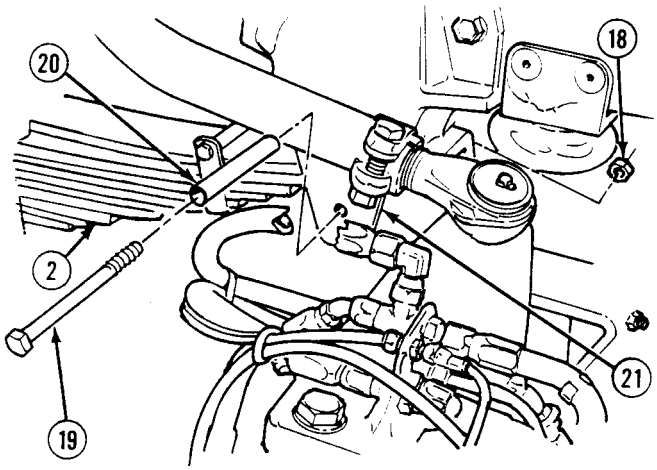
NOTE

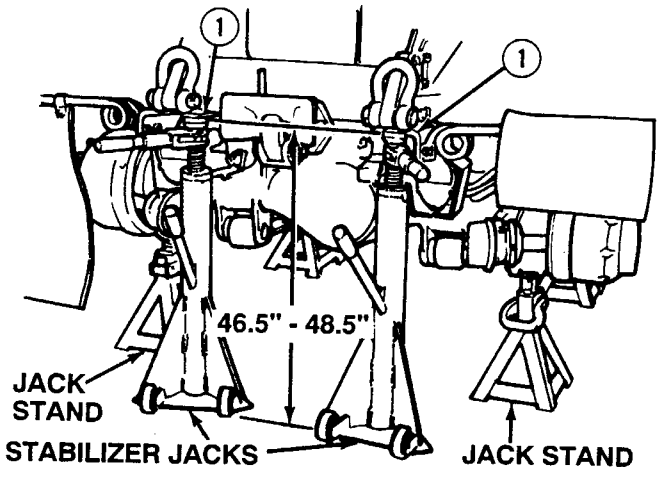
If pin is hard to remove, use lifting device to raise or lower equalizer beam as necessary to get weight of truck off spring assembly.

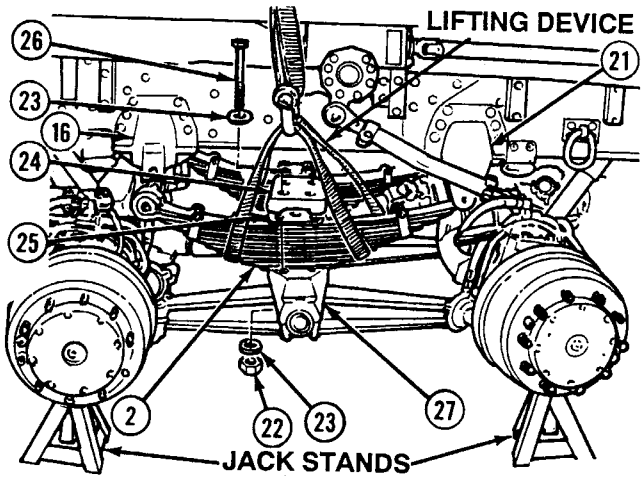
(7) Remove pins (15) from brackets (16).

(8) Remove grease fittings (17) from pins (15).

(9) Remove locknut (18), screw (19) and spacer (20) from brackets (21). Discard locknut.







(10) Using a lifting device, raise each frame rail (1) 4 to 6 in. (10 to 15 cm) to free each spring assembly (2) from brackets (16) and (21).

(11) Adjust stabilizer jack to support frame rails (1).

WARNING

Front spring assembly weighs 208 lbs (94 kg). Rear spring assembly weighs 175 lbs (79 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

(12) Attach lifting device to spring assembly (2).

(13) Remove four nuts (22), eight washers (23), saddle cap (24), liner (25) and four screws (26) from saddle (27).

(14) Using a lifting device, remove spring assembly (2) from saddle (27) and lower spring assembly to ground.

(15) Repeat Steps (1) through (15) for remaining spring.

14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT (CONT).

b. Installation.

WARNING

Front spring assembly weighs 208 lbs (94 kg). Rear spring assembly weighs 175 lbs (79 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

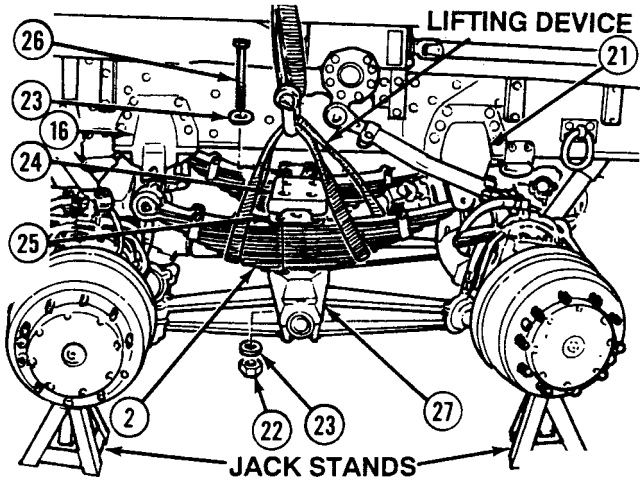
NOTE

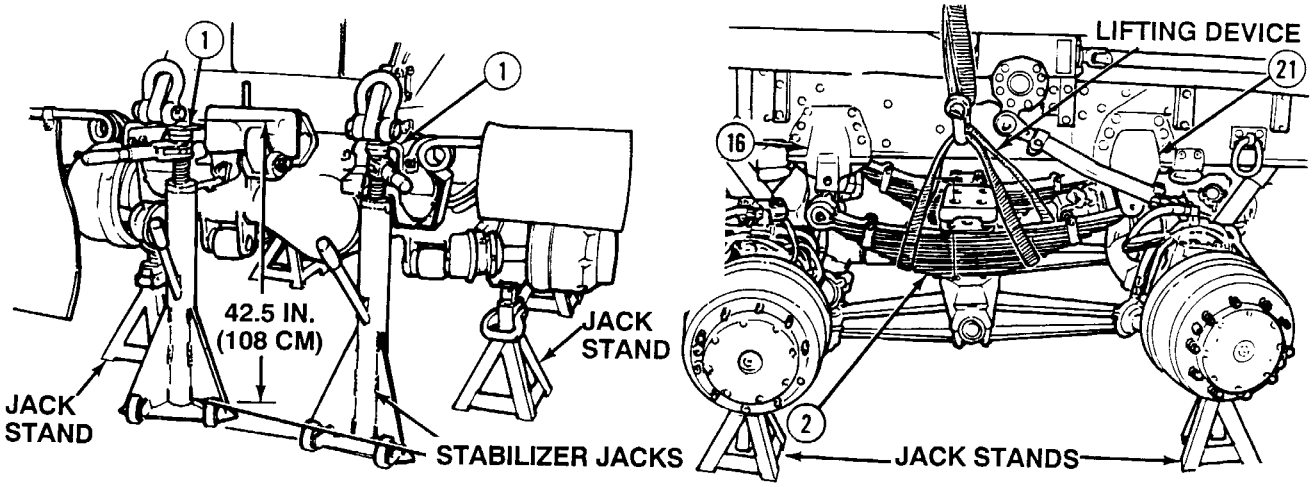
- Front and rear spring assemblies are installed in the same way.
- Left and right sides are installed in the same way. Left rear spring assembly is shown.

(1) Using a lifting device, position spring assembly (2) on saddle (27).

(2) Apply lubricating oil to threads of four screws (26).

(3) Position liner (25), saddle cap (24), four screws (26), eight washers (23) and four nuts (22) on spring assembly (2).





(4) Using a lifting device, raise each frame rail (1) and lower stabilizer jacks to 42-1/2 in. (108 cm).

(5) Using a lifting device, lower each frame rail (1) until both spring assemblies (2) are positioned in brackets (21) and (16).

(6) Raise stabilizer jacks to support frame rails (1).

(7) Apply grease to pins (15).

WARNING

Do not stick fingers in pin holes. Failure to comply may cause injury to personnel.

(8) Using drift punch, align spring assemblies (2) with brackets (16).

NOTE

- Screw slots in pin face down.
- Grease fitting hole faces outside of truck.

(9) Install pins (15) in brackets (16) and springs (2).

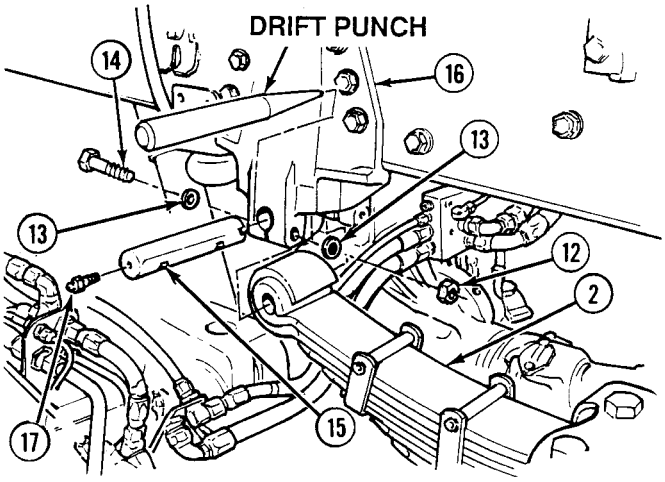
NOTE

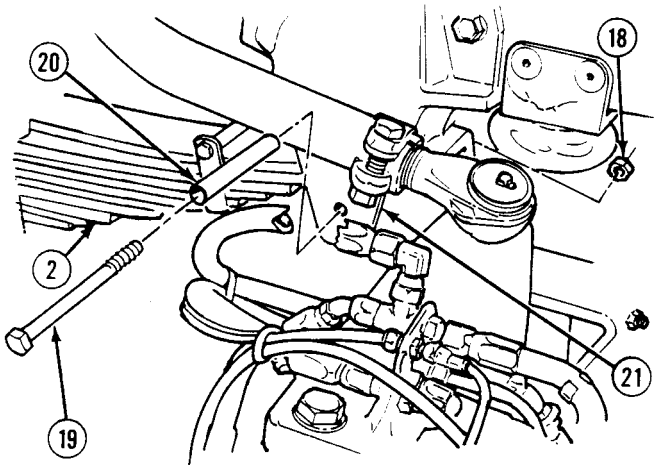
If screw slots do not line up with screw holes to allow installation of screws, use turn slot to turn pin and align screw slots with screw holes.

(10) Install two screws (14), four washers (13) and two locknuts (12) in spring assemblies (2) and bracket (16). Tighten locknuts to 45 to 63 lb-ft (61 to 85 N·m).

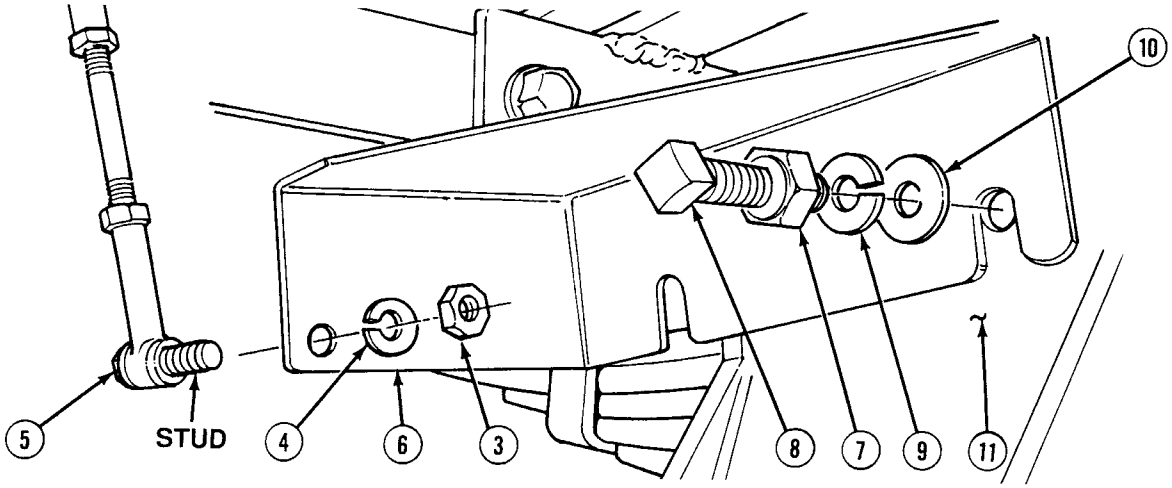
(11) Install grease fittings (17) to pins (15).

(12) Install spacer (20), screw (19) and locknut (18) to brackets (21). Tighten locknut to 38 to 45 lb-ft (52 to 61 N·m).





14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT (CONT).



(13) Apply lubricating oil to threads of adjusting screws (8).

NOTE

- Steps (14) through (17) apply to installing the rear spring assembly only.
- Steps (18) through (20) apply to installing the front spring assembly only.

(14) Install two nuts (7), lockwashers (9) and washers (10) on adjusting screws (8).

(15) Position bracket (6) with two adjusting screws (8) on bracket (11). Tighten adjusting screws to 100 to 150 lb-ft (136 to 203 N·m).

(16) Tighten two nuts (7) on adjusting screws (8) to 100 to 150 lb-ft (136 to 203 N·m).

NOTE

Adjusting rod is being temporarily installed at this time.

(17) Connect adjusting rod (5) to bracket (6) with lockwasher (4) and old nut (3).

(18) Install two nuts (7) and lockwashers (9) on each screw (8).

(19) Install two adjusting screws (8) on bracket (11). Tighten adjusting screws to 100 to 150 lb-ft (136 to 203 N·m).

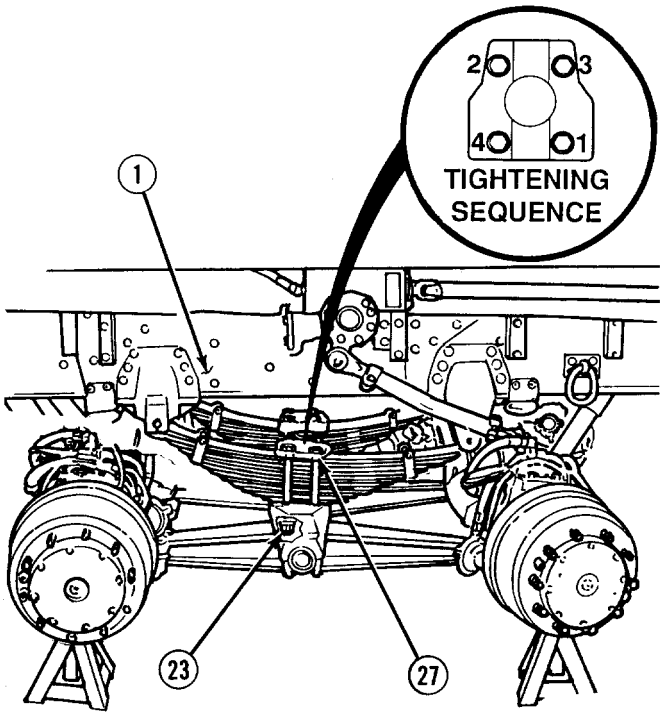
(20) Tighten two nuts (7) on adjusting screws (8).

(21) Repeat Steps (1) through (20) for remaining spring.

(22) Using a lifting device, raise truck enough to allow removal of stabilizer jacks from beneath frame rails (1).

(23) Lower frame rails (1) and remove lifting device.

(24) Tighten four screws (27) on nuts (23) to 275 to 300 lb-ft (373 to 407 N·m) in the sequence shown. Repeat tightening procedure a minimum of two times.



c. Follow-On Maintenance:

- Connect Axle No. 5 lateral torque rod, (Para 14-8).
- Connect Axle No. 4 shock absorbers, (TM 9-2320-364-20).
- Install wheel/tires, (TM 9-2320-364-10).
- Lubricate spring assembly, (TM 9-2320-364-20).
- Adjust load sensing valve (rear spring assembly only), (TM 9-2320-364-20).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-4. AXLE NO. 3 AIR BAGS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Sealing Compound (Item 53, Appendix B)
Tag, Identification (Item 72, Appendix B)
Bolt Kit, Air Spring (Item 18, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Air system drained, (TM 9-2320-364-10)

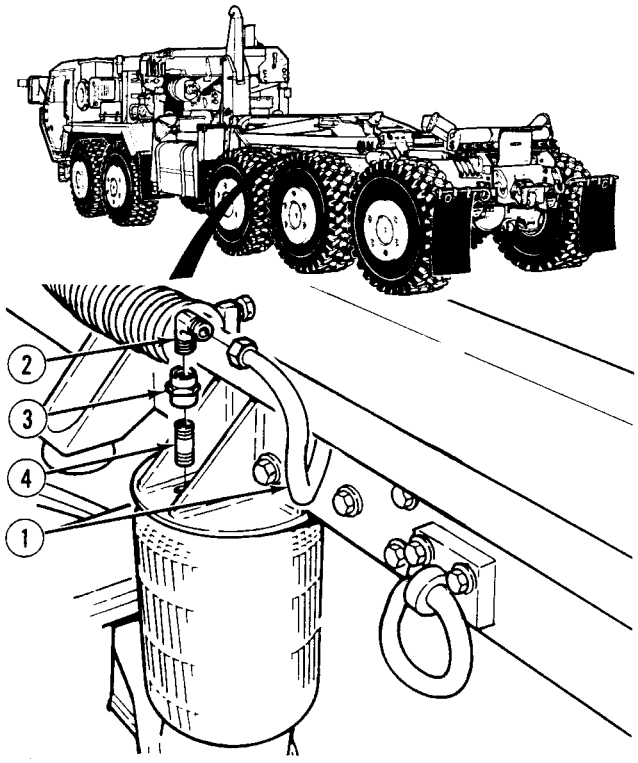
a. Removal.

WARNING

Air bags may still be pressurized even though air pressure gauge reads 0 psi. Remove air line slowly to allow air to escape. Failure to comply may result in air line blowing off causing serious injury to personnel.

NOTE

- Right and left air bags on Axle No. 3 are removed in the same way. The left side air bag is shown.
- Right side air bag air line is 2793. Left side air bag air line is 2794.



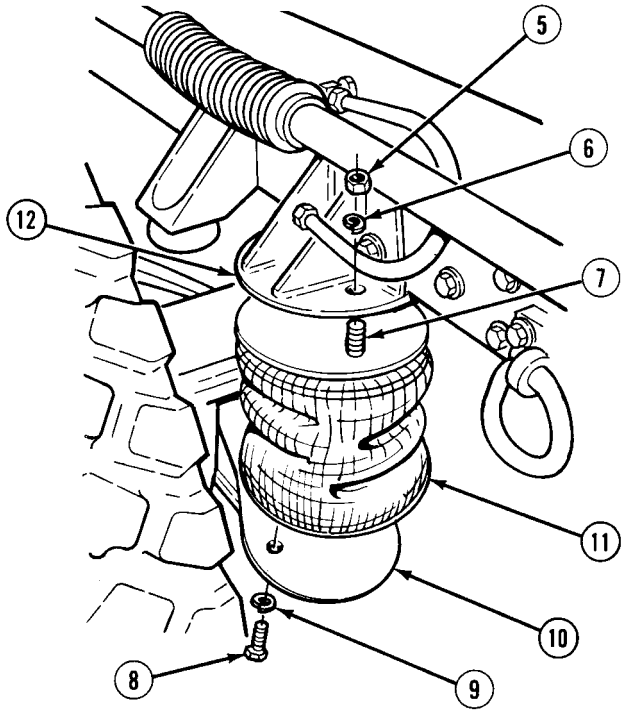
(1) Remove air line 2794 (1) from elbow (2).

(2) Remove elbow (2), fitting (3) and pipe nipple (4).

(3) Remove two nuts (5) and lockwashers (6) from studs (7). Discard lockwashers and nuts.

(4) Remove two screws (8) and lockwashers (9) from trailing beam (10). Discard lockwashers and screws.

(5) Compress air bag (11) and remove from bracket (12) and trailing beam (10).



b. Installation.

NOTE

Right and left air bags on this axle are installed in the same way. The left side air bag is shown.

(1) Stretch air bag (11) into position against bracket (12).

(2) Install two lockwashers (6) and nuts (5) on studs (7). Tighten nuts to 25 lb-ft (34 N·m).

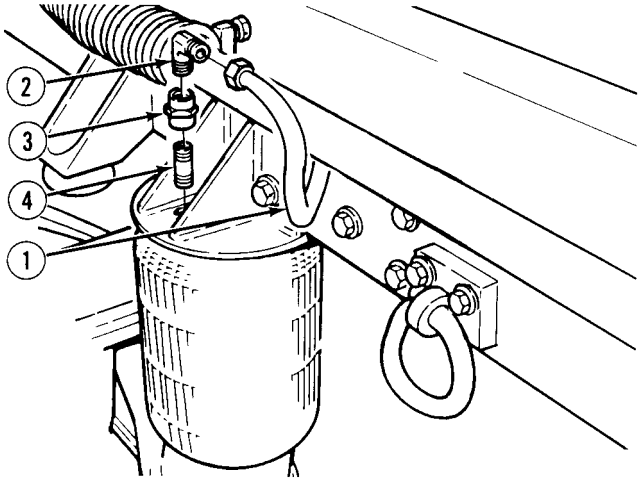
(3) Stretch air bag (11) into position against trailing beam (10).

(4) Install air bag (11) on trailing beam (10) using two lockwashers (9) and screws (8). Tighten screws to 55 lb-ft (75 N·m).

14-4. AXLE NO. 3 AIR BAGS REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use only in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(5) Coat threads of pipe nipple (4) and bottom threads of elbow (2) with sealing compound.

(6) Install pipe nipple (4), fitting (3) and elbow (2).

NOTE

Right side air bag air line is 2793. Left side air bag air line is 2794.

(7) Install air line 2794 (1) to elbow (2).

c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Build up air pressure to 125 psi, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for air leaks.
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Adapter, Press (Item 5, Appendix F)
Clamp (Item 31, Appendix F)
Clamp Plate (Item 33, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Inserter, Center Bushing, Front (Item 102, Appendix F)
Installer Tool, Center Bushing, Rear (Item 123, Appendix F)
Jack, Dolly Type (Item 127, Appendix F)
Jack, Stabilizer (2) (Item 130, Appendix F)
Jackstand (6) (Item 132, Appendix F)
Press Plate (Item 163, Appendix F)
Press, 60 Ton (Item 164, Appendix F)
Remover, Bushing, Beam End (Item 187, Appendix F)
Remover, Center Bushing, Front (Item 188, Appendix F)
Remover, Center Bushing, Rear (Item 189, Appendix F)
Wrench Set, Socket 3/4 In. Drive (Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 10 tons (9080 kg)
Lifting Device, Minimum Capacity 212 lbs (96 kg)

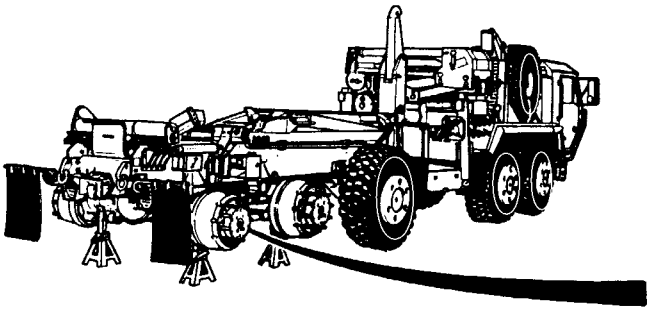
Materials/Parts
Cloth, Crocus (Item 12, Appendix B)
Compound, Corrosion Preventive (Item 15, Appendix B)
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Beam Center Bushing (Item 3, Appendix E) (Used on Front Tandem Only)
Beam Center Bushing (Item 4, Appendix E) (Used on Rear Tandem Only)
Beam End Bushing (Item 7, Appendix E) (Used on Front and Rear Tandem)
Locknut (2) (Item 182, Appendix E)
Locknut (4) (Item 212, Appendix E)

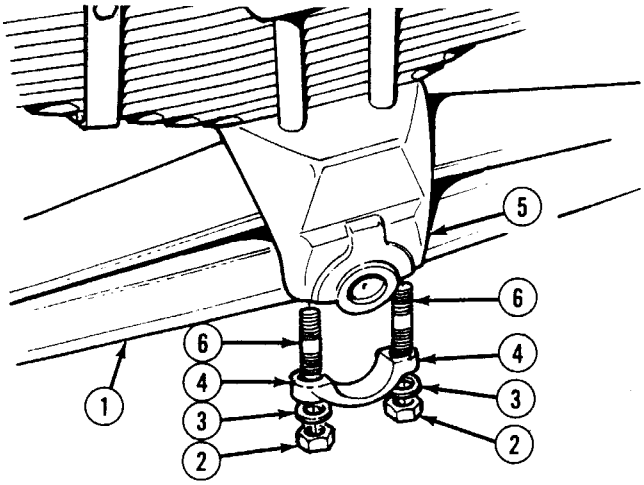
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Wheels/tires removed, (TM 9-2320-364-10)

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

a. Removal.





(1) Using a hydraulic jack, raise the equalizer beam (1).

WARNING

Ensure truck is securely supported before removing equalizer beams. If truck falls, serious personal injury or death may result.

NOTE

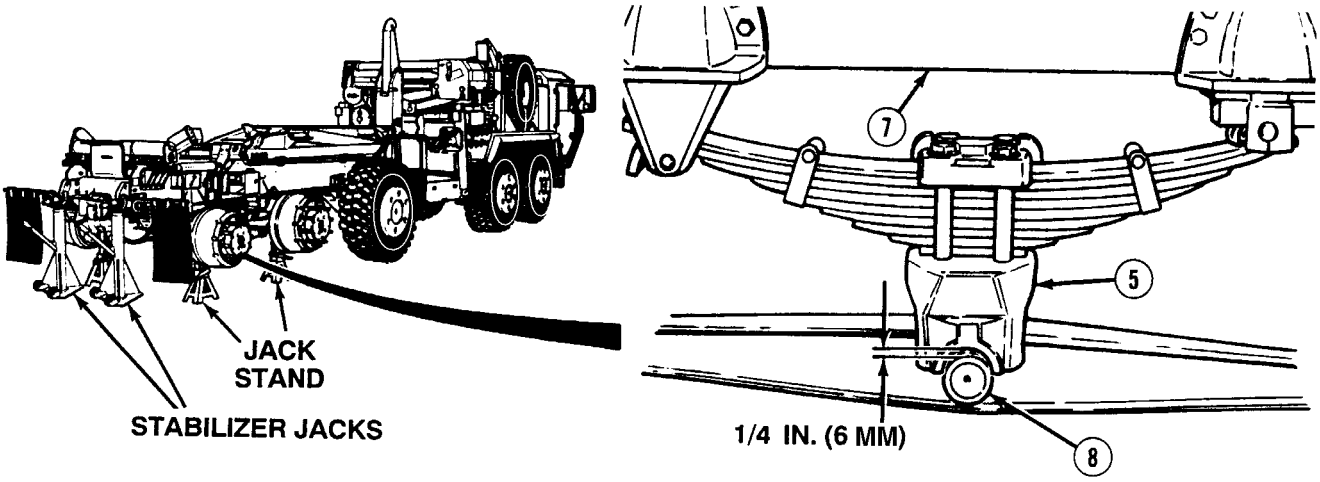
- Position jackstands under each axle, as shown.
- Front and rear equalizer beams are removed in the same way. The rear tandem is shown.
- Left and right equalizer beams are removed in the same way. Right side of rear tandem is shown.

(2) Remove four locknuts (2), washers (3) and two saddle caps (4) from each saddle (5). Discard locknuts.

NOTE

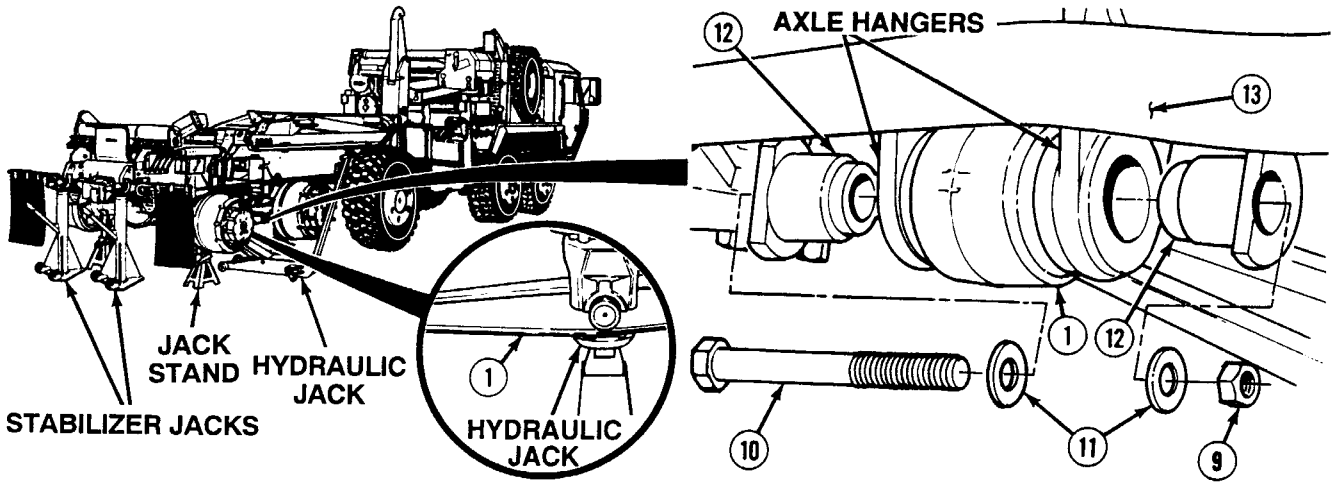
If studs are damaged, perform Step (3).

(3) Remove four studs (6) from each saddle (5).



(4) Raise each frame rail (7) with lifting device until a gap of approximately 1/4 in. (6 mm) between each saddle (5) and center bushing (8).

(5) Support frame rail (7), at height determined in Step (4), with stabilizer jacks.



WARNING

Two equalizer beams and cross tube weigh 445 lbs (202 kg) assembled. Each equalizer beam weighs 212 lbs (96 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

(6) Support each equalizer beam (1) with a hydraulic jack.

(7) Remove two locknuts (9), screws (10) and four washers (11) from each equalizer beam (1). Discard locknuts.

(8) Remove four adapters (12) from each equalizer beam (1).

(9) With two hydraulic jacks, lower and remove equalizer beams (1) from truck (13).

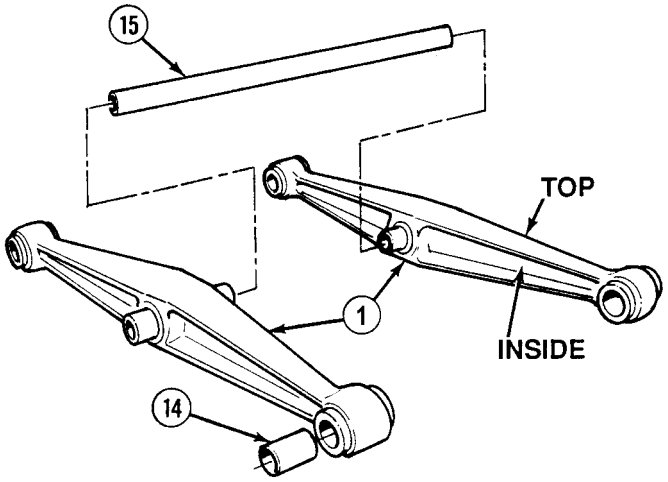
14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

(10) Remove two spacers (14) from each equalizer beam (1).

NOTE

Tag and mark TOP and INSIDE of equalizer beams before removing center cross tube.

(11) Remove center cross tube (15) from equalizer beams (1).



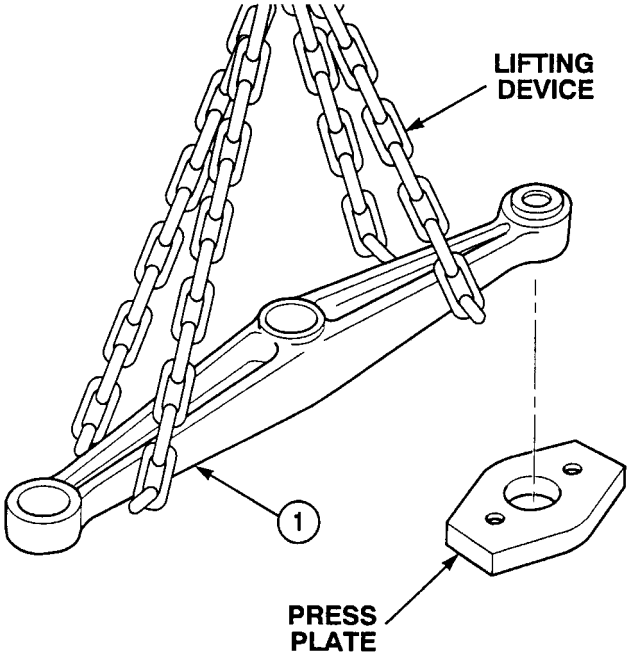
b. Disassembly.

(1) Position press plate on press.

WARNING

Equalizer beam weighs 212 lbs (96 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(2) Using a lifting device, position equalizer beam (1) on press plate.



WARNING

Force required to remove beam end bushings and beam center bushing may exceed 30 tons (27 metric tons). Use a press of 60-ton (54 metric tons) capacity or more to remove and install bushings. Use care when pressing out bushings to prevent serious personal injury or death. Always wear eye protection to prevent injury when operating press.

CAUTION

Ensure beam end bushing remover is correctly aligned on the bushing shell before attempting start pressing operation. Also check that equalizer beam is correctly aligned on press plate so that there is clearance for old beam end bushing to drop through.

(3) Using beam end bushing remover and press adapter, press beam end bushing (2) out of equalizer beam (1). Discard beam end bushing.

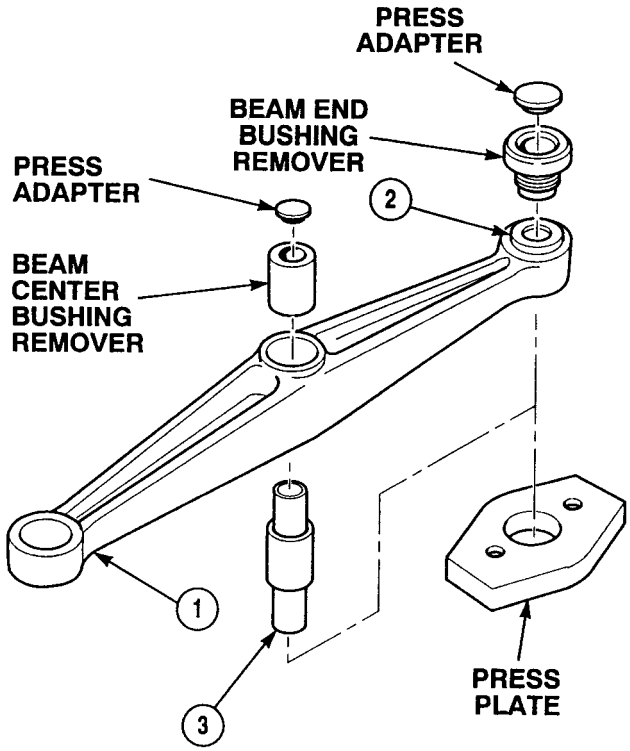
(4) Repeat Steps (1) through (3) for other beam end bushing (2).

(5) Inspect outer edge of beam center bushing (3). If outer edge of beam center bushing is "mushroomed" over face of equalizer beam (1), chisel or file mushroomed steel away.

NOTE

Center bushing remover tools for front and rear equalizer beams are very similar. Use larger diameter remover for rear beams and smaller diameter remover for front beams.

(6) Using beam center bushing remover and press adapter, press beam center bushing (3) out of equalizer beam (1). Discard beam center bushing.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean equalizer beam with drycleaning solvent.

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

(2) Clean equalizer beam bushing bores with crocus cloth to remove all scale, rust, and corrosion.

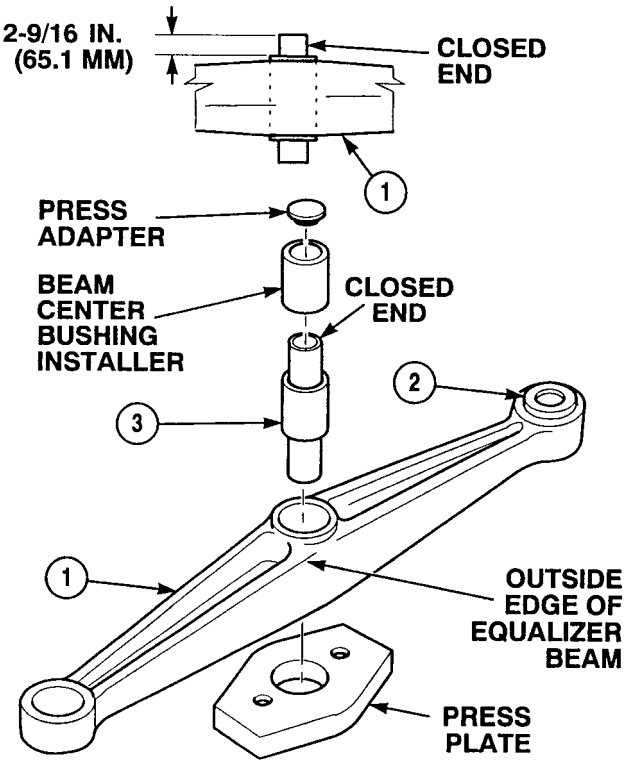
(3) Inspect equalizer beam for cracks, obvious wear, and damage. Replace if damaged.

d. Assembly.

(1) Coat two beam end bushings (2), beam center bushing (3) and three bores in equalizer beam (1) with grease.

(2) Place press plate on press.

(3) Position equalizer beam (1) on press plate.



WARNING

Force required to remove beam end bushings and beam center bushing may exceed 30 tons (27 metric tons). Use a press of 60-ton (54 metric tons) capacity or more to remove and install bushings. Use care when pressing out bushings to prevent serious personal injury or death. Always wear eye protection to prevent injury when operating press.

NOTE

Center bushing remover tools for front and rear equalizer beams are very similar. Use larger diameter remover for rear beams and smaller diameter remover for front beams.

(4) Using beam center bushing installer and press adapter, press beam center bushing (3) into equalizer beam (1). Continue pressing until beam center bushing installer bottoms out against equalizer beam face. Ensure that closed end of beam center bushing extends 2-9/16 in. (65 mm) from face of equalizer beam.

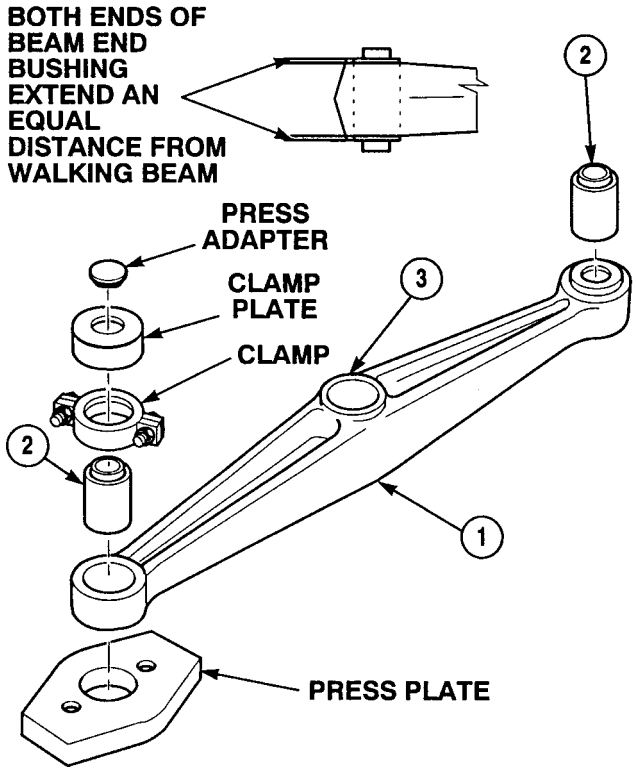
NOTE

Clamp compresses rubber between the inner and outer sleeve of beam end bushing to allow clamp plate to seat properly.

(5) Attach clamp onto beam end bushing (2). Tighten nuts of clamp.

(6) Using clamp, clamp plate and press adapter, press beam end bushing (2) into equalizer beam (1) so both ends of beam end bushing extend an equal distance from side of equalizer beam.

(7) Perform Steps (5) and (6) for other beam end bushing (2).



WARNING

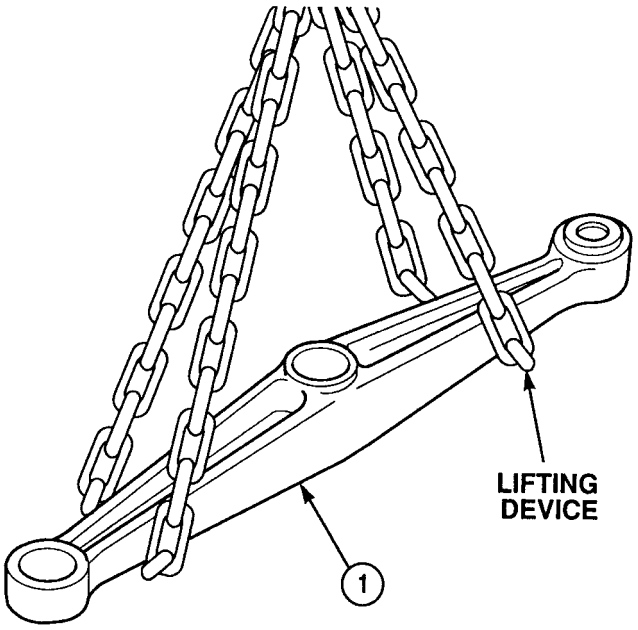
Corrosion compound contains alkali. Do not get in eyes. Wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(8) Coat both ends of beam center bushing (3) with corrosion preventive compound.

WARNING

Equalizer beam weighs 212 lbs (96 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(9) Using a lifting device, remove equalizer beam (1) from press and lower to ground.

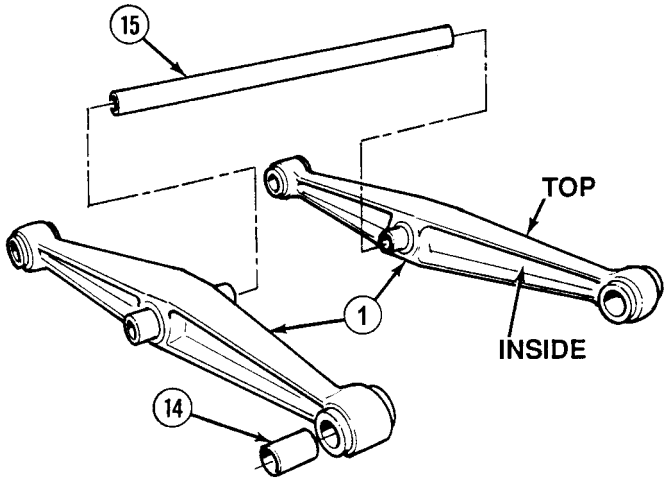


14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

e. Installation.

WARNING

Rust preventive contains alkali. Do not get in eyes. Wear goggles/safety glasses when using rust preventive. Avoid contact with skin. In case of contact with rust preventive, immediately wash area with soap and water. If rust preventive contacts eyes, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.



NOTE

- Front and rear tandem equalizer beams are installed in the same way. Rear tandem is shown.
- Left and right equalizer beams are installed in the same way. Left side of rear tandem is shown.

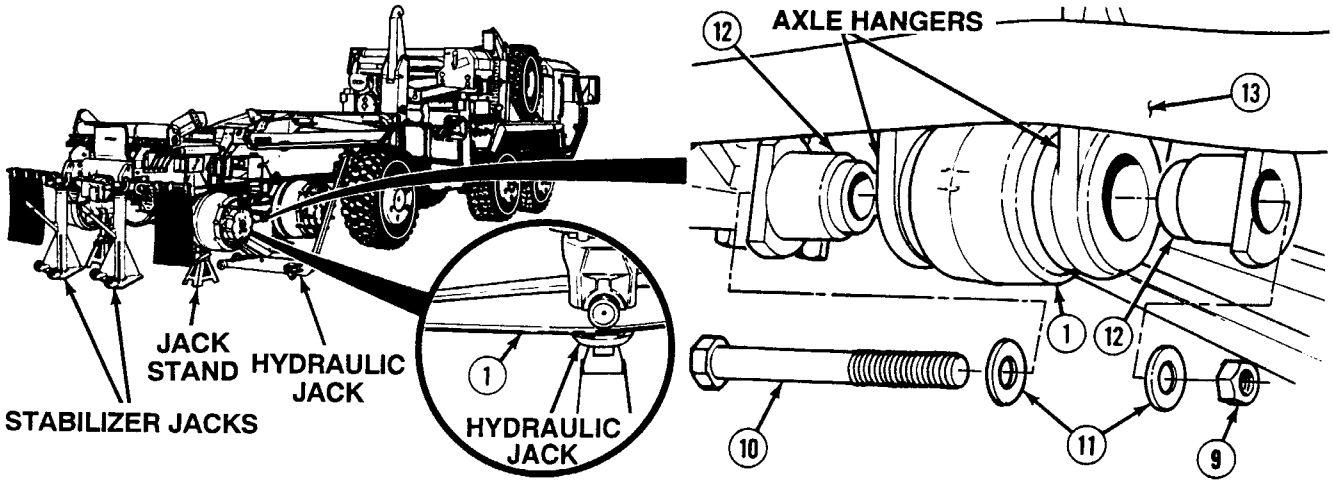
(1) Apply rust preventive to both ends of center cross tube (15) and four spacers (14).

NOTE

Ensure equalizer beams are assembled on cross tube correctly. Make sure markings TOP and INSIDE are aligned correctly.

(2) Install two equalizer beams (1) on center cross tube (15).

(3) Install two spacers (14) in each equalizer beam (1).



(4) Apply lubricating oil to outside diameters of eight adapters (12).

(5) With the aid of an assistant, raise and position assembled equalizer beams (1) on truck (13) with two hydraulic jacks.

NOTE

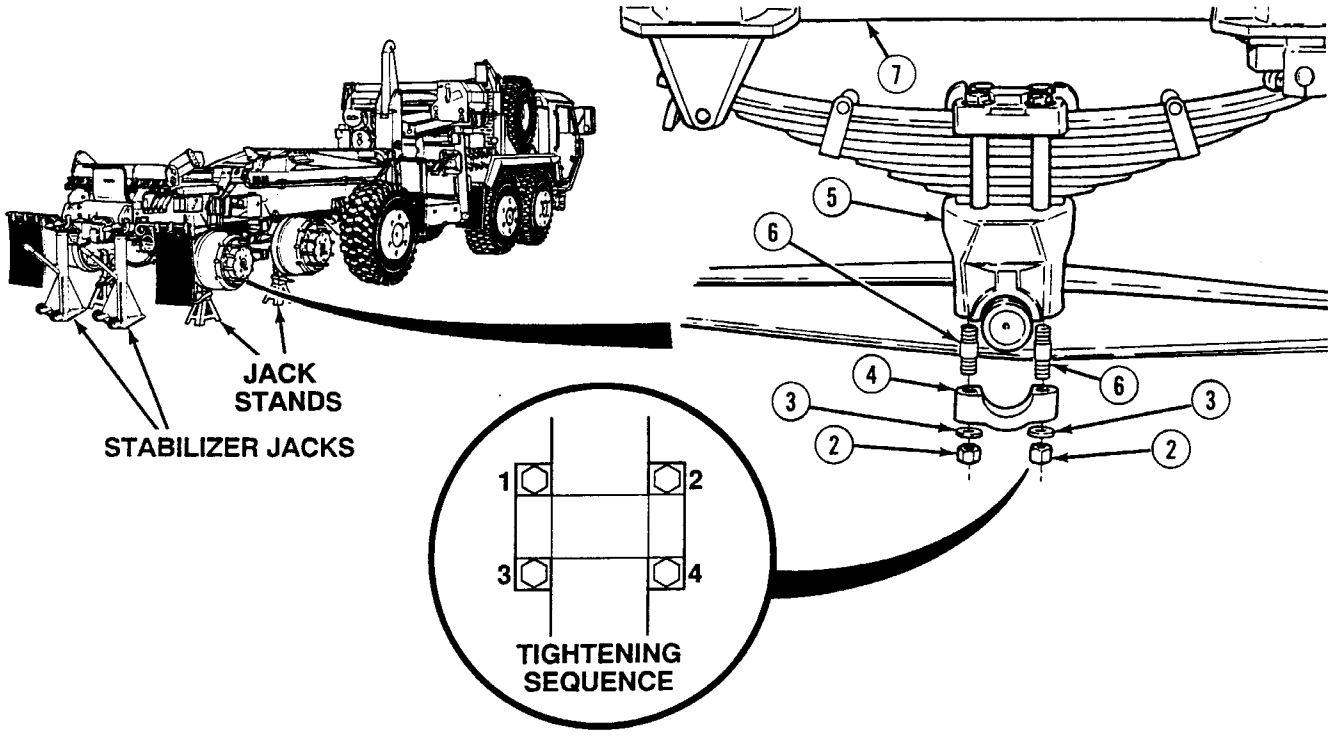
- Jacking up slightly under flange assembly of differential housing may help in aligning equalizer beams with axle hangers.
- Pushing or pulling on wheel hubs may help align equalizer beams with axle hangers. On rear tandem, air chambers would have to be caged before attempting this.

(6) With the aid of an assistant, align each equalizer beam (1) with axle hangers and install four adapters (12) in each equalizer beam (1).

(7) Apply a light coat of oil to threads of screws (10).

(8) Install two screws (10), four washers (11) and two locknuts (9) in each equalizer beam (1). With the aid of an assistant, tighten locknuts to 210 to 240 lb-ft (285 to 325 N·m).

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).



NOTE

Perform Steps (9) and (10) only if studs were removed.

(9) Apply lubricating oil to threads of studs (6).

(10) Install four studs (6) in each saddle (5). Tighten studs to 55 to 65 lb-ft (75 to 88 N·m).

(11) Using stabilizer jacks, lower frame rails (7) to normal operating position and remove stabilizer jacks.

(12) Apply lubricating oil to threads of studs (6).

(13) Install two saddle caps (4), four washers (3) and nuts (2) on each saddle (5). Tighten nuts in sequence shown to 225 to 275 lb-ft (305 to 373 N·m). Repeat tightening procedure at least two times.

f. Follow-On Maintenance:

- Install wheels/tires, (TM 9-2320-364-10).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Adapter, Press (Item 5, Appendix F)
Clamp (Item 31, Appendix F)
Clamp Plate (Item 33, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Inserter, Center Bushing, Front (Item 102, Appendix F)
Jack, Dolly Type (Item 127, Appendix F)
Multiplier, Torque (Item 141, Appendix F)
Press 60 Ton (Item 164, Appendix F)
Remover, Bushing, Beam End (Item 187, Appendix F)
Socket 1-11/16 in. (Item 216, Appendix F)
Wrench, Combination 1-1/8 in. (Item 255, Appendix F)
Wrench, Combination 1-11/16 in. (Item 262, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0 to 814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 150 lbs (68 kg)
Lifting Device, Minimum Capacity 700 lbs (318 kg)
Wooden Block (Appendix C)

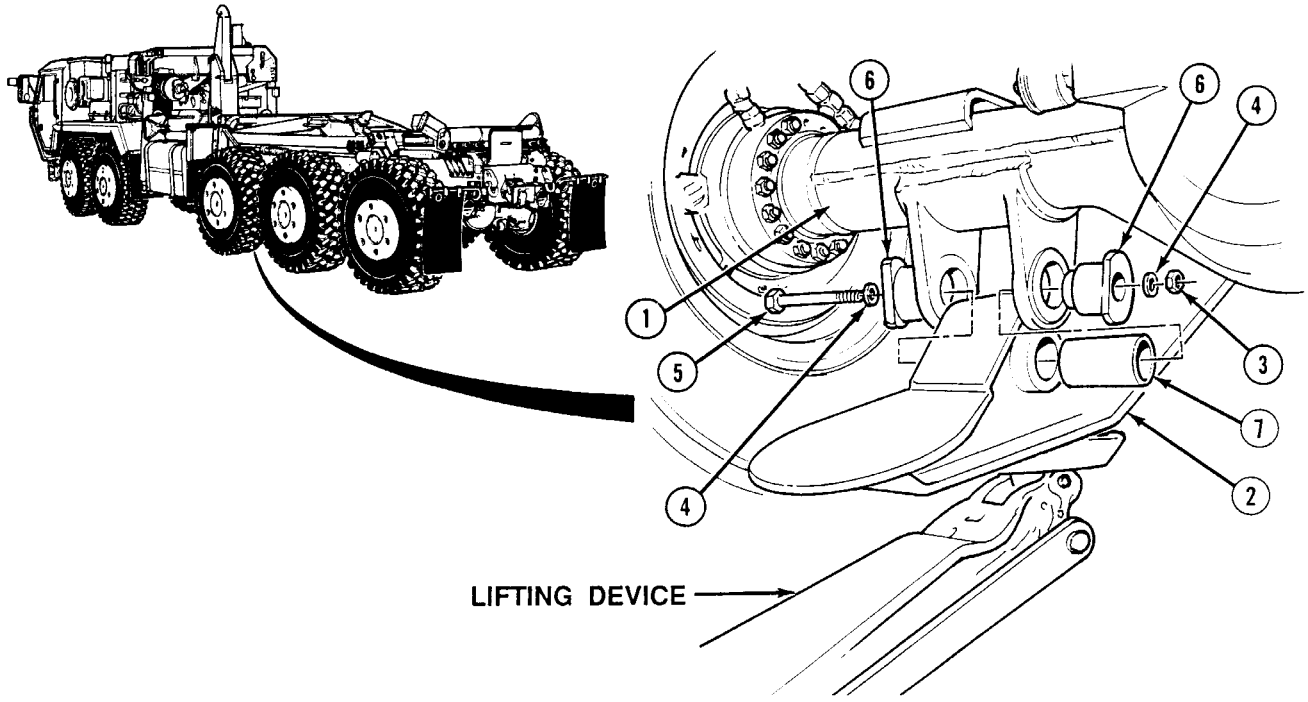
Materials/Parts
Cloth, Crocus (Item 12, Appendix B)
Compound, Corrosion Preventive (Item 15, Appendix B)
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Beam Center Bushing (Item 5, Appendix E)
Beam End Bushing (Item 6, Appendix E)
Bolt Set (Item 20, Appendix E)
Bushing, Plastic, Spacer (2) (Item 25, Appendix E)
Locknut (2) (Item 182, Appendix E)
Locknut (2) (Item 212, Appendix E)
Screw (Item 541, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Axle air bag removed, (Para 14-4)
Stowage box and stowage box bracket removed, (right trailing beam), (TM 9-2320-364-20)

14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

a. Removal.



WARNING

Trailing beam weighs 150 lbs (68 kg). Attach a suitable lifting device to axle end of trailing beam prior to removal to prevent possible injury to personnel.

NOTE

Left side of Axle No. 3 is shown. Right side is removed the same way.

(1) Support axle end (1) of trailing beam (2) with lifting device.

(2) Remove locknut (3), two washers (4) and screw (5) from trailing beam (2). Discard screw and locknut.

(3) Remove two adapters (6) from trailing beam (2).

(4) Using a lifting device, lower axle end of trailing beam (2) to ground.

(5) Remove spacer (7) from trailing beam (2).

NOTE

Perform Steps (6) through (9) only if removing left trailing beam.

(6) Remove two locknuts (8) and washers (9) from stud of each fuel tank strap (10). Discard locknuts.

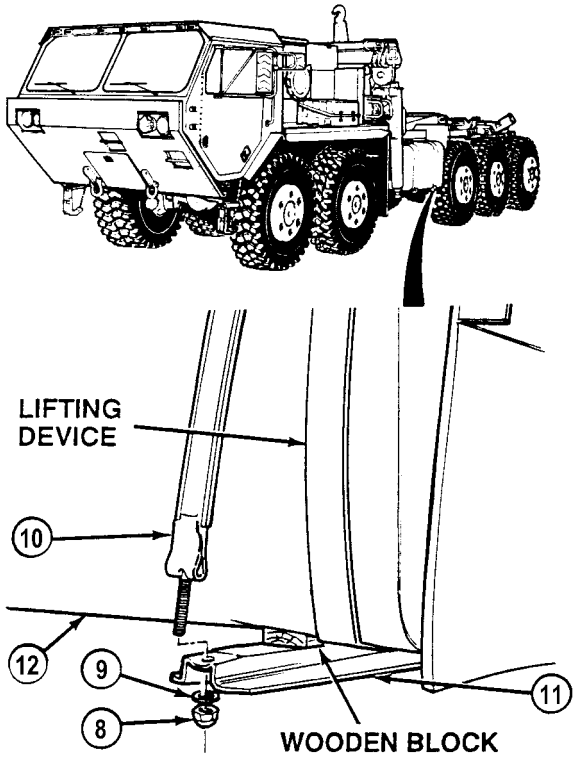
(7) Separate two fuel tank straps (10) from fuel tank bracket (11).

WARNING

Main fuel tank weighs 50 to 700 lbs (23 to 318 kg) depending on the quantity of fuel inside. Support main fuel tank with suitable lifting device prior to removing mounting hardware to prevent possible injury to personnel.

(8) Using a lifting device, lift right side of main fuel tank (12) upward approximately 3 in. (76 mm).

(9) Position wooden block on right fuel tank bracket (11). Lower right side of main fuel tank (12) onto the wooden block.



14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use hydraulic jack to support truck end of trailing beam prior to removal or installation to prevent possible injury to personnel.

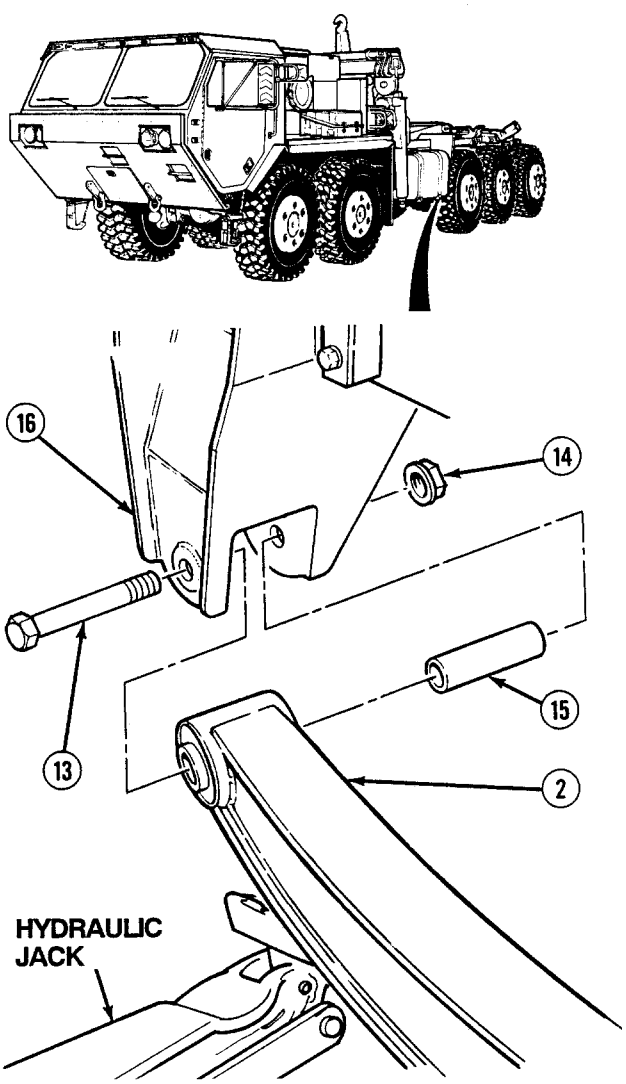
(10) Support truck end of trailing beam (2) with a lifting device.

(11) With the aid of an assistant, hold screw (13) and remove locknut (14) from trailing beam (2). Discard locknut.

(12) Remove screw (13). Discard screw.

(13) Using a hydraulic jack, remove truck end of trailing beam (2) from trailing beam mount (16) and lower to ground.

(14) Remove plastic bushing (15) from each trailing beam (2). Discard plastic bushing.



b. Disassembly.

WARNING

- Trailing beam weighs 150 lbs (68 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.
- Force required to remove beam end bushing and beam center bushing may exceed 30 tons (27 metric tons). Use of a press of 60 ton (54 metric tons) capacity or more is required to remove and install bushings. Use care when pressing out bushings to prevent serious injury or death to personnel. Always wear eye protection when operating press.

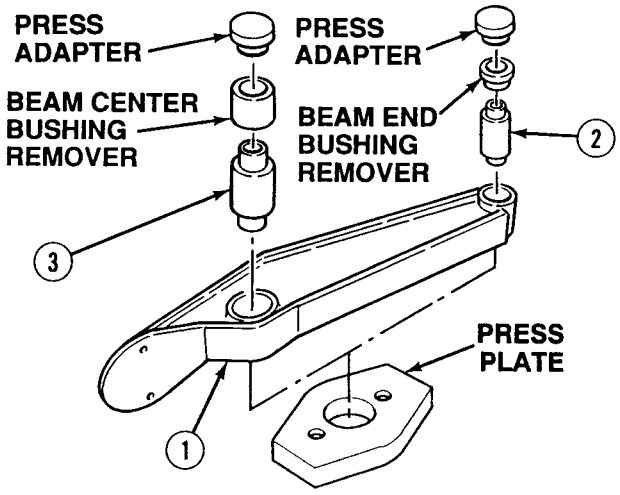
(1) Position press plate on press.

(2) Using a lifting device, position trailing beam (1) on press plate.

(3) Using beam end bushing remover and press adapter, press beam end bushing (2) out of trailing beam (1). Discard beam end bushing.

(4) Inspect outer edge of beam center bushing (3). If outer edge of beam center bushing is "mushroomed" over face of trailing beam (1), chisel or file mushroomed steel away.

(5) Using beam center bushing remover and press adapter, press beam center bushing (3) out of trailing beam (1). Discard beam center bushing.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean trailing beam with drycleaning solvent.

(2) Clean trailing beam bushing bores with crocus cloth to remove all scale, rust, and corrosion.

(3) Inspect trailing beam for cracks, obvious wear, and damage. Replace if damaged.

14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

d. Assembly.

(1) Coat beam end bushing (2), beam center bushing (3) and two bores in trailing beam (1) with grease.

WARNING

Trailing beam weighs 150 lbs (68 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

(2) Position press plate on press.

(3) Using a lifting device, position trailing beam (1) on press plate.

NOTE

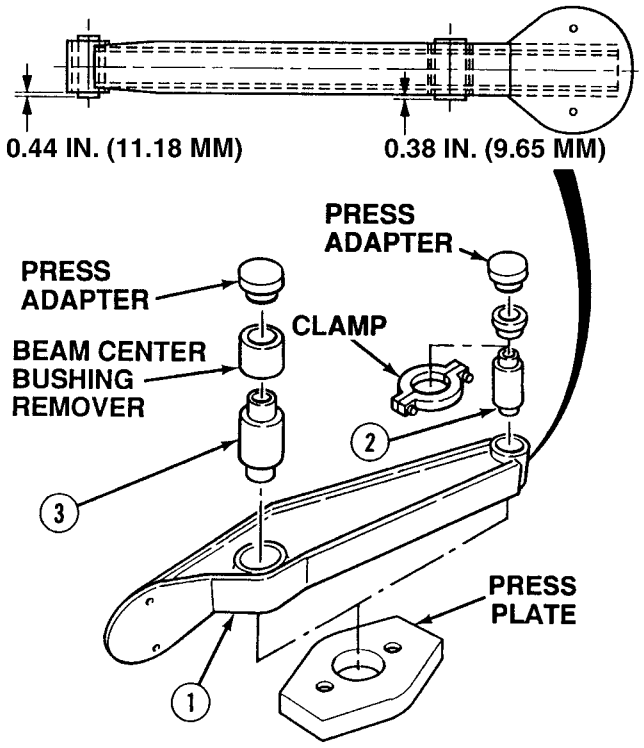
When beam center bushing is centered in trailing beam, each side of beam center bushing should extend 0.38 in. (9.65 mm) from trailing beam.

(4) Using beam center bushing installer and press adapter, press beam center bushing (3) into trailing beam (1) until beam center bushing is centered in trailing beam (1).

NOTE

Clamp compresses rubber between the inner and outer sleeve of beam end bushing to allow clamp plate to seat properly.

(5) Attach clamp onto beam end bushing (2). Tighten nuts of clamp.



NOTE

When beam end bushing is centered in trailing beam, each side of beam end bushing should extend 0.44 in. (11.18 mm) from trailing beam.

(6) Using clamp plate and press adapter, press beam end bushing (2) into trailing beam (1) so beam end bushing is centered in trailing beam.

(7) Remove clamp, clamp plate, and press adapter from trailing beam (1).

e. Installation.

WARNING

The trailing beam weighs 150 lbs (68 kg). Attach a suitable lifting device to truck end of trailing beam prior to removal or installation to prevent possible injury to personnel.

(1) Support truck end of trailing beam (2) with a hydraulic jack.

(2) Install plastic bushing (15) in each trailing beam (2).

NOTE

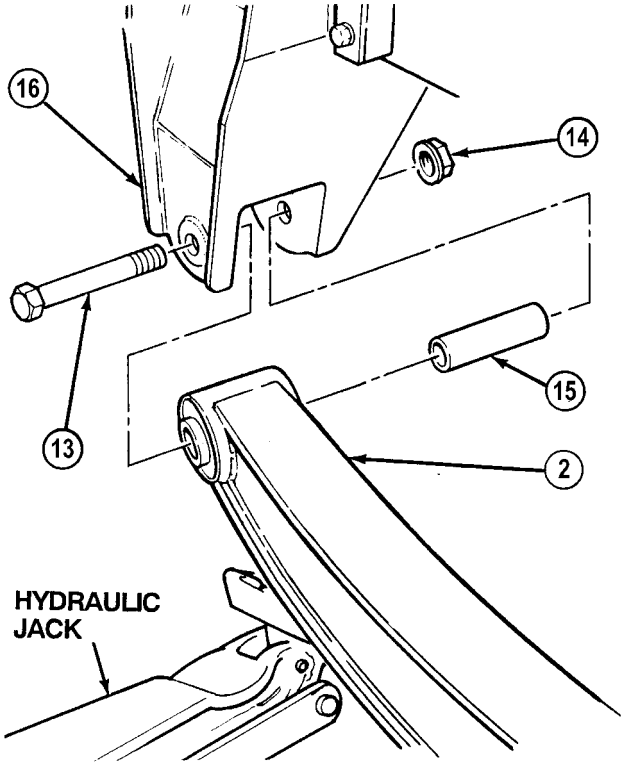
The following step may require use of a soft faced hammer to position trailing beam.

(3) Apply lubricating oil to threads of screw (13).

(4) With the aid of an assistant and a hydraulic jack, position end of trailing beam (2) in trailing beam mount (16).

(5) Install screw (13) and locknut (14) in trailing beam (2).

(6) With the aid of an assistant, hold screw (13) and tighten locknut to 600 lb-ft (814 N·m).



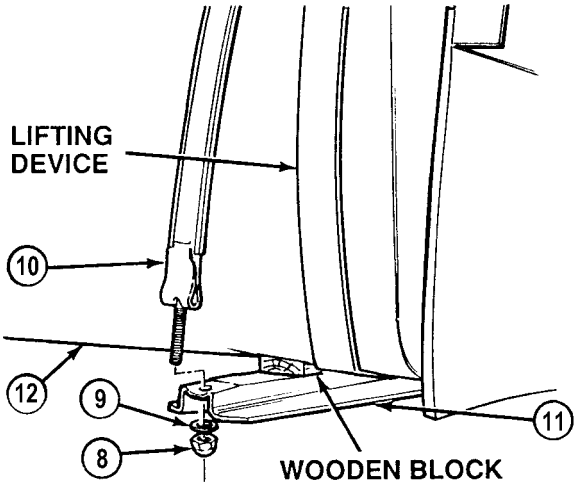
14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

WARNING

Main fuel tank weighs 50 to 700 lbs (23 to 318 kg) depending on the quantity of fuel inside. Support main fuel tank with suitable lifting device prior to removing wood block to prevent possible injury to personnel.

NOTE

Steps (7) through (10) apply only when installing left trailing beam.



(7) Using a lifting device, raise right side of main fuel tank (12) upward slightly and remove wooden block.

(8) Lower main fuel tank (12) onto fuel tank bracket (11).

(9) Insert studs of two fuel tank straps (10) through fuel tank brackets (11).

(10) Position two washers (9) and locknuts (8).

WARNING

Corrosion preventive compound contains alkali. Do not get in eyes. Wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(11) Coat outside diameter of spacer (7) and two adapters (6) with corrosion preventive compound.

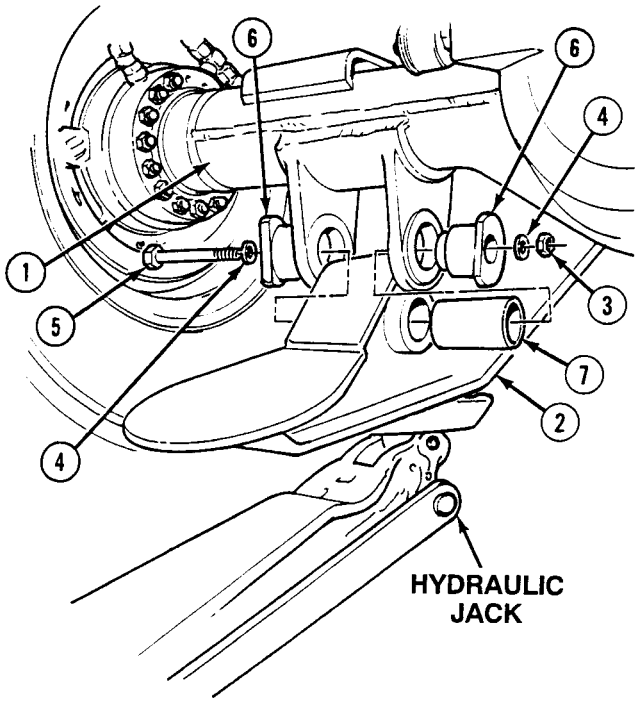
(12) Install spacer (7) in trailing beam (2).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use a hydraulic jack to support axle end of trailing beam prior to installation to prevent possible injury to personnel.

NOTE

The following step may require use of a soft faced hammer to position trailing beam.



(13) With the aid of an assistant and a hydraulic jack, position trailing beam (2) on axle end (1).

(14) Install two adapters (6) in trailing beam (2).

(15) Apply lubricating oil to threads of screw (5).

(16) With the aid of an assistant, install washer (4), screw (5), washer (4) and locknut (3) on trailing beam (2). Tighten locknut to 210 to 240 lb-ft (285 to 325 N·m).

(17) Remove hydraulic jack from trailing beam (2).

f. Follow-On Maintenance:

- Install axle air bag, (Para 14-4).
- Install stowage box and stowage box bracket, (TM 9-2320-364-20) (right trailing beam).
- Align/adjust steering system, (Para 12-8).
- Tighten fuel tank straps, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-7. AXLE NO. 3 AIR SUSPENSION BEAM MOUNT REPLACEMENT/ADJUSTMENT.

This task covers:

a. Removal
b. Installation
c. Trailing Beam Bracket Collar Adjustment
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Hammer, Hand, Soft Plastic (Item 88, Appendix F)
Jack, Dolly Type (Item 127, Appendix F)
Multiplier, Torque (Item 141, Appendix F)
Tape, Measuring (Item 235, Appendix F)
Welder, Arc (Item 251, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 83 lbs (38 kg)

Materials/Parts
Compound, Corrosion Preventive (Item 15, Appendix B)
Oil, Lubricating (Item 37, Appendix B)

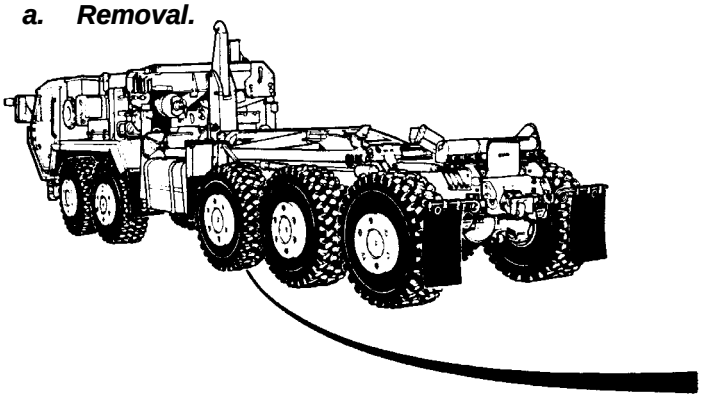
Materials/Parts - Continued
Collar, Adjustment (Item 32, Appendix E)
Locknut (10) (Item 166, Appendix E)
Locknut (4) (Item 167, Appendix E)

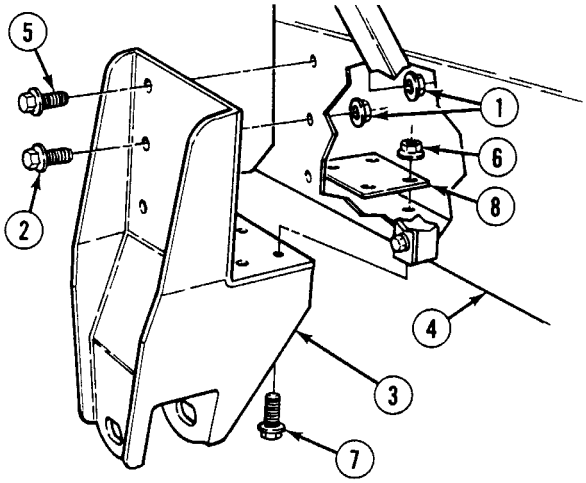
Personnel Required
Three

References
TC 9-237, Operator's Manual for Welding Theory and Application

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Axle No. 3 air suspension beam removed, (Para 14-6)
Inter-steering shaft removed (left side only), (Para 12-6)
Main fuel tank removed (left side only), (TM 9-2320-364-20)
Stowage box and bracket removed, (right side only), (TM 9-2320-364-20)
Perform welding preparation task, (Para 6-39)

a. Removal.





CAUTION

Trailing beam brackets can not be interchanged on trucks. The adjustment is different for each truck.

NOTE

Steps (1) and (2) apply to left trailing beam mount removal only. Steps (3) and (4) apply to right trailing beam mount removal only.

(1) With the aid of an assistant, remove four locknuts (1) and screws (2) from trailing beam bracket (3) and frame (4). Discard locknuts.

(2) With the aid of an assistant, remove two locknuts (1) and screws (5) from trailing beam bracket (3) and frame (4). Discard locknuts.

(3) With the aid of an assistant, remove three locknuts (1) and screws (2) from trailing beam bracket (3). Discard locknuts.

(4) With the aid of an assistant, remove locknut (1) and screw (5) from trailing beam bracket (3) and frame (4). Discard locknut.

WARNING

Trailing beam bracket weighs 83 lbs (38 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

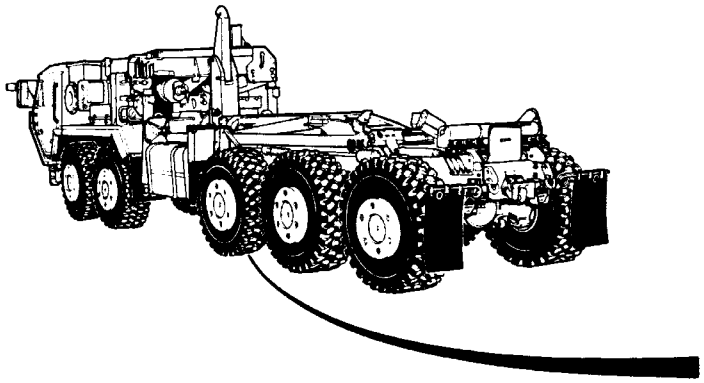
(5) With the aid of an assistant, support trailing beam bracket (3) with a lifting device.

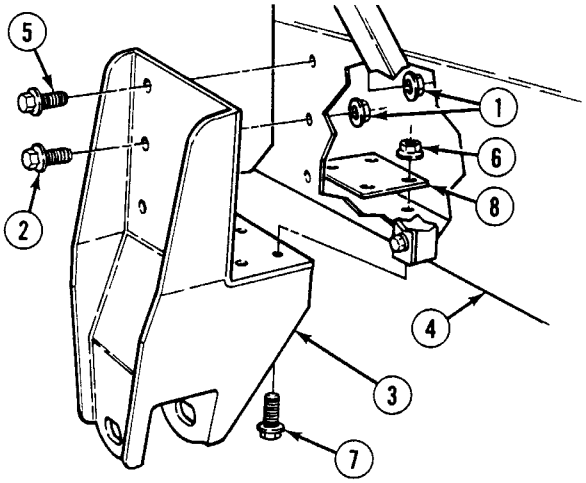
(6) With the aid of an assistant, remove four locknuts (6), screws (7) and plate (8) from frame (4). Discard locknuts.

(7) Using a lifting device, lower trailing beam bracket (3) to ground.

14-7. AXLE NO. 3 AIR SUSPENSION BEAM MOUNT REPLACEMENT/ ADJUSTMENT (CONT).

b. Installation.





WARNING

Trailing beam bracket weighs 83 lbs. (38 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Support trailing beam bracket (3) with a lifting device.

(2) Using a lifting device and the aid of an assistant, position trailing beam bracket (3) on frame (4).

(3) Position plate (8), four screws (7) and locknuts (6) on frame (4) and trailing beam bracket (3).

NOTE

Steps (4) and (5) apply to right trailing beam mount only. Steps (6) and (7) apply to left trailing beam mount only.

(4) Position screw (5) and locknut (1) in trailing beam bracket (3) and frame (4).

(5) Position three screws (2) and locknuts (1) in trailing beam bracket (3) and frame (4).

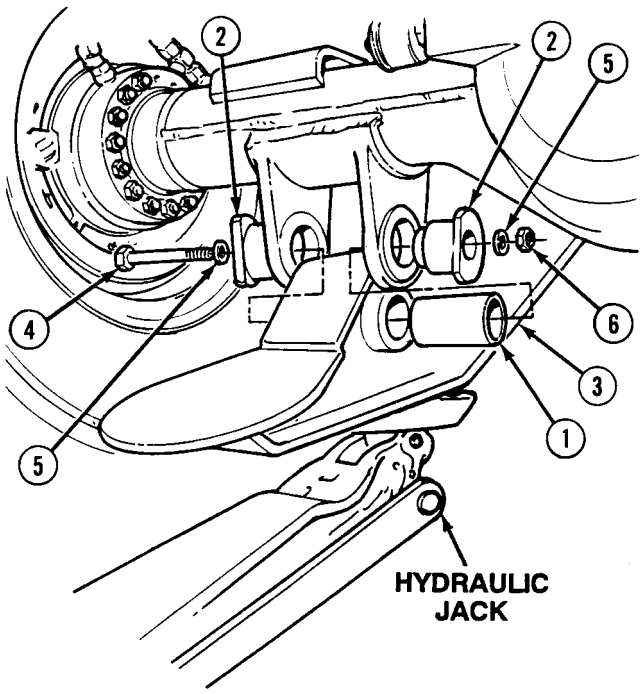
(6) Position two screws (5) and locknuts (1) in trailing beam bracket (3) and frame (4).

(7) Position four screws (2) and locknuts (1) in trailing beam bracket (3) and frame (4).

(8) With the aid of an assistant, tighten four locknuts (6) to 210 lb-ft (285 N·m).

(9) With the aid of an assistant, tighten locknuts (1) to 410 lb-ft (556 N·m).

c. Trailing Beam Bracket Collar Adjustment.



WARNING

Rust preventive contains alkali. Do not get in eyes. Wear goggles/safety glasses when using rust preventive. Avoid contact with skin. In case of contact with rust preventive, immediately wash area with soap and water. If rust preventive contacts eyes, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(1) Coat outside diameter of spacer (1) and two adapters (2) with rust preventive.

(2) Install spacer (1) in trailing beam (3).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use a hydraulic jack to support axle end of trailing beam prior to installation to prevent possible injury to personnel.

NOTE

The following step may require use of a soft faced hammer to position trailing beam.

(3) Using a hydraulic jack and the aid of an assistant, align axle end of trailing beam (3).

(4) Install two adapters (2) in trailing beam (3).

(5) Apply lubricating oil to threads of screw (4).

(6) Position screw (4), two washers (5) and locknut (6) on trailing beam (3).

(7) With the aid of an assistant, tighten locknut (6) to 210 to 240 lb-ft (285 to 356 N·m).

14-7. AXLE NO. 3 AIR SUSPENSION BEAM MOUNT REPLACEMENT/ ADJUSTMENT (CONT).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use a hydraulic jack to support truck end of trailing beam prior to removal or installation to prevent possible injury to personnel.

NOTE

The left side of truck is shown. The right side of truck is similar.

(8) Position trailing beam (3) on hydraulic jack.

(9) Install plastic bushing (7) in trailing beam (3).

NOTE

The following step may require use of a soft faced hammer to position trailing beam.

(10) Using a lifting device and the aid of an assistant, position trailing beam (3) in trailing beam bracket (8).

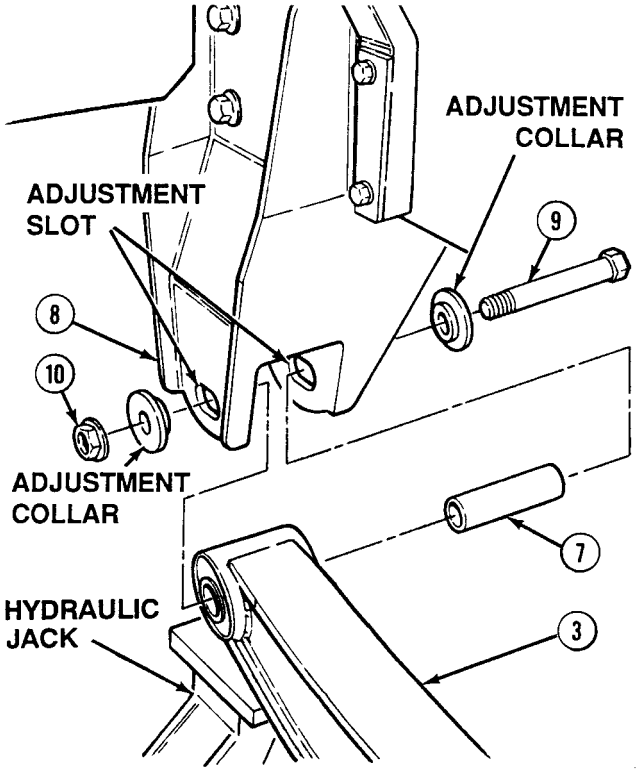
(11) Apply lubricating oil to threads of screw (9).

(12) Position one adjustment collar in adjustment slot of each trailing beam bracket (8).

NOTE

Tighten locknuts only tight enough so adjustment collars can not pop out of adjustment slots. Ensure trailing beam can slide back and forth in trailing beam bracket.

(13) Position screw (9) and locknut (10) in trailing beam (3).



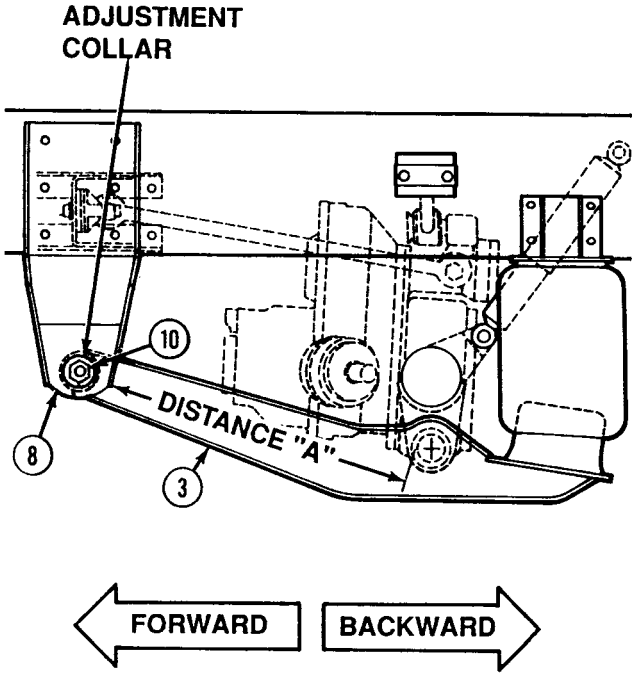
(14) With the aid of an assistant, slide trailing beam (3) forward or backward until distance "A" measures 32 1/2 in. ± 1/8 in. (90 ± 3.2 mm).

(15) When distance "A" is attained, with the aid of an assistant, tighten locknut (10) on trailing beam (3) to 800 lb-ft (814 N·m).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(16) Weld two adjustment collars to trailing beam bracket (8) in accordance with TC 9-237.



d. Follow-On Maintenance:

- Install inter-steering shaft, (Para 12-6) (left side only).
- Install main fuel tank, (TM 9-2320-364-20) (left side only).
- Install stowage box and stowage box bracket, (TM 9-2320-364-20) (right side only).
- Install Axle No. 3 air suspension beam, (Para 14-6).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-8. LATERAL TORQUE ROD REPLACEMENT.

This task covers:

a. Axle No. 1 Lateral Torque Rod Replacement
b Axle No. 2 Lateral Torque Rod Replacement
c. Axle No. 3 Lateral Torque Rod Replacement
d. Axle No. 4 Lateral Torque Rod Replacement
e. Axle No. 5 Lateral Torque Rod Replacement
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Hammer, Hand, Soft Plastic,
(Item 88, Appendix F)
Jack, Kit, Hydraulic, Hand
(Item 129, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)

Materials/Parts
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Locknut (10) (Item 166, Appendix E)
Locknut (5) (Item 181, Appendix E)
Locknut (2) (Item 192, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
(Axles No. 3 and No. 4 only)
Rear hardlift assembly removed,
(TM 9-2320-364-20) (Axle No. 5 only)

a. Axle No. 1 Lateral Torque Rod Replacement.

(1) *Removal.*

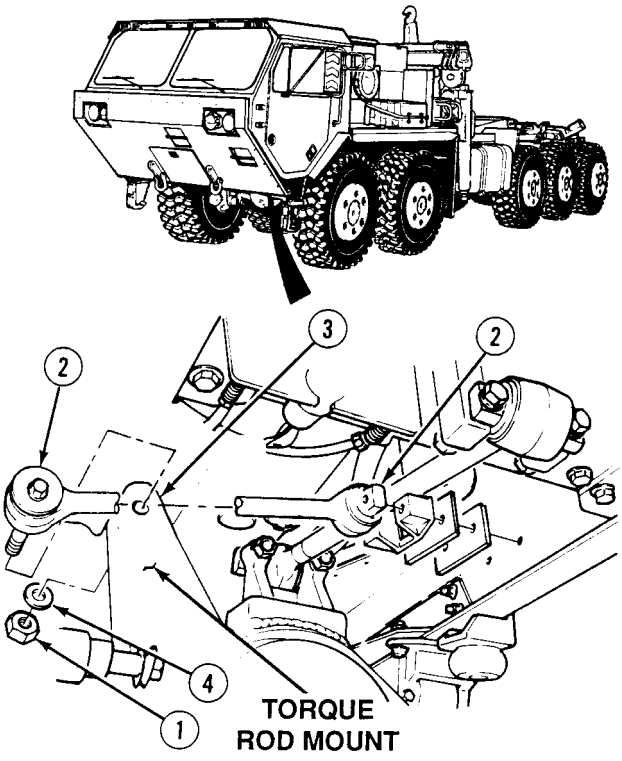
(a) Loosen locknut (1) until locknut is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from axle (3) while striking torque rod mount with soft faced hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.



NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), screws (6), torque rod (2), bracket (7) and spacers (8) from frame (9). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of taper shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

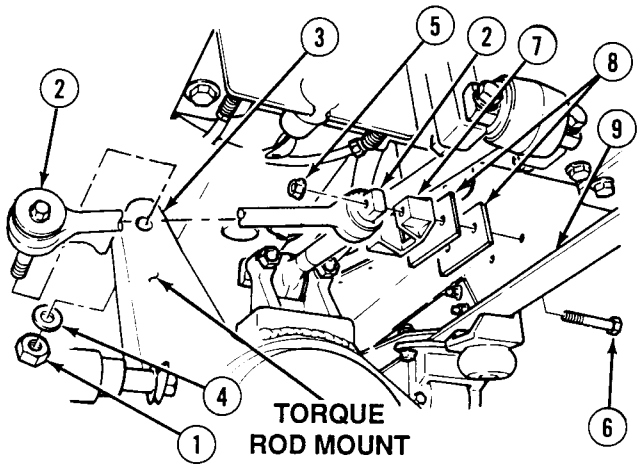
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (8), bracket (7), truck end of torque rod (2), two screws (6) and locknuts (5) on frame (9).

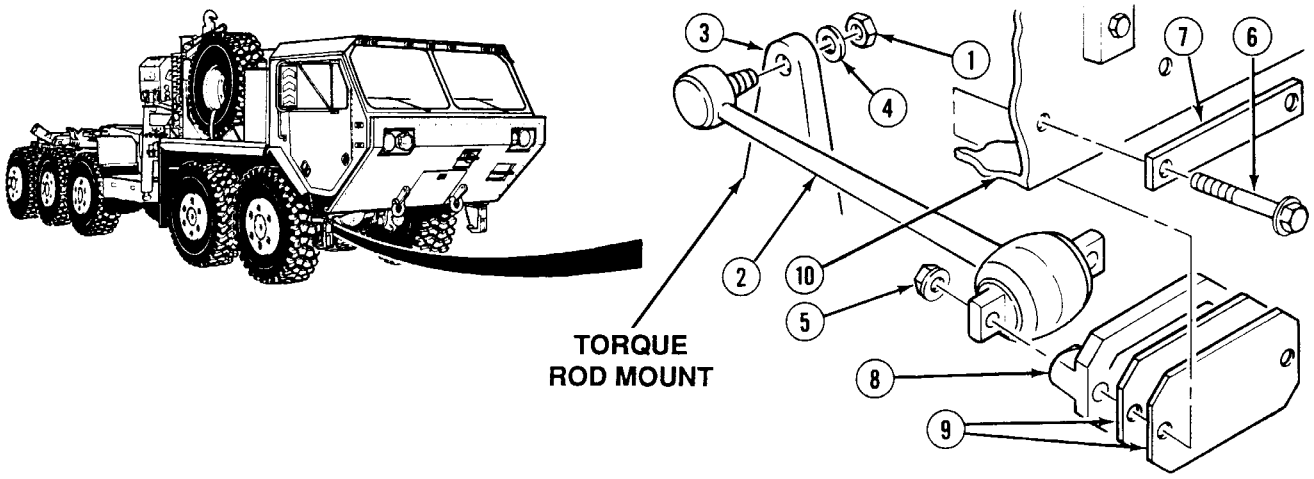
(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount of axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

b. Axle No. 2 Lateral Torque Rod Replacement.



(1) *Removal.*

(a) Loosen locknut (1) until locknut is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from torque rod mount of axle (3) while striking torque rod mount on axle with soft faced hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.

NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), torque rod (2), screws (6), plate (7), bracket (8) and spacers (9) from frame (10). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of tapered shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

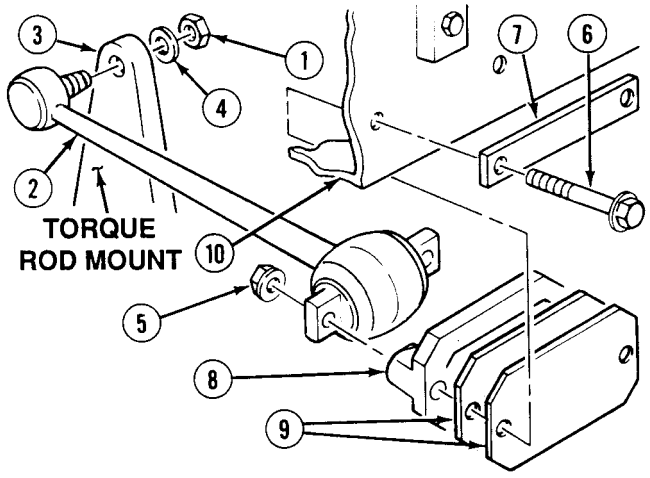
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install plate (7), spacers (9), bracket (8) and end of torque rod (2) with two screws (6) and locknuts (5) on frame (10).

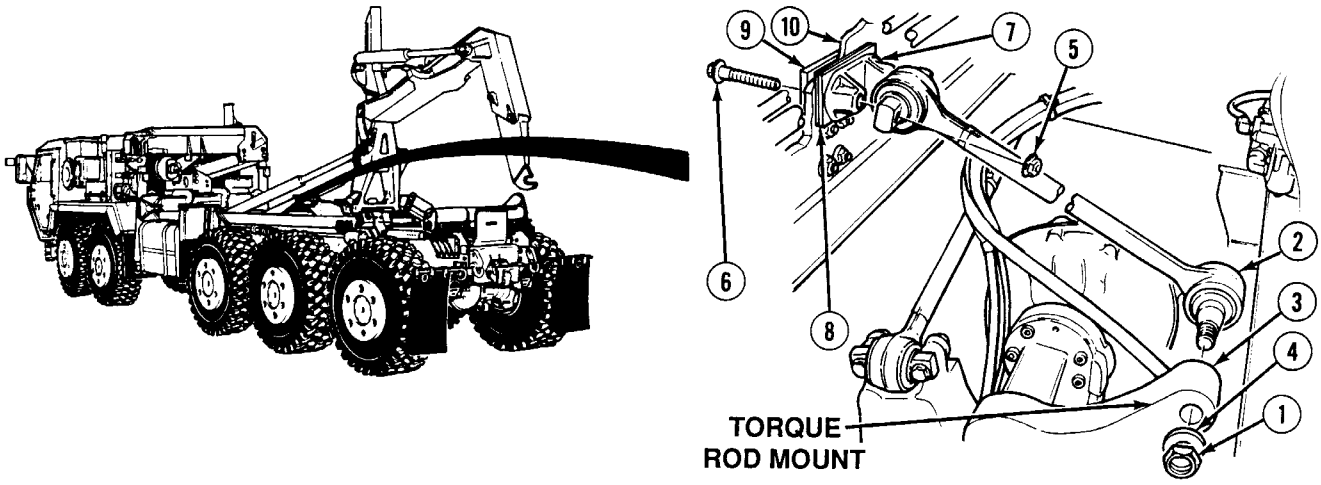
(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount on axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

c. Axle No. 3 Lateral Torque Rod Replacement.



(1) *Removal.*

(a) Loosen locknut (1) until it is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from torque rod mount on axle (3) while striking torque rod mount with soft faced hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.

NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), screws (6), torque rod (2), bracket (7), spacers (8) and plate (9) from frame (10). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of tapered shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

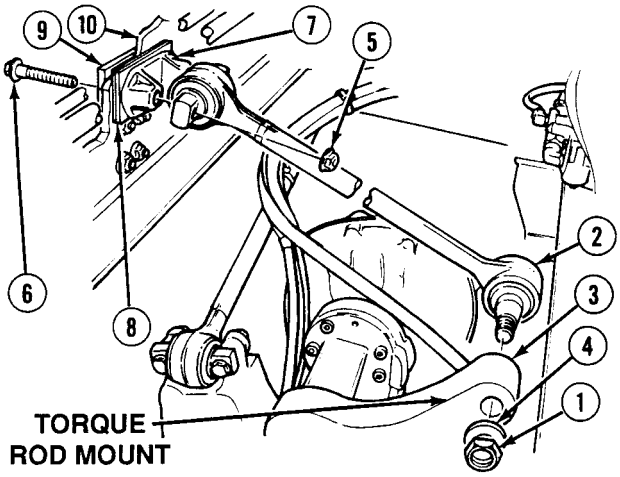
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (8), bracket (7), truck end of torque rod (2), plate (9), two screws (6) and locknuts (5) on frame (10).

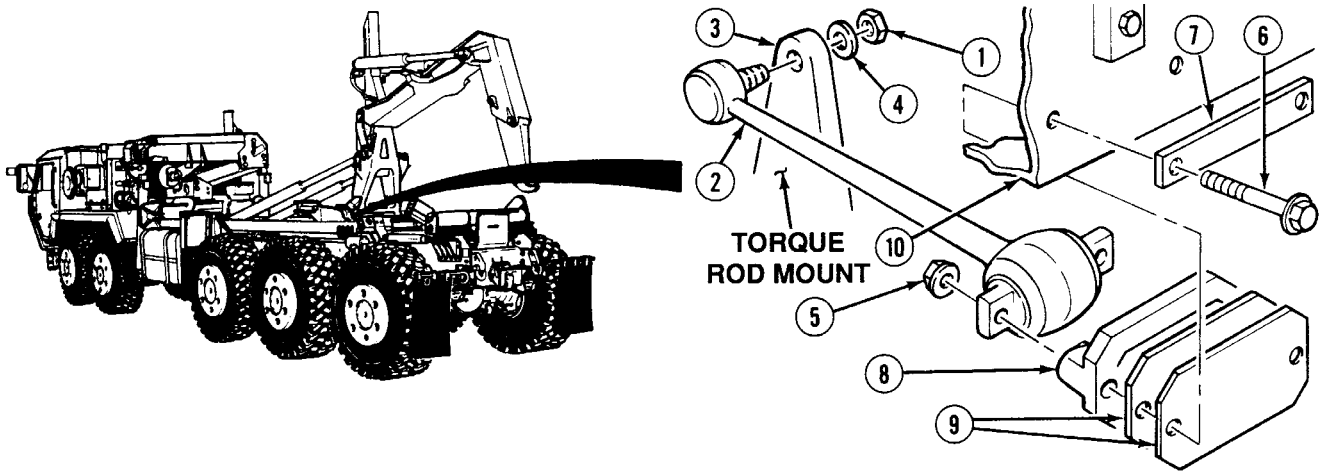
(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount on axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

d. Axle No. 4 Lateral Torque Rod Replacement.



(1) *Removal.*

(a) Loosen locknut (1) until locknut is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from toque rod mount of axle (3) while striking torque rod mount of axle with hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.

NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), screws (6), plate (7), torque rod (2), bracket (8) and spacers (9) from frame (10). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of tapered shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

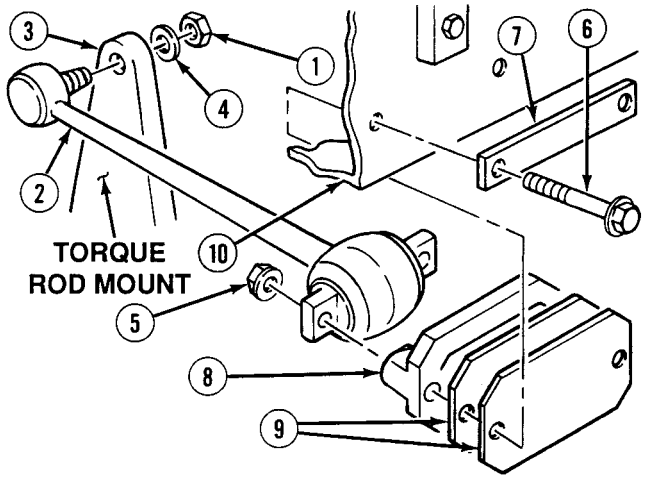
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (9), bracket (8), truck end of torque rod (2), plate (7), screws (6) and locknuts (5) on frame (10).

(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237-305 N·m) while striking torque rod mount of axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

e. Axle No. 5 Lateral Torque Rod Replacement.

(1) *Removal.*

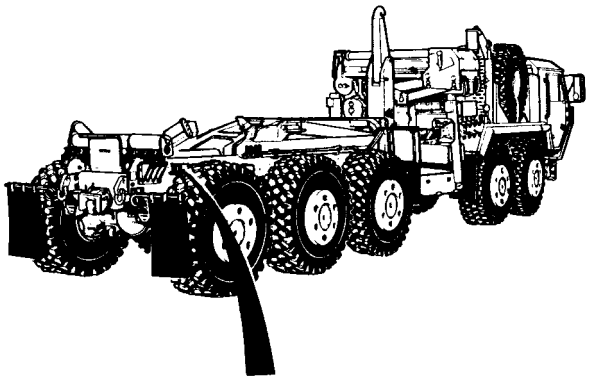
NOTE

- Perform Steps (a) through (c) only when truck is equipped with self-recovery winch.
- Self-recovery winch bracket looks different for trucks equipped with container handling unit but procedures are the same.

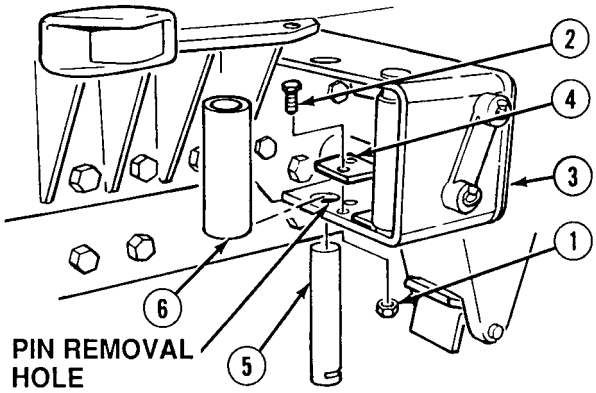
(a) Remove two locknuts (1) and screws (2) from self-recovery winch bracket (3). Discard locknuts.

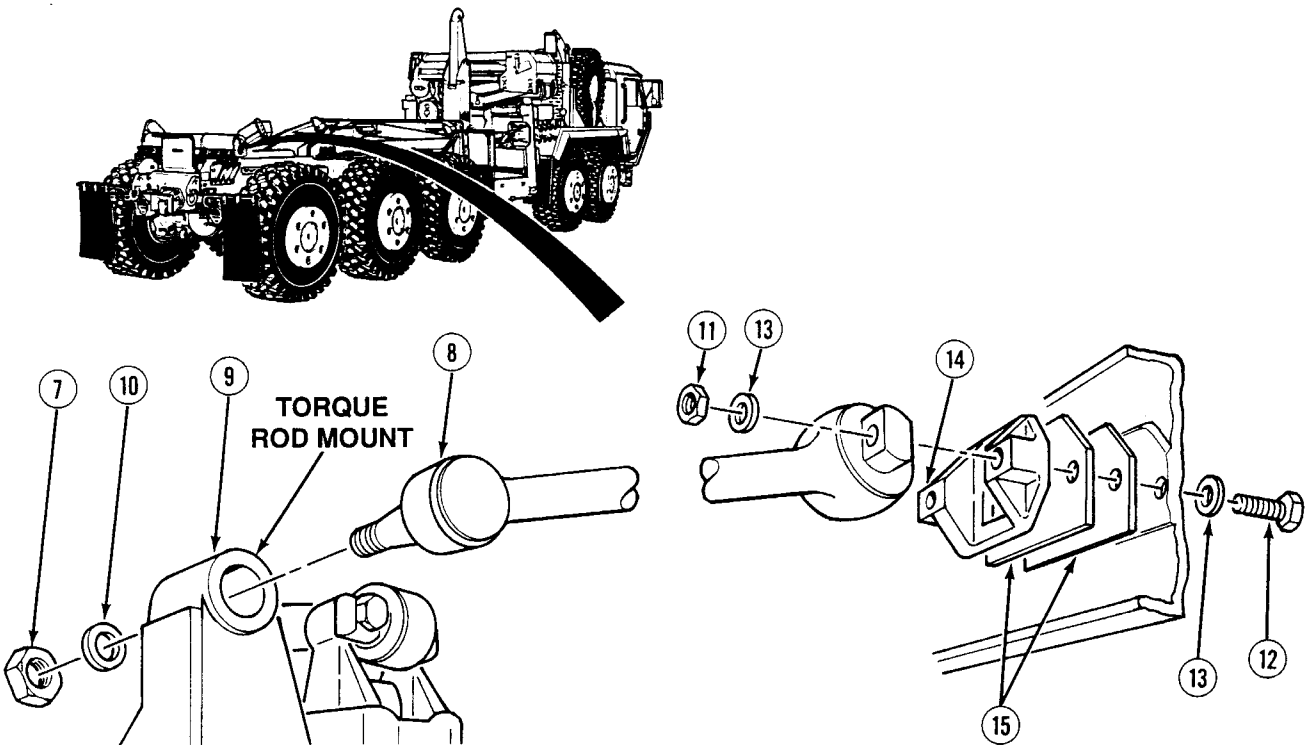
(b) Remove locking plate (4) and catch pin (5) from self-recovery winch bracket (3).

(c) Remove roller (6) from self-recovery winch bracket (3).



ON TRUCKS WHICH HAVE SELF-RECOVERY WINCH ONLY





(d) Loosen locknut (7) until locknut is even with threaded end of torque rod (8).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(e) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (8) from torque rod mount of axle (9) while striking torque rod mount of axle with soft faced hammer.

(f) Remove locknut (7) and washer (10) from torque rod (8). Discard locknut.

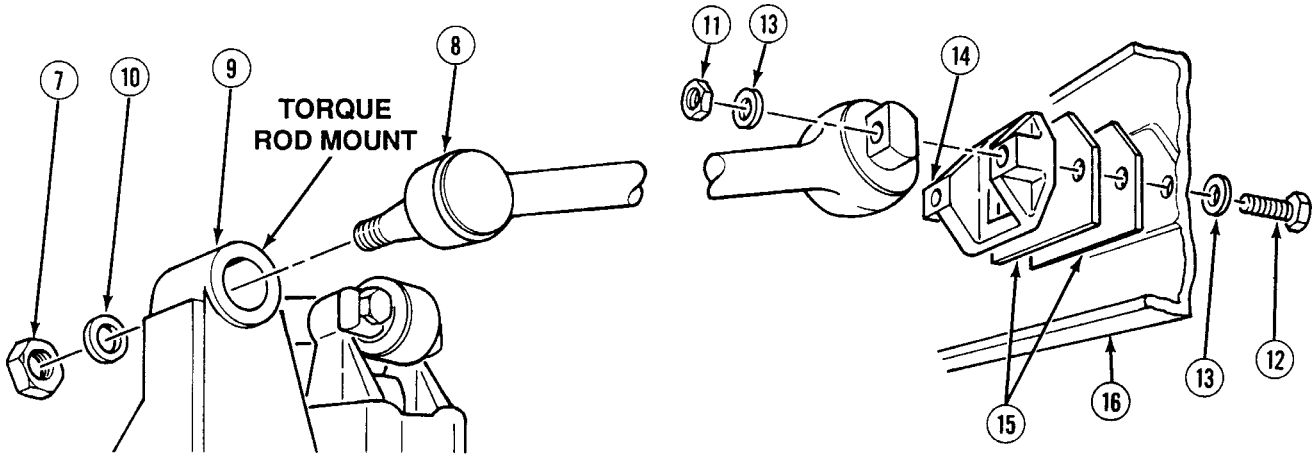
NOTE

Tag and note number and size of spacers for installation.

(g) With the aid of an assistant, remove two locknuts (11), screws (12), four washers (13), torque rod (8), bracket (14) and spacers (15) from frame (16). Discard locknuts.

14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

(2) *Installation.*



(a) Apply lubricating oil to threads of tapered shaft on torque rod (8).

(b) Position tapered shaft of torque rod (8) in torque rod mount of axle (9).

(c) Position washer (10) and locknut (7) on torque rod (8). Tighten locknut until outer face of nut is even with threaded end of torque rod (8).

NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (15), bracket (14), truck end of torque rod (8), two screws (12), four washers (13) and two locknuts (11) on frame (16).

(e) Tighten locknut (7) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, tighten locknut (7) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount of axle (9) with hammer.

NOTE

- Perform Steps (g) through (j) only if truck is equipped with self-recovery winch.
- Self-recovery winch bracket looks different for trucks equipped with container handling unit but procedures are the same.

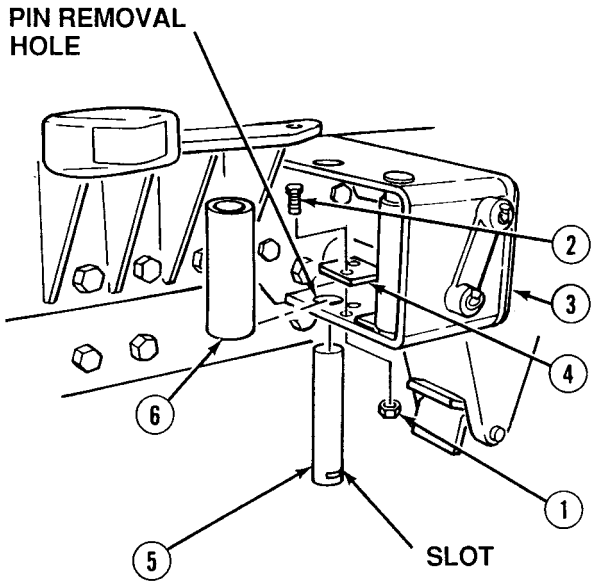
(g) Apply grease to push pin (5).

(h) Position roller (6) on self-recovery winch bracket (3).

(i) Install push pin (5) and locking plate (4) in self-recovery winch bracket (3).

(j) Install two screws (2) and locknuts (1) in self-recovery winch bracket (3).

ON TRUCKS WHICH HAVE SELF-RECOVERY WINCH ONLY



f. Follow-On Maintenance:

- LHS in transit position, (TM 9-2320-364-10) (Axle No. 3 and 4 only).
- Install rear hard lift, (TM 9-2320-364-20) (Axle No. 5 only).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT.

This task covers:

a. Axle No. 1 Longitudinal Torque Rod Replacement
b Axle No. 2 Longitudinal Torque Rod Replacement
c. Axle No. 3 Longitudinal Torque Rod Replacement
d. Axle No. 4 Longitudinal Torque Rod Replacement
e. Axle No. 5 Longitudinal Torque Rod Replacement
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Protractor, Magnetic
(Item 170, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Steel Plate (Appendix C)

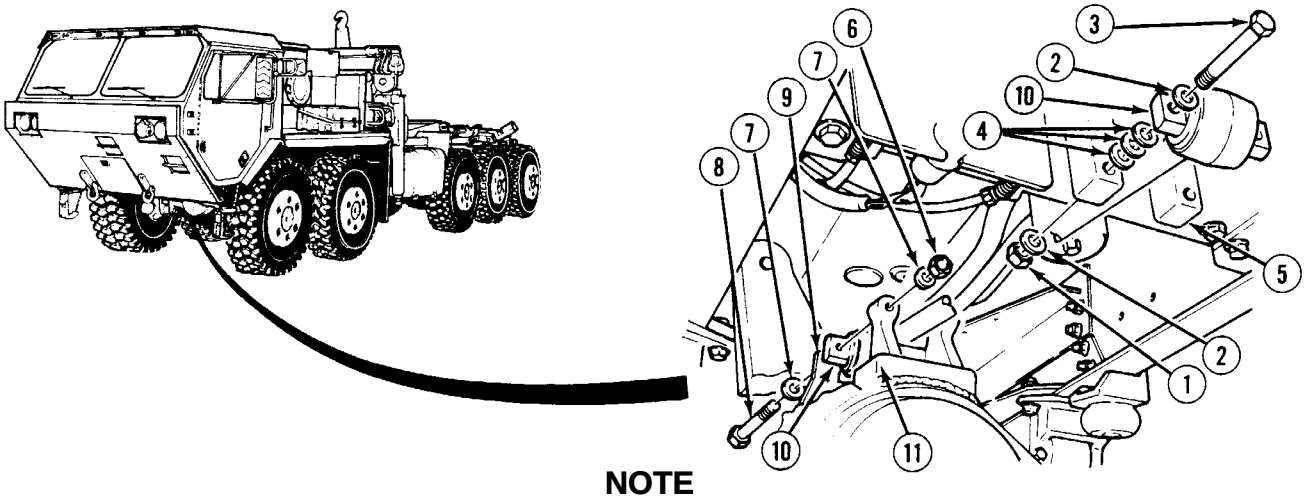
Materials/Parts
Tags, Identification (Item 72, Appendix B)
Locknut (2) (Item 166, Appendix E)

Materials/Parts - Continued
Locknut (18) (Item 188, Appendix E)
Lockwasher (4) (Item 283, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
(Axles No. 3 and No. 4 only)
Rear hardlift assembly removed,
(TM 9-2320-364-20) (Axle No. 5 only)
Driveshafts removed, (TM 9-2320-364-20)

a. Axle No. 1 Longitudinal Torque Rod Replacement.



NOTE

Tag and note number and size of spacers during removal.

(1) *Removal.*

(a) With the aid of an assistant, remove two locknuts (1), four washers (2), two screws (3) and spacers (4) from crossmember (5). Discard locknuts.

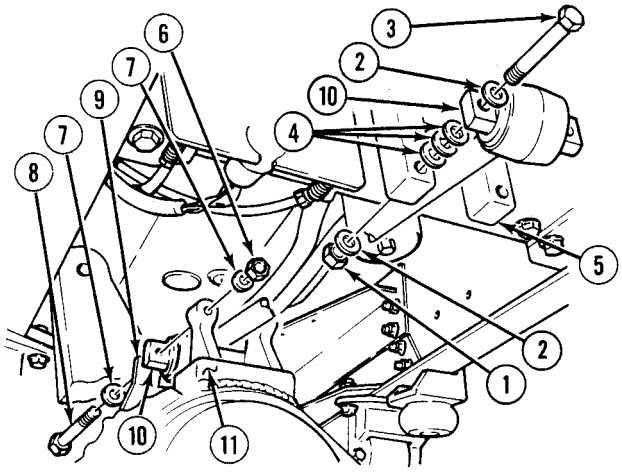
(b) With the aid of an assistant, remove two locknuts (6), four washers (7), two screws (8), bracket (9) and torque rod (10) from axle (11). Discard locknuts.

(2) *Installation.*

(a) With the aid of an assistant, position torque rod (10) and bracket (9) on axle (11) with two screws (8), four washers (7) and two locknuts (6).

NOTE

Install same number and size of spacers as noted during removal.

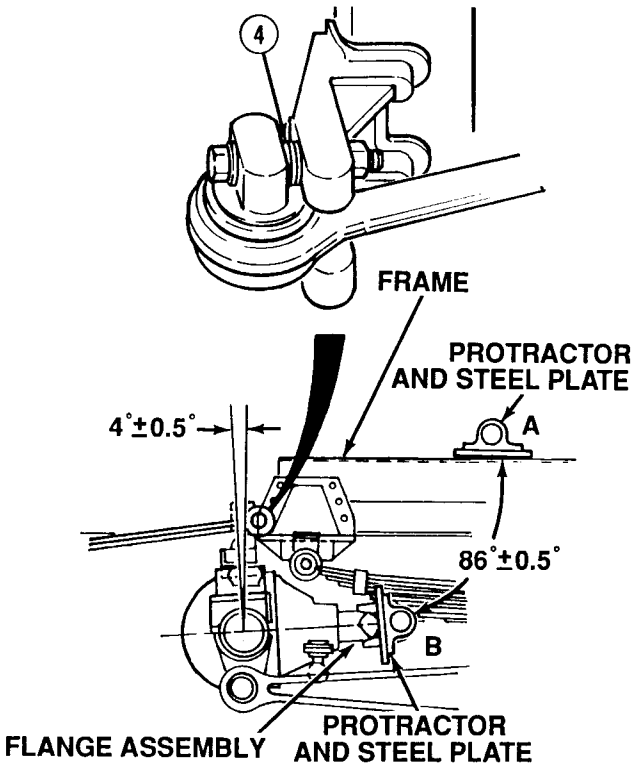


(b) With the aid of an assistant, install spacers (4), truck end of torque rod (10), two screws (3), four washers (2) and two locknuts (1) on crossmember (5).

(c) With the aid of an assistant, tighten two locknuts (6) on screws (8).

NOTE

- Equalizer beams and frame must be level to perform adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from the flange assembly measurement.
- Axle flange assembly measurement of 86 ± 0.5 degrees equals axle camber of four degrees ± 0.5 (90 degrees ÷ 86 degrees = 4 degrees).



(d) Measure the angle (in degrees) that flange assembly is cambered.

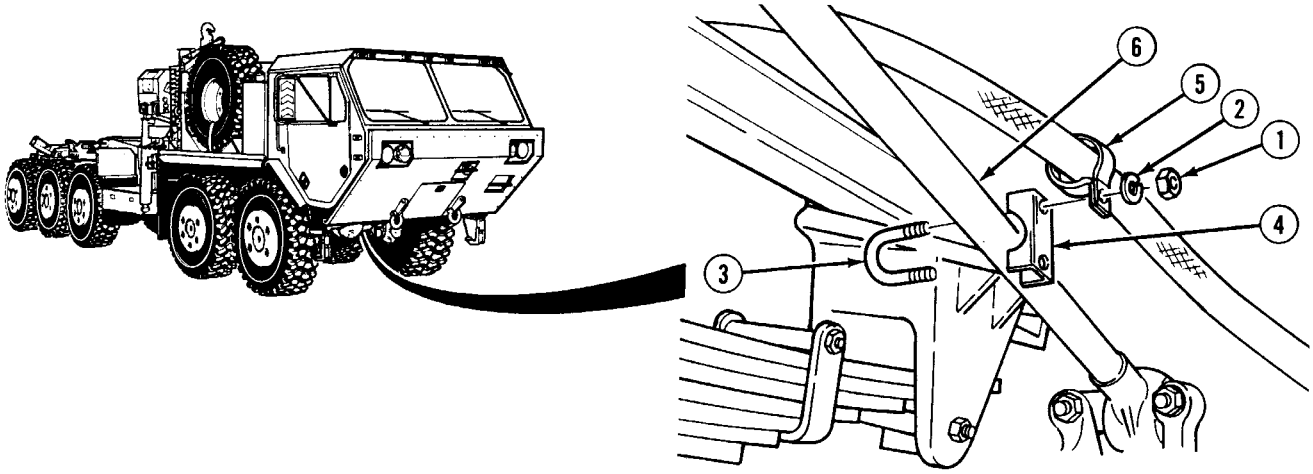
1 Position protractor and steel plate on frame at point A. Adjust protractor to zero degrees.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 86 degrees ± 0.5 degrees.

(e) If axle camber is not four degrees ± 0.5 degrees, add or subtract spacers (4) until correct axle camber is achieved.

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

b. Axle No. 2 Longitudinal Torque Rod Replacement.

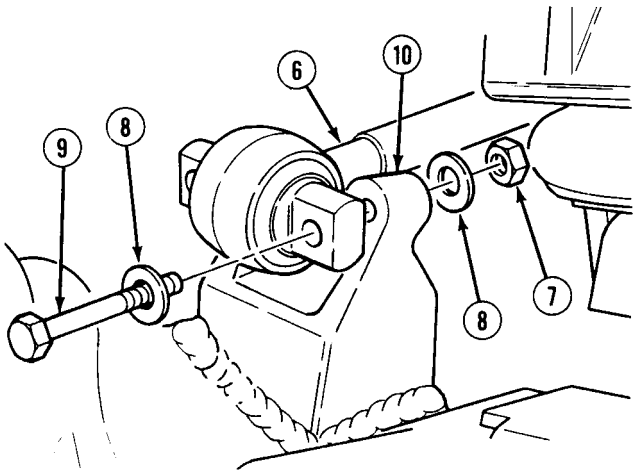


(1) *Removal.*

(a) Remove two nuts (1), lockwashers (2), U-bolt (3), clamp half (4) and cushion clip (5) from torque rod (6). Discard lockwashers.

(b) With the aid of an assistant, remove two locknuts (7), four washers (8) and two screws (9) from axle (10). Discard locknuts.

(c) With the aid of an assistant, remove two locknuts (11), washers (12) and plate (13) from screw (14). Discard locknuts.



NOTE

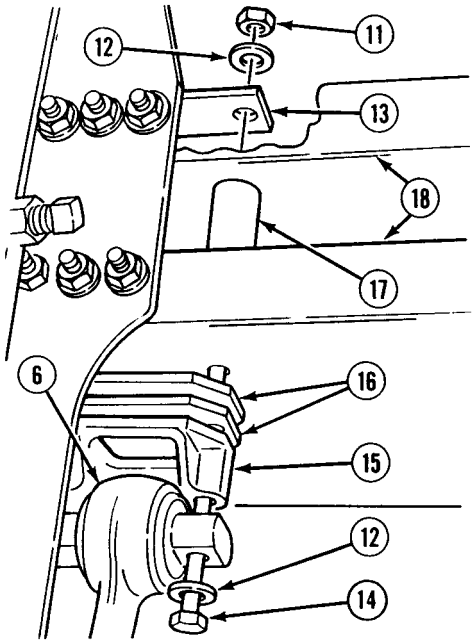
Tag and note number and size of spacers during removal.

(d) With the aid of an assistant, remove two screws (14), washers (12), torque rod (6), bracket (15) and spacers (16) from crossmember (18).

NOTE

Perform Step (e) if spacers are damaged.

(e) Remove two spacers (17) from between crossmember (18).



(2) *Installation.*

NOTE

Perform Step (a) if spacers were removed.

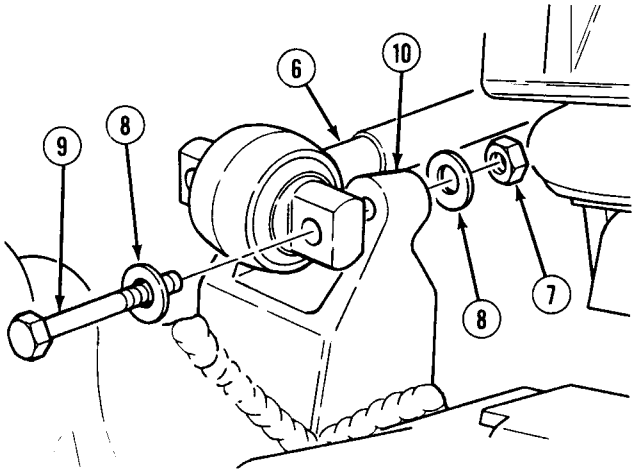
(a) Install two spacers (17) between crossmember (18).

NOTE

Install same number and size of spacers as noted during removal.

(b) With the aid of an assistant, install spacers (16), bracket (15) and truck end of torque rod (6) on crossmember (18) with two screws (14), four washers (12), plate (13) and two locknuts (11).

(c) With the aid of an assistant, install axle end of torque rod (6) on axle (10) with two screws (9), four washers (8) and two locknuts (7).



14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

NOTE

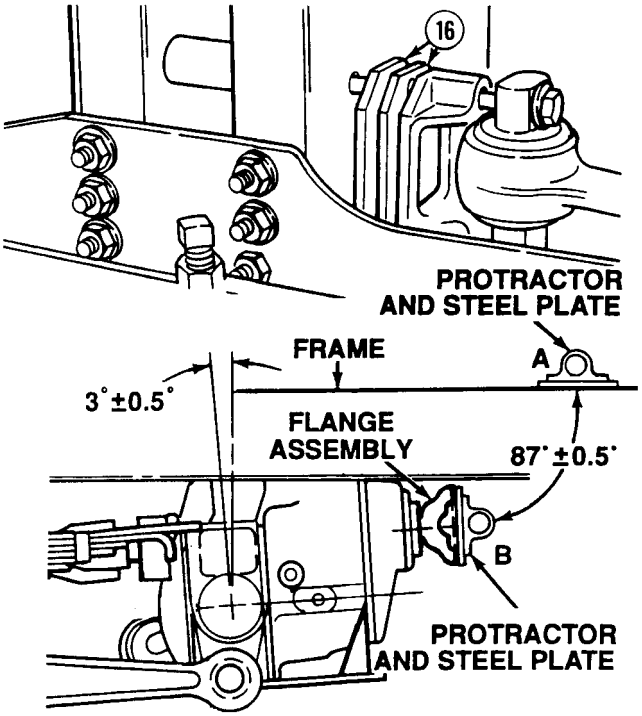
- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from flange assembly measurement.
- Axle flange assembly measurement of 87 ± 0.5 degrees equals axle camber of three degrees ± 0.5 (90 degrees – 87 degrees = 3 degrees).

(d) Measure the angle (in degrees) that flange assembly is cambered.

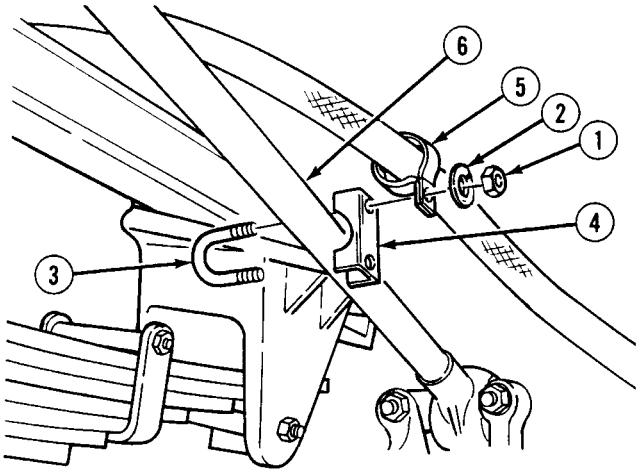
1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 87 degrees ± 0.5 degrees.

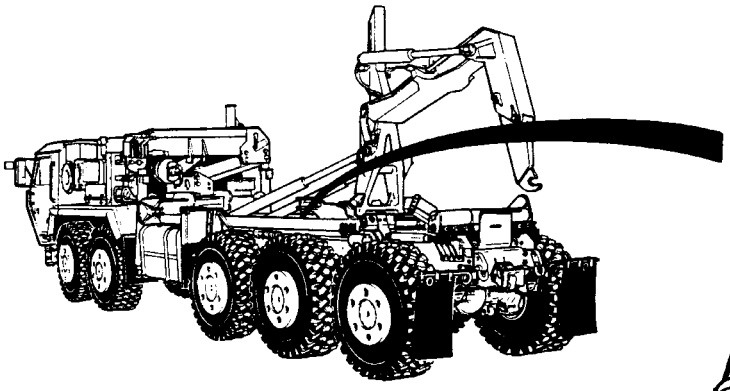
(e) If axle camber is not three degrees ± 0.5 degrees, add or subtract spacers (16) until correct axle camber is achieved.

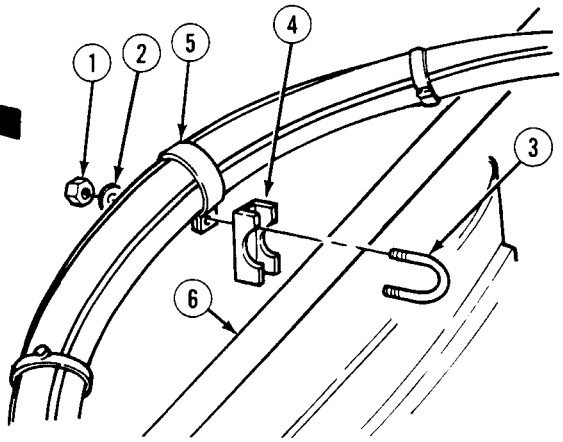


(f) Install clamp half (4), U-bolt (3) and cushion clip (5) on torque rod (6) using two lockwashers (2) and nuts (1).



c. Axle No. 3 Longitudinal Torque Rod Replacement.





(1) *Removal.*

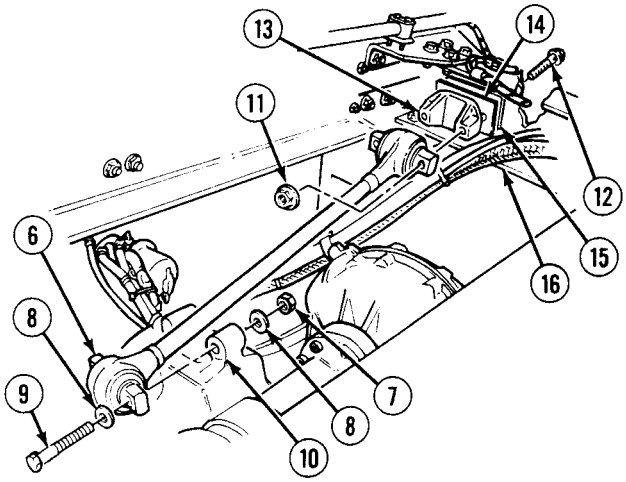
(a) Remove two nuts (1), lockwashers (2), U-bolt (3), clamp half (4) and cushion clip (5) from torque rod (6). Discard lockwashers.

(b) With the aid of an assistant, remove two locknuts (7), four washers (8) and two screws (9) from axle (10). Discard locknuts.

NOTE

Tag and note number and size of spacers during removal.

(c) With the aid of an assistant, remove two locknuts (11), screws (12), torque rod (6), bracket (13), spacers (14) and plate (15) from crossmember (16). Discard locknuts.



(2) *Installation.*

(a) With the aid of an assistant, position axle end of torque rod (6) on axle (10) with two screws (9), four washers (8) and two locknuts (7).

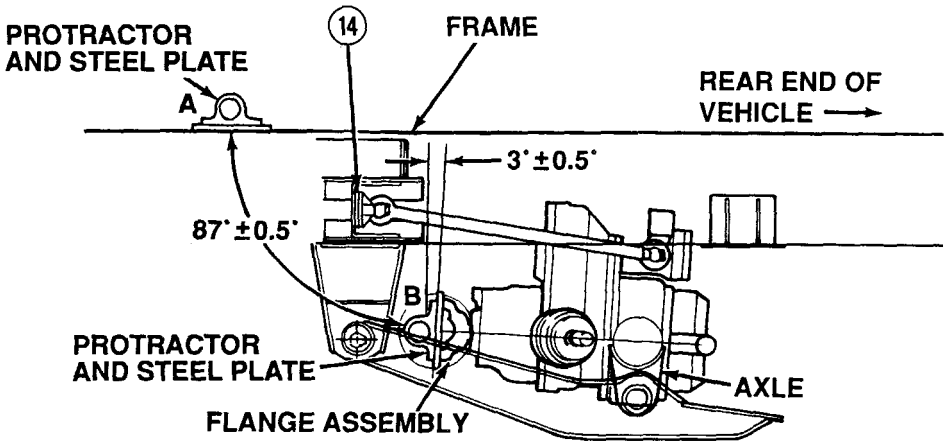
NOTE

Install same number and size of spacers as noted during removal.

(b) With the aid of an assistant, install plate (15), spacers (14), bracket (13) and torque rod (6) on crossmember (16) with two screws (12) and locknuts (11).

(c) Tighten locknuts (7) on screws (9).

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).



NOTE

- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from flange assembly measurement.
- Axle flange measurement of 87 ± 0.5 degrees equals axle camber of three degrees ± 0.5 (90 degrees – 87 degrees = 3 degrees).

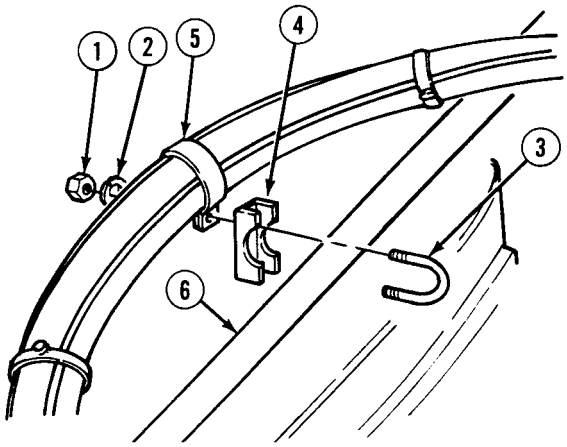
(d) Measure the angle (in degrees) that flange assembly is cambered.

1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

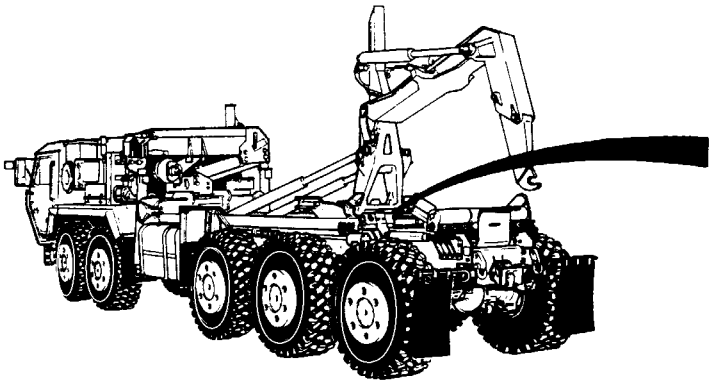
2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 87 degrees ± 0.5 degrees.

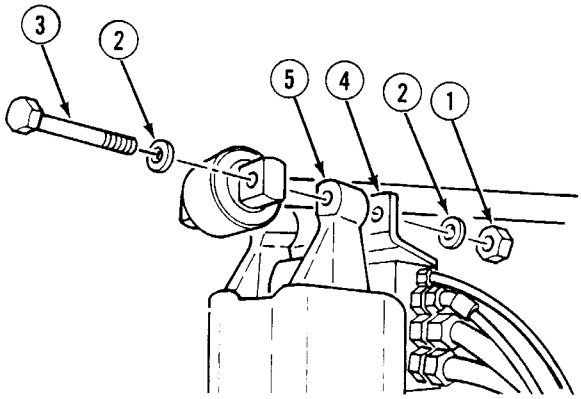
(e) If axle camber is not three degrees ± 0.5 degrees, add or subtract spacers (14) until correct axle camber is achieved.

(f) Install cushion clip (5), clamp half (4) and U-bolt (3) on torque rod (6) with two lockwashers (2) and nuts (1).



d. Axle No. 4 Longitudinal Torque Rod Replacement.





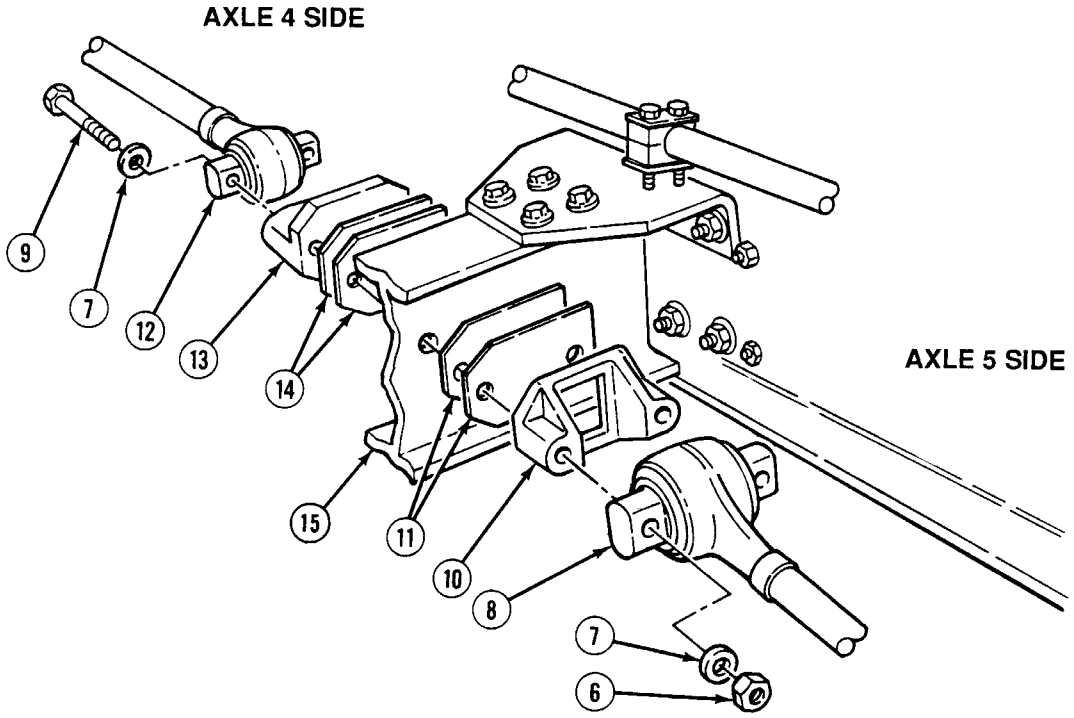
(1) *Removal.*

NOTE

Axles No. 4 and No. 5 longitudinal torque rods share mounting hardware.

(a) With the aid of an assistant, remove two locknuts (1), four washers (2), two screws (3) and air manifold bracket (4) from axle (5). Discard locknuts.

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).



NOTE

Screws may need to be partially pulled out to move torque rod.

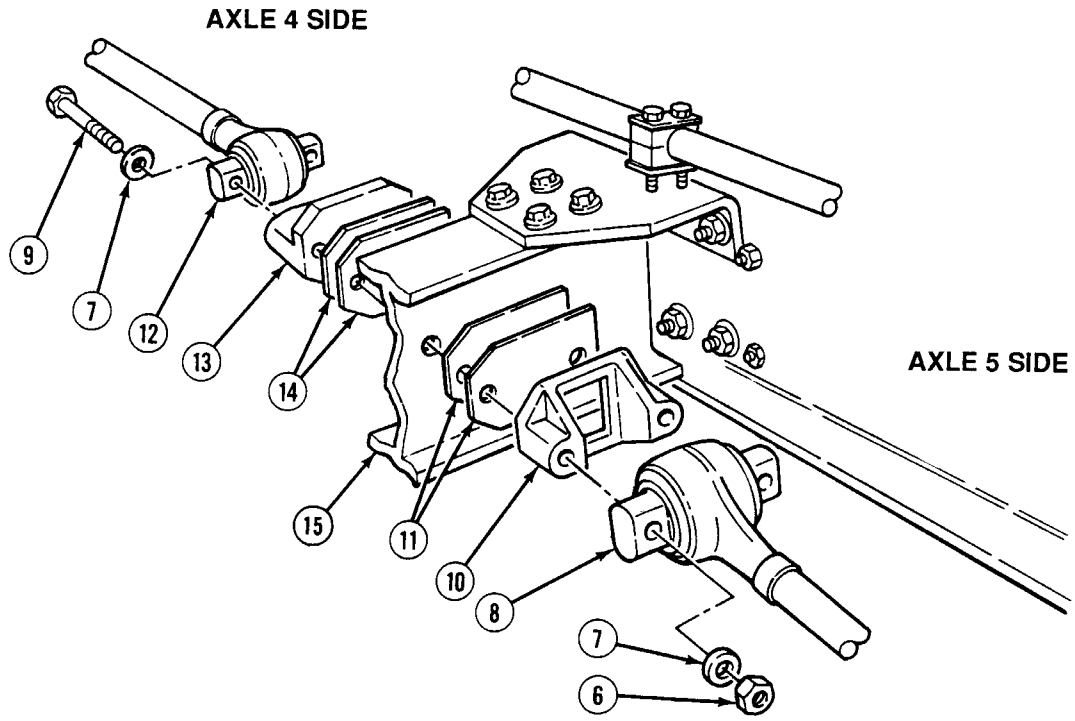
(b) With the aid of an assistant, remove two locknuts (6) and washers (7) from screws (9) and push torque rod (8) out of way. Discard locknuts.

NOTE

Tag and note number and size of spacers on each torque rod during removal.

(c) Remove two screws (9), washers (7), bracket (10), spacers (11), torque rod (12), bracket (13) and spacers (14) from crossmember (15).

(2) *Installation.*



NOTE

Install same number and size spacers as noted during removal.

(a) Position spacers (14), bracket (13), torque rod (12), two washers (7) and screws (9) on crossmember (15).

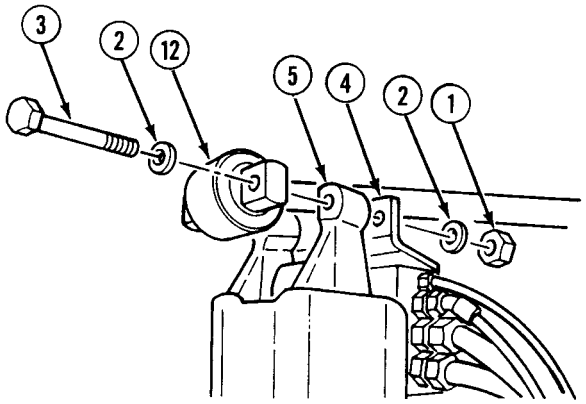
NOTE

Install same number and size spacers removed during removal.

(b) With the aid of an assistant, install spacers (11), bracket (10), torque rod (8), two washers (7) and locknuts (6) on crossmember (15).

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

(c) With the aid of an assistant, install torque rod (12) and air manifold bracket (4) on axle (5) with two screws (3), four washers (2) and two locknuts (1).



NOTE

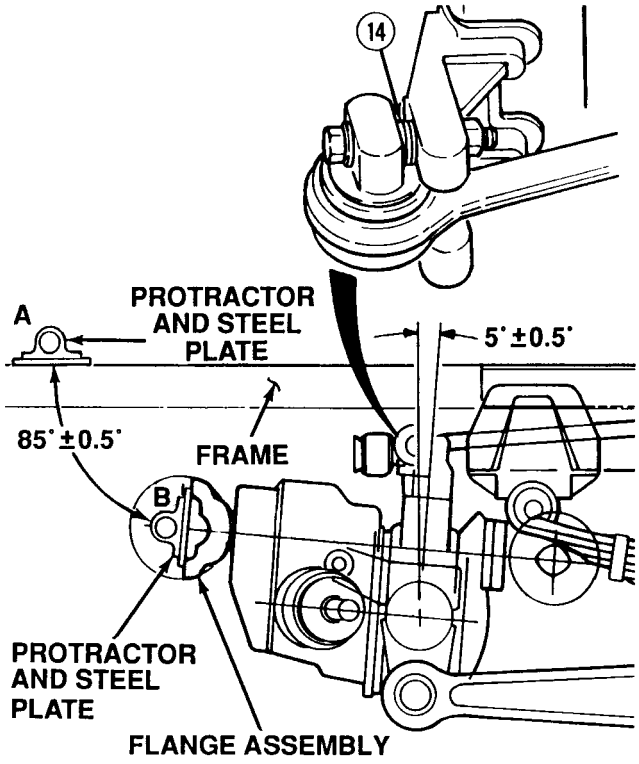
- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from the flange assembly measurement.
- Axle flange measurement of 85 ± 0.5 degrees equals axle camber of five degrees ± 0.5 (90 degrees – 85 degrees = 5 degrees).

(d) Measure the angle (in degrees) that flange assembly is cambered.

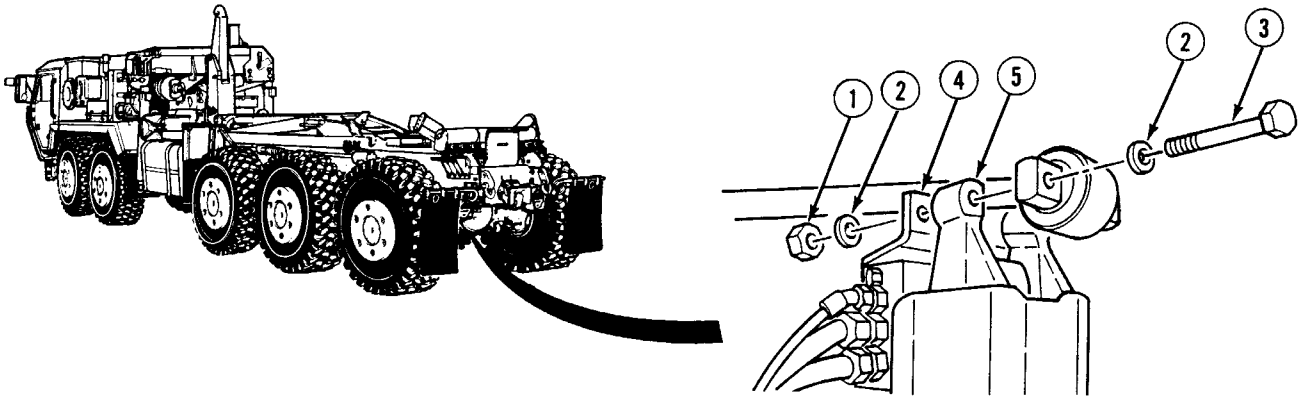
1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 85 degrees ± 0.5 degrees.

(e) If axle camber is not three degrees ± 0.5 degrees, add or subtract spacers (14) until correct axle camber is achieved.



e. No. 5 Longitudinal Torque Rod Replacement.

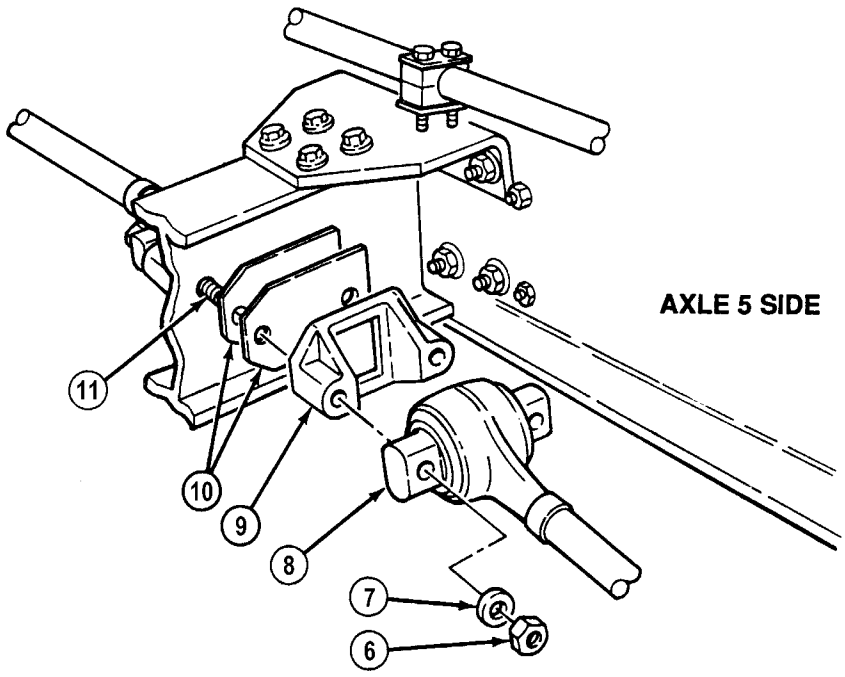


(1) *Removal.*

NOTE

Axles No. 4 and No. 5 longitudinal torque rods share mounting hardware.

(a) With the aid of an assistant, remove two locknuts (1), four washers (2), two screws (3) and air manifold bracket (4) from axle (5). Discard locknuts.



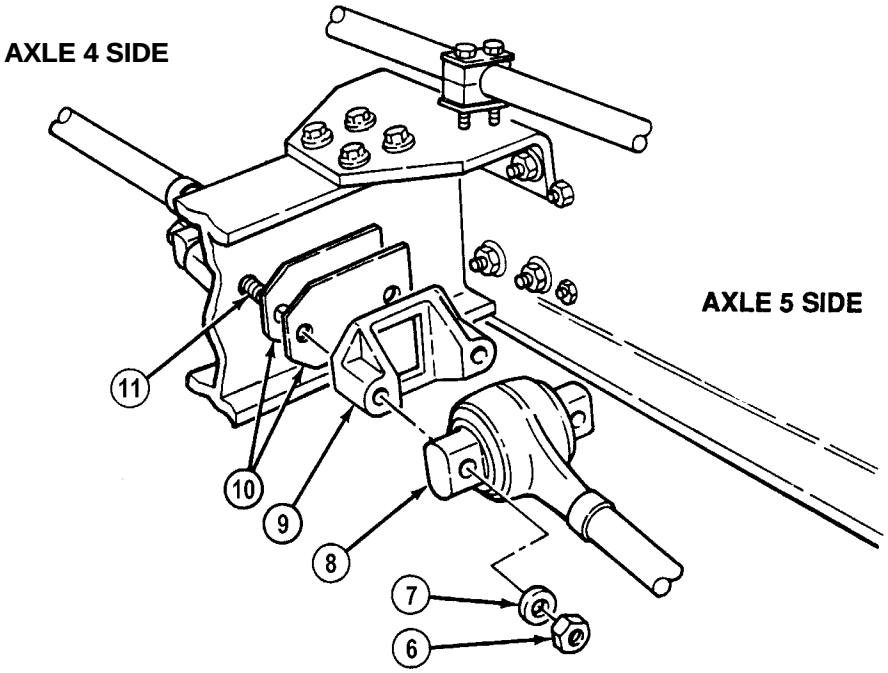
NOTE

Tag and note number and size of spacers on each torque rod during removal.

(b) With the aid of an assistant, remove two locknuts (6), washers (7), torque rod (8), bracket (9) and spacers (10) from screws (11). Discard locknuts.

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

(2) Installation.

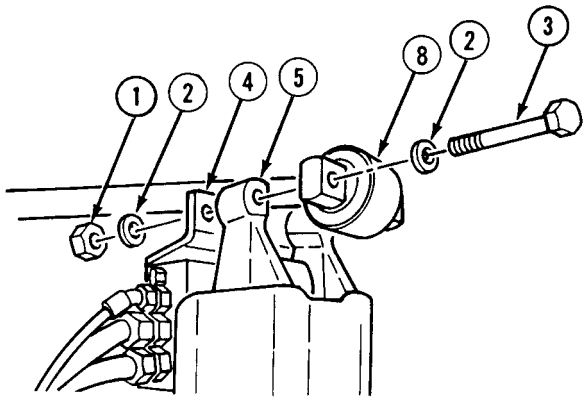


NOTE

Install same number and size spacers as noted during removal.

(a) With the aid of an assistant, install spacers (10), bracket (9), torque rod (8), two washers (7) and locknuts (6) on screws (11).

(b) With the aid of an assistant, install torque rod (8) and air manifold bracket (4) on axle (5) using two screws (3), four washers (2) and two locknuts (1).



NOTE

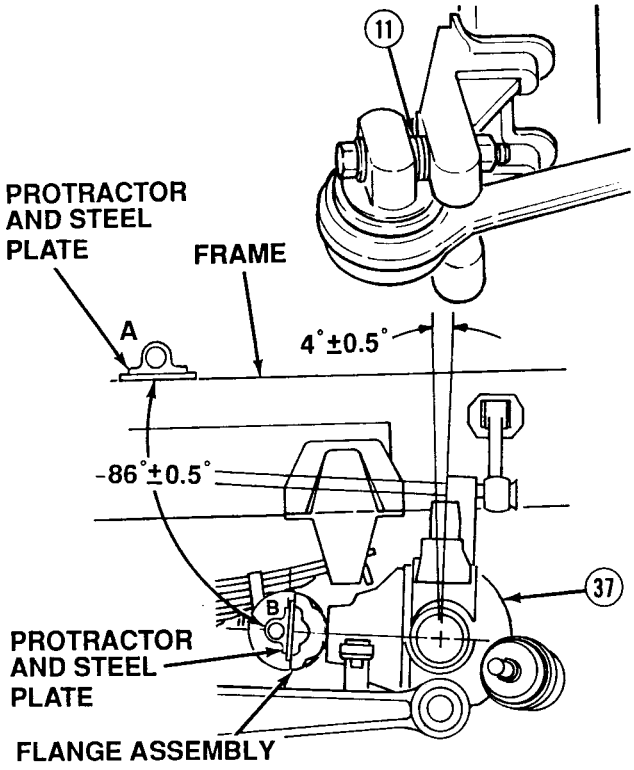
- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from flange assembly measurement.
- Axle flange measurement of 86 ± 0.5 degrees equals axle camber of four degrees ± 0.5 (90 degrees – 86 degrees = four degrees).

(c) Measure the angle (in degrees) that flange assembly is cambered.

1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 86 degrees ± 0.5 degrees.

(d) If axle camber is not four degrees ± 0.5 degrees, add or subtract spacers (11) until correct axle camber is achieved.



f. Follow-On Maintenance:

- LHS in transit position, (TM 9-2320-364-10) (Axles No. 3 and No. 4 only).
- Install rear hardlift assembly, (TM 9-2320-364-20) (Axle No. 5 only).
- Install driveshafts, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 15

CAB ACCESSORY MAINTENANCE

Para **Contents** **Page**

15-1. DIRECT SUPPORT CAB ACCESSORY MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing and servicing cab accessory components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

15-2. CAB ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

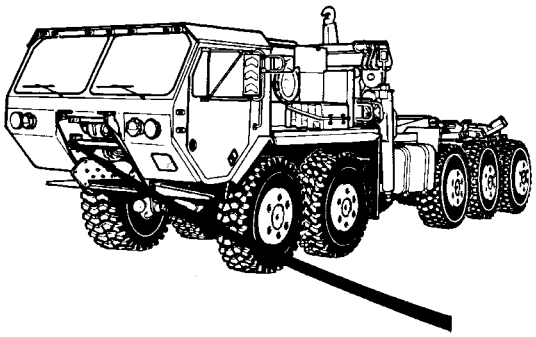
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Appendix 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wooden Blocks (2) (Appendix C)
Lifting Device, Minimum Capacity 2000 lbs
(908 kg)

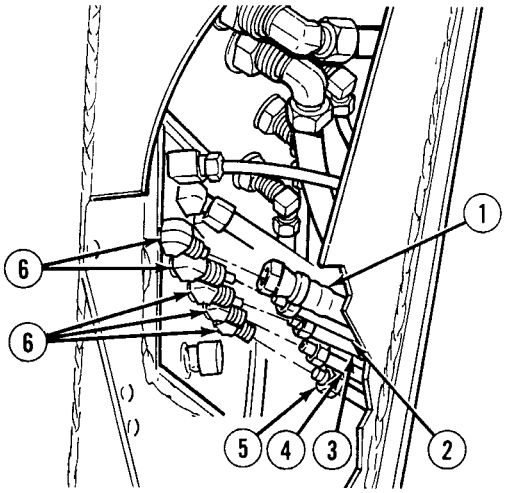
Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Preventive
(Item 15, Appendix B)
Rope, 3/4 in. thick, 20 ft. (2)
(Item 48, Appendix B)
Solution, Soap (Item 67, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (4) (Item 166, Appendix E)
Locknut (4) (Item 171, Appendix E)
Locknut (Item 174, Appendix E)
Locknut (4) (Item 176, Appendix E)
Locknut (2) (Item 201, Appendix E)
Locknut (3) (Item 210, Appendix E)
Locknut (Item 213, Appendix E)
Lockwasher (4) (Item 271, Appendix E)
Lockwasher (4) (Item 270, Appendix E)
Lockwasher (3) (Item 283, Appendix E)
Pin, Cotter (Item 416, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
OFF/HEAT lever in OFF position,
(TM 9-2320-364-10)
Parking brake set, (TM 9-2320-364-10)
Air system drained, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Electronic Control Box (ECB) cover removed,
(TM 9-2320-364-20)
Heater control box cover removed,
(TM 9-2320-364-20)
Side access panel removed,
(TM 9-2320-364-20)
Cab engine access panel removed,
(TM 9-2320-364-20)
Skid plate structure removed,
(TM 9-2320-364-20)
Machine gun ring rear support removed
(if equipped), (TM 9-2320-364-20)
Gas particulate filter kit removed (if equipped),
(TM 9-2320-364-20)
Chemical alarm kit removed (if equipped),
(Para 19-3)

a. Removal.



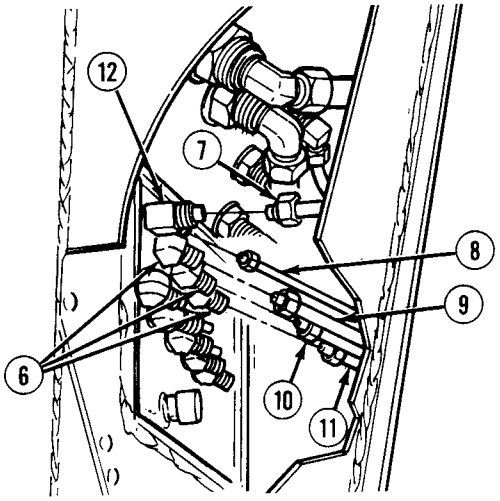


NOTE

Tag and mark all air lines prior to removal.

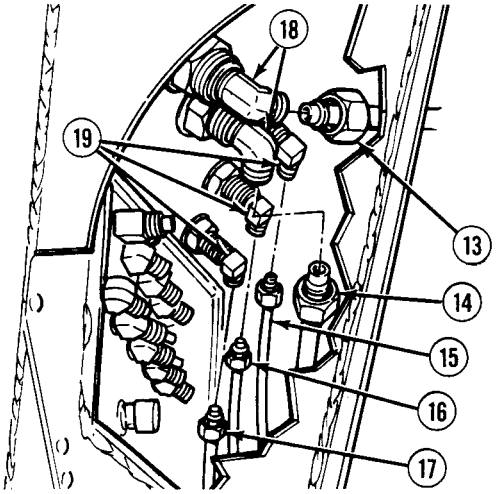
(1) Remove air line 2381 (1), air line 2623 (2), air line 2665 (3), air line 2489 (4) and air line 2663 (5) from elbows (6).

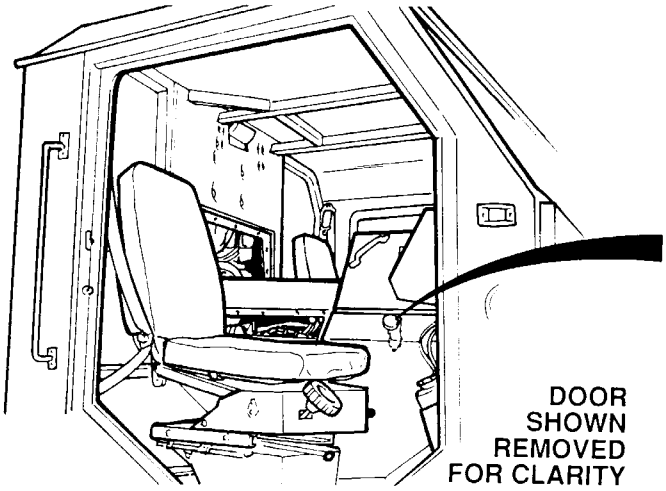
(2) Remove air line 2074 (7), air line 2074 (8), air line 2612 (9), air line 2488 (10) and air line 2662 (11) from tee (12) and elbows (6).

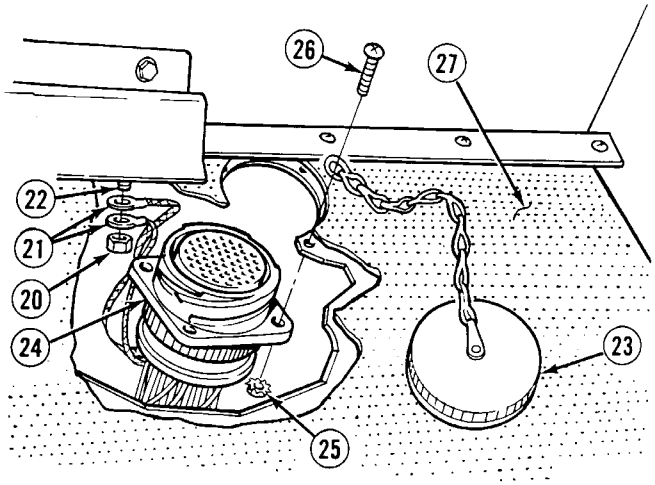


15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(3) Remove air line 2005 (13), air line 2619 (14), air line 2923 (15), air line 2412 (16) and air line 2069 (17) from two elbows (18) and three elbows (19).







(4) Remove locknut (20) and two ground straps (21) from stud (22). Discard locknut.

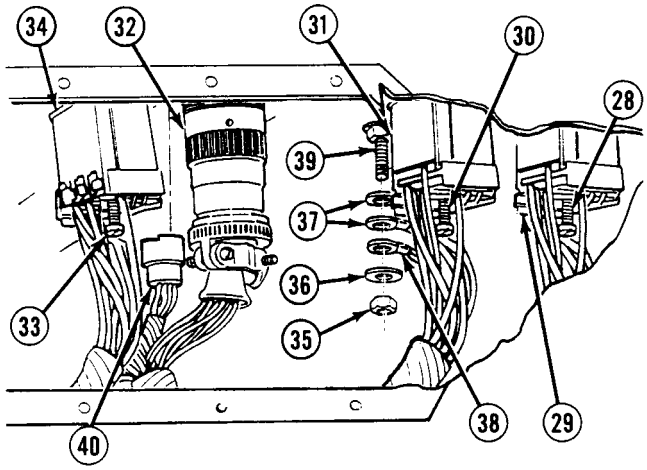
(5) Remove cap (23) from MC39 connector (24).

(6) Remove four locknuts (25), screws (26) and cap and chain (23) from cab wall (27). Discard locknuts.

(7) Pull MC39 connector (24) from cab wall (27).

NOTE

- Tag and mark wires and cables prior to removal.
- Remove cable ties as required.



(8) Loosen screw (28) and disconnect MC21 connector (29).

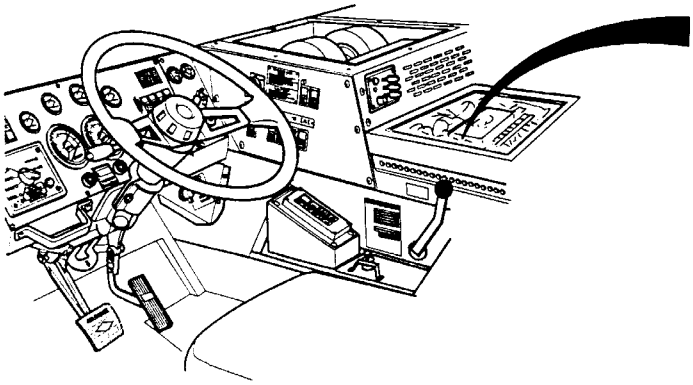
(9) Loosen screw (30) and disconnect MC3 connector (31).

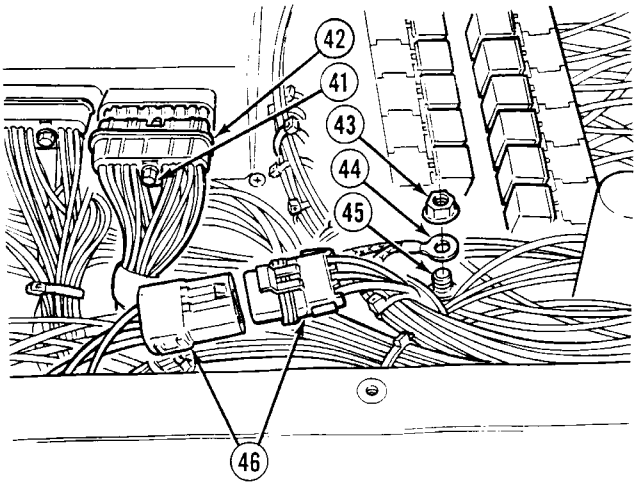
(10) Disconnect MC11 connector (32).

(11) Loosen screw (33) and disconnect MC25 connector (34).

(12) Remove locknut (35), washer (36) and two ground straps (37) and wire 1435 (38) from stud (39). Discard locknut.

(13) Disconnect MC44 connector (40).





(14) Loosen screw (41). Disconnect MC10 connector (42).

(15) Remove locknut (43) and double braided ground wire (44) from stud (45). Discard locknut.

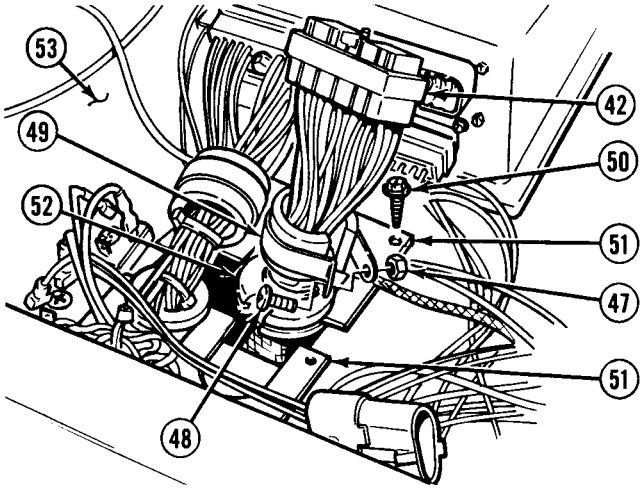
(16) Disconnect MC36 connector (46).

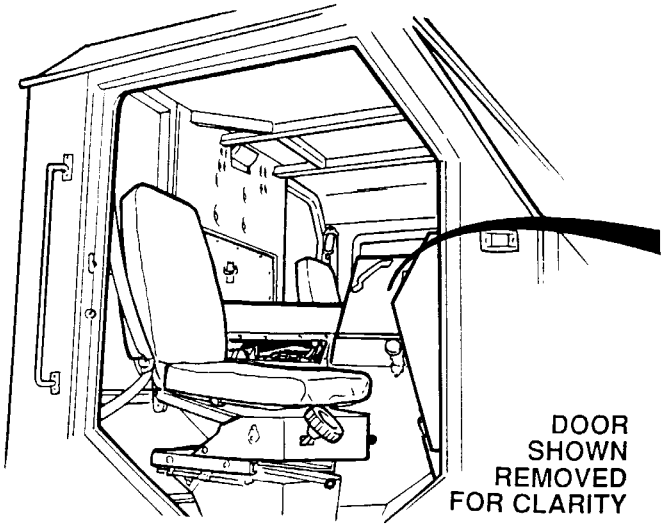
15-2. CAB ASSEMBLY REPLACEMENT (CONT).

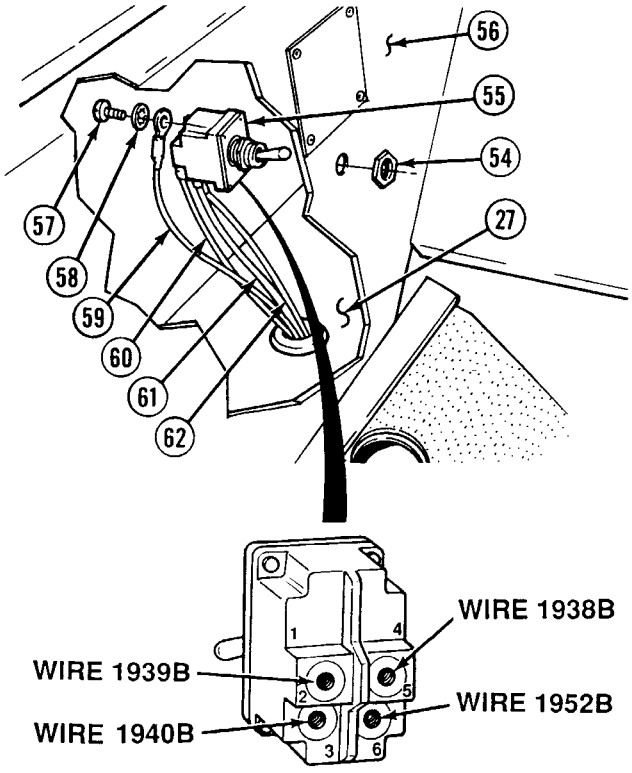
(17) Remove locknut (47), screw (48) and clamp (49) from MC10 connector (42). Discard locknut.

(18) Remove four screws (50), plates (51) and rubber grommet (52) from electronic control box (53).

(19) Push MC10 connector (42) through ECB (53).



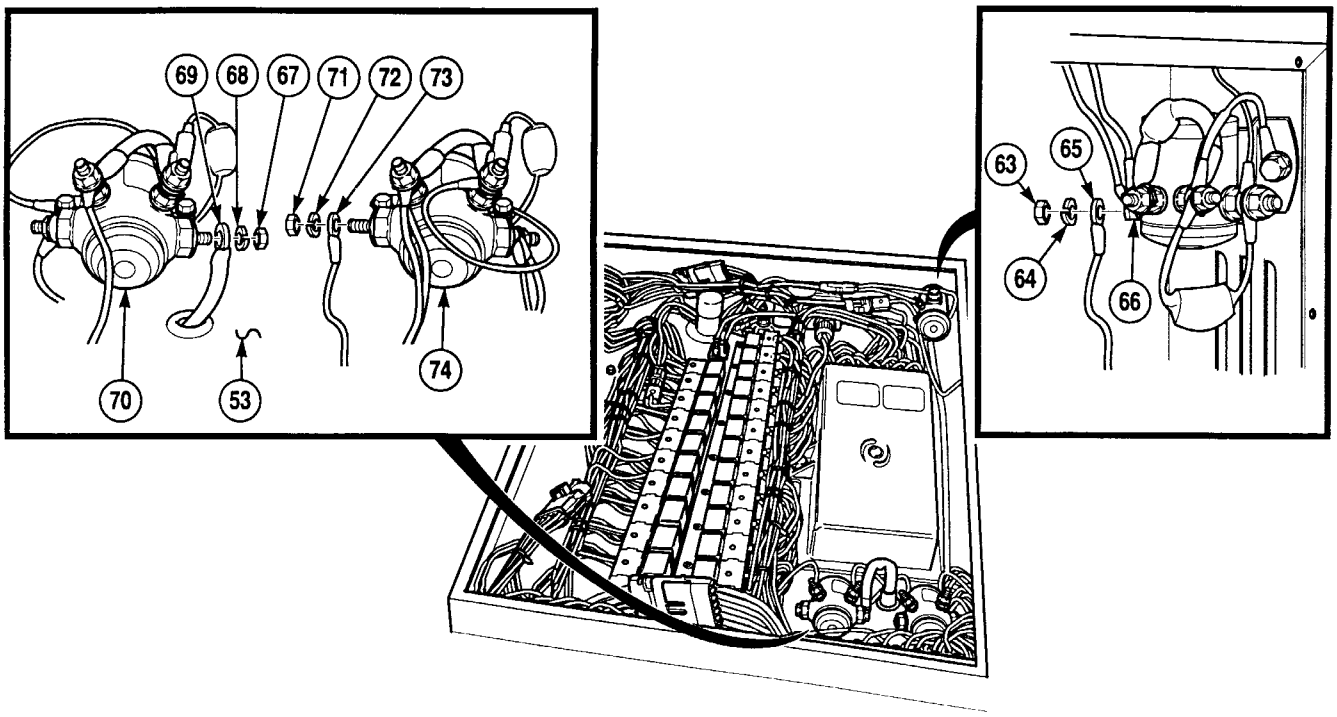




(20) Remove nut (54) and pull STE/ICE-R switch (55) from dash (56).

(21) Remove four screws (57), lockwashers (58) and wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) from STE/ICE-R switch (55). Discard lockwashers.

(22) Pull wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) through cab wall (27).

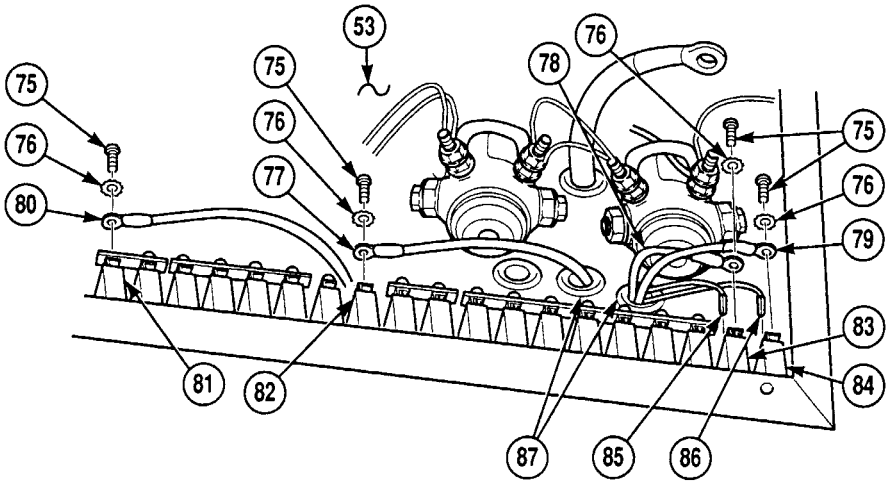


(23) Remove nut (63), lockwasher (64) and wire 1075 (65) from relay (66). Discard lockwasher.

(24) Remove nut (67), lockwasher (68) and wire 1430 (69) from relay (70). Discard lockwasher.

(25) Remove nut (71), lockwasher (72) and wire 1281 (73) from relay (74). Discard lockwasher.

(26) Pull wires 1075 (65), 1430 (69) and 1281 (73) through ECB (53).

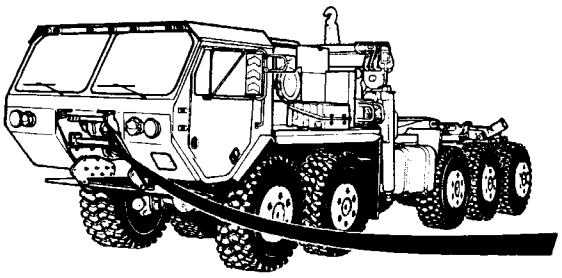


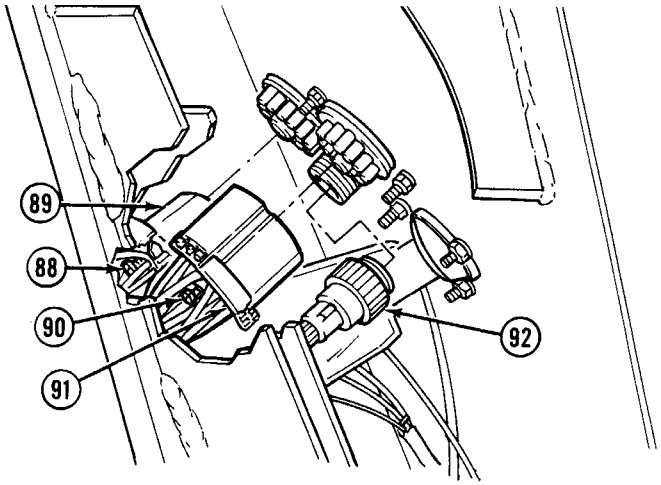
(27) Remove four screws (75), lockwashers (76) and wire 1866 (77), wire 241 (78), wire 240 (79) and wire 1079 (80) from four circuit breakers CB5 (81), CB12 (82), CB22 (83) and CB23 (84). Discard lockwashers.

(28) Disconnect wire 241 (85) and wire 240 (86) from circuit breakers CB22 (83) and CB23 (84).

(29) Pull wire 1866 (77), wire 241 (78), wire 240 (79), wire 1079 (80) wire 241 (85) and wire 240 (86) through ECB (53) and remove two grommets (87).

15-2. CAB ASSEMBLY REPLACEMENT (CONT).

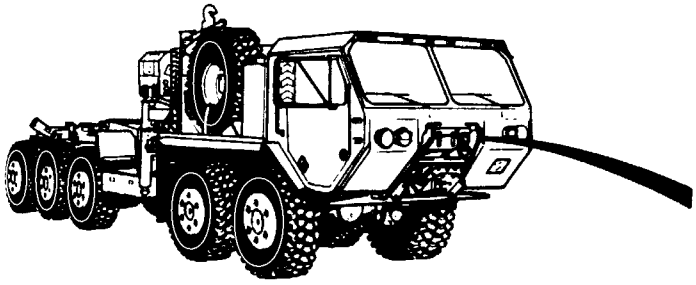


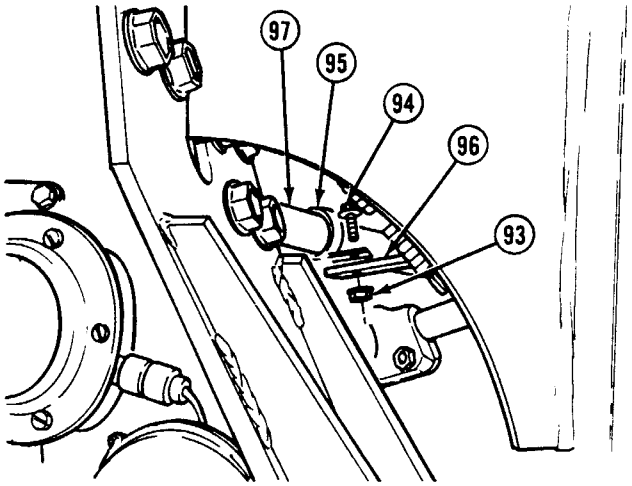


(30) Loosen screw (88) and remove MC32 connector (89).

(31) Loosen screw (90) and remove MC31 connector (91).

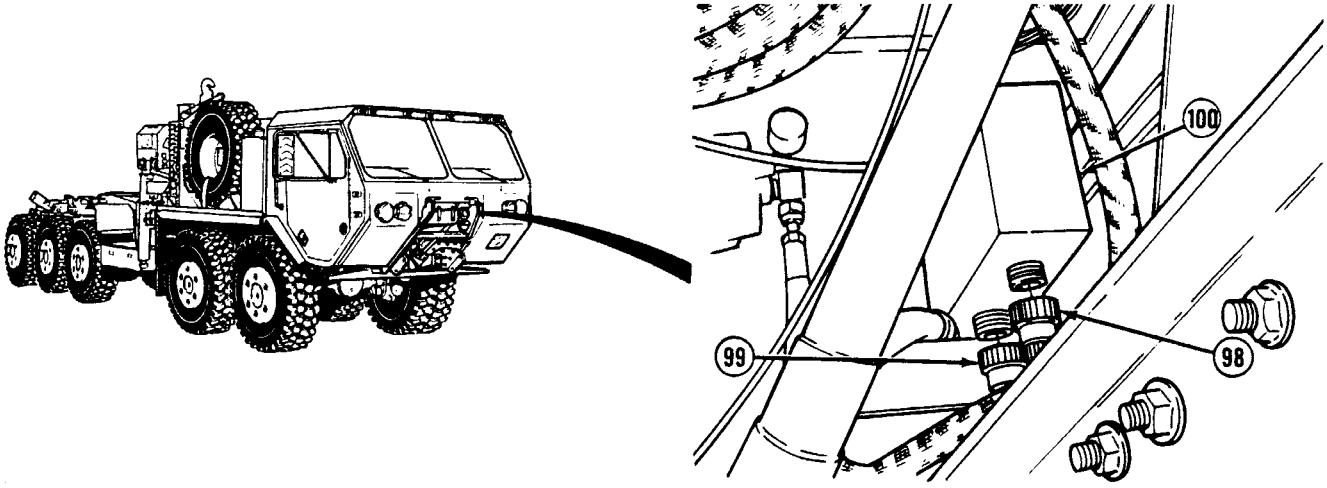
(32) Disconnect MC34 connector (92).





(33) Remove locknut (93), screw (94) and cushion clip (95) from bracket (96). Discard locknut.

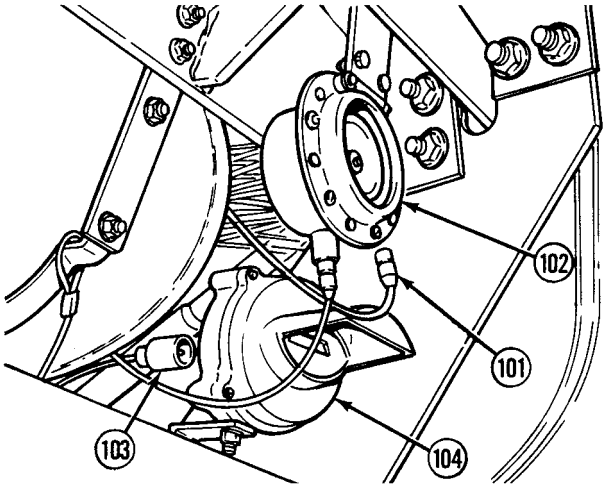
(34) Push wire harness (97) out of way.

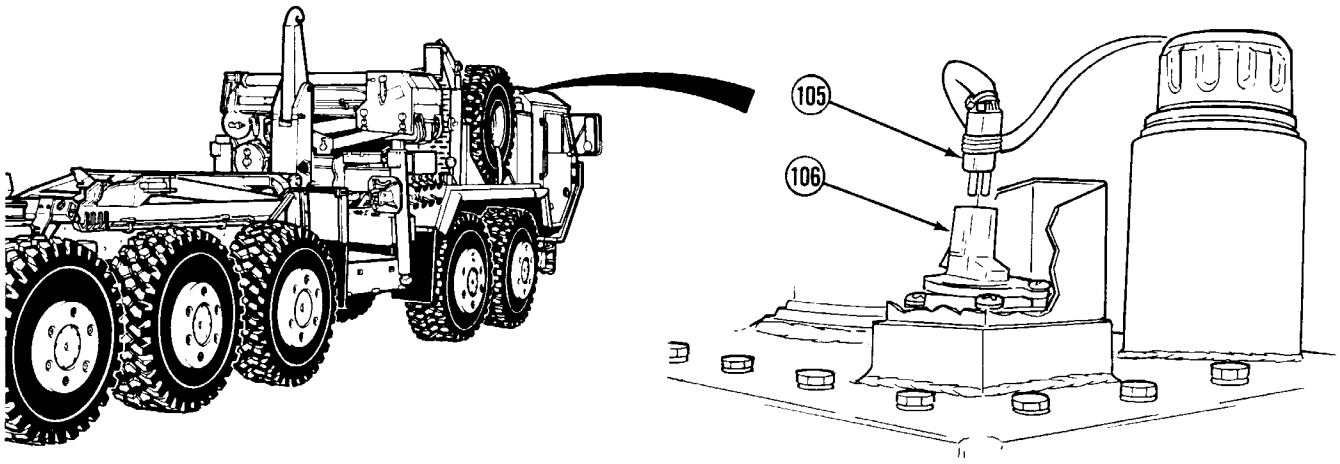


(35) Disconnect MC83 connectors (98) and MC94 (99) from LHS control box (100).

(36) Disconnect wire 1168 (101) from horn (102).

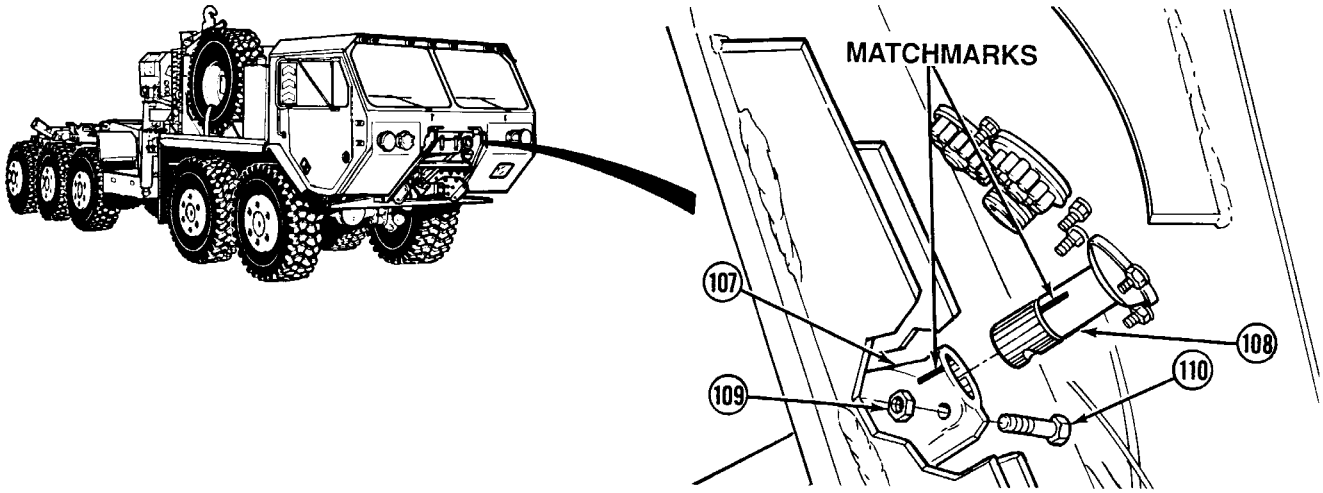
(37) Disconnect wire 1679 (103) from blackout light (104).





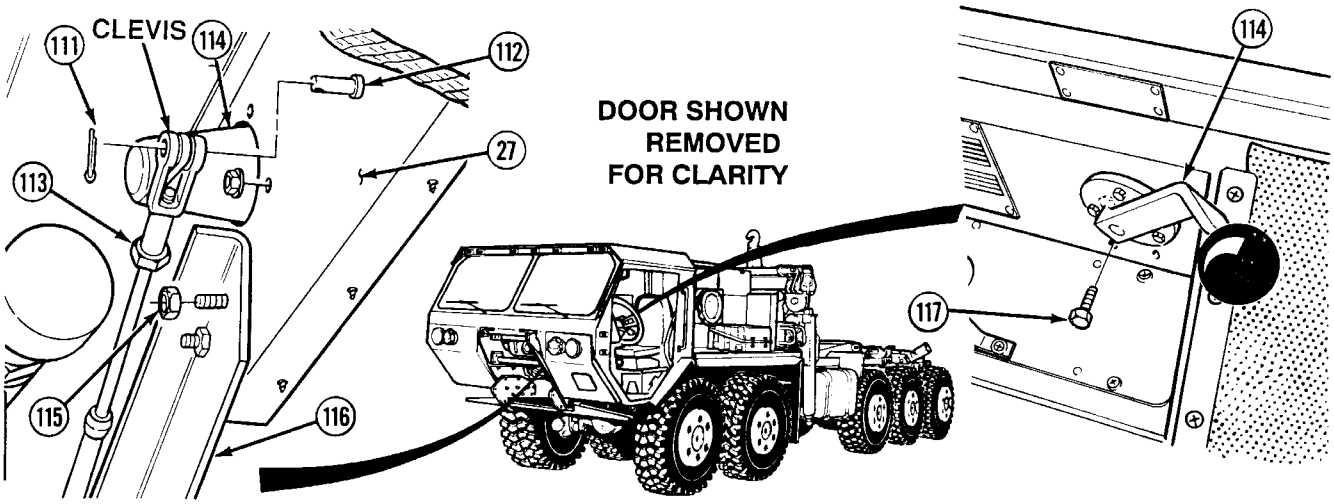
(38) Disconnect MC96 connector (105) from sending unit (106).

15-2. CAB ASSEMBLY REPLACEMENT (CONT).



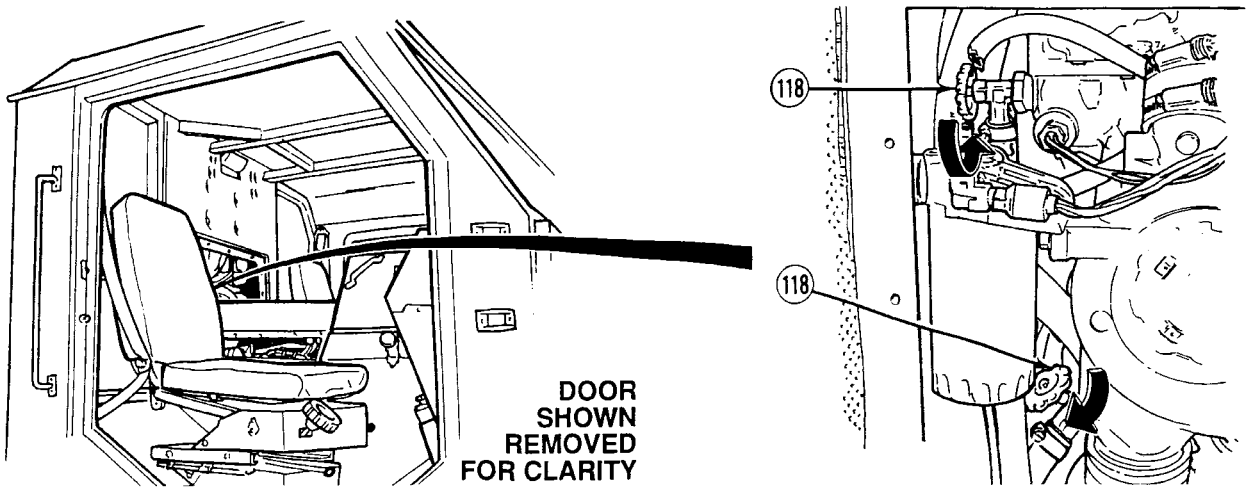
(39) Matchmark steering shaft (107) to steering shaft (108).

(40) Remove locknut (109), screw (110) and pull steering shaft (107) from steering shaft (108). Discard locknut.

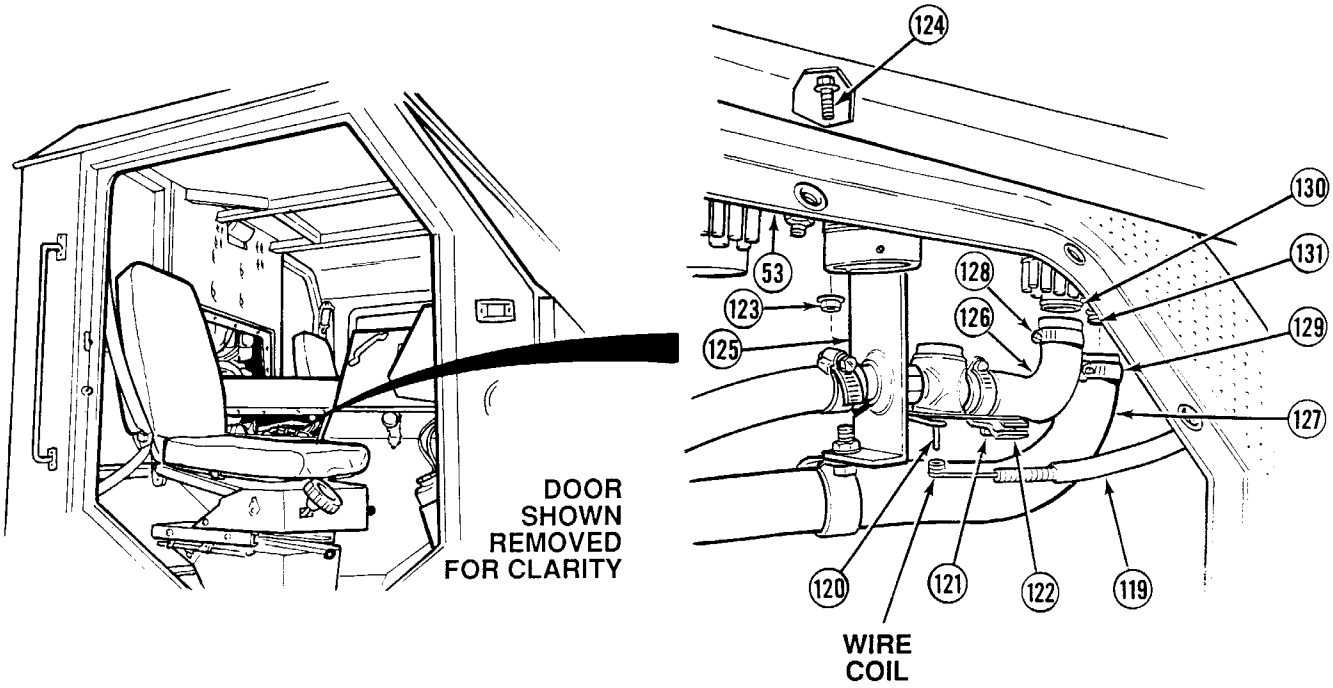


(41) Remove cotter pin (111), yoke pin (112) and clevis of shift cable (113) from shift assembly (114). Discard cotter pin.

(42) With the aid of an assistant, remove two locknuts (115), bracket assembly (116) and two screws (117) from cab wall (27). Discard locknuts.



(43) Close two shut-off valves (118) by turning in a clockwise direction.



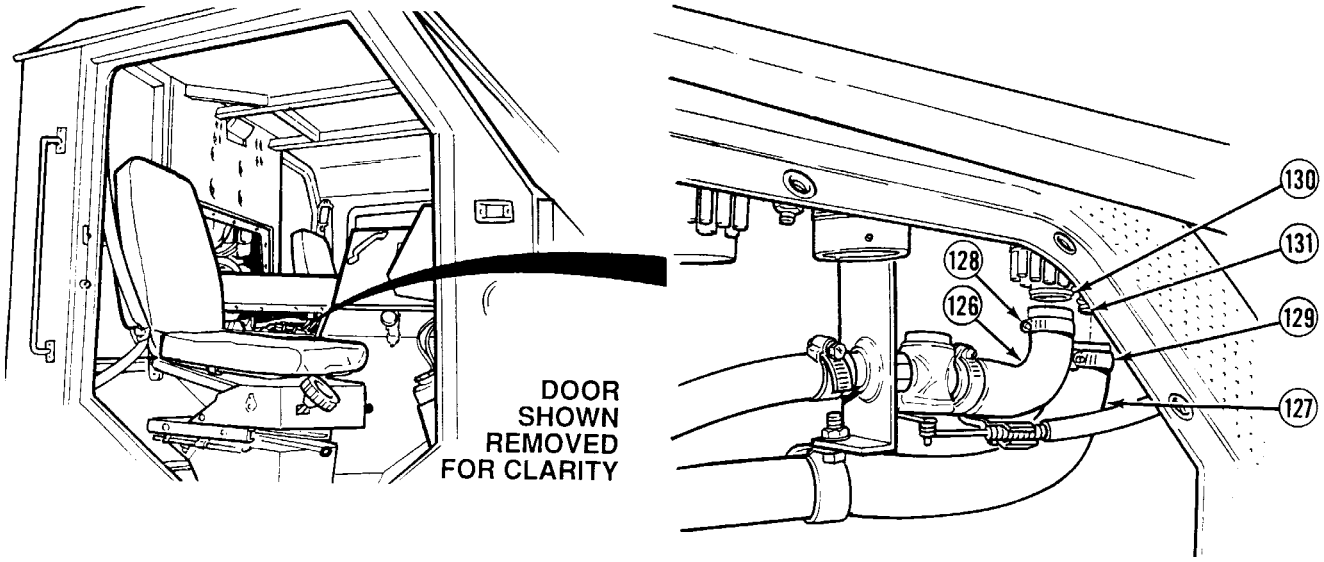
(44) Slide wire coil of control cable (119) off of stud (120).

(45) Loosen screw (121) and remove control cable (119) from clamp (122).

(46) Remove two locknuts (123), two screws (124) and bracket (125) from ECB (53). Discard locknuts.

(47) Position drain pan under hoses (126) and (127).

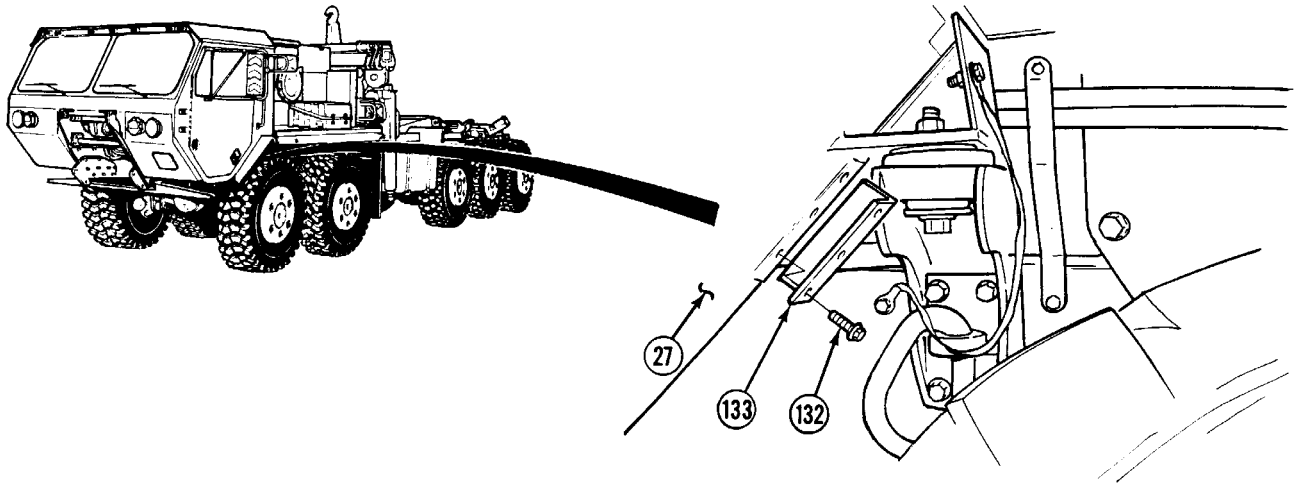
15-2. CAB ASSEMBLY REPLACEMENT (CONT).



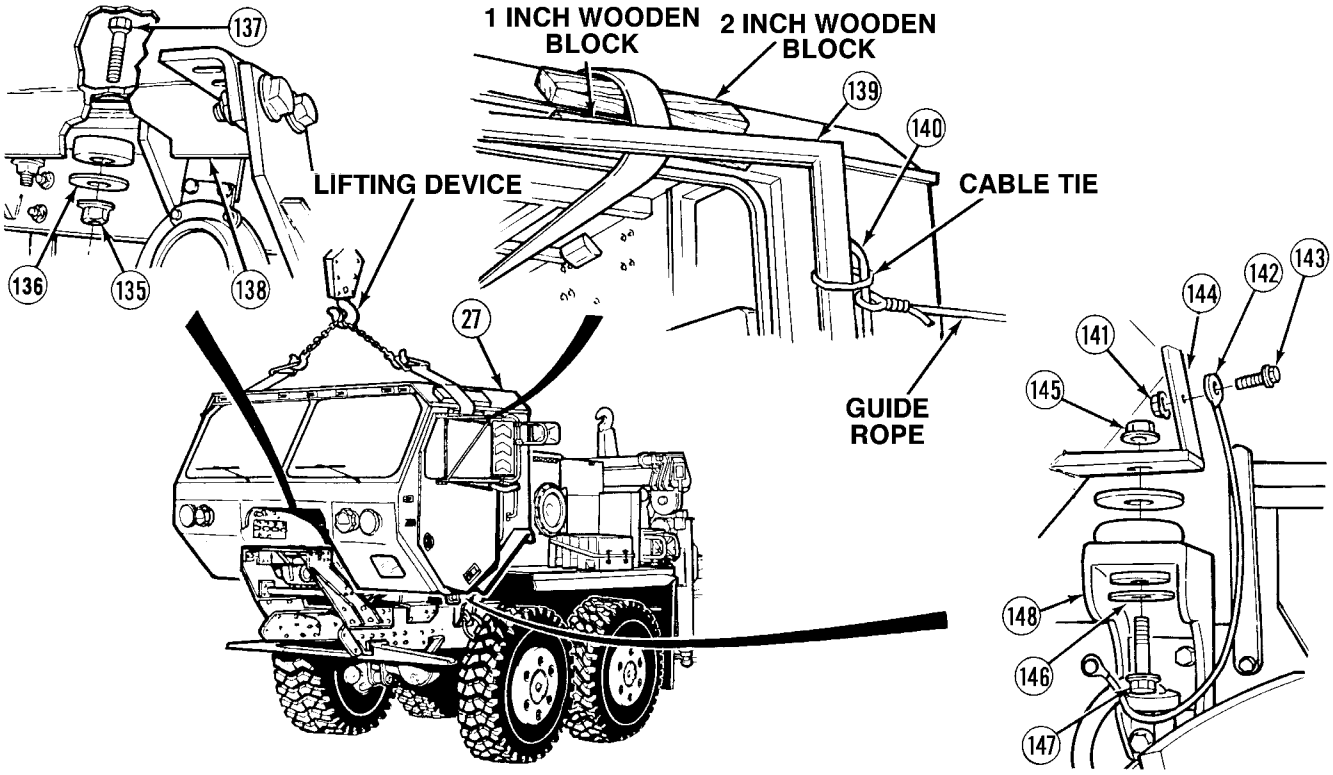
WARNING

Do not drain coolant if water temperature gage reads above 180 degrees F (82 degrees C). Contact with steam or hot coolant will result in serious injury to personnel.

(48) Loosen hose clamps (128) and (129) and remove hoses (126) and (127) from tubes (130) and (131).



(49) Remove three screws (132) from each side of cross brace (133) and cab (27) and let cross brace lay on truck frame.



WARNING

Cab weighs 1,700 lbs (772 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

(50) With the aid of an assistant, attach lifting device and straps to cab (27). Position wooden blocks against cab above door frame and below roof line to protect cab.

(51) Raise lifting device to take slack out of straps.

(52) With the aid of an assistant, remove two locknuts (135), washers (136) and screws (137) from front mount bracket (138). Discard locknuts.

(53) Using cable ties, strap doors (139) to grab handles (140) and attach guide rope to left and right grab handles (140).

NOTE

Step (54) applies to left side of truck only.

(54) Remove locknut (141), ground strap (142) and screw (143) from bracket (144). Discard locknut.

(55) Remove locknut (145), washer (146) and screw (147) from each side of rear mount (148). Discard locknut.

WARNING

All personnel must stay clear of cab when lifting is in progress. Failure to comply may result in injury or death to personnel.

(56) With the aid of an assistant and using lifting device, raise cab (27) up slightly. If cab tilts forward or backward, lower cab back down.

(57) Adjust straps to level cab (27).

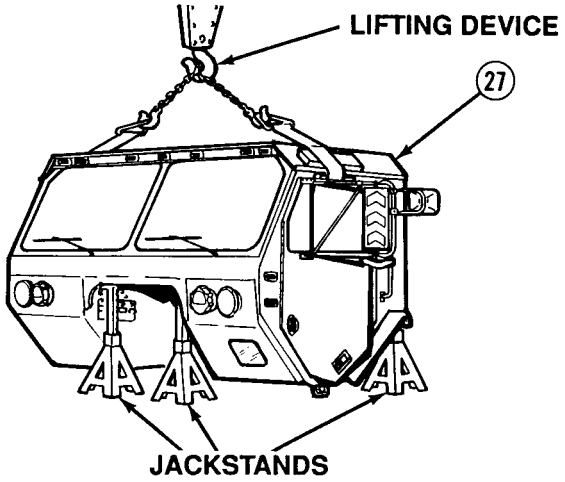
15-2. CAB ASSEMBLY REPLACEMENT (CONT).

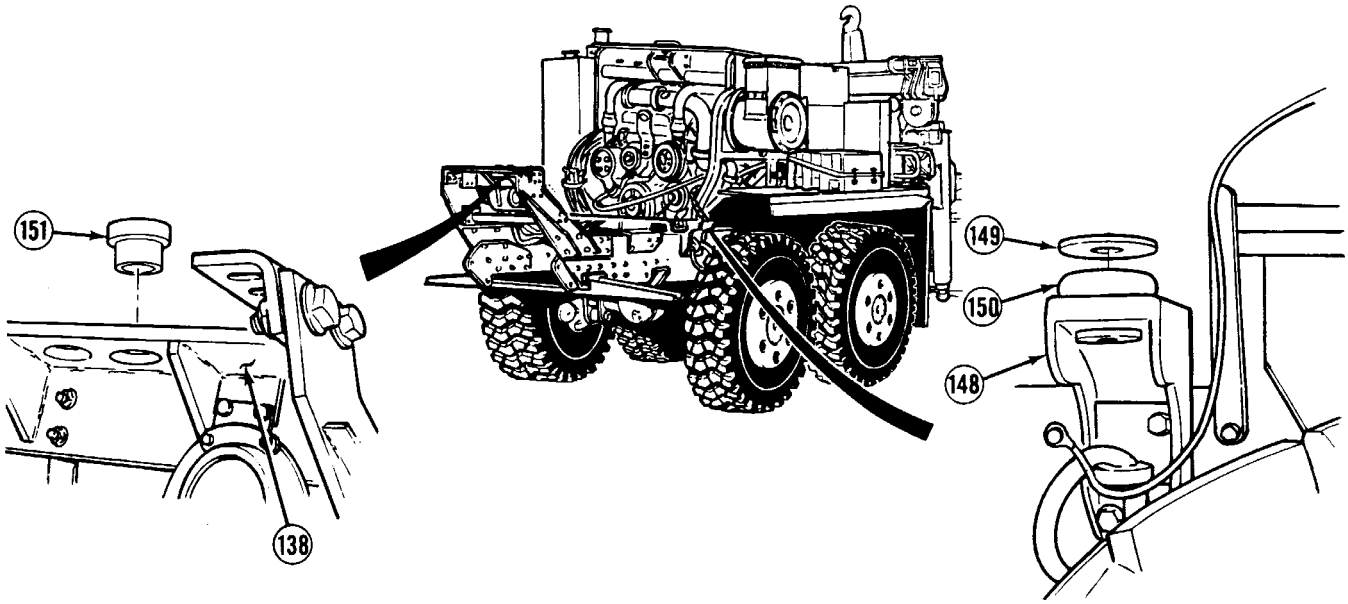
CAUTION

Ensure air lines and electrical wires do not tangle with the cab.

(58) With the aid of an assistant and using lifting device, slowly raise cab (27).

(59) With the aid of an assistant using lifting device and guide rope, remove cab (27) from truck and position on four jackstands.





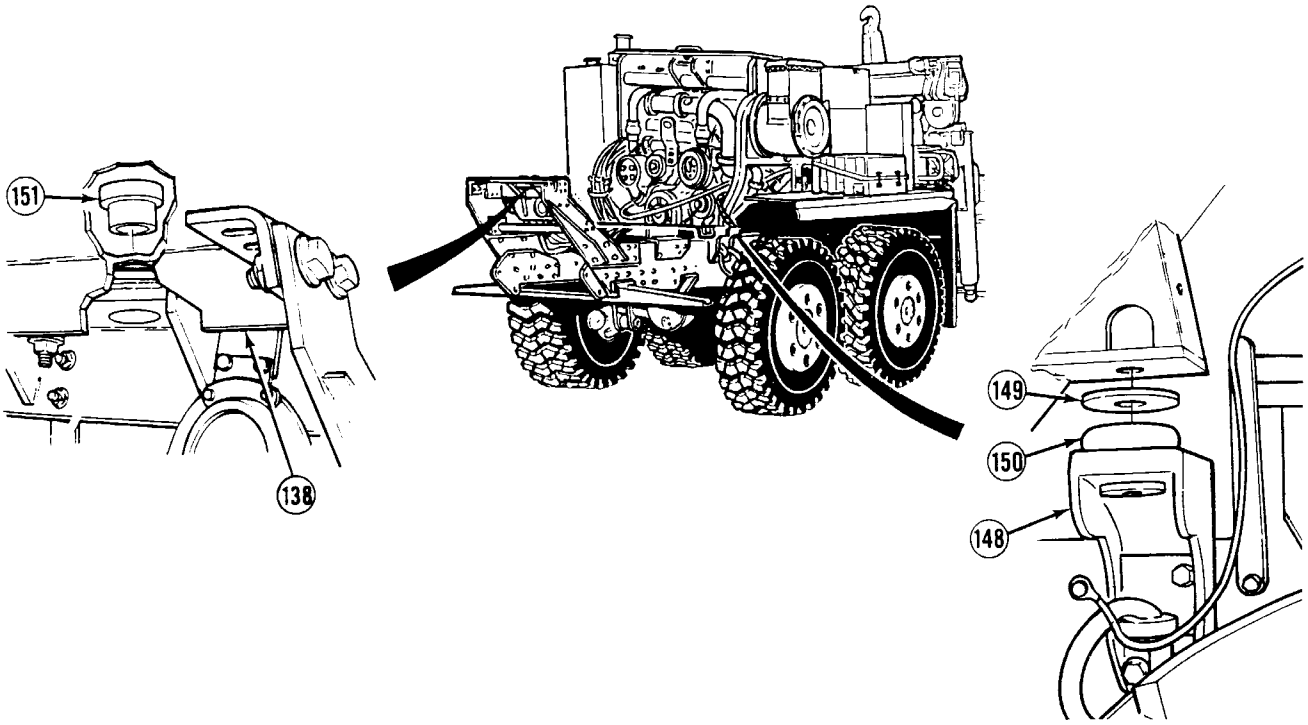
NOTE

Perform Steps (60) and (61) only if mounts are damaged.

(60) Remove two washers (149) and mounts (150) from rear mounts (148).

(61) Remove two mounts (151) from mounting bracket (138).

b. Installation.



NOTE

Perform Steps (1) and (2) only if mounts were removed.

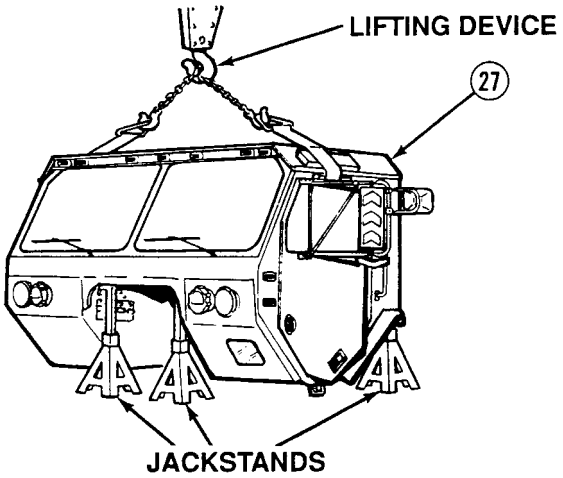
(1) Apply soap solution to mounts and install two mounts (151) in front mounting bracket (138).

(2) Apply soap solution to mounts and install two mounts (150) and washers (149) on each rear mount (148).

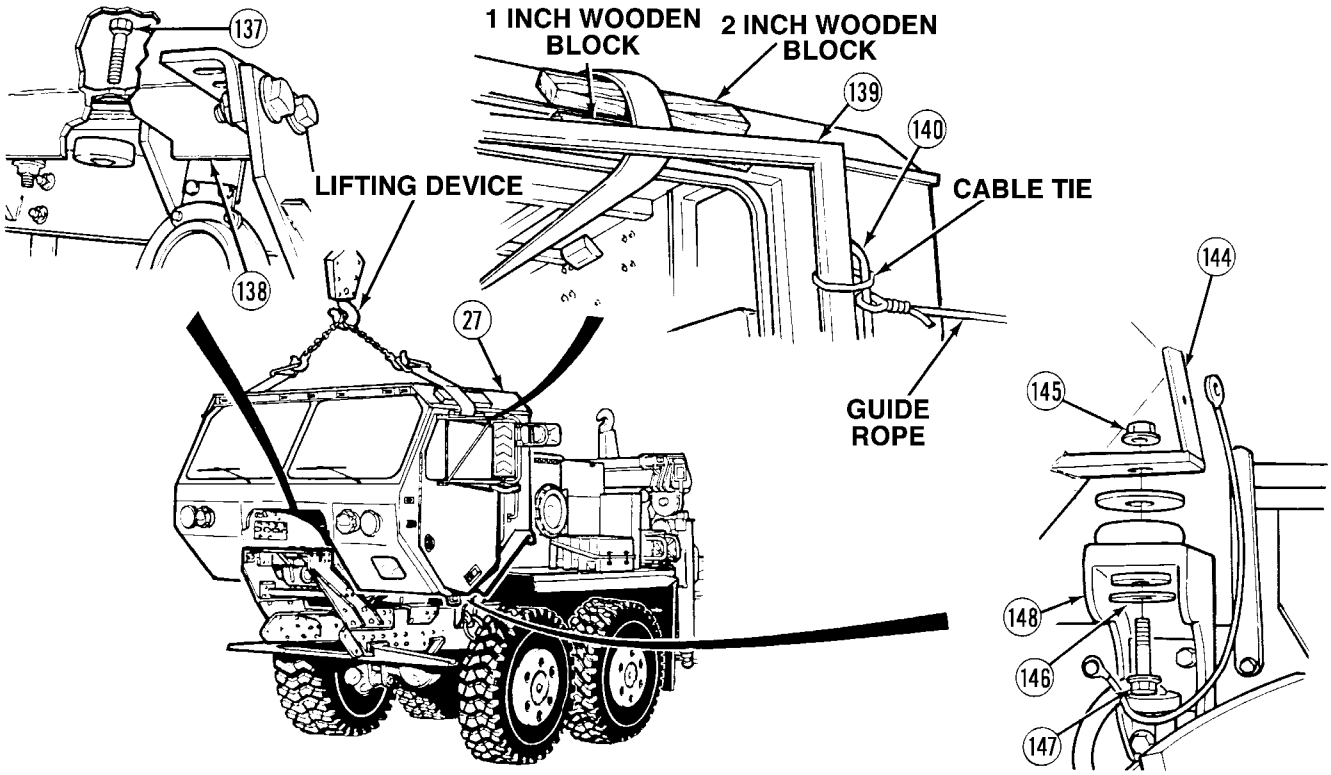
WARNING

Cab weighs 1,700 lbs (772 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

(3) Attach lifting device and straps to cab (27) and position wooden blocks against cab above door frame and below roof line to protect cab (27).



15-2. CAB ASSEMBLY REPLACEMENT (CONT).



WARNING

All personnel must stay clear of cab when lifting is in progress. Failure to comply may result in injury or death to personnel.

(4) With the aid of an assistant and using lifting device, raise cab (27) up slightly. If cab tilts forward or backward, lower cab back down.

(5) Adjust straps to level cab (27).

(6) Repeat Steps (4) and (5) until cab (27) no longer tilts when lifted.

CAUTION

Ensure air lines and electrical wires do not get tangled with the cab.

(7) With the aid of an assistant and using lifting device and guide ropes, raise cab (27) onto front and rear cab mounts (138) and (148).

NOTE

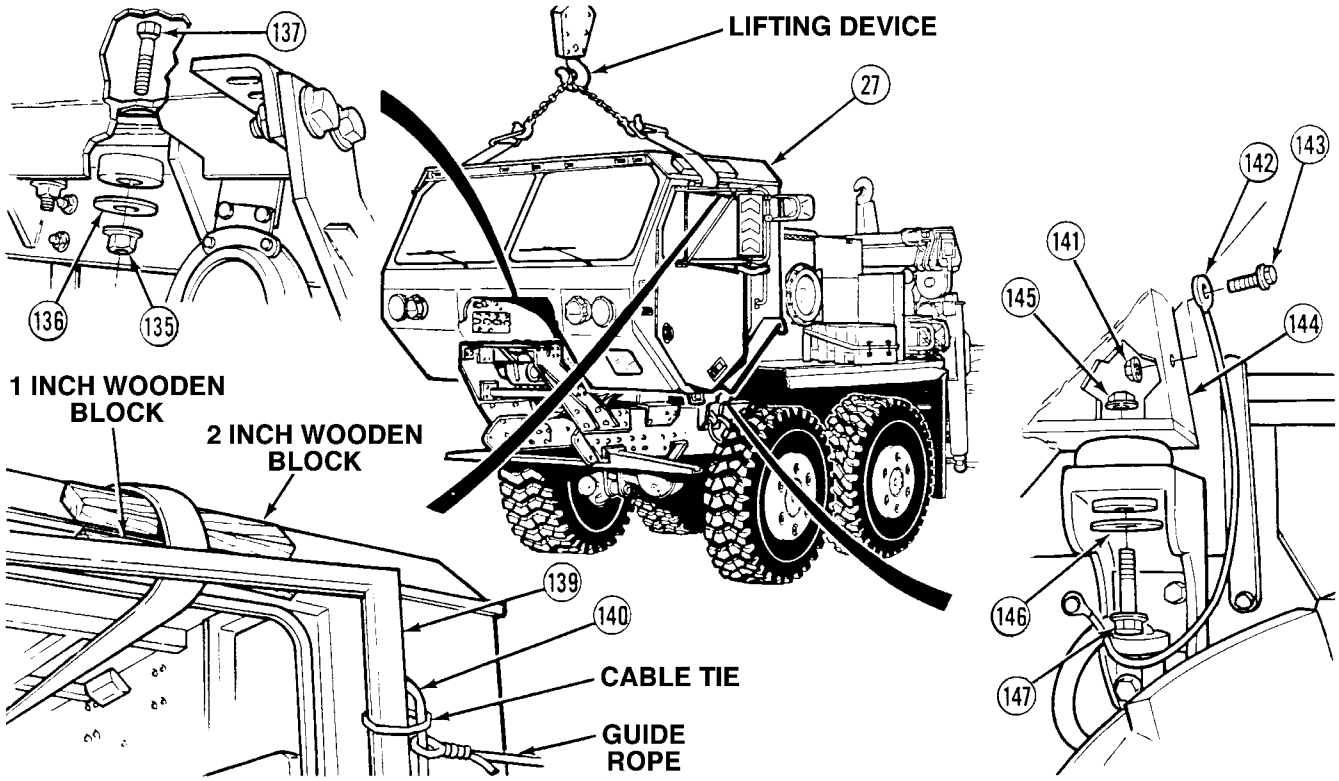
Position locknut only so that it is started on the first three or four threads of screw. Otherwise installation of front screws will be difficult.

(8) Position screw (147), washer (146) bracket (144) and locknut (145) on each side of cab (27).

NOTE

Ensure flats on screw are positioned against anti-rotation plate in cab.

(9) With the aid of an assistant and using lifting device, raise cab slightly and position two screws (137) from inside of cab (27).



(10) With the aid of an assistant and using lifting device, lower cab (27) and position two washers (136) and locknuts (135) on screws (137).

(11) Remove wooden blocks, lifting device, guide rope and cable ties from cab (27), doors (139) and grab handles (140).

(12) With the aid of an assistant, install two screws (137) with locknuts (135).

(13) With the aid of an assistant, install two screws (147) with locknuts (145).

NOTE

Step (14) applies to left side of truck only.

(14) Install ground strap (142) on cab (27) with screw (143) and locknut (141).

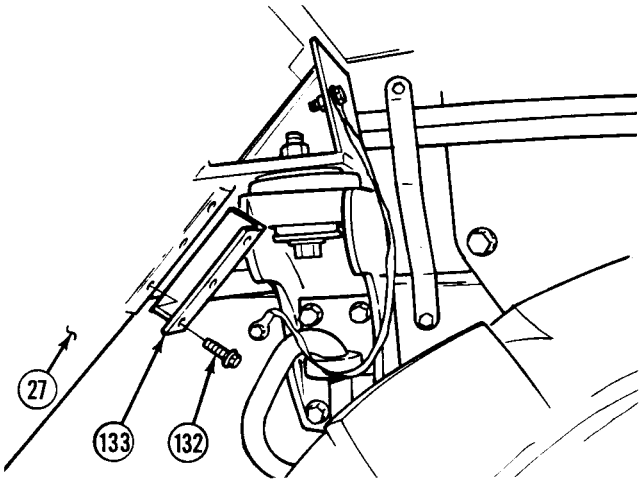
WARNING

Rust preventive contains alkali. Do not get in eyes. Wear goggles/safety glasses when using rust preventive. Avoid contact with skin. In case of contact with rust preventive, immediately wash area with soap and water. If rust preventive contacts eyes, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(15) Coat connection at ground strap (142), with corrosion preventive compound.

15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(16) Install cross brace (133) with three screws (132) on cab (27).



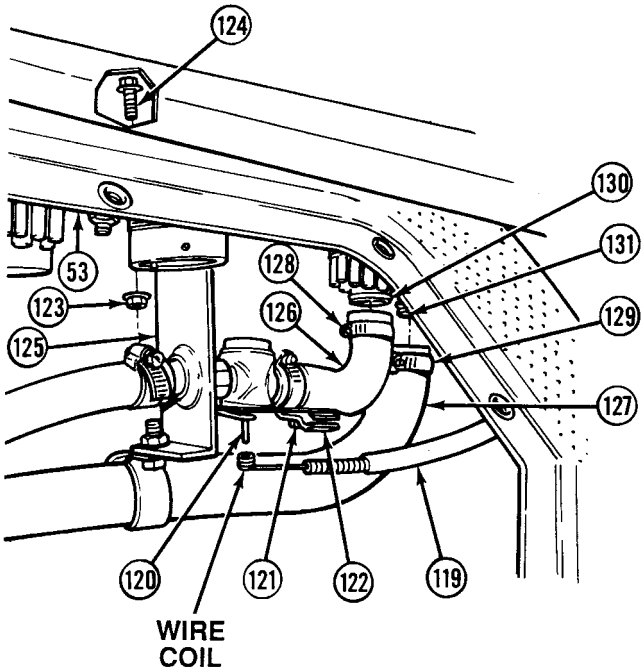
(17) Install hose (127) on tube (131) with hose clamp (129). Tighten hose clamp to 40 lb-in (5 N·m).

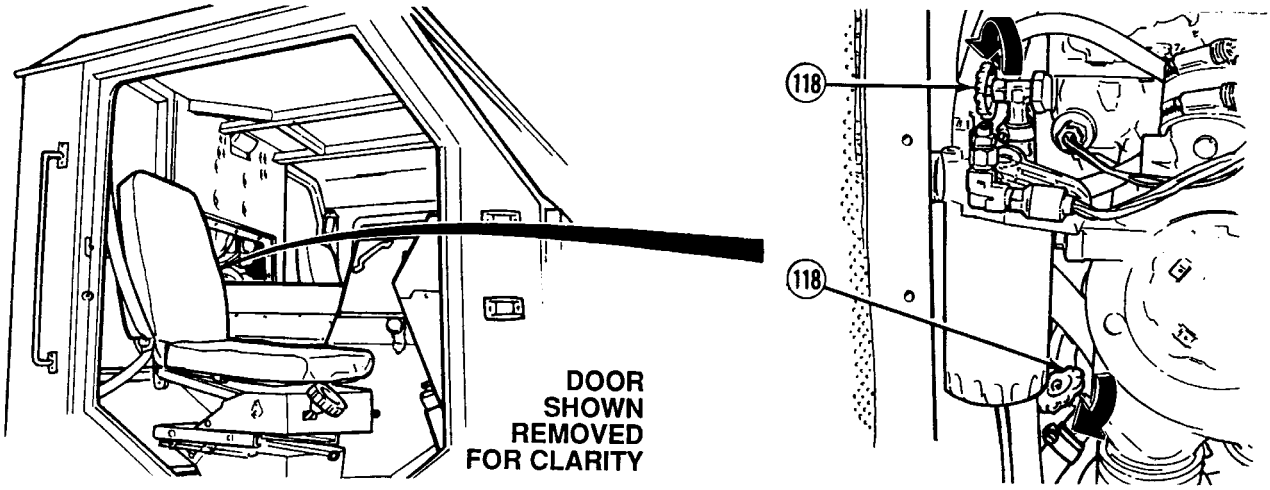
(18) Install hose (126) on tube (130) with hose clamp (128). Tighten hose clamp to 40 lb-in (5 N·m).

(19) Install bracket (125) on electronic control box (53) with screw (124) and locknut (123).

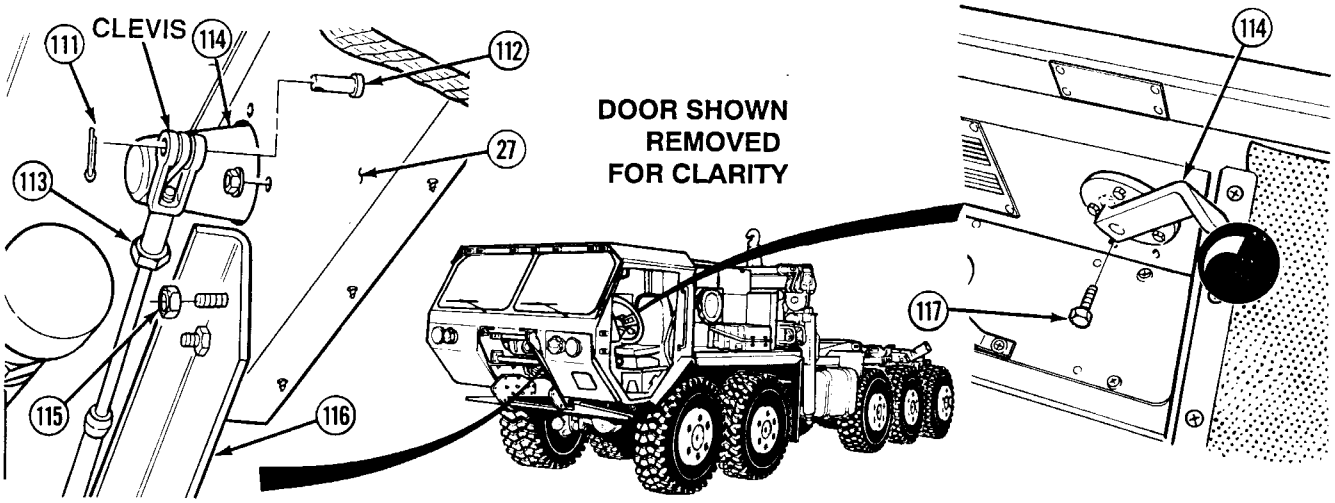
(20) Slide wire coil of control cable (119) on stud (120).

(21) Position control cable (119) in clamp (122) and tighten screw (121).





(22) Open two shut-off valves (118).



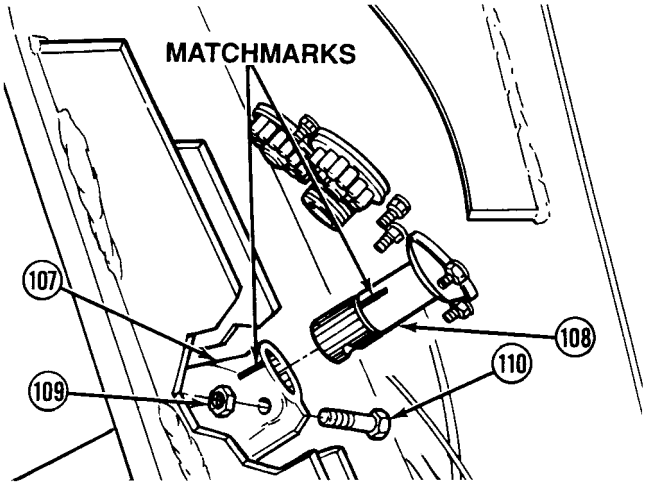
(23) With the aid of an assistant, install two screws (117) and bracket assembly (114) in cab wall (116) with two locknuts (115).

(24) With the aid of an assistant, hold shift assembly (114) in neutral position and install clevis of shift cable (113) on shift assembly (114) with yoke pin (112) and cotter pin (111).

15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(25) Align matchmarks and install steering shaft (107) on steering shaft (108).

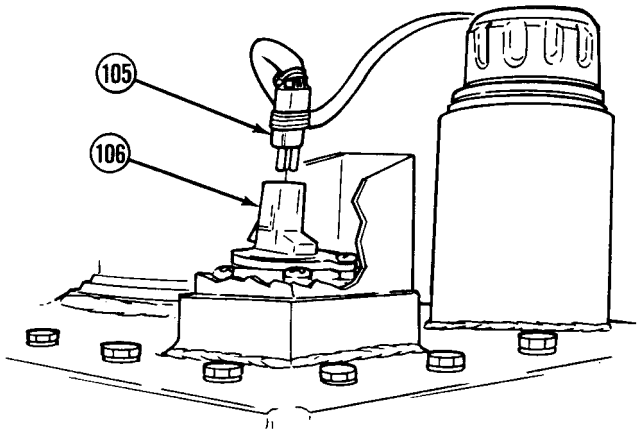
(26) Install screw (110) and locknut (109).



NOTE

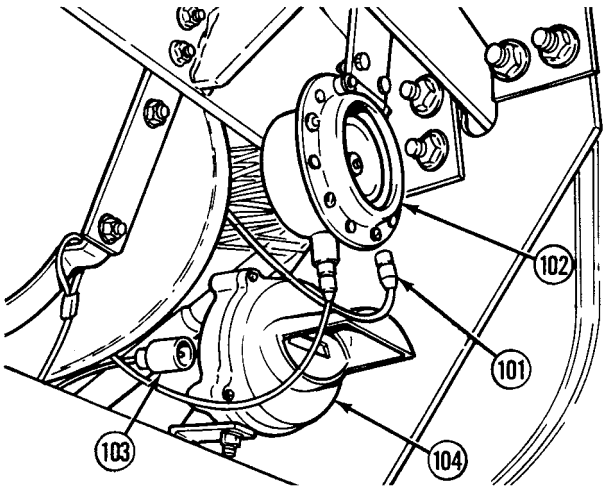
Install cable ties as required.

(27) Connect MC96 connector (105) to sending unit (106).

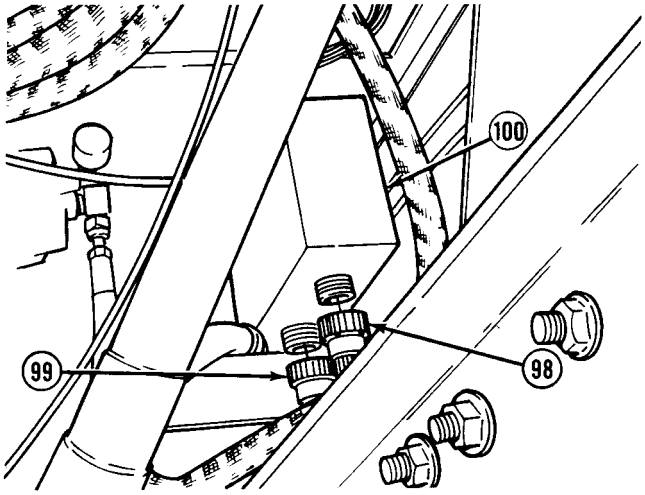


(28) Connect wire 1679 (103) to blackout light (104).

(29) Connect wire 1168 (101) to horn (102).

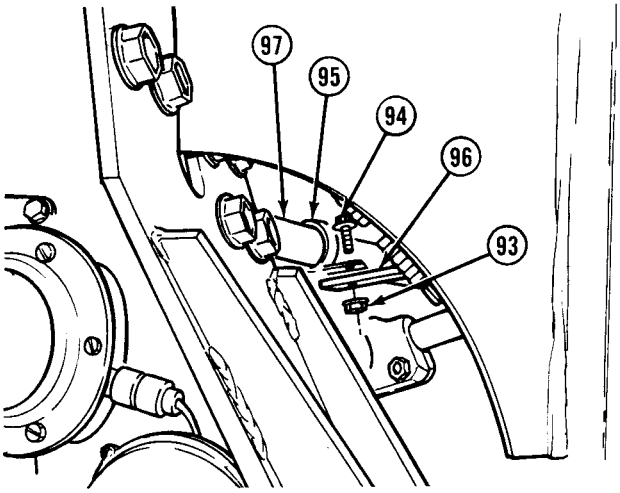


(30) Install MC83 connectors (98) and MC94 (99) on LHS control box (100).



(31) Install cushion clip (95) on wire harness (97).

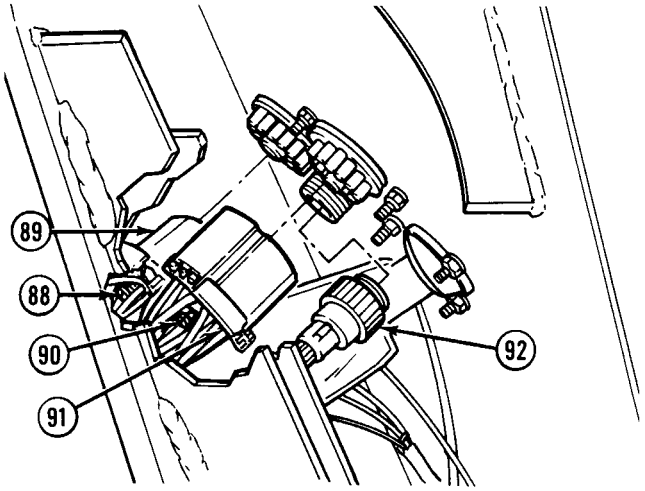
(32) Install cushion clip (95) on bracket (96) with screw (94) and locknut (93).



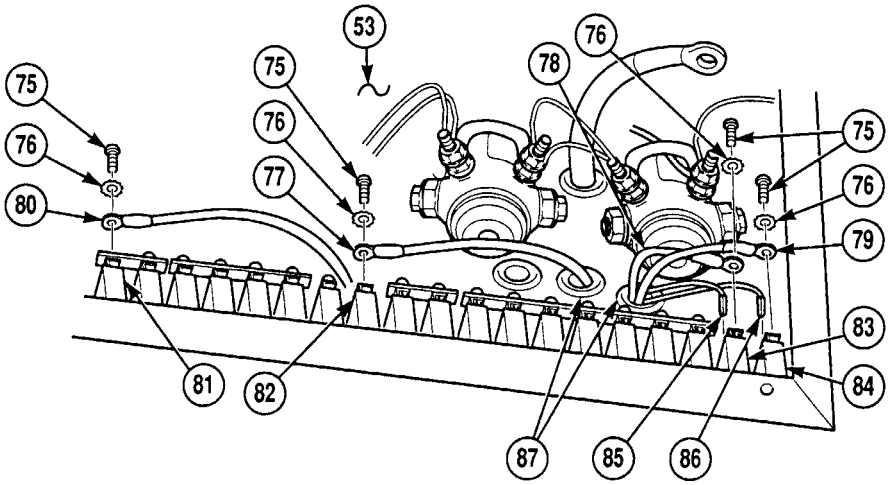
(33) Connect MC34 connector (92).

(34) Connect MC31 connector (91) and tighten screw (90).

(35) Connect MC32 connector (89) and tighten screw (88).



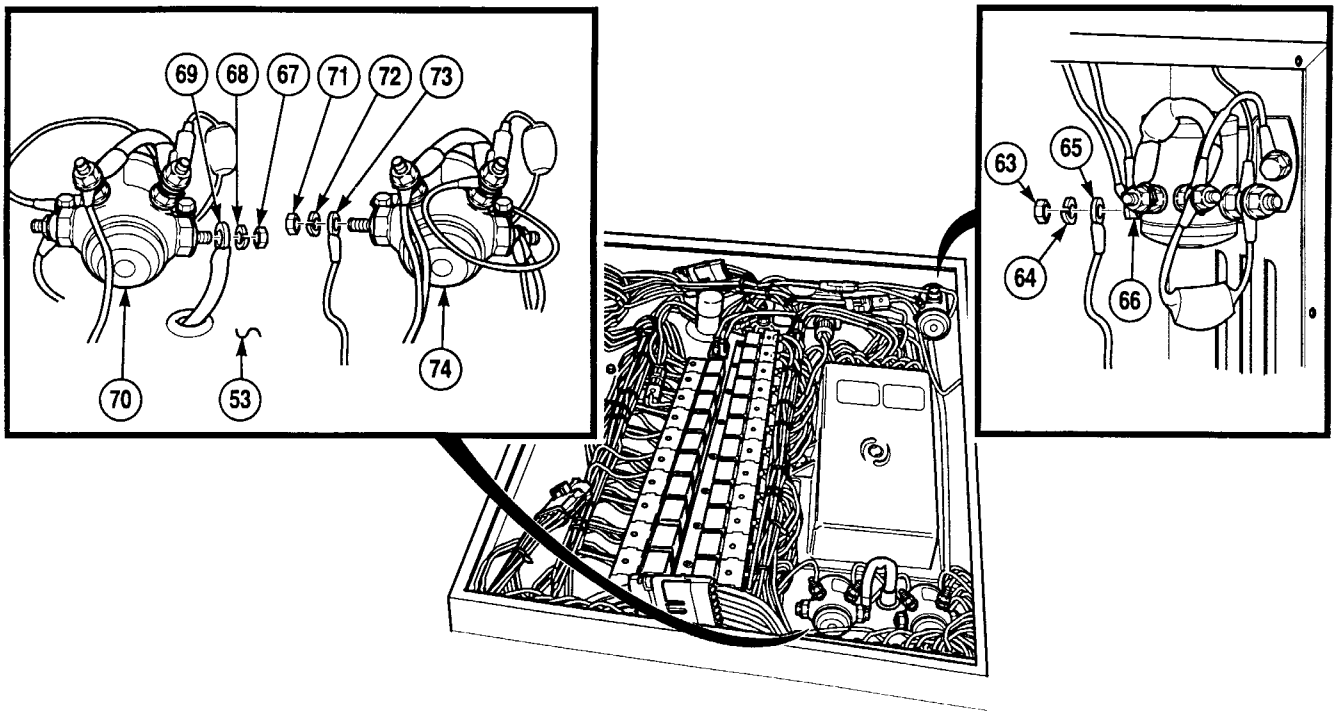
15-2. CAB ASSEMBLY REPLACEMENT (CONT).



(36) Position wire 1866 (77), wire 241 (78), wire 240 (79) and wire 1079 (80) and two grommets (87) in ECB (53).

(37) Install wire 241 (85) and wire 240 (86) on circuit breakers CB22 (83) and CB23 (84).

(38) Install wire 1866 (77), wire 241 (78), wire 240 (79) and wire 1079 (80) on circuit breakers CB5 (81), CB12 (82), CB22 (83) and CB23 (84) with four lockwashers (76) and screws (75).



(39) Position wire 1075 (65), wire 1430 (69) and wire 1281 (73) through electronic control box (53).

(40) Install wire 1281 (73) to relay (74) with lockwasher (72) and nut (71).

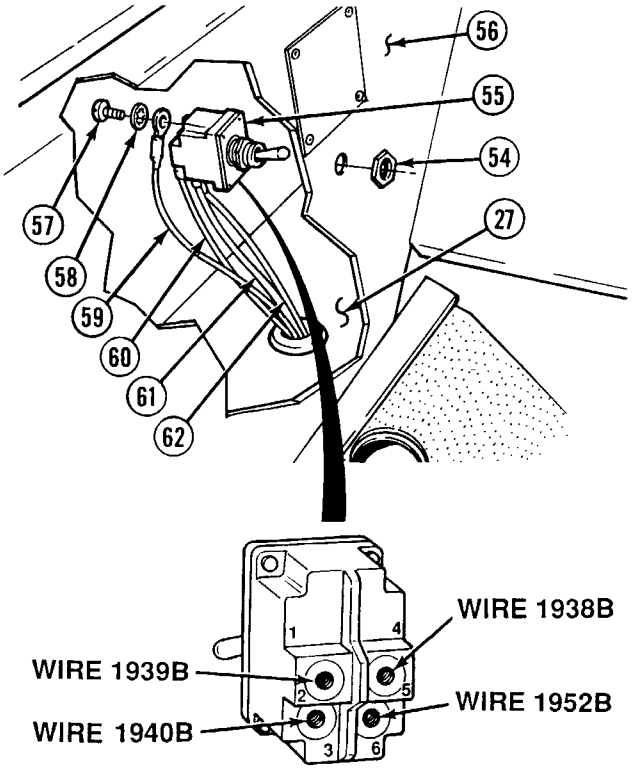
(41) Install wire 1430 (69) to relay (70) with lockwasher (68) and nut (67).

(42) Install wire 1075 (65) washer (64) to relay (66) with nut (63).

(43) Position wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) through cab wall (27).

(44) Install wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) on STE/ICE-R switch (55) with four lockwashers (58) and screws (57).

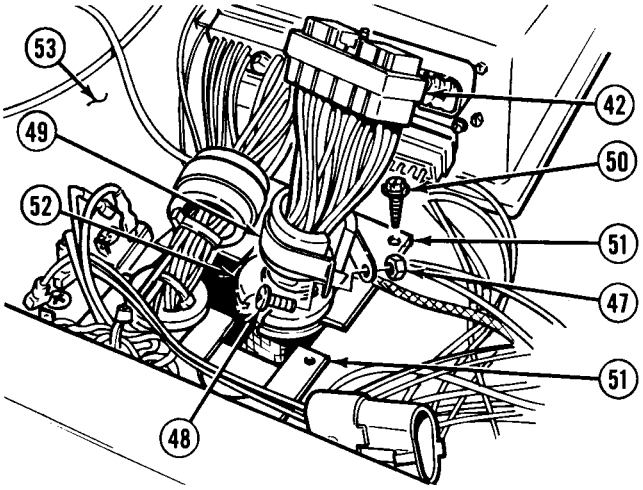
(45) Install STE/ICE-R switch (55) on dash (56) with nut (54).



(46) Position MC10 connector (42) through ECB (53).

(47) Install rubber grommet (52), plates (51) and four screws (50) on ECB (53).

(48) Install clamp (49) on connector (42) with screw (48) and locknut (47).

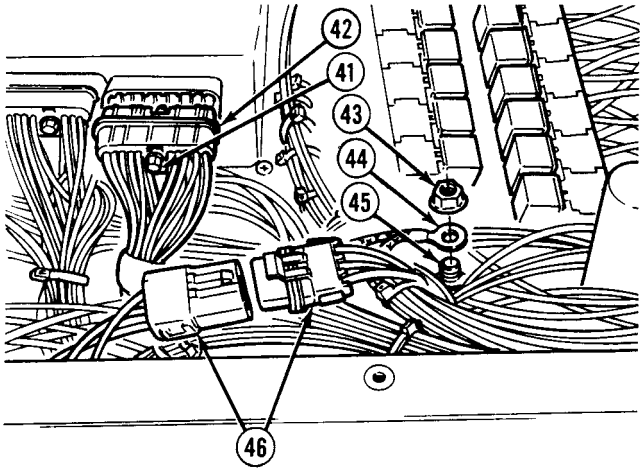


15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(49) Connect MC36 connector (46).

(50) Install double braided ground wire (44) on stud (45) with locknut (43).

(51) Connect MC10 connector (42) and tighten screw (41).



(52) Connect MC44 connector (40).

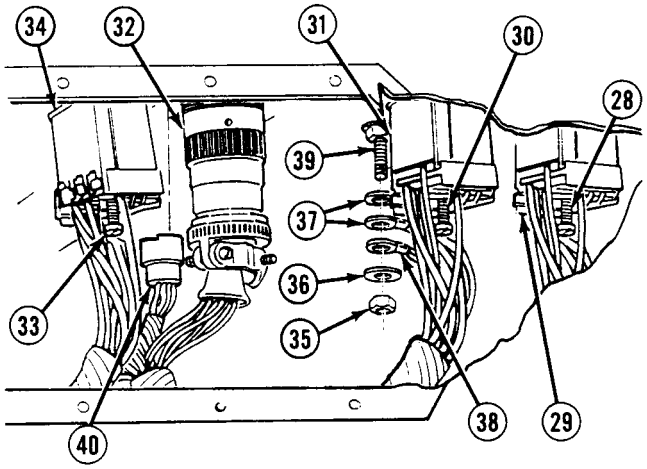
(53) Install two ground straps (37) and wire 1435 (38) on stud (39) with washer (36) and locknut (35).

(54) Connect MC25 connector (34) and tighten screw (33).

(55) Connect MC11 connector (32).

(56) Connect MC3 connector (31) and tighten screw (30).

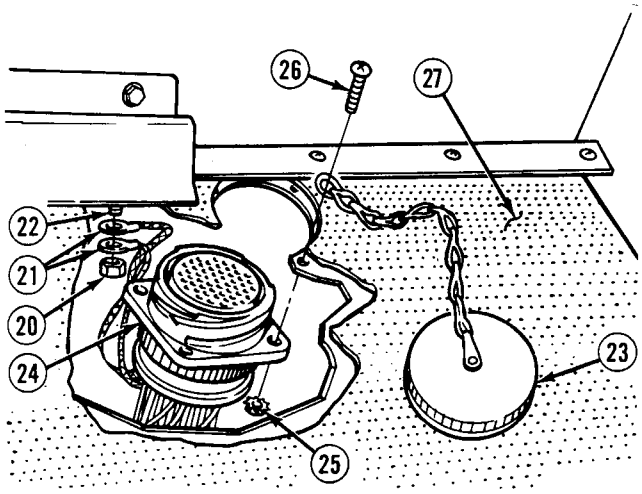
(57) Connect MC21 connector (29) and tighten screw (28).



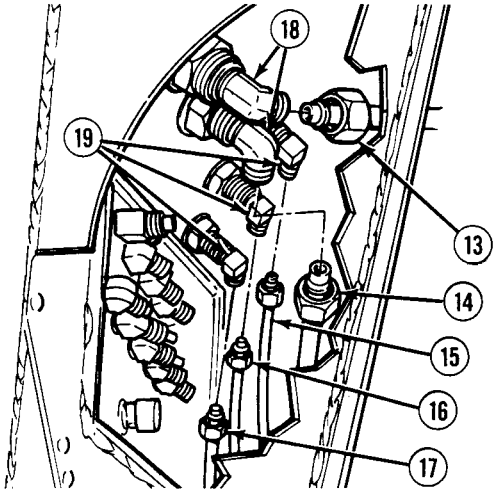
(58) Install MC39 connector (24) on cab wall (27) with four screws (26) and locknuts (25).

(59) Install cap and chain (23) on MC39 connector (24).

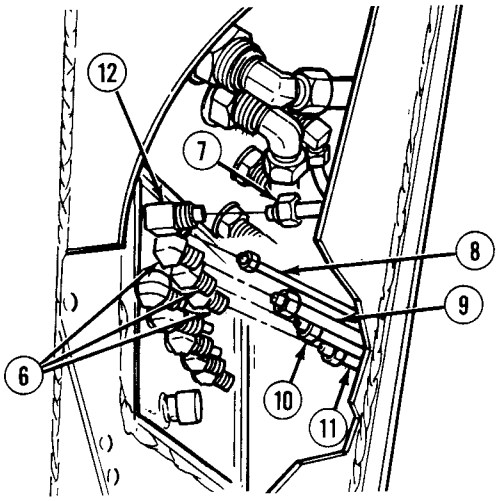
(60) Install two ground straps (21) on stud (22) with locknut (20).



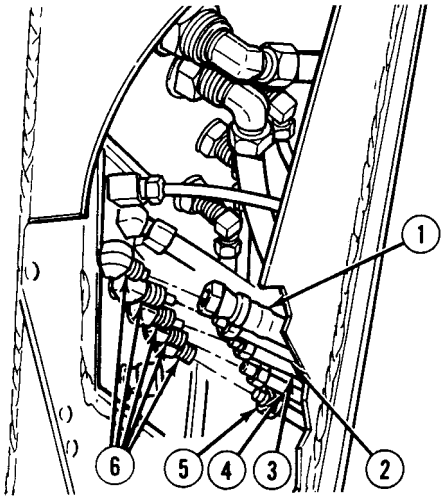
(61) Install air line 2005 (13), air line 2619 (14), air line 2923 (15), air line 2412 (16) and air line 2069 (17) on two elbows (18) and three elbows (19).



(62) Install air line 2074 (7), air line 2074 (8), air line 2612 (9), air line 2488 (10) and air line 2662 (11) on tee (12) and three elbows (6).



(63) Install air line 2381 (1), air line 2623 (2), air line 2665 (3), air line 2489 (4) and air line 2663 (5) on elbows (6).



15-2. CAB ASSEMBLY REPLACEMENT (CONT).

c. Follow-On Maintenance:

- Install chemical alarm kit (if equipped), (Para 19-3).
- Install gas particulate filter (if equipped), (TM 9-2320-364-20).
- Install machine gun mount (if equipped), (TM 9-2320-364-20).
- Install skid plate structure, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Install side access panel, (TM 9-2320-364-20).
- Install heater control box cover, (TM 9-2320-364-20).
- Install Electric Control Box (ECB) cover, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Build air pressure up to 125 psi (862 kPa), (TM 9-2320-364-10).
- Check for air leaks, (TM 9-2320-364-10).
- Check coolant level, (TM 9-2320-364-10).
- Check for coolant leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

15-3. WINDSHIELD GLASS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Adhesive (Item 3, Appendix B)
Cloth, Cleaning (Item 11, Appendix B)
Primer (Item 45, Appendix B)
Sealer, Automotive (Item 51, Appendix B)
Solution, Soap (Item 67, Appendix B)
Windshield Seal/Locking Strip
(Item 706, Appendix E)

Personnel Required
Two

Equipment Condition
Engine shut OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Light bar removed, (TM 9-2320-364-20)
Wiper arm assembly removed (as required),
(TM 9-2320-364-20)
Vehicle weight classification data plate removed
(right side only), (TM 9-2320-364-20)
Gun mount removed (right side only -
if equipped), (TM 9-2320-364-20)

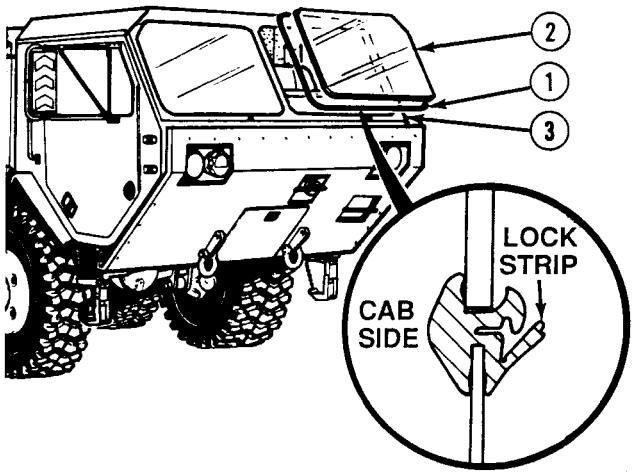
a. Removal.

WARNING

Always wear eye protection and protective clothing when handling glass. Failure to comply may result in injury to personnel.

NOTE

Left and right windshields are replaced the same way.



(1) Coat windshield seal/locking strip (1) with soap solution.

(2) Disengage windshield seal/locking strip (1).

(3) With the aid of an assistant, push windshield (2) from inside the cab (3) to remove from windshield seal/locking strip (1).

NOTE

Perform Step (4) if windshield seal/locking strip is damaged.

(4) Remove windshield seal/locking strip (1) from cab (3).

15-3. WINDSHIELD GLASS REPLACEMENT (CONT).

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- If new windshield seal/locking strip is installed, cut two inches longer than original to insure proper length and perform Steps (1) through (3).
- Cut excess windshield seal/locking strip after installation to ensure proper fit.

(1) Install windshield seal/locking strip (1) in opening of cab (3).

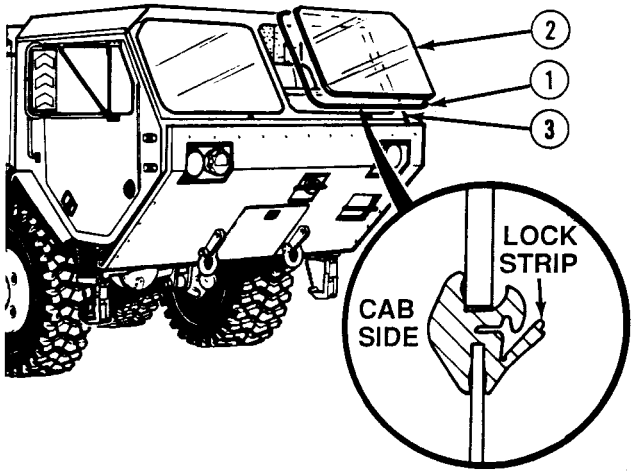
(2) Apply primer to ends of windshield seal/locking strip ends (1).

(3) Apply adhesive to ends of windshield seal/locking strip ends (1).

(4) Coat windshield seal/locking strip (1) with soapy water.

(5) With aid of assistant, install windshield (2) in windshield seal/locking strip (1).

(6) Engage windshield seal/locking strip (1).



c. Follow-On Maintenance:

- Install gun mount (right side only if equipped), (TM 9-2320-364-20).
- Install vehicle weight classification data plate (right side only), (TM 9-2320-364-20).
- Install wiper arm assembly (as required), (TM 9-2320-364-20).
- Install light bar assembly, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

15-4. RIGHT FENDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

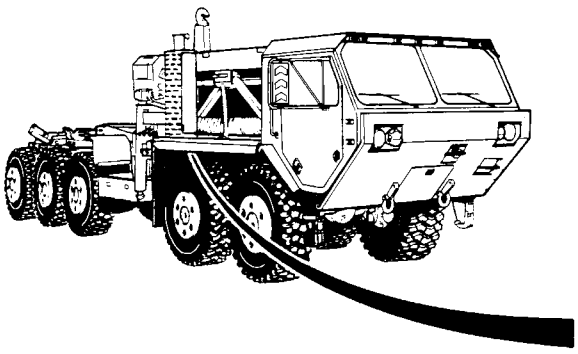
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

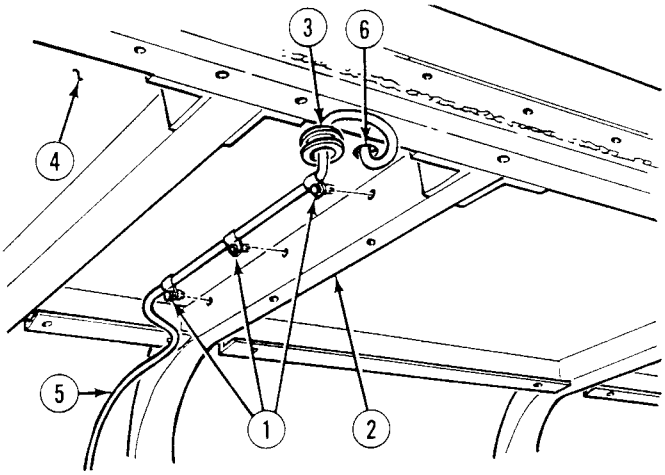
Materials/Parts
Locknut (10) (Item 165, Appendix E)
Locknut (Item 167, Appendix E)
Locknut (Item 201, Appendix E)
Locknut (2) (Item 202, Appendix E)
Locknut (9) (Item 210, Appendix E)
Push Clips (3) (Item 457, Appendix E)
Screw, Self-Tapping (2) (Item 557, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Work lamp removed, (TM 9-2320-364-20)
Spare tire carrier and davit removed, (TM 9-2320-364-20)
Right engine noise panel removed, (TM 9-2320-364-20)
Hydraulic reservoir removed, (TM 9-2320-364-20)
Right mud flap removed, (TM 9-2320-364-20)
Right fender front and rear skirt removed, (TM 9-2320-364-20)
Spare tire carrier winch removed, (TM 9-2320-364-20)
Rubber fender edging removed, (TM 9-2320-364-20)

a. Removal.





NOTE

Push clips are removed by pulling out lock button, then removing clip.

(1) Remove and discard three push clips (1) from fender support arm (2).

(2) Remove rubber grommet (3) from fender (4).

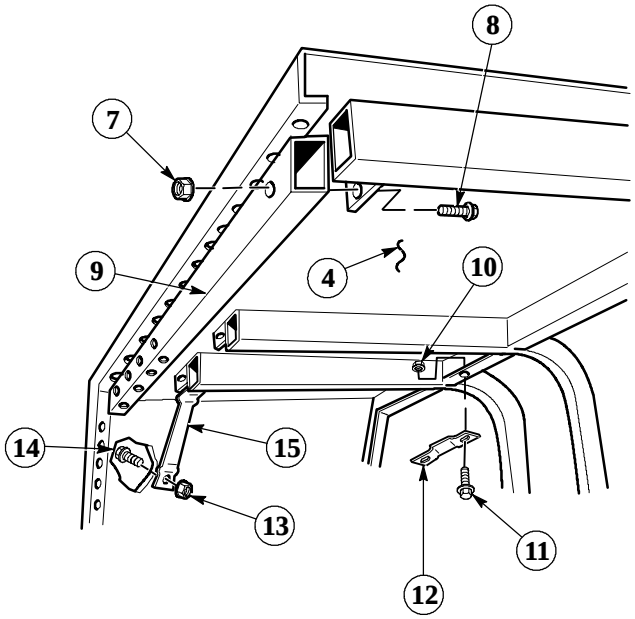
(3) Thread work lamp wiring harness (5) through wiring harness hole (6) and move wiring harness out of way.

15-4. RIGHT FENDER REPLACEMENT (CONT).

(4) Remove four locknuts (7) and screws (8) from fender support tube (9) and remove fender support tube. Discard locknuts.

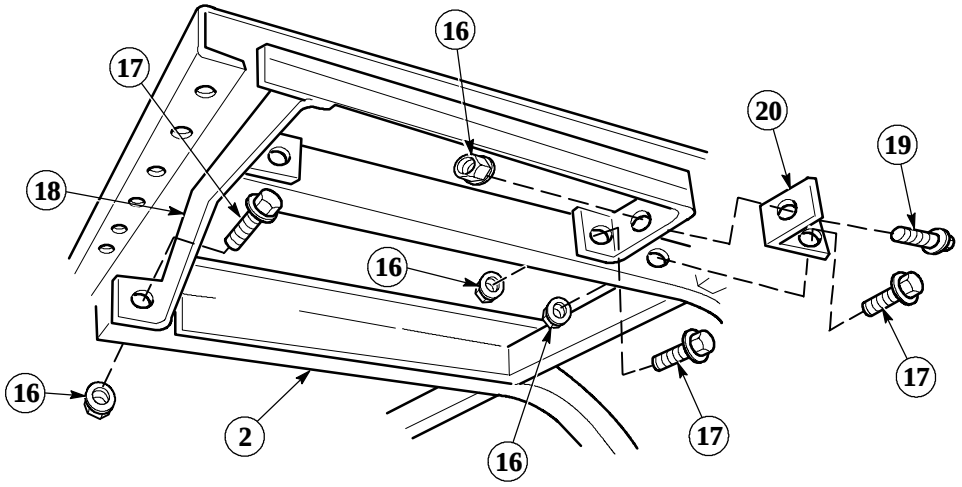
(5) Remove two locknuts (10), screws (11) and strap (12) from fender (4). Discard locknuts.

(6) Remove locknut (13) and screw (14) from fender brace (15) and remove fender brace. Discard locknut.

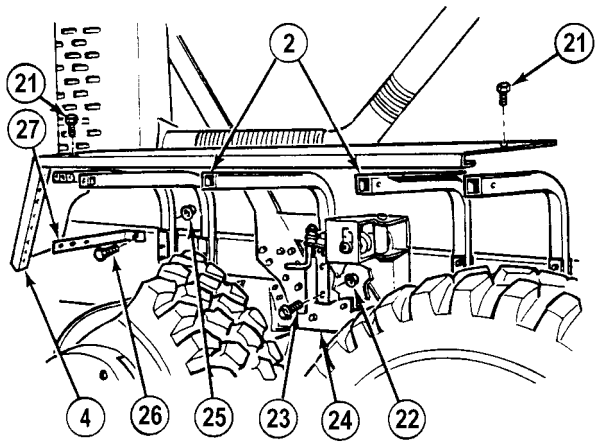


(7) Remove four locknuts (16), screws (17), and fender support bracket (18) from two fender support arms (2). Discard locknuts.

(8) Remove locknut (16), screw (19) and angle (20) from fender support bracket (18). Discard locknut.



(9) Remove and discard two self-tapping screws (21) from right fender (4).



WARNING

Fender weighs 74 lbs (34 kg). Use an assistant to remove to prevent possible injury to personnel.

(10) With the aid of an assistant, remove right fender (4) from fender support arms (2).

NOTE

All five fender support arms are removed the same way.

(11) With the aid of an assistant, remove two locknuts (22), screws (23) and fender support arm (2) from truck frame (24). Discard locknuts.

(12) With the aid of an assistant, remove locknut (25), screw (26) and rear fender support (27) from truck frame (24). Discard locknut.

b. Installation.

(1) With the aid of an assistant, install rear fender support (27), screw (26) and locknut (25) on truck frame (24).

NOTE

All five fender support arms are installed the same way.

(2) With the aid of an assistant, install fender support arm (2), two screws (23) and locknuts (22) on truck frame (24).

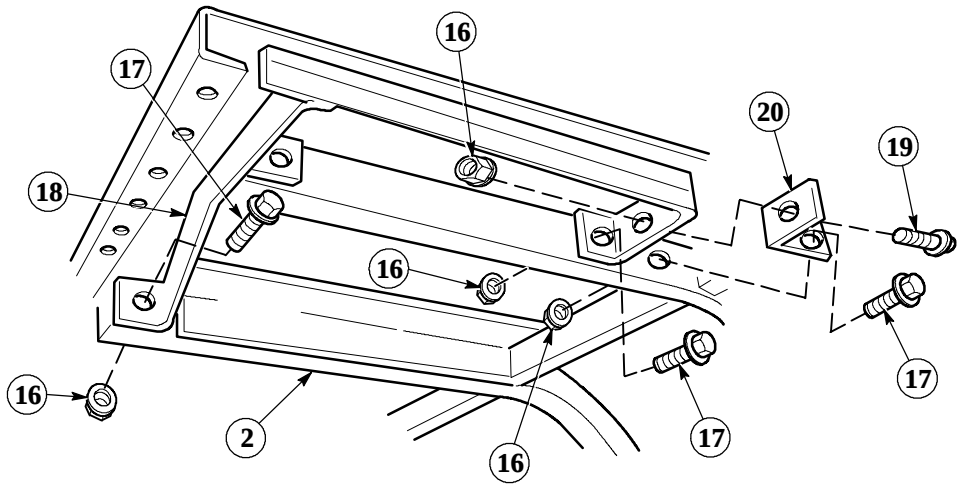
WARNING

Fender weighs 74 lbs (34 kg). Use an assistant to install fender to prevent possible injury to personnel.

(3) With the aid of an assistant, position fender (4) on fender support arms (2).

(4) Install two self-tapping screws (21) in fender (4).

15-4. RIGHT FENDER REPLACEMENT (CONT).



(5) Install angle (20) on fender support bracket (18) with screw (19) and locknut (16).

(6) Install fender support bracket (18), on two fender support arms (2), with four screws (17) and locknuts (16).

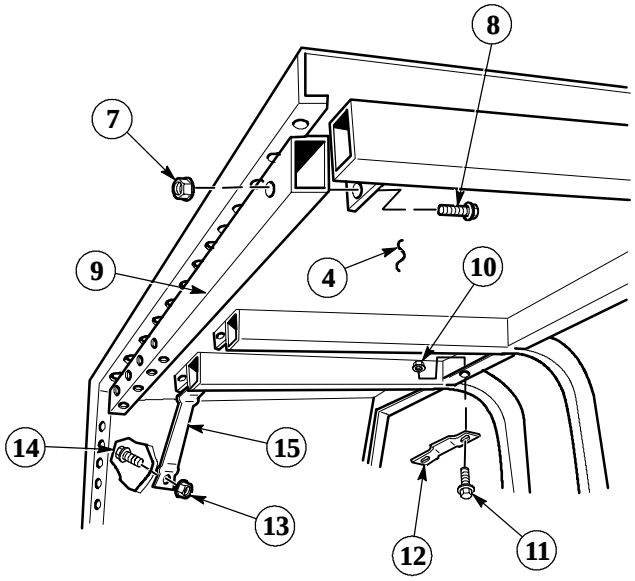
(6) Install fender brace (15), screw (14) and locknut (13) on fender (4).

(7) Install strap (12), screw (11) and locknut (10) on fender (4).

(7) Install fender support tube (9), four screws (8) and locknuts (7) on fender support arms (2).

(8) Thread work lamp wiring harness (5) through wiring harness hole (6).

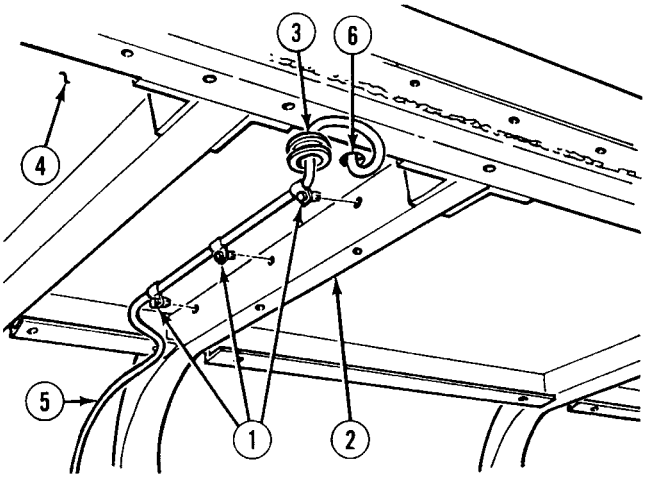
(9) Install rubber grommet (3) in fender (4).



NOTE

Push clips are properly installed when lock button is pushed in after installation.

(10) Install three push clips (1) in fender support arm (2).



c. Follow-On Maintenance:

- Install rubber fender edging, (TM 9-2320-364-20).
- Install right fender front and rear skirt, (TM 9-2320-364-20).
- Install right mud flap, (TM 9-2320-364-20).
- Install hydraulic reservoir, (TM 9-2320-364-20).
- Install right engine noise panel, (TM 9-2320-364-20).
- Install spare tire carrier and davit, (TM 9-2320-364-20).
- Install spare tire carrier winch, (TM 9-2320-364-20).
- Install work lamp, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

15-5. LEFT FENDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

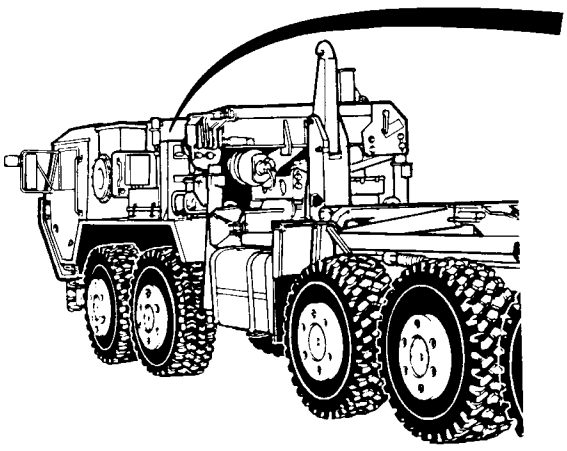
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 237, Appendix F)
Lifting Device (minimum capacity 200 lbs
[91 kg])

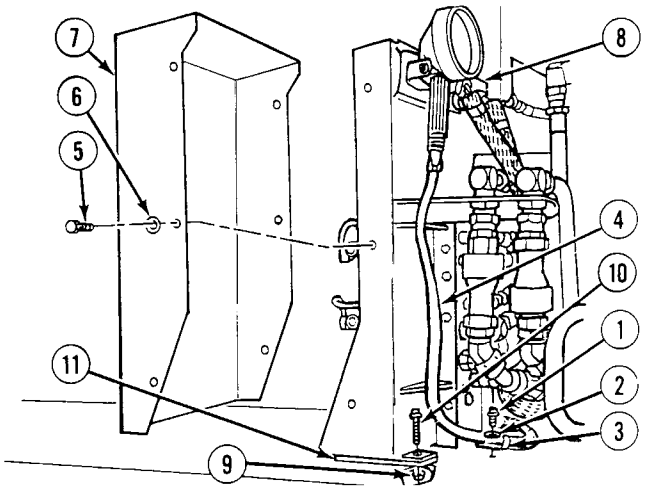
Materials/Parts
Locknut (24) (Item 165, Appendix E)
Locknut (4) (Item 176, Appendix E)
Locknut (2) (Item 201, Appendix E)
Locknut (6) (Item 210, Appendix E)
Lockwasher (Item 255, Appendix E)
Lockwasher (4) (Item 266, Appendix E)
Screw, Self-Tapping (5) (Item 557, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Battery box removed, (TM 9-2320-364-20)
Arctic kit battery box removed, (if equipped)
(TM 9-2320-364-20)
Left side noise panel removed,
(TM 9-2320-364-20)
Work lamp removed, (TM 9-2320-364-20)
Left fender front and rear skirt removed,
(TM 9-2320-364-20)
Left front mud flaps removed,
(TM 9-2320-364-20)
Rubber fender edging removed,
(TM 9-2320-364-20)
Battery disconnect switch removed,
(if equipped) (TM 9-2320-364-20)

a. Removal.





(1) Remove self-tapping screw (1), washer (2) and cushion clamp (3) from work lamp wiring harness (4). Position work lamp wiring harness (4) out of the way. Discard self-tapping screw.

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (5), lockwashers (6) and LHS control box cover (7) from LHS control box (8). Discard lockwashers.

NOTE

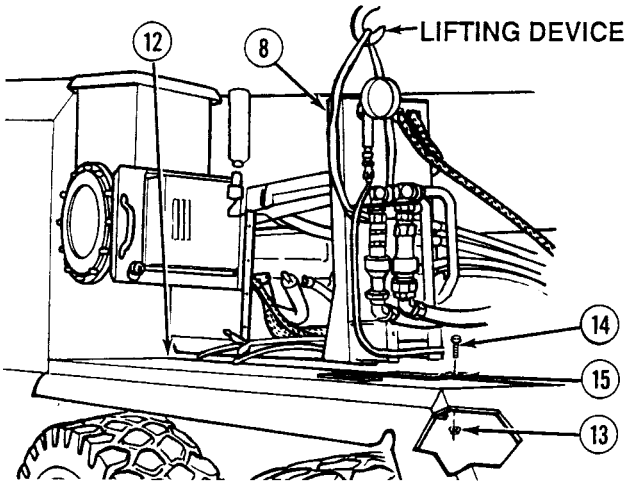
Spacer is under left side of LHS control box.

(3) Remove four locknuts (9), screws (10) and spacer (11) from LHS control box (8). Discard locknuts.

15-5. LEFT FENDER REPLACEMENT (CONT).

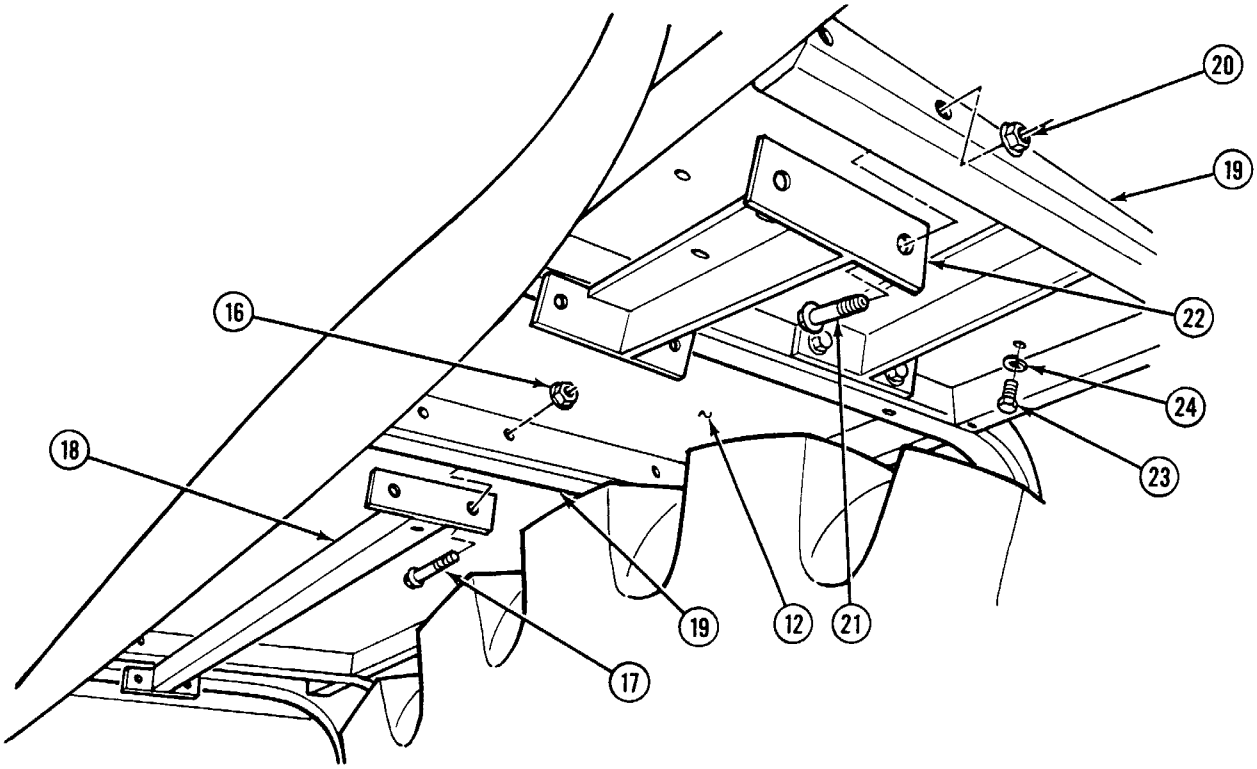
WARNING

LHS control box weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



(4) Using lifting device, lift LHS control box (8) off fender (12) just enough to allow fender to slide out from under LHS control box (8).

(5) Remove two locknuts (13) and screws (14) from multifunction manifold mount (15). Discard locknuts.

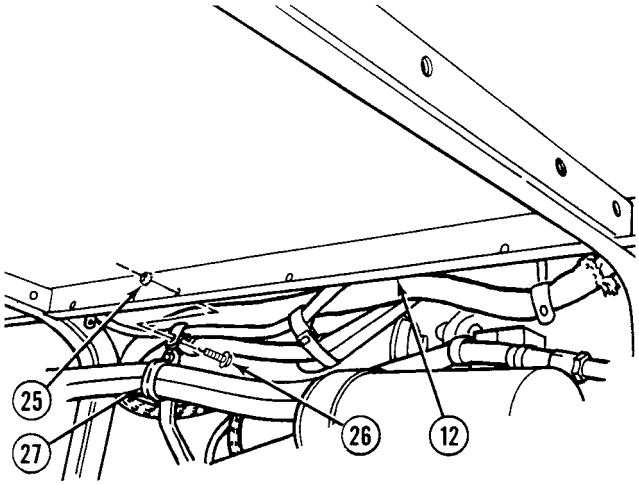


(6) Remove eight locknuts (16), screws (17) and two support braces (18) from fender support arms (19). Discard locknuts.

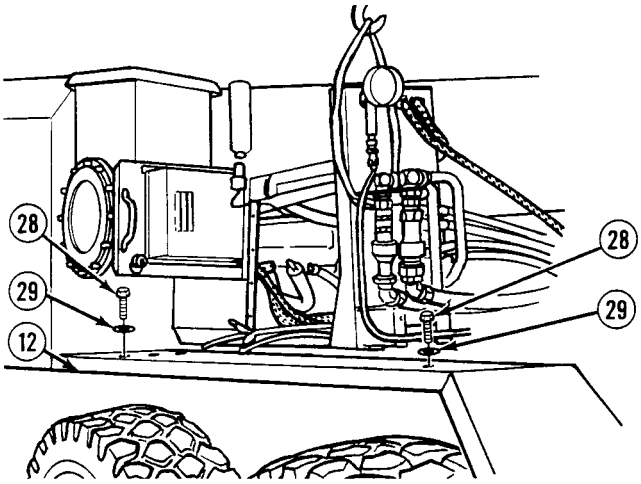
(7) Remove eight locknuts (20), screws (21) and two support braces (22) from fender support arms (19). Discard locknuts.

(8) Remove screw (23) and lockwasher (24) from fender (12). Discard lockwasher.

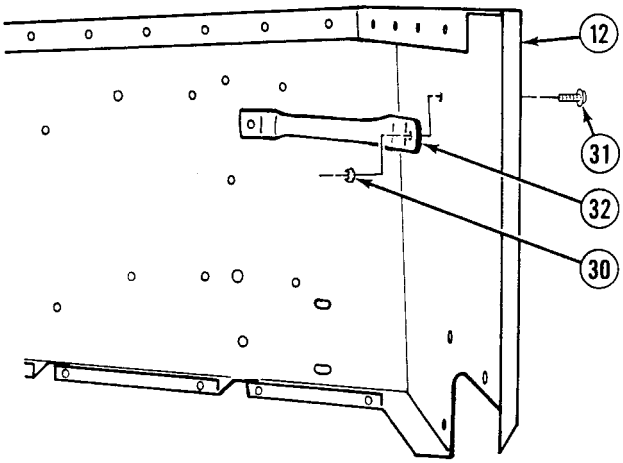
(9) Remove four locknuts (25), screws (26) and cushion clamps (27) from inside edge of fender (12). Discard locknuts.



(10) Remove four self-tapping screws (28) and washers (29) from fender (12). Discard self-tapping screws.



(11) Remove two locknuts (30), screws (31) and fender brace (32) from fender (12). Discard locknuts.



15-5. LEFT FENDER REPLACEMENT (CONT).

WARNING

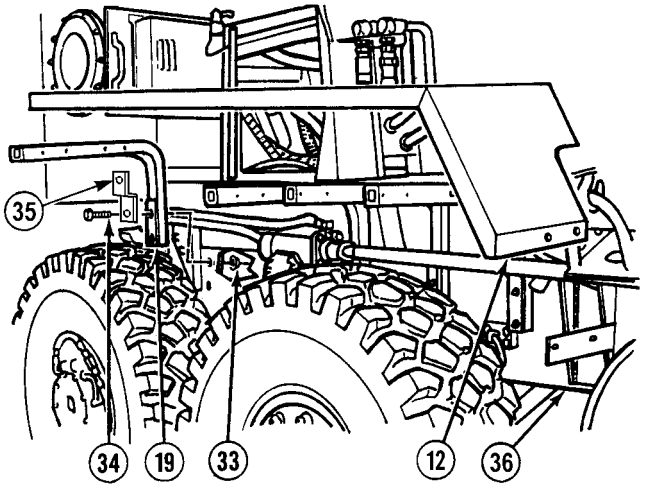
Fender weighs 74 lbs (34 kg). Use an assistant to remove fender to prevent possible injury to personnel.

(12) With the aid of an assistant, remove fender (12) from fender support arms (19).

NOTE

All four fender support arms are removed the same way.

(13) With the aid of an assistant, remove two locknuts (33), screws (34,) fender support arms (19) and three skirt brackets (35) from truck frame (36). Discard locknuts.



b. Installation.

NOTE

All four fender support arms are installed the same way.

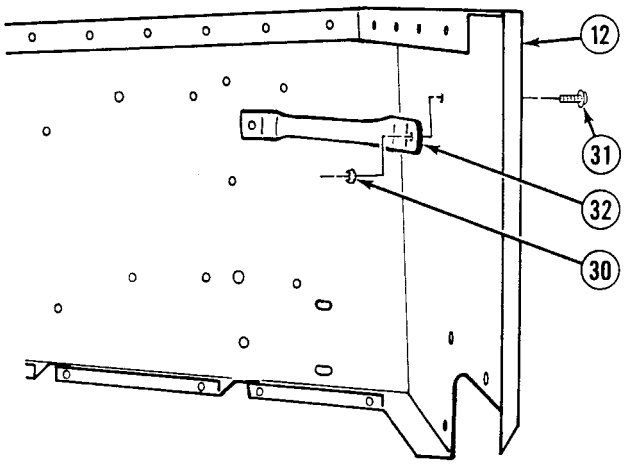
(1) With the aid of an assistant, install fender support arm (19) and three skirt brackets (35) on truck frame (36) with two screws (34) and locknuts (33).

WARNING

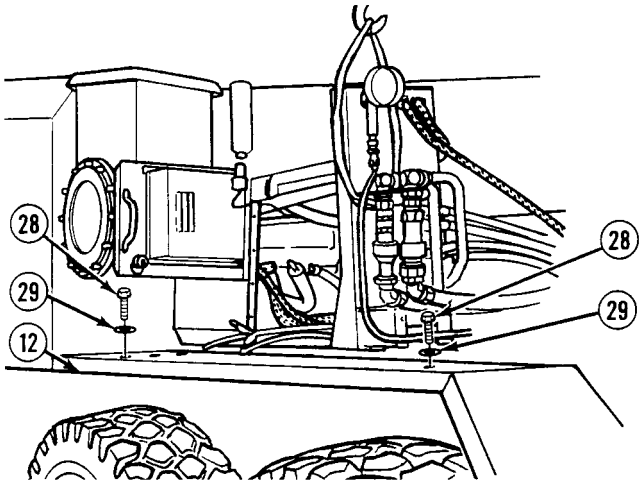
Fender weighs 74 lbs (34 kg). Use an assistant upon installation to prevent possible injury to personnel.

(2) With the aid of an assistant, position fender (12) on fender support arms (19).

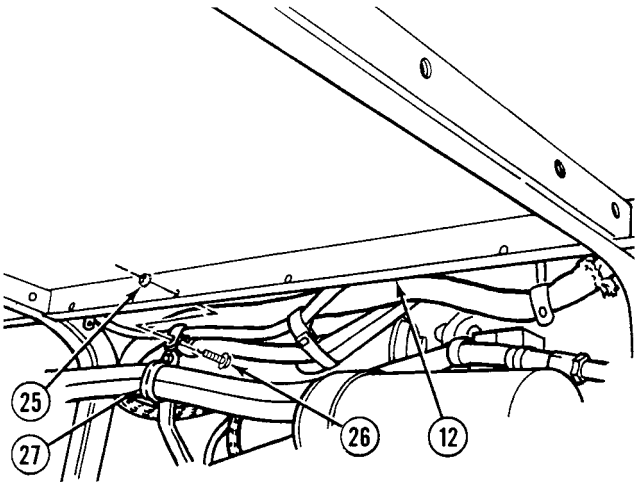
(3) Install fender brace (32), two screws (31) and locknuts (30) on fender (12).



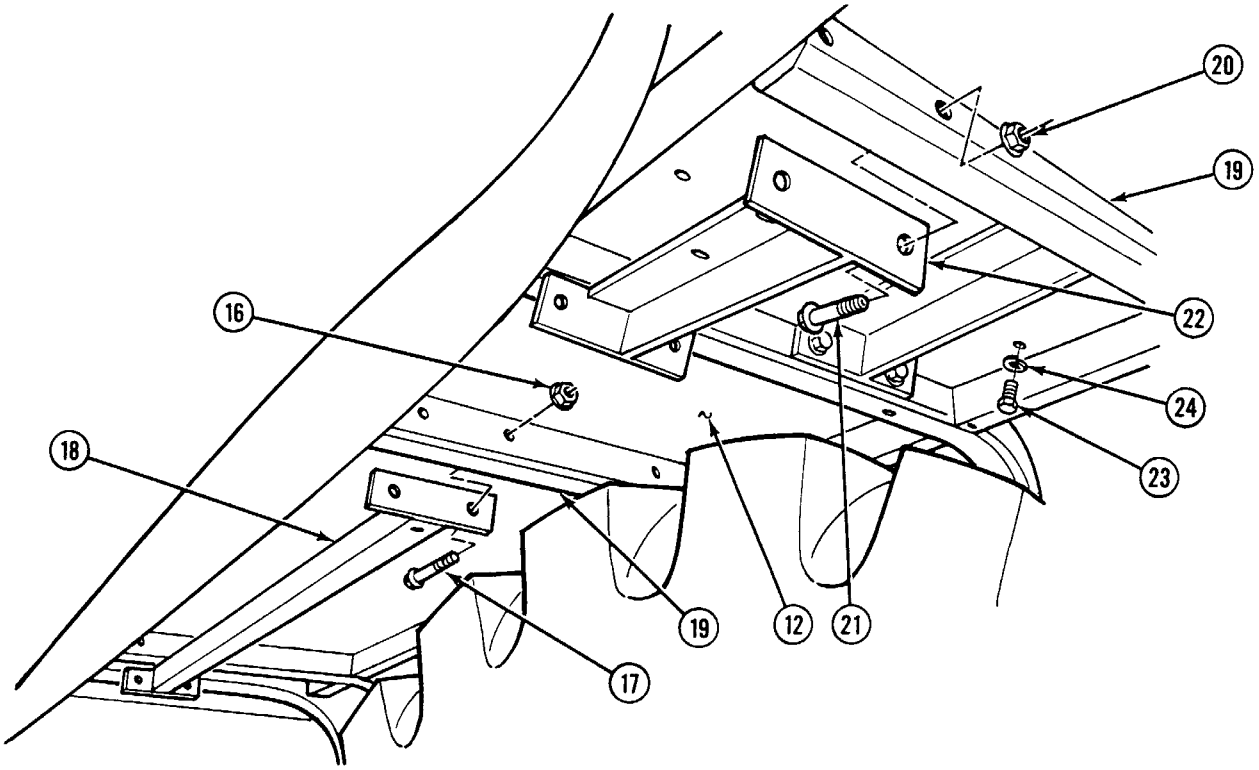
(4) Install four self-tapping screws (28) and washers (29) in fender (12).



(5) Install four cushion clamps (27), screws (26) and locknuts (25) on inside edge of fender (12).



15-5. LEFT FENDER REPLACEMENT (CONT).



(6) Install lockwasher (24) and screw (23) on fender (12).

(7) Install two support braces (22), eight screws (21) and locknuts (20) on fender support arms (19).

(8) Install two support braces (18), eight screws (17) and locknuts (16) on fender support arms (19).

(9) Position two screws (14) and locknuts (13) in multifunction manifold mount (15).

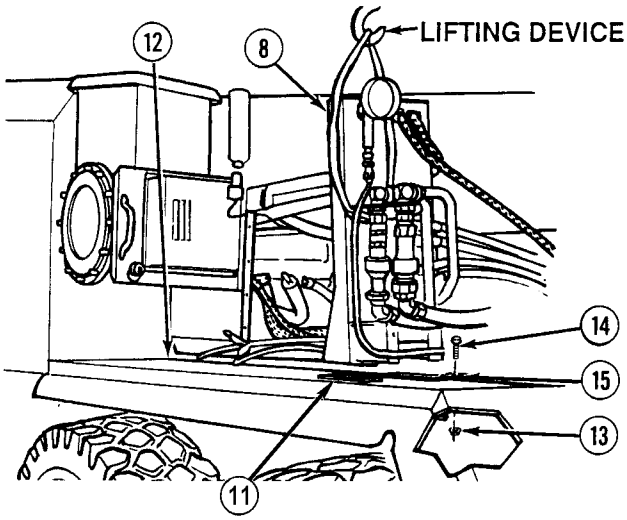
NOTE

Spacer is under left side of LHS control box.

(10) Position spacer (11) on fender (12) and align mounting holes.

WARNING

LHS control box weighs 200 lbs (91 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



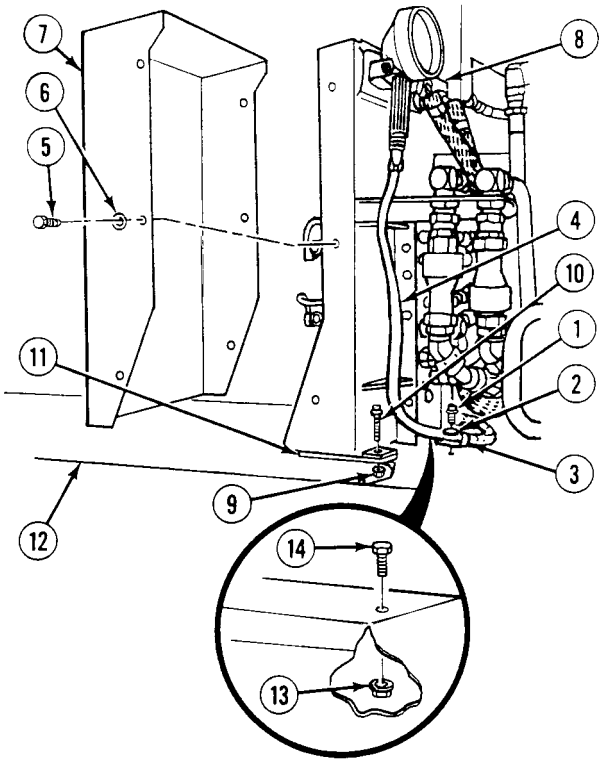
(11) Using lifting device, lower LHS control box (8) back down on fender (12).

(12) Install four screws (10) and locknuts (9) in spacer (11), LHS control box (8) and fender (12).

(13) Tighten two locknuts (13) on screws (14).

(14) Install LHS control box cover (7), four lockwashers (6) and screws (5) on LHS control box (8).

(15) Install cushion clamp (3), washer (2) and self-tapping screw (1) on work lamp wiring harness (4).



c. Follow-On Maintenance:

- Install rubber fender edging, (TM 9-2320-364-20).
- Install left front mud flap, (TM 9-2320-364-20).
- Install left fender front and rear skirt, (TM 9-2320-364-20).
- Install work lamp, (TM 9-2320-364-20).
- Install left engine noise panel, (TM 9-2320-364-20).
- Install arctic kit battery box (if equipped), (TM 9-2320-364-20).
- Install battery box, (TM 9-2320-364-20).
- Install battery disconnect switch, (if equipped) (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 16

MATERIAL HANDLING CRANE, SELF-RECOVERY WINCH, LOAD HANDLING SYSTEM AND CONTAINER HANDLING UNIT MAINTENANCE

Section I. INTRODUCTION

16-1. DIRECT SUPPORT MATERIAL HANDLING CRANE (MHC), SELF-RECOVERY WINCH (SRW), LOAD HANDLING SYSTEM (LHS) AND CONTAINER HANDLING UNIT (CHU) MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing, and servicing the Material Handling Crane (MHC), Self-Recovery Winch (SRW), Load Handling System (LHS) and Container Handling Unit (CHU) components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

Section II. MATERIAL HANDLING CRANE (MHC) MAINTENANCE

16-2. CRANE ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

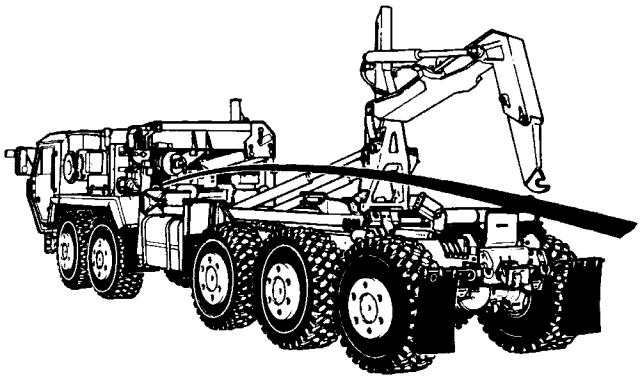
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Jackstand (4) (Item 132, Appendix F)
Pan, Drain 6 gal (Item 145, Appendix F)
Wrench, Combination, 1-3/8 in.
(Item 258, Appendix F)
Wrench, Combination, 1-1/2 in.
(Item 260, Appendix F)
Wrench, Combination, 1-5/8 in.
(Item 261, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 5000 lbs
(2270 kg)
Wooden Blocks (4) (Appendix C)

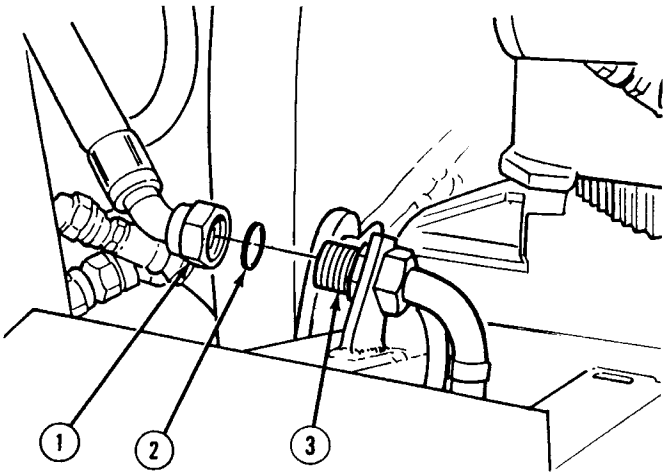
Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (12) (Item 211, Appendix E)
Packing, Preformed (4) (Item 340, Appendix E)

Personnel Required
Two

Equipment Condition
LHS fully extended,
(TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





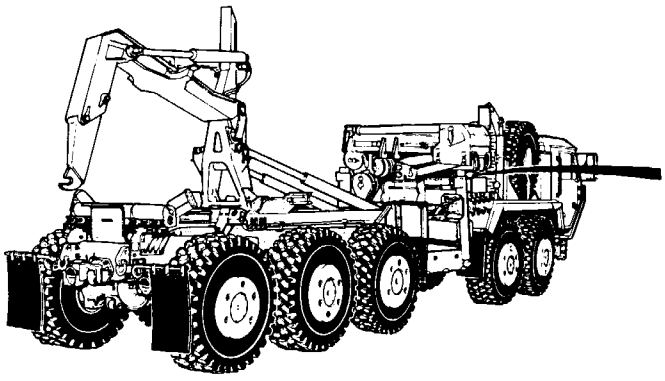
WARNING

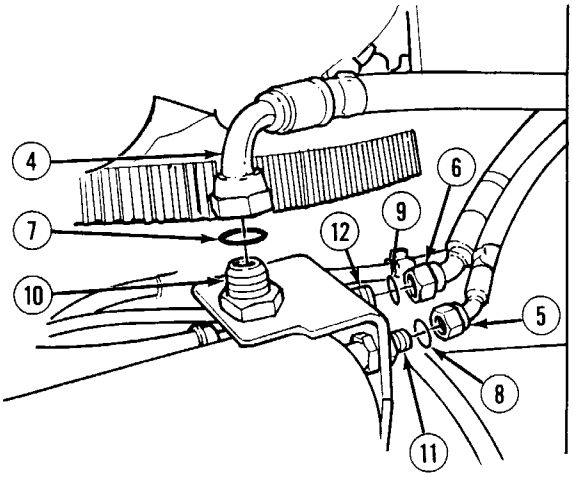
The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses, wires and connectors before removal.
- Place drain pan under truck.
- Cap and plug hydraulic hoses and fittings after disconnecting.
- Remove cable ties as required to remove wires and hydraulic hoses.

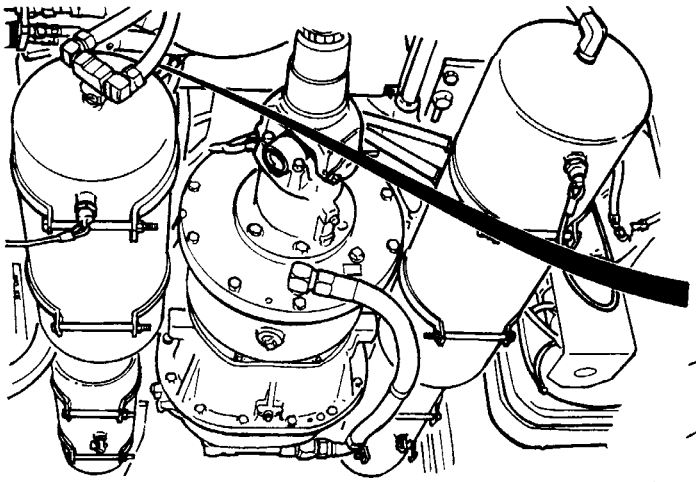
(1) Remove hose 2724 (1) and preformed packing (2) from fitting (3). Discard preformed packing.

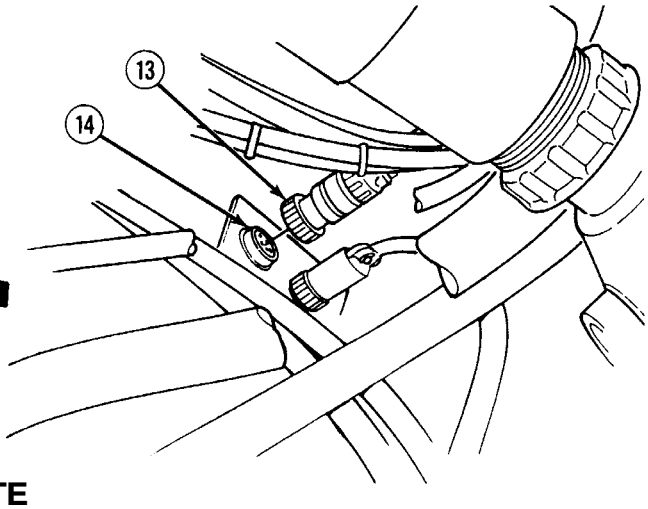




(2) Remove hoses 2902 (4), 2776 (5) and 2694 (6) and preformed packings (7), (8) and (9) from fittings (10), (11) and (12). Discard preformed packings.

16-2. CRANE ASSEMBLY REPLACEMENT (CONT).





NOTE

- Tag and mark connector prior to removal.
- Cable connector is located above Air reservoir No. 2.

(3) Disconnect connector (13) from MC29 connector (14).

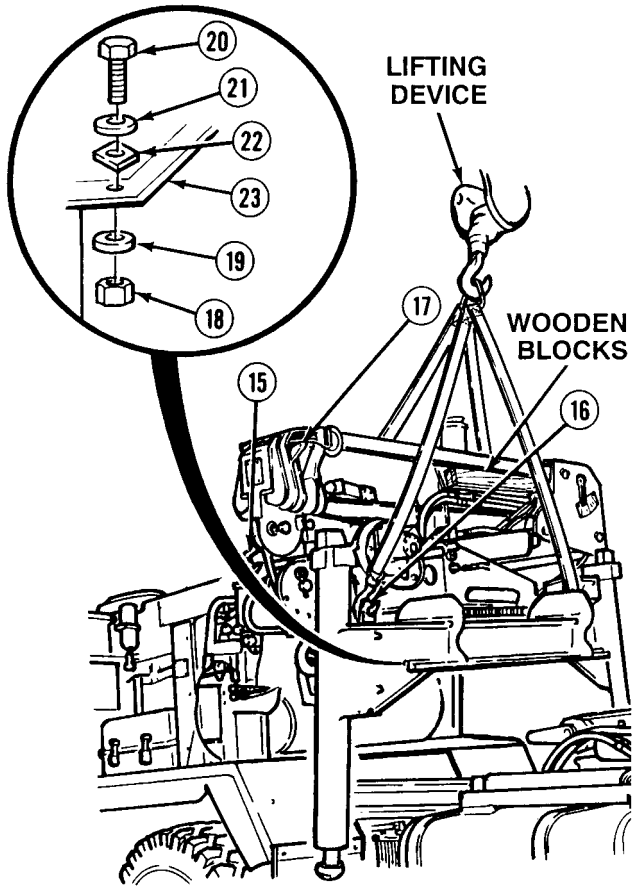
WARNING

Crane weighs 4,700 lbs (2,134 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(4) Attach lifting device to two forward lifting brackets (15) and two rear lifting brackets (16) on crane (17).

(5) Position two wooden blocks between lifting device and crane (17)

(6) With the aid of an assistant, remove 12 locknuts (18), washers (19), screws (20), washers (21) and spacers (22) from left and right crane mounts (23). Discard locknuts.



CAUTION

Move hydraulic tubes and hoses out of way before removing crane from truck. Failure to comply may result in damage to equipment.

(7) With the aid of an assistant, raise crane (17) approximately 2 in. (51 mm) and ensure load is balanced.

(8) Position two wooden blocks on jackstands and, with the aid of an assistant, guide crane (17) from truck and position on jackstands and wooden blocks.

(9) Remove lifting device and wooden blocks from two forward lifting brackets (15) and two rear lifting brackets (16).

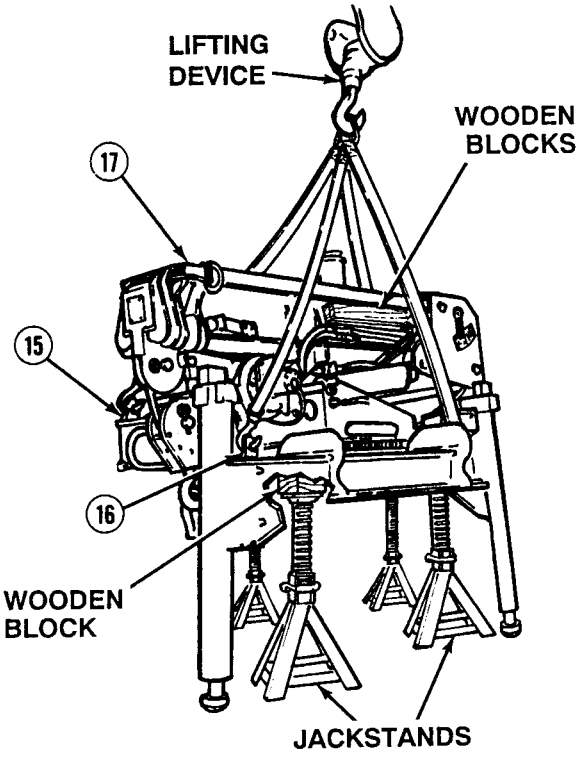
b. Installation.

WARNING

Crane weighs 4,700 lbs (2,134 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to two forward lifting brackets (15) and two rear lifting brackets (16) on crane (17).

(2) Position wooden blocks between lifting device and crane (17).

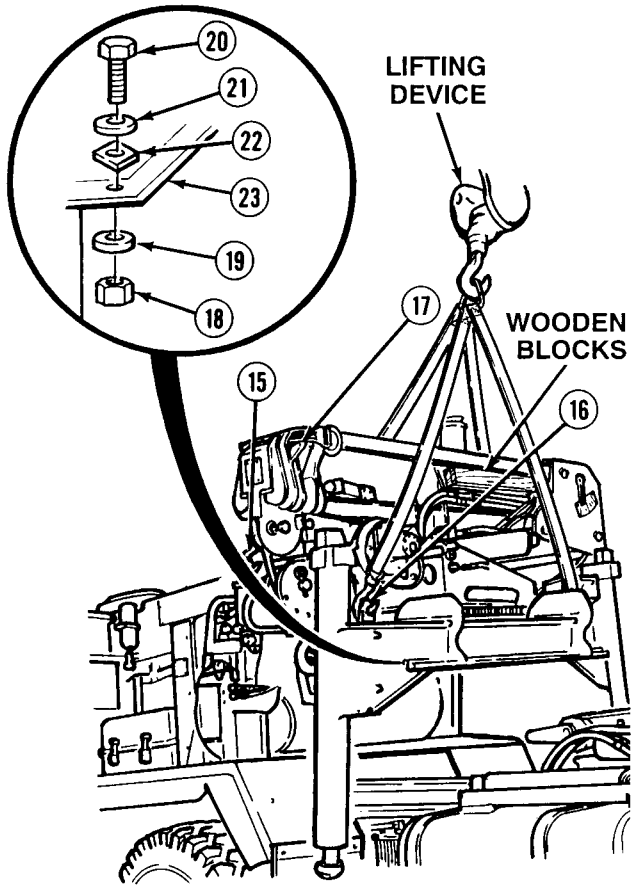


16-2. CRANE ASSEMBLY REPLACEMENT (CONT).

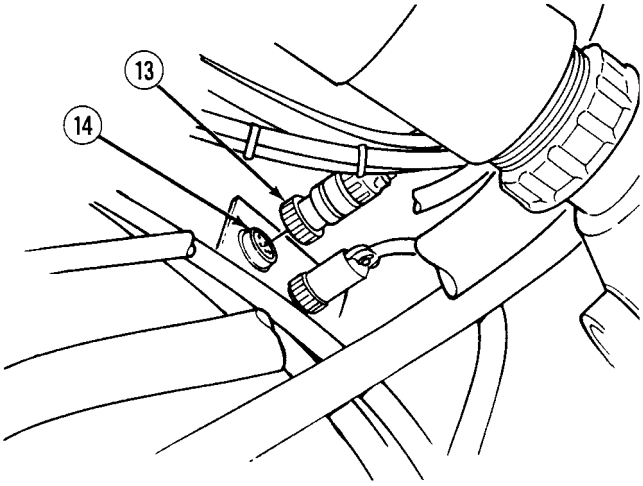
(3) With the aid of an assistant, align crane (17) on left and right crane mounts (23).

(4) With the aid of an assistant, install twelve screws (20), washers (21), spacers (22), washers (19) and locknuts (18). Tighten nuts to 370 lb-ft (502 N·m).

(5) Remove lifting device and wooden blocks from two forward lifting brackets (15) and rear lifting brackets (16).

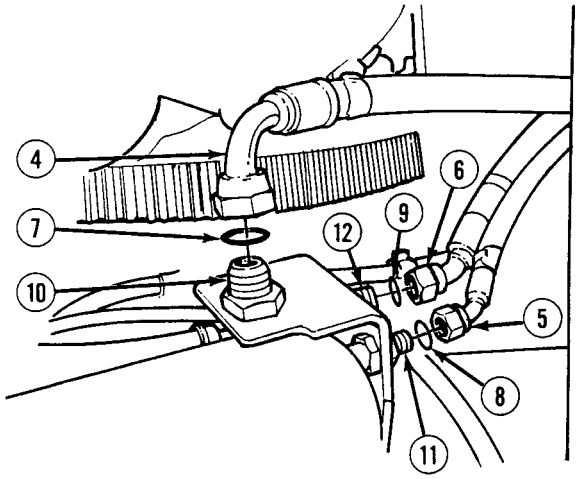


(6) Install connector (13) on MC29 connector (14).



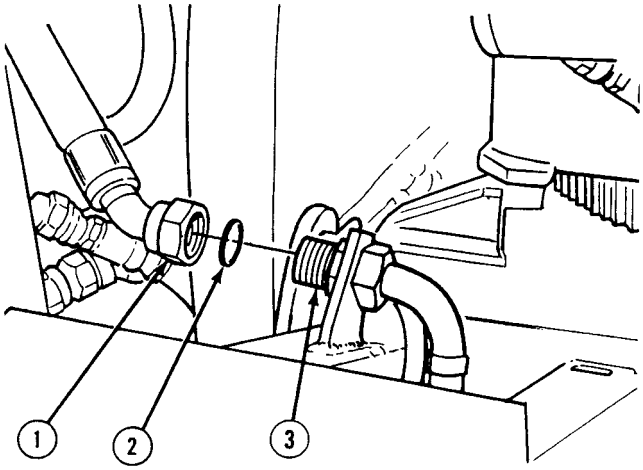
(7) Apply hydraulic oil to preformed packings (7), (8) and (9).

(8) Install preformed packings (7), (8) and (9) on fittings (10), (11) and (12) and connect hoses 2902 (4), 2776 (5) and 2694 (6).



(9) Apply hydraulic oil to preformed packing (2).

(10) Install preformed packing (2) and connect hose 2724 (1) on fitting (3).



c. Follow-On Maintenance:

- LHS in transit position, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-20).
- Check operation of crane, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-3. BOOM ASSEMBLY REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's:
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gage Set, Feeler (Item 67, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Rivet Gun (Item 196, Appendix F)
Torch, Propane (Item 247, Appendix F)
Wrench Set, Socket 3/8 in. drive
(Item 273, Appendix F)
Wrench, Torque (0 to 60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 2500 lb
(1135 kg)
Wooden Block (4) (Appendix C)
Wooden Block (2) (Appendix C)

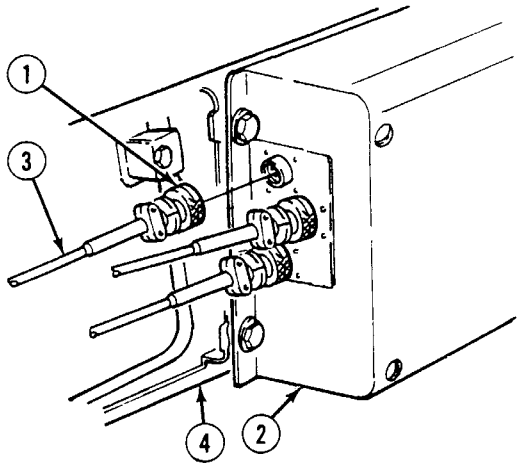
Materials/Parts
Cable Ties (Item 9, Appendix B)
Cloth, Cleaning (Item 12, Appendix B)
Compound, Antiseize (Item 14, Appendix B)
Grease (Item 21, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Sealant, Adhesive (Item 49, Appendix B)
Sealing Compound (Item 52, Appendix B)
Sealing Compound (Item 56, Appendix B)

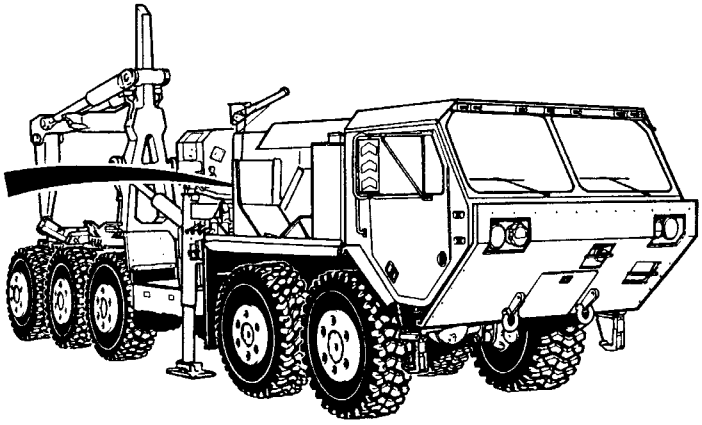
Materials/Parts - Continued
Sealing Compound (Item 63, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (Item 272, Appendix E)
Lockwasher (4) (Item 282, Appendix E)
Lockwasher (8) (Item 283, Appendix E)
Packing, Preformed (5) (Item 373, Appendix E)
Pin, Cotter (12) (Item 417, Appendix E)
Shim (Item 629, Appendix E)
Shim (Item 630, Appendix E)
Shim (Item 631, Appendix E)
Wear Pads (Item 702, Appendix E)
Wear Pads (Item 703, Appendix E)
Wear Pads (Item 704, Appendix E)
Wear Pads (Item 705, Appendix E)

Personnel Required
Three

Equipment Condition
Outrigger Jacks extended and set,
(TM 9-2320-364-10)
Boom assembly retracted, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Muffler removed, (TM 9-2320-364-20)
Hook block removed, (TM 9-2320-364-20)
Telescope cylinder removed, (Para 16-10)

a. Removal.



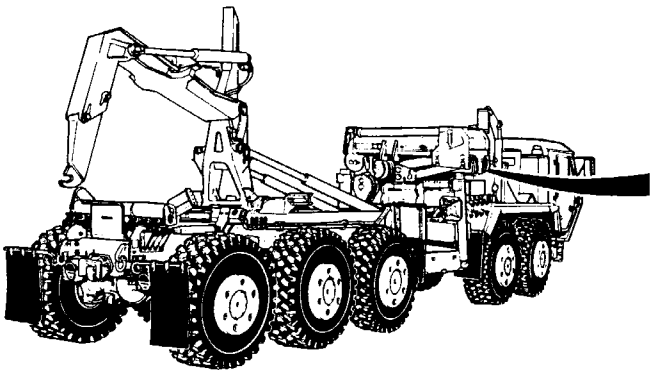


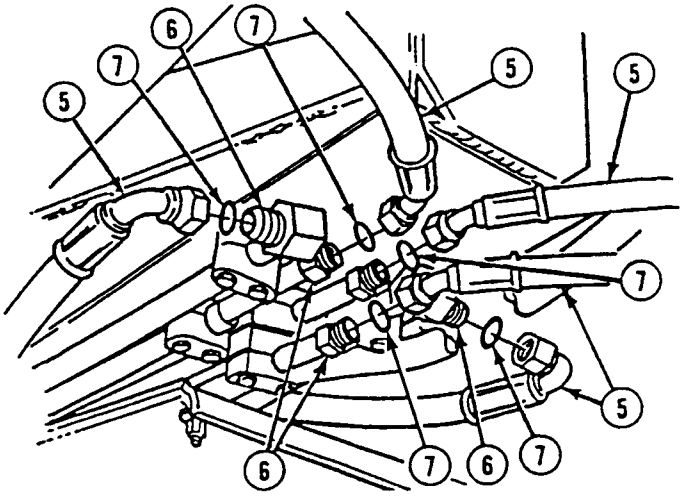
NOTE

- Tag and mark wires and connectors before removal.
- Remove cable ties as needed to remove wires and hydraulic hoses.
- Ensure wires are free from boom before removing boom from truck.

(1) Disconnect connector (1) from overload shutdown box (2) and remove wire harness (3) from boom assembly (4).

16-3. BOOM ASSEMBLY REPAIR (CONT).





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap hydraulic hoses and fittings after removal.

(2) Position drain pan under crane.

(3) Disconnect five hoses (5) from fittings (6) and remove five preformed packings (7). Discard preformed packings.

WARNING

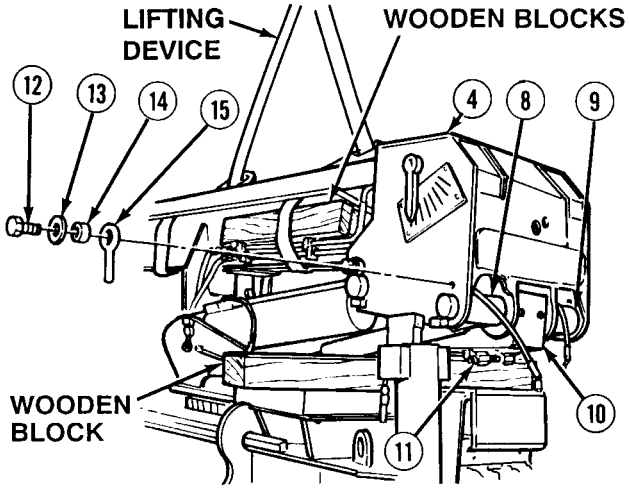
Boom weighs 2,100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(4) Position two wooden blocks on both sides of boom assembly (4)

(5) Install lifting device over blocks on boom assembly (4).

(6) Position wooden block under tension cylinder (8) and erection cylinder (9), between mast (10) and mast valve base mount (11).

(7) Remove two screws (12), washers (13), bushings (14) and lock pins (15) from boom assembly (4).

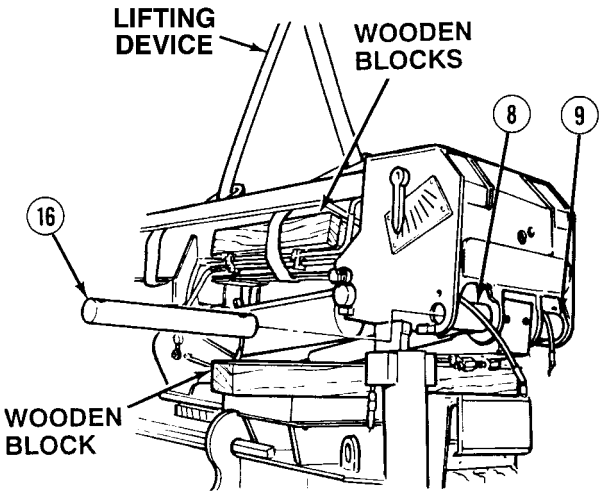


(8) Remove pin (16) from boom assembly (4).

NOTE

Tension and erection cylinders may have to be driven from boom.

(9) Position tension cylinder (8) and erection cylinder (9) down on wooden block.



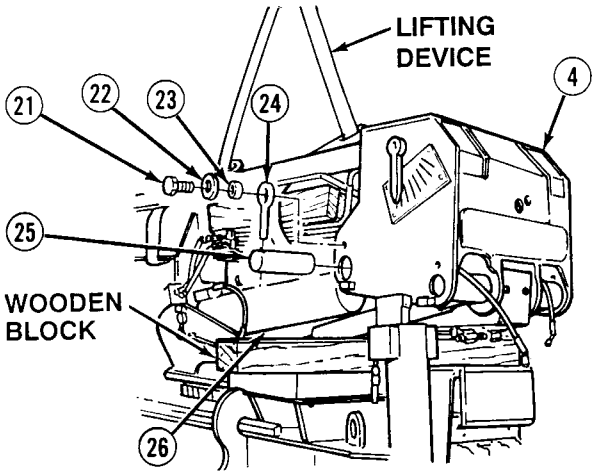
(10) Remove screw (21), washer (22), bushing (23) and lock pin (24) from boom assembly (4).

NOTE

Lift cylinders may have to be driven from boom.

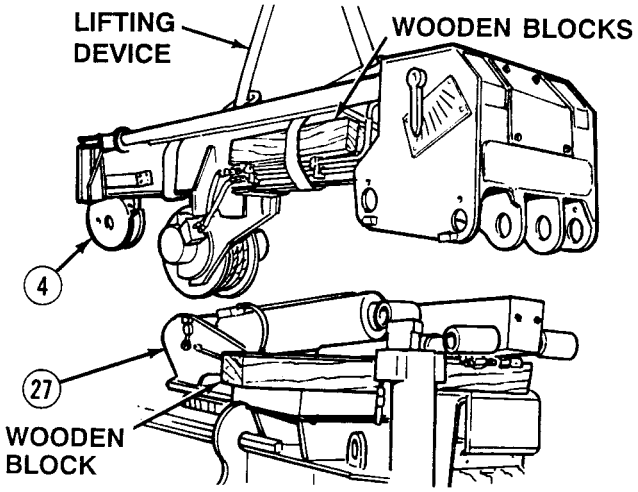
(11) Remove pin (25) from boom assembly (4). Position lift cylinder (26) on wooden block.

(12) Repeat Steps (11) and (12) for other lift cylinder.

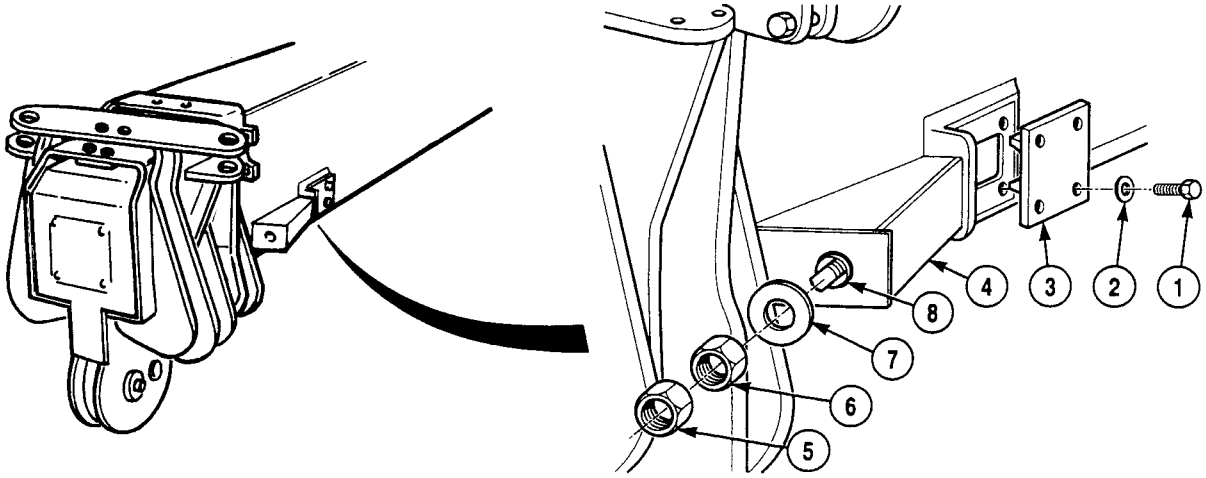


16-3. BOOM ASSEMBLY REPAIR (CONT).

(13) With the aid of an assistant, remove boom assembly (4) from subframe assembly (27).



b. Disassembly.



(1) Remove four screws (1), washers (2) and cable retainer plate (3) from base section (4).

NOTE

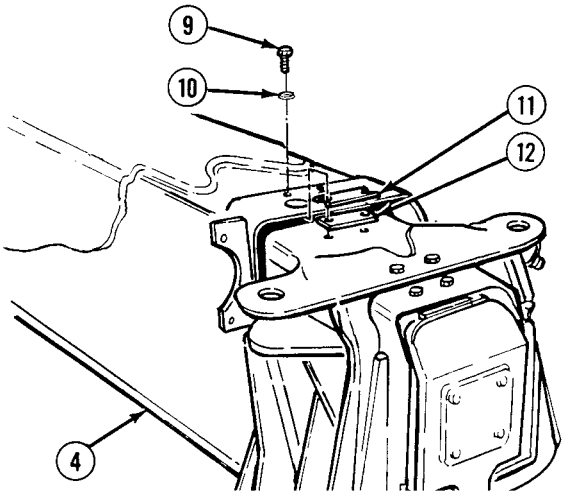
If cable is held while removing nut and jamnut, note flat places on threaded rod for wrench.

(2) Remove nut (5), jamnut (6) and washer (7) from boom extraction cable end (8).

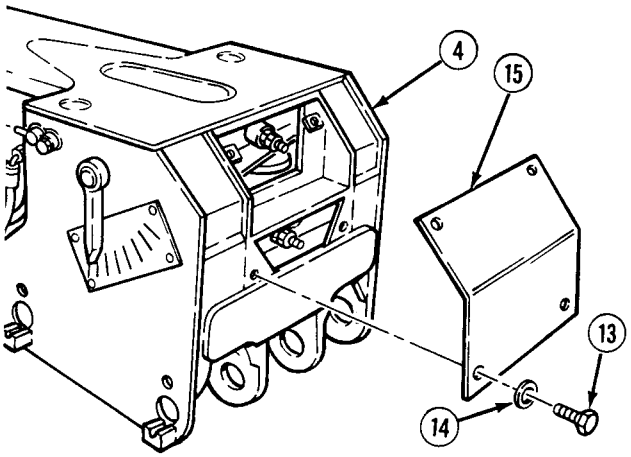
NOTE

Note location and quantity of shims.

(3) Remove two screws (9), washers (10), shims (11) and wear pad (12) from base section (4). Discard wear pad.

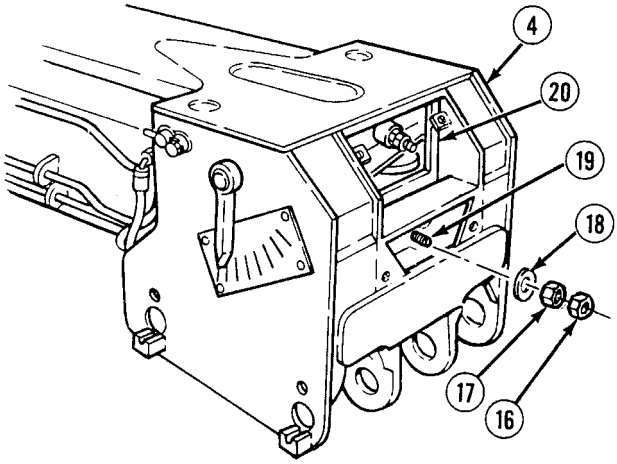


(4) Remove four screws (13), washers (14) and cover plate (15) from opposite end of base section (4).



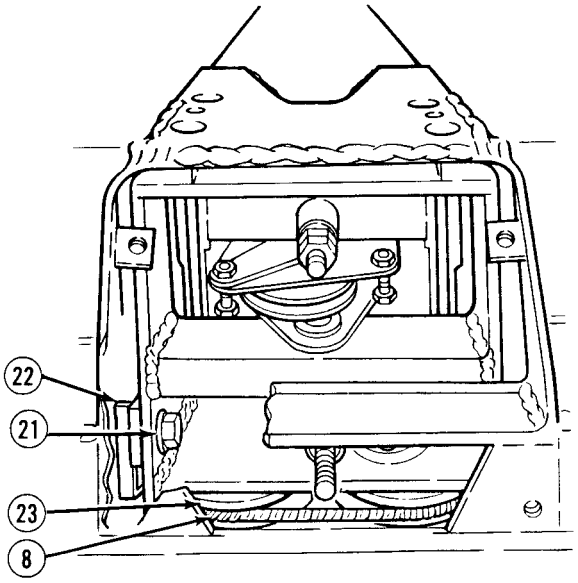
(5) Remove jam nut (16), nut (17) and washer (18) from equalizer link weldment end (19).

(6) Move inner-mid section (20) forward in base section (4) approximately 10 in. (25.4 cm).



16-3. BOOM ASSEMBLY REPAIR (CONT).

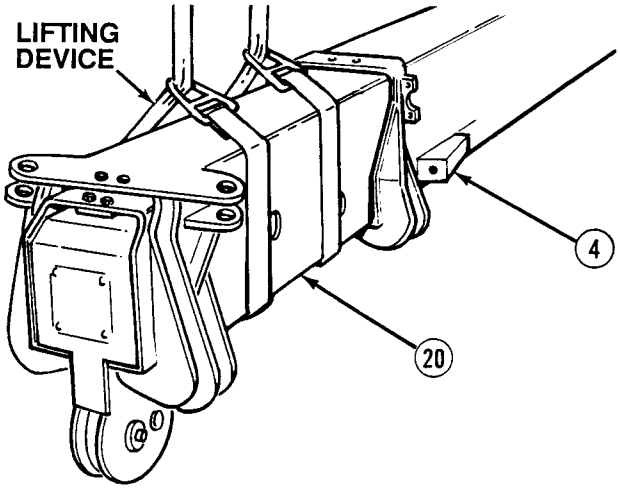
(7) Loosen screw (21) and move cable keeper (22) up away from cable (8) and roller guide (23).



WARNING

Inner-mid section weighs 1,000 lbs (454 kg). Attach suitable lifting device prior to removal to prevent injury to personnel.

(8) Attach lifting device on inner-mid section (20).



NOTE

- Move boom extension slowly.
- Reposition lifting device as required to keep inner-mid section centered.

(9) With the aid of an assistant, guide inner-mid section (20) two ft (61 cm) out of base section (4).

WARNING

Do not stick fingers under section to remove wear pads, or injury to hands may result.

NOTE

Tag wear pads as to side and extension. Note location, quantity and size of any shims.

(10) Lift up on inner-mid section (20) and remove wear pads (24) from front of base section (4).

NOTE

Perform Step (11) if wear pad has shim and screw.

(11) Remove screw (25) and shim (26) from wear pad (24). Discard wear pads.

NOTE

Move inner-mid section slowly to just past base section.

(12) Remove inner-mid section (20) from base section (4). Reposition lifting device as required to balance inner-mid section.

(13) Remove cable (8) from base section (4).

NOTE

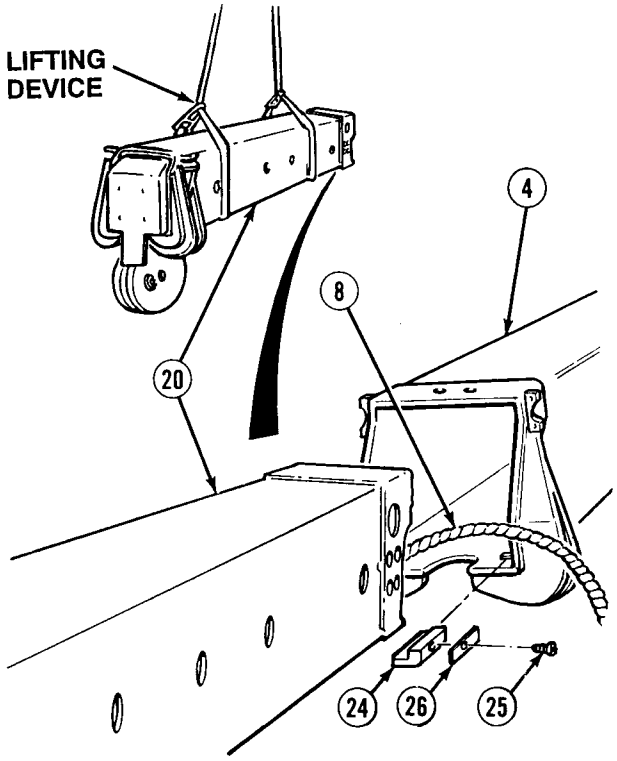
Tag wear pads as to side and extension. Note location, quantity and size of any shims.

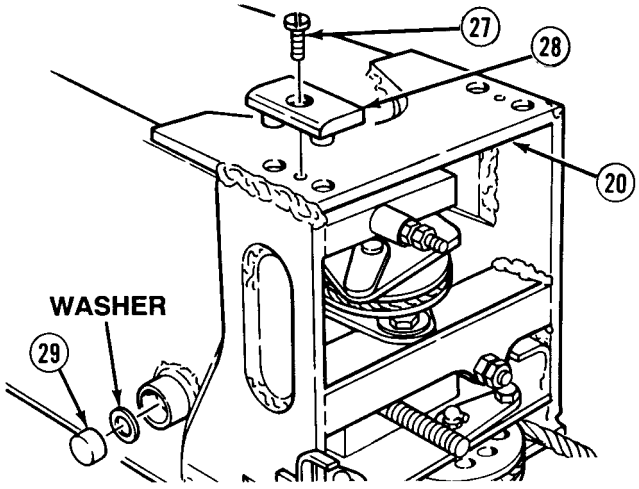
(14) Remove two screws (27) and upper wear pads (28) from upper rear section of inner-mid section (20).

NOTE

There may be a washer behind wear pad. Tag and mark after removal.

(15) Remove side wear pads (29) and washer from inner-mid section (20). Discard wear pads.





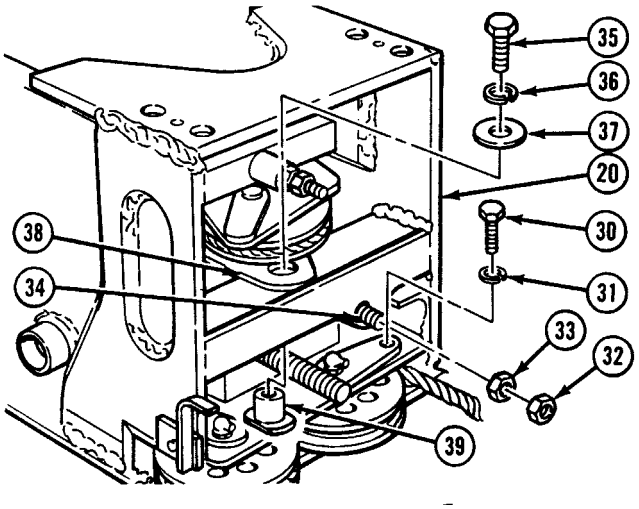
16-3. BOOM ASSEMBLY REPAIR (CONT).

(16) Remove screw (30) and lockwasher (31) from inner-mid section (20). Discard lockwasher.

(17) Remove jam nut (32) and swivel nut (33) from cable (34), at rear of inner-mid section (20).

(18) Remove screw (35), lockwasher (36) and washer (37) from cable guide (38). Discard lockwasher.

(19) Remove pin (39) from inner-midsection (20).

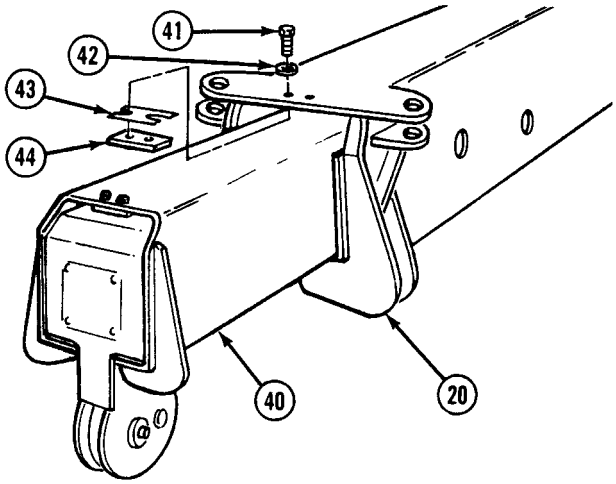


(20) Pull outer-mid section (40) out from inner-mid section (20) approximately one ft (31 cm).

NOTE

Note location and quantity of shims.

(21) Remove two screws (41), washers (42), shim (43) and wear pad (44) from inner-mid section (20). Discard wear pad.



WARNING

Outer-mid section weighs 800 lbs (363 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(22) Attach lifting device on outer-mid section (40).

NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(23) Lift up on outer-mid section (40) and remove wear pads (45).

NOTE

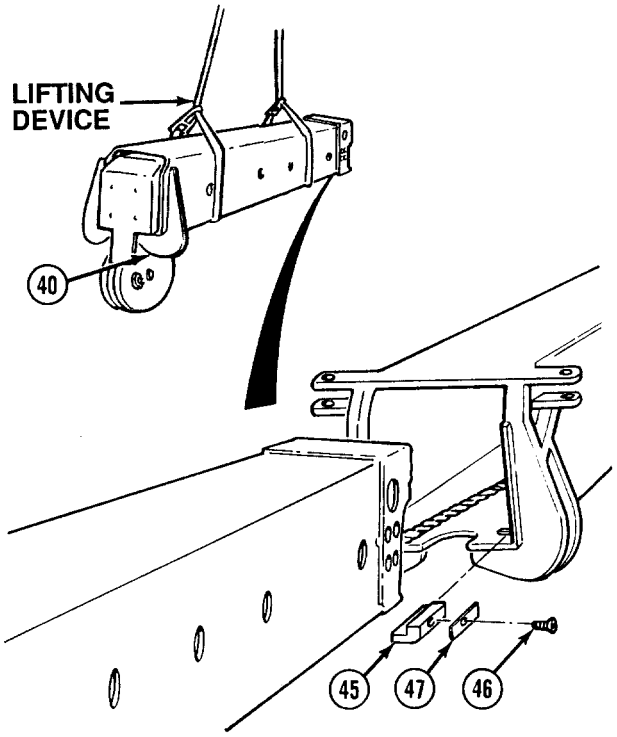
Perform Step (24) if wear pad has shim and screw.

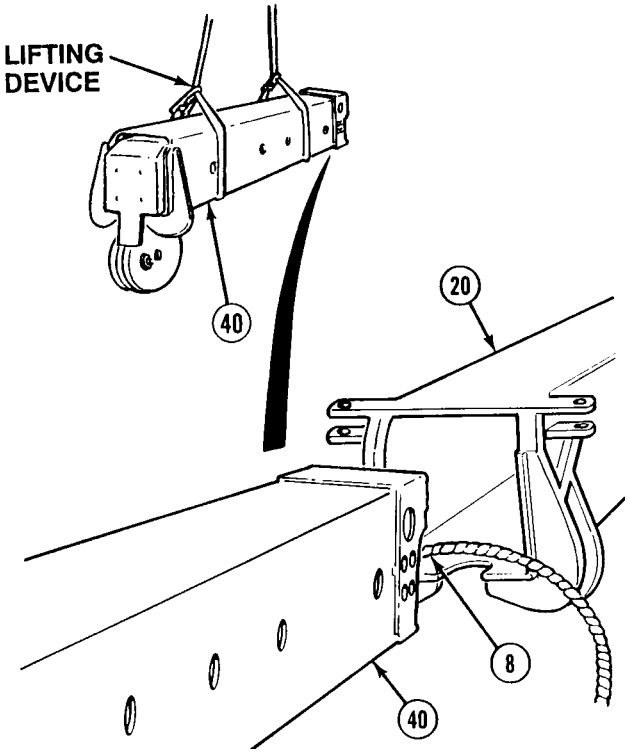
(24) Remove screw (46) and shim (47) from wear pads (45). Discard wear pads.

NOTE

- Move boom extension slowly.
- Cable may become caught on inner-mid section.
- Reposition lifting device as needed to balance outer-mid section.

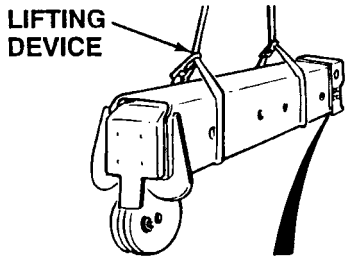
(25) Remove outer-mid section (40) with cable (8) from inner-mid section (20).





16-3. BOOM ASSEMBLY REPAIR (CONT).

(26) Remove screw (21), lockwasher (48) and cable keeper (22) from inner-mid section (20). Discard lockwasher.



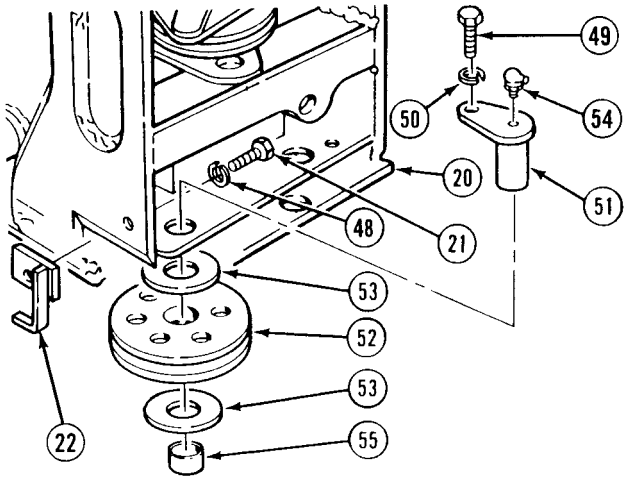
NOTE

One screw and lockwasher were removed when cable was removed.

(27) Remove screw (49), lockwasher (50) and two pin supports (51) from inner-mid section (20). Discard lockwasher.

(28) Remove two sheaves (52) and four thrust washers (53).

(29) Remove two grease fittings (54) from pin supports (51).

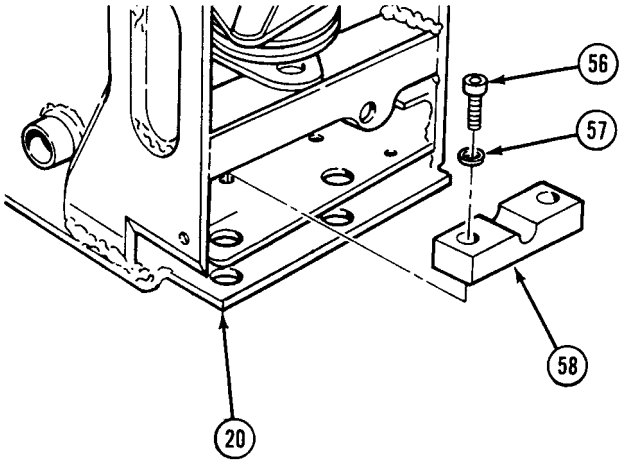


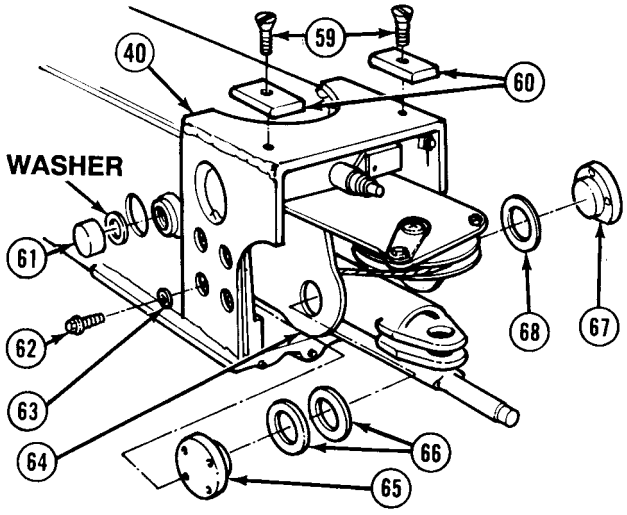
NOTE

Perform Step (30) if bushings are damaged.

(30) Remove two bushings (55) from sheaves (52).

(31) Remove two screws (56), washers (57) and wear plate (58) from inside inner-mid section (20). Discard wear plate.





NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(32) Remove two screws (59) and upper rear wear pads (60) from outer-mid section (40). Discard wear pads.

NOTE

There may be a washer behind wear pad. Tag and mark after removal.

(33) Remove side wear pads (61) and washer from outer-mid section (40). Discard wear pads.

CAUTION

Do not pull fly assembly out more than four in. (102 mm) to remove trunnion, or damage to equipment may result.

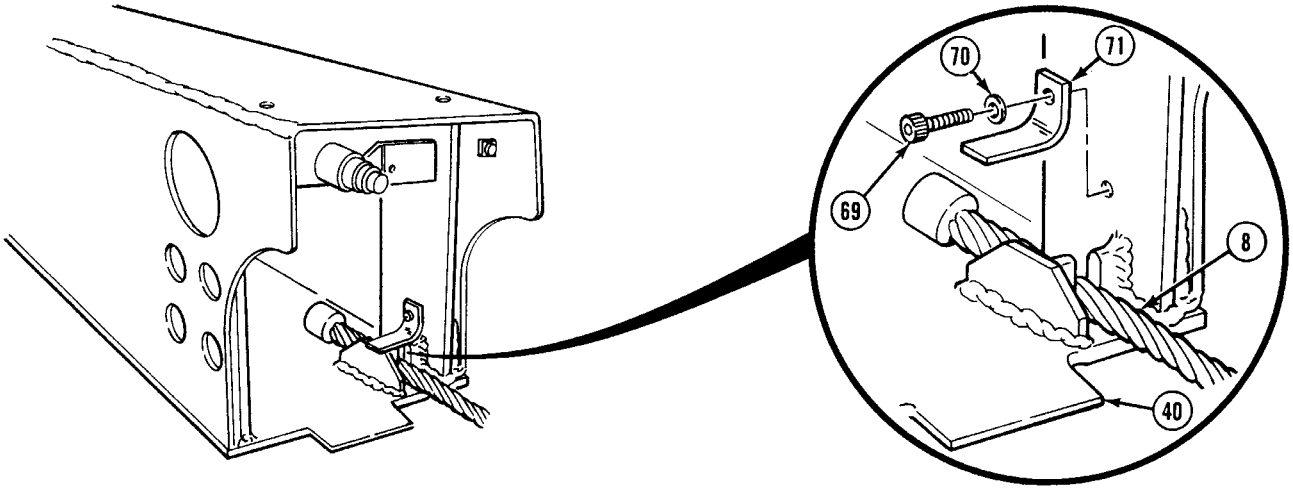
NOTE

- Trunnion on right side has milled surface to provide clearance.
- There are two washers on left side and one on right side.

(34) Remove eight screws (62) and washers (63) from outer-mid section (40).

(35) Pull fly assembly (64) back and remove left trunnion plate (65), two washers (66), right trunnion plate (67) and washer (68) from fly assembly (64).

16-3. BOOM ASSEMBLY REPAIR (CONT).

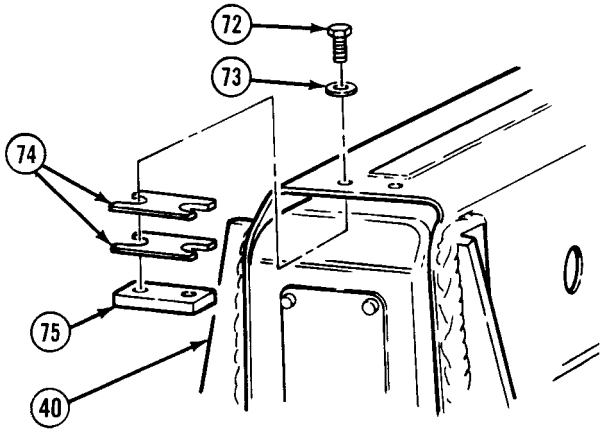


(36) Remove screw (69), washer (70), cable hold-down (71) and cable (8) from outer-mid section (40).

NOTE

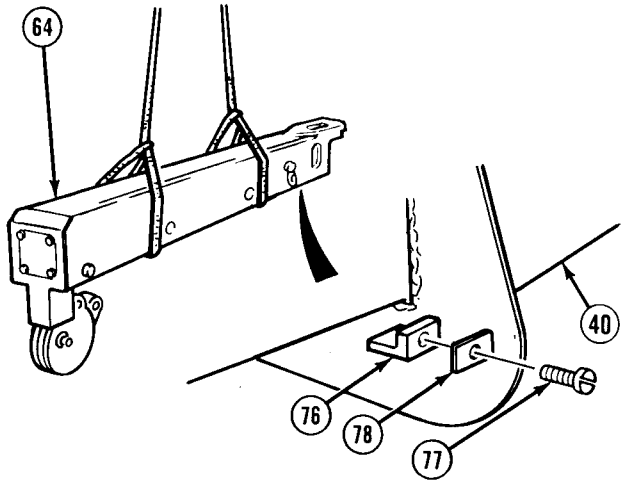
Note location, quantity and size of shims.

(37) Remove two screws (72), washers (73), shims (74) and wear pad (75) from front of outer-mid section (40). Discard wear pad.



WARNING

- Fly section weighs 450 lbs (204 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.
- Keep fly section level or structural section will fall out. Move fly section slowly. Keep assembly as level as possible during removal. Failure to comply may cause injury to personnel.



(38) Attach lifting device to fly section (64).

WARNING

Do not stick fingers under section to remove wear pads, or injury to hands may result.

NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(39) Lift up on fly section (64) and remove wear pads (76) from front of outer-mid section (40).

NOTE

Perform Step (40) if wear pad has shim and screw.

(40) Remove screw (77) and shim (78) from wear pads (76). Discard wear pads.

16-3. BOOM ASSEMBLY REPAIR (CONT).

(41) With the aid of an assistant, guide fly section (64) from outer-mid section (40).

NOTE

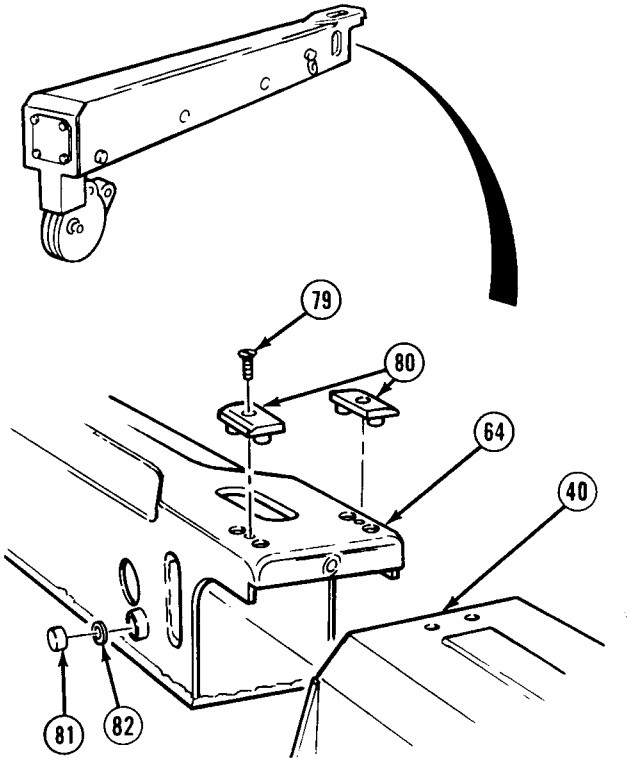
Tag wear pads as to side and extension. Note location and quantity of any shims.

(42) Remove two screws (79) and wear pads (80) from upper rear of fly section (64). Discard wear pads.

NOTE

There may be a washer behind wear pad. Tag and mark after removal.

(43) Remove two wear pads (81) and washers (82) from each side of fly section (64). Discard wear pads.

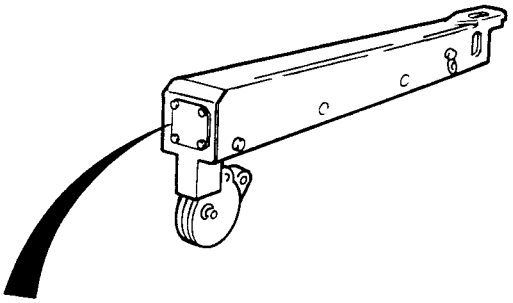


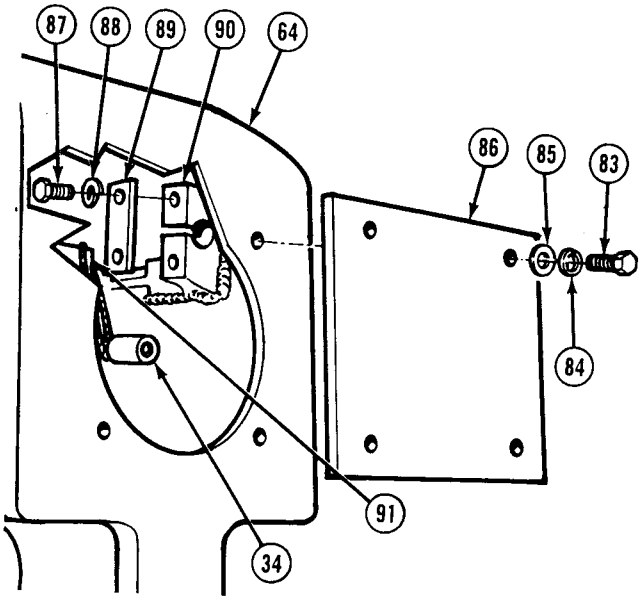
(44) Remove four screws (83), lockwashers (84), washers (85) and plate (86) from end of fly section (64). Discard lockwashers.

(45) Remove two screws (87), lockwashers (88) and cable retainer (89) from cable retainer weldment (90). Discard lockwashers.

(46) Remove cable (34) from cable retainer weldment (90).

(47) Secure cable (34) to front of structural section (91) with cable tie.





(48) Remove two nuts (92), washer (93) and spacer (94) from chain clevis (95).

(49) Remove chain clevis (95) from fly section (64).

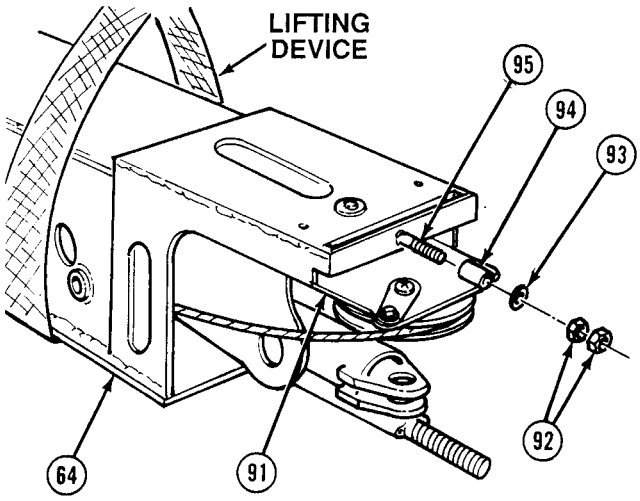
WARNING

Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(50) Attach lifting device to structural section (91).

NOTE

- Reposition lifting device as required to keep structural section centered.
- Move structural section slowly.



(51) With the aid of an assistant, guide structural section (91) two ft (61 cm) out of fly section.

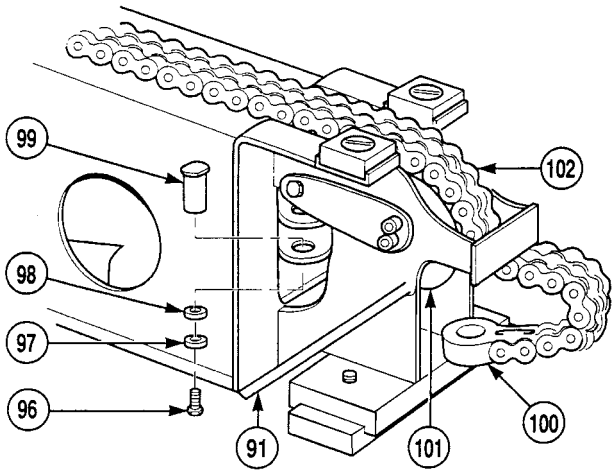
16-3. BOOM ASSEMBLY REPAIR (CONT).

(52) Remove screw (96), washer (97), washer (98) and retaining pin (99) from chain clevis (100).

NOTE

Keep chain clean. Place chain on clean surface.

(53) Pull clevis (100) past roller (101) and carefully pull chain assembly (102) back along the top of structural section (91).

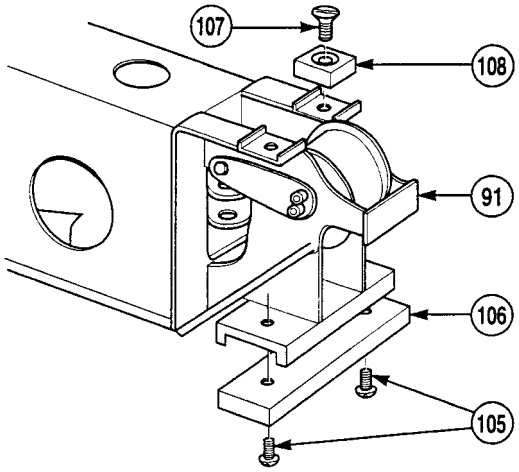


NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(54) Remove two screws (105) and wear pad (106) from bottom of structural section (91).

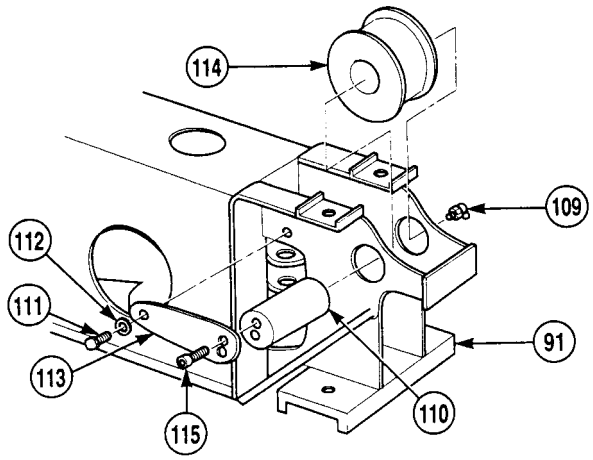
(55) Remove two screws (107) and wear pads (108) from top of structural section (91). Discard wear pads.



(56) Remove grease fitting (109) from pin (110).

(57) Remove screw (111), washer (112), pin support plate (113) and roller (114) from structural section (91).

(58) Remove two screws (115) and support plate (113) from pin (110).



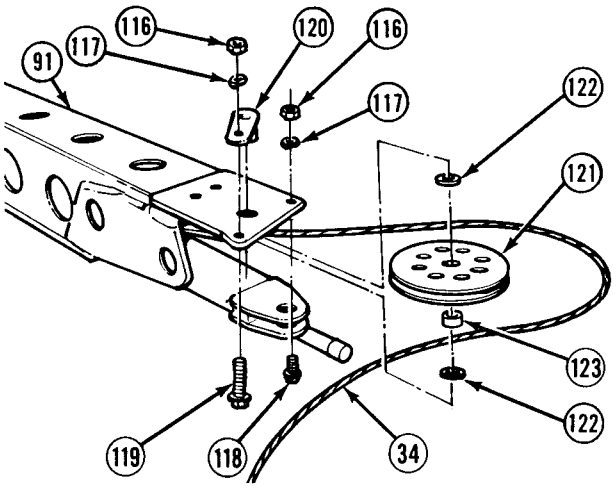
(59) Remove two nuts (116), lockwashers (117), screws (118) and (119) and pin weldment (120) from opposite end of structural section (91). Discard lockwashers.

(60) Remove cable tie from cable (34) and remove sheave (121) and two thrust washers (122) from structural section (91).

NOTE

Perform Step (61) if bearing is damaged.

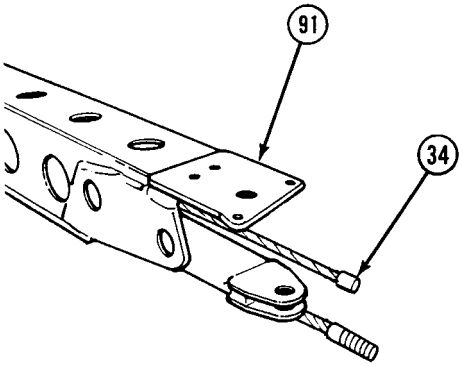
(61) Remove bearing (123) from sheave (121).



NOTE

- Keep cable straight. Do not let cable fall to side.
- Leave chains connected at this time.
- Pull cable from bottom until top end falls into structural section, then stop. Pull both top and bottom ends of cable out even.

(62) Remove cable (34) from structural section (91).



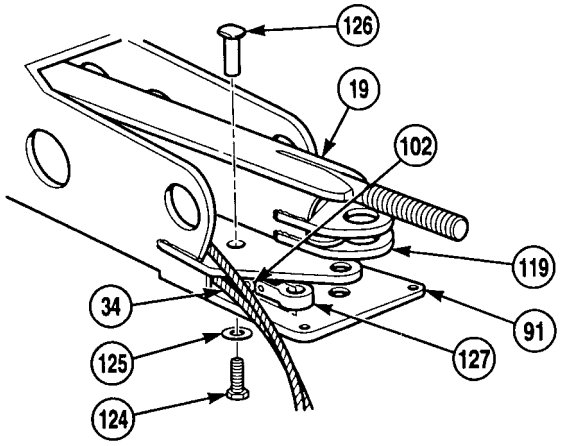
16-3. BOOM ASSEMBLY REPAIR (CONT).

(63) With the aid of an assistant, position structural section (91) on opposite side.

(64) Remove two screws (124) and washers (125) from bottom of chain clevis pins (126).

(65) Remove two pins (126) and clevis (127) from structural section (91).

(66) With the aid of an assistant, remove equalizer link weldment (19), tube weldment (128), chain assembly (102) and cable (34) from structural section (91).



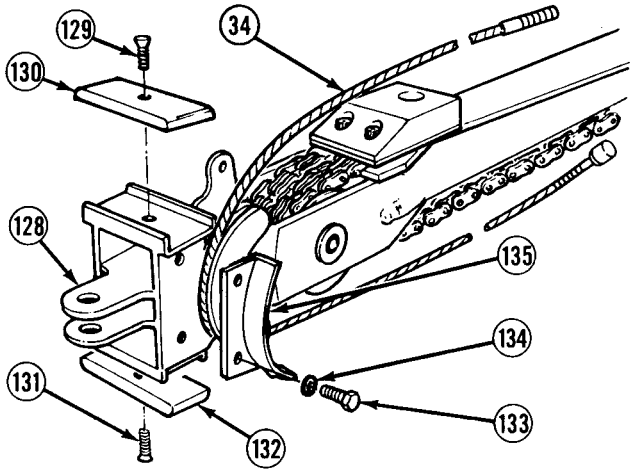
NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(67) Remove screw (129) and remove top wear pad (130) from tube weldment (128). Discard wear pad.

(68) Remove screw (131) and bottom wear pad (132) from tube weldment (128).

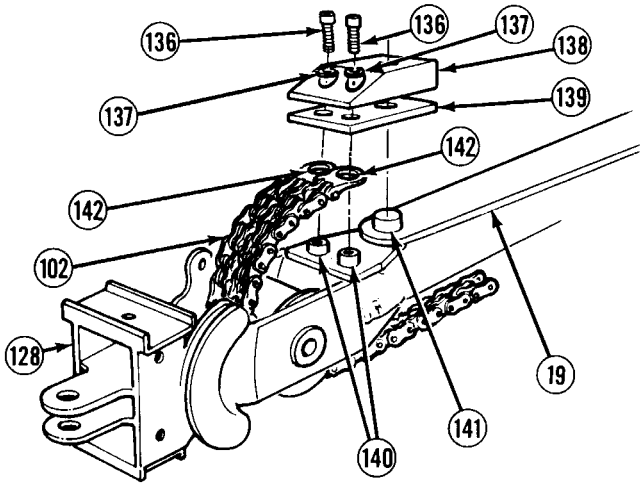
(69) Remove two screws (133), washers (134), cable keeper plate (135) and cable (34) from tube weldment (128).



NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(70) Remove three screws (136), washers (137), wear pad (138), shim (139), pins (140) and (141), clevis (142) and chain assembly (102) from tube weldment (128) and equalizer link weldment (19). Discard wear pad.



(71) Remove screw (143) and washer (144) from tube weldment (128).

WARNING

- Unsafe torching practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to heat metals. Protective clothing, gloves, and goggles must be worn; adequate protective equipment used; and a suitable fire extinguisher kept nearby. Failure to comply may result in severe injury to personnel.
- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:
  - ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
  - DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
  - DO NOT use CARC paint without adequate ventilation.
  - NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
  - BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

CAUTION

Screws will need to be heated prior to removal. Screws have sealing compound and torque applied.

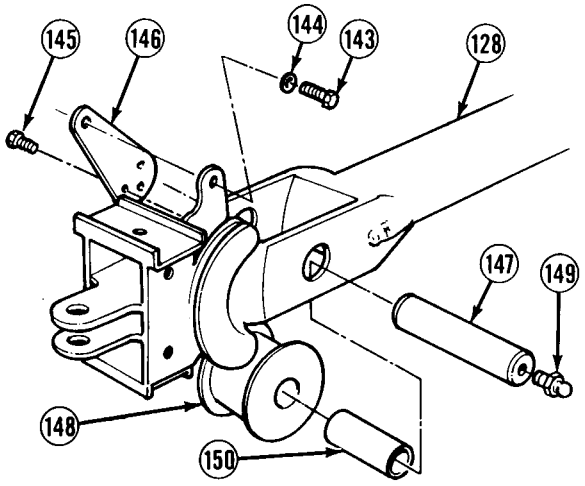
(72) Remove three screws (145), pin support plate (146), pin (147) and roller (148) from tube weldment (128).

(73) Remove grease fitting (149) from pin (148).

NOTE

Perform Step (74) if bushing is damaged.

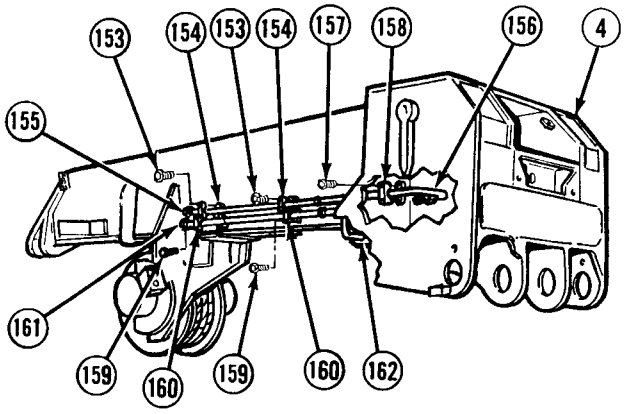
(74) Remove bushing (150) from roller (148).



16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

- Perform Steps (77) through (90) if boom base section is damaged.
- Position drain pan under tubes and hoses.
- Tag and mark hoses and tubes prior to removal.
- Cap hoses and tubes after removal.



(75) Remove four screws (153) and two clamps (154) from boom base section (4).

(76) Disconnect tube (155) from tube (156).

(77) Remove two screws (157) and clamp (158) from boom base section (4).

(78) Disconnect tube (156) from boom base section (4).

(79) Remove four screws (159) and two clamps (160) from boom base section (4).

(80) Disconnect tube (161) from tube (162).

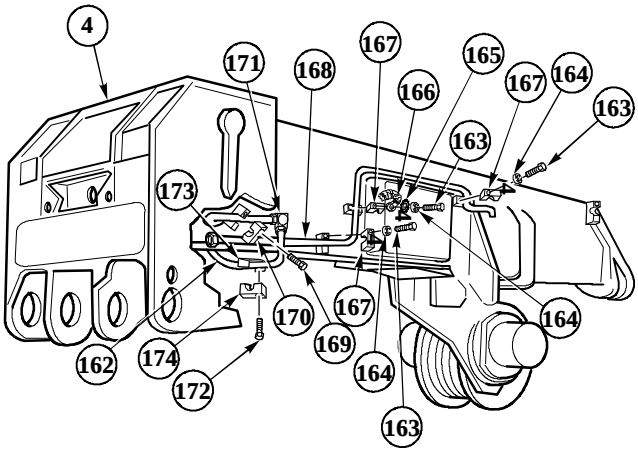
(81) Remove three screws (163), spacers (164), lockwasher (165), ground strap (166) and three clamps (167) from front of boom base section (4). Discard lockwasher.

(82) Disconnect tube (168) from boom base section (4).

(83) Remove two screws (169) and clamp (170) from boom base section (4).

(84) Remove tube (171) from tube (162).

(85) Remove two screws (172) retainer (173), clamp (174) and tube (162) from boom base section (4).

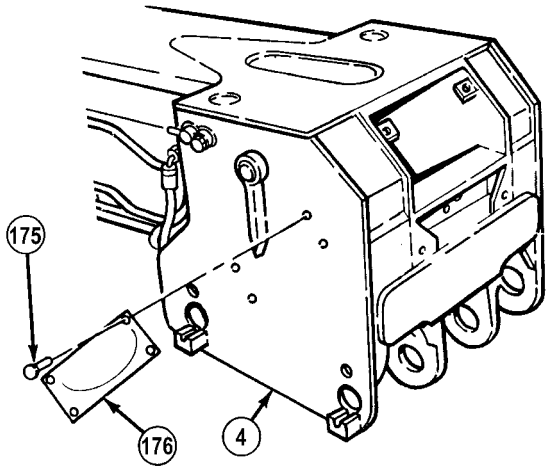


NOTE

Perform Steps (86) and (87) if data plates are damaged.

(86) Remove four rivets (175) and angle data plate (176) from boom base section (4).

(87) Repeat Step (86) for remaining angle data plate.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean metal parts in drycleaning solvent and inspect for cracks or wear.

(2) Clean sheave assemblies and roller assemblies in drycleaning solvent.

(3) Inspect brass bushings inside each assembly.

16-3. BOOM ASSEMBLY REPAIR (CONT).

(4) Clean metal wear pads, spacers, and shims in dry cleaning solvent.

(5) Clean chains and cable in drycleaning solvent and inspect for broken lines or wear.

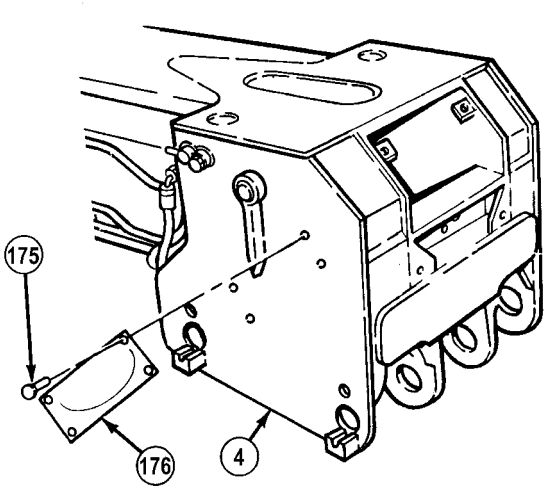
(6) Dry all parts with clean cloth.

(7) Replace damaged or worn parts.

d. Assembly.

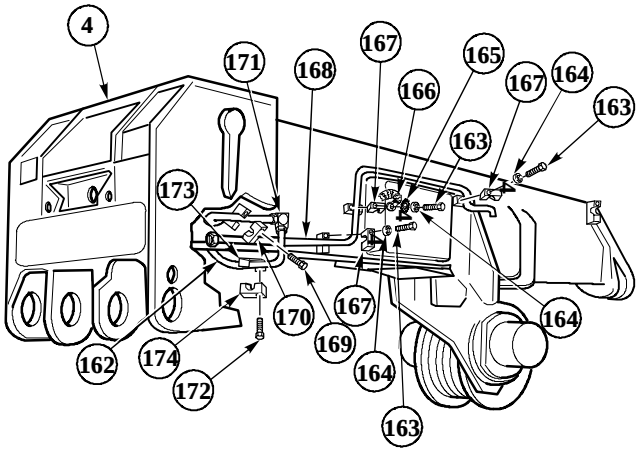
NOTE

Perform Steps (1) through (8) only if boom base section was disassembled. Otherwise, go to Step (9).



(1) Install angle data plate (176) on boom base section (4) with four rivets (175).

(2) Repeat Step (1) for remaining angle data plate.



(3) Install clamp (174), tube (162) and retainer (173) on front of boom base section (4) with two screws (172). Tighten screws to 72 lb-in (8 N·m).

(4) Connect tube (171) to tube (162).

(5) Install clamp (170) on tube (171) with screw (169). Tighten screws to 72 lb-in (8 N·m).

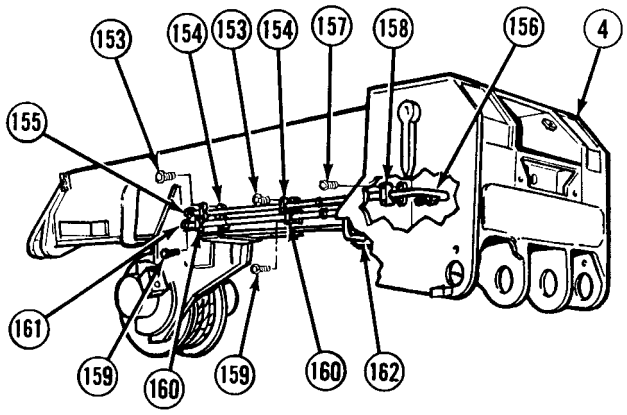
(6) Install tube (168), three clamps (167), spacers (164) and ground strap (166) on boom base section (4) with lockwasher (165) and three screws (163). Tighten screws to 72 lb-in (8 N·m).

(7) Install two clamps (160) on tube (161) with four screws (159). Tighten screws to 72 lb-in (8 N·m).

(8) Install tube (156) and clamp (158) on boom base section (4) with two screws (157). Tighten screws to 72 lb-in (8 N·m).

(9) Connect tube (155) to tube (156).

(10) Install two clamps (154) on tube (155) with four screws (153). Tighten screws to 72 lb-in (8 N·m).



NOTE

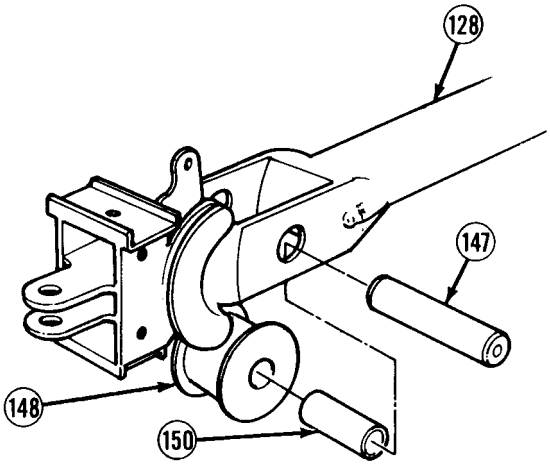
Perform Step (11) if bushing was removed.

(11) Install bushing (150) in roller (148).

NOTE

When installing pin, position grease hole in vertical, top-to-bottom position.

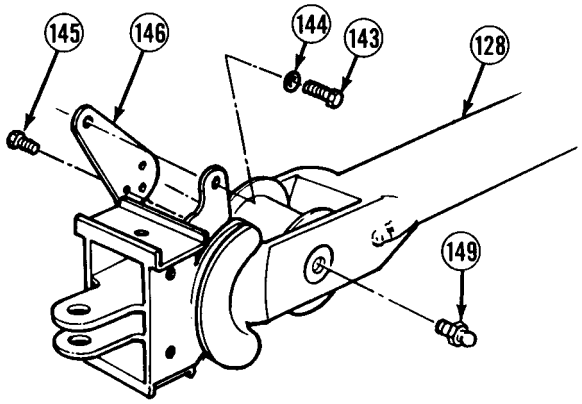
(12) Install roller assembly (148) and pin (147) in tube weldment (128).



16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(13) Apply adhesive sealant to threads of four screws (145) and (143).

(14) Install pin support plate (146) in tube weldment (128) with washer (144) and four screws (143) and (145). Tighten screws to 20 lb-ft (27.1 N·m).

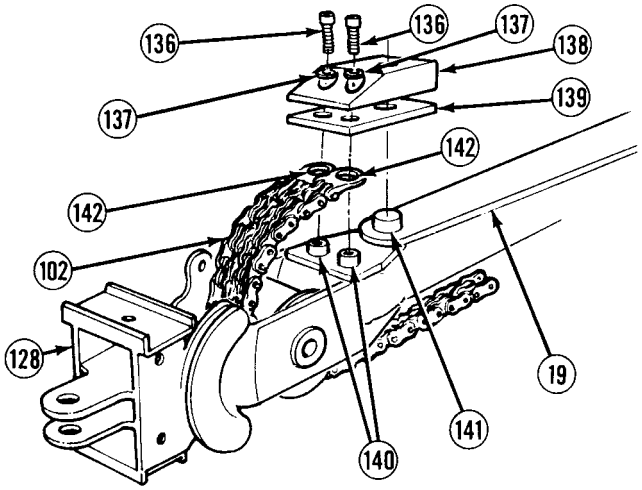
NOTE

Grease fitting must be installed to face toward rear of tube weldment.

(15) Install grease fitting (149) in pin (147).

NOTE

Chain installation is done with tube weldment upside down.



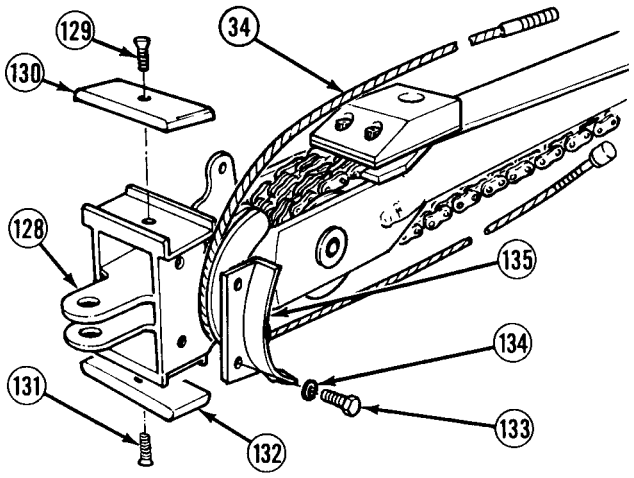
(16) Align chain assembly (102) through tube weldment (128).

(17) Apply sealing compound to threads of three screws (136).

(18) Install clevis (142), shim (139) and wear pad (138) on tube weldment (128) with three pins (140) and (141), washers (137) and screws (136). Tighten screws to 168 lb-in (19 N·m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



NOTE

Ensure to position wear pad with long side over grease fitting.

(19) Apply sealing compound to threads of screw (131).

(20) Install bottom wear pad (132) on tube weldment (128) with screw (131).

(21) Apply sealing compound to threads of screw (129).

(22) Install top wear pad (130) on tube weldment (128) with screw (129).

NOTE

Ensure correct end of cable is installed.

(23) Apply sealing compound to threads of two screws (133).

(24) Install cable (34) and cable keeper plate (135) on tube weldment (128) with two washers (134) and screws (133). Tighten screws to 28 lb-ft (38 N·m).

16-3. BOOM ASSEMBLY REPAIR (CONT).

(25) Apply grease to inside top and bottom of structural section (91).

WARNING

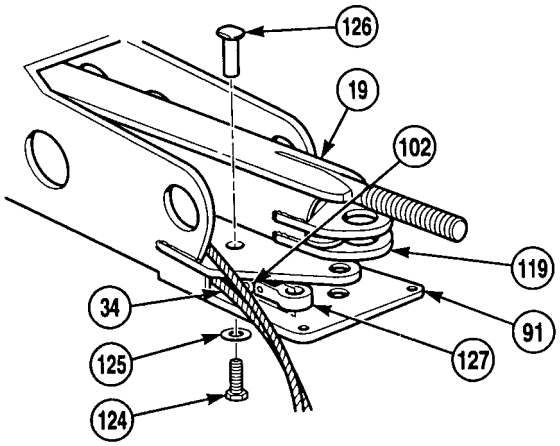
Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(26) Using lifting device, position structural section (91) on opposite side.

NOTE

Cable must be held, paying out long part and evening cable at rear. Cable must pay out completely during installation and become level under weldment.

(27) With the aid of an assistant, hold cable (34) and install chain assembly (102), cable, equalizer link weldment (19) and tube weldment (128) into structural section (91).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(28) Apply sealing compound to threads of two screws (124).

NOTE

Screws do not fit up tight against frame.

(29) Install chain clevis (127) on structural section (91) with two pins (126), washers (125) and screws (124).

NOTE

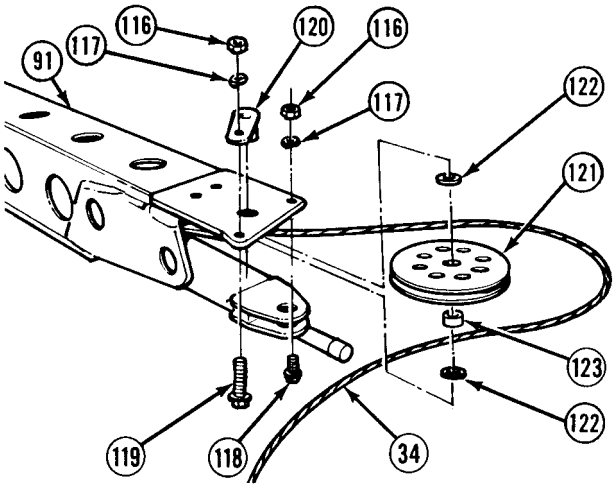
Perform Steps (30) and (31) if bearing was removed.

(30) Apply grease to bearing (123).

(31) Install bearing (123) in sheave (121).

(32) Apply grease to two thrust washers (122).

(33) Position washers (122) on sheave (121).



WARNING

Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(34) Using lifting device, position structural section (91) on opposite side.

(35) Install sheave (121) in structural section (91).

WARNING

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(36) Install cable (34) on sheave (121).

(37) Apply sealing compound to threads of two screws (118) and (119).

CAUTION

Ensure screws are not overtightened on sheave assembly. Screw head should just touch sheave. Sheave should move freely, or crane may not operate correctly.

NOTE

Longer screw goes on pin weldment.

(38) Install pin weldment (120) on structural section (91) with two screws (118) and (119), lockwashers (117) and nuts (116).

NOTE

Do not attach cable to roller hole.

(39) Tie cable (34) to both ends of structural section (91) with cable tie.

16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

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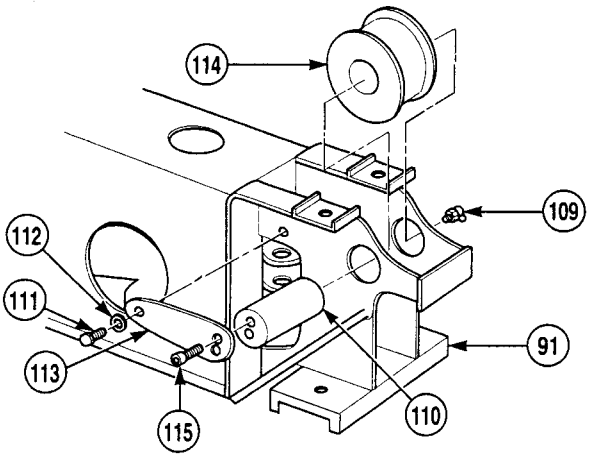

(40) Apply sealing compound to threads of two screws (115).

(41) Install pin support plate (113) on pin (110) with two screws (115). Tighten screw to 28 lb-ft (38 N·m).

(42) Apply sealing compound to threads of screw (111).

(43) Install roller (114) and pin support plate (115) on structural section (91) with washer (112) and screw (111). Tighten screw to 20 lb-ft (27 N·m).

NOTE

Ensure grease fitting is facing straight out.

(44) Install grease fitting (109) in pin (110).

WARNING

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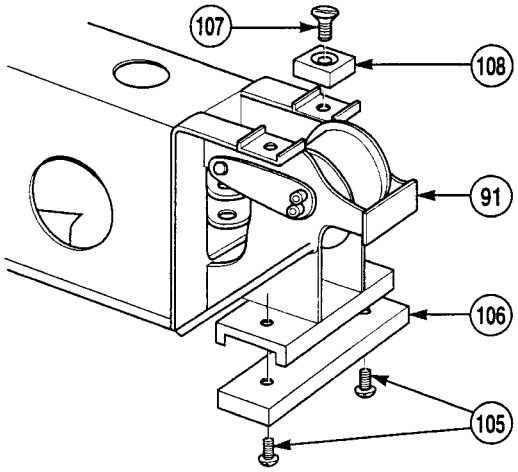


(45) Apply sealing compound to threads of two screws (107).

(46) Install two wear pads (108) on top of structural section (91) with screws (107).

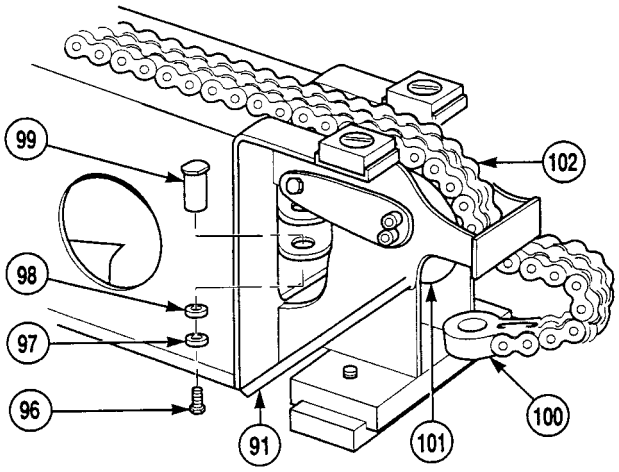
(47) Apply sealing compound to threads of two screws (105).

(48) Install wear pad (106) on bottom of structural section (91) with two screws (105).

(49) Apply grease to upper and lower wear pads (108) and (106).

NOTE

Ensure chain lays flat.



(50) Position chain assembly (102) along structural section (91).

(51) Apply sealing compound to threads of screw (96).

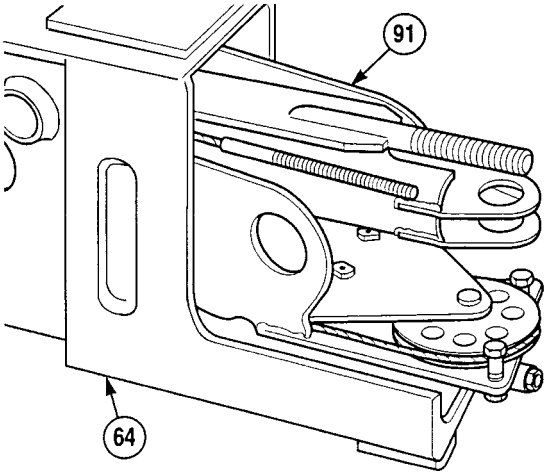
(52) Pull chain assembly (102) around roller (101) and install clevis (100) with pin (99), washer (98), washer (97) and screw (96). Tighten screw to 16 lb-ft (22 N·m).

16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(53) Using lifting device, position structural section (91) on opposite side.



NOTE

Ensure chain and cable are straight and not binding.

(54) With the aid of an assistant, guide structural section (91) into fly section (64).

(55) Remove cable tie in fly section (64) and position cable (34) in cable retainer (90).

WARNING

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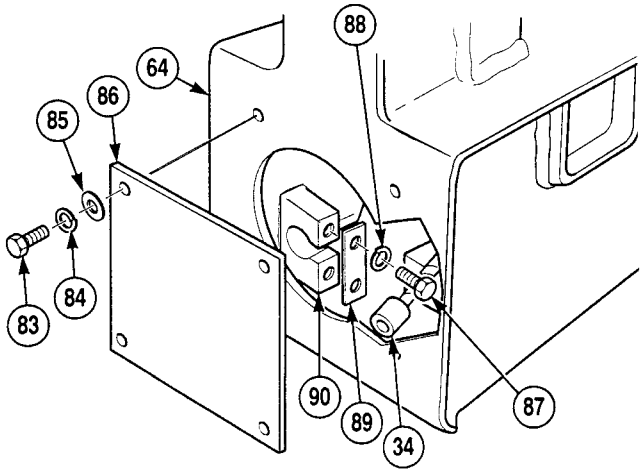


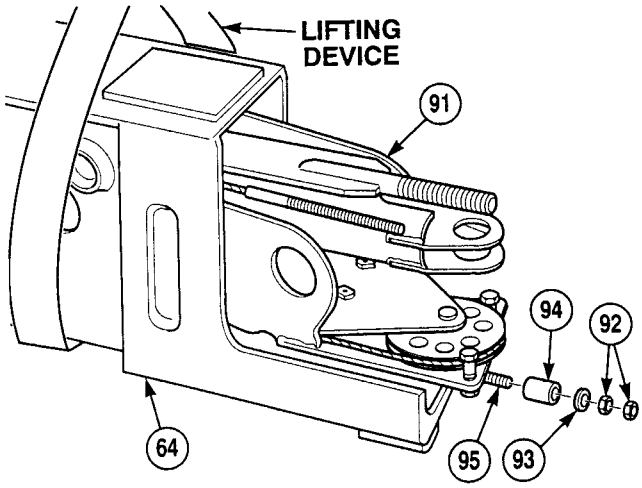
(56) Apply sealing compound to threads of two screws (83).

(57) Install cable retainer (89) in cable retainer weldment (90) with two lockwashers (88) and screws (87). Tighten screws to 108 lb-in (12 N·m).

(58) Install plate (86) in fly section (64) with four washers (85), lockwashers (84) and screws (83). Tighten screws to 72 lb-in (8 N·m).

(59) Position chain clevis (95) through end of fly section (64).

(60) Install spacer (94), washer (93) and two nuts (92) on chain clevis (95).

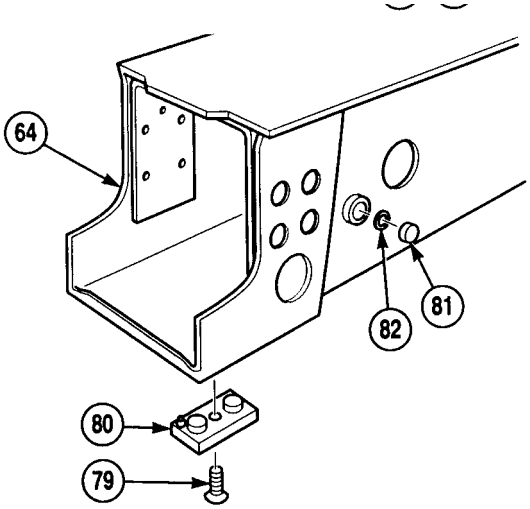


NOTE

- Wear pads are installed on end of fly section positioned in outer-mid section.
- Install washers as noted during removal.

(61) Install two washers (82) and wear pads (81) in sides of fly section (64).

(62) Apply grease to two wear pads (81).



WARNING

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NOTE

Wear pads are installed with taper to outside.

(63) Apply sealing compound to threads of two screws (79).

(64) Install upper rear wear pads (81) on fly section (64) with two screws (79)

(65) Apply grease to two wear pads (80).

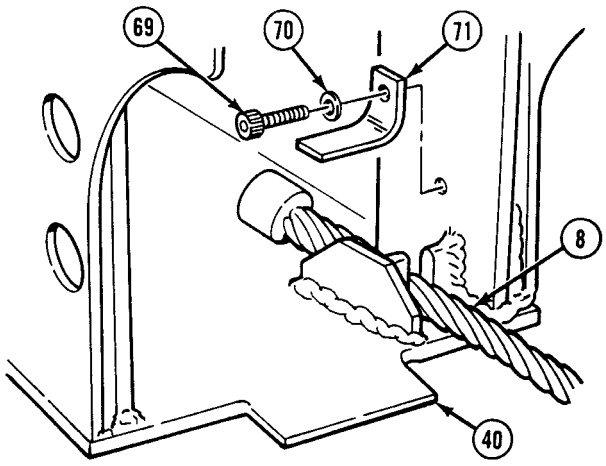
16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(66) Apply sealing compound to threads of screw (69).

(67) Install end of cable (8) in outer-mid section (40) with cable hold-down (71), washer (70) and screw (69). Tighten screw to 168 lb-in (18 N·m).



WARNING

Fly section weighs 450 lbs (204 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(68) Attach lifting device to fly section (64).

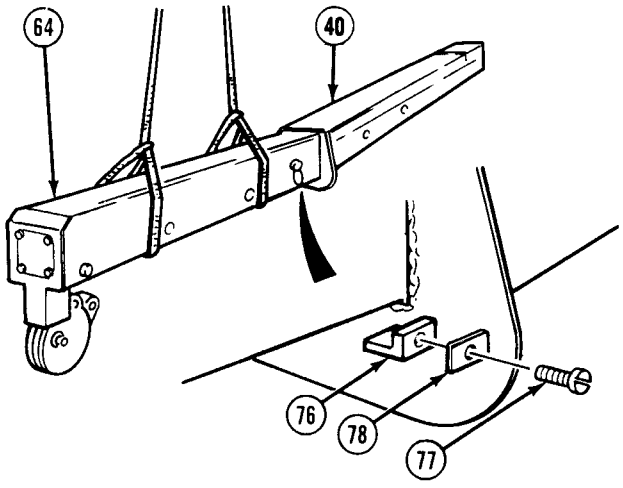
(69) With the aid of two assistants, install fly section (64) in outer-mid section (40).

(70) Apply sealing compound to threads of screw (77).

NOTE

Perform Step (74) if wear pad had shim and screw.

(71) Install shim (78) on wear pad (76) with screw (77).



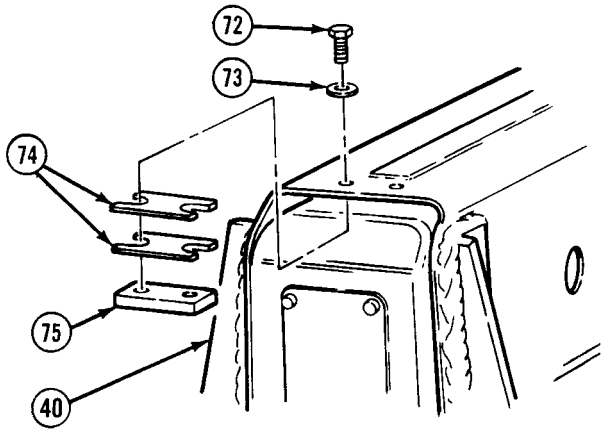
WARNING

Do not stick fingers under section when installing wear pads, or injury to hands may result.

(72) Lift end of fly section (64) and install wear pads (76) on front of outer-mid section (40).

(73) Apply grease to two wear pads (76).

(74) Position shims (74) and wear pad (75) on outer-mid section (40).



WARNING

At least 0.06 in. (1.5 mm) of clearance is required between highest spot on fly section and bottom of wear pad or section may not operate properly. Damage to equipment may result.

(75) Check clearance between high point of fly section (64) and wear pad (75). Add or subtract shim (74) as required.

WARNING

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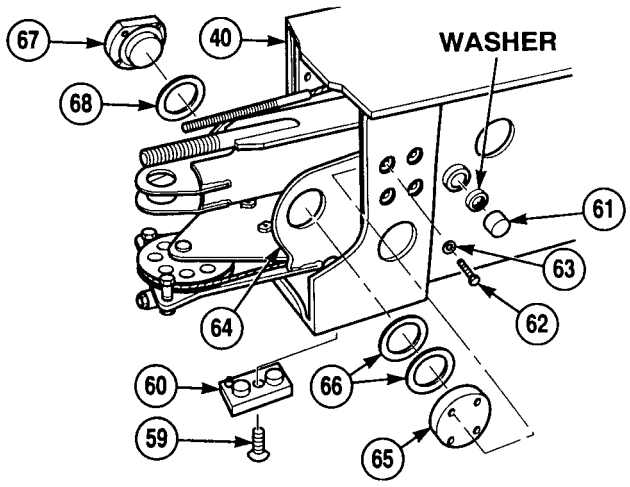
(76) Apply sealing compound to threads of two screws (72).

(77) Install wear pad (75) and shims (74) on upper front of outer-mid section (40) with two washers (73) and screws (72). Tighten screws to 31 lb-ft (42 N·m).

16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(78) Apply sealing compound to threads of four screws (62).

(79) Install right trunnion plate (67) and washer (68) in fly section (64) with four washers (63) and screws (62). Tighten screws to 25 lb-ft (34 N·m).

(80) Apply sealing compound to threads of four screws (62).

(81) Install left trunnion plate (65) and two washers (66) in fly section (64) with four washers (63) and screws (62). Tighten screws to 25 lb-ft (34 N·m).

NOTE

Install washers as noted during removal.

(82) Install washers and side wear pads (61) in outer-mid section (40).

(83) Apply grease to two wear pads (61).

NOTE

Wear pads are installed with taper to outside.

(84) Apply sealing compound to threads of two screws (59).

(85) Install two upper rear wear pads (60) on outer-mid section (40) with two screws (59)

(86) Apply grease to two wear pads (60).

WARNING

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(87) Apply sealing compound to threads of two screws (56).

(88) Install wear plate (58) inside inner-mid section (20) with two washers (57) and screws (56). Tighten screws to 120 lb-in (13 N·m).

(89) Apply grease to wear plate (58).

NOTE

Perform Step (90) if bushings were removed.

(90) Install two bushings (55) in sheaves (52).

(91) Apply grease to four thrust washers (53).

(92) Install four thrust washers (53) on two sheaves (52).

(93) Install two sheaves (52) on inner mid-section (20) with two pin supports (51).

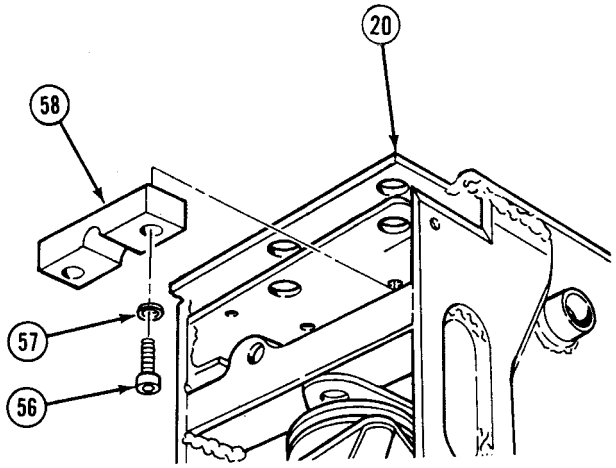
(94) Apply sealing compound to threads of two screws (49).

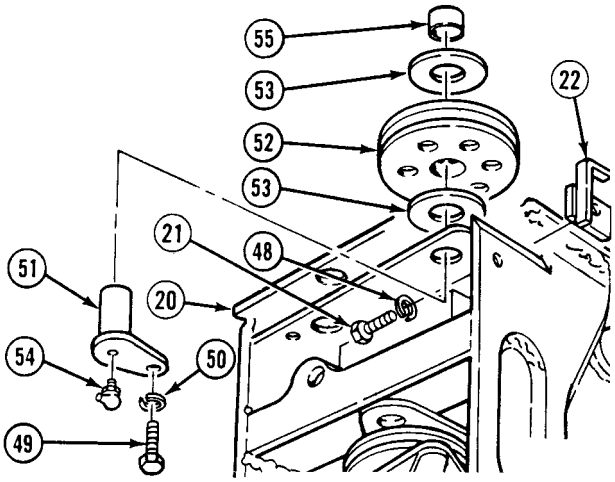
(95) Install two lockwashers (50) and screws (49) in pin supports (51). Tighten screw to 18 lb-ft (24 N·m).

(96) Install two grease fittings (54) on pin supports (51).

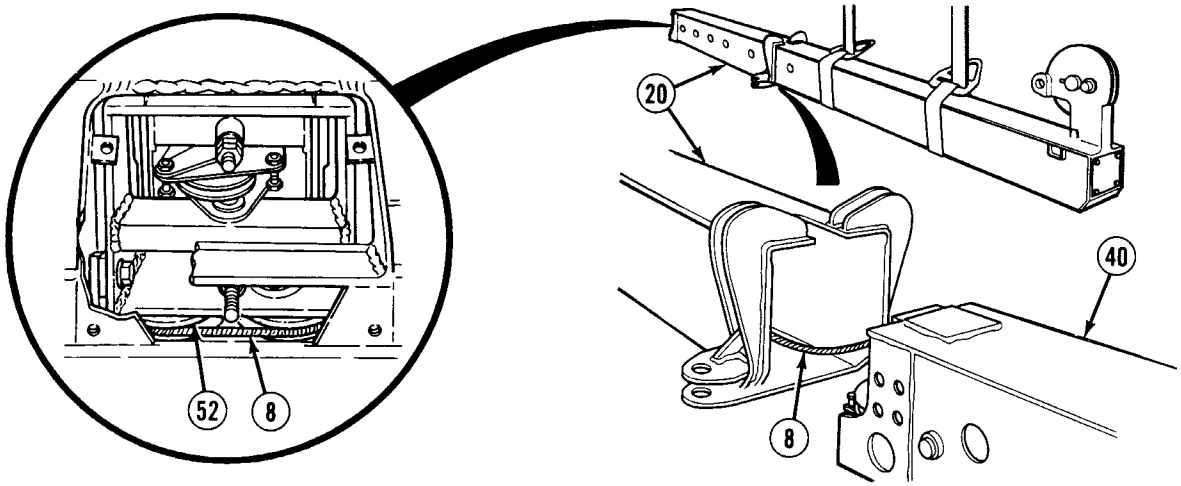
(97) Apply sealing compound to threads of screw (21).

(98) Position cable keeper (22) on inner-mid section (20) with lockwasher (48) and screw (21).





16-3. BOOM ASSEMBLY REPAIR (CONT).



WARNING

Outer-mid section weighs 800 lbs (363 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(99) Attach lifting device to inner-mid section (20).

(100) With the aid of two assistants, route cable (8) through inner-mid section (20) while slowly installing outer-mid section (40) into inner-mid section (20).

(101) As cable (8) gets close to rear of inner-mid section (20), pull cable (8) through and route around sheaves (52). Pull cable (8) and slowly slide into outer-mid section (40) until section is half installed.

WARNING

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NOTE

Perform Steps (102) and (103) if wear pad has shim and screw.

(102) Apply sealing compound to threads of screw (46).

NOTE

Shims are installed on sides of boom wear pads to locate each section on center of its mating surface. Shim thicknesses should be selected to provide a maximum of 0.125 in. (3.1 mm) total side clearance between boom bottom plate edge and wear pad.

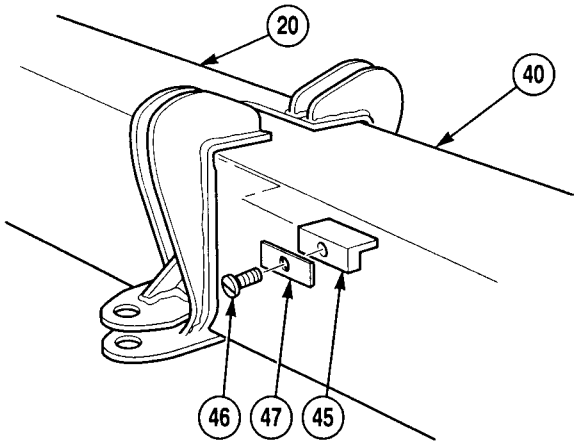
(103) Install shim (47) on wear pad (45) with screw (46).

WARNING

Do not stick fingers under section to install wear pads, or injury to hands may result.

(104) Lift outer-mid section (40) and install two wear pads (45) in inner-mid section (20).

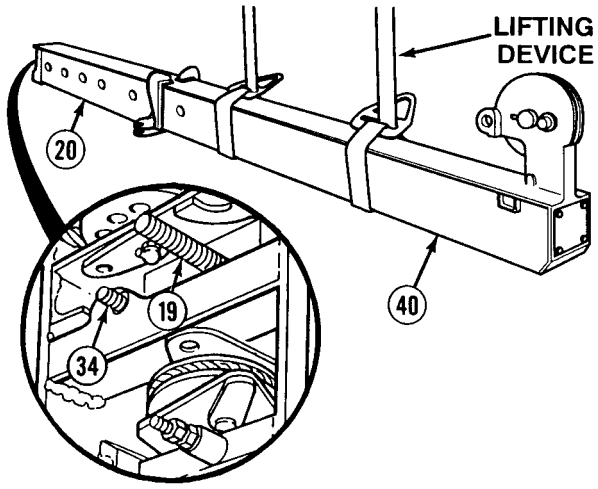
(105) Apply grease to two wear pads (45).



16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

- Ensure equalizer link and tube weldment clear rear of outer-mid section.
- If cable was tied to equalizer link weldment, tie must be removed.



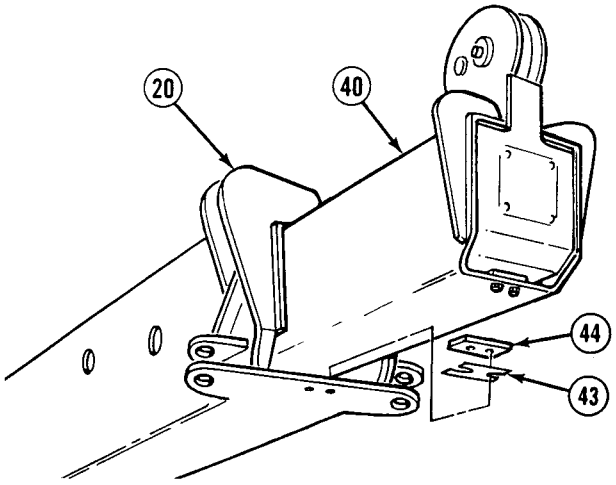
(106) With the aid of an assistant, hold equalizer link (19) and push outer-mid section (40) further into inner-mid section (20). Route cable (34) end through hole in rear of inner-mid section.

(107) Position inner-mid section (20) over on opposite side.

(108) Position shims (43) and wear pad (44) on inner-mid section (20).

WARNING

At least 0.06 inches (1.5 mm) of clearance required between highest spot on fly section and bottom of wear pads or section may not operate properly and damage to equipment may result.



(109) Check clearance between outer-mid section (40) and wear pad (44). Add or subtract shims (43) as required.

WARNING

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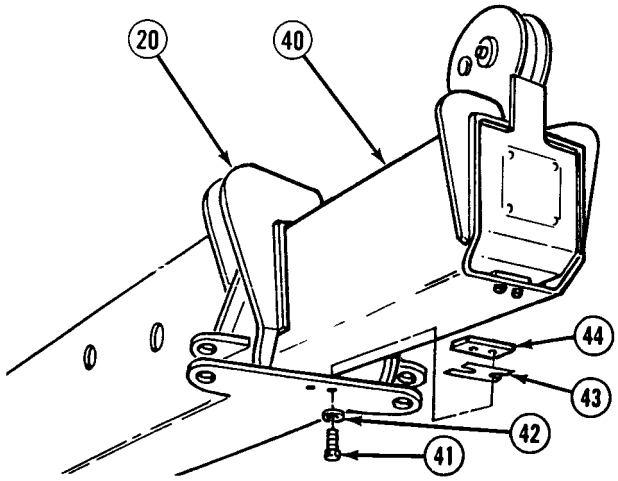


(110) Apply sealing compound to threads of two screws (41).

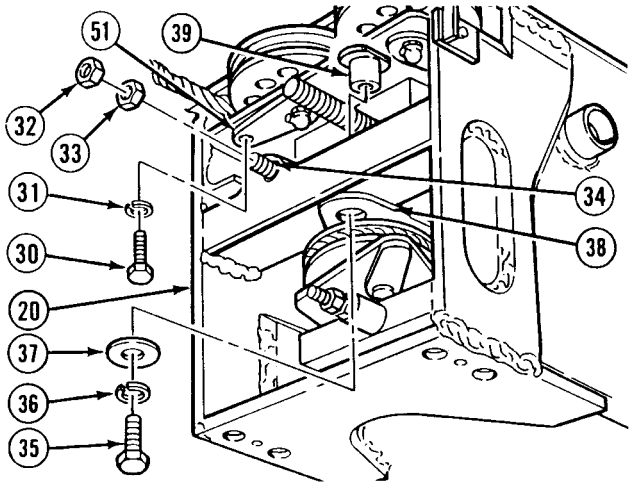
(111) Install wear pad (44) and shims (43) on upper front of inner-mid section (20) with washers (42) and screws (41). Tighten screws to 31 lb-ft (42 N·m).

16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

Cable can be held with pliers to help position in hole.

(112) Position cable (34) through hole in inner-mid section (20), swivel nut (33) on cable.



WARNING

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NOTE

- Ensure grease fittings on sheave pins face rear.
- Leverage may need to be applied to cable guide in order to align holes.

(113) Apply sealing compound to threads of screw (35).

(114) Align cable guide (38) and inner-mid section (20) and install pin (39), washer (37), lockwasher (36) and screw (35). Tighten screw to 120 lb-in (14 N·m).

(115) Pull cable (34) and tighten swivel nut (33) on cable (34).

(116) Install jam nut (32) on cable (34). Leave 1/4 in. (6.4 mm) of thread exposed.

NOTE

Ensure cable is on sheave side of screw.

(117) Apply sealing compound to threads of screw (30).

(118) Install lockwasher (31) and screw (30) on support pin (51). Tighten screw to 120 lb-in (14 N·m).

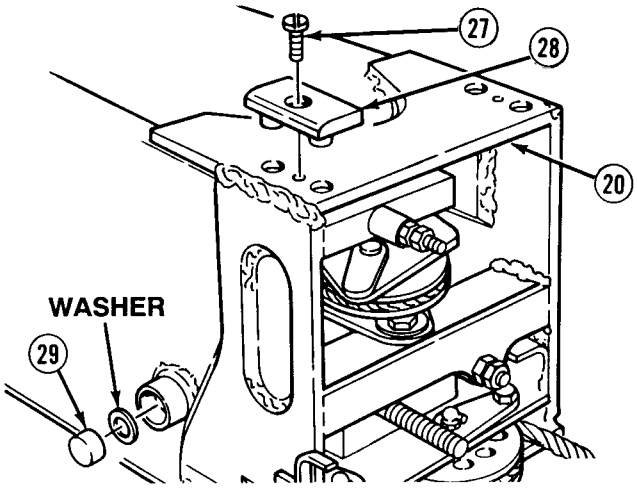
(119) Using lifting device, position inner-mid section (20) on opposite side.

NOTE

Install washer as noted during removal.

(120) Position two side wear pads (29) and washers on inner-mid section (20).

(121) Apply grease to two wear pads (29).



WARNING

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NOTE

Wear pads are installed with taper to outside.

(122) Apply sealing compound to threads of screws (27).

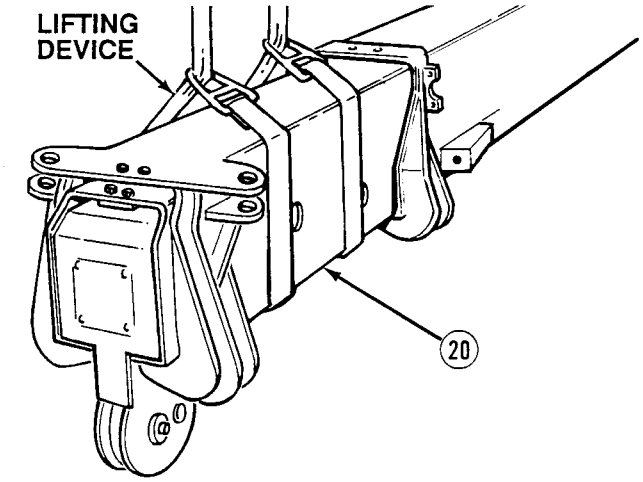
(123) Install two rear wear pads (28) with screws (27).

(124) Apply grease to two wear pads (28).

WARNING

Inner-mid section weighs 1000 lbs (454 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(125) Attach lifting device on inner-mid section (20).

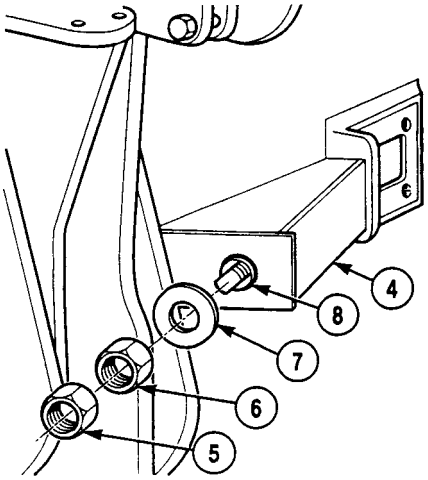


16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

Cable may be held with pliers to tighten locknut.

(126) Pull cable (8) through base section (4) and install washer (7), jamnut (6) and nut (5) on cable.



WARNING

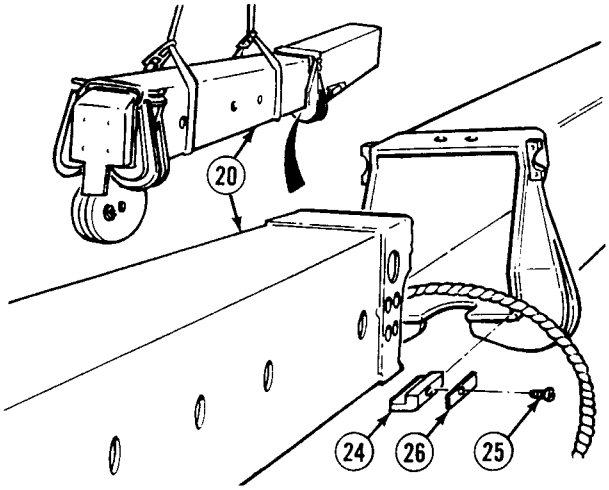
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Perform Steps (127) and (128) if wear pad has a shim and screw.

(127) Apply sealing compound to threads of screw (25).

(128) Install shim (26) on wear pad (24) with screw (25).



WARNING

Do not stick fingers under section to install wear pads, or injury to hands may result.

(129) Lift front of inner-mid section (20) and install wear pads (24) on inner-mid section.

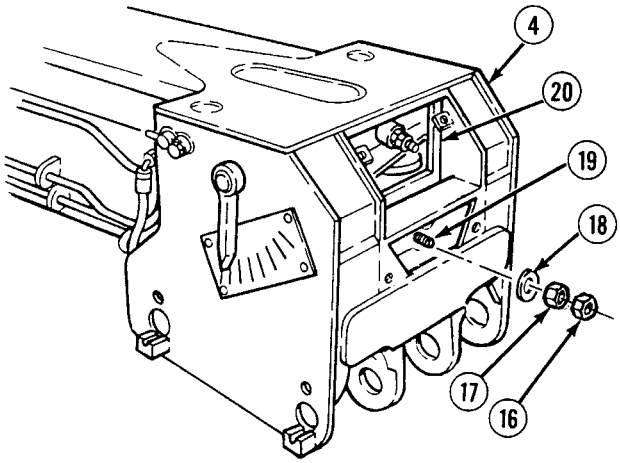
(130) Apply grease to two wear pads (24).

NOTE

- If outer-mid section fit is tight, install C-clamp on outer-mid section and base section and use clamp to push outer-mid section inward.
- Ensure equalizer link weldment is properly installed.

(131) With the aid of an assistant, push inner-mid section (20) and base section (4) completely together while routing end of equalizer link weldment (19) from inner-mid section (20) through hole in rear of base section (4).

(132) Install washer (18), nut (17) and jam nut (16) on equalizer link weldment (19).



WARNING

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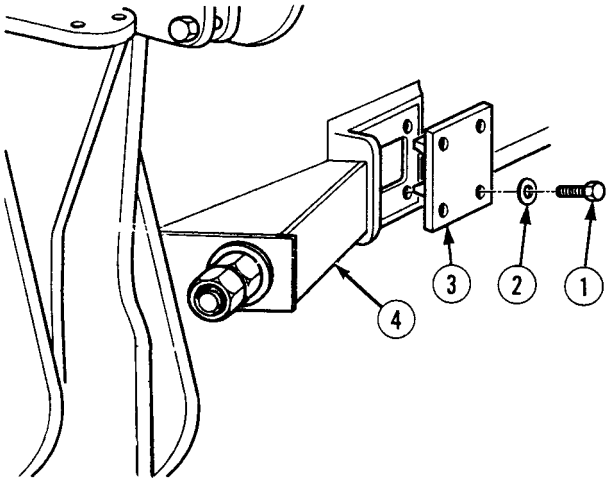
(133) Apply sealing compound to threads of four screws (1).

(134) Install cable guide (3) with four washers (2) and screws (1). Tighten screws to 16 lb-ft (22 N·m).

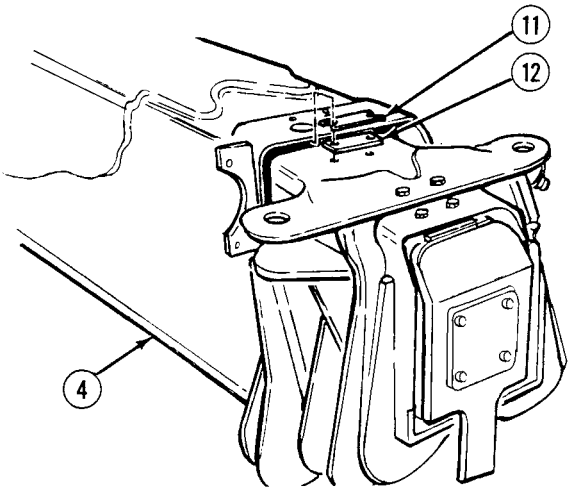


(135) Position shims (11) and wear pad (12) on base section (4).

CAUTION

At least 0.06 in. (1.5 mm) of clearance is required between highest spot on inner-mid section and bottom of wear pads or section may not operate properly or damage to equipment may result.

(136) Check clearance between base section (4) and wear pad (12) and add or subtract shims (11) as required.



16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

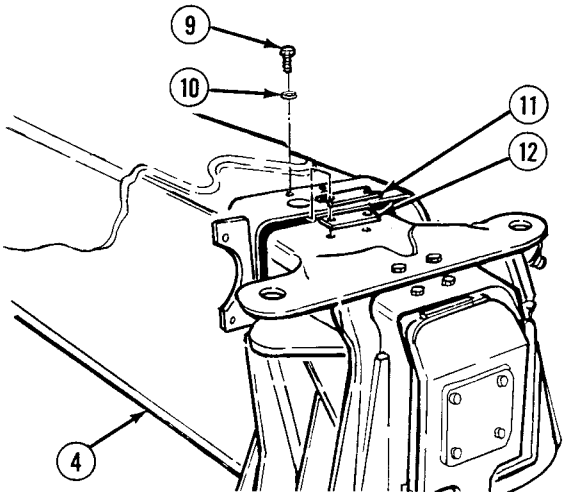
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

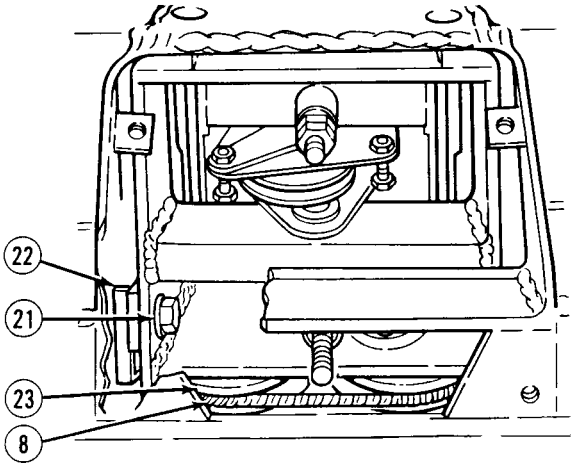
(137) Apply sealing compound to threads of two screws (9).

(138) Install wear pad (12) and shims (11) on base section (4) with two washers (10) and screws (9). Tighten screws to 31 lb-ft (42 N·m).

(139) Apply grease to wear pad (12).

(140) Reach through access hole in rear of base section (4) and install cable keeper (22) over cable (8) and roller guide (23) and tighten screw (21) to 108 lb-in (12 N·m).



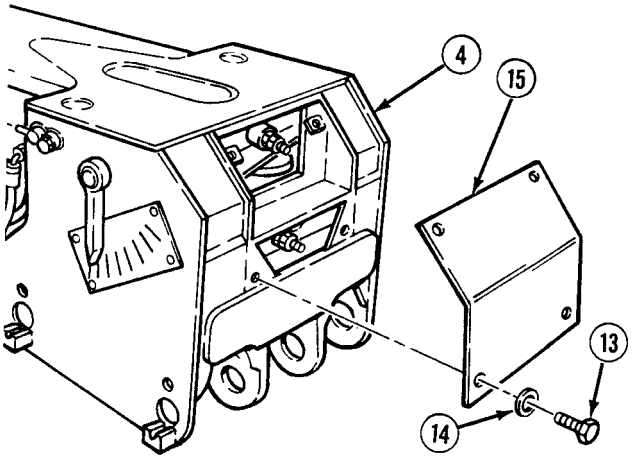


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(141) Apply sealing compound to threads of four screws (13).

(142) Install cover plate (15) on base section (4) with four washers (14) and screws (13). Tighten screws to 17 lb-ft (23 N·m).



e. Installation.

WARNING

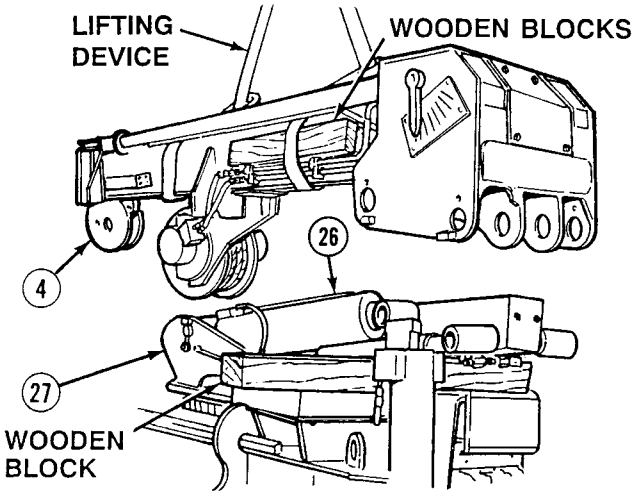
Boom weighs 2,100 lbs (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to boom assembly (4).

CAUTION

Take care not to crush or damage hoses during boom assembly installation.

(2) With the aid of an assistant, raise boom assembly (4) up and slowly position boom on crane (27). Lower boom slowly and align lift cylinders (26) with holes in boom.



16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure hole in pin is straight up and down.

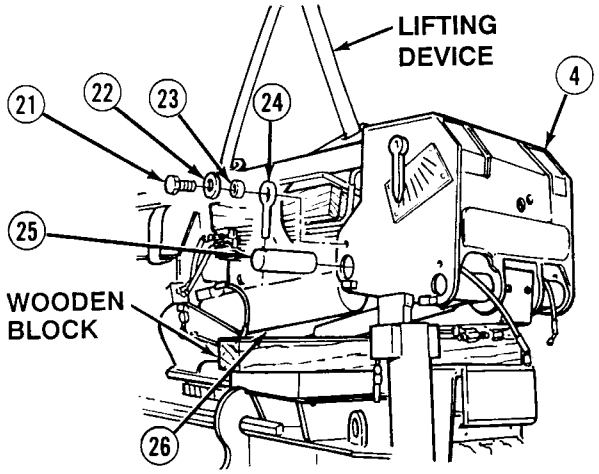
(3) Coat pin (25) with anti-seize compound.

(4) Install pin (25) in right lift cylinder (26).

(5) Apply sealing compound to threads of screw (21).

(6) Install lock pin (24) and bushing (23) with washer (22) and screw (21). Tighten screw to 135 lb-ft (183 N·m).

(7) Repeat Steps (3) through (6) for other lift cylinder.



(8) Align tension cylinder (8) with holes in boom assembly (4).

(9) Coat pin (16) with anti-seize compound.

NOTE

Ensure hole in pin is straight up and down.

(10) Install pin (16) in mast valve base mount (11).

(11) Align mast valve base mount (11) with holes in boom assembly (4).

(12) Continue installing pin (16) just up to erection cylinder (9).

NOTE

Ensure hole in pin aligns straight up and down.

(13) Lift end of erection cylinder (9) and align with hole in boom assembly (4).

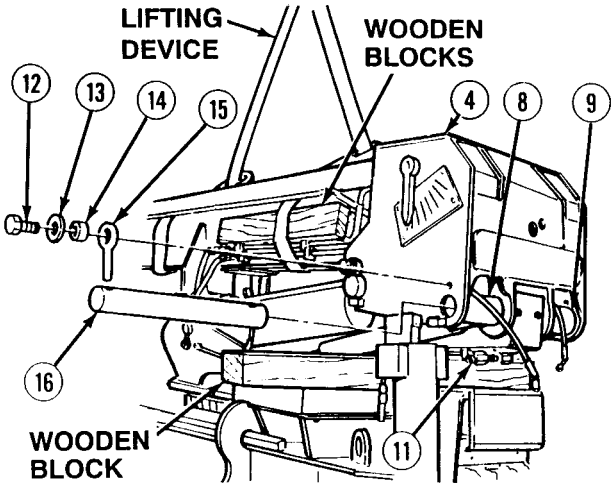
NOTE

Pin should stick out evenly on both sides.

(14) Finish installing pin (16) in erection cylinder (9).

(15) Apply sealing compound to threads of two screws (12).

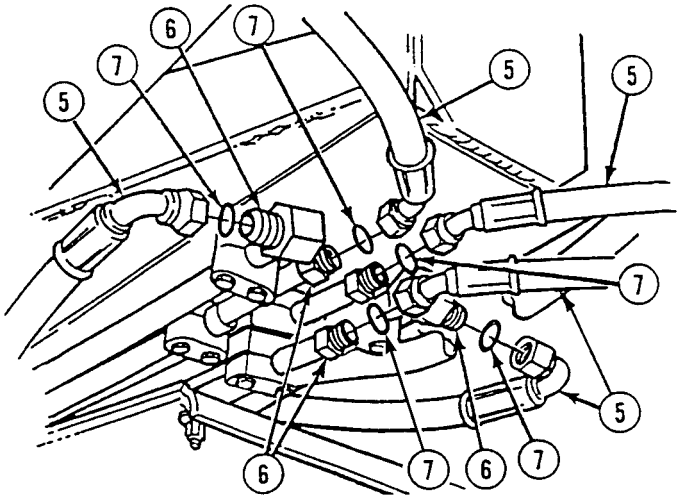
(16) Install two lock pins (15) and bushings (14) with washers (13) and screws (12). Tighten screw to 135 lb-ft (183 N·m).



16-3. BOOM ASSEMBLY REPAIR (CONT).

(17) Apply hydraulic oil to five preformed packings (7).

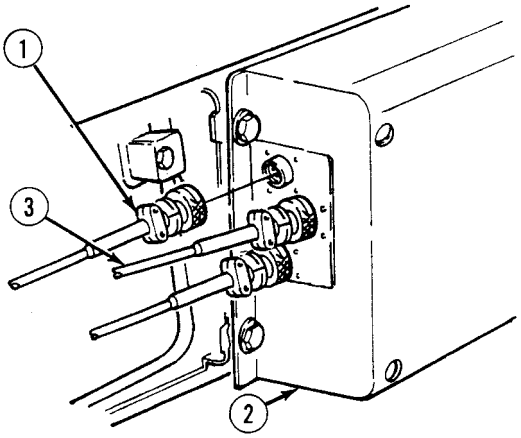
(18) Install five preformed packings (7) on fittings (6) and connect hoses (5).



NOTE

Route wire harness and install cable ties as necessary.

(19) Route wire harness (3) and connect connector (1) at top rear of overload shutdown box (2).



f. Follow-On Maintenance:

- Install telescope cylinder, (Para 16-10).
- Install hook block, (TM 9-2320-364-20).
- Grease all pivot points, (TM 9-2320-364-20).
- Install muffler, (TM 9-2320-364-20).
- Return LHS to transit position, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-10).
- Check crane operation, (TM 9-2320-364-10).
- Adjust boom cable and chain, (Para 16-4).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-4. BOOM CABLE AND CHAIN ADJUSTMENT.

This task covers:

a. Adjustment b. Follow-On Maintenance

INITIAL SETUP

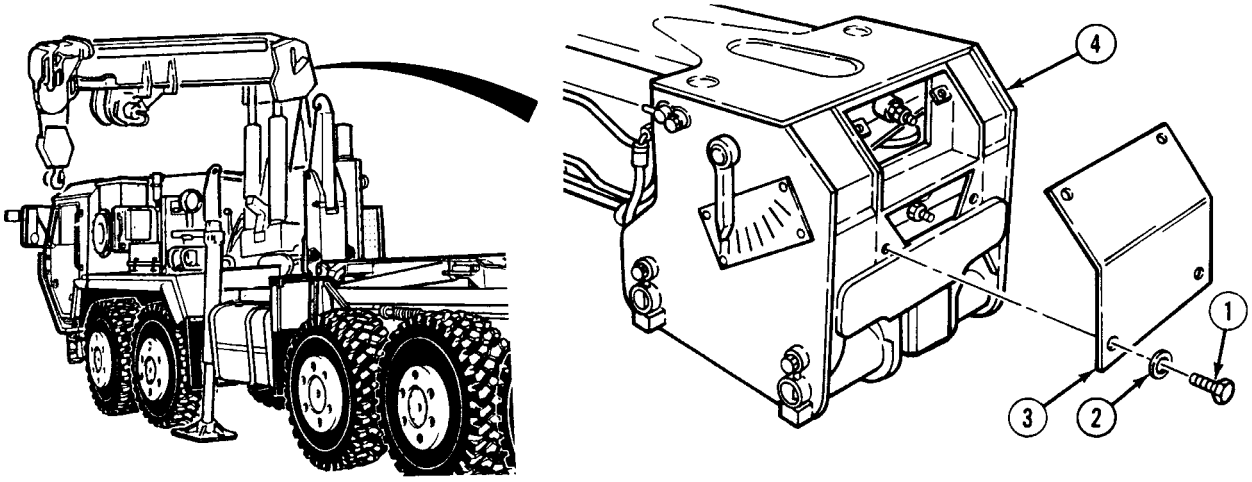
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)

Materials/Parts
Grease (Item 21, Appendix B)

Personnel Required
Two

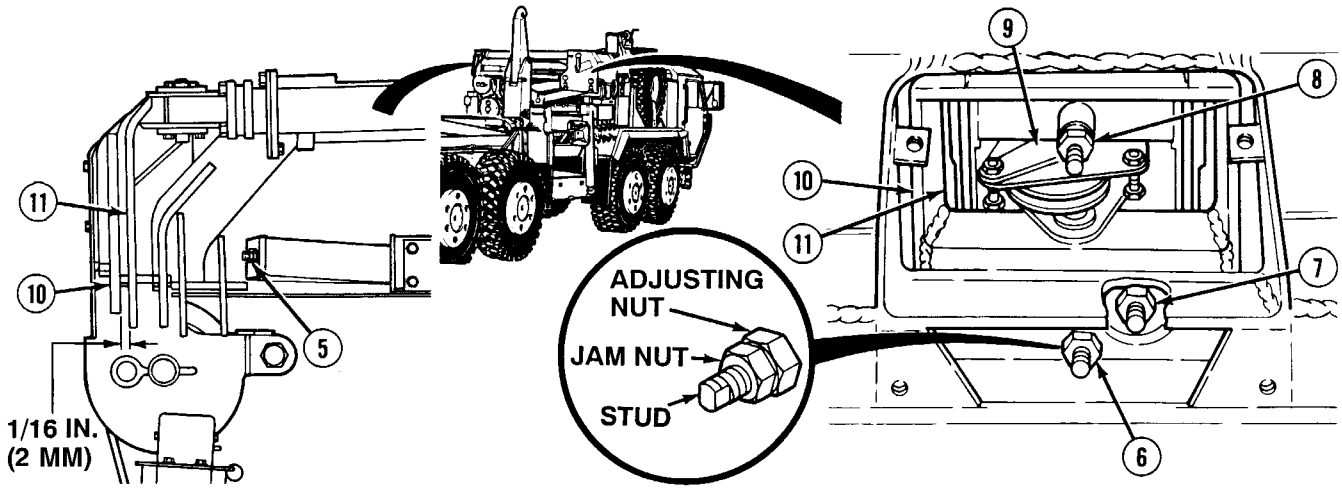
Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Adjustment.



(1) Remove four screws (1), washers (2) and cover (3) from boom base (4).

16-4. BOOM CABLE AND CHAIN ADJUSTMENT (CONT).



(2) Hold flat surface of cable and remove jam nuts, and loosen adjusting nuts (5), (6), (7) and (8).

(3) Apply grease to sliding areas of each boom section.

NOTE

All boom sections must be fully retracted to stops for adjustment.

(4) Operate crane and fully retract outer-mid section (11), inner-mid section (10) and fly section (9). Ensure boom sections are fully retracted by manually pushing them back to stops.

(5) With the aid of an assistant, hold flat surface of cable and tighten adjusting nut (5) until outer-mid section (11) just begins to move.

(6) Hold flat surface of cable and loosen adjusting nut (5) two turns.

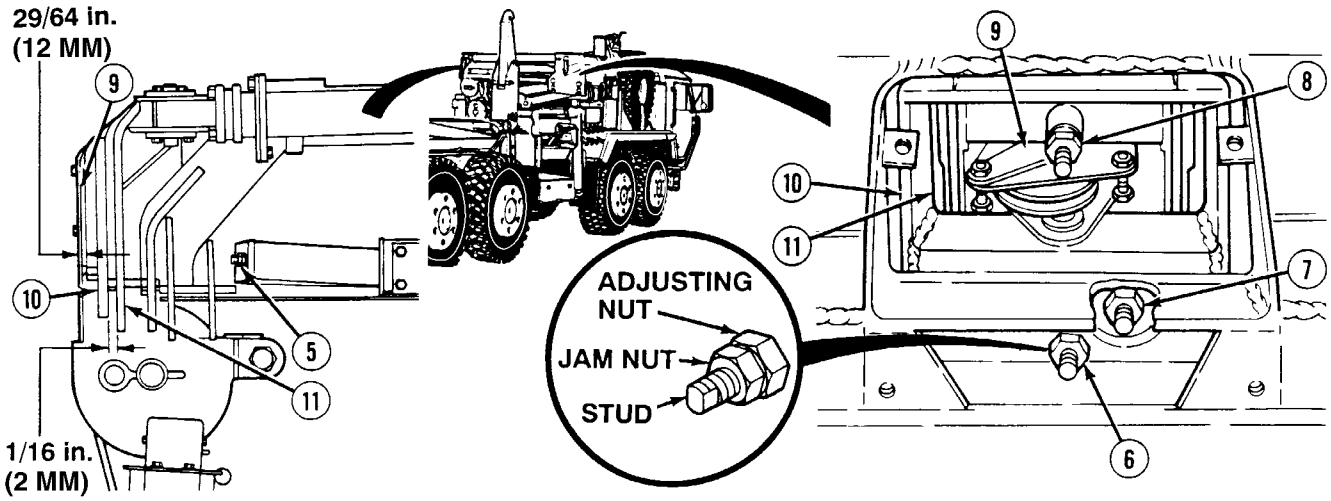
(7) Manually push outer-mid section (11) completely back to stops.

(8) With the aid of an assistant, tighten adjusting nut (6) to 60 lb-in (7 N·m) and check for 1/16 in. (2 mm) plus or minus 1/64 in. minimum clearance between outer-mid section (11) and inner-mid section (10). If 60 lb-in (7 N·m) can not be obtained, repeat Steps (6) through (9).

(9) With the aid of an assistant, hold flat surface of cable and tighten adjusting nut (7) until inner-mid section (10) just begins to move.

(10) Hold flat surface of cable and loosen adjusting nut (7) two turns.

(11) Manually push fly section (9) completely back to stops.



(12) With the aid of an assistant, tighten adjusting nut (8) to 36 lb-in (4 N·m) and check for 29/64 in. (12 mm) to plus or minus 1/64 in. (0.4 mm) minimum clearance between inner-mid section (10) and fly section (9). If 36 lb-in (4 N·m) can not be obtained, repeat Steps (10) through (13).

(13) Operate crane two times to fully extend and retract boom sections.

(14) Recheck clearance between boom sections:

(a) Minimum clearance between outer-mid section (11) and inner-mid section (10) should be 1/16 in. (2 mm) plus or minus 1/64 in. (0.4 mm).

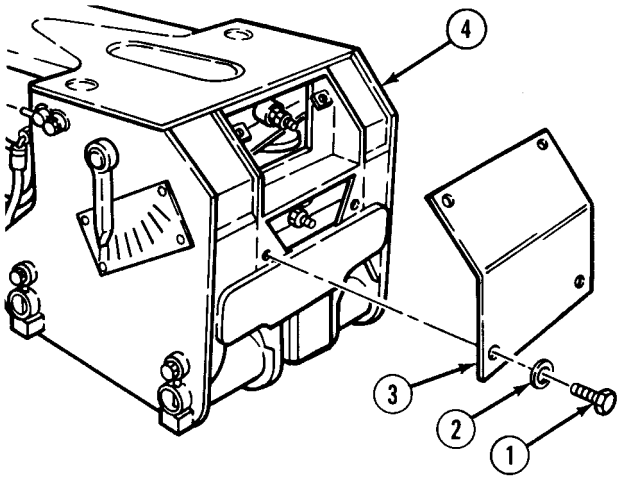
(b) Minimum clearance between inner-mid section (10) and fly section (9) should be 29/64 in. (12 mm) plus or minus 1/64 in. (0.4 mm).

(15) If measurement in Step (14) (a) is wrong, repeat Steps (6) through (9).

(16) If measurement in Step (14) (b) is wrong, repeat Steps (10) through (13).

(17) Position jam nuts on adjusting nuts (5), (6), (7) and (8), hold flat surface of cable and tighten jam nuts.

(18) Install cover (3) on boom base (4) with four washers (2) and screws (1). Tighten screws to 17 lb-ft (23 N·m).



b. Follow-On Maintenance:

- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-5. ERECTION CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

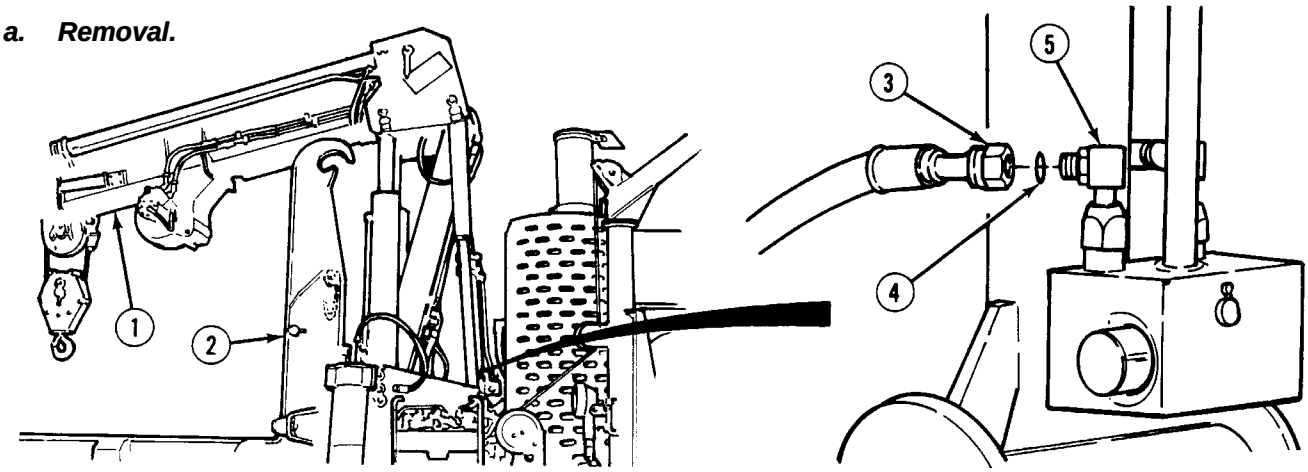
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 100 lb (45 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (2) (Item 389, Appendix E)

Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

Ensure boom is fully supported by the LHS hook. Failure to support boom with LHS hook will cause boom to drop and may result in serious injury or death to personnel.

(1) Position boom (1) on LHS hook (2).

WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

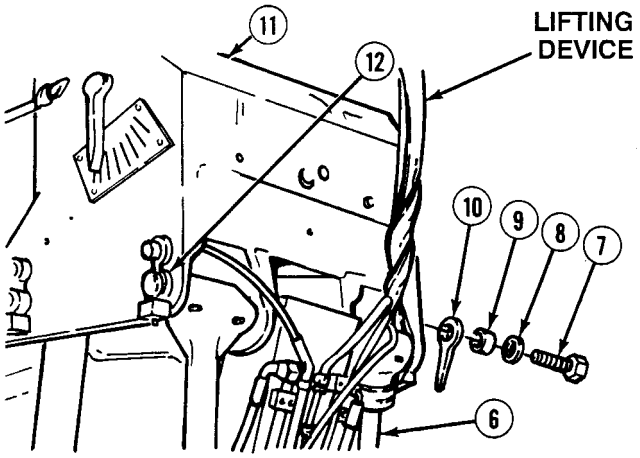
NOTE

- Tag and mark hydraulic hoses and tubes before disconnecting.
- Cap and plug hydraulic hoses and fittings after disconnecting.

(2) Disconnect two hoses (3) and remove preformed packings (4) from elbows (5). Discard preformed packings.

WARNING

Erection cylinder weights 78 lbs (35 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



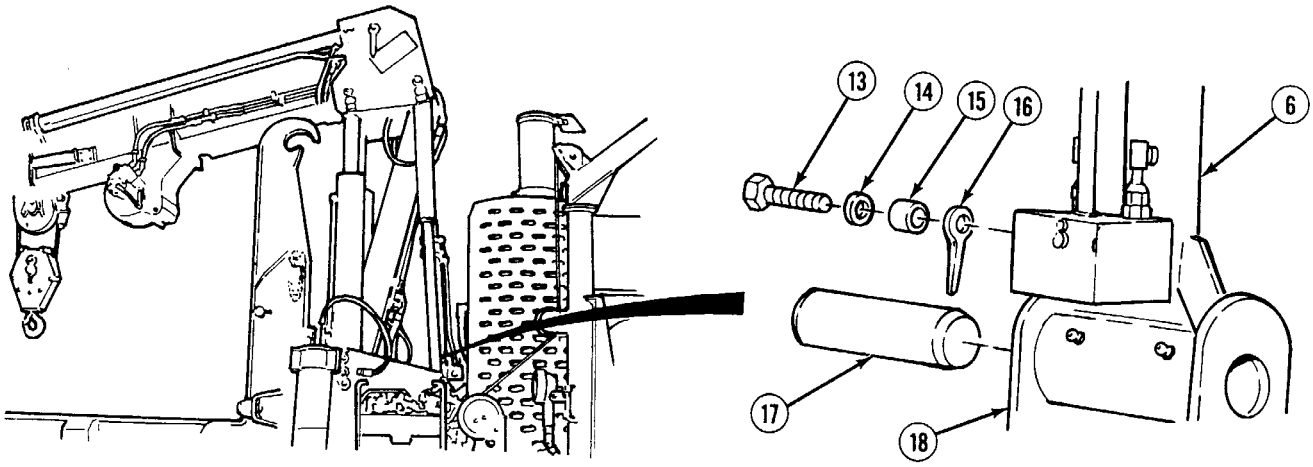
(3) Attach lifting device around erection cylinder (6).

(4) Remove two screws (7), washers (8), bushings (9) and lock pins (10) from boom base (11).

WARNING

One pin secures erection cylinder, tension cylinder, and mast. Be careful to drive out pin only as far as needed to remove erection cylinder, or other components may fall, causing injury to personnel.

(5) Drive pin (12) out far enough to free erection cylinder (6) from boom base (11).



(6) Remove screw (13), washer (14), bushing (15) and lock pin (16) from pin (17) and turntable (18).

(7) Drive out pin (17) and remove erection cylinder (6) from turntable (18).

16-5. ERECTION CYLINDER REPLACEMENT (CONT).

b. Installation.

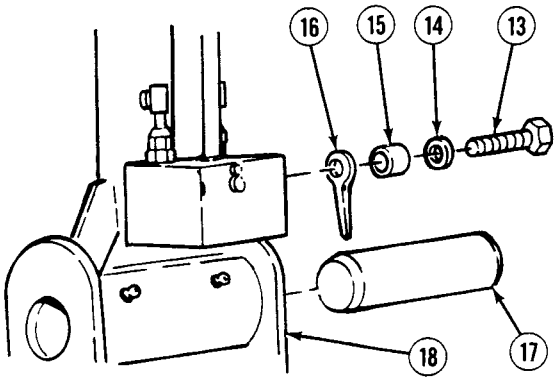
WARNING

Erection cylinder weighs 78 lbs (35 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

NOTE

Make sure pin is installed with lock pin holes aligned.

(1) With the aid of an assistant and using lifting device, align and position base end of erection cylinder (6) in turntable (18) with pin (17).



WARNING

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(2) Apply sealing compound to threads of screw (13).

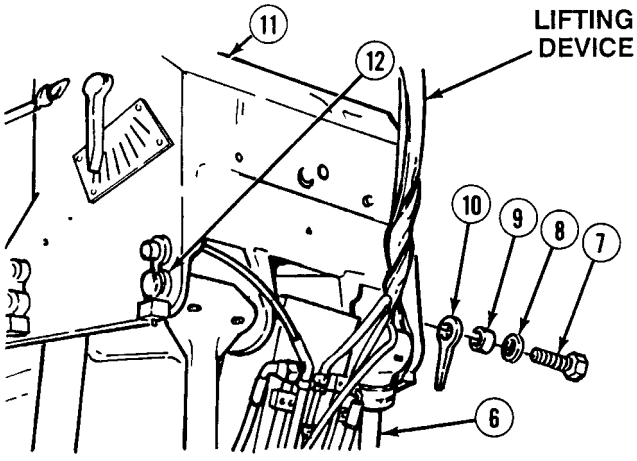
(3) Install lock pin (16) and bushing (15) with washer (14) and screw (13). Tighten screw to 135 lb-ft (183 N·m).

(4) Position top of erection cylinder (6) in boom base (11) and install pin (12).

(5) Apply sealing compound to threads of two screws (7).

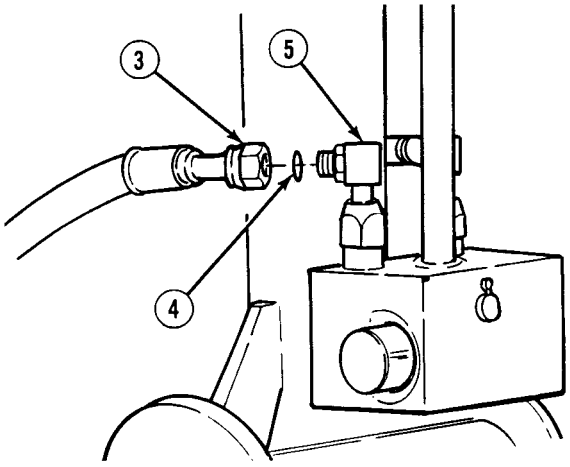
(6) Install lock pins (10) and bushings (9) with two washers (8) and screws (7). Tighten screws to 135 lb-ft (183 N·m).

(7) Remove lifting device from erection cylinder (6).



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.



(8) Apply hydraulic oil to two preformed packings (4).

(9) Install two preformed packings (4) on elbows (5).

(10) Connect two hoses (3) on elbows (5).

c. Follow-On Maintenance:

- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-6. LIFT CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 6 gal (Item 145, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
Lifting Device, Minimum Capacity 150 lbs (68 kg)
Wooden Block (Appendix C)

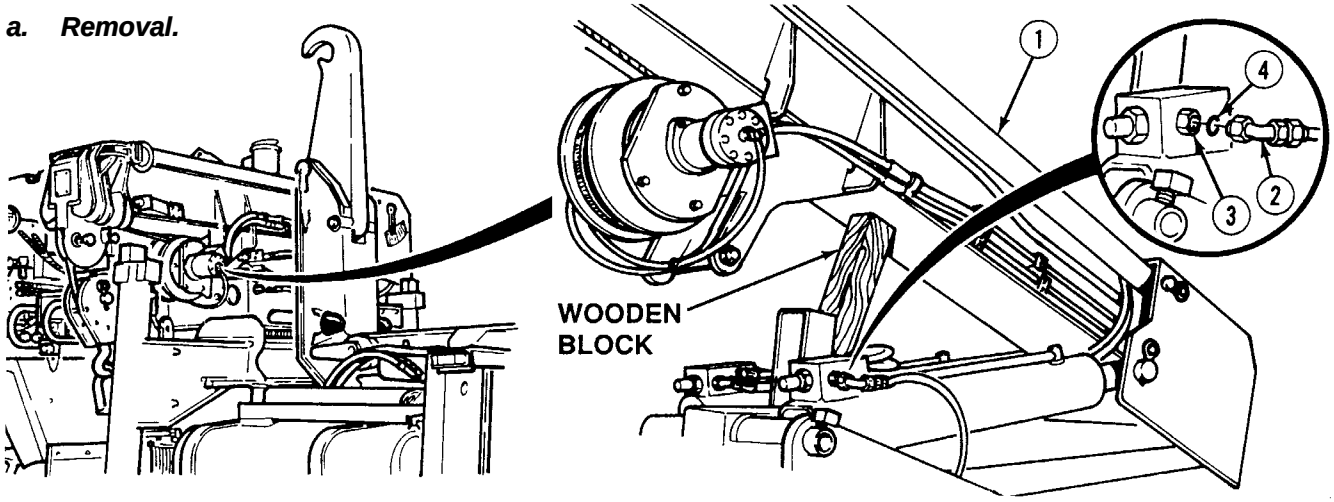
Materials/Parts
Compound, Antiseize (Item 14, Appendix B)

Materials/Parts - Continued
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (Item 384, Appendix E)
Packing, Preformed (2) (Item 389, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

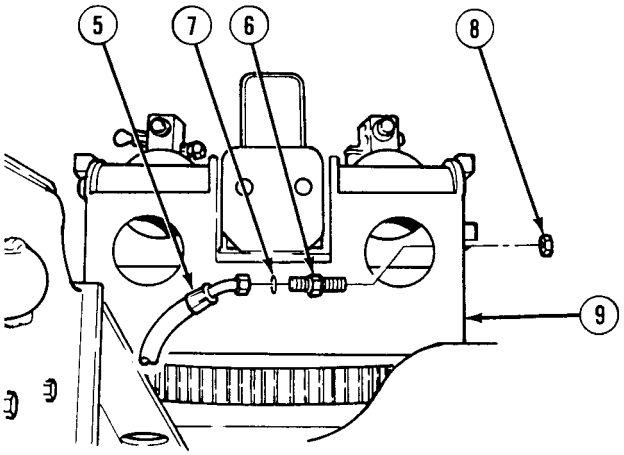
- Left and right side lift cylinders are removed the same way. Left side shown.
- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and cylinder after removal.

(1) Raise boom (1) and support with wooden block.

(2) Disconnect two hoses (2) from fittings (3) and remove two preformed packings (4). Discard preformed packings.

WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.



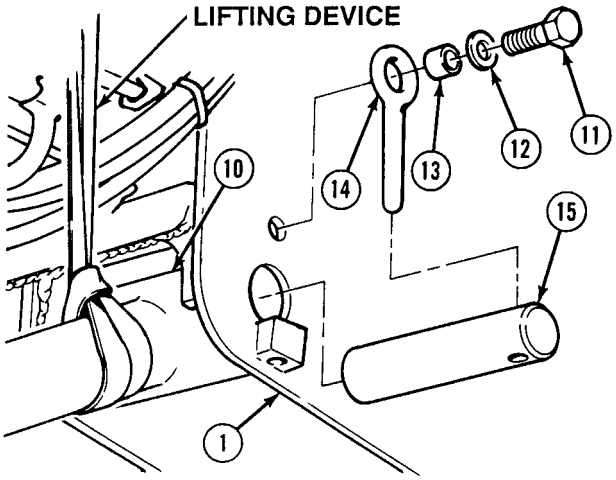
(3) Reach inside access hole and remove hose (5) from fitting (6).

(4) Remove and discard preformed packing (7) from hose (5).

(5) Remove nut (8) and fitting (6) from turntable (9).

WARNING

Lift cylinder weighs 122 lbs (55 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



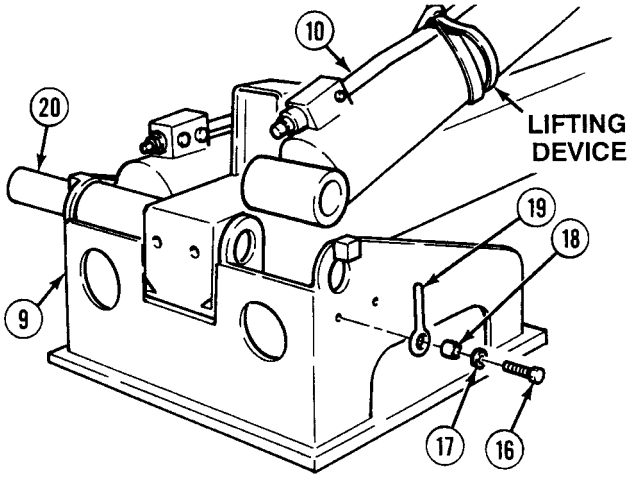
(6) Attach lifting device around lift cylinder (10).

(7) Remove screw (11), washer (12), bushing (13) and lock pin (14) from pin (15) and boom (1).

(8) Drive pin (15) out and remove lift cylinder (10) from boom (1).

16-6. LIFT CYLINDER REPLACEMENT (CONT).

(9) Remove two screws (16), washers (17), bushings (18) and lock pins (19) from pin (20) and turntable (9).



WARNING

One pin secures both lift cylinders and mast. Be careful to drive out pin only as far as needed to remove selected cylinder and prevent possible injury to personnel.

(10) Drive pin (20) out far enough to remove lift cylinder (10).

(11) Remove lift cylinder (10) from turntable (9).

(12) Place drain pan under lift cylinder (10) to catch excess fluid.

(13) Remove lifting device and allow lift cylinder (10) to drain into drain pan.

(14) Repeat Steps (1) through (13) for other lift cylinder.

b. Installation.

WARNING

- Lift cylinder weighs 122 lbs (55 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.
- Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Left and right side lift cylinders are installed the same way. Left side shown.

(1) Attach lifting device around lift cylinder (10).

(2) With the aid of an assistant, align and position lift cylinder (10) in turntable (9).

(3) Apply antiseize compound to pin (20).

(4) Install lift cylinder (10) by driving pin (20) back through cylinder and turntable (9).

(5) Apply sealing compound to threads of two screws (16).

(6) Apply antiseize compound to two lock pins (19).

(7) Install two lock pins (19) and bushings (18) with washers (17) and screws (16). Tighten screws to 135 lb-ft (183 N·m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(8) Apply antiseize compound to pin (15).

(9) Install other end of lift cylinder (10) in boom (1) with pin (15).

(10) Apply sealing compound to threads of screw (11).

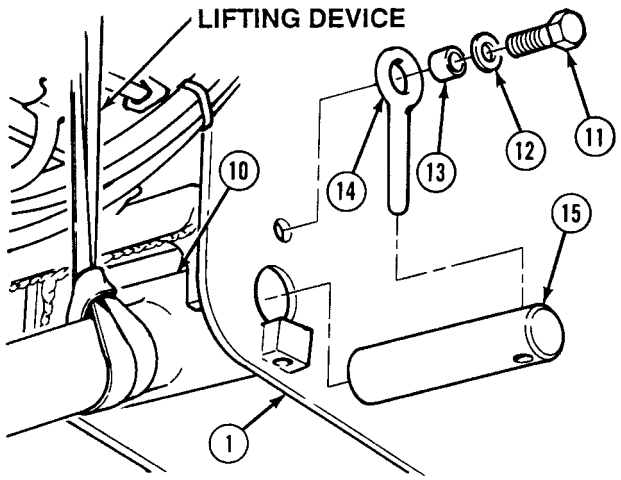
(11) Apply antiseize compound to lock pin (14).

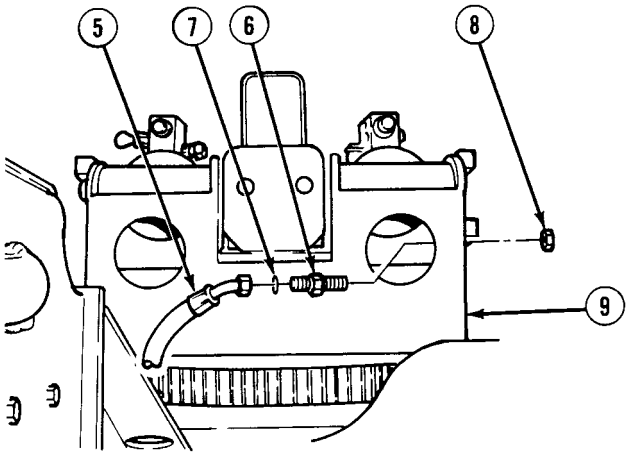
NOTE

Ensure hole in pin faces up and down.

(12) Install lock pin (14) and bushing (13) with washer (12) and screw (11). Tighten screw to 135 lb-ft (183 N·m).

(13) Remove lifting device from lift cylinder (10).





(14) Install fitting (6) on turntable (9) with nut (8).

(15) Apply hydraulic oil to preformed packing (7).

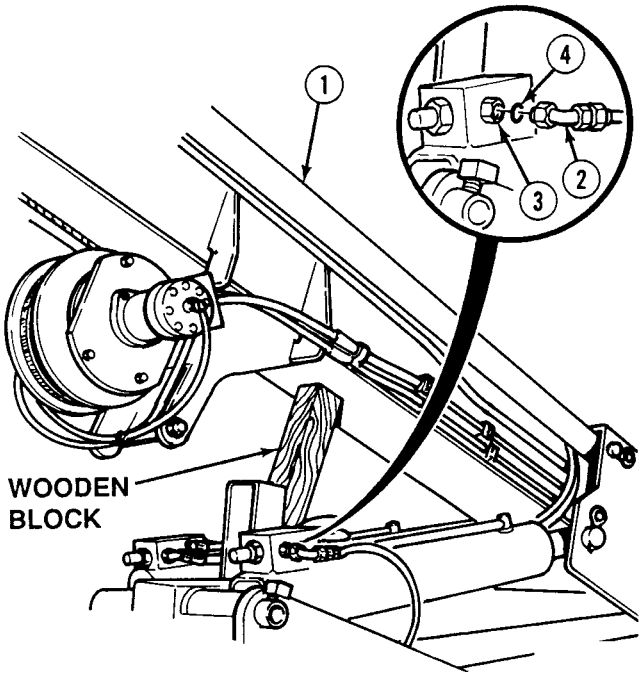
(16) Install preformed packing (7) and connect hose (5).

16-6. LIFT CYLINDER REPLACEMENT (CONT).

(17) Apply hydraulic oil to preformed packings (4).

(18) Install four preformed packings (4) on fittings (3) and connect hoses (2) on fittings.

(19) Raise boom (1) and remove wooden block from under boom.



c. Follow-On Maintenance:

- Check and fill hydraulic reservoir, (TM 9-2320-364-20).
- Check operation and check for leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-7. LIFT CYLINDER HOLDING VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

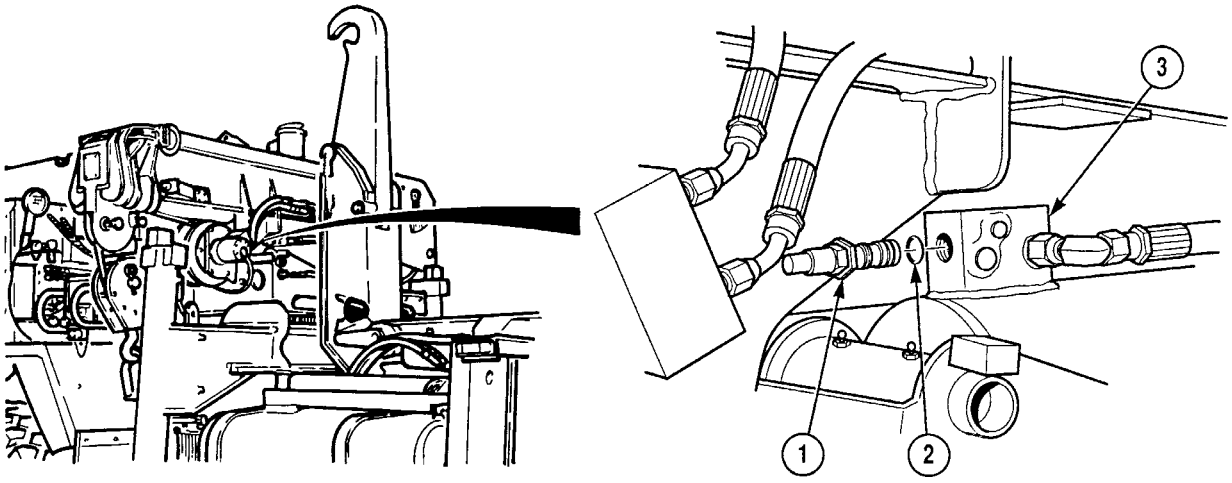
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain, 6 gal (Item 145, Appendix F)
Wrench, Combination 1-1/8 in. (Item 255, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (Item 364, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

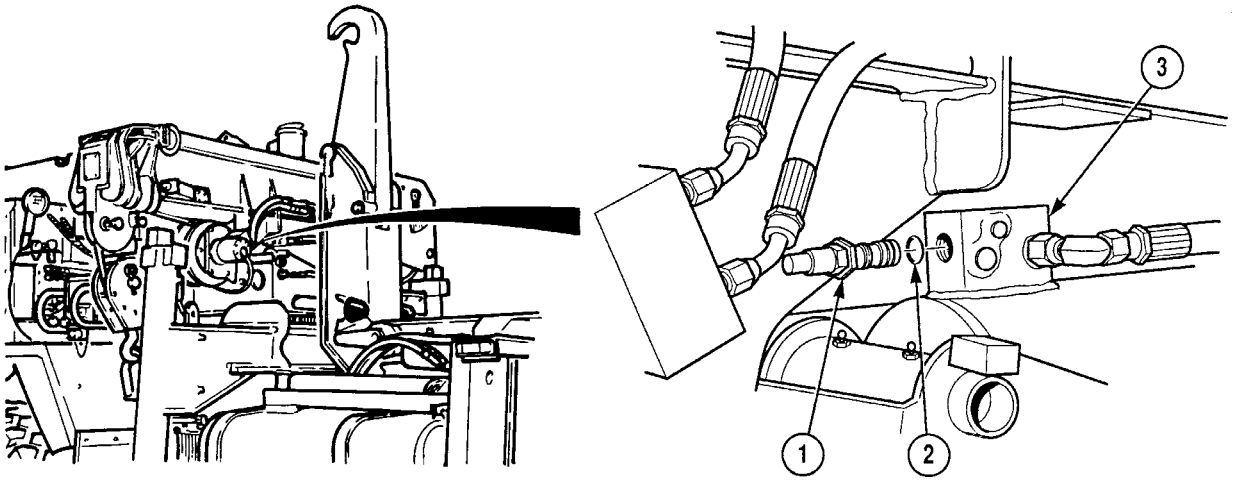
NOTE

- Holding valves are removed the same way from left and right side lift cylinders. Left side shown.
- Plug lift cylinder after disconnecting.

a. Removal. Remove holding valve (1) and preformed packing (2) from lift cylinder (3). Discard preformed packing.

16-7. LIFT CYLINDER HOLDING VALVE REPLACEMENT (CONT).

b. Installation.



NOTE

Holding valves are installed the same way on left and right side cylinders.

(1) Apply hydraulic oil to preformed packing (2).

(2) Install holding valve (1) and preformed packing (2) on lift cylinder (3).

c. Follow-On Maintenance:

- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-8. TENSION LINK REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

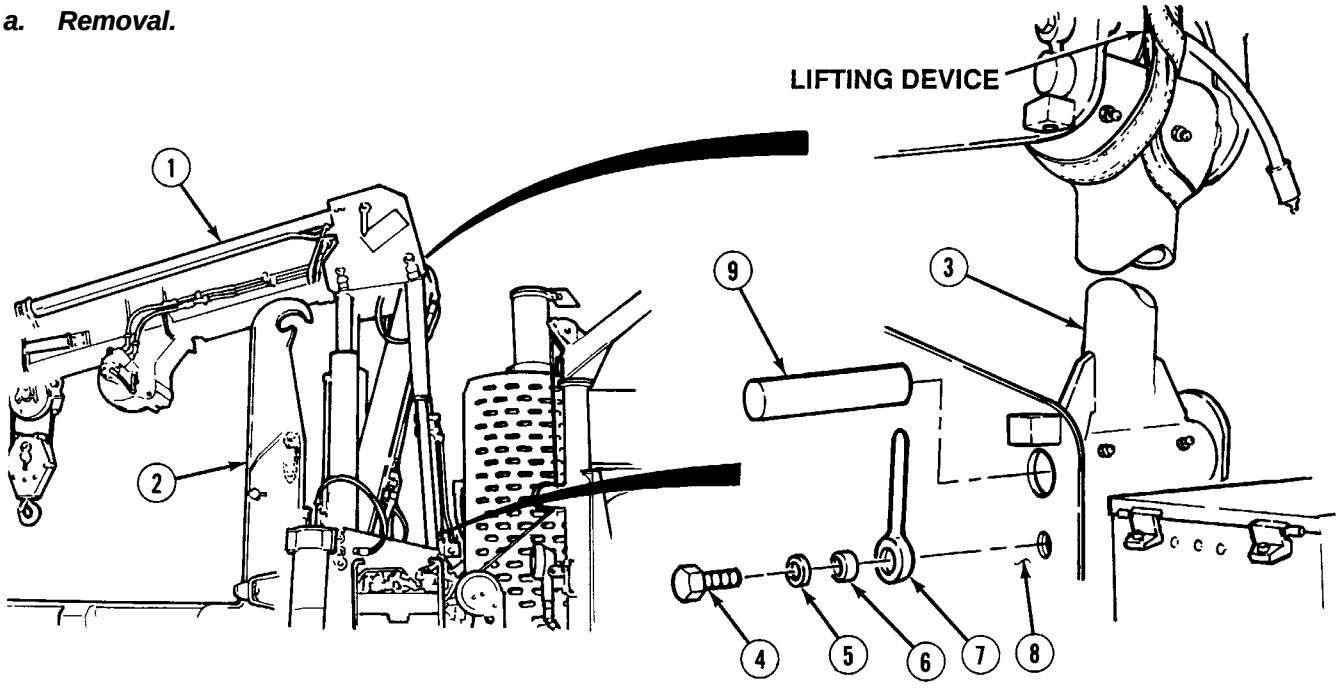
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 50 lb
(23 kg)

Materials/Parts
Compound, Antiseize (Item 14, Appendix B)
Sealing Compound (Item 56, Appendix B)

Personnel Required
Two

Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF. (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

Ensure boom is fully supported by the LHS hook. Failure to support boom with LHS hook will cause boom to drop and may result in serious injury or death to personnel.

(1) Support boom (1) with LHS hook (2).

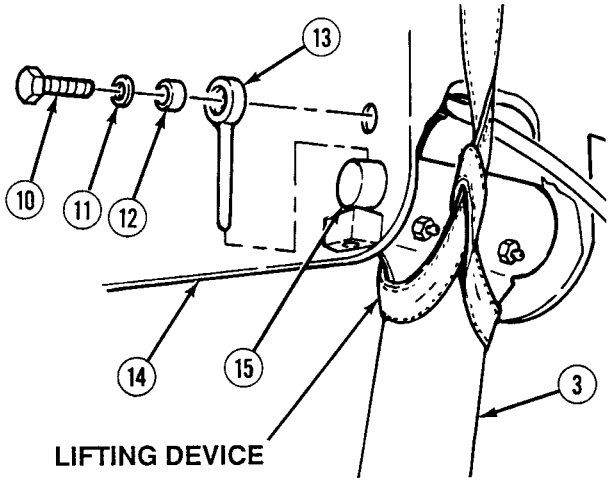
(2) Attach lifting device around tension link (3).

(3) Remove screw (4), washer (5), bushing (6) and lock pin (7) from turntable (8) and tension link (3).

(4) Drive pin (9) out from link (3) and turntable (8).

16-8. TENSION LINK REPLACEMENT (CONT).

(5) Remove two screws (10), washers (11), bushings (12) and lock pins (13) from boom (14) and tension link (3).



WARNING

Long pin also holds in mast and erection cylinder. Be careful to drive out pin only as far as needed to remove tension cylinder to prevent possible injury to personnel.

NOTE

Drive pin toward front of truck.

(6) Drive pin (15) out far enough to free tension link (3).

(7) Remove tension link (3) from boom (14).

(8) Remove lifting device from tension link (3).

b. Installation.

(1) Attach lifting device around tension link (3).

(2) With the aid of an assistant, align tension link (3) on boom (14) and install pin (15).

WARNING

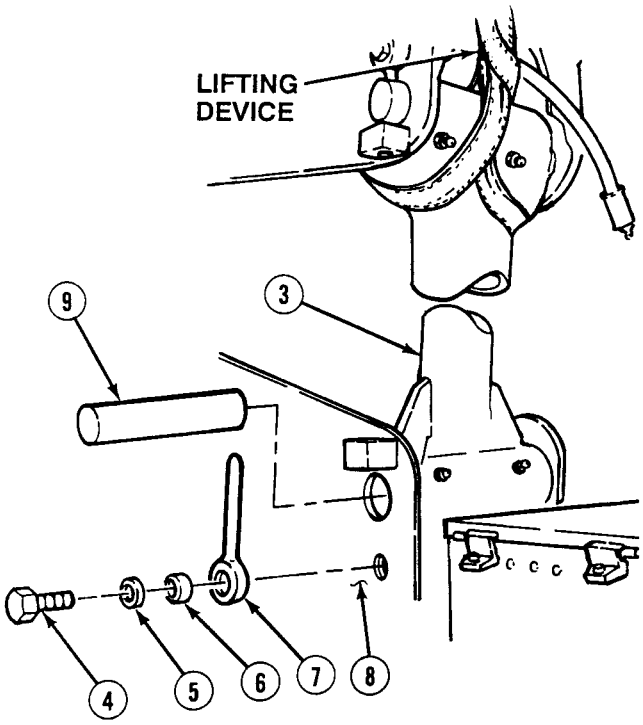
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound to threads of two screws (10).

(4) Install two lock pins (13) and bushings (12) with washers (11) and screws (10). Tighten screws to 135 lb-ft (183 N·m).

(5) Apply antiseize compound to pin (9).

(6) With the aid of an assistant, align tension link (3) with turntable (8) and install pin (9).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(7) Apply sealing compound to threads of screw (4).

(8) Install lock pin (7) and bushing (6) with washer (5) and screw (4). Tighten screw to 135 lb-ft (183 N·m).

c. Follow-On Maintenance:

- Check oil level, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-9. MAST ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Lifting Device, Minimum Capacity 125 lbs (57 kg)

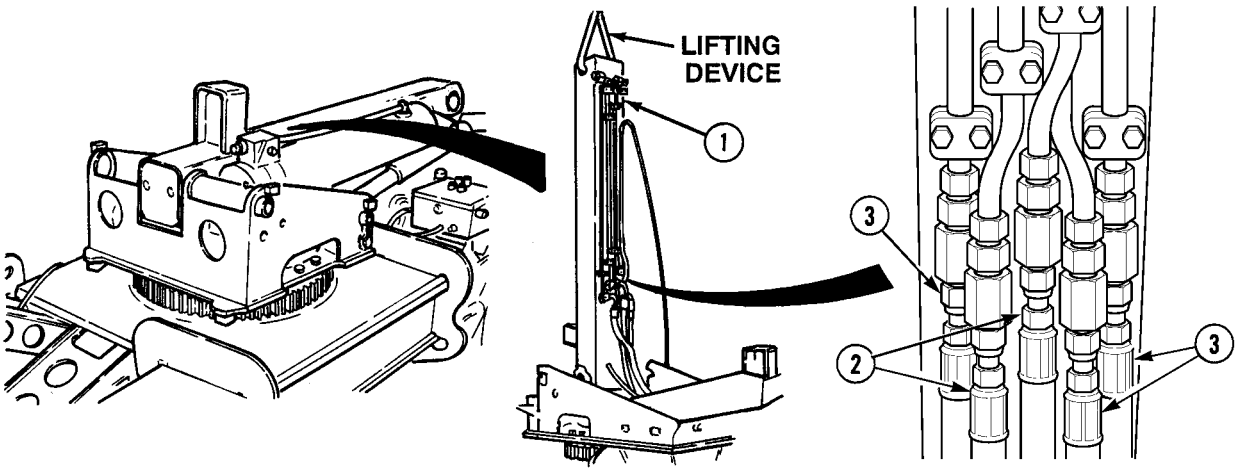
Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Antiseize (Item 14, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)

Materials/Parts - Continued
Packing, Preformed (3) (Item 336, Appendix E)
Packing, Preformed (2) (Item 373, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Boom assembly removed, (Para 16-3)
One lift cylinder removed, (Para 16-6)

a. Removal.



WARNING

Mast weighs 109 lbs (49 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(1) Attach lifting device to mast (1).

(2) Lift end of mast (1) for access to five hydraulic hoses (2) and (3).

NOTE

Remove cable ties as required to remove cable.

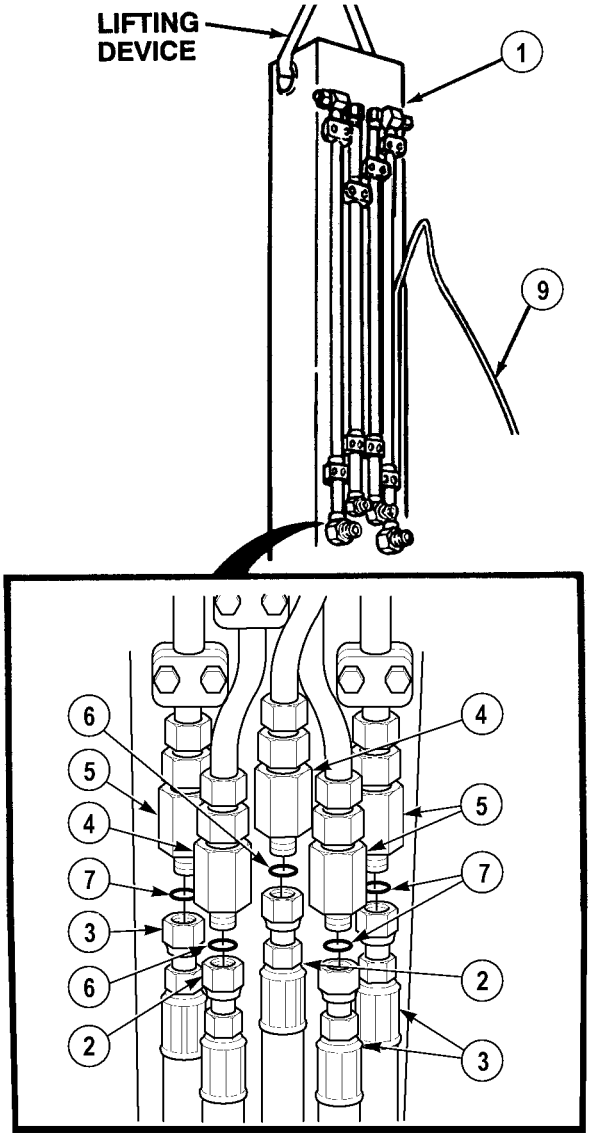
(3) Move overload shutdown connector cable (9) away from mast (1).

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(4) Disconnect hoses (2) and (3) from tubes (4) and (5).

(5) Remove and discard preformed packings (6) and (7) from tubes (4) and (5).



16-9. MAST ASSEMBLY REPLACEMENT (CONT).

(6) Drive out pin (10) far enough to free mast (1) from turntable (11).

(7) With the aid of an assistant, guide mast (1) from turntable (11).

(8) Lower mast (1) and remove lifting device.

b. Installation.

WARNING

Mast weighs 109 lbs (49 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to mast (1).

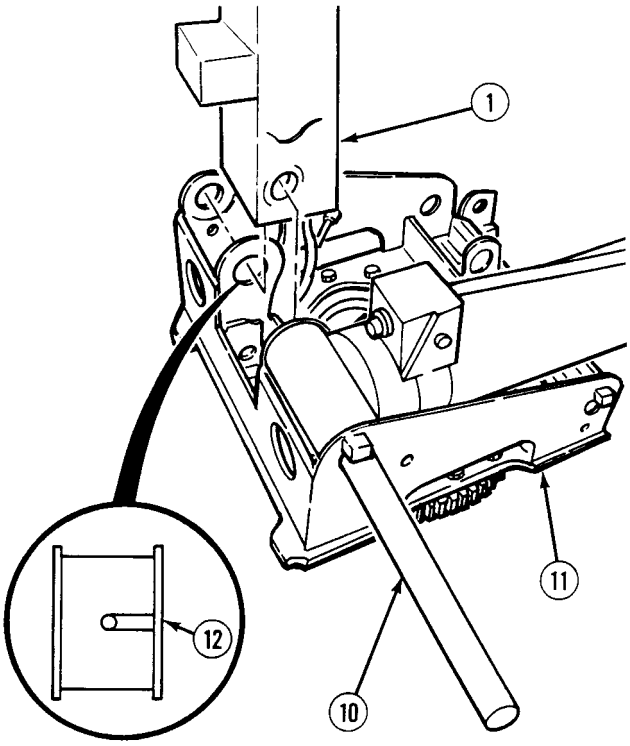
(2) With the aid of an assistant, align mast (1) with turntable (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply antiseize compound to pin (10).

(4) Install mast (1) with pin (10). Drive pin (10) through mast (1) until flush with sleeve (12). Keep mast in upright position.



(5) Apply hydraulic oil to preformed packings (6) and (7).

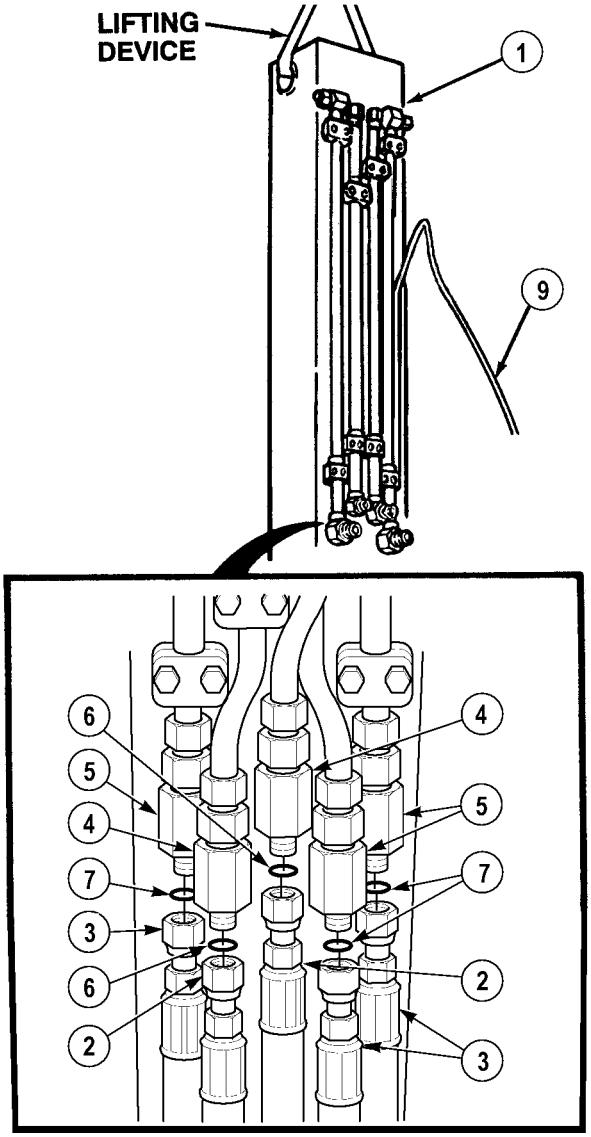
(6) Install preformed packings (6) and (7) and connect hoses (2) and (3) on tubes (4) and (5).

NOTE

Install cable ties as required.

(7) Secure overload shutdown connector (9) to tube (5) with cable ties.

(8) Lower mast (1) into installed position and remove lifting device.



c. Follow-On Maintenance:

- Install lift cylinder, (Para 16-6).
- Install boom assembly, (Para 16-3).
- Lubricate crane, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-10. TELESCOPE CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

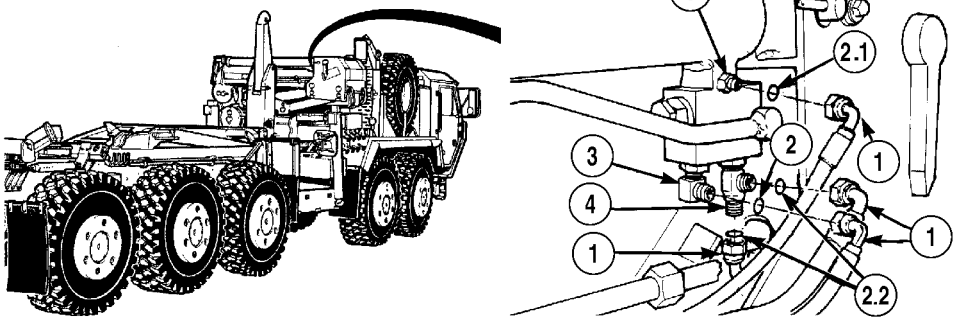
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 6 gal (Item 145, Appendix F)
Lifting Device, Minimum Capacity 75 lbs (34 kg)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (Item 347, Appendix E)
Packing, Preformed (2) (Item 389, Appendix E)
Packing, Preformed (Item 398, Appendix E)
Pin, Cotter (2) (Item 418, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

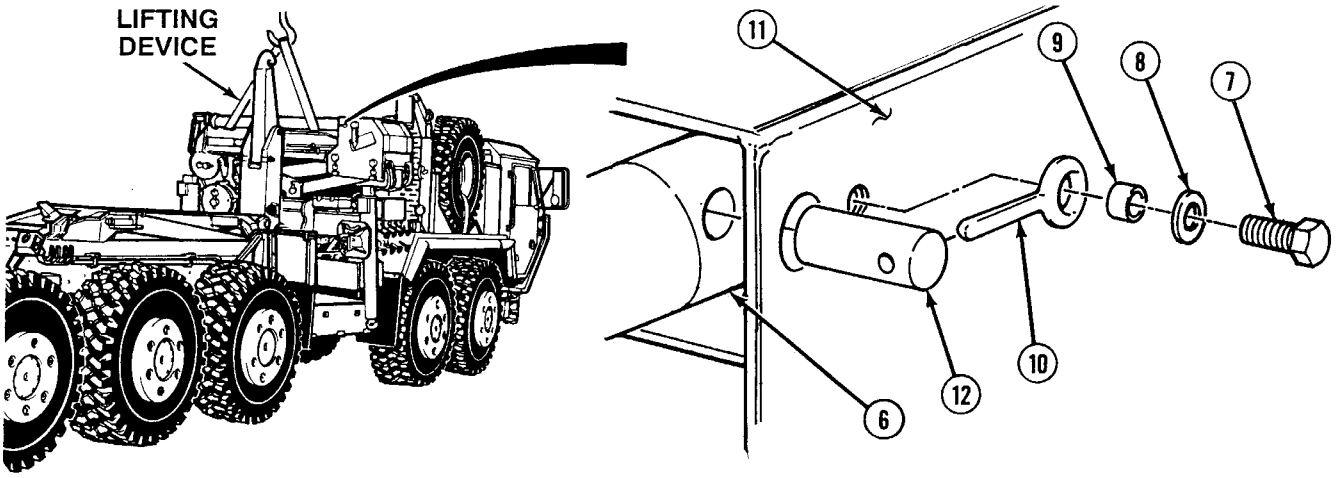
The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Left and right telescope cylinders are removed the same way. Left side shown.
- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses after removal.

(1) Position drain pan under four hoses (1).

(2) Disconnect four hoses (1) and remove preformed packings (2) and (2.1) and two preformed packings (2.2) from elbow (3), tee (4) and fitting (5). Discard preformed packings.



WARNING

Telescope cylinder weighs 70 lbs (32 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

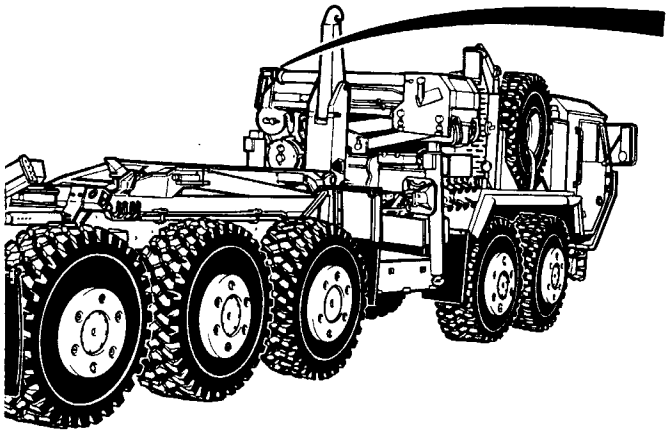
(3) Attach lifting device to telescope cylinder (6).

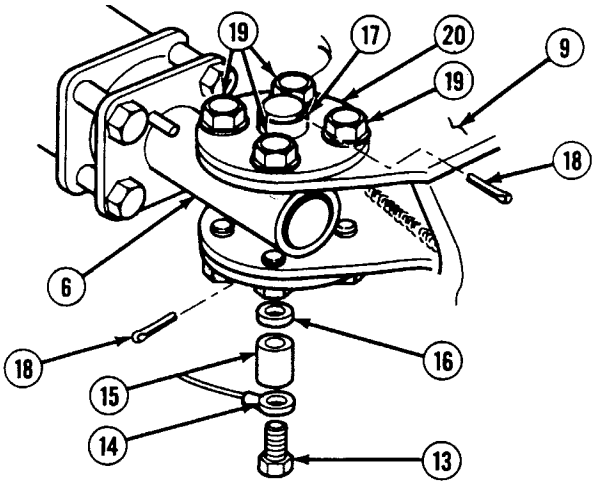
(4) Remove screw (7), washer (8) and bushing (9) from lock pin (10) and boom base (11).

(5) Remove lock pin (10) from pin (12).

(6) Remove pin (12) from telescope cylinder (6) from boom base (11).

16-10. TELESCOPE CYLINDER REPLACEMENT (CONT).





CAUTION

Cable must be retracted slowly to prevent damage to sensing unit. Failure to comply may result in damage to equipment.

NOTE

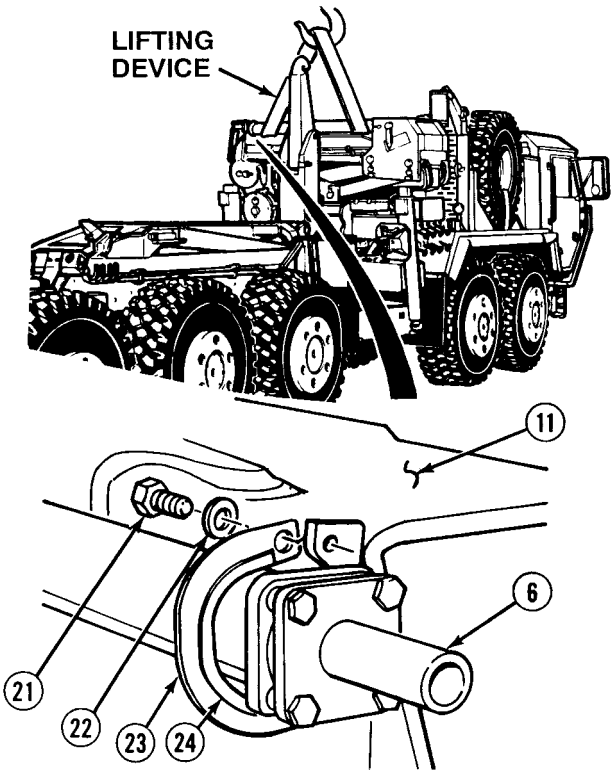
- Mark the top and bottom of retaining pin. Bottom has threaded hole to accommodate screw. Also note if pin holds overload shutdown cable.
- Perform Step (7) if overload shutdown cable is attached to telescope cylinder.

(7) Remove screw (13), cable (14), spacer (15) and washer (16) from retaining pin (17) and slowly let cable retract.

(8) Remove two cotter pins (18) and retaining pin (17) from boom base (11). Discard cotter pins.

(9) Loosen screws (19) from top retaining plate (20).

(10) Remove two screws (21), washers (22) and cylinder hold-down (23) from boom base (11).



NOTE

Perform Step (11) if quick edge is damaged.

(11) Remove quick edge (24) from cylinder hold-down (23).

(12) Using lifting device, remove telescope cylinder 96) from boom base (11).

(13) Repeat Steps (1) through (12) for other telescope cylinder.

b. Installation.

WARNING

Telescope cylinder weighs 70 lbs (32 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to telescope cylinder (6).

(2) With the aid of an assistant, use lifting device and position telescope cylinder (6) on boom base (11).

NOTE

Perform Step (3) if quick edge was removed.

(3) Install quick edge (24) on cylinder hold-down (23).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound on threads of screw (21).

(5) Install cylinder hold-down (23) on boom base (11) over telescope cylinder (6) with two washers (22) and screws (21). Tighten screw to 68 lb-ft (92 N·m).

16-10. TELESCOPE CYLINDER REPLACEMENT (CONT).

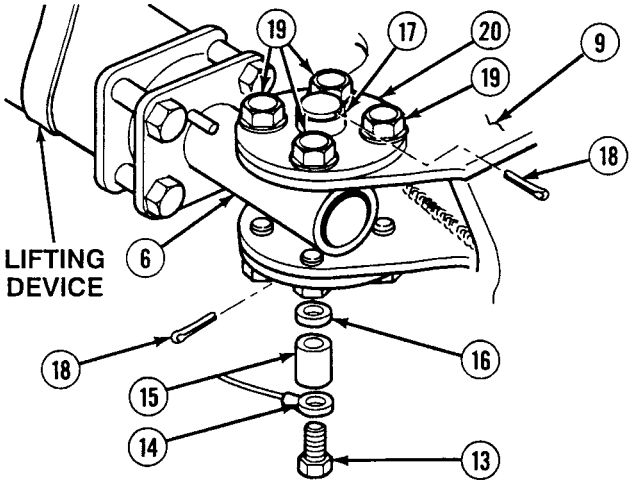
NOTE

Cylinder rod may have to be repositioned to install retaining pin.

(6) Align telescope cylinder (6) in boom base (11) and install retaining pin (17) and two cotter pins (18) in telescope cylinder (6).

(7) Tighten screws (19) on top retaining plate (20) to 28 lb-ft (38 N·m).

(8) Remove lifting device from telescoping cylinder (6).



NOTE

Perform Step (9) if overload shutdown cable was removed.

(9) Install washer (16), spacer (15), cable (14) and screw (13) to retaining pin (17). Tighten screw to 72 lb-in (8 N·m).

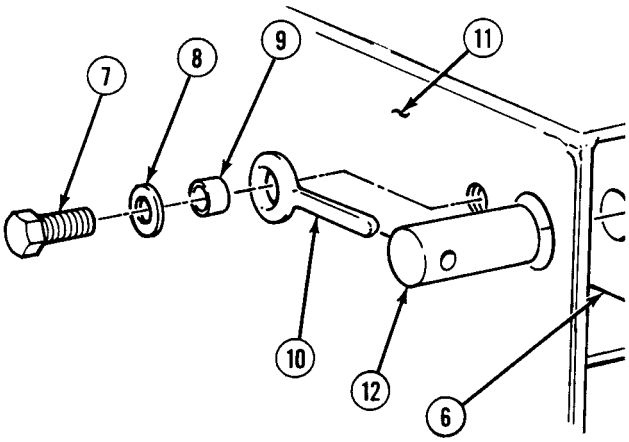
NOTE

Locking hole must be positioned facing lock pin screw hole.

(10) Install base end of telescope cylinder (6) on boom base (11) with pin (12).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



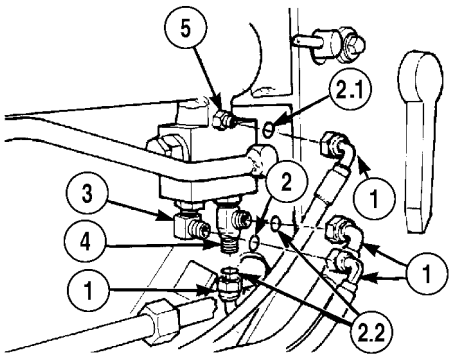
(11) Apply sealing compound on threads of screw (7).

(12) Install lock pin (10), bushing (9), washer (8) and screw (70 in pin (10) and boom base (11). Tighten screw to 28 lb-ft (38 N·m).

(13) Apply hydraulic oil to two preformed packings (2.2) and preformed packings (2.1) and (2).

(14) Install two preformed packings (2.2) and preformed packings (2.1) and (2), and four hoses (1) on elbow (3), tee (4) and fitting (5).

(15) Repeat Steps (1) through (14) for remaining telescoping cylinder.



c. Follow-On Maintenance:

- Check operation, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-11. HOIST ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Wrench, Combination 1 1/2 in. (Item 260, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)
Lifting Device, Minimum Capacity 250 lbs (114 kg)

Materials/Parts
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)

Materials/Parts - Continued
Locknut (Item 197.1, Appendix E)
Lockwasher (2) (Item 283, Appendix E)
Packing, Preformed (2) (Item 348, Appendix E)
Packing, Preformed (Item 372, Appendix E)

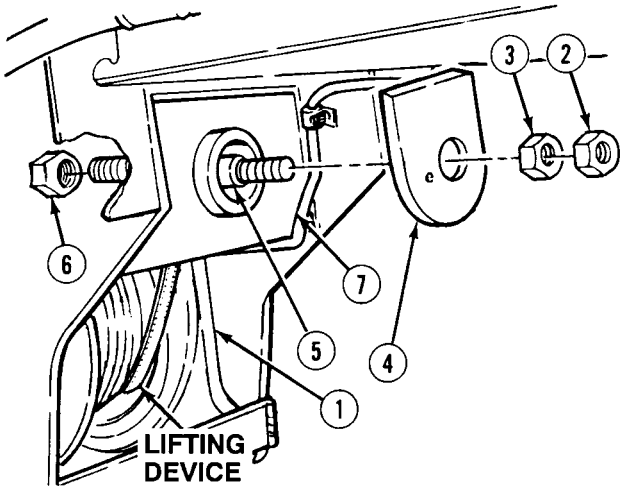
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hoist cable removed, (TM 9-2320-364-20)
Hoist motor valve removed, (Para 16-13)

a. Removal.

WARNING

Hoist assembly weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



(1) Wrap and attach lifting device around hoist assembly (1).

CAUTION

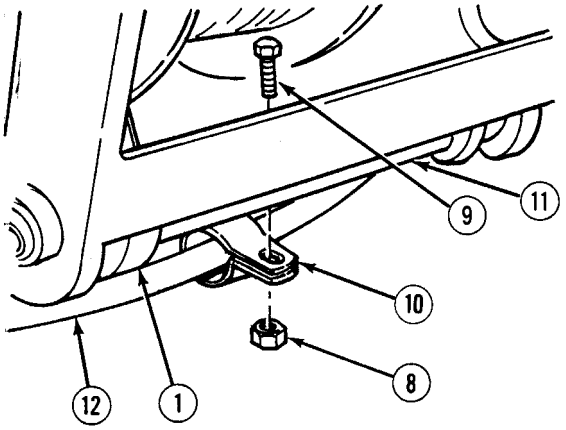
- To avoid damage to tension load cell cable, do not allow tension load cell to turn when removing nuts.
- Count exposed threads on tension load cell before nuts are removed to ensure nuts are reinstalled to same positions.

(2) Remove jam nut (2), swivel nut (3) and end cap (4) from tension load cell (5).

(3) Remove swivel nut (6) from front of tension load cell (5) at hoist mount (7).

(4) Remove locknut (8), screw (9) and cable clamp (10) from shaft (11). Discard locknut.

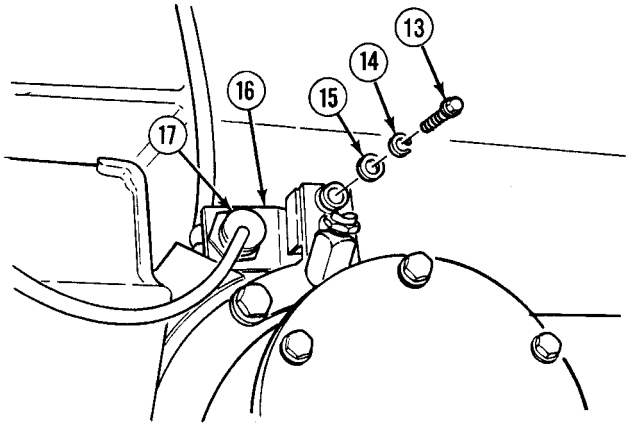
(5) Loosen cable (12) and operate lifting device to rotate hoist assembly (1) slowly down.



(6) Remove two screws (13), lockwashers (14), washers (15) and proximity switch assembly (16) from bracket (17). Discard lockwashers.

(7) Position proximity switch assembly (16) out of way.

(8) Reposition lifting device on hoist assembly (1).



(9) With the aid of an assistant, drive out pin (18) from hoist assembly (1).

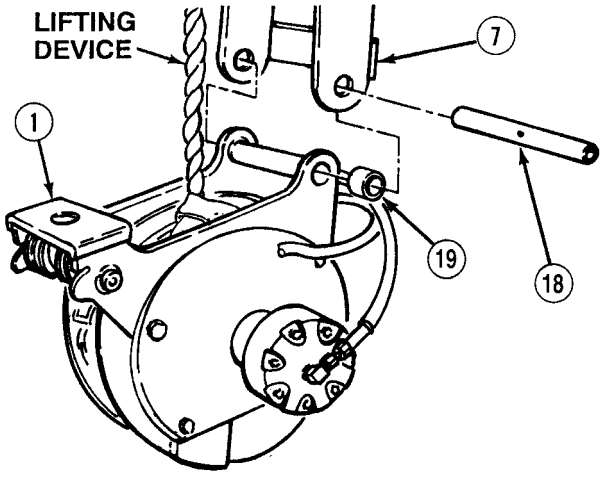
(10) Lower hoist assembly (1) and remove from hoist mount (7).

(11) Remove lifting device from hoist assembly (1).

NOTE

Perform Step (12) if bushings are damaged.

(12) Remove two bushings (19) from hoist mount (7).



16-11. HOIST ASSEMBLY REPLACEMENT (CONT).

b. Installation.

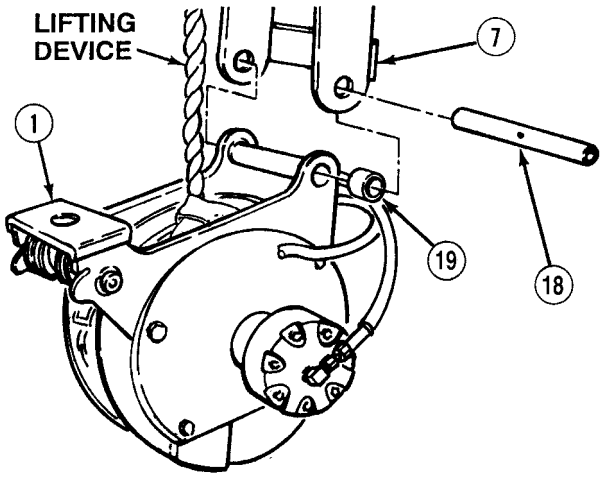
NOTE

Perform Step (1) if bushings were removed.

(1) Install two bushings (19) in hoist mounting bracket (7).

WARNING

Hoist assembly weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



(2) Wrap and attach lifting device around hoist assembly (1).

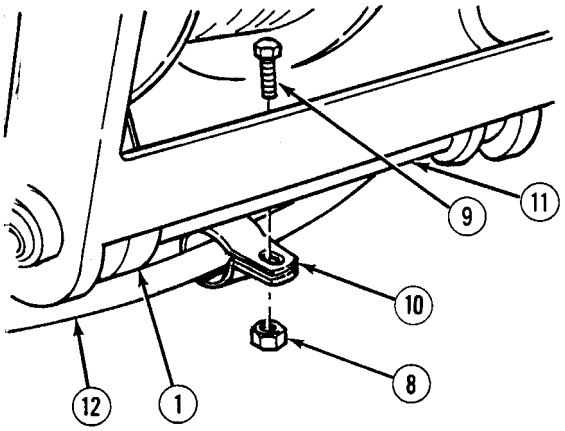
(3) With the aid of an assistant, align hoist assembly (1) with hoist mount (7).

NOTE

Hole in shaft and hole in pin must line up. Keep alignment during installation.

(4) With the aid of an assistant, maintain hoist assembly (1) and hoist mounting bracket (7) alignment while installing pin (18).

(5) Install cable (12) and cable clamp (10) on shaft (11) with screw (9) and locknut (8). Tighten screw to 17 lb-ft (23 N·m).



CAUTION

- To avoid damage to load cell cable and tension load cell, do not allow cell to turn when installing nut.
- Ensure that nuts have at least two full threads showing after installing on load cell.

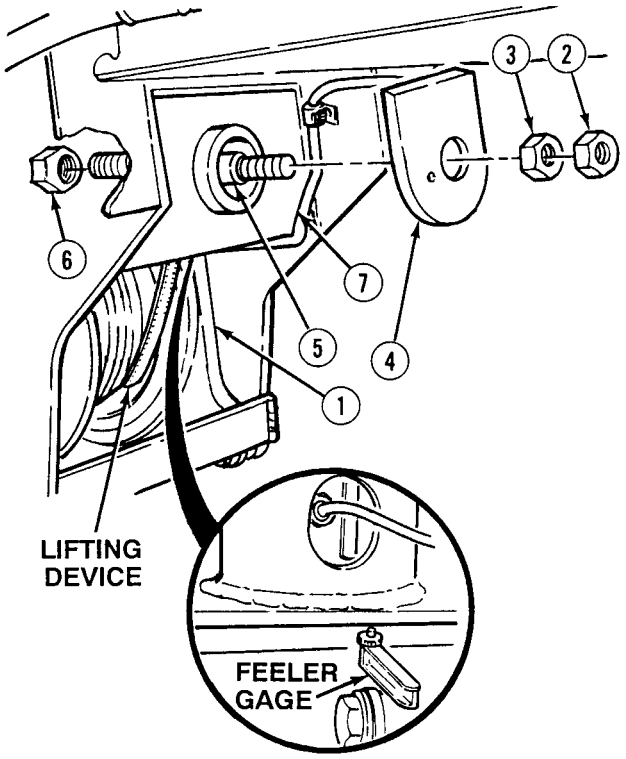
(6) Position hoist assembly (1) into hoist mount (7) and install front nut (6) on tension load cell (5).

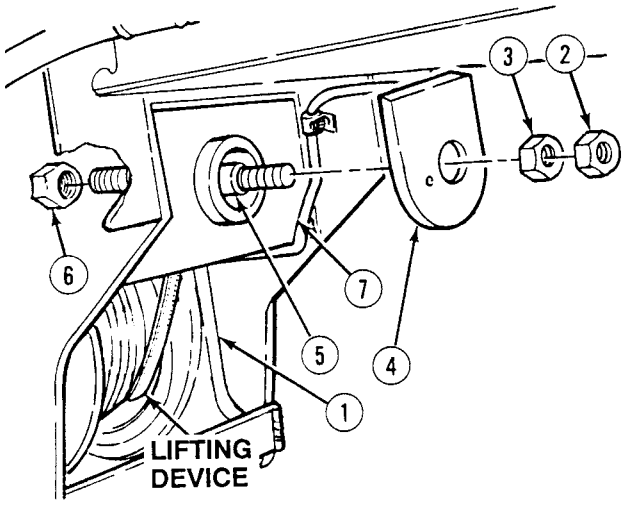
(7) Install end cap (4), swivel nut (3) and jam nut (2) on tension load cell (5). Install jam nut loosely.

(8) Adjust overload switch to 0.12 in. (3 mm) by loosening or tightening nut (6) until gap between hoist assembly (1) and hoist mount (7) is obtained.

(9) Tighten jam nut (2) on tension load cell (5).

(10) Remove lifting device from hoist assembly (1).

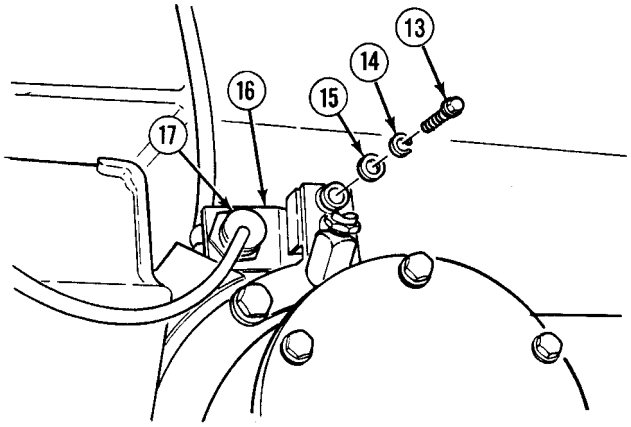




16-11. HOIST ASSEMBLY REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(11) Apply sealing compound to threads of two screws (13).

(12) Install proximity switch (16) on bracket (17) with two washers (14), lockwashers (15) and screws (13). Tighten screws to 108 lb-in (12 N·m).

c. Follow-On Maintenance:

- Install hoist motor valve, (Para 16-13).
- Install hoist cable, (TM 9-2320-364-20).
- Lube hoist assembly, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-12. HYDRAULIC HOIST MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

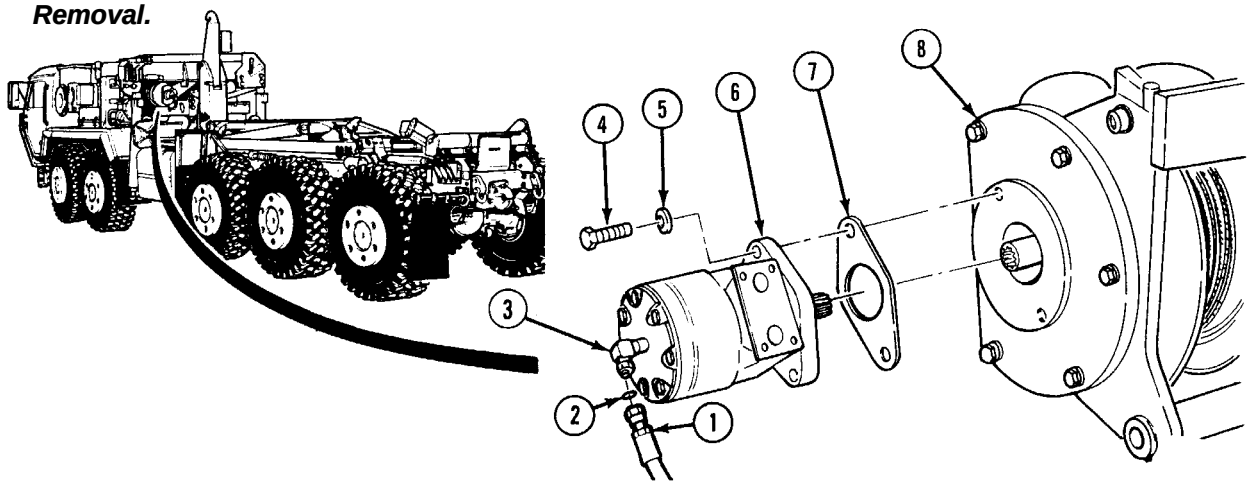
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Crowsfoot, 3/4., 3/8 in. Drive (Item 268, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Gasket (Item 106, Appendix E)
Lockwasher (2) (Item 286, Appendix E)
Packing, Preformed (Item 383, Appendix E)
Ring, Retaining (Item 496, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hoist motor valve removed, (Para 16-13)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(1) Position drain pan under hose (1).

(2) Disconnect hose (1) and remove preformed packing (2) from elbow (3). Discard preformed packing.

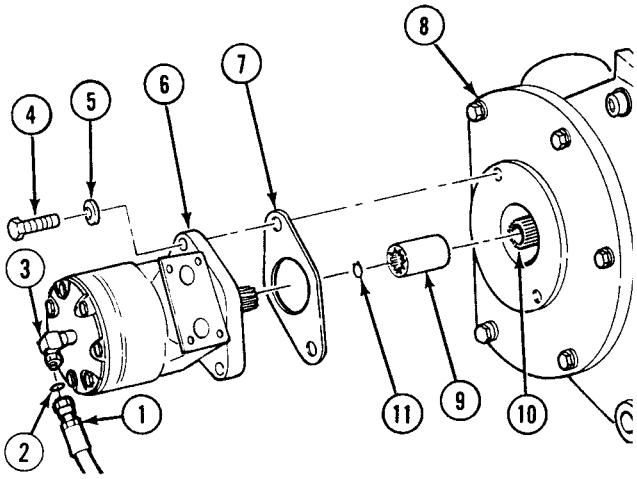
(3) Remove two screws (4), lockwashers (5), motor (6) and gasket (7) from hoist drum (8). Discard lockwashers and gasket.

16-12. HYDRAULIC HOIST MOTOR REPLACEMENT (CONT).

NOTE

Note location and position of coupling prior to removal.

(4) Remove coupling (9) from spline shaft (10).



WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

Perform Step (5) if retaining ring is damaged.

(5) Remove retaining ring (11) from coupling (9). Discard retaining ring.

b. Installation.

NOTE

Perform Step (1) if retaining ring was removed.

(1) Install retaining ring (11) in coupling (9).

NOTE

Install coupling in location position noted in removal.

(2) Install coupling (9) on splined shaft (10) in hoist drum (8).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound to threads of two screws (4).

(4) Install gasket (7) and motor (6) on drum (8) with two lockwashers (5) and screws (4). Tighten screws to 68 lb-ft (92 N·m).

(5) Apply hydraulic oil to preformed packing (2).

(6) Install preformed packing (2) and connect hose (1) on elbow (3).

c. Follow-On Maintenance:

- Install hoist motor valve, (Para 16-13).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-13. HOIST MOTOR VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

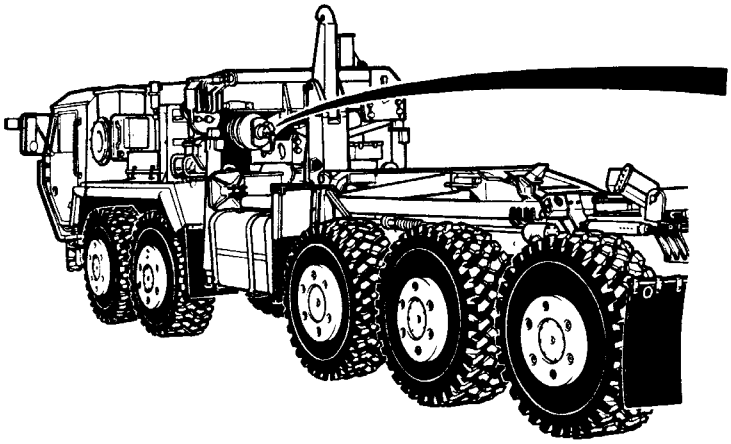
Materials/Parts
Cloth, Cleaning (Item 12, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)

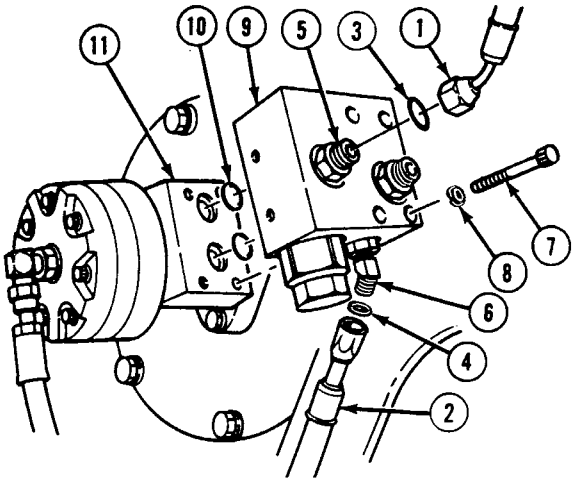
Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 152.1, Appendix E)
Kit, Repair (Item 153, Appendix E)
Lockwasher (4) (Item 233, Appendix E)
Packing, Preformed (2) (Item 348, Appendix E)
Packing, Preformed (Item 383, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

16-13. HOIST MOTOR VALVE REPAIR (CONT).

a. Removal.





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(1) Position drain pan under two hoses (1) and hose (2).

(2) Disconnect two hoses (1) and hose (2) and remove preformed packings (3) and (4) from two fittings (5) and elbow (6). Discard preformed packings.

(3) Remove four screws (7), lockwashers (8), hoist motor valve (9) and two preformed packings (10) from motor (11). Discard lockwashers and preformed packings.

b. Disassembly.

(1) Remove two fittings (1) and preformed packings (2) from housing (3). Discard preformed packings.

NOTE

Matchmark position of elbow prior to removal.

(2) Remove elbow (4) and preformed packing (5) from housing (3). Discard preformed packing.

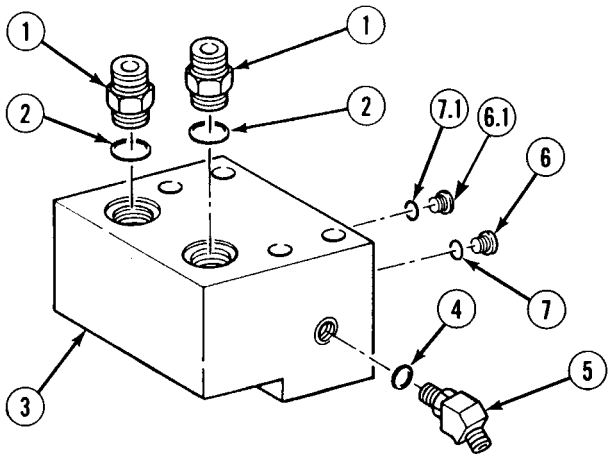
NOTE

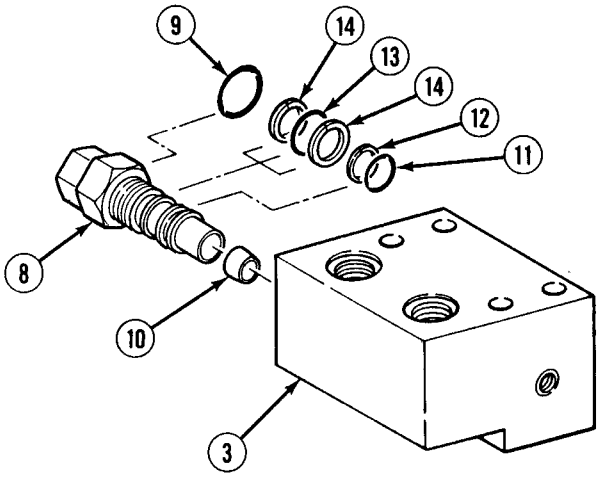
Perform Step (3) if plugs are damaged.

(3) Remove plugs (6) and (6.1) and preformed packings (7) and (7.1) from housing (3). Discard preformed packings.

(4) Remove safety relief valve (8) and preformed packing (9) from housing (3). Discard preformed packing.

(5) Remove preformed packing (11), backup ring (12), preformed packing (13) and two backup rings (14) from safety relief valve (8). Discard preformed packings and backup rings.





16-13. HOIST MOTOR VALVE REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

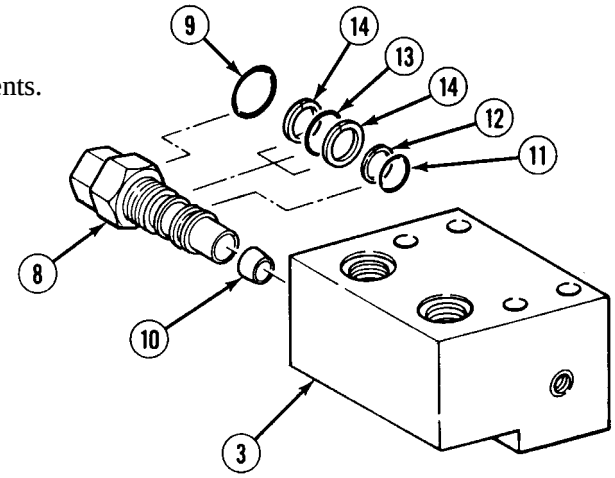
- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry all parts with a cleaning cloth.

(3) Inspect each part for nicks, burns, scratches or dents.

(4) Replace damaged parts.



d. Assembly.

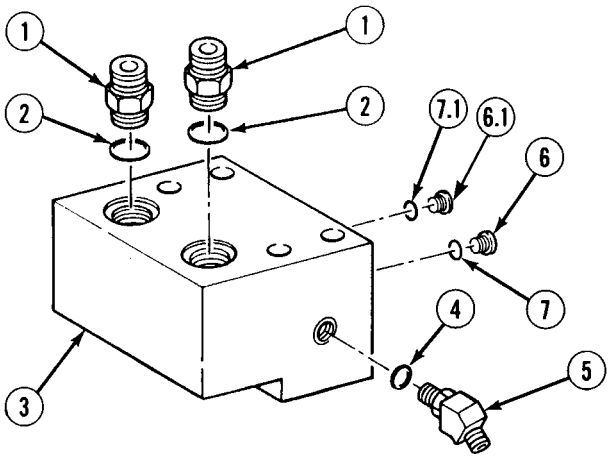
(1) Apply hydraulic oil to preformed packings (13) and (9) and backup rings (14) and (12).

(2) Install two backup rings (14), preformed packing (13), backup ring (12) and preformed packing (11) on safety relief valve (8).

(3) Install orifice (10), preformed packing (9), and safety relief valve (8) in housing (3).

NOTE

Perform Steps (4) and (5) if plugs were removed.



(4) Coat threads of plugs (6.1) and (6) with sealing compound.

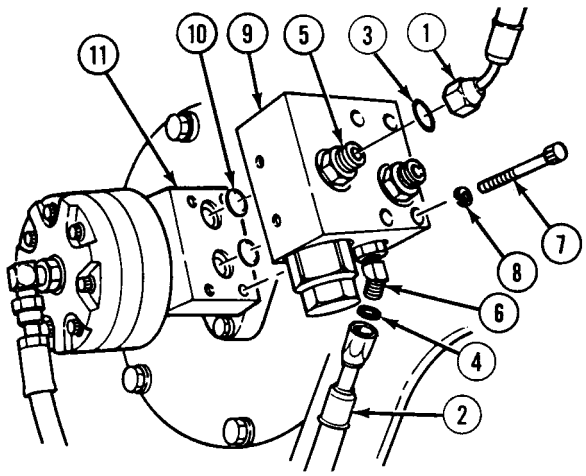
(5) Install plugs (6.1) and (6), preformed packings (7.1) and (7) in housing (3).

(6) Apply hydraulic oil to preformed packings (5) and (2).

(7) Install preformed packing (5) and elbow (4) in housing (3).

(8) Install two preformed packings (2) and fittings (1) in housing (3).

e. Installation.



(1) Apply hydraulic oil to two preformed packings (10).

(2) Install two preformed packings (10) and position hoist motor valve (9) on motor (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound on threads of four screws (7).

(4) Install four lockwashers (2) and screws (7). Tighten screws to 15 to 17 lb-ft (20 to 23 N·m).

(5) Apply hydraulic oil to preformed packings (3) and (4).

(6) Install two preformed packings (3) and preformed packing (4) and connect two hoses (1) and hose (2) on two fittings (5) and elbow (6).

f. Follow-On Maintenance:

- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Check operation, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-14. HOIST BRAKE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

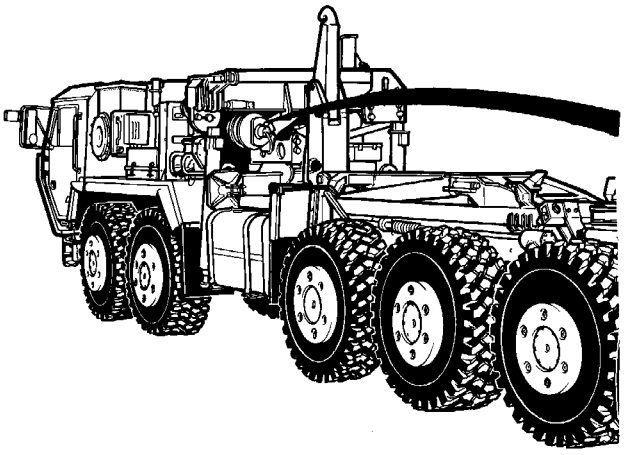
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Micrometer, Outside, Caliper, Set (Item 139, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

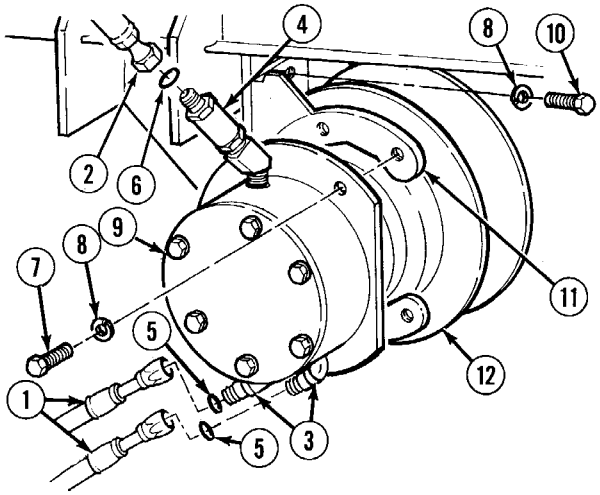
Materials/Parts
Cable Ties (Item 9, Appendix B)
Cloth, Cleaning (Item 12, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 53, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Key (Item 140, Appendix E)
Packing, Preformed (2) (Item 334, Appendix E)
Packing, Preformed (Item 336, Appendix E)
Packing, Preformed (2) (Item 383, Appendix E)
Repair Kit (Item 468, Appendix E)
Ring, Retaining (Item 493, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(1) Position drain pan under two hoses (1) and hose (2).

(2) Disconnect two hoses (1) and hose (2) from two elbows (3) and check valve (4).

(3) Remove two preformed packings (5) and preformed packing (6) from two elbows (3) and check valve (4). Discard preformed packings.

(4) Remove three screws (7) and lockwashers (8) from brake assembly (9). Discard lockwashers.

(5) Remove two screws (10), lockwashers (8), bracket (11) and brake assembly (9) from hoist drum (12). Discard lockwashers.

16-14. HOIST BRAKE REPAIR (CONT).

b. Disassembly.

NOTE

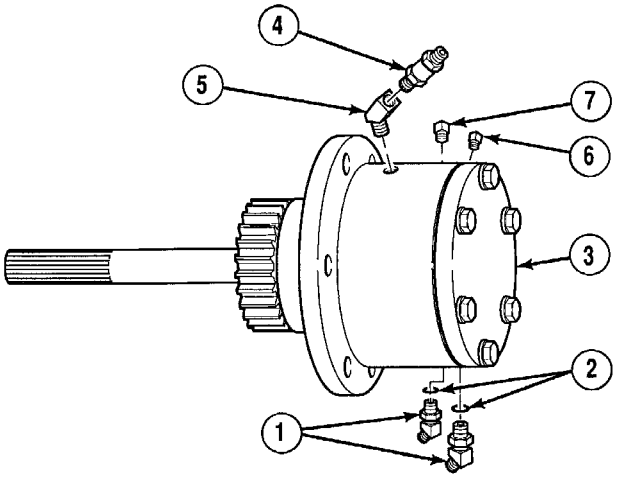
Matchmark position of elbows and check valve prior to removal.

(1) Remove two elbows (1) and preformed packings (2) from hoist brake (3). Discard preformed packings.

(2) Remove check valve (4) from elbow (5).

(3) Remove elbow (5) from hoist brake (3).

(4) Remove plug (6) and bleeder valve (7) from hoist brake (3).



NOTE

Matchmark both top and bottom of hoist brake.

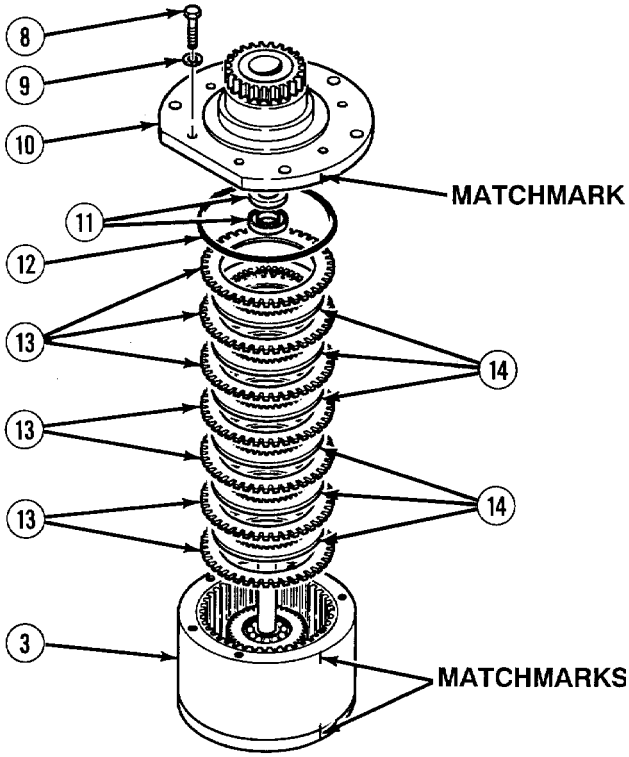
(5) Remove six screws (8), washers (9) and bearing housing (10).

(6) Remove and discard two oil seals (11) and preformed packing (12) from bearing housing (10).

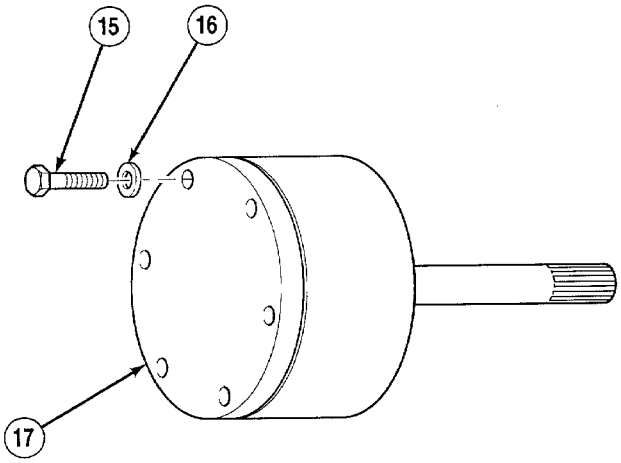
NOTE

Tie clutch plates and pressure plates together with cable ties in order of removal.

(7) Remove eight clutch discs (13) and seven pressure plates (14) from hoist brake (3).



(8) Remove six screws (15) and washers (16) from access cover (17).

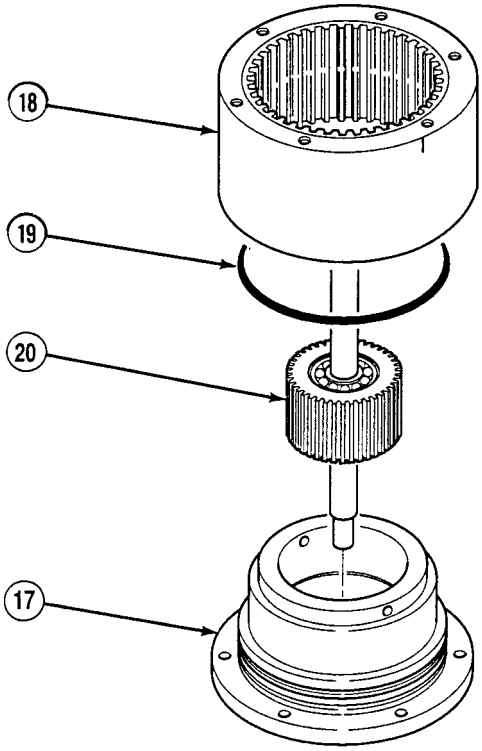


(9) Remove housing (18) and preformed packing (19) from access cover (17). Discard preformed packing.

NOTE

If access cover is not held as shown, springs may fall from assembly.

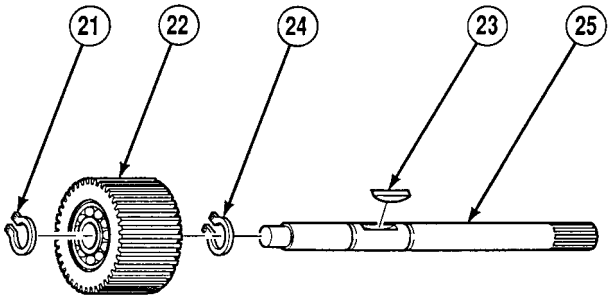
(10) Hold access cover (17) and remove friction clutch assembly (20).



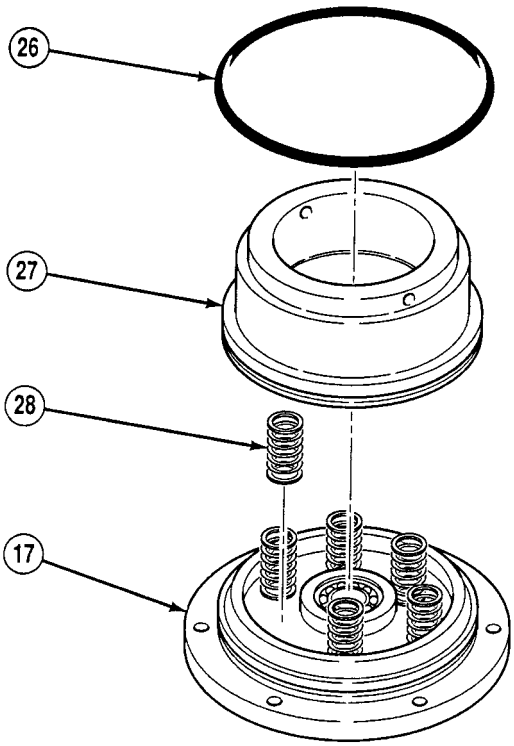
16-14. HOIST BRAKE REPAIR (CONT).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.



(11) Remove retaining ring (21), gear (22), key (23) and retaining ring (24) from gear end of shaft (25). Discard retaining rings and key.



(12) Remove preformed packing (26) from piston (27). Discard preformed packing.

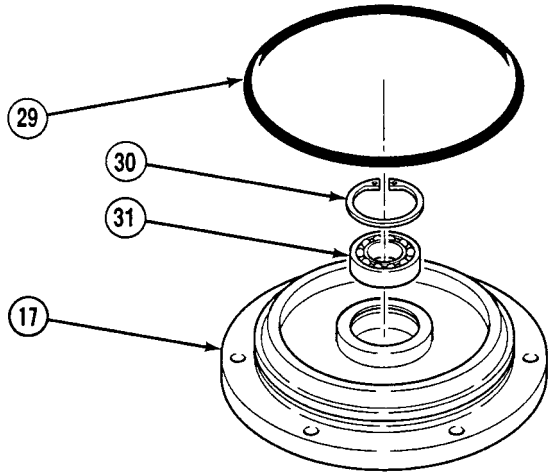
(13) Remove piston (27) and six springs (28) from access cover (17). Discard springs.

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

- Shaft may be used to remove bearing.
- Note position of bearing prior to removal.



(14) Remove preformed packing (29), retaining ring (30) and bearing (31) from access cover (17). Discard preformed packing and retaining ring.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect parts for cracks, breaks, scratches, gouges, pitting and stripped threads.

(4) Inspect clutch discs for wear. If disc is under 0.064 in. (1.62 mm) thick, replace disc.

(5) Inspect pressure plates for wear. If pressure plate is under 0.057 in. (1.45 mm) thick, replace pressure plate.

(6) Inspect bearing rotation. Bearing should rotate freely.

(7) Replace damaged parts.

16-14. HOIST BRAKE REPAIR (CONT).

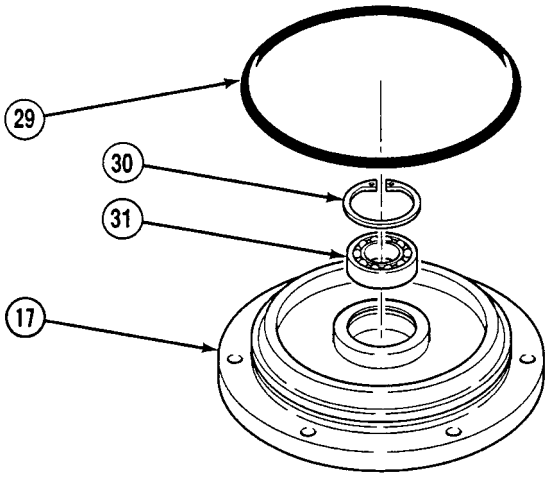
d. Assembly.

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(1) Apply hydraulic oil to preformed packing (29).

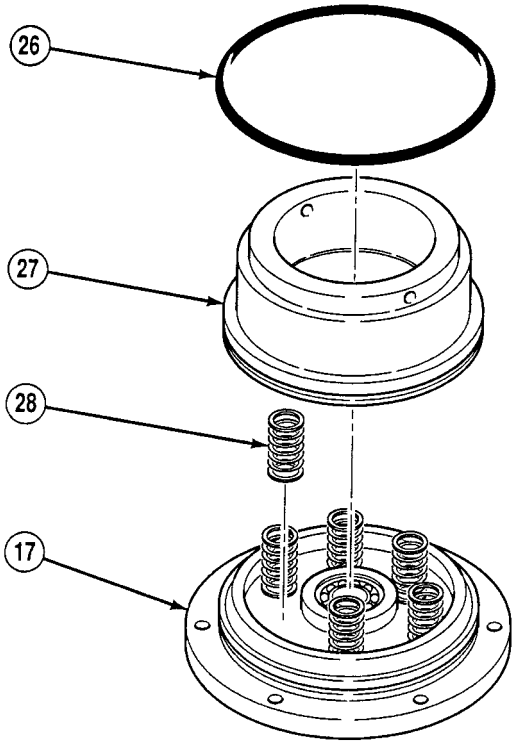
(2) Install bearing (31), retaining ring (30) and preformed packing (29) in access cover (17).



(3) Apply hydraulic oil to preformed packing (26).

(4) Install preformed packing (26) on piston (27).

(5) Position six springs (28) and piston (27) on access cover (17).

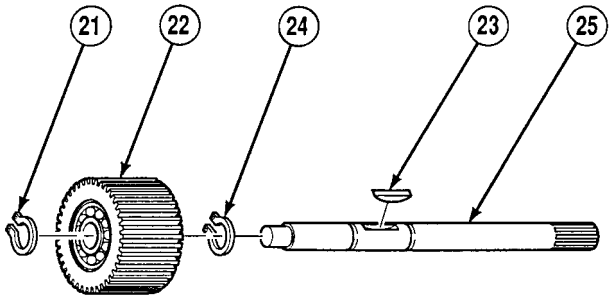


WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

Holes in gear must face spline end of shaft.

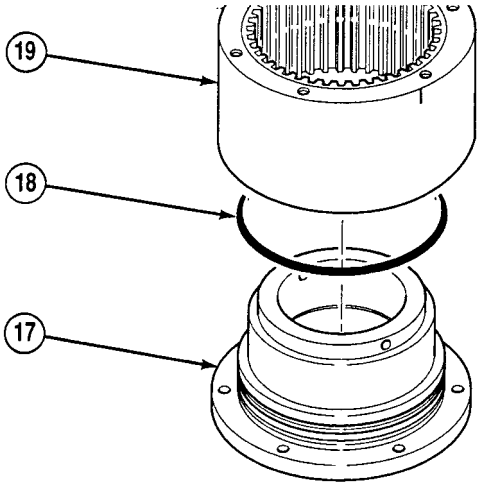


(6) Install retaining ring (24), key (23), gear (22) and retaining ring (21) on shaft (25).

(7) Apply hydraulic oil to preformed packing (18).

(8) Install preformed packing (18) in housing (19).

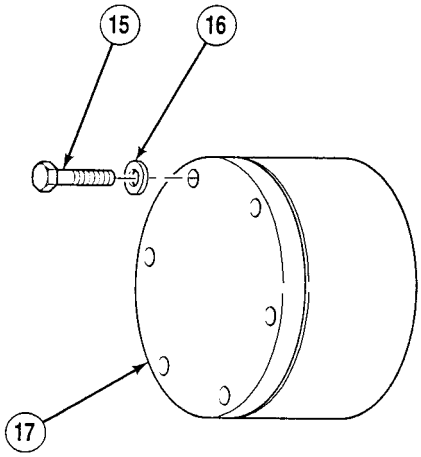
(9) Install housing (19) on access cover (17).



16-14. HOIST BRAKE REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

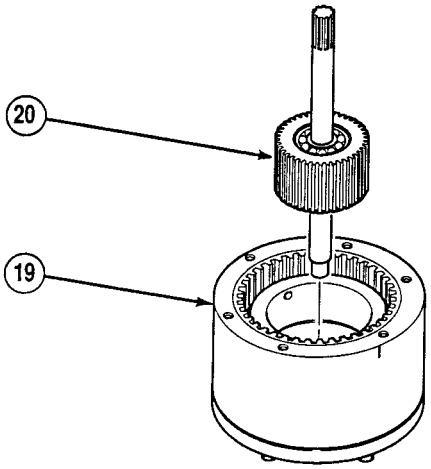


(10) Apply sealing compound on threads of six screws (15).

(11) Align matchmarks and install access cover (17) with six washers (16) and screws (15). Tighten screws to 28 lb-ft (38 N·m).

CAUTION

Ensure clutch assembly is flush with top of ring gear, or damage to plates will result.



(12) Install friction clutch assembly (20) in housing (19).

CAUTION

Do not align notches in stators and disc. Alignment allows fluid to flow and will cause incorrect operation. Start stack with stator.

NOTE

Ensure pressure plates and clutch discs are installed in same order as removed.

(13) Remove cable ties and install seven pressure plates (14) and eight clutch discs (13) in hoist brake (3).

(14) Apply hydraulic oil to preformed packing (12).

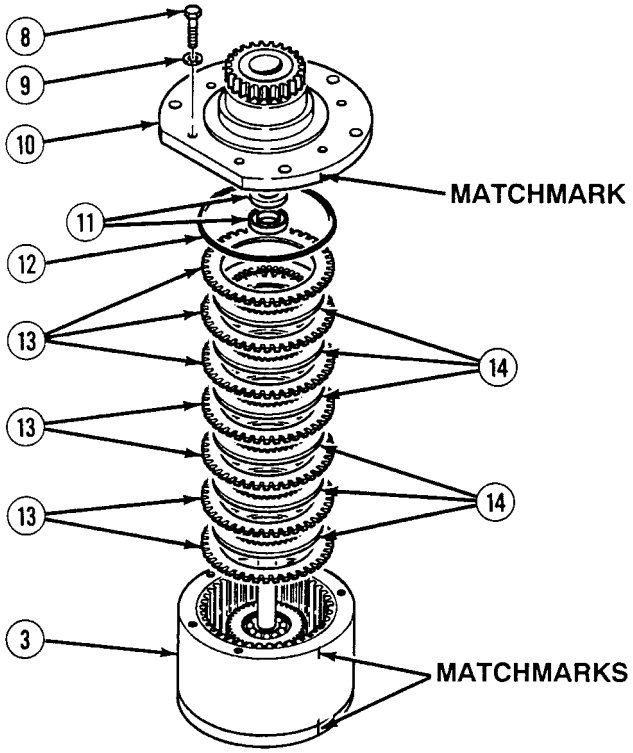
(15) Install preformed packing (12) and two oil seals (11) in bearing housing (10).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(16) Apply sealing compound on threads of six screws (8).

(17) Align matchmarks and install bearing housing (10) with six washers (9) and screws (8). Tighten screws to 28 lb-ft (38 N·m).



16-14. HOIST BRAKE REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(18) Coat threads of bleeder valve (7) with sealing compound.

(19) Install bleeder valve (7) and plug (6) in hoist brake (3).

(20) Coat threads of elbow (5) with sealing compound.

(21) Install and align elbow (5) in hoist brake (3).

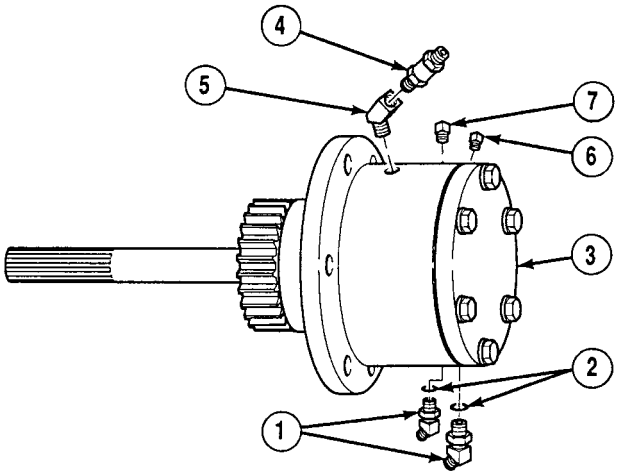
(22) Coat threads of check valve (4) with sealing compound.

(23) Install check valve (4) in elbow (5).

(24) Apply hydraulic oil to two preformed packings (2).

(25) Install two preformed packings (2) on elbows (1).

(26) Install two elbows (1) on hoist brake (3).

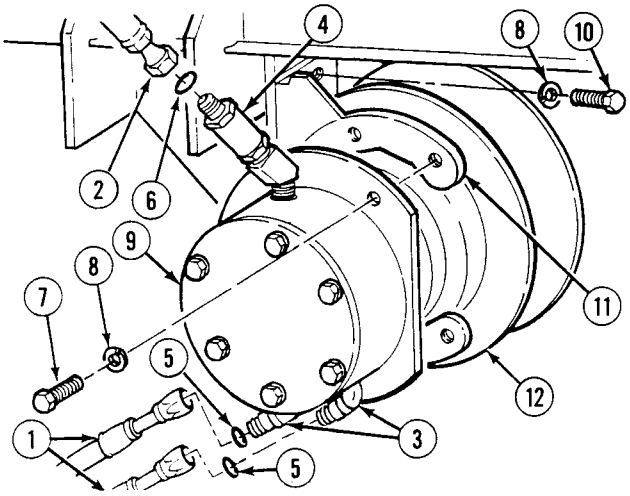


e. Installation.

(1) Align and install brake assembly (9) and bracket (11) on hoist drum (12) with five lockwashers (8), two screws (10) and three screws (7). Tighten screws to 68 lb-ft (92 N·m).

(2) Apply hydraulic oil to preformed packings (5) and (6).

(3) Install two preformed packings (5) and preformed packing (6) and connect hoses (1) on two elbows (3) and check valve (4).



f. Follow-On Maintenance:

- Fill hoist brake, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-15. HOIST CABLE FOLLOWER REPAIR.

This task covers:

a. Disassembly b. Cleaning/Inspection c. Assembly

INITIAL SETUP

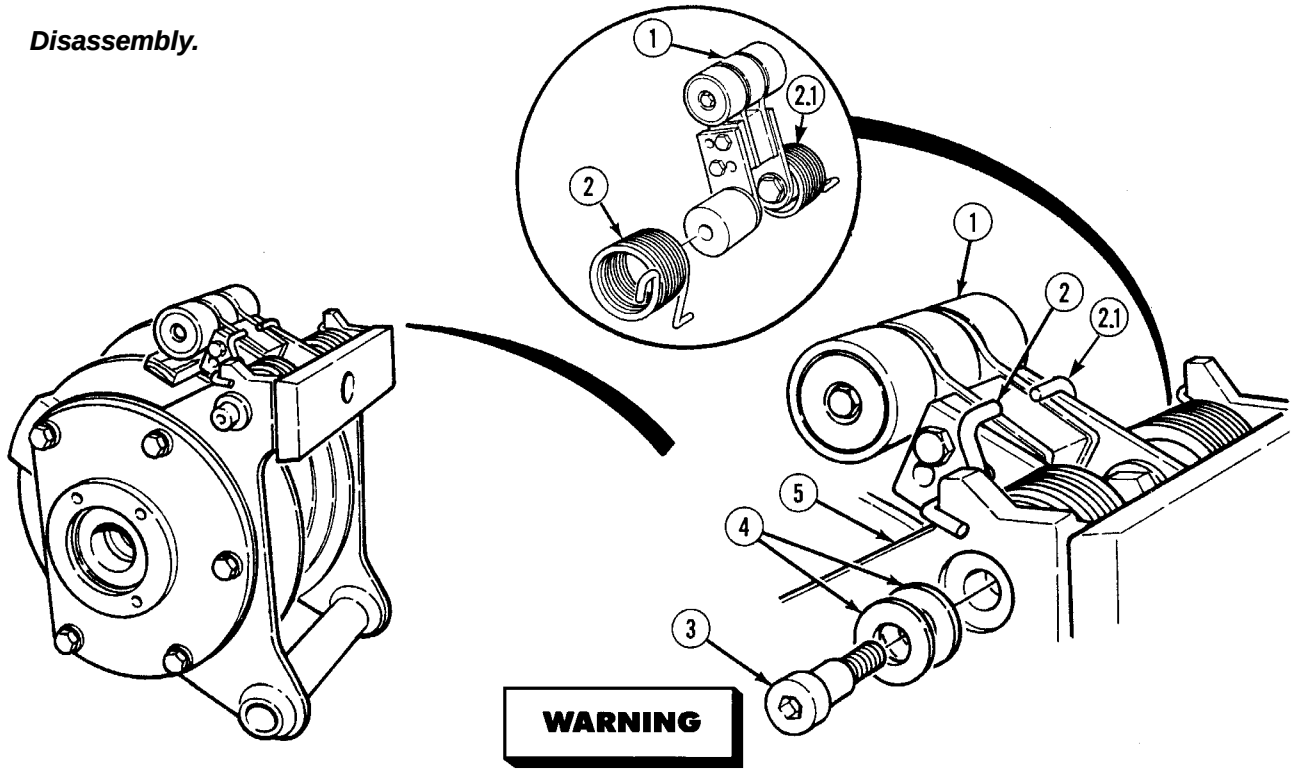
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Socket , Socket Head Screw 5/16 in. 1/2 in. Drive (Item 210, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

Tools and Special Tools - Continued
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Equipment Condition
Hoist assembly on clean work surface

a. Disassembly.



WARNING

When second spring is released, cable follower may fly up against bracket. Keep hands and face away from this area, or injury to personnel may result.

NOTE

Remove spring on side with extra block first.

(1) Hold cable follower (1) up while prying ends of springs (2) and (2.1) down to remove spring pressure on cable follower.

(2) Remove two screws (3), four thrust washers (4) and cable follower (1) from bracket (5) and separate springs (2) and (2.1).

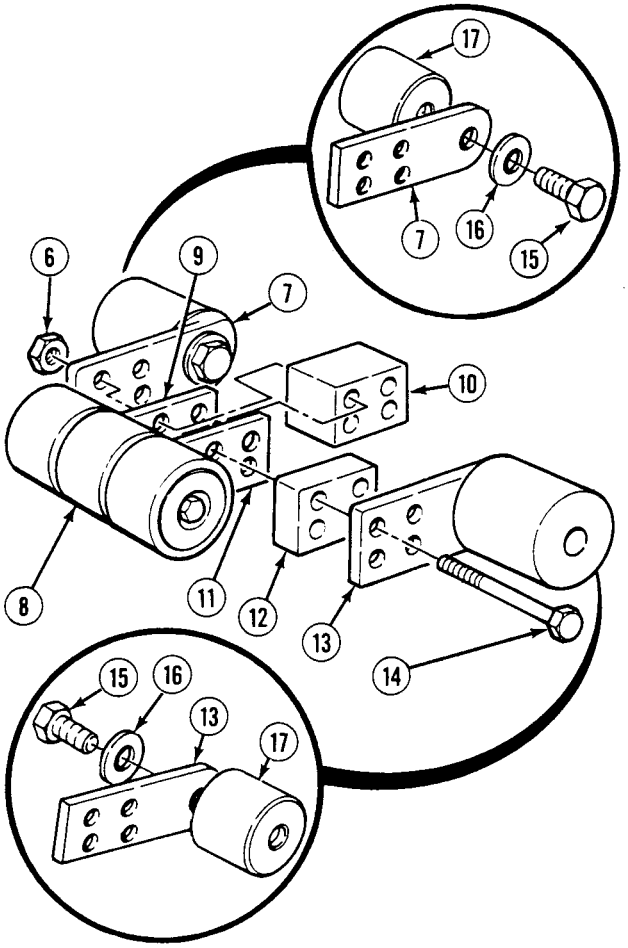
16-15. HOIST CABLE FOLLOWER REPAIR (CONT).

NOTE

Perform Steps (3) through (9) only if cable follower assembly is damaged.

(3) Remove two nuts (6) and separate left lever arm foot (7), roller assembly (8), spacer (9), block (10), spacer (11), block (12), right lever arm foot (13) and two screws (14).

(4) Remove two screws (15), washers (16) and spring support tubes (17) from lever arm feet (7) and (13).



(5) Remove screw (18), end cap (19), thrust washer (20), roller (21) and thrust washer (22) from support plate (23) and roller shaft (24).

(6) Remove bushing (25) from support plate (23).

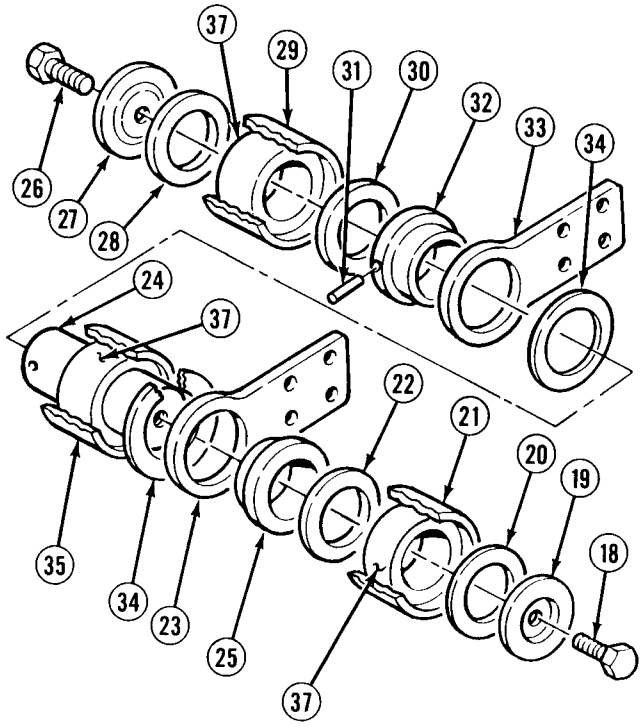
(7) Remove screw (26), end cap (27), thrust washer (28), roller (29) and thrust washer (30) from roller shaft (24).

(8) Remove spring pin (31) from bushing (32).

(9) Remove bushing (32), support plate (33), two thrust washers (34) from roller shaft (24).

(10) Remove roller (35) from roller shaft (24).

(11) Remove three bearings (37) from rollers (21), (29) and (35)



b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect each part for cracks, breaks, gouges, pitting and stripped threads.

(4) Replace damaged parts.

16-15. HOIST CABLE FOLLOWER REPAIR (CONT).

c. Assembly.

NOTE

Perform Steps (1) through (9) only if cable follower assembly was disassembled.

(1) Install three bearings (37) in rollers (21), (29), and (35).

(2) Position roller (35) and two thrust washers (34) on roller shaft (24).

(3) Install bushing (32) in support plate (33).

(4) Install bushing (32), thrust washer (30), roller (29), thrust washer (28), end cap (27) and screw (26) on roller shaft (24). Tighten screw to 72 lb-in (8 N·m).

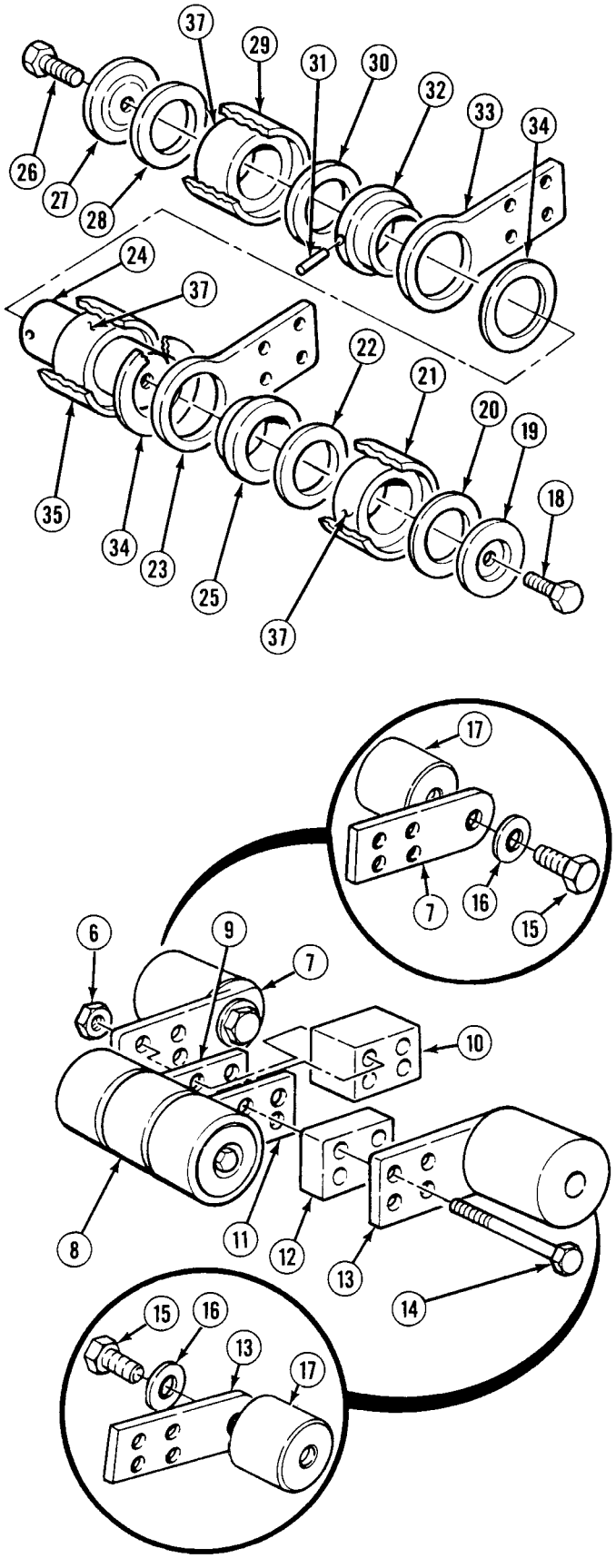
(5) Install spring pin (32) in bushing (33) and roller shaft (24).

(6) Install bushing (25) in support plate (23).

(7) Install bushing (25), thrust washer (22), roller (21), thrust washer (20), end cap (19) and screw (18) on roller shaft (24). Tighten screw to 72 lb-in (8 N·m).

(8) Install spring support tubes (17) on lever arm feet (7) and (13) with two washers (16) and screws (15). Tighten screws to 68 lb-ft (92 N·m).

(9) Install left spring holder (7), roller assembly (8), spacer (9), block (10), spacer (11), block (12), right spring holder (13), two screws (14) and nuts (6). Tighten screws to 16 lb-ft (22 N·m).



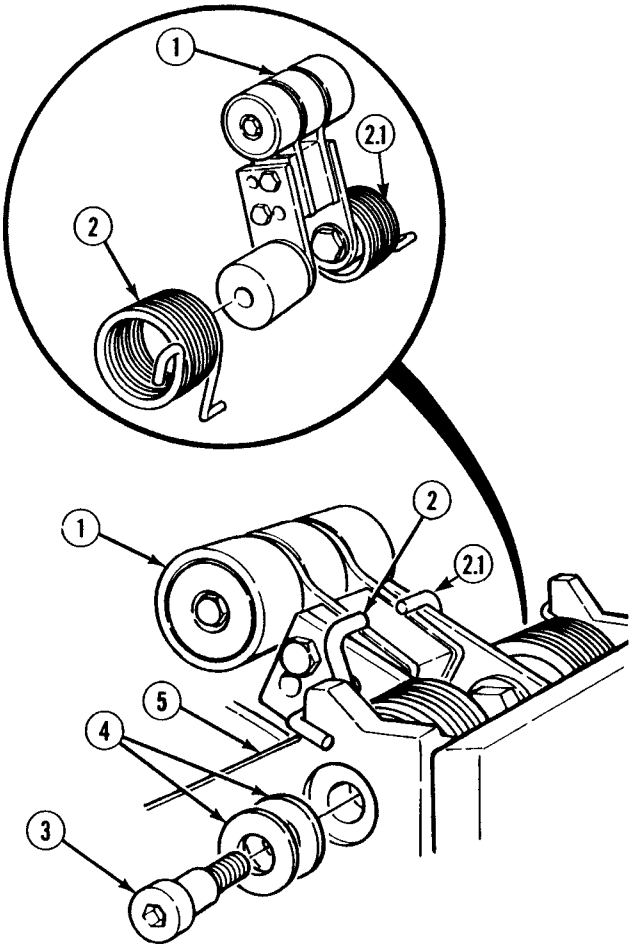
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(10) Apply thread sealing compound on threads of two screws (3).

(11) Position springs (2.1) and (2) and install cable follower (1) on bracket (5) with four thrust washers (4) and two screws (3). Tighten screws to 87 lb-ft (118 N·m).

(12) Hold cable follower (1) up while prying ends of springs (2.1) and (2) up to fully install two springs.



END OF TASK

16-15.1. TURNTABLE BEARING INSPECTION.

This task covers:

a. Inspection b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Indicator, Dial, Set with Magnetic Base
(Item 98, Appendix F)
Level (Item 134, Appendix F)
Sander, Portable, Disk Electric
(Item 198, Appendix F)
Protractor, Magnetic (Item 170, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)

Personnel Required
Two

Equipment Condition
Engine ON, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Crane raised, (TM 9-2320-364-10)
Outrigger jacks extended,
(TM 9-2320-364-10)
Turntable mounting screws torqued,
(TM 9-2320-364-34)
Turntable bearing lubricated,
(TM 9-2320-364-10)

Materials/Parts
None

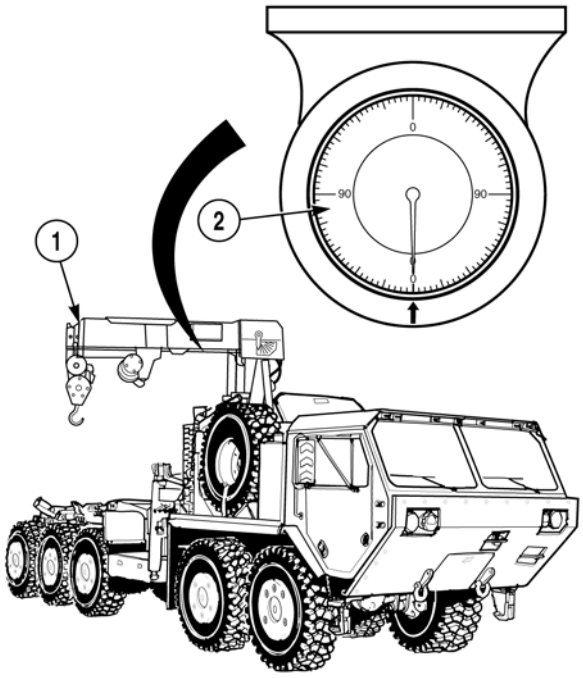
a. Inspection.

WARNING

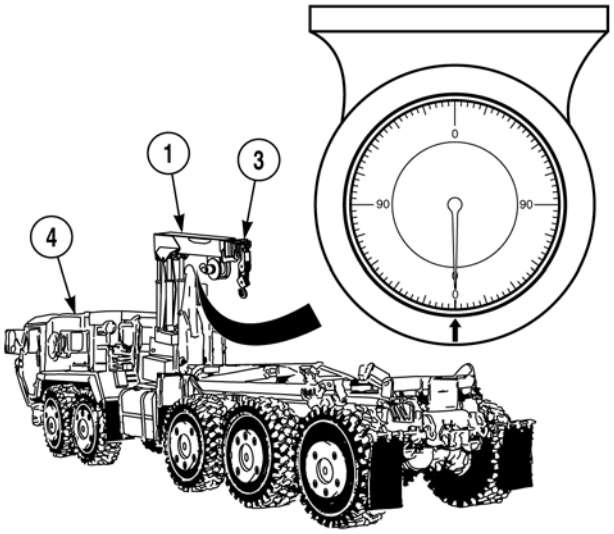
Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

(1) Park truck on level surface and level from side-to-side using crane outrigger system.

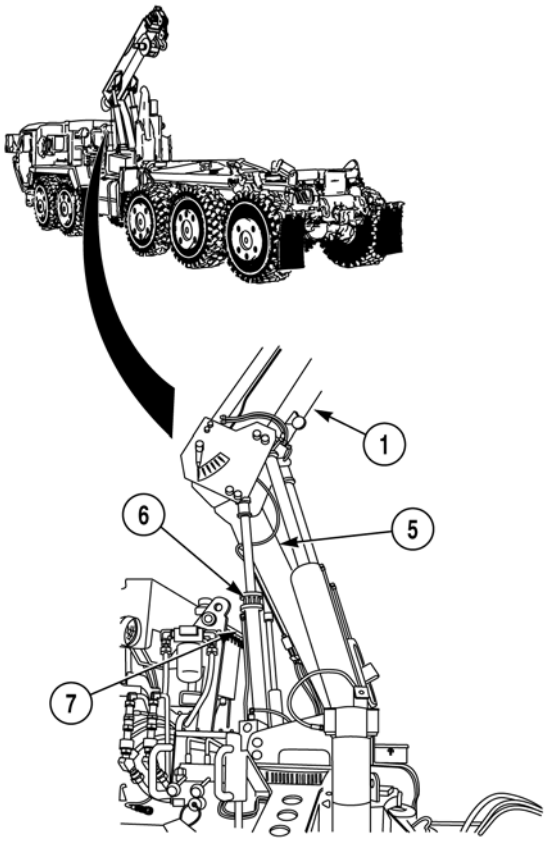
(2) Position magnetic protractor on underside of boom (1) and set dial (2) to zero.



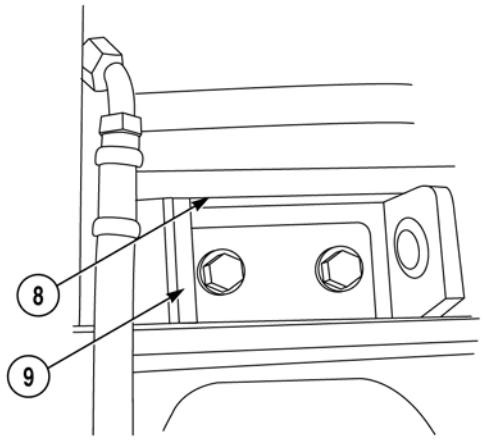
(3) With boom angle level (0 degrees), rotate boom (1) and position boom nose (3) towards rear of truck (4).



(4) Keeping boom (1) level (0 degrees), lower mast (5) until approximately 1 inch (24.2 mm) clearance is present between mast erection cylinders (6) and steering system hydraulic reservoirs (7).



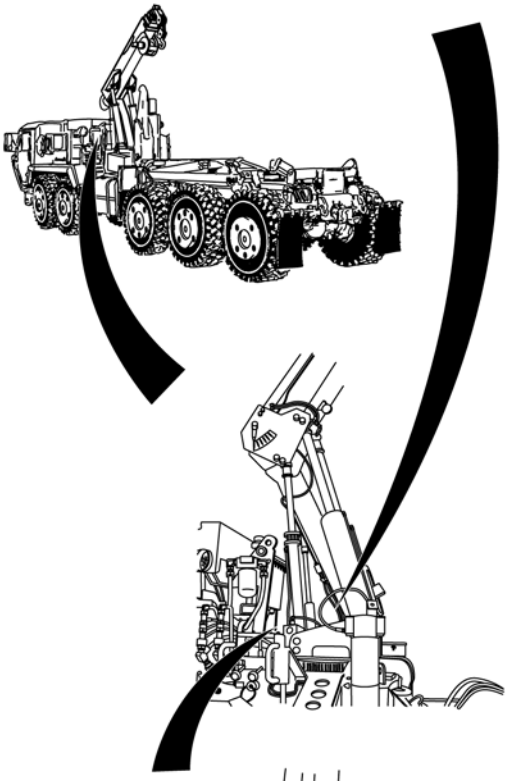
16-15.1. TURNTABLE BEARING INSPECTION (CONT).



NOTE

- Surfaces where dial indicator magnetic base mounts and plunger reads off of must be free of grease and dirt.
- Surfaces that are not clean, or are rough, will affect true dial indicator measurement.
- If required, use disk sander to remove rough edges and burrs.

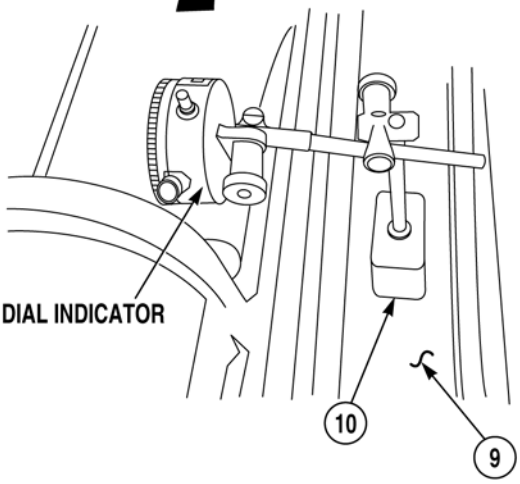
(5) Clean and smooth magnetic base mounting surfaces (8) of subframe (9).



NOTE

- To obtain a true measurement of bearing vertical must be positioned between bottom of mast cylinders and the magnetic base positioned on subframe.
- Ensure plunger is straight up and down in all directions, front to back and side to side, with plunger tip centered as close as possible above tip of swing gear tooth. It is not necessary to measure this, but try to get it as close as possible with a visual inspection from different angles.
- Ensure magnetic base is secure at it's attachment point, so it will not move and contribute to a false indicator reading.
- Dial indicator must be in line with axial centerline of boom for all measurements.

(6) Position dial indicator with magnetic base (10) on subframe (9).



NOTE

Ensure dial indicator is pre-loaded at least one turn by allowing needle to complete one turn around dial before zeroing dial.

(7) Adjust dial indicator to pre-load dial (11), then zero dial indicator.

NOTE

Operate crane controls smoothly to avoid any jerking or harsh movement that could affect dial indicator reading.

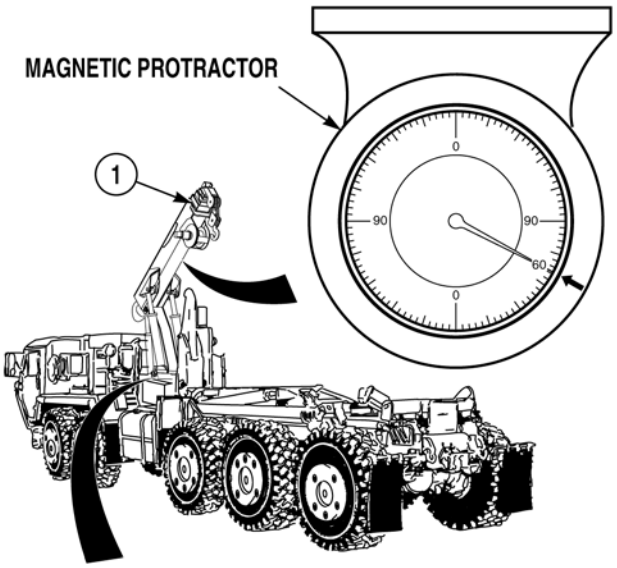
(8) Raise boom (1) until boom angle is 60 degrees on magnetic protractor and record dial indicator measurement.

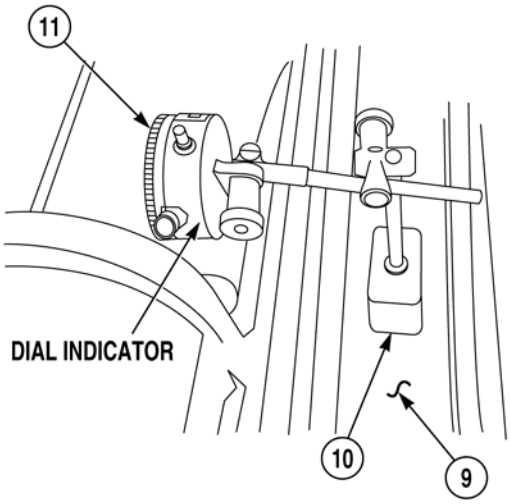
NOTE

Always verify that dial indicator measurement is correct by lowering boom from 60 degree boom angle to level boom angle (0 degrees) and checking that dial indicator returns to zero reading. Repeat procedure if dial indicator does not return to zero position.

(9) Lower boom (1) from 60 degree position to level position and verify dial indicator measurement. If measurement is equal to or greater than 0.065 inches (1.65 mm), discontinue inspection and notify supervisor to schedule bearing replacement. If measurement is less than 0.065 inches (1.65 mm), continue inspection procedure.

(10) Remove dial indicator and magnetic base (10) from subframe (9).





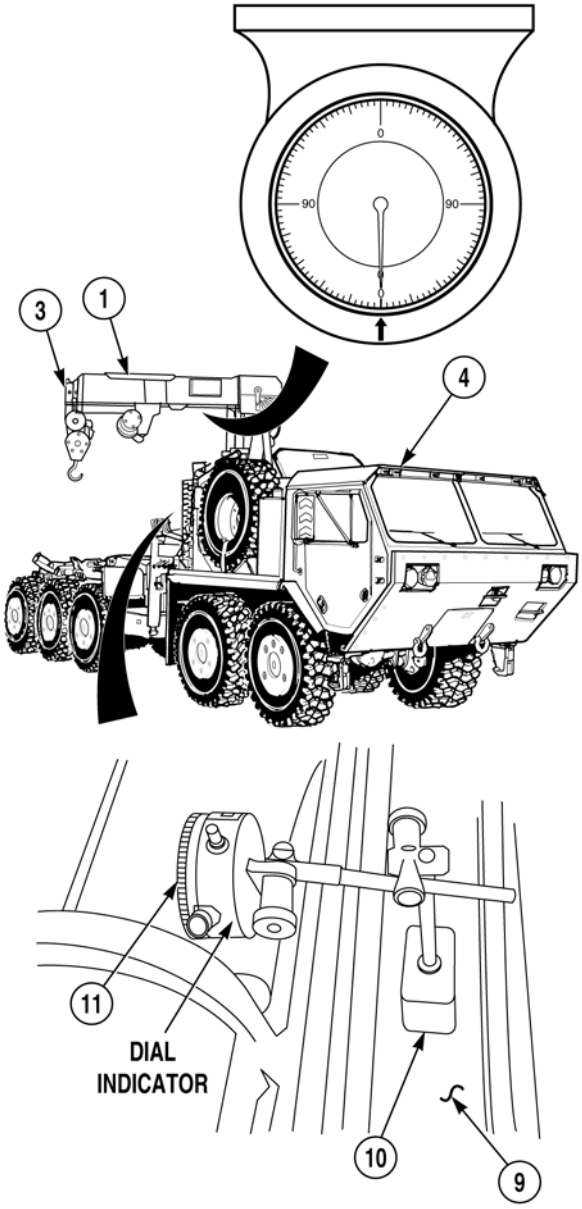
16-15.1. TURNTABLE BEARING INSPECTION (CONT).

(11) Raise boom (1) and rotate 90 degrees to position boom nose (3) over passenger side of truck (4).

(12) Lower boom (2) to level (0 degrees).

NOTE

- To obtain a true measurement of bearing vertical must be positioned between bottom of mast cylinders and the magnetic base positioned on subframe.
- Ensure plunger is straight up and down in all directions, front to back and side to side, with plunger tip centered as close as possible above tip of swing gear tooth. It is not necessary to measure this, but try to get it as close as possible with a visual inspection from different angles.
- Ensure magnetic base is secure at it's attachment point, so it will not move and contribute to a false indicator reading.
- Dial indicator must be in line with axial centerline of boom for all measurements.



(13) Position dial indicator with magnetic base (10) on subframe (9).

NOTE

Ensure dial indicator is pre-loaded at least one turn by allowing needle to complete one turn around dial before zeroing dial.

(14) Adjust dial indicator to pre-load dial (11), then zero dial indicator.

NOTE

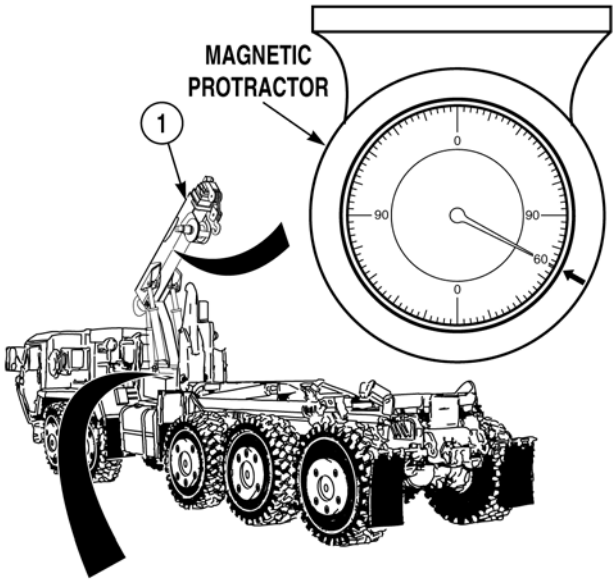
Operate crane controls smoothly to avoid any jerking or harsh movement that could affect dial indicator reading.

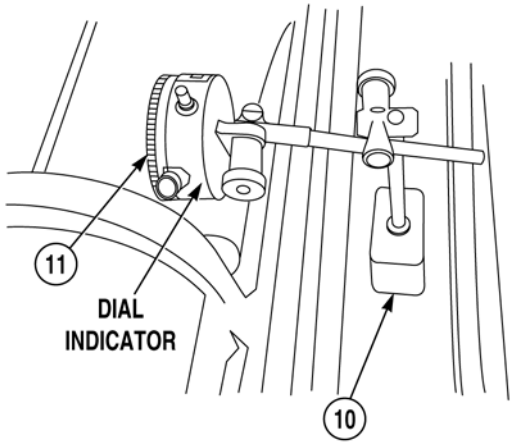
(15) Raise boom (1) until boom angle is 60 degrees on magnetic protractor and record dial indicator measurement.

NOTE

Always verify that dial indicator measurement is correct by lowering boom from 60 degree boom angle to level boom angle (0 degrees) and checking that dial indicator returns to zero reading. Repeat procedure if dial indicator does not return to zero position.

(16) Lower boom (1) from 60 degree position to level position and verify dial indicator measurement on dial (11). If measurement is equal to or greater than 0.065 inches (1.65 mm), discontinue inspection and notify supervisor to schedule bearing replacement. If measurement is less than 0.065 inches (1.65 mm), continue inspection procedure.





16-15.1. TURNTABLE BEARING INSPECTION (CONT).

NOTE

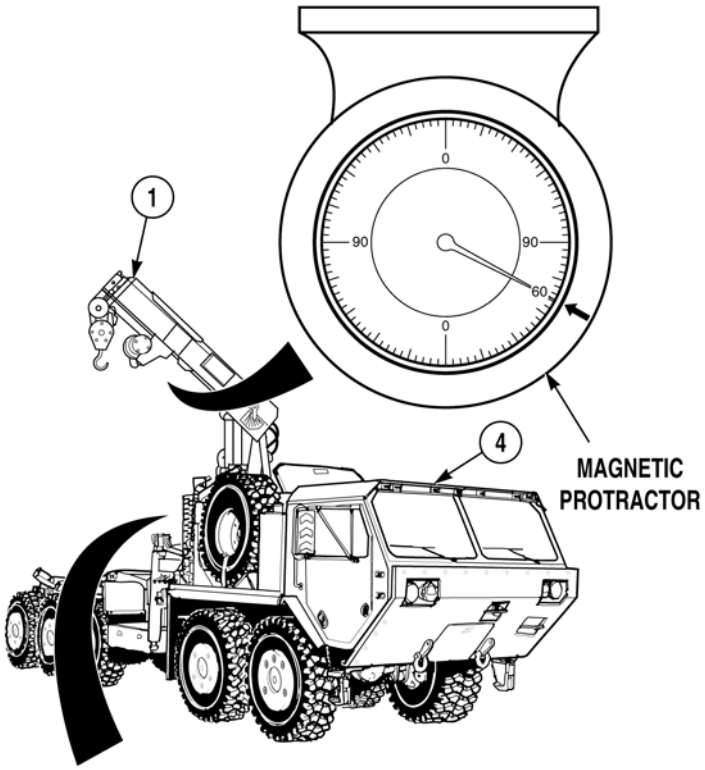
Operate crane controls smoothly to avoid any jerking or harsh movement that could affect dial indicator reading.

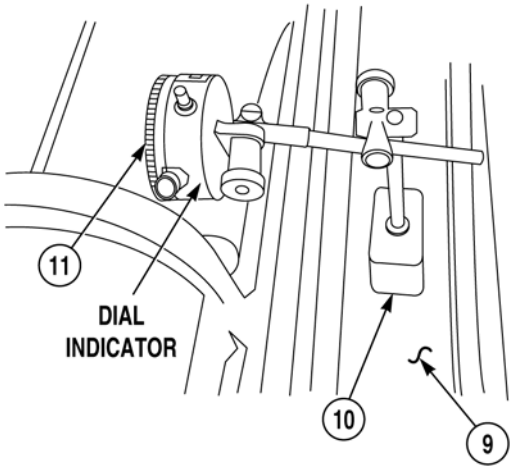
(17) Raise boom (1) until boom angle is 60 degrees on magnetic protractor and record dial indicator measurement on dial (11).

(18) Remove dial indicator and magnetic base (10) from subframe (9).

(19) Rotate boom (1) 180 degrees to position boom nose (3) over drivers side of truck (4).

(20) Lower boom (1) to level (0 degrees).





(21) Position dial indicator with magnetic base (10) on subframe (10).

NOTE

Ensure dial indicator is pre-loaded at least one turn by allowing needle to complete one turn around dial before zeroing dial.

(22) Adjust dial indicator to pre-load dial (11), then zero dial indicator.

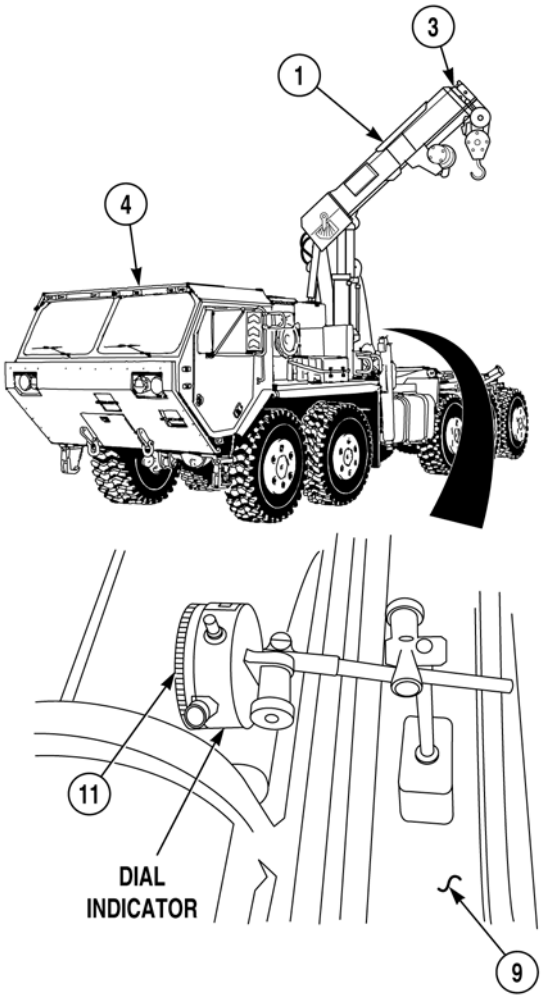
NOTE

Operate crane controls smoothly to avoid any jerking or harsh movement that could affect dial indicator reading.

NOTE

- To obtain a true measurement of bearing vertical must be positioned between bottom of mast cylinders and the magnetic base positioned on subframe.
- Ensure plunger is straight up and down in all directions, front to back and side to side, with plunger tip centered as close as possible above tip of swing gear tooth. It is not necessary to measure this, but try to get it as close as possible with a visual inspection from different angles.
- Ensure magnetic base is secure at it's attachment point, so it will not move and contribute to a false indicator reading.
- Dial indicator must be in line with axial centerline of boom for all measurements.

(23) Raise boom (1) until boom angle is 60 degrees on magnetic protractor and record dial indicator measurement.



NOTE

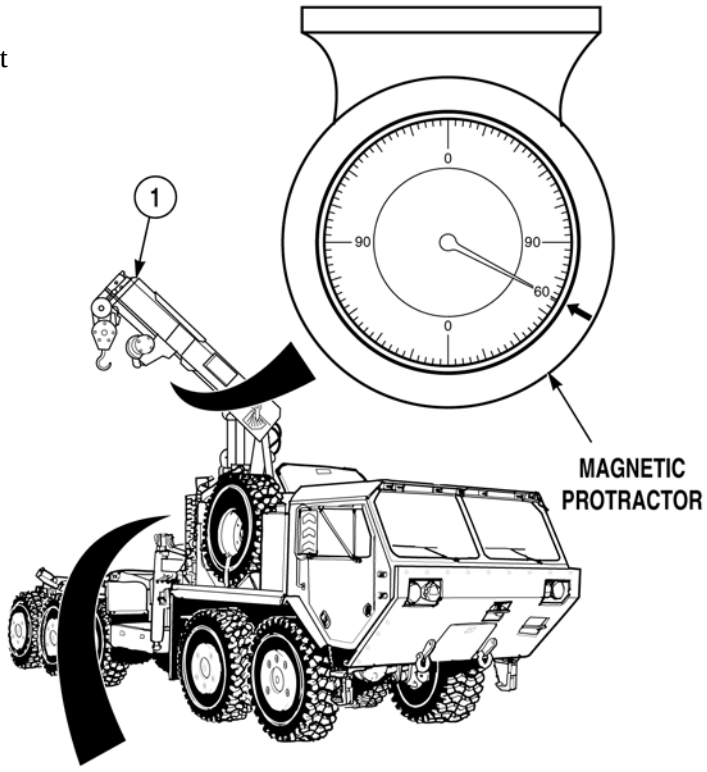
Always verify that dial indicator measurement is correct by lowering boom from 60 degree boom angle to level boom angle (0 degrees) and checking that dial indicator returns to zero reading. Repeat procedure if dial indicator does not return to zero position.

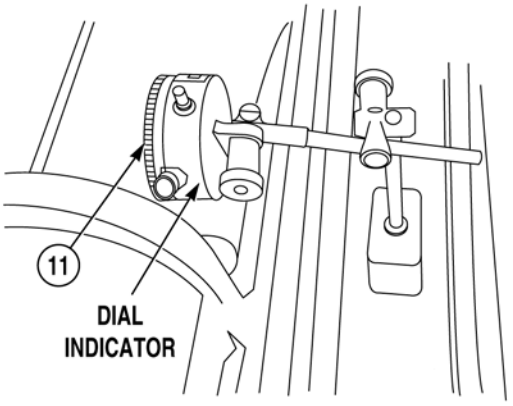
(24) Lower boom (1) from 60 degree position to level position and verify dial indicator measurement on dial (11). If measurement is equal to or greater than 0.065 inches (1.65 mm), discontinue inspection and notify supervisor to schedule bearing replacement. If measurement is less than 0.065 inches (1.65 mm), crane turntable bearing is OK.

b. Follow-On-Maintenance.

- Stow crane (TM 9-2320-364-10).
- Remove wheel chocks (TM 9-2320-364-10).

END OF TASK





16-16. TURNTABLE AND GEAR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

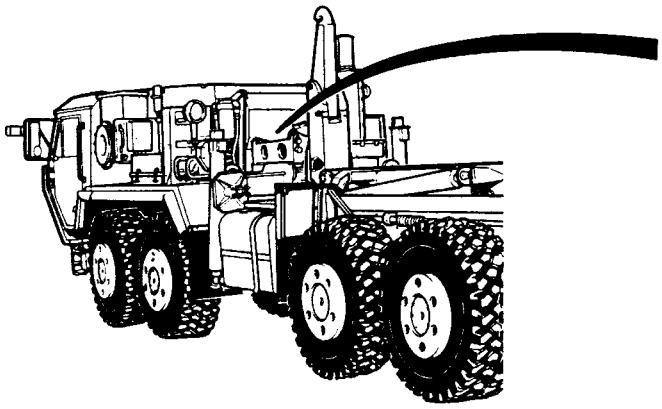
INITIAL SETUP

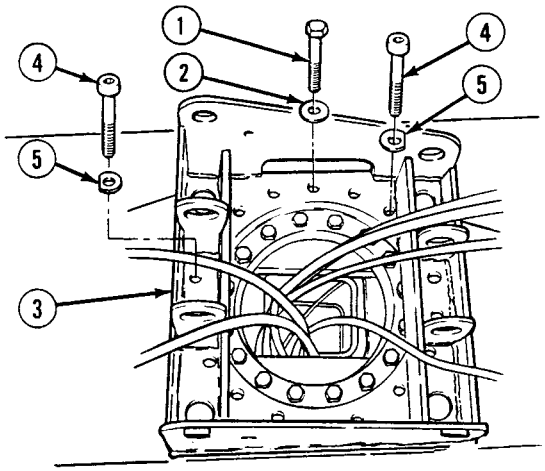
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Socket, Socket Head Screw, 5/8 in., 3/4 in.
Drive (Item 212, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 150 lbs
(68 kg)

Materials/Parts
Sealing Compound (Item 56, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Lift cylinders removed, (Para 16-6)
Erection cylinder removed, (Para 16-5)
Tension link removed, (Para 16-8)
Mast removed, (Para 16-9)

a. Removal.





CAUTION

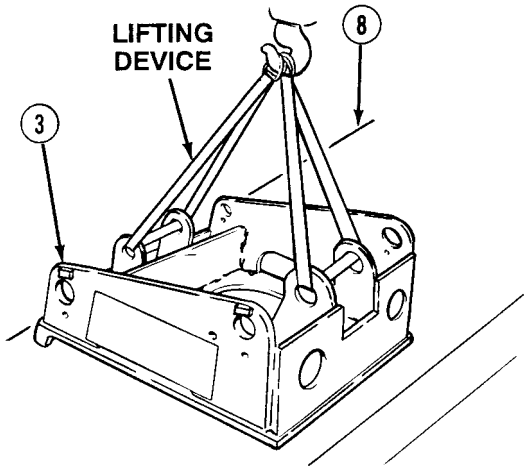
Note location of socket head screw and washer with flat spot combinations. Also note locations of hex head screw and flat spot combinations. They must be installed in same holes from which they were removed or damage to equipment may occur.

(1) Remove 10 screws (1) and washers (2) from turntable (3).

(2) Remove eight screws (4) and washers (5) from turntable (3).

WARNING

Turntable weighs 150 lbs (68 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



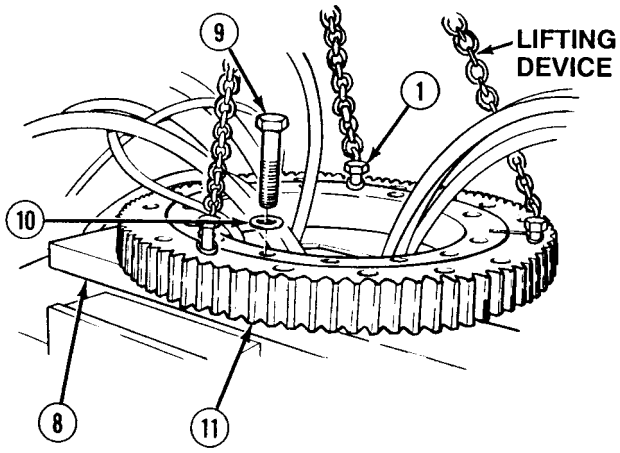
(3) Attach lifting device to turntable (3).

(4) Remove turntable (3) from crane subframe (8).

(5) Remove 16 screws (9) and washers (10) from gear (11).

WARNING

Gear weighs 135 lbs (61 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



(6) Attach lifting device to gear (11) with three screws (1).

(7) Remove gear (11) from crane subframe (8).

(8) Remove three screws (1) and lifting device from gear (11).

b. Installation.

WARNING

Gear weighs 135 lbs (61 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

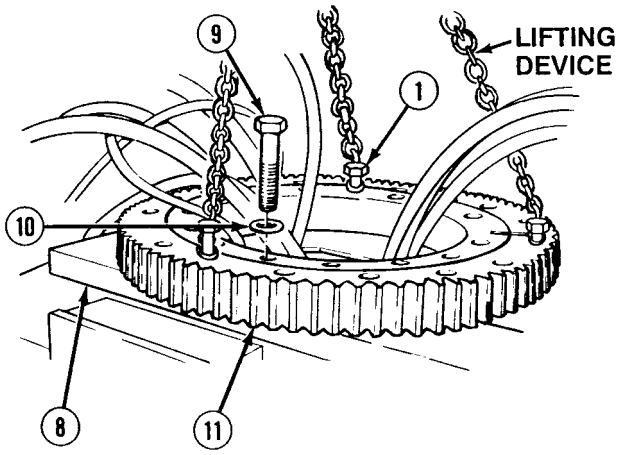
(1) Attach lifting device to gear (11) with three screws (1).

16-16. TURNTABLE AND GEAR REPLACEMENT (CONT).

NOTE

Letter G stamped on bearing faces down and centered on subframe.

(2) Install gear (11) on subframe (8) and pull hoses through gear (11).



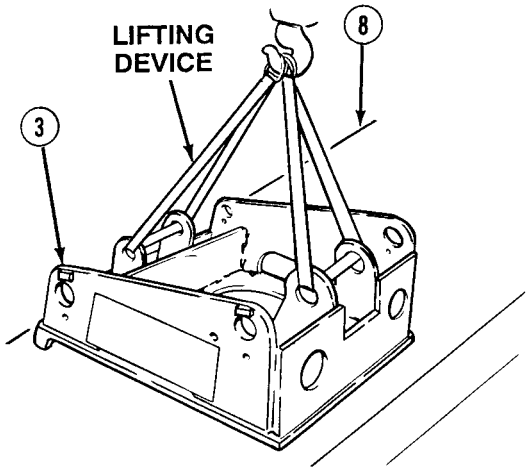
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound on threads of 16 screws (9).

(4) Install 16 screws (9) and washers (10) in gear (11). Tighten screws to 333 lb-ft (452 N·m).

(5) Remove three screws (1) and lifting device from gear (11).



WARNING

Turntable weighs 150 lbs (68 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(6) Attach lifting device to turntable (3).

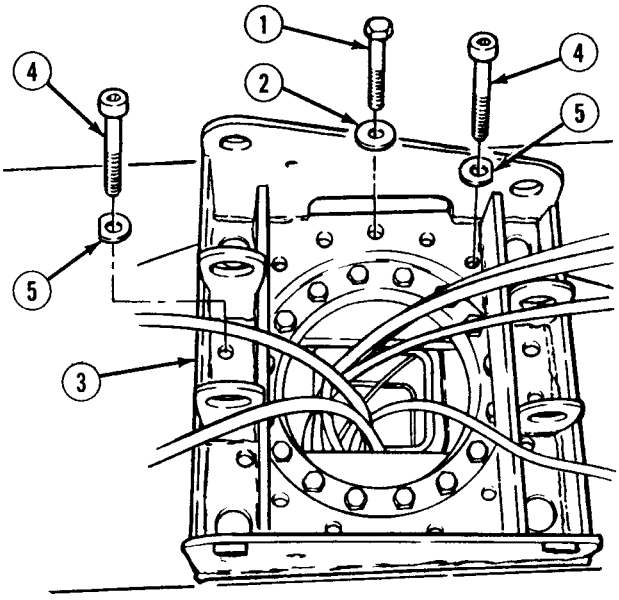
NOTE

Turntable must be positioned parallel to truck.

(7) Position turntable (3) on crane subframe (8) and pull hoses through turntable.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(8) Apply sealing compound on threads of eight screws (4).

(9) Install eight screws (4) and washers (5) in turntable (3). Tighten screws to 333 lb-ft (452 N·m).

(10) Apply sealing compound on threads of 10 screws (1).

(11) Install ten screws (1) and washers (2) in turntable (3). Tighten screws to 333 lb-ft (452 N·m).

c. Follow-On Maintenance:

- Install mast, (Para 16-9).
- Install erection cylinder, (Para 16-5).
- Install tension link, (Para 16-8).
- Install lift cylinders, (Para 16-6).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-17. CRANE SUBFRAME REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

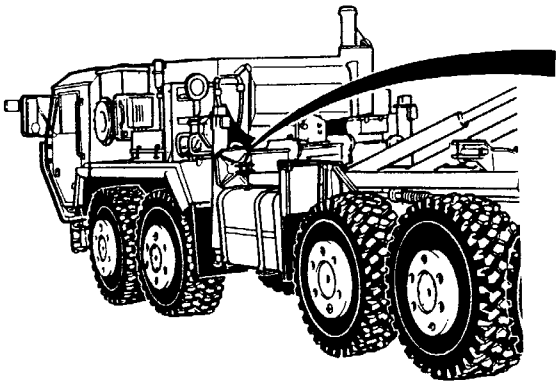
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Jackstand (4) (Item 132, Appendix F)
Wrench, Combination 1-1/2 in.
(Item 260, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 1500 lbs
(681 kg)
Wooden Block (2) (Appendix C)

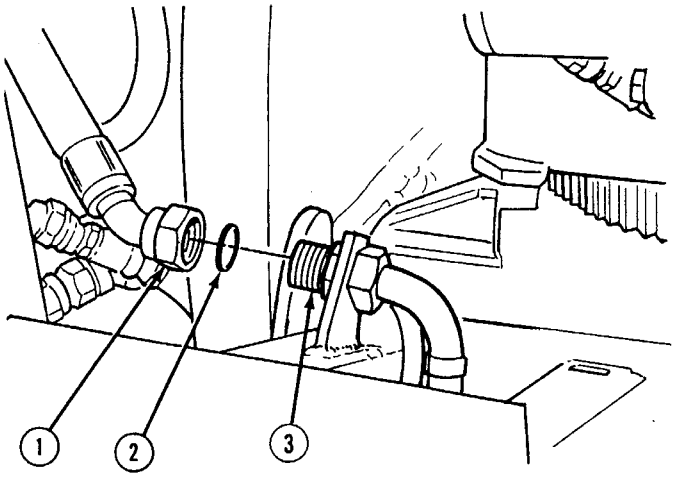
Materials/Parts
Oil, Hydraulic (Item 35, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (4) (Item 373, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9 2320-364-10)
Turntable and bearing removed, (Para 16-16)
Boom assembly removed, (Para 16-3)
Lift cylinders removed, (Para 16-6)
Erection cylinder removed, (Para 16-5)
Tension cylinder removed, (Para 16-8)
Outrigger cylinders removed, (Para 16-31)
Crane junction box removed, (Para 6-6)

a. Removal.

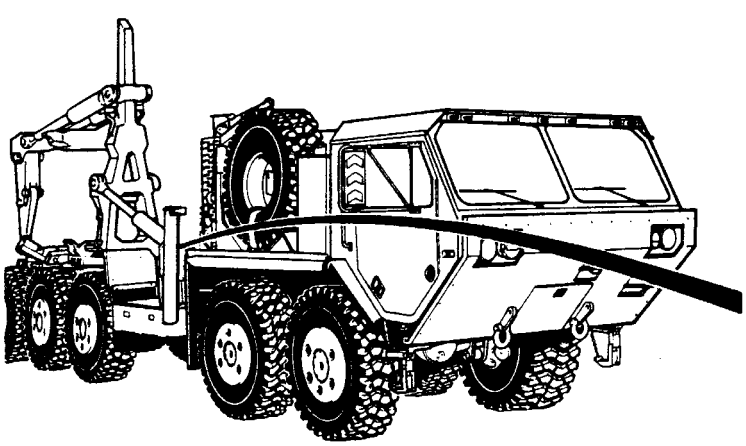


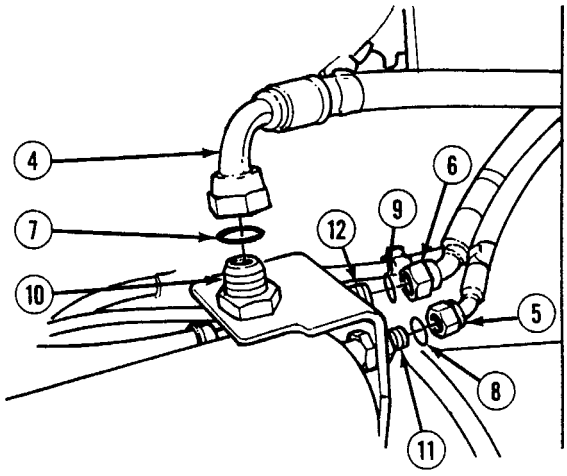


NOTE

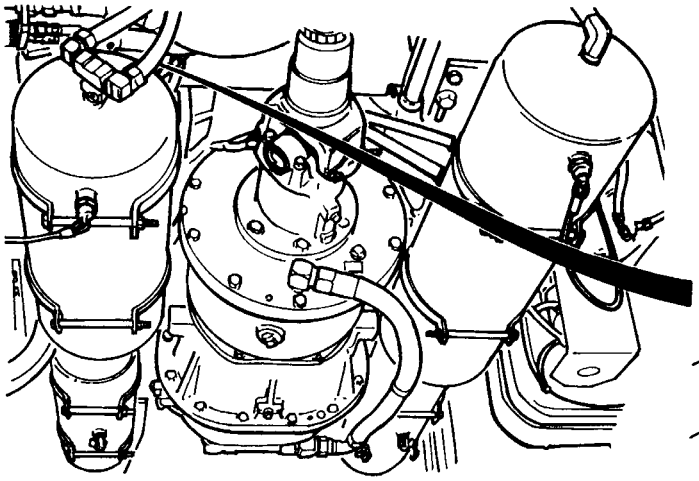
- Tag and mark hoses prior to removal.
- Cap and plug hoses and fittings after removal.

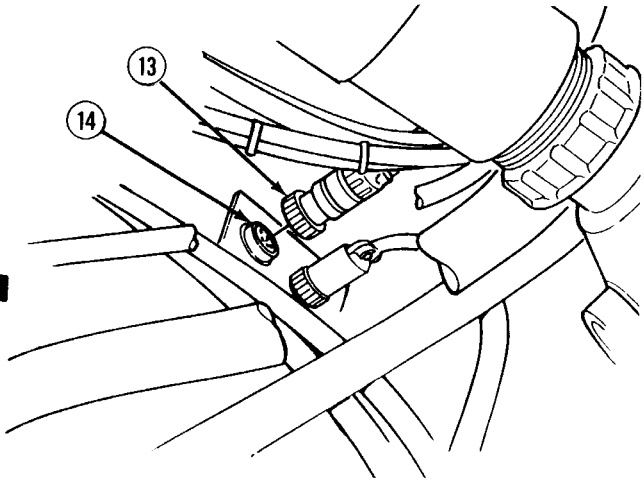
(1) Remove hose 2724 (1) and preformed packing (2) from fitting (3). Discard preformed packing.





(2) Remove hoses 2902 (4), 2776 (5) and 2694 (6) and preformed packing (7), (8) and (9) from fittings (10), (11) and (12). Discard preformed packings.



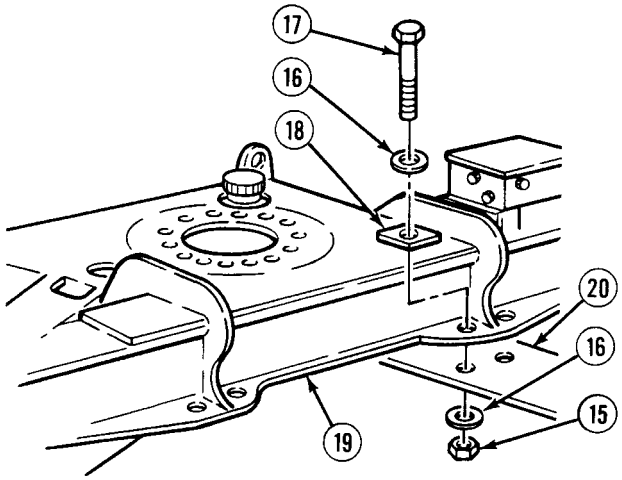


NOTE

Tag and mark connector prior to removal.

(3) Disconnect five-pin overload cable connector (13) from overload box MC29 connector (14).

(4) Remove 12 nuts (15), washers (16), screws (17), washers (16) and plates (18) from subframe (19) and bracket (20).



16-17. CRANE SUBFRAME REPLACEMENT (CONT).

WARNING

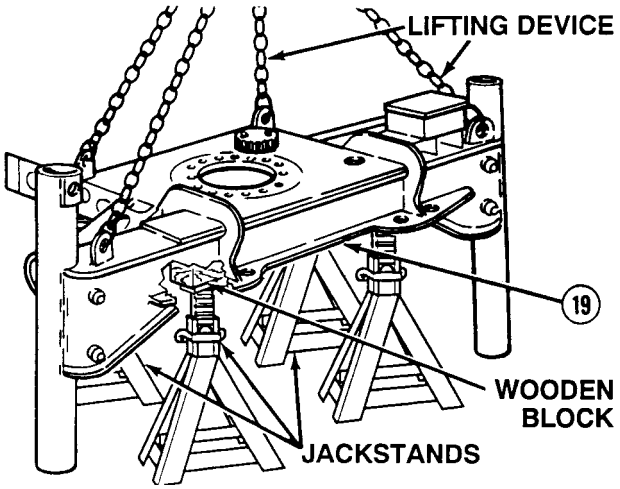
Subframe weighs 1,420 lbs (645 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(5) Attach lifting device to subframe (19) lift points.

(6) With the aid of an assistant, raise subframe (19) approximately two inches (51 mm) to assure that subframe is level.

(7) With the aid of an assistant, guide subframe (19) up and away from truck and place on jackstands and wooden blocks.

(8) Remove lifting device from subframe (19).

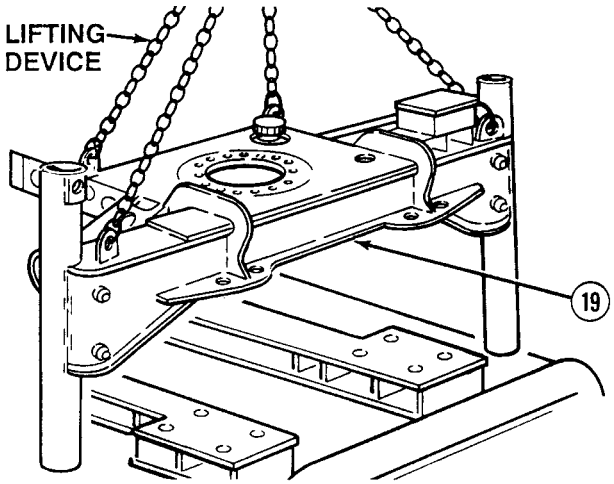


b. Installation.

WARNING

Subframe weighs 1,420 lbs (645 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to subframe (19) lift points.



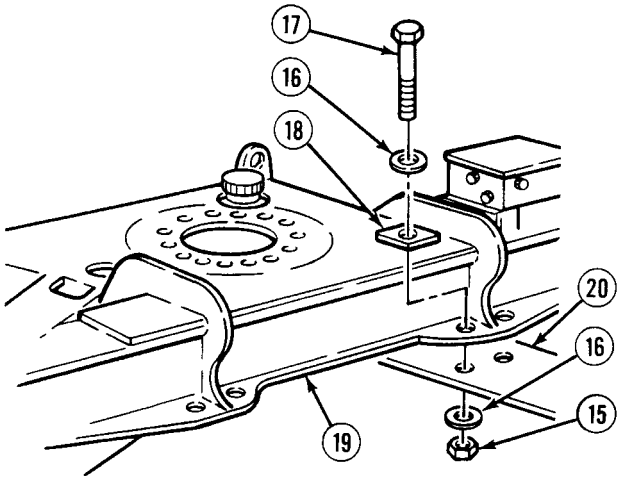
CAUTION

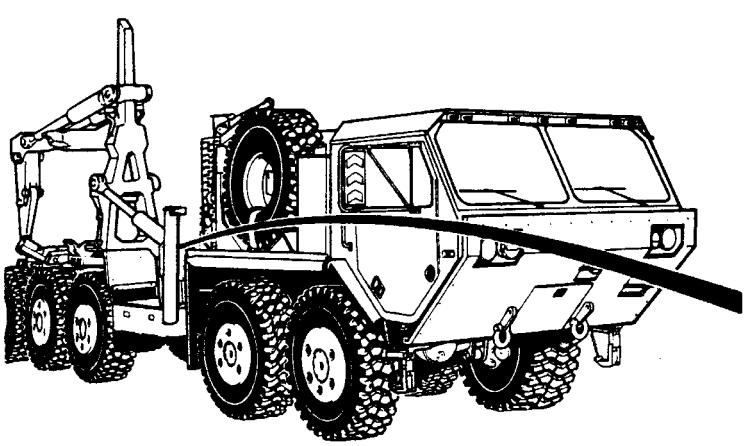
Be careful not to crush hoses and wires, or damage to equipment may result.

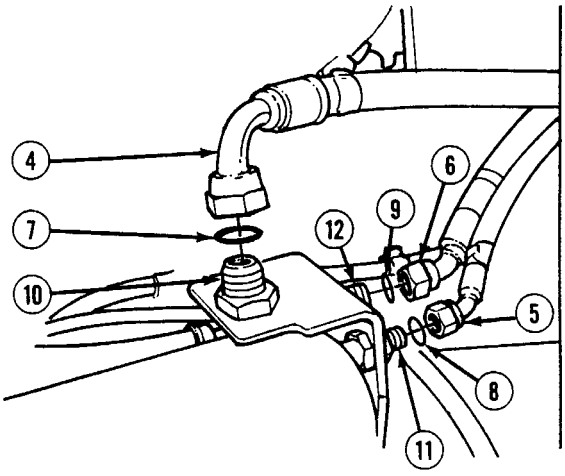
(2) With the aid of an assistant, guide subframe (19) and align with holes in truck frame (20).

(3) Install 12 plates (18), washers (16), screws (17), washers (16) and nuts (15) in bracket (20) and subframe (19). Tighten nuts to 370 lb-ft (502 N·m).

(4) Remove lifting device from subframe (19).

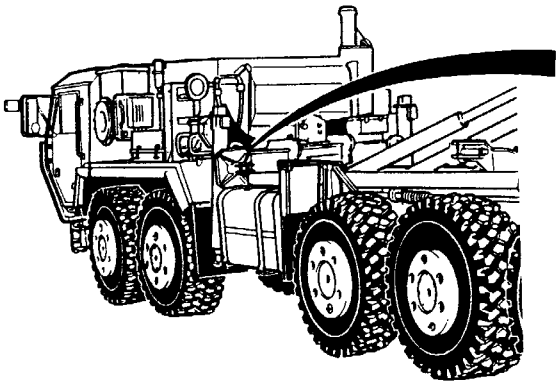


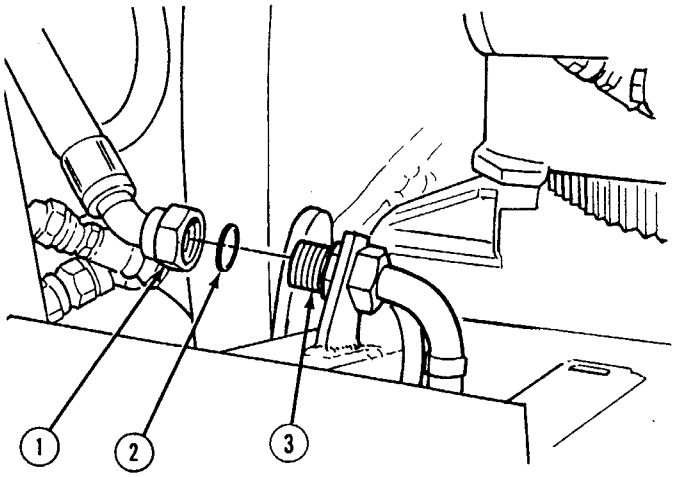




(5) Apply hydraulic oil to preformed packings (7), (8) and (9).

(6) Install hoses 2902 (4), 2776 (5) and 2694 (6) and preformed packings (7), (8) and (9) on fittings (10), (11) and (12).

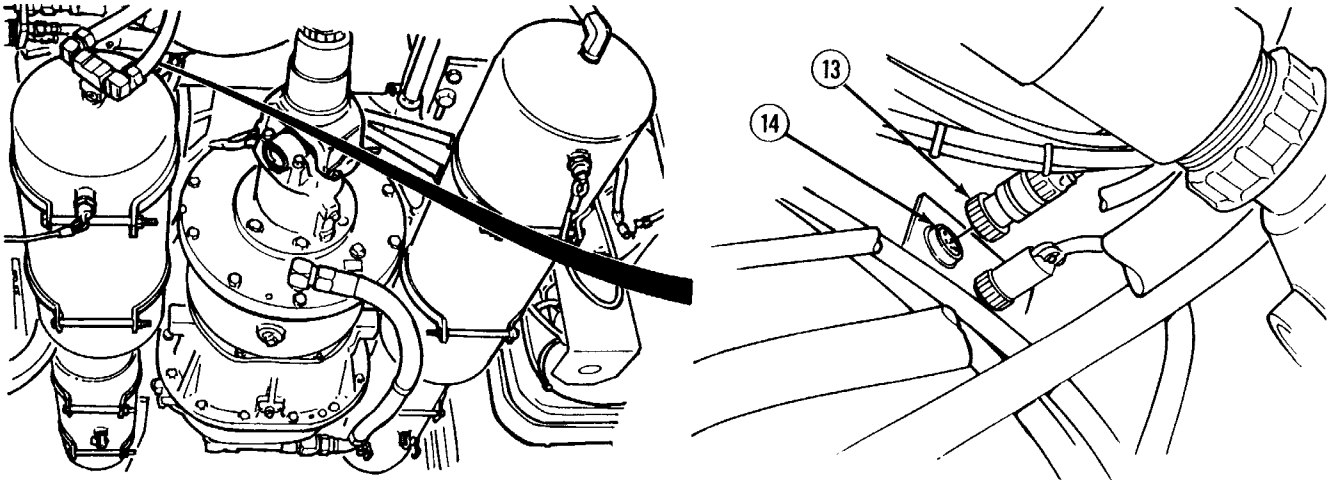




(7) Apply hydraulic oil to preformed packing (2).

(8) Install hose 2724 (1) and preformed packing (2) on fitting (3).

16-17. CRANE SUBFRAME REPLACEMENT (CONT).



(9) Connect five-pin connector (13) to overload box MC29 connector (14).

c. Follow-On Maintenance:

- Install crane junction box, (Para 6-6).
- Install turntable and bearing, (Para 16-16).
- Install erection cylinder, (Para 16-5).
- Install tension cylinders, (Para 16-8).
- Install lift cylinders, (Para 16-6).
- Install boom assembly, (Para 16-3).
- Install outrigger cylinders, (Para 16-31).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-18. SWING DRIVE GEAR REDUCER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 240, Appendix F)
Brush, Wire, Scratch (Item 23, Appendix F)
Cap and Plug Set, (Item 26, Appendix F)
Respirator, Air Filter (Item 195, Appendix F)
Sander, Portable, Disk Electric (Item 198, Appendix F)
Socket, Swivel 13/16 in. (Item 220, Appendix F)
Welder, Arc (Item 251, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 200 lbs (91 kg)
Screw (2) (3/8 in.-16 by 1-1/4 in.)
Washer, Flat (2) (3/8 in.)

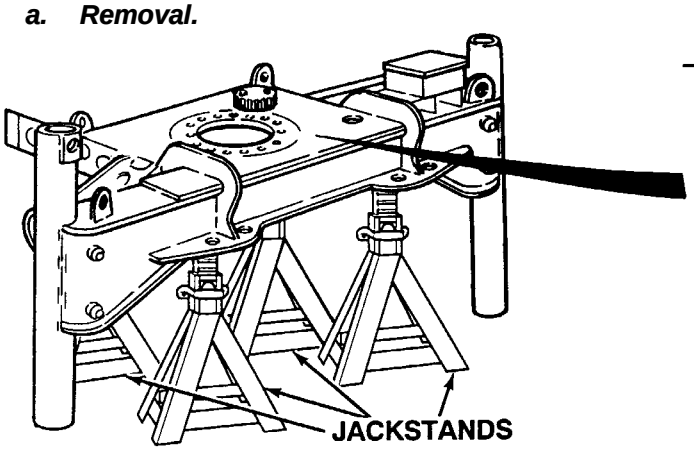
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 53, Appendix B)
Sealing Compound (Item 56, Appendix B)
Sealing Compound (Item 65, Appendix B)
Strip, Metal (Item 70, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (2) (Item 389, Appendix E)
Screw (Item 539, Appendix E)

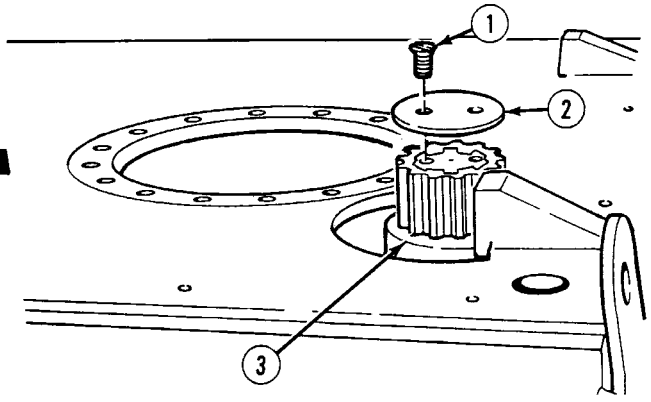
Personnel Required
Two

References
TC 9-237, Operator's Manual for Welding Theory and Application

Equipment Condition
Crane subframe assembly removed, (Para 16-17)

a. Removal.

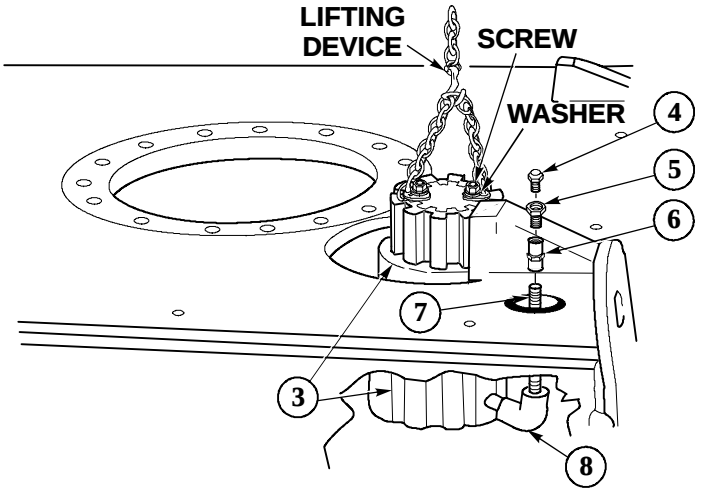




(1) Remove two screws (1) and cover (2) from swing drive gear reducer (3).

16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).

(2) Attach lifting device to swing drive gear reducer (3) with two screws and washers.



WARNING

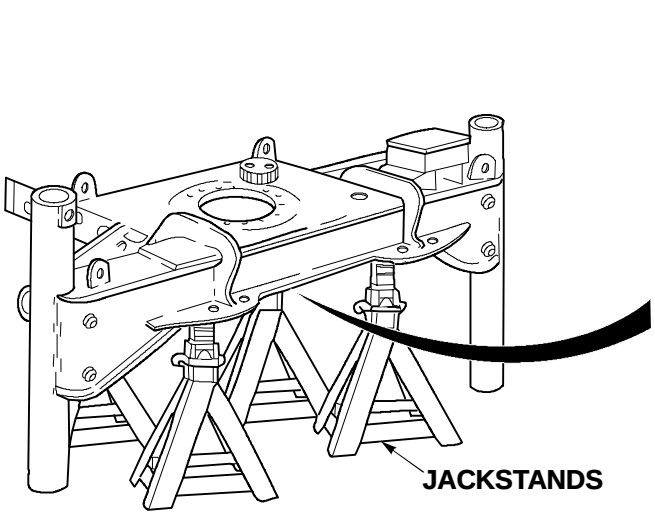
Swing drive gear reducer weighs 140 lbs (64 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

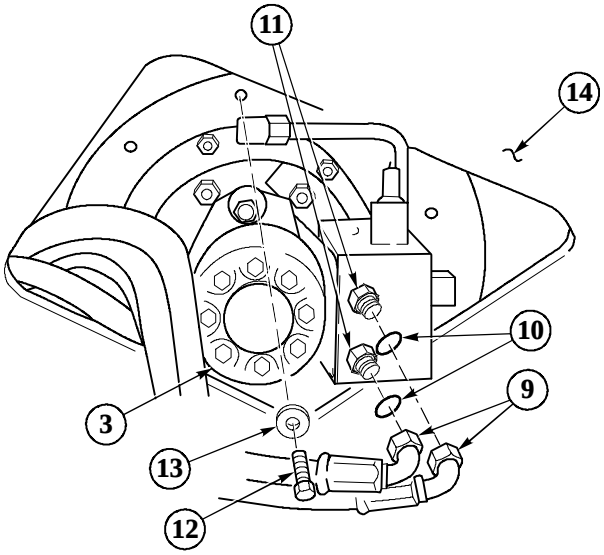
(3) Take-up slack in lifting device.

(4) Remove vent (4), reducer (5) and adapter (6) from fitting (7).

(5) Remove fitting (7) from elbow and fitting (8).

(6) Remove elbow and fitting (8) from swing drive gear reducer (3).





NOTE

Cap and plug hydraulic hoses and tubes after removal.

(7) Remove two hoses (9) and preformed packings (10) from fittings (11). Discard preformed packings.

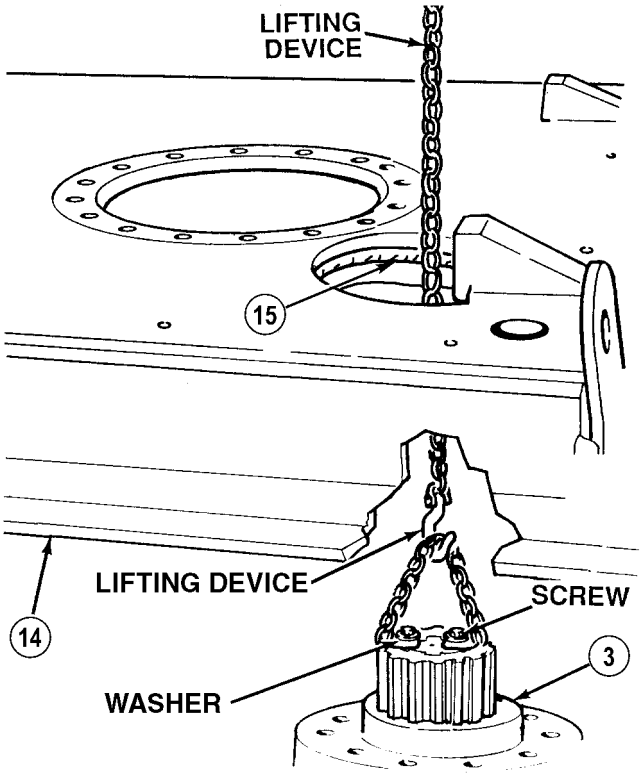
NOTE

Swivel socket may be needed to remove some screws.

(8) Remove nine screws (12) and washers (13) from under subframe assembly (14) and swing drive gear reducer (3).

(9) With the aid of an assistant, guide swing drive gear reducer (3) from subframe assembly (14).

(10) Remove two screws, washers and chain from swing drive assembly gear reducer (3).



WARNING

- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production and chest tightness. The following precautions must be taken whenever using CARC paint:
- NEVER weld or cut CARC-coated materials.

NOTE

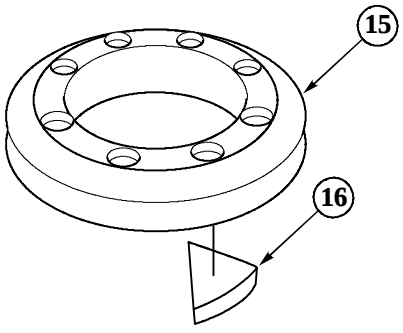
Perform Steps (11) through (14) if a new gear reducer is to be installed.

(11) Using a wire scratch brush, remove CARC paint from area four in. (102 mm) around welding/grinding points of spacer ring (15).

(12) Grind off weld from spacer ring (15) and subframe assembly (14) and remove spacer ring (15).

(13) Using a wire scratch brush, remove CARC paint from area four in. (102 mm) around welding/grinding points of wedge (16).

(14) Grind off weld from two wedges (16) and spacer ring (15) and remove two wedges (16).



16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).

b. Installation.

WARNING

Bearing gear weighs 135 lbs. (61 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

NOTE

- Perform Steps (1) through (20) if installing a new gear reducer.
- If installing original gear reducer, go to Step (21).
- Screws used in Step (1) were removed with turntable.

(1) Attach lifting device to bearing gear (17) with three screws (18).

NOTE

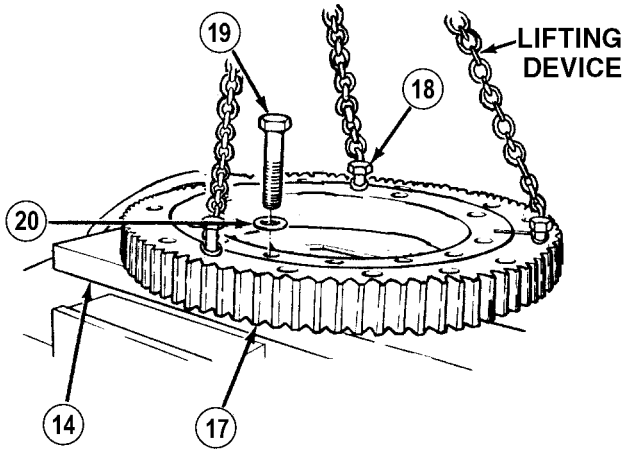
Letter G stamped on bearing faces down and centered on subframe.

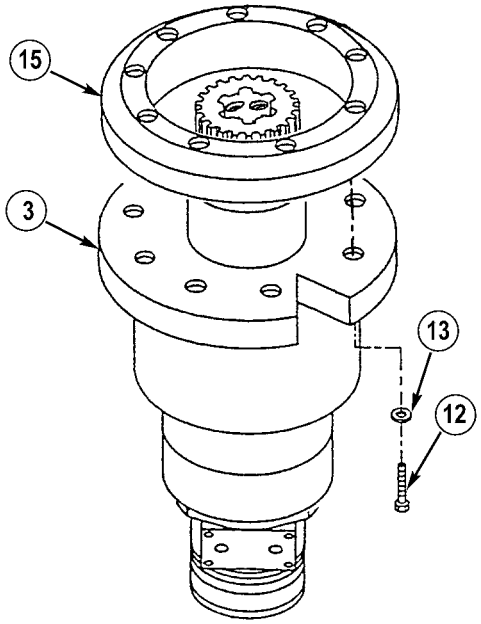
(2) Position bearing gear (17) on subframe (14).

(3) Install 16 screws (19) and washers (20) in bearing gear (17). Tighten screws to 333 lb-ft (452 N·m).

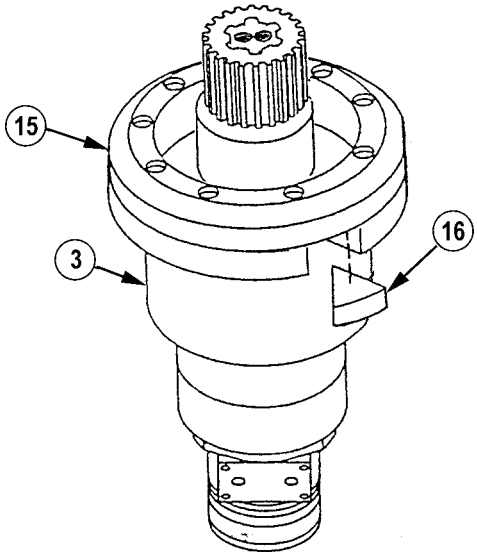
(4) Remove three screws (18) and lifting device from bearing gear (17).

(5) Install spacer ring (15) on gear reducer (3) with nine screws (12) and washers (13). Tighten screws to 99 lb-ft (134 N·m).





(6) Position two wedges (16) in “V” shaped cut-outs on swing drive gear reducer (3) and against spacer ring (15).



WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

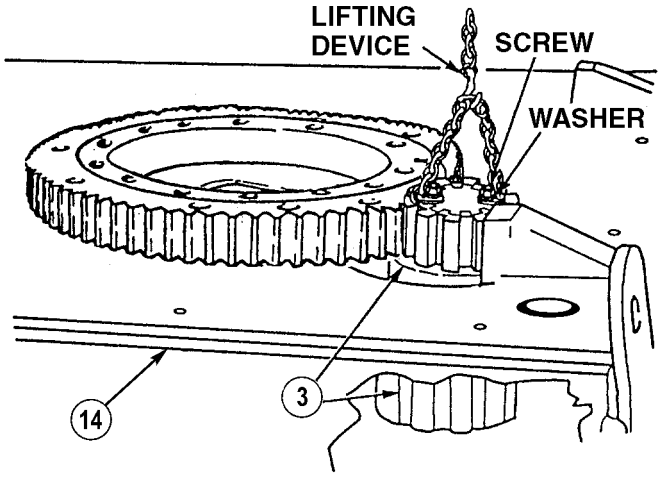
CAUTION

Do not weld wedge to swing drive gear reducer. Only weld wedge to spacer ring or damage to equipment will result.

(7) Weld two wedges (16) to spacer ring (15) in accordance to TC 9-237.

(8) Install lifting device on swing drive gear reducer (3) with two washers and screws.

(9) Position swing drive gear reducer (3) under subframe assembly (14).



WARNING

Swing drive gear reducer weighs 140 lbs. (64 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(10) Position lifting device through subframe assembly (14) and attach to chain.

(11) With the aid of an assistant, use lifting device and position swing drive gear reducer (3) in subframe assembly (14).

16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).

NOTE

The .005 in. (.127 mm) metal strip must be positioned around tooth on spur gear and between spur gear and bearing gear to obtain .010 in. (.254 mm) backlash.

(12) Position .005 in. (.127 mm) metal strip around tooth of spur gear (21) and position spur gear (21) with metal strip on bearing gear (17).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

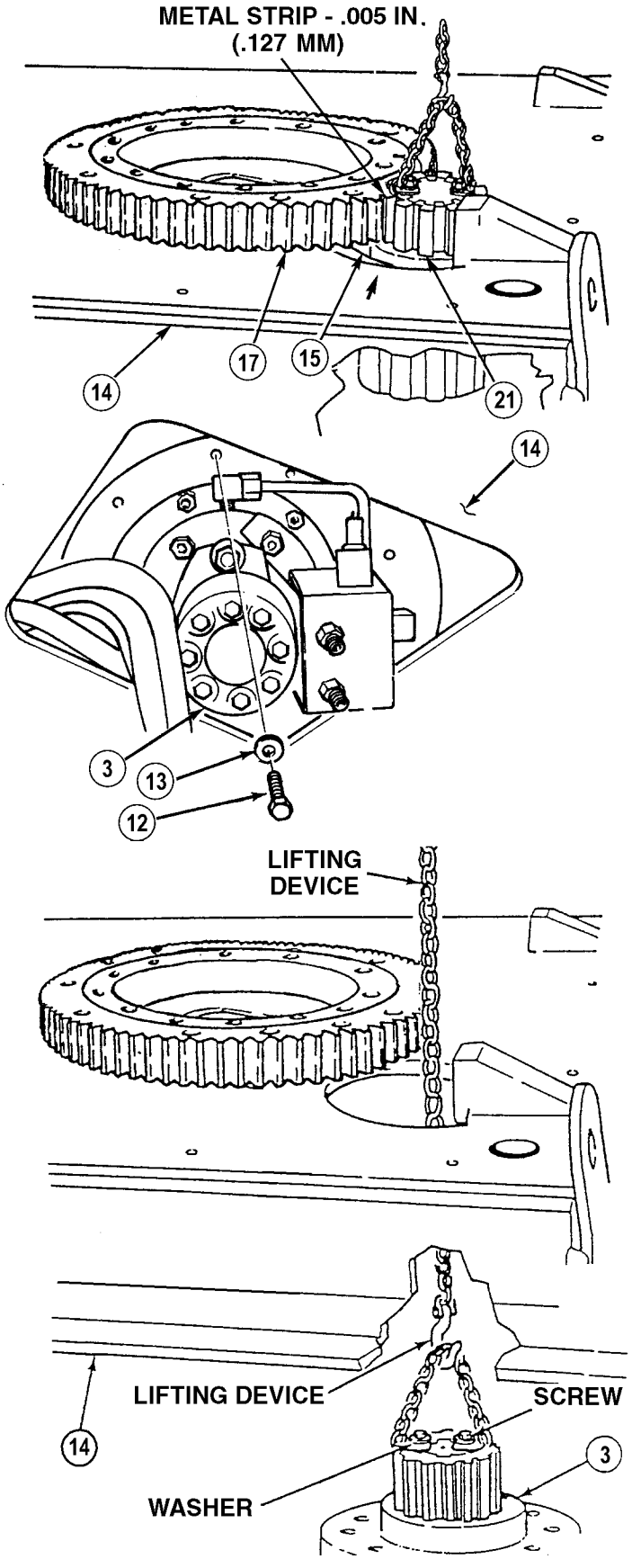
(13) Tack weld spacer ring (15) to subframe assembly (14) in accordance to TC 9-237.

WARNING

Swing drive gear reducer weighs 140 lbs. (64 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(14) With the aid of an assistant and using lifting device, remove nine screws (12), washers (13) and swing drive gear reducer (3) from subframe assembly (14).

(15) Remove two screws, washers and chain from swing drive assembly gear reducer (3).



(16) Remove sixteen screws (19) and washers (20) from bearing gear (17).

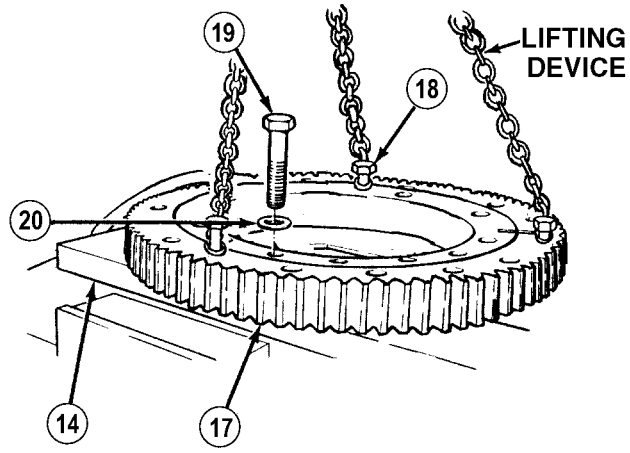
WARNING

Gear weighs 135 lbs. (61 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(17) Attach lifting device to gear (17) with three screws (18).

(18) Remove bearing gear (17) from subframe assembly (14).

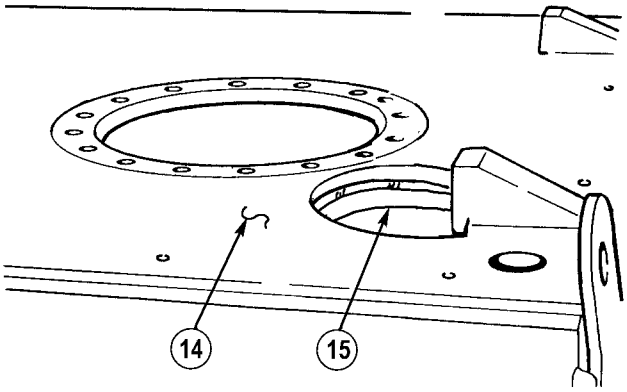
(19) Remove three screws (18) and lifting device from bearing gear (17).



WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(20) Weld spacer ring (15) to subframe assembly (14) in accordance to TC 9-237.



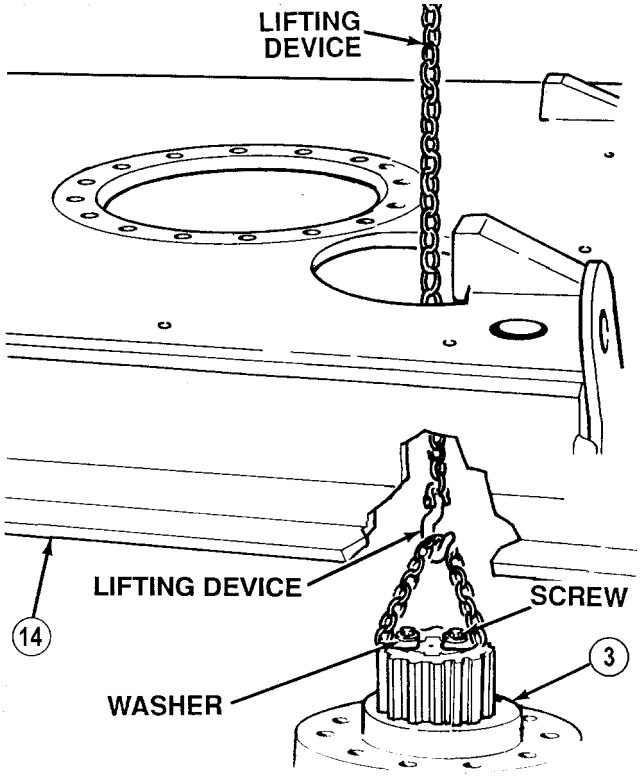
(21) Position swing drive gear reducer (3) under subframe assembly (14).

WARNING

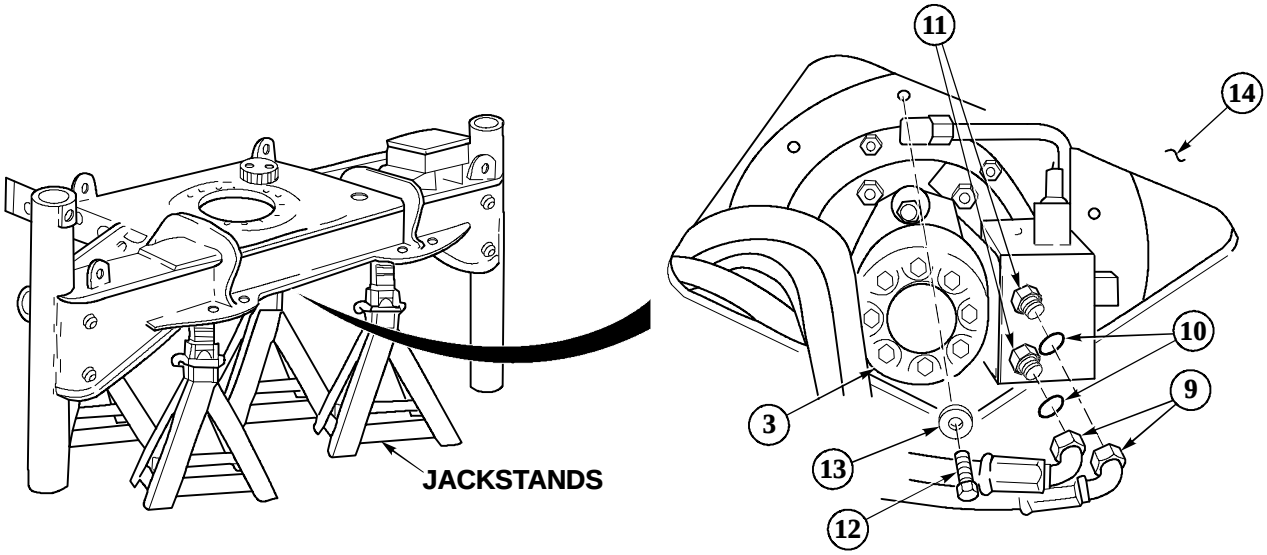
Swing drive gear reducer weighs 140 lbs. (64 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(22) Position lifting device through subframe assembly (14) and attach to chain.

(23) With the aid of an assistant, use lifting device and position swing drive gear reducer (3) in subframe assembly (14).



16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

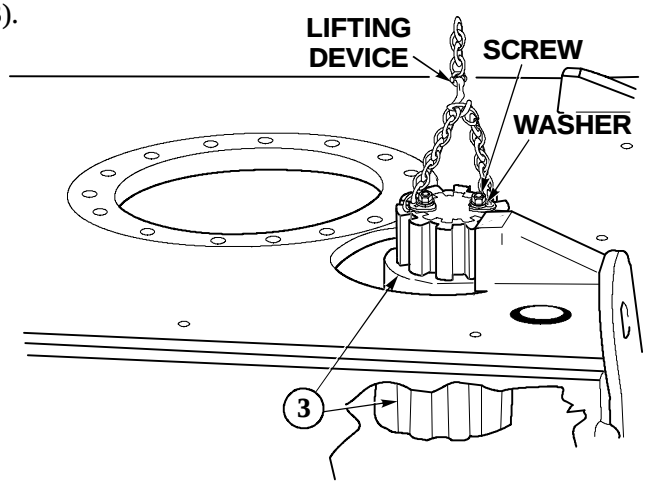
(24) Apply sealing compound on threads of nine screws (12).

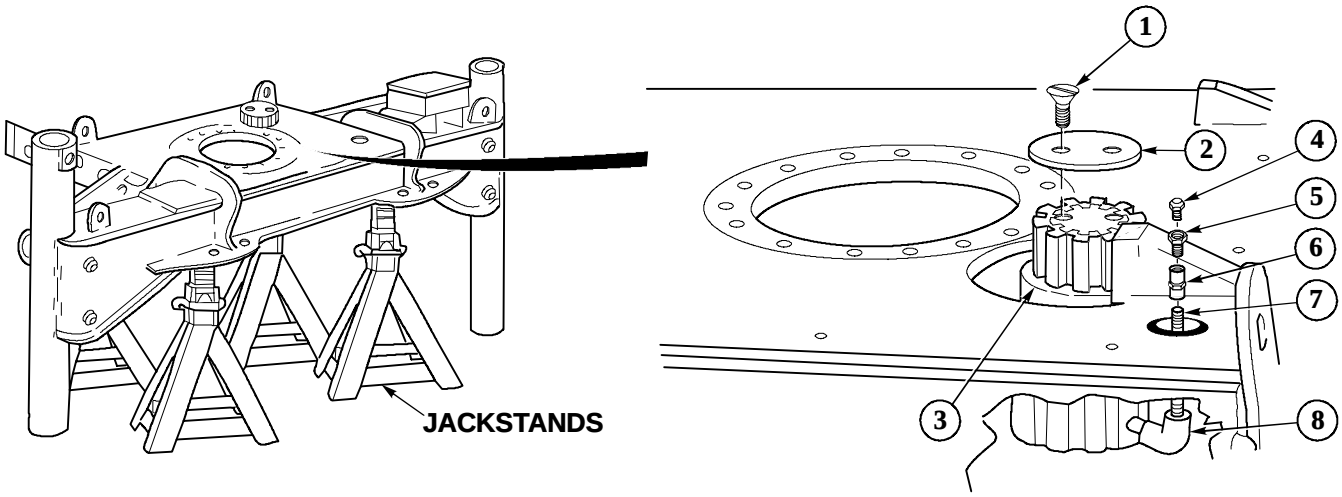
(25) Install nine washers (13) and screws (12) in swing drive gear reducer (3) and subframe assembly (14). Tighten screws to 99 lb-ft (134 N·m).

(26) Apply hydraulic oil to two preformed packings (10).

(27) Install two preformed packings (10) and hoses (9) on fittings (11).

(28) Remove lifting device, two screws and washers from swing drive gear reducer (3).





WARNING

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(29) Apply sealing compound on threads of fitting (7) and elbow and fitting (8).

(30) Install elbow and fitting (8) in swing drive gear reducer (3).

(31) Install fitting (7) in elbow and fitting (8).

(32) Apply sealing compound to threads of fitting (7), reducer (5) and vent (4).

(33) Install adapter (6), reducer (5) and vent (4) on fitting (7).

(34) Apply sealing compound on threads of two screws (1).

(35) Install cover (2) on swing drive gear reducer (3) with two screws (1). Tighten screws to 19 lb-ft (25.7 N·m).

c. Follow-On Maintenance:

- Install crane subframe assembly, (Para 16-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-19. SWING DRIVE MOTOR VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

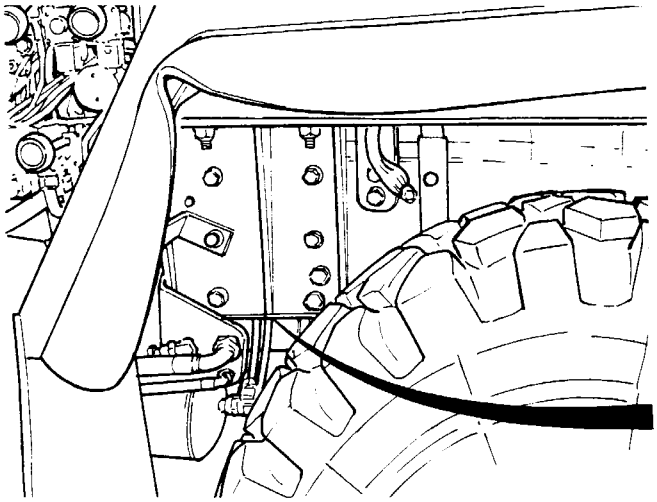
INITIAL SETUP

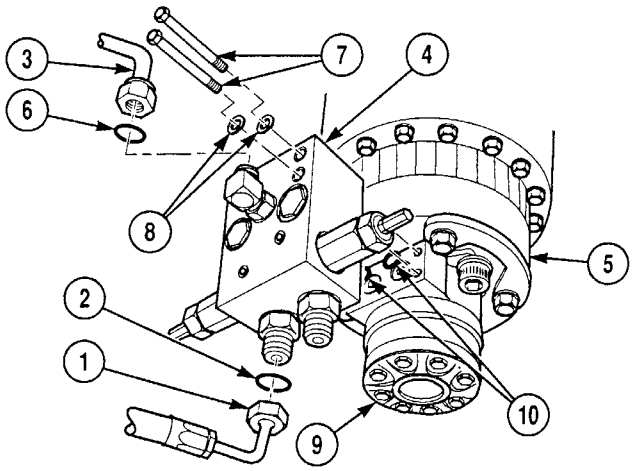
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 149, Appendix E)
Lockwasher (4) (Item 283, Appendix E)
Packing, Preformed (2) (Item 344, Appendix E)
Packing, Preformed (Item 347, Appendix E)
Packing, Preformed (2) (Item 348, Appendix E)
Packing, Preformed (4) (Item 389, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses and tubes prior to removal.
- Cap and plug hoses and tubes after removal.

(1) Position drain pan under two hoses (1).

(2) Disconnect two hoses (1) and remove preformed packings (2). Discard preformed packings.

(3) Disconnect tube (3) from swing motor valve (4) and brake (5) and remove two preformed packings (6). Discard preformed packings.

(4) Remove four screws (7) and lockwashers (8) from swing motor valve (4). Discard lockwashers.

(5) Remove swing motor valve (4) from motor (9).

(6) Remove and discard two preformed packings (10) from motor (9).

16-19. SWING DRIVE MOTOR VALVE REPAIR (CONT).

b. Disassembly.

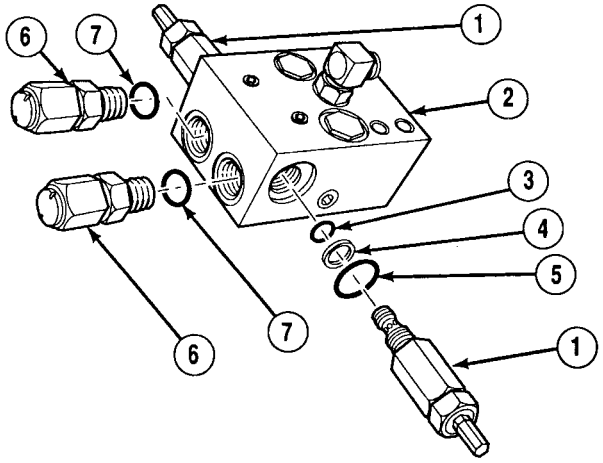
NOTE

Tag and mark relief valves prior to disassembly.

(1) Remove two relief valves (1) from valve (2).

(2) Remove two preformed packings (3), backup rings (4) and two preformed packings (5) from valves (1). Discard preformed packings and backup rings.

(3) Remove two fittings (6) and preformed packings (7). Discard preformed packings.

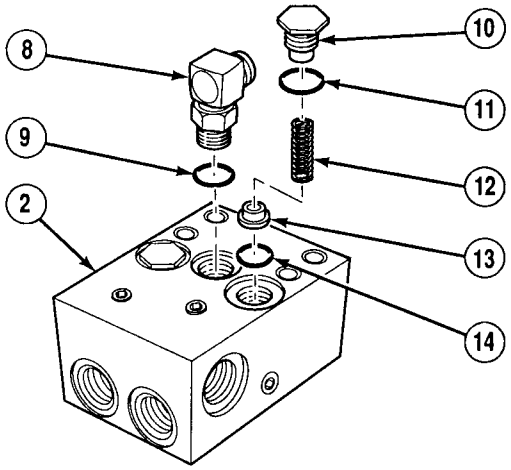


NOTE

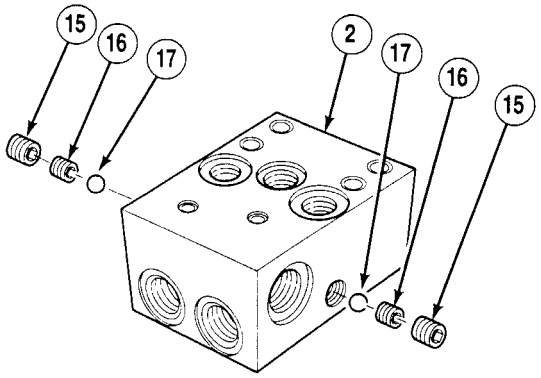
Note location and position of elbow prior to removal.

(4) Remove elbow (8) and preformed packing (9) from valve (2). Discard preformed packing.

(5) Remove two check valves (10), preformed packings (11), springs (12), valve seats (13) and preformed packings (14). Discard preformed packings.



(6) Remove two plugs (15), seats (16) and ball bearings (17) from valve (2).



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for nicks, burrs, scratches or dents.

(3) Replace damaged parts.

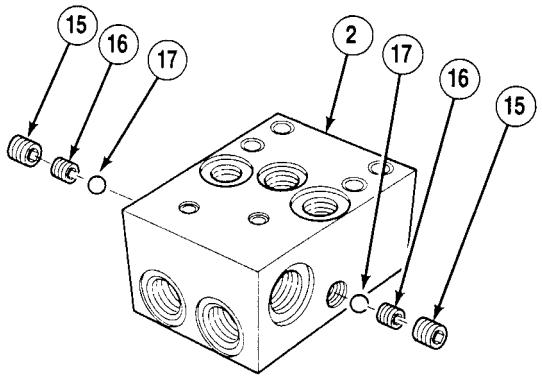
d. Assembly.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of two plugs (15).

(2) Install two ball bearings (17), seats (16) and plugs (15) in valve (2).



16-19. SWING DRIVE MOTOR VALVE REPAIR (CONT).

(3) Apply hydraulic oil to preformed packings (14) and (11).

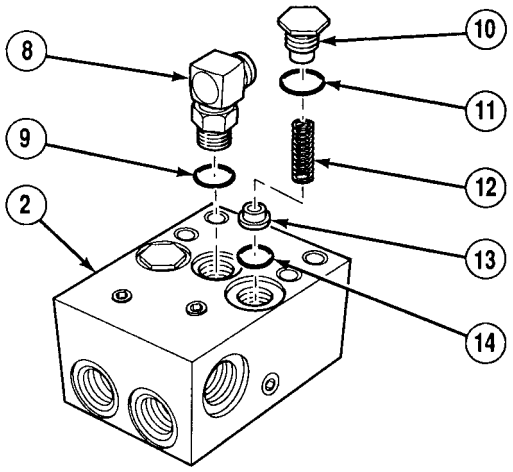
(4) Install two preformed packings (14), valve seats (13), springs (12), preformed packings (11) and check valves (10) in manifold (2).

NOTE

Position elbow as noted prior to removal.

(5) Apply hydraulic oil to preformed packing (9).

(6) Install preformed packing (9) and elbow (8) in valve (2).



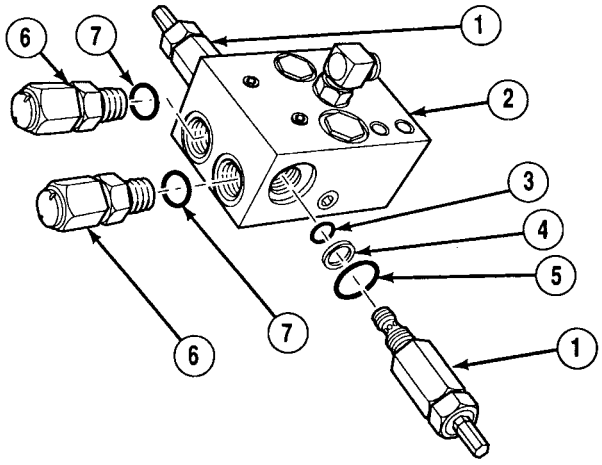
(7) Apply hydraulic oil to two preformed packings (7).

(8) Install two preformed packings (7) and fittings (6) in valve (2).

(9) Apply hydraulic oil to preformed packings (5) and (3) and back up rings (4).

(10) Install two preformed packings (5), backup rings (4) and preformed packings (3) on two relief valves (1).

(11) Install two relief valves (1) in valve (2).



e. Installation.

(1) Apply hydraulic oil to two preformed packings (10).

(2) Install two preformed packings (10) in motor (9).

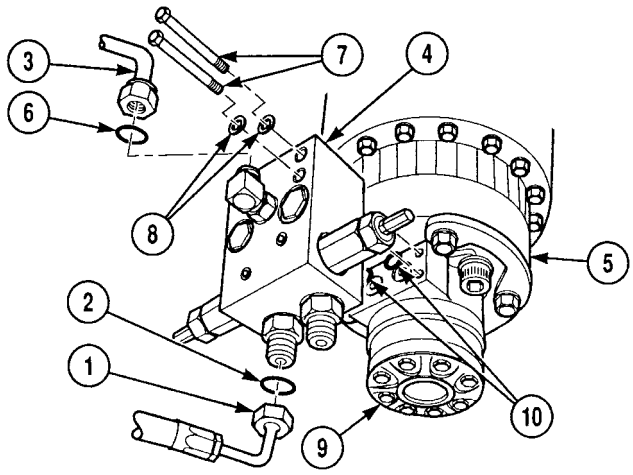
(3) Install swing motor valve (4) on motor (9) with four lockwashers (8) and screws (7). Tighten screws to 108 lb-in (12 N·m).

(4) Apply hydraulic oil to two preformed packings (6).

(5) Install two preformed packings (6) and tube (3) on brake (5) and valve (4).

(6) Apply hydraulic oil to two preformed packings (2).

(7) Install two preformed packings (2) and hoses (1) on swing motor valve (4).



f. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-20. SWING DRIVE MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

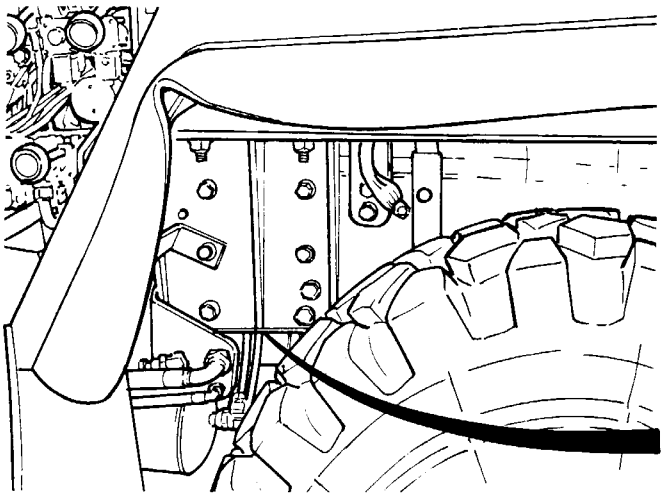
INITIAL SETUP

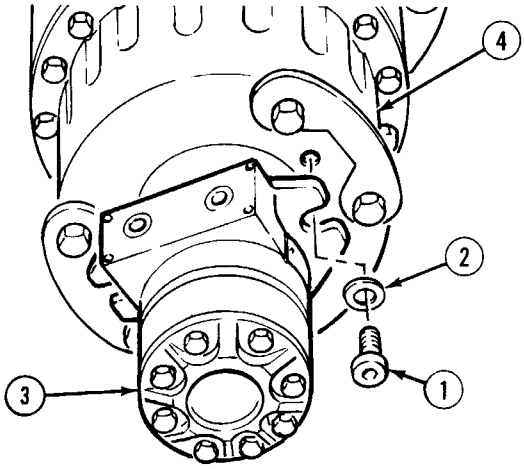
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Socket, Socket Head Screw, 3/8 in., 1/2 in. Drive
(Item 213, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Sealing Compound (Item 56, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Swing motor valve removed, (Para 16-19)

a. Removal.





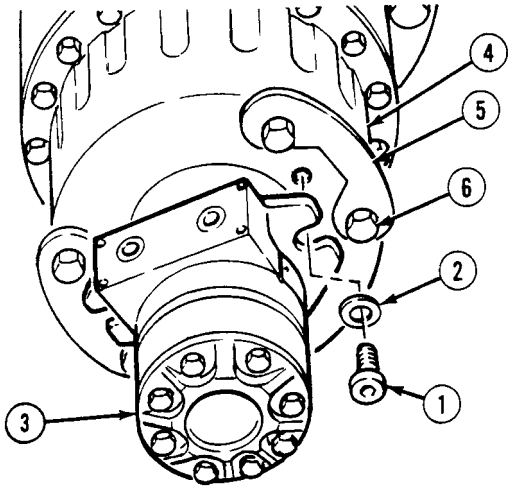
(1) Remove two screws (1) and washers (2) from motor (3).

(2) Remove motor (3) from swing drive gear reducer (4).

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(1) Apply sealing compound to threads of two screws (1).

(2) Install motor (3) on swing drive gear reducer (4) with two lockwashers (2) and screws (1). Tighten screws to 115 lb-ft (156 N·m).

NOTE

Perform Step (3) if brackets are loose.

(3) Position two brackets (5) and tighten four screws (6) to 35 lb-ft (47 N·m).

c. Follow-On Maintenance:

- Install swing motor valve, (Para 16-19).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-21. SWING DRIVE BRAKE REPLACEMENT.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

INITIAL SETUP

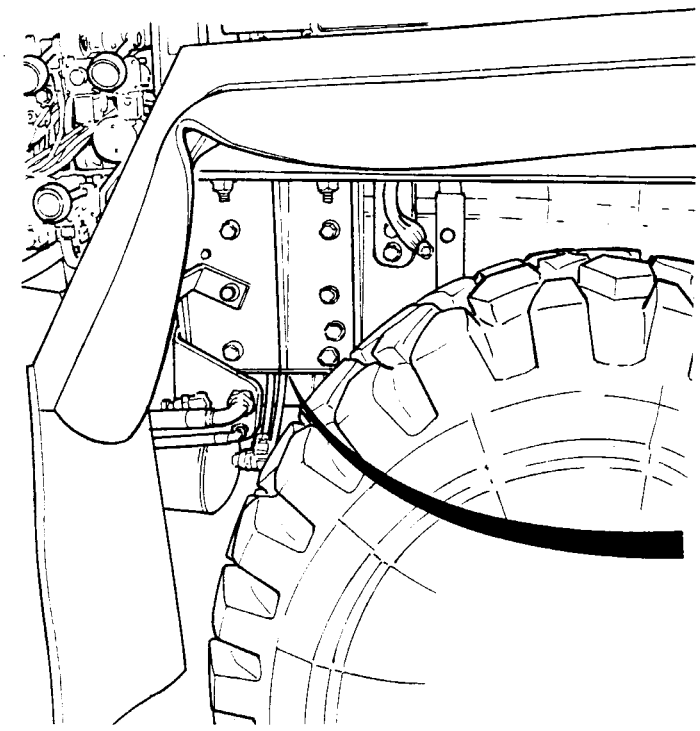
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

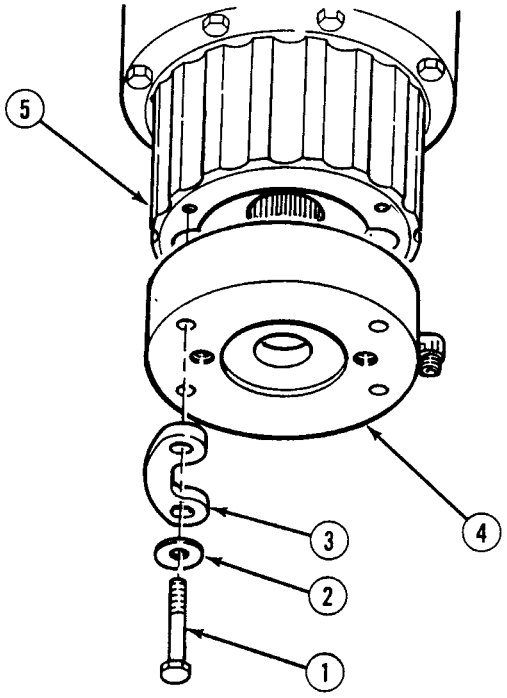
Materials/Parts
Adhesive (Item 1, Appendix B)
Sealant, Adhesive (Item 49, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 54, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Swing drive motor removed, (Para 16-20)
Driveshaft removed, (TM 9-2320-364-20)

a. Removal.





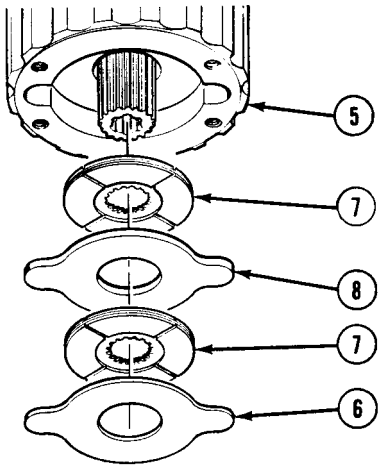
(1) Remove four screws (1), washers (2) and two stops (3) from brake cylinder housing (4).

NOTE

- Brake is spring loaded.
- Disc and stators may drop when brake is removed.

(2) Remove brake cylinder housing (4) from swing drive assembly (5).

(3) Remove spacer (6), disc (7), spacer (8) and disc (7) from swing drive assembly (5).



b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect each part for cracks, breaks, gouges, pitting and stripped threads.

(4) Replace damaged parts.

(5) Inspect spacer thickness. If spacers are under 0.225 in. (5.72 mm), replace spacer.

(6) Inspect spacer thickness. If spacer is under 0.118 in. (3.00 mm), replace spacer.

(7) Inspect disc thickness. If disc is under 0.21 in. (5.33 mm), replace disc.

16-21. SWING DRIVE BRAKE REPLACEMENT (CONT).

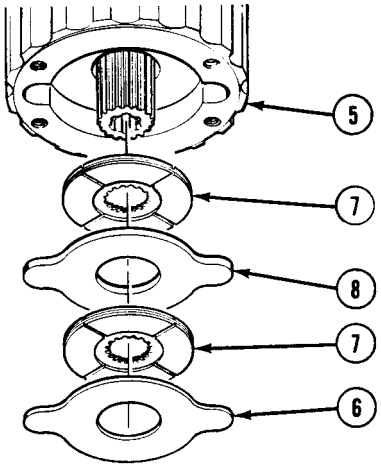
c. Installation.

(1) Install disc (7) in swing drive assembly (5).

NOTE

Thick spacer is installed first.

(2) Install spacer (8), disc (7) and spacer (6) in swing drive assembly (5).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply adhesive to back of brake cylinder housing (4).

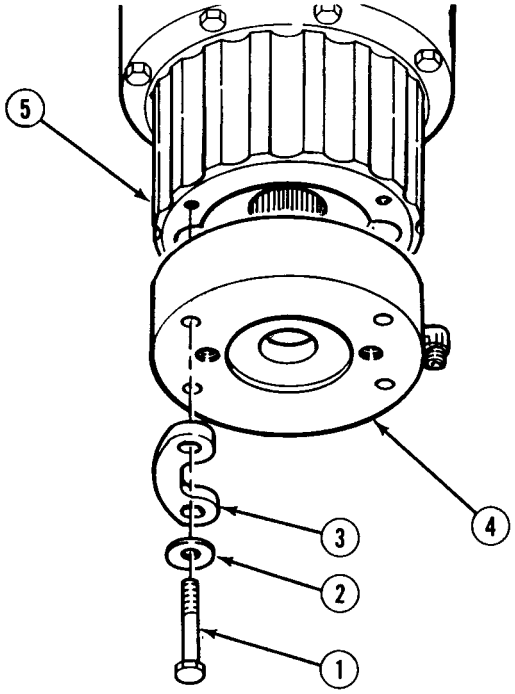
NOTE

Brake is spring loaded.

(4) Align and install brake cylinder housing (4) on swing drive assembly (5).

(5) Apply sealing compound on threads of four screws (1).

(6) Position two stops (3), four washers (2) and screws (1). Tighten screws to 35 lb-ft (47 N·m).



d. Follow-On Maintenance:

- Install swing drive motor, (Para 16-20).
- Install driveshaft, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-22. ACCUMULATOR SERVICE.

This task covers:

a. Service

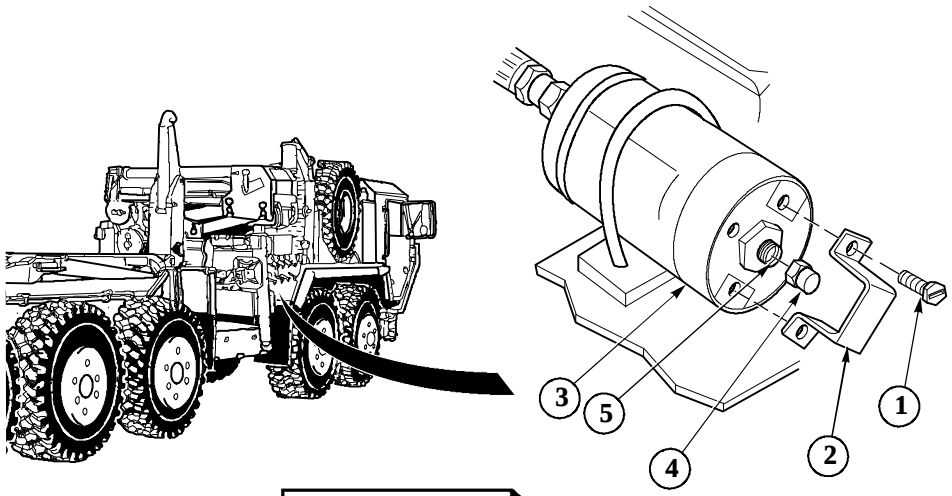
b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Charging Kit, Pressure
(Item 30, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Service.



WARNING

- The crane hydraulics system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.
- Accumulator testing and servicing can expose personnel to high pressure nitrogen. Use of proper safety equipment is required to prevent serious injury or death.

NOTE

- Accumulator can only be accurately serviced when there is 0 psi (0 kPa) present in all crane hydraulic circuits.
- Ensure that all crane control levers are manually operated to the full up and down positions. Failure to comply could result in trapped hydraulic pressure, resulting in incorrect accumulator service readings.

(1) Remove two screws (1) and guard (2) from accumulator (3).

(2) Remove valve stem cap (4) from valve stem (5).

16-22. ACCUMULATOR SERVICING (CONT).

WARNING

Ensure charging cylinder contains dry nitrogen. Dry nitrogen tanks are marked with one or two black bands. Certain other gasses can cause accumulator to explode. Failure to comply may result in injury to personnel.

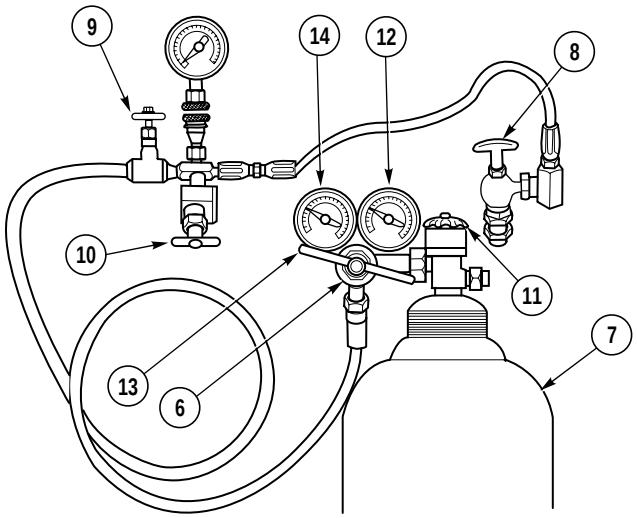
(3) Attach charging regulator (6) to nitrogen cylinder (7).

(4) Position valve (8) on valve stem (5). Do not tighten valve (8).

(5) Back out stem of valve (8) until stem no longer contacts valve stem core (5).

(6) Close valves (9) and (10).

(7) Open nitrogen cylinder shutoff valve (11) and observe nitrogen cylinder pressure gage (12). Pressure must be greater than 250 psi (1,724 kPa).



NOTE

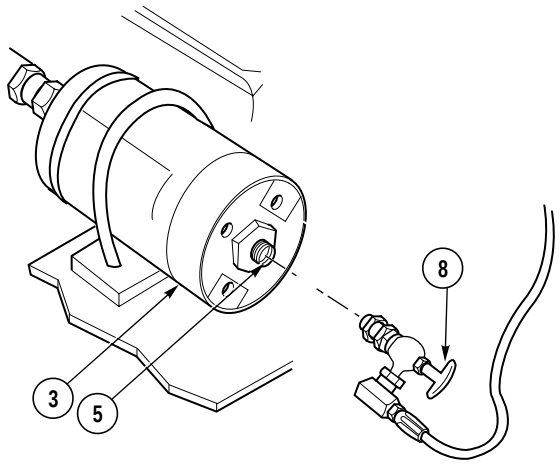
Pressure regulator valve is opened by turning clockwise and closed by turning counter-clockwise until handle turns freely.

(8) Open pressure regulator valve (13) until gage (14) reaches between 15 and 20 psi (103 and 138 kPa), then close pressure regulator valve (13).

(9) Open valve (10) and tighten valve (8) just before gage (14) reaches 0 psi.

(10) Open pressure regulator valve (13) until gage (14) reads between 190 and 210 psi (1,310 and 1,448 kPa).

(11) Turn stem of valve (8) clockwise until nitrogen begins to enter accumulator (3). Allow accumulator (3) to fill slowly.



(12) Close pressure regulator valve (13) when sound of nitrogen flowing into accumulator (3) has stopped.

(13) Close valve (10) and open valve (9) slowly to purge accumulator (3).

(14) When nitrogen stops flowing from accumulator (3), close valve (9).

(15) Turn stem of valve (8) fully counter-clockwise.

(16) Repeat Steps (8) through (12) to charge accumulator (3).

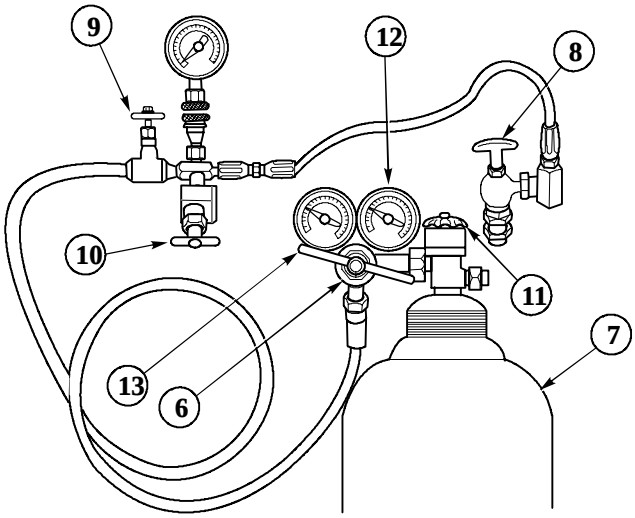
(17) Turn stem of valve (8) fully counter-clockwise.

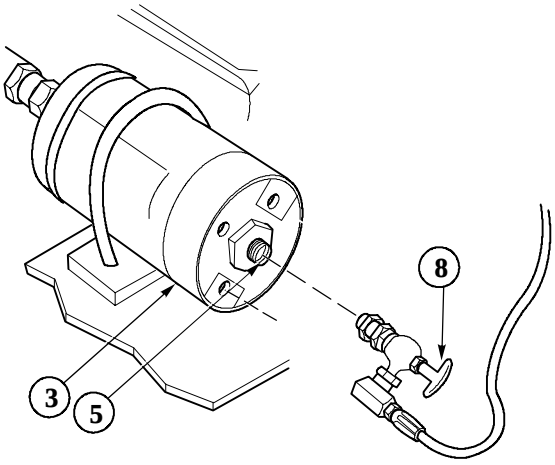
(18) Open valve (9) slowly to release pressure.

(19) Remove valve (8) from valve stem (5).

(20) Close nitrogen cylinder shut-off valve (11).

(21) Remove charging regulator (6) from nitrogen cylinder (7).

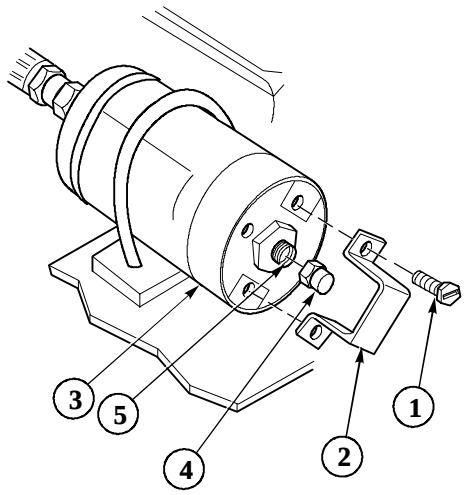




16-22. ACCUMULATOR SERVICING (CONT).

(22) Install valve stem cap (4) on valve stem (5).

(23) Install guard (2) on accumulator (3) with two screws (1).



b. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain (Item 149, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination, 1-1/4 in. (Item 256, Appendix F)
Wrench, Combination, 1-3/8 in. (Item 258, Appendix F)
Wrench, Combination, 1-1/2 in. (Item 260, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

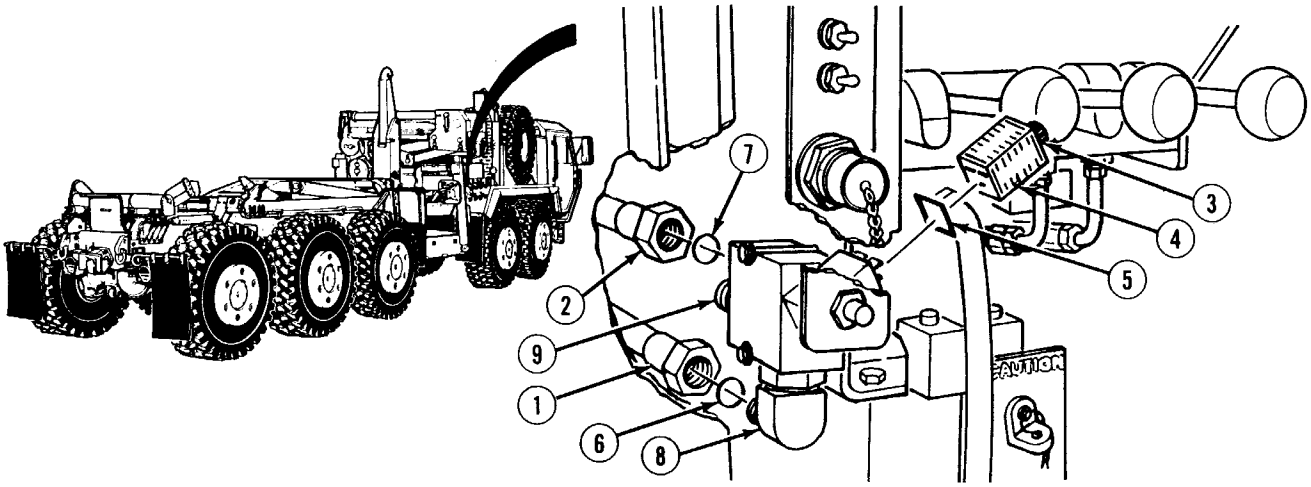
Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 33, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 156, Appendix E)
Lockwasher (2) (Item 283, Appendix E)
Packing, Preformed (2) (Item 346, Appendix E)
Packing, Preformed (2) (Item 391, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Crane stowage box removed, (TM 9-2320-364-20)

16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR (CONT).

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

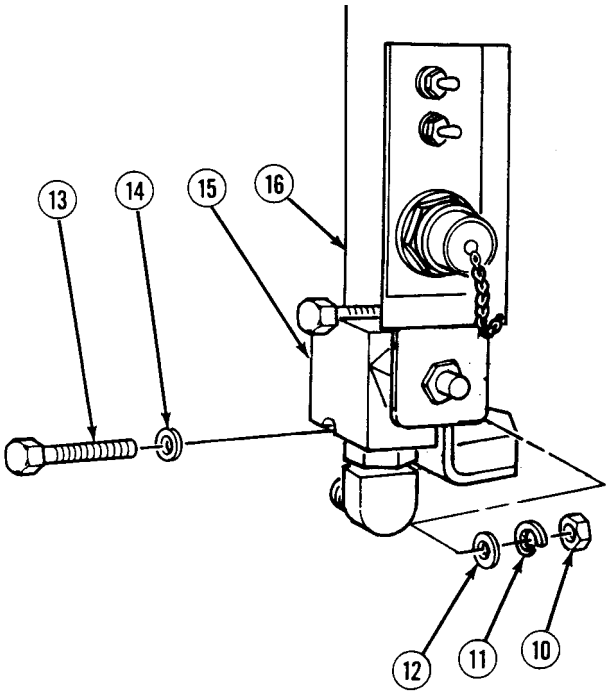
- Tag and mark hydraulic tubes prior to removal.
- Cap and plug hydraulic tubes after removal.

(1) Position drain pan under tubes (1) and (2).

(2) Loosen screw (3) and remove connector (4) and square seal (5).

(3) Disconnect tubes (1) and (2) and remove preformed packings (6) and (7) from fittings (8) and (9). Discard preformed packings.

(4) Remove two nuts (10), lockwashers (11), washers (12), screws (13), washers (14) and two way hydraulic solenoid valve (15) from bracket (16). Discard lockwashers.



b. Disassembly.

CAUTION

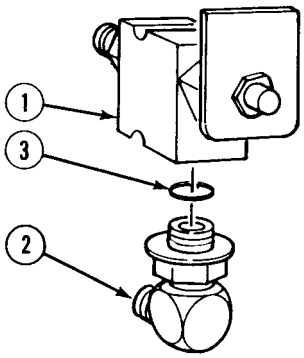
Do not damage electrical connector, or crane will not operate properly.

(1) Position two way hydraulic solenoid valve (1) in vise with soft jaws.

NOTE

Tag and mark fittings and elbows prior to disassembly.

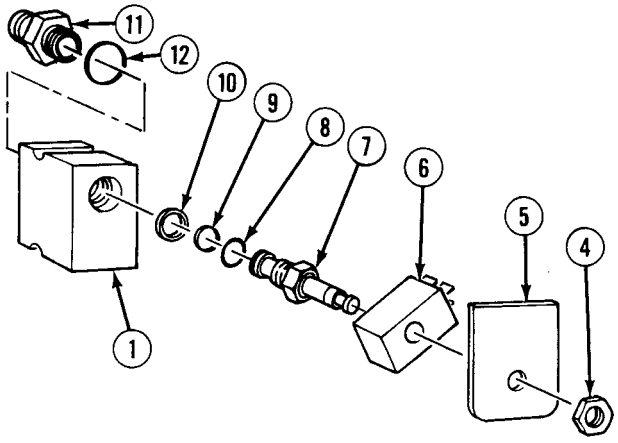
(2) Remove elbow (2) and preformed packing (3) from two way hydraulic solenoid valve (1). Discard preformed packing.



16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR (CONT).

NOTE

Matchmark data plate and coil before disassembly.



(3) Remove nut (4) and data plate (5) from two way hydraulic solenoid valve (1).

(4) Remove coil (6) from valve stem (7).

(5) Remove valve stem (7) from two way hydraulic solenoid valve (1).

(6) Remove preformed packings (8) and (9) and backup ring (10) from valve stem (7). Discard preformed packings and backup ring.

(7) Remove fitting (11) and preformed packing (12). Discard preformed packing.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Wash parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect parts for cracks, broken terminals and stripped threads.

(4) Replace damaged parts.

d. Assembly.

(1) Apply hydraulic oil to preformed packing (12).

(2) Install preformed packing (12) and fitting (11) in two way hydraulic solenoid valve (1).

(3) Apply hydraulic oil to preformed packing (3).

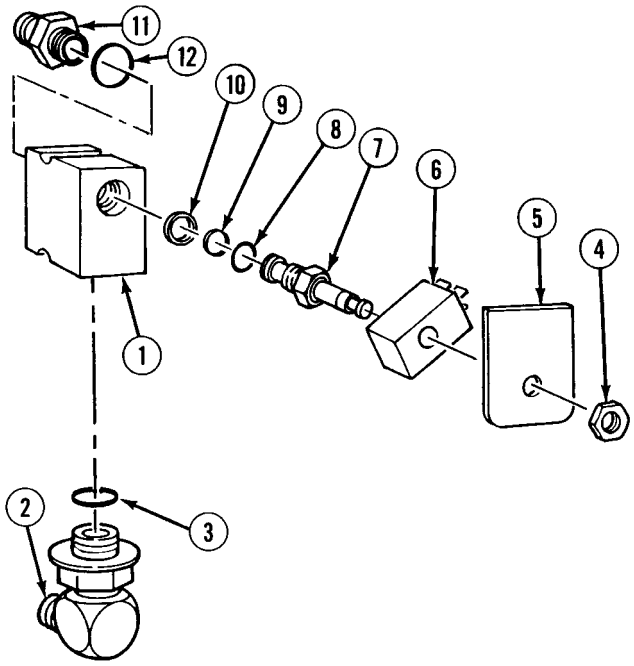
(4) Align and install preformed packing (3) and elbow (2).

(5) Apply hydraulic oil to preformed packings (8) and (9).

(6) Install two preformed packings (8) and (9) and backup ring (10) on valve stem (7).

(7) Install valve stem (7) in two way hydraulic solenoid valve (1).

(8) Install coil (6), data plate (5) and nut (4).



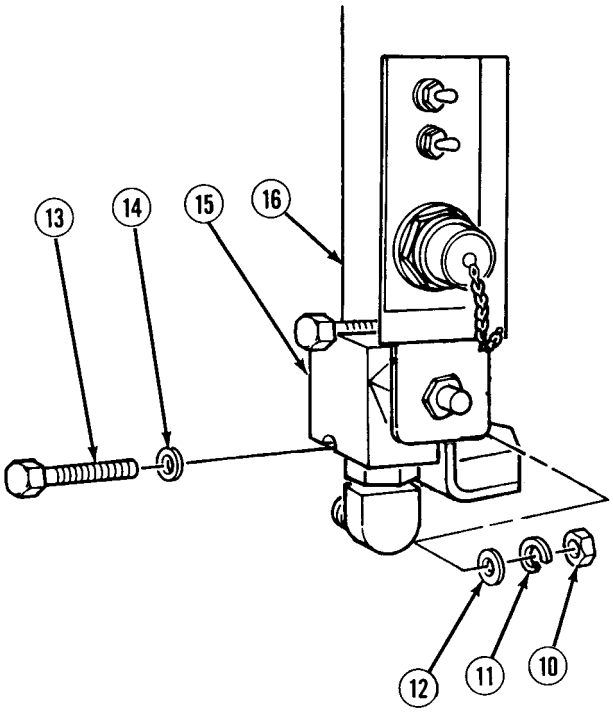
e. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of two screws (13).

(2) Install two way hydraulic solenoid valve (15) on bracket (16) with two screws (13), washers (14), washers (12), lockwashers (11) and nuts (10). Tighten nuts to 108 lb-in (12 N·m).

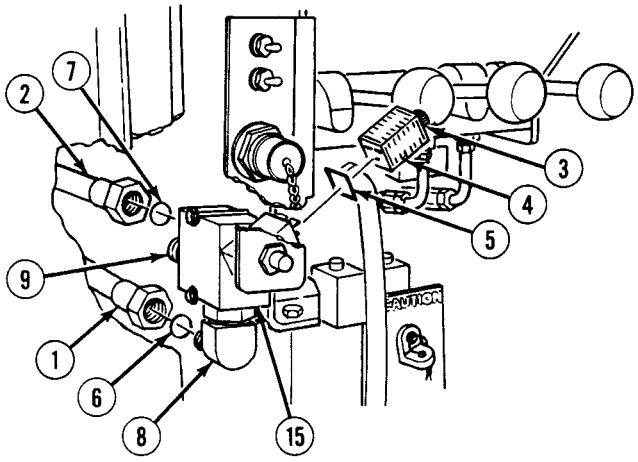


16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR (CONT).

(3) Apply hydraulic oil to preformed packings (6) and (7).

(4) Install preformed packings (6) and (7) and connect tubes (1) and (2) to fittings (8) and (9) on two way hydraulic pressure solenoid valve (15).

(5) Install square seal (5) and connector (4) and tighten screw (3).



f. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Install crane stowage box, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

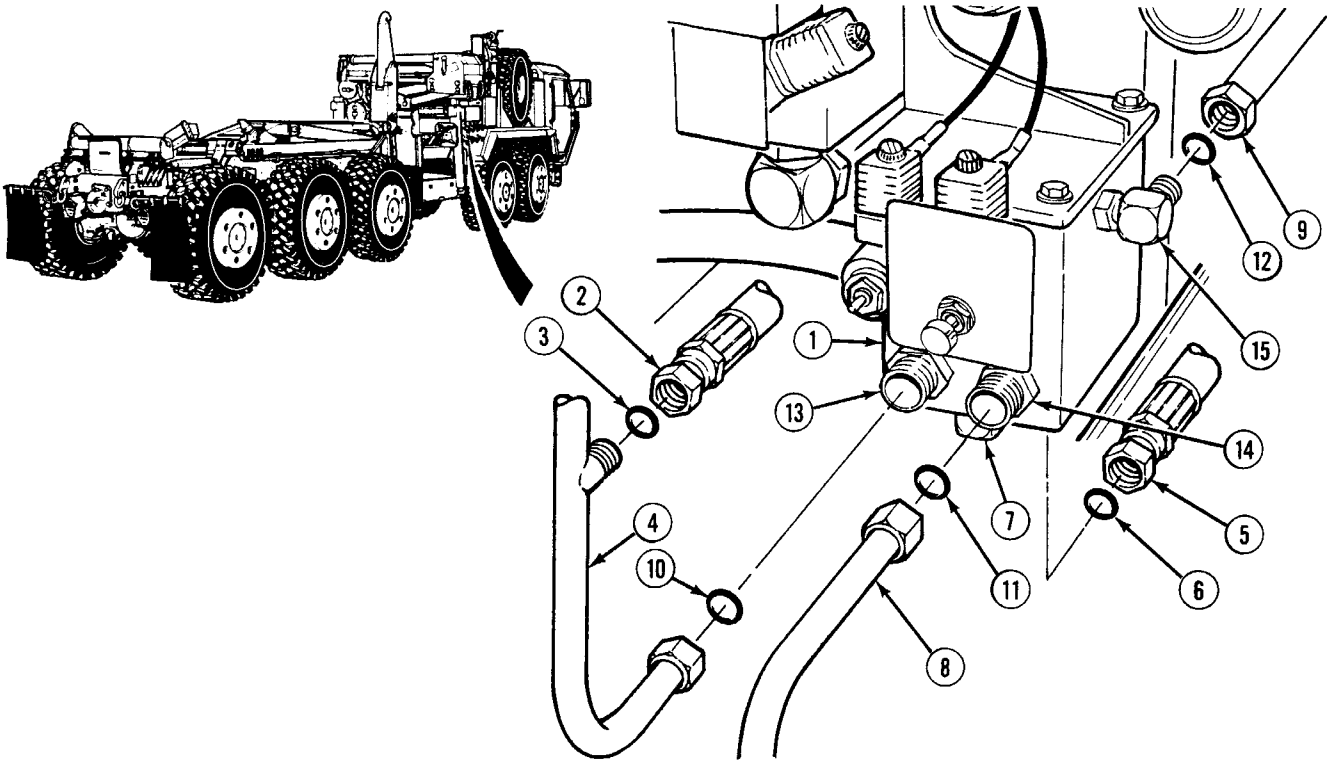
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Adapter, Socket (Item 8, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Socket, Socket Head Screw, 1/8 in., 3/8 in. Drive
(Item 209, Appendix F)
Socket, Socket Head Screw, 5/16 in., 1/2in. Drive
(Item 210, Appendix F)
Socket, Socket Head Screw, 9/16 in., 1/2in. Drive
(Item 211, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination, 1-1/8 in.
(Item 255, Appendix F)
Wrench, Combination, 1-3/8 in.
(Item 258, Appendix F)
Wrench, Combination, 1-1/2 in.
(Item 260, Appendix F)
Wrench, Crowsfoot, 7/8 in., 3/8 in. Drive
(Item 267, Appendix F)
Wrench, Crowsfoot, 3/4 in., 3/8 in. Drive
(Item 268, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench Set, Socket, 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 148, Appendix E)
Lockwasher (4) (Item 269, Appendix E)
Packing, Preformed (Item 363.1, Appendix E)
Packing, Preformed (Item 373, Appendix E)
Packing, Preformed (Item 391, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Right fender mud flap removed,
(TM 9-2320-364-20)

16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses and tubes prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

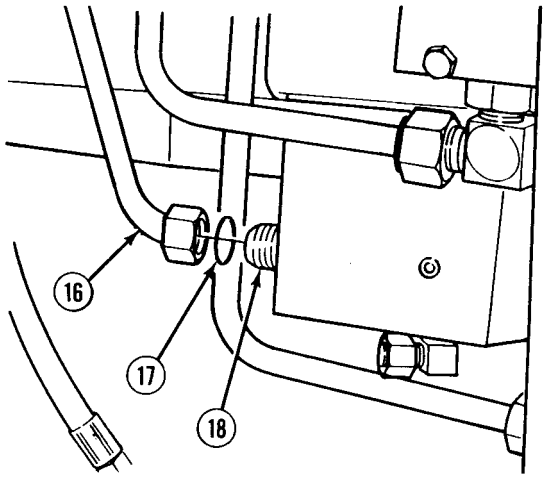
(1) Position drain pan under solenoid housing (1).

(2) Remove hose (2) and preformed packing (3) from tube (4). Discard preformed packing.

(3) Remove hose (5) and preformed packing (6) from elbow (7). Discard preformed packing.

(4) Remove tubes (4), (8) and (9) and preformed packings (10), (11) and (12) from fittings (13), (14) and (15). Discard preformed packings.

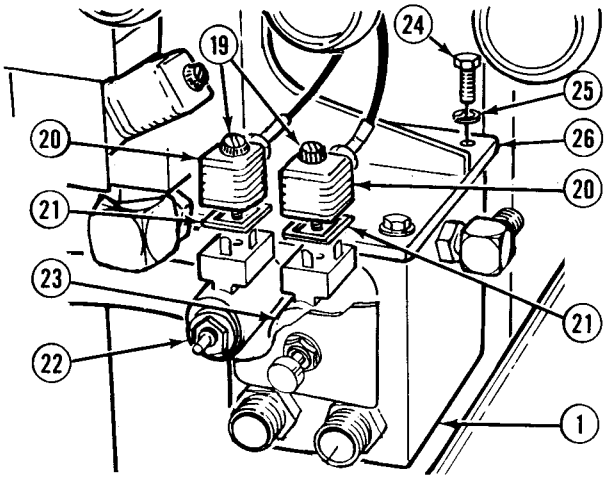
(5) Remove tube (16) and preformed packing (17) from fitting (18). Discard preformed packing.



(6) Loosen two screws (19) on connectors (20).

(7) Remove two connectors (20) and gaskets (21) from solenoids (22) and (23). Discard gaskets.

(8) Remove four screws (24), lockwashers (25) and solenoid housing (1) from bracket (26). Discard lockwashers.

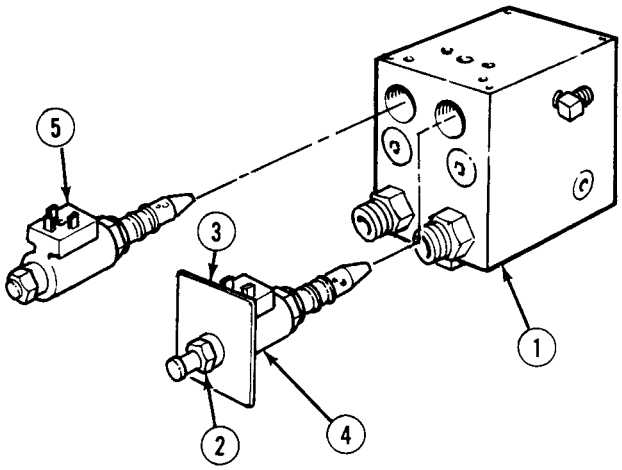


16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

b. Disassembly.

NOTE

- Tag and mark all parts during removal.
- Note location and position of elbows, fittings, valves and plugs prior to removal.

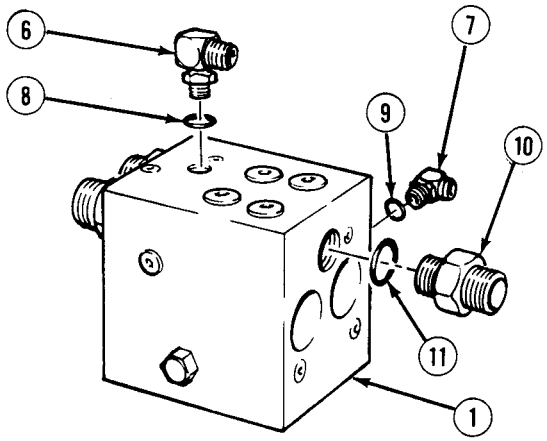


(1) Position solenoid housing (1) in soft jawed vise.

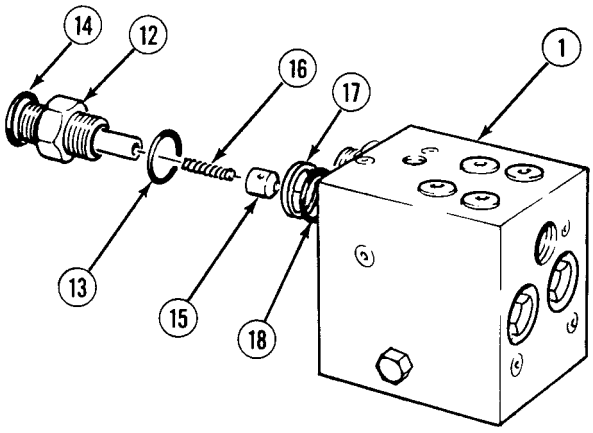
(2) Remove nut (2) and plate (3) from solenoid (4).

(3) Remove solenoid (4) from solenoid housing (1).

(4) Remove solenoid (5) from solenoid housing (1).



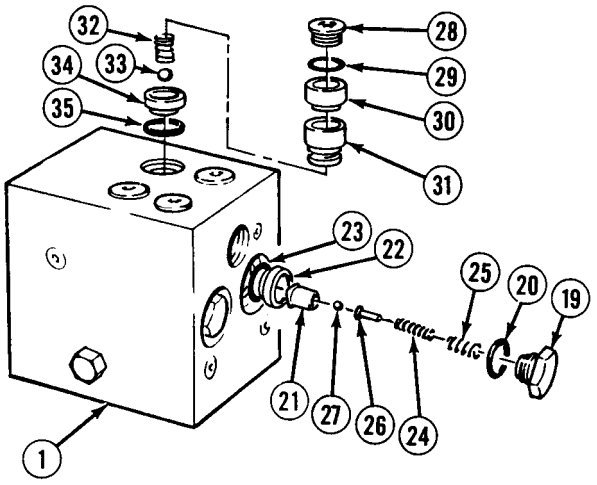
(5) Remove elbows (6) and (7), preformed packings (8) and (9), fitting (10) and preformed packing (11) from solenoid housing (1). Discard preformed packings.



(6) Remove two valves (12), preformed packings (13) and (14), plungers (15), spring (16), seat (17) and preformed packing (18) from solenoid housing (1). Discard preformed packings.

(7) Remove two valve caps (19), preformed packings (20), plungers (21), seat (22), preformed packing (23), springs (24) and (25), poppets (26) and check balls (27) from solenoid housing (1). Discard preformed packings and springs.

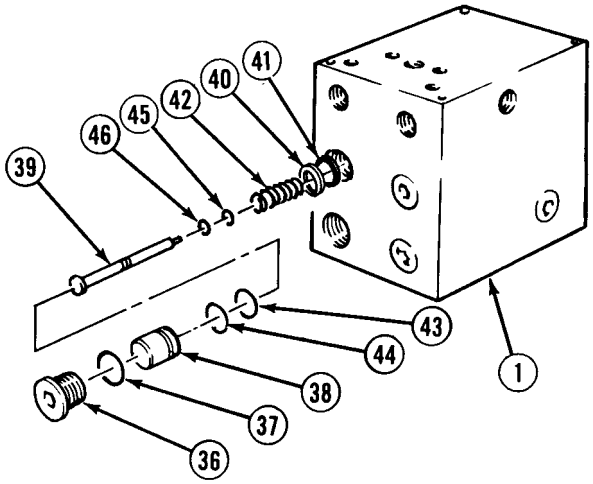
(8) Remove plug (28), preformed packing (29), spacers (30) and (31), spring (32), check ball (33), seat (34) and preformed packing (35) from solenoid housing (1). Discard preformed packings and spring.



(9) Remove two caps (36), preformed packings (37), pistons (38), plungers (39) preformed packing (40), seat (41) and springs (42) from solenoid housing (1). Discard preformed packings and springs.

(10) Remove two backup rings (43) and preformed packings (44) from pistons (38). Discard preformed packings and backup rings.

(11) Remove two preformed packings (45) and backup rings (46) from plungers (39). Discard preformed packings and backup rings.

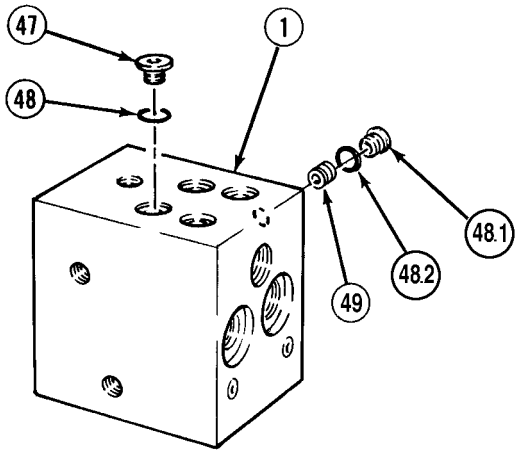


NOTE

Perform Steps (12) through (15) if plugs are leaking or damaged.

(12) Remove five plugs (47) and preformed packings (48) from solenoid housing (1). Discard preformed packings.

(12.1) Remove two plugs (48.1), preformed packings (48.2) and orifices (49) from solenoid housing (1). Discard preformed packings.

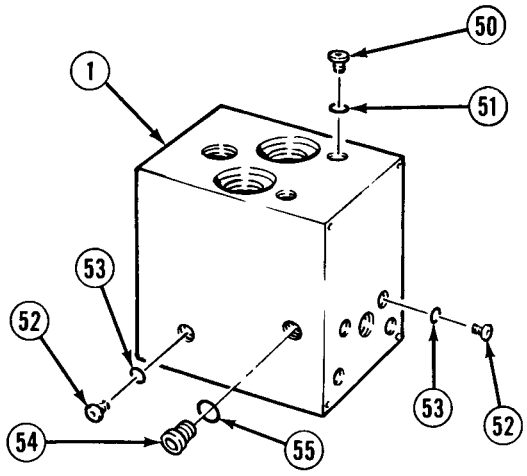


16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

(13) Remove five plugs (50) and preformed packings (51) from solenoid housing (1). Discard preformed packings.

(14) Remove two plugs (52) and preformed packings (53) from solenoid housing (1). Discard preformed packings.

(15) Remove plug (54) and preformed packing (55) from solenoid housing (1). Discard preformed packing.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect each part for cracks, gouges, pitting and stripped threads.

(4) Replace damaged parts.

d. Assembly.

NOTE

Perform Steps (1) through (8) if plugs were removed.

(1) Apply hydraulic oil to preformed packing (55).

(2) Install preformed packing (55) and plug (54) in solenoid housing (1).

(3) Apply hydraulic oil to preformed packings (53).

(4) Install two preformed packings (53) and plugs (52) in solenoid housing (1). Tighten plugs to 50 to 60 lb-in (6 to 7 N·m).

(5) Apply hydraulic oil to five preformed packings (51).

(6) Install five preformed packings (51) and plugs (50) in solenoid housing (1). Tighten plugs to 50 to 60 lb-in (6 to 7 N·m).

(6.1) Apply hydraulic oil to two preformed packings (48.2).

(6.2) Install two orifices (49), preformed packings (48.2) and plugs (48.1) in solenoid housing (1). Tighten plugs to 35 to 40 lb-ft (47 to 54 N·m).

(7) Apply hydraulic oil to preformed packings (48).

(8) Install five preformed packings (48) and plugs (47) in solenoid housing (1). Tighten plugs to 35 to 40 lb-ft (47 to 54 N·m).

(9) Apply hydraulic oil to two preformed packings (45).

(10) Install two preformed packings (45) and backup rings (46) on plungers (39).

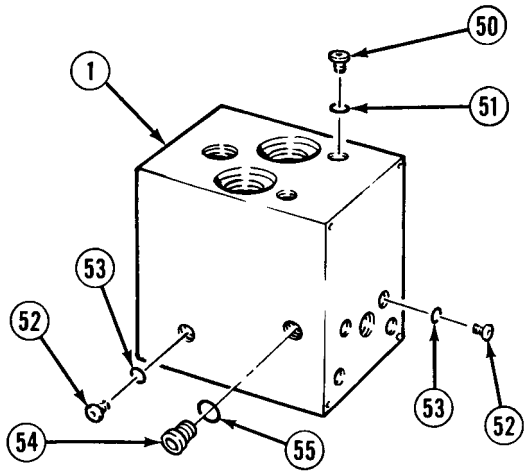
(11) Apply hydraulic oil to two preformed packings (44).

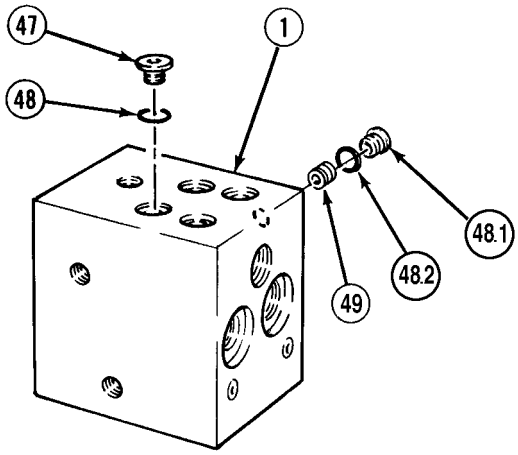
(12) Install two preformed packings (44) and backup rings (43) on pistons (38).

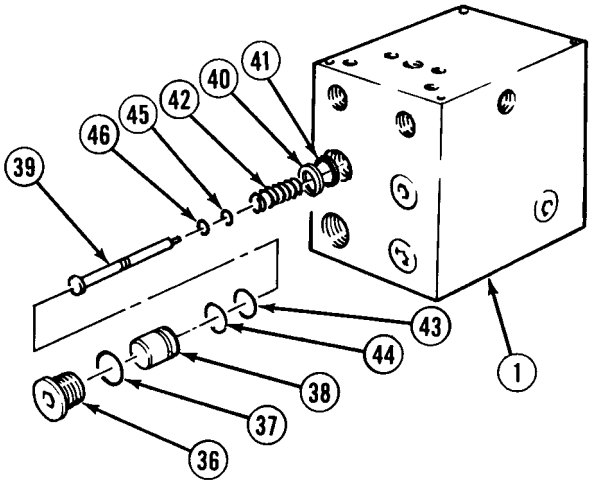
(13) Install two springs (42), seat (40), preformed packing (41) and plungers (39) in solenoid housing (1).

(14) Apply hydraulic oil to two preformed packings (37).

(15) Install two pistons (38) preformed packings (37) and caps (36) in solenoid housing (1). Tighten caps to 70 to 75 lb-ft (95 to 102 N·m).







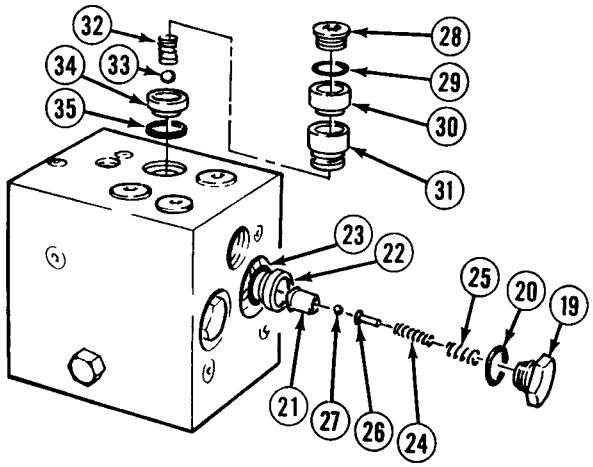
16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

(16) Apply hydraulic oil to preformed packings (29) and (35).

(17) Install preformed packing (35), seat (34), check ball (33), spring (32), spacers (31) and (30), preformed packing (29) and plug (28) in solenoid housing (1). Tighten plug to 35 to 40 lb-ft (47 to 54 N·m).

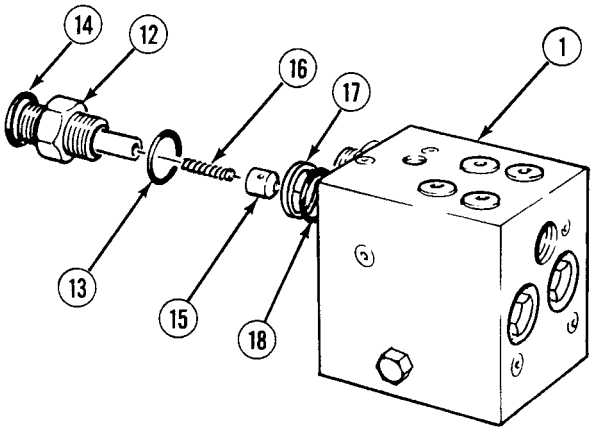
(18) Apply hydraulic oil to preformed packing (23) and two preformed packings (20).

(19) Install two plungers (21), check balls (27), poppets (26), springs (24), springs (25), preformed packing (23), seat (22), preformed packings (20) and valve caps (19) in solenoid housing (1). Tighten valve caps to 50 to 55 lb-ft (68 to 75 N·m).



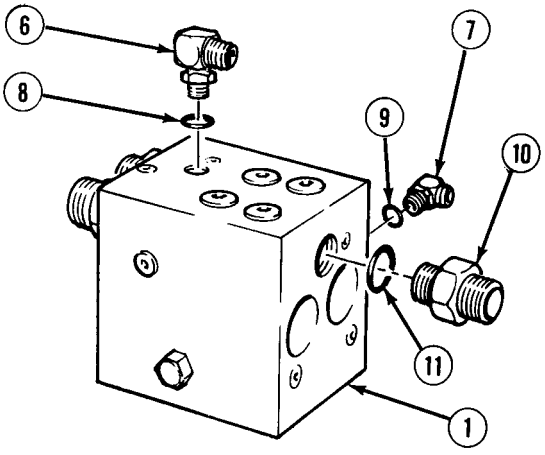
(20) Apply hydraulic oil to preformed packings (13), (14) and (18).

(21) Install two preformed packings (18), seat (17), plungers (15), springs (16), preformed packings (13) and (14) and valves (12) in solenoid housing (1). Tighten valves to 110 to 115 lb-ft (149 to 156 N·m).



(22) Apply hydraulic oil to preformed packings (8), (9) and (11).

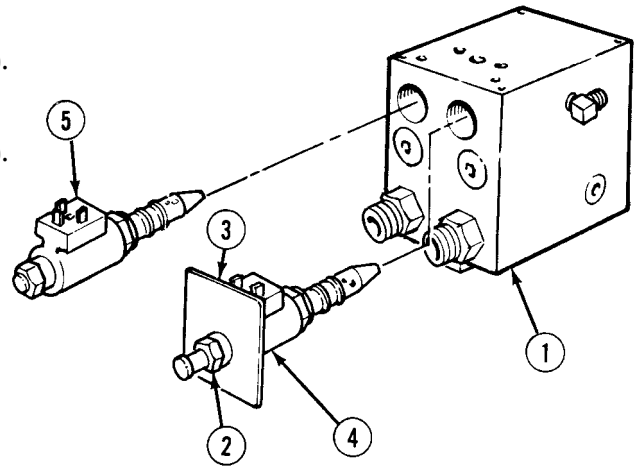
(23) Install preformed packing (11), fitting (10), preformed packings (8) and (9) and elbows (7) and (6) in solenoid housing (1).



(24) Install solenoid (5) in solenoid housing (1). Tighten solenoid to 50 to 60 lb-in (6 to 7 N·m).

(25) Install solenoid (4) in solenoid housing (1). Tighten solenoid to 50 to 60 lb-in (6 to 7 N·m).

(26) Install plate (3) on solenoid (4) with nut (2). Tighten nut to 30 to 40 lb-in (3 to 5 N·m).

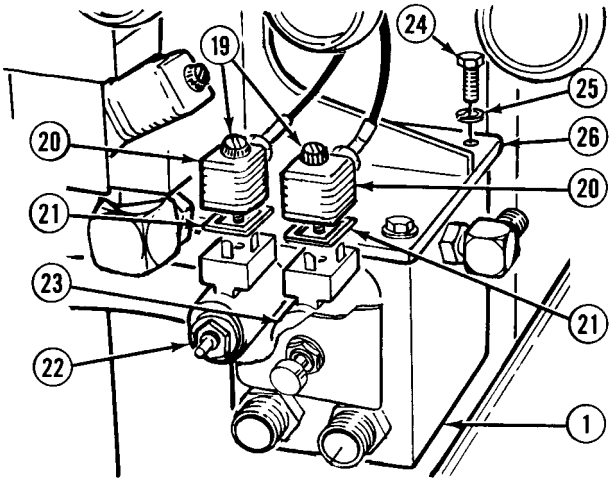


e. Installation.

(1) Install solenoid housing (1) on bracket (26) with four lockwashers (25) and screws (24). Tighten screws to 108 lb-in (12 N·m).

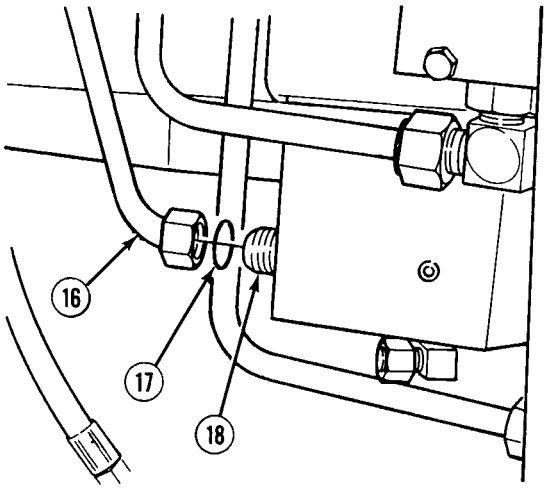
(2) Position two gaskets (21) and connectors (20) on solenoids (22) and (23).

(3) Tighten two screws (19) on connectors (20).

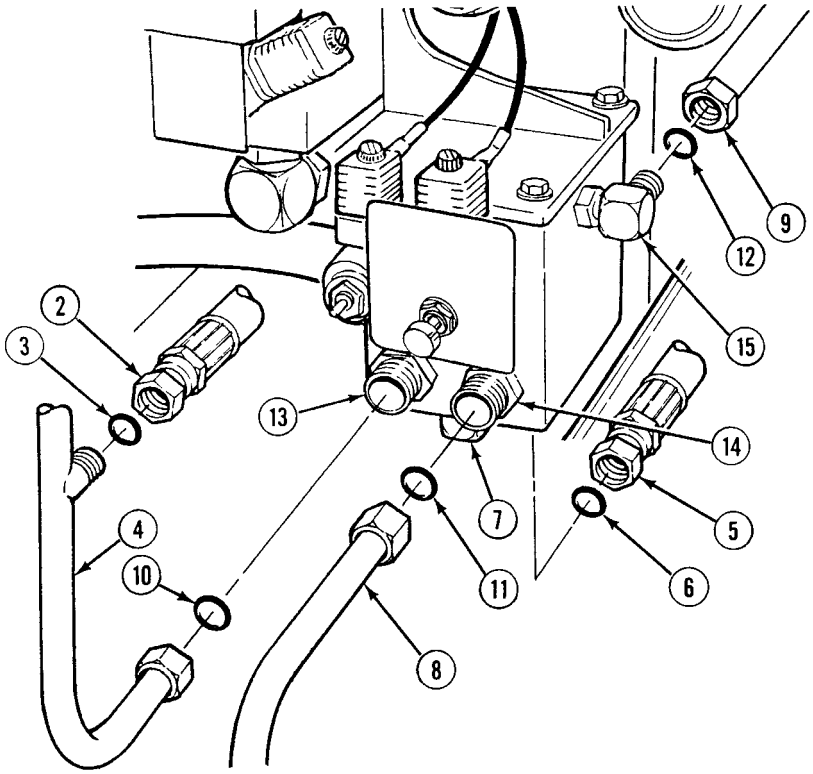


(4) Apply hydraulic oil to preformed packing (17).

(5) Install preformed packing (17) and tube (16) on fitting (18).



16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).



(6) Apply hydraulic oil to preformed packings (6), (10), (11) and (12).

(7) Install preformed packings (10), (11) and (12) and tubes (4), (8) and (9) on fittings (13), (14) and (15).

(8) Install preformed packing (6) and hose (5) on elbow (7).

(9) Apply hydraulic oil to preformed packing (3).

(10) Install preformed packing (3) and hose (2) on tube (4).

f. Follow-On Maintenance:

- Install right fender mud flap, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-25. TENSION LOAD CELL REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

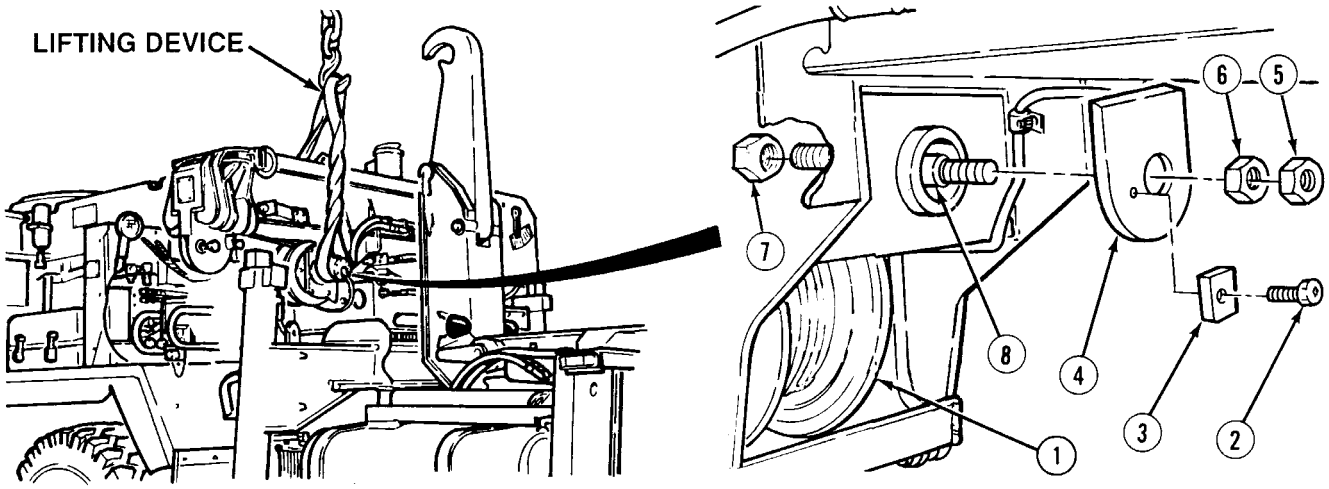
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination 1-7/16 in.
(Item 259, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Lifting Device, Minimum Capacity 250 lbs
(114 kg)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (Item 197.1, Appendix E)
Lockwasher (Item 282, Appendix E)
Packing, Preformed (2) (Item 337, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Crane hoist cable removed,
(TM 9-2320-364-20)

16-25. TENSION LOAD CELL REPLACEMENT (CONT).

a. Removal.



WARNING

Hoist weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(1) Attach lifting device around hoist assembly (1).

(2) Remove screw (2) and block (3) from end cap (4).

CAUTION

- To avoid damage to tension load cell, hold cable while removing nuts. Do not allow tension load cell to move or wiring may be damaged.
- To avoid damage to load cell, use care when lowering or raising hoist assembly.

NOTE

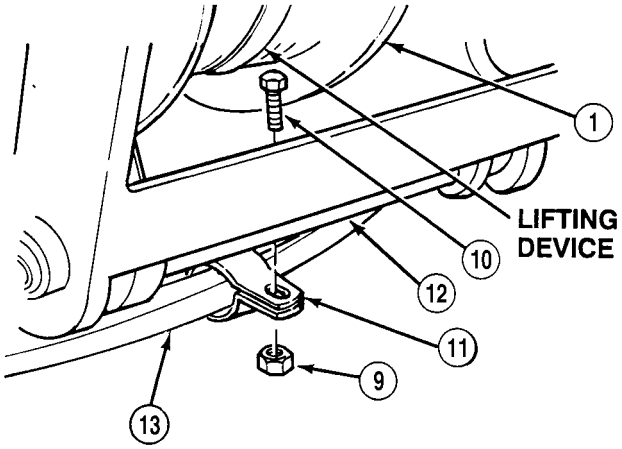
- Count exposed threads on tension load cell before nuts are removed to ensure nuts are reinstalled to the same positions.
- Raise or lower lifting device to allow hoist assembly to rotate forward and down slightly to gain better access to nuts during removal.

(3) Remove jam nut (5), swivel nuts (6) and (7) and end cap (4) from tension load cell (8).

(4) Remove locknut (9), screw (10) and cushion clip (11). Discard locknut.

(5) Remove cushion clip (11) from shaft (12) and move hoses (13) away from shaft (12).

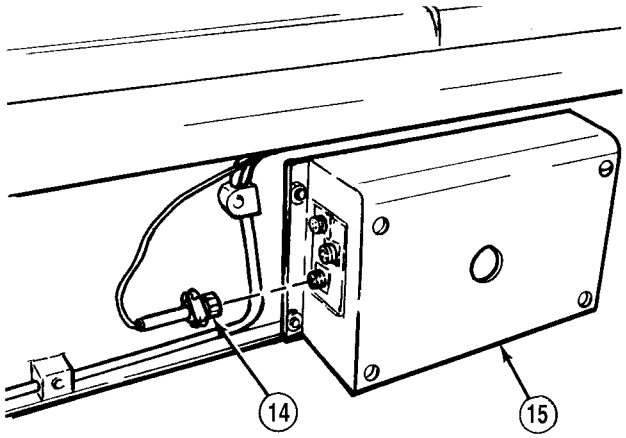
(6) Loosen and remove hoses (13) and lower lifting device to rotate hoist assembly (1) slowly down.



NOTE

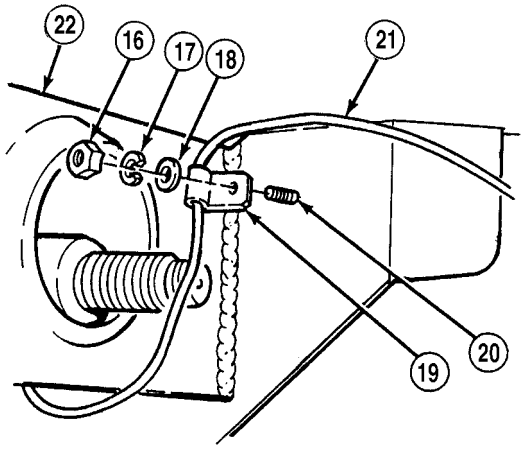
- Tag and mark electrical wires and cables prior to removal.
- Remove cable ties as required.

(7) Disconnect connector (14) from overload shutdown box (15).

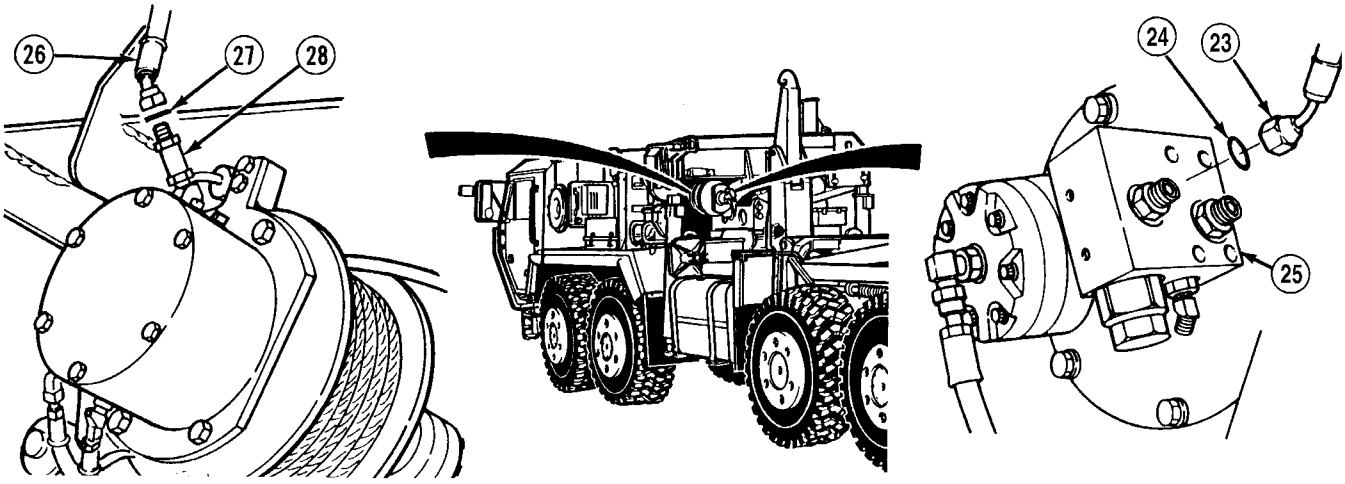


(8) Remove nut (16), lockwasher (17), washer (18) and cushion clip (19) from stud (20). Discard lockwasher.

(9) Remove cushion clip (19) from cable (21) and pull cable through hoist mount (22).



16-25. TENSION LOAD CELL REPLACEMENT (CONT).



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

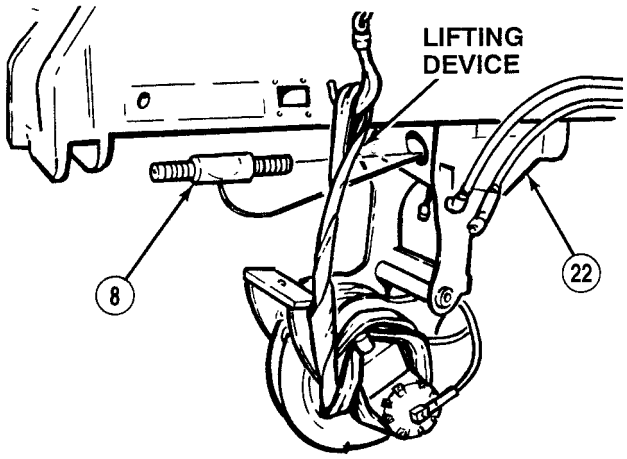
NOTE

- Tag and mark all hydraulic hoses before disconnecting.
- Cap and plug hydraulic hoses and hoist motor valve after removal.

(10) Disconnect two hoses (23) and preformed packings (24) from hoist motor valve (25). Discard preformed packings.

(11) Disconnect hose (26) and preformed packing (27) from brake bleeder valve (28). Discard preformed packing.

(12) Carefully remove tension load cell (8) from hoist mount (22).



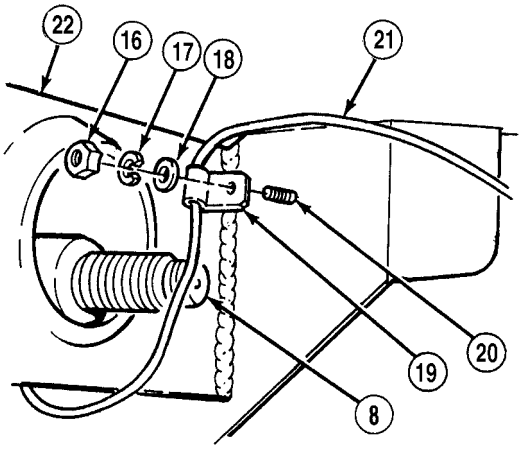
b. Installation.

NOTE

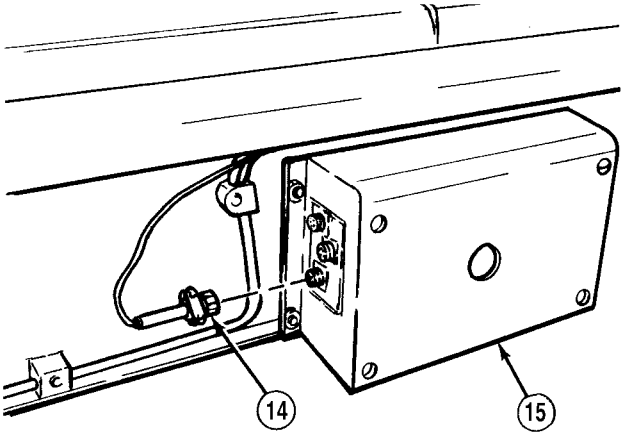
Install cable ties as necessary.

(1) Position tension load cell (8) and cable (21) in hoist mount (22).

(2) Install cable (21) in cushion clip (19) and install on stud (20) with washer (18), lockwasher (17) and nut (16).



(3) Install connector (14) on overload shutdown box (15).



WARNING

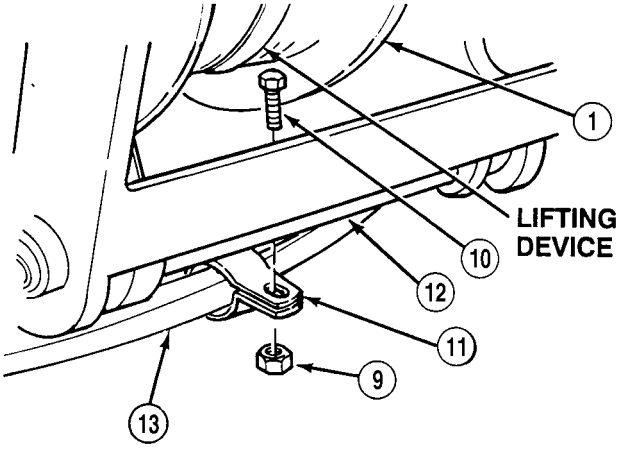
Hoist weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

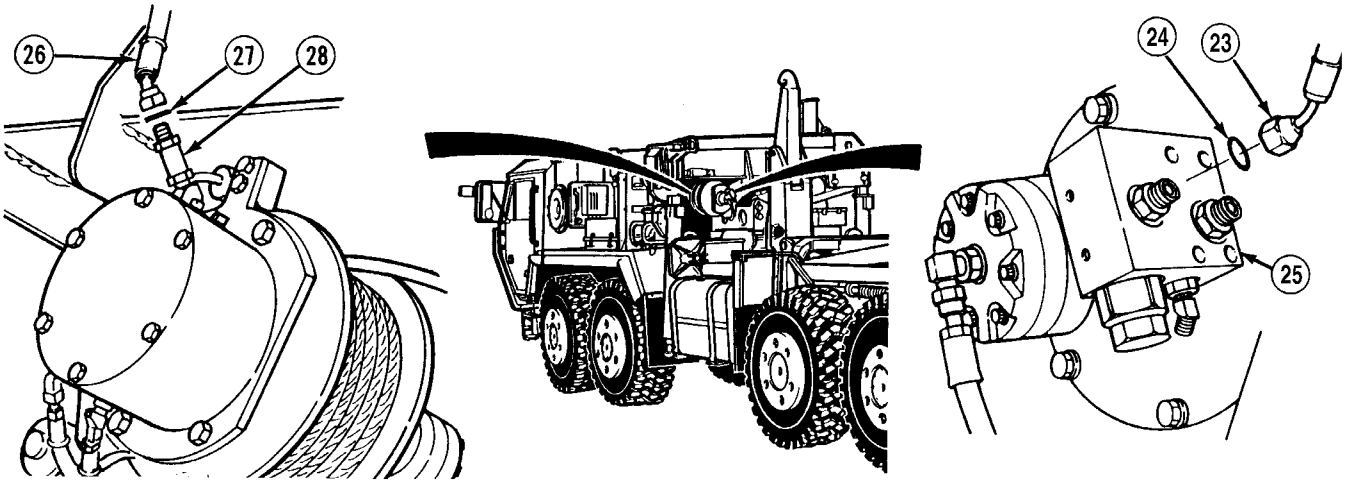
To avoid damage to load cell use care when lowering or raising hoist assembly.

(4) Use lifting device to raise hoist assembly (1).

(5) Position two hoses (13) in cushion clip (11) and install clip on shaft (12) with screw (10) and locknut (9). Tighten locknut to 17 lb-ft (23 N·m).



16-25. TENSION LOAD CELL REPLACEMENT (CONT).



(6) Apply hydraulic oil to preformed packing (27).

(7) Install preformed packing (27) and hose (26) on brake bleeder valve (28).

(8) Apply hydraulic oil to two preformed packings (24).

(9) Install two preformed packings (24) and hoses (23) on hoist motor valve (25).

(10) Install swivel nut (7) on front of tension load cell (8).

CAUTION

To avoid damage to load cell, use care when lowering or raising hoist assembly.

NOTE

Raise or lower lifting device to allow hoist assembly to rotate forward slightly to gain better access to nuts during installation.

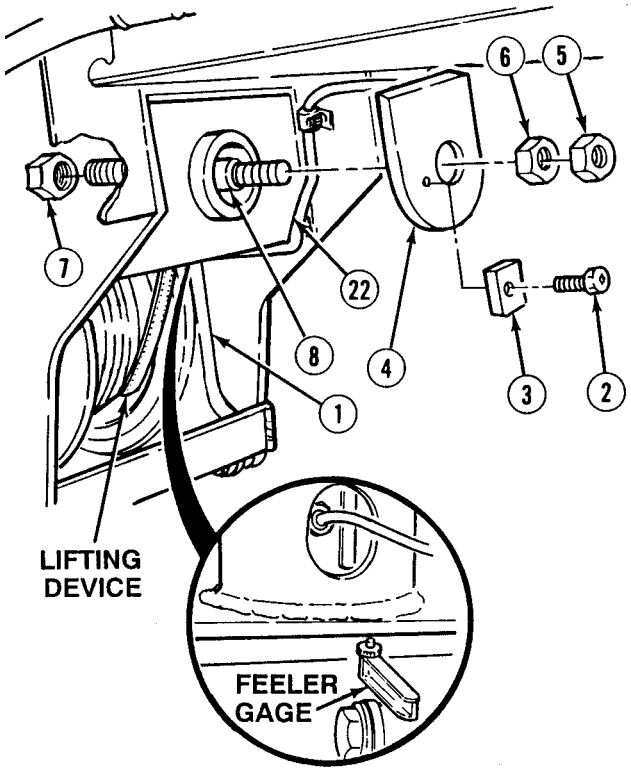
(11) Position end cap (4), swivel nut (6) and jam nut (5) on tension load cell (8).

(12) Using feeler gage, adjust tension load cell (8) to 0.12 in (3.1 mm) between end cap (4) and hoist mount (22) by loosening or tightening nut (7) until gap is obtained.

(13) Install block (3) with screw (2) on end cap (4). Tighten screw to 84 lb-in (9 N·m).

(14) Tighten jam nut (5).

(15) Remove lifting device from hoist assembly (1).



c. Follow-On Maintenance:

- Install crane hoist cable, (TM 9-2320-364-20).
- Perform crane load test, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

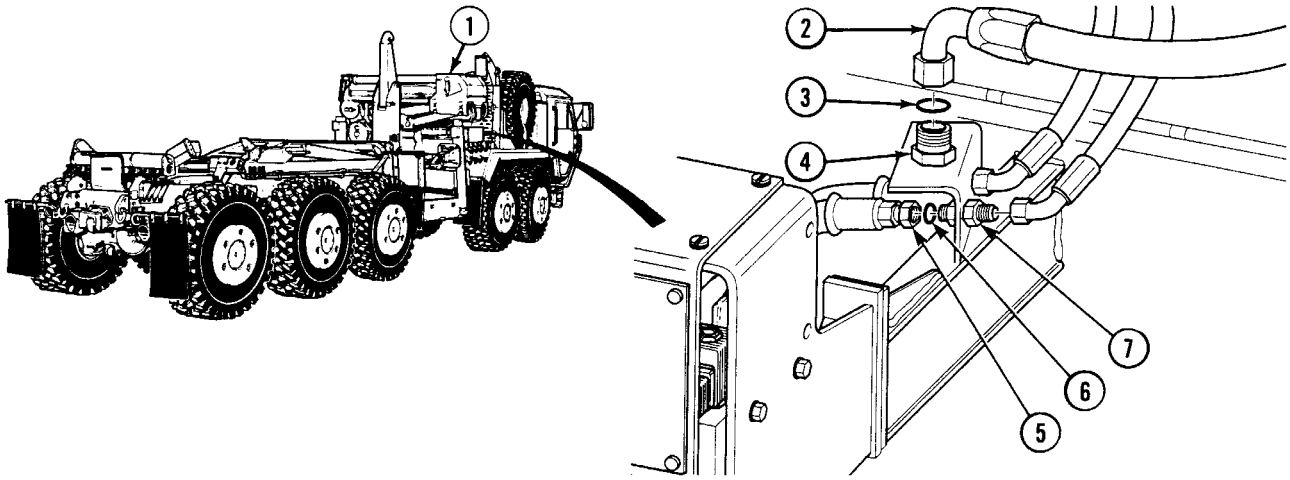
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Rivet Gun (Item 196, Appendix F)
Socket, Socket Head Screw 1/8 in.
(Item 209 Appendix F)
Wrench, Combination, 1-3/8 in.
(Item 258, Appendix F)
Wrench, Combination, 1-5/8 in.
(Item 261, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Lifting Device, Minimum Capacity 100 lbs
(45 kg)
Screw (4-40 NC x 1.5 in.)
Wooden Block (2) (Appendix C)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Gasket (11) (Item 110, Appendix E)
Lockwasher (4) (Item 264, Appendix E)
Lockwasher (12) (Item 282, Appendix E)
Packing, Preformed (8) (Item 347, Appendix E)
Packing, Preformed (3) (Item 389, Appendix E)
Packing, Preformed (3) (Item 391, Appendix E)
Packing, Preformed (2) (Item 392, Appendix E)
Washer, Seal (6) (Item 408, Appendix E)
Retainer (Item 472, Appendix E)
Retainer (Item 473, Appendix E)
Screw (Item 519, Appendix E)

Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark all hydraulic hoses prior to removal.
- Cap and plug all hydraulic hoses and tubes after removal.

(1) Position drain pan under crane (1).

(2) Disconnect drain supply hose (2) and remove preformed packing (3) from bulkhead fitting (4). Discard preformed packing.

(3) Disconnect hose (5) and remove preformed packing (6) from bulkhead fitting (7).

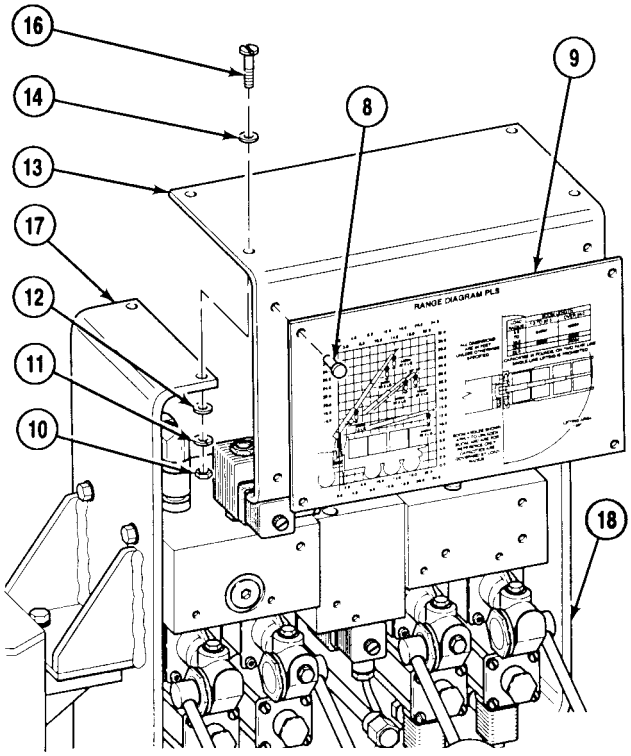
16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

NOTE

Perform Step (4) if data plate is damaged.

(4) Remove four rivets (8) and data plate (9).

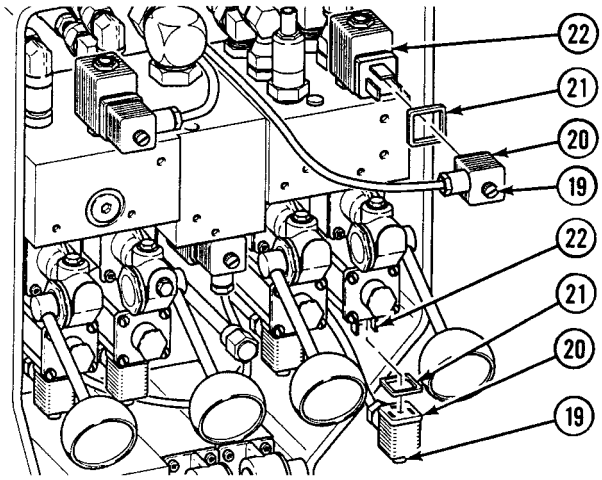
(5) Remove four nuts (10), lockwashers (11), washers (12), cover (13), washers (14) and screws (16) from left and right brackets (17) and (18). Discard lockwashers.



NOTE

Tag and mark all connections before disassembly.

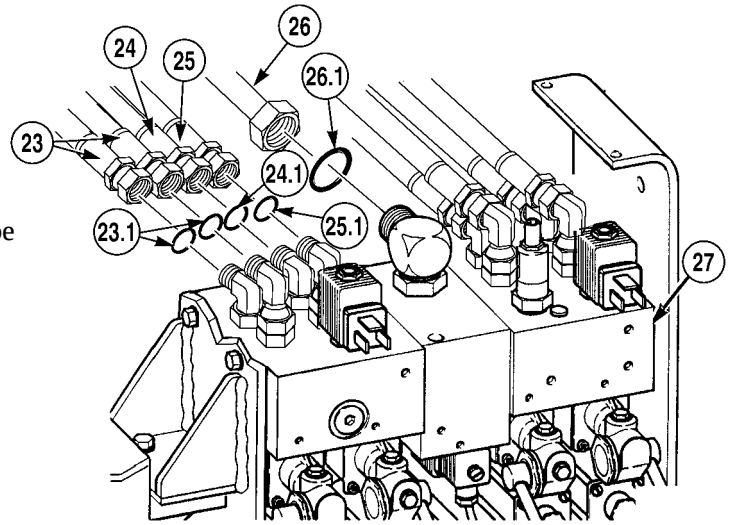
(6) Loosen 11 screws (19) and remove connectors (20) and gaskets (21) from solenoids (22). Discard gaskets.



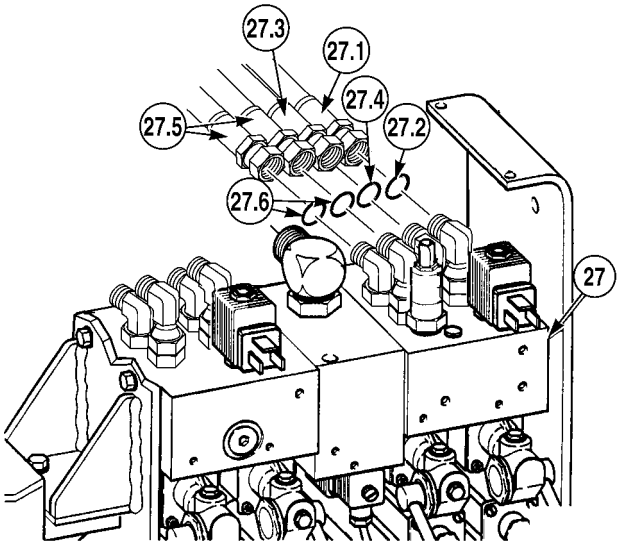
NOTE

Tag and mark all hydraulic hoses before removal.

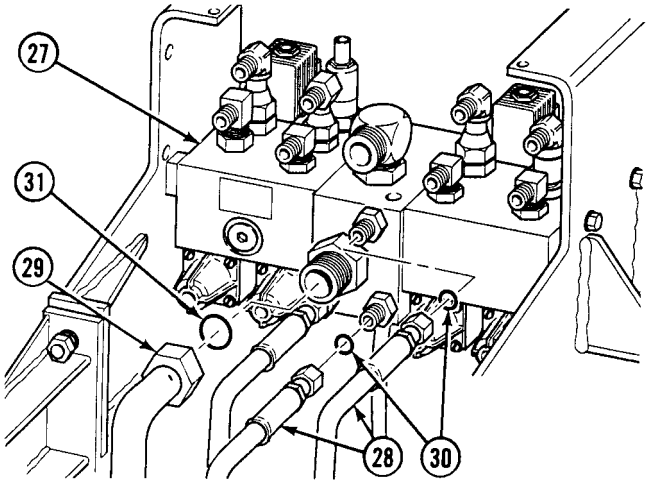
(7) Remove two hoses (23), preformed packings (23.1), hoses (24) and (25), preformed packings (24.1) and (25.1), tube (26) and preformed packing (26.1) from four function control valve bank (27). Discard preformed packings.



(7.1) Remove hose (27.1), preformed packing (27.2), hose (27.3), preformed packing (27.4), two hoses (27.5) and preformed packings (27.6) from four function control valve bank (27).



(8) Remove two hoses (28), tube (29) and three preformed packings (30) and (31) from four valve bank (27). Discard preformed packings.



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

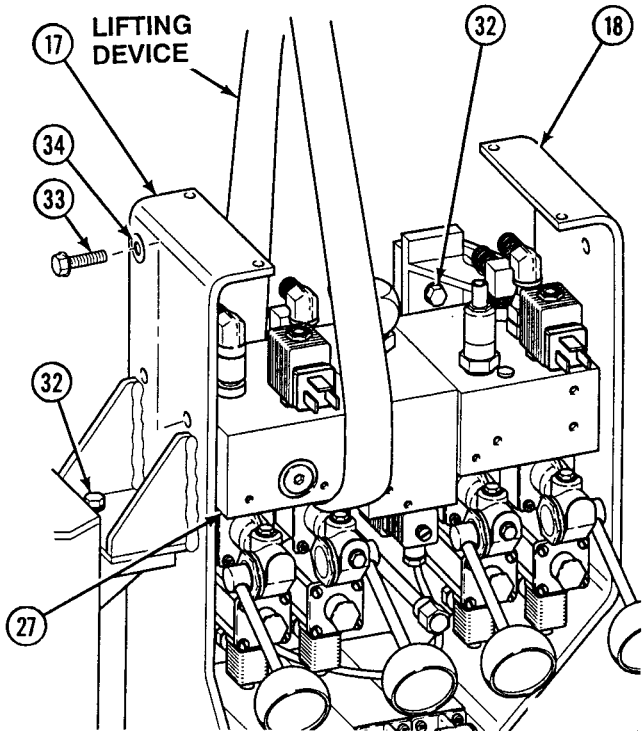
WARNING

Four valve bank weighs 75 lbs (34 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(9) Attach lifting device to four function control valve bank (27).

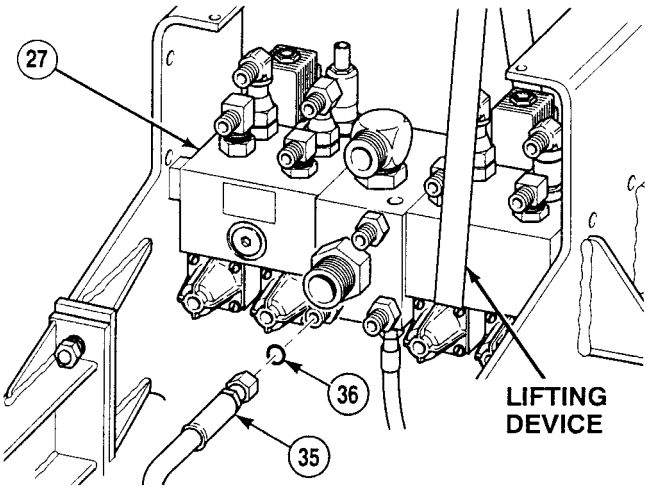
(10) Loosen four screws (32) in left and right brackets (17) and (18).

(11) Remove four screws (33), lockwashers (34) and move four function control valve bank (27) away from brackets (17) and (18).



(12) Remove hose (35) and preformed packing (36) from four function control valve bank (27). Discard preformed packings.

(13) Position four function control valve bank (27) on blocking and remove lifting device.



b. Disassembly.

NOTE

Note location and position of solenoids, valves, fittings and elbows prior to removal.

(1) Remove four screws (1) from solenoid valve (2).

(2) Remove solenoid valve (2) from hoist valve (3).

(3) Remove plate (4) and four preformed packings (5) and (6) from plate. Discard preformed packings.

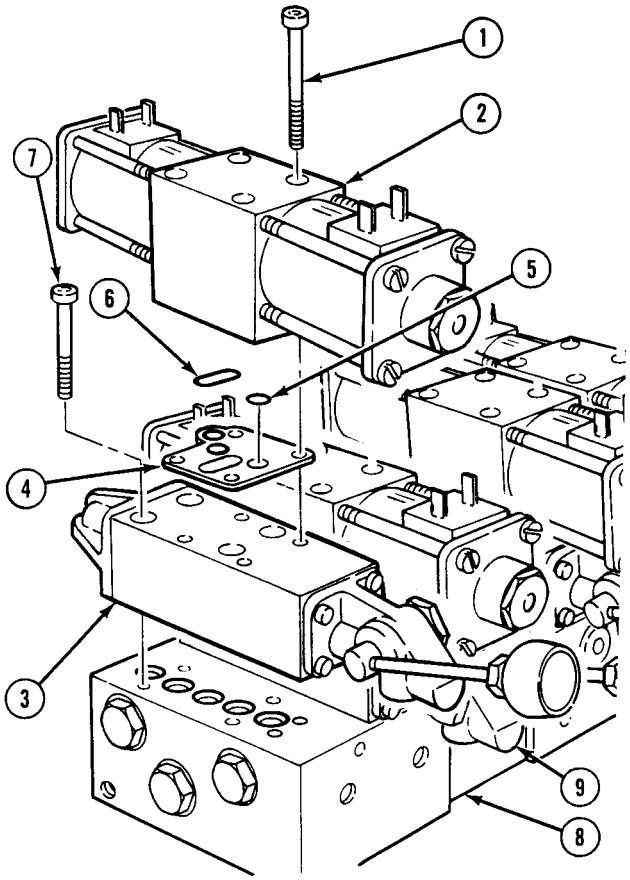
(4) Remove four screws (7) from hoist valve (3).

NOTE

Preformed packing may stay with manifold or come off with valve.

(5) Remove hoist valve (3) from hoist/lift manifold (8).

(6) Perform Steps (1) through (5) for boom valve (9).



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(7) Remove four screws (10) from solenoid valve (11).

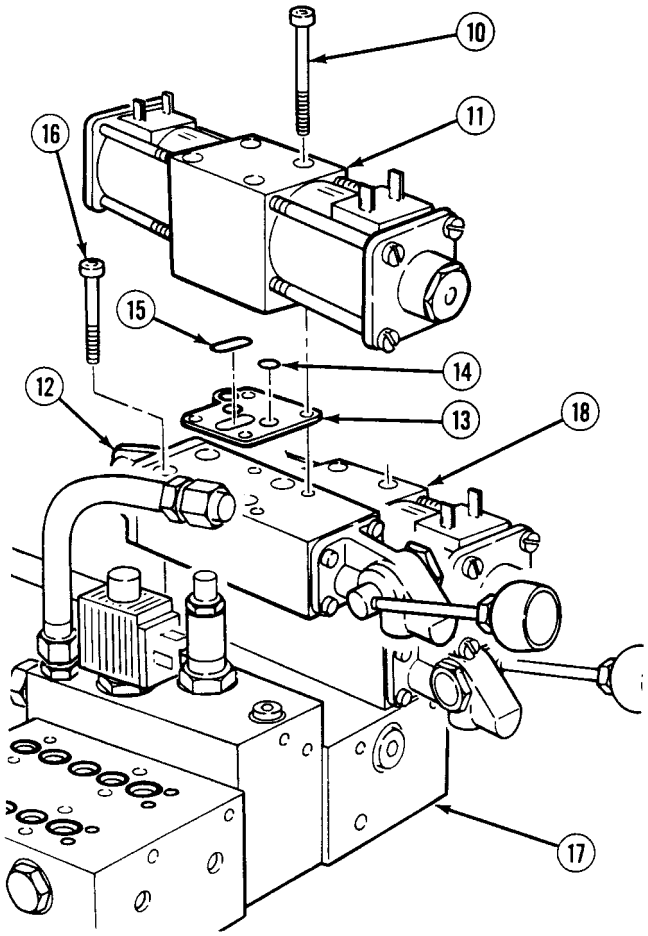
(8) Remove solenoid valve (11) from telescope valve (12).

(9) Remove plate (13) and preformed packings (14) and (15) from plate. Discard preformed packings.

(10) Remove four screws (16) from telescope valve (12).

(11) Remove telescope valve (12) from telescope/swing manifold (17).

(12) Perform Steps (7) through (11) for swing valve (18).

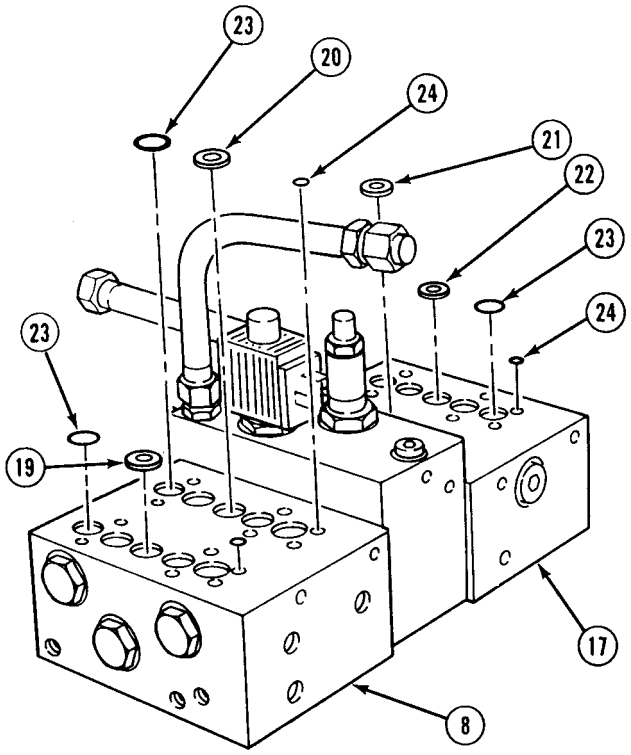


NOTE

Orifices are different. Tag and mark orifices as they are removed.

(13) Remove orifices (19), (20), (21) and (22).

(14) Remove preformed packings (23) and (24) from hoist/lift manifold (8) and telescope/swing manifold (17). Discard preformed packings.



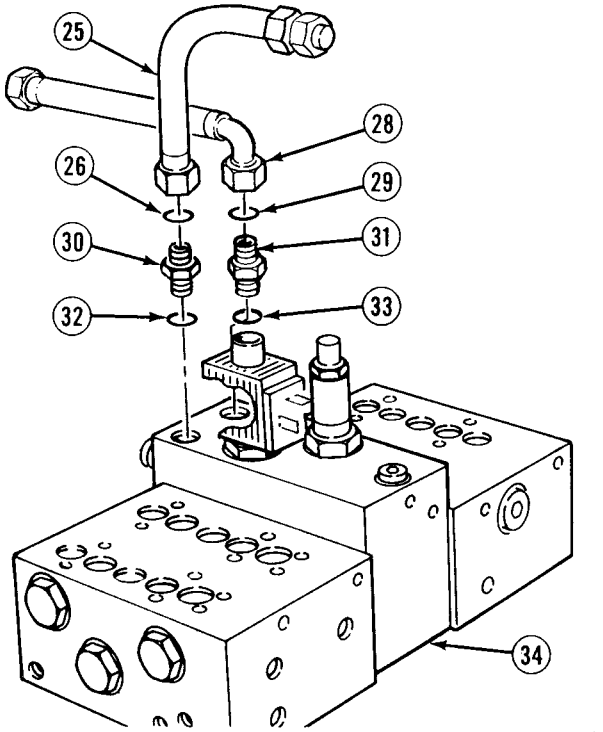
NOTE

Tag and mark hoses and tubes prior to removal.

(15) Remove tube (25) and preformed packing (26) from fitting (30). Discard preformed packing.

(16) Remove hose (28) and preformed packing (29) from fitting (31). Discard preformed packing.

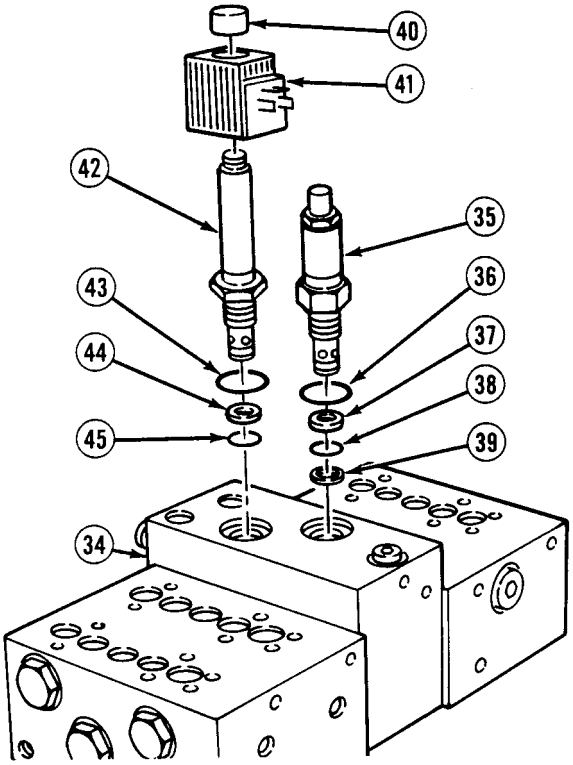
(17) Remove fittings (30) and (31) and preformed packings (32) and (33) from manifold (34). Discard preformed packings.



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(18) Remove relief valve (35), preformed packing (36), backup ring (37), preformed packing (38) and backup ring (39) from manifold (34). Discard preformed packings and backup ring.

(19) Remove cap (40), solenoid (41), directional valve (42), preformed packing (43), backup ring (44) and preformed packing (45). Discard preformed packings and backup ring.

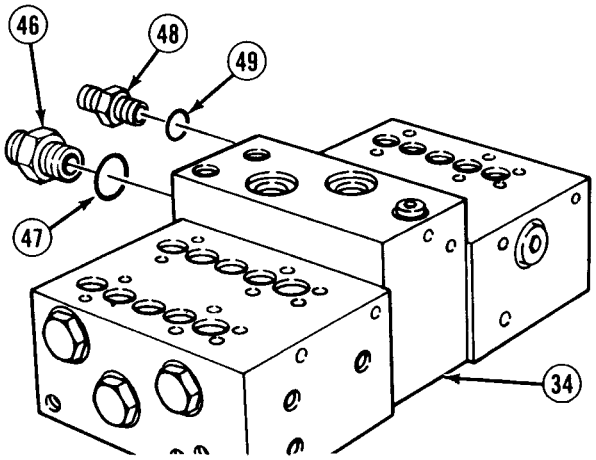


CAUTION

Do not lay four valve bank on its side where solenoid terminals could be damaged.

(20) Remove fitting (46) and preformed packing (47) from manifold (34). Discard preformed packings.

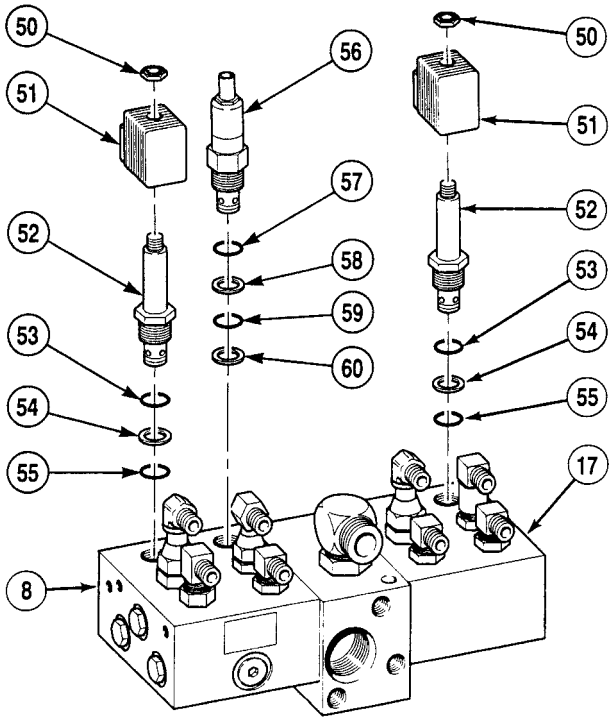
(21) Remove three fittings (48) and preformed packings (49) from manifold (34). Discard preformed packings.



(22) Turn assembly over.

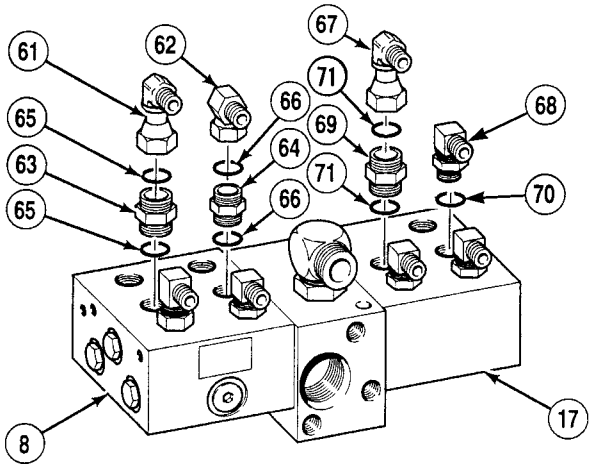
(23) Remove two caps (50), solenoids (51), directional valves (52), preformed packings (53), backup rings (54) and two preformed packings (55) from hoist/lift manifold (8) and telescope/swing manifold (17). Discard preformed packings and backup rings.

(24) Remove relief valve (56), preformed packing (57), backup ring (58), preformed packing (59) and backup ring (60) from hoist/lift manifold (8). Discard preformed packings and backup rings.



(25) Remove elbows (61) and (62), fittings (63) and (64) and preformed packings (65) and (66) from hoist/lift manifold (8). Discard preformed packings.

(26) Remove elbows (67) and (68), fitting (69), and preformed packings (70) and (71) from telescope/swing manifold (17). Discard preformed packings.

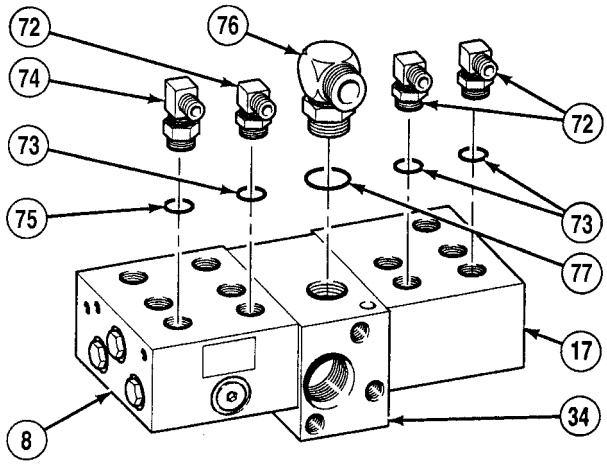


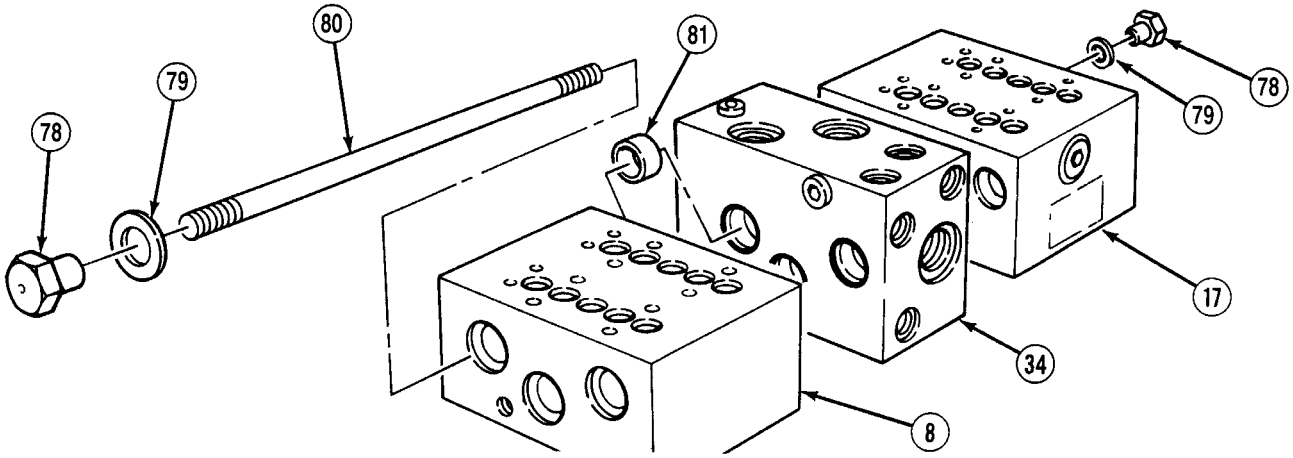
16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(27) Remove three elbows (72) and preformed packings (73) from manifolds (8) and (17). Discard preformed packings.

(28) Remove elbow (74) and preformed packing (75) from hoist/lift manifold (8). Discard preformed packing.

(29) Remove elbow (76) and preformed packing (77) from manifold (34). Discard preformed packing.



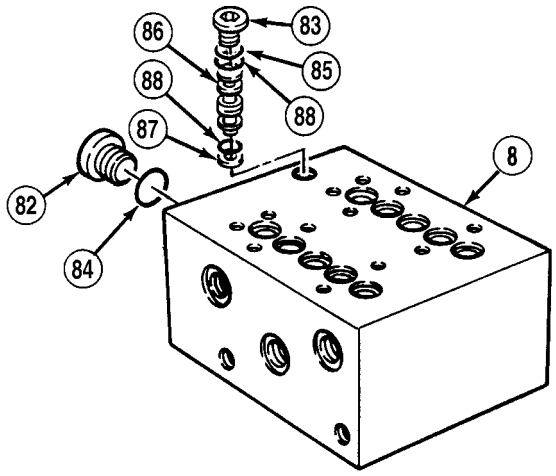


(30) Remove six nuts (78), seal washers (79), three tie rods (80) and four positioning rings (81) from hoist/lift manifold (8), manifold (34) and telescope/swing manifold (17). Discard seal washers.

(31) Remove plugs (82) and (83) and preformed packings (84) and (85) from hoist/lift manifold (8). Discard preformed packings.

(32) Remove check valve (86) from manifold (8) using 4-40 NC by 1 1/2 in. screw.

(33) Remove backup ring (87) and two preformed packings (88) from check valve (86). Discard backup ring and preformed packing.

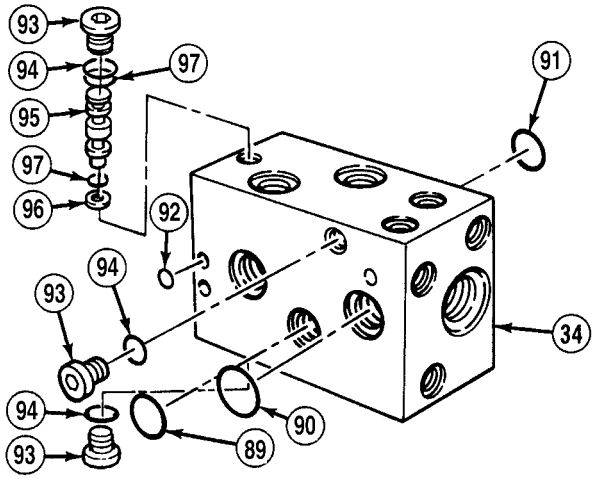


(34) Remove preformed packings (89), (90), (91) and (92) from manifold (34). Discard preformed packings.

(35) Remove three plugs (93) and preformed packings (94) from manifold (34). Discard preformed packings.

(36) Remove three check valves (95) from manifold (34) using 4-40 NC by 1 1/2 in. screw.

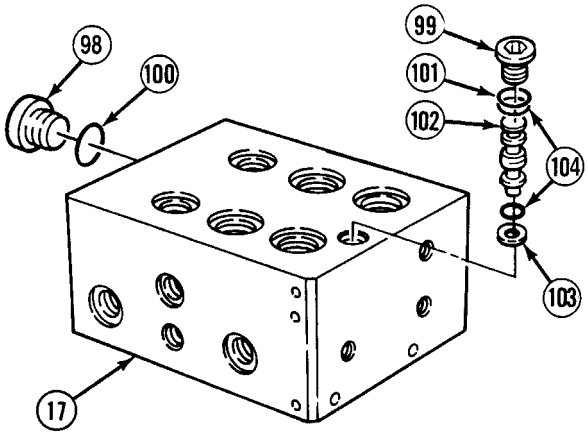
(37) Remove backup ring (96) and two preformed packings (97) from each check valve (95). Discard backup ring and preformed packing.



(38) Remove plugs (98) and (99) and preformed packings (100) and (101) from telescope/swing manifold (17). Discard preformed packings.

(39) Remove check valve (102) from manifold (17) using 4-40 NC by 1 1/2 in. screw.

(40) Remove backup ring (103) and two preformed packings (104) from check valve (102). Discard backup ring and preformed packings.



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for breaks, cracks, gouges, dents and stripped threads.

(3) Replace damaged parts.

d. Assembly.

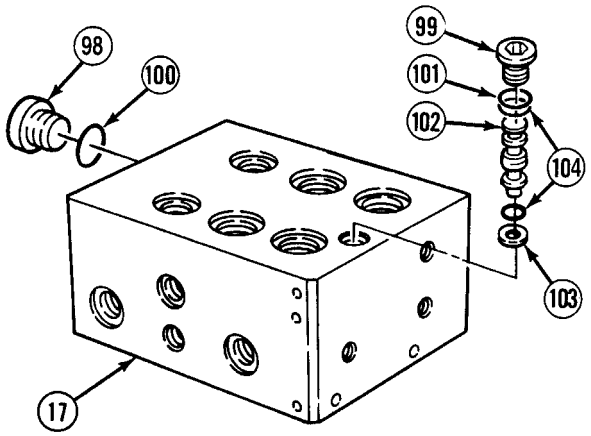
(1) Apply hydraulic oil to preformed packing (104) and backup ring (103).

(2) Install two preformed packings (104) and backup ring (103) on check valve (102).

(3) Install check valve (102) in telescope/swing manifold (17).

(4) Apply hydraulic oil to preformed packings (101) and (100).

(5) Install preformed packings (101) and (100) and plugs (99) and (98) in telescope/swing manifold (17).



(6) Apply hydraulic oil to two preformed packings (97) and backup ring (96).

(7) Install two preformed packings (97) and backup ring (96) on each of three check valves (95).

(8) Install three check valves (95) in manifold (34).

(9) Apply hydraulic oil to three preformed packings (94).

(10) Install three preformed packings (94) and plugs (93) in manifold (34). Tighten plugs to 55 to 65 lb-in (6 to 7 N·m).

(11) Apply hydraulic oil to preformed packings (92), (91), (90) and (89).

(12) Install preformed packings (92), (91), (90) and (89) in manifold (34).

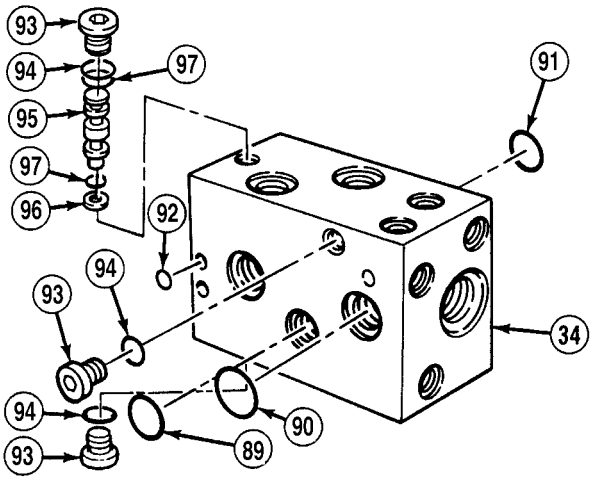
(13) Apply hydraulic oil to two preformed packings (88) and backup rings (87).

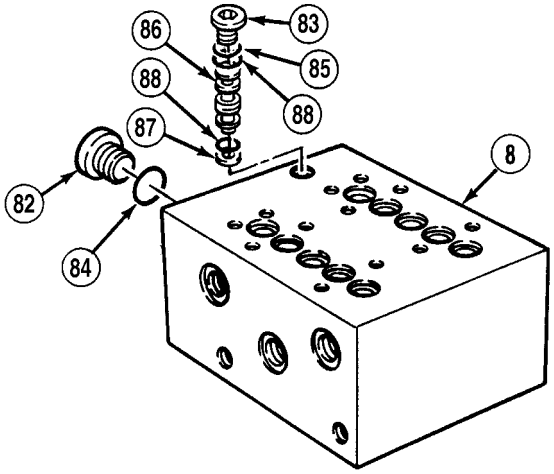
(14) Install two preformed packings (88) and backup rings (87) on check valve (86).

(15) Install check valve (86) in hoist/lift manifold (8).

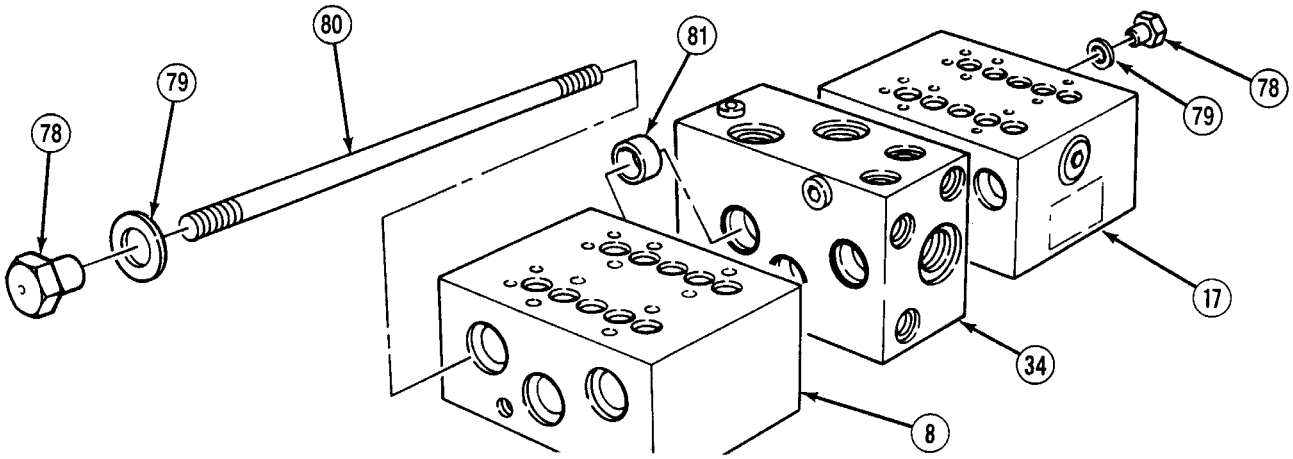
(16) Apply hydraulic oil to preformed packings (85) and (84).

(17) Install preformed packings (85) and (84) and plugs (83) and (82) in hoist/lift manifold (8).





16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).



(18) Position telescope/swing manifold (17), manifold (34) and hoist/lift manifold (8) together with four positioning rings (81).

(19) Apply hydraulic oil to six seal washers (79).

(20) Install three tie rods (80) with six seal washers (79) and nuts (78).

(21) Apply hydraulic oil to preformed packing (77).

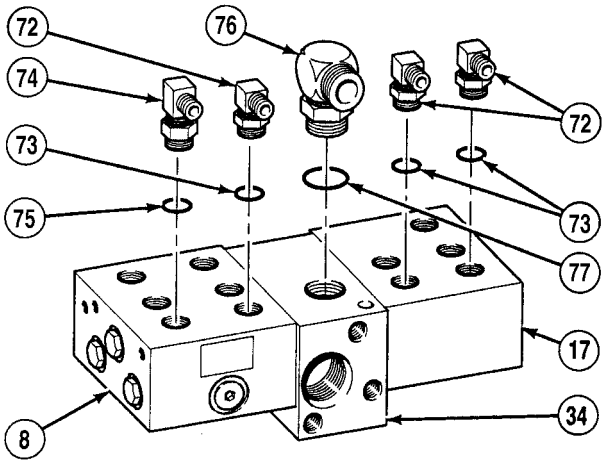
(22) Install preformed packing (77) and elbow (76) on manifold (34).

(23) Apply hydraulic oil to preformed packing (75).

(24) Install preformed packing (75) and elbow (74) on hoist/lift manifold (8).

(25) Apply hydraulic oil to three preformed packings (73).

(26) Install three preformed packings (73) and elbows (72) in hoist/lift manifold (8) and telescope/swing manifold (17).

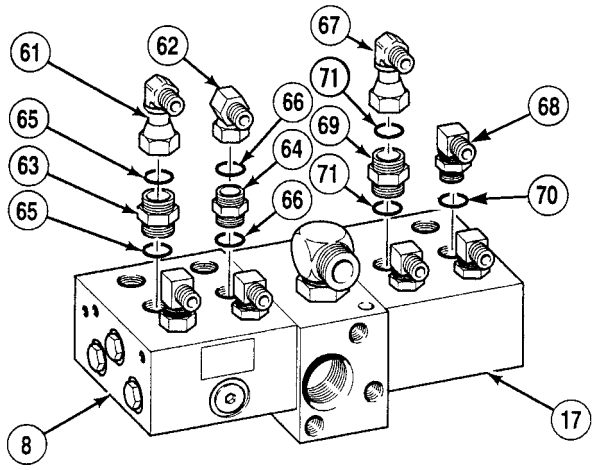


(27) Apply hydraulic oil to preformed packings (71) and (70).

(28) Install preformed packings (71) and (70), fitting (69) and elbows (68) and (67) on telescope/swing manifold (17).

(29) Apply hydraulic oil to preformed packings (65) and (66).

(30) Install preformed packings (66) and (65), fittings (64) and (63) and elbows (62) and (61) on hoist/lift manifold (8).



NOTE

Install valves loosely until assembly is complete to avoid damage to plugs.

(31) Apply hydraulic oil to preformed packing (59) and backup rings (58) and (60).

(32) Install backup ring (58), preformed packing (59) and backup ring (60) on relief valve (56).

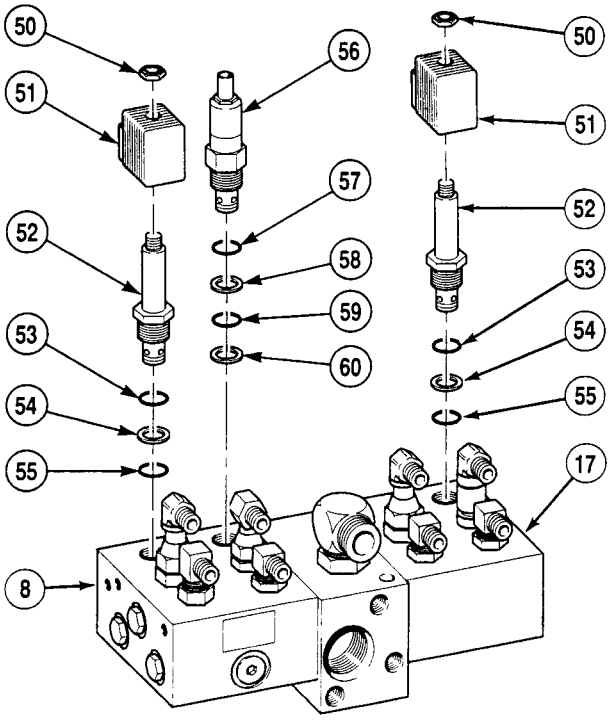
(33) Apply hydraulic oil to preformed packing (57).

(34) Install preformed packing (57) and relief valve (56) on hoist/lift manifold (8).

(35) Apply hydraulic oil to preformed packings (53) and (55) and backup rings (54).

(36) Install preformed packings (53), backup rings (54) and preformed packings (55) on each of two directional valves (52).

(37) Install two directional valves (52), solenoids (51) and caps (50) on hoist/lift manifold (8) and telescope/swing manifold (17).



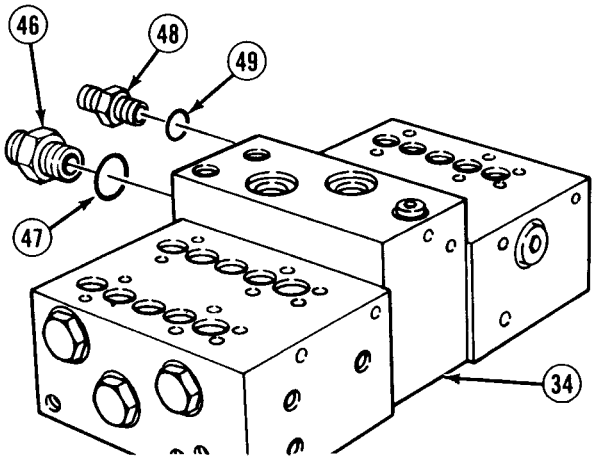
16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(38) Apply hydraulic oil to three preformed packings (49).

(39) Install three preformed packings (49) and fittings (48) on manifold (34).

(40) Apply hydraulic oil to preformed packing (47).

(41) Install preformed packing (47) and fitting (46) on manifold (34).



(42) Apply hydraulic oil to preformed packing (45) and backup ring (44).

(43) Install backup ring (44) and preformed packing (45) on directional valve (42).

(44) Apply hydraulic oil to preformed packing (43).

(45) Install preformed packing (43) and directional valve (42) in manifold (34).

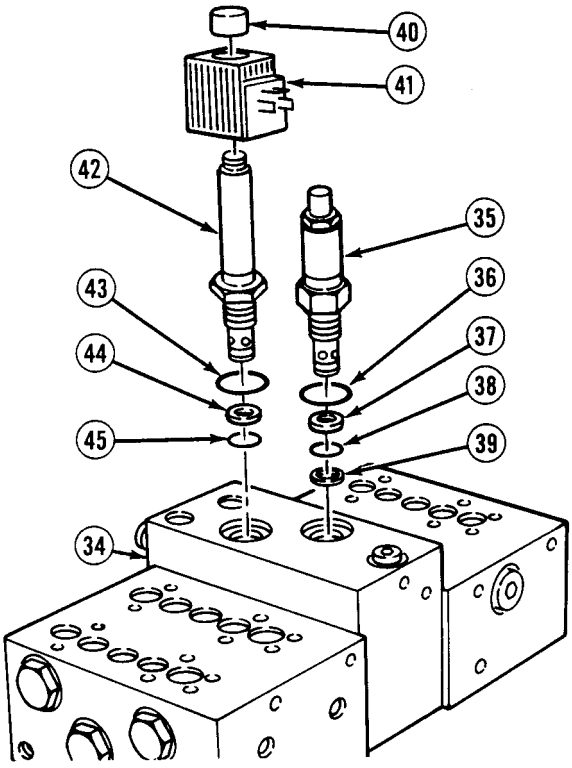
(46) Install solenoid (41) and cap (40).

(47) Apply hydraulic oil to preformed packing (38) and backup rings (37) and (39).

(48) Install backup ring (37), preformed packing (38) and backup ring (39) on relief valve (35).

(49) Apply hydraulic oil to preformed packing (36).

(50) Install preformed packing (36) and relief valve (35) in manifold (34).



(51) Apply hydraulic oil to preformed packings (32) and (33).

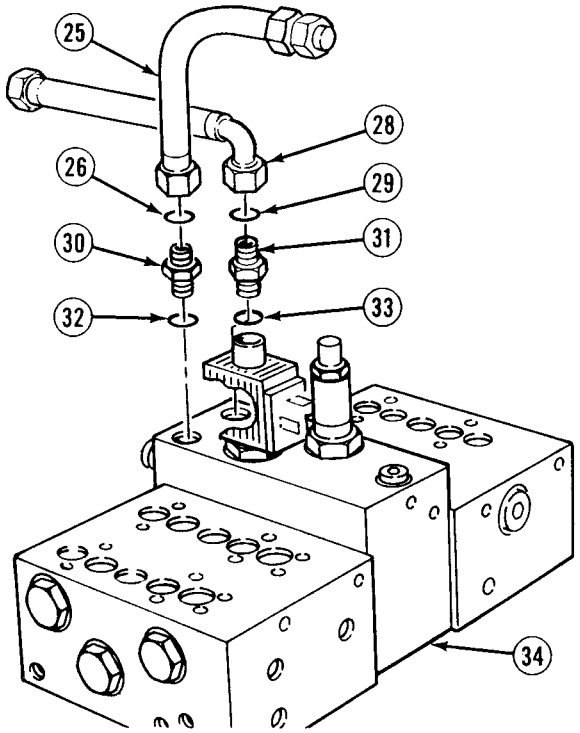
(52) Install preformed packings (33) and (32) and fittings (31) and (30) on manifold (34).

(53) Apply hydraulic oil to preformed packing (29).

(54) Install preformed packing (29) and hose (28) on fitting (31).

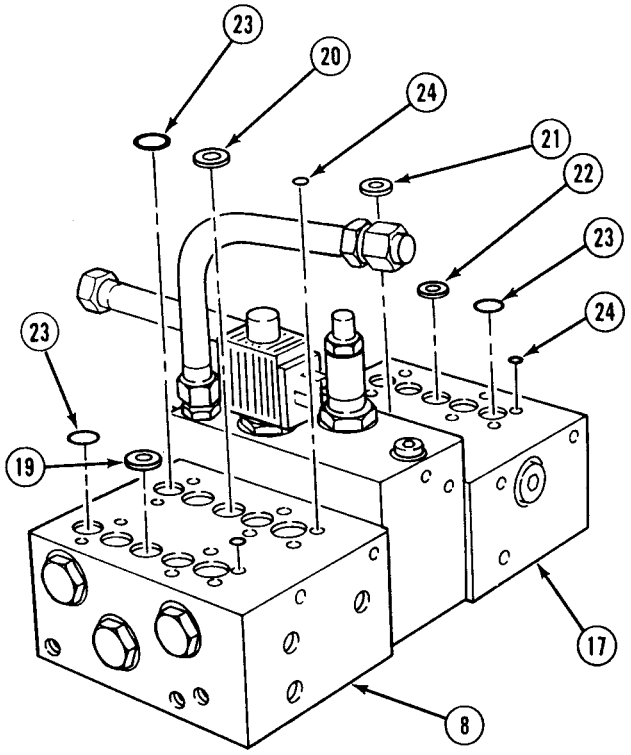
(55) Apply hydraulic oil to preformed packing (26).

(56) Install preformed packing (26) and tube (25) on fitting (30).



(57) Apply hydraulic oil to preformed packings (23) and (24).

(58) Install preformed packings (23) and (24) and orifices (19), (20), (21) and(22) in telescope/swing manifold (17) and hoist/lift manifold (8).



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

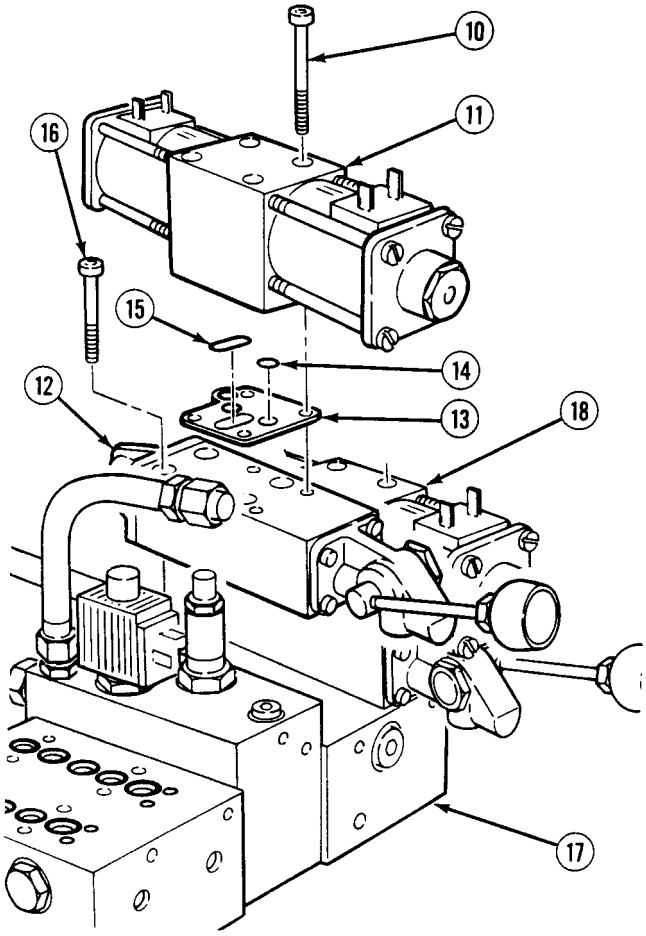
(59) Install telescope valve (12) on telescope/swing manifold (17) with four screws (16).

(60) Apply hydraulic oil to preformed packings (14) and (15).

(61) Install preformed packings (14) and (15) in plate (13) and position on telescope valve (12).

(62) Install solenoid valve (11) with four screws (10).

(63) Perform Steps (59) through (62) for swing valve (18).



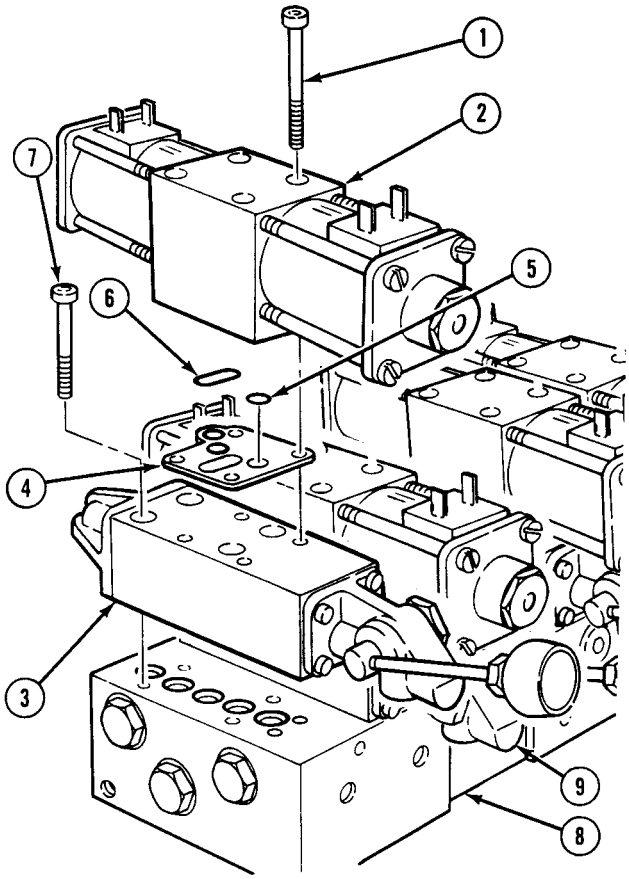
(64) Install hoist valve (3) on hoist/lift manifold (8) with four screws (7).

(65) Apply hydraulic oil to preformed packings (5) and (6).

(66) Install preformed packings (5) and (6) in plate (4) and position on hoist valve (3).

(67) Install hoist solenoid valve (2) with four screws (1).

(68) Perform Steps (64) through (67) for boom valve (9).



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

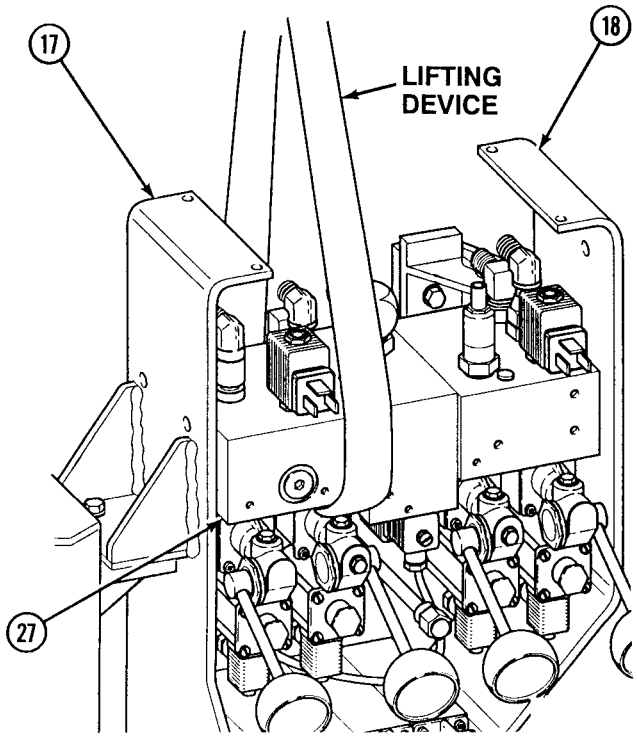
e. Installation.

WARNING

Four function control valve bank weighs 75 lbs (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

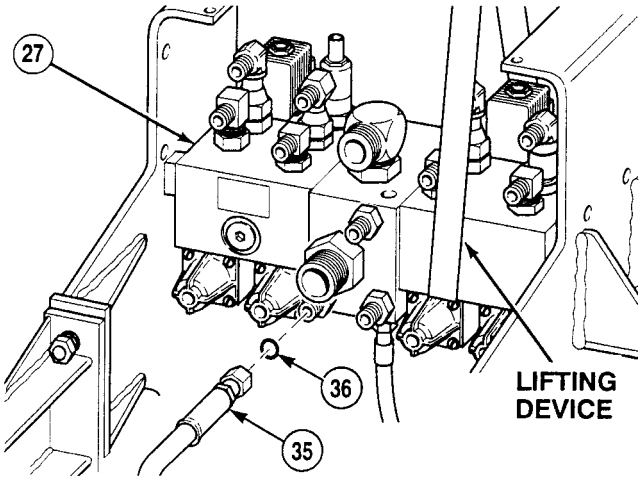
(1) Attach lifting device to four valve control valve bank (27).

(2) Position four function control valve bank (27) loosely between left and right mounting brackets (17) and (18).



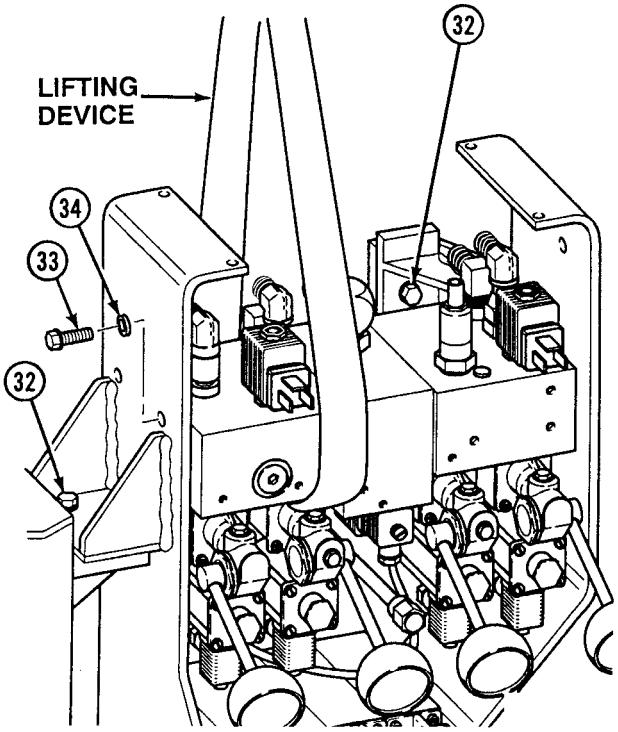
(3) Apply hydraulic oil to preformed packing (36).

(4) Install preformed packing (36) and hose (35) on four function control valve bank (27).



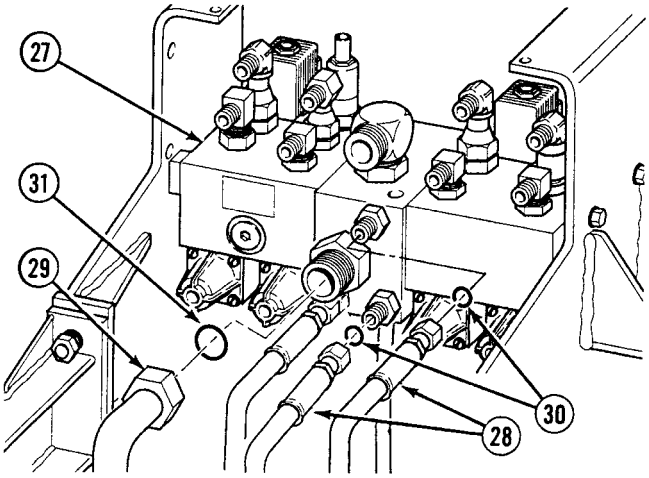
(5) Install four lockwashers (34) and screws (33). Tighten screws to 17 lb-ft (23 N·m).

(6) Tighten four screws (32) to 17 lb-ft (23 N·m) and remove lifting device.



(7) Apply hydraulic oil to preformed packings (30) and (31).

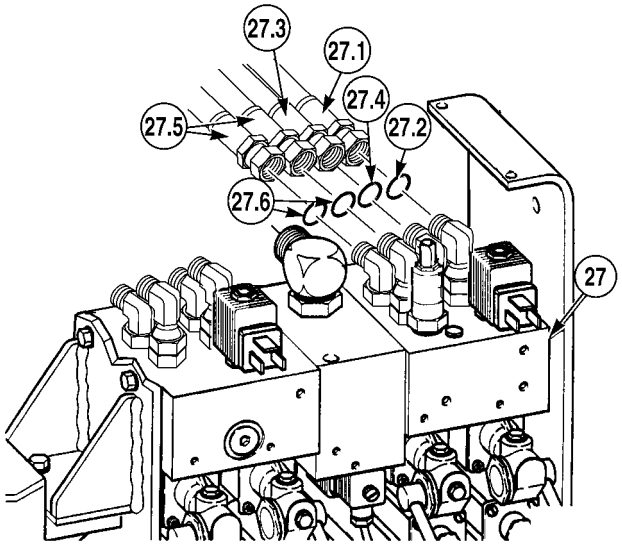
(8) Install preformed packings (30) and (31), tube (29) and two hoses (28) on four function control valve bank (27).



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

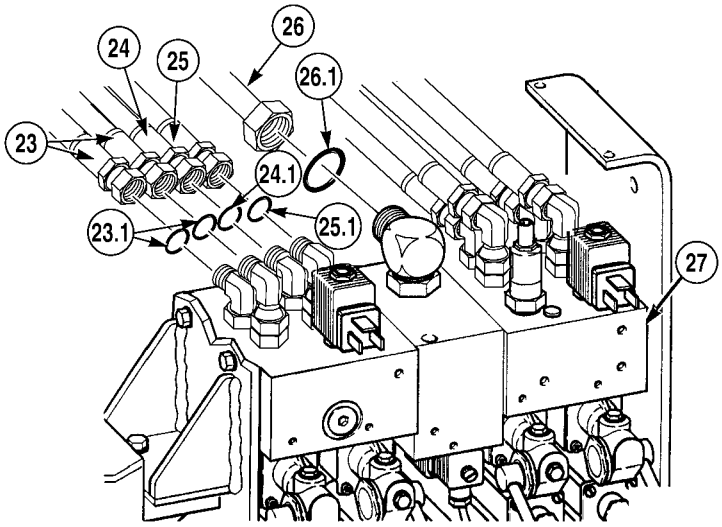
(9) Apply hydraulic oil to preformed packings (27.6), (27.4), and (27.2).

(10) Install two preformed packings (27.6), hoses (27.5), preformed packing (27.4), hoses (27.3), preformed packing (27.2) and hose (27.1) on four function control valve bank (27).

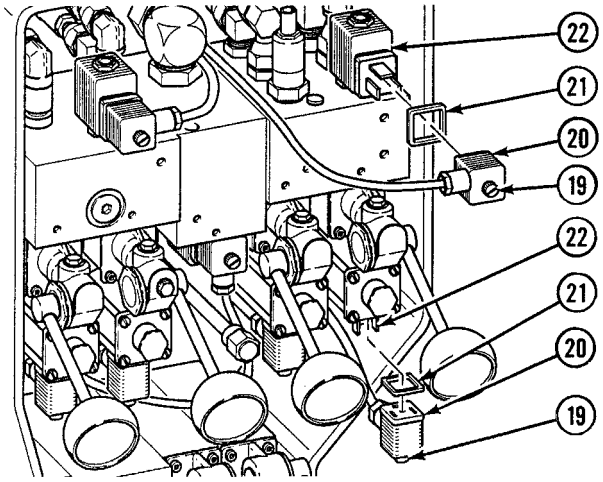


(10.1) Apply hydraulic oil to preformed packings (25.1), (24.1), and (23.1).

(10.2) Install preformed packing (26.1), tube (26), preformed packing (25.1), hose (25), preformed packing (24.1), hose (24), two preformed packings (23.1) and hoses (23) on four function control valve bank (27).



(11) Install 11 gaskets (21) and connectors (20) on solenoids (22) and tighten 11 screws (19).

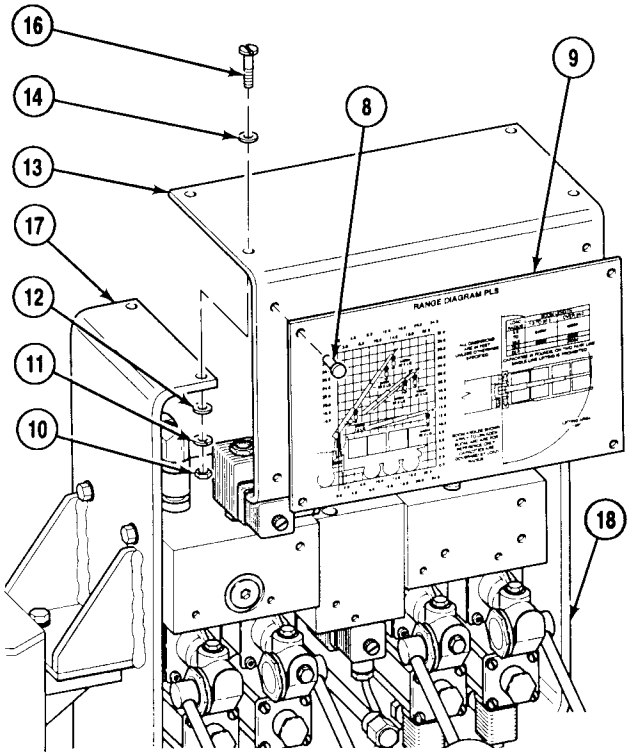


(12) Install cover (13) with four screws (16), washers (14), washers (12), lockwashers (11) and nuts (10). Tighten nuts to 84 lb-in (9 N·m).

NOTE

Perform Step (13) if data plate was removed.

(13) Install data plate (8) with four rivets (9).

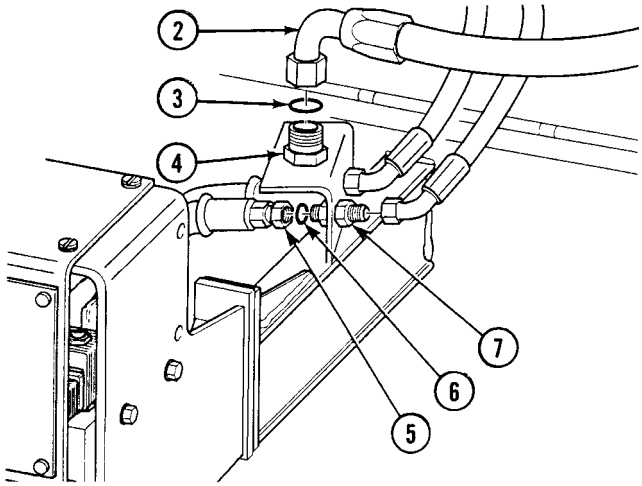


(14) Apply hydraulic oil to preformed packing (6).

(15) Install preformed packing (6) hose (5) on bulkhead fitting (7).

(16) Apply hydraulic oil to preformed packing (3).

(17) Install preformed packing (3) and drain supply line hose (2) on bulkhead fitting (4).



f. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Start engine and check for oil leaks, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Check hydraulic fluid level, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 84, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (6) (Item 286, Appendix E)

Materials/Parts - Continued
Packing, Preformed (Item 339, Appendix E)
Packing, Preformed (Item 373, Appendix E)
Packing, Preformed (Item 389, Appendix E)
Packing, Preformed (6) (Item 391, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Crane stowage box removed, (TM 9-2320-364-20)

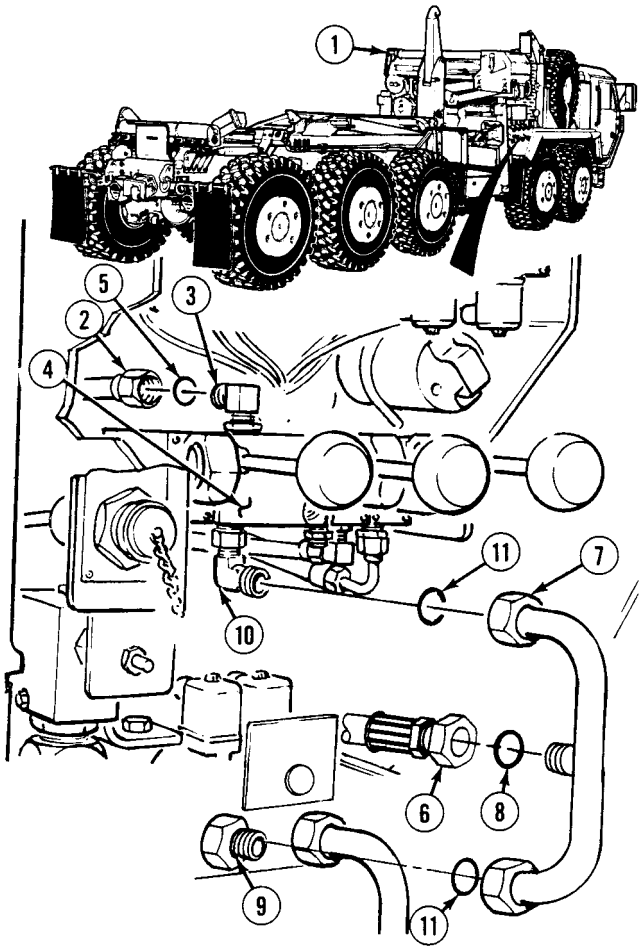
a. Removal.

WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.



(1) Position drain pan under crane (1).

(2) Disconnect hose (2) from elbow (3) on three function control valve bank (4) and remove preformed packing (5). Discard preformed packing.

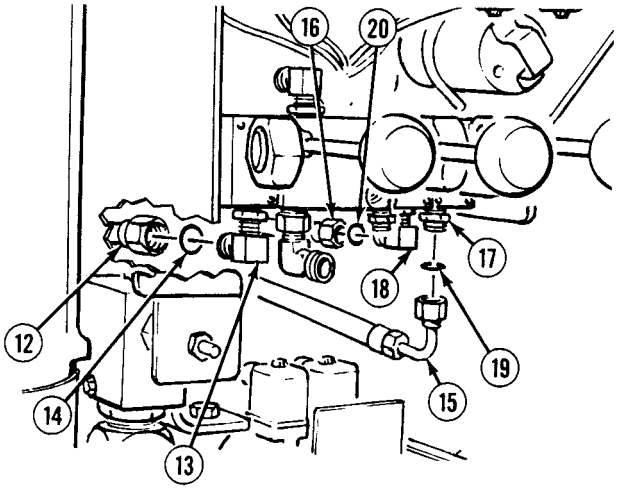
(3) Disconnect hose (6) from tube (7) and remove preformed packing (8). Discard preformed packing.

(4) Disconnect tube (7) from fitting (9) and elbow (10) and remove two preformed packings (11). Discard preformed packings.

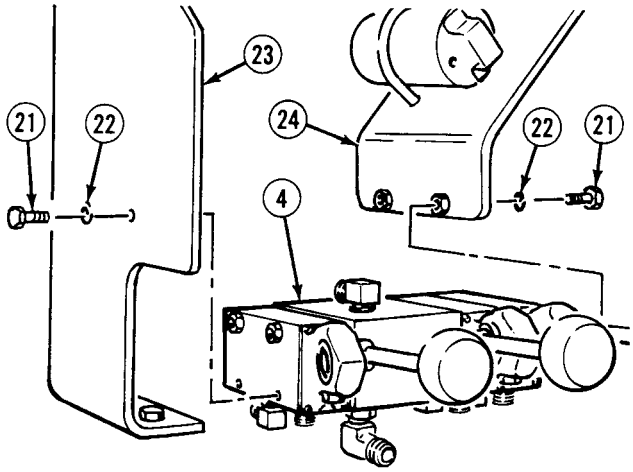
16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(5) Disconnect tube (12) from elbow (13) and remove preformed packing (14). Discard preformed packing.

(6) Disconnect hoses (15) and (16) from fittings (17) and elbows (18) and remove preformed packings (19) and (20). Discard preformed packings.



(7) Remove four screws (21), lockwashers (22) and three function control valve bank (4) from left and right brackets (23) and (24).



b. Disassembly.

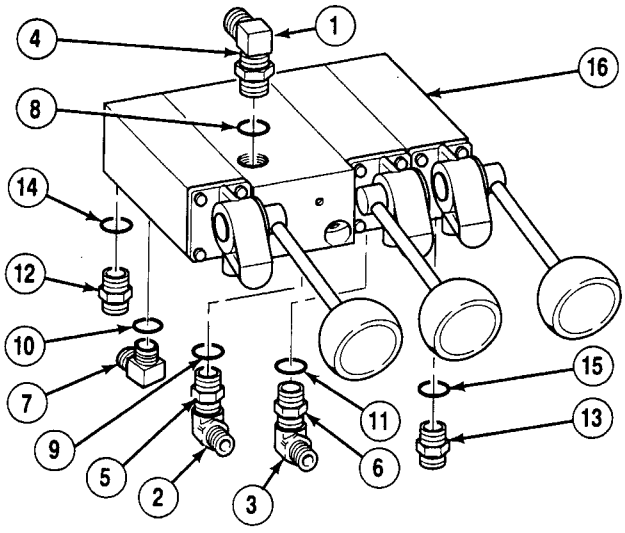
NOTE

Tag and mark position of elbows, fittings, and valves prior to removal.

(1) Remove elbows (1), (2) and (3) from fittings (4), (5) and (6).

(2) Remove fittings (4), (5) and (6), elbow (7) and preformed packings (8), (9), (10) and (11). Discard preformed packings.

(3) Remove fittings (12) and (13) and preformed packings (14) and (15) from three valve bank (16). Discard preformed packings.

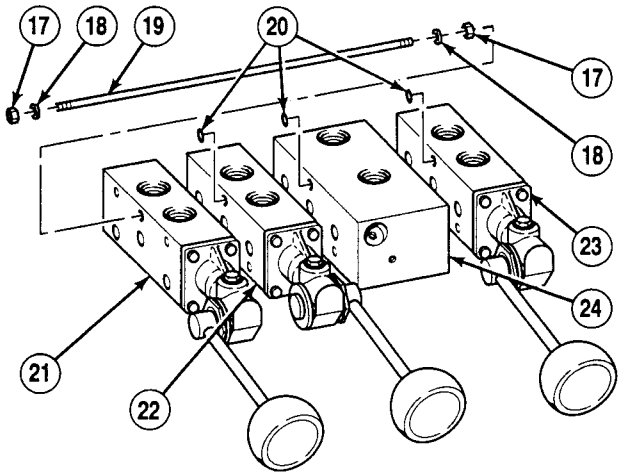


(4) Remove six nuts (17), lockwashers (18), three studs (19) and nine shims (20). Discard lockwashers.

NOTE

Tag and mark position of valves prior to removal.

(5) Separate left-hand outrigger valve (21), mast valve (22) and right-hand outrigger valve (23) from manifold (24).

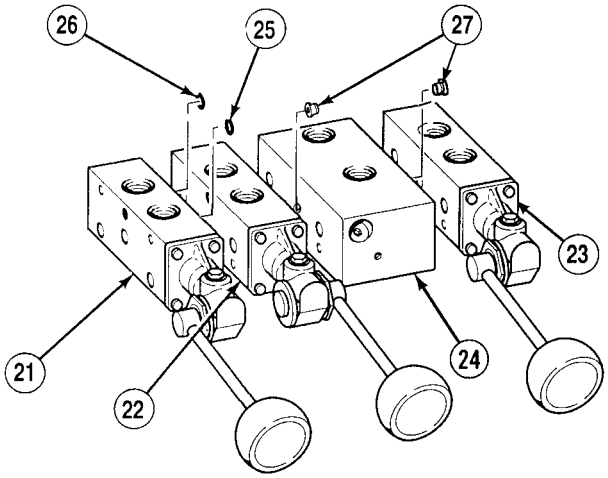


(6) Remove and discard preformed packings (25) and (26) from left hand outrigger valve (21).

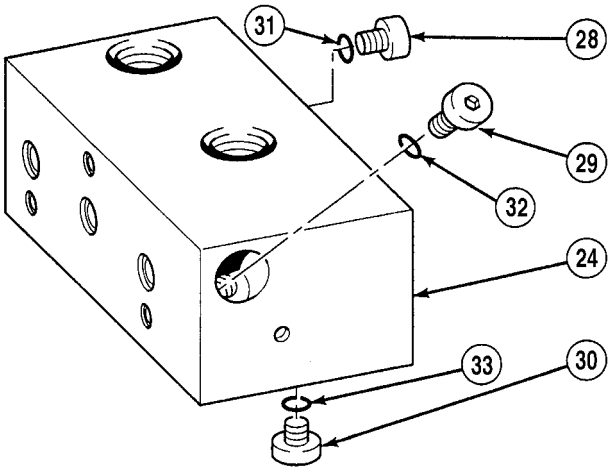
NOTE

Deleted.

(7) Remove two orifices (27) from manifold (24).



(8) Remove plugs (28), (29) and (30) and preformed packings (31), (32) and (33) from manifold (24). Discard preformed packings.



16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

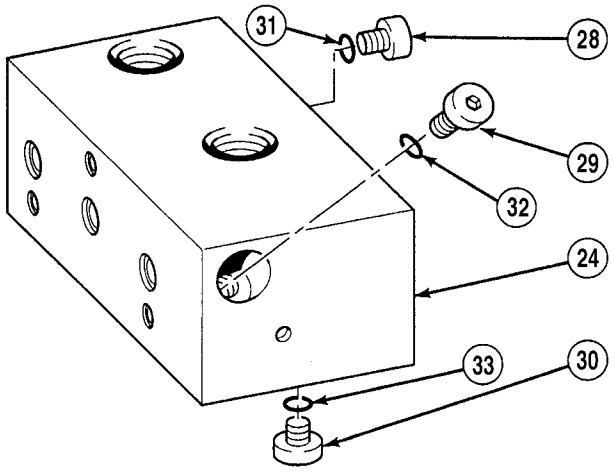
(2) Inspect each part for cracks, gouges or stripped threads.

(3) Replace damaged parts.

d. Assembly.

(1) Apply hydraulic oil to preformed packings (31), (32) and (33).

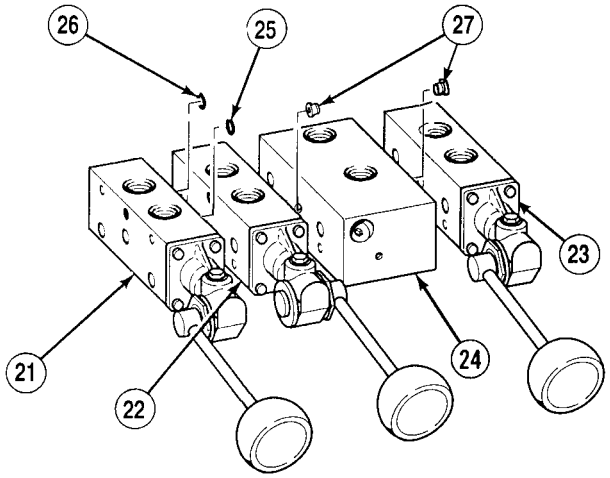
(2) Install preformed packings (31), (32) and (33) and plugs (28), (29) and (30) in manifold (24).



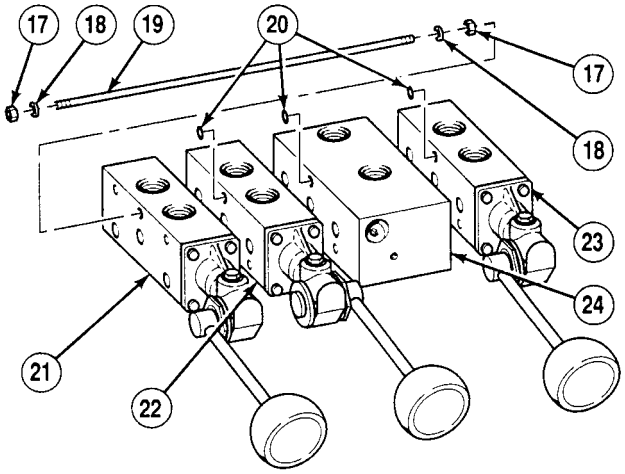
(3) Install two orifices (27) in manifold (24).

(4) Apply hydraulic oil to preformed packings (25) and (26).

(5) Install preformed packings (25) and (26) on left hand outrigger valve (21).



(6) Install nine shims (20) left-hand outrigger valve (21), mast valve (22) and right hand outrigger valve (23) on manifold (24) with three studs (19), six lockwashers (18) and nuts (17). Tighten nuts to 20 to 23 lb-ft (27 to 31 N·m).

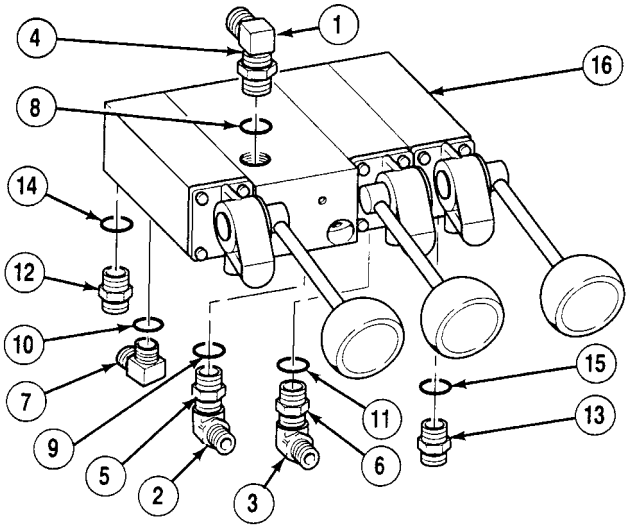


(7) Apply hydraulic oil to preformed packings (14) and (15).

(8) Install preformed packings (14) and (15) and fittings (12) and (13) in three valve bank (16).

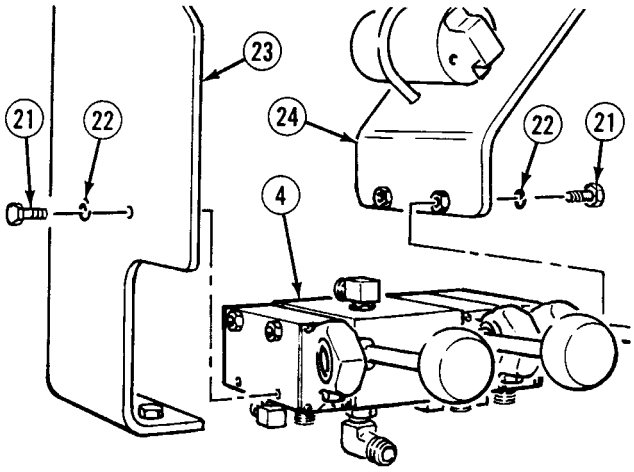
(9) Apply hydraulic oil to preformed packings (8), (9), (10) and (11).

(10) Install preformed packings (8), (9), (10) and (11), elbow (7) and fittings (4), (5) and (6) in three valve bank (16).



e. Installation.

(1) Install three valve bank (4) on left and right brackets (23) and (24) with four lockwashers (22) and screws (21). Tighten screws to 72 lb-in (8 N·m).



16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(2) Apply hydraulic oil to preformed packings (19) and (20).

(3) Install preformed packings (19) and (20) and hoses (15) and (16) on fittings (17) and elbows (18).

(4) Apply hydraulic oil to preformed packing (14).

(5) Install preformed packing (14) and connect tube (12) on elbow (13).

(6) Apply hydraulic oil to preformed packing (11).

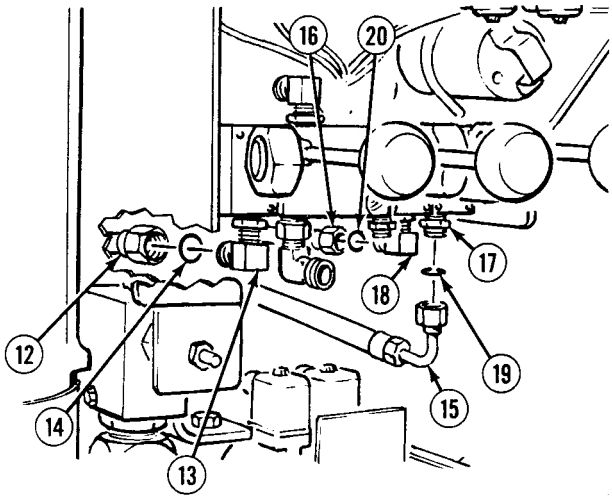
(7) Install preformed packings (11) and connect tube (7) on fitting (9) and elbow (10).

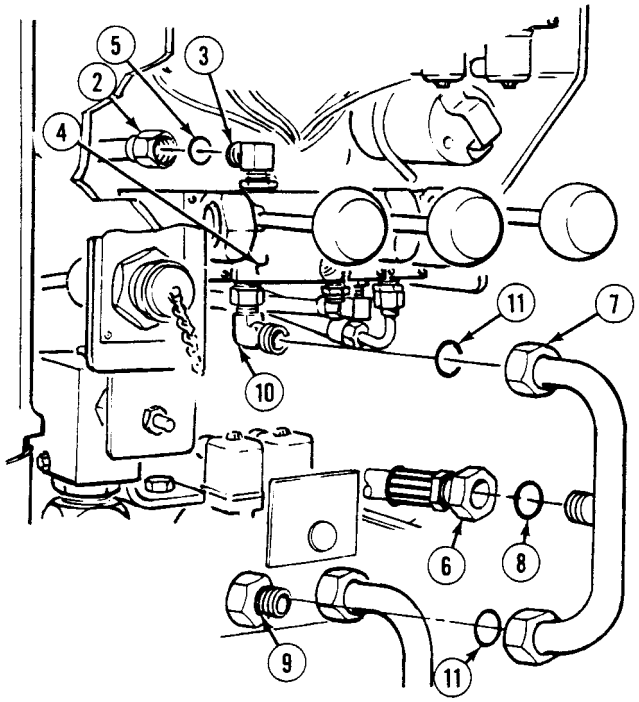
(8) Apply hydraulic oil to preformed packing (8).

(9) Install preformed packing (80 and connect hose (6) on tube (7).

(10) Apply hydraulic oil to preformed packing (5).

(11) Install preformed packing (5) and connect hose (2) on elbow (3) on three function control valve bank (4).





f. Follow-On Maintenance:

- Start engine and check for leaks, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Check hydraulic fluid level, (TM 9-2320-364-20).
- Install crane stowage box, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-28. TWO FUNCTION CONTROL VALVE BANK REPLACEMENT.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

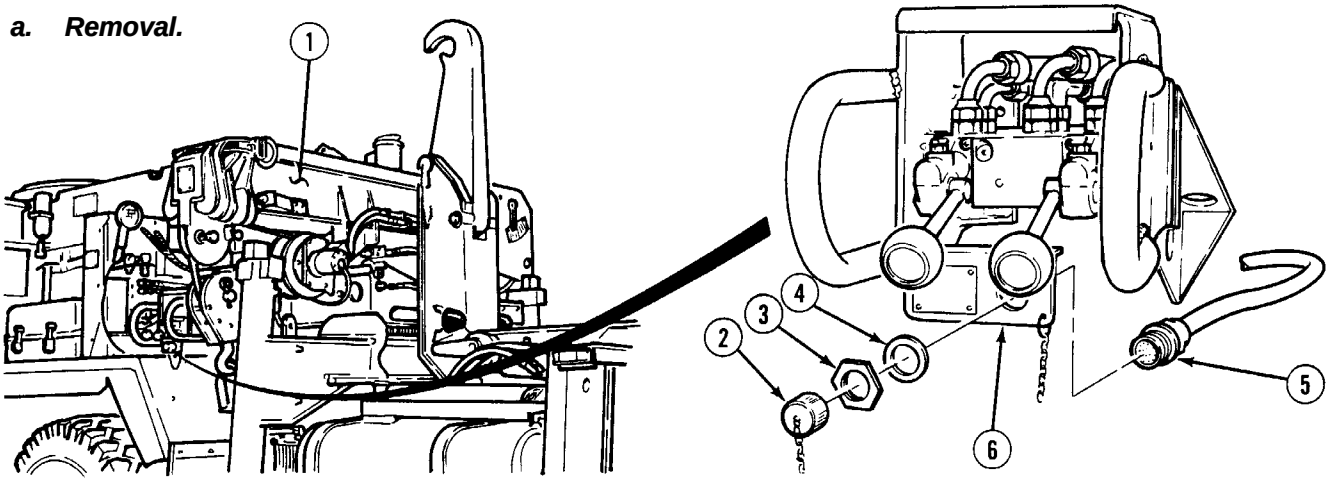
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 84, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Rivet Gun (Item 196, Appendix F)
Wrench, Combination, 1-1/16 in. (Item 254, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)

Materials/Parts - Continued
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Repair Kit (Item 152, Appendix E)
Repair Kit (Item 158, Appendix E)
Lockwasher (Item 228, Appendix E)
Lockwasher (16) (Item 282, Appendix E)
Packing, Preformed (Item 345, Appendix E)
Packing, Preformed (3) (Item 347, Appendix E)
Packing, Preformed (6) (Item 389, Appendix E)
Screw (Item 519, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

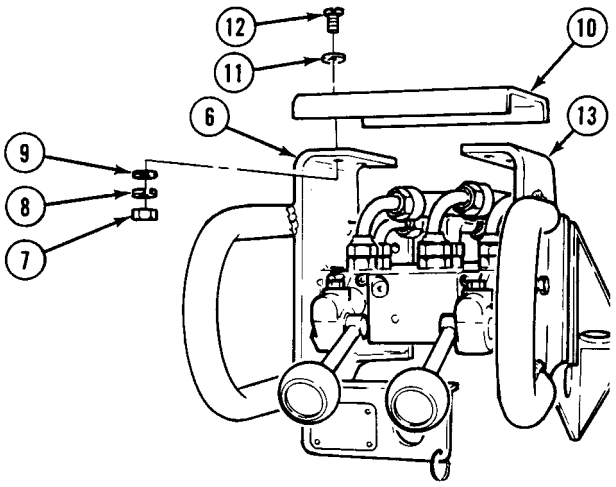


(1) Position drain pan under crane (1).

(2) Remove cap (2), nut (3), lockwasher (4) and connector (5) from bracket (6). Discard lockwasher.

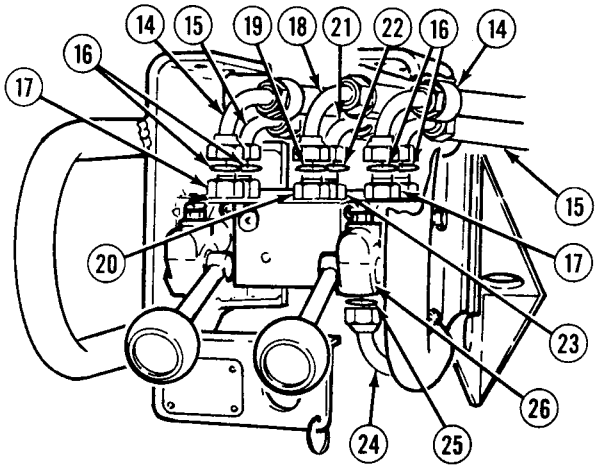
16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(3) Remove four nuts (7), lockwashers (8), washers (9), cover (10), washers (11) and screws (12) from brackets (6) and (13). Discard lockwashers.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.



NOTE

- Tag and mark hoses prior to removal.
- Cap and plug hoses and fittings after removal.

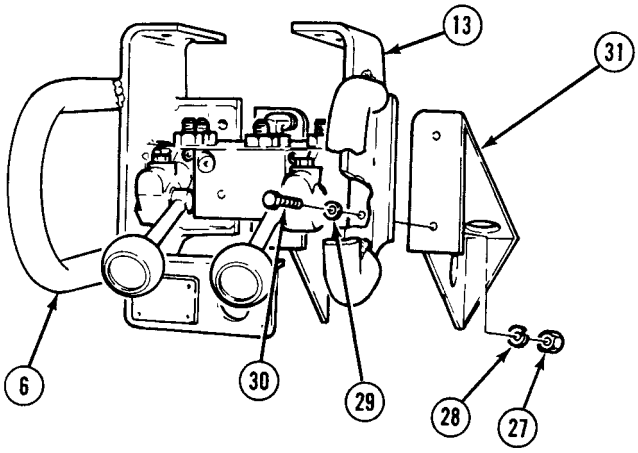
(4) Remove two hoses (14), hoses (15) and four preformed packings (16) from fittings (17). Discard preformed packings.

(5) Remove hose (18) and preformed packing (19) from fitting (20). Discard preformed packing.

(6) Remove hose (21) and preformed packing (22) from elbow (23). Discard preformed packing.

(7) Remove hose (24) and preformed packing (25) from elbow (26). Discard preformed packing.

(8) Remove four nuts (27), lockwashers (28), washers (29), screws (30) and brackets (6) and (13) from crane subframe (31). Discard lockwashers.



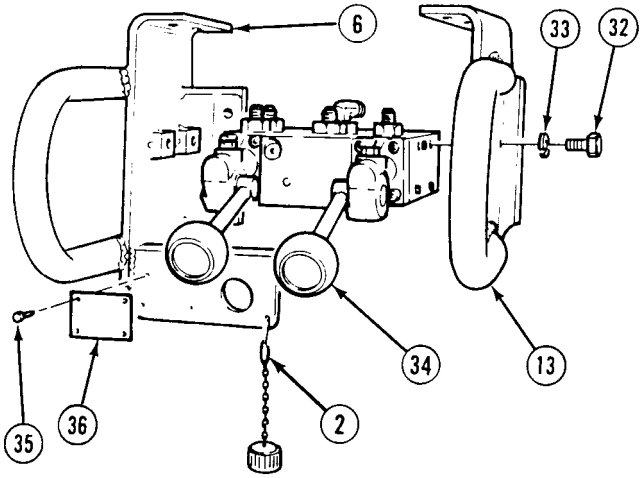
(9) Remove four screws (32), lockwashers (33) and brackets (6) and (13) from two function control valve bank (34). Discard lockwashers.

(10) Remove cap and chain assembly (2) from bracket (6).

NOTE

Perform Step (11) if data plate is damaged.

(11) Remove four rivets (35) and data plate (36) from bracket (6).

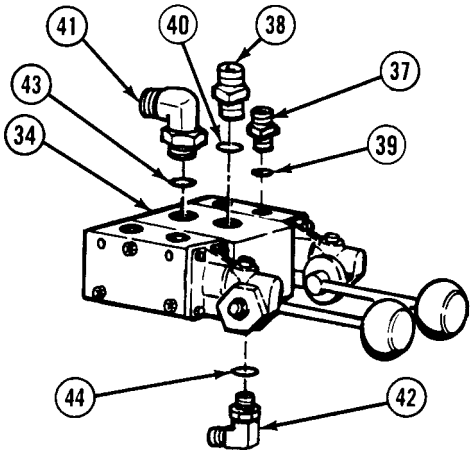


NOTE

Tag and mark positions of elbows and fittings prior to removal.

(12) Remove four fittings (37), fitting (38), four preformed packings (39) and preformed packing (40) from two function control valve bank (34). Discard preformed packings.

(13) Remove elbows (41) and (42) and preformed packings (43) and (44) from two function control valve bank (34). Discard preformed packings.



16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

b. Disassembly.

(1) Remove six nuts (1) and three studs (2).

NOTE

Tag and mark valves prior to removal.

(2) Separate right outrigger valve (3), manifold (4), left outrigger valve (5) and remove six shims (6).

(3) Deleted.

(4) Remove and discard six preformed packings (7) and two preformed packings (8) from right outrigger valve (3) and left outrigger valve (5).

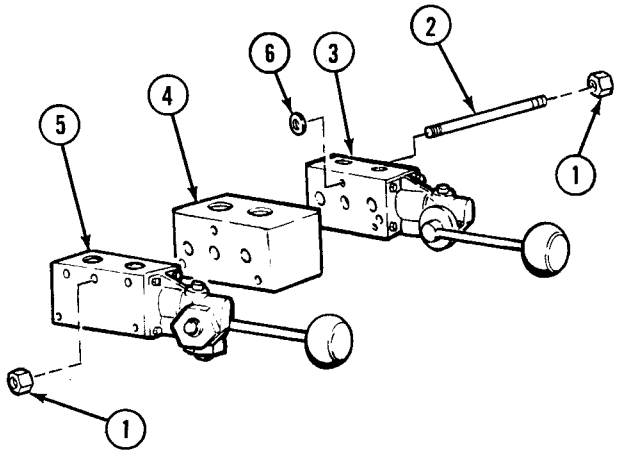
(5) Remove two plugs (9) and preformed packings (10) from manifold (4). Discard preformed packings.

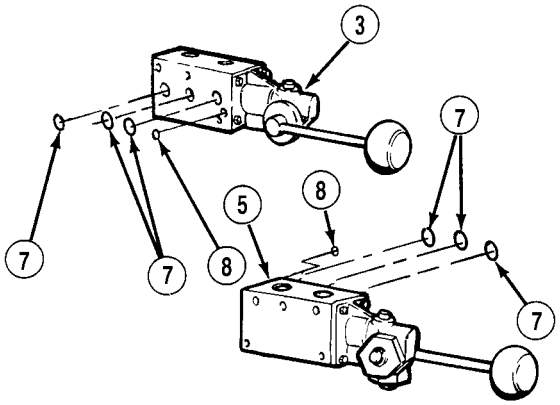
(6) Remove plug (11), preformed packing (12), check valve (13), backup ring (14) and two preformed packings (15) from manifold (4). Discard preformed packings.

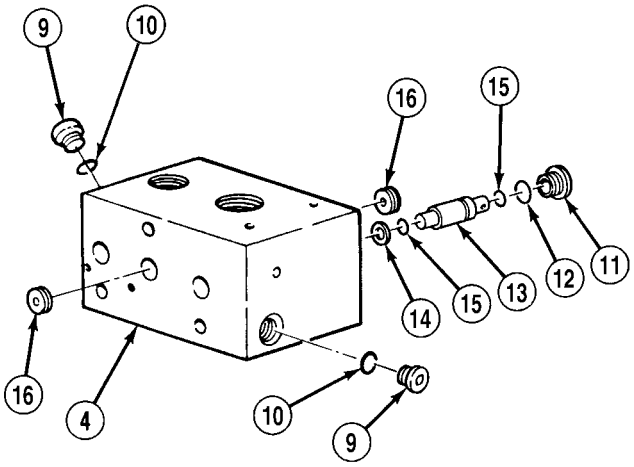
NOTE

Tag and mark orifices prior to removal.

(7) Remove two flow orifices (18) from manifold (4).







c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for nicks, scratches and burrs.

(3) Replace damaged parts.

d. Assembly.

(1) Apply hydraulic oil to preformed packings (12), (10) and (15).

(2) Install backup ring (14), two preformed packings (15), check valve (13), plug (11) and preformed packing (12) in manifold (4).

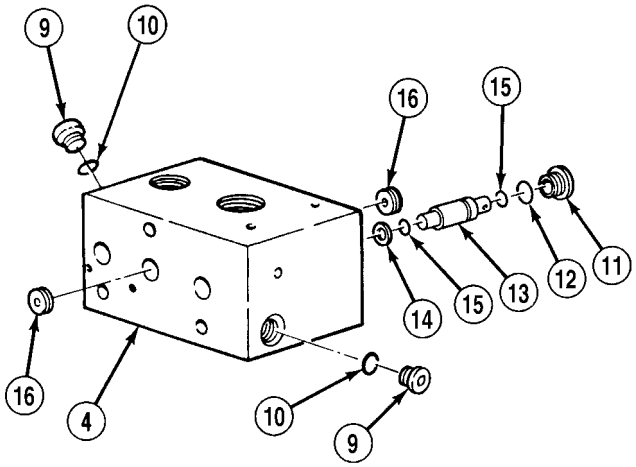
(3) Install two flow orifices (16) in manifold (4).

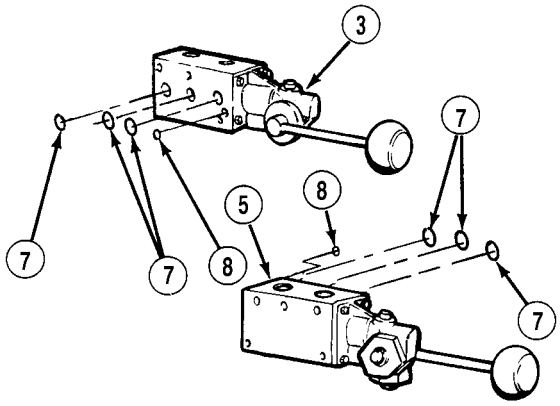
(4) Install two plugs (9) and preformed packings (10) in manifold (4).

(5) Apply hydraulic oil to six preformed packings (7) and two preformed packings (8).

(6) Install six preformed packings (7) and two preformed packings (8) in right outrigger valve (3) and left outrigger valve (5).

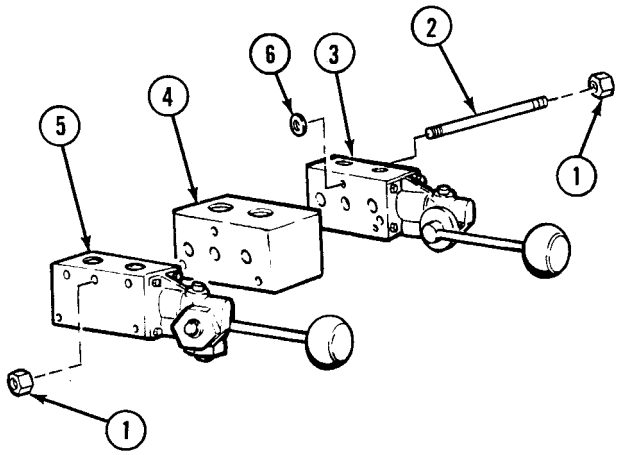
(7) Deleted.





16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(8) Install six shims (6), right outrigger valve (3) and left outrigger valve (5) on manifold (4) with three studs (2) and six nuts (1). Tighten nuts evenly 20 to 23 lb-ft (27 to 31 N·m).



e. Installation.

(1) Apply hydraulic oil to four preformed packings (39).

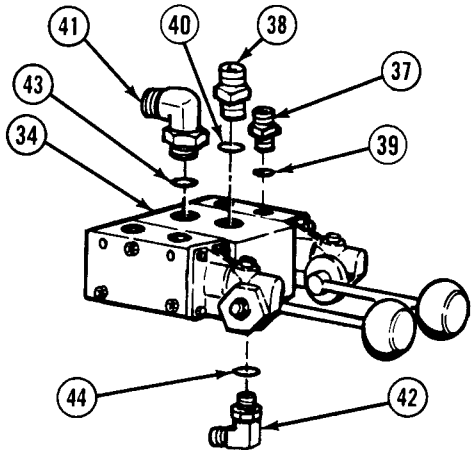
(2) Install four preformed packings (39) and fittings (37) in two function control valve bank (34).

(3) Apply hydraulic oil to preformed packing (40).

(4) Install preformed packing (40) and fitting (38) in two function control valve bank (34).

(5) Apply hydraulic oil to preformed packings (43) and (44).

(6) Install preformed packings (43) and (44) and elbows (41) and (42) in two function control valve bank (34).



NOTE

Perform Step (7) if data plate was removed.

(7) Install data plate (36) with four rivets (35).

(8) Install cap and chain assembly (2) on bracket (6).

WARNING

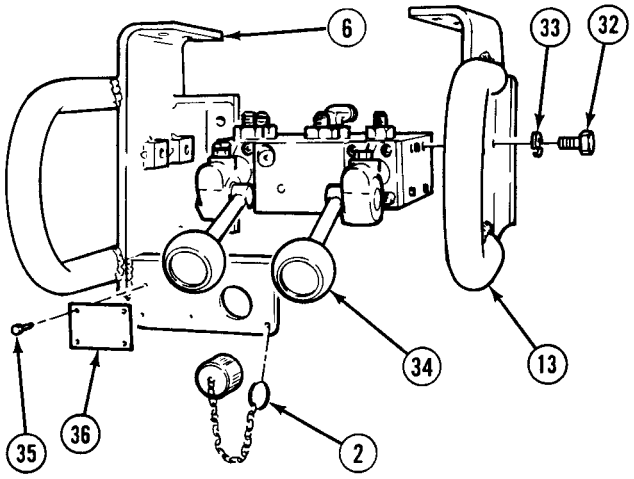
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

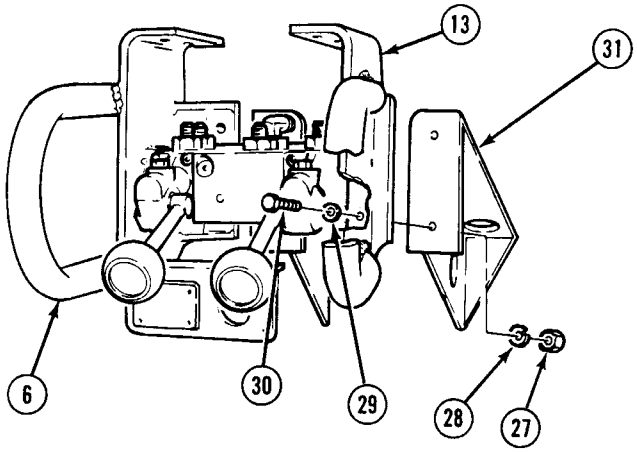
(9) Apply sealing compound on threads of four screws (32).

(10) Install brackets (6) and (13) on two function control valve bank (34) with four lockwashers (33) and screws (32). Tighten screws to 72 lb-in (8 N·m).

(11) Apply sealing compound on threads of four screws (30).

(12) Install brackets (6) and (13) on crane subframe (31) with four screws (30), washers (29), lockwashers (28) and nuts (27). Tighten nuts to 17 lb-ft (23 N·m).





16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

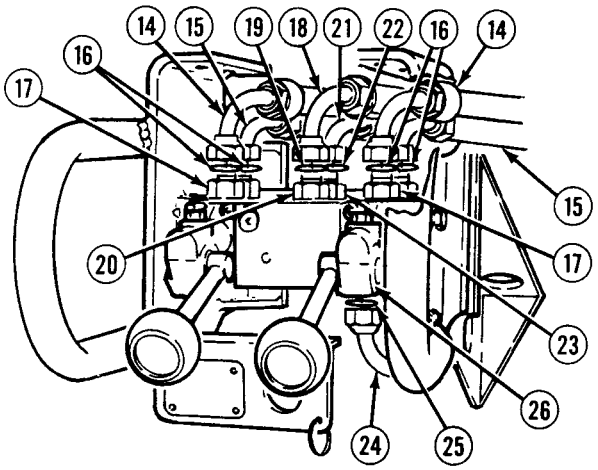
(13) Apply hydraulic oil to preformed packings (25), (22), (19) and (16).

(14) Install preformed packing (25) and hose (24) on elbow (26).

(15) Install preformed packing (22) and hose (21) on elbow (23).

(16) Install preformed packing (19) and hose (18) on elbow (20).

(17) Install four preformed packings (16), two hoses (15) and hoses (14) on four fittings (17).

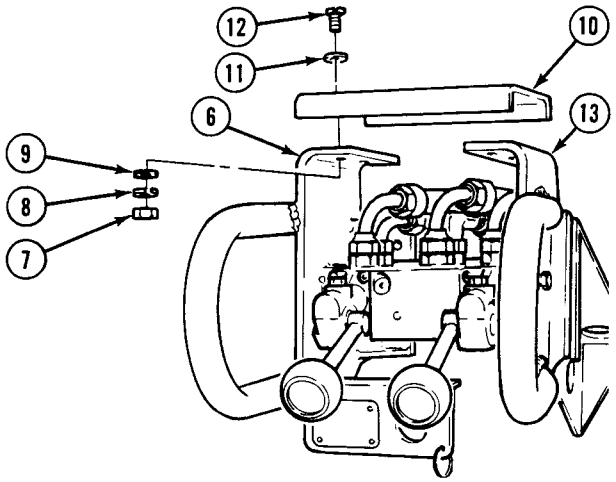


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area.

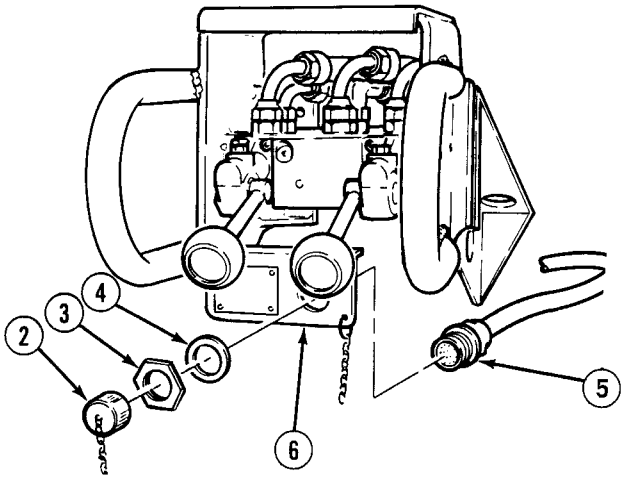
(18) Apply sealing compound on threads of four screws (12).

(19) Install cover (10) on brackets (6) and (13) with four screws (12), washers (11), washers (9), lockwashers (8) and nuts (7). Tighten nuts to 72 lb-in (8 N·m).



(20) Install connector (5) in bracket (6) with nut (3) and lockwasher (4).

(21) Install cap (2) on bracket (6).



f. Follow-On Maintenance:

- Check oil level, (TM 9-2320-364-10).
- Operate crane and check for oil leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-29. FOUR/THREE FUNCTION CONTROL VALVE BANK MOUNT REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

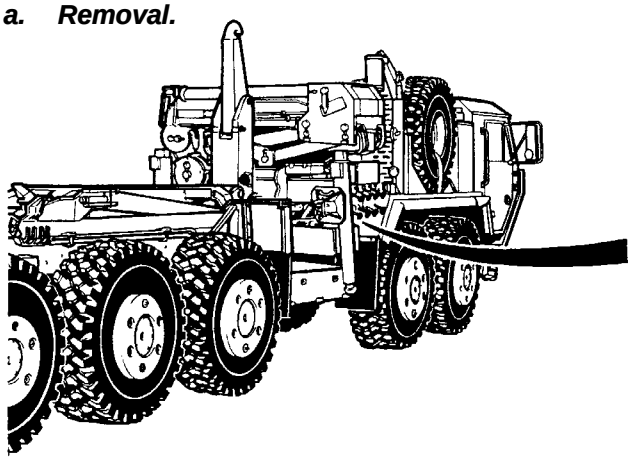
INITIAL SETUP

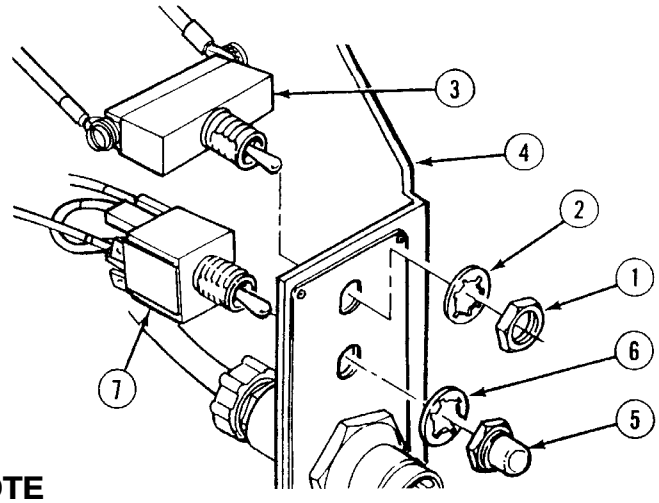
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)
Rivet Gun (Item 196, Appendix F)
Wrench Combination 1-11/16 in. (Item 262, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Crane accumulator removed, (TM 9-2320-364-20)
Hydraulic solenoid valve removed, (Para 16-24)
Manual override solenoid manifold removed, (Para 16-24)
Four function control valve bank removed, (Para 16-26)
Three function control valve bank removed, (Para 16-27)

Materials/Parts
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (Item 228, Appendix E)
Lockwasher (4) (Item 264, Appendix E)

a. Removal.





NOTE

Lockwashers removed in Steps (1) and (3) do not get discarded unless switch is damaged.

(1) Remove nut (1), and lockwasher (2) from power switch (3).

(2) Note position and remove power switch (3) from left valve mount (4).

(3) Remove boot (5) and lockwasher (6) from high idle switch (7).

(4) Remove high idle switch (7) from left valve mount (4).

16-29. FOUR/THREE VALVE BANK MOUNT REPLACEMENT (CONT).

(5) Remove cap (8) from connector (9).

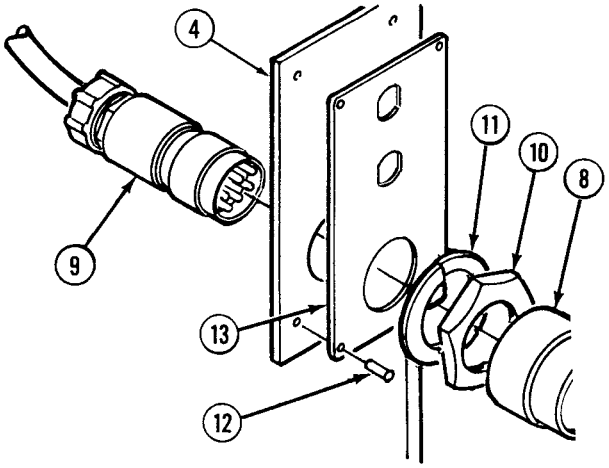
(6) Remove cap (8) from bracket (4).

(7) Remove nut (10), lockwasher (11) and connector (9). Discard lockwasher.

(8) Drill out four rivets (12) and remove data plate (13) from bracket (4).

(9) Remove two nuts (14), lockwashers (15), washers (16), mount (17), washers (18) and screws (19) from subframe (20). Discard lockwashers.

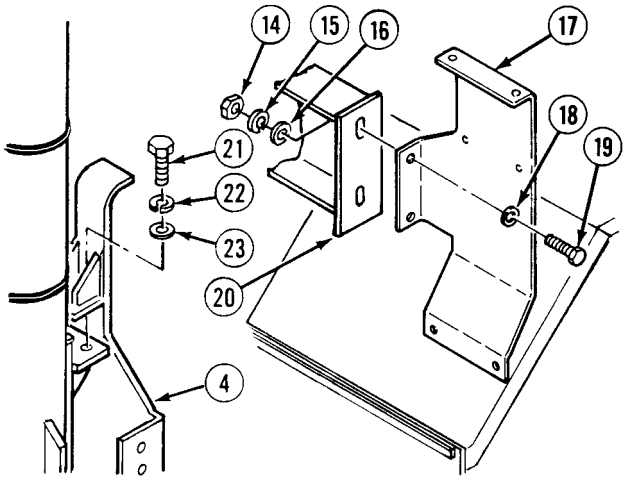
(10) Remove two screws (21), lockwashers (22), washers (23) and mount (4). Discard lockwashers.



b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(1) Apply sealing compound on threads of two screws (21).

(2) Install mount (4) on subframe (20) with two screws (21), lockwashers (22) and washers (23). Tighten screws to 17 lb-ft (23 N·m).

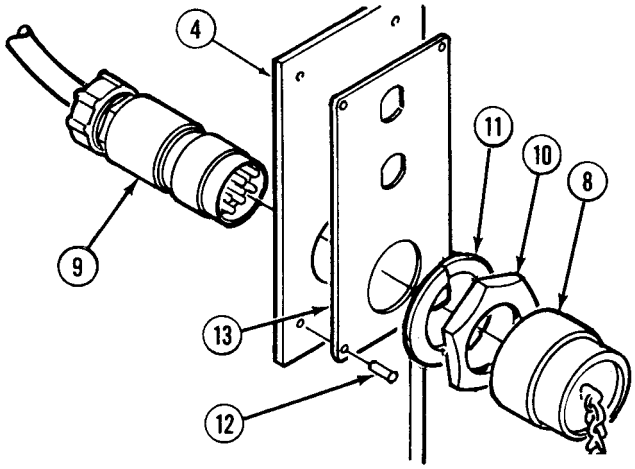
(3) Apply sealing compound on threads of two screws (19).

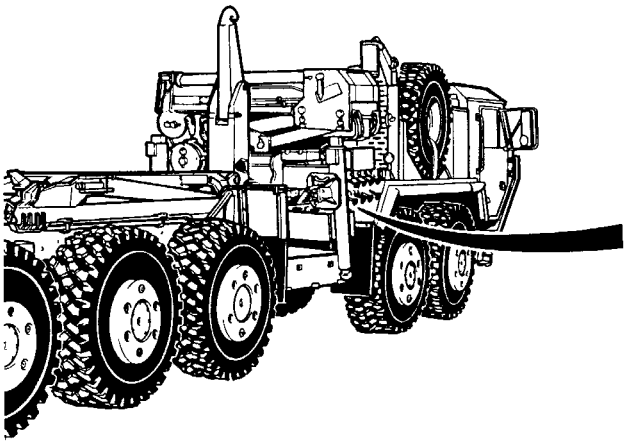
(4) Position mount (17) and install with two screws (19), washers (18), washers (16), lockwashers (15) and nuts (14). Tighten nuts to 17 lb-ft (23 N·m).

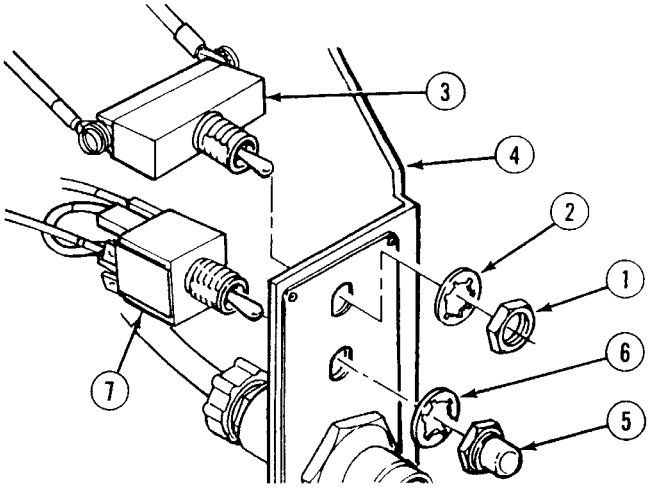
(5) Install data plate (13) on mount (4) with four rivets (12).

(6) Install connector (9) with lockwasher (11) and nut (10).

(7) Install cap (8) on mount (4) and connector (9).







(8) Install high idle switch (7) in mount (4) with washer (6) and boot (5).

(9) Install power switch (3) in mount (4) with washer (2) and nut (1).

c. Follow-On Maintenance:

- Install manual override solenoid manifold (Para 16–24).
- Install main hydraulic pressure solenoid valve, (Para 16-24).
- Install three valve bank, (Para 16-27).
- Install four valve bank, (Para 16-26).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-30. LEFT SIDE AND RIGHT SIDE CRANE REMOTE CONTROL CABLE CONNECTOR REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

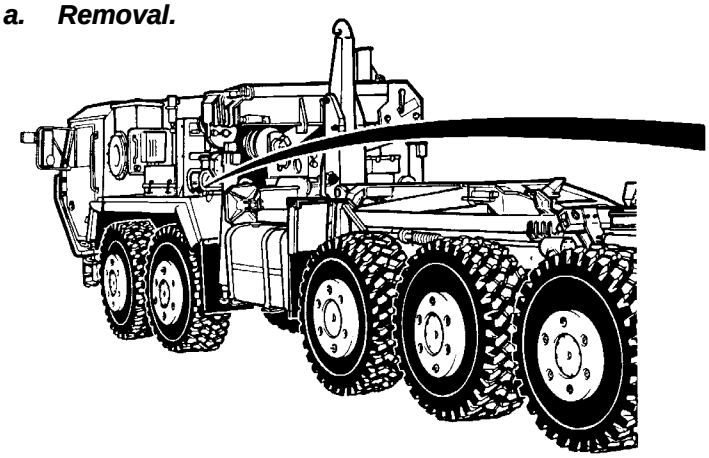
Tools and Special Tools
Tool Kit, Electric (Item 239, Appendix F)
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)

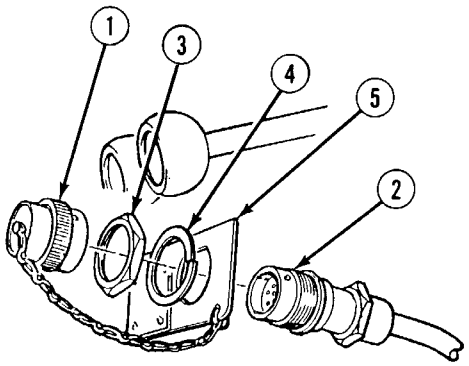
Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts
Tags, Identification (Item 72, Appendix B)
Lockwasher (2) (Item 228, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Removal.





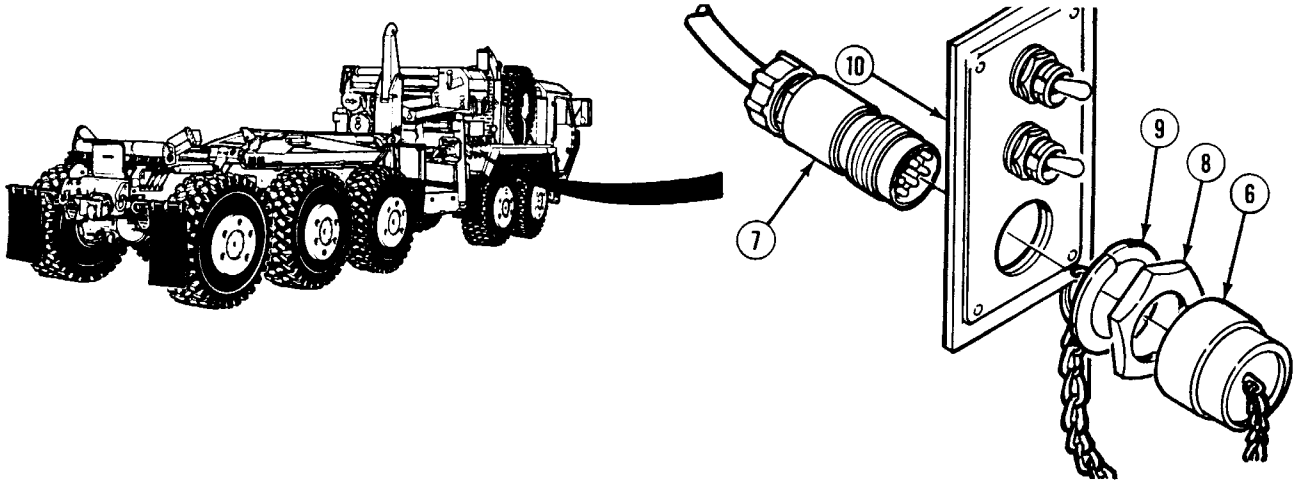
NOTE

- If removing left side cable connector, perform Steps (1) through (3).
- If removing right side cable connector, perform Steps (4) through (6).

(1) Remove cover with chain (1) from connector (2).

(2) Remove nut (3) and lockwasher (4). Discard lockwasher.

(3) Remove connector (2) from bracket (5).

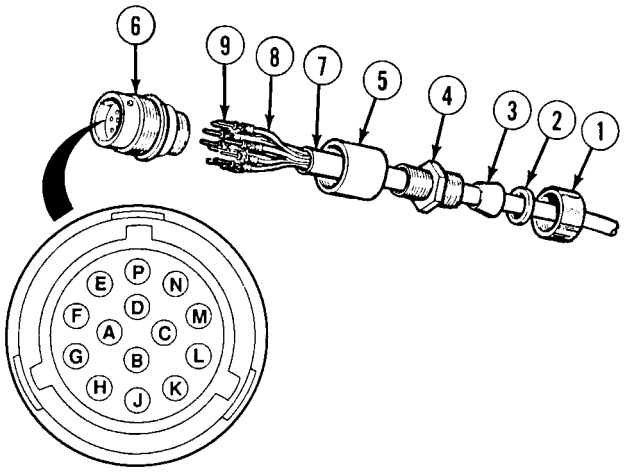


(4) Remove cap (6) from connector (7).

(5) Remove nut (8) and lockwasher (9). Discard lockwasher.

(6) Remove connector (7) from bracket (10).

b. Disassembly.



(1) Remove connector cap (1), ring (2), grommet (3) and connector (4) from conduit (5).

(2) Remove conduit (5) from receptacle connector body (6) and slide down cable (7).

NOTE

Tag and mark wires before disassembly.

(3) Remove 14 wires (8) from receptacle connector body (6).

NOTE

Perform Step (4) if pins are damaged.

(4) Remove 14 pins (9) from wires (8).

(5) Remove conduit (5), connector (4), grommet (3), ring (2) and connector cap (1) from cable (7).

16-30. LEFT SIDE AND RIGHT SIDE CRANE REMOTE CONTROL CABLE CONNECTOR REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Wash metal parts in drycleaning solvent.

(2) Dry with cleaning cloth.

(3) Inspect for damaged parts, frayed or broken wires. Test wires for continuity.

(4) Replace damaged parts.

d. Assembly.

(1) Position connector cap (1), ring (2), grommet (3), connector (4) and conduit (5) on cable (7).

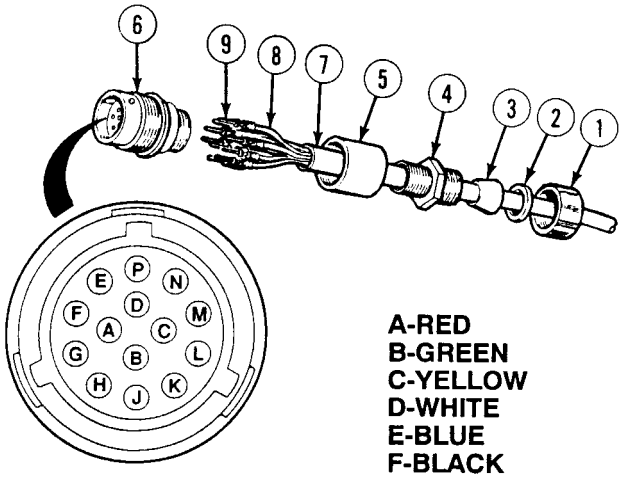
NOTE

Perform Step (2) if pins are removed.

(2) Install 14 pins (9) on wires (8).

(3) Install 14 wires (8) in receptacle connector body (6).

(4) Install conduit (5), connector (4), grommet (3), ring (2) and connector cap (1) on receptacle connector body (6).



A-RED
B-GREEN
C-YELLOW
D-WHITE
E-BLUE
F-BLACK
G-ORANGE
H-VIOLET
J-RED/GREEN
K-GREY
L-TAN
M-BROWN
N-LT.PINK
P-SHIELD

e. Installation.

NOTE

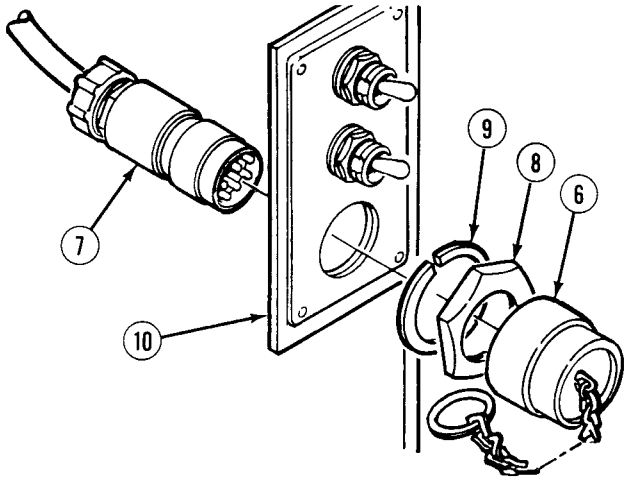
- If connector was removed, perform Steps (1) and (2).
- If left side cable connector was removed, perform Steps (3) and (4).

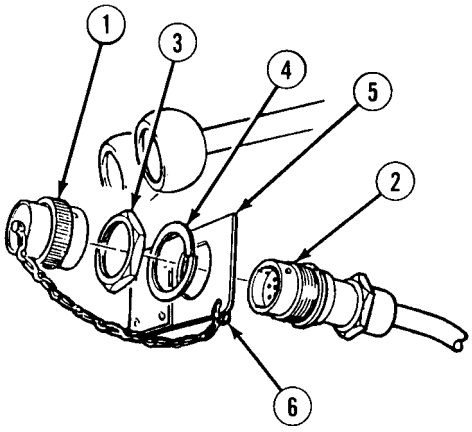
(1) Position connector (7) in bracket (10) and install lockwasher (9) and nut (8).

(2) Install cover with chain (6) on connector (7).

(3) Position connector (2) in bracket (5) and install lockwasher (4) and nut (3).

(4) Install cover with chain (1) on connector (2).





f. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Check operation of remote control unit at remote control station, (TM 9-2320-264-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-31. OUTRIGGER CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

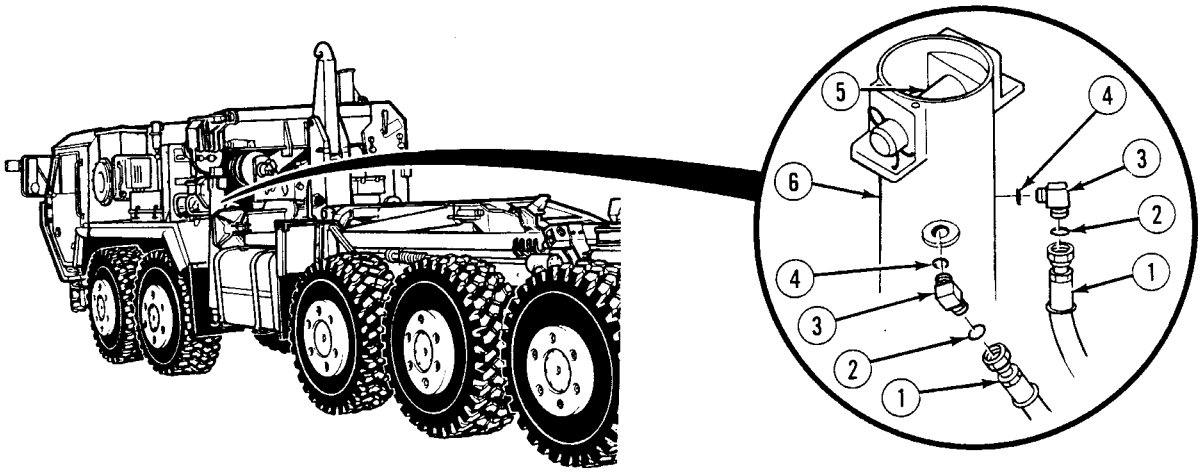
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Jack, Hydraulic, Hand (Item 128, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Lifting Device, Minimum Capacity 150 lbs
(68 kg)
Wooden Block (Appendix C)

Materials/Parts
Compound, Antiseize (Item 14, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 53, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (2) (Item 347, Appendix E)
Packing, Preformed (2) (Item 389, Appendix E)
Pin, Cotter (2) (Item 423, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Outrigger proximity switch removed,
(TM 9-2320-364-20)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Left and right outrigger cylinders are removed the same way. Left side shown.
- Tag and mark hydraulic hoses prior to disconnecting.
- Plug hoses after disconnecting.

(1) Position drain pan under two hoses (1).

(2) Disconnect hoses (1) and preformed packings (2) from elbows (3). Discard preformed packings.

NOTE

Note location of elbows prior to removal.

(3) Remove two elbows (3) and preformed packings (4) from cylinder (5) through holes in subframe barrel (6). Discard preformed packings.

16-31. OUTRIGGER CYLINDER REPLACEMENT (CONT).

WARNING

Outrigger cylinder weighs 115 lbs (52 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(4) Position jack and wooden block under cylinder (5) and raise cylinder to just touch bottom of subframe barrel (6), until holes in cylinder and barrel align.

NOTE

Do not discard cotter pins at this time.

(5) Remove two cotter pins (7) and pin (8).

(6) Raise jack further, until hole in cylinder (5) is above subframe barrel (6) and reinstall pin (8) and cotter pins (7).

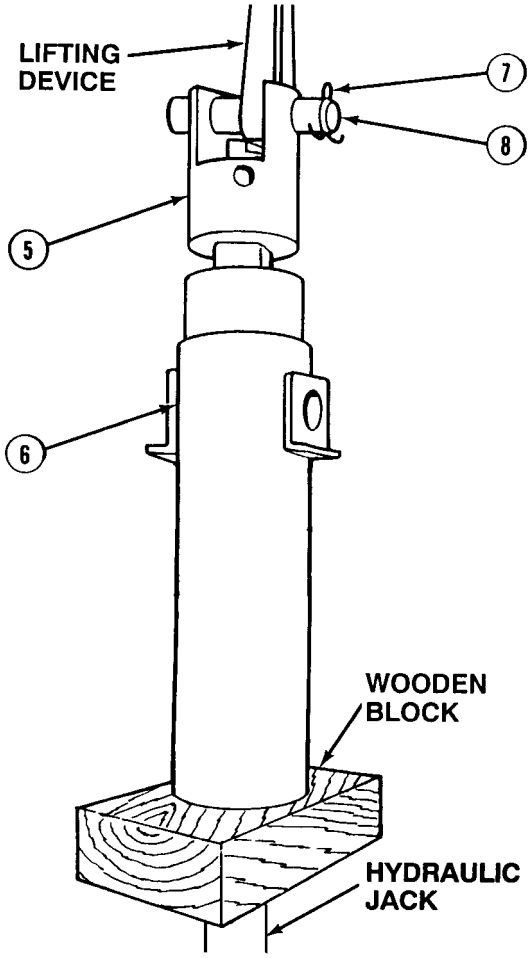
(7) Attach lifting device to pin (8).

(8) Operate lifting device to remove cylinder (5) from subframe barrel (6).

(9) Remove two cotter pins (7) and pin (8).

(10) Remove lifting device and jack.

(11) Repeat Steps (1) through (10) for other outrigger cylinder.



b. Installation.

WARNING

Outrigger cylinder weighs 115 lbs (52 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

NOTE

Left and right cylinders are installed the same way. Left side shown.

(1) Install pin (8) and two cotter pins (7) in cylinder (5).

(2) Install lifting device on pin (8).

NOTE

During installation, make sure outrigger cylinder is positioned so hose connections will align correctly in subframe barrel.

(3) Place jack under subframe barrel (6).

(4) Coat outside of cylinder (5) with anti-seize compound.

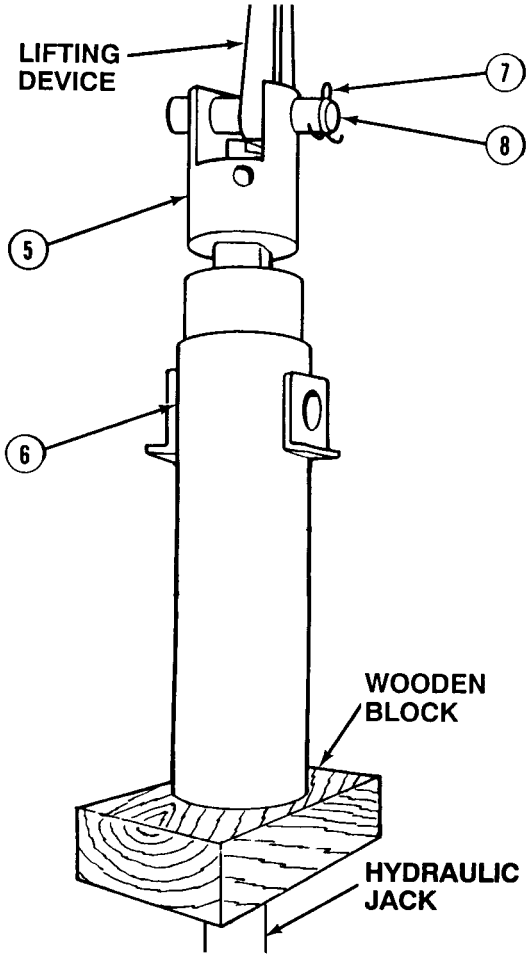
(5) Install cylinder (5) in subframe barrel (6). Lower cylinder to rest on jack.

(6) Remove lifting device from pin (8).

(7) Remove and discard pin (8) and two cotter pins (7).

(8) Lower jack until hole in cylinder (5) aligns in subframe barrel (6).

(9) Install pin (8) and two cotter pins (7).



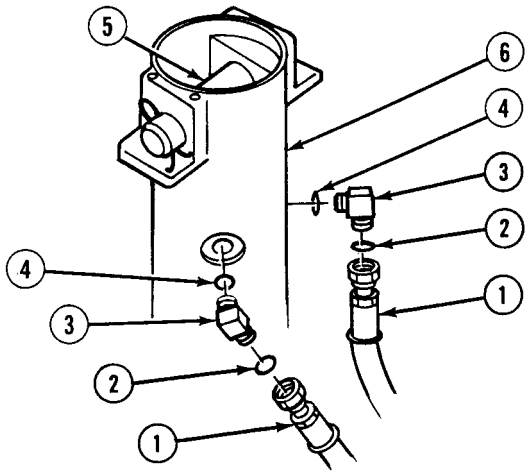
16-31. OUTRIGGER CYLINDER REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Install elbows as noted prior to removal.



(10) Apply sealing compound on threads of two elbows (3).

(11) Apply hydraulic oil to preformed packings (4).

(12) Install preformed packings (4) and elbows (3) in cylinder (5) through holes in subframe barrel (6).

(13) Apply hydraulic oil to preformed packings (2).

(14) Install two preformed packings (2) and connect hoses (1).

(15) Remove lifting device and jack.

(16) Repeat Steps (1) through (15) for other cylinder.

c. Follow-On Maintenance:

- Check oil level, (TM 9-2320-364-10).
- Install outrigger proximity switch, (TM 9-2320-364-20).
- Operate crane and check for oil leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-32. CRANE LOAD TEST.

This task covers:

a. Load Test

b. Follow-On Maintenance

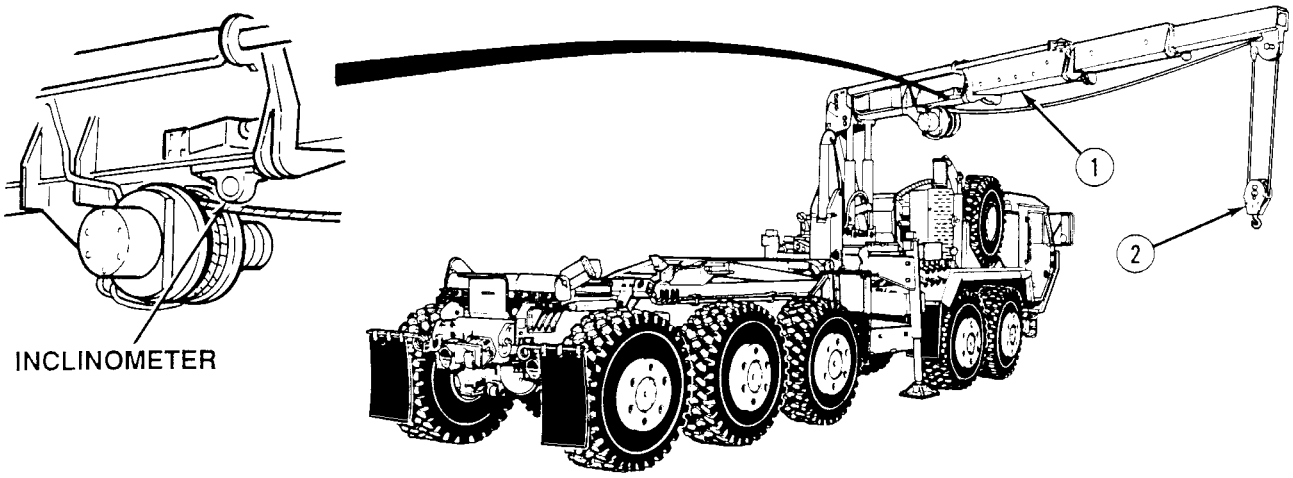
INITIAL SETUP

Tools and Special Tools
Protractor, Magnetic (Item 170, Appendix F)
Test weight, 3890 to 3910 lbs. (1766-1775 kg)
Test weight, 4280 to 4300 lbs. (1943-1952 kg)

Equipment Condition
Wheels chocked, (TM 9-2320-364-10)
Crane erected, (TM 9-2320-364-10)

References
TM 9-2320-364-10

a. Load Test.



WARNING

Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

(1) Swing boom (1) so that hoist hook block (2) is on right side of truck.

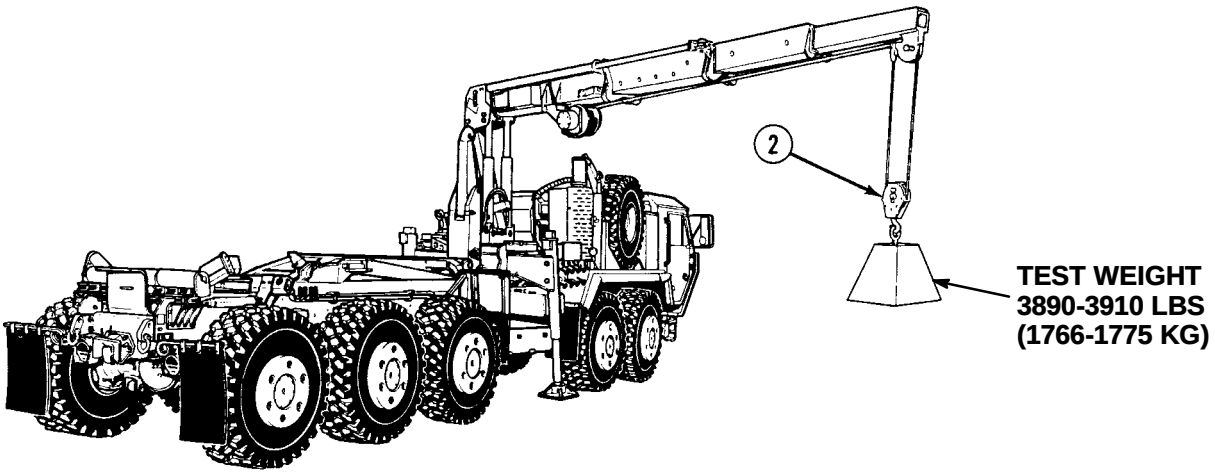
(2) Telescope boom (1) out completely.

(3) Attach inclinometer parallel to boom (1) on underside of boom.

(4) Operate boom (1) so that inclinometer indicates 0 degrees.

(5) Raise boom so that inclinometer indicates 5 degrees and remove inclinometer from boom.

16-32. CRANE LOAD TEST (CONT).



(6) Lower hook block (2) and attach hook block to test weight (3,890 to 3,910 lbs. [1,766 to 1,775 kg]).

NOTE

- Only use HOIST control lever in Steps (6) through (8). Do not use TELESCOPE or MAST control levers or test will be invalid.
- If crane will not lift test weight in Step (6), crane has failed load test. Perform Follow-On Maintenance and notify GS Maintenance for repair.

(7) Lift test weight three to four ft. (0.92 to 1.2 m) up using hoist.

(8) Lower test weight to ground using hoist.

(9) Disconnect hook block (2) from test weight.

NOTE

Only use HOIST control lever in Steps (9) and (10). Do not use TELESCOPE or MAST control levers or test will be invalid.

(10) Attach hook block (2) to test weight (4,280 to 4,300 lbs. [1,943 to 1,952 kg]).

WARNING

Using HOIST control lever, crane should lift test weight a maximum of 1 in. (2.5 cm) before Overload Sensing System (OSS) disables hoist. If hoist lifts test load higher than 1 in. (2.5 cm), OSS is not functioning correctly and crane has failed load test. Perform Follow-On Maintenance and notify GS Maintenance.

NOTE

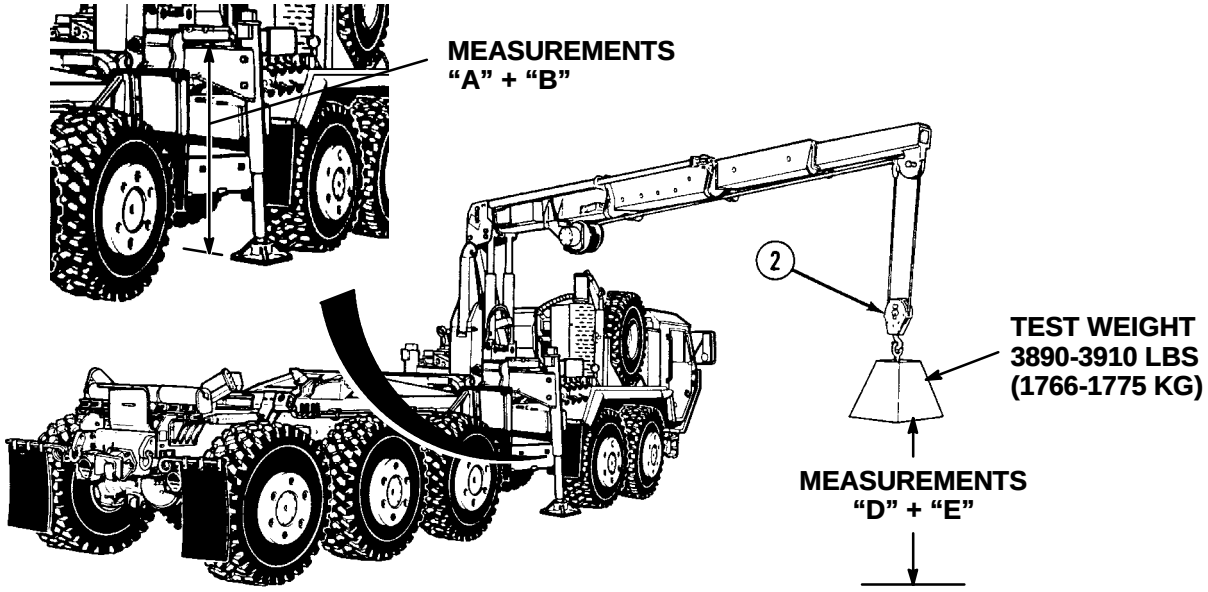
OSS disables hoist only in the direction of raising. OSS does not effect hoist lowering.

(11) Attempt to lift test weight using hoist.

(12) Lower test weight to ground using hoist.

(13) Disconnect hoist hook block (2) from test weight.

(14) Position truck on hard level surface



WARNING

Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

(15) Lower hook block (2) and attach hook block to test weight (3,890 to 3,910 lbs. [1,766 to 1,775 kg]).

(16) Lift test weight three to four ft. (0.92 to 1.2 m) using hoist.

(17) Measure the distance between the top of the subframe and the ground. Record as measurement A.

NOTE

Allow thirty minutes between Step (17) and Step (18). If measurement C exceeds one-half inch, notify GS maintenance for repair.

(18) Repeat Step (17). Record as measurement B.

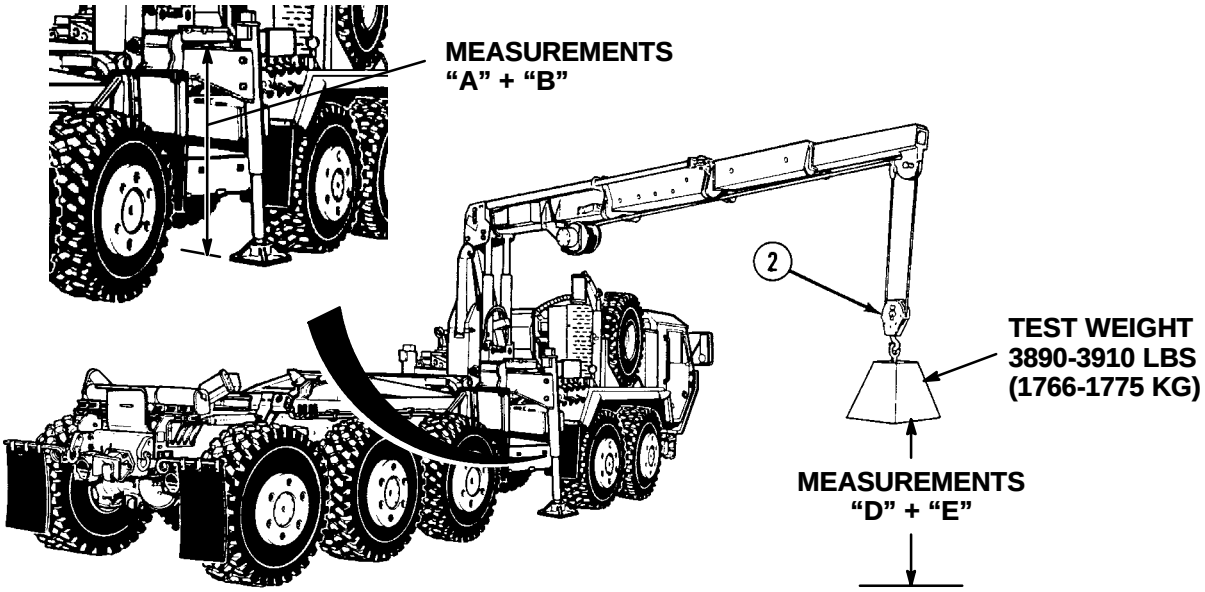
(19) Subtract measurement B, from measurement A, and record as measurement C.

NOTE

Ensure distance between top of subframe and ground (measurement B), does not change while performing Step (21).

(20) Measure the distance between the bottom outside edge of test weight and the ground. Record as measurement D.

16-32. CRANE LOAD TEST (CONT).



WARNING

Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

NOTE

Allow thirty minutes between Step (20) and Step (21). If measurement F exceeds one inch, notify GS maintenance for repair.

(21) Repeat Step (20). Record as measurement E.

(22) Subtract measurement E from measurement D, and record as measurement F.

(23) Lower test weight to ground using hoist.

(24) Disconnect hook block (2) from test weight.

b. Follow-on Maintenance:

- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-33. CRANE CONTROL VALVES REPAIR.

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Wrench, Combination 1-7/16 in. (Item 259, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Preformed Packing Kit (Item 158, Appendix E)

Equipment Condition
Valves removed from:
Four function control valve bank, (Para 16-26)
Three function control valve bank, (Para 16-27)
Two function control valve bank, (Para 16-28)

a. Disassembly.

NOTE

All three valves are disassembled the same way.

(1) Loosen nut (1) and remove knob (2), nut (1) and lever (3) from lever end cap (4).

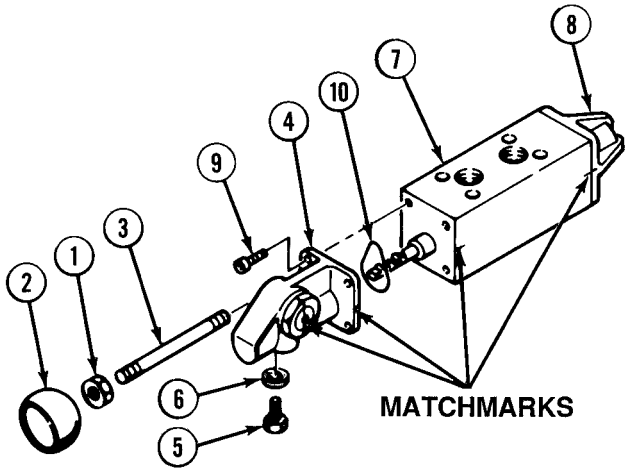
(2) Remove screw (5) and seal washer (6). Discard seal washer.

(3) Matchmark valve body (7), lever end cap (4) and end cap (8).

NOTE

- Mark position of gear to cap.
- Lever may need to be operated to remove lever cap assembly.

(4) Remove four screws (9), lever end cap (4) and preformed packing (10) from valve body (7). Discard preformed packing.



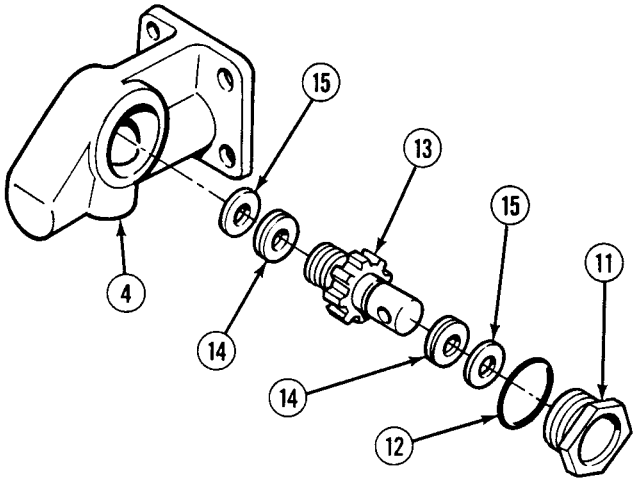
16-33. CRANE CONTROL VALVES REPAIR (CONT).

NOTE

Matchmark pinion before removing.

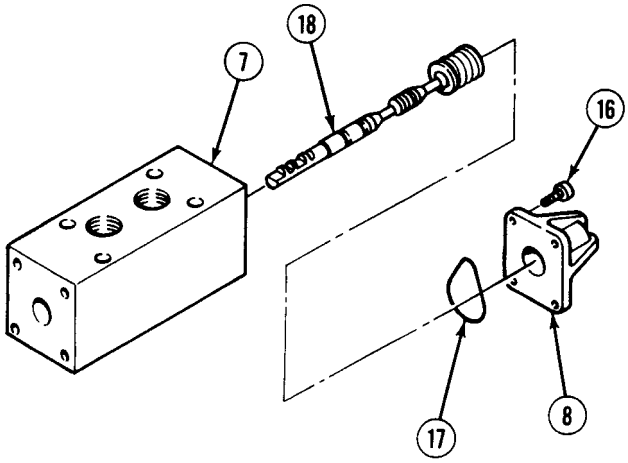
(5) Remove cap (11), preformed packing (12) and pinion (13) from lever end cap (4). Discard preformed packing.

(6) Remove and discard two quad rings (14) and backup rings (15) from pinion (13).



(7) Remove four screws (16), end cap (8) and preformed packing (17) from valve body (7). Discard preformed packing.

(8) Remove spool assembly (18) from valve body (7).



b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for nicks, scratches, burrs and broken springs.

(3) Replace damaged parts.

c. Assembly.

WARNING

Use care when installing springs. Springs are under tension and can act as projectiles when released and could cause severe eye injury.

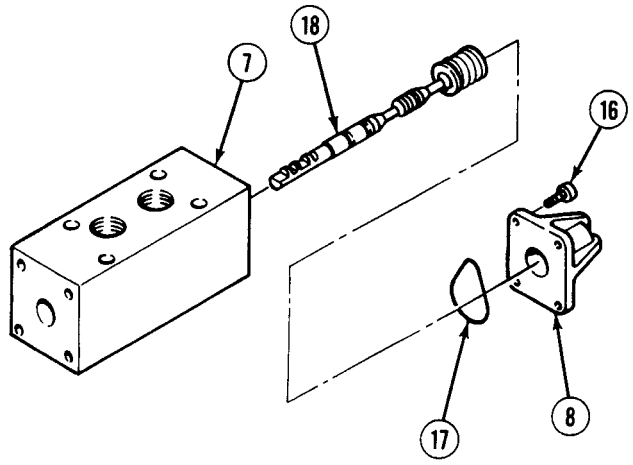
NOTE

All three valves are assembled the same way.

(1) Install spool assembly (18) in valve body (7).

(2) Apply hydraulic oil to preformed packings (17).

(3) Align matchmarks and install preformed packings (17) and end cap (8) on valve body (7) with four screws (16).

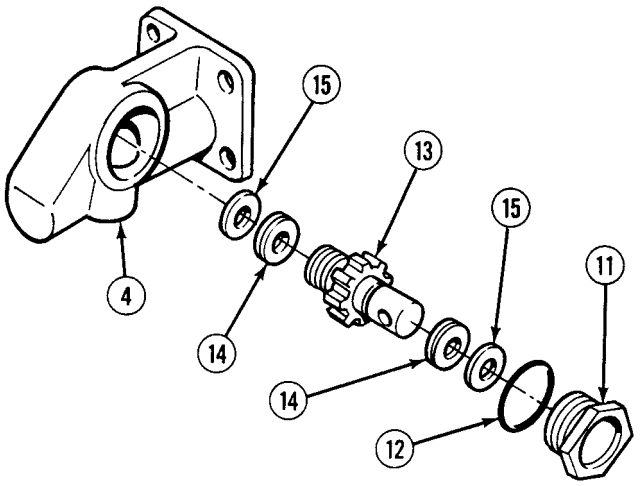


(4) Apply hydraulic oil to backup rings (15) and quad rings (14).

(5) Install two backup rings (15) and quad rings (14) on pinion (13).

(6) Apply hydraulic oil to preformed packing (12).

(7) Install pinion (13), preformed packing (12) and cap (11) in lever end cap (4).



16-33. CRANE CONTROL VALVES REPAIR (CONT).

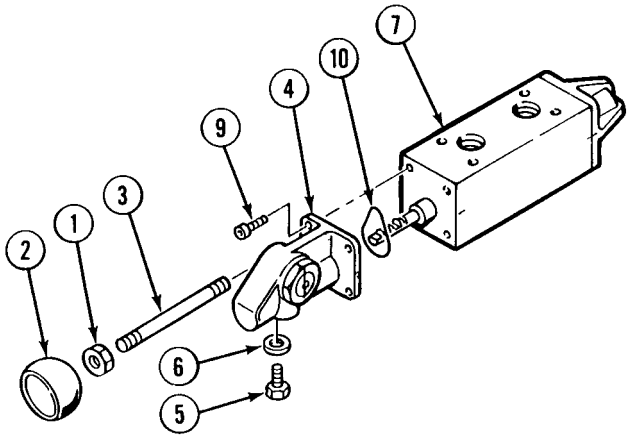
NOTE

Lever may have to be operated to install lever end cap.

(8) Apply hydraulic oil to preformed packing (10).

(9) Align matchmarks and install preformed packing (10) and lever end cap (4) on valve body (7) with four screws (9).

(10) Install seal washer (6) and screw (5) in lever end cap (4).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(11) Apply sealing compound to threads of lever (3). Install lever, nut (1) and knob (2) on lever end cap (4). Tighten nut against knob.

d. Follow-On Maintenance:

- Install valves:
  Four function control valve bank, (Para 16-26).
  Three function control valve bank, (Para 16-27).
  Two function control valve bank, (Para 16-28).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM-2320-364-10).

END OF TASK

16-34. HOIST, BOOM, TELESCOPE, SWING SOLENOID VALVE REPAIR.

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts
Packing, Preformed (2) (Item 395, Appendix E)

Equipment Condition
Solenoids removed, (Para 16-24)
Pilot valve/solenoid assemblies removed from:
Hoist, (Para 16-11)
Boom, (Para 16-3)
Telescope cylinder, (Para 16-10)
Swing drive, (Para 16-20)

a. Disassembly.

NOTE

All four solenoid assemblies are disassembled the same way.

(1) Matchmark two solenoids (1) and pilot valve (2).

(2) Remove eight screws (3), two plates (4), solenoids (1) and preformed packings (5) from pilot valve (2). Discard preformed packings.

(3) Remove spool (6) from pilot valve (2).

(4) Remove armature assembly (7) and push pin (8) from coil (9).

(5) Remove coil (9) from case (10).

(6) Remove plug (11) and preformed packings (12) and (13) from armature assembly (7). Discard preformed packings.

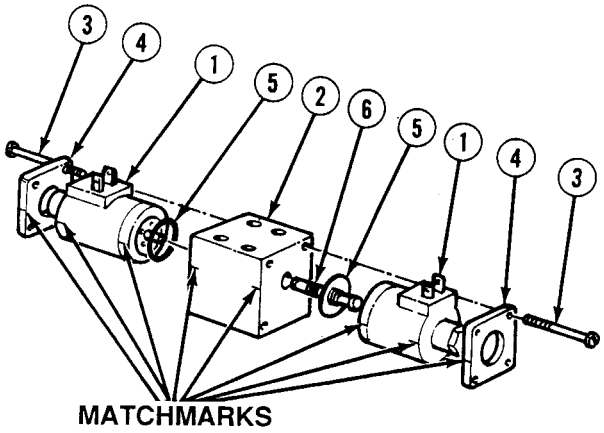
(7) Drive out push pin (14) from plug (11).

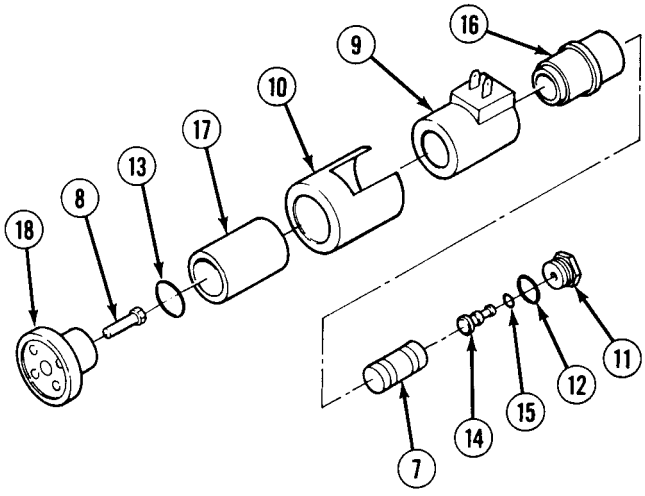
(8) Remove quad ring (15) from push pin (14). Discard quad ring.

(9) Remove tube (16) from coil (9).

(10) Remove armature (18) from case (10).

(11) Remove sleeve (17) from case (10).





16-34. HOIST, BOOM, TELESCOPE, SWING SOLENOID VALVE REPAIR (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

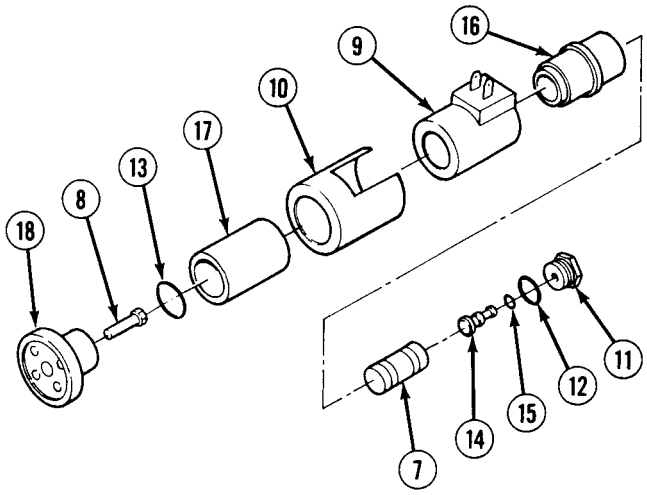
(2) Inspect each part for nicks, scratches and burrs.

(3) Replace damaged parts.

c. Assembly.

NOTE

All four solenoids are assembled the same way.



(1) Install armature (18) in case (10).

(2) Install sleeve (17) in case (10).

(3) Install tube (16) in coil (9).

(4) Apply hydraulic oil to quad ring (15).

(5) Install quad ring (15) on push pin (14).

(6) Install push pin (14) in plug (11).

(7) Apply hydraulic oil to preformed packing (22).

(8) Position preformed packing (12) on plug (11) and install plug (11) in armature assembly (7).

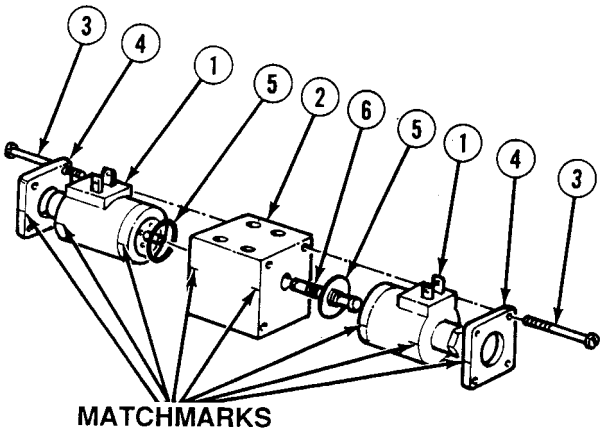
(9) Position coil (9) in case (10).

(10) Position push pin (8) and armature assembly (7) in coil (10).

(11) Install spool (6) in pilot valve (2).

(12) Apply hydraulic oil to two preformed packings (5).

(13) Align matchmarks and install two preformed packings (5), solenoids (1) and plates (4) on pilot valve (2) with eight screws (3).



d. Follow-On Maintenance:

- Install pilot valve/solenoid assemblies on:
- Hoist, (Para 16-11).
- Boom, (Para 16-3).
- Telescope cylinder, (Para 16-10).
- Swing drive, (Para 16-20).

END OF TASK

Section III. SELF-RECOVERY WINCH MAINTENANCE

16-35. SELF-RECOVERY WINCH (SRW) MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

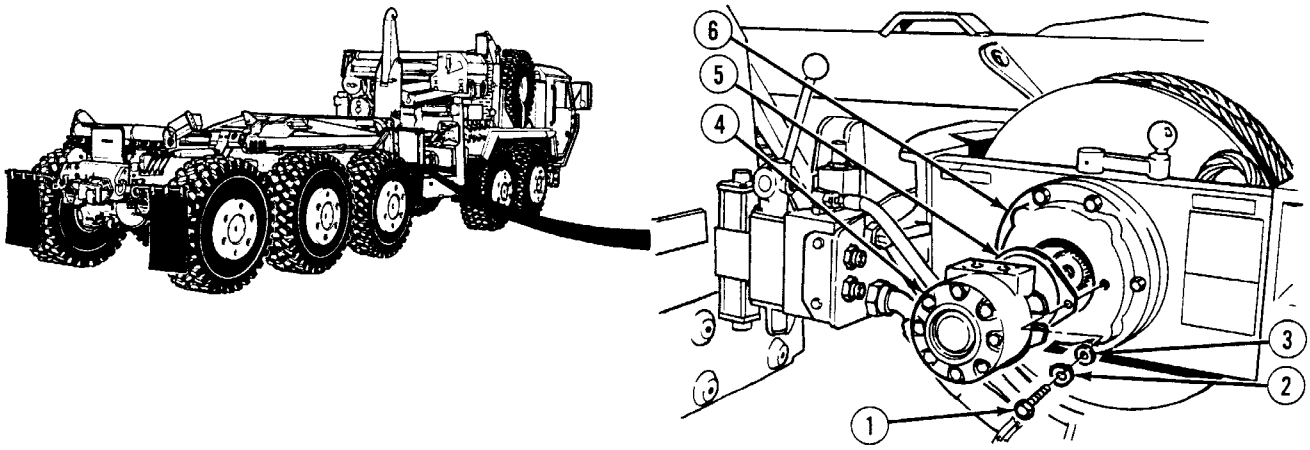
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Crowsfoot, 3/4 in., 3/8 in. Drive
(Item 268, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Sealing Compound (Item 56, Appendix B)
Lockwasher (2) (Item 286, Appendix E)
Repair Kit (Item 464, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Counterbalance valve removed, (Para 16-36)
Winch drained, (TM 9-2320-364-20)

a. Removal.



(1) Remove two screws (1), lockwashers (2) and washers (3) from hydraulic motor (4). Discard lockwashers.

NOTE

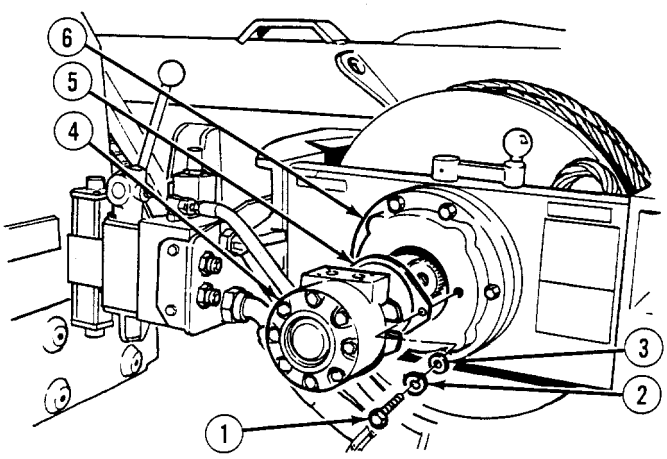
When removing hydraulic motor, ensure that brake shaft remains in brake housing.

(2) Remove hydraulic motor (4) and gasket (5) from brake housing (6). Discard gasket.

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



CAUTION

Apply adhesive sparingly to hydraulic motor and brake housing. Ensure adhesive does not leak to other parts or damage to equipment may result.

(1) Apply sealing compound to mating surface of hydraulic motor (4) and brake housing (6).

(2) Install gasket (5) on hydraulic motor (4).

(3) Install two washers (3), lockwashers (2) and screws (1) on hydraulic motor (4).

(4) Install hydraulic motor (4) on brake housing (6).

(5) Tighten two screws (1) to 75 to 95 lb-ft (102 to 129 N·m).

c. Follow-On Maintenance:

- Install counterbalance valve, (Para 16-36).
- Fill winch, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

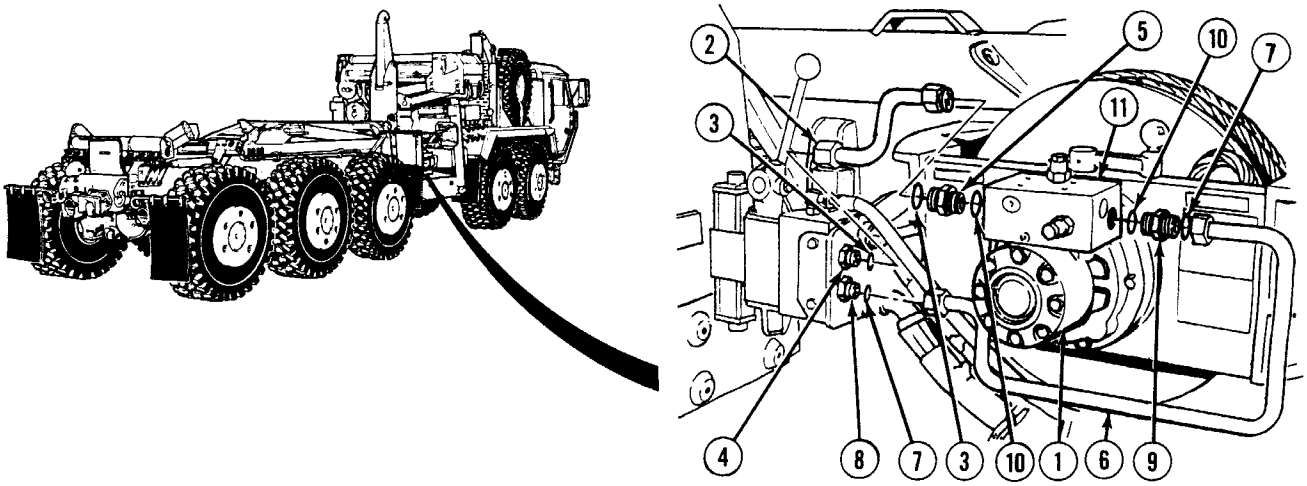
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination 1-1/16 in. (Item 254, Appendix F)
Wrench, Combination 1-1/8 in. (Item 255, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0 to 60 N·m) (Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft 0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, appendix B)
Kit, Seal Replacement (Item 159, Appendix E)
Packing, Preformed (2) (Item 338, Appendix E)
Packing, Preformed (2) (Item 350, Appendix E)
Packing, Preformed (2) (Item 355, Appendix E)
Repair Kit (Item 464, Appendix E)
Seal Kit (Item 578, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

The winch hydraulic system operates at oil pressures up to 3,675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

Cap and plug hoses and tubes after removal.

(1) Position drain pan under hydraulic motor (1).

(2) Remove tube (2) and two preformed packings (3) from control valve adapter (4) and counterbalance valve adapter (5). Discard preformed packings.

(3) Remove tube (6) and two preformed packings (7) from control valve adapter (8) and counterbalance valve adapter (9). Discard preformed packings.

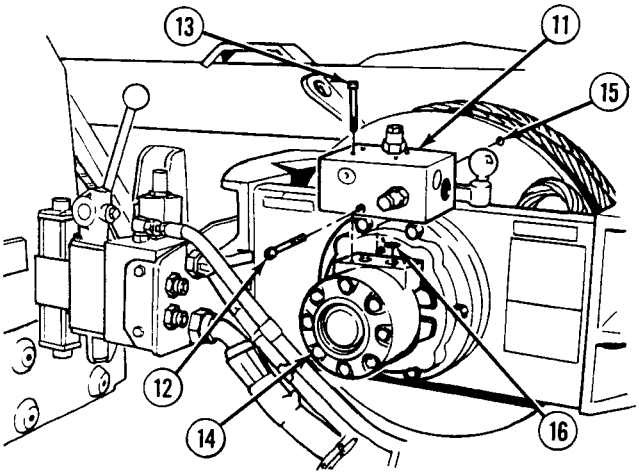
(4) Remove counterbalance valve adapters (5) and (9) and two preformed packings (10) from counterbalance valve assembly (11). Discard preformed packings.

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR (CONT).

(5) Remove screw (12), four screws (13) and counterbalance valve assembly (11) from hydraulic motor housing (14).

(6) Remove preformed packing (15) from back of counterbalance valve assembly (11). Discard preformed packing.

(7) Remove two preformed packings (16) from hydraulic motor housing (14). Discard preformed packings.



b. Disassembly.

CAUTION

Jam nut on counter balance valve cartridge is factory set and is not to be removed. Damage to equipment may result if jam nut is tampered with or removed.

(1) Position counterbalance valve assembly (1) in soft jaw vise.

(2) Remove counter balance valve cartridge (2) from counterbalance valve assembly (1).

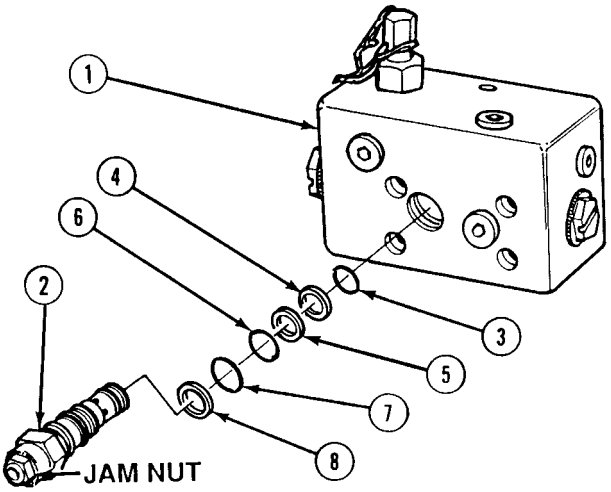
CAUTION

Valve cartridge is easily scratched or dented. Use extreme caution when removing preformed packings and backup rings from valve cartridge or damage to equipment may result.

(3) Remove and discard preformed packing (3) and backup ring (4) from counter balance valve cartridge (2).

(4) Remove and discard backup ring (5) and preformed packing (6) from counter balance valve cartridge (2).

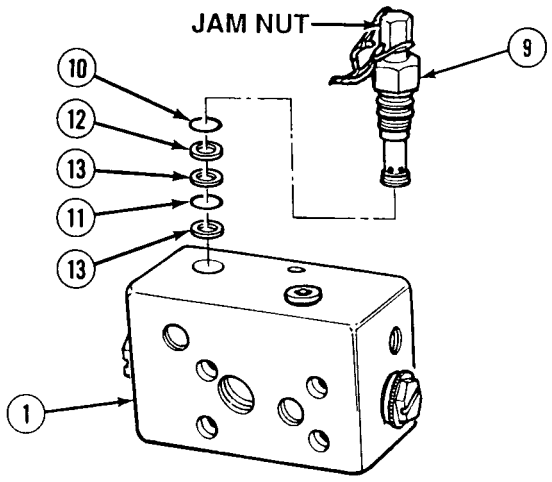
(5) Remove and discard preformed packing (7) and backup ring (8) from counter balance valve cartridge (2).



CAUTION

Jam nut on relief valve cartridge is preset at factory and is not to be removed. Damage to equipment may result if jam nut is tampered with or removed.

(6) Remove relief valve (9) from counterbalance valve assembly (1).



CAUTION

Relief valve is easily scratched or dented. Use extreme care when removing preformed packings and backup rings from relief valve or damage to equipment may result.

(7) Remove and discard preformed packings (10) and (11) and backup rings (12) and (13) from relief valve (9).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury or death to personnel.

(1) Clean all metal parts in dry cleaning solvent.

(2) Dry all parts with compressed air.

(3) Inspect all parts for dents, cracks, pitting or stripped threads.

(4) Replace all damaged parts.

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR (CONT).

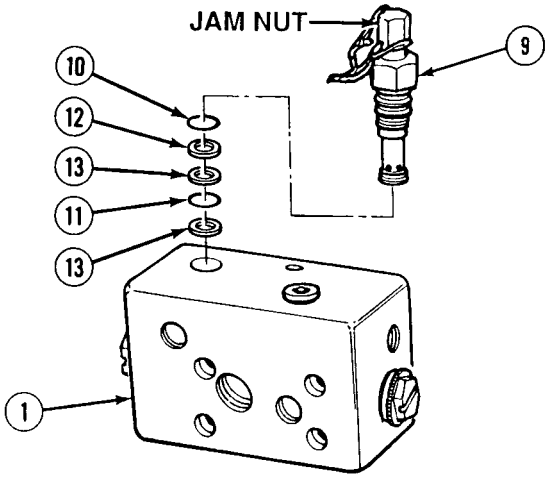
d. Assembly.

CAUTION

Relief valve is easily scratched or dented. Use extreme care when installing preformed packings and backup rings in relief valve or damage to equipment may result.

NOTE

Cup side of backup ring should face preformed packing upon installation.



(1) Apply hydraulic oil to preformed packings (10) and (11) and backup rings (12) and (13).

(2) Install two preformed packings (10) and (11) and two backup rings (12) and (13) in relief valve (9).

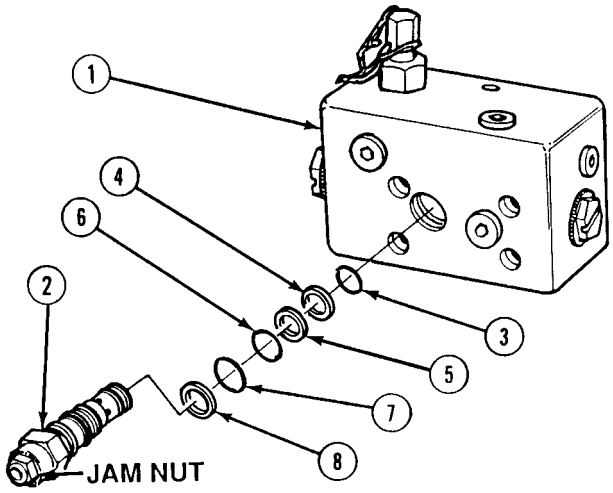
CAUTION

Jam nut on relief valve is preset at factory. Damage to equipment may result if jam nut is tampered with or removed.

(3) Install relief valve (9) in counterbalance valve assembly (1). Tighten relief valve 30 to 36 lb-ft (41 to 49 N·m).

CAUTION

- Jam nut on valve cartridge is factory set and is not to be removed. Damage to equipment may result if jam nut is tampered with or removed.
- Valve cartridge is easily scratched or dented. Use extreme caution when installing preformed packings and backup rings on valve cartridge or damage to equipment may result.



NOTE

Cup side of backup ring should face preformed packing.

(4) Apply hydraulic oil to preformed packing (7) and backup ring (8).

(5) Install backup ring (8) and preformed packing (7) on counterbalance valve cartridge (2).

(6) Apply hydraulic oil to preformed packing (6) and backup ring (5).

(7) Install preformed packing (6) and backup ring (5) on counterbalance valve cartridge (2).

(8) Apply hydraulic oil to preformed packing (3) and backup ring (4).

(9) Install backup ring (4) and preformed packing (3) on counter balance valve cartridge (2).

(10) Install counterbalance valve cartridge (2) in counterbalance valve assembly (1). Tighten valve cartridge 30 to 35 lb-ft (41 to 47 N·m).

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR (CONT).

e. Installation.

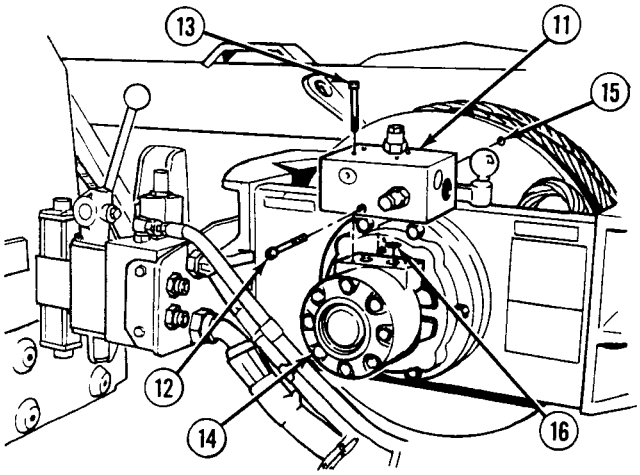
(1) Apply hydraulic oil to two preformed packings (16).

(2) Install two preformed packings (16) in hydraulic motor housing (14).

(3) Apply hydraulic oil to preformed packing (15).

(4) Install preformed packing (15) in back of counterbalance valve assembly (11).

(5) Install counterbalance valve assembly (11) on hydraulic motor housing (14) with screw (12) and four screws (13).



(6) Apply hydraulic oil to two preformed packings (10).

(7) Install two preformed packings (10) on counterbalance valve adapters (5) and (9).

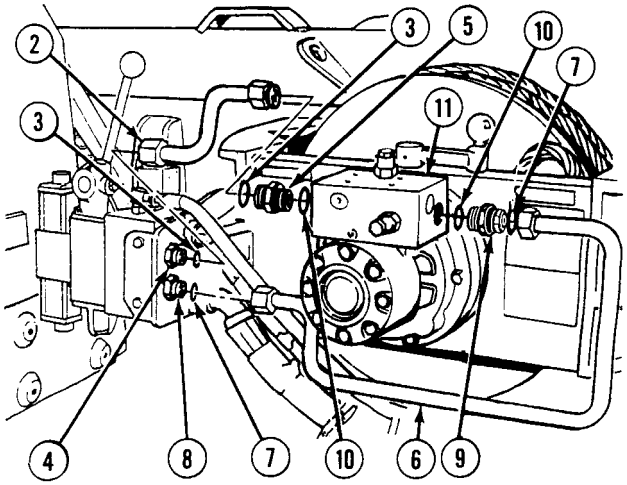
(8) Install counterbalance valve adapters (5) and (9) in counterbalance valve assembly (11).

(9) Apply hydraulic oil to two preformed packings (7).

(10) Install two preformed packings (7) and tube (6) on control valve adapter (8) and counterbalance valve adapter (9).

(11) Apply hydraulic oil to two preformed packings (3).

(12) Install two preformed packings (3) and tube (2) on control valve adapter (4) and counterbalance valve adapter (5).



f. Follow-On Maintenance:

- Fill hydraulic reservoir as required, (TM 9-2320-364-20).
- Operate winch and check for leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-37. SELF-RECOVERY WINCH (SRW) MANIFOLD REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-on Maintenance

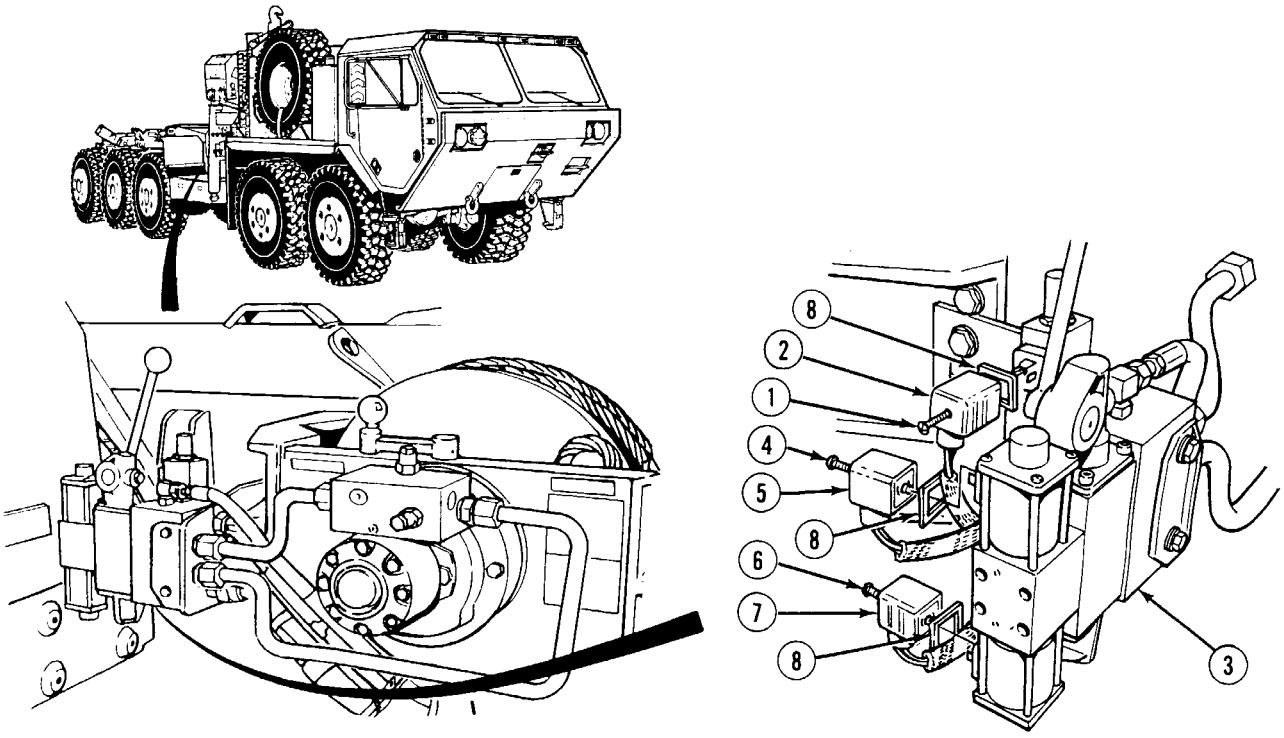
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination 1-1/4 in. (Item 256, Appendix F)
Wrench, Combination 1-3/8 in. (Item 258, Appendix F)
Wrench, Combination 1-1/2 in. (Item 260, Appendix F)
Wrench, Combination 1-5/8 in. (Item 261, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (2) (Item 210, Appendix E)
Lockwasher (2) (Item 266, Appendix E)
Packing, Preformed (4) (Item 338, Appendix E)
Packing, Preformed (4) (Item 350, Appendix E)
Packing, Preformed (Item 377, Appendix E)
Packing, Preformed (Item 387, Appendix E)
Packing, Preformed (Item 388, Appendix E)
Preformed Packing Kit (Item 450, Appendix E)

Equipment Condition
Engine OFF, (TM (-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Hydraulic reservoir drained, (TM 9-2320-364-20)

16-37. SELF-RECOVERY WINCH MANIFOLD REPLACEMENT (CONT).



a. Removal.

WARNING

The winch hydraulic system operates at oil pressures up to 3,675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Note position and location of elbows and fittings prior to removal.
- Tag and mark connectors, hoses and tubes prior to removal.
- Cap and plug hoses, tubes and fittings after removal.

(1) Loosen screw (1) and disconnect MC121 connector (2) from self recovery winch manifold (3).

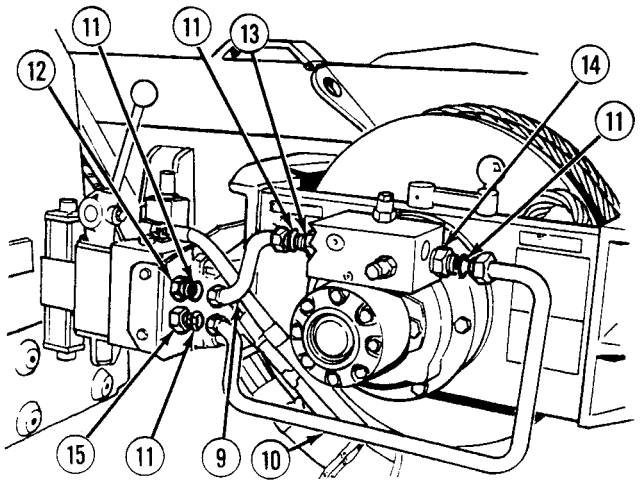
(2) Loosen screw (4) and disconnect MC122 connector (5) from self recovery winch manifold (3).

(3) Loosen screw (6) and disconnect MC123 connector (7) from self recovery winch manifold (3).

(4) Remove and discard three gaskets (8) from connectors (2), (5) and (7).

(5) Position drain pan under two tubes (9) and (10).

(6) Remove tubes (9) and (10) and preformed packings (11) from fittings (12), (13), (14) and (15).

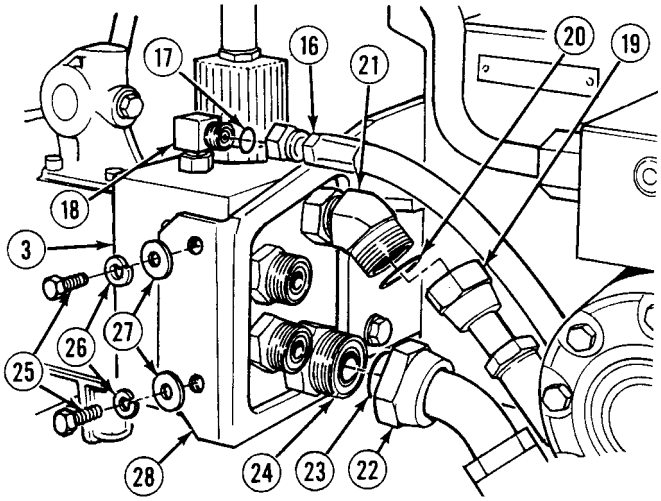


(7) Remove hose 2809A (16), preformed packing (17) from elbow (18). Discard preformed packing.

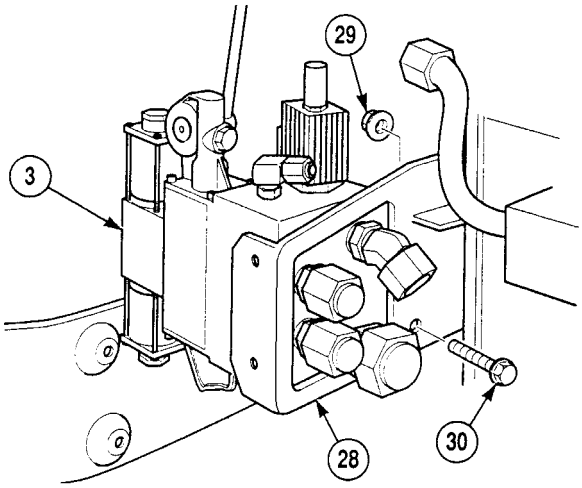
(8) Remove hose 2899A (19), preformed packing (20) from elbow (21). Discard preformed packing.

(9) Remove hose 2886A (22), preformed packing (23) from fitting (24). Discard preformed packing.

(10) Remove two screws (25), lockwashers (26), washers (27) from valve mount bracket (28) and self-recovery winch manifold (3). Discard lockwashers.

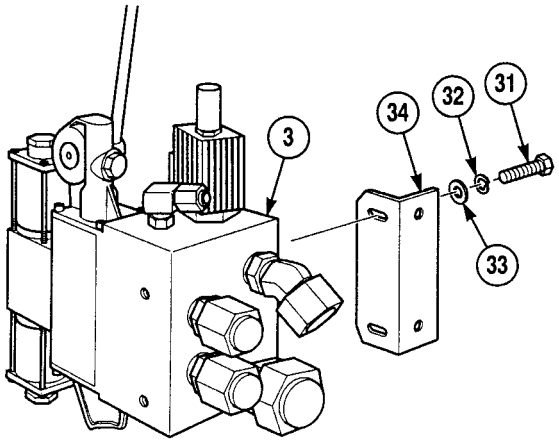


(11) Remove two locknuts (29), screws (30) and self recovery winch manifold (3) from valve mount bracket (28). Discard locknuts.



16-37. SELF-RECOVERY WINCH MANIFOLD REPLACEMENT (CONT).

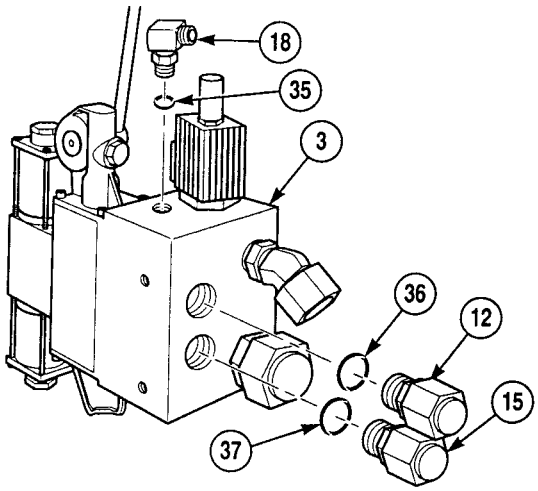
(12) Remove two screws (31), lockwashers (32), washers (33), adjusting angle bracket (34) from self recovery winch manifold (3). Discard lockwashers.



(13) Remove elbow (18) and preformed packing (35) from self recovery winch manifold (3). Discard preformed packing.

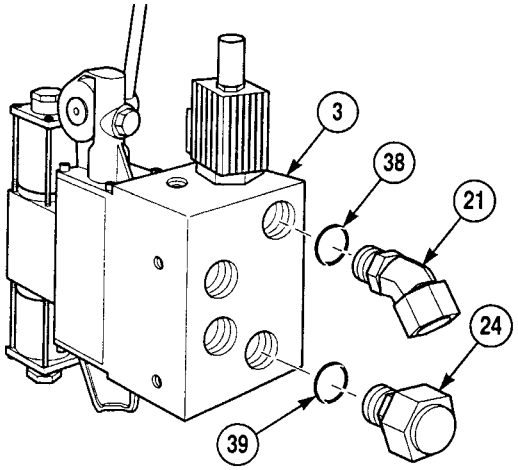
(14) Remove fitting (12) and preformed packing (36) from self recovery winch manifold (3). Discard preformed packing.

(15) Remove fitting (15) and preformed packing (37) from self recovery winch manifold (3). Discard preformed packing.



(16) Remove elbow (21) and preformed packing (38) from self recovery winch manifold (3). Discard preformed packing.

(17) Remove fitting (24) and preformed packing (39) from self recovery winch manifold (3). Discard preformed packing.



b. Installation.

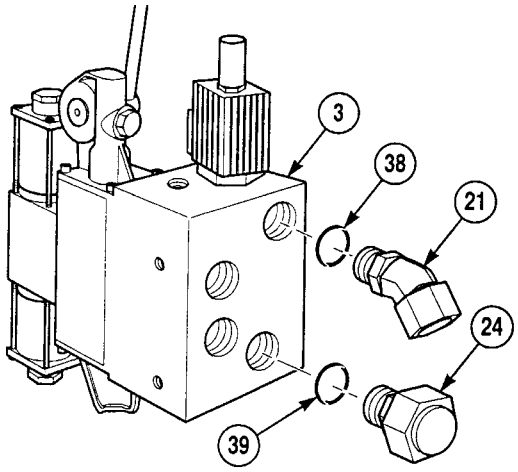
NOTE

Install elbows and fittings as noted prior to removal.

(1) Apply hydraulic oil to preformed packings (39), (38), (37), (36) and (35).

(2) Install preformed packing (39) and fitting (24) on self-recovery winch manifold (3).

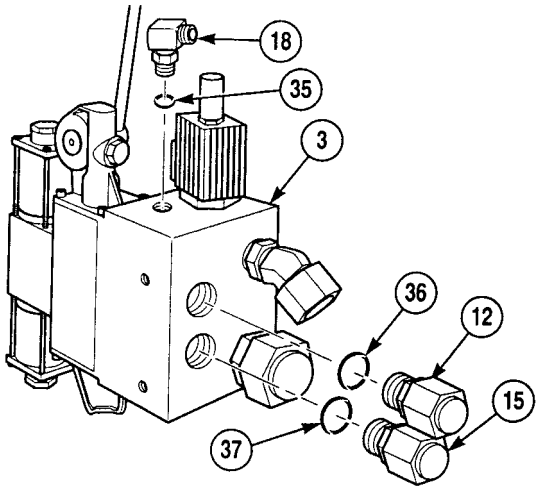
(3) Install preformed packing (38) and elbow (21) on self-recovery winch manifold (3).



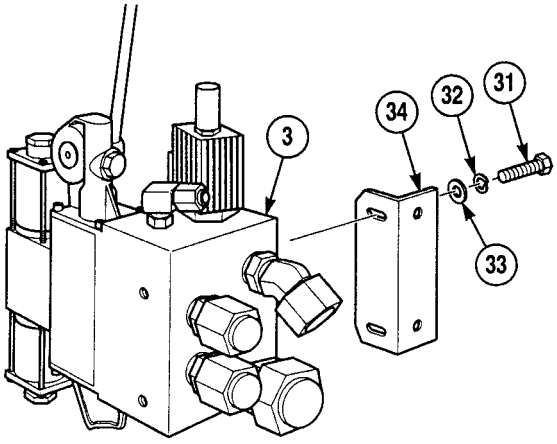
(4) Install preformed packing (37) and fitting (15) on self-recovery winch manifold (3).

(5) Install preformed packing (36) and fitting (12) on self-recovery winch manifold (3).

(6) Install preformed packing (35) and elbow (18) on self-recovery winch manifold (3).

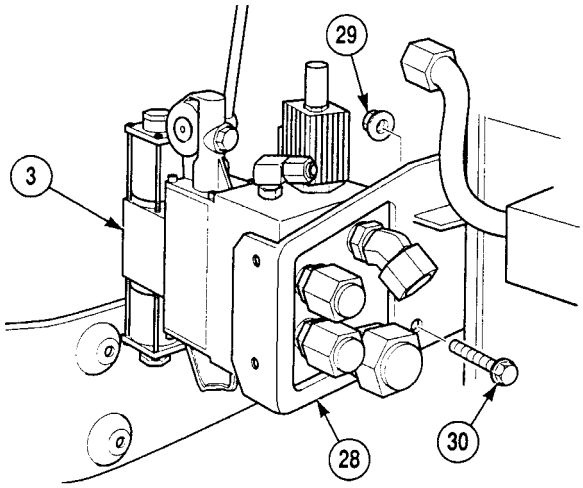


(7) Install adjusting angle bracket (34) two washers (33), lockwashers (32) and screws (31) on self-recovery winch manifold (3).



16-37. SELF-RECOVERY WINCH MANIFOLD REPLACEMENT (CONT).

(8) Position self-recovery winch manifold (3), with two screws (30) and locknuts (29) on valve mount bracket (28).



(9) Position self-recovery winch manifold (3) on valve mount bracket (28) with two washers (27), lockwashers (26), and screws (25).

(10) Apply hydraulic oil to preformed packings (23).

(11) Install preformed packing (23) and hose 2886A (22) on fitting (24).

(12) Apply hydraulic oil to preformed packing (20).

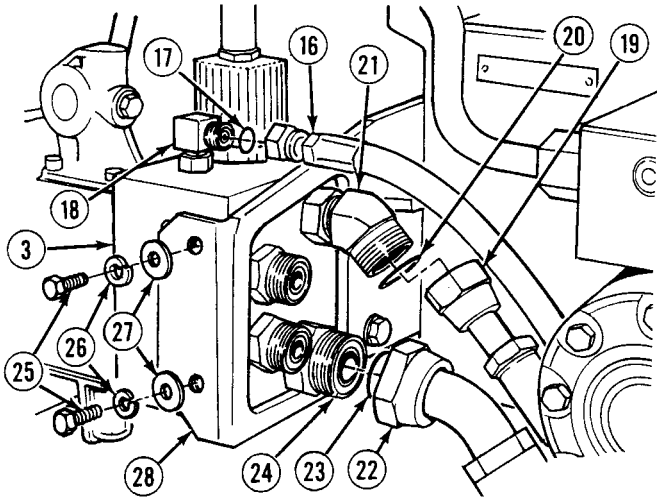
(13) Install preformed packing (20) and hose 2899A (19) on elbow (21).

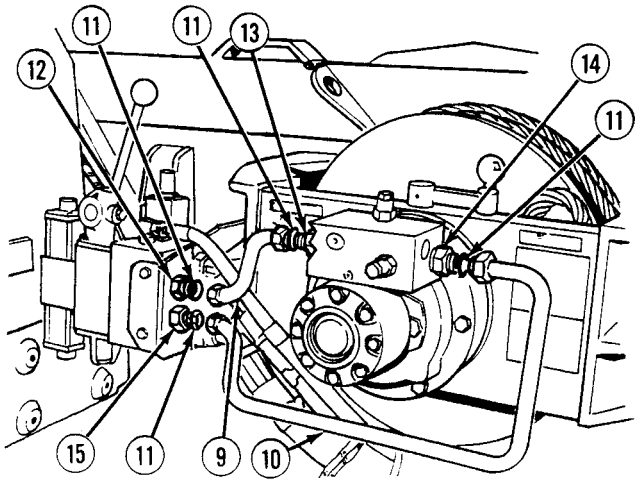
(14) Apply hydraulic oil to preformed packing (17).

(15) Install preformed packing (17) and hose 2809A (16) on elbow (18).

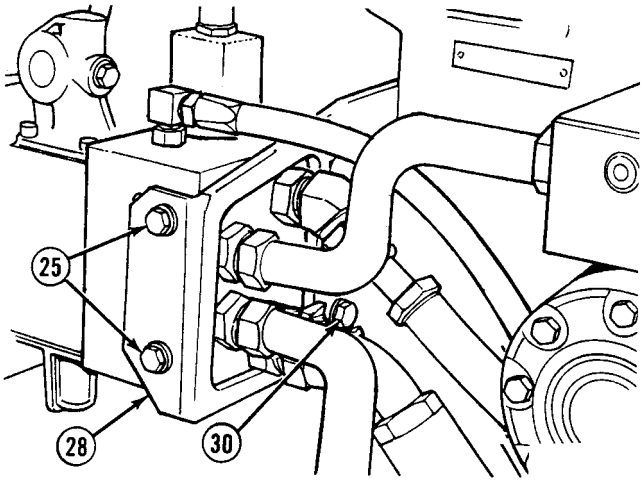
(16) Apply hydraulic oil to four preformed packings (11).

(17) Install four preformed packings (11) and tubes (9) and (10) on fittings (12), (13), (14) and (15).





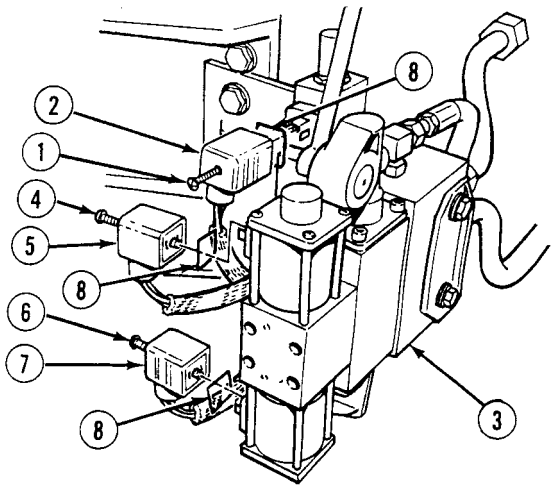
(18) Tighten screws (30) and (25) on valve mount bracket (28).



(19) Install gasket (8), MC123 connector (7) and screw (6) on self-recovery winch manifold (3).

(20) Install gasket (8), MC122 connector (5) and screw (4) on self-recovery winch manifold (3).

(21) Install gasket (8), MC121 connector (2) and screw (1) on self-recovery winch manifold (3).



c. Follow-On Maintenance:

- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

Section IV. LOAD HANDLING SYSTEM MAINTENANCE

16-38. LOAD HANDLING SYSTEM (LHS) HOOK REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

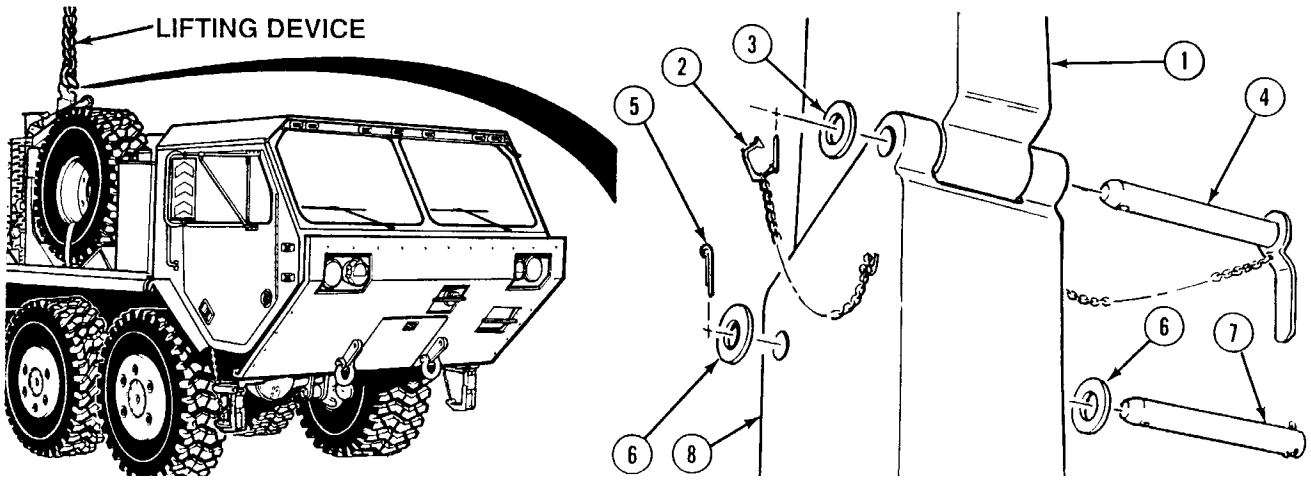
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Lifting Device, Minimum Capacity 200 lbs
(91 kg)

Materials/Parts
Compound, Antiseize (Item 14, Appendix B)

Materials/Part - Continued
Pin, Cotter (Trucks not equipped with CHU)
(Item 425, Appendix E)
Ring, Retaining (2) (Trucks equipped
with CHU) (Item 425, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

Hook weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

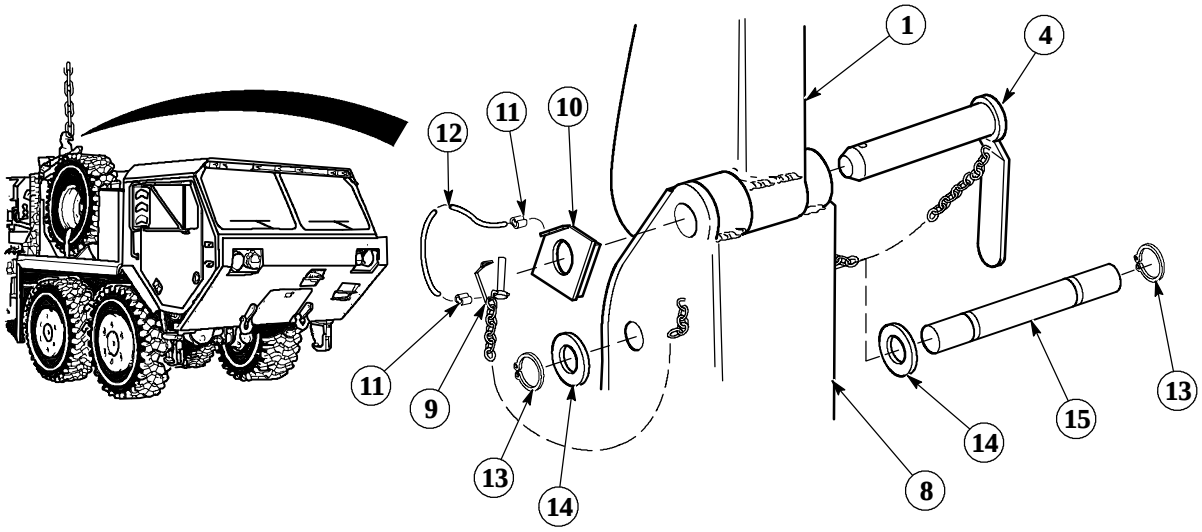
(1) Attach lifting device to support hook (1).

NOTE

- Perform Steps (2) and (3) on truck not equipped with CHU.
- Perform Steps (4) through (6) on trucks equipped with CHU.

(2) Remove snapper pin (2), washer (3) and retaining pin (4).

(3) Remove cotter pin (5), two washers (6), pivot pin (7) and hook (1) from hook arm (8). Discard cotter pin.



(4) Remove snapper pin (9), retaining bracket (10) and retaining pin (4).

(5) If necessary for replacement, remove swaging sleeves (11) from wire rope (12).

(6) Remove two retaining rings (13), washers (14), pivot pin (15) and hook (1) from hook arm (8). Discard retaining rings.

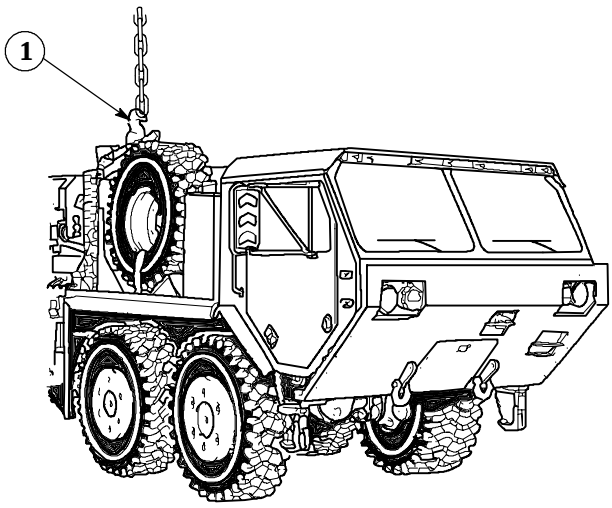
(7) Remove lifting device from hook (1).

b. Installation.

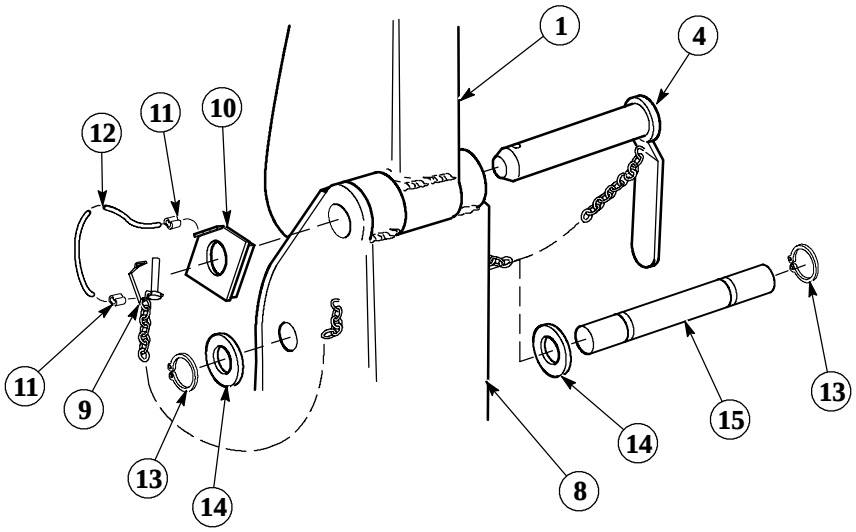
WARNING

Hook weighs 200 lbs (91 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to hook (1).



16-38. LOAD HANDLING SYSTEM (LHS) HOOK REPLACEMENT (CONT).



NOTE

- Perform Steps (2) through (6) on trucks equipped with CHU.
- Perform Steps (7) through (10) on trucks not equipped with CHU.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(2) Apply antiseize compound to pivot pin (15).

(3) Using lifting device, install hook (1) on hook arm (8) with pivot pin (15) two washers (14) and retaining rings (13).

(4) Apply antiseize compound to retaining pin (4).

(5) Install retaining pin (4), retaining bracket (10) and snapper pin (9) on hook (1).

(6) If removed, secure wire rope (12) to retaining bracket (10) and to chain of snapper pin (9) with swaging sleeves (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

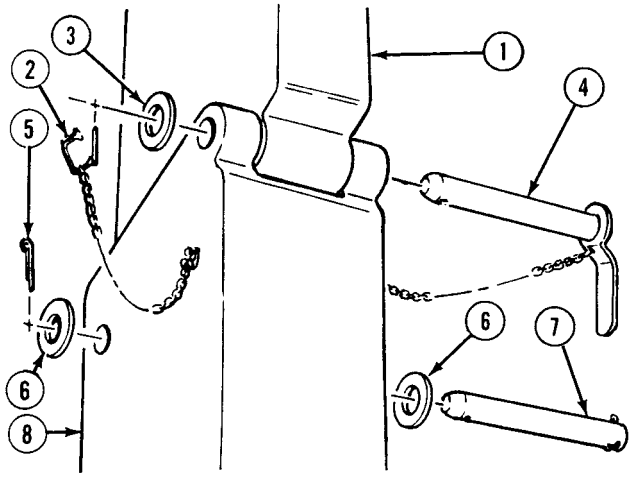
(7) Apply antiseize compound to pivot pin (7).

(8) Using lifting device, install hook (1) on hook arm (8) with pivot pin (7), two washers (6) and cotter pin (5).

(9) Apply antiseize compound to retaining pin (4).

(10) Install retaining pin (4), washer (3) and snapper pin (2) on hook (1).

(11) Remove lifting device from hook (1).



c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

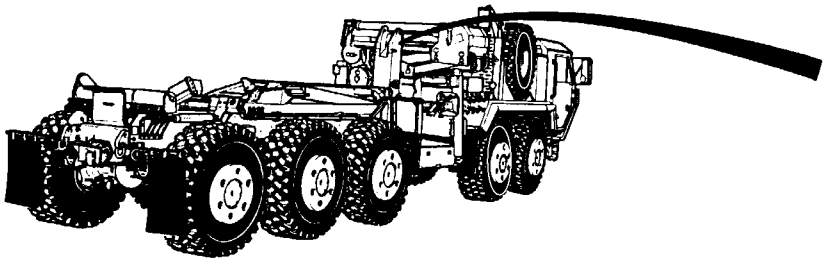
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Wrench, Combination 2-1/8 in. (Item 266, Appendix F)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)
Lifting Device, Minimum Capacity 1100 lbs (499 kg)

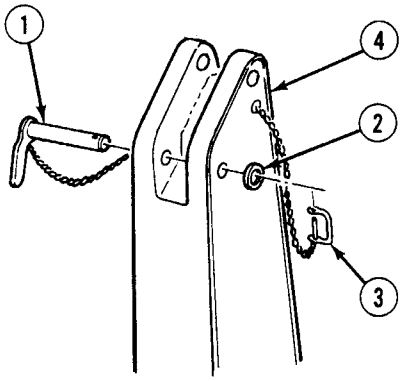
Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Grease (Item 22, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)
Locknut (2) (Item 175, Appendix E)
Ring, Retaining (2) (Item 495, Appendix E)
Seal (4) (Item 573, Appendix E)

References
TC 9-237

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS hook removed, (Para 16-38)
LHS hook arm cylinders removed, (Para 17-12)

a. Removal.



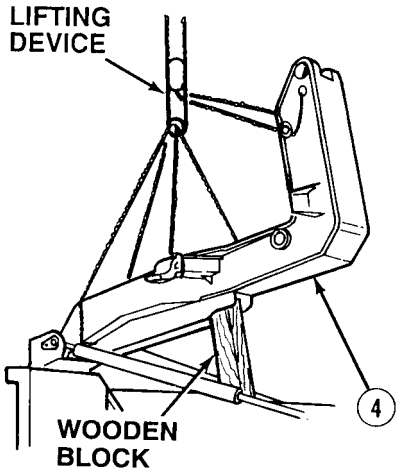


(1) Install pivot pin (1), washer (2) and snapper pin (3) in hook arm (4).

WARNING

Hook arm weighs 1,100 lbs (499 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(2) Attach lifting device to hook arm (4).



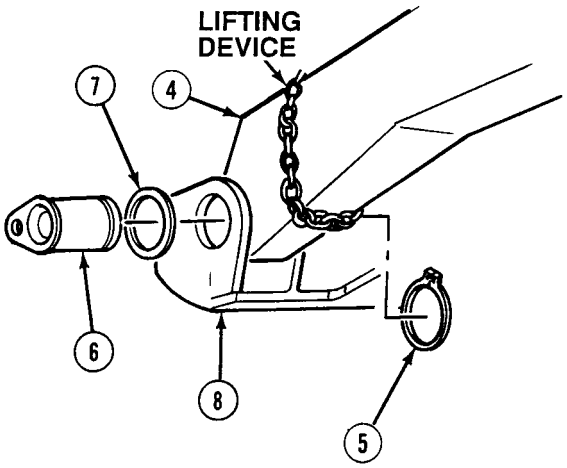
WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(3) Using lifting device, support hook arm (4) and remove two retaining rings (5), pivot pins (6) and shims (7) from hook arm and middle frame (8). Discard retaining rings.

(4) Using lifting device, remove hook arm (4) from middle frame (8).

(5) Remove lifting device from hook arm (4).



16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR (CONT).

b. Disassembly.

WARNING

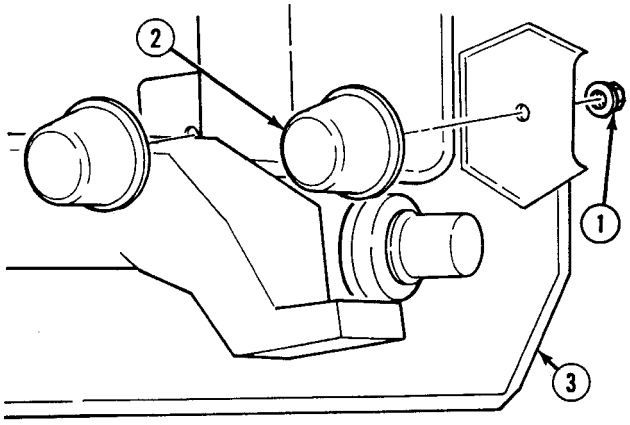
- Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.
- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

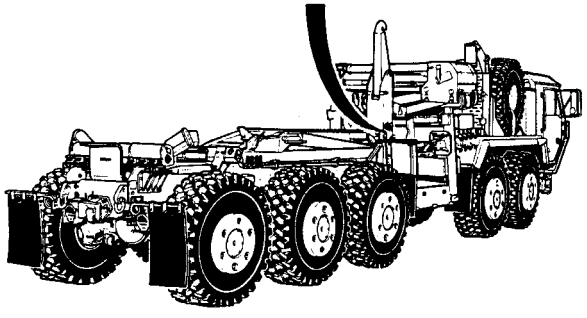
- ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
- DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
- DO NOT use CARC paint without adequate ventilation.
- NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

NOTE

If hook arm retaining pin or snapper pin replacement is necessary, grind chain tack weld smooth on hook arm surface and tack weld pin chain at same location.

(1) Remove two locknuts (1) and rubber bumpers (2) from hook arm (3). Discard locknuts.



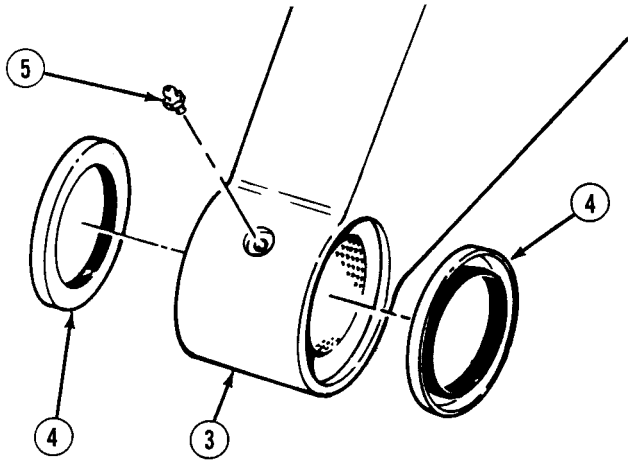


NOTE

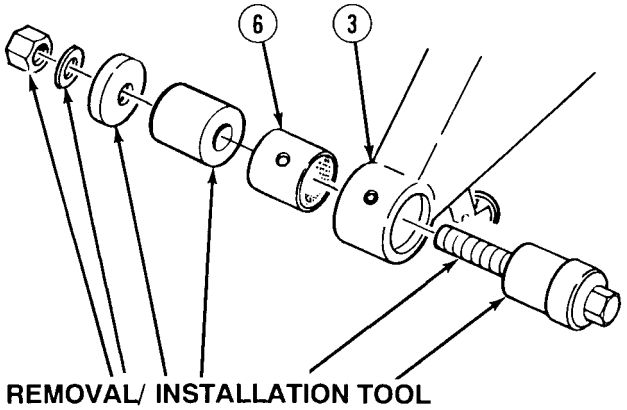
Seals are removed by prying out.

(2) Remove four seals (4) from hook arm (3). Discard seals.

(3) Remove two lube fittings (5) from hook arm (3).



(4) Using hook arm and middle frame bushing removal/installation tool (six pieces), remove two bushings (6) from hook arm (3) as shown.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean metal surfaces with drycleaning solvent (P-D-680) and wipe seals and bushings with a clean cloth.

(2) Inspect hook arm for cracked welds and damage. Replace or repair as necessary.

16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR (CONT).

(3) Inspect bushing for wear. Replace bushing if pivot pin has worn through bushing surface and metal is showing through.

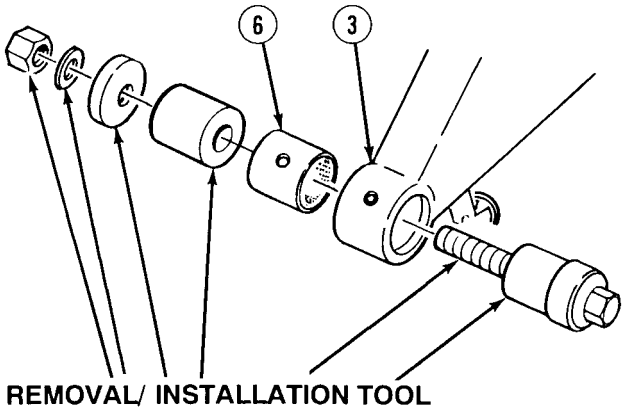
(4) Wipe rubber bumpers with a clean cloth, do not use drycleaning solvent. Replace bumper if rubber part is cracking, crumbling or loose from threaded metal base.

d. Assembly.

NOTE

- Apply light coat of grease to outer surface of bushings prior to installation.
- Apply light coat of grease to threads of removal/ installation tool prior to use.

(1) Using hook arm and middle frame bushing removal/installation tool (use five of six pieces), align lube hole in bushing (6) with lube fitting hole in hook arm (3) and install two bushings in hook arm as shown.



NOTE

If lube fitting hole is restricted by bushing, go to Step (4) of removal.

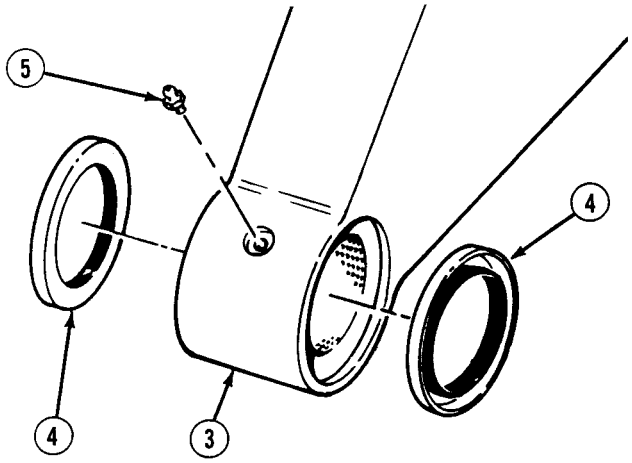
(2) Check lube fitting hole in hook arm (3) for restrictions.

(3) Install two lube fittings (5) in hook arm (3).

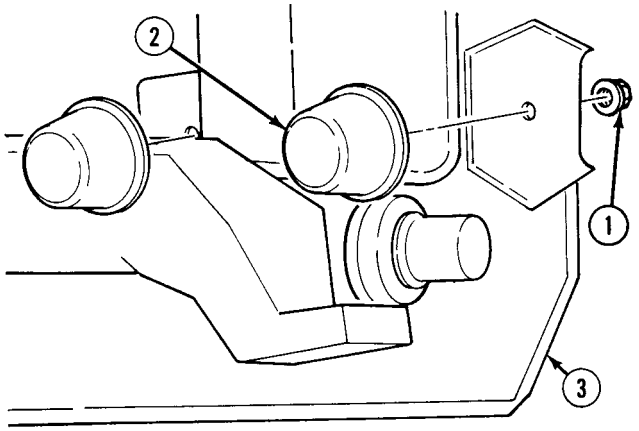
NOTE

Apply light coat of grease to outer edges of seals prior to installation.

(4) Install four seals (4) in hook arm (3).



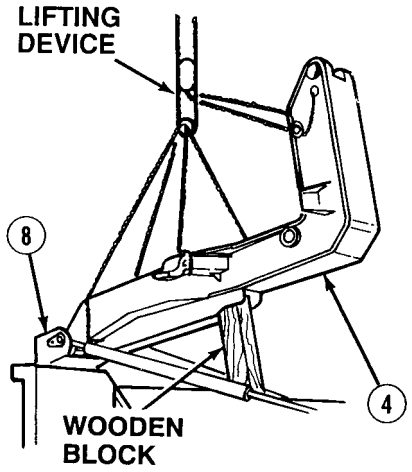
(5) Install two rubber bumpers (2) on hook arm (3) with two locknuts (1).



e. Installation.

WARNING

- Hook arm weighs 1,100 lbs (499 kg). Attach suitable lifting device prior to installation prevent possible injury to personnel.
- Ensure hook arm is supported with wooden blocks during installation to prevent possible injury to personnel.

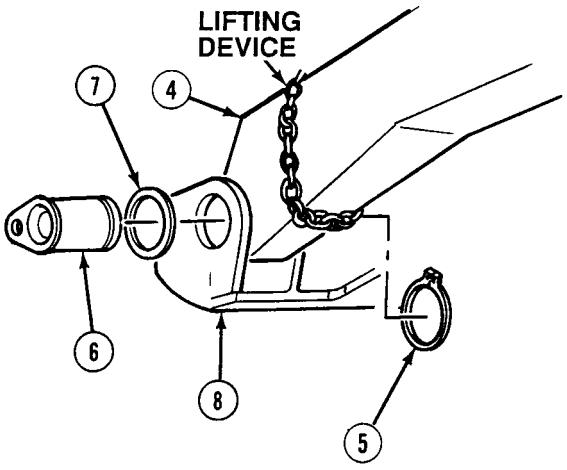


(1) Attach lifting device to hook arm (4) and place hook arm in installation position on middle frame (8).

(2) Install two shims (7) with pivot pins (6) on middle frame (8) and hook arm (4).

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.



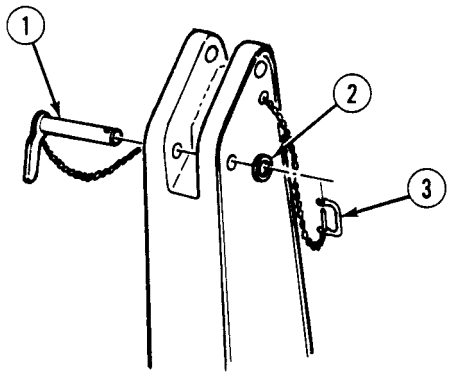
(3) Install two retaining rings (5) on pivot pins (6).

(4) Remove lifting device from hook arm (4).

16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR (CONT).

(5) Remove snapper pin (3) from pivot pin (1).

(6) Remove washer (2) and pivot pin (1).



f. Follow-On Maintenance:

- Install LHS hook arm cylinders, (Para 17-12).
- Install LHS hook, (Para 16-38).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Tape, Measuring (Item 235, Appendix F)
Wrench, Combination 1-13/16 in. (Item 264, Appendix F)
Lifting Device, Minimum Capacity 1000 lbs (454 kg)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)
Wooden Blocks (2) (Appendix C)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Grease (Item 22, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)
Tags, Identification (Item 72, Appendix B)

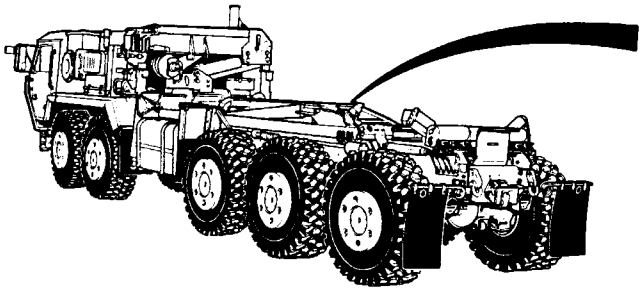
Materials/Parts - Continued
Lockwasher (Item 277, Appendix E)
Ring, Retaining (4) (Item 495, Appendix E)
Seal (Item 573, Appendix E)

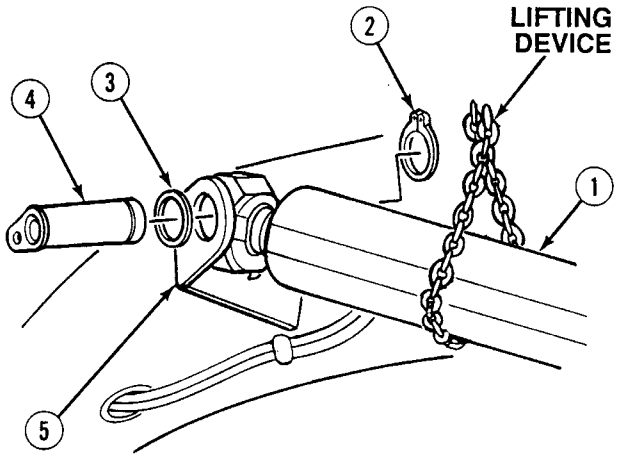
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
LHS hook arm removed, (Para 16-39)
Proximity switch (hook arm up) removed, (TM 9-2320-364-20)
Proximity switch (main frame down) removed, (TM 9-2320-364-20)
Middle frame tubes removed, (Para 16-41)
LHS junction box removed, (TM 9-2320-364-20)

16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

a. Removal.





WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

NOTE

Left and right main cylinders are removed the same way.

(1) Attach lifting device to left main cylinder (1).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(2) Using lifting device, support left main cylinder (1) and remove retaining ring (2), shim (3) and pivot pin (4).

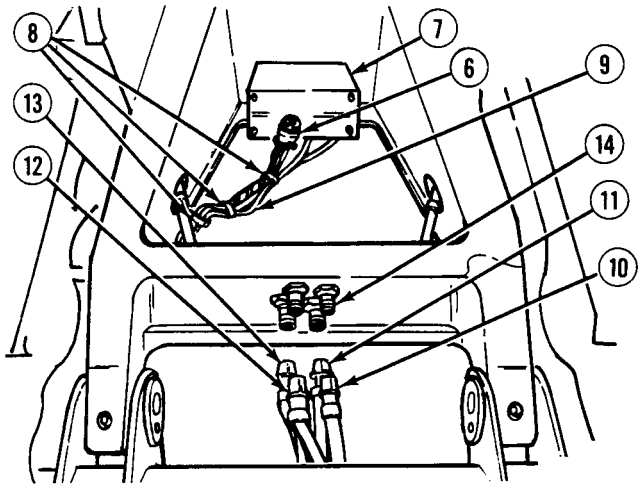
(3) Lower left main cylinder (1) out of middle frame (5).

(4) Remove lifting device from left main cylinder (1).

(5) Repeat Steps (1) through (4) for right main cylinder (1).

(6) Remove connector (6) from junction box (7).

(7) Remove cable ties (8) from main harness (9).



WARNING

The LHS hydraulics system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

NOTE

- Tag and mark all hoses prior to removal.
- Cap and plug all hoses and fittings after removal.

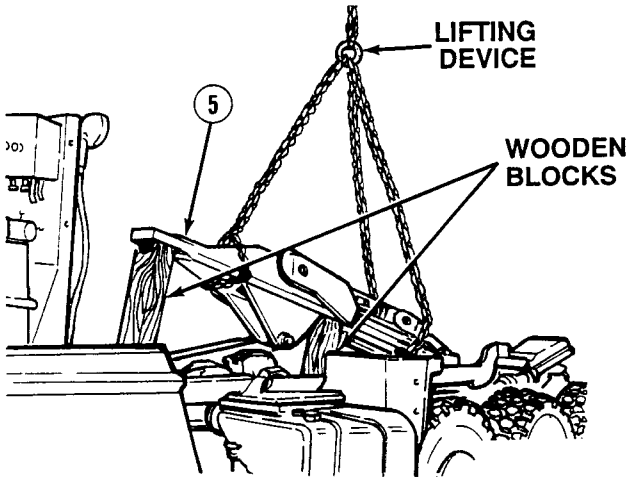
(8) Remove hoses 2881 (10), 2882 (11), 2891 (12) and 2892 (13) from middle frame bulkhead fittings (14).

WARNING

Middle frame weighs 1,000 lbs (454 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(9) Attach lifting device to middle frame (5).

(10) With the aid of an assistant, use lifting device and wooden blocks to support middle frame (5).

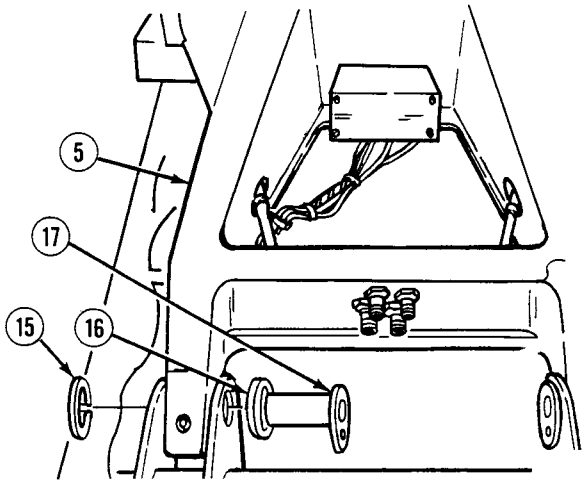


16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(11) With the aid of an assistant, remove two retaining rings (15), shims (16) and pivot pins (17) from middle frame (5). Discard retaining rings.



CAUTION

Do not allow wooden blocks supporting middle frame to fall when middle frame is lifted, or damage to equipment may result.

(12) With the aid of an assistant and using lifting device, remove middle frame (5) from truck.

(13) Remove lifting device from middle frame (5).

b. Disassembly.

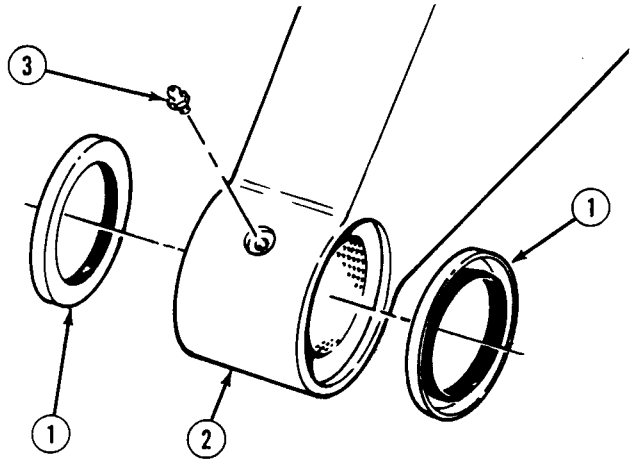
NOTE

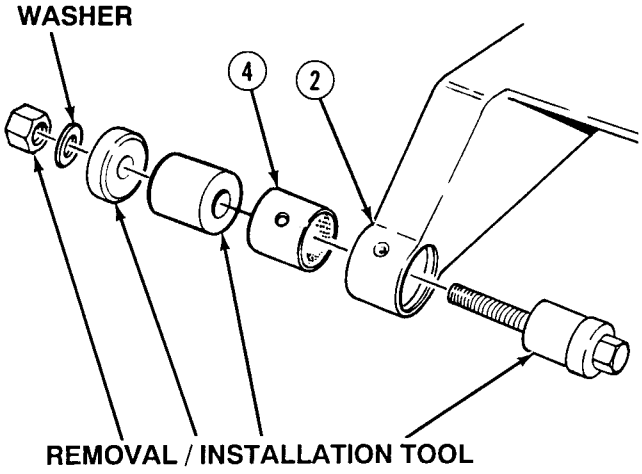
Seals are removed by prying out.

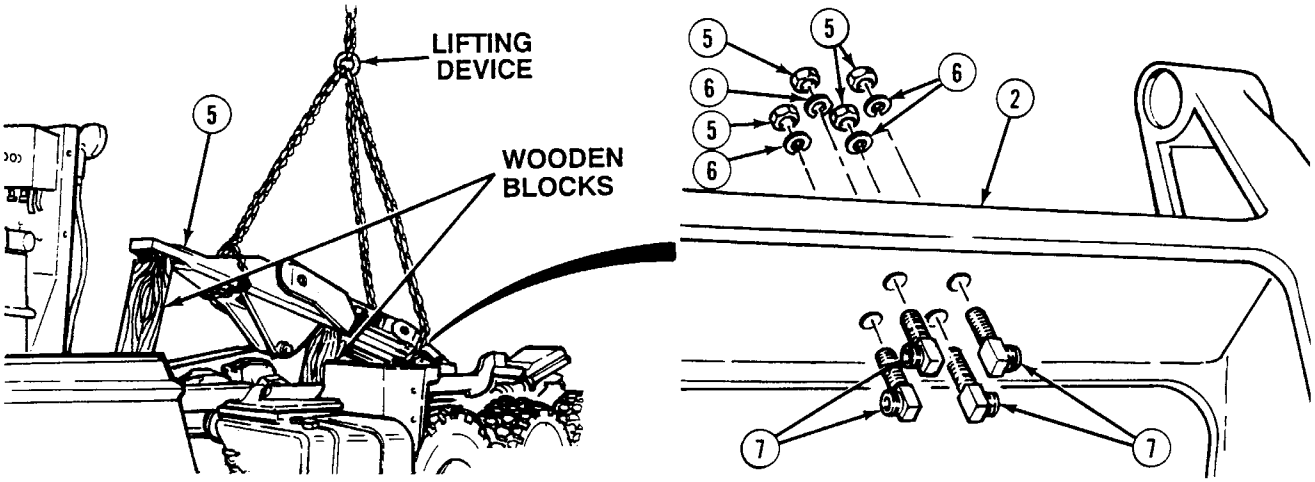
(1) Remove four seals (1) from middle frame (2). Discard seals.

(2) Remove two lube fittings (3) from middle frame (2).

(3) Using removal/installation tool (six pieces), remove two bushings (4) from middle frame (2) as shown.







(4) Remove four nuts (5), lockwashers (6) and bulkhead fittings (7) from middle frame (2). Discard locknuts.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

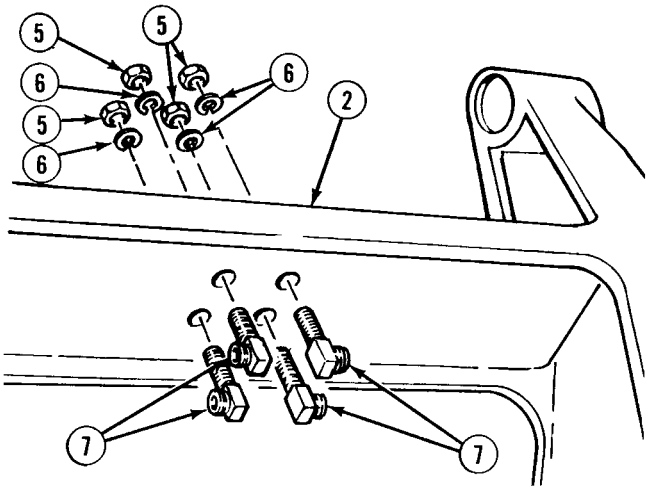
(1) Clean all metal surfaces with drycleaning solvent (P-D-680).

(2) Inspect middle frame for cracked welds or damage. Replace or repair as necessary.

(3) Inspect bushing for wear. Replace if pivot pin has worn through bushing surface and metal is showing through.

d. Assembly.

(1) Install four bulkhead fittings (7), lockwashers (6) and nuts (5) on middle frame (2).

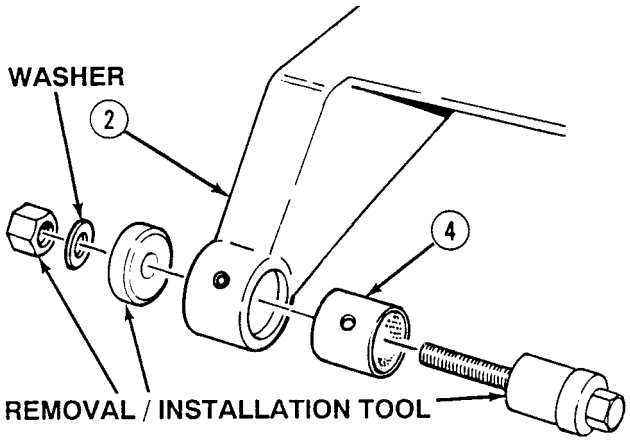


16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

NOTE

- Apply light coat of grease to outer surface of bushings prior to installation.
- Apply light coat of grease to threads of removal/ installation tool prior to use.

(2) Using hook arm and middle frame bushing removal/installation tool, align lube hole in bushing (4) with lube fitting hole in middle frame (2) and install two bushings (4) as shown.

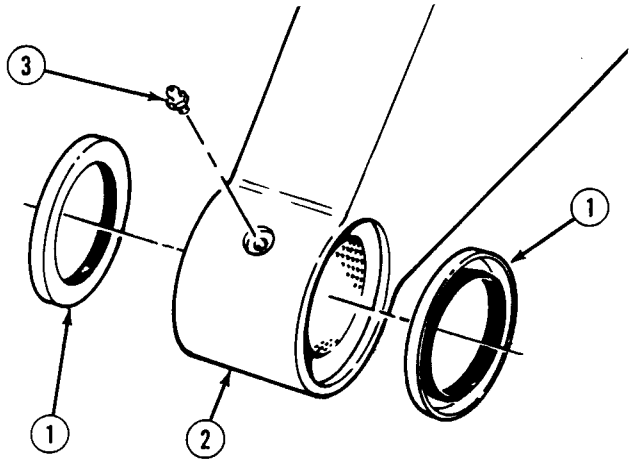


NOTE

Apply light coat of grease to outer edges of seals prior to installation.

(3) Install four seals (1) in middle frame (2).

(4) Install two lube fittings (3) in middle frame (2).



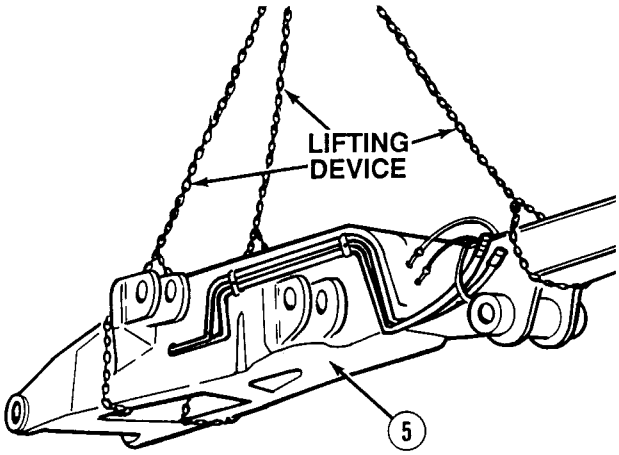
e. Installation.

WARNING

Middle frame weighs 1,000 lbs (454 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to middle frame (5).

(2) With the aid of an assistant and using lifting device, position middle frame (5) on truck.



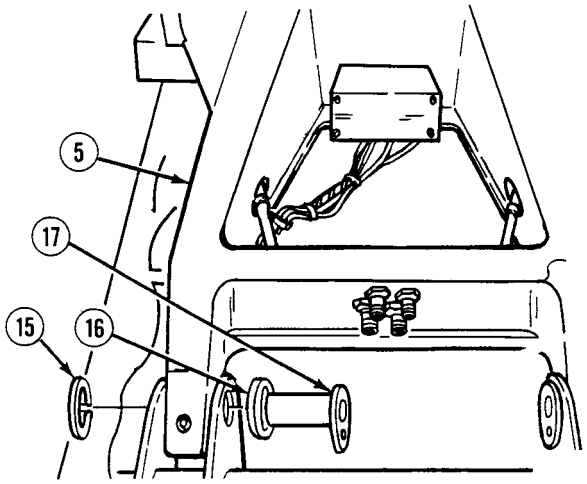
WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

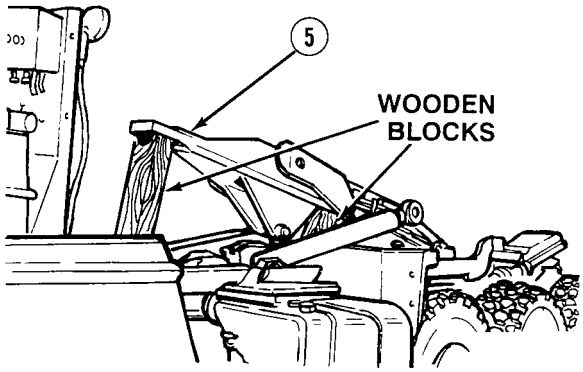
Coat pin with grease prior to installation.

(3) With the aid of an assistant, install two pivot pins (17), shims (16) and retaining rings (15) on middle frame (5).



(4) Block middle frame (5) up in two places so that front of middle frame is 30 to 35 in. (76 to 89 cm) above compression frame where bumpers are mounted.

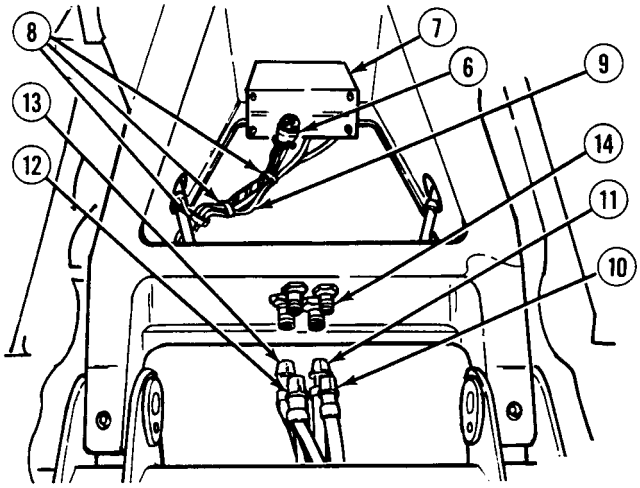
(5) Remove lifting device from middle frame (5).



(6) Install hoses 2881 (10), 2882 (11), 2891 (12) and 2892 (13) on middle frame bulkhead fittings (14).

(7) Install connector (6) on junction box (7).

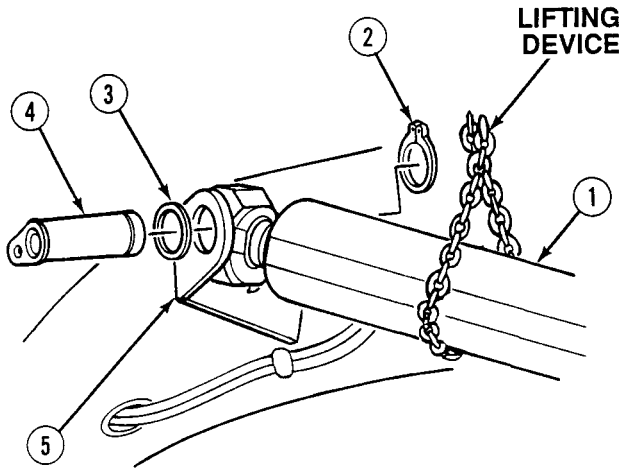
(8) Install cable ties (8) on main harness (9).



16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

WARNING

Main cylinders weigh 325 lbs (148 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



(9) Attach lifting device to left main cylinder (1).

(10) Using lifting device, lift main cylinder (1) into installation position.

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(11) Install pivot pin (4), shim (3) and retaining ring (2) on middle frame (5) and main cylinder (1).

(12) Remove lifting device from main cylinder (1).

(13) Repeat Steps (8) through (11) for right main cylinder (1).

f. Follow-On Maintenance:

- Install LHS junction box, (TM 9-2320-364-20).
- Install middle frame tubes, (Para 16-41).
- Install proximity switch (hook arm up), (TM 9-2320-364-20).
- Install proximity switch (main frame down), (TM 9-2320-364-20).
- Install hook arm, (Para 16-39).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Lifting Device, Minimum Capacity 2,100 lbs (953 kg)
Wooden Block (2) (Appendix C)

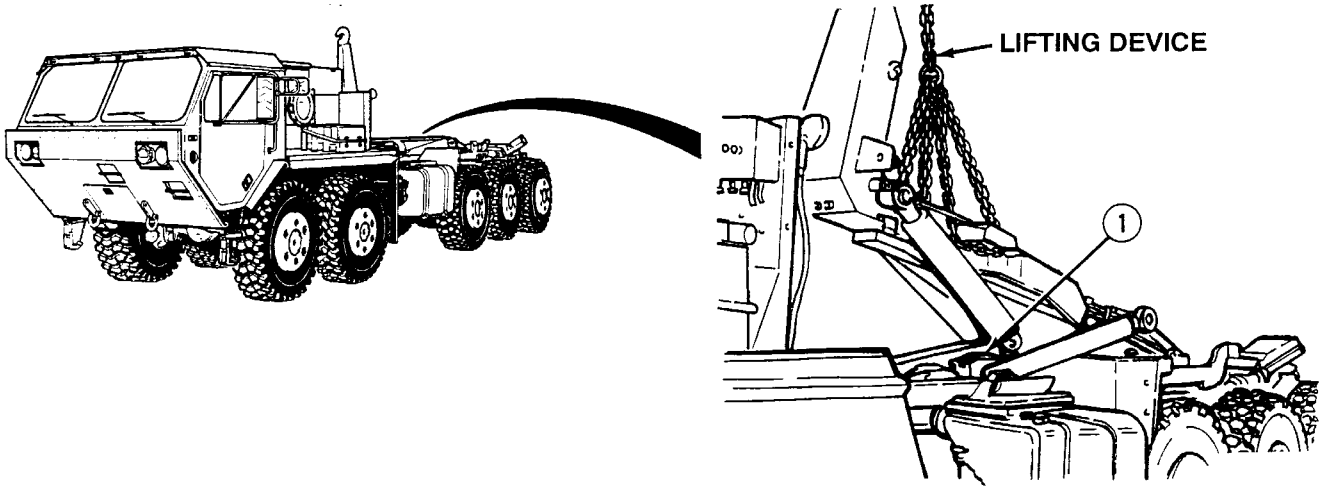
Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (2) (Item 239, Appendix E)

Materials/Parts - Continued
Lockwasher (2) (Item 266, Appendix E)
Packing, Preformed (2) (Item 331, Appendix E)
Ring, Retaining (Item 495, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS main junction box cover removed, (TM 9-2320-364-20)

a. Removal.

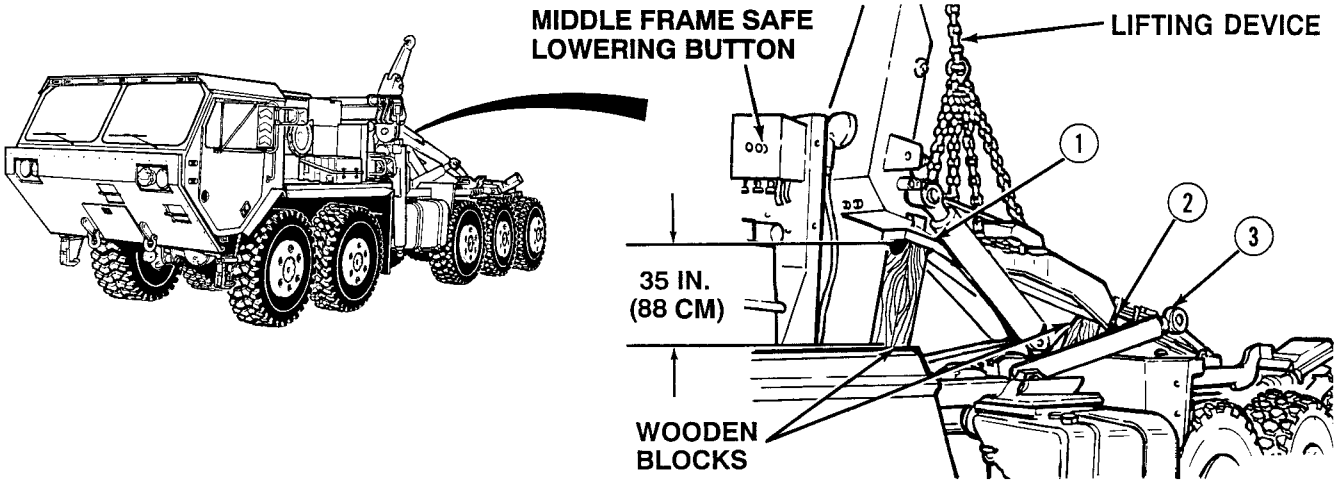


WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Hook arm cylinders weigh 210 lbs (95 kg) each. Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(1) Attach lifting device to middle frame (1).

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).



NOTE

Middle frame tube should be blocked 35 in. (89 cm) above compression frame.

(2) Turn ignition switch to ON position.

CAUTION

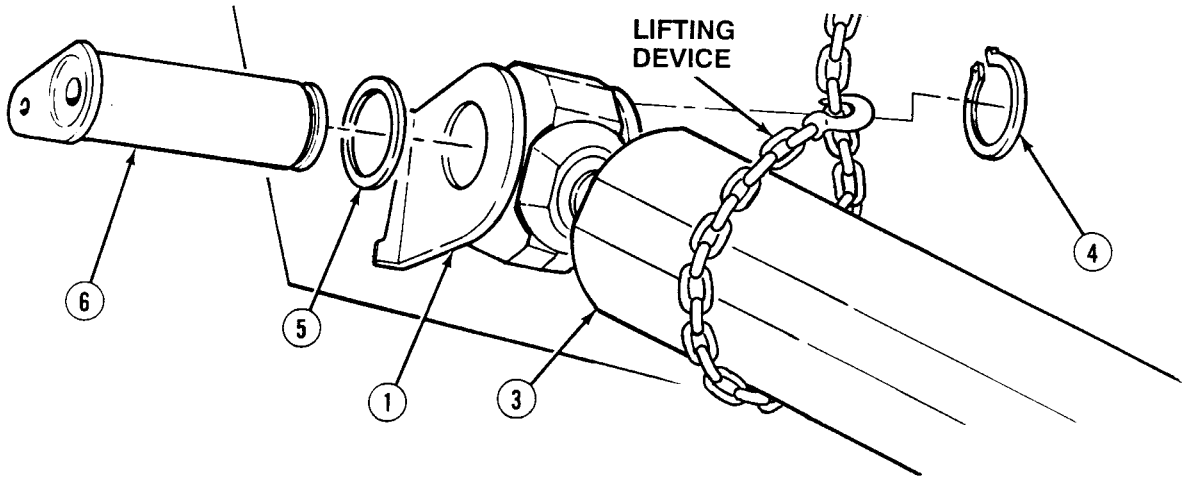
Do not allow wooden blocks supporting middle frame to fall when middle frame is lifted, or damage to equipment may result.

(3) With the aid of an assistant, press middle frame safe lowering button while using lifting device to raise middle frame (1).

(4) Raise middle frame (1) hook arm pivot pin (2) is above main cylinder (3). Block up middle frame (1) in two places with wooden blocks.

(5) Turn ignition switch to OFF position.

(6) Remove lifting device from hook arm (1).



WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(7) Attach lifting device to main cylinder (3).

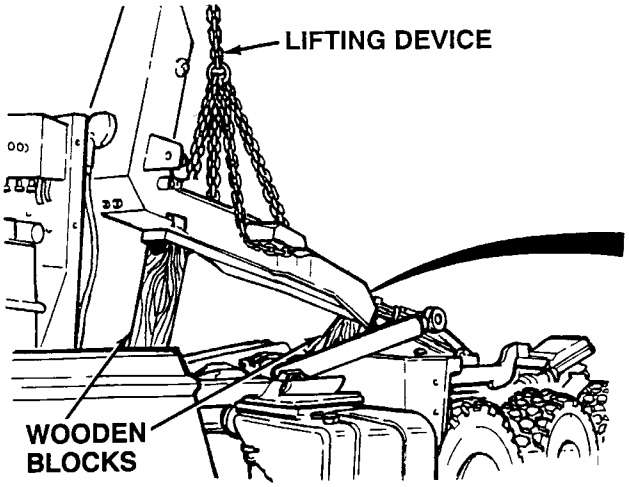
WARNING

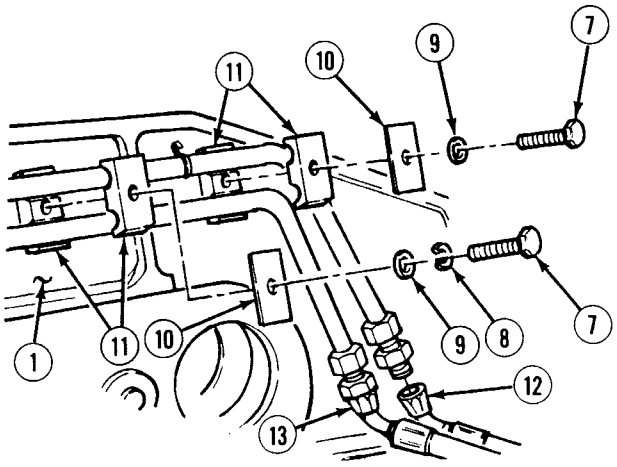
Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(8) With the aid of an assistant, support main cylinder (3) using lifting device and remove retaining ring (4), shim (5) and main cylinder pivot pin (6). Lower main cylinder out of middle frame (1).

(9) Remove lifting device from main cylinder (3).

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

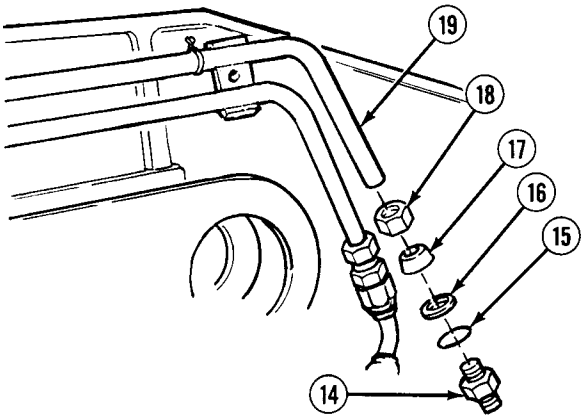
NOTE

- Tag and mark all hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.
- Remove cable ties as required.

(10) Remove two screws (7), lockwashers (8), washers (9), cover plates (10) and four clamps (11).

(11) Remove screw (7), washer (9), cover plate (10), two clamps (11), hose 2891 (12) and hose 2881 (13) from middle frame (1).

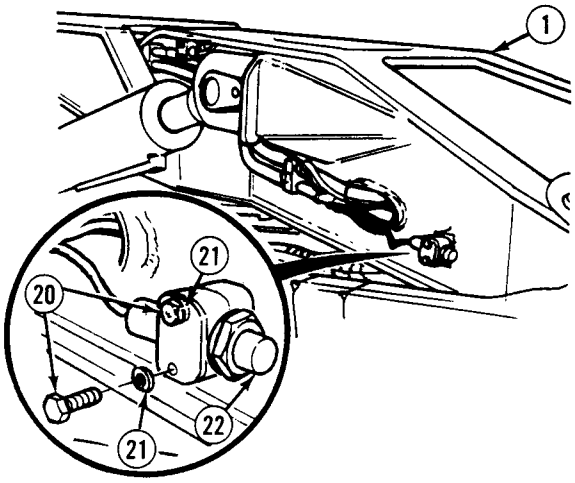
(12) Remove adapter (14), preformed packing (15), spacer (16), compression ring (17) and nut (18) from tube (19). Discard preformed packing.

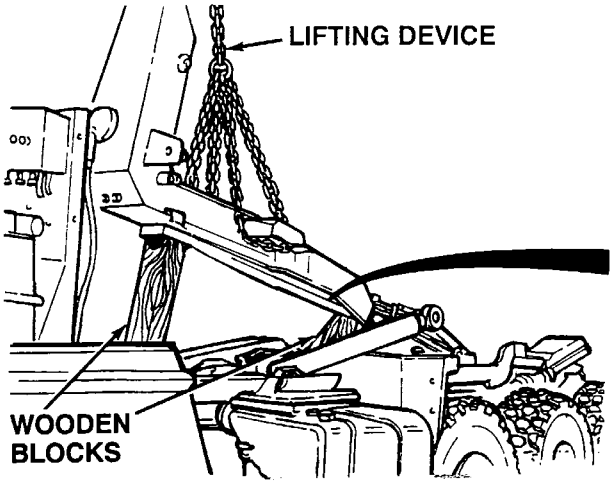


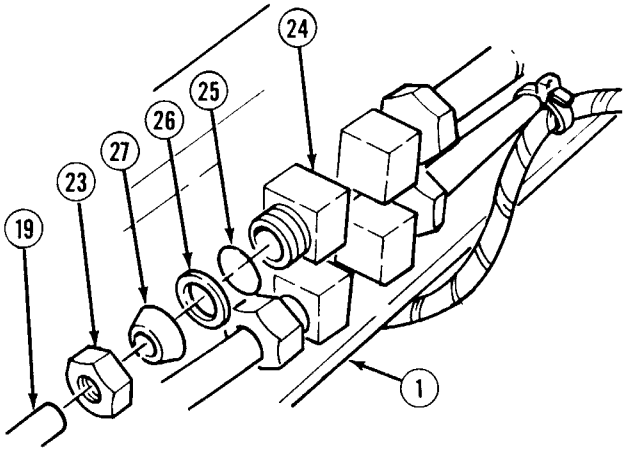
NOTE

Step (13) applies to tubes on left side only.

(13) Remove two screws (20), lockwashers (21) and proximity switch (22) with clamp. Do not separate clamp halves.







NOTE

Remove cable ties from tube as required.

(14) Remove tube nut (23), from bulkhead (24) at inside rear of middle frame (1).

(15) Pull tube (19) from bulkhead (24), remove preformed packing (25), spacer (26), compression ring (27) and nut (23), from tube and remove tube from middle frame (1). Discard preformed packing.

b. Installation.

(1) Apply hydraulic oil to preformed packing (25).

(2) Position tube (19) through middle frame (1) and install nut (23), compression ring (27), spacer (26) and preformed packing (25) on tube (19).

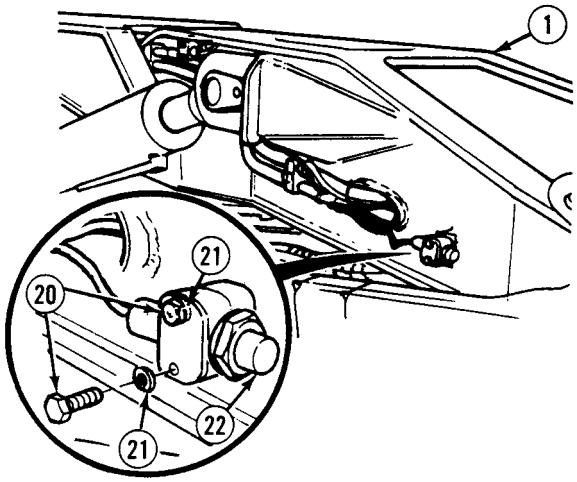
NOTE

Install cable ties as required to secure harness to tube.

(3) Insert tube (19) into bulkhead (24) and install nut (23) on bulkhead.

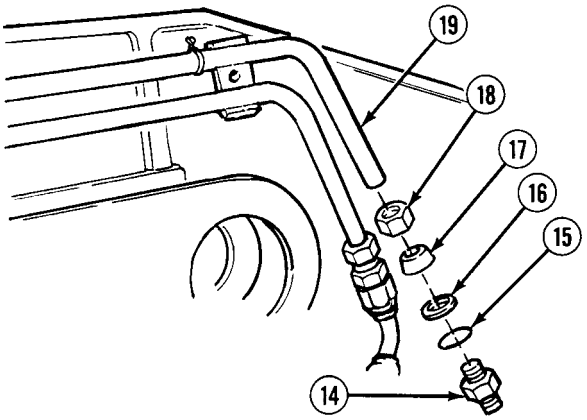
16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).

(4) Install proximity switch (22) with clamps using two screws (20) and lockwashers (21).



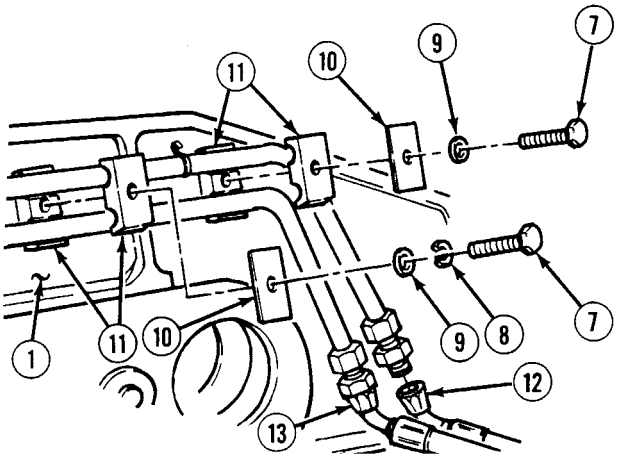
(5) Apply hydraulic oil to preformed packing (15).

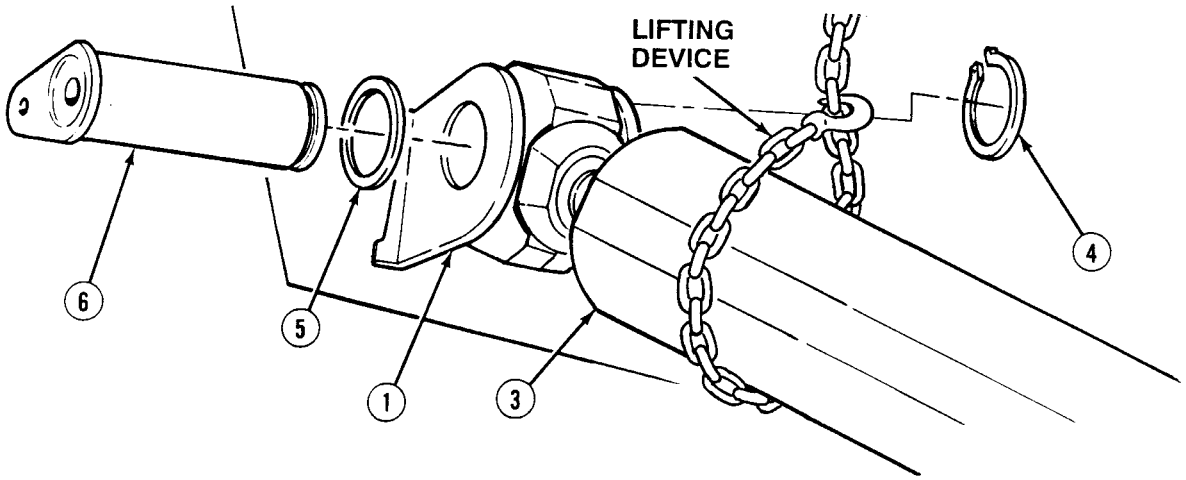
(6) Install tube nut (18), compression ring (17), spacer (16), preformed packing (15) and adapter (14) on tube (19).



(7) Install four clamps (11), two cover plates (10), washers (9), lockwashers (8) and screws (7).

(8) Install hose 2891 (12), hose 2881 (13), two clamps (11), cover plate (10), washer (9) and screw (7) on middle frame (1).





WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(9) Attach lifting device to main cylinder (3).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

It may be necessary to use soft faced hammer to align cylinder rod end with clevis on middle frame.

(10) With the aid of an assistant and using lifting device, lift main cylinder (3) into middle frame (1) and install pivot pin (6), shim (5) and retaining ring (4).

(11) Remove lifting device from main cylinder (3).

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).

WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Hook arm cylinders weigh 210 lbs (95 kg) each. Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(12) Attach lifting device to middle frame (1).

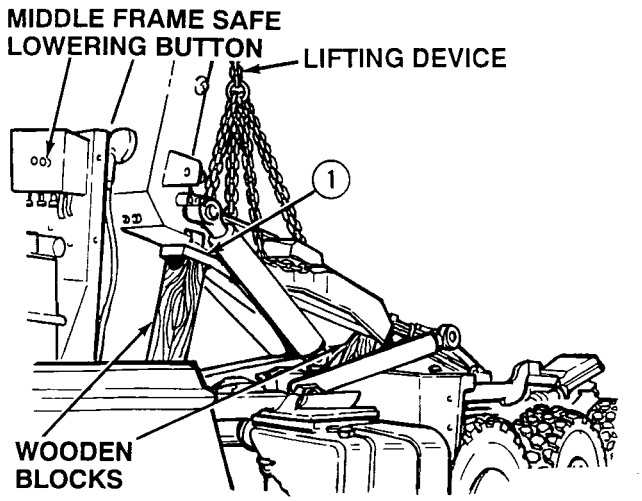
CAUTION

Do not allow wooden blocks supporting middle frame to fall when middle frame is lifted, or damage to equipment may result.

(13) With the aid of an assistant, press middle frame safe lowering button while using lifting device to raise middle frame (1).

(14) Remove wooden blocks and then lower middle frame (1).

(15) Remove lifting device from middle frame (1).



c. Follow-On Maintenance:

- Install LHS main junction box cover, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-42. COMPRESSION FRAME REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Wrench, Combination 1-1/8 in.
(Item 255, Appendix F)
Wrench, Combination 1-1/4 in.
(Item 256, Appendix F)
Wrench, Combination 1-5/8 in.
(Item 261, Appendix F)
Wrench, Combination 1-13/16 in.
(Item 264, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 800 lbs
(363 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)

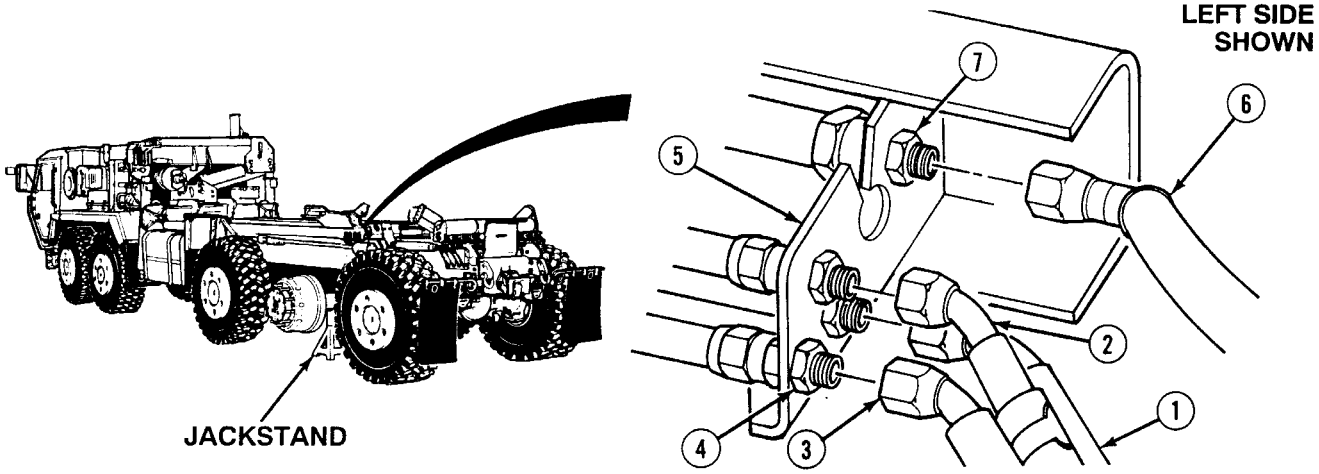
Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Locknut (6) (Item 167, Appendix E)
Locknut (Item 175, Appendix E)
Locknut (6) (Item 204, Appendix E)
Lockwasher (3) (Item 266, Appendix E)
Lockwasher (6) (Item 277, Appendix E)
Lockwasher (16) (Item 282, Appendix E)
Packing, Preformed (4) (Item 332, Appendix E)
Packing, Preformed (2) (Item 333, Appendix E)
Washer, Spring (48) (Item 696, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Tire removed (4th axle left side),
(TM 9-2320-364-10)
LHS main harness removed, (Para 6-31)
LHS middle frame removed, (Para 16-40)
LHS main cylinders removed, (Para 17-15)

16-42. COMPRESSION FRAME REPAIR (CONT).

a. Removal.



WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

NOTE

- Tag and mark all hoses prior to removal.
- Left side and right side procedures are the same. Left side is shown.
- Disconnect hoses 2588, 2888, 2889 and 2892 on the right side.
- Cap and plug all hoses and tubes prior to removal.

(1) Disconnect hoses 2887 (1), 2666 (2) and 2890 (3) from three adapters (4) at front of compression frame (5).

(2) Disconnect hose 2891 (6) from adapter (7) at front of compression frame (5).

WARNING

Compression frame weighs 800 lbs (363 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

NOTE

Left and right side screws are removed the same way. Left side shown.

(3) Attach lifting device to compression frame (5).

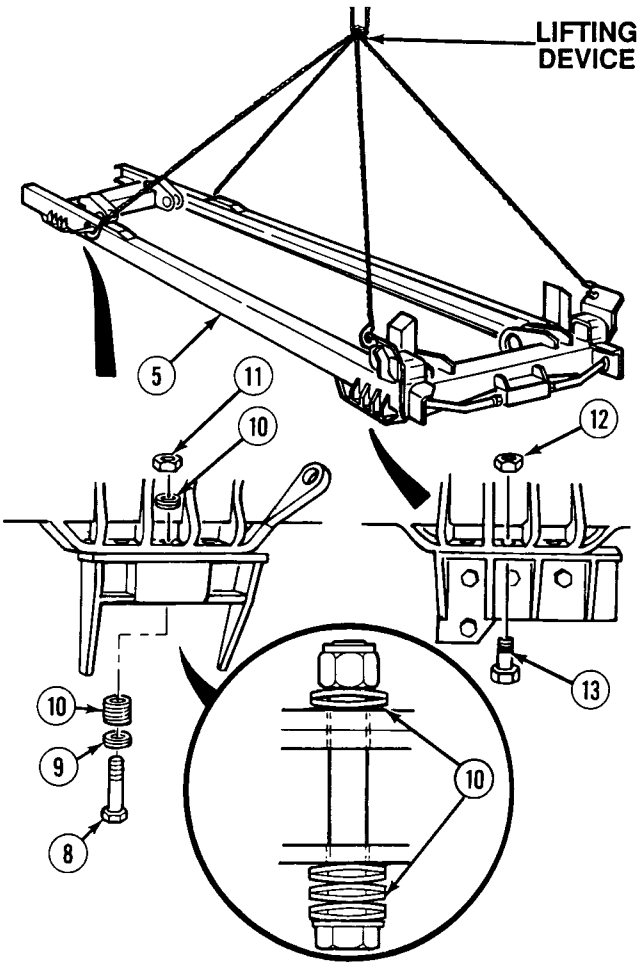
(4) With the aid of an assistant, remove three front screws (8), washers (9), 24 spring washers (10) and three locknuts (11) from compression frame (5) and truck. Discard spring washers and locknuts.

(5) With the aid of an assistant, remove three rear locknuts (12) and screws (13) from compression frame (5) and truck. Discard locknuts.

(6) Repeat Steps (4) through (5) for right side.

(7) With the aid of an assistant and using lifting device, lift compression frame (5) off truck.

(8) Remove lifting device from compression frame (5).

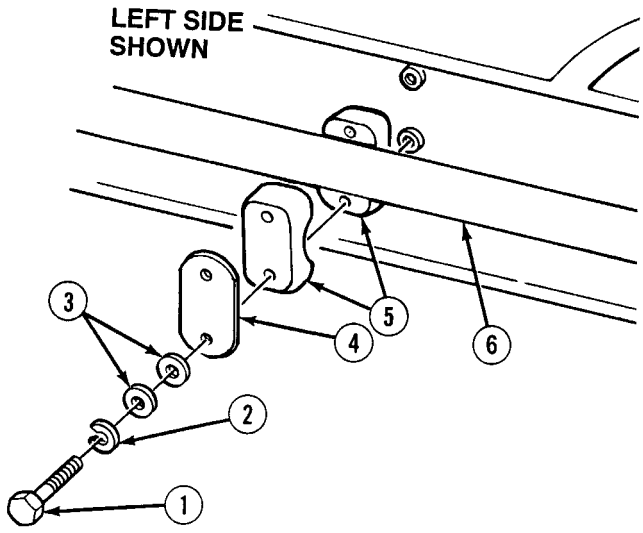


b. Disassembly.

NOTE

Left and right side clamps are removed the same way. Left side shown.

(1) Remove eight screws (1) and lockwashers (2), sixteen washers (3), four cover plates (4) and eight tube clamp halves (5) from left side compression frame tube (6). Discard lockwashers.



16-42. COMPRESSION FRAME REPAIR (CONT).

NOTE

- Tag and mark all hoses prior to removal.
- Left side and right side procedures are the same. Left side is shown.
- Cap and plug all hoses and tubes after removal.
- Disconnect hoses 2588, 2888 and 2889 on the right side.

(2) Disconnect hoses 2887 (7), 2666 (8) and 2890 (9) from three adapters (10) at front of compression frame (11).

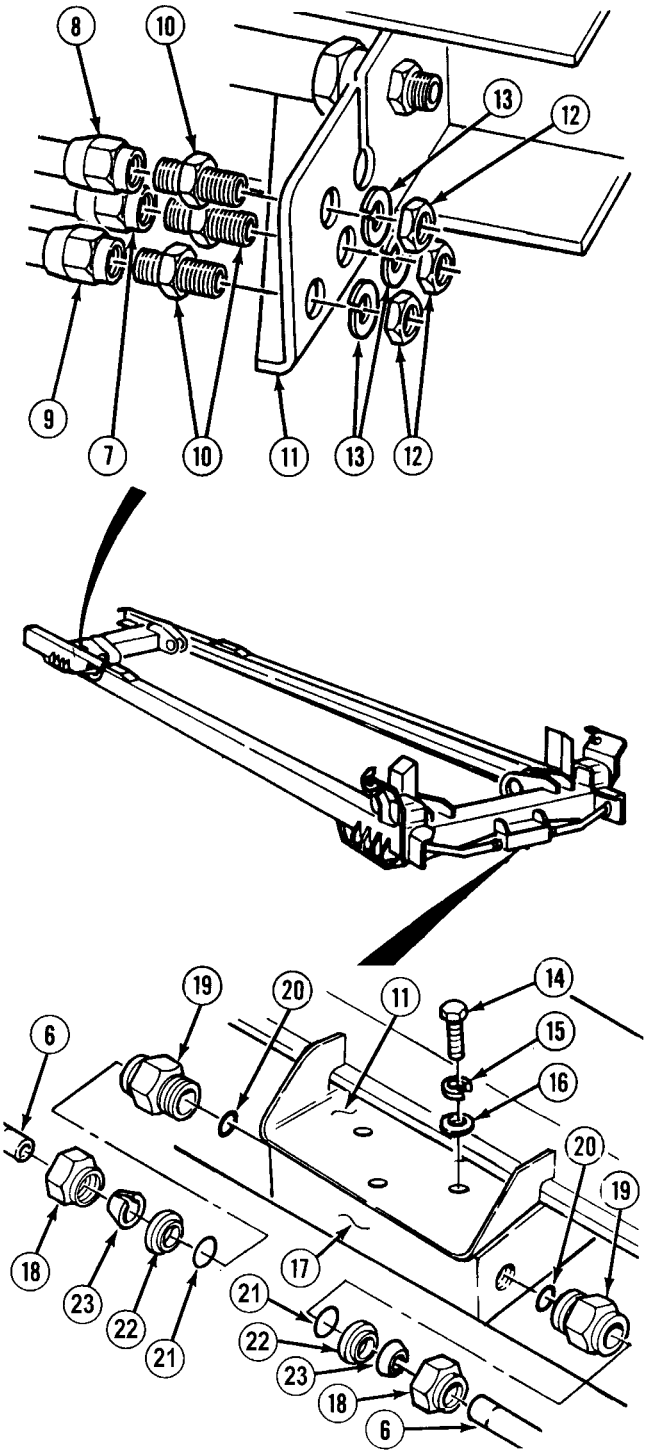
(3) Remove three nuts (12), lockwashers (13) and adapters (10) from compression frame (11). Discard lockwashers.

(4) Remove three screws (14), lockwashers (15) and washers (16) from diverter manifold (17). Discard lockwashers.

(5) Remove two nuts (18) and compression frame tubes (6) from diverter manifold (17).

(6) Remove two fittings (19) and preformed packings (20) from diverter manifold (17). Discard preformed packings.

(7) Remove two preformed packings (21), spacers (22), compression rings (23) and nuts (18) from compression frame tubes (6). Discard preformed packings.

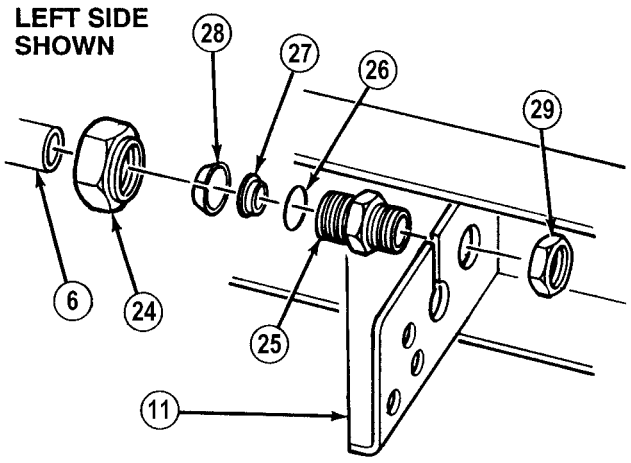


(8) Remove left side compression frame nut (24) and left side compression frame tube (6) from adapter (25).

(9) Remove preformed packing (26), spacer (27), compression ring (28) and nut (24) from left side compression frame tube (6). Discard preformed packing.

(10) Remove nut (29) and adapter (25) from compression frame (11).

(11) Repeats Steps (1) through (10) for right side.

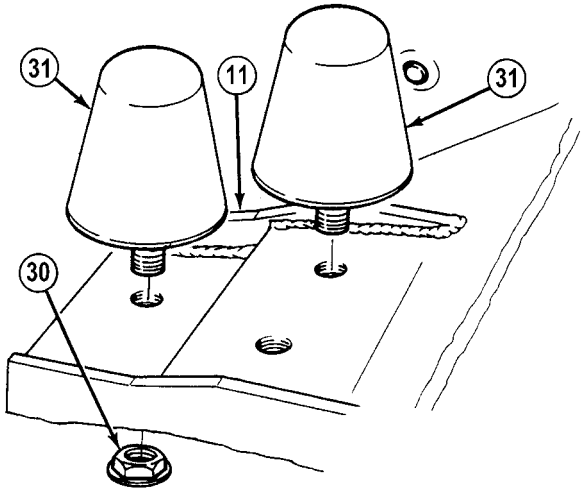


(12) Remove locknut (30) and three rubber bumpers (31) from compression frame (11). Discard locknut

c. Assembly.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(1) Coat threads of three rubber bumpers (31) with sealing compound.

(2) Install three rubber bumpers (31) in compression frame (11).

(3) Install locknut (30) on rubber bumper (31).

16-42. COMPRESSION FRAME REPAIR (CONT).

(4) Install adapter (25) with nut (29) in compression frame (11).

CAUTION

Ensure correct preformed packing is installed on fitting or damage to packing will result.

(5) Apply hydraulic oil to preformed packing (26).

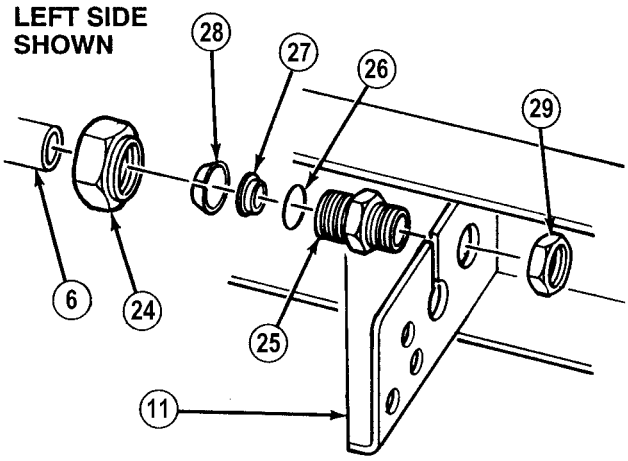
(6) Install nut (24), compression ring (28), spacer (27) and preformed packing (26) on left side compression frame tube (6).

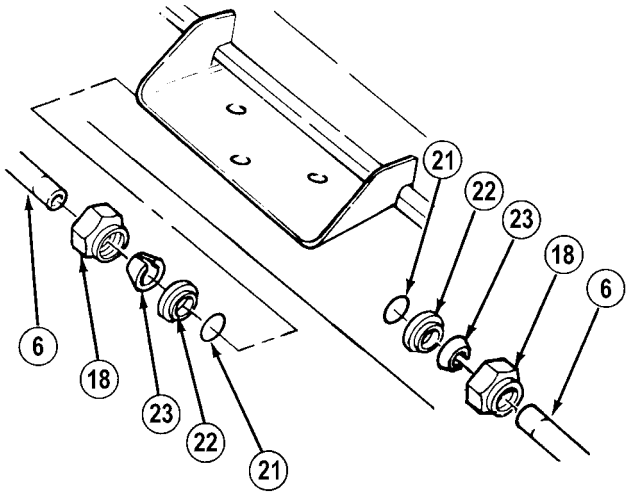
(7) Install left side compression frame tube (6) in adapter (25) and slide preformed packing (26) with spacer (27) and compression ring (28) into adapter (25).

(8) Install nut (24) on adapter (25).

(9) Apply hydraulic oil to two preformed packings (21).

(10) Install two nuts (18), compression rings (23), spacers (22) and preformed packings (21) on compression frame tubes (6).





CAUTION

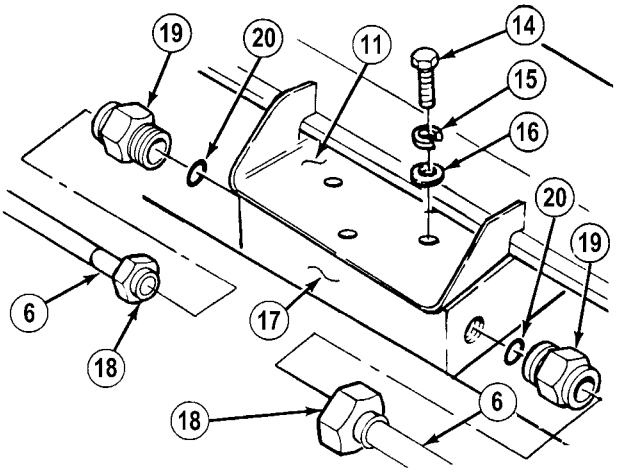
Ensure correct preformed packing is installed on fitting or damage to packing will result.

(11) Apply hydraulic oil to two preformed packings (20) and install on fittings (19).

(12) Install two fittings (19) on diverter manifold (17).

(13) Install two compression frame tubes (6) in diverter manifold (17).

(14) Install diverter manifold (17) on compression frame (11) with three washers (16), lockwashers (15) and screws (14).

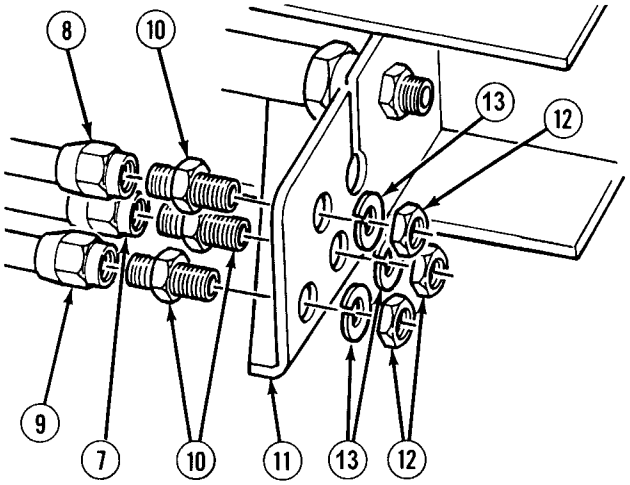


NOTE

Repeat Steps (15) and (16) for right side hoses 2588, 2888 and 2889.

(15) Install three adapters (10) at front of compression frame (11) with three lockwashers (13) and nuts (12).

(16) Install hoses 2887 (7), 2666 (8) and 2890 (9) on three adapters (10).

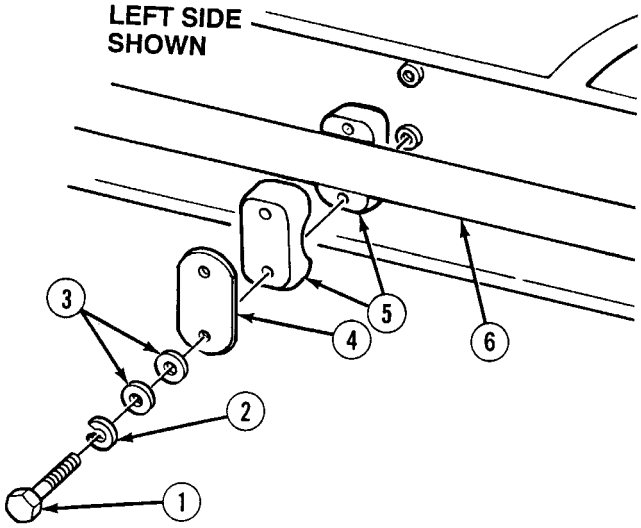


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(17) Apply sealing compound to threads of screws (1).

(18) Install eight tube clamp halves (5) and four cover plates (4) on left side compression frame tube (6) with sixteen washers (3), eight lockwashers (2) and screws (1).



16-42. COMPRESSION FRAME REPAIR (CONT).

d. Installation.

WARNING

Compression frame weighs 4,200 lbs (1,907 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

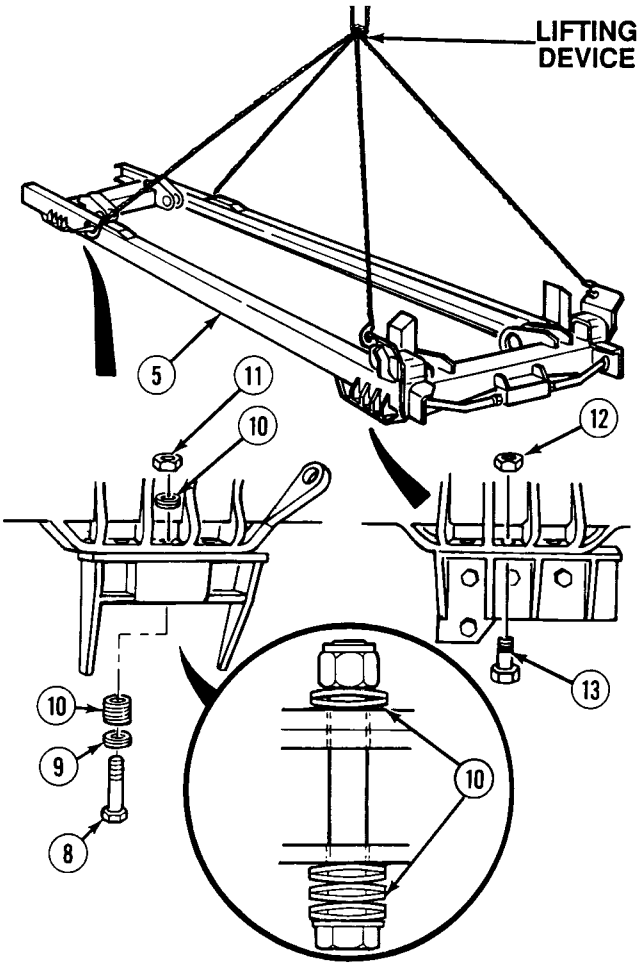
(1) Attach lifting device to compression frame (5).

(2) With the aid of an assistant and using lifting device, lower compression frame (5) onto truck and position for installation.

NOTE

Left and right side screws are installed the same way. Left side is shown.

(3) Position three screws (13) and locknuts (12) on each side of compression frame (5) and truck.



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Install spring washers in pairs with no two pairs in the same direction.

(4) Apply sealing compound on threads of three screws (8).

(5) Install washer (9) and six spring washers (10) on three screws (8).

(6) Position three front screws (8) with washers (9) and spring washers (10) up through truck and compression frame (5), and then install two spring washers (10) and locknut (11) on screw (8).

(7) Repeat Steps (3) through (6) for right side.

(8) Tighten locknuts (11) to 75 lb-ft (102 N·m).

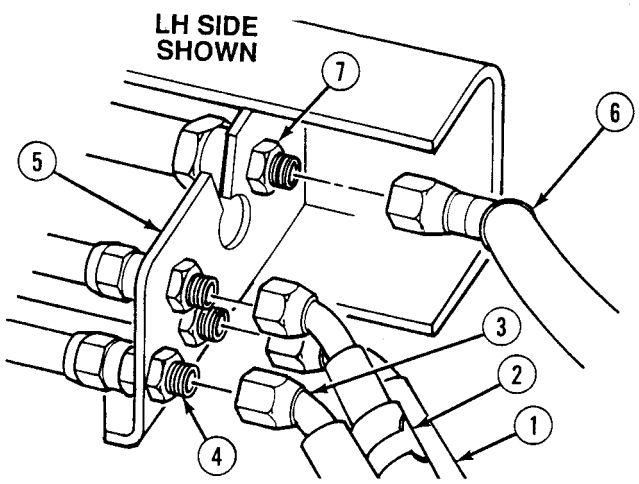
(9) Tighten locknuts (12) to 410 lb-ft (556 N·m).

(10) Repeat Steps (7) and (8) for right side.

(11) Remove lifting device from compression frame (5).

(12) Install hose 2891 (6) on adapter (7).

(13) Install hoses 2887 (1), 2666 (2) and 2890 (3) on three adapters (4) at front of compression frame (5).



e. Follow-On Maintenance:

- Install middle frame, (Para 16-40).
- Install LHS main harness, (Para 6-31).
- Install LHS main cylinders, (Para 17-15).
- Install Axle No. 4 left side tire, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

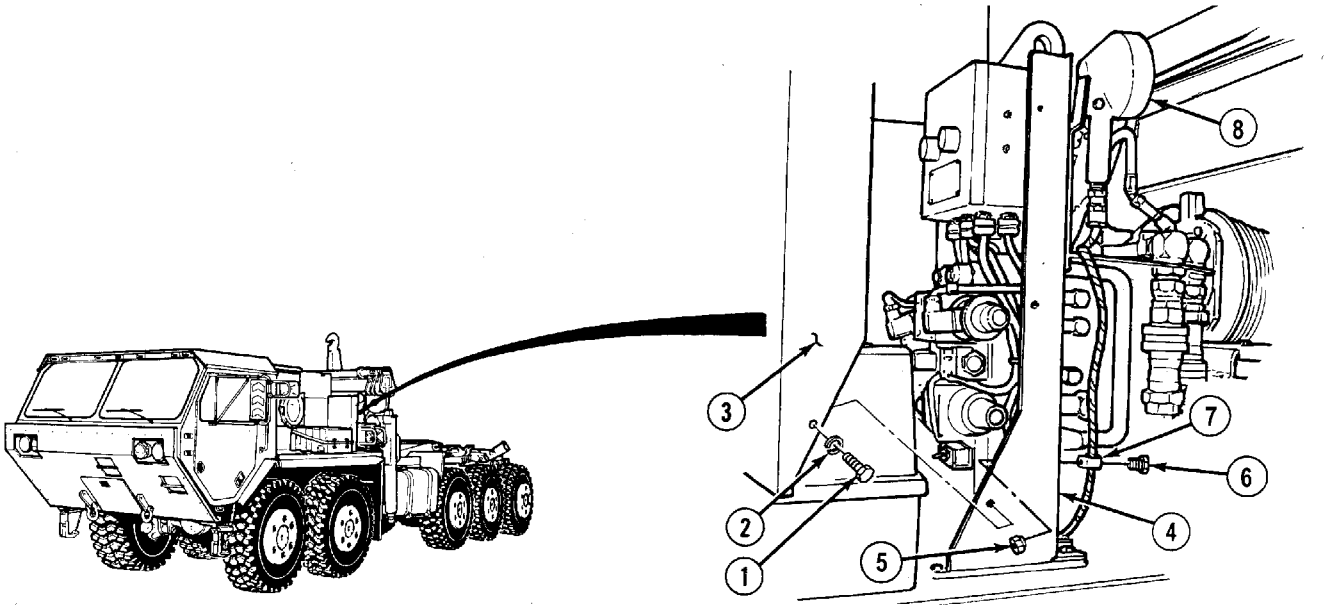
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Torch, Propane (Item 247, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Lifting Device, Minimum Capacity 150 lbs
(68 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 54, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (4) (Item 174, Appendix E)
Locknut (Item 176, Appendix E)
Locknut (6) (Item 210, Appendix E)
Lockwasher (8) (Item 251, Appendix E)
Lockwasher (8) (Item 266, Appendix E)
Packaging, Preformed (4) (Item 351, Appendix E)
Packaging, Preformed (2) (Item 352, Appendix E)
Packaging, Preformed (6) (Item 355, Appendix E)
Parts Kit, Seal (Item 410, Appendix E)
Pin, Cotter (Item 420, Appendix E)
Preformed Packing Kit (Item 449, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
LHS main manifold load control valve removed,
(Para 17-6)
LHS check valve removed, (Para 17-7)
LHS main manifold relief valve removed,
(Para 17-8)
LHS solenoid valve and coil removed,
(Para 17-9)
LHS directional control valve removed,
(Para 17-10)
LHS transit valve removed, (Para 17-11)

a. Removal.



NOTE

Only remove center screw on engine side of LHS control box cover.

(1) Remove four screws (1), lockwashers (2) and cover (3) from LHS main manifold bracket assembly (4). Discard lockwashers.

(2) Remove locknut (5), screw (6) and cushion clip (7) from LHS main manifold bracket assembly (4). Discard locknut.

(3) Remove worklight (8) from LHS main manifold bracket assembly (4).

NOTE

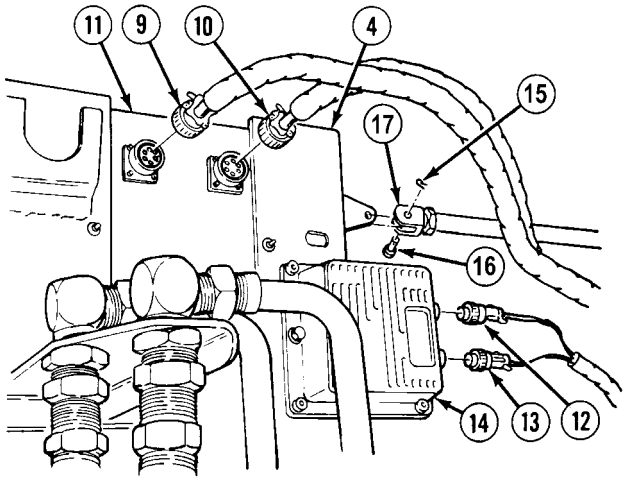
Tag and mark wires prior to removal.

(4) Disconnect MC82 connector (9) and MC85 connector (10) from LHS main junction box (11).

(5) Disconnect MC59 connector (12) and MC73 connector (13) from EPAC controller (14).

(6) Remove cotter pin (15), pin (16) and clevis (17) from LHS main manifold bracket assembly bracket (4). Discard cotter pin.

(7) Position drain pan under LHS main manifold bracket assembly (4).



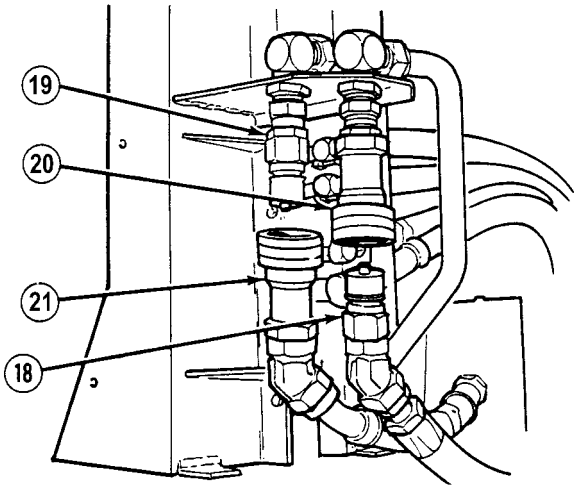
16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

NOTE

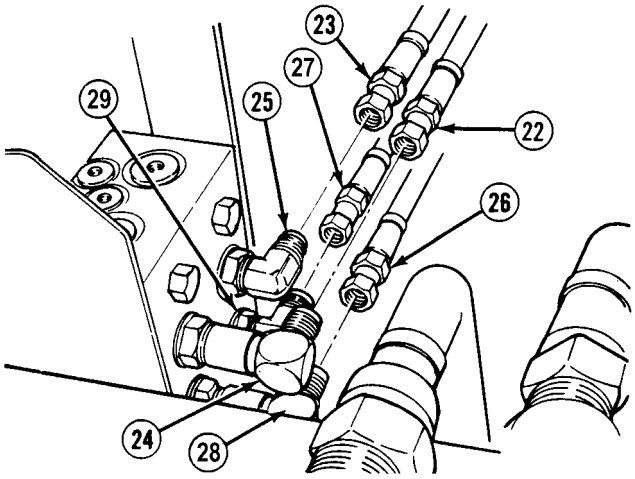
Cap and plug all hoses, tubes and fitting after removal.



(8) Remove couplings (18) and (19) from fittings (20) and (21).

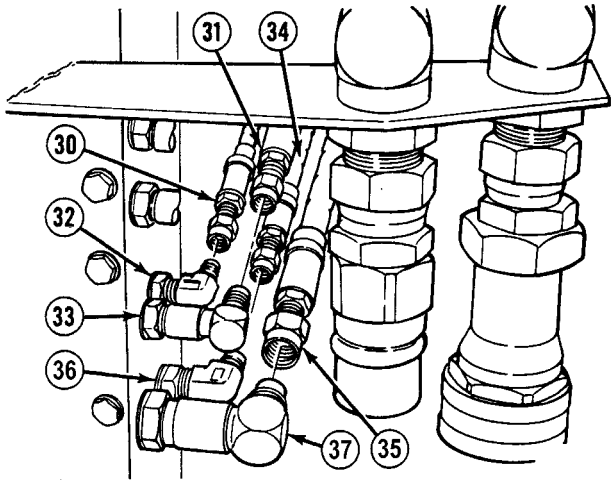
(9) Remove hose 2887 (22) and hose 2588 (23) from elbows (24) and (25).

(10) Remove hose 2888 (26) and hose 2666 (27) from elbows (28) and (29).



(11) Remove hose 2890 (30) and hose 2889 (31) from elbows (32) and (33).

(12) Remove hose 2892 (34) and hose 2891 (35) from elbows (36) and (37).



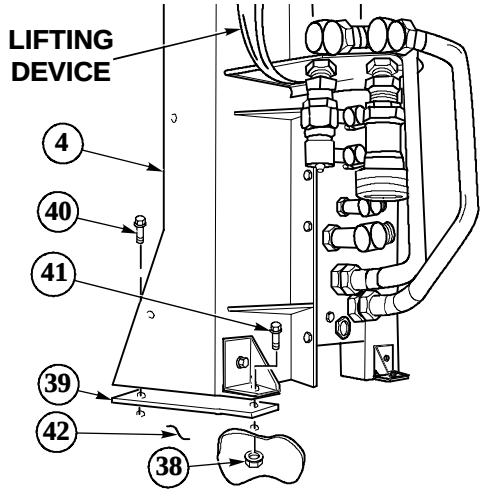
NOTE

Spacer is under left side of LHS main manifold bracket assembly.

(13) Remove four locknuts (38), spacer (39), two screws (40) and screws (41) from LHS main manifold bracket assembly (4). Discard locknuts.

WARNING

LHS main manifold bracket assembly weighs 120 lbs (54 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



(14) Attach lifting device to LHS main manifold bracket assembly (4).

(15) Remove LHS main manifold bracket assembly (4) from fender (42).

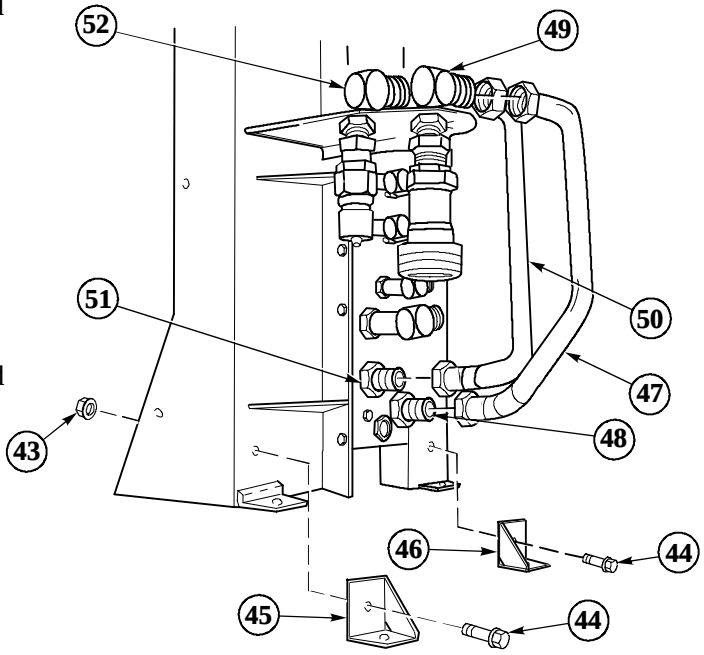
(16) Position LHS main manifold bracket assembly (4) on clean work surface.

(17) Remove lifting device from LHS main manifold bracket assembly (4).

(18) Remove two locknuts (43), screws (44) and brackets (45) and (46). Discard locknuts.

(19) Remove oil tube (47) from fitting (48) and elbow (49).

(20) Remove oil tube (50) from fitting (51) and elbow (52).



16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(21) Remove couplings (53) and (54) and two preformed packings (55) from fittings (56). Discard preformed packings.

(22) Remove two nuts (57), elbow (49) and elbow (52) from bracket (58).

(23) Loosen four screws (59) and remove cover (60) from LHS main junction box (11).

(24) Remove four locknuts (61), screws (62) and LHS main junction box (11) from LHS main manifold assembly (4). Discard locknuts.

(25) Remove eight screws (63), lockwashers (64) and LHS main manifold bracket assembly (4) from hydraulic manifold (65). Discard lockwashers.

(26) Heat screws (66) where installed to LHS main manifold bracket assembly (4) with propane torch.

WARNING

Screws are extremely hot. Do not touch screws without protective gloves or severe burns to hands could result.

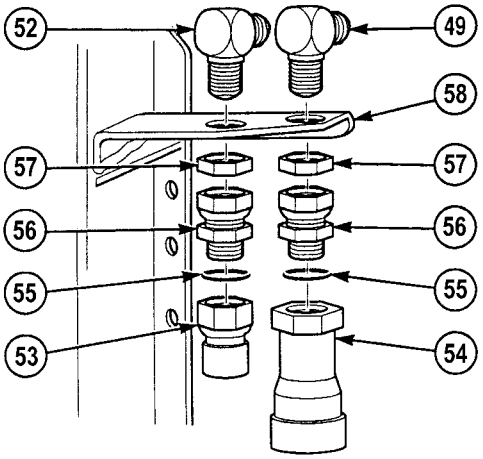
(27) Remove two screws (66), lockwashers (67), washers (68) and spacers (69) from LHS main manifold bracket assembly (4). Discard lockwashers.

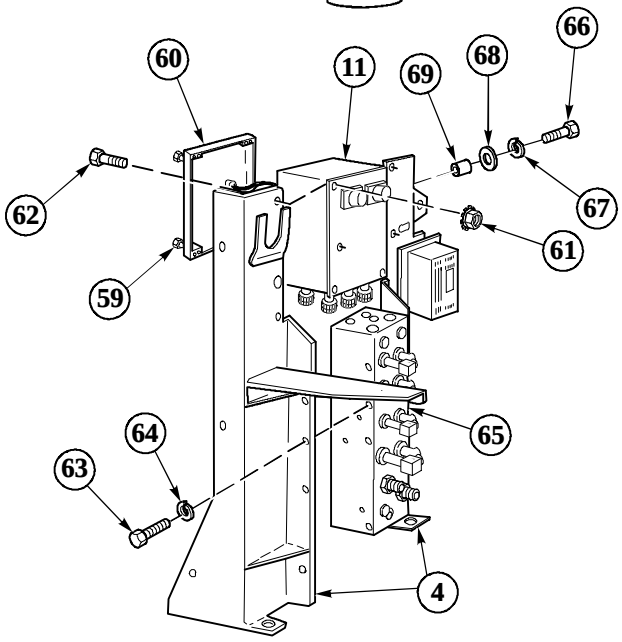
(28) Remove switch (70) and preformed packings (71) and (72) from hydraulic manifold (65). Discard preformed packings.

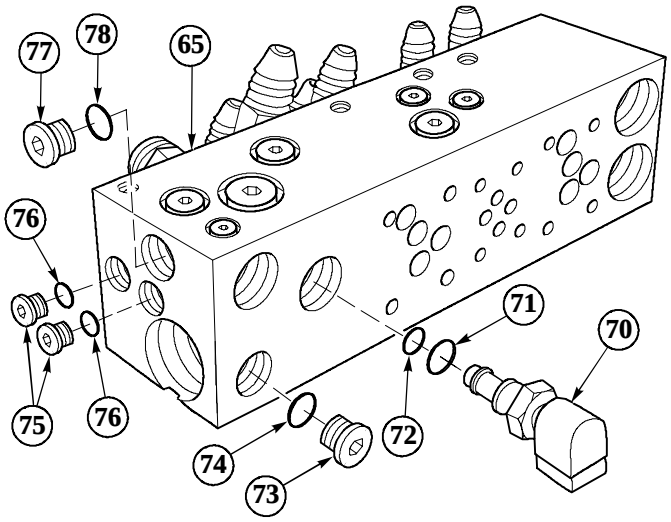
(29) Remove plug (73) and preformed packing (74) from hydraulic manifold (65). Discard preformed packing.

(30) Remove two plugs (75) and preformed packings (76) from hydraulic manifold (65). Discard preformed packings.

(31) Remove plug (77), and preformed packing (78) from hydraulic manifold (65). Discard preformed packing.





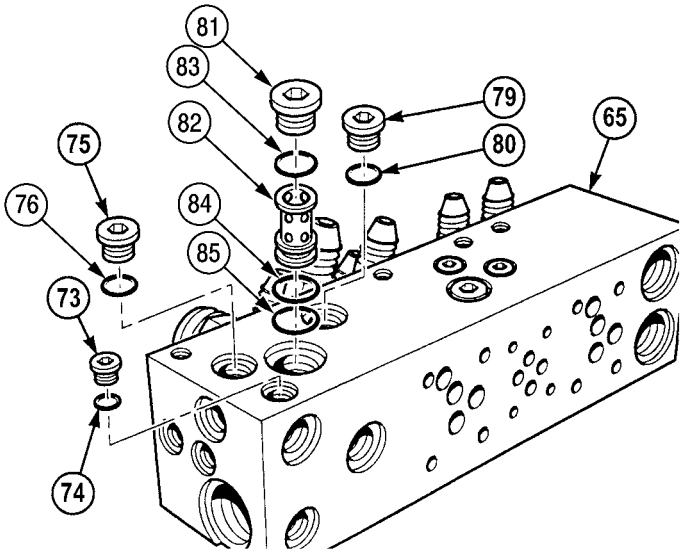


(32) Remove plug (79), and preformed packing (80) from hydraulic manifold (65). Discard preformed packing.

(33) Remove plug (81), check valve (82) and preformed packings (83), (84) and (85) from hydraulic manifold (65). Discard preformed packings.

(34) Remove plug (75) and preformed packing (76) from hydraulic manifold (65). Discard preformed packing.

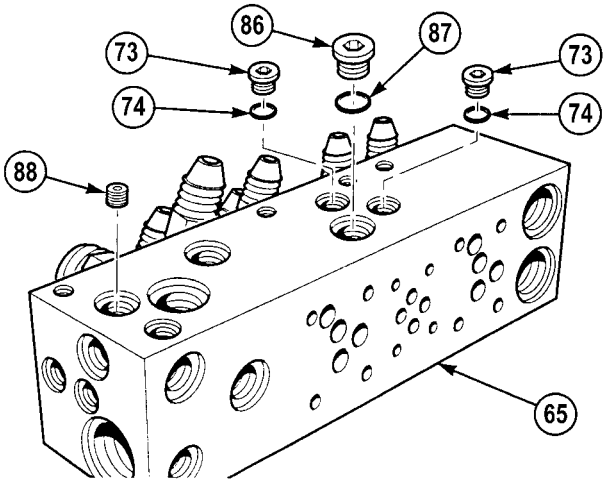
(35) Remove plug (73) and preformed packing (74) from hydraulic manifold (65)



(36) Remove plug (86) and preformed packing (87) from hydraulic manifold (65). Discard preformed packing.

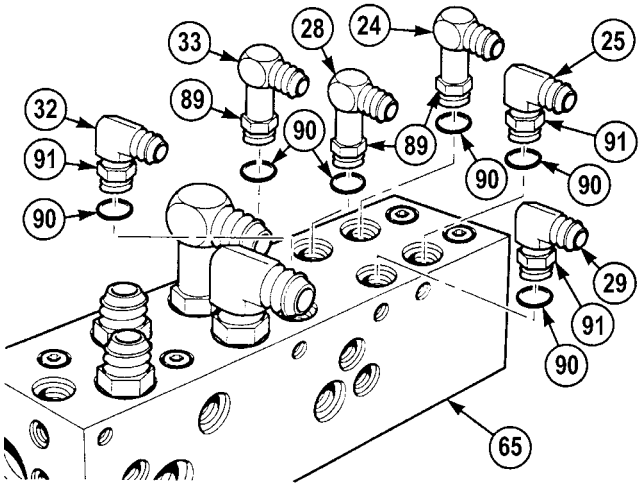
(37) Remove two plugs (73) and preformed packings (74) from hydraulic manifold (65). Discard preformed packings.

(38) Remove orifice plug (88) from hydraulic manifold (65).



(39) Loosen three nuts (89) and remove elbows (24), (28) and (33) and preformed packings (90) from hydraulic manifold (65).

(40) Loosen three nuts (91) and remove elbows (25), (29) and (32) and preformed packings (90) from hydraulic manifold (65). Discard preformed packings.

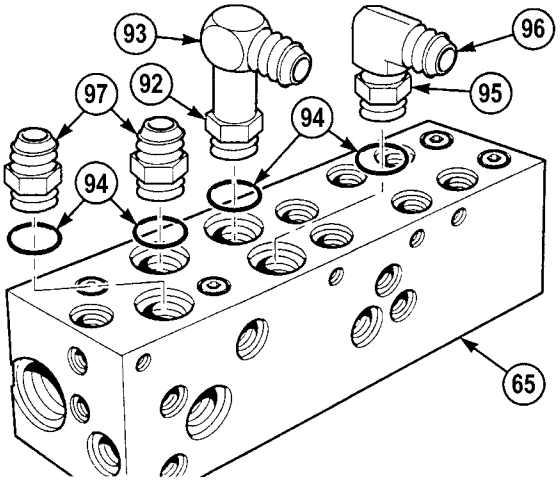


16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

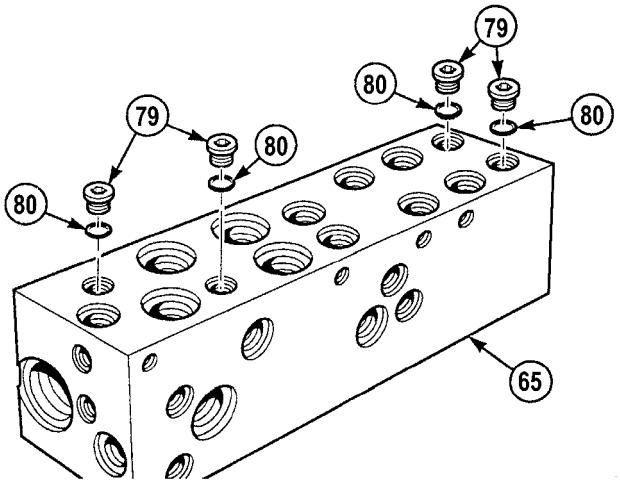
(41) Loosen nut (92) and remove elbow (93) and preformed packing (94) from hydraulic manifold (65). Discard preformed packing.

(42) Loosen nut (95) and remove elbow (96) and preformed packing (94) from hydraulic manifold (65). Discard preformed packing.

(43) Remove two fittings (97) and preformed packings (94) from hydraulic manifold (65). Discard preformed packings.



(44) Remove four plugs (79) and preformed packings (80) from hydraulic manifold (65). Discard preformed packings.

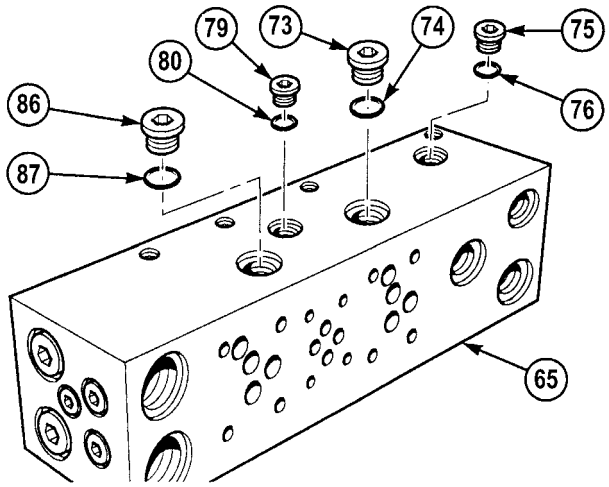


(45) Remove plug (86) and preformed packing (87) from hydraulic manifold (65). Discard preformed packings.

(46) Remove plug (79) and preformed packing (80) from hydraulic manifold (65). Discard preformed packing.

(47) Remove plug (73) and preformed packing (74) from hydraulic manifold (65). Discard preformed packing.

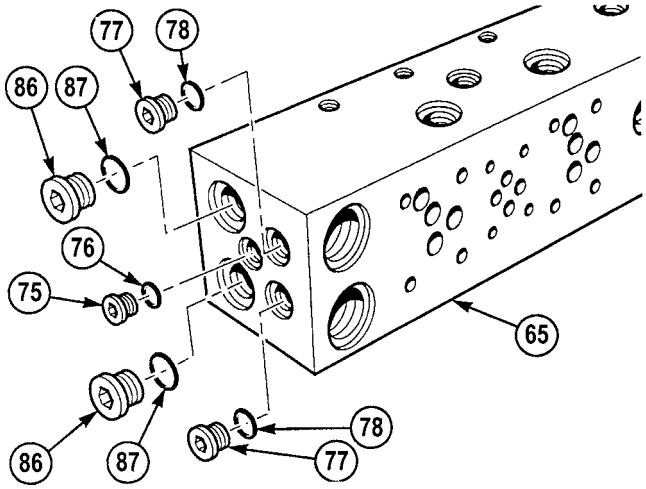
(48) Remove plug (75) and preformed packing (76) from hydraulic manifold (65). Discard preformed packing.



(49) Remove two plugs (77) and preformed packings (78) from hydraulic manifold (65). Discard preformed packings.

(50) Remove plug (75) and preformed packing (76) from hydraulic manifold (65). Discard preformed packing.

(51) Remove two plugs (86) and preformed packings (87) from hydraulic manifold (65). Discard preformed packings.



b. Installation.

(1) Apply hydraulic oil to preformed packing (87).

(2) Install two preformed packings (87) and plugs (86) on hydraulic manifold (65). Tighten to 15 lb-ft (20 N·m).

(3) Apply hydraulic oil to preformed packing (76).

(4) Install preformed packing (76) and plug (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(5) Apply hydraulic oil to preformed packing (78).

(6) Install two preformed packings (78) and plugs (77) on hydraulic manifold (65). Tighten to 30 lb-ft (41 N·m).

16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(7) Apply hydraulic oil to preformed packing (76).

(8) Install preformed packing (76) and plug (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(9) Apply hydraulic oil to preformed packing (74).

(10) Install preformed packing (74) and plug (73) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).

(11) Apply hydraulic oil to preformed packing (80).

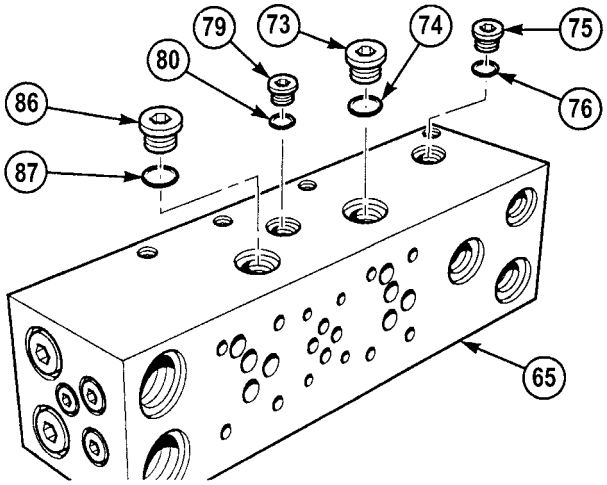
(12) Install preformed packing (80) and plug (79) on hydraulic manifold (65). Tighten to 11 lb-ft (15 N·m).

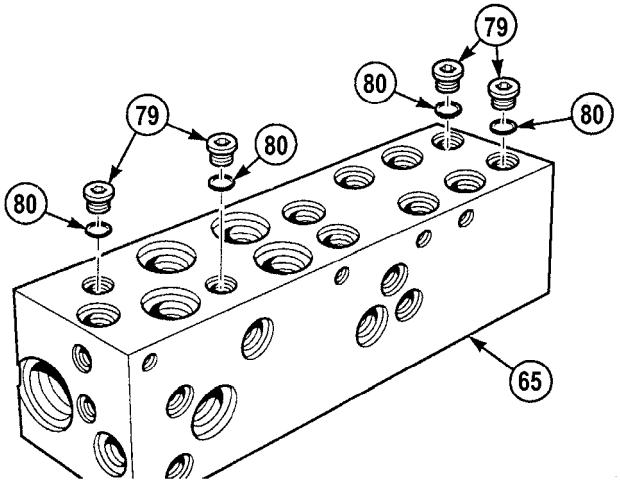
(13) Apply hydraulic oil to preformed packing (87).

(14) Install preformed packing (87) and plug (86) on hydraulic manifold (65). Tighten to 15 lb-ft (20 N·m).

(15) Apply hydraulic oil to four preformed packings (80).

(16) Install four preformed packings (80) and plugs (79) on hydraulic manifold (65). Tighten to 11 lb-ft (15 N·m).





(17) Apply hydraulic oil to two preformed packings (94).

(18) Install two preformed packings (94) and fittings (97) on hydraulic manifold (65).

(19) Apply hydraulic oil to preformed packing (94).

(20) Install preformed packing (94) and elbow (96) on hydraulic manifold (65) and tighten nut (95).

(21) Apply hydraulic oil to preformed packing (93).

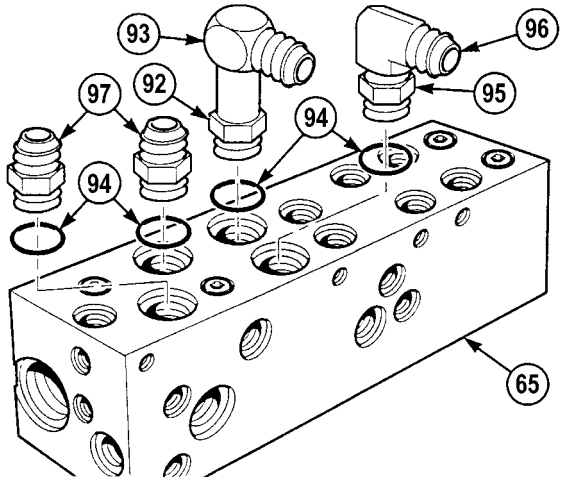
(22) Install preformed packing (94) and elbow (93) on hydraulic manifold (65) and tighten nut (92).

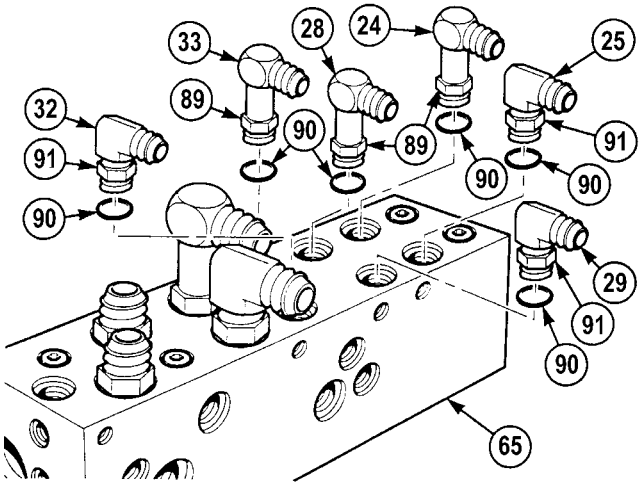
(23) Apply hydraulic oil to three preformed packings (90).

(24) Install three preformed packings (90) and elbows (25), (29) and (32) and tighten nuts (91).

(25) Apply hydraulic oil to three preformed packings (90).

(26) Install three preformed packings (90) and elbows (24), (28) and (33) and tighten nuts (89).





16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

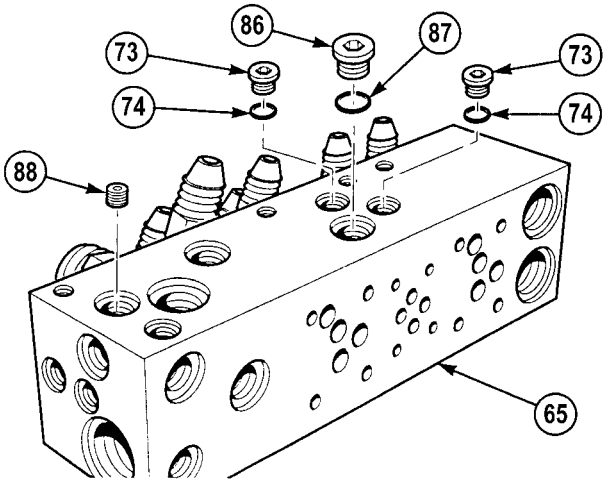
(27) Apply hydraulic oil to two preformed packings (74).

(28) Install two preformed packings (74) and plugs (73) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).

(29) Apply hydraulic oil to preformed packing (87).

(30) Install preformed packing (87) and plug (86) on hydraulic manifold (65). Tighten to 15 lb-ft (20 N·m).

(31) Install orifice plug (88) on hydraulic manifold (65).



(32) Apply hydraulic oil to preformed packing (74).

(33) Install preformed packing (74) and plug (63) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).

(34) Apply hydraulic oil to preformed packing (76).

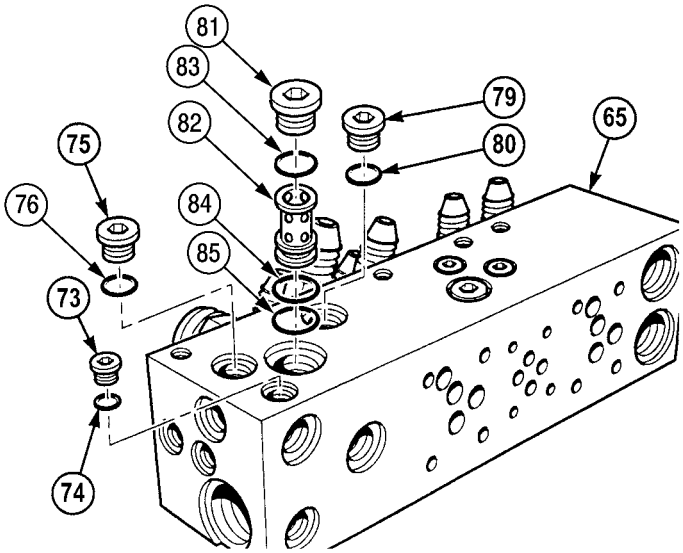
(35) Install preformed packing (76) and plug (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(36) Apply hydraulic oil to preformed packings (83), (84) and (85).

(37) Install preformed packings (83), (84) and (85), check valve (82) and plug (81) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(38) Apply hydraulic oil to preformed packing (80).

(39) Install preformed packing (80) and plug (79) on hydraulic manifold. Tighten to 11 lb-ft (15 N·m).



(40) Apply hydraulic oil to preformed packing (78).

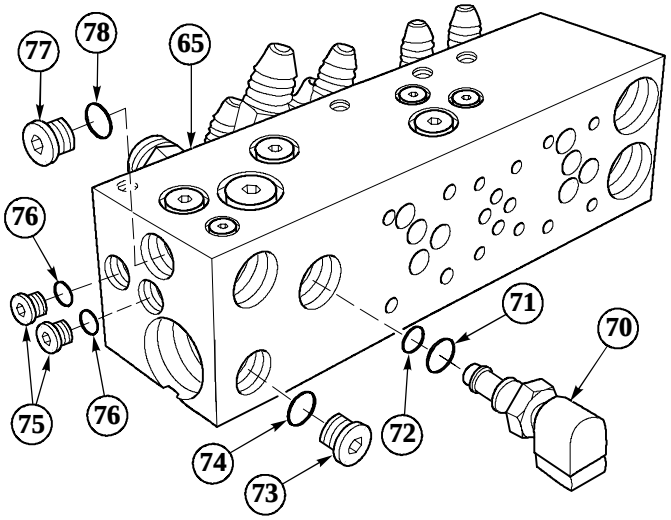
(41) Install preformed packing (78) and plug (77) on hydraulic manifold (65). Tighten to 30 lb-ft (41 N·m).

(42) Apply hydraulic oil to two preformed packings (76).

(43) Install two preformed packings (76) and plugs (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(44) Apply hydraulic oil to preformed packing (74).

(45) Install preformed packing (74) and plug (73) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).



(46) Apply hydraulic oil to preformed packings (71) and (72).

(47) Install preformed packings (71) and (72) and switch (70) on hydraulic manifold (65). Tighten to 20 lb-ft (27 N·m).

(48) Install hydraulic manifold (65) on left and right LHS main manifold brackets assembly (4) with eight lockwashers (64) and screws (63).

WARNING

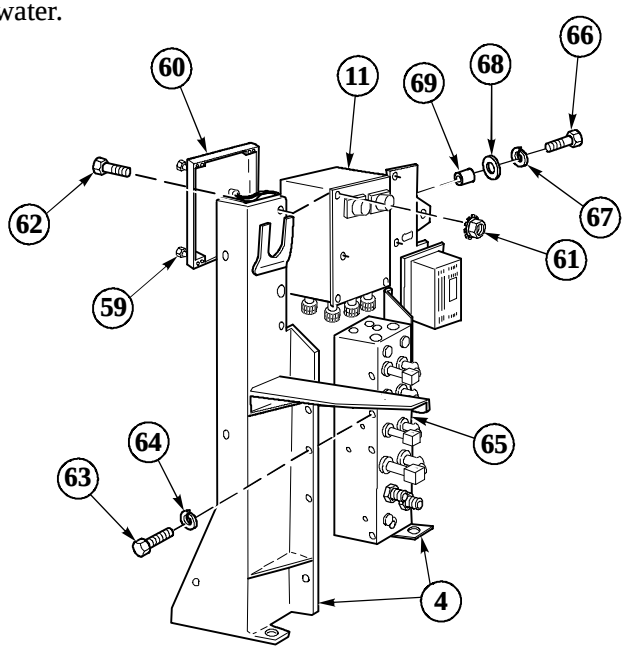
Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(49) Coat threads of screws (66) with sealing compound.

(50) Install two spacers (69), washers (68), lockwashers (67) and screws (66) on LHS main manifold assembly (4). Tighten to 13 lb-ft (18 N·m).

(51) Install LHS main junction box (11) on LHS main manifold assembly (4) with four locknuts (61) and screws (62). Tighten to 21 lb-in (3 N·m).

(52) Install cover (60) on LHS main junction assembly (4) and tighten screws (59).

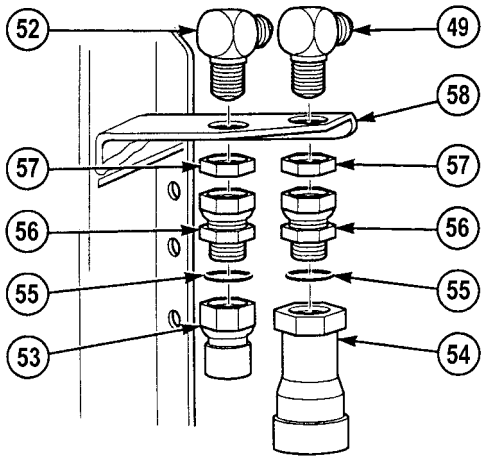


16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(53) Install elbows (49) and (52) on bracket (58) with nuts (57).

(54) Apply hydraulic oil to two preformed packings (55).

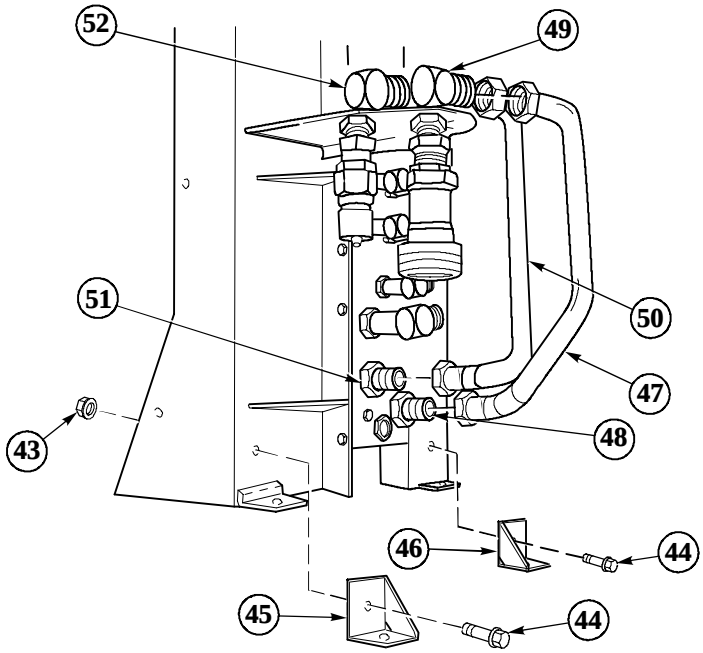
(55) Install two preformed packings (55) fittings (56) and couplings (53) and (54) on elbows (49) and (52).



(56) Install oil tube (50) on fitting (51) and elbow (52).

(57) Install oil tube (47) on fitting (48) and elbow (49).

(58) Install brackets (45) and (46) with screws (44) and two locknuts (43). Tighten to 23 lb-ft (31 N·m).



WARNING

LHS main manifold bracket assembly weights 120 lbs (54 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(59) Attach lifting device to LHS main manifold bracket assembly (4).

(60) Position LHS main manifold bracket assembly (4) on fender (42).

NOTE

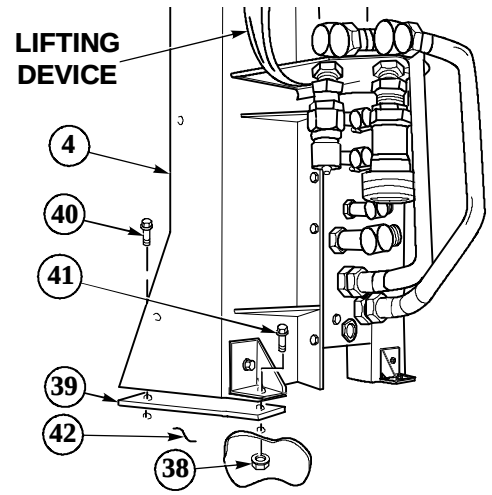
Spacer is installed under left side of main manifold bracket assembly.

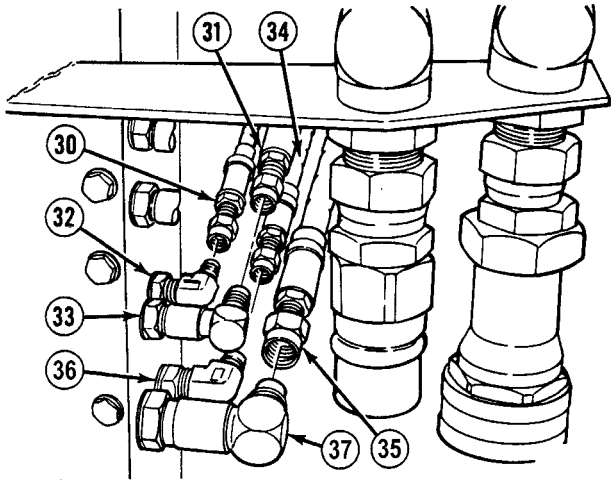
(61) Install spacer (39), two screws (40), screws (41) and four locknuts (38) on LHS main manifold bracket assembly (4) and fender (42). Tighten to 23 lb-ft (31 N·m).

(62) Remove lifting device from LHS main manifold bracket assembly (4).

(63) Install hose 2892 (34) and hose 2891 (35) on elbows (36) and (37).

(64) Install hose 2890 (30) and hose 2889 (31) on elbows (32) and (33).

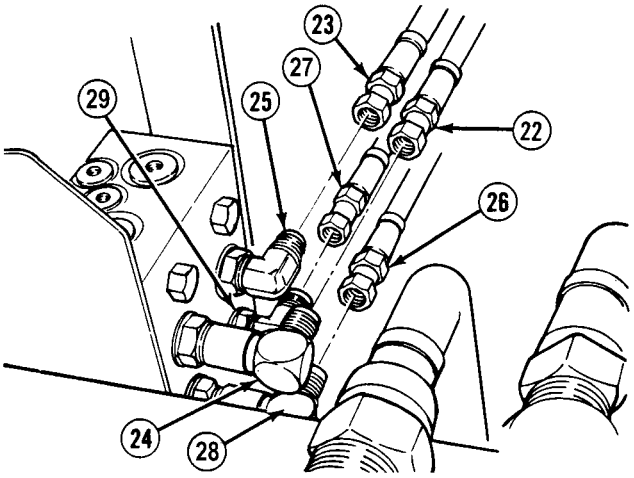




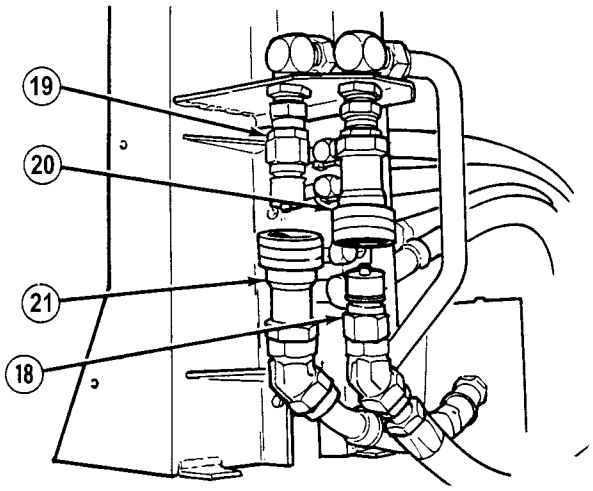
16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(65) Install hose 2888 (26) and hose 2588 (27) on elbows (28) and (29).

(66) Install hose 2887 (22) and hose 2588 (23) on elbows (24) and (25).



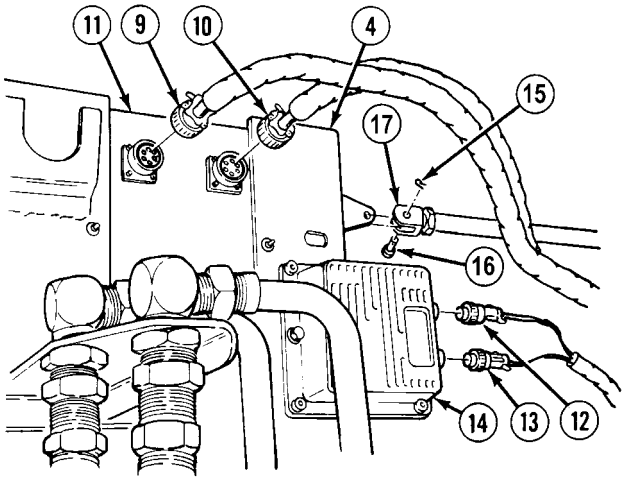
(67) Install couplings (18) and (19) on fittings (20) and (21).



(68) Install clevis (17), pin (16) and cotter pin (15) on bracket (4).

(69) Connect MC59 connectors (12) and MC73 connector (13) on EPAC controller (11).

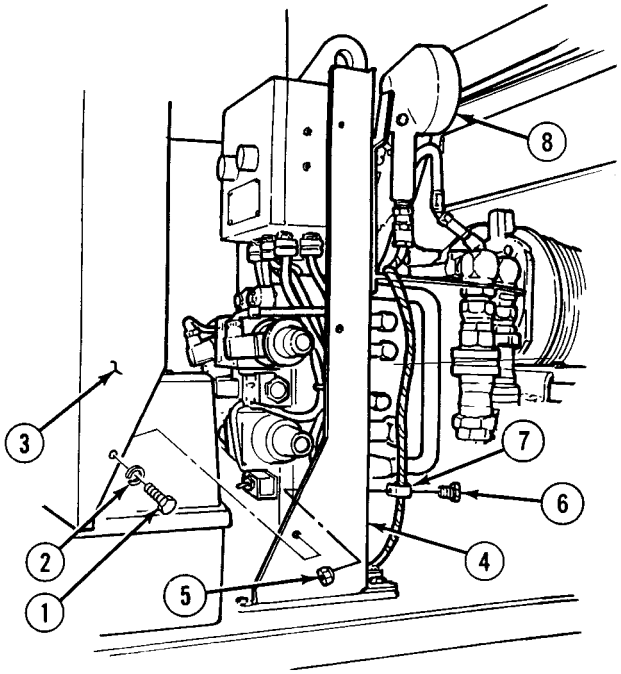
(70) Connect MC82 connectors (9) and MC85 connector (10) on LHS main junction box (11).



(71) Install cover (3), four lockwashers (2) and screws (1) on LHS main manifold bracket assembly (4).

(72) Install cushion clip (7) on LHS main manifold bracket assembly (4) with screw (6) and locknut (5).

(73) Install worklight (8) on LHS main manifold bracket assembly (4).



c. Follow-On Maintenance.

- Install LHS transit valve, (Para 17-11).
- Install LHS directional control valve, (Para 17-10).
- Install LHS solenoid valve and coil, (Para 17-9).
- Install LHS main manifold relief valve, (Para 17-8).
- Install LHS check valve, (Para 17-7).
- Install LHS main manifold load control valve, (Para 17-6).
- Connect batteries, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

Section V. CONTAINER HANDLING UNIT MAINTENANCE

16-44. CONTAINER HANDLING UNIT (CHU) PIVOT REPAIR.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

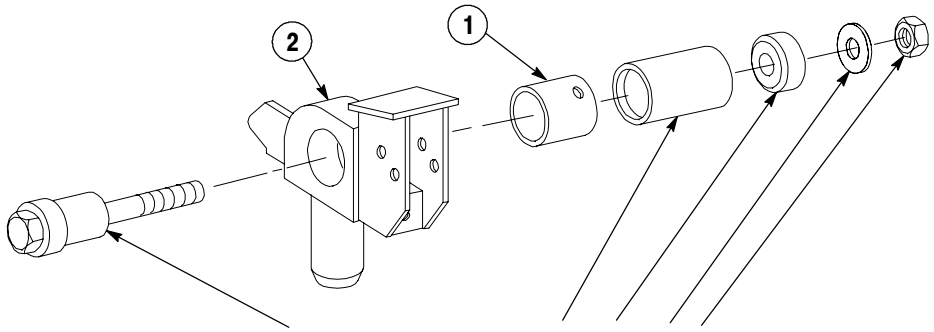
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Press, 60 Ton (Item 164, Appendix F)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)

Materials/Parts
Grease (Item 22, Appendix B)
Sealing Compound (Item 58, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)

Equipment Condition
Pivot removed, (TM 9-2320-364-20)

a. Removal



REMOVAL/INSTALLATION TOOL

NOTE

Left side and right side pivots are identical. Right side is shown.

(1) Using removal/installation tool (six pieces), remove bushing (1) from slider pivot (2).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

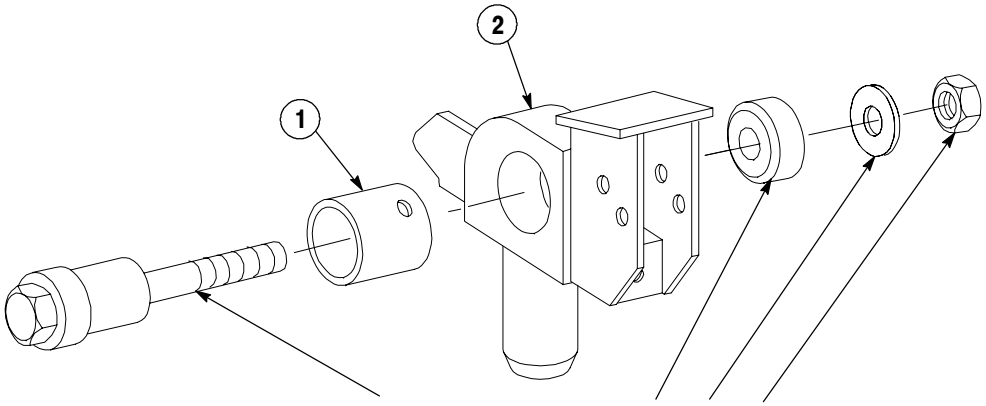
(2) Dry parts with compressed air.

(3) Inspect parts for breaks, cracks, burrs and sharp edges. Look for unusual signs of wear on pivot.

(4) Replace all damaged parts.

16-44. CONTAINER HANDLING UNIT (CHU) PIVOT REPAIR (CONT).

c. Installation.



REMOVAL/INSTALLATION TOOL

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Left side and right side pivot are identical. Right side is shown.
- Apply light coat of grease to threads of removal/installation tool prior to use.

(1) Apply light coat of sealing compound to bushing (1).

(2) Align hole in bushing (1) with grease fitting hole in slider pivot (2) and using removal/installation tool (six pieces), install bushing into slider pivot.

d. Follow-On Maintenance:

- Install pivot, (TM 9-2320-364-20).

END OF TASK

16-45. CONTAINER HANDLING UNIT (CHU) SLIDER ARM BUSHING REPLACEMENT.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Press, 60 Ton (Item 164, Appendix F)
Puller Kit, Universal (Item 174, Appendix F)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)

Materials/Parts
Sealing Compound (Item 58, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)

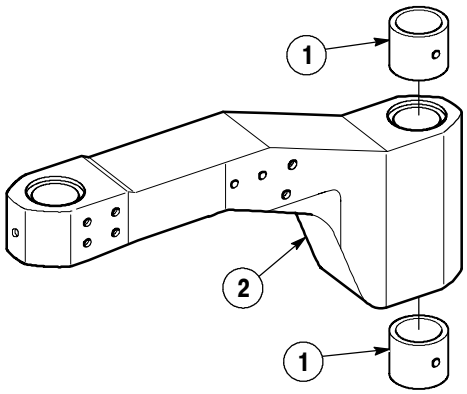
Equipment Condition
Slider arm removed, (TM 9-2320-364-20)

a. Removal

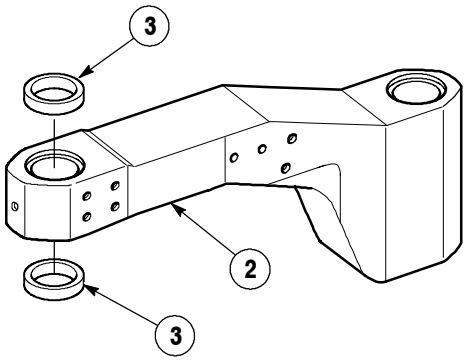
NOTE

There are two arm assemblies. Right side is shown.

(1) Using puller kit, remove two bushings (1) from large end of arm assembly (2).



(2) Using removal/installation tool (six pieces), remove two bushings (3) from arm assembly (2).



16-45. CONTAINER HANDLING UNIT (CHU) SLIDER ARM BUSHING REPLACEMENT (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

(2) Dry parts with compressed air.

(3) Inspect parts for breaks, cracks, burrs and sharp edges. Look for unusual signs of wear on arm.

(4) Replace all damaged parts.

c. Installation.

WARNING

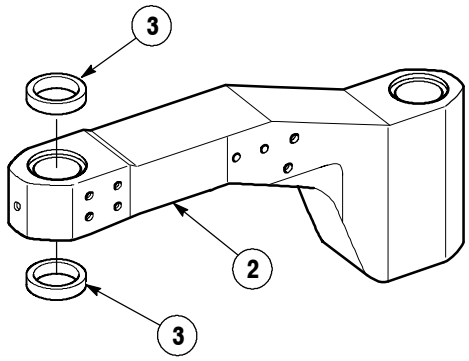
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

There are two arm assemblies. Right side is shown.

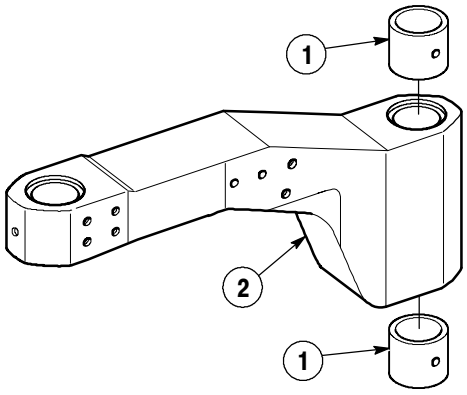
(1) Apply sealing compound to two bushings (3).

(2) Using removal/installation tool, install two bushings (3) in arm assembly (2) flush with outer surface.



(3) Apply sealing compound to two bushings (1).

(4) Using removal/installation tool and press, install two bushings (1) in arm assembly (2) flush with outer surface.



d. Follow-On Maintenance:

- Install slider arm, (TM 9-2320-364-20).

END OF TASK

16-46. CONTAINER HANDLING UNIT (CHU) LIFTING FRAME LOWER CONTAINER LOCK HANDLE REPAIR.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Brush, Wire, Scratch (Item 23, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable (Item 49, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Air Blow (Item 86, Appendix F)
Respirator, Air Filter (Item 195, Appendix F)
Sander, Portable, Disk Electric (Item 198, Appendix F)
Welder, Arc (Item 251, Appendix F)

Materials/Parts
Grease, General Purpose (Item 22, Appendix B)

References
TC 9-237

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Lifting frame removed from truck, (TM 9-2320-364-10).
Lower container lock plate removed, (TM 9-2320-364-20)

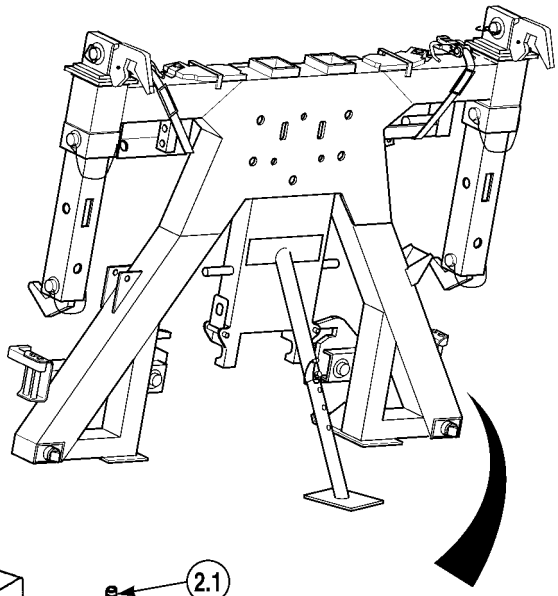
a. Removal.

WARNING

- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production and chest tightness. The following precautions must be taken whenever using CARC paint:
- NEVER weld or cut CARC-coated materials.

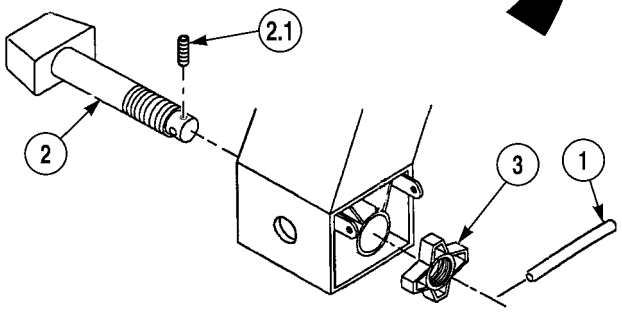
NOTE

- There are two lower container lock handles. Both are removed the same way. Right side is shown.
- There are two types of ISO locks. Type A has the handle welded to stem. Type B has the handle secured to stem by setscrew.
- Perform Steps (1) and (2) for Type A.
- Perform Steps (2.1) and (2.2) for Type B.



(1) Using a wire scratch brush, remove CARC paint from area around welding between handle (1) and stem (2).

(2) Grind off weld from handle (1) and remove from stem (2). Discard handle.



(2.1) Remove setscrew (2.1) from stem (2).

(2.2) Remove handle (1) from stem (2).

NOTE

For Type A only, grind stem as necessary to remove handnut.

(3) Remove handnut (3) from stem (2).

WARNING

Use extreme care when compressing, releasing, removing, or installing springs. Springs are under tension and can act as projectiles when released. Ensure proper eye protection is worn to prevent injury to personnel.

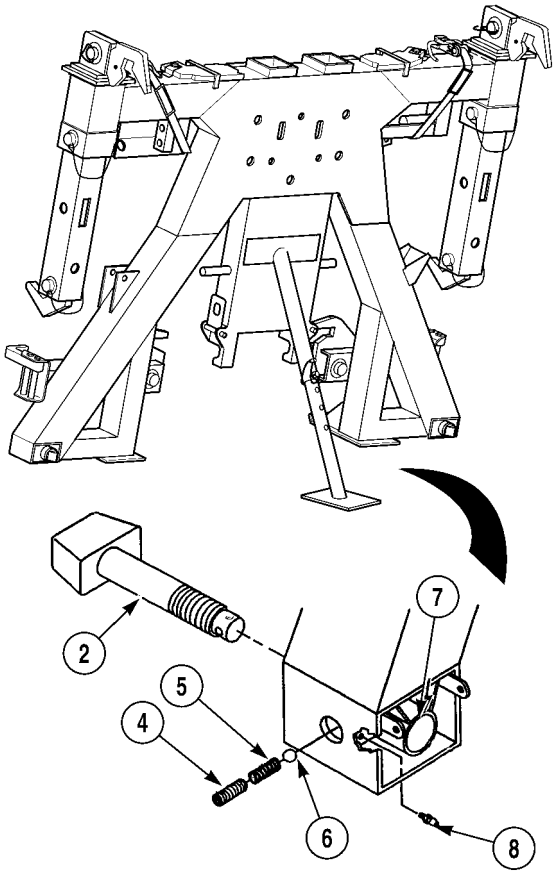
(4) Remove setscrew (4), spring (5) and ball (6) from container lock (7).

(5) Remove stem (2) from container lock (7).

NOTE

Perform Step (6) if grease fitting is damaged.

(6) Remove grease fitting (8) from container lock (7).



16-46. CONTAINER HANDLING UNIT (CHU) LIFTING FRAME LOWER CONTAINER LOCK HANDLE REPAIR (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

(2) Dry parts with compressed air.

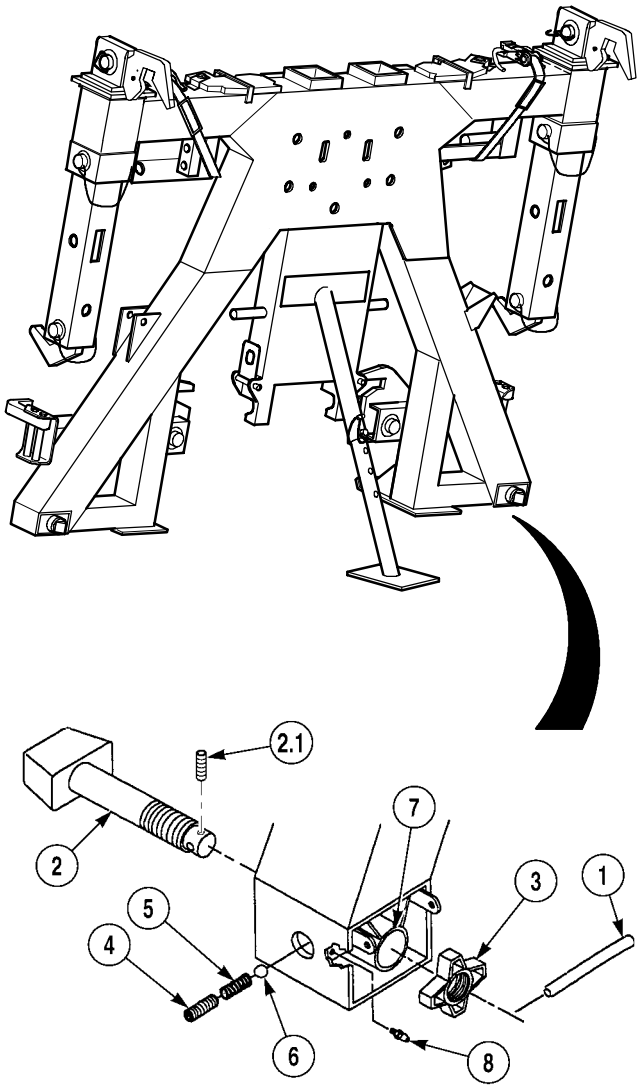
(3) Inspect parts for breaks, cracks, burrs and sharp edges.

(4) Replace all damaged parts.

c. Installation.

NOTE

- There are two lower container lock handles. Both are installed the same way. Right side is shown.
- Perform Step (1) if grease fitting was removed.
- There are two types of ISO locks. Type A has the handle welded to stem. Type B has the handle secured to stem by setscrew.
- Perform Step (4.1) for Type B.
- Perform Step (5) for Type A.



(1) Install grease fitting (8) in container lock (7).

(2) Position stem (2) in container lock (7).

(3) Position handnut (3) on stem (2).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(4) Position handle (1) in stem (2).

(4.1) Install setscrw (2.1) in stem (2) and handle (1).

(5) Tack weld handle (1) to stem (2) in accordance with TC 9-237.

NOTE

Setscrew is properly installed when head is flush with container lock.

(6) Install ball (6), spring (5) and setscrew (4) in container lock (7).

d. Follow-On Maintenance:

- Lubricate lower container lock, (TM 9-2320-364-10).
- Lower container lock plate installed, (TM 9-2320-364-20).
- Install lifting frame on truck, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-47. CONTAINER HANDLING UNIT (CHU) RAIL TRANSPORT ISO CORNER LOCKS REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Brush, Wire, Scratch (Item 23, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable (Item 49, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Air Blow (Item 86, Appendix F)
Respirator, Air Filter (Item 195, Appendix F)
Sander, Portable, Disk Electric (Item 198, Appendix F)
Welder, Arc (Item 251, Appendix F)

Materials/Parts
Grease, General Purpose (Item 22, Appendix B)

References
TC 9-237

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

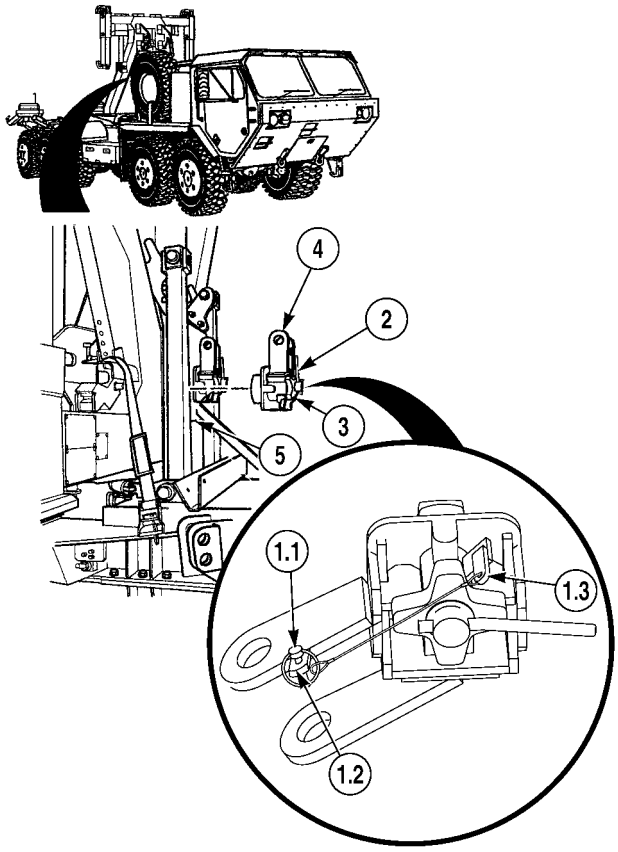
a. Removal.

NOTE

There are two rail transport ISO corner locks. Both are removed the same way. Right side is shown.

(1) Remove lock pin (1.1) from bracket (1.2) and lift pin (1.3) to unlock lock handle (2).

(2) Loosen handnut (3), rotate handle (2) 90 degrees and remove ISO corner lock (4) from stow weldment (5).



b. Disassembly.

WARNING

- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production and chest tightness. The following precautions must be taken whenever using CARC paint:
- NEVER weld or cut CARC-coated materials.

NOTE

- There are two lower container lock handles. Both are removed the same way. Right side is shown.
- Type A has the handle welded to stem. Type B has the handle secured to stem by a setscrew.
- Perform Steps (1.1) and (2) for Type A.
- Perform Steps (2.1) and (2.2) for Type B.

(1) Remove wire rope (1.1) from pin (1.2) and remove lock pin (1.3).

(1.1) Using a wire scratch brush, remove CARC paint from area around welding between handle (1.4) and stem (2).

(2) Grind off weld from handle (1.4) and remove from stem (2). Discard handle.

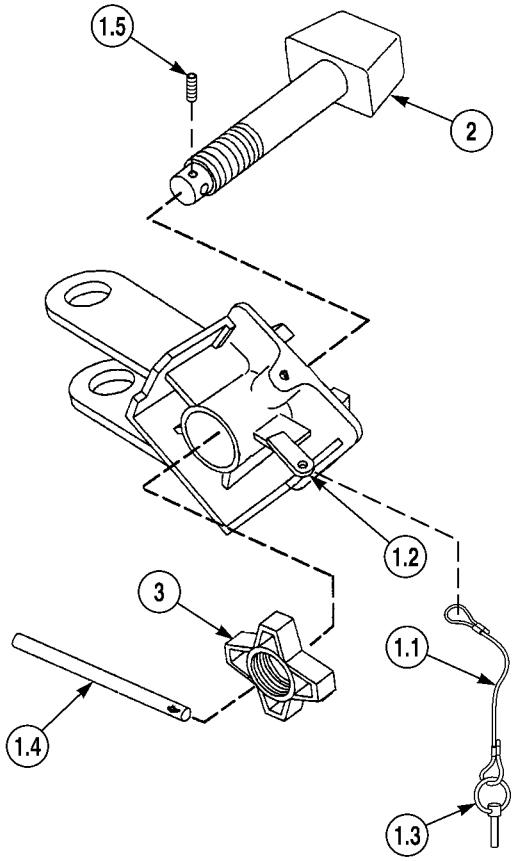
NOTE

For Type A only, grind stem as necessary to remove handnut.

(2.1) Remove setscrew (1.5) from stem (2).

(2.2) Remove handle (1.4) from stem (2). Discard handle.

(3) Remove handnut (3) from stem (2).

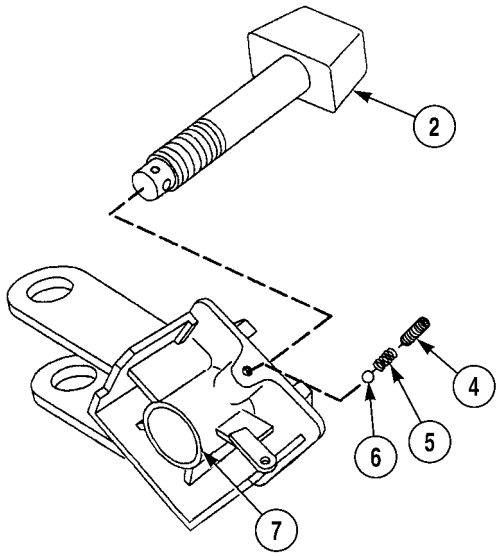


WARNING

Use extreme care when compressing, releasing, removing, or installing springs. Springs are under tension and can act as projectiles when released. Ensure proper eye protection is worn to prevent injury to personnel.

(4) Remove setscrew (4), spring (5) and ball (6) from container (7).

(5) Remove stem (2) from container lock (7).



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

(2) Dry parts with compressed air.

(3) Inspect parts for breaks, cracks, burrs and sharp edges.

(4) Replace all damaged parts.

d. Assembly.

NOTE

- There are two lower container lock handles. Both are installed the same way. Right side is shown.
- Type A has the handle welded to stem. Type B has the handle secured to stem by a setscrew.
- Perform Step (4) for Type A.
- Perform Step (4.1) for Type B.

(1) Position stem (2) in container lock (7).

(2) Position handnut (3) on stem (2).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(3) Position handle (1.4) in stem (2).

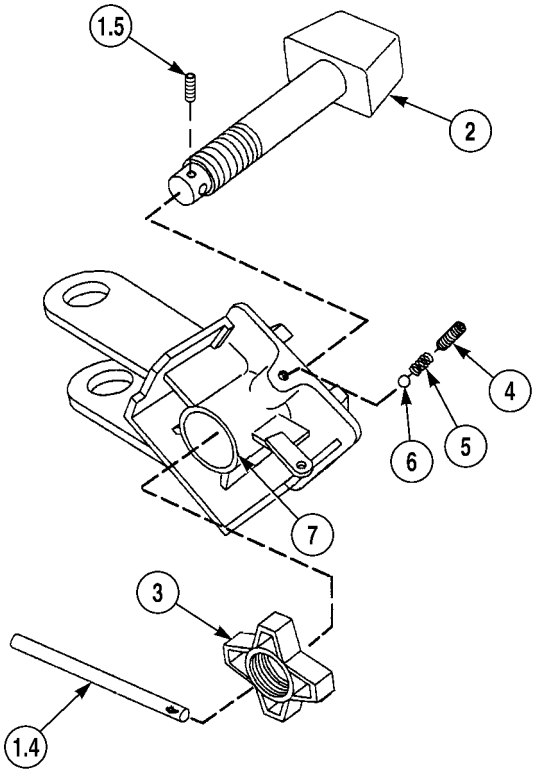
(4) Tack weld handle (1.4) to stem (2) in accordance with TC 9-237.

NOTE

Setscrew is properly installed when head is flush with container lock.

(4.1) Secure handle (1.4) to stem (2) using setscrew (1.5).

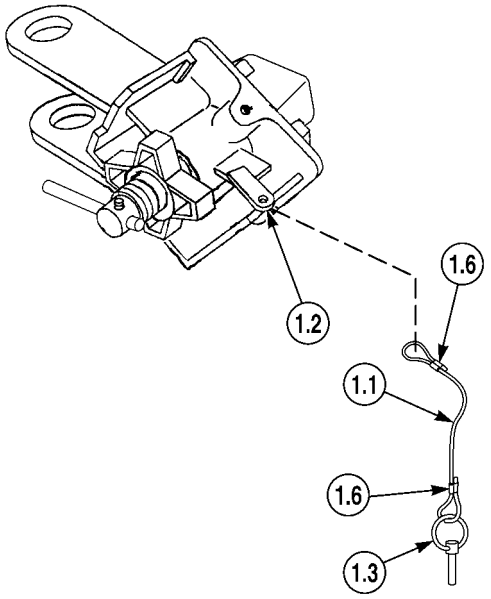
(5) Install ball (6), spring (5) and setscrew (4) in container lock (7).



WARNING

Ensure wire rope is crimped so the length is just long enough to insert locking pin in bracket with the pin down, allowing a maximum of 1/4 turn of the handnut.

(6) Crimp wire rope (1.1) to pin (1.2) and lock pin (1.3) using swaging sleeves (1.6).



16-47. CONTAINER HANDLING UNIT (CHU) RAIL TRANSPORT ISO CORNER LOCKS REPAIR (CONT).

e. Installation

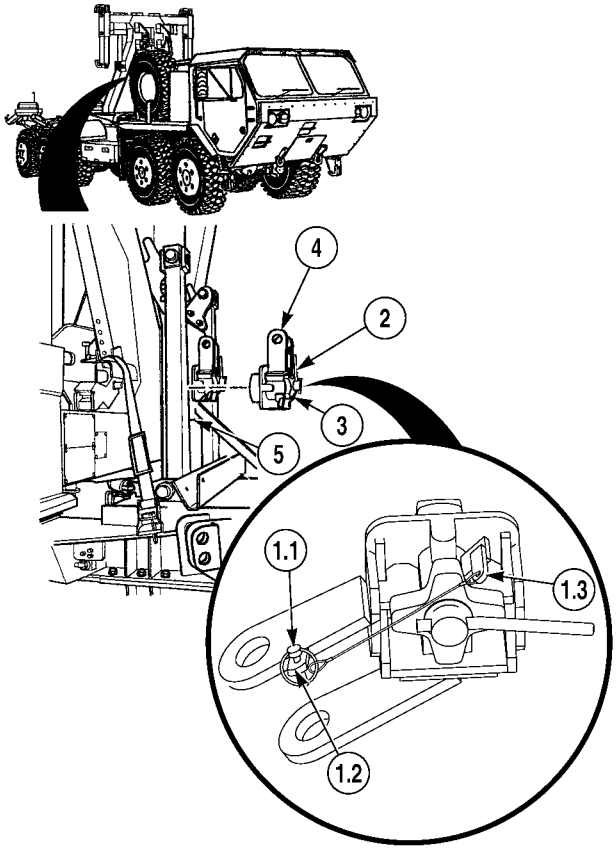
NOTE

There are two rail transport corner ISO locks. Both are installed the same way. Right side is shown.

(1) Install ISO corner lock (4) on stow weldment (5) and rotate handle (2) 90 degrees.

(2) Tighten handnut (3) and rotate pin (1.3) to lock handle (2).

(2.1) Install lock pin (1.1) in bracket (1.2).



f. Follow-On Maintenance:

- Lubricate ISO lock, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 17

HYDRAULIC SYSTEM MAINTENANCE

17-1. DIRECT SUPPORT HYDRAULIC SYSTEM MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing, and servicing hydraulic system components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

17-2. MAIN HYDRAULIC PUMP REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Adapter, Socket (3/4 in. male to 1/2 in. female)
(Item 8, Appendix F)
Adapter, Socket (3/8 in. male to 1/4 in. female)
(Item 11, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Puller Kit, Universal (Item 174, Appendix F)
Puller Kit, Pump, Roof Mount
(Item 176, Appendix F)
Winch, Cable, Hand Operated
(Item 252, Appendix F)
Wrench, Pipe 3-1/2 in. Opening
(Item 271, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (175 lb-ft [237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 300 lbs
(136 kg)
Installer, Seal (Appendix C)

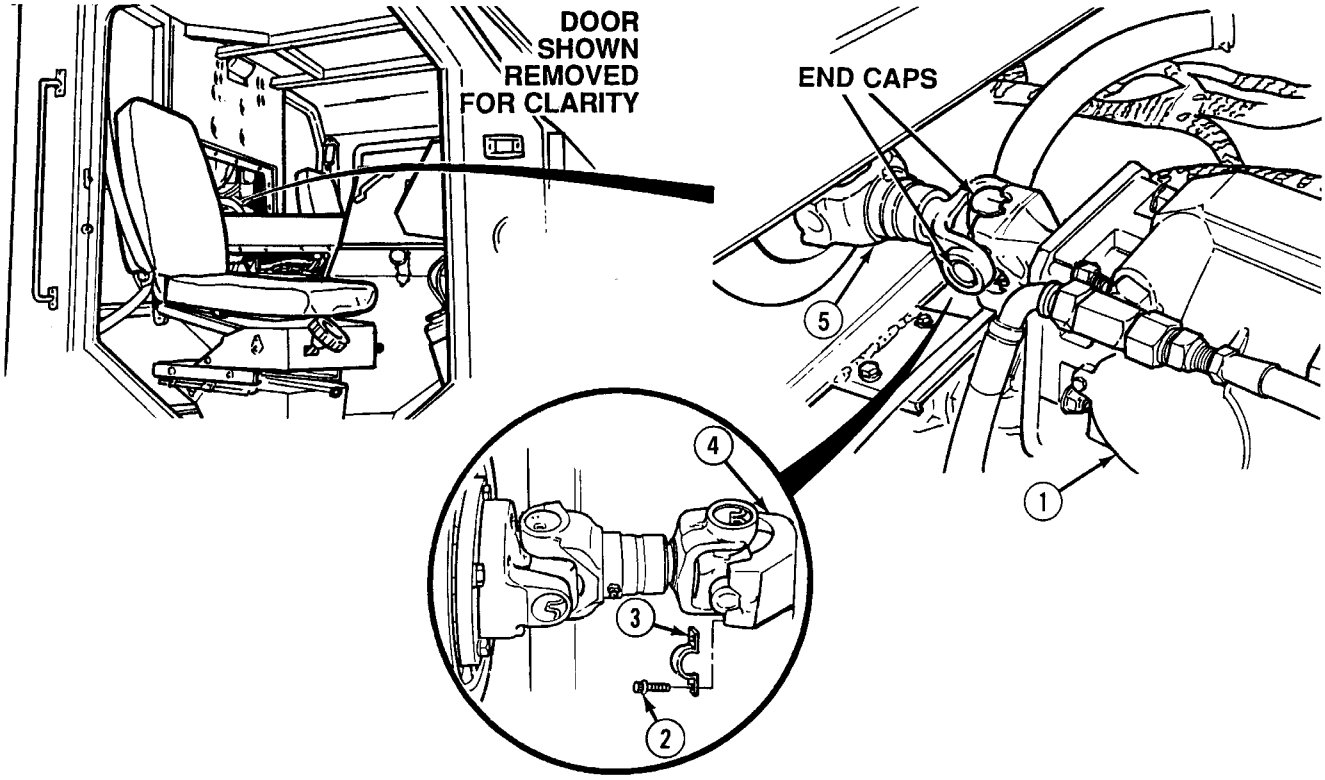
Materials/Parts
Cable Ties (Item 9, Appendix B)
Grease (Item 21, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Rope, 3/4 in thick, 20 ft (Item 48, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts
Tags, Identification (Item 72, Appendix B)
Tape, Masking (Item 73, Appendix B)
Locknut (4) (Item 165, Appendix E)
Locknut (4) (Item 166, Appendix E)
Lockwasher (8) (Item 251, Appendix E)
Lockwasher (11) (Item 255, Appendix E)
Packing, Preformed (8) (Item 338, Appendix E)
Packing, Preformed (Item 342, Appendix E)
Packing, Preformed (3) (Item 354, Appendix E)
Packing, Preformed (Item 361, Appendix E)
Packing, Preformed (Item 362, Appendix E)
Packing, Preformed (8) (Item 385, Appendix E)
Packing, Preformed (3) (Item 450, Appendix E)
Ring, Retaining (2) (Item 497, Appendix E)
Ring, Retaining (Item 498, Appendix E)
Screw, Tapping (2) (Item 562, Appendix E)
Seal (2) (Item 569, Appendix E)
Seal (Item 571, Appendix E)
Washer, Seal (2) (Item 695, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hydraulic reservoir drained,
(TM 9-2320-364-20)
Electrical Control Box (ECB) removed,
(TM 9-2320-364-20)
Steering reservoir drained, (TM 9-2320-364-20)
Cab engine access panel removed,
(TM 9-2320-364-20)

a. Removal.



CAUTION

Universal joint end caps may fall off during Step (2). Ensure caps stay with driveshaft. Failure to comply may result in damage to equipment.

NOTE

- Tag and mark hoses prior to removal.
- Note location and position of adapters, elbows and tees prior to removal.
- Cap and plug all hoses and fittings after removal.
- Remove cable ties as required.

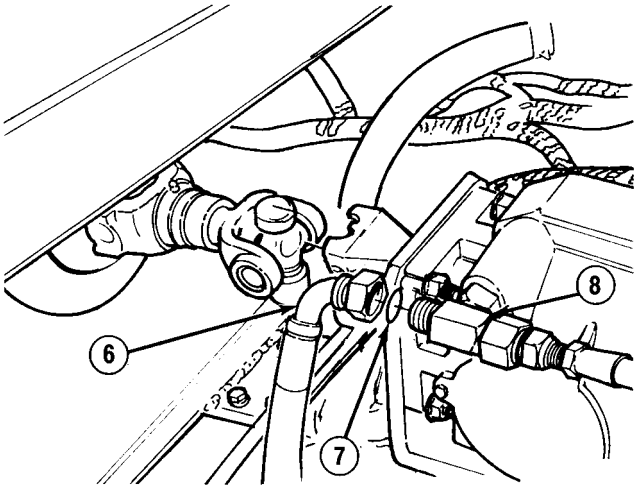
(1) Position drain pan under main hydraulic pump (1).

(2) Remove four screws (2), and two straps (3) from end yoke (4).

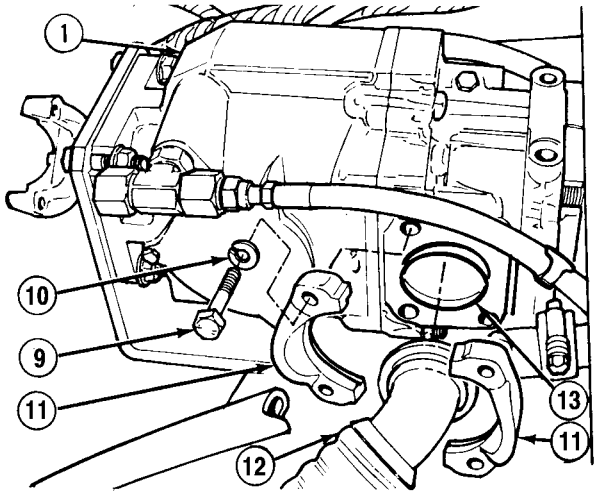
(3) Remove driveshaft (5) from end yoke (4) and position driveshaft out of way.

17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(4) Remove hose 2781 (6) and preformed packing (7) from tee (8). Discard preformed packing.

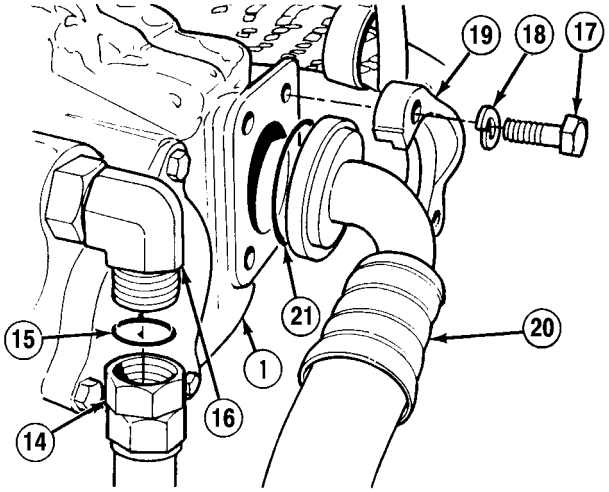


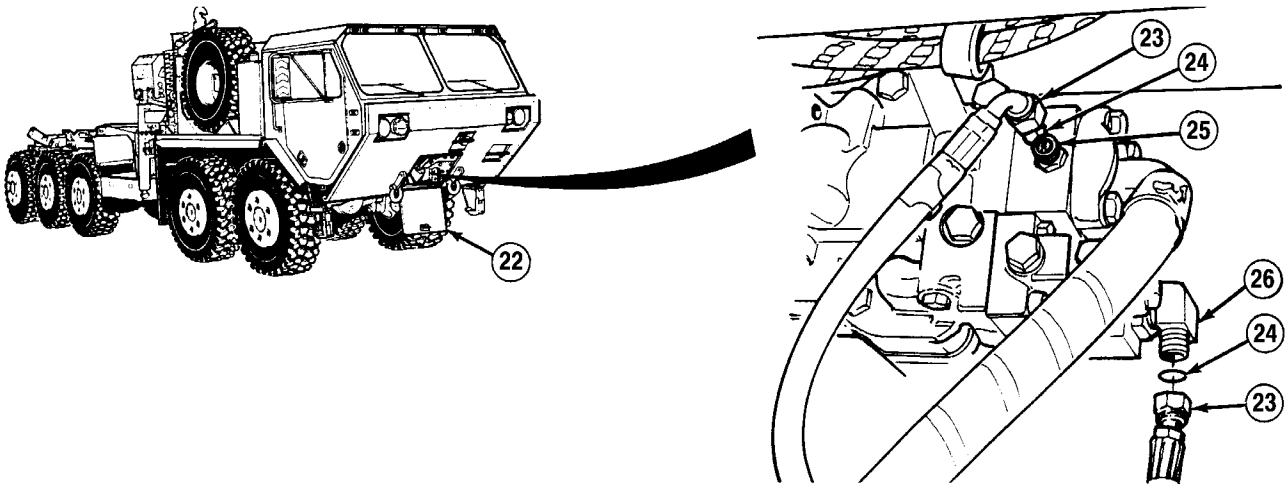
(5) Remove four screws (9), lockwashers (10), split flanges (11), hose 2498 (12) and preformed packing (13) from main hydraulic pump (1). Discard lockwashers and preformed packing.



(6) Remove hose 2701 (14) and preformed packing (15) from elbow (16). Discard preformed packing.

(7) Remove four screws (17), lockwashers (18), two split flanges (19), hose 2278 (20) and preformed packing (21) from main hydraulic pump (1). Discard lockwashers and preformed packing.



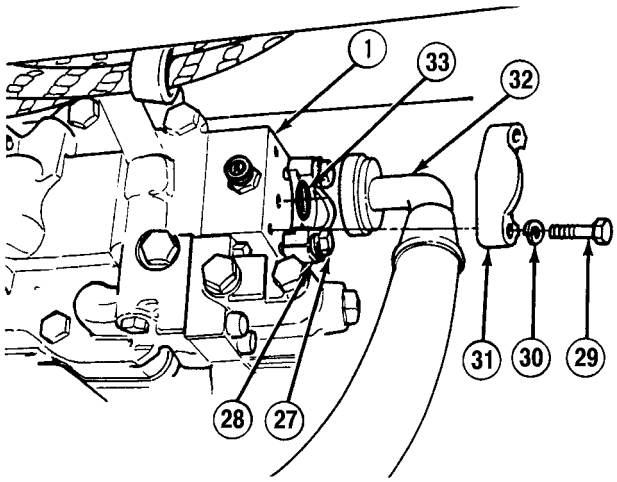


(8) Open front access cover (22).

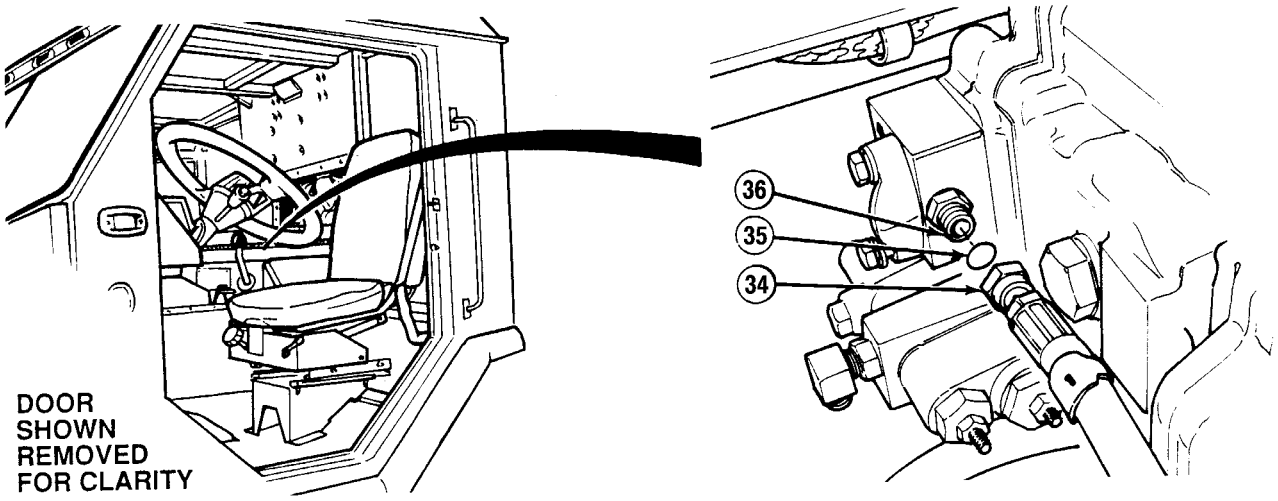
(9) Remove hose 2503 (23) and two preformed packings (24) from adapter (25) and elbow (26). Discard preformed packings.

(10) Loosen two screws (27) from split flange (28).

(11) Remove two screws (29), lockwashers (30), split flange (31), hose 2393 (32) and preformed packing (33) from main hydraulic pump (1). Discard lockwashers and preformed packing.

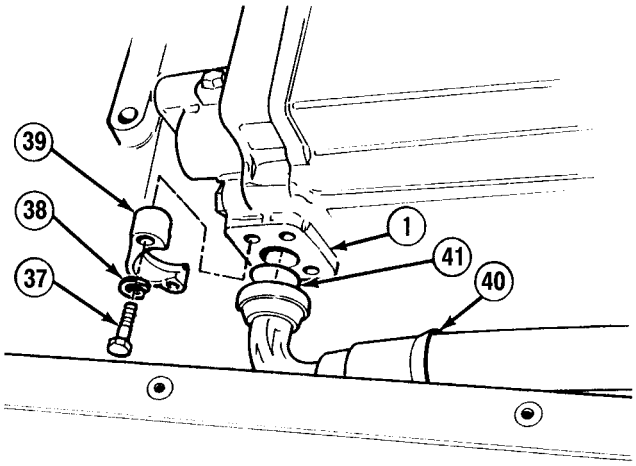


17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).



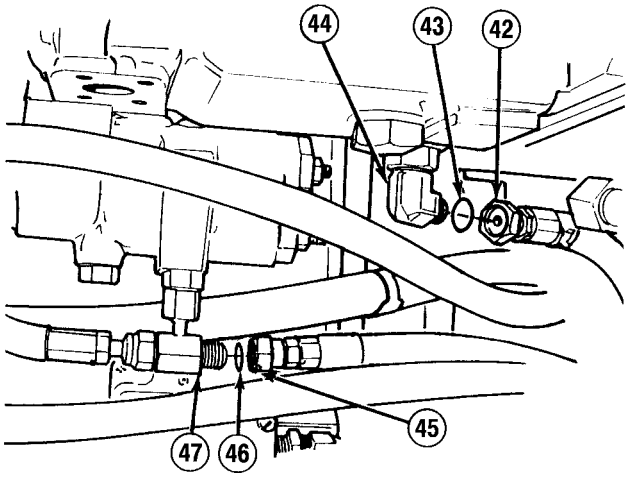
(12) Remove hose 2907 (34) and preformed packing (35) from adapter (36). Discard preformed packing.

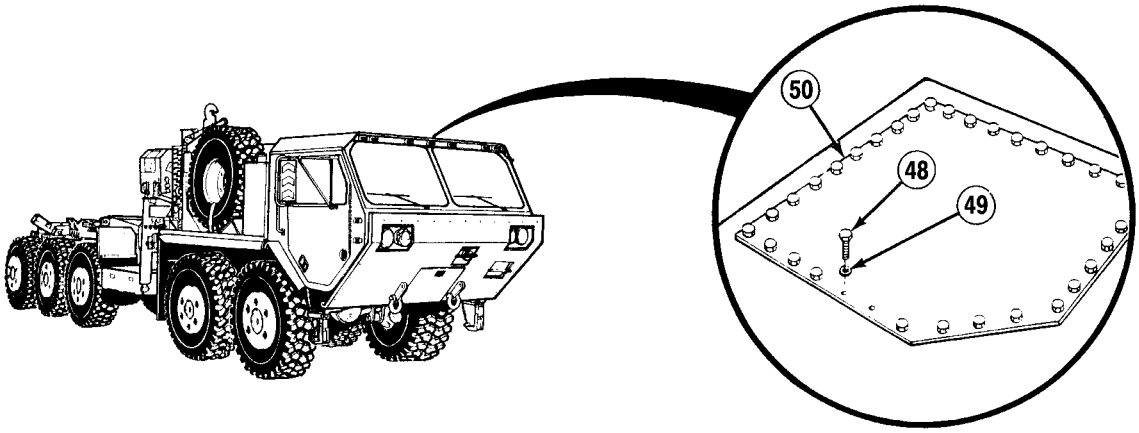
(13) Remove four screws (37), lockwashers (38), split flanges (39), hose 2935 (40) and preformed packing (41) from main hydraulic pump (1). Discard lockwashers and preformed packing.



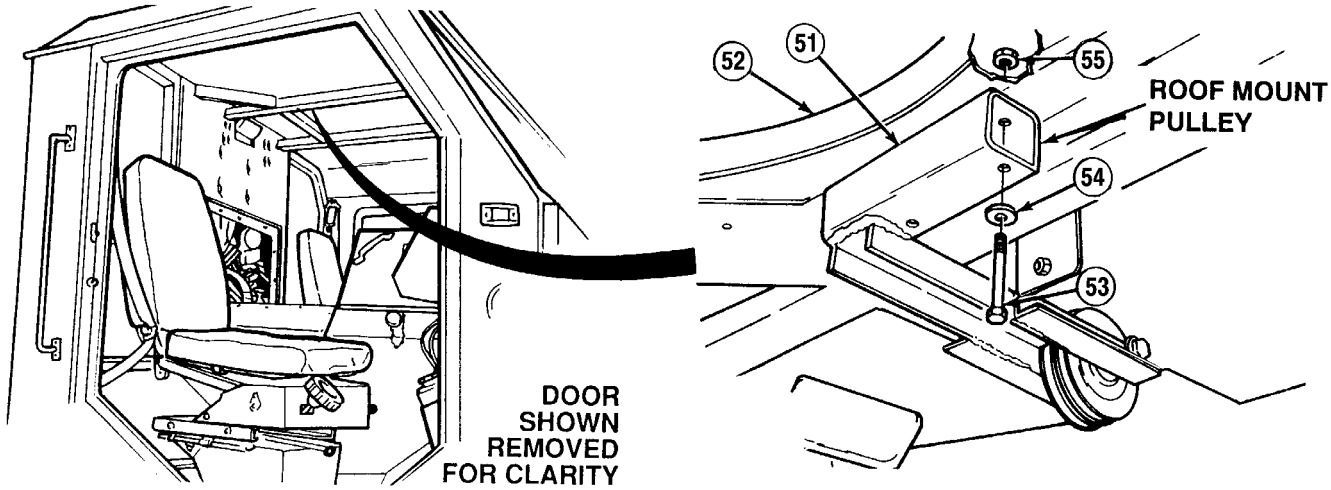
(14) Remove hose 2290 (42) and preformed packing (43) from elbow (44). Discard preformed packing.

(15) Remove hose 2295 (45) and preformed packing (46) from tee (47). Discard preformed packing.





(16) Remove and discard two screws (48) and washers (49) from cover plate (50).

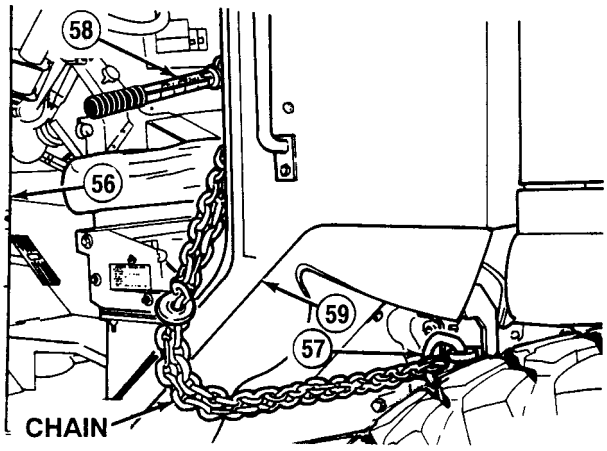


(17) Install roof mount pulley (51) to bottom side of cover plate frame (52) with two 3 in. (76 mm) screws (53), washers (54) and nuts (55).

17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(18) Open left cab door (56).

(19) Attach chain to tiedown ring (57) and cable winch (58) inside cab (59).



WARNING

Main hydraulic pump weighs 215 lbs (98 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

(20) Position lifting device around main hydraulic pump (1).

(21) Install cable of cable winch (58) to roof mount pulley (51) by removing nut (60) and lockwasher (61) from screw (62). Discard lockwasher.

(22) Position screw (62) until screw is flush with left side of left pulley (63).

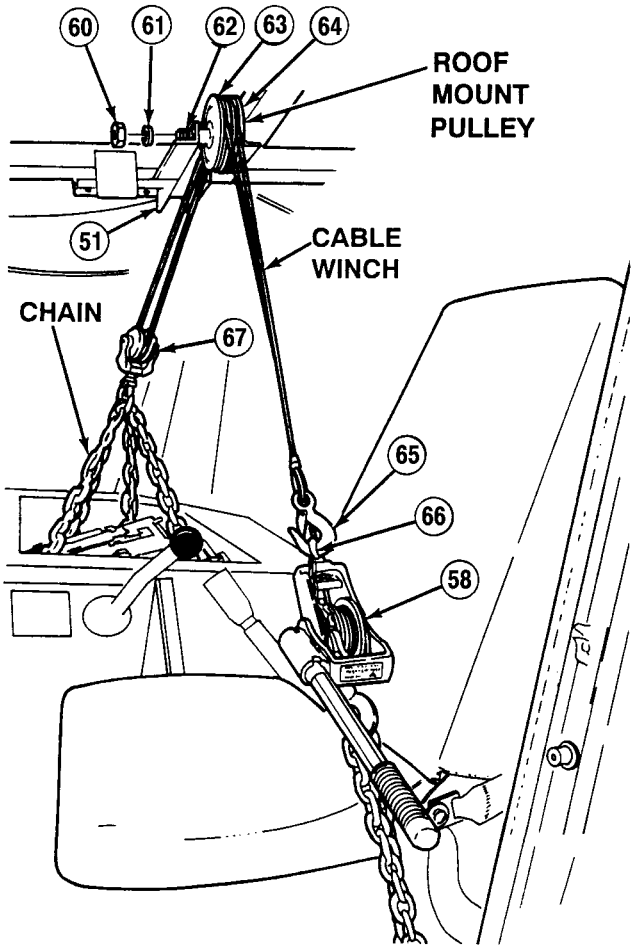
(23) Position output cable of cable winch (58) on right pulley (64) and return cable on left pulley (63) on cable winch.

(24) Attach end hook (65) of cable to eye (66) of cable winch (58).

(25) Attach free pulley hook (67) of cable winch (58) to lifting device chain.

(26) Install screw (62) with lockwasher (61) and nut (60) to roof mount pulley (51).

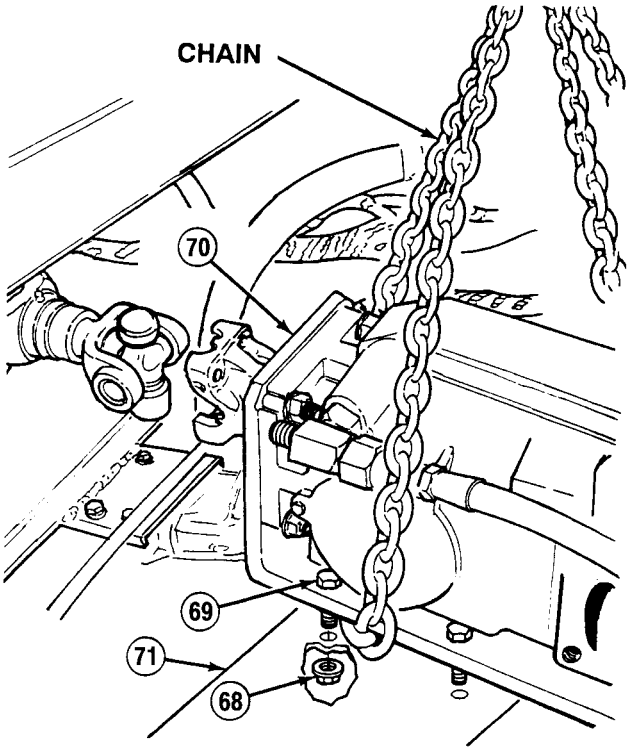
(27) Tighten cable of cable winch (58) until slack is removed.



NOTE

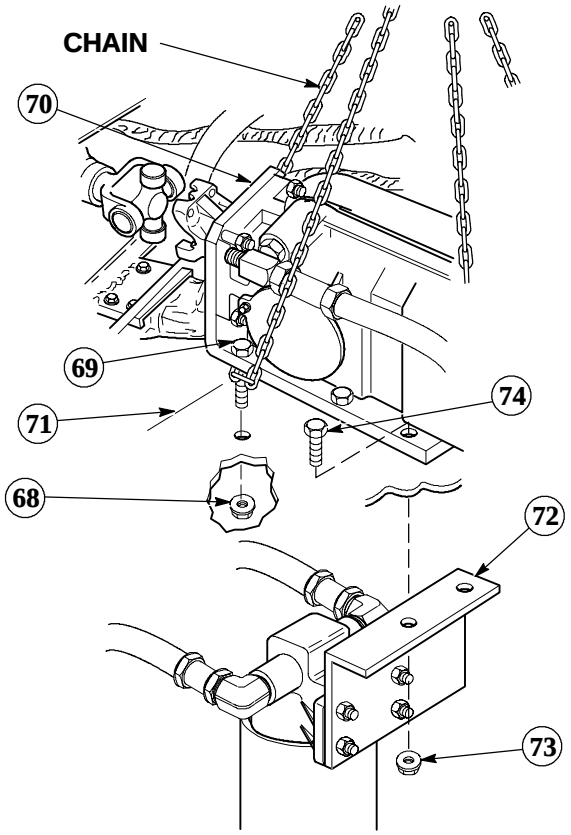
- If truck is not equipped with remote engine oil filter, perform Step (28).
- If truck is equipped with remote engine oil filter, perform Steps (29) and (30).

(28) With the aid of an assistant, remove four locknuts (68) from screws (69) on pump mount bracket (70) and crossmember (71). Discard locknuts.



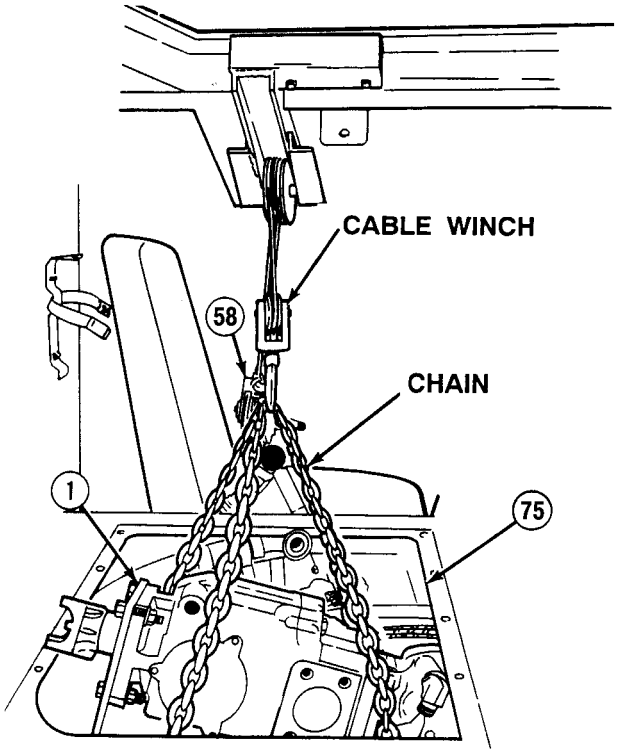
(29) With the aid of an assistant, remove two locknuts (68) from screws (69) on pump mount bracket (70) and crossmember (71). Discard locknuts.

(30) While supporting remote oil filter assembly (72) remove two locknuts (73) from screws (74) on pump mount bracket (70) and crossmember (71). Discard locknuts.



17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(31) With the aid of an assistant, using cable winch (58) and lifting device, raise main hydraulic pump (1) until clear of access hole (75).

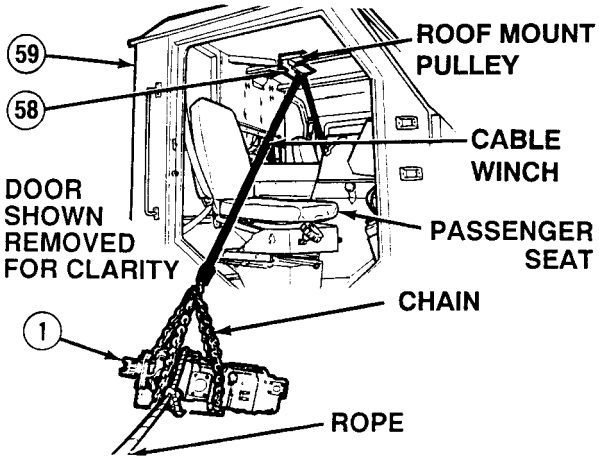


(32) Attach rope to main hydraulic pump (1).

(33) With the aid of an assistant, pull main hydraulic pump (1) horizontally through passenger door and unwind cable winch to lower main hydraulic pump (1) onto passenger seat.

(34) Remove cable winch (58) from chain and hydraulic pump (1).

(35) Attach lifting device to chain on main hydraulic pump (1).



WARNING

Never stand in front of main hydraulic pump during lifting. Hydraulic pump can swing out of door and cause serious injury to personnel.

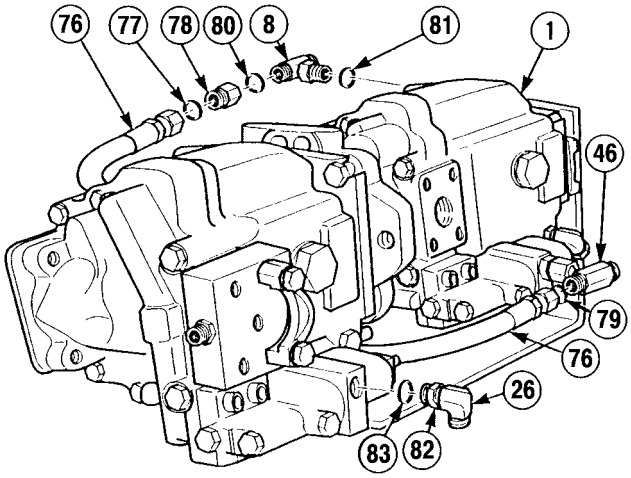
(36) With the aid of an assistant, use lifting device and lift main hydraulic pump (1) out of cab (59) and lower main hydraulic pump (1) onto a work surface.

(37) Remove chain and rope from main hydraulic pump (1).

(38) Remove hose 2049 (76) and preformed packing (77) from adapter (78) on tee (8). Discard preformed packing.

(39) Remove hose 2049 (76) and preformed packing (79) from tee (46). Discard preformed packing.

(40) Remove adapter (78) and preformed packing (80) from tee (8). Discard preformed packing.



NOTE

Note location and position of tees and elbows prior to removal.

(41) Remove tee (8) and preformed packing (81) from main hydraulic pump (1). Discard preformed packing.

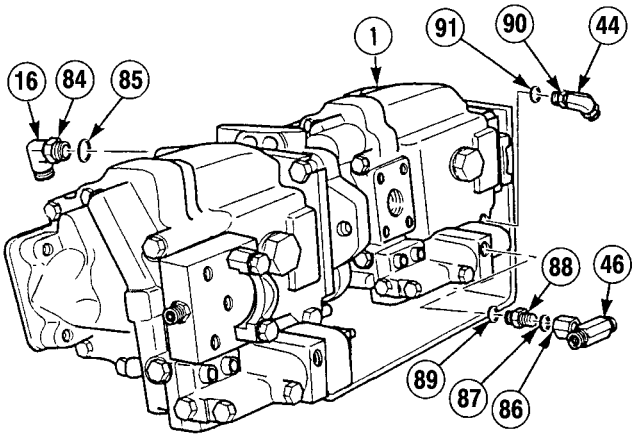
(42) Loosen nut (82) and remove elbow (26) and preformed packing (83) from main hydraulic pump (1). Discard preformed packing.

(43) Loosen nut (84) and remove elbow (16) and preformed packing (85) from main hydraulic pump (1). Discard preformed packing.

(44) Loosen nut (86) and remove tee (46) and preformed packing (87) from adapter (88). Discard preformed packing.

(45) Remove adapter (88) and preformed packing (89) from main hydraulic pump (1). Discard preformed packing.

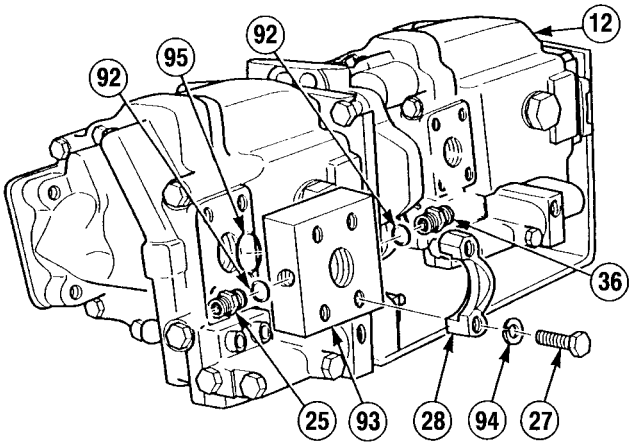
(46) Loosen nut (90) and remove elbow (44) and preformed packing (91) from main hydraulic pump (1). Discard preformed packing.



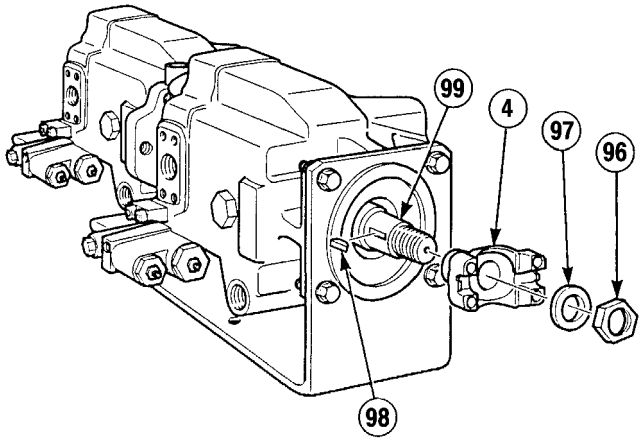
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(47) Remove adapters (36) and (25) and two preformed packings (92) from manifold (93). Discard preformed packings.

(48) Remove two screws (27), lockwashers (94), split flange (28), manifold (93) and preformed packing (95) from main hydraulic pump (1). Discard lockwashers and preformed packing.



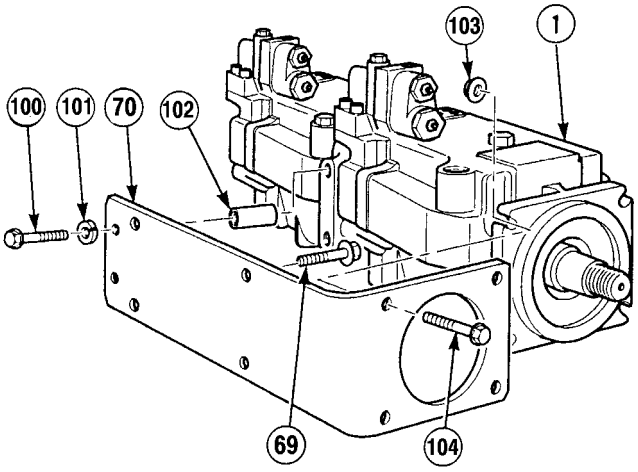
(49) Remove nut (96), washer (97), end yoke (4) and key (98) from main hydraulic pump shaft (99).



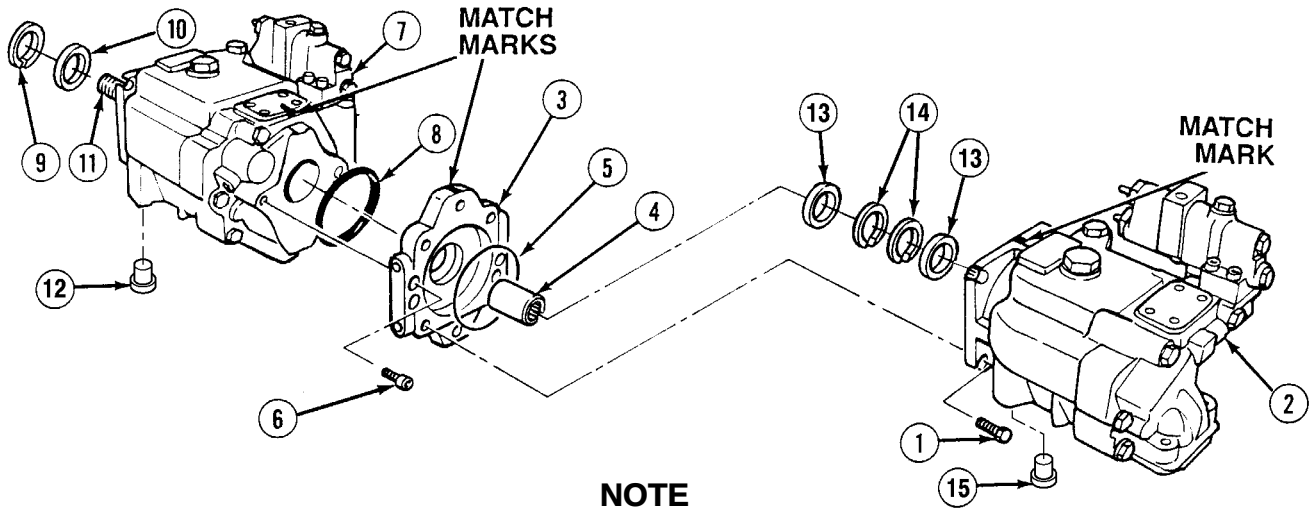
(50) Remove two screws (100), lockwashers (101) and spacers (102) from main hydraulic pump (1). Discard lockwashers.

(51) Remove four locknuts (103), screws (104) and main hydraulic pump (1) from pump mount bracket (70). Discard locknuts.

(52) Remove four screws (69) from pump mount bracket (70).



b. Disassembly.



NOTE

Matchmark both piston pumps and adapter prior to disassembly.

(1) Remove four screws (1) from piston pump (2) and adapter (3).

(2) Remove piston pump (2) from adapter (3).

(3) Remove coupling (4) from piston pump (2).

(4) Remove preformed packing (5) from piston pump (2). Discard preformed packing.

(5) Remove two screws (6) from adapter (3) and piston pump (7).

(6) Remove adapter (3) from piston pump (7).

(7) Remove preformed packing (8) from adapter (3). Discard preformed packing.

WARNING

Use care when removing retaining rings. Retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

NOTE

Note position of seals prior to removal.

(8) Remove and discard retaining ring (9) from piston pump (7).

(9) Remove and discard seal (10) from main hydraulic shaft (11).

(10) Remove plug (12) from piston pump (7).

(11) Remove and discard seal (13) from piston pump (2).

(12) Remove and discard two retaining rings (14) from piston pump (2).

(13) Remove and discard seal (13) from piston pump (2).

(14) Remove plug (15) from piston pump (2).

17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

c. Cleaning/Inspection.

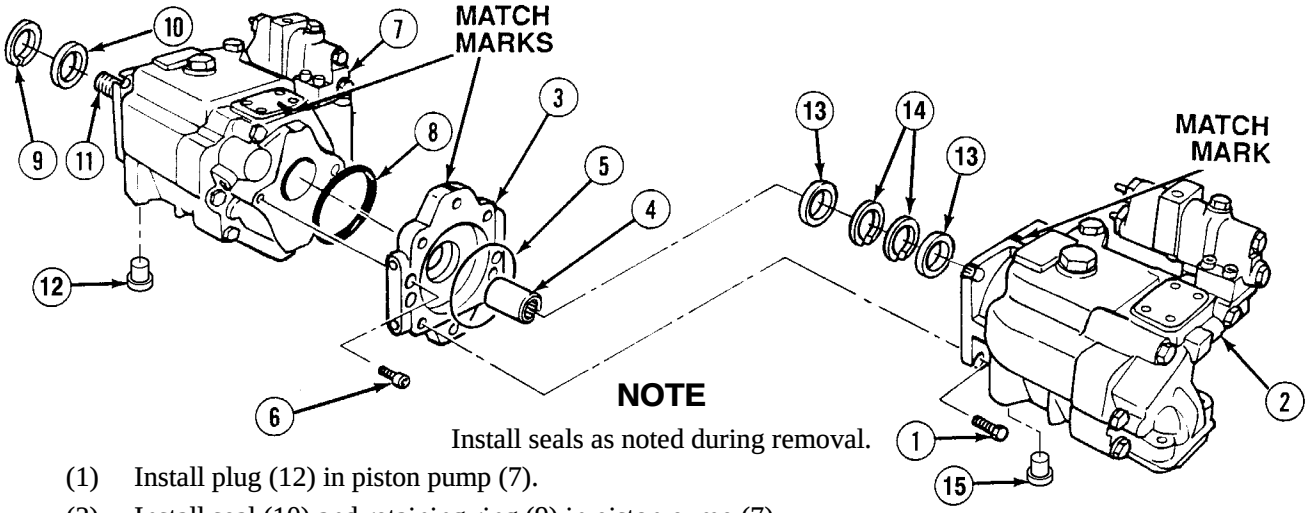
WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleansing purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

(1) Clean all mating surfaces with drycleaning solvent.

(2) Dry all parts with compressed air.

d. Assembly.



(1) Install plug (12) in piston pump (7).

(2) Install seal (10) and retaining ring (9) in piston pump (7).

(3) Install plug (15) in piston pump (2).

(4) Install seal (13), two retaining rings (14) and seal (13) in piston pump (2).

(5) Apply hydraulic oil to preformed packing (8).

(6) Install preformed packing (8) on adapter (3).

(7) Align matchmarks and install adapter (3) on piston pump (7) with two screws (6). Tighten screws to 76 to 94 lb-ft (103 to 127 N·m).

(8) Apply hydraulic oil to preformed packing (5).

(9) Install preformed packing (5) on piston pump (2).

(10) Install coupling (4) on piston pump (2).

(11) Align matchmarks and install piston pump (2) on adapter (3) with four screws (1). Tighten screws to 48 to 58 lb-ft (65 to 79 N·m).

e. Installation.

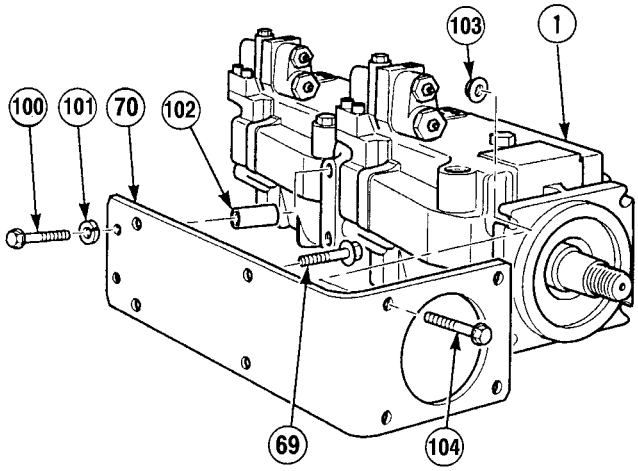
NOTE

Install adapters, elbows and tees as noted prior to removal.

(1) Position four screws (69) in pump mount bracket (70) and position pump mount bracket on main hydraulic pump (1).

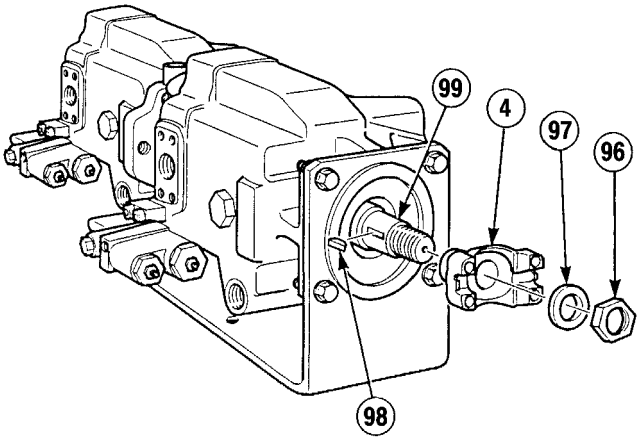
(2) Install four screws (104), pump mount bracket (70) and four locknuts (103) on main hydraulic pump (1).

(3) Install two screws (100), lockwashers (101), pump mount bracket (70) and spacers (102) in main hydraulic pump (1).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(4) Apply sealing compound on threads of hydraulic pump shaft (99).

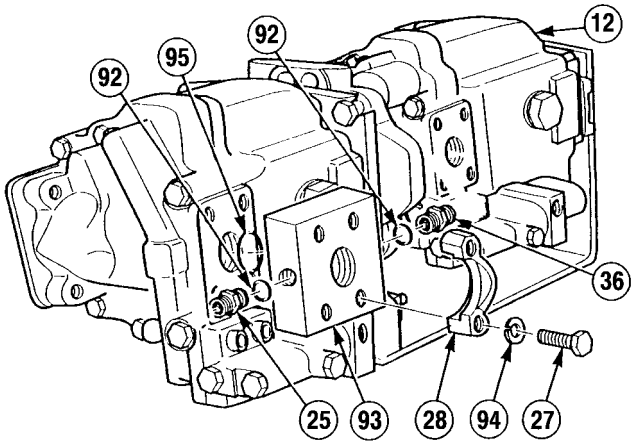
(5) Install key (98), end yoke (4), washer (97) and nut (96) on hydraulic pump shaft (99). Tighten nut 138 lb-ft (187 N·m).

(6) Apply hydraulic oil to preformed packing (95).

(7) Position preformed packing (95), manifold (93) and split flange (28) on main hydraulic pump (1) with two lockwashers (94) and screws (27).

(8) Apply hydraulic oil to preformed packings (92).

(9) Install two preformed packings (92) and adapters (36) and (25) in manifold (93).



17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(10) Apply hydraulic oil to preformed packing (91).

(11) Install preformed packing (91) and elbow (44) in main hydraulic pump (1) and tighten nut (90).

(12) Apply hydraulic oil to preformed packing (89).

(13) Install preformed packing (89) and adapter (88) in main hydraulic pump (1).

(14) Apply hydraulic oil to preformed packing (87).

(15) Install preformed packing (87) and tee (46) on adapter (88) and tighten nut (86).

(16) Apply hydraulic oil to preformed packing (85).

(17) Install preformed packing (85) and elbow (16) in main hydraulic pump (1) and tighten nut (84).

(18) Apply hydraulic oil to preformed packing (81).

(19) Install preformed packing (81) and tee (8) in main hydraulic pump (1).

(20) Apply hydraulic oil to preformed packing (80).

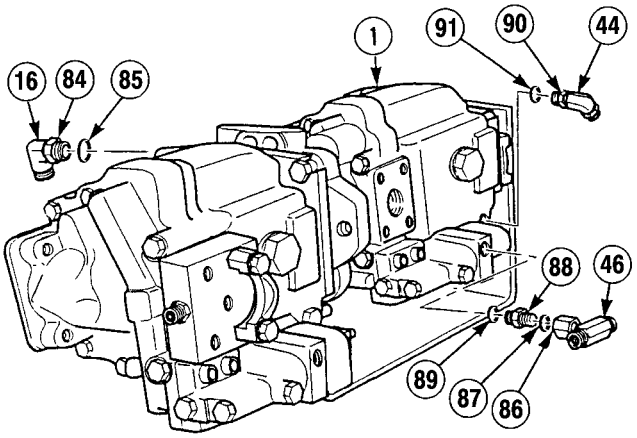
(21) Install preformed packing (80) and adapter (78) on tee (9).

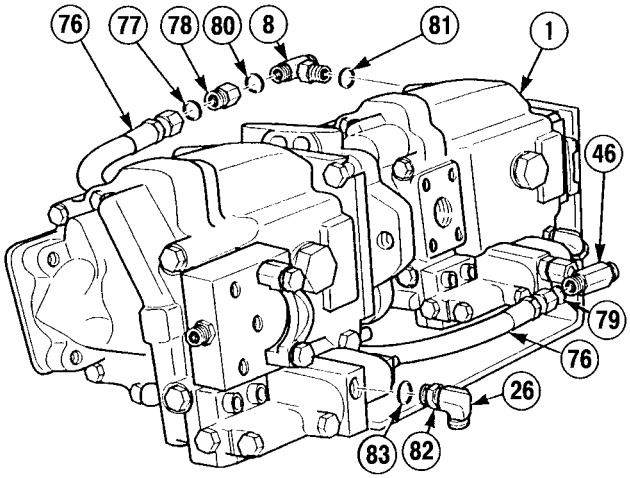
(22) Apply hydraulic oil to preformed packings (77), (79) and (83).

(23) Install two preformed packings (77) and (79) and hose 2049 (76) on adapter (78) and tee (46).

(24) Apply hydraulic oil to preformed packing (83).

(25) Install preformed packing (83) and elbow (26) in main hydraulic pump (1) with nut (82).





WARNING

Main hydraulic pump weighs 215 lbs (98 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

(26) Attach chain and rope to main hydraulic pump (1).

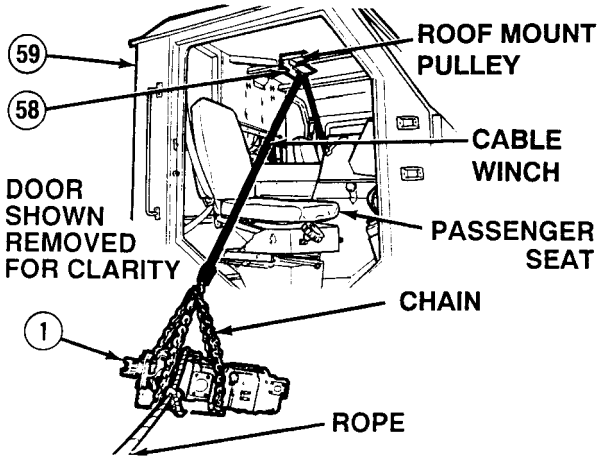
WARNING

Never stand in front of main hydraulic pump during lifting. Hydraulic pump can swing out of door and cause serious injury to personnel.

(27) With the aid of an assistant, use lifting device and lift main hydraulic pump (1). Using a rope, guide main hydraulic pump (1) through passenger side door of cab (59) and lower onto passenger seat.

(28) Remove lifting device from chain on main hydraulic pump (1).

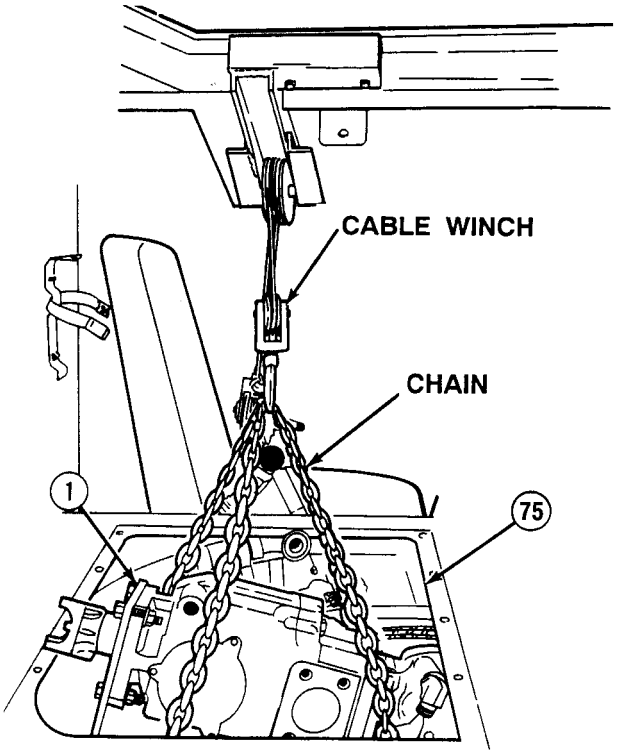
(29) Attach cable winch (58) to chain on main hydraulic pump (1).



17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(30) With the aid of an assistant, use rope to guide main hydraulic pump (1) as cable winch and chain are used to lift main hydraulic pump (1) from passenger seat over access hole (75).

(31) With the aid of an assistant, lower main hydraulic pump (1) through access hole (75).

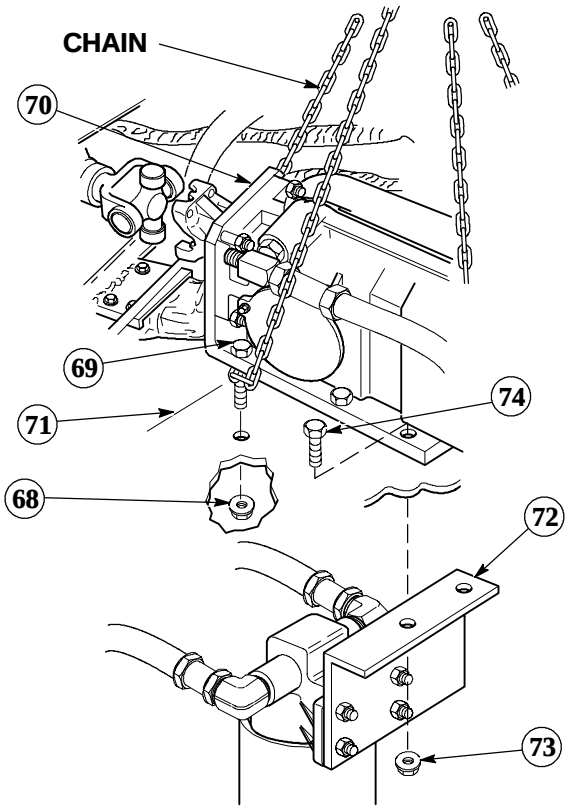


NOTE

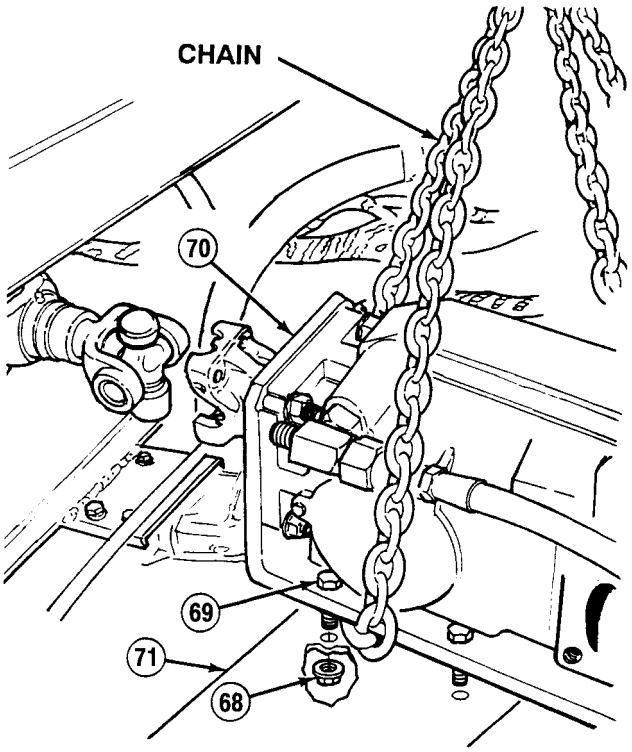
- If truck is equipped with remote engine oil filter, perform Steps (32) and (33).
- If truck is not equipped with remote engine oil filter, perform Step (34).

(32) With the aid of an assistant, install pump mount bracket (70) on crossmember (71) with two screws (69) and locknuts (68).

(33) Position remote oil filter assembly (72) and install to pump mount bracket (70) on crossmember (71) with two screws (74) and locknuts (73).



(34) With the aid of an assistant, install pump mount bracket (70) on crossmember (71) with four screws (69) and four locknuts (68).



(35) Loosen cable of cable winch (58) and disconnect free pulley hook (67) from chain.

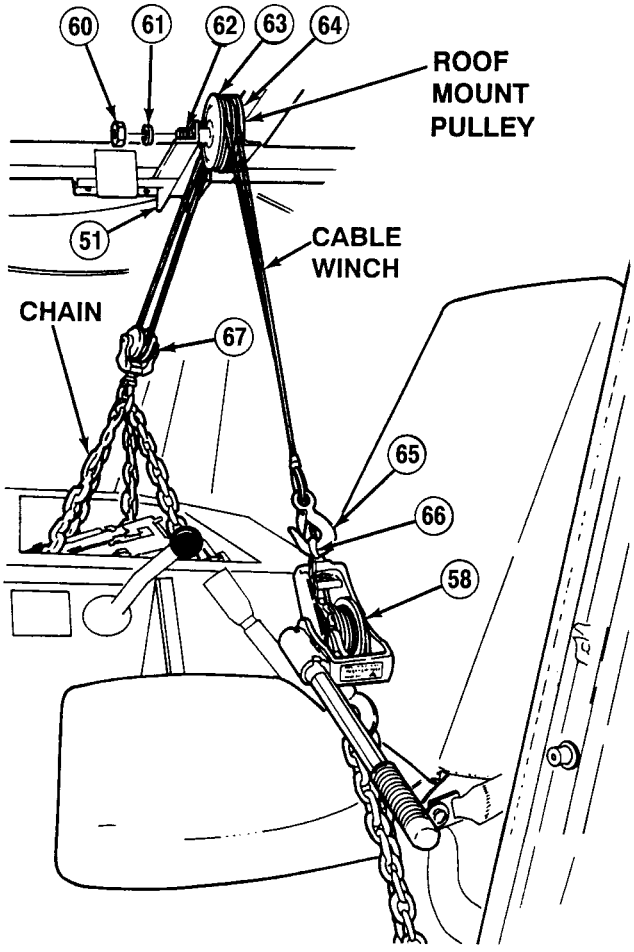
(36) Remove nut (60) and lockwasher (61) from screw (62).

(37) Position screw (62) until screw is flush with left side of left pulley (63).

(38) Remove cable winch cables from pulleys (63) and (64).

(39) Install screw (62), lockwasher (61) and nut (60) on roof mount pulley (51).

(40) Disconnect end hook (65) from eye (66) of cable winch (58).

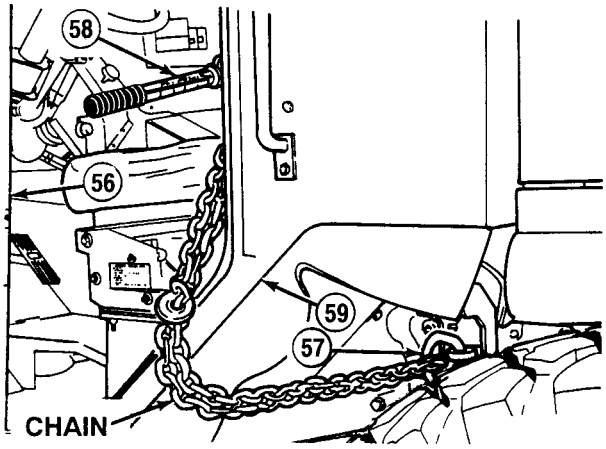


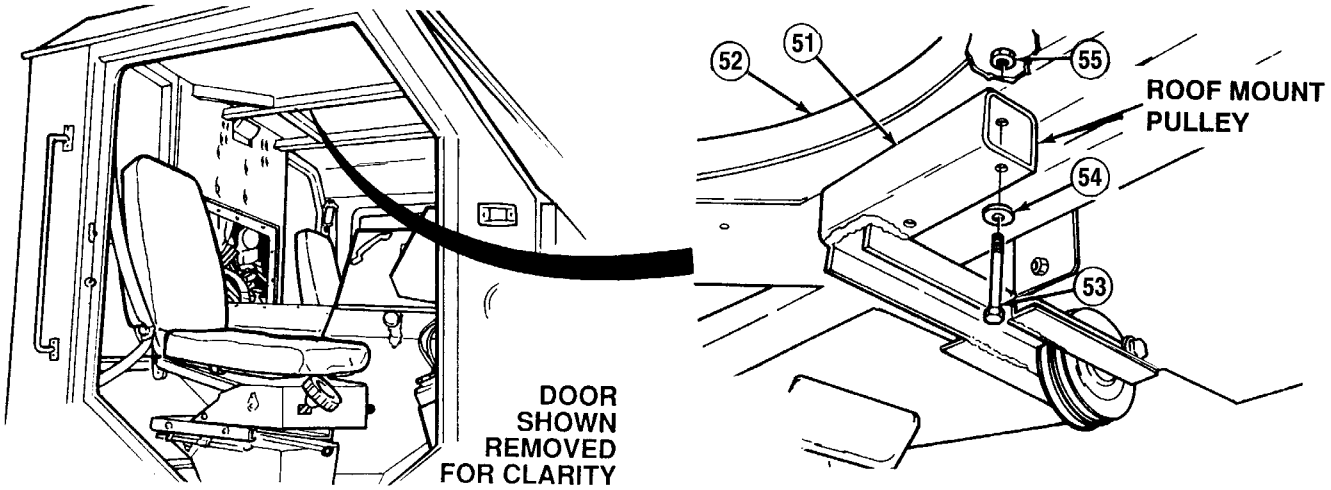
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(41) Disconnect cable winch (58) from chain.

(42) Disconnect chain from tiedown ring (57).

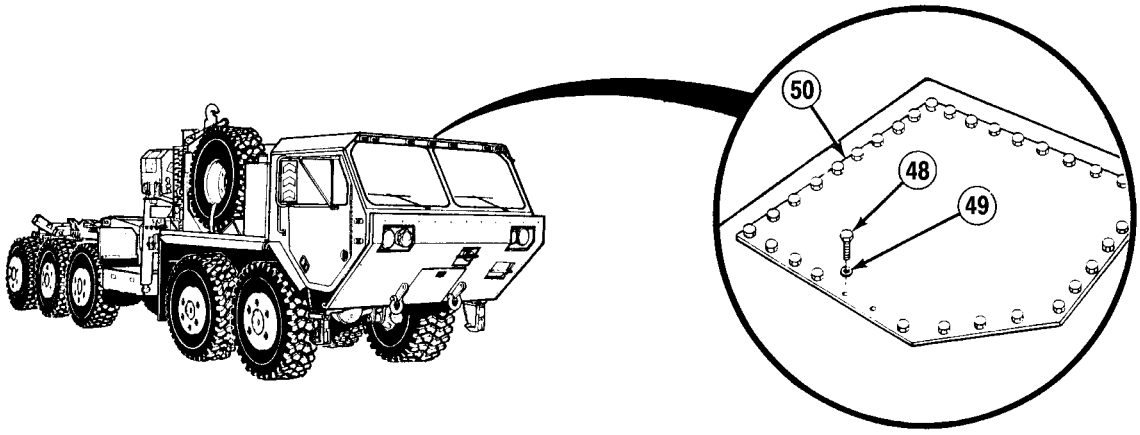
(43) Close door (56) on cab (59).





(44) Remove two nuts (55) from screws (53).

(45) Remove roof mount pulley (51) from bottom side of cover plate frame (52) by removing two screws (53) and washers (54).



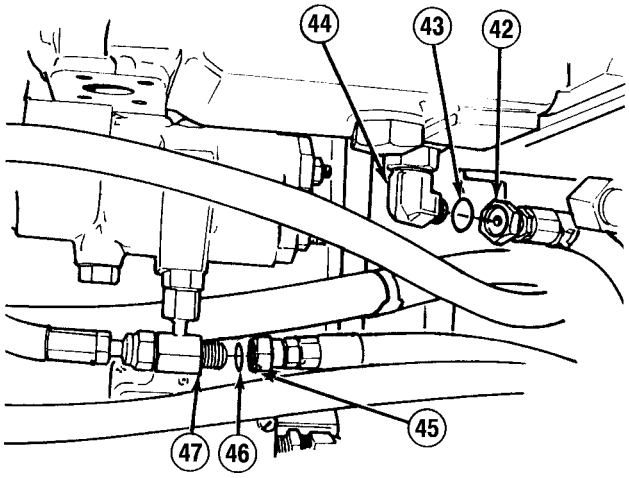
(46) Install two screws (48) and washers (49) in cover plate (50).

(47) Apply hydraulic oil to preformed packing (46).

(48) Install preformed packing (46) and hose 2295 (45) on tee (47).

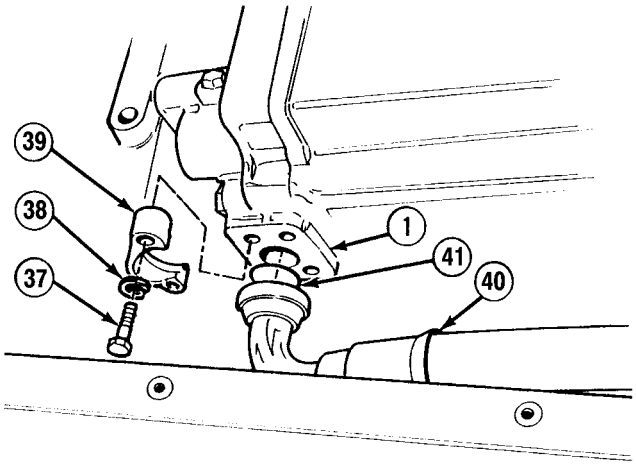
(49) Apply hydraulic oil to preformed packing (43).

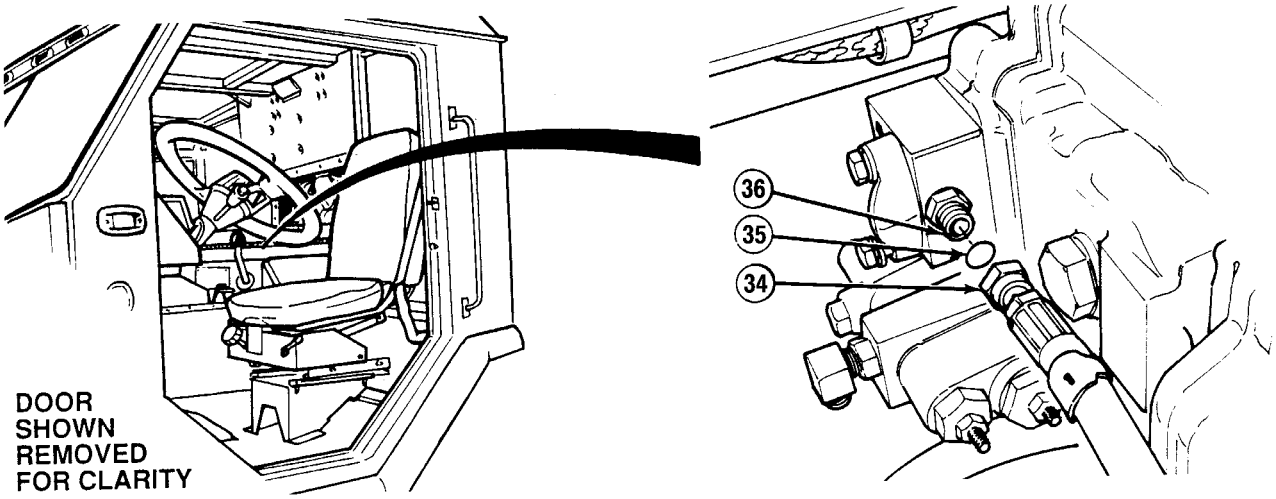
(50) Install preformed packing (43) and hose 2290 (42) on elbow (44).



(51) Apply hydraulic oil to preformed packing (41).

(52) Install preformed packing (41), hose 2935 (40) and two split flanges (39) on main hydraulic pump (1) with four lockwashers (38) and screws (37).





(53) Apply hydraulic oil to preformed packing (35).

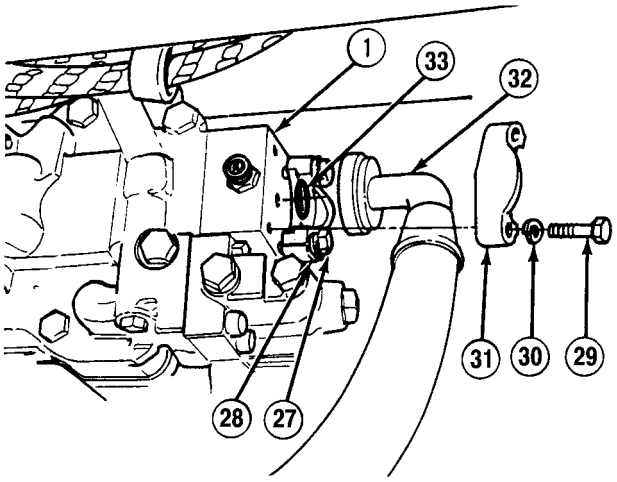
(54) Install preformed packing (35) and hose 2907 (34) on adapter (36).

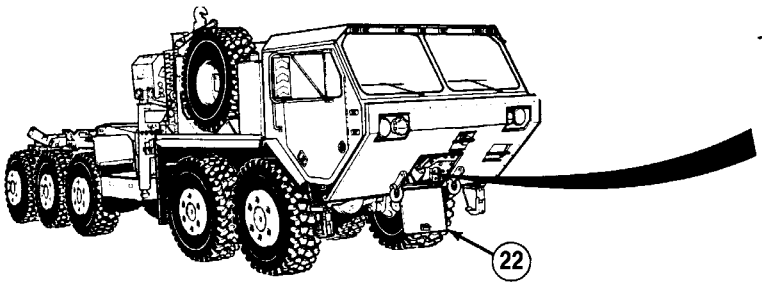
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

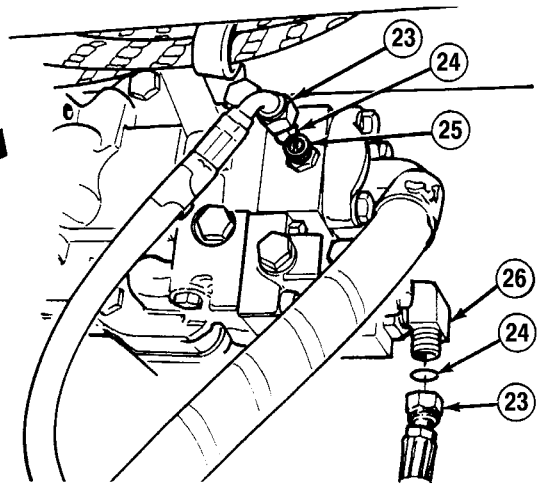
(55) Apply hydraulic oil to preformed packing (33).

(56) Install preformed packing (33), hose 2393 (32) and split flange (31) on main hydraulic pump (1) with two lockwashers (30) and screws (29).

(57) Tighten two screws (27) on split flange (28).







(58) Apply hydraulic oil to preformed packings (24).

(59) Install preformed packings (24) and hose 2503 (23) on adapter (25) and elbow (26).

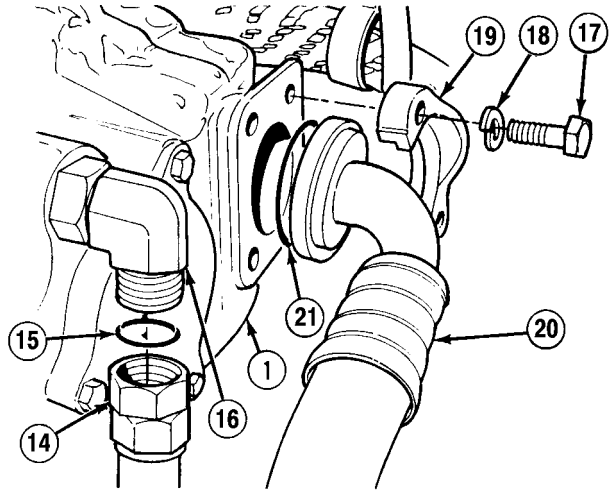
(60) Close front access cover (22).

(61) Apply hydraulic oil to preformed packing (21).

(62) Install preformed packing (21), hose 2278 (20) and two split flanges (19) on main hydraulic pump (1) with four lockwashers (18) and screws (17).

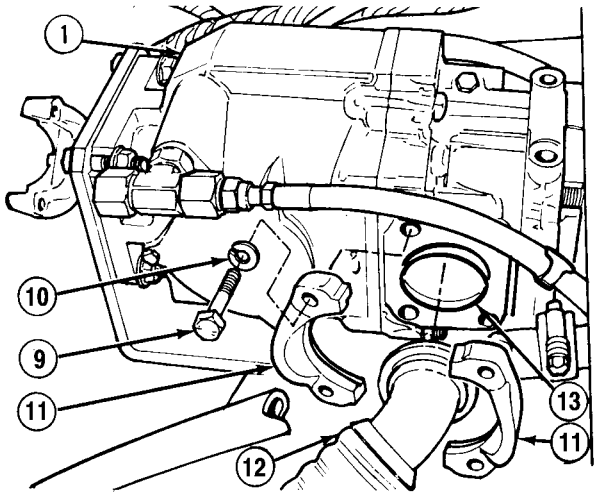
(63) Apply hydraulic oil to preformed packing (15).

(64) Install preformed packing (15) and hose 2701 (14) on elbow (16).



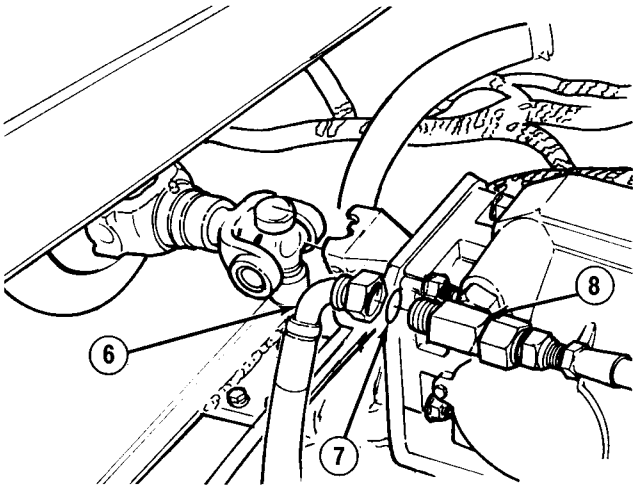
(65) Apply hydraulic oil to preformed packing (13).

(66) Install preformed packing (13), hose 2498 (12) and two split flanges (11) on main hydraulic pump (1) with four lockwashers (10) and screws (9).



(67) Apply hydraulic oil to preformed packing (7).

(68) Install preformed packing (7) and hose 2781 (6) on tee (8).



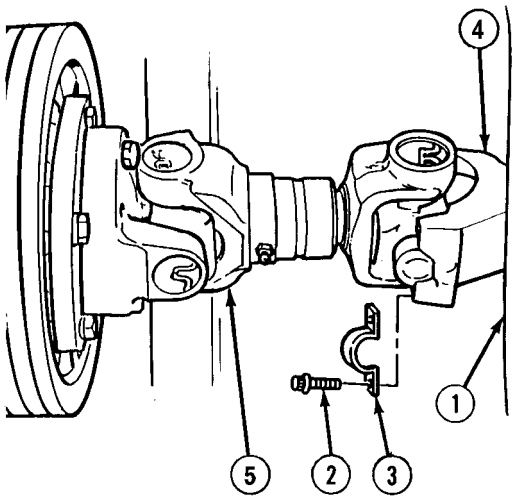
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

CAUTION

Universal joint end caps may fall off upon performing Step (69). Use caution when installing failure to comply may result in damage to equipment.

NOTE

If tape was installed around end caps, remove tape prior to Step (69).



(69) Position driveshaft (5) on end yoke (4) of main hydraulic pump (1).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(70) Apply sealing compound to threads of four screws (2).

(71) Install driveshaft (5) on end yoke (4) with two straps (3) and four screws (2). Tighten screws to 25 to 30 lb-ft (34 to 41 N·m).

f. Follow-On Maintenance:

- Fill steering reservoir, (TM 9 2320-364-20).
- Install Electrical Control Box (ECB), (TM 9-2320-364-20).
- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for 3 minutes, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Install cab engine access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-3. MAIN HYDRAULIC PUMP INPUT SHAFT SEAL REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

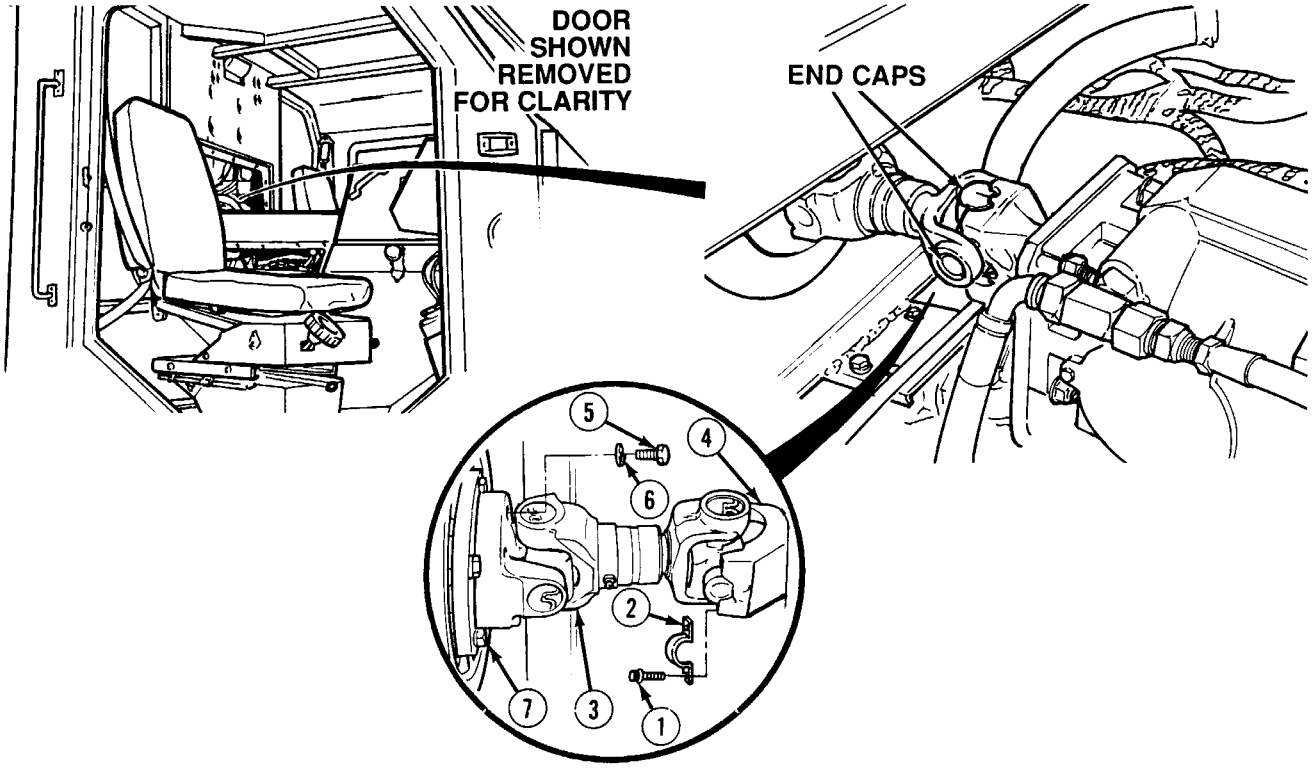
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Adapter, Socket (3/8 in. male to 1/4 in. female)
(Item 11, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Pliers, Retaining Ring (Item 154, Appendix F)
Puller Kit, Universal (Item 174, Appendix F)
Wrench, Pipe 3-1/2 in. Opening
(Item 271, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (175 lb-ft [237 N·m])
(Item 277, Appendix F)
Installer, Seal (Appendix C)

Materials/Parts
Grease (Item 21, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Lockwasher (4) (Item 252, Appendix E)
Ring, Retaining (Item 498, Appendix E)
Seal (Item 571, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Cab engine access panel removed,
(TM 9-2320-364-20)

17-3. MAIN HYDRAULIC PUMP INPUT SHAFT SEAL REPLACEMENT (CONT).

a. Removal.



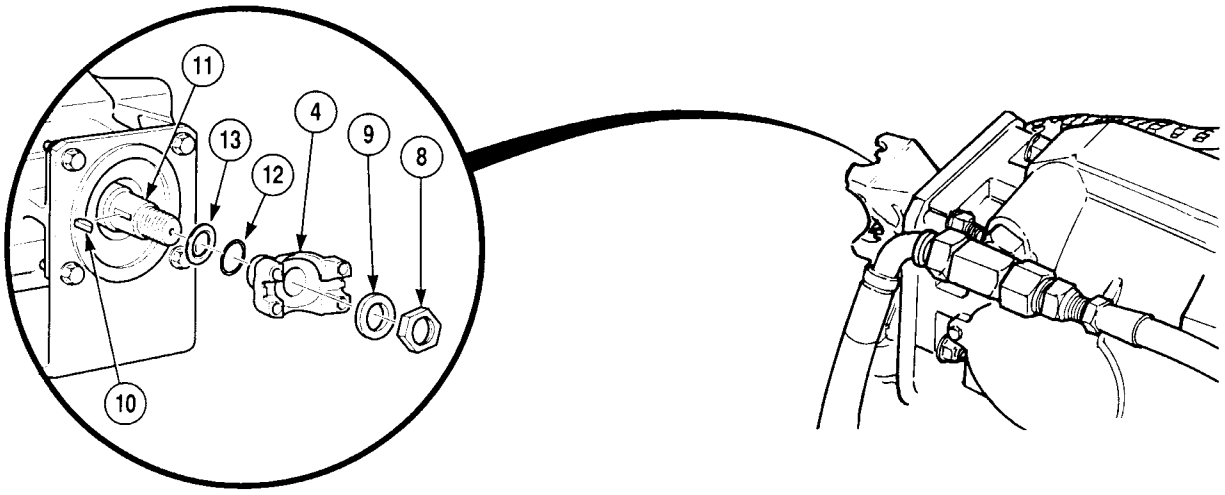
CAUTION

Universal joint end caps may fall off upon performing Steps (1) through (3). Use caution when removing. Failure to comply may result in damage to equipment.

(1) Remove four screws (1) and two straps (2) from pump drive shaft (3) and end yoke (4).

(2) Remove four screws (5) and lockwashers (6) from pump drive shaft (3) and engine (7). Discard lockwashers.

(3) Remove pump drive shaft (3) from end yoke (4) and engine (7).



(4) While holding end yoke (4) with pipe wrench, remove nut (8), washer (9), end yoke (4) and key (10) from main hydraulic pump shaft (11).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released and could cause severe eye injury.

(5) Remove and discard retaining ring (12) from main hydraulic pump shaft (11).

(6) Place drain pan under main hydraulic pump shaft (11).

NOTE

A small amount of hydraulic oil will continue to flow after removal of seal.

(7) Remove and discard seal (13) from main hydraulic pump shaft (11).

b. Installation.

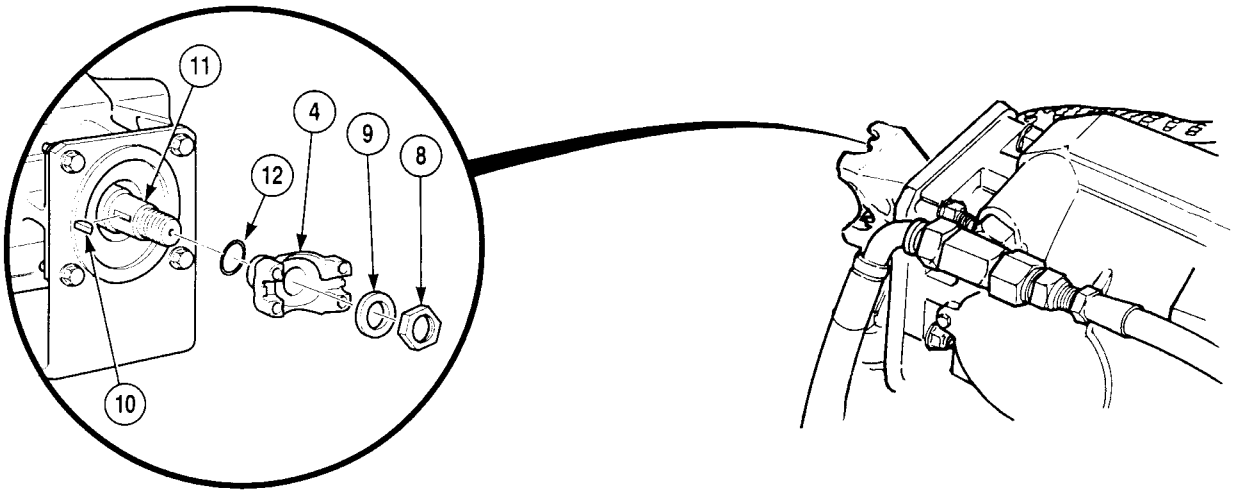
(1) Apply grease to seal (13) and main hydraulic pump shaft (11).

NOTE

- Spring in seal faces inward.
- Seal is installed past second groove on hydraulic pump.

(2) Using seal installer, install seal (13) on main hydraulic pump shaft (11).

17-3. MAIN HYDRAULIC PUMP INPUT SHAFT SEAL REPLACEMENT (CONT).



WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released and could cause severe eye injury.

(3) Install retaining ring (12) in second groove on main hydraulic pump shaft (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound to threads of main hydraulic pump shaft (11).

(5) Install key (10) end yoke (4), washer (9) and nut (8) on main hydraulic pump shaft (11).

(6) While holding end yoke (4) with pipe wrench, tighten nut (8) to 138 lb-ft (187 N·m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(7) Apply sealing compound to threads of four screws (5).

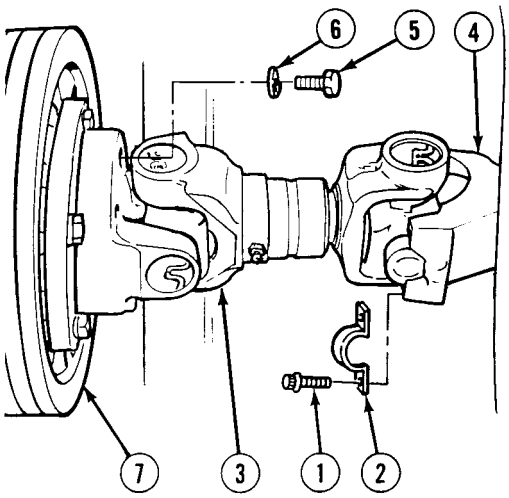
CAUTION

Universal joint end caps may fall off performing Steps (8) through (10).

(8) Install pump drive shaft (3) on engine (7) with four screws (5) and lock washers (6). Tighten screws to 60 lb-ft (81 N·m).

(9) Apply sealing compound to threads of four screws (1).

(10) Install pump drive shaft (3) on yoke (4) with four screws (1) and two straps (2). Tighten screws to 25 to 30 lb-ft (34 to 41 N·m).



c. Follow-On Maintenance:

- Fill steering reservoir, (TM 9-2320-364-20).
- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for three minutes, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Install cab engine access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-4. MAIN HYDRAULIC PUMP CONTROL SUBASSEMBLY REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

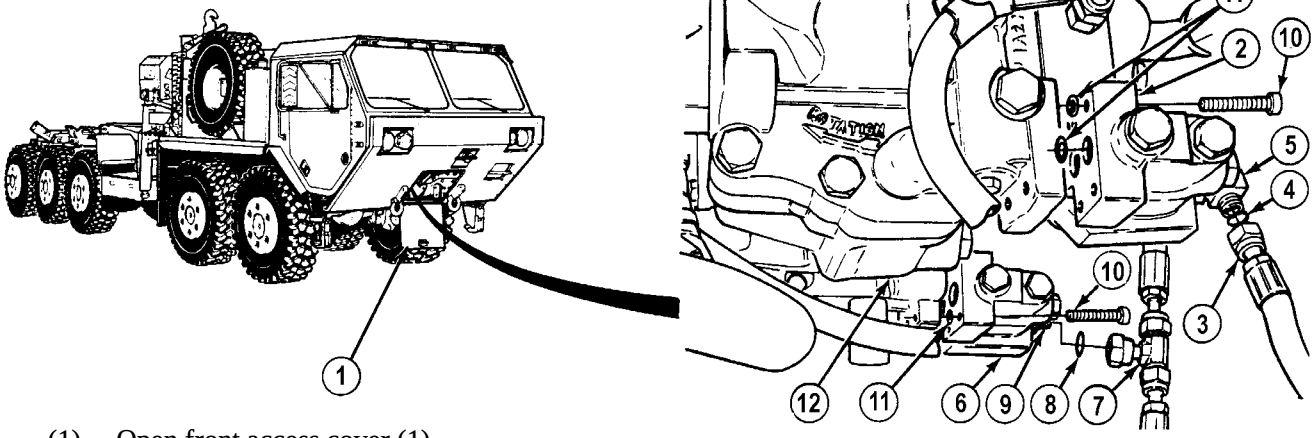
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist's (Item 248, Appendix F)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Packing, Preformed (3) (Item 329, Appendix E)

Materials/Parts - Continued
Packing, Preformed (Item 347, Appendix E)
Packing, Preformed (Item 350, Appendix E)
Packing, Preformed (Item 385, Appendix E)
Packing, Preformed (Item 450, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Main hydraulic reservoir drained, (TM 9-2320-364-20)

a. Removal.



(1) Open front access cover (1).

NOTE

- If removing front hydraulic pump control subassembly, perform Steps (2) and (3).
- If removing rear control subassembly perform Steps (4) and (5).

(2) Position drain pan under front control subassembly (2).

(3) Remove hose 2503 (3) and preformed packing (4) from elbow (5). Discard preformed packing.

(4) Position drain pan under rear control subassembly (6).

(5) Remove tee (7) and preformed packing (8) from adapter (9). Discard preformed packing.

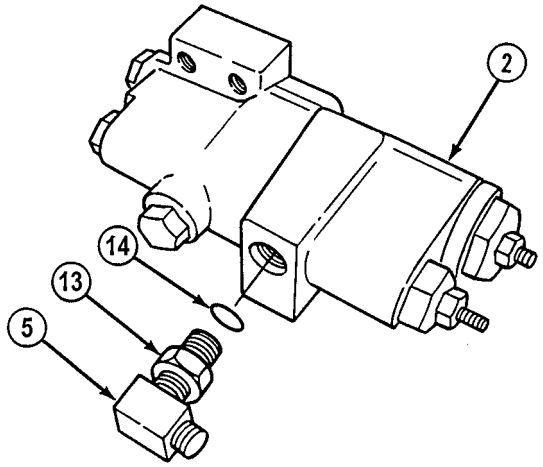
(6) Remove four screws (10), three preformed packings (11) and control subassembly (2) or (6) from hydraulic pump (12). Discard preformed packings.

NOTE

- Note location and position of elbows prior to removal.
- If removing front control subassembly, perform Steps (7) and (8).
- If removing rear control subassembly, perform Steps (9) and (10).

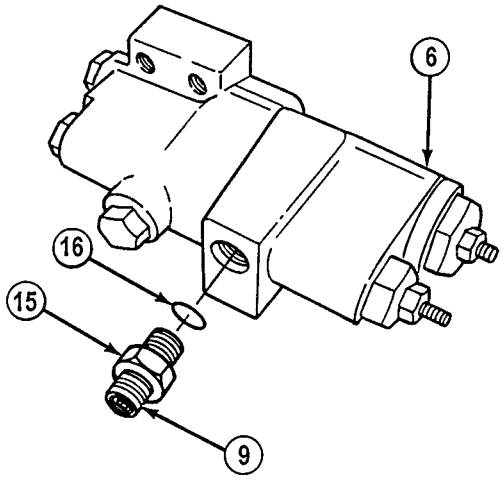
(7) Position front control subassembly (2) in soft jawed vise.

(8) Loosen nut (13) and remove elbow (5) and preformed packing (14) from front control subassembly (2). Discard preformed packing.



(9) Position rear control subassembly (6) in soft jawed vise.

(10) Loosen nut (15) and remove adapter (9) and preformed packing (16) from rear control subassembly (6). Discard preformed packing.



b. Disassembly.

CAUTION

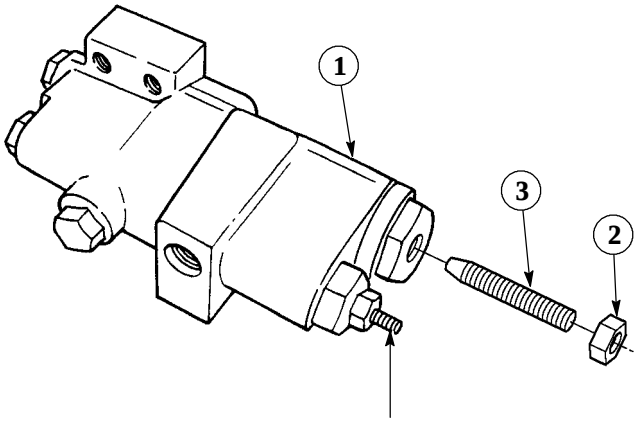
Outside pump control setscrew is factory adjusted and should not be removed or adjusted. Removal or adjustment of outside pump control setscrew could result in damage to truck hydraulic system and components. Remove inside pump control setscrew only.

NOTE

Disassembly of front control subassembly and rear control subassembly are identical. Front control subassembly is shown for disassembly.

(1) Position front control subassembly (1) in soft jawed vise.

(2) Remove jam nut (2) and adjusting screw (3) from front control subassembly (1).



17-4. MAIN HYDRAULIC PUMP CONTROL SUBASSEMBLY REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

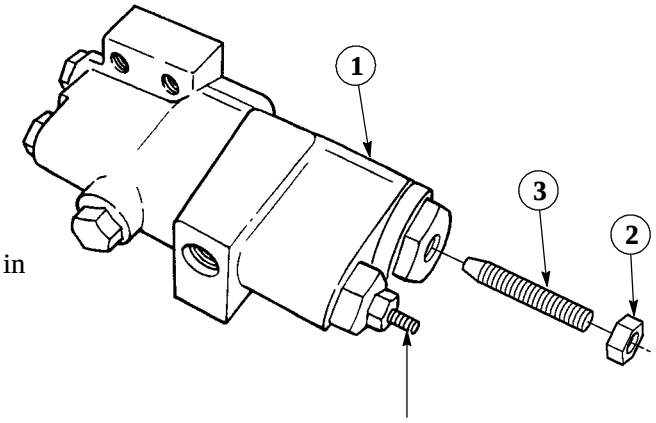
- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

d. Assembly.

NOTE

Assembly of front control subassembly and rear control subassembly are identical. Front control subassembly is shown for assembly.

Install adjusting screw (3) and jam nut (2) in front control subassembly (1).



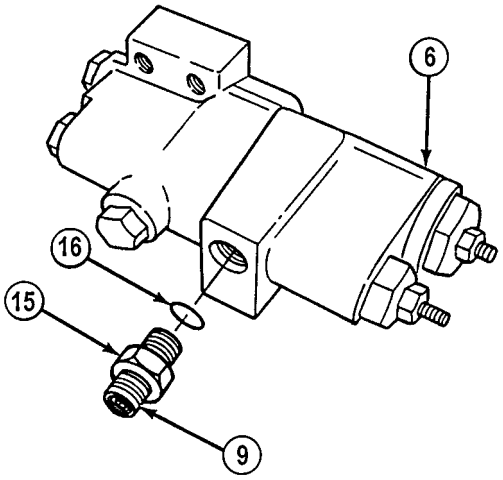
e. Installation.

NOTE

- If installing rear control subassembly, perform Steps (1) and (2).
- If installing front control subassembly, perform Steps (3) and (4).
- Install elbow and adapter as noted prior to removal.

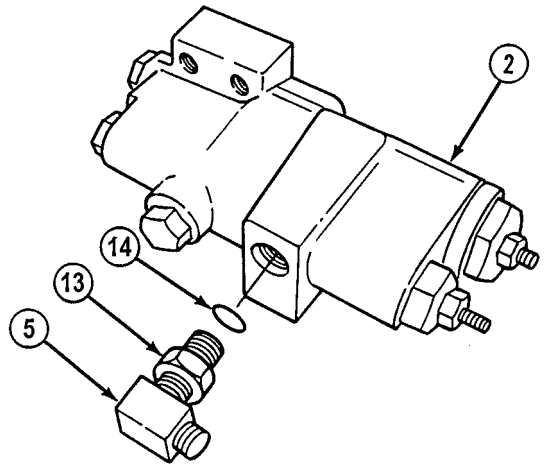
(1) Apply hydraulic oil to preformed packing (16).

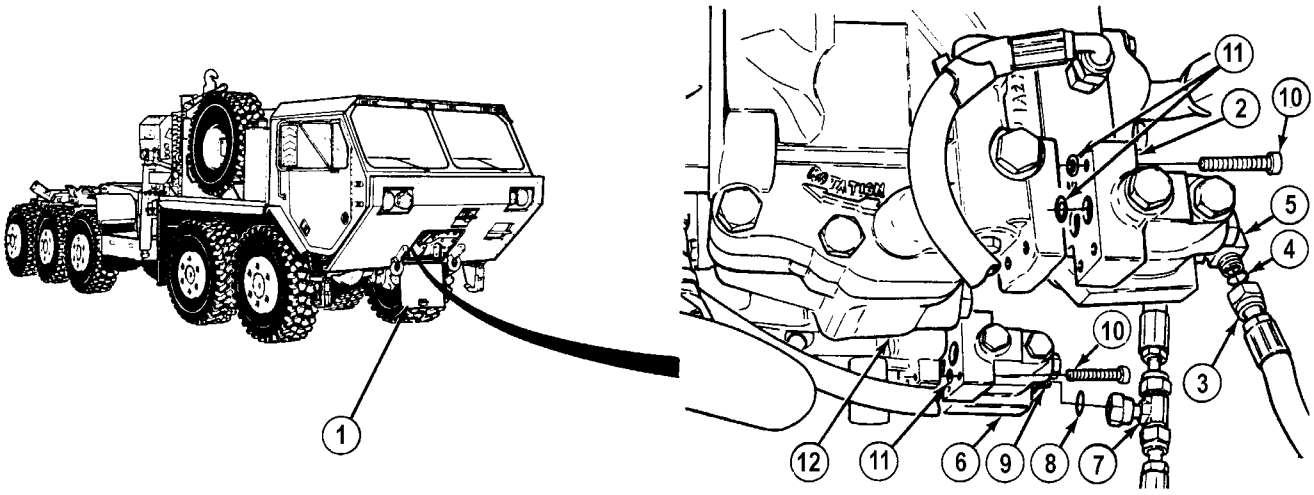
(2) Install preformed packing (16) and adapter (9) in rear control subassembly (6). Tighten nut (15) in adapter (9).



(3) Apply hydraulic oil to preformed packing (14).

(4) Install preformed packing (14) and elbow (5) in front control subassembly (2). Tighten nut (13).





(5) Apply hydraulic oil to three preformed packings (11).

NOTE

- If installing front control subassembly, perform Steps (6) through (8).
- If installing rear control subassembly, perform Steps (9) through (12).

(6) Install front control subassembly (2) on hydraulic pump (12) with three preformed packings (11) and screws (10).

(7) Apply hydraulic oil to preformed packing (4).

(8) Install preformed packing (4) and hose 2503 (3) on elbow (5).

(9) Install rear control subassembly (6) on hydraulic pump (12) with three preformed packings (11) and screws (10).

(10) Apply hydraulic oil to preformed packing (8).

(11) Install preformed packing (8) and tee (7) on adapter (9).

(12) Close front access cover (1).

17-4. MAIN HYDRAULIC PUMP CONTROL SUBASSEMBLY REPAIR (CONT).

f. Follow-On Maintenance:

- Fill main hydraulic reservoir, (TM 9-2320-364-20).
- Adjust main hydraulic system pressure, (rear control subassembly only), (Para 17-5).
- Adjust steering system hydraulic pressure (front control subassembly only), (Para 12-2).
- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-5. MAIN HYDRAULIC SYSTEM ADJUSTMENT.

This task covers:

a. Main Hydraulic Pump Control Adjustment
b. Follow-On Maintenance

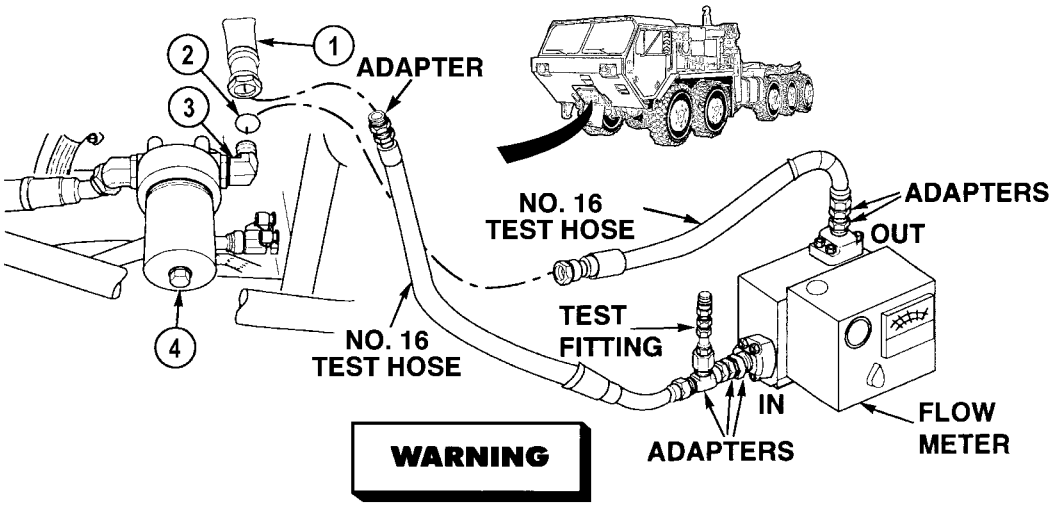
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Pressure Test Kit (Item 165, Appendix F)
Wrench, Combination, 1-1/2 in. (Item 260, Appendix F)
Wrench, Combination, 1-5/8 in. (Item 261, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Packing, Preformed (2) (Item 347, Appendix E)
Packing, Preformed (2) (Item 353, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Cab engine access panel removed, (TM 9-2320-364-20)
Left side noise panel removed, (TM 9-2320-364-20)

a. Main Hydraulic System Hydraulic Pump Control Adjustment.



The main hydraulic system operates at oil pressures up to 3,675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Position drain pan under hoses.
- Access to hoses is through cab engine access panel.

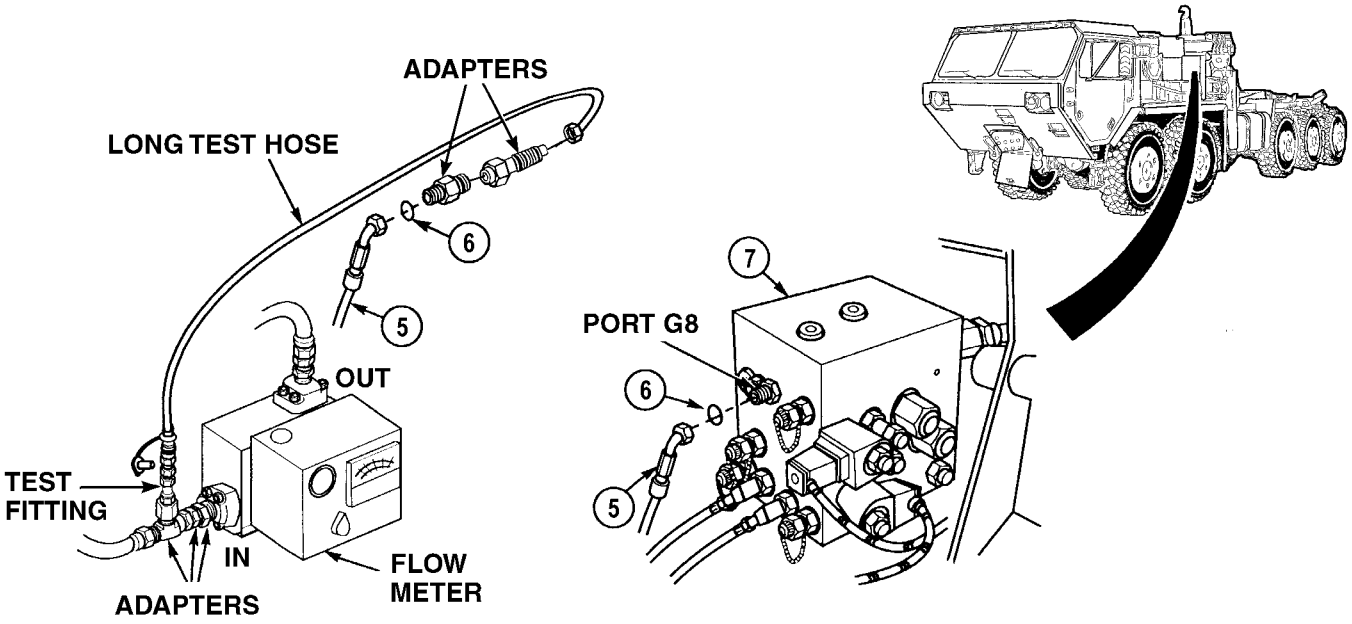
(1) Disconnect hose 2935 (1) and remove preformed packing (2) from elbow (3) on high pressure filter (4). Discard preformed packing.

(2) Apply hydraulic oil to preformed packing (2).

(3) Position preformed packing (2) on elbow (3).

(4) Install flowmeter, adapters, No. 16 test hoses and test fitting in line between hose 2935 (1) and elbow (3) on high pressure filter (4).

17-5. MAIN HYDRAULIC SYSTEM ADJUSTMENT (CONT).



(5) Disconnect hose 2295 (5) and remove preformed packing (6) from port G8 on multifunction manifold (7). Discard preformed packing.

(6) Install metal cap on port G8.

(7) Apply hydraulic oil to preformed packing (6).

(8) Position preformed packing (6) on adapter.

(9) Install adapter and test fitting on hose 2295 (5).

(10) Install long test hose between test fittings.

(11) Set selector on flowmeter to LO FLOW.

(12) Turn handle on loading valve to the left and open loading valve on flowmeter fully.

(13) Start engine (TM 9-2320-364-10).

CAUTION

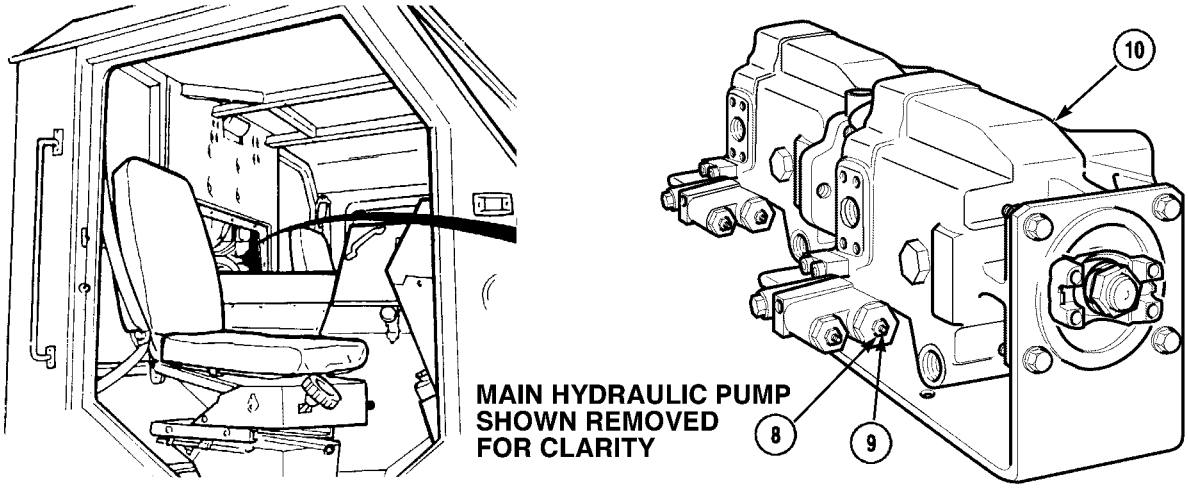
Do not allow loading valve to remain closed longer than 10 seconds or damage to equipment may result.

(14) Turn handle on loading valve to the right and slowly close loading valve on flowmeter.

(a) If 3,675 psi +75 –50 psi (25,339 kPa +517, – 345 kPa) are not present on flowmeter pressure gage when flow drops to 0 gpm (0 lpm), go to Step (15).

(b) If 3,675 psi +75 –50 psi (25,339 kPa +517, –345 kPa) are present on flowmeter pressure gage when flow drops to 0 gpm (0 lpm), main hydraulic pump control adjustment is OK, go to Step (21).

(15) Shut OFF engine (TM 9-2320-364-10).



CAUTION

- Outside pump control set screw is factory set and non-adjustable at any level of maintenance.
- Adjustment of outside pump control set screw could result in damage to truck hydraulic system and components. Adjust inside pump control set screw only.

(16) Loosen nut (8) on inside pump control set screw (9).

NOTE

Turning inside pump control set screw to the right will increase pump output pressure and turning to the left will decrease pump output pressure. Each full turn will change the output pressure about 330 psi (2,275 kPa).

(17) Hold nut (8) and turn set screw (9) to adjust main hydraulic pump (10) output pressure to 3,675 psi +75 -50 psi (25,339 kPa +517, -345 kPa).

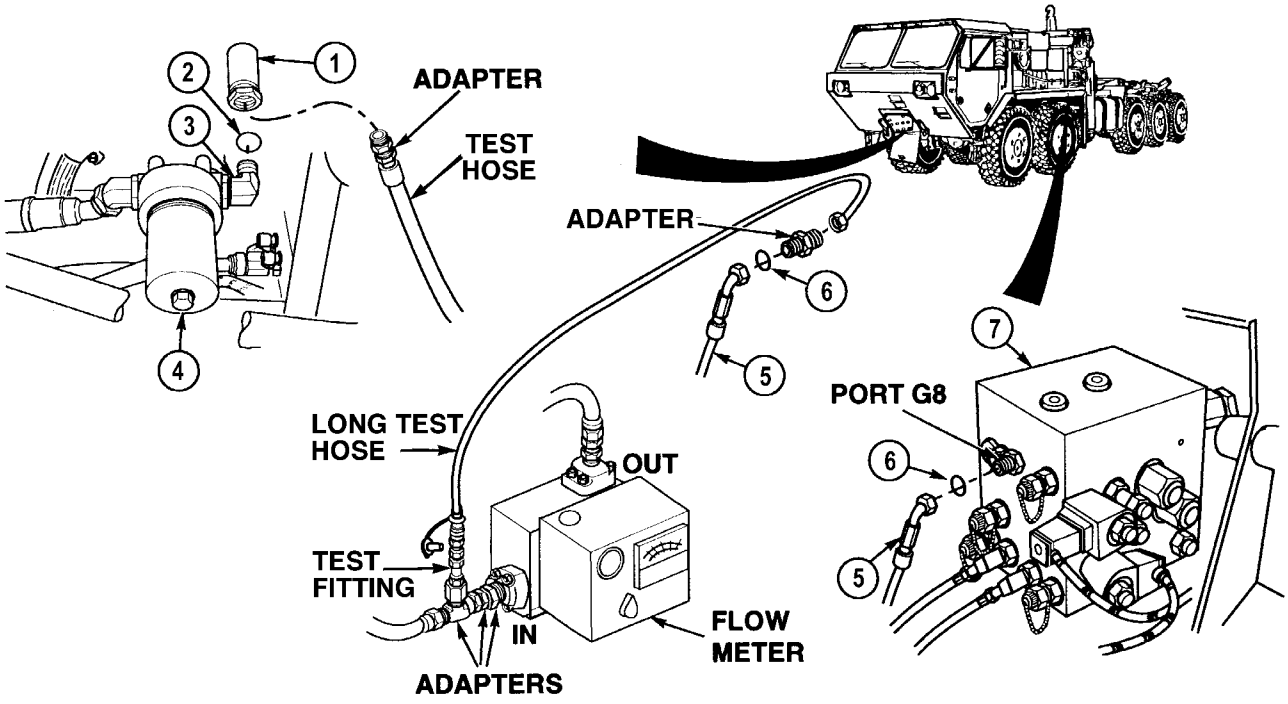
(18) Tighten nut (8) on set screw (9).

(19) Start engine (TM 9-2320-364-10).

(20) Verify pressure and make necessary adjustments. Refer to Steps (15) through (19).

(21) Shut OFF engine (TM 9-2320-364-10).

17-5. MAIN HYDRAULIC SYSTEM ADJUSTMENT (CONT).



(22) Remove test hose, adapter and test fitting from hose 2295 (5).

(23) Remove metal cap and preformed packing (6) from port G8 on multifunction manifold (7). Discard preformed packing.

(24) Apply hydraulic oil to preformed packing (6).

(25) Position preformed packing (6) on port G8.

(26) Connect hose 2295 (5) to port G8.

(27) Disconnect flowmeter, adapters, No. 16 test hoses, test fitting and test hose from hose 2935 (1) and elbow (3).

(28) Remove and discard preformed packing (2) from elbow (3).

(29) Apply hydraulic oil to preformed packing (2).

(30) Position preformed packing (2) on elbow (3).

(31) Connect hose 2935 (1) to elbow (3) on high pressure filter (4).

(32) Check main hydraulic reservoir oil level and add oil as necessary.

b. Follow-On Maintenance:

- Install left side noise panel, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-6. LOAD HANDLING SYSTEM (LHS) LOAD CONTROL VALVE MAIN FRAME REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

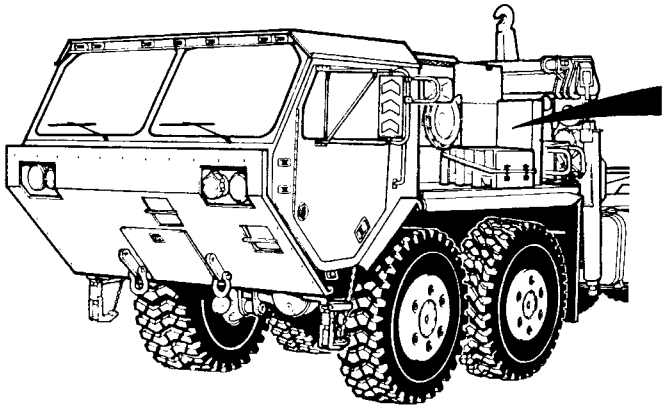
INITIAL SETUP

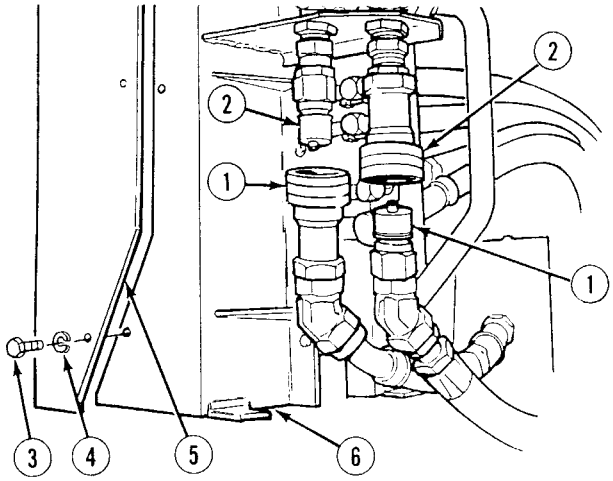
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination 1-1/2 in.
(Item 260, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 453, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The LHS hydraulic system operates at oil pressures up to 3,675 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

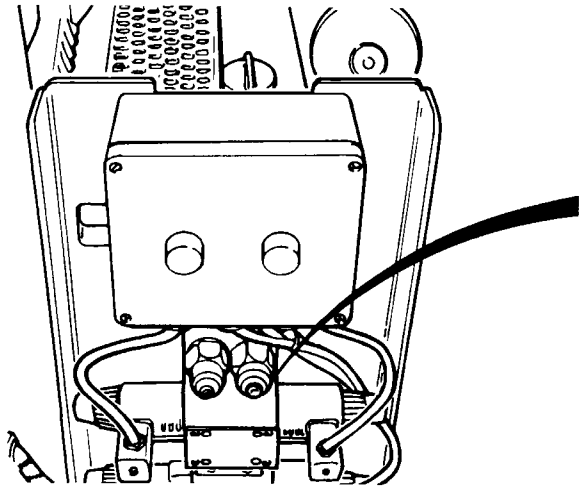
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

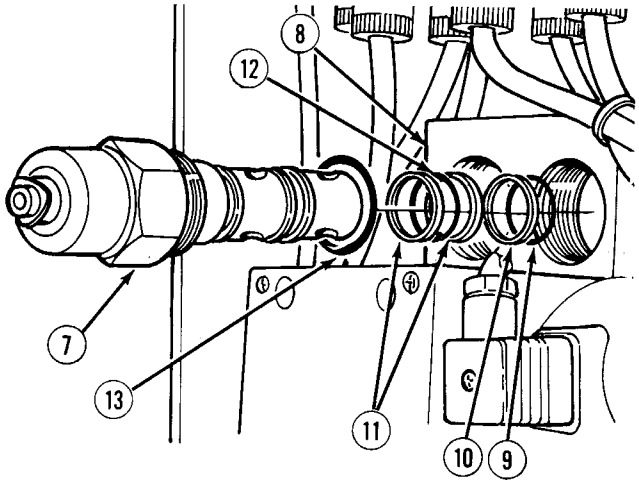
NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

17-6. LOAD HANDLING SYSTEM (LHS) LOAD CONTROL VALVE MAIN FRAME REPLACEMENT (CONT).





NOTE

- Both load control valves are removed the same way.
- Left side (outside) load control valve controls loading.
- Right side (inside) load control valve controls unloading.

(3) Position drain pan under load control valves (7).

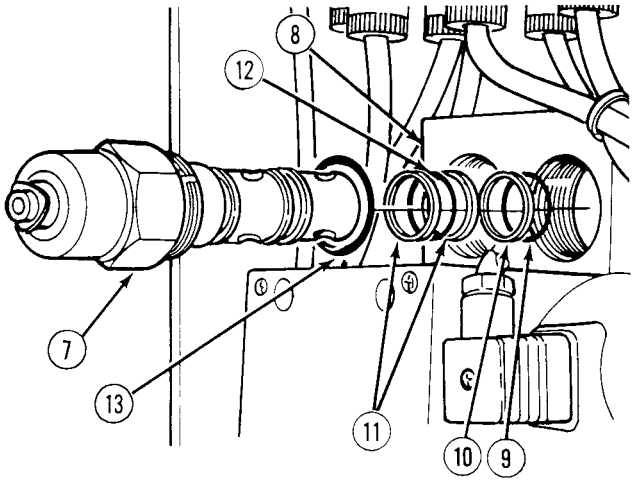
(4) Remove load control valve (7) from hydraulic manifold (8).

(5) Remove preformed packing (9), backup ring (10), two backup rings (11), preformed packing (12) and preformed packing (13) from load control valve (7). Discard preformed packings and backup rings.

b. Installation.

CAUTION

Preformed packing, backup ring and sealing ring assembly are very similar in size. The last preformed packing to be installed and its backup ring are the smallest in size. If these components fit loosely or tightly on load control valve, they are installed in the incorrect position. Damage to equipment may result.



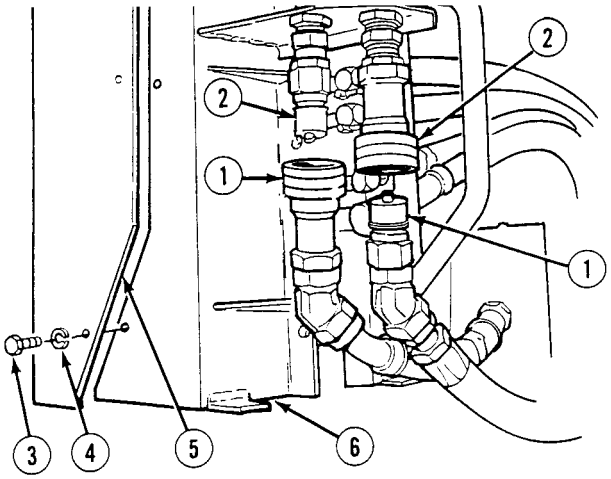
(1) Apply hydraulic oil to preformed packings (9), (12) and (13) and backup rings (11) and (10).

(2) Install preformed packing (13), preformed packing (12), two backup rings (11), backup ring (10) and preformed packing (9) on load control valve (7).

(3) Install load control valve (7) in hydraulic manifold (8). Tighten valve to 75 lb-ft (102 N·m).

(4) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(5) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-7. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD CHECK VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

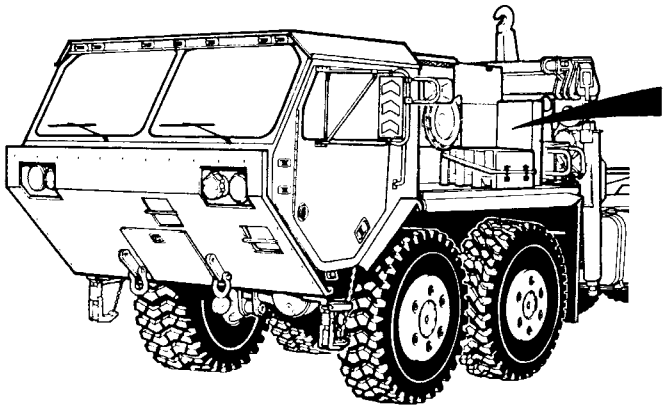
INITIAL SETUP

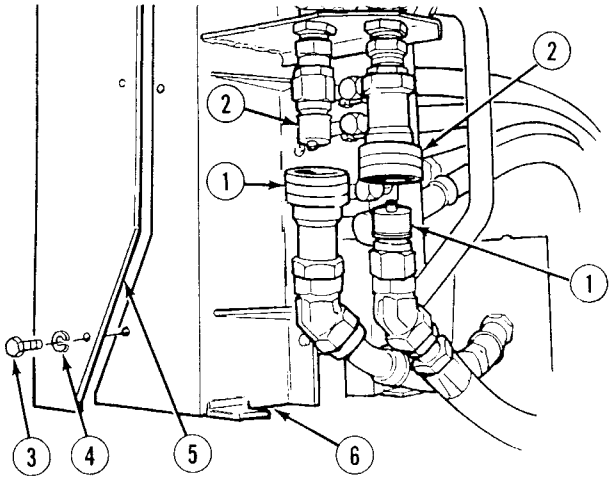
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 410, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

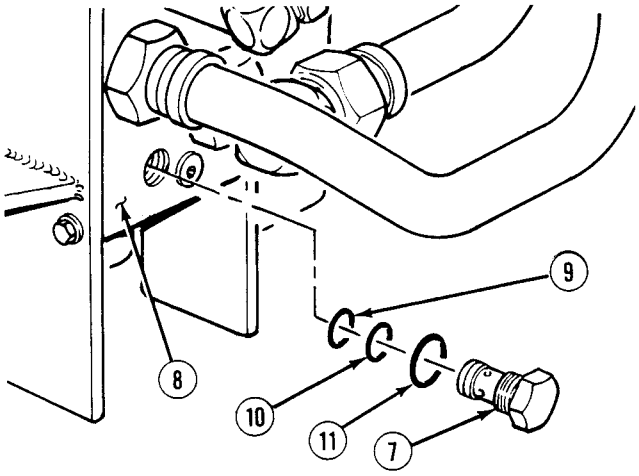
Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

(3) Position drain pan under check valve (7).

(4) Remove check valve (7) from manifold (8).

(5) Remove backup ring (9) and two preformed packings (10) and (11) from valve (7). Discard backup ring and preformed packings.



b. Installation.

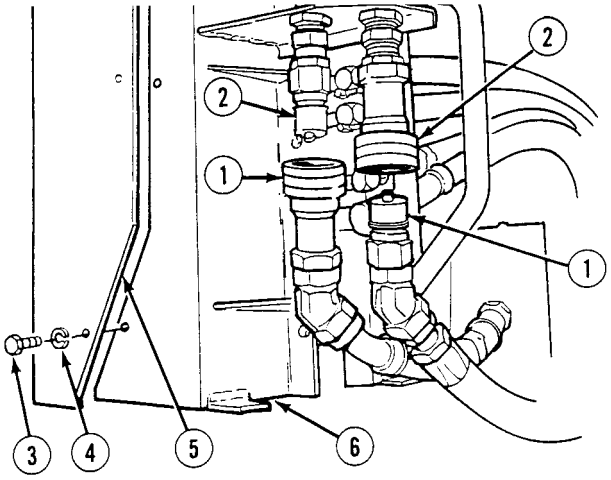
(1) Apply hydraulic oil to two preformed packings (10) and (11) and backup ring (9).

(2) Install two preformed packings (10) and (11) and backup ring (9) on check valve (7).

(3) Install check valve (7) in manifold (8). Tighten valve to 45 lb-ft (61 N·m).

(4) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(5) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-8. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD RELIEF VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wooden Block (2) (Appendix C)

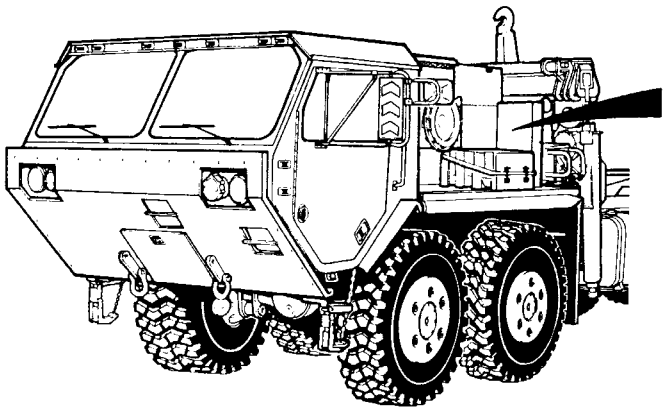
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Locknut (4) (Item 210, Appendix E)
Lockwasher (4) (Item 266, Appendix E)

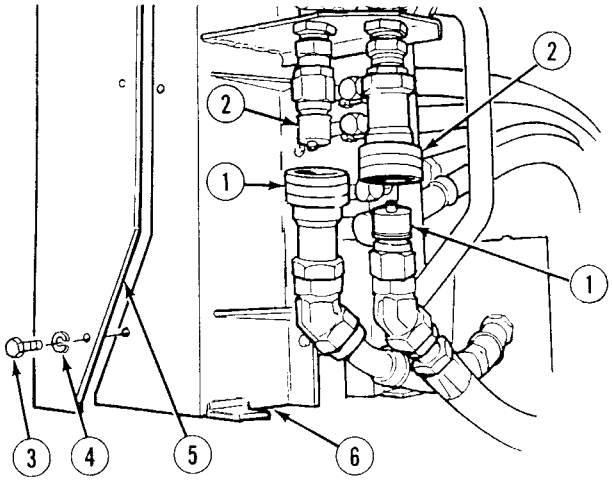
Materials/Parts - Continued
Pin, Cotter (Item 420, Appendix E)
Preformed Packing Kit (Item 454, Appendix E)

Personnel Required
Two

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

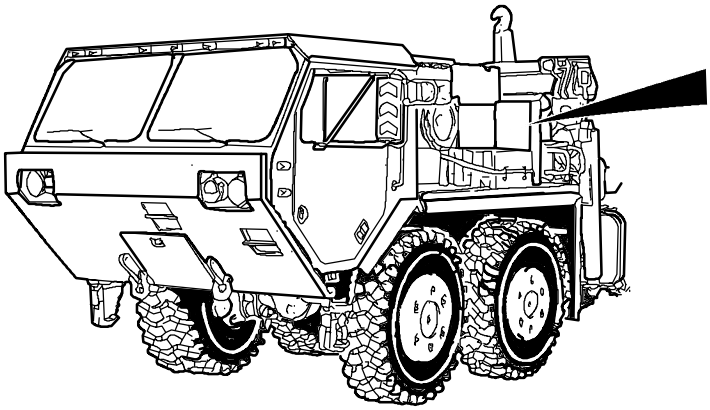
The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

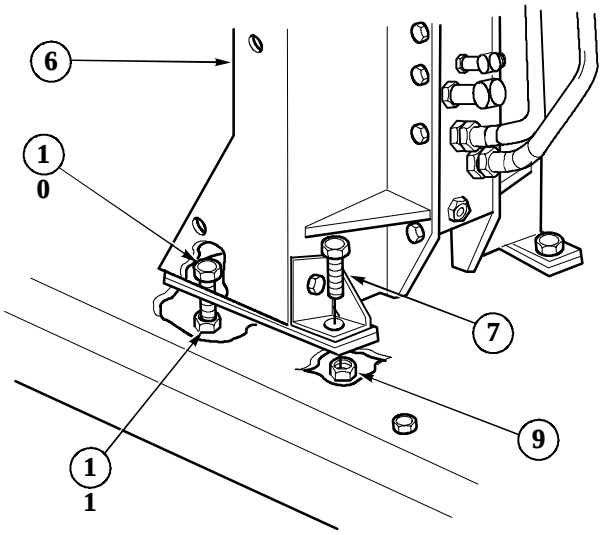
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

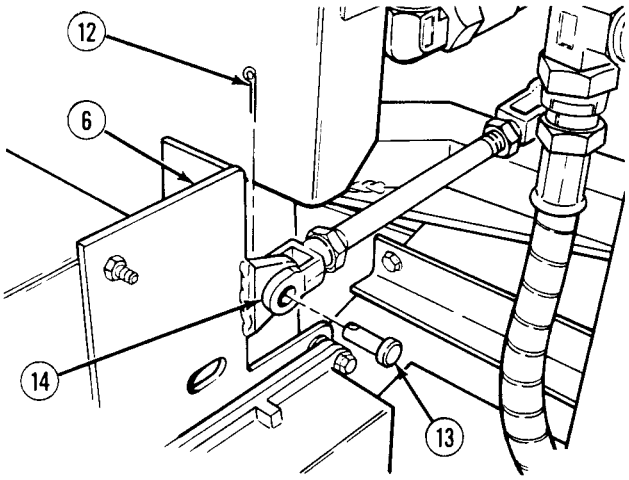




(3) Remove two screws (7) and locknuts (9) from LHS main junction box (6). Discard locknuts.

(4) Loosen two screws (10) and locknuts (11) on LHS main junction box (6) approximately six turns.

(5) Remove cotter pin (12), pin (13) and yoke (14) from LHS main junction box (6). Discard cotter pin.

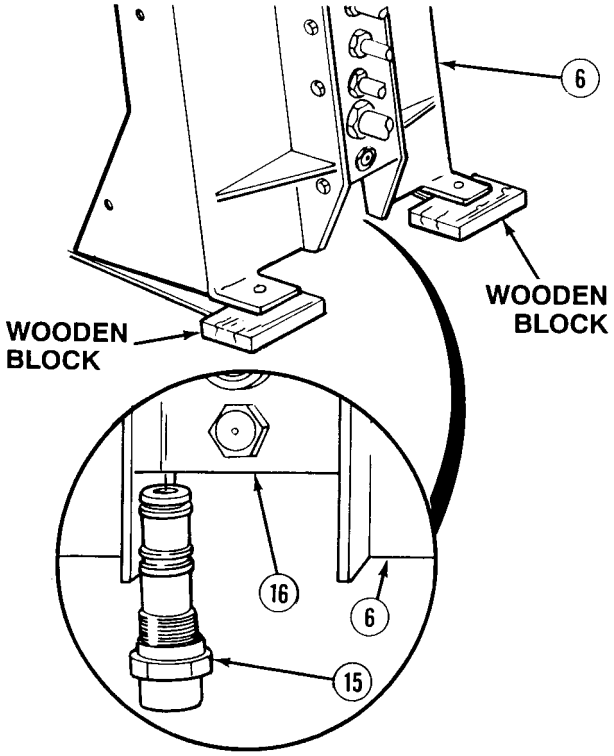


17-8. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD RELIEF VALVE REPLACEMENT (CONT).

(6) With the aid of an assistant, push on top of LHS main junction box (6) towards front of truck enough to lift rear of LHS main junction box (6) approximately two in. (5.08 cm), and place two wooden blocks under LHS main junction box (6).

(7) Position drain pan under relief valve (15).

(8) Remove relief valve (15) from manifold (16).

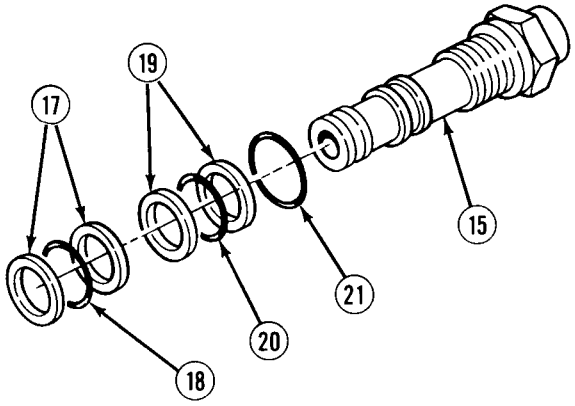


(9) Remove two backup rings (17), preformed packing (18), two backup rings (19), preformed packing (20) and preformed packing (21) from relief valve (15). Discard backup rings and preformed packings.

b. Installation.

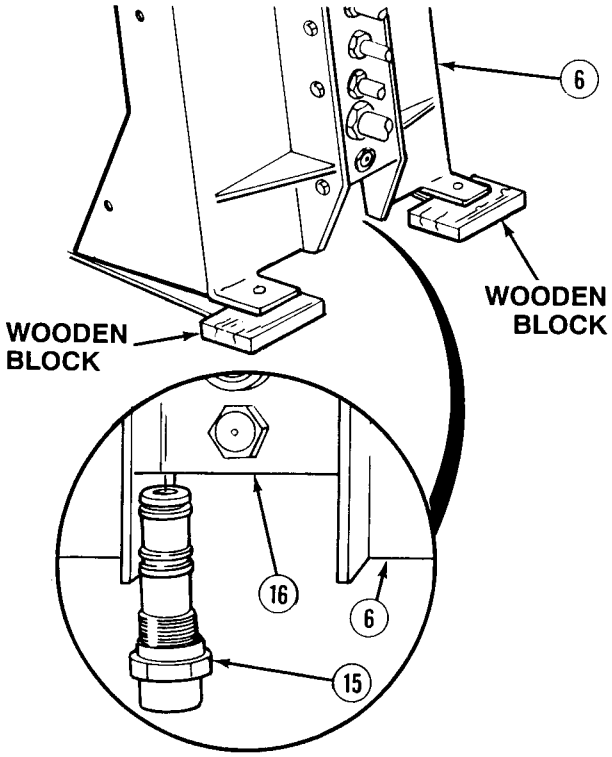
(1) Apply hydraulic oil to preformed packings (20) and (21) and two backup rings (17) and (19).

(2) Install preformed packing (21), preformed packing (20), two backup rings (19), preformed packing (18) and two backup rings (17) on relief valve (15).

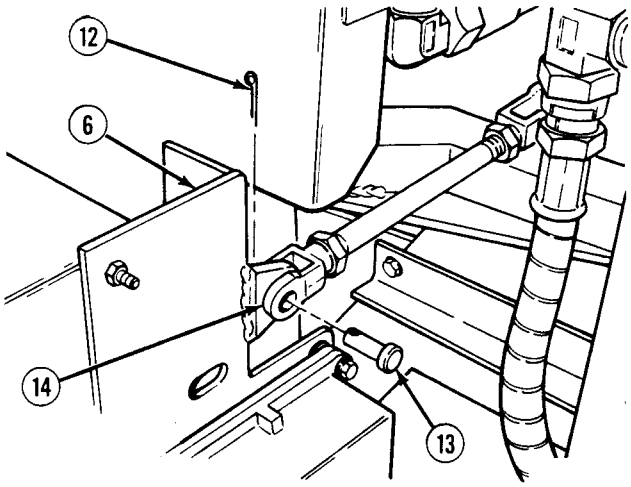


(3) Install relief valve (15) in manifold (16). Tighten relief valve to 65 lb-ft (88 N·m).

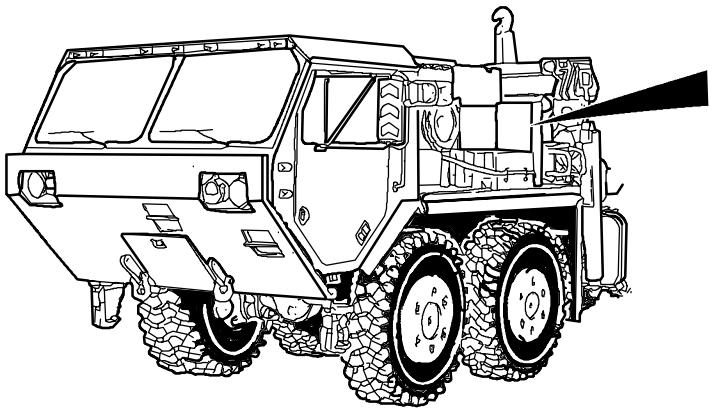
(4) With the aid of an assistant, push on top of LHS main junction box (6) and remove two wooden blocks. Lower LHS main junction box (6).

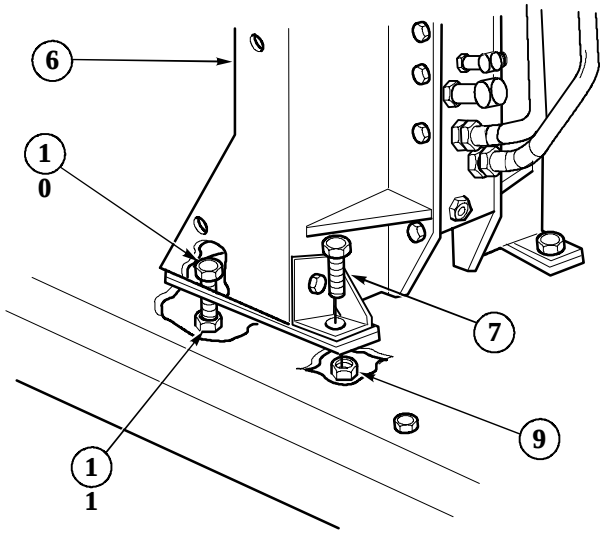


(5) Install yoke (14), pin (13) and cotter pin (12) on LHS main junction box (6).



17-8. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD RELIEF VALVE REPLACEMENT (CONT).





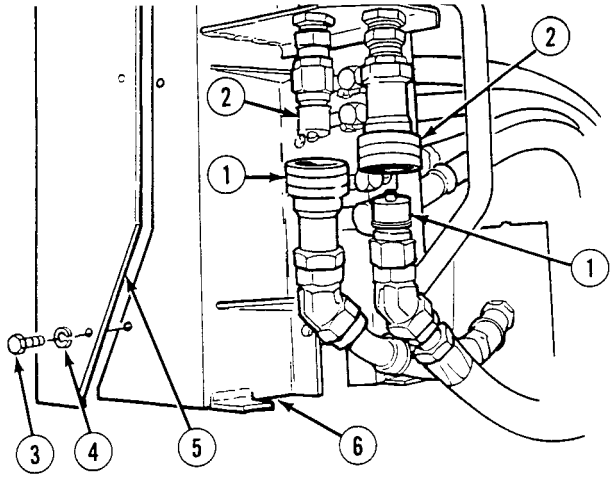
(6) Install two screws (7) and locknuts (9) on LHS main junction box (6).

(7) Remove two locknuts (11) on screws (10) on LHS main junction box (6). Discard locknuts.

(8) Install two locknuts (11) on screws (10) on LHS main junction box (6).

(9) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(10) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-9. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD SOLENOID VALVE AND COIL REPAIR.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

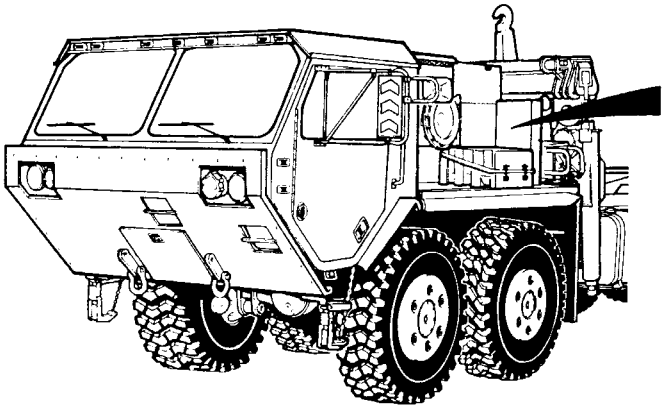
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

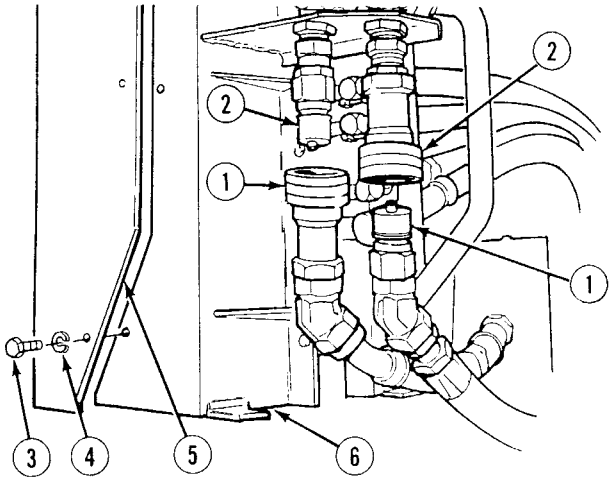
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 62, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 455, Appendix E)

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

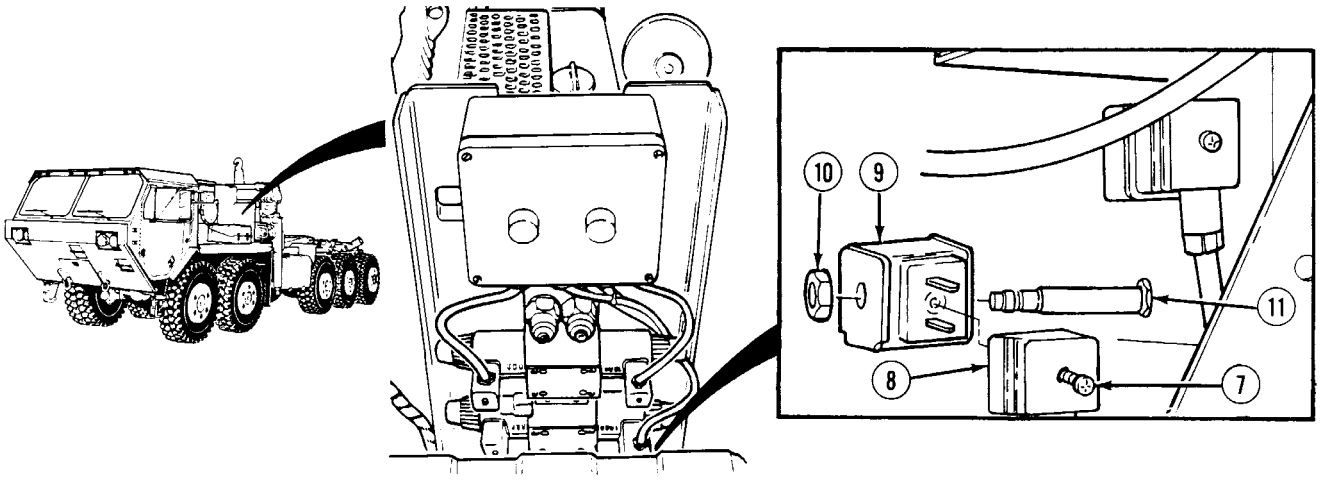
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

17-9. LOAD HANDLING SYSTEM (LHS) SOLENOID VALVE AND COIL REPAIR (CONT).

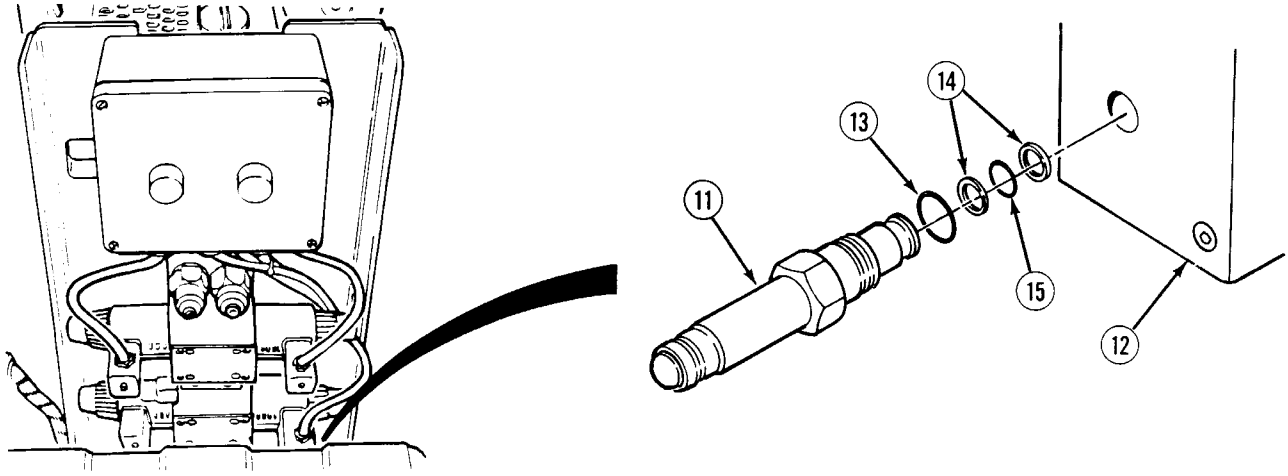


(3) Loosen screw (7) and connector (8) from solenoid valve coil (9).

NOTE

Proceed to ***Installation*** Step (5) if only replacing solenoid valve coil.

(4) Remove nut (10) and solenoid valve coil (9) from solenoid valve (11).



(5) Position drain pan under solenoid valve (11).

(6) Remove solenoid valve (11) from hydraulic manifold (12).

(7) Remove preformed packing (13), two backup rings (14) and preformed packing (15) from solenoid valve (11). Discard preformed packings and backup rings.

b. Installation.

(1) Coat preformed packings (13) and (15) and two backup rings (14) with hydraulic oil.

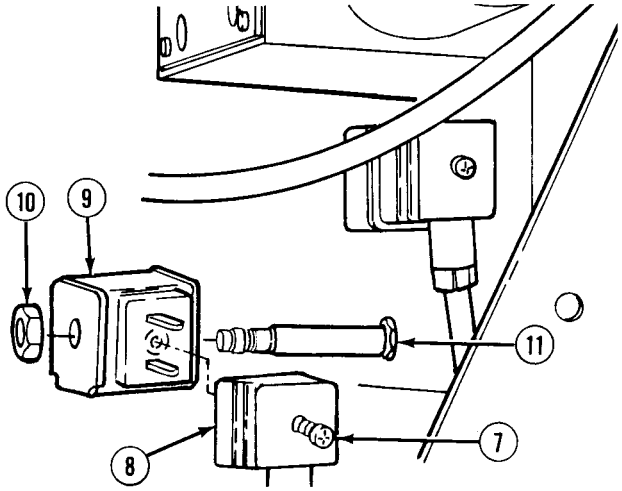
(2) Install preformed packing (15), two backup rings (14) and preformed packing (13) on solenoid valve (11).

(3) Install solenoid valve (11) in manifold (12) and tighten to 20 lb-ft (27 N·m).

17-9. LOAD HANDLING SYSTEM (LHS) SOLENOID VALVE AND COIL REPAIR (CONT).

(4) Install solenoid valve coil (9) on solenoid valve (11) with nut (10).

(5) Install connector (8) on solenoid valve coil (9) with screw (7).



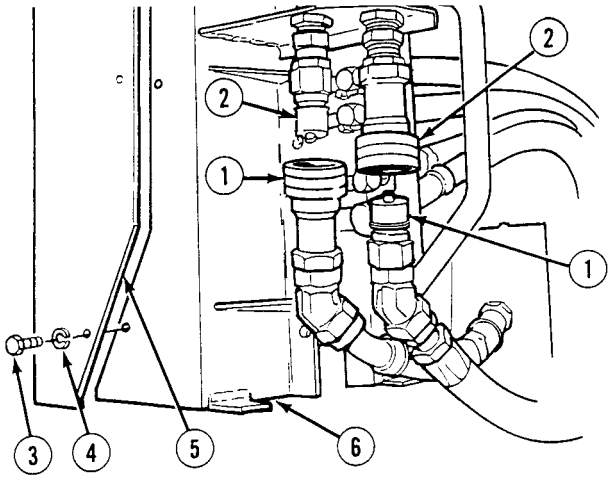
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(6) Apply sealing compound to the head of screw (7).

(7) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(8) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-10. LOAD HANDLING SYSTEM (LHS) DIRECTIONAL CONTROL VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

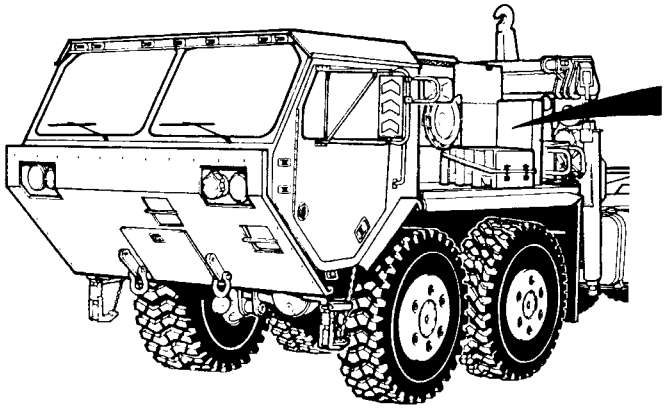
INITIAL SETUP

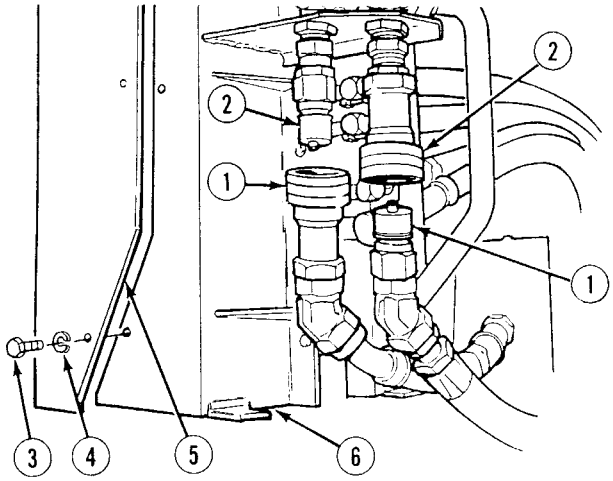
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 449, Appendix E)

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

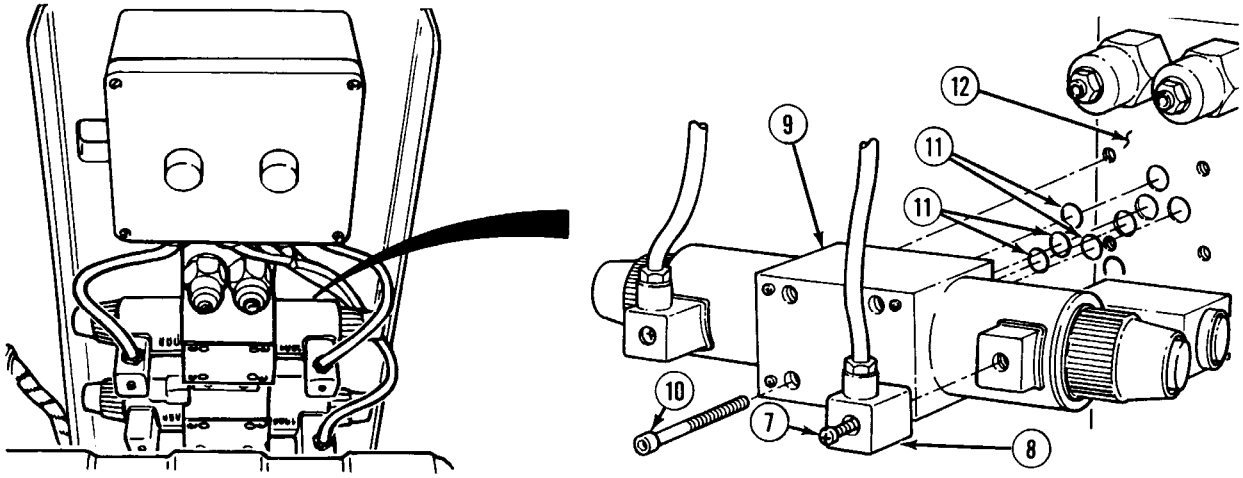
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

17-10. LOAD HANDLING SYSTEM (LHS) DIRECTIONAL CONTROL VALVE REPLACEMENT (CONT).



(3) Loosen two screws (7) and connectors (8) from directional control valve (9).

(4) Position drain pan under directional control valve (9).

(5) Remove four screws (10), directional control valve (9) and five preformed packings (11) from hydraulic manifold (12). Discard preformed packings.

b. Installation.

(1) Apply hydraulic oil to five preformed packings (11).

(2) Install five preformed packings (11) on directional control valve (9).

(3) Install directional control valve (9) on hydraulic manifold (12) with four screws (10).

(4) Install two connectors (8) with screws (7).

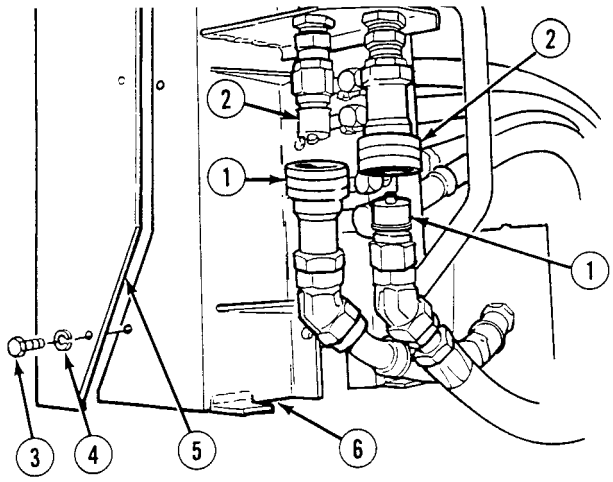
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(5) Apply sealing compound to heads of screws (7).

(6) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(7) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-11. LOAD HANDLING SYSTEM (LHS) TRANSIT VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

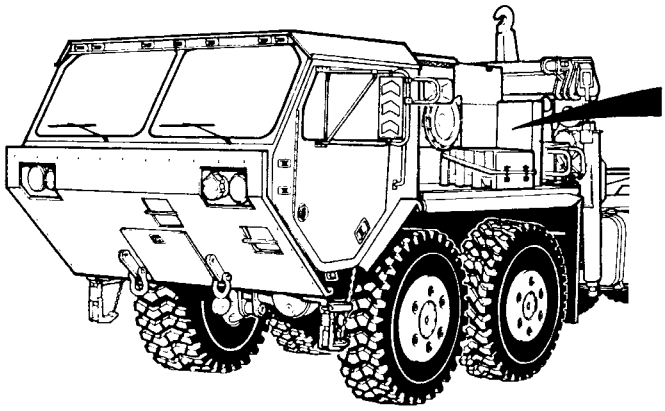
INITIAL SETUP

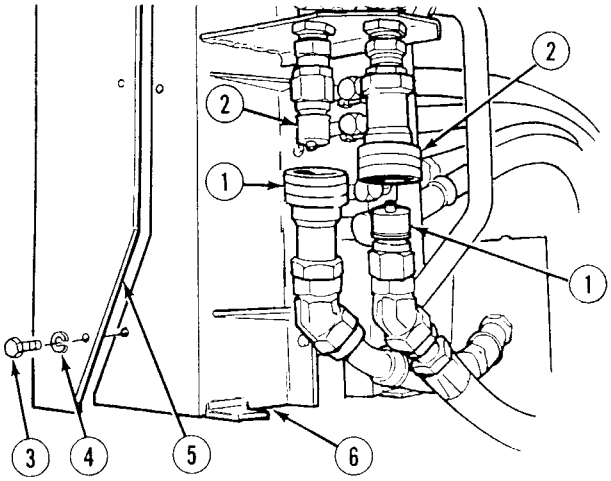
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 449, Appendix E)

a. Removal.





WARNING

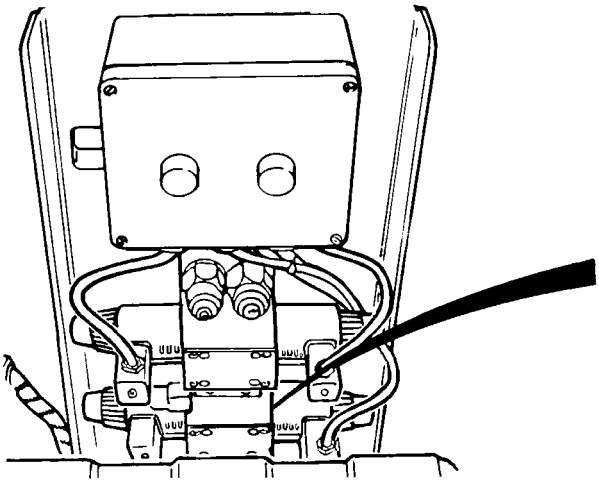
The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

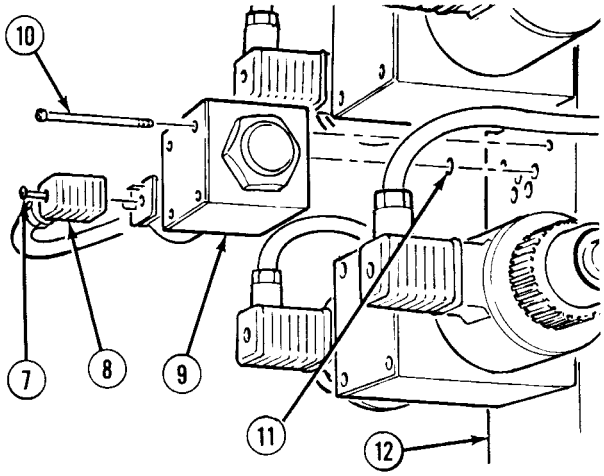
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.





(3) Loosen captive screw (7) and remove connector (8) from transit valve (9).

(4) Position drain pan under transit valve (9).

(5) Remove four screws (10), transit valve (9) and four preformed packings (11) from hydraulic manifold (12). Discard preformed packings.

b. Installation.

(1) Apply hydraulic oil to four preformed packings (11).

(2) Install four preformed packings (11) on transit valve (9).

(3) Install transit valve (9) on hydraulic manifold (12) with four screws (10).

(4) Install connector (8) on transit valve (9) and tighten screw (7).

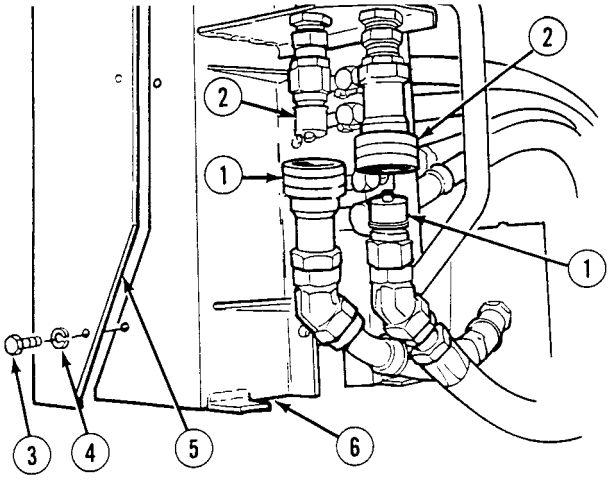
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(5) Apply sealing compound to head of screw (7).

(6) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(7) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pliers, Channel Lock (Item 151, Appendix F)
Wooden Blocks (2) (Appendix C)
Lifting Device, Minimum capacity 2100 lb (953 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Locknut (Item 175, Appendix E)

Materials/Parts - Continued
Locknut (2) (Item 206, Appendix E)
Lockwasher (2) (Item 251, Appendix E)
Lockwasher (2) (Item 304, Appendix E)

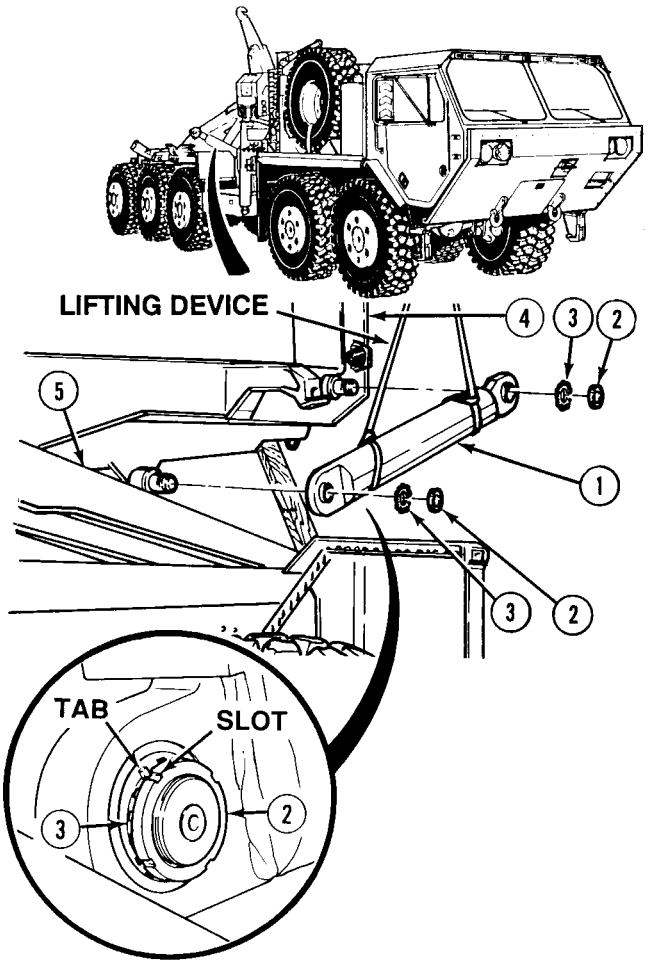
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hook arm manifold removed, (Para 17-13)

a. Removal.

WARNING

- Hook arm cylinders weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.
- Ensure hook arm assembly is supported with wooden blocks prior to removal to prevent possible injury to personnel.

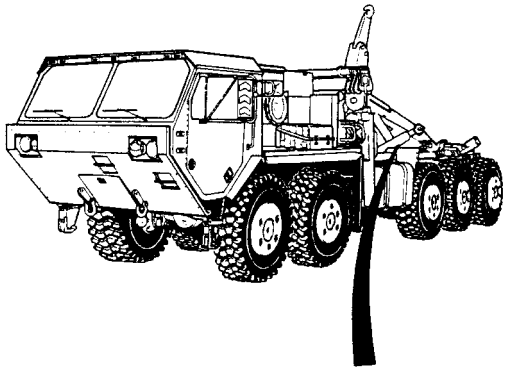


(1) Attach lifting device to right side cylinder (1).

(2) Remove two locknuts (2) and lockwashers (3) from right side cylinder (1) by bending lockwasher (3) tabs out of locknut (2) slots. Discard locknuts and lockwashers.

(3) With the aid of an assistant and using lifting device, remove right side cylinder (1) from hook arm (4) and middle frame (5).

(4) Remove lifting device from right side cylinder (1).



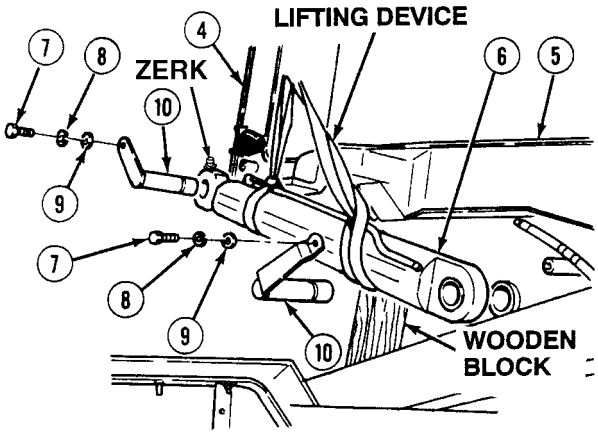
WARNING

Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(5) Attach lifting device to left side cylinder (6).

(6) With the aid of an assistant, remove two screws (7), lockwashers (8), washers (9), cylinder shafts (10) and left side cylinder (6) from hook arm (4) and middle frame (5). Discard lockwashers.

(7) Remove lifting device from left side cylinder (6).



b. Installation.

WARNING

Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

NOTE

Ensure zerk fitting points up when installed.

(1) Attach lifting device to left side cylinder (6).

(2) With the aid of an assistant, install barrel end (rear) of left side cylinder (6) with cylinder shaft (10) to middle frame (5).

(3) Install washer (9), lockwasher (8) and screw (7) on cylinder shaft (10).

(4) Lower left side cylinder (6) and remove lifting device.

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT (CONT).

WARNING

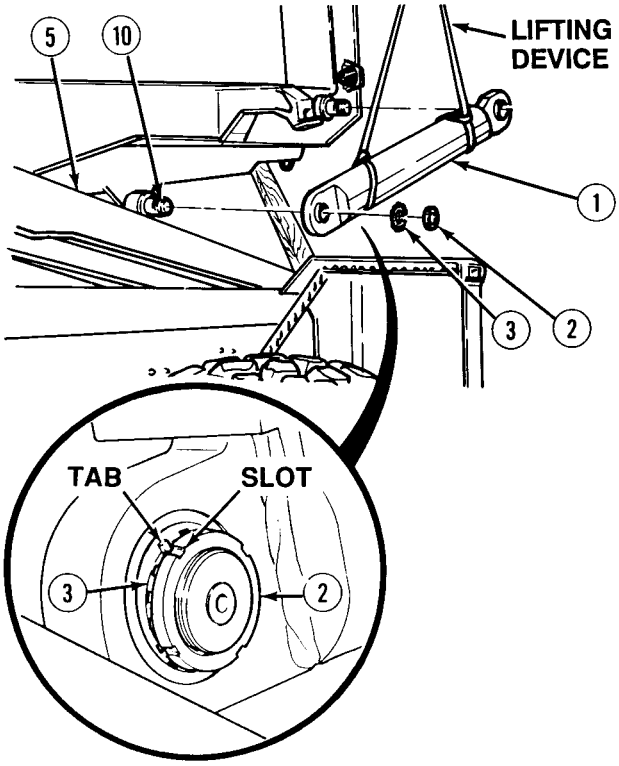
Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(5) Attach lifting device to right side cylinder (1).

(6) Using lifting device, install barrel end (rear) of right side cylinder (1) on cylinder shaft (10) on middle frame (5).

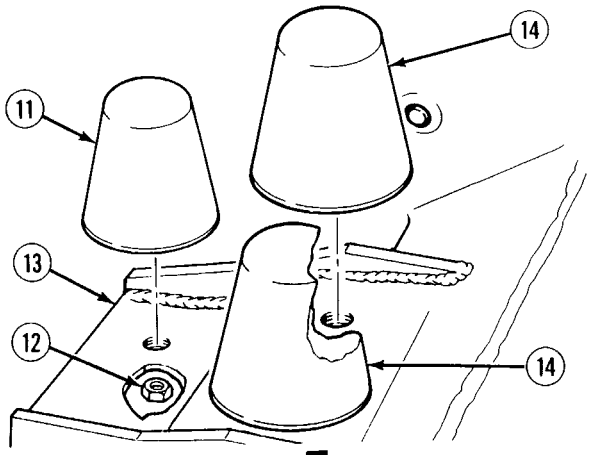
(7) Install lockwasher (3) and locknut (2) on cylinder shaft (10). Bend lockwasher (3) tab into locknut (2) slot.

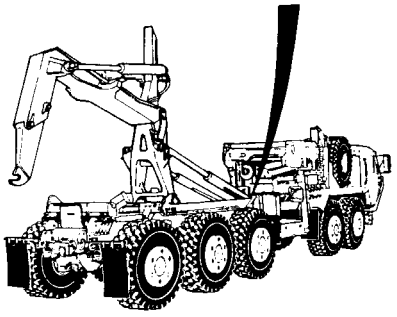
(8) Lower right side cylinder (1) and remove lifting device.

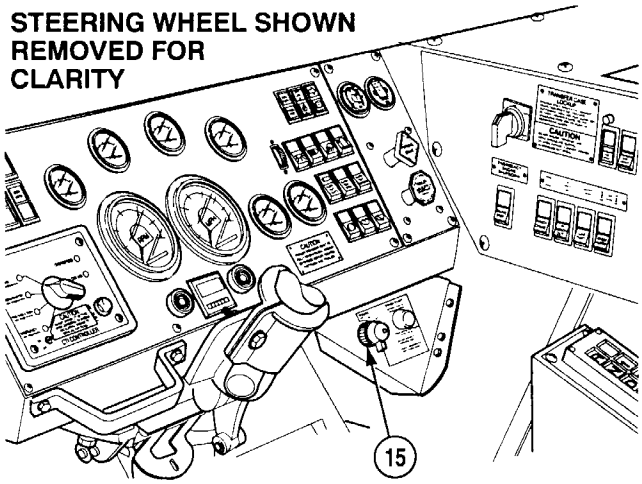


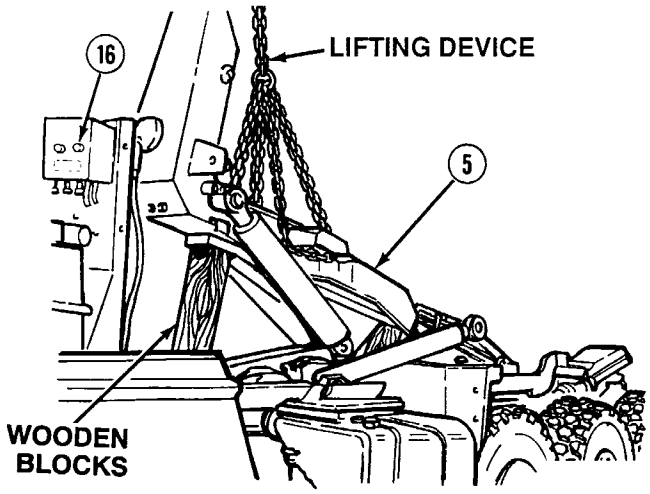
(9) Remove rubber bumper (11) and locknut (12) from compression frame (13). Discard locknut.

(10) Remove two rubber bumpers (14) from compression frame (13).









WARNING

Middle frame and hook arm combined weight is 2,300 lbs (1044 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden block from falling or damage to equipment may result.

(11) Attach lifting device to middle frame (5).

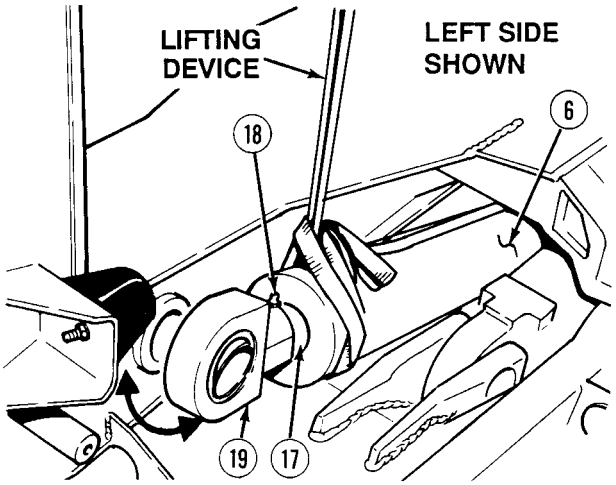
(12) With the aid of an assistant, turn ON ENGINE switch (15) and press middle frame safe lowering button (16) while using lifting device to raise middle frame (5), remove wooden block and lower middle frame (5).

(13) Turn OFF ENGINE switch (15) and remove lifting device from middle frame (5).

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT (CONT).

WARNING

Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.



NOTE

Steps (14) through (17) are for cylinder adjustment. Adjustment must be completed before completing installation of cylinders. Left side shown.

(14) Attach lifting device to left side cylinder (6).

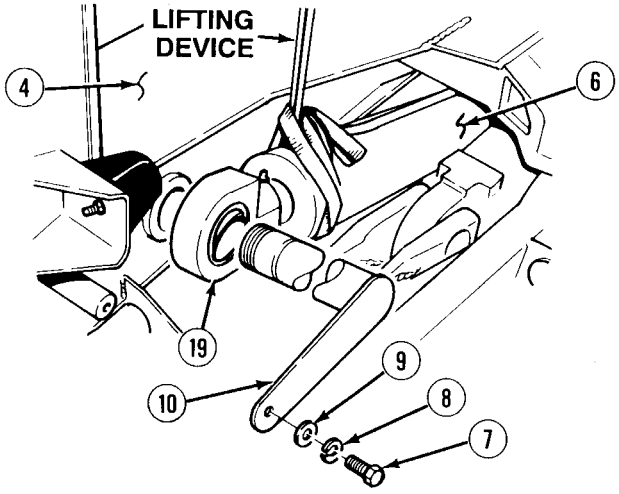
(15) Adjust cylinders by supporting left side cylinder (6) using lifting device and fully retract cylinder rod (17) in cylinder (6).

(16) Pull cylinder rod (17) out 1/4 in. (6.4 mm).

(17) Loosen hex head screw (18) and rotate rod lug (19) so rod lug bore lines up with cylinder shaft bore in hook arm (4). Tighten hex head screw (18).

NOTE

Perform Step (18) for left side cylinder only.



(18) Install left side cylinder (6) (rod lug end) with cylinder shaft (10), washer (9), lockwasher (8) and screw (7) on hook arm (4) when rod lug (19) bore and bore in hook arm line up.

(19) Remove lifting device from left side cylinder (6).

WARNING

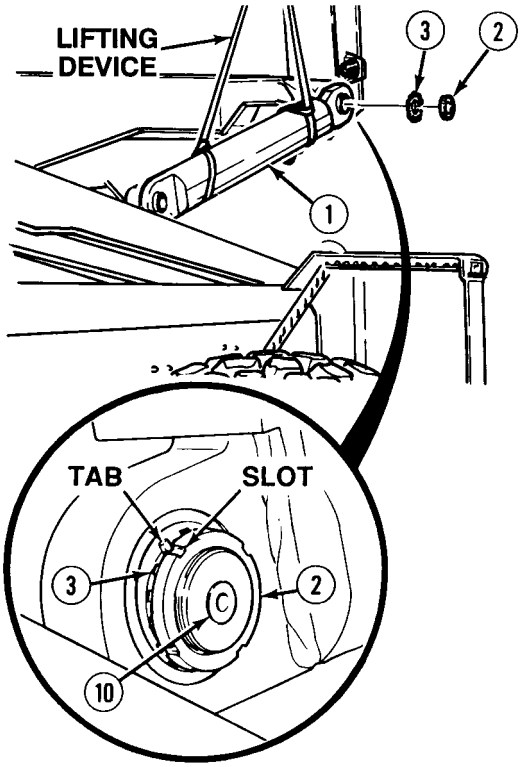
Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.

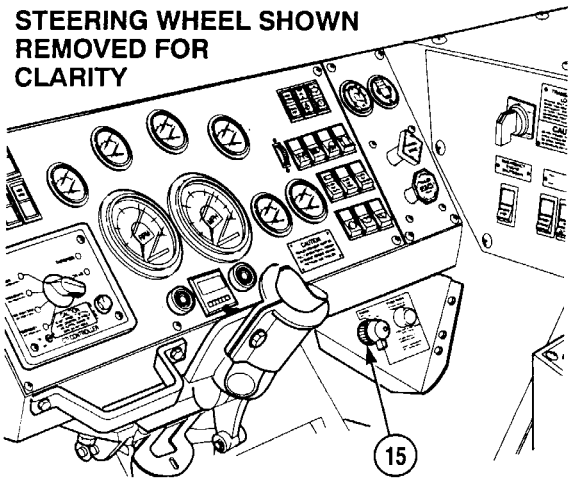
(20) Attach lifting device on right side cylinder (1).

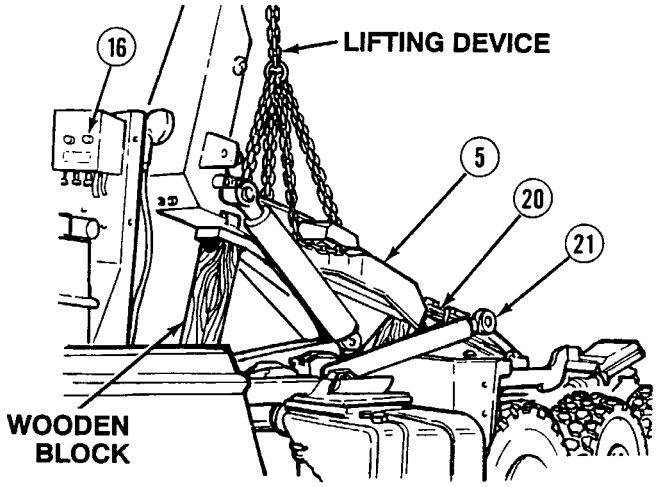
(21) With the aid of an assistant, using lifting device, install right side cylinder (1) (rod lug end) with lockwasher (3) and locknut (2) on cylinder shaft (10).

(22) Bend lockwasher (3) tab into locknut (2).

(23) Remove lifting device from right side cylinder (1).







WARNING

Middle frame, hook arm and hook have a combined weight of 2,100 lbs (953 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.

(24) Attach lifting device to middle frame (5).

(25) With the aid of an assistant, turn ON ENGINE switch (15) and press middle frame safe lowering button (16) while using lifting device to raise middle frame (5) and block up middle frame in two places.

(26) Turn OFF ENGINE switch (15) and remove lifting device from middle frame (5).

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT (CONT).

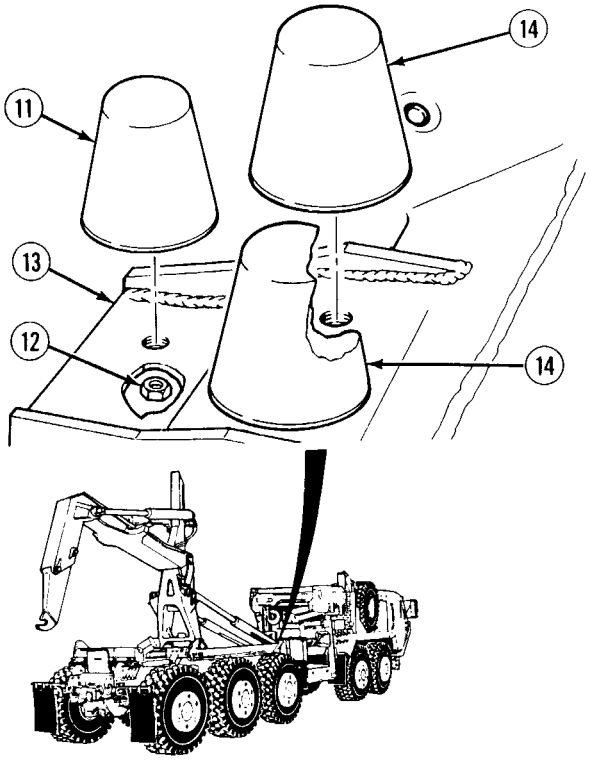
(27) Install rubber bumper (11) and locknut (12) on compression frame (13).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(28) Coat threads of two rubber bumpers (14) with sealing compound.

(29) Install two rubber bumpers (14) on compression frame (13).



c. Follow-On Maintenance:

- Install hook arm manifold, (Para 17-13).
- Check hydraulic reservoir oil level, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination, 1-1/4 in. (Item 256, Appendix F)
Wooden Block (2) (Appendix C)
Lifting Device, Minimum capacity 2500 lb (1135 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)

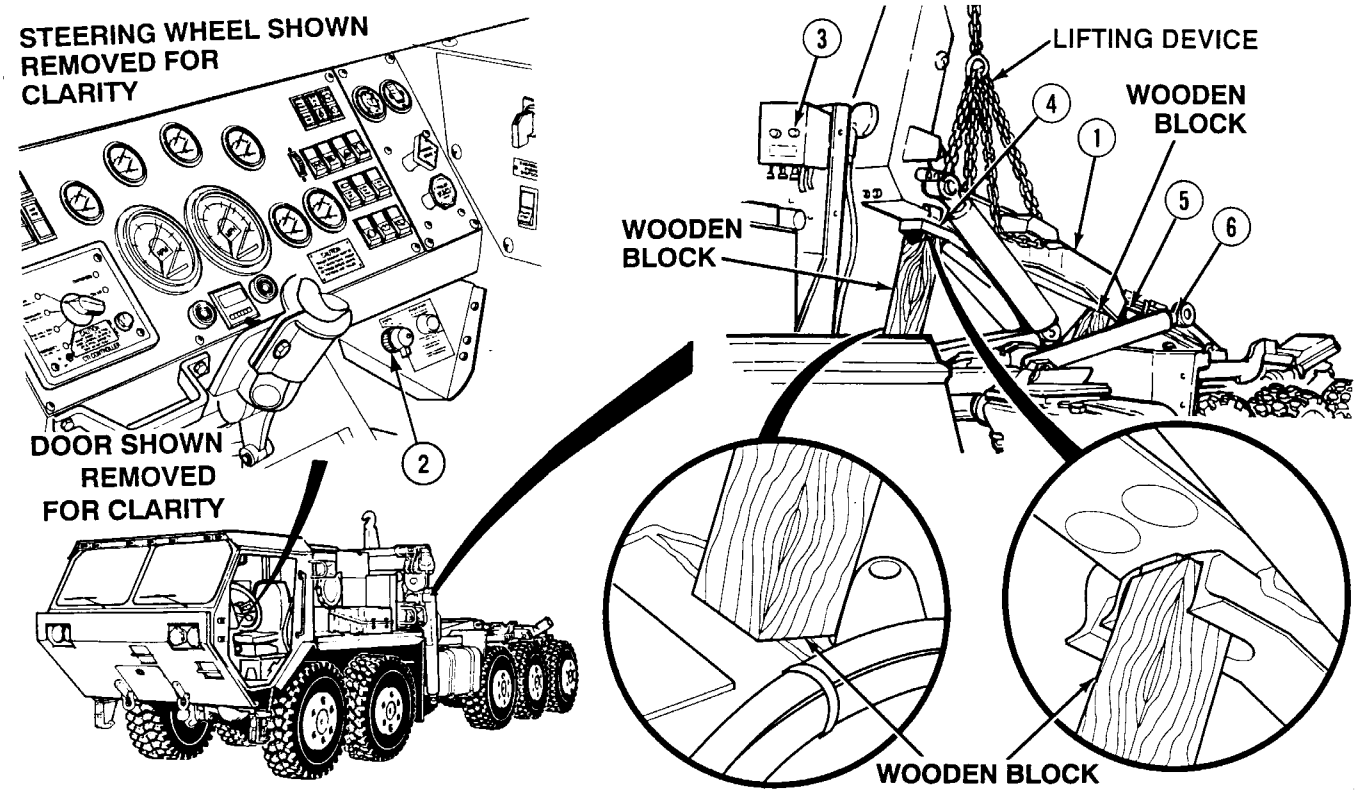
Materials/Parts
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (8) (Item 238, Appendix E)
Preformed Packing Kit (Item 447, Appendix E)
Preformed Packing Kit (Item 453, Appendix E)
Preformed Packing Kit (Item 455, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS manifold cover removed, (TM 9-2320-364-20)

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR (CONT).

a. Removal.



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent injury to personnel.

NOTE

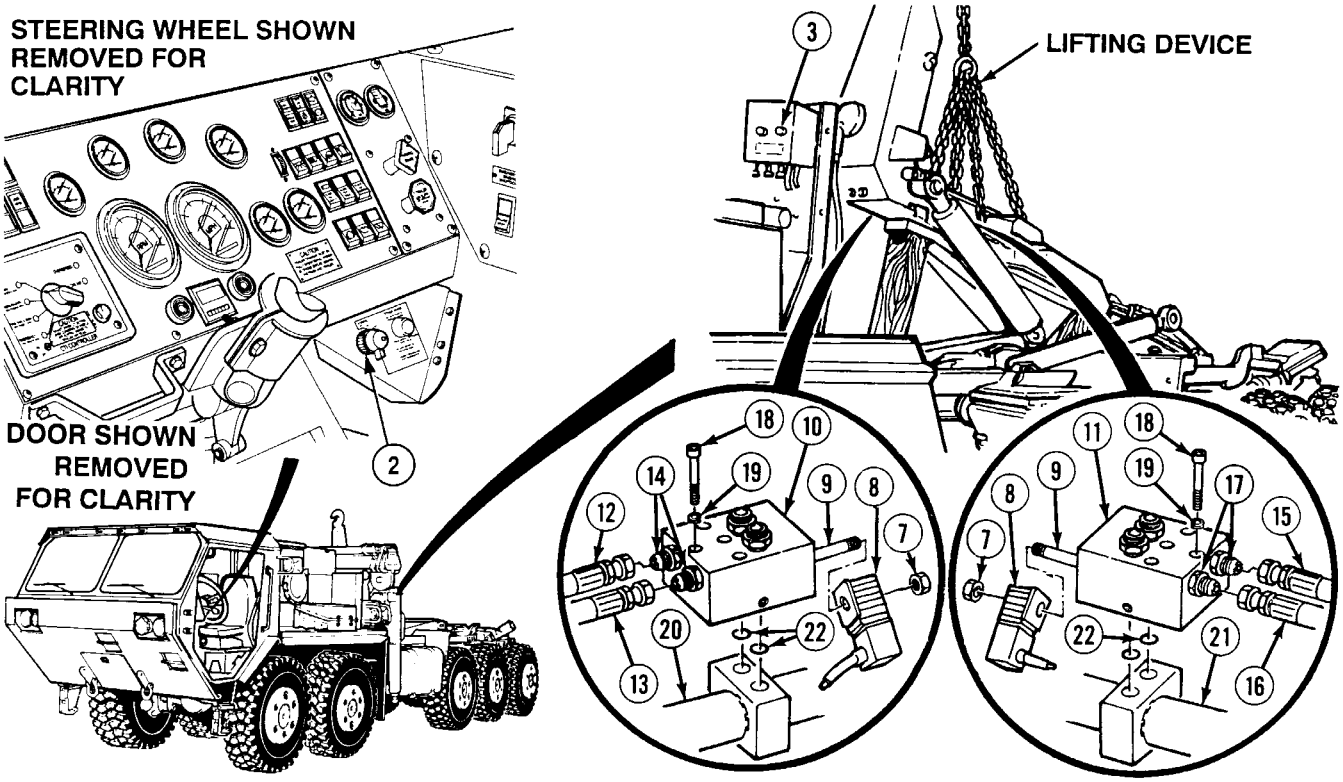
- There are two hook arm manifolds.
- Both manifolds are removed the same way. Left side shown.
- Remove cable ties as required.

(1) Attach lifting device to hook arm (1).

(2) Turn ON ENGINE switch (2).

(3) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise middle frame (4) up until hook arm pivot pin (5) is above main cylinder (6) and block up middle frame in two places.

(4) Remove lifting device from hook arm (1).



WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

(5) Press middle frame safe lowering button (3) to relieve hydraulic pressure.

(6) Turn OFF ENGINE switch (2).

(7) Remove two nuts (7) and solenoid valve coils (8) from solenoid valves (9).

(8) Position drain pan under left manifold (10) and right manifold (11).

NOTE

- Tag and mark hoses prior to removal.
- Cap hydraulic hoses after disconnecting.

(9) Remove hose 2281 (12) and hose 2891 (13) from two fittings (14) on left manifold (10).

(10) Remove hose 2882 (15) and 2892 (16) from two fittings (17) on right manifold (11).

(11) Remove eight screws (18), lockwashers (19) and left and right manifolds (10) and (11) from left and right cylinders (20) and (21). Discard lockwashers.

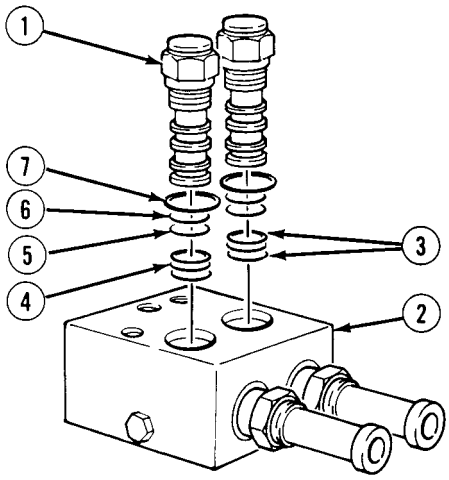
(12) Remove four preformed packings (22) from left and right manifolds (10) and (11). Discard preformed packings.

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR (CONT).

b. Disassembly.

NOTE

Note location and position of valves, adapters and plugs prior to removal.



(1) Remove two load control valves (1) from manifold (2).

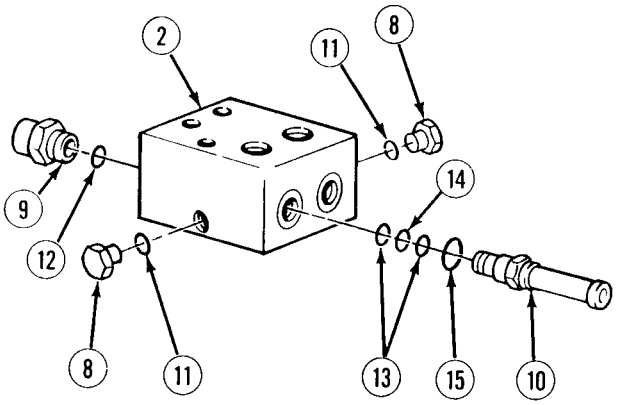
(2) Remove two backup rings (3), preformed packing (4), preformed packing (5), backup ring (6) and preformed packing (7) from each load control valve (1). Discard preformed packings and backup rings.

(3) Remove two hex head plugs (8), adapters (9) and solenoid valves (10) from manifold (2).

(4) Remove two preformed packings (11) from hex head plugs (8). Discard preformed packings.

(5) Remove two preformed packings (12) from adapters (9). Discard preformed packings.

(6) Remove two backup rings (13), preformed packing (14) and preformed packing (15) from each solenoid valve (10). Discard backup rings and preformed packing.



c. Cleaning/Inspection

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean manifold and components using drycleaning solvent.

(2) Inspect for any foreign material in ports and remove as necessary.

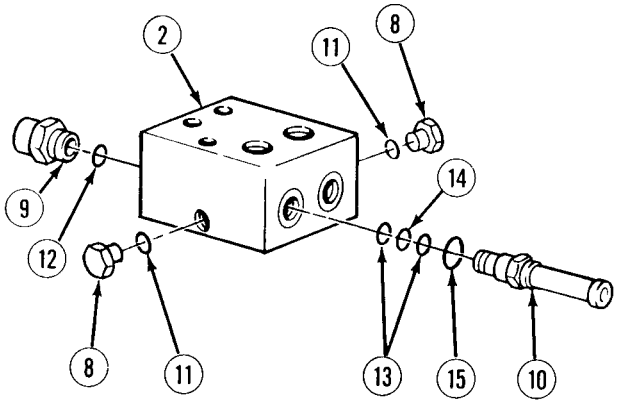
(3) Inspect for cracks, gouges, nicks or stripped threads.

(4) Replace all damaged parts.

d. Assembly.

NOTE

Install plugs, adapters and valves as noted prior to removal.



(1) Apply hydraulic oil to two preformed packings (14) and (15) and four backup rings (13).

(2) Install two preformed packings (15), preformed packing (14) and four backup rings (13) on two solenoid valves (10).

(3) Apply hydraulic oil to two preformed packings (11).

(4) Install two preformed packings (11) on hex head plugs (8).

(5) Apply hydraulic oil to two preformed packings (12).

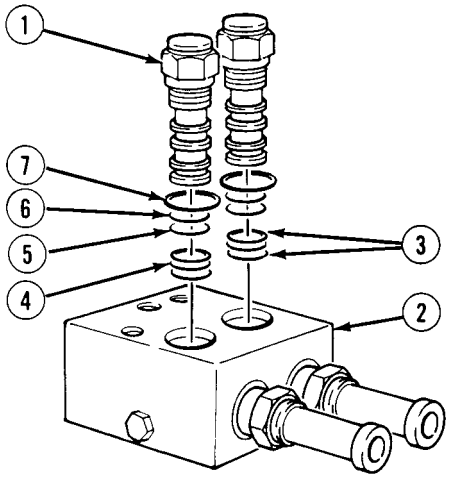
(6) Install two preformed packings (12) on adapters (9).

(7) Install two solenoid valves (10) in manifold (2).

(8) Install two adapters (9) in manifold (2).

(9) Install two hex head plugs (8) in manifold (2).

(10) Apply hydraulic oil to two preformed packings (7), backup rings (6), preformed packings (5), preformed packing (4) and four backup rings (3).

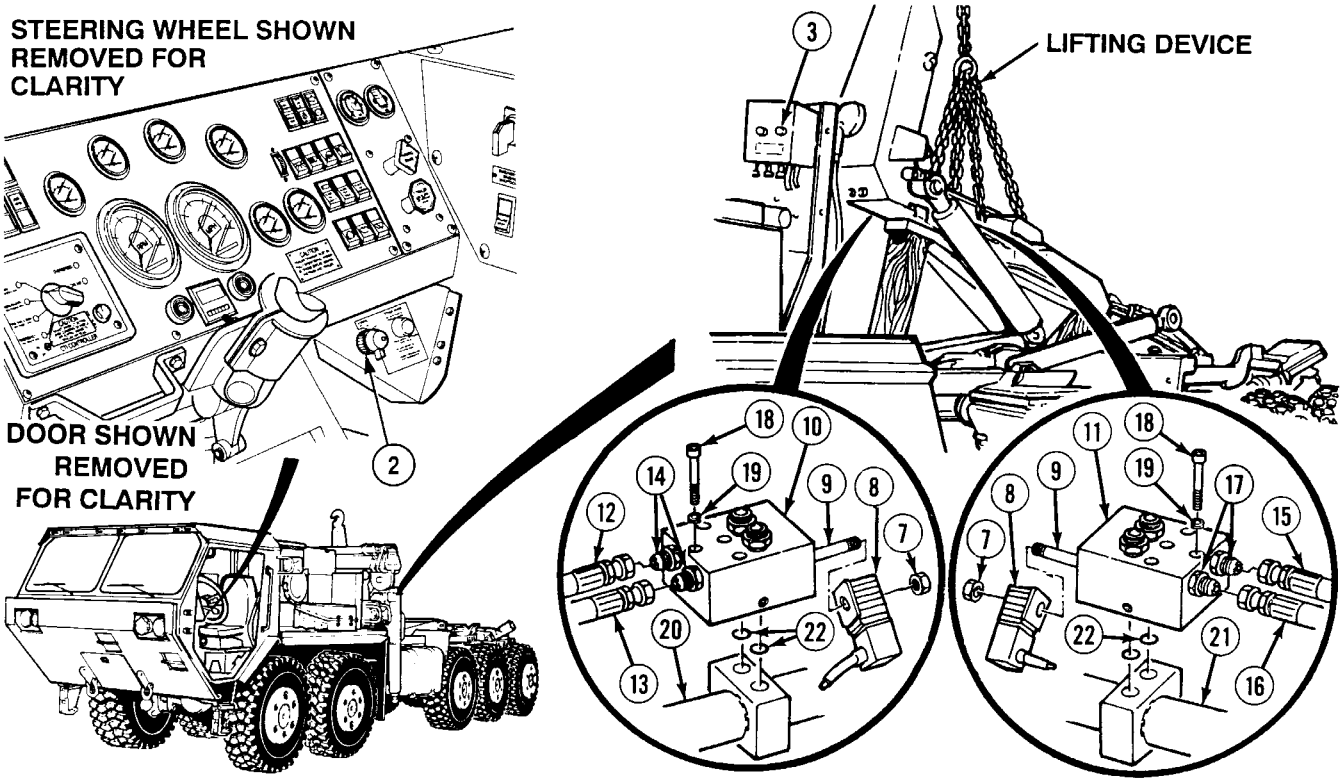


(11) Install two preformed packings (7), backup rings (6), preformed packings (5), preformed packing (4) and four backup rings (3) on two load control valves (1).

(12) Install two load control valves (1) in manifold (2).

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR (CONT).

e. Installation.



NOTE

Install cable ties as required.

(1) Apply hydraulic oil to four preformed packings (22).

(2) Install four preformed packings (22) on left and right manifolds (10) and (11).

(3) Install left and right manifolds (10) and (11) on left and right cylinders (20) and (21) with eight lockwashers (19) and screws (18).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

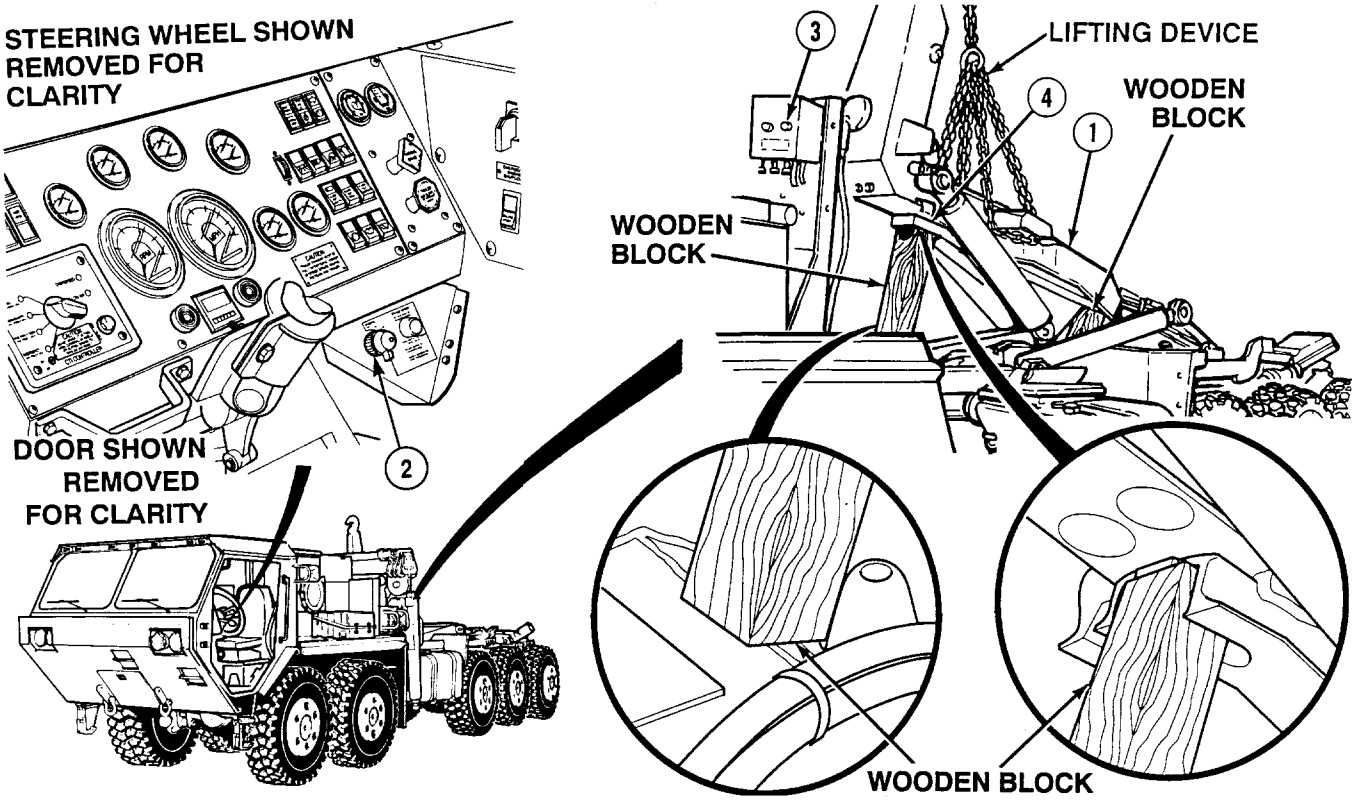
(4) Apply sealing compound in countersunk hole around head of eight screws (18).

(5) Install hose 2281 (12) and hose 2891 (13) on two fittings (14) on left manifold (10).

(6) Install hose 2882 (15) and 2892 (16) on two fittings (17) on right manifold (11).

(7) Install two solenoid valve coils (8) on solenoid valves (9) with nuts (7).

(8) Apply sealing compound to two nuts (7).



WARNING

Middle frame and hook arm have a combined weight of 2,100 lbs. (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden block from falling or damage to equipment may result.

(9) Attach lifting device to hook arm (1).

(10) Turn ON ENGINE switch (2).

(11) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise hook arm (1) and middle frame (4).

(11.1) Remove blocking and then lower middle frame (4).

(12) Tun OFF ENGINE switch (2).

(13) Remove lifting device from hook arm (1).

f. Follow-On Maintenance:

- Install LHS manifold cover, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR.

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Press, 60 Ton (Item 164, Appendix F)
Stone, Sharpening (Item 229, Appendix F)
Vise, Pipe, Chain (Item 249, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (Item 277, Appendix F)
Lifting Device, Minimum Capacity 250 lb (114 kg)
Wooden Blocks (2) (Appendix C)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Strip, Rubber (Item 71, Appendix E)
Plug, Nylon (Item 445, Appendix E)
Screw (Item 531, Appendix E)
Seal Kit (Item 577, Appendix E)

Personnel Required
Two

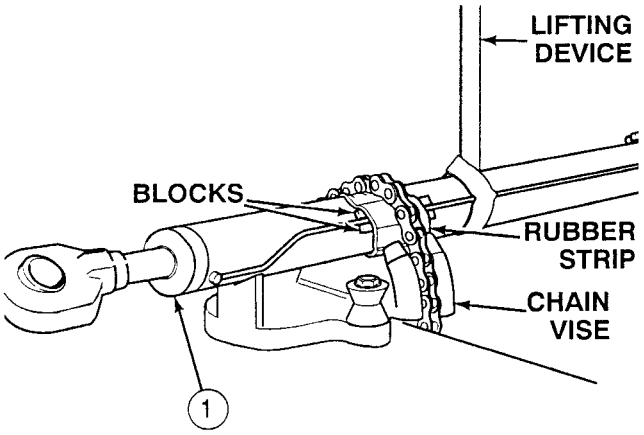
Equipment Condition
Hook arm cylinder removed, (Para 17-12) or
Main cylinder removed, (Para 17-15)

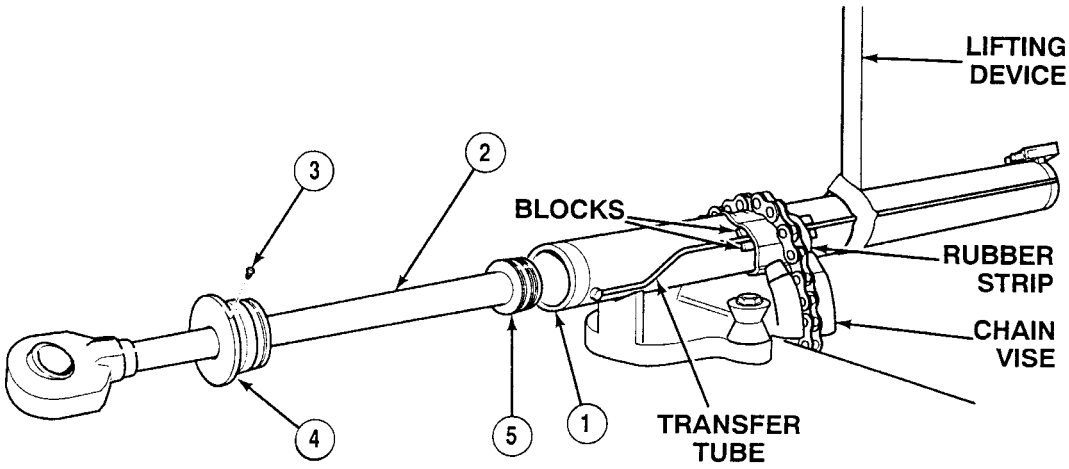
a. Disassembly.

WARNING

Cylinder weighs in excess of 210 lbs (95 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.

(1) Attach lifting device to cylinder (1).





CAUTION

Transfer tube is mounted along axis of cylinder. Use blocks to protect transfer tube when clamping cylinder in a chain vise or damage to equipment may result.

(2) Using lifting device, place cylinder (1) in chain vise using rubber stripping to protect cylinder surface. Use wooden block to protect transfer tube.

WARNING

Oil will spray from cylinder manifold ports when rod is moved in or out. Cover ports with two cleaning cloths to prevent oil from spraying. Failure to comply may result in injury to personnel.

CAUTION

Do not allow threaded or machined surfaces to come in contact with other metal surfaces. Clearances between cylinder components is very small, any minor damage done during disassembly could require component replacement or make assembly difficult.

(3) Position drain pan under cylinder (1).

(4) Move rod (2) out of cylinder (1) approximately 24 in. (61 cm) and properly support rod (2).

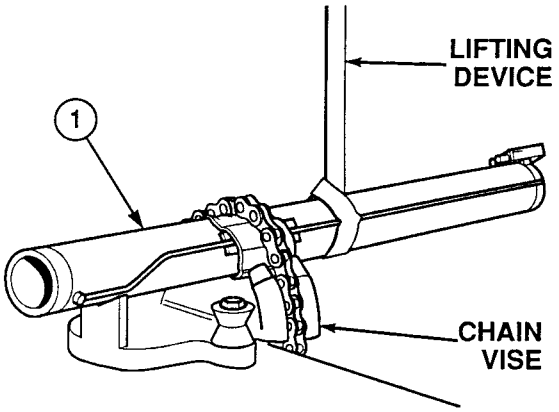
(5) Remove screw (3) and unscrew rod bearing (4) from cylinder (1). Discard screw.

(6) With the aid of an assistant, remove rod (2) and piston (5) from cylinder (1).

17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR (CONT).

WARNING

Cylinder weighs in excess of 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



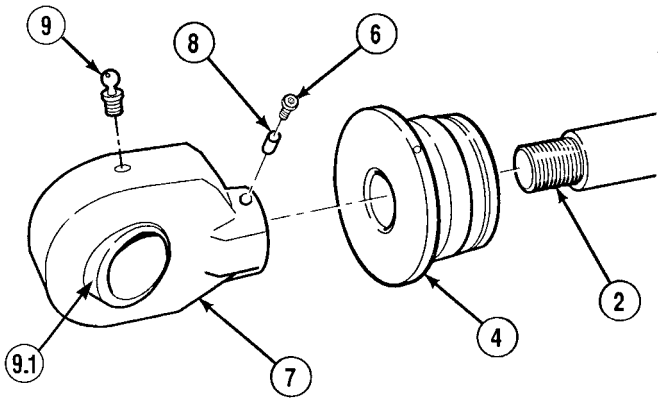
(7) Using lifting device, remove cylinder (1) from chain vise.

(8) Remove lifting device from cylinder (1).

(9) With the aid of an assistant, remove screw (6), rod lug (7) and rod bearing (4) from rod (2).

(10) Remove nylon plug (8) from bottom of screw hole in rod lug (7). Discard nylon plug.

(11) Remove lube fitting (9) from rod lug (7).



NOTE

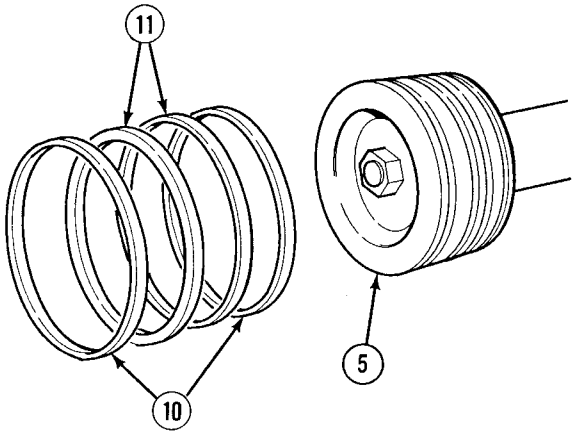
Perform Step (11.1) if bearing (9.1) is damaged.

(11.1) Using press, remove bearing (9.1) from rod lug (7).

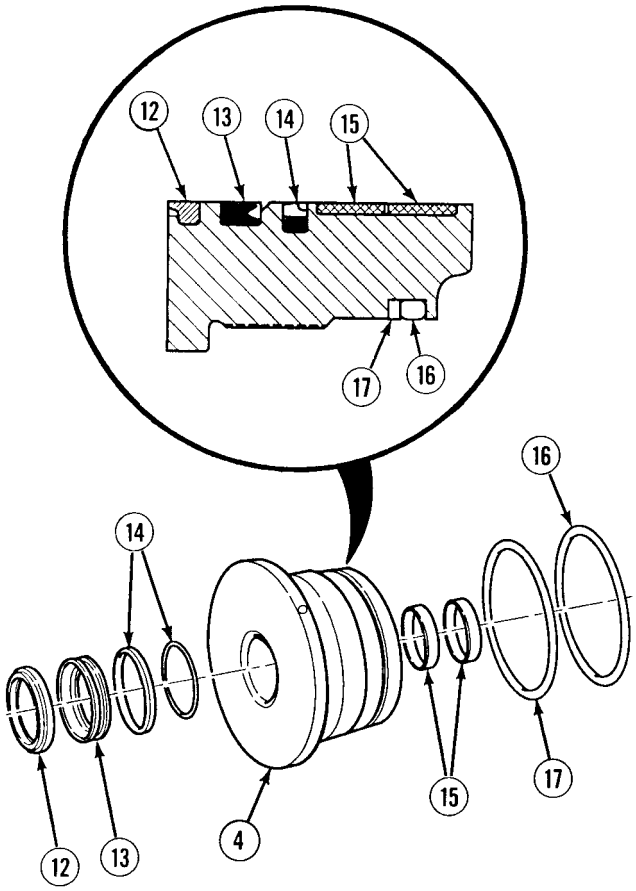
NOTE

In Steps (12) and (13) note location and position of rings, seals and packings prior to removal.

(12) Remove two wear rings (10) and piston seal assembly (11) from piston (5). Discard wear rings and seal assembly.



(13) Remove and discard wiper (12), rod seal (13), step seal assembly (14), two wear rings (15), preformed packing (16) and backup ring (17) from rod bearing (4).

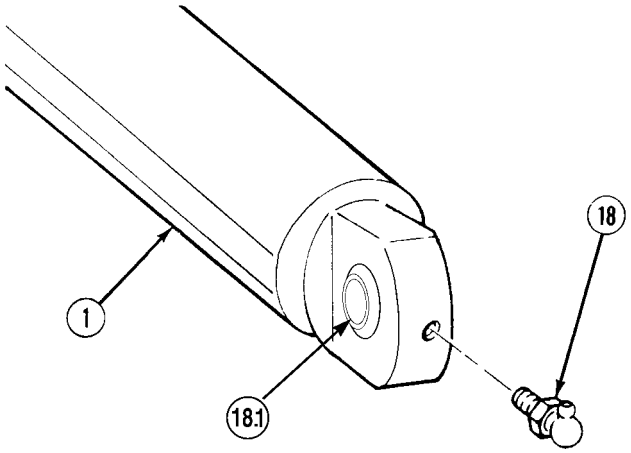


(14) Remove lube fitting (18) from cylinder (1).

NOTE

Perform Step (14.1) if bearing (18.1) is damaged.

(14.1) Using press, remove bearing (18.1) from cylinder (1).



17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all components and flush cylinder barrel using drycleaning solvent (P-D-680) only. Do not use cleaning cloth as any foreign material would contaminate hydraulic system.

(2) Inspect barrel bore for any scratches or corrosion. Replace barrel if rusted. Replace barrel and piston if either component is scratched.

(3) Inspect rod for bending. Replace if necessary.

(4) Inspect rod for scratches or pitting. Remove minor scratches and pitting by using stone and lubrication oil. Stone imperfection just enough to smooth raised part.

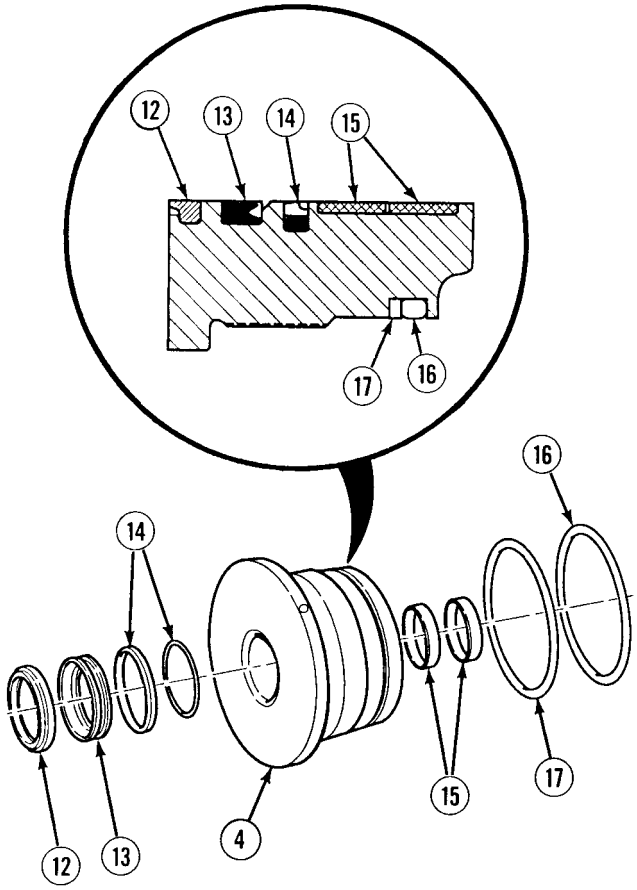
(4.1) Inspect rod lug end bearing bores for scratching, scoring, pitting, or other damage. Replace cylinder or rod lug if necessary.

(5) Inspect component threads for burrs and stripped threads. Replace or repair as necessary.

c. Assembly.

(1) Apply hydraulic oil to backup ring (17), preformed packing (16), two wear rings (15), step seal assembly (14), rod seal (13) and wiper (12).

(2) Install backup ring (17), preformed packing (16), two wear rings (15), step seal assembly (preformed packing first, then step seal) (14), rod seal (13) and wiper (12) on rod bearing (4).

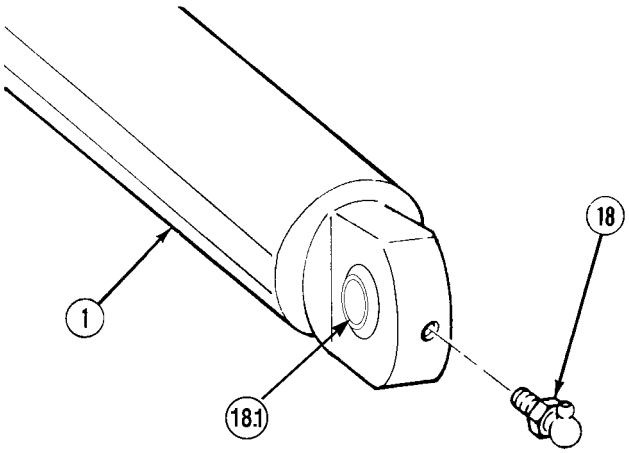


(3) Install lube fitting (18) to cylinder (1).

NOTE

Perform Step (3.1) if bearing (18.1) was removed.

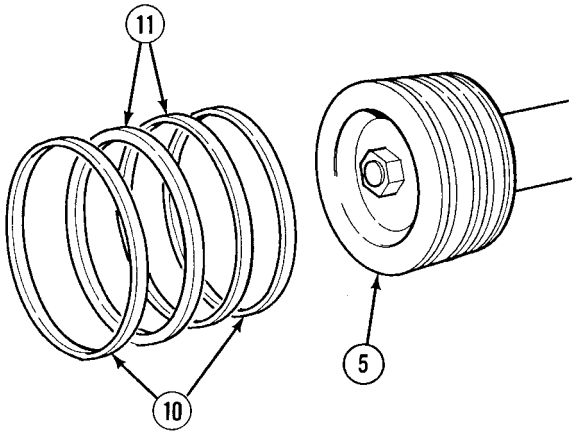
(3.1) Using press, install bearing (18.1) in cylinder (1).



17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR (CONT).

(4) Apply hydraulic oil to piston seal assembly (11) and two wear rings (10).

(5) Install piston seal assembly (11) and two wear rings (10) on piston (5).



(6) Apply hydraulic oil to inside diameter of rod bearing (4).

(7) Install rod bearing (4) on rod (2).

(8) Install rod lug (7) on rod (2).

(9) Position nylon plug (8) and screw (6) in rod lug (7).

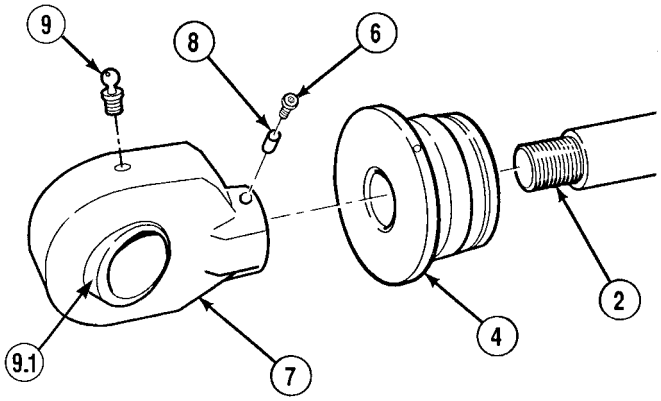
(10) Tighten to 41 lb-ft (56 N·m).

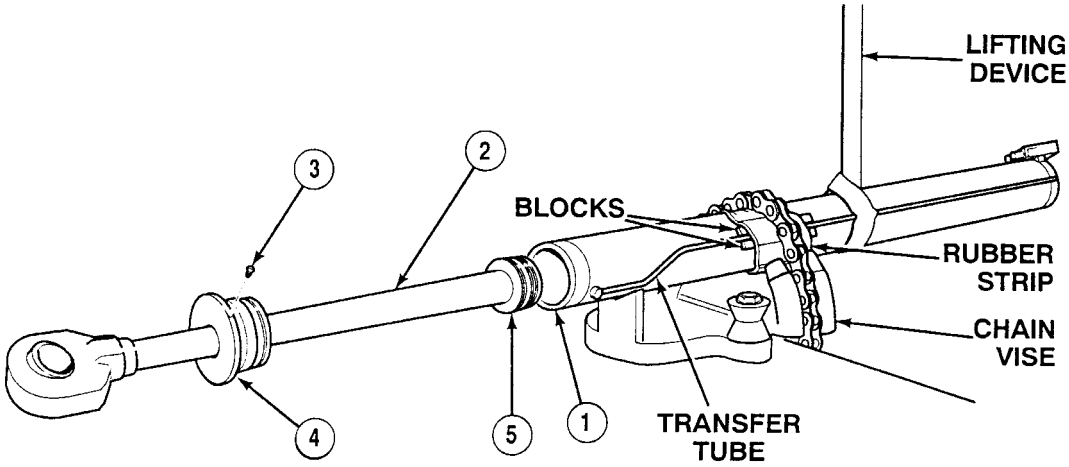
(11) Install lube fitting (9) to rod lug (7).

NOTE

Perform Step (11.1) if bearing (9.1) was removed.

(11.1) Using press, install bearing (9.1) in rod lug (7).





WARNING

Cylinder weighs in excess of 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(12) Attach lifting device to cylinder (1).

CAUTION

Transfer tube is mounted along axis of cylinder. Use blocks to protect transfer tube when clamping cylinder in a chain vise, or damage to equipment may result.

(13) Using lifting device, place cylinder (1) in chain vise using rubber stripping to protect cylinder surface. Use wooden block to protect transfer tube.

(14) With the aid of an assistant, install piston (5) with rod (2) and rod bearing (4) in cylinder (1).

(15) Install rod bearing (4) in barrel (1) and align bearing to barrel screw hole halves. If rod bearing was replaced, drill new screw hole 0.440 in. (11.2 mm) deep using no. 26 drill (0.147 in. [3.73 mm]).

(16) Install screw (3) in rod bearing (4).

(17) Using lifting device, remove cylinder (1) from chain vise.

d. Follow-On Maintenance:

- Install hook arm cylinder, (Para 17-12).

END OF TASK

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Wrench Torque (0-175 lb ft [0-237 N·m]) (Item 277, Appendix F)
Wooden Block (2) (Appendix C)
Lifting Device, Minimum Capacity 2500 lbs (1135 kg)

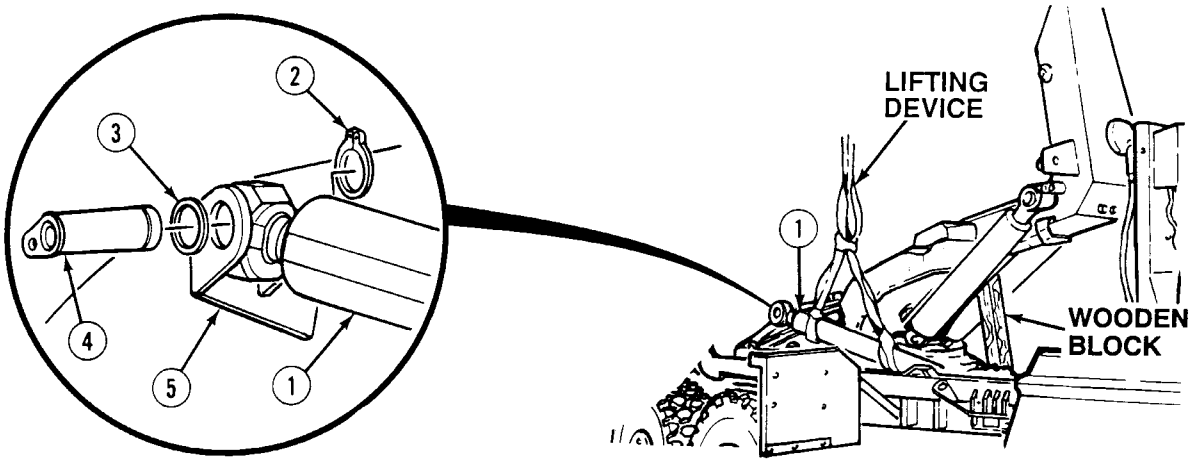
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Locknut (Item 175, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Main cylinder manifold removed, (Para 17-16)

a. Removal.

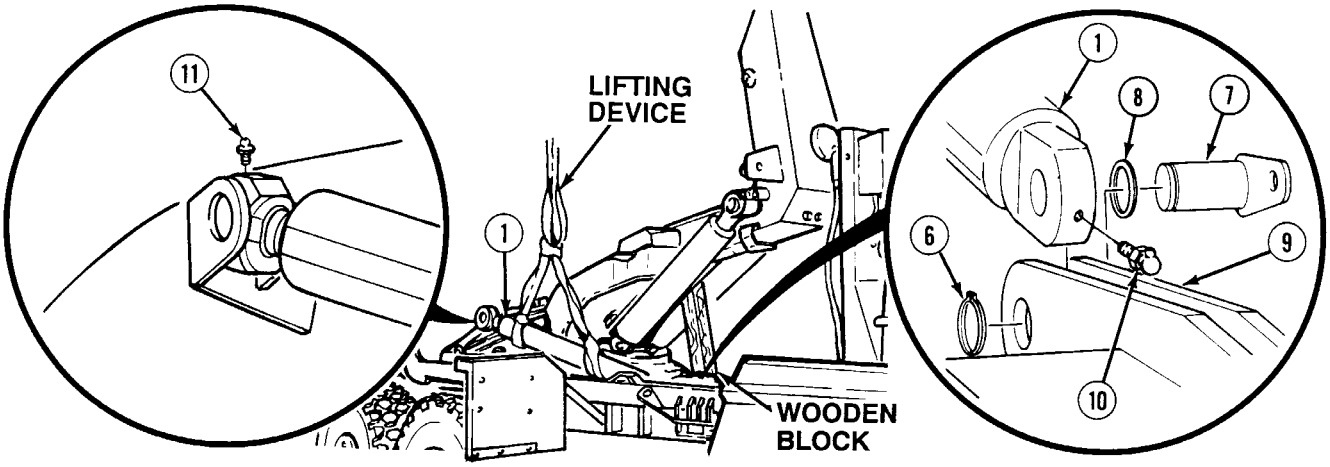


WARNING

- Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior removal to prevent possible injury to personnel.
- Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released and could cause severe eye injury.

(1) Attach lifting device to main cylinder (1).

(2) With the aid of an assistant, support main cylinder (1) using lifting device and remove retaining ring (2), shim (3) and pivot pin (4) from middle frame (5) and cylinder (1).



(3) Remove retaining ring (6), pivot pin (7) and shim (8) from compression frame (9) and main cylinder (1).

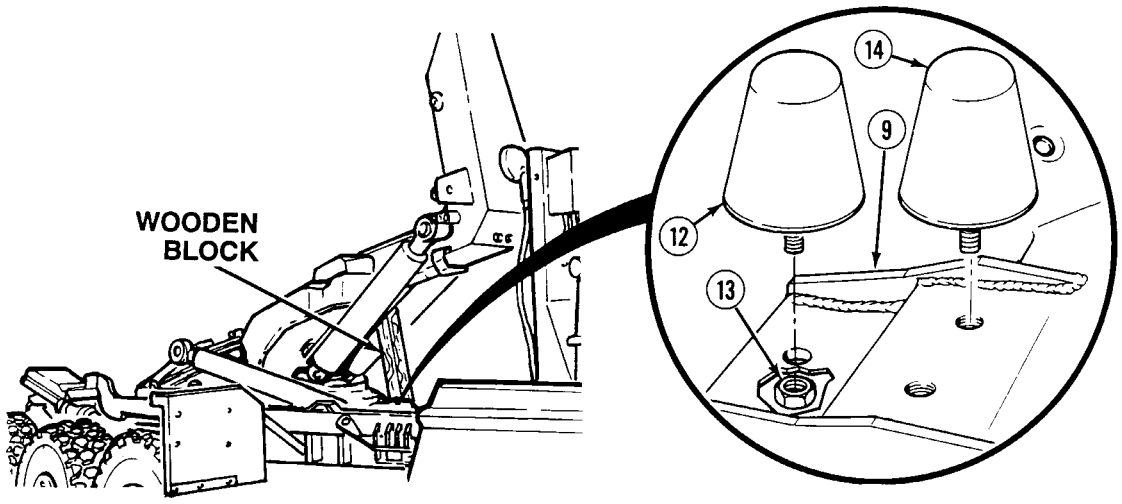
(4) With the aid of an assistant, remove main cylinder (1) from compression frame (9).

NOTE

Perform Step (5) if lube fittings are damaged.

(5) Remove lube fittings (10) and (11) from cylinder (1).

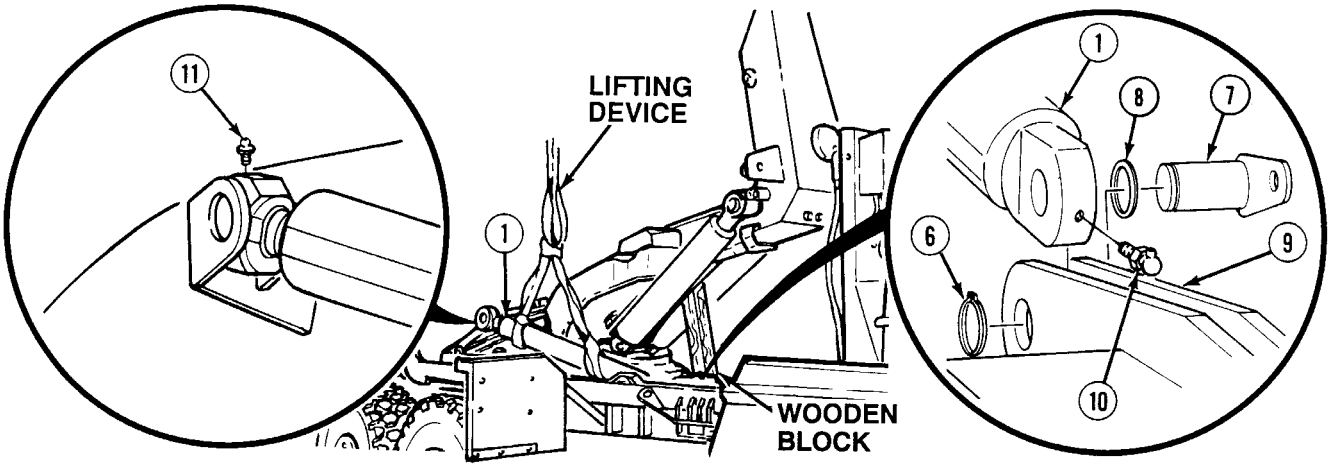
b. Installation.



(1) Remove rubber bumper (12) and locknut (13) from compression frame (9). Discard locknut.

(2) Remove two rubber bumpers (14) from compression frame (9).

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT (CONT).



NOTE

Perform Step (3) if lube fittings were removed.

(3) Install lube fitting (10) and (11) in main cylinder (1).

WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(4) Attach lifting device to main cylinder (1).

WARNING

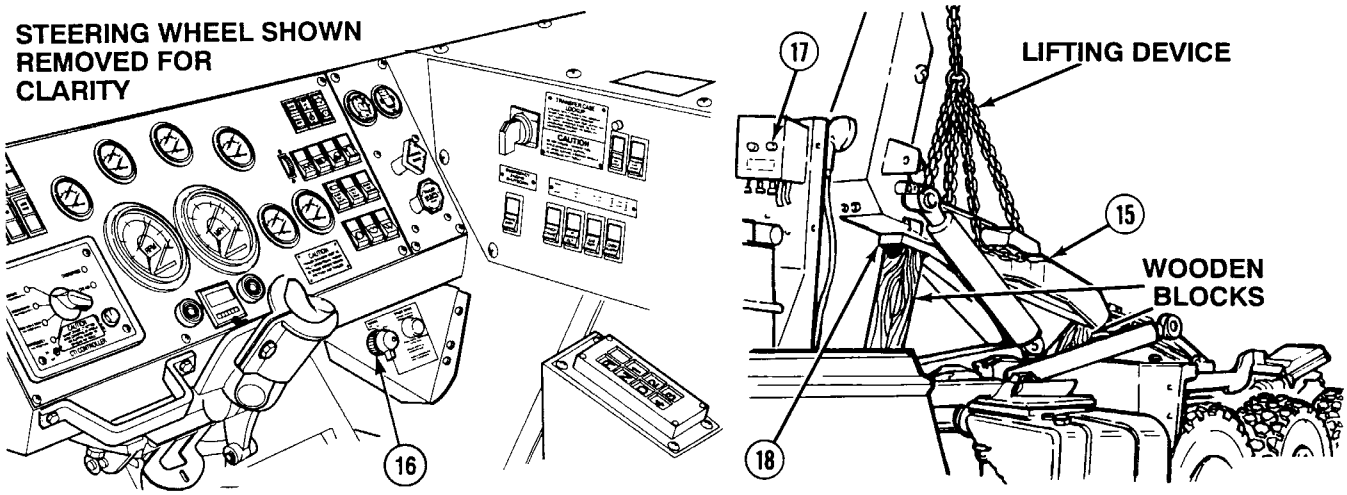
Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

Ensure zerk fitting points down when installed.

(5) With the aid of an assistant and using lifting device, install barrel end of main cylinder (1), pivot pins (7), shim (8) and retaining ring (6) on compression frame (9).

(6) Remove lifting device from main cylinder (1).



WARNING

Middle frame and hook arm have a combined weight of 2,100 lbs (953 kg). Hook arm cylinders weigh 210 lbs (95 kg) each. Attach suitable lifting device prior to removal to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported by a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

(7) Attach lifting device to hook arm (15).

(8) Turn ON ENGINE switch (16).

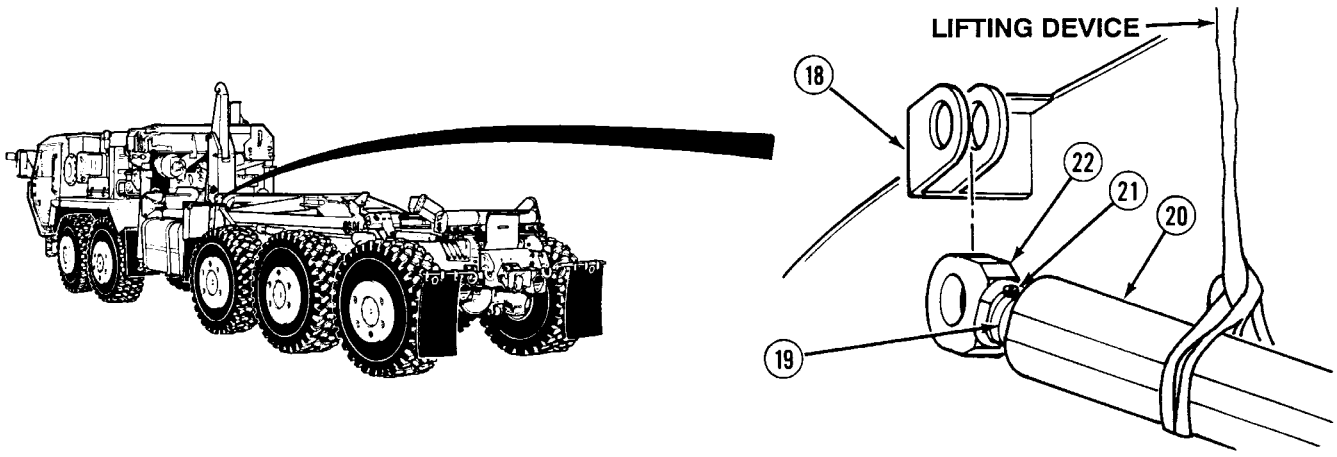
(9) With the aid of an assistant, press middle frame safe lowering button (17) while using lifting device to raise hook arm (15) and middle frame (18).

(10) Remove wooden block and then lower hook arm (15) and middle frame (18).

(11) Turn OFF ENGINE switch (16).

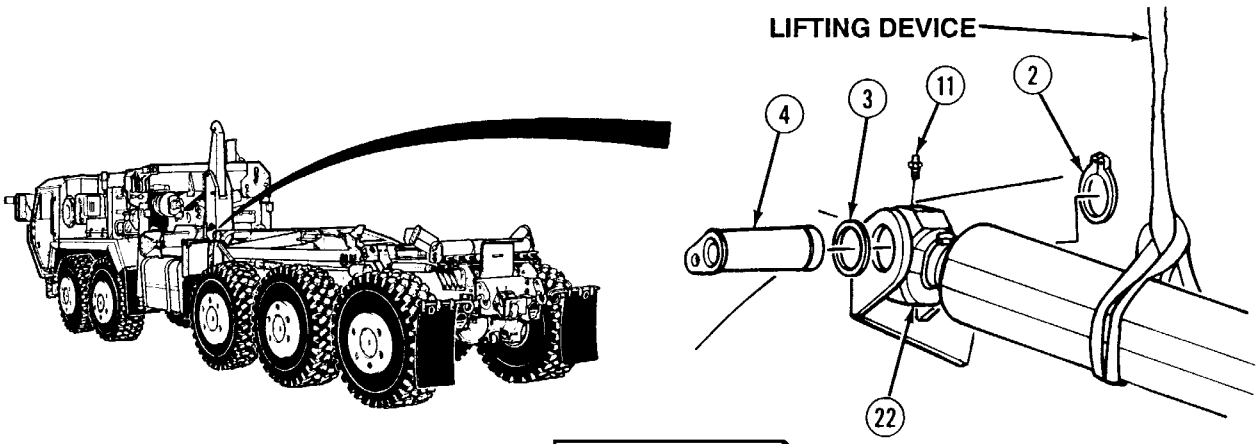
(12) Remove lifting device from hook arm (15).

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT (CONT).



(13) Fully compress cylinder rod (19) in barrel (20).

(14) Extend cylinder rod (19) out 1/4 in. (6.4 mm), loosen screw (21) and rotate rod lug (22) so lug bore aligns with holes in middle frame (18). Tighten screw (21) to 41 lb ft (56 N·m).



WARNING

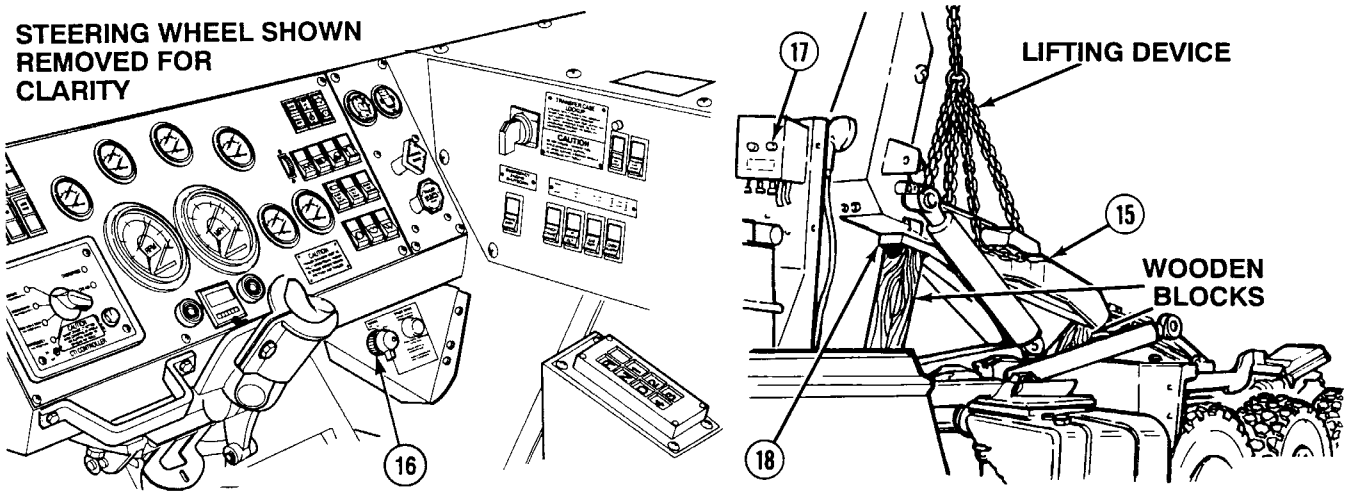
Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(15) When lug bore and middle frame holes align, install rod lug (22) with pivot pin (4), shim (3) and retaining ring (2).

NOTE

Perform Step (16) if lube fitting was removed.

(16) Install lube fitting (11) in rod lug (22).



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

Wooden blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

(17) Attach lifting device to hook arm (15).

(18) Turn ON ENGINE switch (16).

(19) With the aid of an assistant, press middle frame safe lowering button (17) while using lifting device to raise hook arm (15) and middle frame (18).

(20) Support middle frame (18) in two places with wooden blocks.

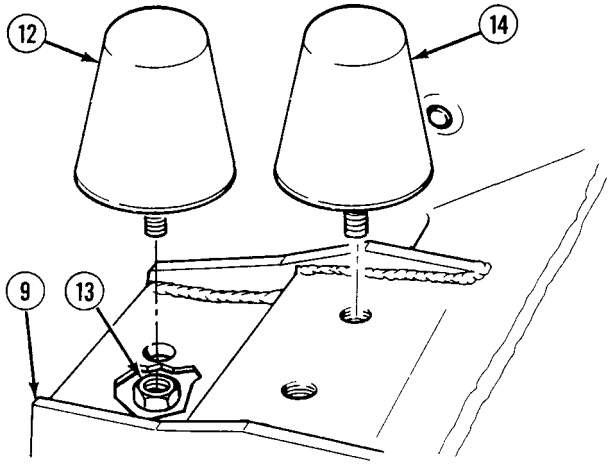
(21) Turn OFF ENGINE switch (16).

(22) Remove lifting device from hook arm (15).

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(23) Coat threads of two rubber bumpers (14) with sealing compound.

(24) Install two rubber bumpers (14) on compression frame (9).

(25) Install rubber bumper (12) and locknut (13) on compression frame (9).

c. Follow-On Maintenance:

- Install main manifold, (Para 17-16).
- Remove wheel chocks (TM 9-2320-364-10).

END OF TASK

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wooden Block (2) (Appendix C)
Lifting Device, Minimum Capacity 2500 lb (1135 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)
Tags, Identification (Item 72, Appendix B)

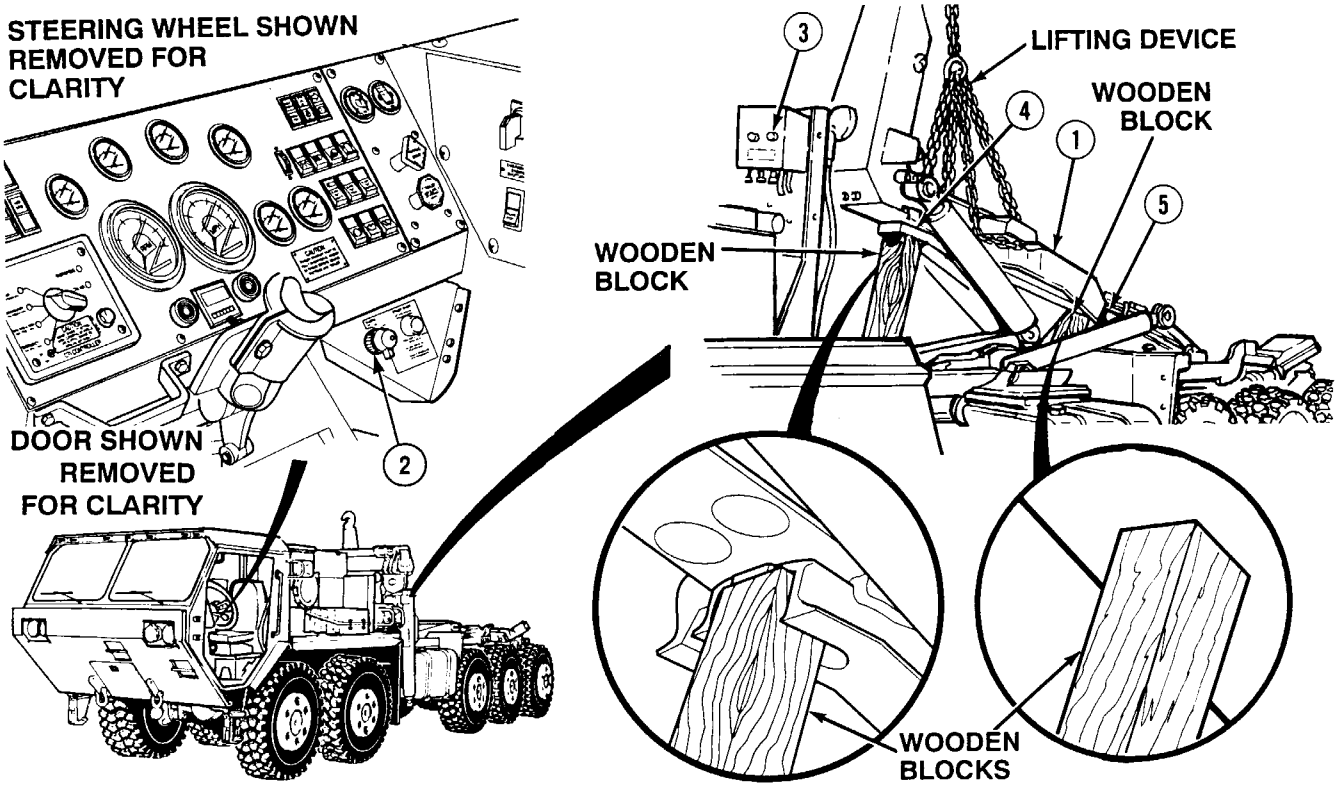
Materials/Parts - Continued
Lockwasher (4) (Item 238, Appendix E)
Preformed Packing (3) (Item 351, Appendix E)
Preformed Packing Kit (Item 448, Appendix E)
Preformed Packing Kit (Item 452, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS control box cover removed, (TM 9-2320-364-10)

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

a. Removal.



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

CAUTION

Wooden blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

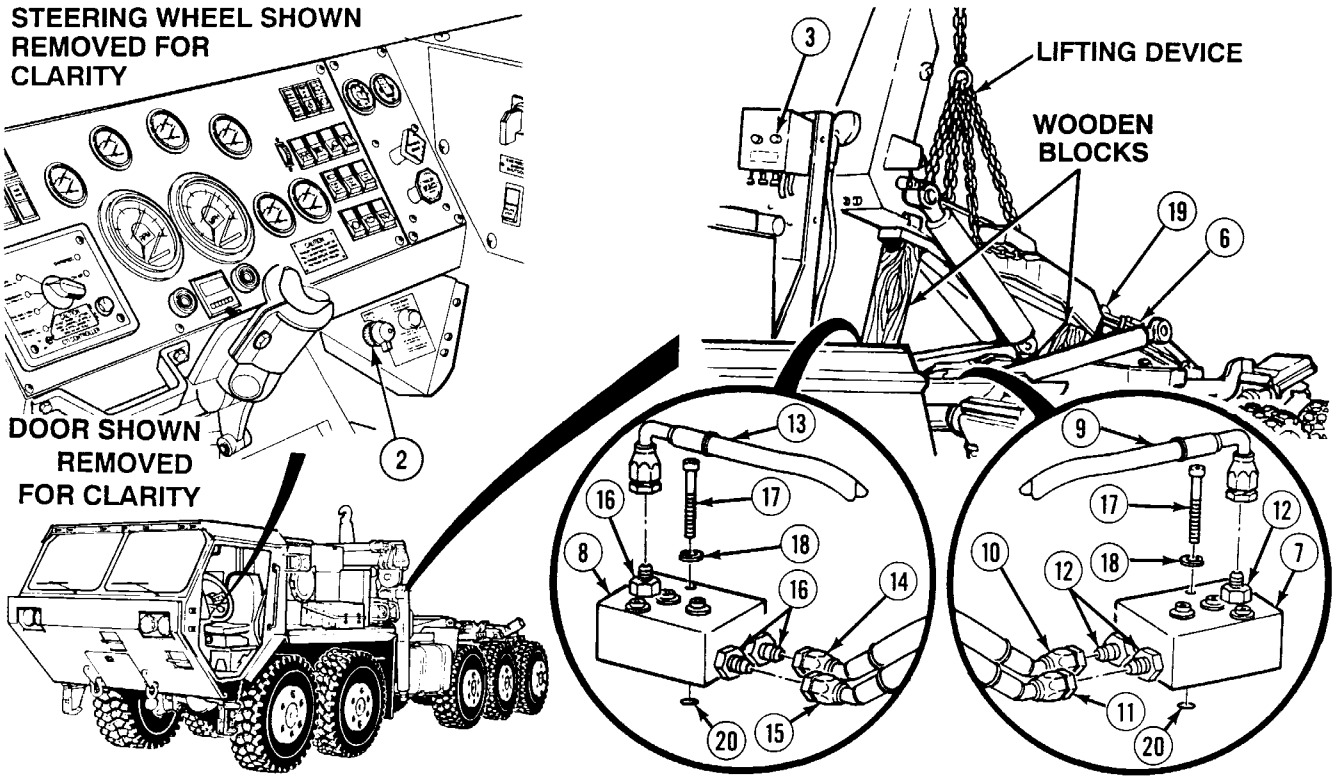
(1) Attach lifting device to hook arm (1).

(2) Turn ON ENGINE switch (2).

(3) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise middle frame (4) up until hook arm pivot pin (5) is above main cylinder (6).

(4) Block up middle frame in two places with wooden blocks.

(5) Remove lifting device from hook arm (1).



(6) Position drain pan under left main cylinder manifold (7) and right main cylinder manifold (8).

WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark all hoses prior to removal.
- Cap and plug all hydraulic hoses and fittings after disconnecting.

(7) Press middle safe lowering button (3) to relieve hydraulic pressure.

(8) Turn OFF ENGINE switch (2).

(9) Remove hose 2889 (9), hose 2588 (10) and hose 2888 (11) from fittings (12) on left manifold (7).

(10) Remove hose 2890 (13), hose 2887 (14) and hose 2666 (15) from fittings (16) on right manifold (8).

(11) Remove eight screws (17), lockwashers (18) and left and right manifolds (7) and (8) from left and right main cylinders (6) and (19). Discard lockwashers.

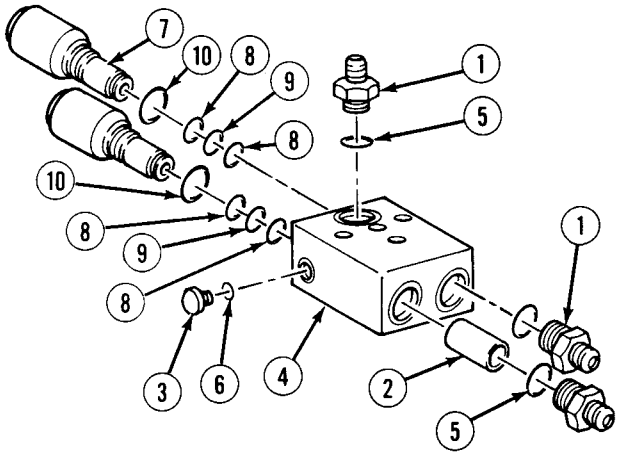
(12) Remove and discard four preformed packings (20) from left and right manifolds (7) and (8).

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

b. Disassembly.

CAUTION

- Velocity fuse will fall out when adapter is removed. Use care when removing adapter, or damage to equipment may result.
- Velocity fuse will not work correctly if installed backwards. Observe and record direction of valve during removal. Failure to comply may result in damage to equipment.



NOTE

Tag and mark ports that velocity fuse, relief valve, adapters and plug are removed from prior to disassembly.

(1) Remove three adapters (1), velocity fuse (2) and hex head plug (3) from main manifold (4).

(2) Remove three preformed packings (5) from adapters (1). Discard preformed packings.

(3) Remove preformed packing (6) from hex head plug (3). Discard preformed packing.

(4) Remove two relief valves (7) from manifold (4).

(5) Remove two backup rings (8), preformed packing (9) and preformed packing (10) from each relief valve (7). Discard backup rings and preformed packings.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean manifold and components using drycleaning solvent (P-D-680).

(2) Inspect for any foreign material in ports and remove as necessary.

(3) Inspect for cracks, dents, gouges or stripped threads.

(4) Replace all damaged parts.

d. Assembly.

(1) Apply hydraulic oil to two preformed packings (10), preformed packing (9) and four backup rings (8).

(2) Install two preformed packings (10), preformed packing (9) and four backup rings (8) on two relief valves (7).

(3) Install two valves (7) in manifold (4).

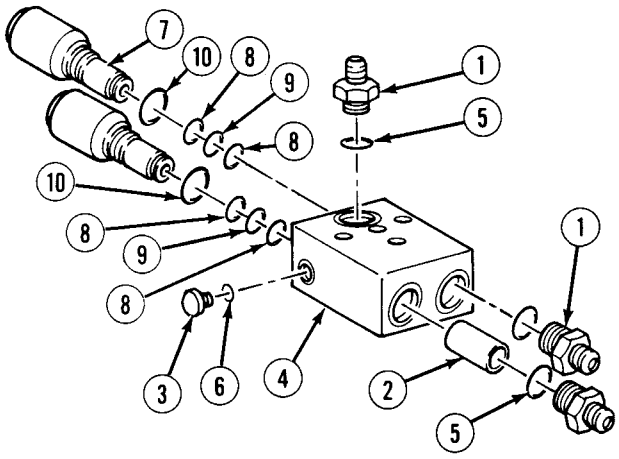
(4) Apply hydraulic oil to preformed packing (6).

(5) Install preformed packing (6) on hex head plug (3).

(6) Install hex head plug (3) in manifold (4).

(7) Apply hydraulic oil to three preformed packings (5).

(8) Install three preformed packings (5) on adapters (1).



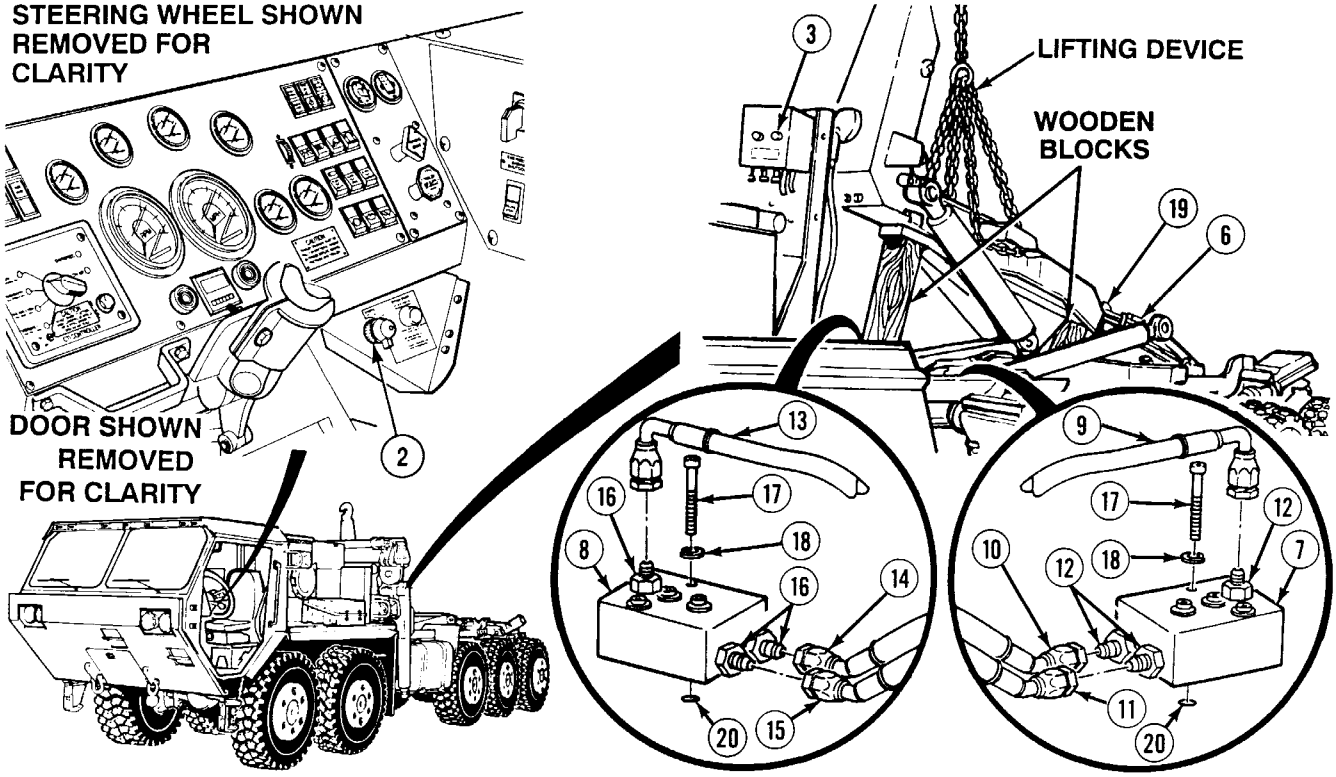
CAUTION

Velocity fuse will not work correctly if installed backwards. Install fuse as noted during removal. Failure to comply may result in damage to equipment.

(9) Install velocity fuse (2) and three adapters (1) in manifold (4).

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

e. Installation.



(1) Apply hydraulic oil to four preformed packings (20).

(2) Install four preformed packings (20) on left and right manifolds (7) and (8).

(3) Install left and right manifolds (7) and (8) on cylinders (6) and (19) with eight lockwashers (18) and screws (17).

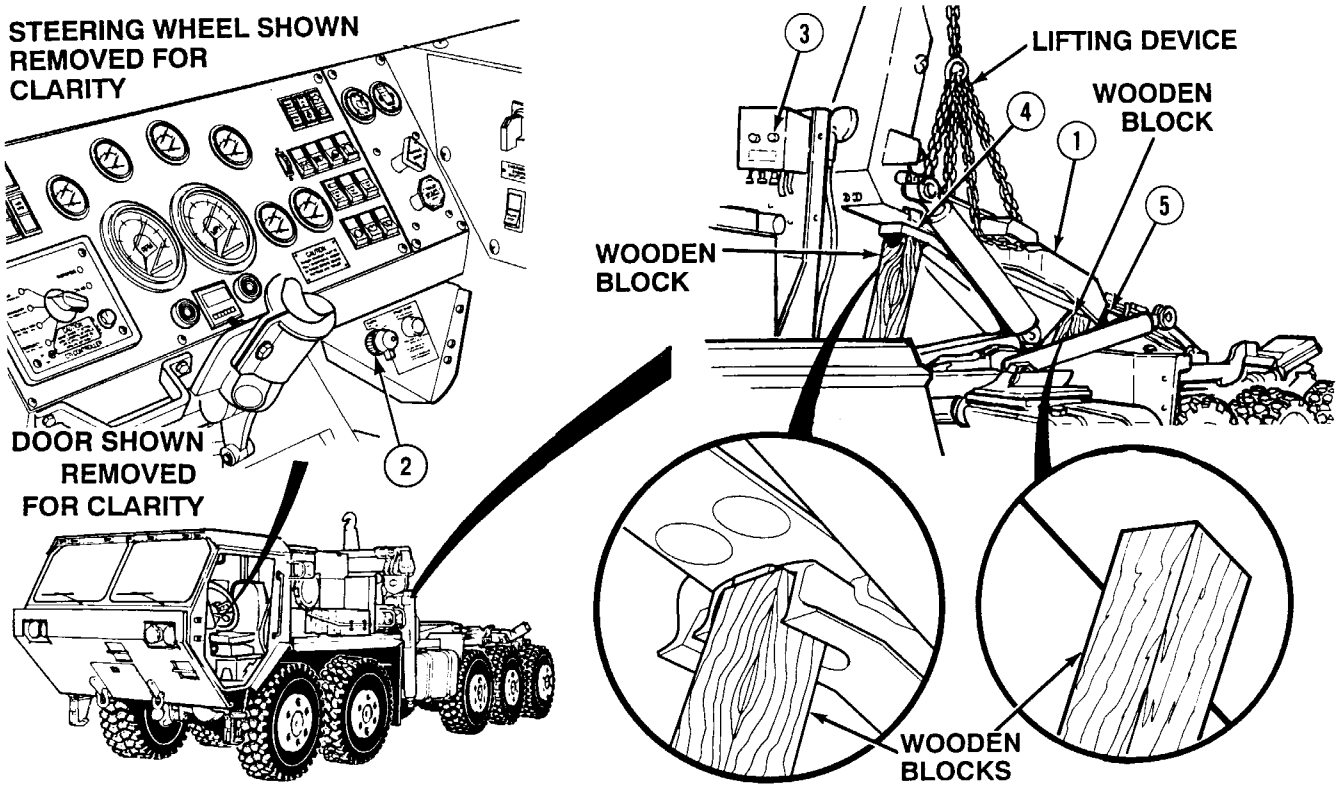
WARNING

Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound in countersunk hole and around head of eight screws (18).

(5) Install hose 2889 (9), hose 2588 (10) and hose 2888 (11) on fittings (12) on left manifold (7).

(6) Install hose 2890 (13), hose 2887 (14) and hose 2666 (15) on fittings (16) on right manifold (8).



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

(7) Attach lifting device to hook arm (1).

(8) Turn ON ENGINE switch (2).

(9) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise hook arm (1) and middle frame (4), remove blocking and then lower middle frame.

(10) Turn OFF ENGINE switch (2).

(11) Remove lifting device from hook arm (1).

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

f. Follow-On Maintenance:

- Install LHS control box cover, (TM 9-2320-364-10).
- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-17. HYDRAULIC RETURN MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist (Item 248, Appendix F)
Wrench, Combination 1-5/8 in. (Item 261, Appendix F)
Wrench, Combination 1-7/8 in. (Item 265, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)

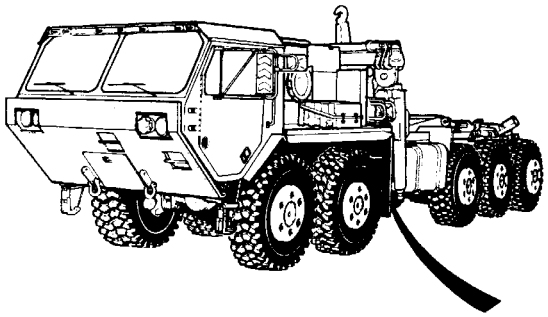
Materials/Parts - Continued
Locknut (4) (Item 166, Appendix E)
Locknut (2) (Item 210, Appendix E)
Packing, Preformed (Item 341, Appendix E)
Packing, Preformed (2) (Item 352, Appendix E)
Packing, Preformed (3) (Item 353, Appendix E)
Packing, Preformed (2) (Item 387, Appendix E)
Packing, Preformed (2) (Item 388, Appendix E)

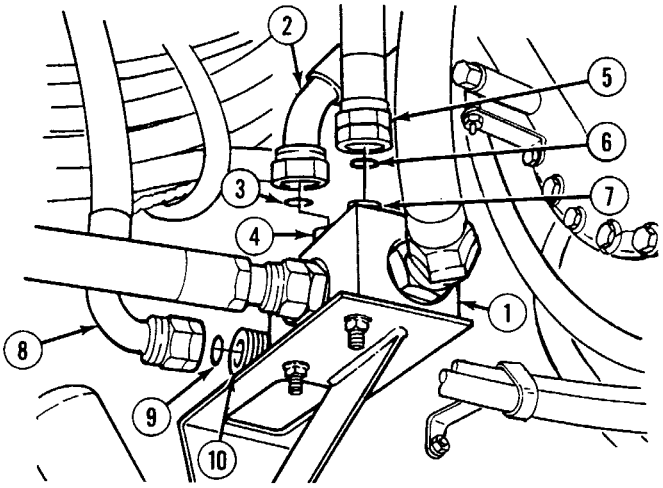
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Left rear fender skirt removed, (TM 9-2320-364-20)
Hydraulic reservoir drained, (TM 9-2320-364-20)

17-17. HYDRAULIC RETURN MANIFOLD REPAIR (CONT).

a. Removal.





NOTE

- Remove cable ties as required.
- Tag and mark hoses prior to removal.
- Cap and plug hoses after removal.

(1) Position drain pan under hydraulic return manifold (1).

(2) Remove hose 2904 (2) and preformed packing (3) from adapter (4). Discard preformed packing.

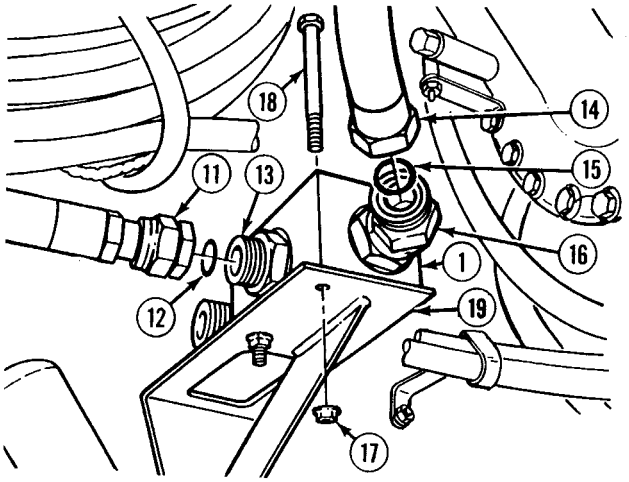
(3) Remove hose 2724 (5) and preformed packing (6) from adapter (7). Discard preformed packing.

(4) Remove hose 2917 (8) and preformed packing (9) from elbow (10). Discard preformed packing.

(5) Remove hose 2886 (11) and preformed packing (12) from adapter (13). Discard preformed packing.

(6) Remove hose 2918 (14) and preformed packing (15) from elbow (16). Discard preformed packing.

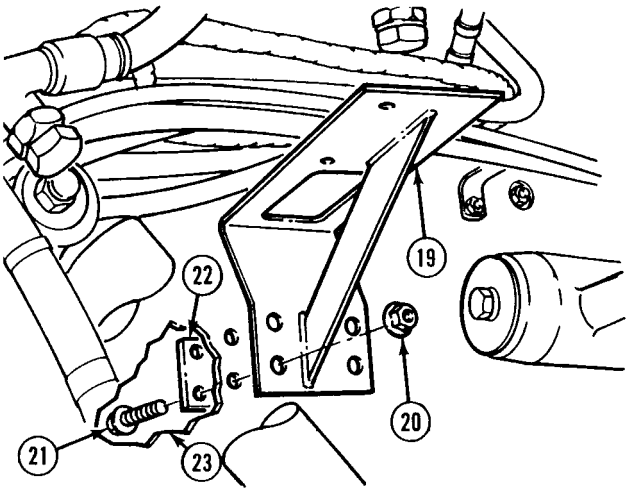
(7) Remove two locknuts (17), two screws (18) and hydraulic return manifold (1) from mounting bracket (19). Discard locknuts.



NOTE

Perform Step (8) only if bracket is damaged.

(8) With the aid of an assistant, remove four locknuts (20), mounting bracket (19), four screws (21) and tie ring assembly (22) from frame (23). Discard locknuts.



b. Disassembly.

NOTE

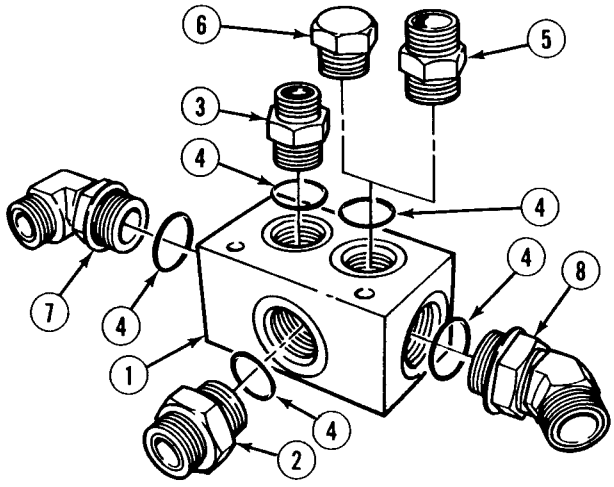
Note location and position of elbows and adapters prior to removal.

(1) Position hydraulic return manifold (1) in soft-jawed vise.

(2) Remove adapters (2) and (3) and preformed packings (4) from hydraulic return manifold (1). Discard preformed packings.

NOTE

- If truck is equipped with crane, adapter will be removed in Step (3).
- If truck is not equipped with crane, plug will be removed in Step (3).



(3) Remove adapter (5) or plug (6) and preformed packing (4) from hydraulic return manifold (1). Discard preformed packing.

(4) Remove elbows (7) and (8) and preformed packings (4) from hydraulic return manifold (1). Discard preformed packings.

(5) Remove hydraulic return manifold (1) from soft-jawed vise.

17-17. HYDRAULIC RETURN MANIFOLD REPAIR (CONT).

c. Assembly.

NOTE

Install elbows and adapters as noted prior to removal.

(1) Position hydraulic return manifold (1) in soft-jawed vise.

(2) Apply hydraulic oil to two preformed packings (4).

(3) Install two preformed packings (4) and elbows (7) and (8) in hydraulic return manifold (1).

NOTE

- If truck is equipped with crane, adapter will be installed in Step (5).
- If truck is not equipped with crane, plug will be installed in Step (5).

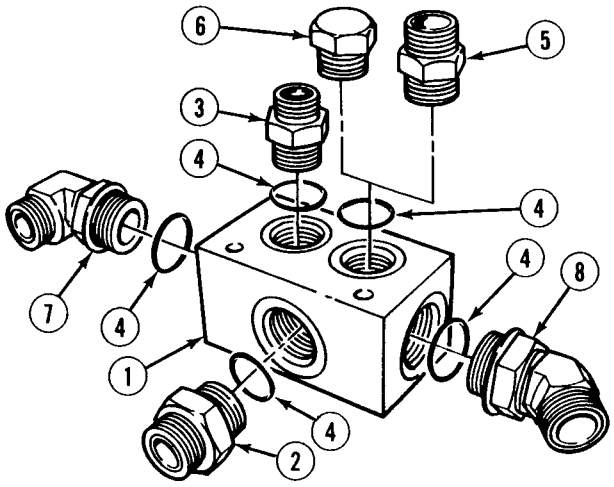
(4) Apply hydraulic oil to preformed packings (4).

(5) Install preformed packing (4) and adapter (5) or plug (6) in hydraulic return manifold (1).

(6) Apply hydraulic oil to two preformed packing (4).

(7) Install two preformed packings (4) and adapters (2) and (3) in hydraulic return manifold (1).

(8) Remove hydraulic return manifold (1) from soft-jawed vise.

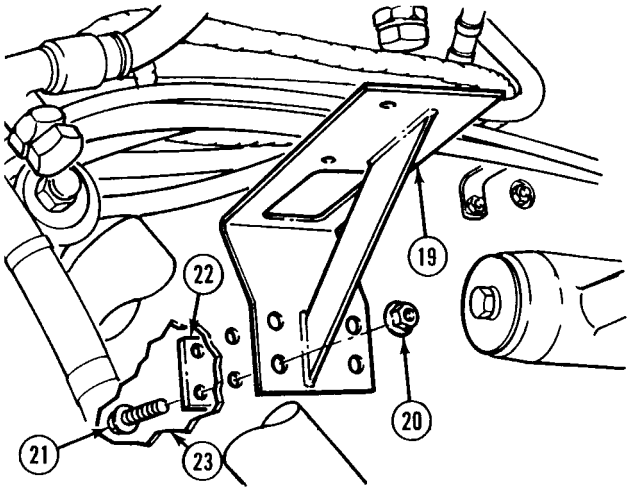


d. Installation.

NOTE

Perform Step (1) only if bracket was removed.

(1) With the aid of an assistant, install tie-down ring assembly (22) and mounting bracket (19) on frame (23) with four screws (21) and locknuts (20).



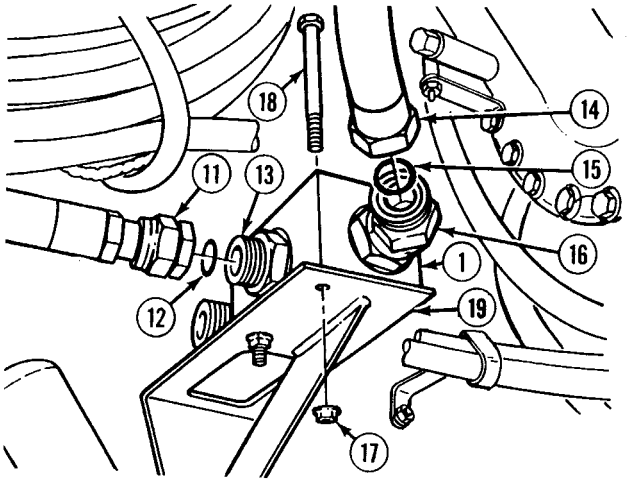
(2) Install hydraulic return manifold (1) on mounting bracket (19) with two screws (18) and locknuts (17).

(3) Apply hydraulic oil to preformed packing (15).

(4) Install preformed packing (15) and hose 2918 (14) on elbow (16).

(5) Apply hydraulic oil to preformed packing (12).

(6) Install preformed packing (12) and hose 2886 (11) on adapter (13).



(7) Apply hydraulic oil to preformed packing (9).

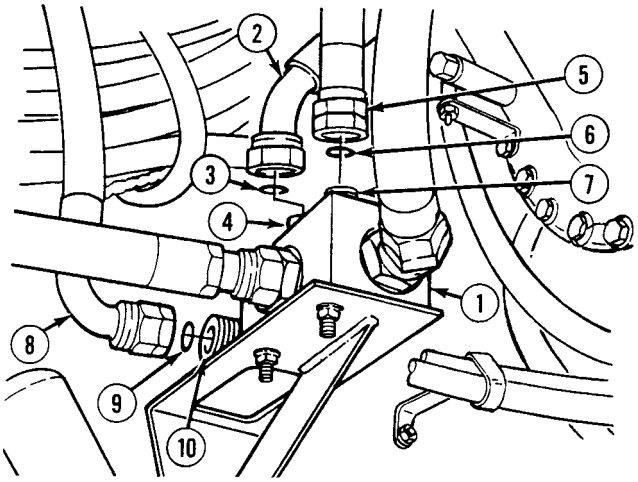
(8) Install preformed packing (9) and hose 2917 (8) on elbow (10).

(9) Apply hydraulic oil to preformed packing (6).

(10) Install preformed packing (6) and hose 2724 (5) on adapter (7).

(11) Apply hydraulic oil to preformed packing (3).

(12) Install preformed packing (3) and hose 2904 (2) on adapter (4).



e. Follow-On Maintenance:

- Install left rear fender skirt, (TM 9-2320-364-20).
- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for 3 minutes, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination 1-3/8 in. (Item 258, Appendix F)
Wrench, Combination 1-5/8 in. (Item 261, Appendix F)

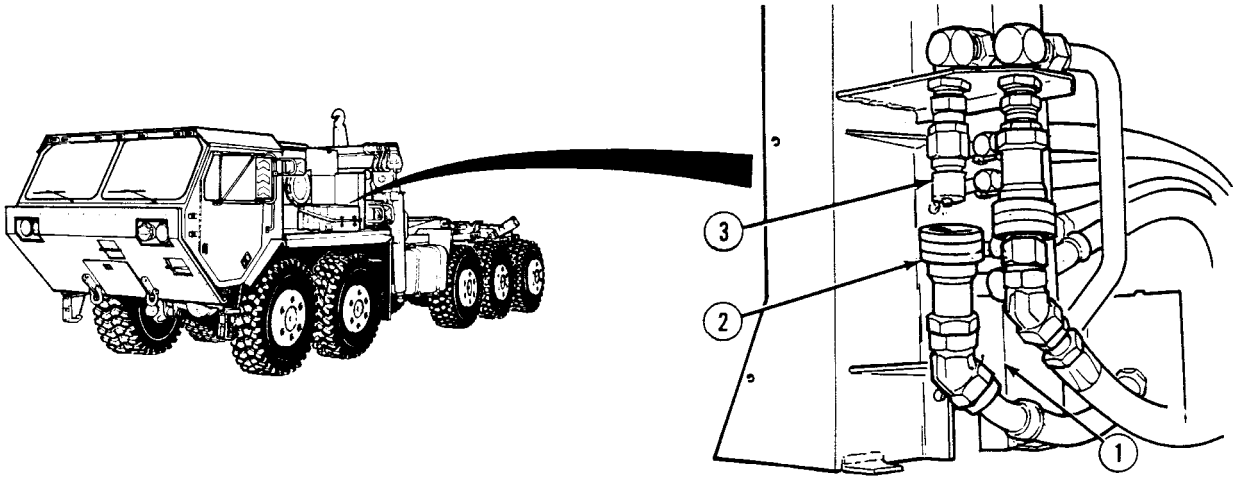
Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (6) (Item 210, Appendix E)
Lockwasher (4) (Item 255, Appendix E)
Packing, Preformed (Item 351, Appendix E)

Materials/Parts - Continued
Packing, Preformed (Item 354, Appendix E)
Packing, Preformed (2) (Item 388, Appendix E)
Parts Kit, Seal (Item 411, Appendix E)
Parts Kit, Seal (Item 412, Appendix E)
Preformed Packing Kit (Item 446, Appendix E)
Preformed Packing Kit (2) (Item 450, Appendix E)
Seal, Double Lipped, Teflon (Item 580, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Battery box removed, (TM 9-2320-364-20)
LHS control box cover removed, (TM 9-2320-364-10)
Left side noise panel removed, (TM 9-2320-364-20)
Left rear fender skirt removed, (TM 9-2320-364-20)
Transmission external filter head removed, (TM 9-2320-364-20)

a. Removal.



WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

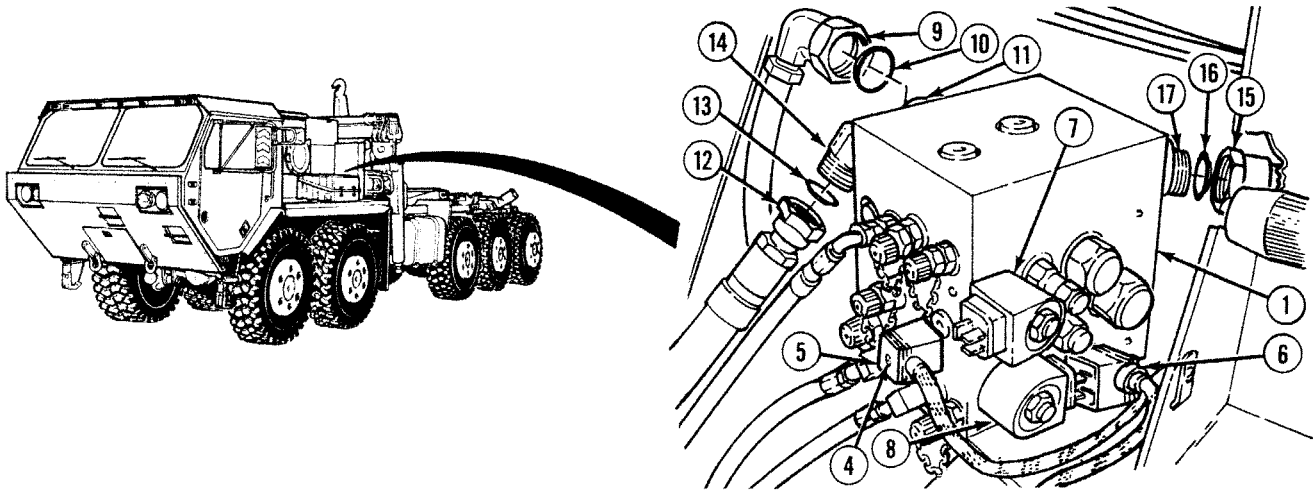
NOTE

- Tag and mark wires and hoses prior to removal.
- Remove cable ties as required.
- Cap and plug all hoses after removal.

(1) Position drain pan under multifunction manifold (1).

(2) Disconnect hose 2777 (2) at quick disconnect (3).

17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).



(3) Loosen screws (4) and disconnect connectors M10 (5) and M51 (6) from solenoids (7) and (8) on manifold (1).

(4) Remove hose 2936 (9) and preformed packing (10) from adapter (11). Discard preformed packing.

(5) Remove hose 2904 (12) and preformed packing (13) from elbow (14). Discard preformed packing.

(6) Remove hose 2777 (15) and preformed packing (16) from elbow (17). Discard preformed packing.

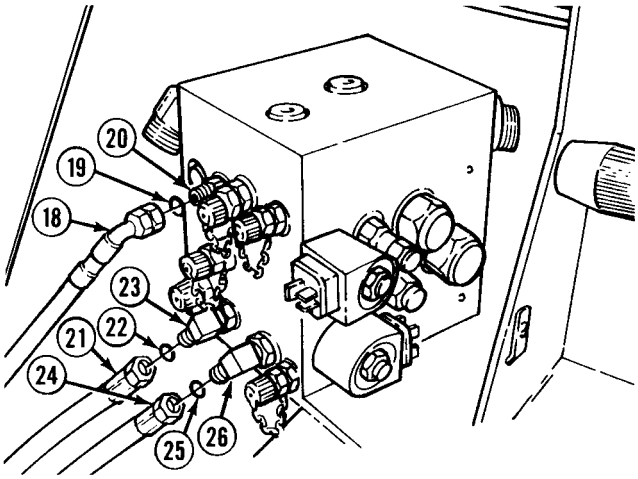
(7) Remove hose 2295 (18) and preformed packing (19) from adapter (20). Discard preformed packing.

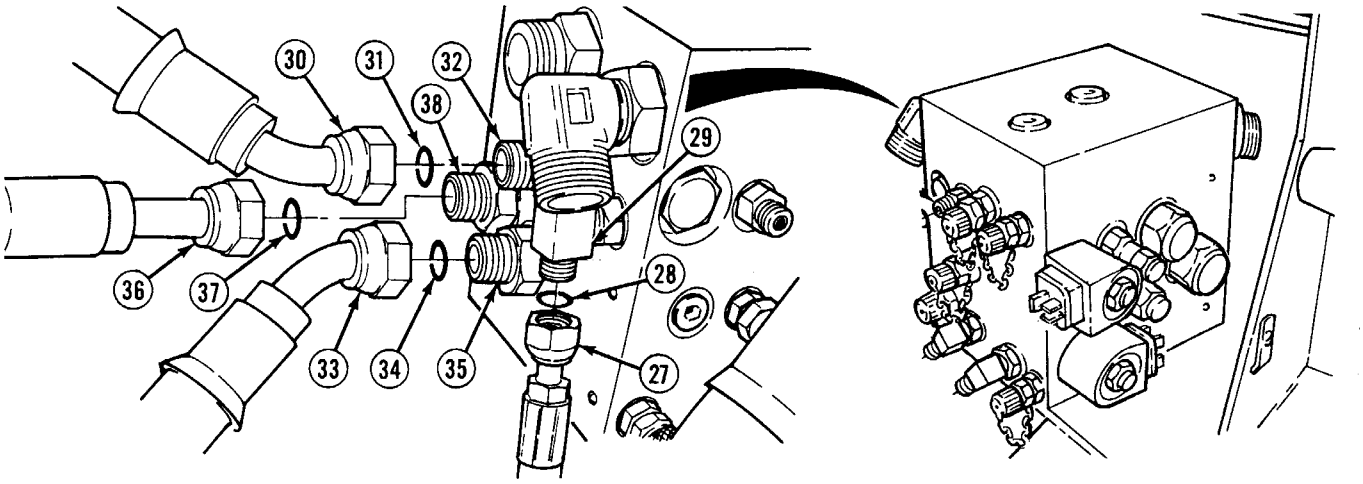
NOTE

If truck is equipped with crane, perform step (8).

(8) Remove hose 2776 (21) and preformed packing (22) from adapter (23). Discard preformed packing.

(9) Remove hose 2809 (24) and preformed packing (25) from elbow (26). Discard preformed packing.





(10) Remove hose 2291 (27) and preformed packing (28) from elbow (29). Discard preformed packing.

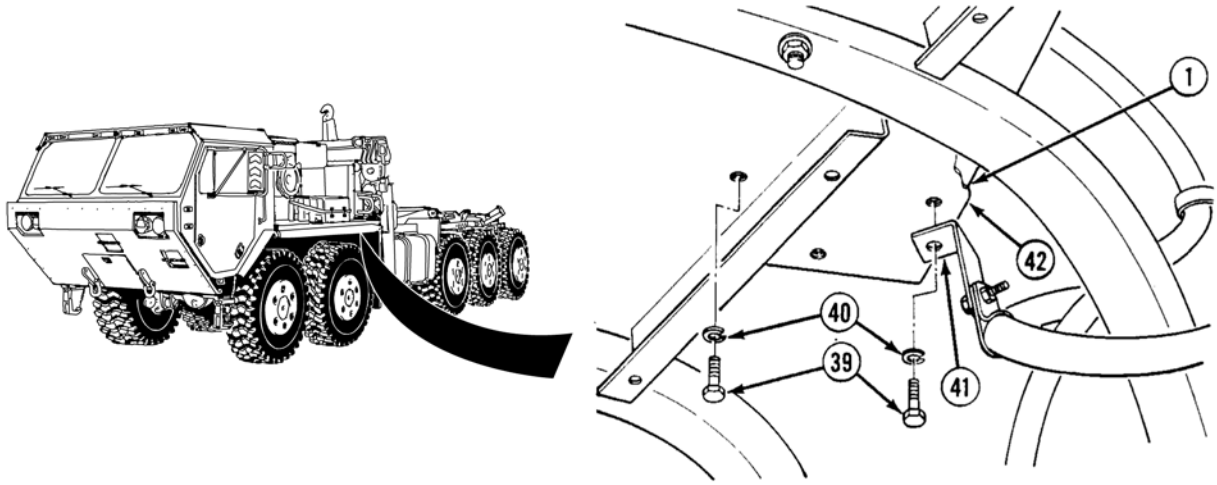
NOTE

If truck is equipped with crane, perform Step (11).

(11) Remove hose 2902 (30) and preformed packing (31) from adapter (32). Discard preformed packing.

(12) Remove hose 2899 (33) and preformed packing (34) from adapter (35). Discard preformed packing.

(13) Remove hose 2772 (36) and preformed packing (37) from adapter (38). Discard preformed packing.



(14) Remove four screws (39), lockwashers (40), bracket (41) and multifunction manifold (1) from mounting bracket (42). Discard lockwashers.

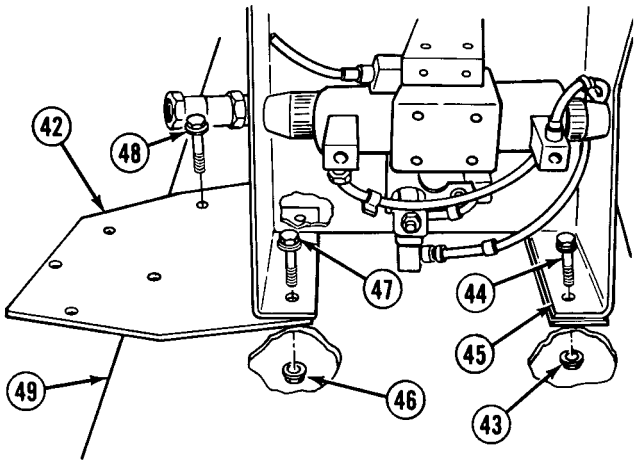
17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

NOTE

Perform Steps (15) and (16) only if bracket is damaged.

(15) Loosen two locknuts (43) and screws (44) on bracket (45).

(16) With the aid of an assistant, remove four locknuts (46), two screws (47), screws (48) and mounting bracket (42) from fender (49). Discard locknuts.



b. Disassembly.

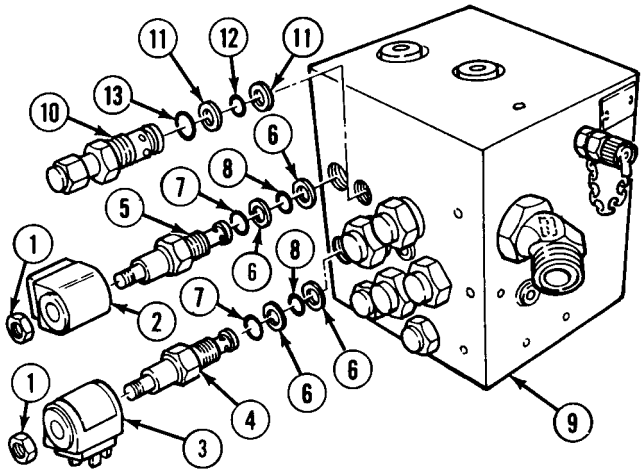
NOTE

Note location and position of valves, couplings, retainers, adapters and plugs.

(1) Remove two nuts (1) and solenoids (2) and (3) from solenoid valves (4) and (5).

(2) Remove solenoid valves (4) and (5), four packing retainers (6) and preformed packings (7) and (8) from manifold (9). Discard preformed packings and packing retainers.

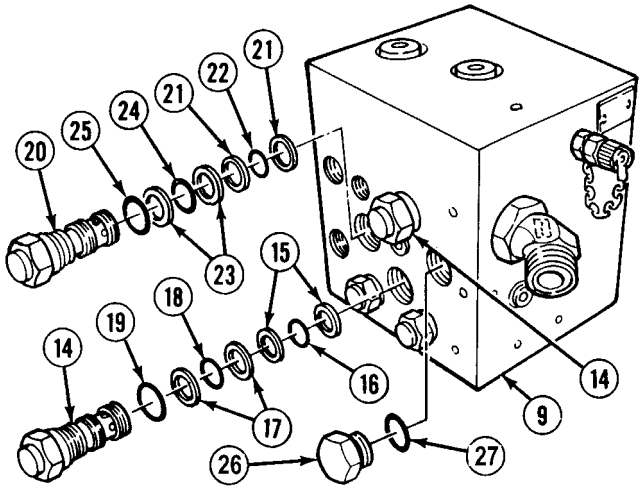
(3) Remove needle valve (10), two packing retainers (11) and preformed packings (12) and (13) from manifold (9). Discard preformed packings and packing retainers.



(4) Remove two needle valves (14), four retainers (15), two preformed packings (16), four packing retainers (17), two preformed packings (18) and preformed packing (19) from manifold (9). Discard preformed packings and packing retainers.

(5) Remove needle valve (20), two packing retainers (21), preformed packing (22), two packing retainers (23), preformed packing (24) and preformed packing (25) from manifold (9). Discard preformed packings and packing retainers.

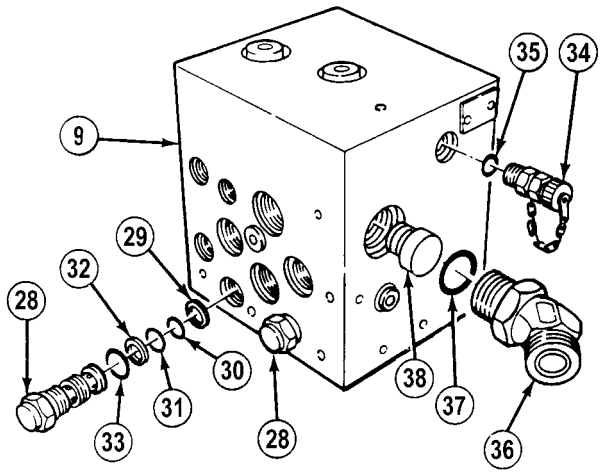
(6) Remove plug (26) and preformed packing (27) from manifold (9).



(7) Remove two shuttle valves (28), retainers (29), preformed packings (30) and (31), two packing retainers (32) and preformed packing (33) from manifold (9). Discard preformed packings and packing retainers.

(8) Remove coupling (34) and preformed packing (35) from manifold (9). Discard preformed packing.

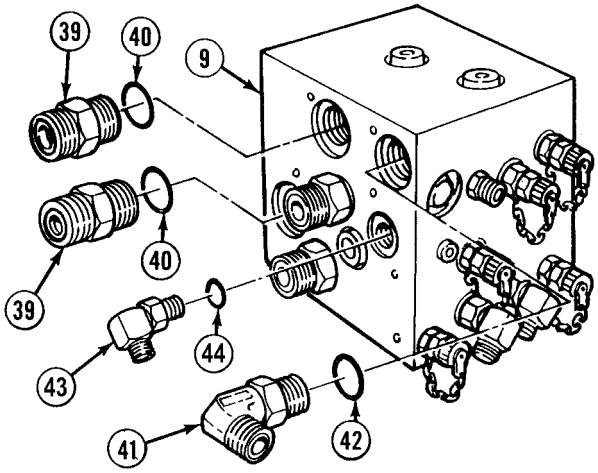
(9) Remove elbow (36) preformed packing (37) and orifice (38) from manifold (9). Discard preformed packing.



(10) Remove two adapters (39) and preformed packings (40) from manifold (9). Discard preformed packings.

(11) Remove elbow (41) and preformed packing (42) from manifold (9). Discard preformed packing.

(12) Remove elbow (43) and preformed packing (44) from manifold (9). Discard preformed packing.



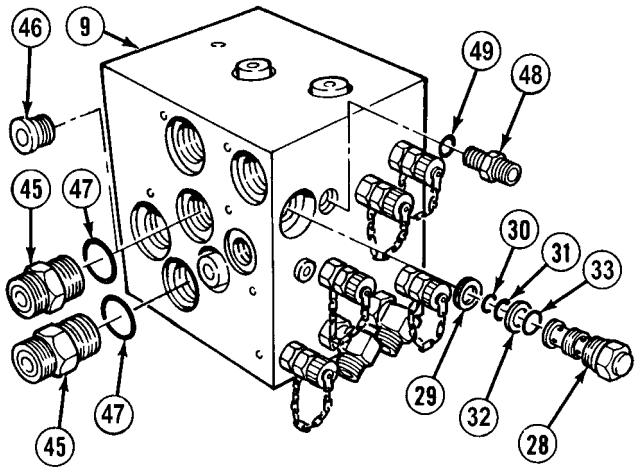
17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

NOTE

- If truck is not equipped with crane, perform Step (13).
- If truck is equipped with crane, perform Step (14).

(13) Remove adapter (45), plug (46) and two preformed packings (47) from manifold (9). Discard preformed packings.

(14) Remove two adapters (45) and preformed packings (47) from manifold (9). Discard preformed packings.



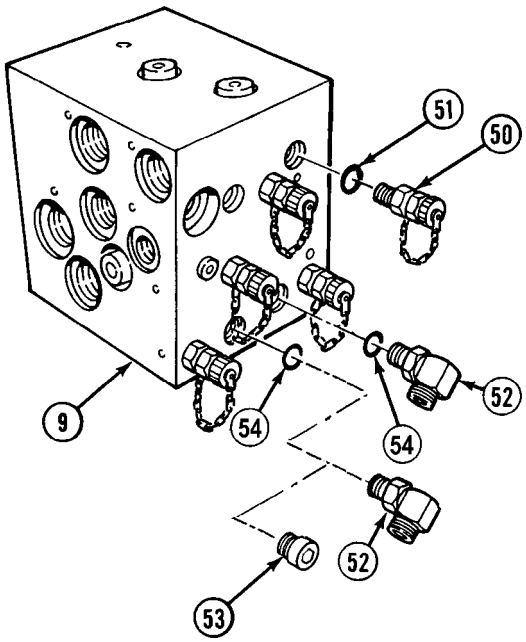
(15) Remove shuttle valve (28), packing retainer (29), two preformed packings (30) and (31), packing retainer (32) and preformed packing (33) from manifold (9). Discard preformed packings and packing retainers.

(16) Remove adapter (48) and preformed packing (49) from manifold (9). Discard preformed packing.

(17) Remove five couplings (50) and preformed packings (51) from manifold (9). Discard preformed packings.

NOTE

- If truck is not equipped with crane, perform Step (18).
- If truck is equipped with crane, perform Step (19).

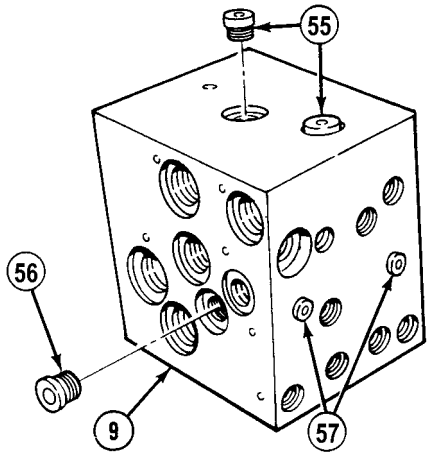


(18) Remove elbow (52), plug (53) and preformed packings (54) from manifold (9). Discard preformed packings.

(19) Remove two elbows (52) and preformed packings (54) from manifold (9). Discard preformed packings.

(20) Remove two plugs (55) and five machine thread plugs (56) from manifold (9).

(21) Remove two plugs (57) from manifold (9).



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury or death to personnel.

(1) Clean all metal parts with drycleaning solvent.

(2) Dry all metal parts with compressed air.

(3) Inspect manifold for cracks, holes, dents or stripped threads.

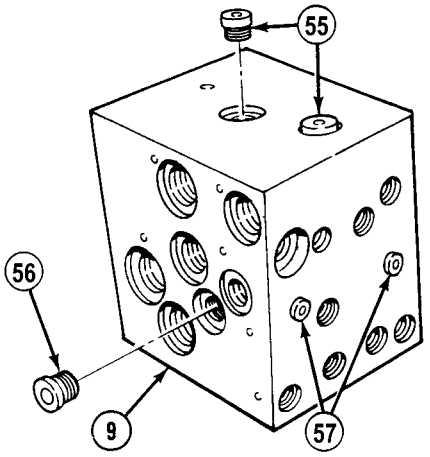
(4) Inspect manifold plugs and components for cracks or stripped threads.

17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

d. Assembly.

(1) Install two plugs (57) in manifold (9).

(2) Install five machine thread plugs (56) and two plugs (55) in manifold (9).



(3) Apply hydraulic oil to two preformed packings (54).

NOTE

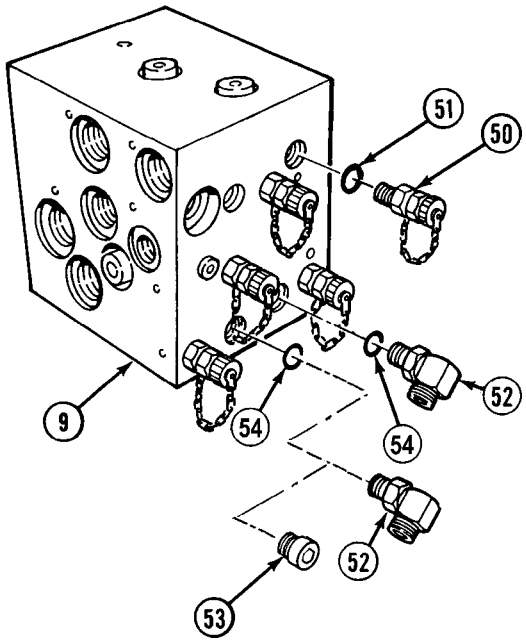
- If truck is equipped with crane, perform Step (4).
- If truck is not equipped with crane, perform Step (5).

(4) Install two preformed packings (54) and elbows (52) in manifold (9).

(5) Install two preformed packings (54), plug (53) and elbow (52) in manifold (9).

(6) Apply hydraulic oil to five preformed packings (51).

(7) Install five preformed packings (51) and couplings (50) in manifold (9).



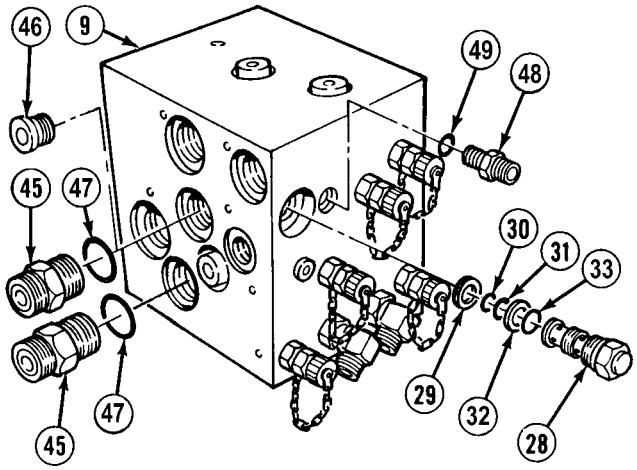
(8) Apply hydraulic oil to preformed packing (49).

(9) Install preformed packing (49) and adapter (48) in manifold (9).

(10) Apply hydraulic oil to three preformed packings (30), (31) and (33) and packing retainers (29) and (32).

(11) Install preformed packing (33), packing retainer (32), preformed packings (30) and (31), packing retainer (29) and shuttle valve (28) in manifold (9).

(12) Apply hydraulic oil to two preformed packings (47).



NOTE

- If truck is equipped with crane, perform Step (13).
- If truck is not equipped with crane, perform Step (14).

(13) Install two preformed packings (47) and adapters (45) in manifold (9).

(14) Install two preformed packings (47), plug (46) and adapter (45) in manifold (9).

(15) Apply hydraulic oil to preformed packing (44).

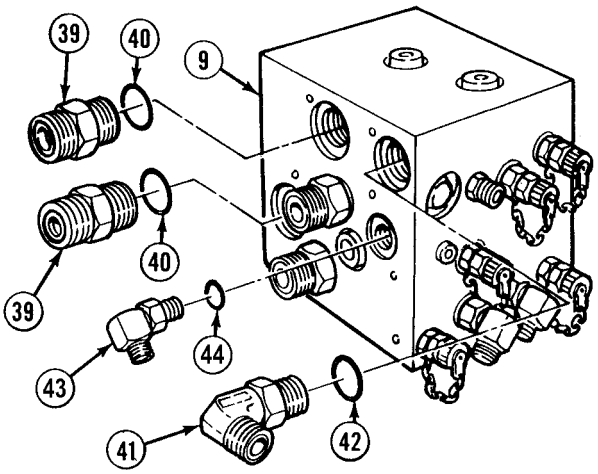
(16) Install preformed packing (44) and elbow (43) on manifold (9).

(17) Apply hydraulic oil to preformed packing (42).

(18) Install preformed packing (42) and elbow (41) in manifold (9).

(19) Apply hydraulic oil to two preformed packings (40).

(20) Install two preformed packings (40) and adapters (39) in manifold (9).



17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

(21) Apply hydraulic oil to preformed packing (37).

(22) Install orifice (38), preformed packing (37) and elbow (36) in manifold (9).

(23) Apply hydraulic oil to preformed packing (35).

(24) Install preformed packing (35) and coupling (34) in manifold (9).

(25) Apply hydraulic oil to preformed packings (30) and (31), two preformed packings (33) and packing retainers (29) and (32).

(26) Install two preformed packings (33), packing retainers (32), preformed packings (30) and (31), packing retainers (29) and shuttle valves (28) on manifold (9).

(27) Apply hydraulic oil to preformed packing (27).

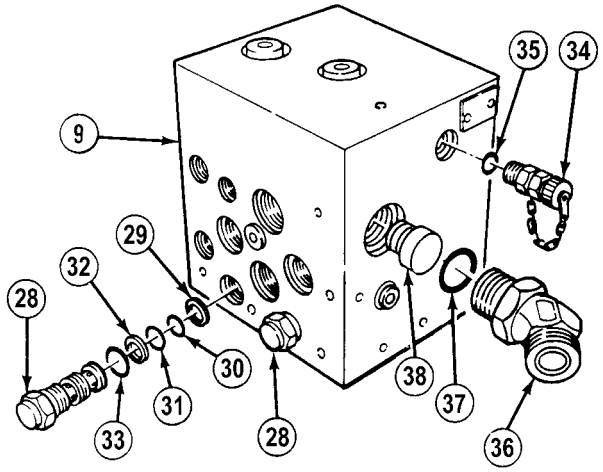
(28) Install preformed packing (27) and plug (26) in manifold (9).

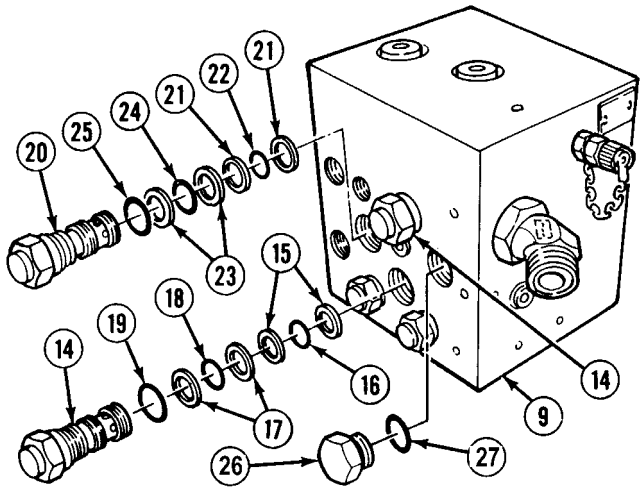
(29) Apply hydraulic oil to preformed packings (25), (24) and (22) and four packing retainers (23) and (21).

(30) Install preformed packings (24) and (25), two packing retainers (23), preformed packing (22), two packing retainers (21) and needle valve (20) in manifold (9).

(31) Apply hydraulic oil to preformed packings (19), (18) and (16) and four packing retainers (29) and (15).

(32) Install preformed packings (19) and (18), four packing retainers (17), two preformed packings (16), four packing retainers (15) and two needle valves (14) in manifold (9).





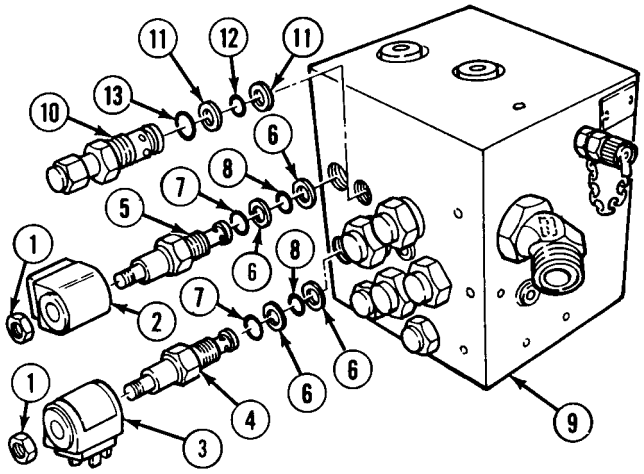
(33) Apply hydraulic oil to preformed packings (12) and (13) and two packing retainers (11).

(34) Install preformed packings (13) and (12), two packing retainers (11) and needle valve (10) in manifold (9).

(35) Apply hydraulic oil to four preformed packings (8) and (7) and four packing retainers (6).

(36) Install preformed packings (8) and (7), four packing retainers (6) and solenoid valves (4) and (5) in manifold (9).

(37) Install solenoids (2) and (3) on solenoid valves (4) and (5) with two nuts (1).



e. Installation.

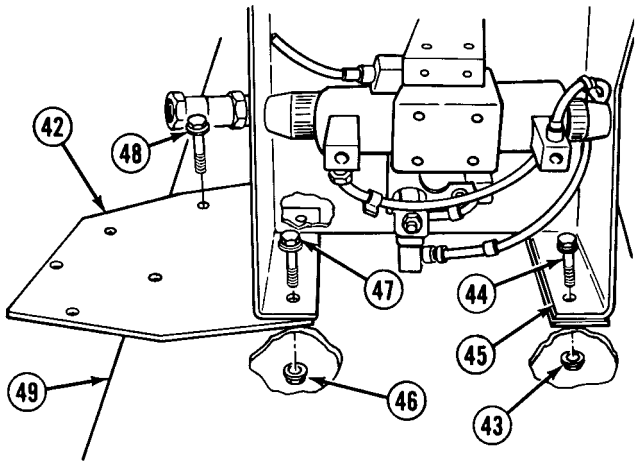
NOTE

- Install cable ties as required.
- Perform Steps (1) through (3) only if bracket was removed.

(1) With the aid of an assistant, install mounting bracket (42) on fender (49) with two screws (47), screws (48) and four locknuts (46).

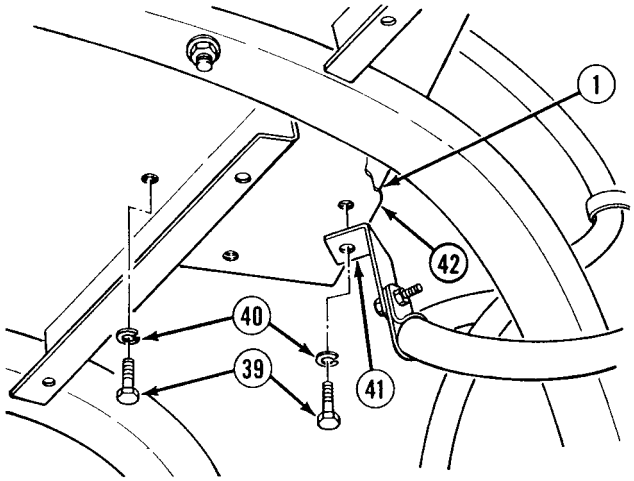
(2) Remove and discard two locknuts (43) from screws (44).

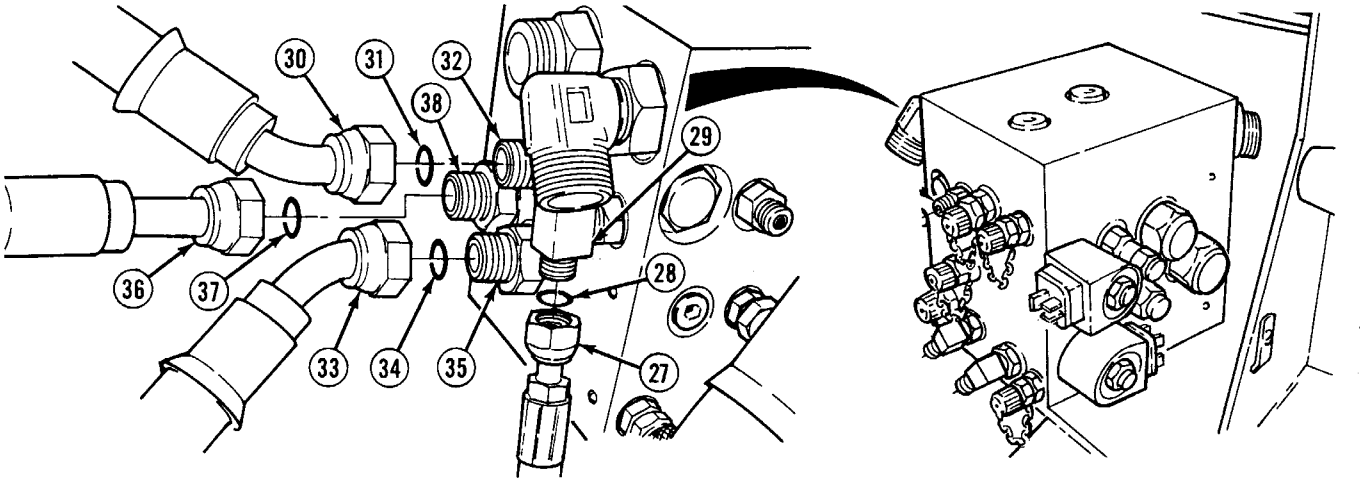
(3) Install two locknuts (43) and screws (44) on bracket (45).



17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

(4) Install multifunction manifold (1) and bracket (41) on mounting bracket (42) with four lockwashers (40) and screws (39).





(5) Apply hydraulic oil to preformed packing (37).

(6) Install preformed packing (37) and hose 2772 (36) on adapter (38).

(7) Apply hydraulic oil to preformed packing (34).

(8) Install preformed packing (34) and hose 2899 (33) on adapter (35).

NOTE

If truck is equipped with crane, perform Steps (9) and (10).

(9) Apply hydraulic oil to preformed packing (31).

(10) Install preformed packing (31) and hose 2902 (30) on adapter (32).

(11) Apply hydraulic oil to preformed packing (28).

(12) Install preformed packing (28) and hose 2291 (27) on elbow (29).

(13) Apply hydraulic oil to preformed packing (25).

(14) Install preformed packing (25) and hose 2809 (24) on elbow (26).

NOTE

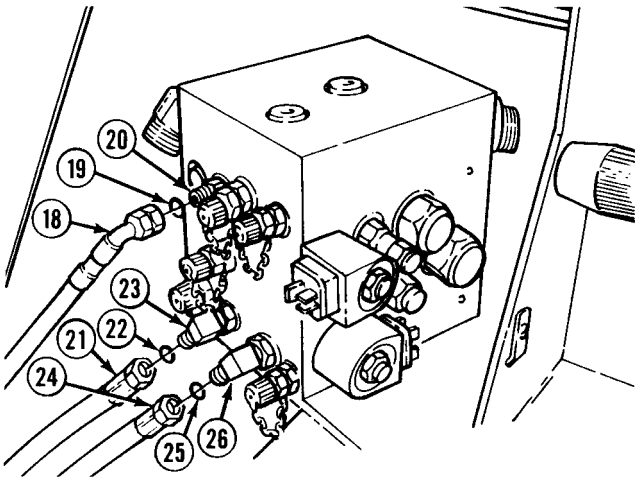
If truck is equipped with crane, perform Step (15) and (16).

(15) Apply hydraulic oil to preformed packing (22).

(16) Install preformed packing (22) and hose 2776 (21) on adapter (23).

(17) Apply hydraulic oil to preformed packing (19).

(18) Install preformed packing (19) and hose 2295 (18) on adapter (20).



(19) Apply hydraulic oil to preformed packing (16).

(20) Install preformed packing (16) and hose 2777 (15) on elbow (17).

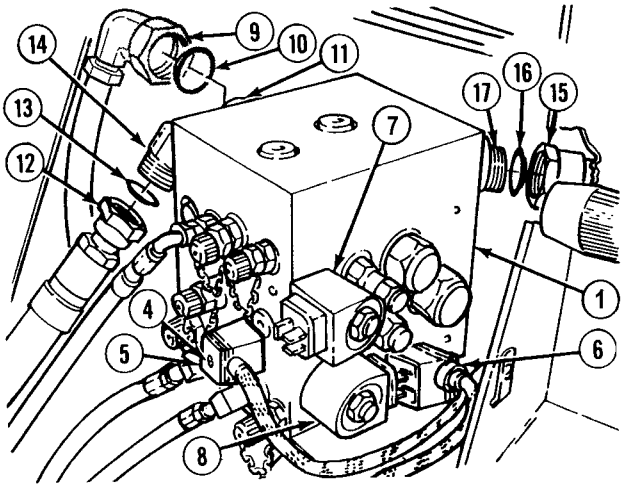
(21) Apply hydraulic oil to preformed packing (13).

(22) Install preformed packing (13) and hose 2904 (12) on elbow (14).

(23) Apply hydraulic oil to preformed packing (10).

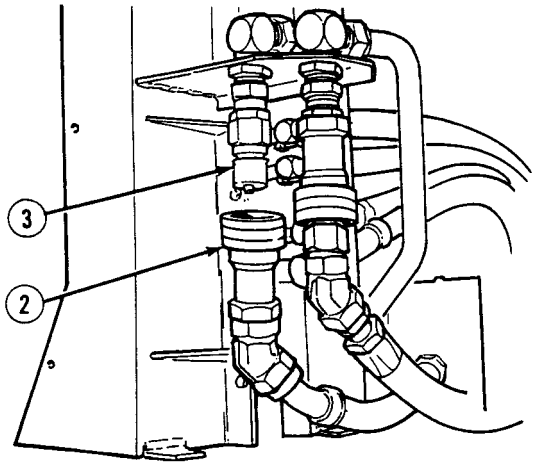
(24) Install preformed packing (10) and hose 2936 (9) on adapter (11).

(25) Connect connectors M10 (5) and M51 (6) on solenoids (7) and (8) on manifold (1) and tighten screws (4).



17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

(26) Connect hose 2777 (2) at quick disconnect (3).



f. Follow-On Maintenance:

- Install transmission external filter head, (TM 9-2320-364-20).
- Install LHS control box cover, (TM 9-2320-364-10).
- Install left rear fender skirt, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Install battery box, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-19. DIVERTER BLOCK REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

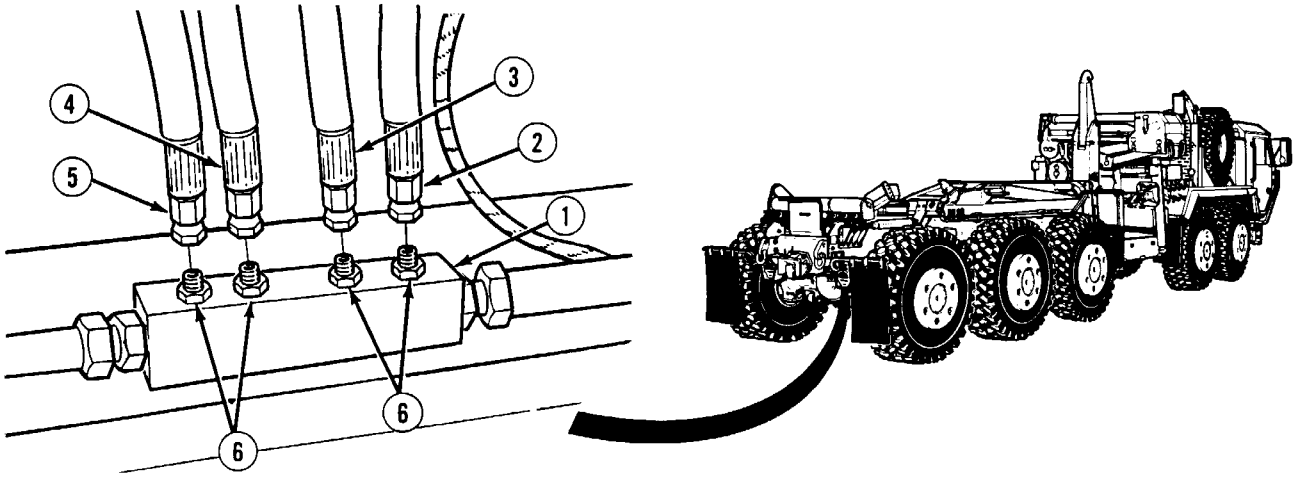
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain (Item 145, Appendix F)
Vice, Machinist (Item 248, Appendix F)
Wrench, Combination 1-3/4 in. (Item 263, Appendix F)
Wrench, Combination 1-13/16 in. (Item 264, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (3) (Item 266, Appendix E)
Packing, Preformed (2) (Item 332, Appendix E)
Packing, Preformed (2) (Item 333 Appendix E)
Packing, Preformed (4) (Item 355, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

- Remove cable ties as required.
- Tag and mark hoses prior to removal.
- Cap and plug hoses after removal.

(1) Position drain pan under diverter block (1).

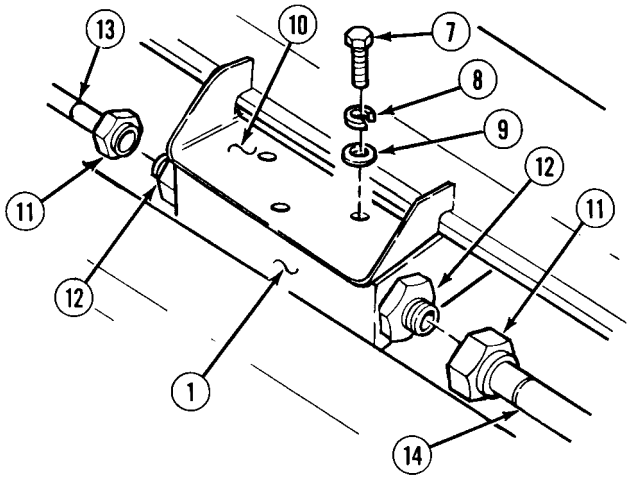
(2) Remove hose 2891 (2), hose 2882 (3), hose 2881 (4) and hose 2892 (5) from four adapters (6).

17-19. DIVERTER BLOCK REPAIR (CONT).

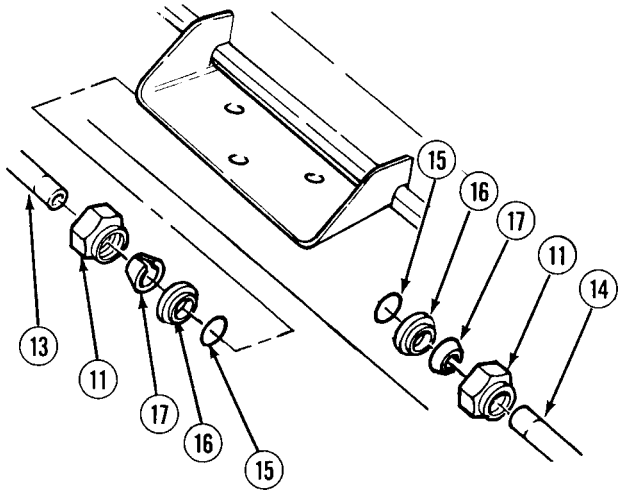
(3) Remove three screws (7), lockwashers (8) and washers (9) from bracket (10) and diverter block (1). Discard lockwashers.

(4) Remove two coupling nuts (11) from adapters (12).

(5) Remove diverter block (1) from tubes (13) and (14).



(6) Remove two preformed packings (15), bushings (16), sleeves (17) and coupling nuts (11) from tubes (13) and (14). Discard preformed packings.

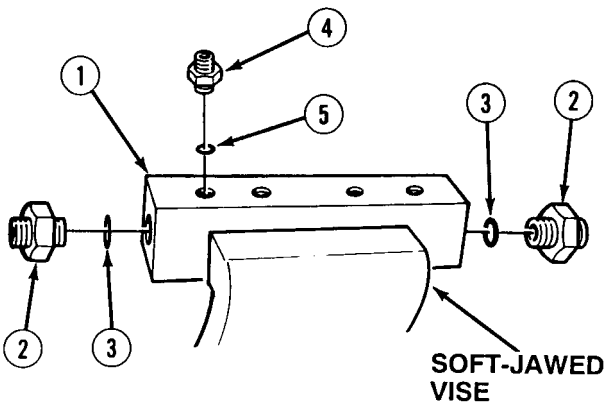


b. Disassembly.

(1) Position diverter block (1) in soft-jawed vise.

(2) Remove two adapters (2) and preformed packings (3) from diverter block (1). Discard preformed packings.

(3) Remove four adapters (4) and preformed packings (5) from diverter block (1). Discard preformed packings.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury or death to personnel.

(1) Clean manifold and components using drycleaning solvent.

(2) Dry all parts with compressed air.

(3) Inspect for any foreign material in ports and remove as necessary.

(4) Inspect for cracks, dents, gouges or stripped threads.

(5) Replace all damaged parts.

d. Assembly.

(1) Position diverter block (1) in soft-jawed vise.

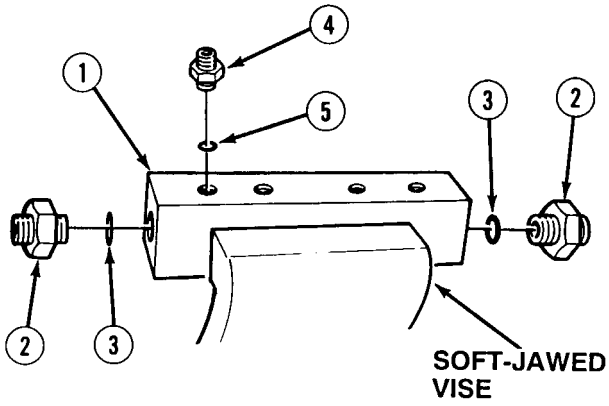
(2) Apply hydraulic oil to four preformed packings (5).

(3) Install four preformed packings (5) and adapters (4) in diverter block (1).

(4) Apply hydraulic oil to two preformed packings (3).

(5) Install two preformed packings (3) and adapters (2) in diverter block (1).

(6) Remove diverter block (1) from vise.



17-19. DIVERTER BLOCK REPAIR (CONT).

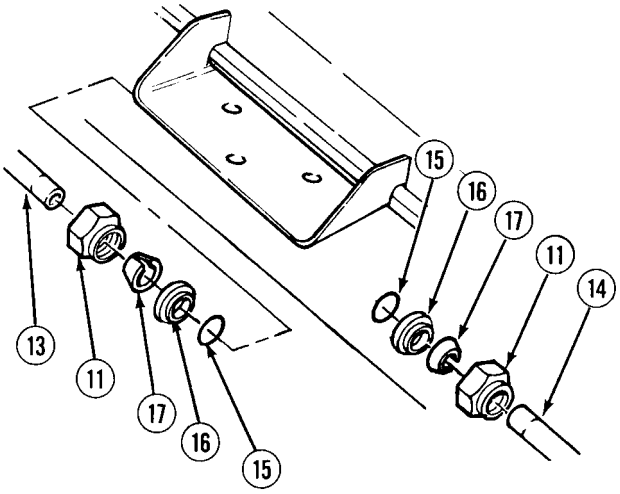
e. Installation.

NOTE

Install cable ties as required.

(1) Apply hydraulic oil to two preformed packings (15).

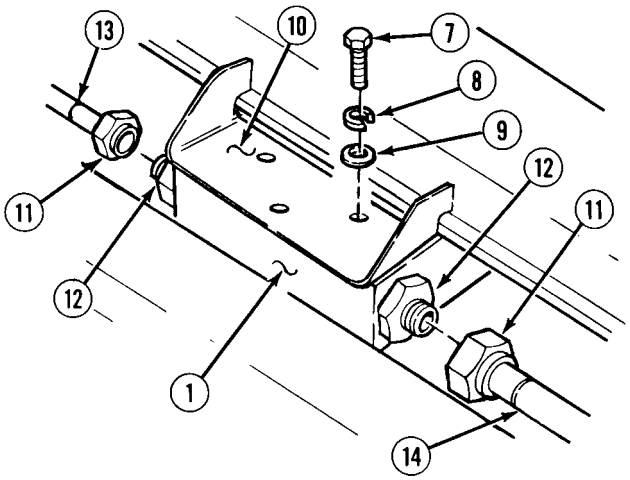
(2) Position two coupling nuts (11), sleeves (17), bushings (16) and preformed packings (15) on tubes (13) and (14).



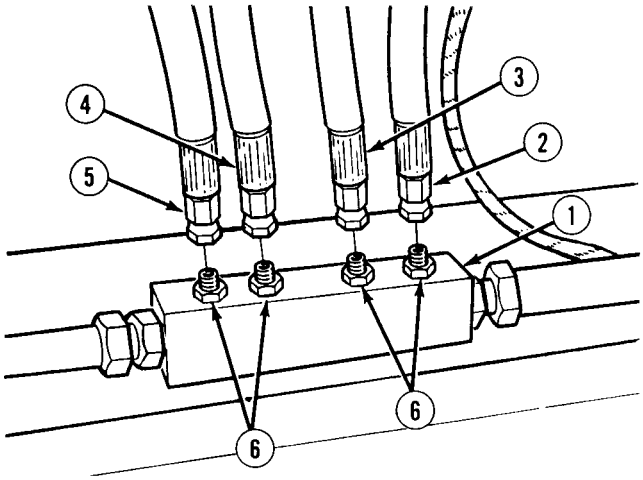
(3) Position diverter block (1) on tubes (13) and (14).

(4) Install two coupling nuts (11) on adapters (12).

(5) Install diverter block (1) on bracket (10) using three washers (9), lockwashers (8) and screws (7).



(6) Install hose 2892 (5), hose 2881 (4), hose 2882 (3) and hose 2891 (2) on four adapters (6).



f. Follow-On Maintenance:

- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for 3 minutes, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 18

SPECIAL PURPOSE KITS MAINTENANCE

Para Contents Page

18-1. DIRECT SUPPORT SPECIAL PURPOSE KITS MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for installing special purpose kits as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A).

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in.
(Item 49, Appendix F)
Rivet Gun (Item 196, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)

Materials/Parts
Adhesive (Item 2, Appendix B)
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Preventive (Item 15, Appendix B)
Sealant, Electrical (Item 50, Appendix B)
Sealing Compound (Item 53, Appendix B)
Lockwasher (22) (Item 282, Appendix E)
Lockwasher (2) (Item 286, Appendix E)
Screw, Self-Tapping (Item 559, Appendix E)

References
TM 9-6140-200-14

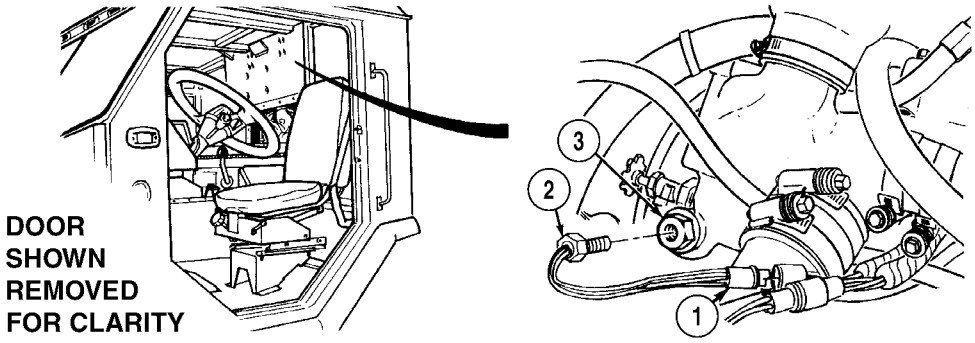
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Coolant drained, (TM 9-2320-364-20)
Right front fender skirt removed,
(TM 9-2320-364-20)
Fuel pressure transducer removed,
(TM 9-2320-364-20)
Secondary fuel filter head removed,
(TM 9-2320-364-20)
Remote engine oil filter kit removed,
(TM 9-2320-364-20)
Engine oil filter adapter removed
(TM 9-2320-364-20

a. Installation.

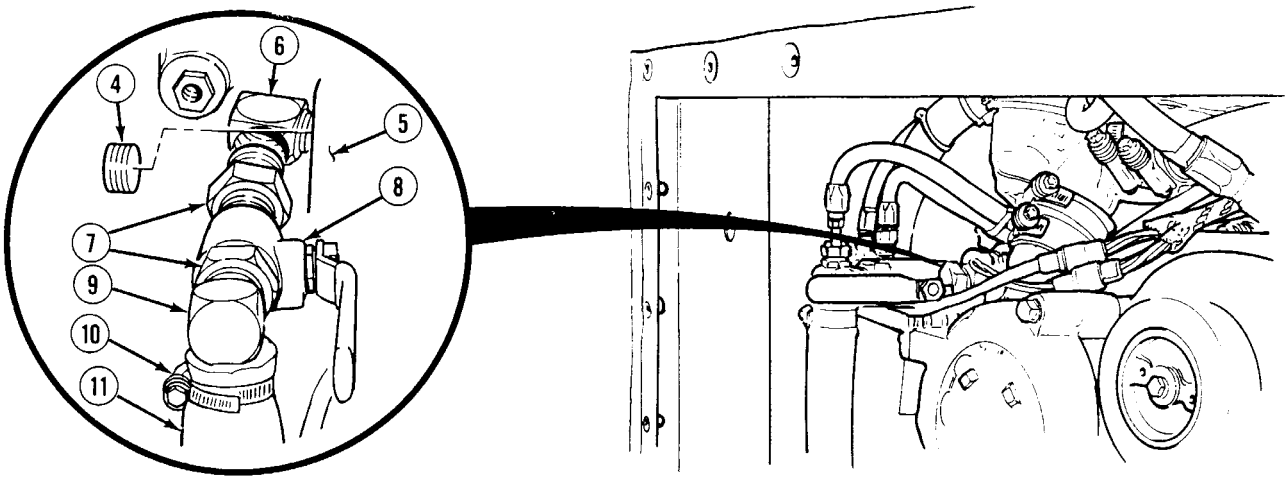
NOTE

If truck is equipped with a remote engine oil filter kit, it must be removed.



(1) Disconnect MC71 connector (1).

(2) Remove water temperature sensor (2) from reducer (3).



(3) Remove plug (4) from water pump (5).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound to threads of elbow (6).

(5) Install elbow (6) to engine water pump (5).

(6) Apply sealing compound to threads of nipple (7).

(7) Install nipple (7) to elbow (6).

(8) Apply sealing compound to threads of nipple (7).

(9) Install valve (8) to nipple (7).

(10) Apply sealing compound to threads of elbow (9).

(11) Install elbow (9) to valve (8).

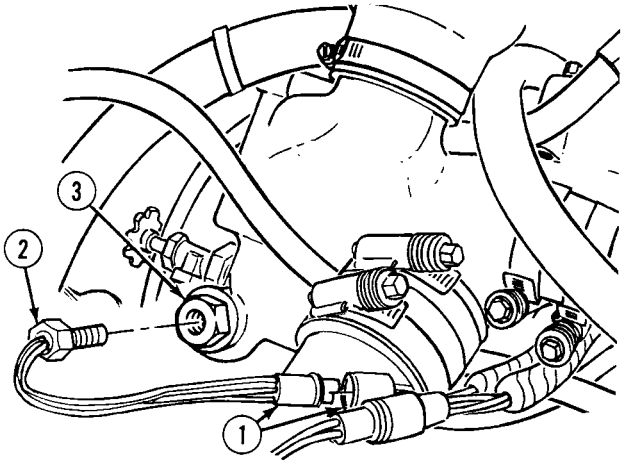
(12) Position hose clamp (10) on hose (11).

(13) Install hose (11) to elbow (9) with hose clamp (10).

18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(14) Apply sealing compound to threads of water temperature sensor (2).

(15) Install water temperature sensor (2) to reducer (3).

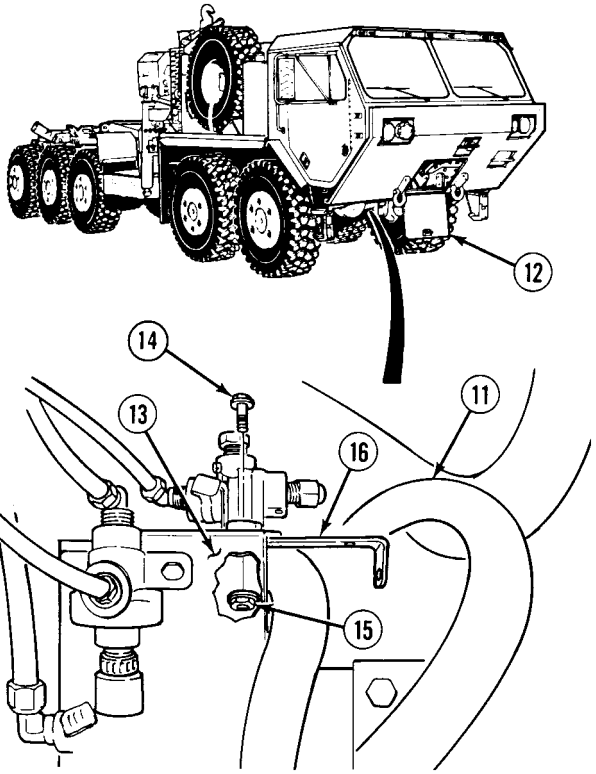
(16) Connect MC71 connector (1).

(17) Open front access cover (12).

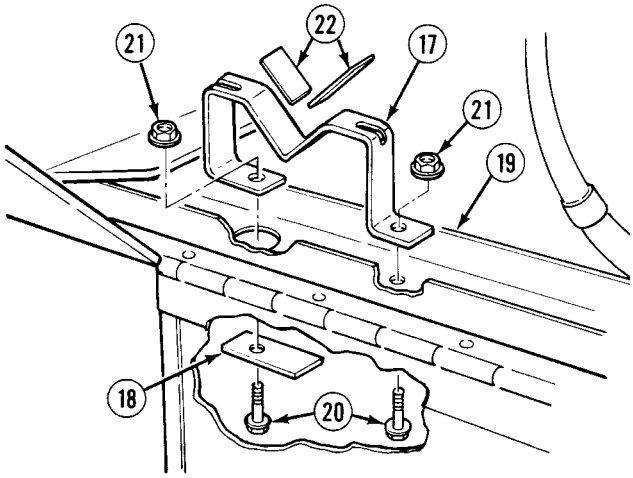
(18) Route hose (11) down along left side of bracket (13) and towards front access cover (12).

(19) Remove screw (14) and locknut (15) from chassis air front gladhand bracket (13). Discard locknut.

(20) Install bracket (16) on bracket (13) with screw (14) and locknut (15).



(21) Install lower bracket (17) and retaining plate (18) to frame (19) with two screws (20) and locknuts (21).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(22) Apply adhesive to one side of two rubber pads (22).

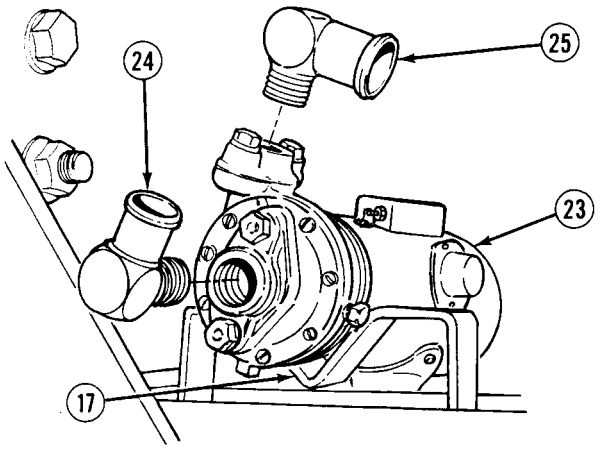
(23) Install two rubber pads (22) on lower bracket (17).

(24) Position water pump (23) in a soft jawed vise.

(25) Coat threads of two fittings (24) and (25) with sealing compound.

(26) Install two fittings (24) and (25) in water pump (23).

(27) Position water pump (23) on bracket (17).

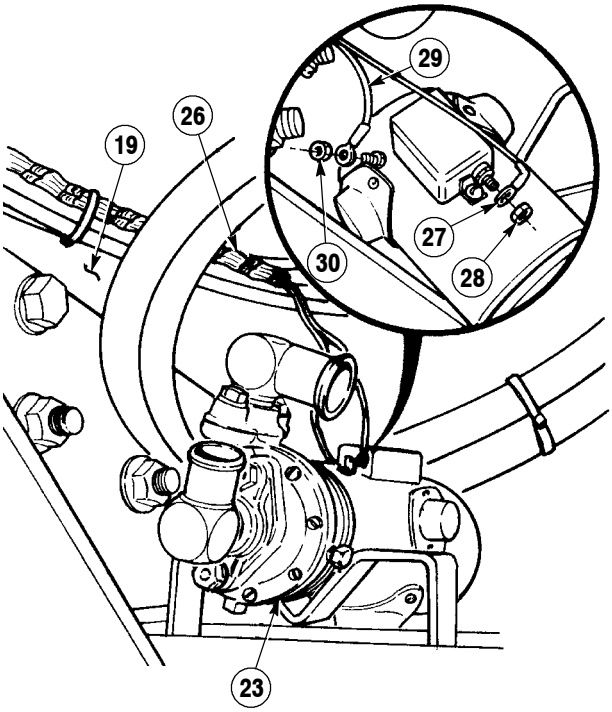


18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).

(28) Position arctic pump wire harness (26) on frame (19).

(29) Install wire 1644 (27) and nut (28) on water pump (23).

(30) Install wire 1435 (29) and nut (30) on water pump (23).



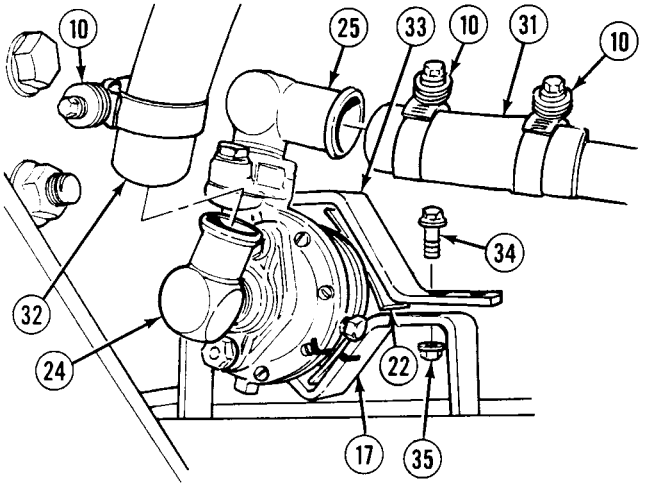
(31) Position two hose clamps (10) on hose (31).

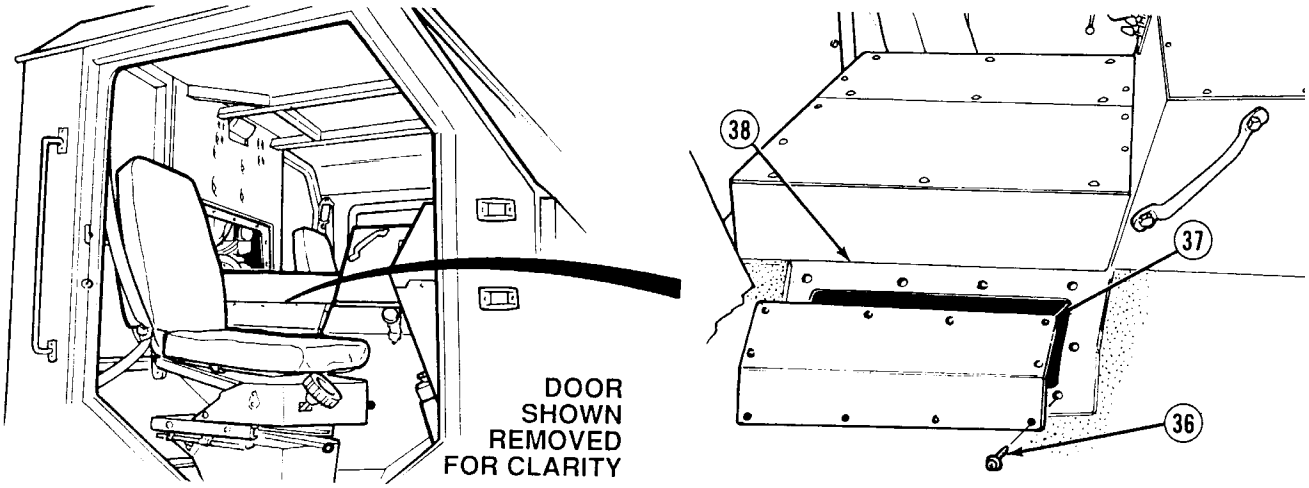
(32) Install hose (31) to fitting (25) with clamp (10).

(33) Position clamp (10) on hose (32).

(34) Install hose (32) on fitting (24) with hose clamp (10).

(35) Install two rubber pads (22) and bracket (33) to lower bracket (17) with two screws (34) and locknuts (35).



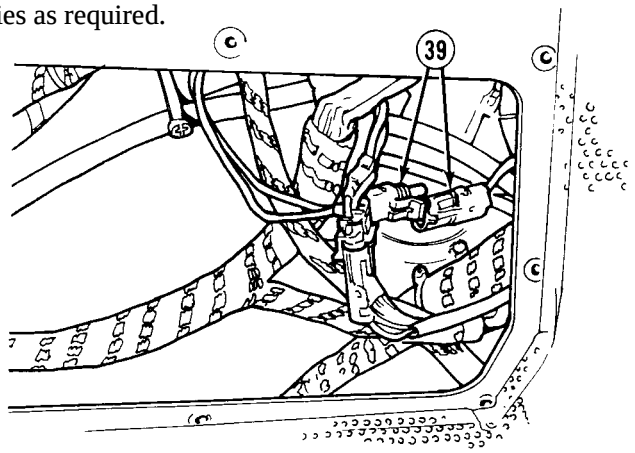


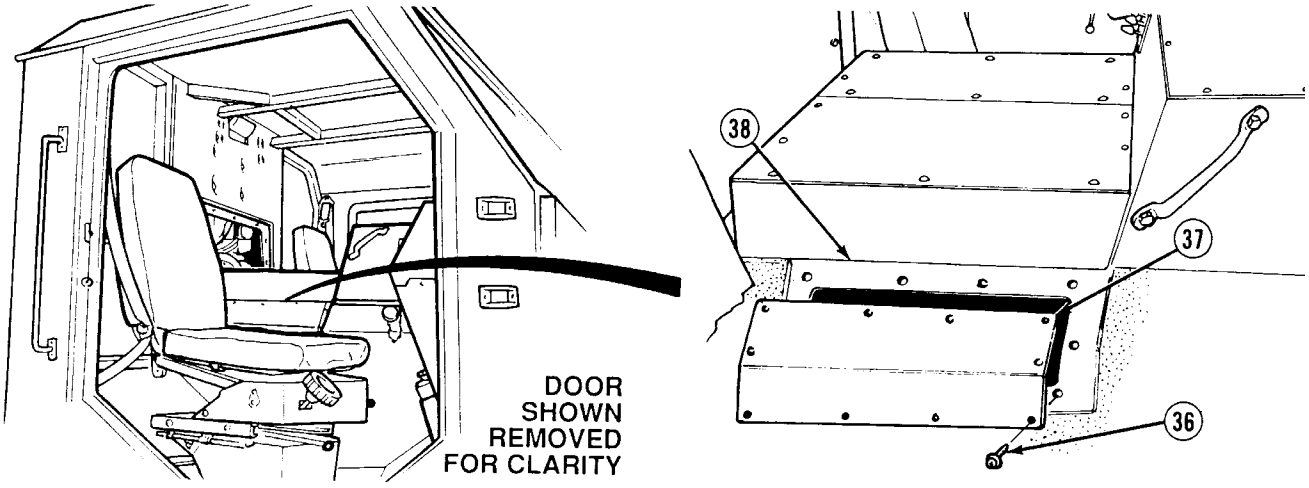
(36) Remove 10 screws (36) and Electronic Control Box (ECB) right side panel (37) from cab (38).

NOTE

Install cable ties as required.

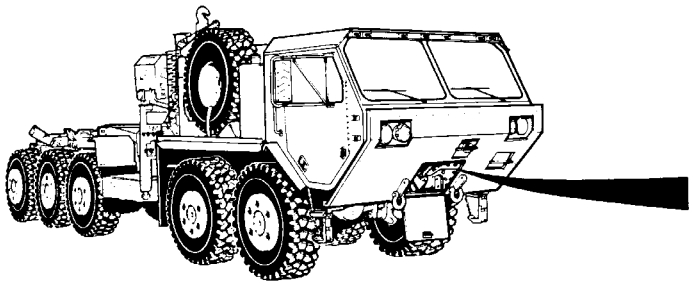
(37) Connect MC 120 connector (39).

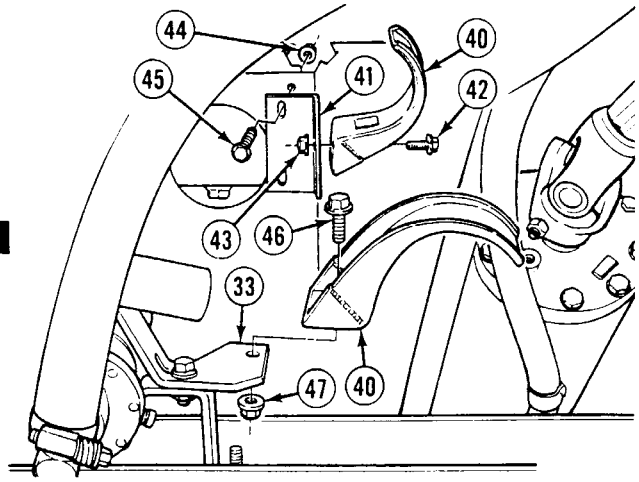




(38) Install ECB right side panel (37) to cab (38) with 10 screws (36).

18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).





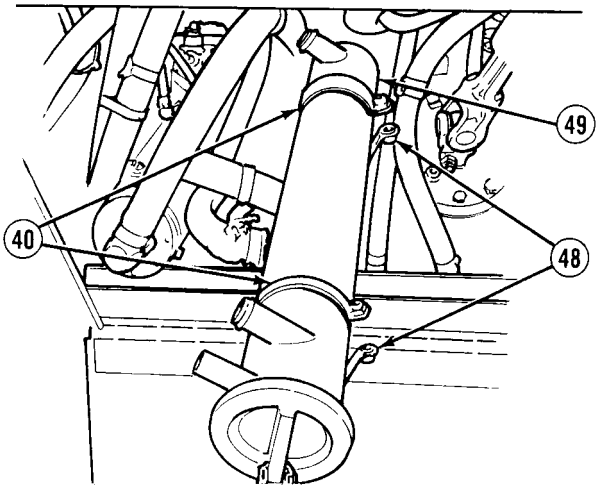
(39) Install bracket (40) on bracket (41) with screw (42) and locknut (43).

(40) Remove two locknuts (44) and screws (45) from bracket (41). Discard locknuts.

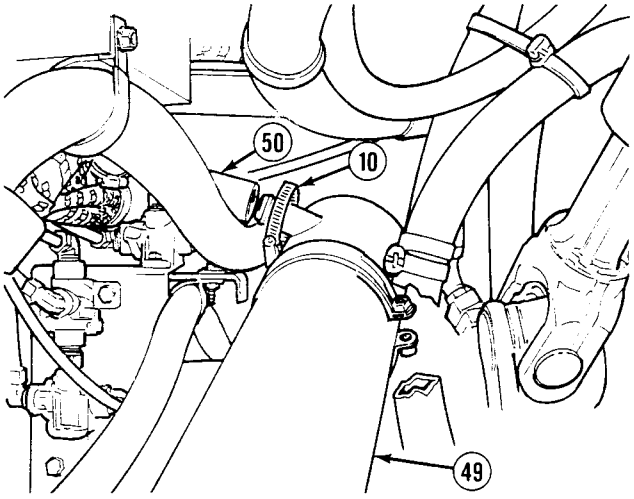
(41) Install bracket (40) on bracket (33) with screw (46) and locknut (47).

(42) Position two clamps (48) in brackets (40).

(43) Position arctic water jacket (49) in two clamps (48).



(44) Position clamp (10) and hose (50) on arctic water jacket (49).

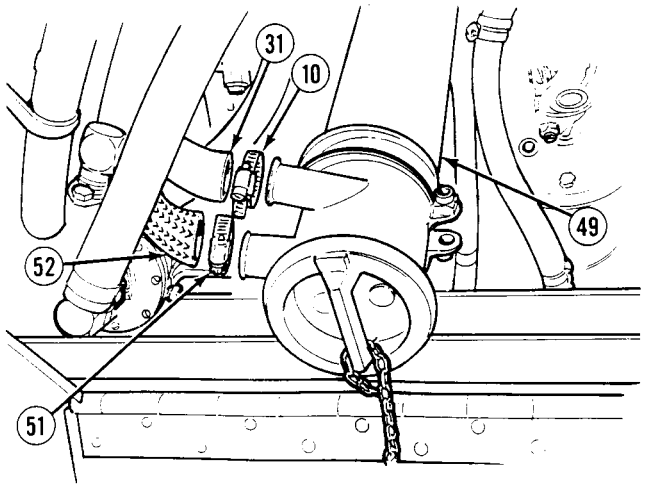


(45) Position clamp (10) and hose (31) on arctic water jacket (49).

WARNING

Sharp edges of exhaust pipe could cause injury to personnel.

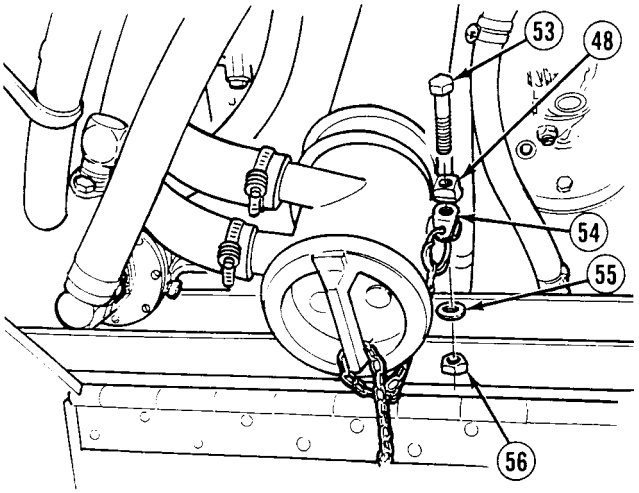
(46) Position clamp (51) and exhaust pipe (52) on arctic water jacket (49).



(47) Remove screw (53) from clamp (48).

(48) Install safety chain (54) on clamp (48)

(49) Install screw (53) in clamp (48) with washer (66) and locknut (56).

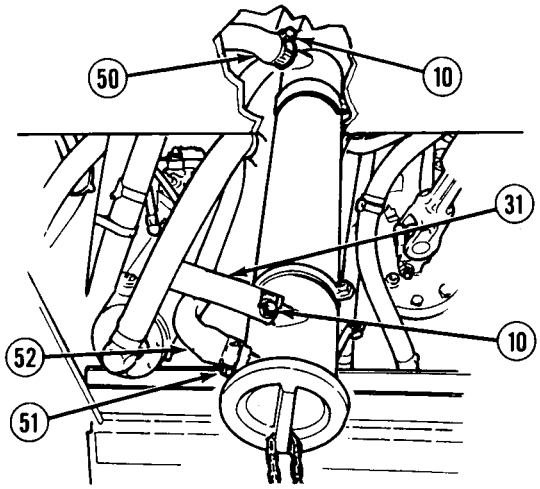


18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).

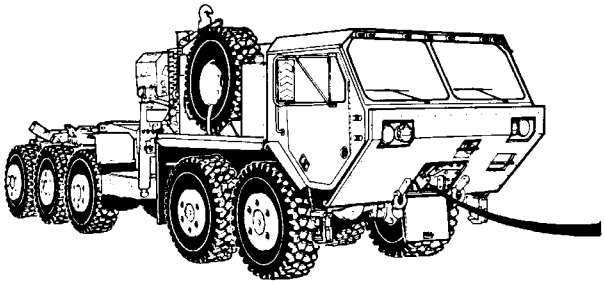
(50) Tighten clamp (10) on hose (31) to 40 lb-in (5 N·m).

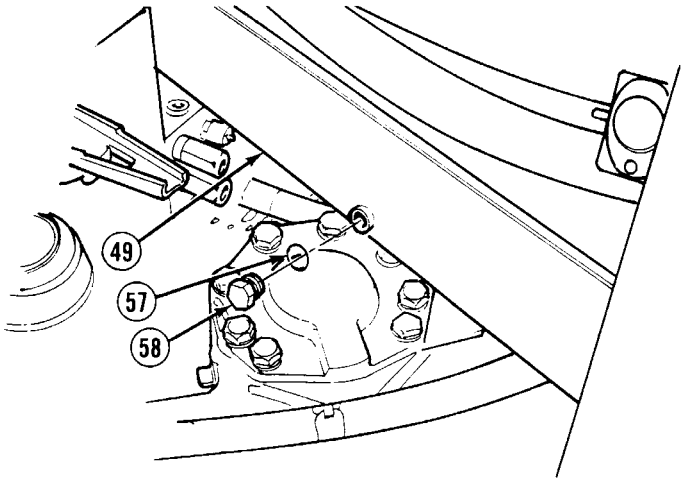
(51) Tighten clamp (51) on exhaust tube (52) to 40 lb-in (5 N·m).

(52) Tighten clamp (10) on hose (50) to 40 lb-in (5 N·m).



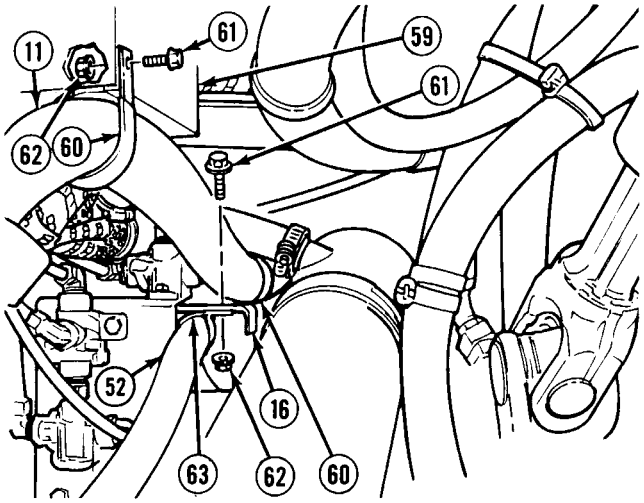
(53) Install gasket (57) and plug (58) in arctic water jacket (49).





(54) Install hose (11) to CTIS valve cover (59) with cushion clip (60), screw (61) and locknut (62).

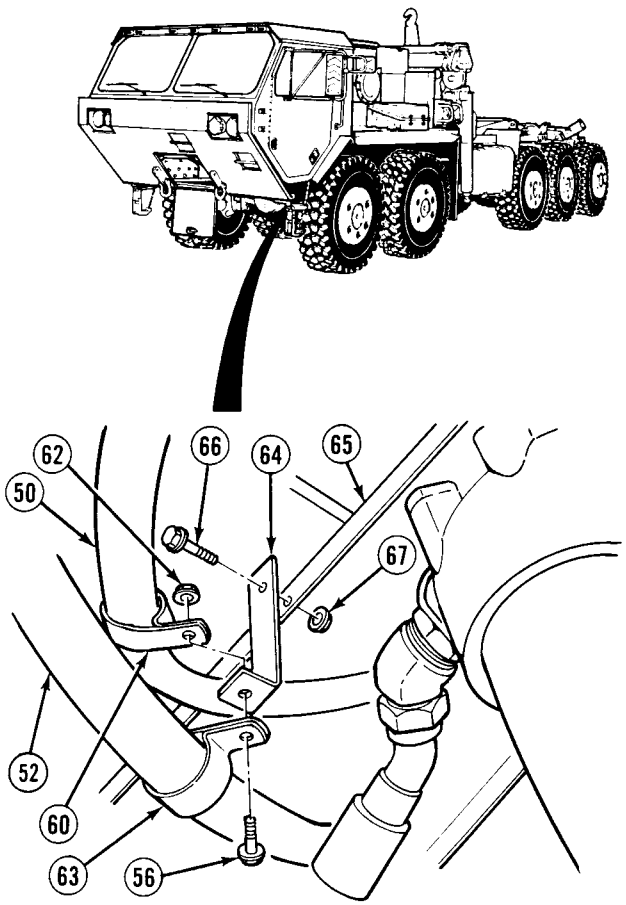
(55) Install hose (11) and exhaust tube (52) to bracket (16) with cushion clips (60) and (63), screw (61) and locknut (62).



(56) Install bracket (64) to front engine support (65) with screw (66) and locknut (67).

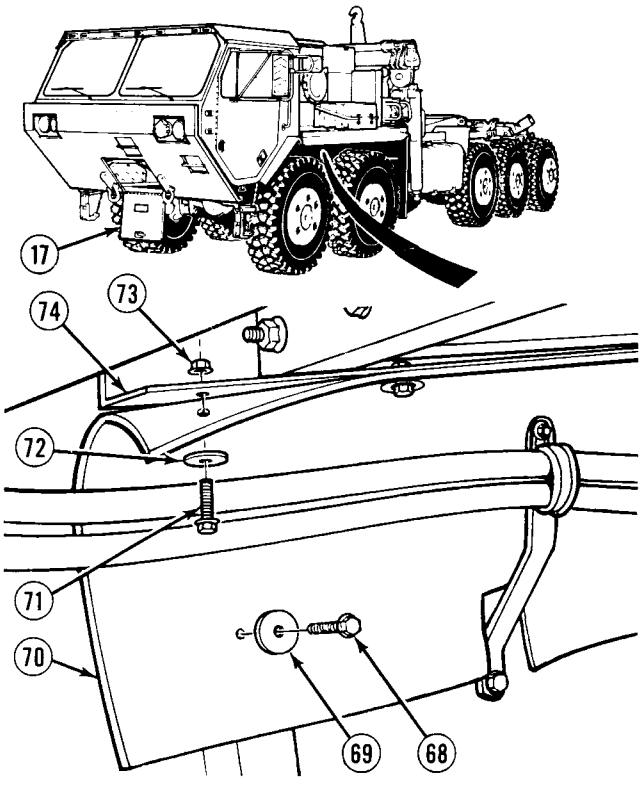
(57) Route hose (50) and exhaust tube (52) to bracket (64).

(58) Install hose (50) and exhaust tube (52) to bracket (64) with cushion clip (60), cushion clip (63), screw (61) and locknut (62).

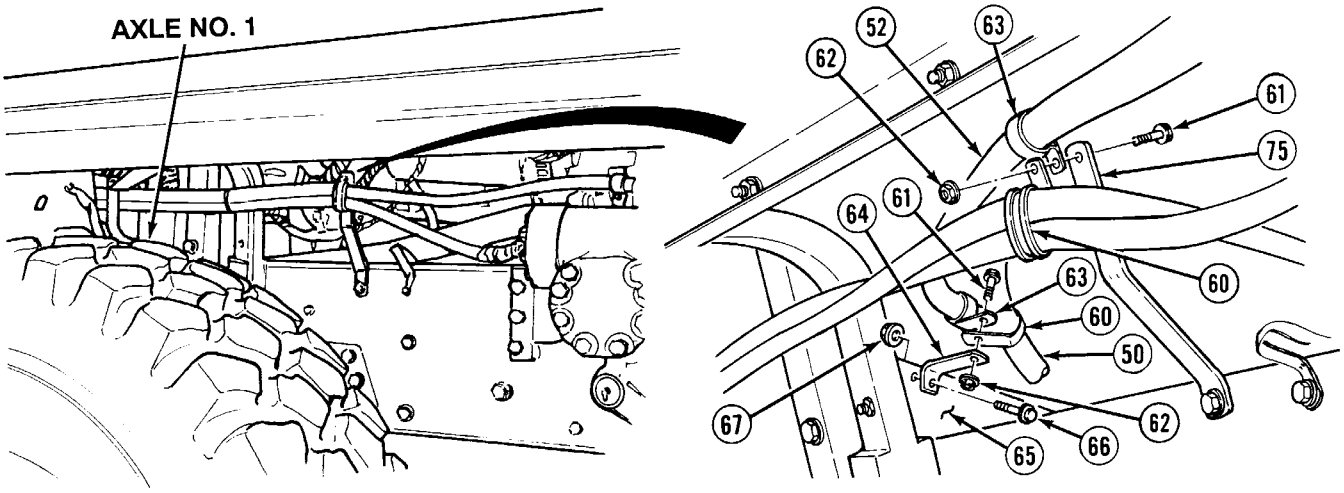


(59) Remove self-tapping screw (68) and washer (69) from left fender front skirt (70). Discard self-tapping screw.

(60) Remove six screws (71), washers (72) locknuts (73) and left fender front skirt (70) from left fender (74). Discard locknuts.



18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).



(61) Install bracket (64) to front engine support (65) with screw (66) and locknut (67).

(62) Route hose (50) and exhaust tube (52) to bracket (64).

(63) Install hose (50) and exhaust tube (52) on bracket (64) with cushion clip (60) cushion clip (63), screw (61) and locknut (62).

(64) Remove screw (61) and locknut (62) from bracket (75) and cushion clip (60). Discard locknut.

(65) Install cushion clip (60), cushion clip (63) and exhaust tube (52) with screw (61) and locknut (62).

(66) Push back cloth covering (76) on exhaust tube (52) approximately 12 in. (30.48 cm).

WARNING

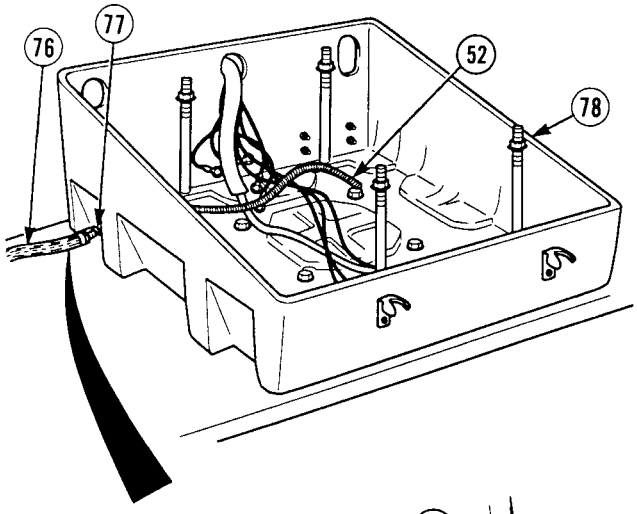
Sharp edges of exhaust tube could cause injury to personnel.

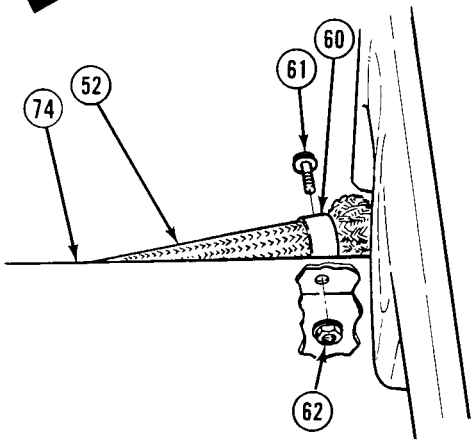
NOTE

- Exhaust tube should not be allowed to be pulled back through battery box.
- Lay exhaust tube along bottom of battery box.

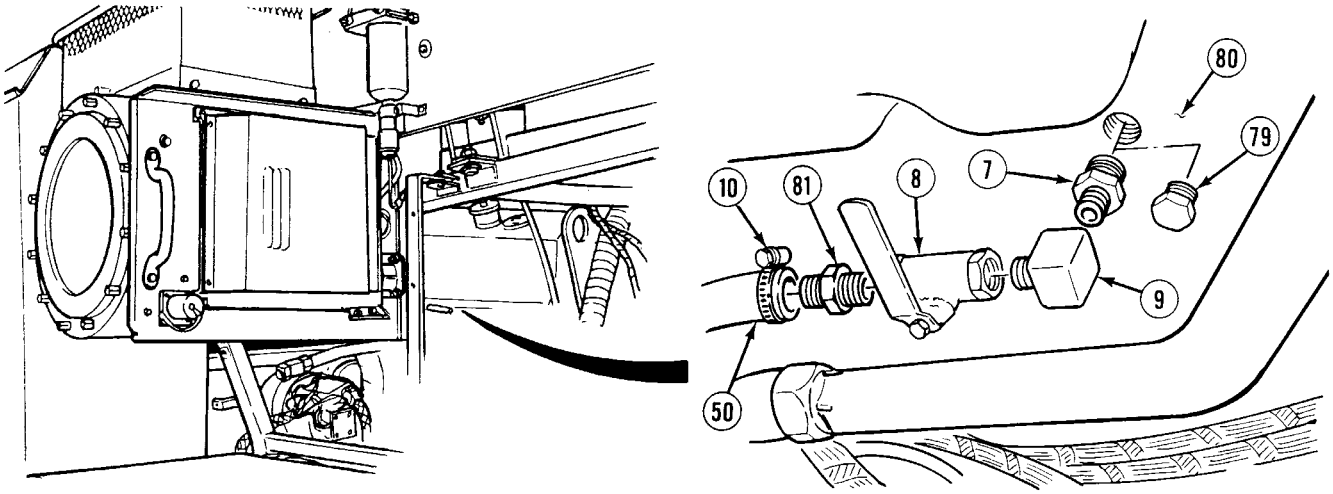
(67) Position 12 in. (30 cm) section of exposed exhaust tube (52) through hole (77) and along bottom of battery box (78).

(68) Install exhaust tube (52) to fender (74) with cushion clip (60), screw (61) and locknut (62).





18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).



(69) Remove plug (79) from engine block (80).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(70) Apply sealing compound to threads of reducer (7).

(71) Install reducer (7) on engine block (80).

(72) Apply sealing compound to threads of elbow (9).

(73) Install elbow (9) to reducer (7).

(74) Install valve (8) to elbow (9).

(75) Apply sealing compound to threads of adapter (81).

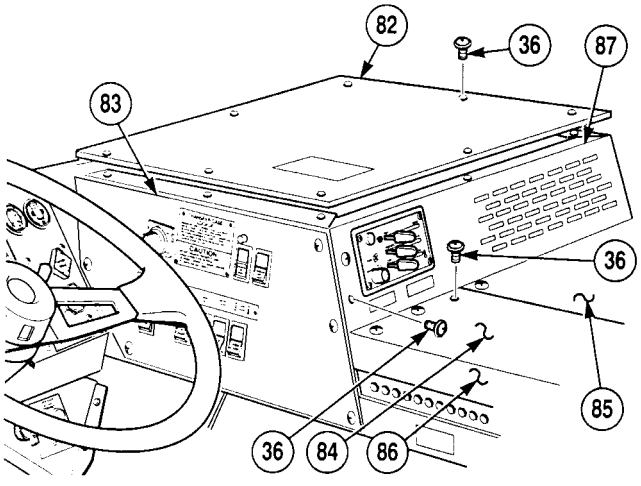
(76) Install adapter (81) to valve (8).

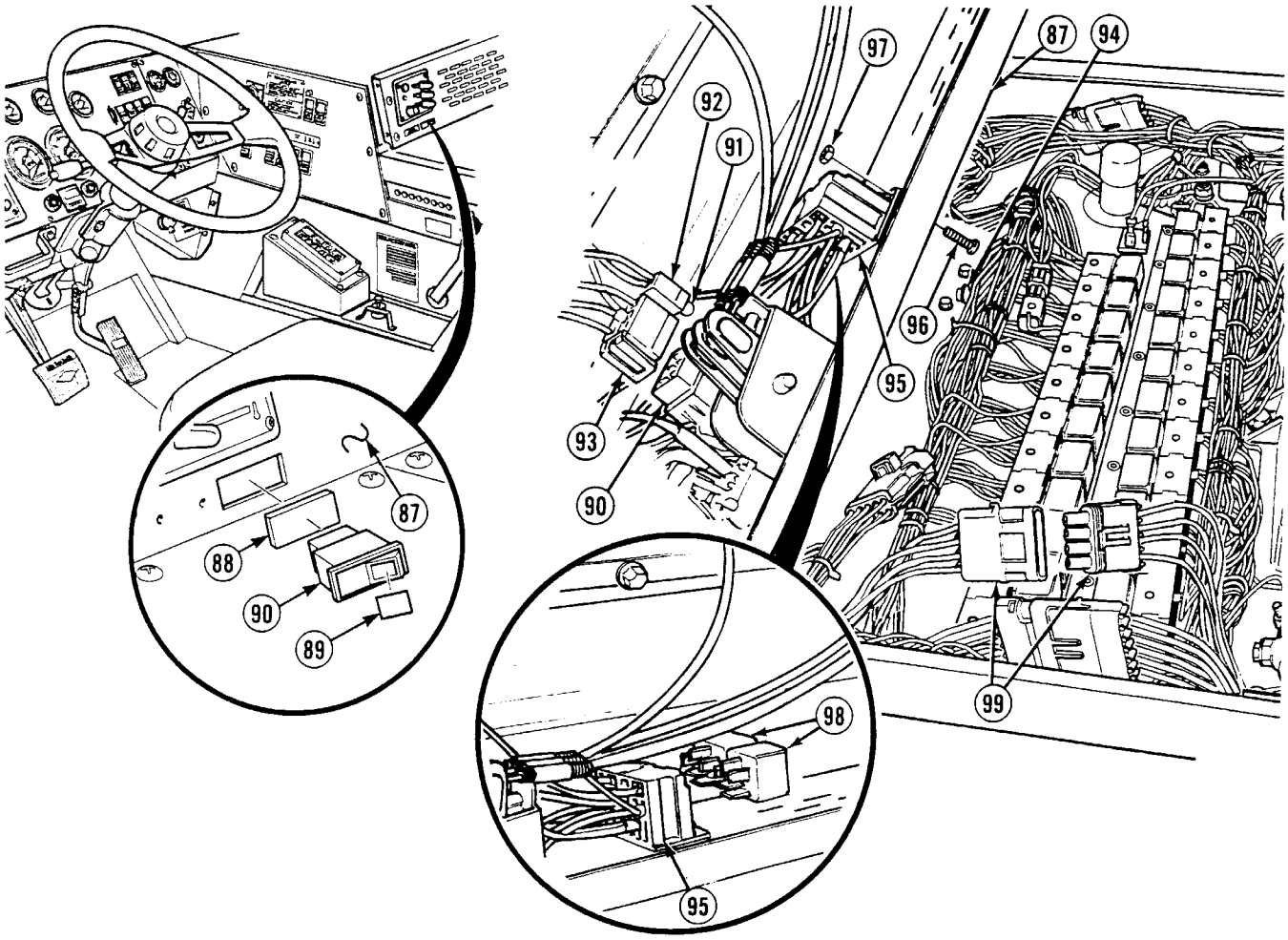
(77) Install clamp (10) and hose (50) on adapter (81). Tighten clamp to 40 lb-in (4.5 N·m).

(78) Remove eight screws (36) and heater control access panel (82) from heater compartment (83). Discard screws.

(79) Remove 15 screws (36) and ECB access panels (84) and (85) from ECB (86).

(80) Remove four screws (36) and tilt heater control panel (87).





(81) Remove cover (88) from heater control panel (87). Discard cover.

(82) Apply applique (89) on switch (90).

(83) Install switch (90) on heater control panel (87).

(84) Install lamp (91) on connector (92).

(85) Install connector (92) on switch (90).

(86) Install connector (93) on switch (90).

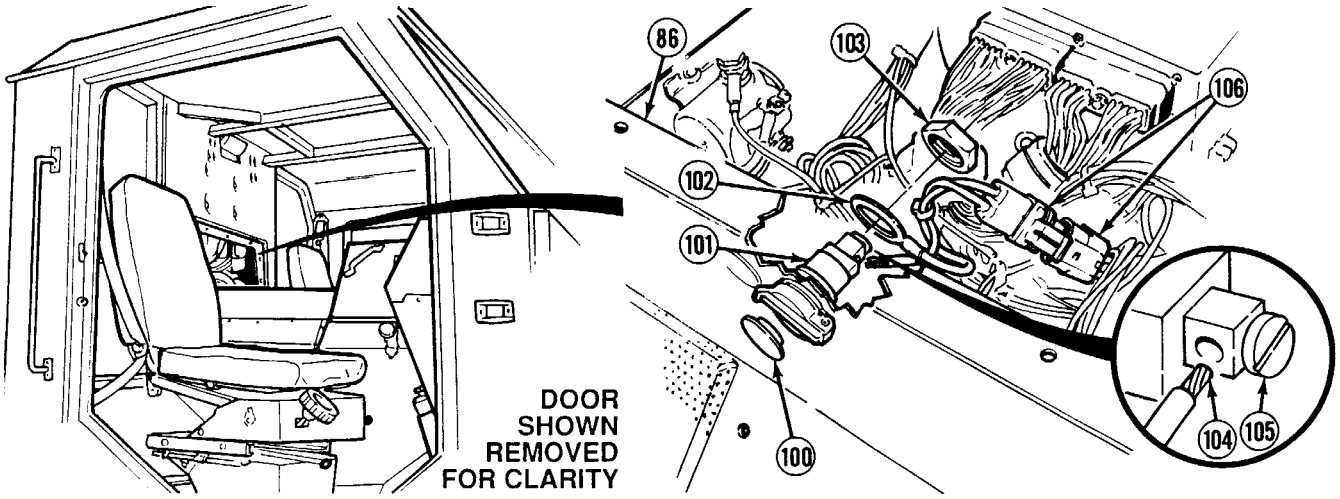
(87) Remove two plastic plugs (94) from heater control panel (87).

(88) Install arctic pump relay sockets (95), two screws (96) and locknuts (97) on heater control panel (87).

(89) Install two arctic pump relays (98) in relay sockets (95).

(90) Connect MC 119 connector (99).

18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).



(91) Remove and discard plug (100) from ECB (86).

(92) Install 24V receptacle (101) and wire 1435 (102) to ECB (86) with nut (103).

NOTE

Install cable ties as required.

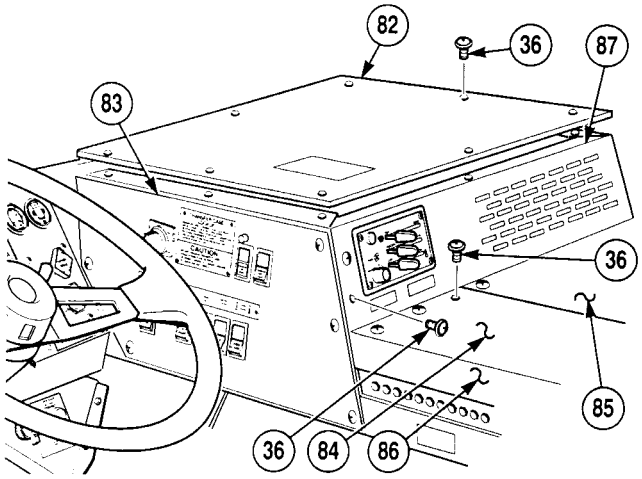
(93) Install wire 1340 (104) on 24V receptacle (101) with screw (105).

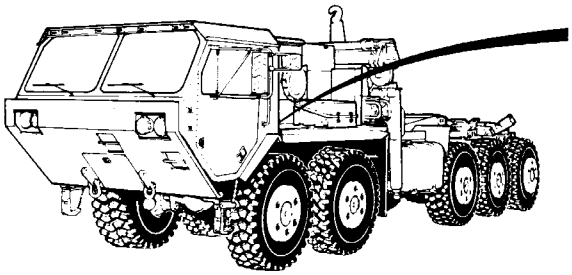
(94) Connect MC 101 connector (106).

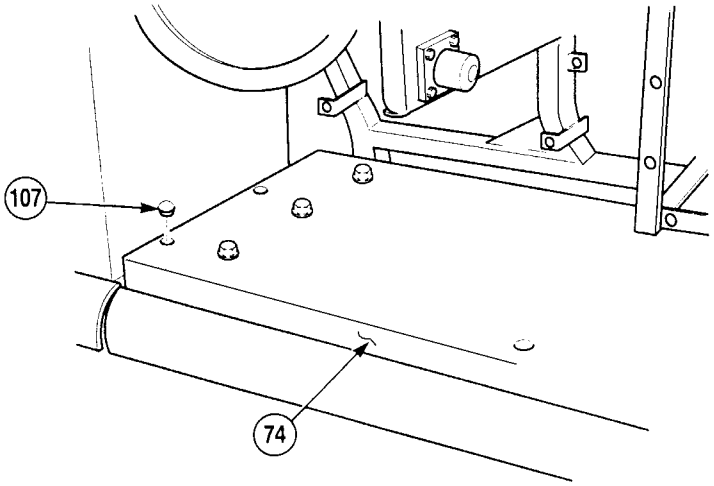
(95) Install heater control panel (87) to heater compartment (83) with four screws (36).

(96) Install ECB covers (84) and (85) with 15 screws (36).

(97) Install heater control access panel (83) with eight screws (36).

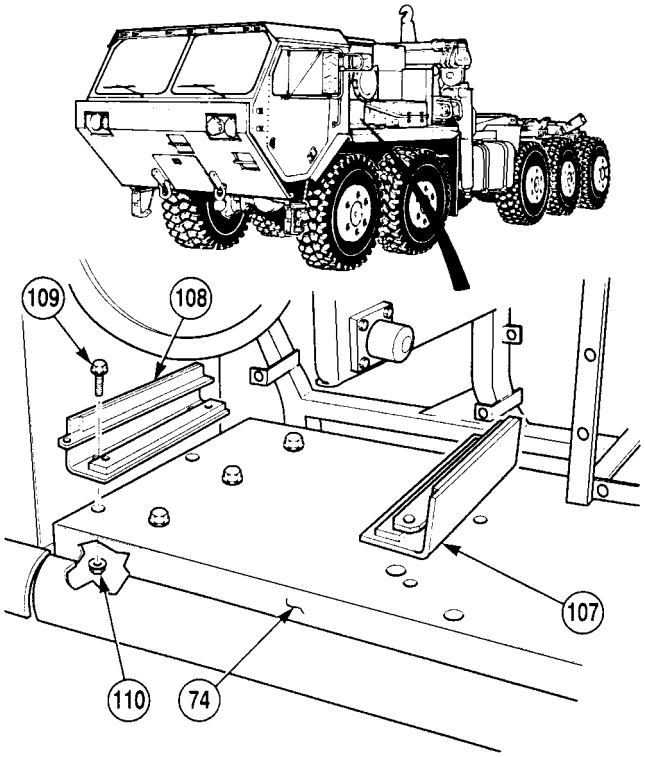






(98) Remove four plugs (107) from fender (74).

(99) Install left and right hand guides (108) on left fender (74) with five screws (109) and locknuts (110).



18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).

(100) Remove two locknuts (111) and screws (112) from battery box tray (113). Discard locknuts.

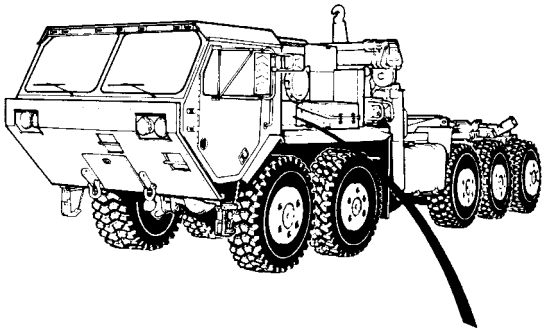
WARNING

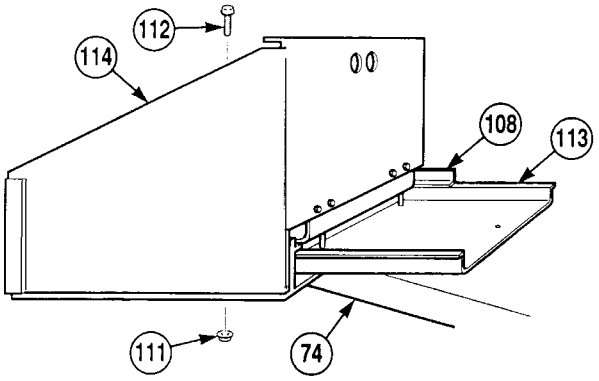
Battery box weighs 75 lbs (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(101) With the aid of an assistant, position battery box (114) on left fender (74).

(102) With the aid of an assistant, install battery box tray (113) on left and right hand guides (108).

(103) Install two screws (112) and locknuts (111) on battery box tray (113).



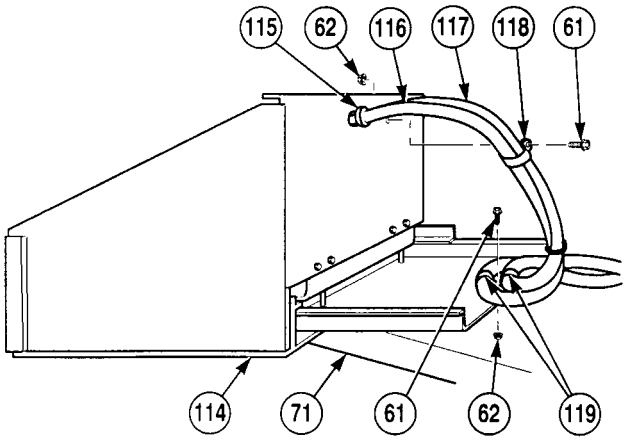


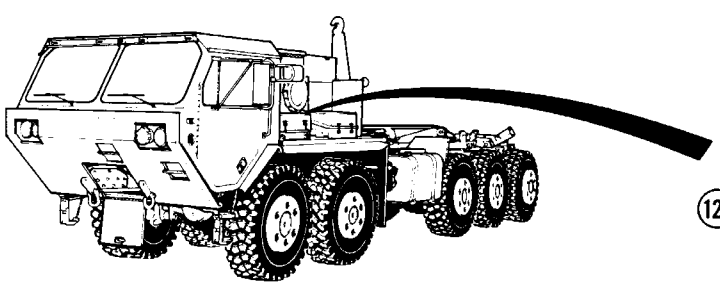
(104) Install two grommets (115) on two battery cables 1138 (116) and 1139 (117).

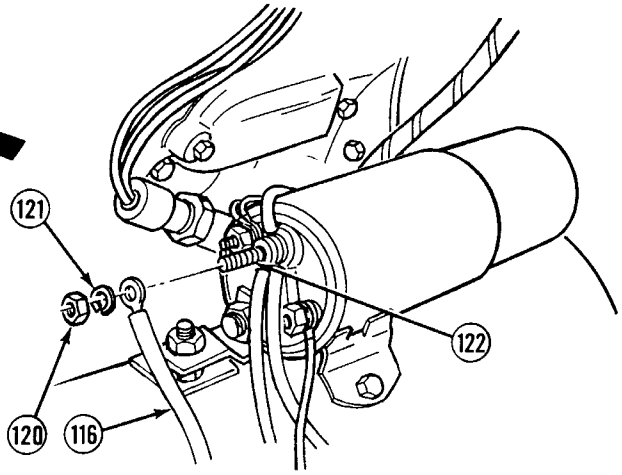
(105) Install battery cables 1138 (116) and 1139 (117) and grommets (115) in battery box (114).

(106) Install cushion clip (118) on battery box (114) with screw (61) and locknut (62).

(107) Install two cushion clips (119) on fender (71) with screw (61) and locknut (62).







(108) Remove nut (120) and lockwasher (121) from starter solenoid terminal (122). Discard lockwasher.

(109) Install cable 1138 (116) to starter solenoid terminal (122) with lockwasher (121) and nut (120).

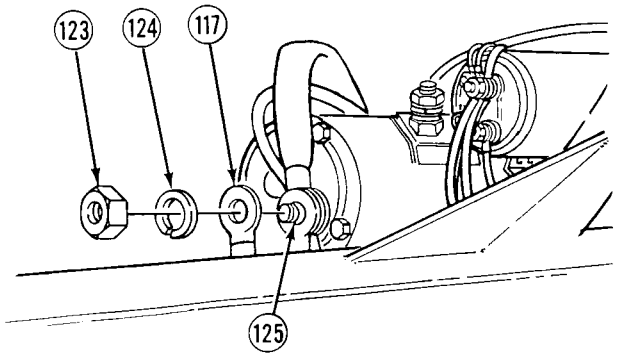
WARNING

Adhesives, solvents, and sealing compounds can burn easily can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(110) Apply electrical sealant to starter solenoid terminal (122).

18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).

(111) Remove nut (123) and lockwasher (124) from starter solenoid terminal (125). Discard lockwasher.



(112) Install cable 1139 (117) to starter terminal (125) with lockwasher (124) and nut (123).

WARNING

Adhesives, solvents, and sealing compounds can burn easily can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

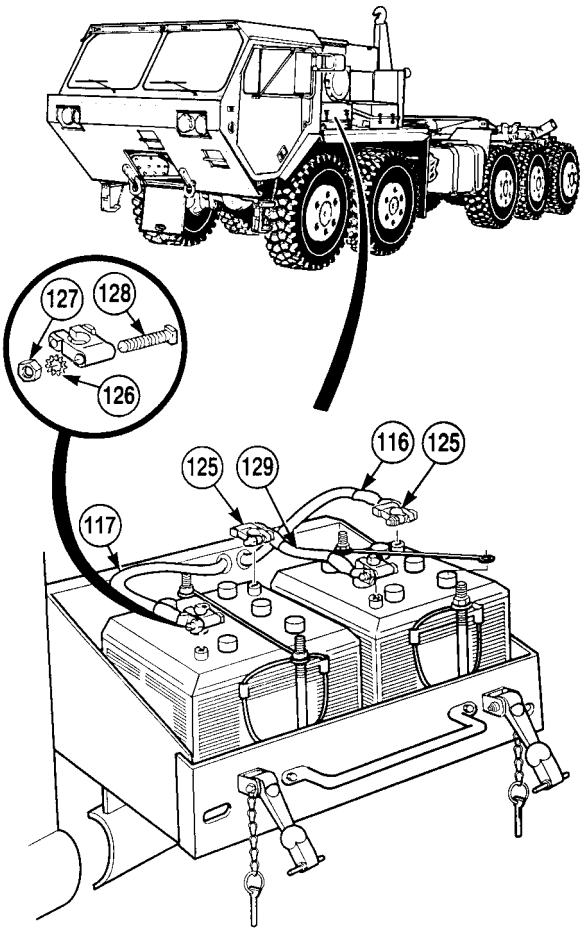
(113) Apply electrical sealant to starter terminal (125).

WARNING

- Upon installation of all wires and cables, ensure no contact is made with battery terminals or other wires and cables. Strap wires as required to prevent injury or death to personnel or damage to equipment.
- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged.
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

NOTE

Refer to TM 9-6140-200-14 for more specific details on battery maintenance.



(114) Install negative battery post terminal (125) to battery cable 1138 (116) with lockwasher (126), nut (127) and screw (128).

(115) Install positive post terminal (129) to battery cable 1139 (117) with lockwasher (126), nut (127) and screw (128).

18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).

(116) Install negative battery post terminal (125) to battery cable 1137 (129) with lockwasher (126), nut (127) and screw (128).

(117) Install positive terminal (130) to battery cable 1137 (129) with lockwasher (126), nut (132) and screw (128).

(118) Position two batteries (131) and (132) in battery box (114).

(119) Install two battery holders (133) to two carrier bolts (134) with four washers (135) locknuts (136).

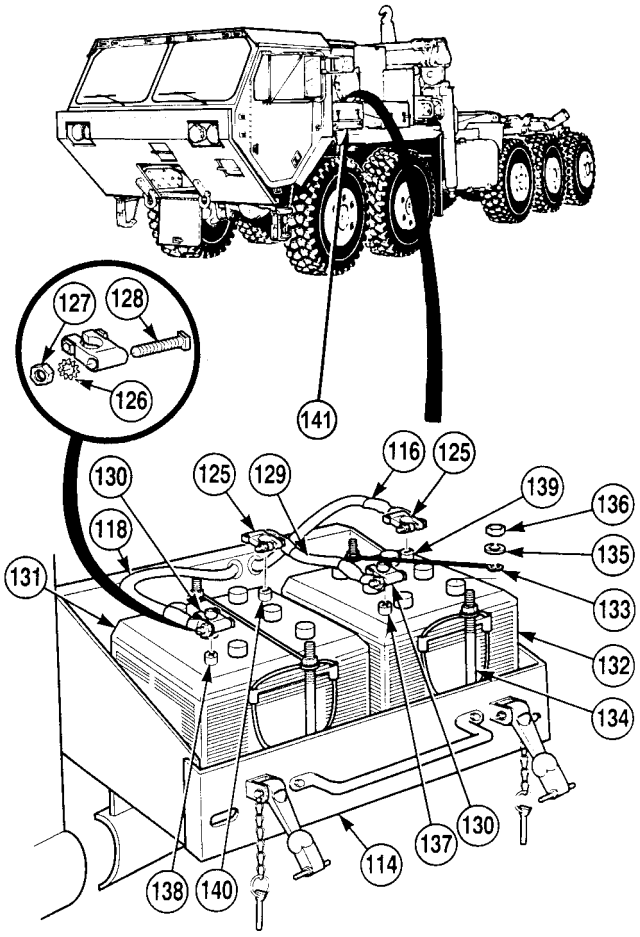
(120) Install cable 1137 (129) to positive battery terminal (137) on battery (132).

(121) Install cable 1139 (118) to positive terminal (138) on battery (131).

(122) Install cable 1138 (116) to negative terminal (139) on battery (132).

(123) Install cable 1137 (129) to negative terminal (140) on battery (131).

(124) Tighten four nuts (127) on two positive terminals (130) and negative terminals (125).



WARNING

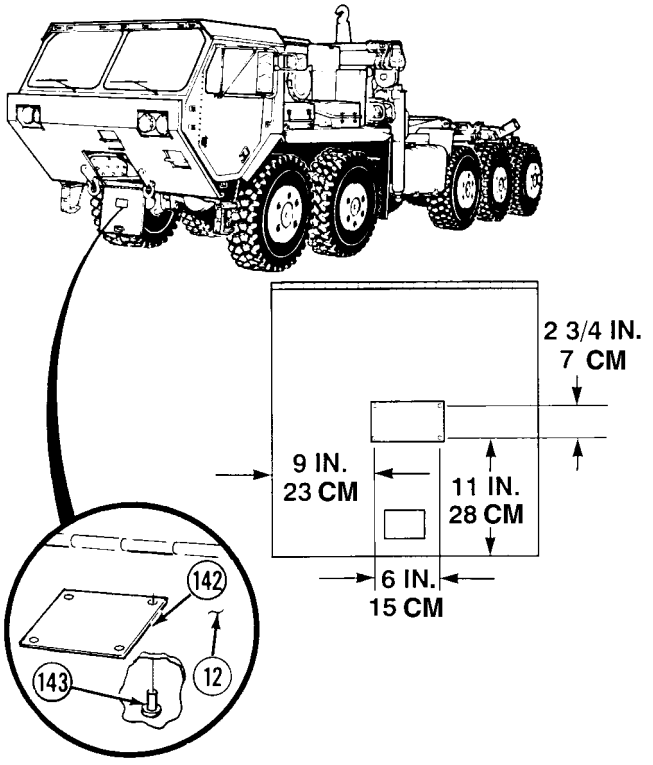
Corrosion compound contains alkali. Do not get in eyes; wear safety goggles/glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush with large amounts of water for at least 15 minutes and get immediate medical attention.

(125) Apply anticorrosion compound on positive terminals (137), (138) and negative terminals (139) and (140).

(126) Install cover (141) to battery box (114).

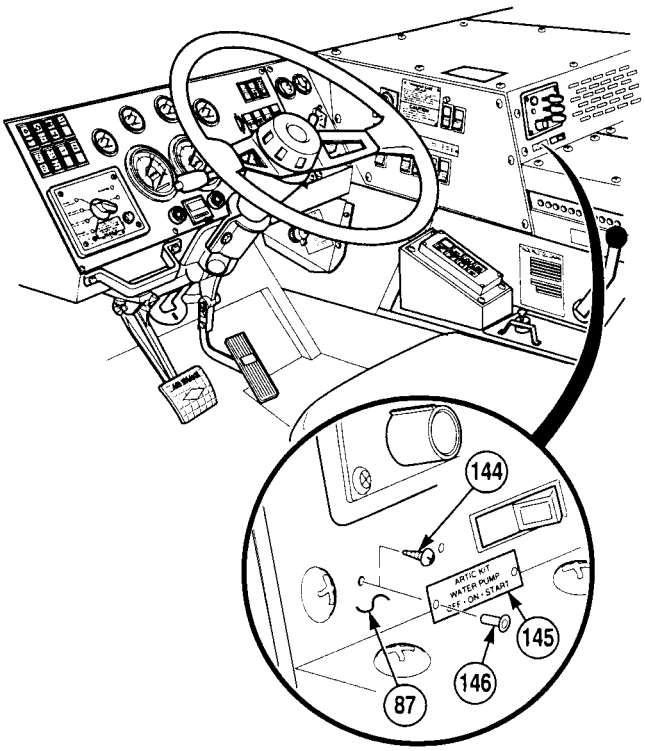
(127) Drill four 1/8 in. holes in front access cover (12) as shown.

(128) Install data plate (142) to front access cover (12) with four rivets (143).



(129) Remove two screws (144) from heater control panel (87).

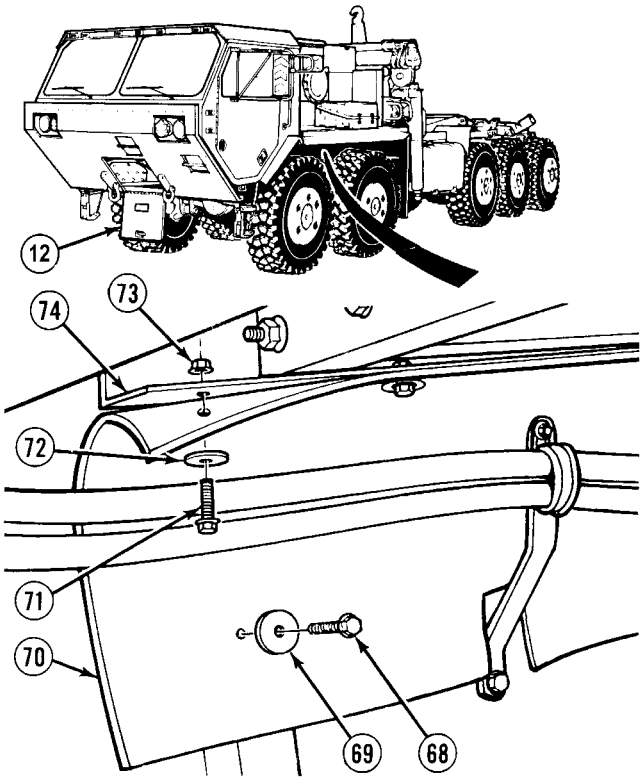
(130) Install data plate (145) to heater control panel (87) with two rivets (146).



(131) Install left fender front skirt (70) to left fender (74) with six screws (71) and washers (72) and locknuts (73).

(132) Install self-tapping screw (68) and washer (69) in left fender front skirt (70).

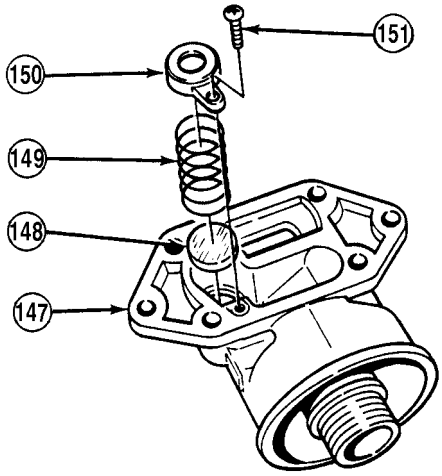
(133) Close front access cover (12).



18-2. ENGINE ARCTIC KIT INSTALLATION (MODEL A) (CONT).

WARNING

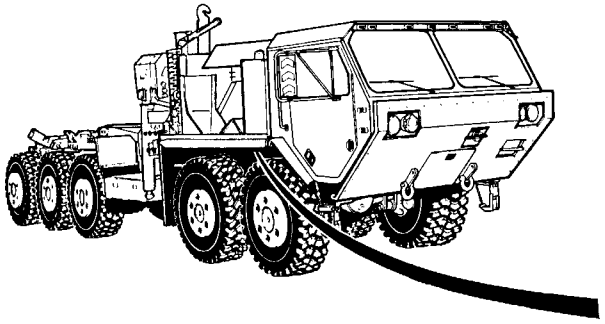
Use care when installing springs. Springs are under tension and can act as projectiles when released and could cause injury to personnel.

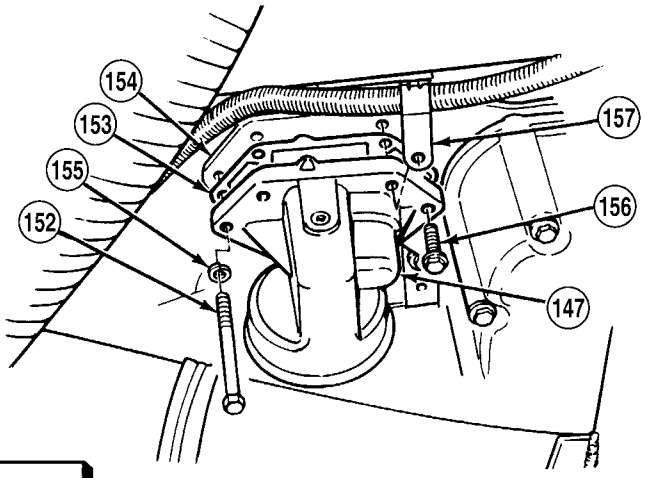


(134) Position engine oil filter adapter (147) in soft jawed vise.

(135) Install valve disk (148), spring (149), retainer (150) and screw (151) in engine oil filter adapter (147).

(136) Remove engine oil filter adapter (147) from vise.





WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(137) Apply sealing compound to threads of two screws (152).

(138) Position gasket (153) and engine oil filter adapter (147) on engine (154).

(139) Install two lockwashers (155) and screws (152) in engine oil filter adapter (147). Tighten screws to 25 lb-ft (34 N•m).

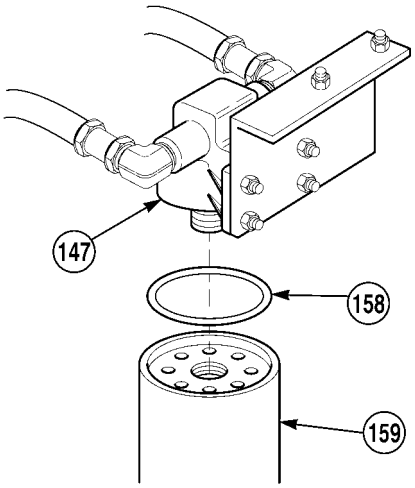
(140) Apply sealing compound to threads of four screws (156).

(141) Install cushion clip (157) and four screws (156) on engine oil filter adapter (147). Tighten screws to 25 lb-ft (34 N•m).

(142) Lubricate preformed packing (158) with clean engine oil and install preformed packing on engine oil filter (159).

(143) Fill engine oil filter (159) 2/3 full with clean engine oil.

(144) Install engine oil filter (159) on engine oil filter adapter (147).



CAUTION

Do not use oil filter removal tool to tighten engine oil filter or possible damage to filter adapter may result.

(145) By hand, tighten engine oil filter (159) until preformed packing (158) makes contact with engine oil filter adapter (147).

(146) By hand, tighten engine oil filter (159) 2/3 turn on engine oil filter adapter (147).

b. Follow-On Maintenance:

- Install 200 AMP alternator belts, (TM 9-2320-364-20).
- Install secondary fuel filter head, (TM 9-2320-364-20).
- Install fuel pressure sensor, (TM 9-2320-364-20).
- Install right front fender skirt, (TM 9-2320-364-20).
- Check coolant level, (TM 9-2320-364-20).
- Install batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B).

This task covers:

a. Arctic Heater Mounting Brackets Installation
b. Arctic Heater/Box Installation
c. Arctic Heater Fuel Pick-up Pipe Installation
d. Arctic Heater Fuel Metering Pump Installation
e. Arctic Heater Coolant Plumbing Installation
f. Battery Disconnect Switch Box Relocation
g. Arctic Heater Battery Box Installation
h. Arctic Heater Wiring Harness/Switch Installation
i. Arctic Heater Alternator Belts Installation
j. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
Gage, Belt Tensioning (Item 236, Appendix F)

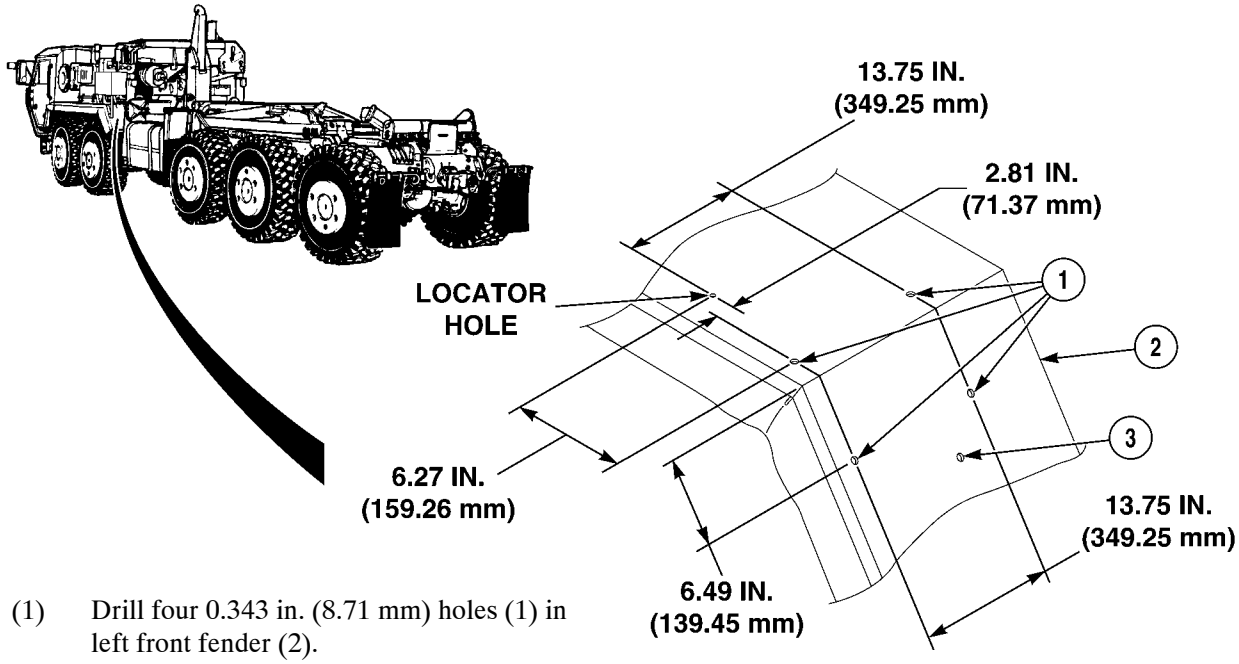
Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Sealing (Item 53, Appendix B)
Locknut (Item 169, Appendix E)
Locknut (4) (Item 172, Appendix E)
Locknut (4) (Item 201, Appendix E)
Lockwasher (4) (Item 252, Appendix E)
Lockwasher (Item 255, Appendix E)
Lockwasher (2) (Item 260, Appendix E)
Lockwasher (2) (Item 286, Appendix E)

Personnel Required
Two

References
TM 9-6140-200-14

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Cooling system drained, (TM 9-2320-364-20)
Main fuel tank drained, (TM 9-2320-364-20)
Spare tire removed, (TM 9-2320-364-20)
Cab engine access panel removed, (TM 9-2320-364-20)
Right side noise panel removed, (TM 9-2320-364-20)
Left front side noise panel removed, (TM 9-2320-364-20)
Left side noise panel removed, (TM 9-2320-364-20)
Rear noise panel removed, (TM 9-2320-364-20)
Air dryer guard removed (if equipped), (TM 9-2320-364-20)
Tread platform assembly removed, (TM 9-2320-364-20)
Remote engine oil filter manifold removed (if equipped), (TM 9-2320-364-20)
Install engine oil filter adapter (if required), (TM 9-2320-364-20)
Install alternator kit (200 Amp) and battery disconnect switch kit (if required), (Para 18-3)

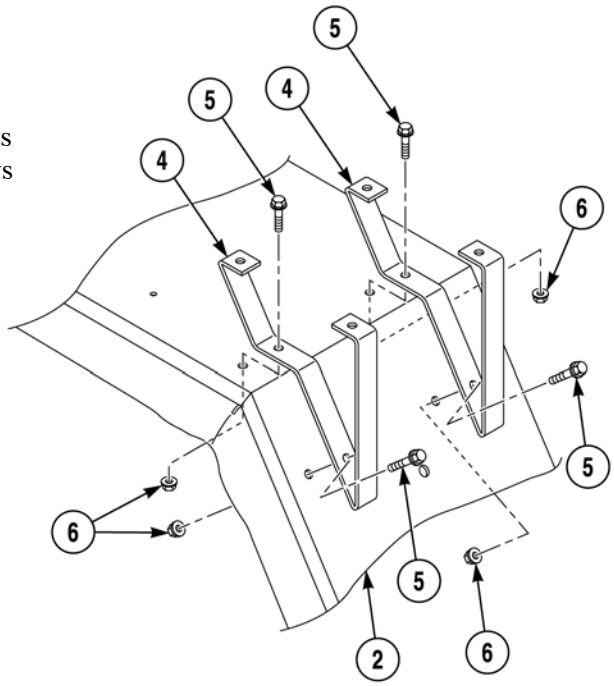
a. Arctic Heater Mounting Brackets Installation.



(1) Drill four 0.343 in. (8.71 mm) holes (1) in left front fender (2).

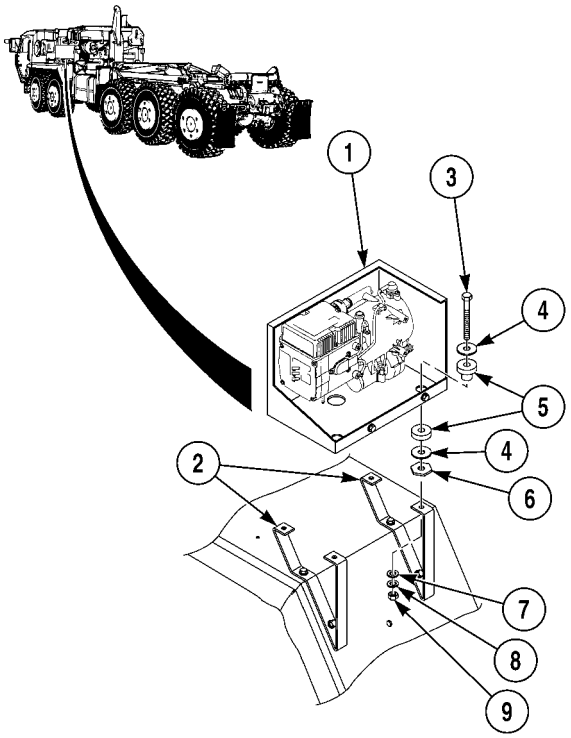
(2) Drill one 0.343 in. (8.71 mm) hole (3) into existing hole in left front fender (2).

(3) Install two arctic heater mounting brackets (4) to left front fender (2) with four screws (5) and locknuts (6).

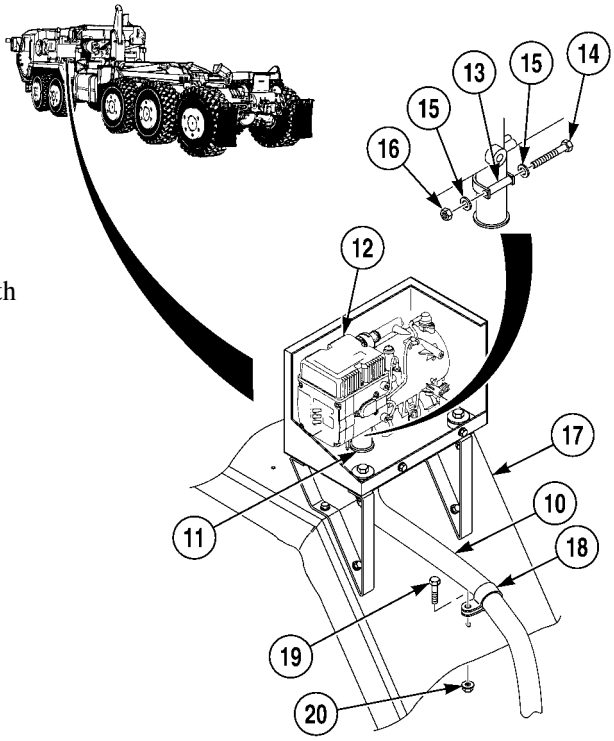


18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

b. Arctic Heater/Box Installation.



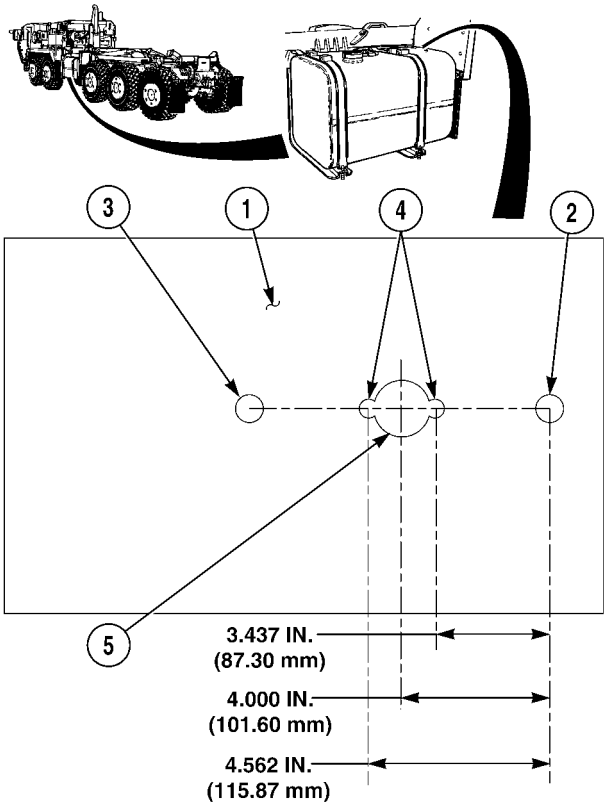
(1) Install arctic heater box (1) to arctic heater mounting brackets (2) with four screws (3), eight washers (4), four shock mounts (5), four nuts (6), washers (7), lockwashers (8) and nuts (9).



(2) Install exhaust pipe (10) through grommet (11) to arctic heater (12) with clamp (13), screw (14), two washers (15) and nut (16).

(3) Install exhaust pipe (10) to left front fender (17) with clamp (18), screw (19) and locknut (20).

c. Arctic Heater Fuel Pick-up Pipe Installation.



WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

- Keep fuel away from open flame or any spark (ignition source).
- Keep at least a B-C fire extinguisher within easy reach when working with fuel or on fuel system.
- Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.
- Clean fuel tank to purge any flammable liquid or vapors before welding, grinding or using any heat producing device near the fuel tank.

(1) Purge and clean fuel tank (1).

(2) Scribe line between center of fuel return line hole (2) and fuel supply line hole (3).

(3) Scribe vertical line 4.562 in. (115.87 mm) from center of fuel return line hole (2).

(4) Scribe vertical line 4.000 in. (101.60 mm) from center of fuel return line hole (2).

(5) Scribe vertical line 3.437 in. (87.30 mm) from center of fuel return line hole (2).

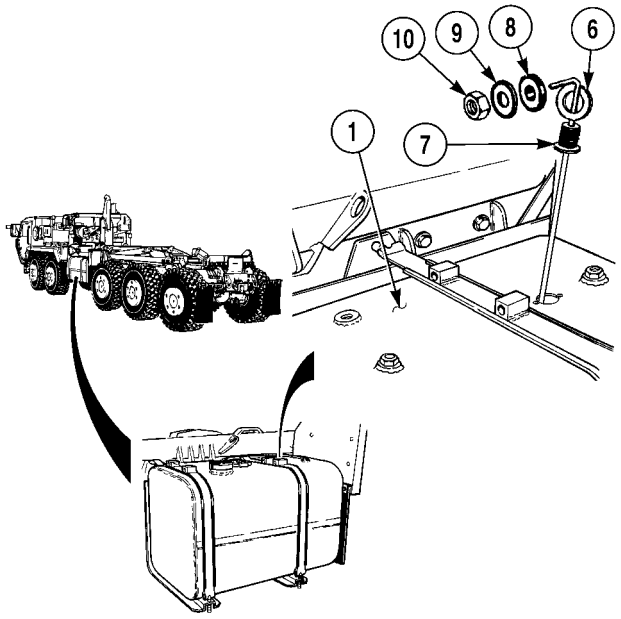
(6) Drill two 0.250 in. (6.35 mm) holes (4) in top of fuel tank (1).

(7) Drill 1 in. (25.4 mm) hole (5) in top of fuel tank (1).

(8) Purge and clean fuel tank (1).

18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

(9) Install washer (6) on fuel pick-up pipe (7).



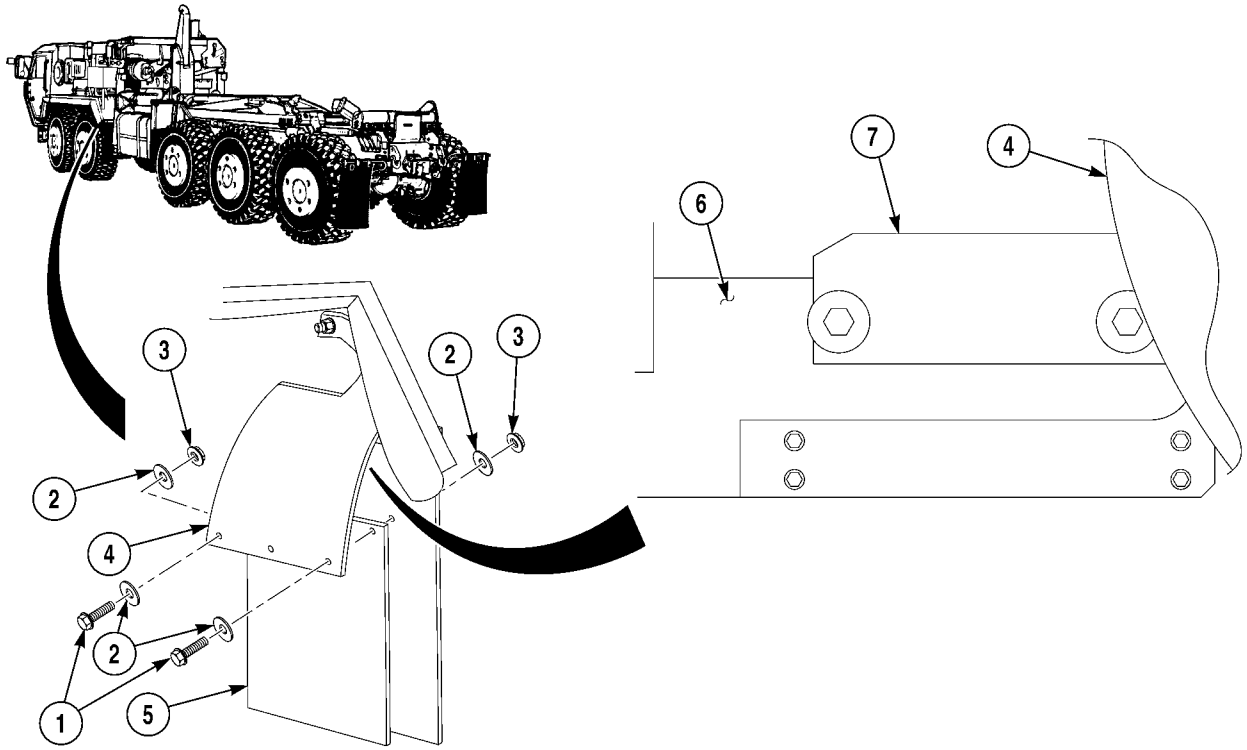
CAUTION

Do not drop fuel pick-up pipe in fuel tank. Failure to comply may cause damage to vehicle.

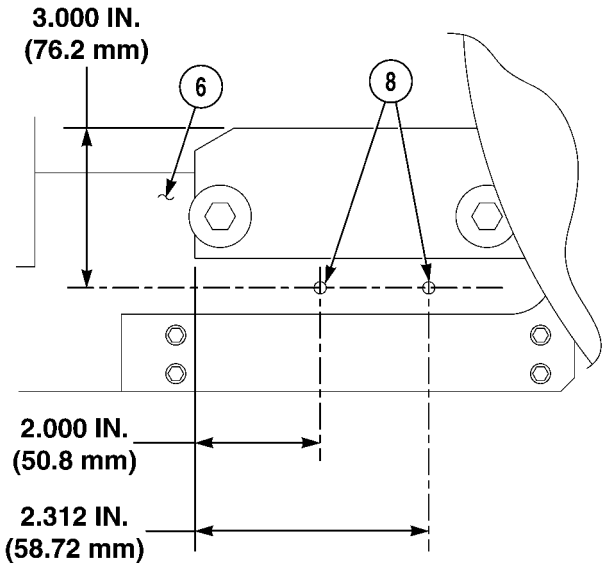
(10) Insert fuel pick-up pipe (7) in fuel tank (1). Guide washer (6) through holes drilled in Step 6, so washer (6) is inside of fuel tank (1).

(11) Install rubber seal (8) and washer (9) to fuel pick-up pipe (7) with nut (10).

d. Arctic Heater Fuel Metering Pump Installation.



(1) Remove two screws (1), four washers (2), two locknuts (3) and rubber flap (4) from mud flap (5) to access backside of air dryer bracket (6) and fender bracket (7). Discard locknuts.



(2) Drill two 0.343 in. (8.71 mm) holes (8) in air dryer bracket (6).

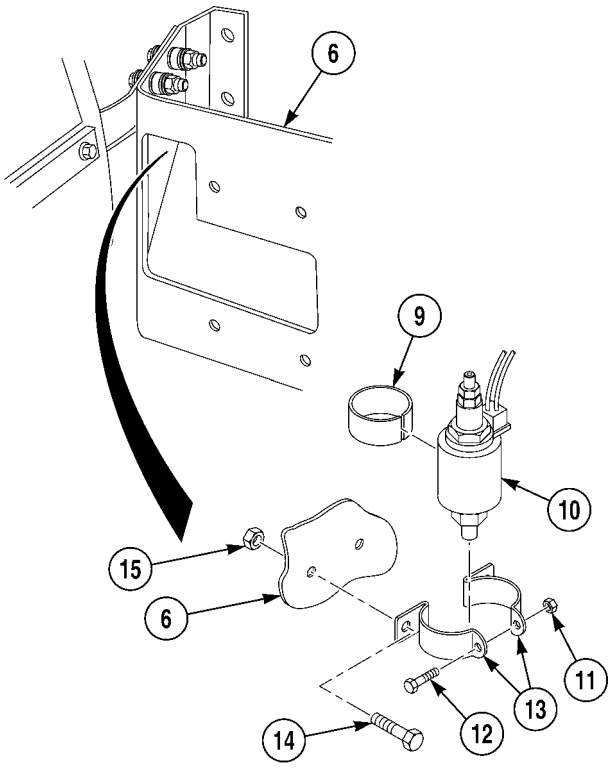
18-2.1. ARCTIC HEATER KIT INSTALLATION (MODEL B) (CONT).

(3) Install rubber ring (9) to fuel metering pump (10).

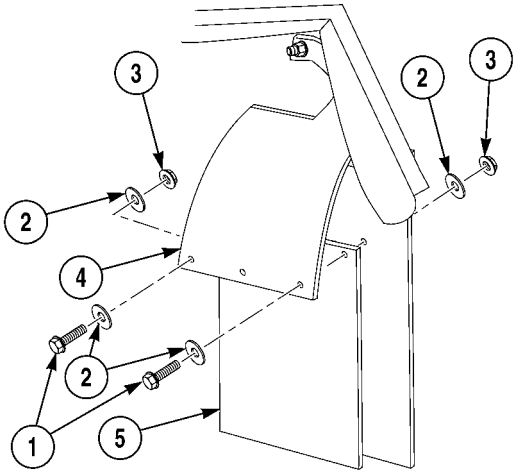
(4) Loosen locknut (11) and screw (12) on fuel metering pump holder (13).

(5) Install fuel metering pump holder (13) on fuel metering pump (10) and tighten locknut (11).

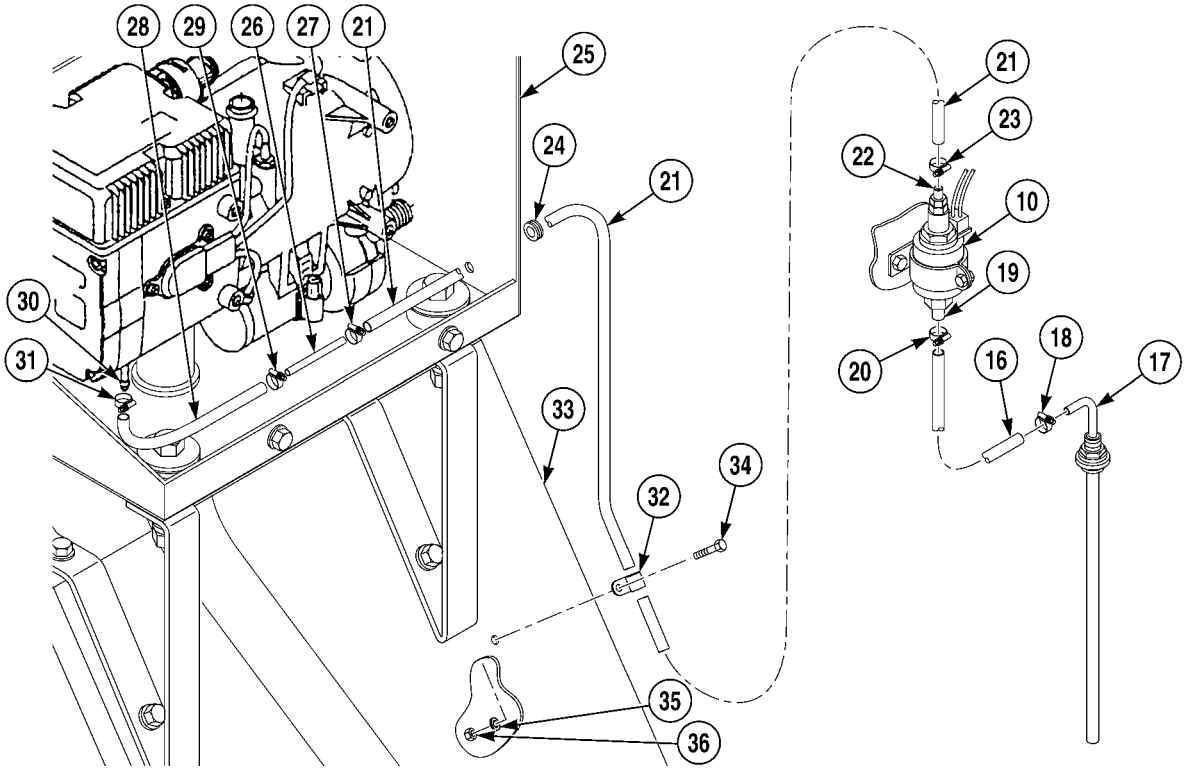
(6) Install fuel metering pump (10) and fuel metering pump holder (13) to air dryer bracket (6) with two screws (14) and locknuts (15).



(7) Install rubber flap (4) to mud flap (5) with two screws (1), four washers (2) and two locknuts (3).



(8) Install fuel hose (16) to fuel pick-up pipe (17) with clamp (18).



(9) Route fuel hose (16) to bottom fuel stem (19) on fuel metering pump (10) and cut to length.

(10) Install fuel hose (16) to bottom fuel stem (19) on fuel metering pump (10) with clamp (20).

(11) Install fuel hose (21) to top fuel stem (22) on fuel metering pump (10) with clamp (23).

(12) Cut fuel hose (21) to 32.250 in. (819 mm).

(13) Insert fuel hose (21) through grommet (24) on arctic heater box (25).

(14) Cut clear fuel line (26) to 5 in. (127 mm).

(15) Install clear fuel line (26) approximately 1 in. (25.4 mm) in fuel hose (21) with clamp (27).

(16) Cut fuel hose (28) approximately 7.250 in. (184.15 mm).

(17) Install clear fuel line (26) approximately 1 in. (25.4 mm) in fuel hose (28) with clamp (29).

(18) Install fuel hose (28) to arctic heater fuel supply stem (30) with clamp (31).

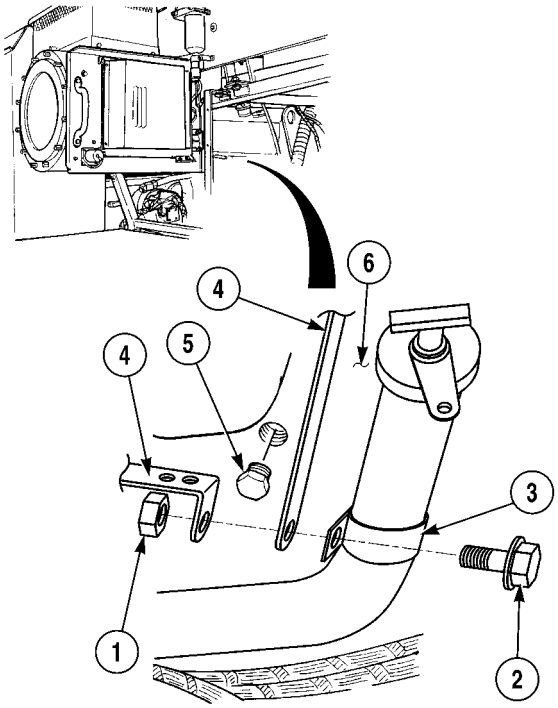
(19) Install fuel hose (21) and cushion clamp (32) to left front fender (33) with screw (34), washer (35) and locknut (36).

18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

e. Arctic Heater Coolant Plumbing Installation.

(1) Remove locknut (1), screw (2) and cushion clamp (3) from two brackets (4). Discard locknut.

(2) Remove plug (5) from engine block (6).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound to threads of nipple (7).

(4) Install nipple (7) in engine block (6).

(5) Apply sealing compound to threads of nipple (7).

(6) Install elbow (8) to nipple (7).

(7) Apply sealing compound to threads of nipple (9).

(8) Install nipple (9) to elbow (8).

(9) Apply sealing compound to threads of nipple (9).

(10) Install valve (10) to nipple (9).

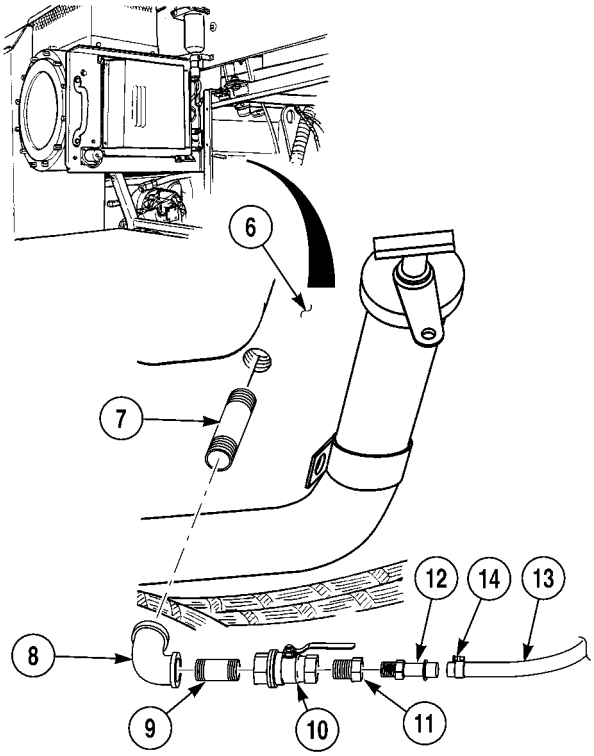
(11) Apply sealing compound to threads of reducer (11).

(12) Install reducer (11) on valve (10).

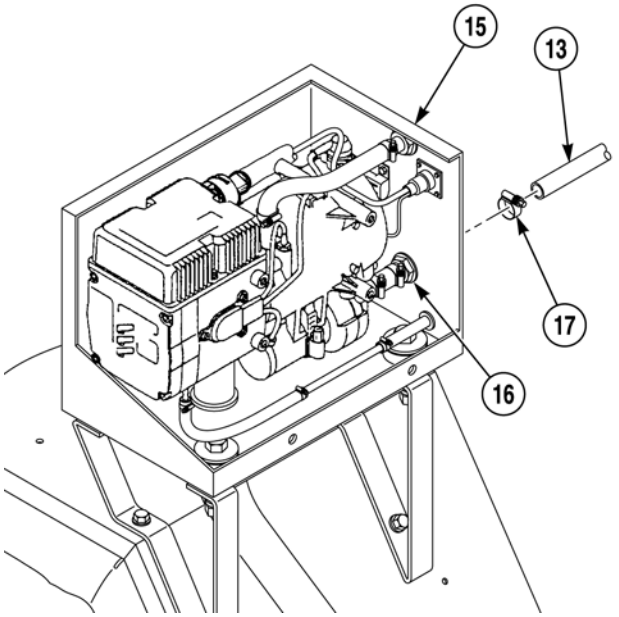
(13) Apply sealing compound to threads of straight fitting (12).

(14) Install straight fitting (12) to reducer (11).

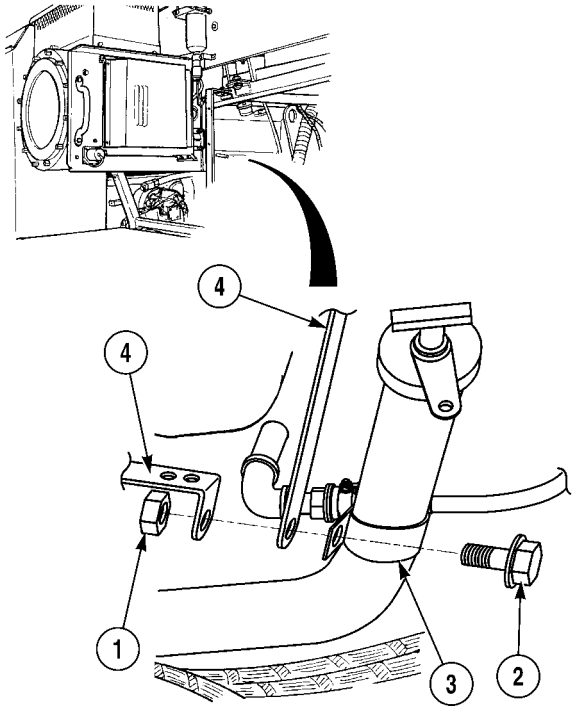
(15) Install coolant hose (13) to straight fitting (12) with clamp (14).



(16) Route coolant hose (13) to arctic heater (15) and install coolant hose (13) to fitting (16) with clamp (17).

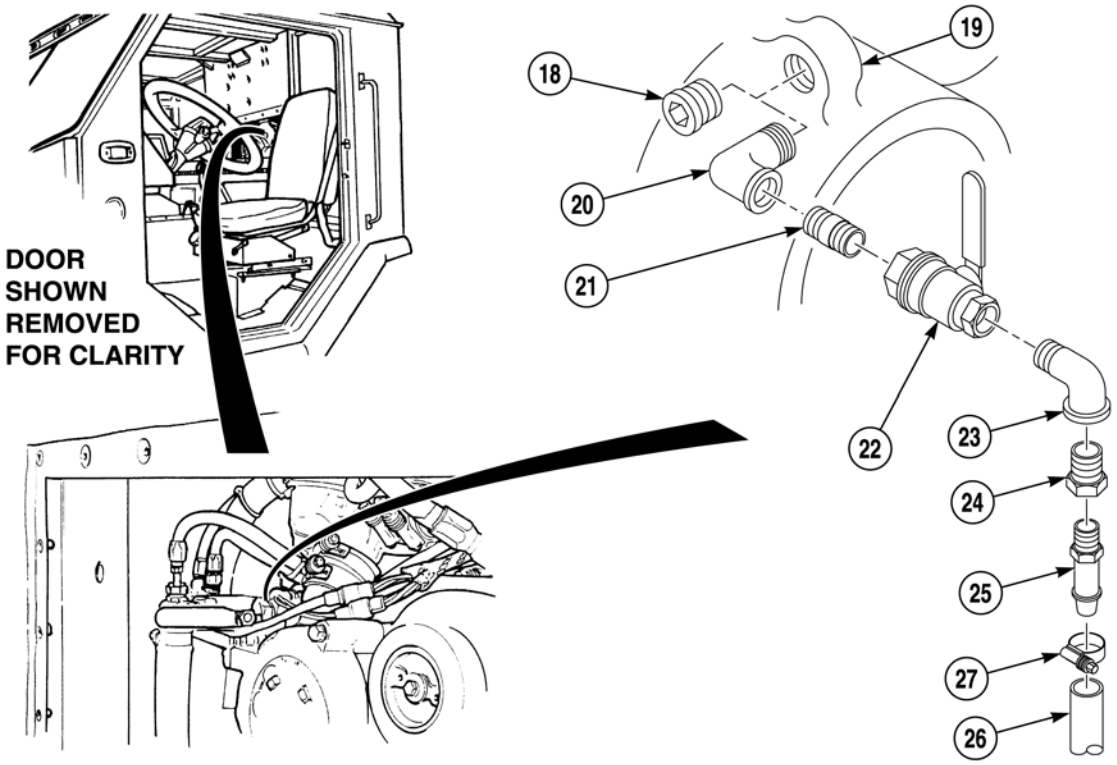


(17) Install cushion clamp (3) to two brackets (4) with screw (2) and locknut (1).



18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

(18) Remove plug (18) from water pump (19).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(19) Apply sealing compound to threads of elbow (20).

(20) Install elbow (20) to water pump (19).

(21) Apply sealing compound to threads of nipple (21).

(22) Install nipple (21) to elbow (20).

(23) Apply sealing compound to threads of nipple (21).

(24) Install valve (22) to nipple (21).

(25) Apply sealing compound to threads of elbow (23).

(26) Install elbow (23) to valve (22).

(27) Apply sealing compound to threads of reducer (24).

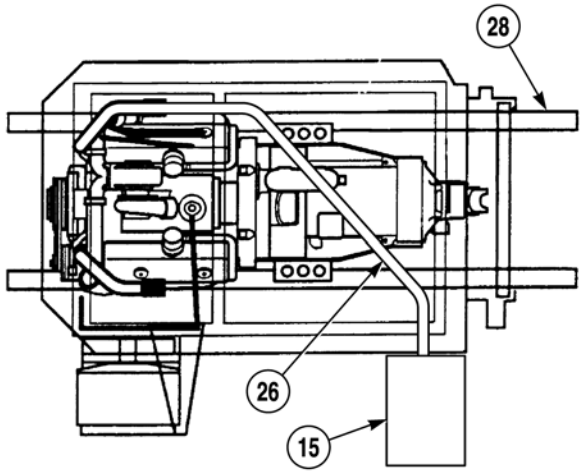
(28) Install reducer (24) to elbow (23).

(29) Apply sealing compound to threads of straight fitting (25).

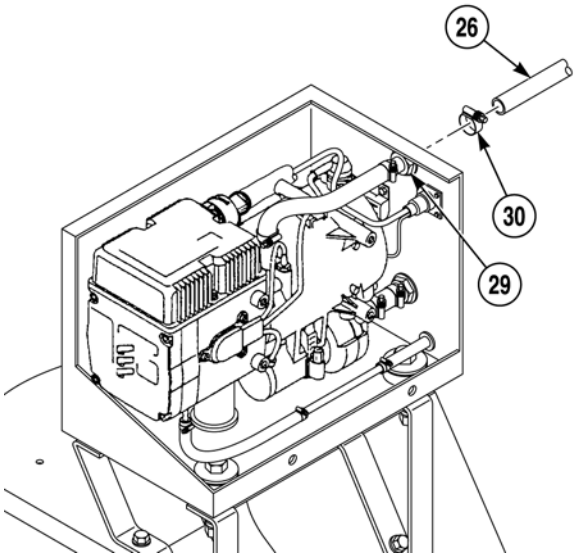
(30) Install straight fitting (25) to reducer (24).

(31) Install coolant hose (26) to straight fitting (25) with clamp (27).

(32) Route coolant hose (26) along frame rail (28) to arctic heater (15).



(33) Install coolant hose (26) to fitting (29) with clamp (30).



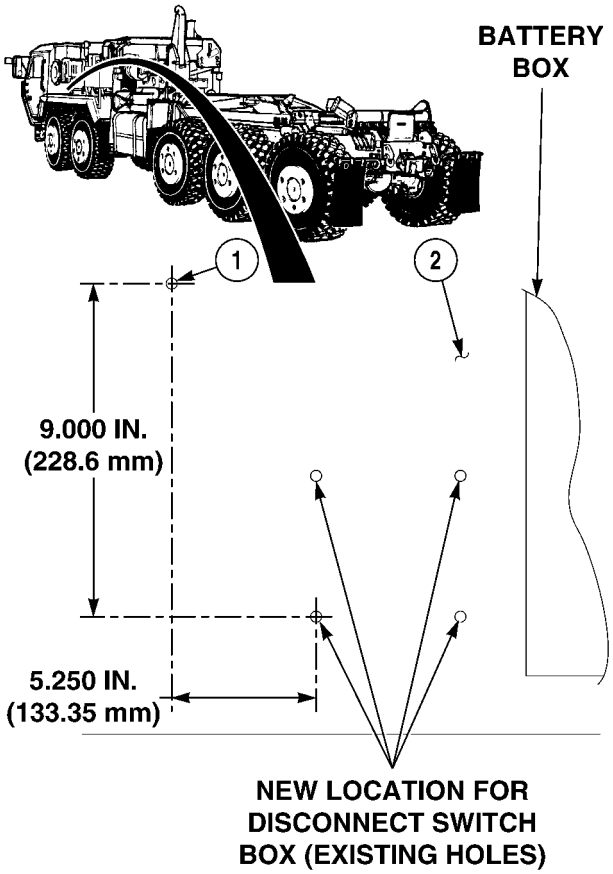
18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

f. Battery Disconnect Switch Box Relocation.

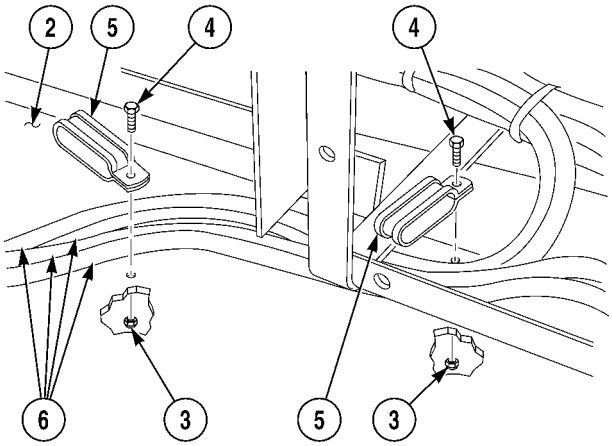
NOTE

Install cable ties as required.

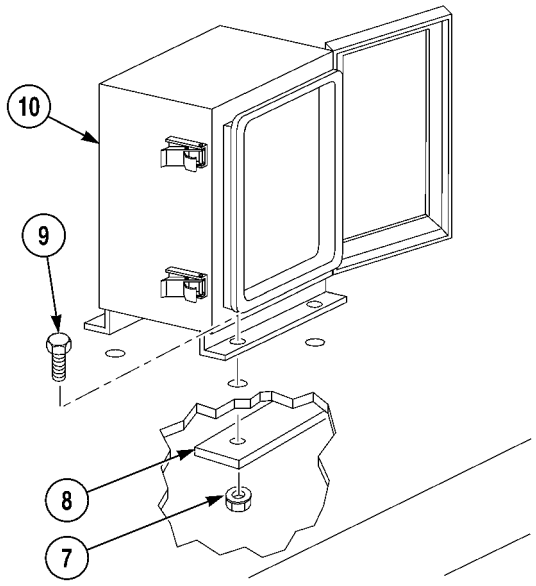
(1) Drill 0.343 in. (8.71 mm) hole (1) in left front fender (2).



(2) Remove two locknuts (3), screws (4) and cushion clamps (5) from cables (6) and left front fender (2). Discard locknuts.

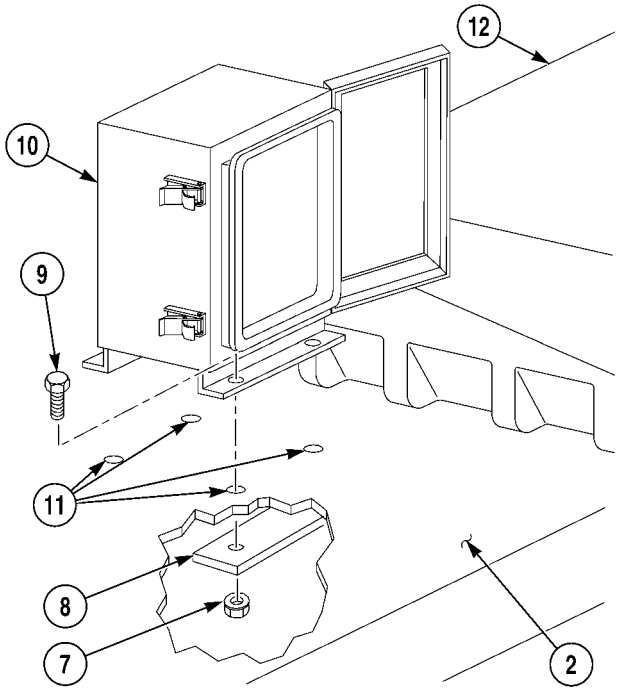


(3) Remove four locknuts (7), two backing plates (8) and four screws (9) from battery disconnect switch box (10). Discard locknuts.



(4) Relocate battery disconnect switch box (10) to four existing holes (11) next to battery box (12).

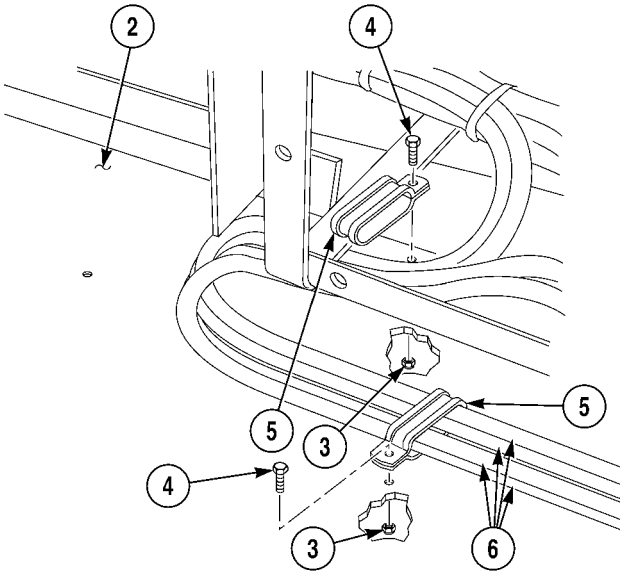
(5) Install battery disconnect switch box (10) to left front fender (2) with four screws (9), two backing plates (8) and four locknuts (7).



18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

(6) Install cushion clamp (5) and cables (6) to hole drilled in Step 1 in left front fender (2) with screw (4) and locknut (3).

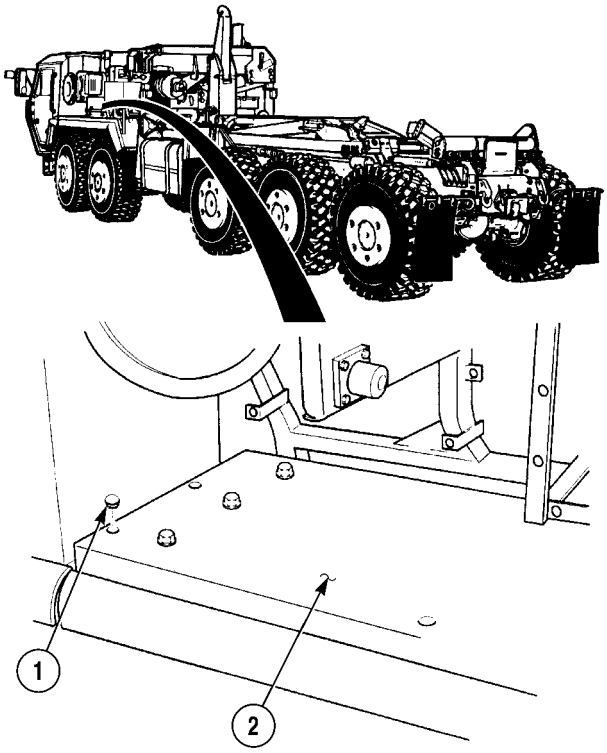
(7) Install cushion clamp (5) and cables (6) to left front fender (2) with screw (4) and locknut (3).



g. Arctic Heater Battery Box Installation.

WARNING

To avoid eye injury, eye protection is required when working around batteries. Do not smoke, use open flame, make sparks or create other ignition sources around batteries. If a battery is giving off gases, it can explode and cause injury to personnel. Remove all jewelry, such as rings, ID tags, watches and bracelets. If jewelry contacts a battery terminal, a direct short will result in instant heating of tools, damage to equipment, and cause injury to personnel.

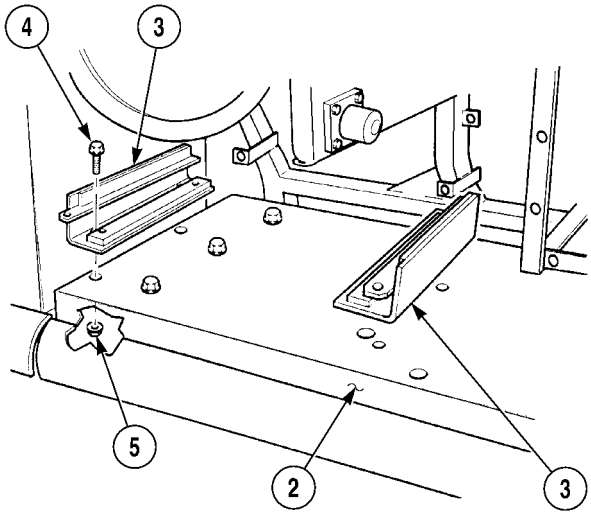


NOTE

- Apply corrosion preventive compound as required.
- Install cable ties as required.

(1) Remove four plugs (1) from left front fender (2).

(2) Install left and right hand guides (3) on left front fender (2) with four screws (4) and locknuts (5).

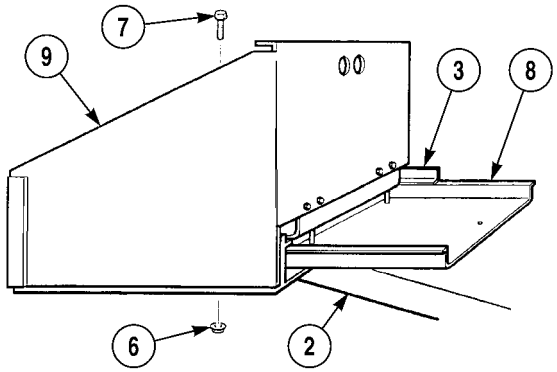


(3) Remove two locknuts (6) and screws (7) from battery box tray (8). Discard locknuts.

(4) With the aid of an assistant, position battery box (9) on left front fender (2).

(5) With the aid of an assistant, install battery box tray (8) on left and right hand guides (3).

(6) Install two screws (7) and locknuts (6) on battery box tray (8).



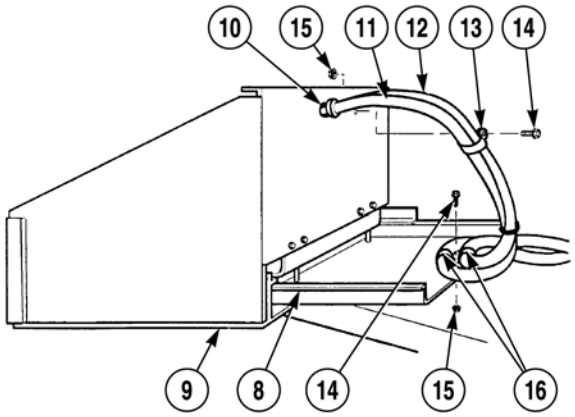
18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

(7) Install two grommets (10) on two battery cables 1138 (11) and 1139 (12).

(8) Install battery cables 1138 (11), 1139 (12) and grommets (10) in battery box (9).

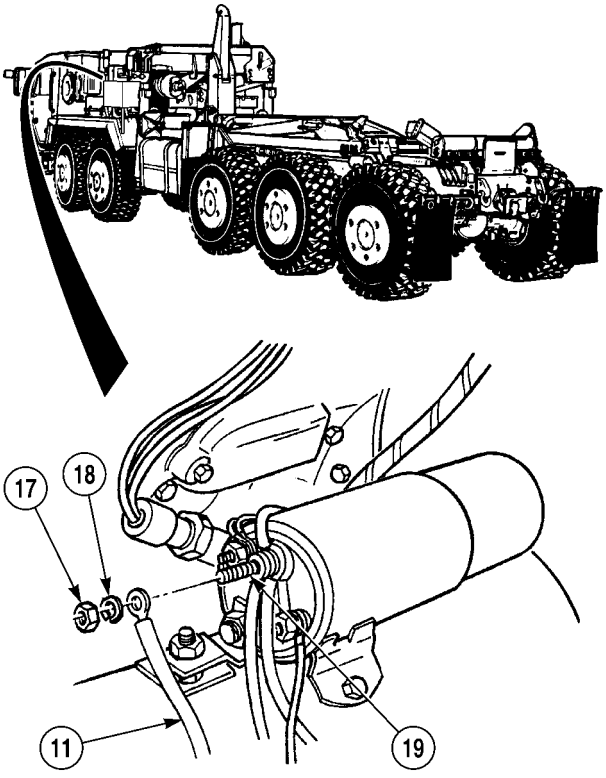
(9) Install cushion clip (13) on battery box (9) with screw (14) and locknut (15).

(10) Install two cushion clips (16) on battery box tray (8) with screw (14) and locknut (15).



(11) Remove nut (17) and lockwasher (18) from starter solenoid terminal (19). Discard lockwasher.

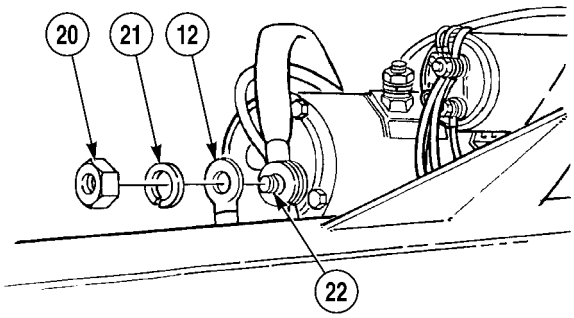
(12) Install cable 1138 (11) to starter solenoid terminal (19) with lockwasher (18) and nut (17).



(13) Remove nut (20) and lockwasher (21) from starter terminal (22). Discard lockwasher.

(14) Install cable 1139 (12) to starter terminal (22) with lockwasher (21) and nut (20).

(15) Apply electrical sealant to starter terminal (22).

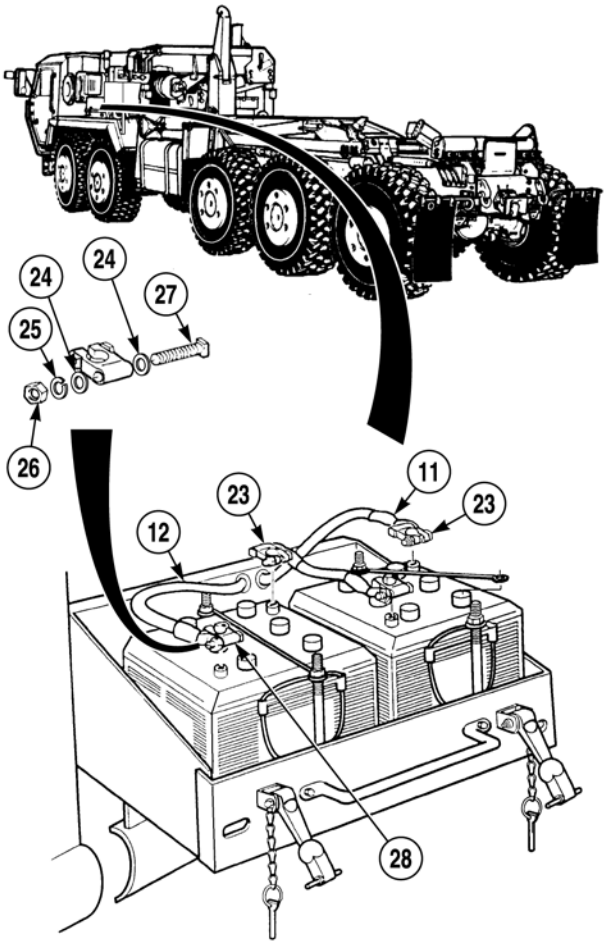


CAUTION

When tightening nut, hold screw with wrench. Failure to comply may cause damage to equipment.

(16) Install negative battery post terminal (23) to battery cable 1138 (11) with two washers (24), lockwasher (25), nut (26) and screw (27).

(17) Install positive post terminal (28) to battery cable 1139 (12) with two washers (24), lockwasher (25), nut (26) and screw (27).



18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

(18) Install negative battery post terminal (23) to battery cable 1137 (29) with two washers (24), lockwasher (25), nut (26) and screw (27).

(19) Install positive post terminal (28) to battery cable 1137 (29) with two washers (24), lockwasher (25), nut (26) and screw (27).

NOTE

Battery terminal clamps may need to be repositioned to allow for installation of battery cables.

(20) Position two batteries (30) and (31) in battery box (9).

(21) Install two battery holders (32) to two carriage bolts (33) with four washers (34) and locknuts (35).

(22) Install battery cable 1137 (29) to positive battery terminal (36) on battery (31) with nut (37) and screw (38).

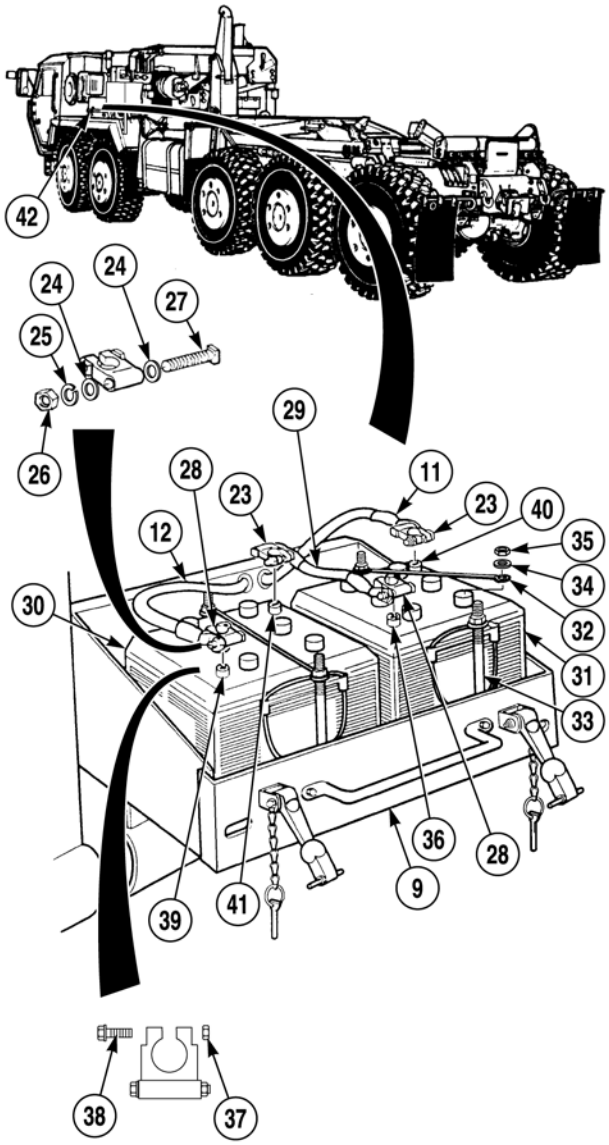
(23) Install battery cable 1139 (12) to positive terminal (39) on battery (30) with nut (37) and screw (38).

(24) Install battery cable 1138 (11) to negative terminal (40) on battery (31) with nut (37) and screw (38).

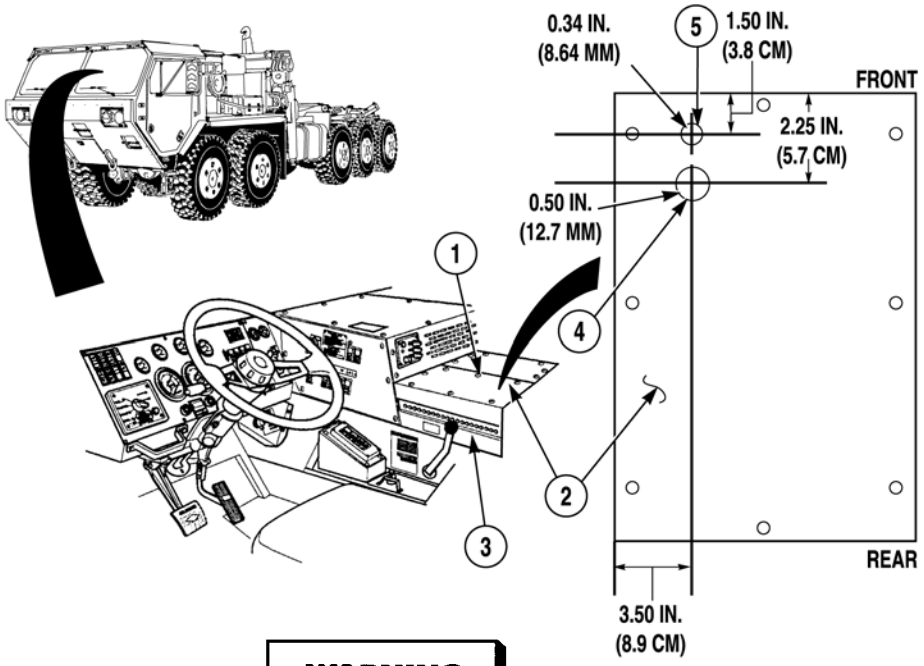
(25) Install battery cable 1137 (29) to negative terminal (41) on battery (30) with nut (37) and screw (38).

(26) Tighten four nuts (26) on two positive post terminals (28) and negative battery post terminals (23).

(27) Install cover (42) to battery box (9).



h. Arctic Heater Wiring Harness/Switch Installation.



WARNING

Protective goggles must be worn when drilling holes. Failure to comply may result in injury to personnel.

(1) Remove eight screws (1) and left electronic control box cover (2) from console (3).

(2) Drill one 0.50 in. (12.7 mm) hole (4) in left electronic control box cover (2).

(3) Drill one 0.34 in. (8.64 mm) hole (5) in left electronic control box cover (2).

WARNING

- Upon installation of all wires and cables, ensure no contact is made with battery terminals or other wires and cables. Strap wires as required to prevent injury or death to personnel or damage to equipment.
- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged.
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

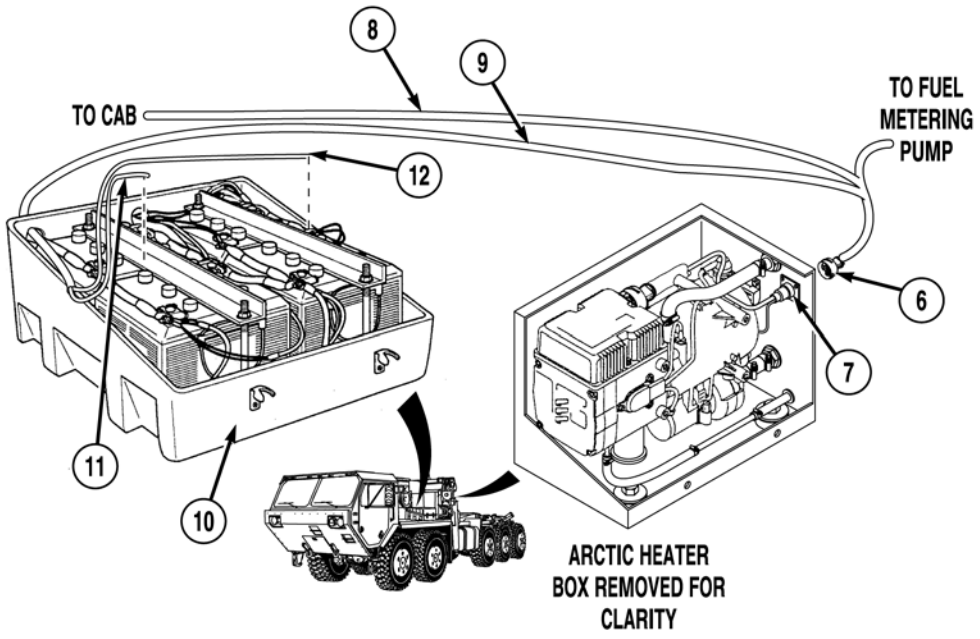
CAUTION

To avoid potential short circuit damage during installation, insert 15 amp fuse into the power harness after all electrical connections are complete.

NOTE

- All electrical harnesses should be cut to length.
- Apply electrical sealant to exposed wire connectors after installation.
- Install cable ties as required.

18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).



(4) Connect electrical harness connector (6) to arctic engine heater connector (7).

NOTE

Switch harness will continue to cab while power harness is routed to battery box.

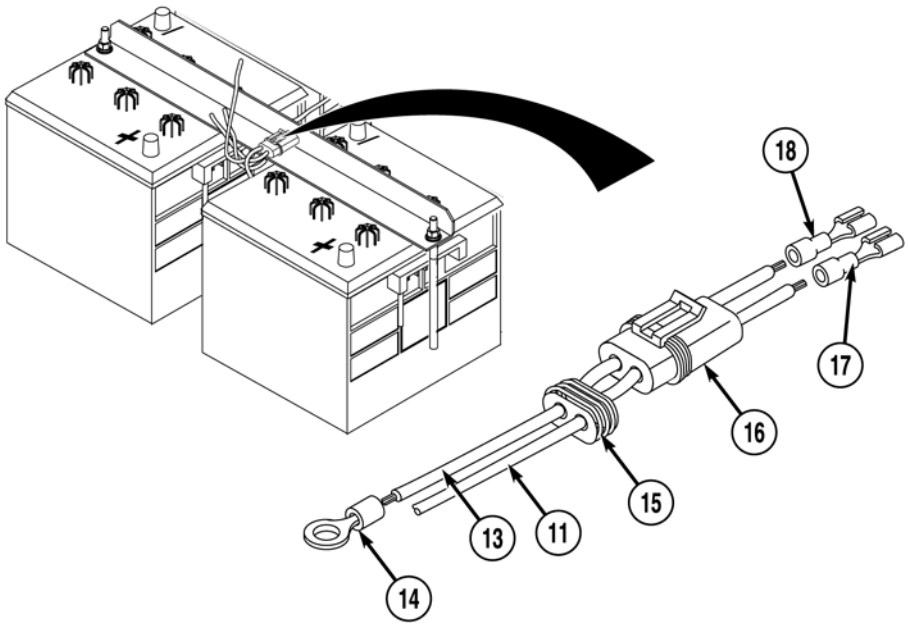
(5) Route switch harness (8) and power harness (9) along frame rail and install power harness in front hole in rear of battery box (10).

NOTE

- Prior to cutting power harness to length, ensure that sufficient length of power harness red wire remains to reach center of left side battery hold down while power harness brown wire will reach negative terminal on right front battery.
- Leftover portion of red wire cutoff in Step (6) will be used for red wire in Step (8).

(6) Cut power harness red wire (11) and power harness brown wire (12) to length.

(7) Prepare power harness red wire (11) and power harness brown wire (12) (TM 9-2320-364-20).



(8) Cut a 6 in. (152.4 mm) length of red wire (13).

(9) Install ring terminal (14) on power harness red wire (13).

(10) Install seal (15) on two power harness red wires (11 and 13).

(11) Install two power harness red wires (11 and 13) through fuse holder (16).

(12) Install two terminals (17 and 18) on two power harness red wires (11 and 13).

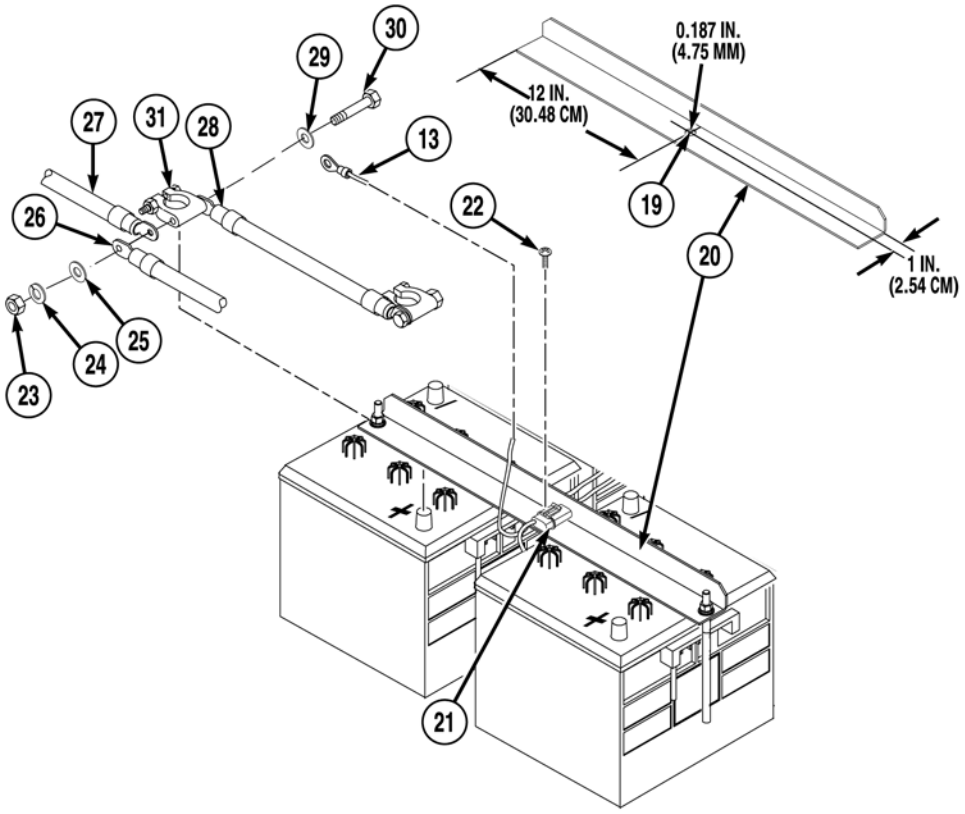
NOTE

Two terminals are secured in fuse holder, when spring tabs on terminals snap into place on fuse holder.

(13) Install two terminals (17 and 18) in fuse holder (16).

(14) Install seal (15) on fuse holder (16).

18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).



(15) Drill one 0.187 in. (4.75 mm) hole (19) in battery holddown (20).

(16) Install fuse holder cover (21) on battery holddown (20) with screw (22).

(17) Remove nut (23), lockwasher (24), washer (25), two positive cables 1281A (26) and 1139 (27), cable 1139 (28), washer (29), and screw (30) from battery terminal (31).

CAUTION

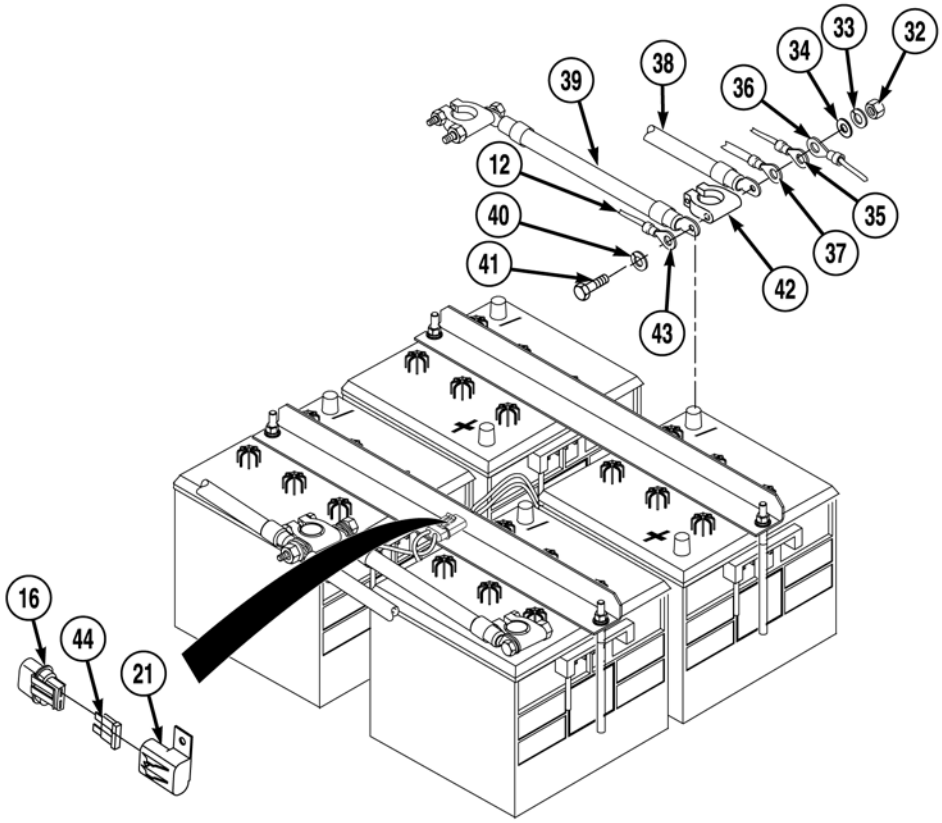
While tightening nuts, hold screw with wrench or damage to battery may occur.

(18) Install screw (30), washer (29), power harness red wire (13), cable 1139 (28), two positive cables 1281A (26) and 1139 (27) on battery terminal (31) with washer (25), lockwasher (24) and nut (23).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(19) Tighten nut (23) to 12 to 16 lb-ft (16 to 22 N•m).



(20) Remove nut (32), lockwasher (33), washer (34), wire 1813 (35), wire 1821 (36), cable 1435 (37), cable 1275 (38), cable 1137 (39), washer (40) and screw (41) from negative terminal (42).

(21) Install ring terminal (43) on power harness brown wire (12).

(22) Position screw (41), washer (40), power harness brown wire (12), cable 1137 (39), cable 1275 (38), cable 1435 (37), wire 1821 (36), wire 1813 (35), washer (34), lockwasher (33) and nut (32) on negative terminal (42).

CAUTION

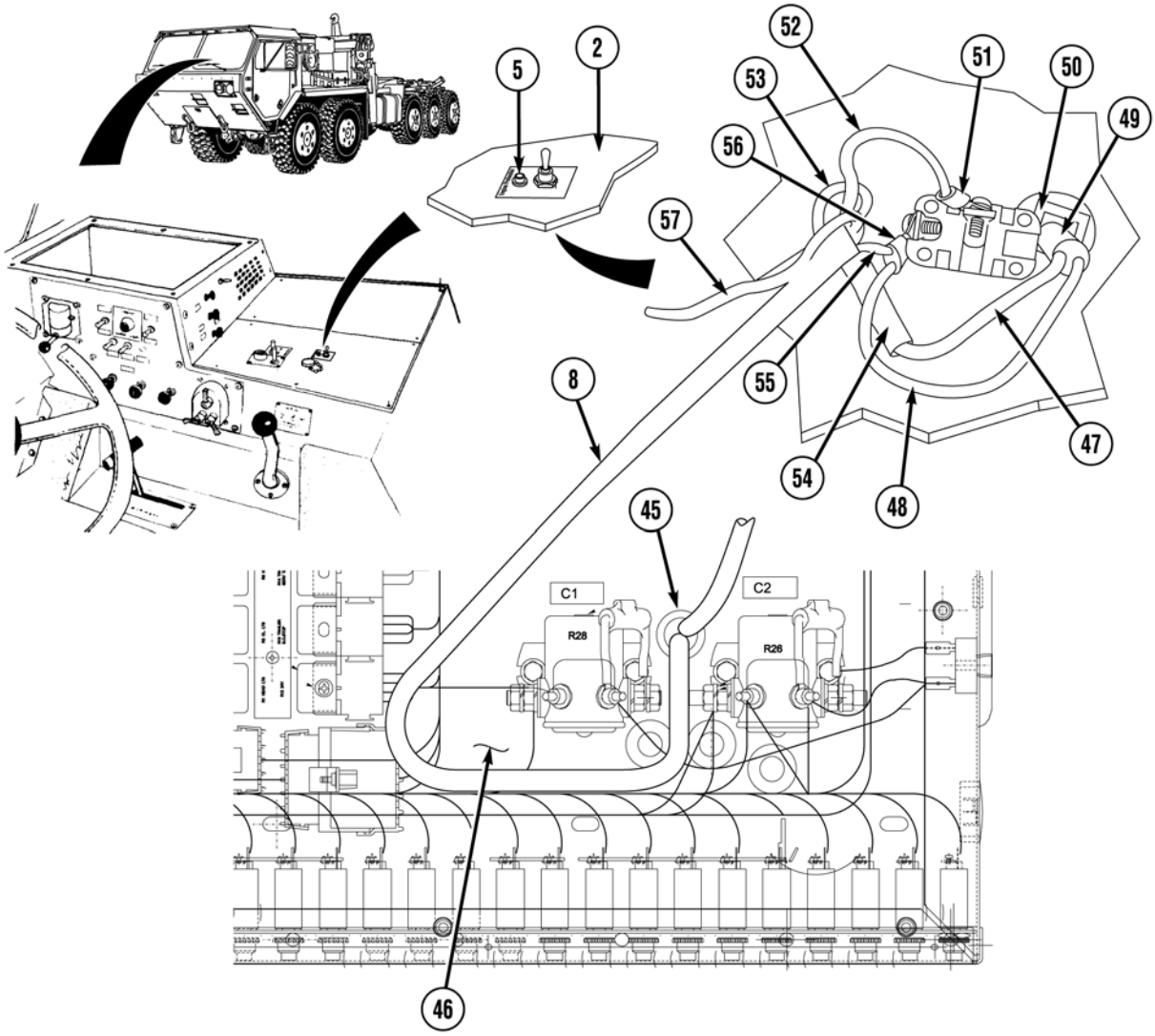
While applying torque to nut, hold screw with wrench or damage to battery may occur.

(23) Tighten nut (32) to 12 to 16 lb-ft (16 to 22 N•m).

(24) Install 15 amp fuse (44) in fuse holder (16).

(25) Install fuse holder (16) in fuse holder cover (21).

18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).



(26) Continue routing switch harness (8) along frame rail through grommet (45) in base of electronic control box (46).

(27) Push LED white wire (47) and red wire (48) through hole (5) in left electronic control box cover (2).

(28) Install LED (49) on electronic control box cover (2) with spring clip (50).

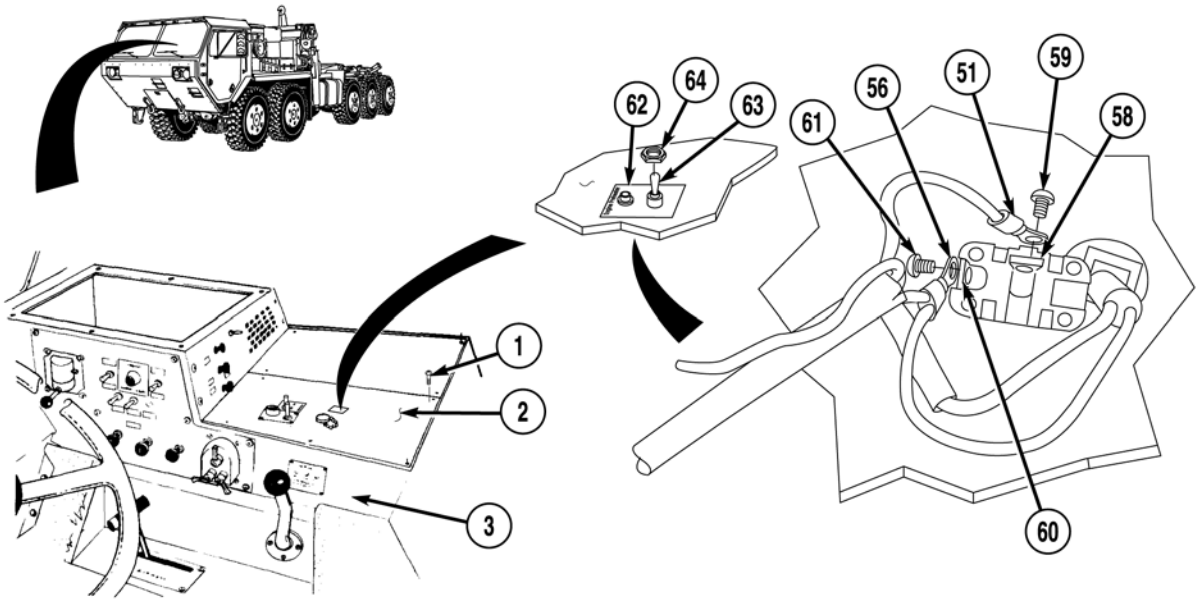
(29) Prepare switch harness (8), LED white wire (47) and red wire (48) for initial installation (TM 9-2320-364-20).

(30) Connect ring terminal (51) on switch harness red/yellow wire (52).

(31) Connect switch harness blue/white wire (53) on LED white wire (47) with butt connector (54).

(32) Connect switch harness yellow wire (55) and red wire (48) together with ring terminal (56).

(33) Fold brown wire (57) back.



(34) Install ring terminal (51) on switch terminal (58) with screw (59).

(35) Install ring terminal (56) on switch terminal (60) with screw (61).

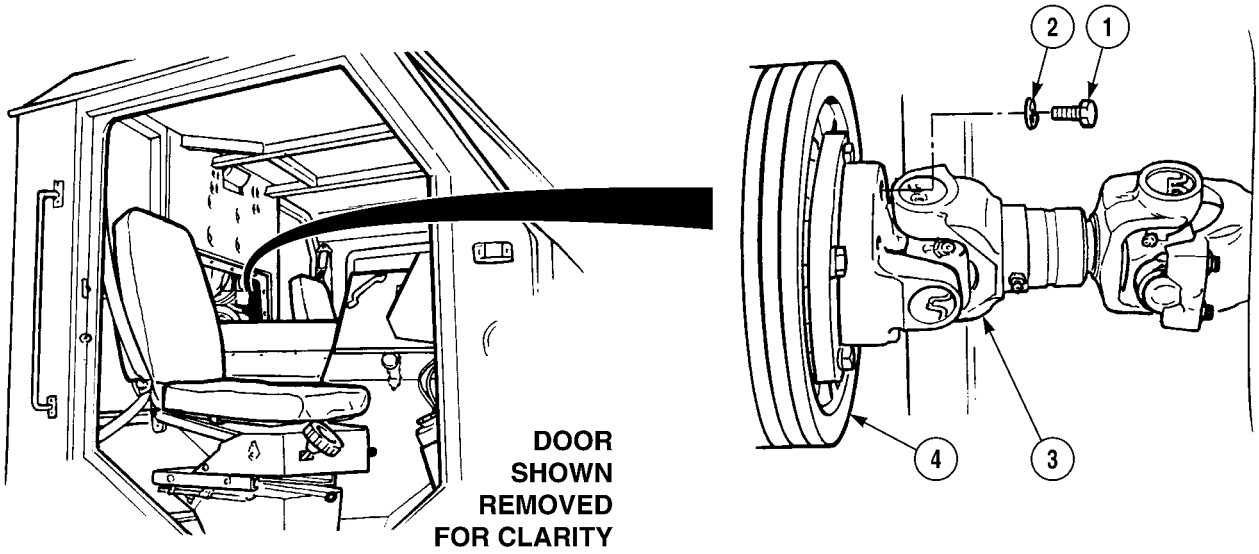
(36) Install engine preheater decal (62) on left electronic control box cover (2).

(37) Install arctic engine heater switch (63) on left electronic control box cover (2) with locknut (64).

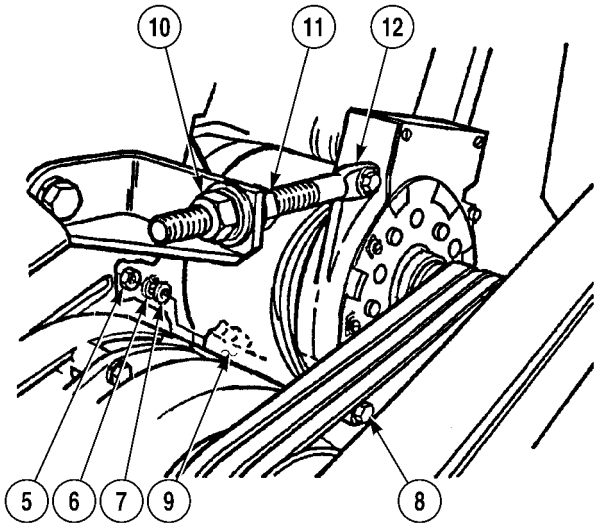
(38) Install left electronic control box cover (2) on console (3) with eight screws (1).

18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

i. Arctic Heater Alternator Belts Installation.



(1) Remove four screws (1) and lockwashers (2) from pump drive shaft (3) and engine (4). Discard lockwashers.



(2) Remove nut (5), lockwasher (6) and washer (7) from screw (8) on bottom alternator mounting bracket (9). Discard lockwasher.

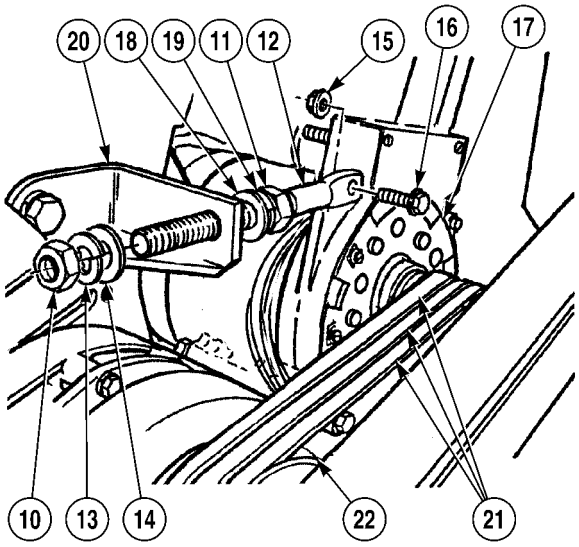
(3) Loosen two nuts (10) and (11) on alternator support arm (12).

(4) Remove nut (10), lockwasher (13) and washer (14) from alternator support arm (12). Discard lockwasher.

(5) Remove locknut (15), screw (16) and alternator support arm (12) from alternator (17). Discard locknut.

(6) Remove washer (18), lockwasher (19), nut (11) and alternator support arm (12) from bracket (20). Discard lockwasher.

(7) Remove three original alternator belts (21) from alternator (17) and engine pulley (22).



(8) Install three arctic heater alternator belts (23) on alternator (17) and engine pulley (22).

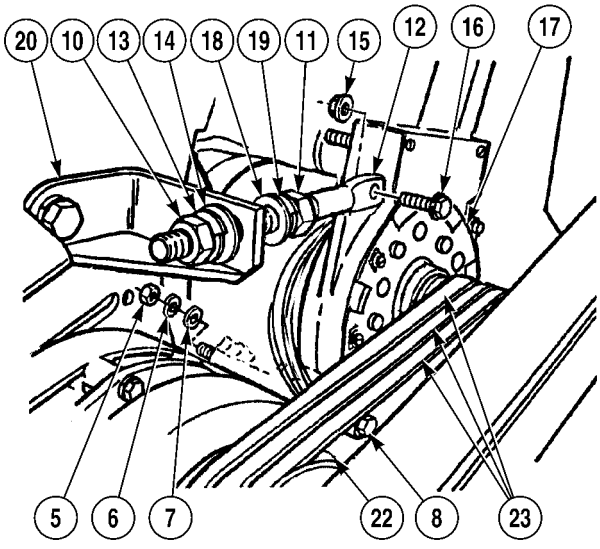
(9) Install nut (11), lockwasher (19) and washer (18) on alternator support arm (12).

(10) Position alternator support arm (12) in bracket (20).

(11) Position alternator support arm (12) on alternator (17) with screw (16) and locknut (15).

(12) Position washer (14), lockwasher (13) and nut (10) on alternator support arm (12).

(13) Position washer (7), lockwasher (6) and nut (5) on screw (8).



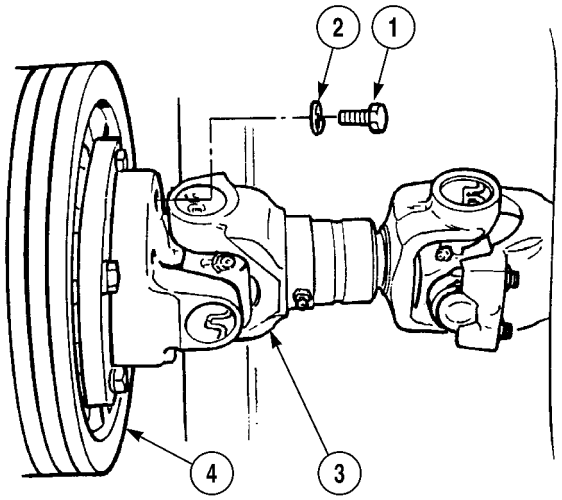
18-2.1. ARCTIC HEATER INITIAL INSTALLATION (MODEL B) (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(14) Coat threads of four screws (1) with sealing compound.

(15) Install pump drive shaft (3) on engine (4) with four lockwashers (2) and screws (1). Tighten screws to 60 lb-ft (81 N·m).



(16) Install belt tension gage on one arctic heater alternator belt (23).

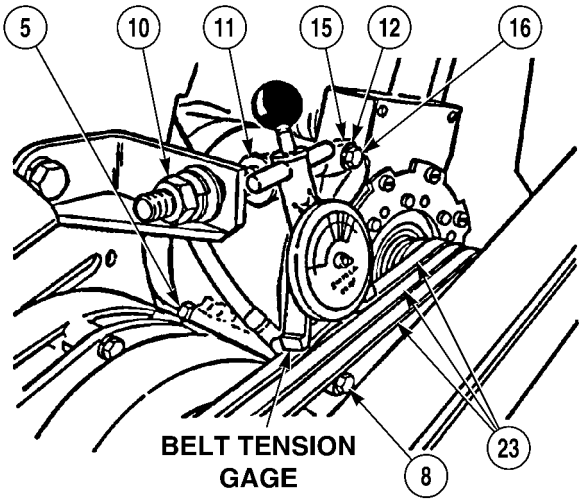
(17) Tighten nut (11) on alternator support arm (12) until arctic heater alternator belt (23) tension reaches to 60 to 65 lbs (260 to 289 N).

(18) Tighten nut (5) on screw (8) to 60 to 70 lb-ft (81 to 94 N·m).

(19) Tighten locknut (15) on screw (16) to 28 lb-ft (38 N·m).

(20) Tighten nut (10) on alternator support arm (12) to 75 lb-ft (102 N·m).

(21) Remove belt tension gage from arctic heater alternator belt (23).



j. Follow-On Maintenance:

- Install right side noise panel, (TM 9-2320-364-20).
- Install left front side noise panel, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Install rear noise panel, (TM 9-2320-364-20).
- Install tread platform assembly, (TM 9-2320-364-20).
- Install air dryer guard (if equipped), (TM 9-2320-364-20).
- Install spare tire, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Check and fill coolant system, (TM 9-2320-364-20).
- Fill main fuel tank, (TM 9-2320-364-10).
- Start engine and warm up to normal operating temperature for 3 minutes.

NOTE

On initial startup engine heater may require several start attempts to self-prime fuel system. Arctic engine heater will attempt to start two times per start cycle. After second failed start attempt, arctic engine heater will not operate until arctic engine heater ON/OFF switch is turned OFF and back ON. Audible clicking from arctic engine heater fuel metering pump may indicate that arctic engine heater fuel system is not primed. If audible clicking is heard from arctic engine fuel metering pump, repeat Steps (1) through (4) four times or until arctic engine heater starts. Do not attempt to start arctic engine heater more than five times. Arctic engine heater should prime itself within nine start attempts.

(1) Turn arctic engine heater ON, (TM 9-2320-364-10).

(2) Observe arctic engine heater indicator light for steady illumination.

(3) Observe arctic engine heater for proper operation.

(4) Turn arctic engine heater ON/OFF switch OFF, (TM 9-2320-364-10).

(5) Turn OFF engine switch.

(6) Ensure alternator belt tension is 60 to 65 lbs (260 to 289 N) on all three belts. If tension is not correct repeat adjustment procedures, (TM 9-2320-364-20).

(7) Install cab engine access panel, (TM 9-2320-364-20).

(8) Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-2.2. ARCTIC HEATER REPAIR (MODEL B).

This task covers:

a. Disassembly b. Assembly c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Sealing (Item 53, Appendix B)
Tags, Identification (Item 72, Appendix B)
Seal (Item 565.2, Appendix E)
Preformed Packing (Item 360.1, Appendix E)
Seal (Item 565.4, Appendix E)
Preformed Packing (Item 360.2, Appendix E)

Materials/Parts (Cont)
Preformed Packing (Item 360.2, Appendix E)
Seal (Item 565.1, Appendix E)
Preformed Packing (Item 348.1, Appendix E)
Seal (Item 565.3, Appendix E)
Seal (Item 565.3, Appendix E)

Personnel Required
Two

Equipment Condition
Arctic heater on clean surface.

a. Disassembly.

NOTE

Burner assembly shown removed for clarity.

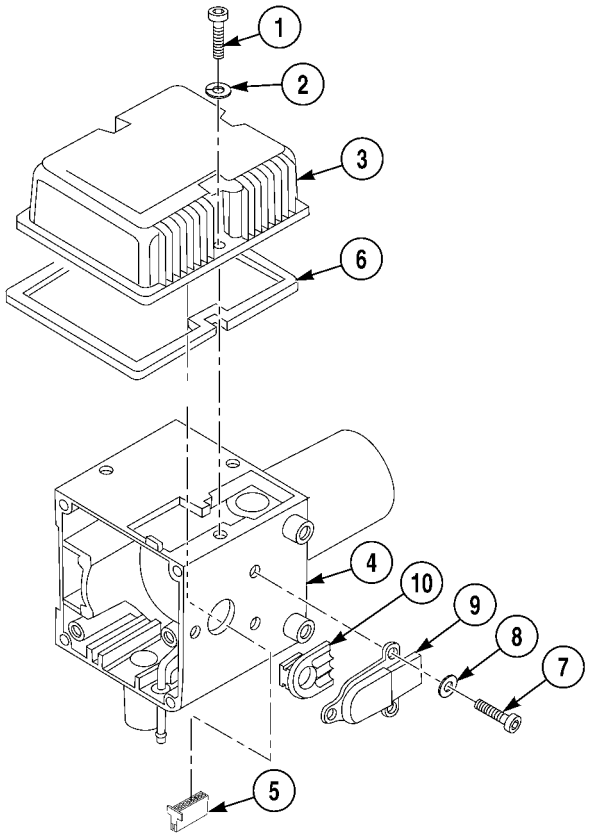
(1) Remove three screws (1) and washers (2) from control unit (3).

(2) Lift control unit (3) from burner assembly (4).

(3) Disconnect internal connector (5) from control unit (3).

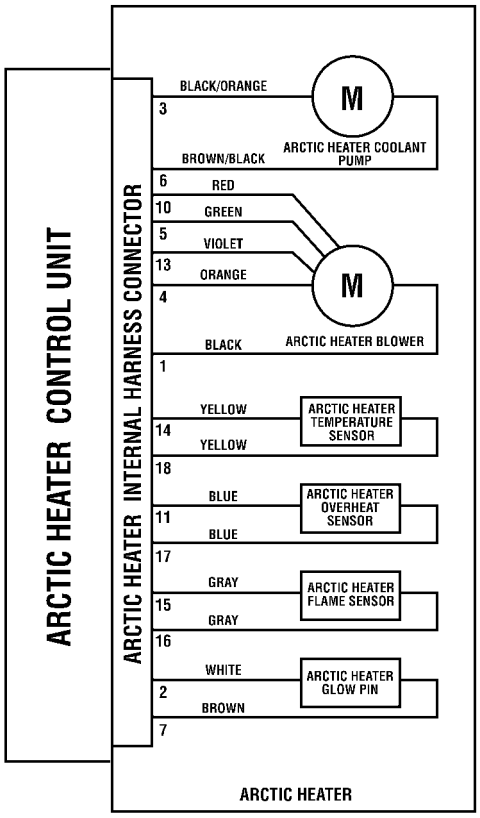
(4) Remove seal (6). Discard seal.

(5) Remove three screws (7), washers (8), cover (9) and sleeve (10) from burner assembly (4).



NOTE

- Tag and mark all wires prior to removal to ensure proper installation.
- Cut cable ties as required.

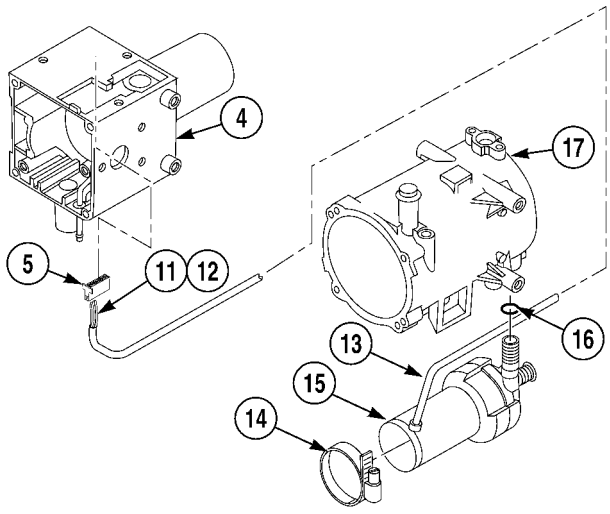


(6) Disconnect water pump black/orange wire (11) from internal connector (5).

(7) Disconnect water pump brown/black wire (12) from internal connector (5).

(8) Remove water pump cable (13) from burner assembly (4).

(9) Remove clamp (14), water pump (15) and preformed packing (16) from outer casing (17). Discard preformed packing.



18-2.2. ARCTIC HEATER REPAIR (MODEL B) (CONT).

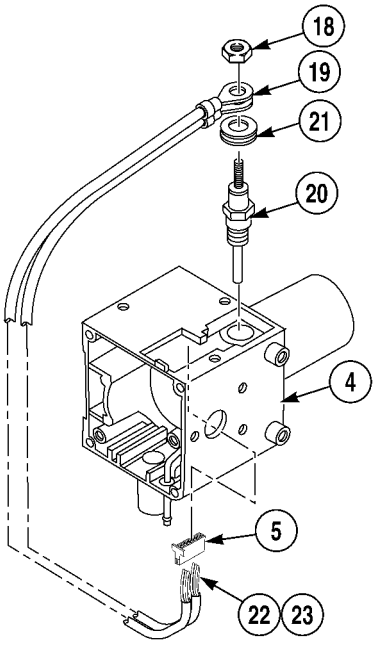
(10) Remove nut (18) and glow pin cable (19) from glow pin (20).

(11) Remove seal (21) from glow pin (20). Discard seal.

(12) Remove glow pin (20) from burner assembly (4).

(13) Disconnect white wire (22) from internal connector (5).

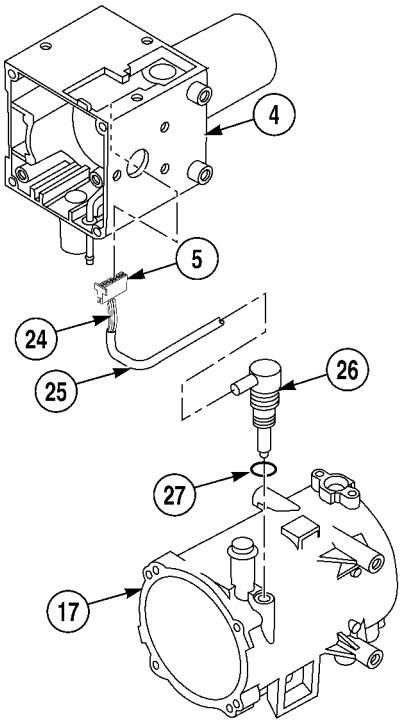
(14) Disconnect brown wire (23) from internal connector (5).



(15) Disconnect two yellow wires (24) from internal connector (5).

(16) Remove temperature sensor cable (25) from burner assembly (4).

(17) Remove temperature sensor (26) and preformed packing (27) from outer casing (17). Discard preformed packing.



(18) Disconnect two blue wires (28) from internal connector (5).

(19) Remove overheat sensor cable (29) from burner assembly (4).

(20) Unclip overheat sensor cable (29) from clip (30).

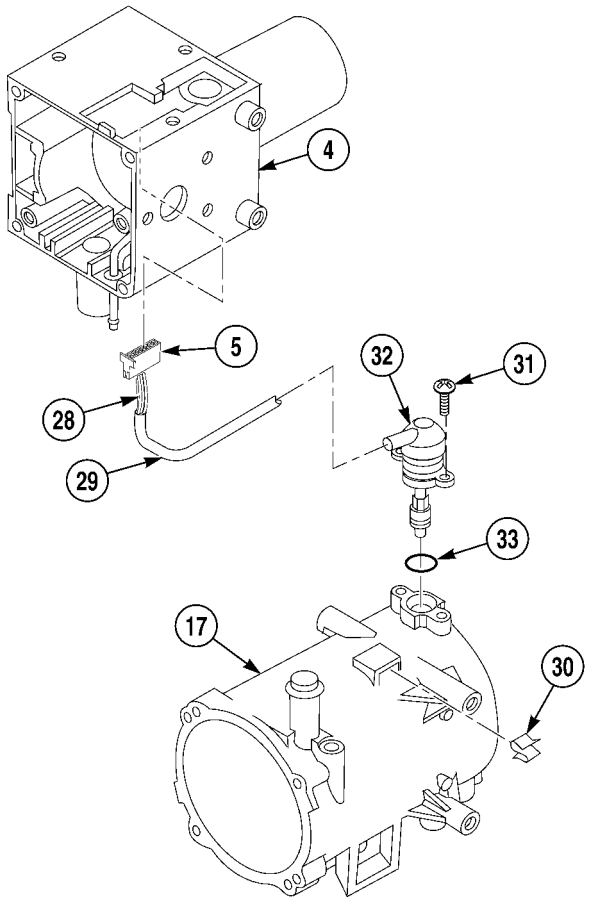
WARNING

Spring is under extreme tension. Wear proper eye protection. Spring may shoot out and cause injury to personnel.

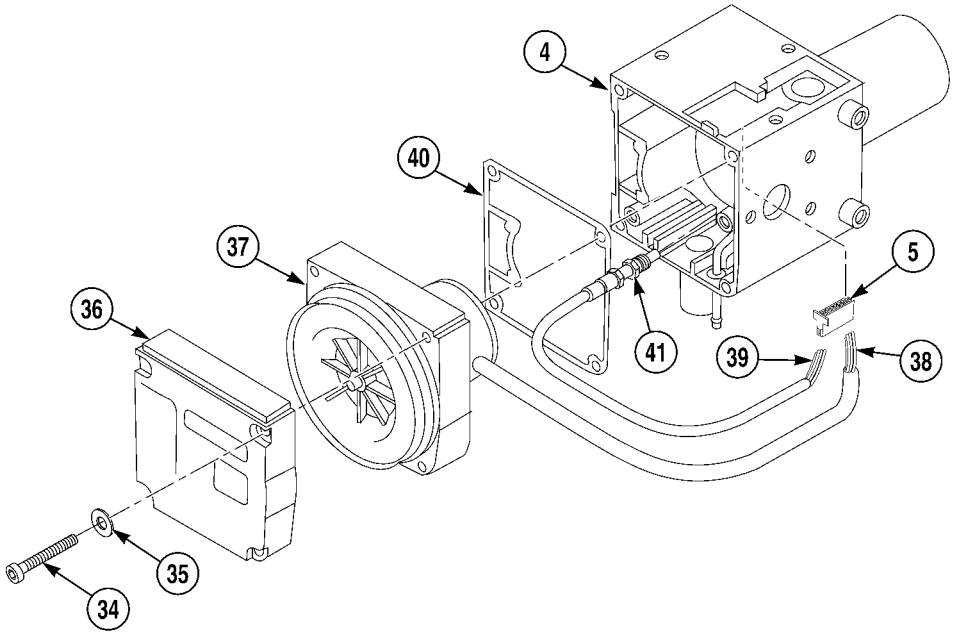
NOTE

Overheat sensor is under spring pressure.

(21) Remove two screws (31), overheat sensor (32) and performed packing (33) from outer casing (17). Discard preformed packing.



18-2.2. ARCTIC HEATER REPAIR (MODEL B) (CONT).



(22) Remove four screws (34), washers (35), blower cover (36) and blower (37) from burner assembly (4).

(23) Disconnect blower cable (38) from internal connector (5).

(24) Disconnect two gray wires (39) from internal connector (5).

(25) Remove seal (40) from burner assembly (4). Discard seal.

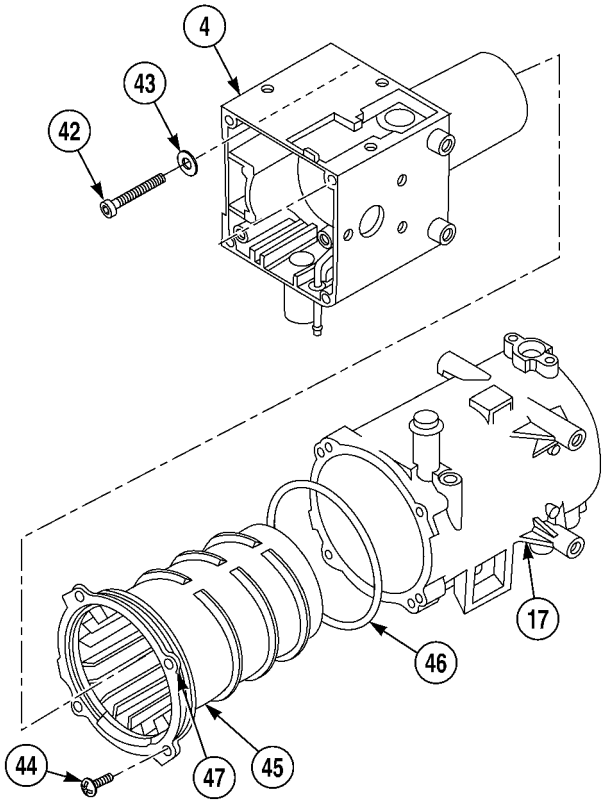
(26) Remove flame sensor (41) from burner assembly (4).

(27) Remove four screws (42) and washers (43) from burner assembly (4).

(28) Remove burner assembly (4) from outer casing (17).

(29) Remove two screws (44) from heat exchanger (45).

(30) Remove heat exchanger (45) and performed packing (46) from outer casing (17) using slots (47). Discard preformed packing.



(31) Remove four screws (48) from burner (49) and burner assembly (4).

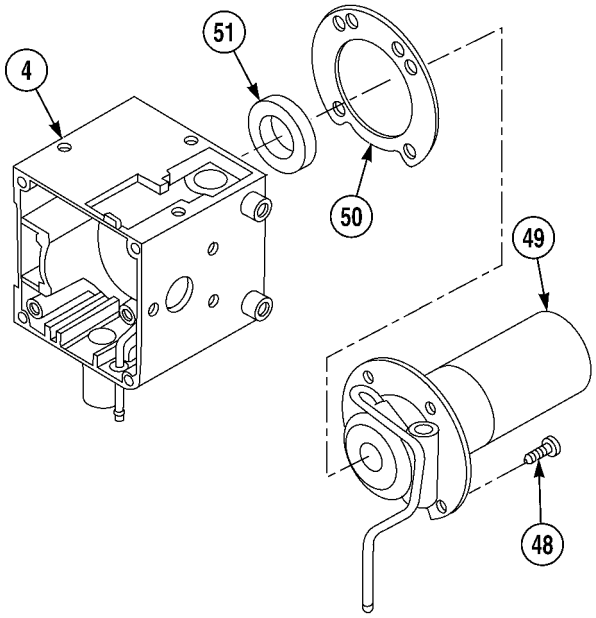
CAUTION

Carefully remove fuel supply tube out of burner assembly. Failure to comply could result in damage to equipment.

(32) Remove burner (49) from burner assembly (4).

(33) Remove seal (50) from burner (49). Discard seal.

(34) Remove seal (51) from burner assembly (4). Discard seal.

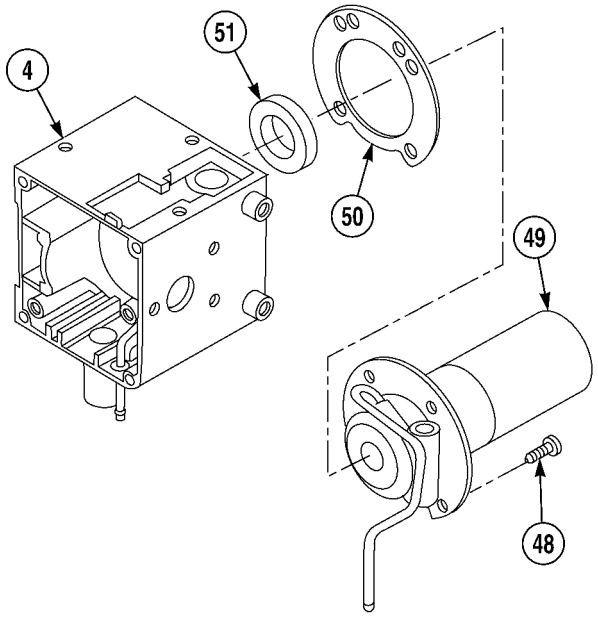


18-2.2. ARCTIC HEATER REPAIR (MODEL B) (CONT).

b. Assembly.

NOTE

- Refer to wire diagram at beginning of disassembly to ensure proper installation of wires.
- Burner assembly shown removed for clarity.



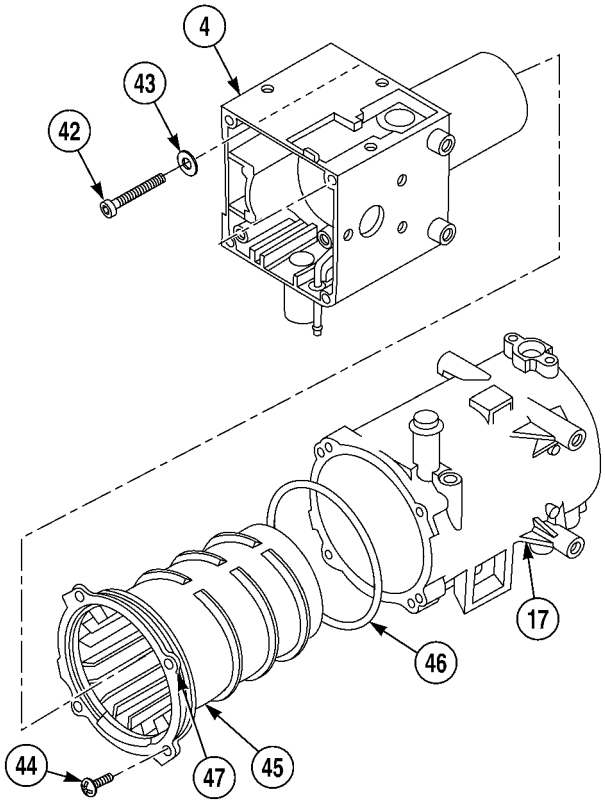
(1) Install seal (51) on burner assembly (4).

(2) Install seal (50) on burner (49).

(3) Install burner (49) on burner assembly (4) with four screws (48).

CAUTION

Carefully install fuel supply tube through burner assembly. Failure to comply could result in damage to equipment.

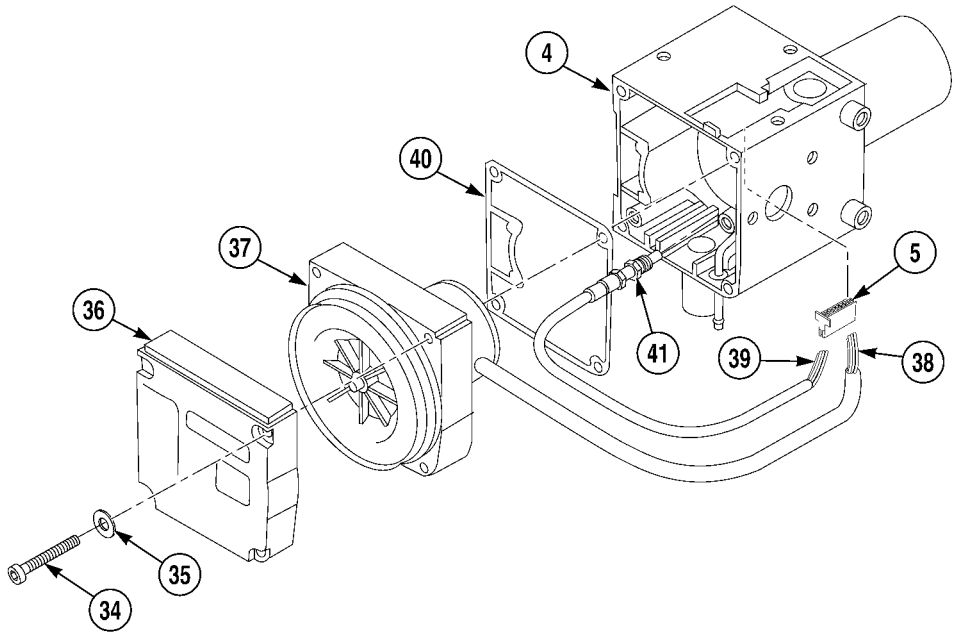


(4) Install preformed packing (46) on heat exchanger (45).

(5) Insert heat exchanger (45) into outer casing (17) and align slots (47).

(6) Install two screws (44) in heat exchanger (45) and outer casing (17).

(7) Install burner assembly (4) into outer casing (17) with four washers (43) and screws (42).



(8) Install flame sensor (41) in burner assembly (4).

(9) Install seal (40) on burner assembly (4).

(10) Connect two gray wires (39) to internal connector (5).

(11) Connect blower cable (38) to internal connector (5).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(12) Apply sealing compound between blower (37) and blower cover (36).

(13) Install blower (37) and blower cover (36) to burner assembly (4) with four washers (35) and screws (34).

18-2.2. ARCTIC HEATER REPAIR (MODEL B) (CONT).

(14) Install preformed packing (33) to overheat sensor (32).

WARNING

Spring is under extreme tension. Wear proper eye protection. Spring may shoot out and cause injury to personnel.

NOTE

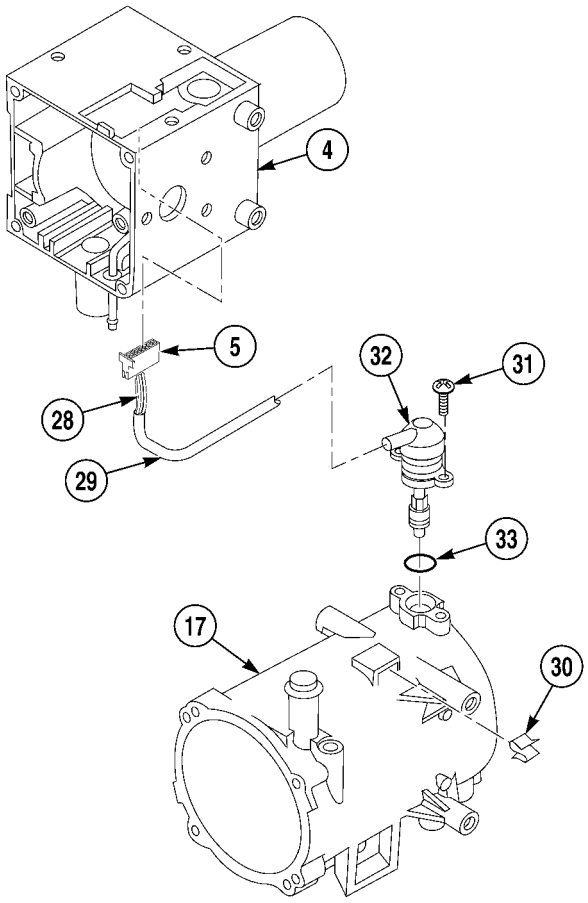
Overheat sensor is under spring pressure.

(15) Install overheat sensor (32) to outer casing (17) with two screws (31).

(16) Insert overheat sensor cable (29) into clip (30).

(17) Route overheat sensor cable (29) through burner assembly (4) to internal connector (5).

(18) Connect two blue wires (28) to internal connector (5).

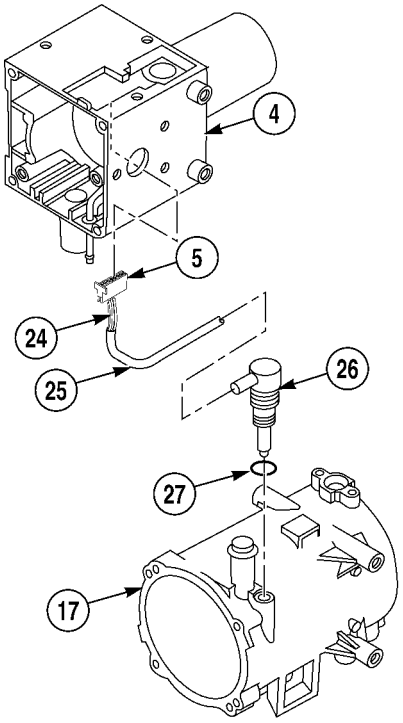


(19) Install preformed packing (27) on temperature sensor (26).

(20) Install temperature sensor (26) to outer casing (17).

(21) Route temperature sensor cable (25) through burner assembly (4) to internal connector (5).

(22) Connect two yellow wires (24) to internal connector (5).



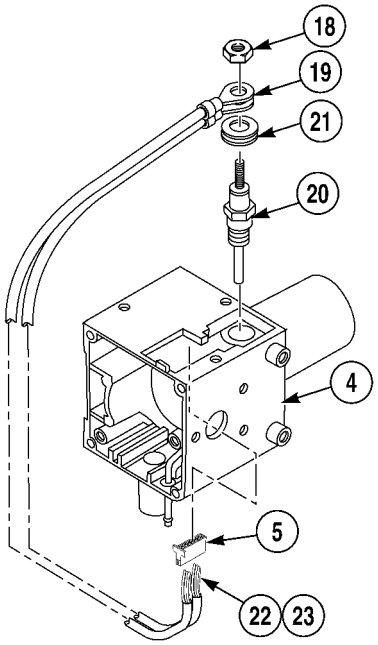
(23) Install glow pin (20) in burner assembly (4).

(24) Install seal (21) on glow pin (20).

(25) Install glow pin cable (19) to glow pin (20) with nut (18).

(26) Connect glow pin cable white wire (22) to internal connector (5).

(27) Connect glow pin cable brown wire (23) to internal connector (5).



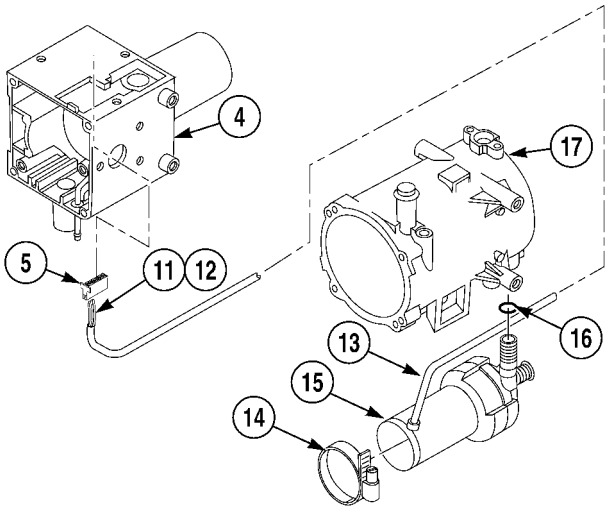
(28) Install preformed packing (16) on water pump (15).

(29) Install water pump (15) to outer casing (17) with clamp (14).

(30) Route water pump cable (13) through burner assembly (4) to internal connector (5).

(31) Connect water pump black/orange wire (11) to internal connector (5).

(32) Connect water pump brown/black wire (12) to internal connector (5).



18-2.2. ARCTIC HEATER REPAIR (MODEL B) (CONT).

(33) Install sleeve (10) to burner assembly (4).

(34) Install cover (9) to burner assembly (4) with three washers (8) and screws (7).

WARNING

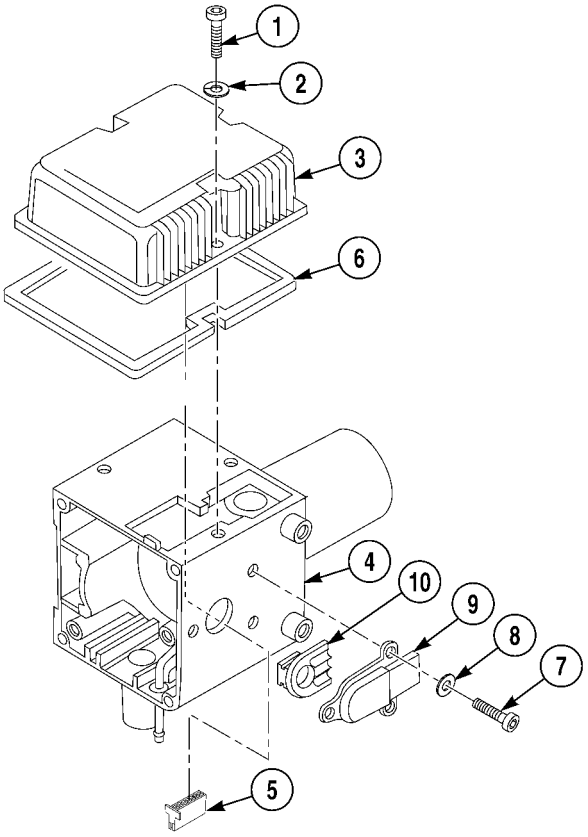
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(35) Apply sealing compound to control unit (3).

(36) Install seal (6) on control unit (3).

(37) Connect internal connector (5) to control unit (3).

(38) Install control unit (3) to burner assembly (4) with three washers (2) and screws (1).



c. Follow-On Maintenance:

- Install arctic heater, (TM 9-2320-364-20).
- Start engine and warm up to normal operating temperature for 3 minutes.

NOTE

On initial startup engine heater may require several start attempts to self-prime fuel system. Arctic engine heater will attempt to start two times per start cycle. After second failed start attempt, arctic engine heater will not operate until arctic engine heater ON/OFF switch is turned OFF and back ON. Audible clicking from arctic engine heater fuel metering pump may indicate that arctic engine heater fuel system is not primed. If audible clicking is heater from arctic engine fuel metering pump, repeat Steps (1) through (4) four times or until arctic engine heater starts. Do not attempt to start arctic engine heater more than five times. Arctic engine heater should prime itself within nine start attempts.

(1) Turn arctic engine heater ON, (TM 9-2320-364-10).

(2) Observe arctic engine heater indicator light for steady illumination.

(3) Observe arctic engine heater for proper operation.

(4) Turn arctic engine heater ON/OFF switch OFF, (TM 9-2320-364-10).

(5) Turn OFF engine switch, (TM 9-2320-364-10).

END OF TASK

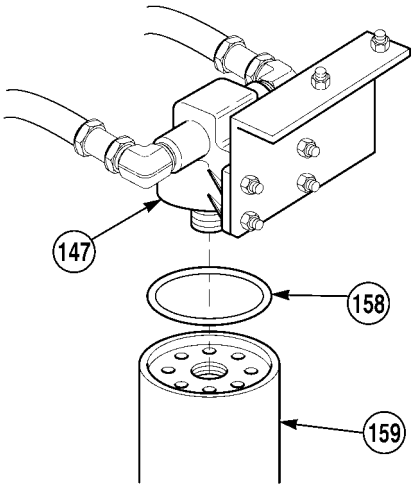
(142) Lubricate preformed packing (158) with clean engine oil and install preformed packing on engine oil filter (159).

(143) Fill engine oil filter (159) 2/3 full with clean engine oil.

(144) Install engine oil filter (159) on engine oil filter adapter (147).

CAUTION

Do not use oil filter removal tool to tighten engine oil filter or possible damage to filter adapter may result.



(145) By hand, tighten engine oil filter (159) until preformed packing (158) makes contact with engine oil filter adapter (147).

(146) By hand, tighten engine oil filter (159) 2/3 turn on engine oil filter adapter (147).

b. Follow-On Maintenance:

- Install 200 AMP alternator belts, (TM 9-2320-364-20).
- Install secondary fuel filter head, (TM 9-2320-364-20).
- Install fuel pressure sensor, (TM 9-2320-364-20).
- Install right front fender skirt, (TM 9-2320-364-20).
- Check coolant level, (TM 9-2320-364-20).
- Install batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in.
(Item 49, Appendix F)
Gun, Heat (Item 87, Appendix F)
Multimeter (Item 140, Appendix F)
Rivet Gun (Item 196, Appendix F)
Tension Gage, Belt (Item 236, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Preventive
(Item 15, Appendix B)
Heatshrink (Item 30, Appendix B)
Oil, Lubricating (Item 36, Appendix B)\
Sealant, Electrical (Item 50, Appendix B)
Locknut (Item 169, Appendix E)
Locknut (2) (Item 174, Appendix E)
Locknut (5) (Item 176, Appendix E)

Materials/Parts
Lockwasher (7) (Item 251, Appendix E)
Lockwasher (4) (Item 271, Appendix E)
Lockwasher (3) (Item 283, Appendix E)
Lockwasher (2) (Item 286, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Left side noise panel removed,
(TM 9-2320-364-20)
Left front noise panel removed,
(TM 9-2320-364-20)
Left front and rear fender skirt guard removed,
(TM 9-2320-364-20)
Electric Control Box (ECB) cover removed,
(TM 9-2320-364-20)
Cab engine access panel removed,
(TM 9-2320-364-20)

Personnel Required
Two

a. Installation.

(1) Remove dual voltage alternator control (DUVAC controller and voltage regulator only) (TM 9-2350-364-20).

(2) Remove alternator belts, (TM 9-2320-364-20).

(3) Remove alternator, (TM 9-2320-364-20).

NOTE

Wire harnesses are being replaced with the installation of 200 AMP alternator.

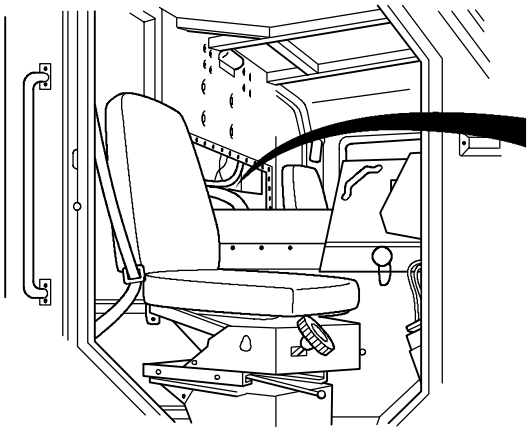
(4) Remove STE/ICE-R alternator wire harness, (Para 6-21).

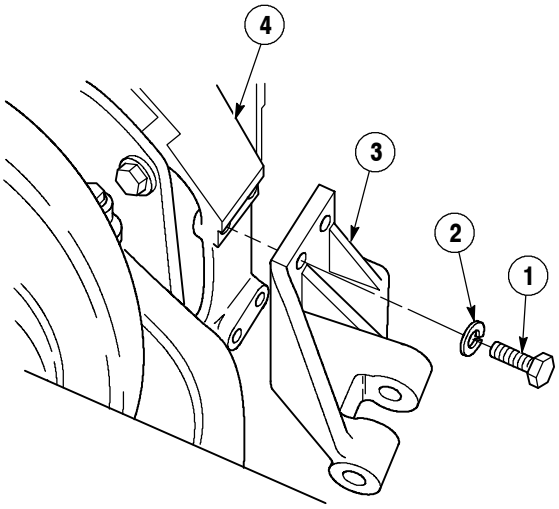
(5) Remove DDEC battery power wire harness, (Para 7-16).

(5.1) Remove reverse polarity power wire harness (145 amp), (Para 6-36).

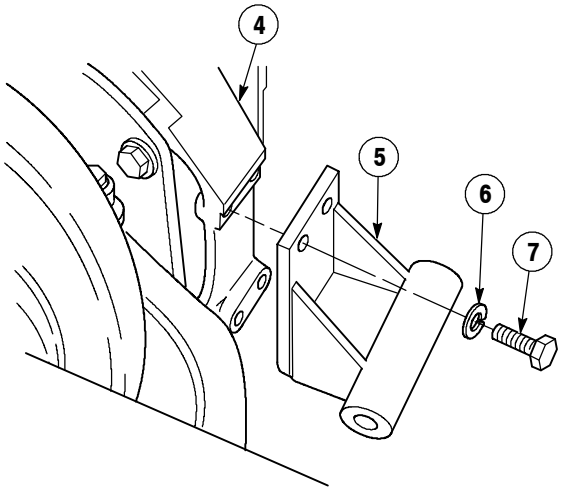
(6) Remove isolator, (TM 9-2320-364-20).

(7) Remove four screws (1), lockwashers (2) and 145 AMP alternator mounting bracket (3) from engine (4).



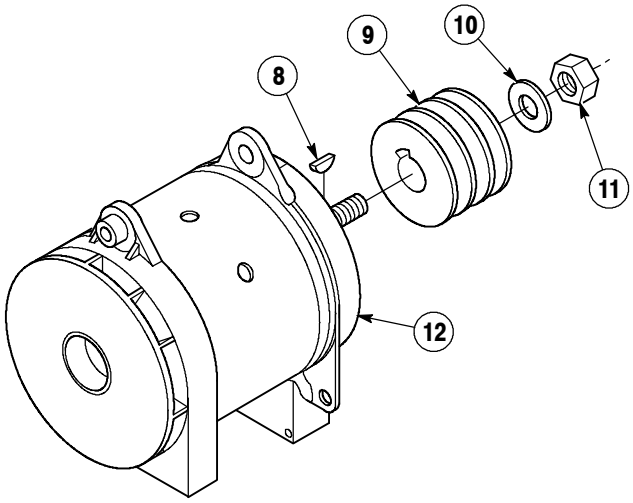


(8) Install 200 AMP alternator mounting bracket (5) on engine (4), with four lockwashers (6) and screws (7) . Tighten screws.



18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

(9) Position key (8), pulley (9), washer (10) and locknut (11) on 200 AMP alternator (12).



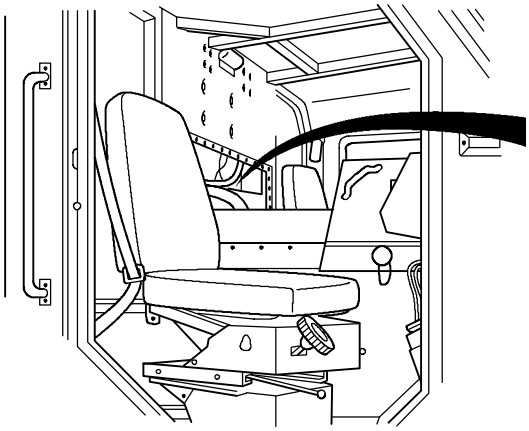
WARNING

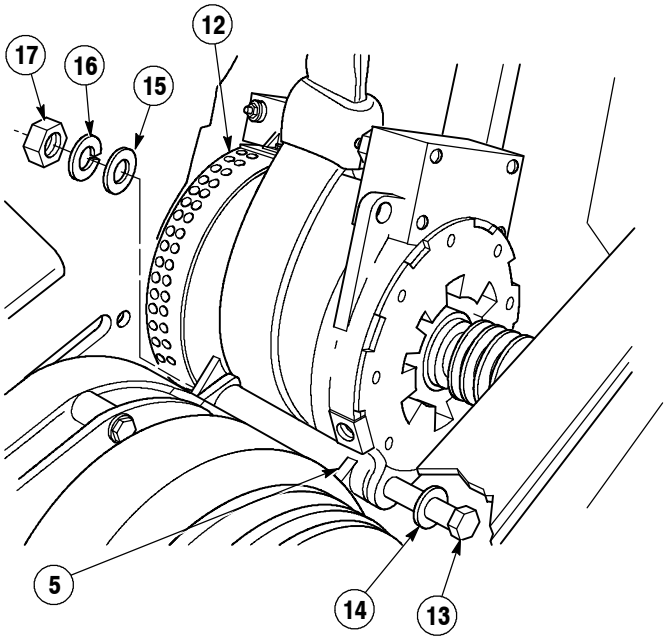
200 AMP alternator weighs 75 lbs (34 kg). Use an assistant to prevent possible injury.

(10) Position pulley (9) in soft jawed vise.

(11) Tighten locknut (11) on 200 AMP alternator (12) to 120 lb-ft (163 N·m).

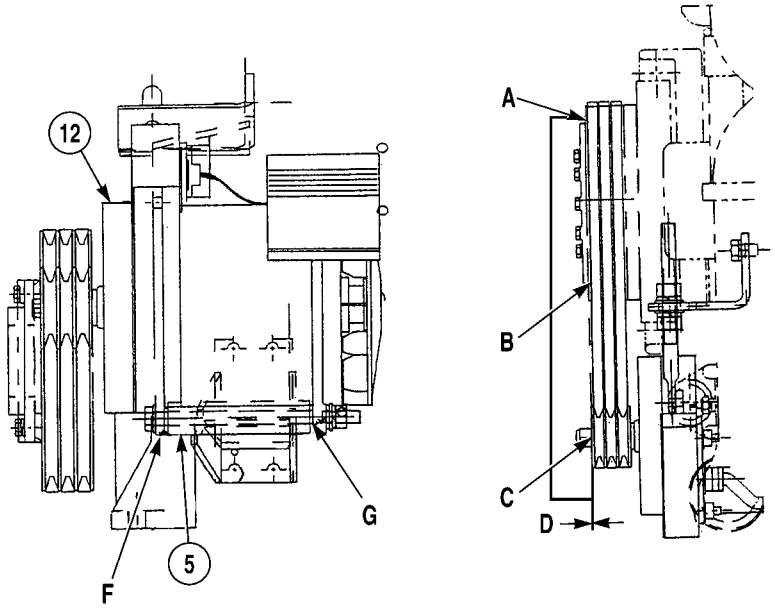
(12) Remove pulley (9) from vise.





(13) With the aid of an assistant, position alternator (12) in mounting bracket (5).

(13.1) Install screw (13), washer (14), washer (15), lockwasher (16) and nut (17) in mounting bracket (5) and alternator (12).



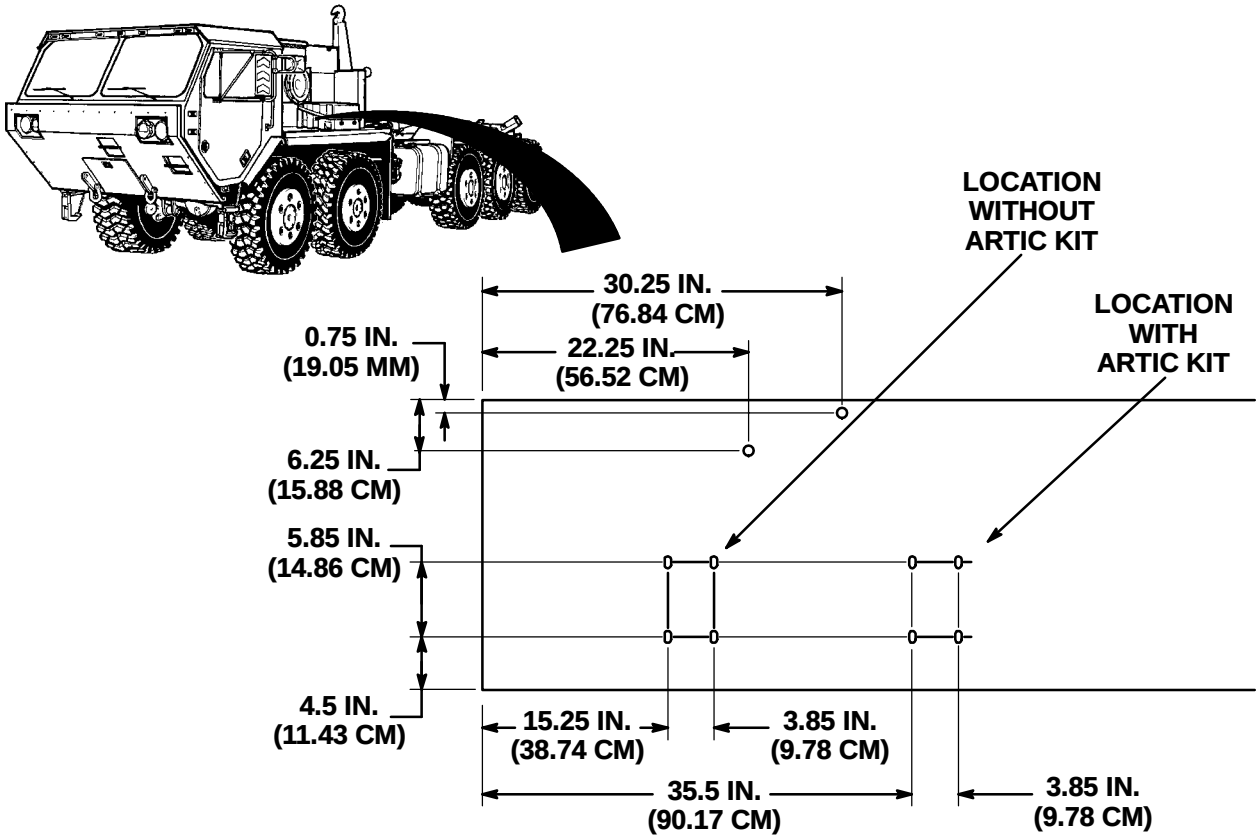
(13.2) Place a straight edge across front engine pulley, Point (A) to Point (B). This is vertically above pump drive adapater.

(13.3) Measure the misalignment, Point (D), at the center of the alternator pulley, Point (C).

(13.4) If Point (D) is greater than 1/8 inch, add washer(s) (as required) between alternator (12) and front of lower mount (5) at Point (F).

(14) After distance, Point (D), is minimized, add washer(s) between alternator (12) and lower mount (5) at Point (G).

18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

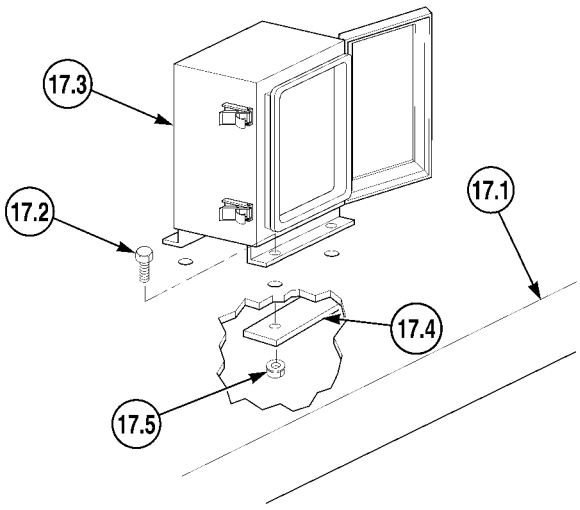


(14.1) Mark switch box and clamp hardware mounting locations on left fender.

(14.2) Drill six .344 in. (11/32 in.) (8.74 mm) holes in fender (17.1) at locations marked in Step (14.1).

(14.3) Install four screws (17.2) through battery disconnect switch box (17.3) and fender (17.1).

(14.4) Position two mounting brackets (17.4) on four screws (17.2) and secure with four nuts (17.5).



(15) Install polarity protection control (18) with washers (19), lockwashers (20) and screws (21) on electric bracket (22).

NOTE

Polarity protection control is properly installed when 12V BAT and 12V LOAD terminals are on top.

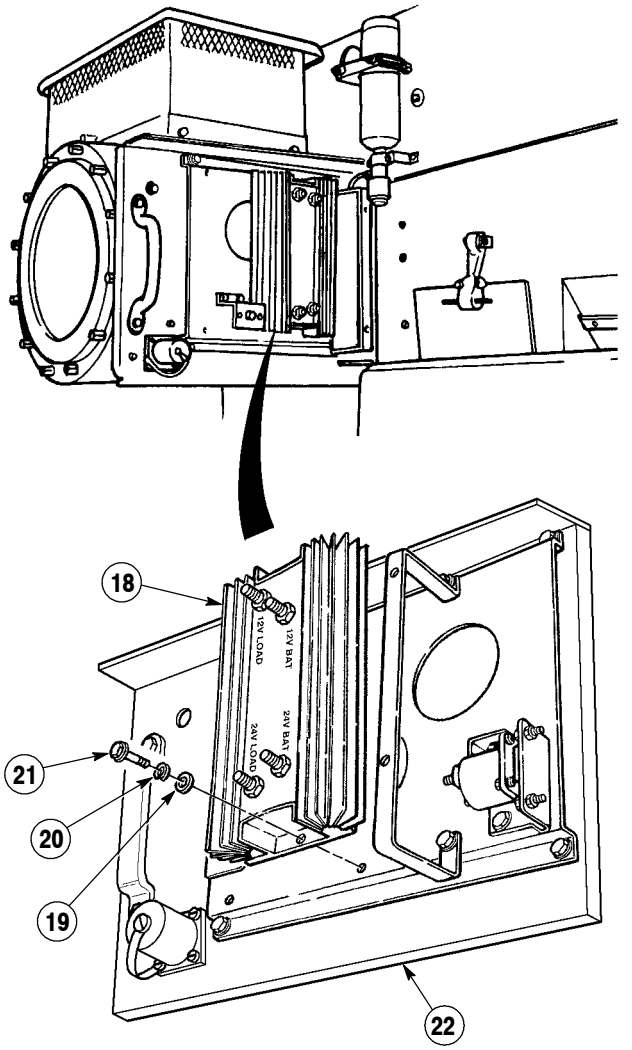
(16) Position 200 AMP polarity wire harness (23) in truck.

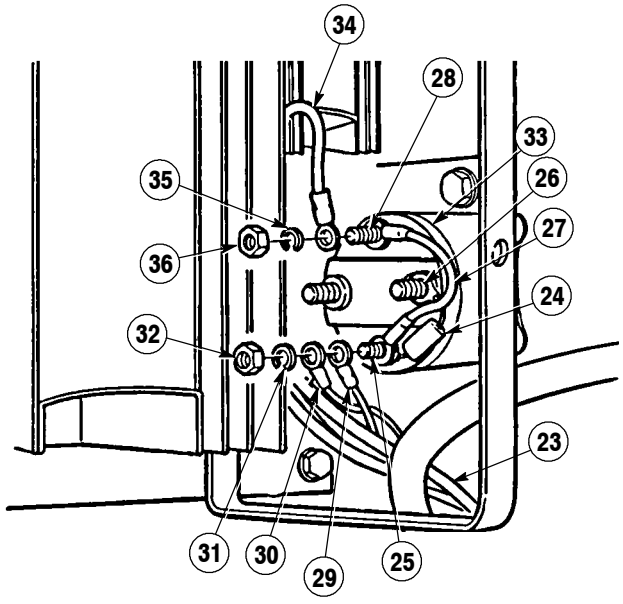
(17) Install capacitor (24) on studs (25) and (26).

(18) Install jumper diode (27) with negative terminal on stud (28) and positive terminal on stud (25).

(19) Install wire 1435 (29), wire 1435 (30) of 200 AMP polarity wire harness (23), lockwasher (31) and nut (32) on stud (25) of 24 volt solenoid switch (33).

(20) Install wire 1021A (34) of 200 AMP polarity wire harness (23), lockwasher (35) and nut (36) on stud (28) of 24 volt solenoid switch (33).





18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

(21) Install wire 1045 (37) of 200 AMP polarity wire harness (23), capacitor wire (38), lockwasher (39) and nut (40) on stud (26) of 24 volt solenoid switch (33).

(22) Install wire 1055 (41) of 200 AMP polarity wire harness (23), lockwasher (42) and nut (43) on stud (44) of 24 volt solenoid switch (33).

NOTE

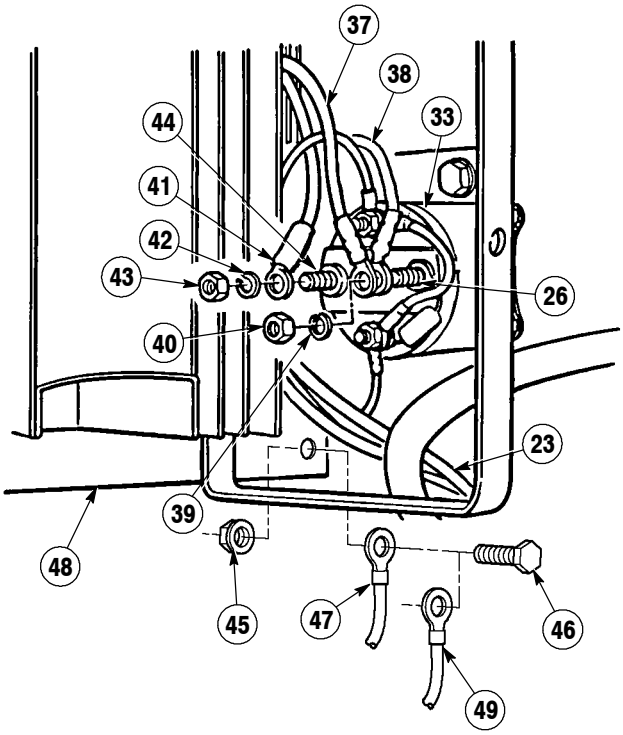
Wire 1435 in Step (23) was removed in Step (1) from DUVAC ground stud.

(23) Remove locknut (45), screw (46) and wire 1435 (47) from bracket (48). Discard locknut.

NOTE

Wire 1435 in Step (24) was removed in Step (1) and is part of chassis harness.

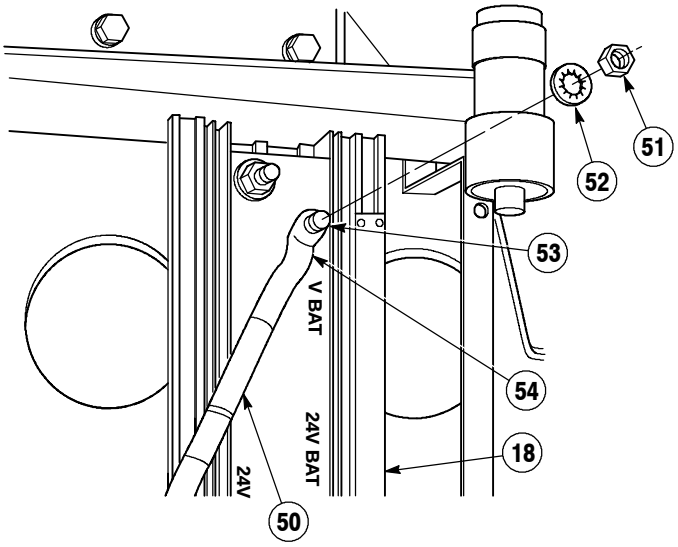
(24) Install wire 1435 (49) to bracket (48) with screw (46) and locknut (45).



(25) Position battery disconnect wire harness (50) in truck.

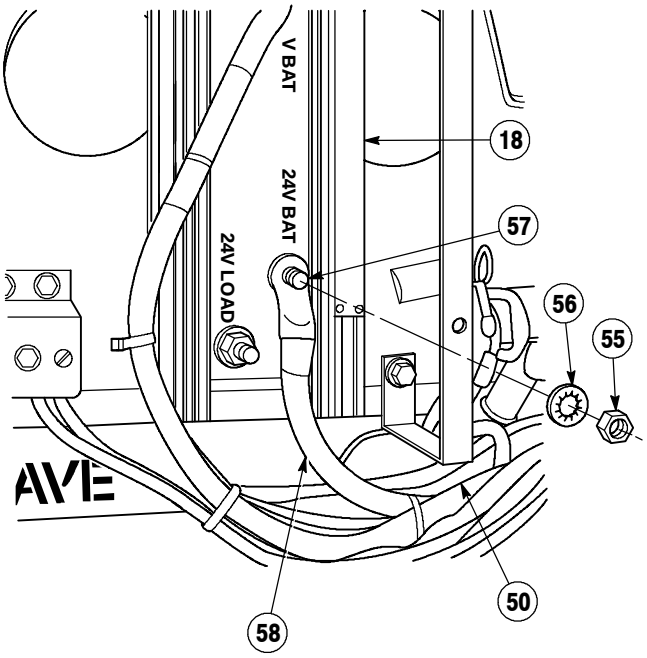
(26) Remove nut (51) and lockwasher (52) from 12 volt battery terminal (53) of polarity protection control (18).

(27) Install wire 1566 (54) of battery disconnect wire harness (50), lockwasher (52) and nut (51) on 12 volt battery terminal (53).



(28) Remove nut (55) and lockwasher (56) from 24 volt battery terminal (57) of polarity protection control (18).

(29) Install wire 1281A (58), of battery disconnect wire harness (50), lockwasher (56) and nut (55) on 24 volt battery terminal (57).



18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

(30) Remove nut (59), lockwasher (60) and wire 1431/1431 (61) from screw (62) on positive battery terminal (63). Discard lockwasher.

(31) Position lockwasher (60) and nut (59) on screw (62).

(32) Remove wires 1431/1431 (61) from battery box (64).

(33) Position wires 1431/1431 (61) to polarity protection control (18).

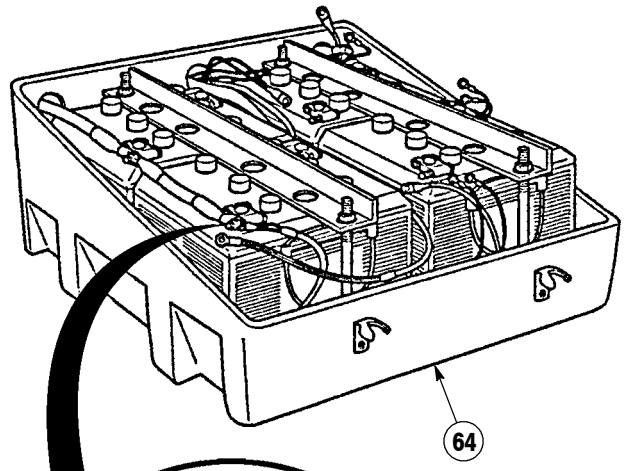
(34) Cut ring terminal (65) from wires 1431/1431 (61).

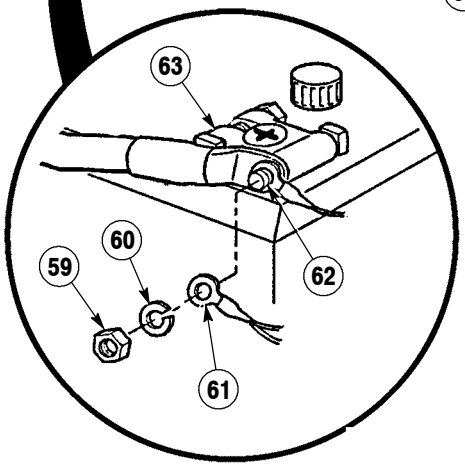
(35) Position heat shrink (66) on wires 1431/1431 (61).

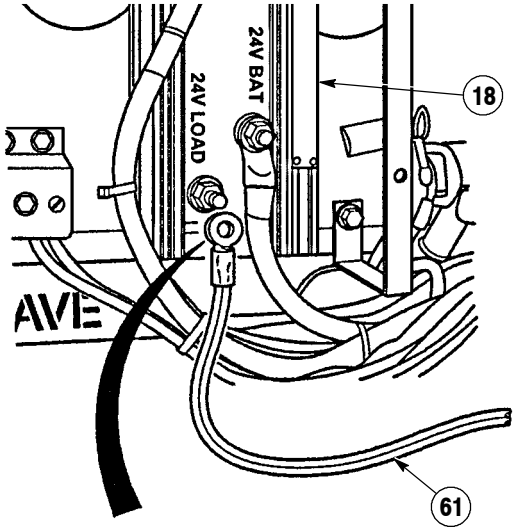
(36) Strip 1/8 in. (3.175 mm) of insulation off ends of wires 1431/1431 (61).

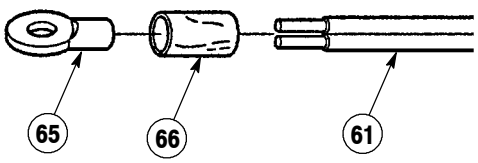
(37) Position ends of 1431/1431 wires (61) in end of 1/2 in. (12.7 mm) ring terminal (65).

(38) Position heat shrink (66) over ring terminal (65) and heat with heat gun until shrunk.

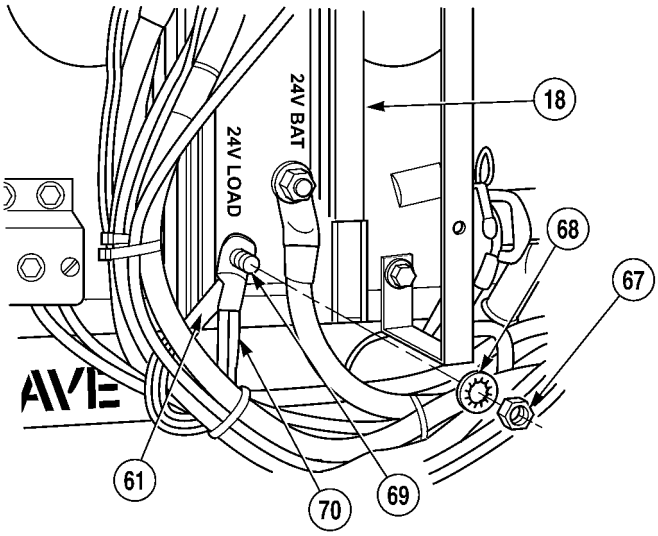








(39) Remove nut (67) and lockwasher (68) from 24 volt load terminal (69) of polarity protection control (18).

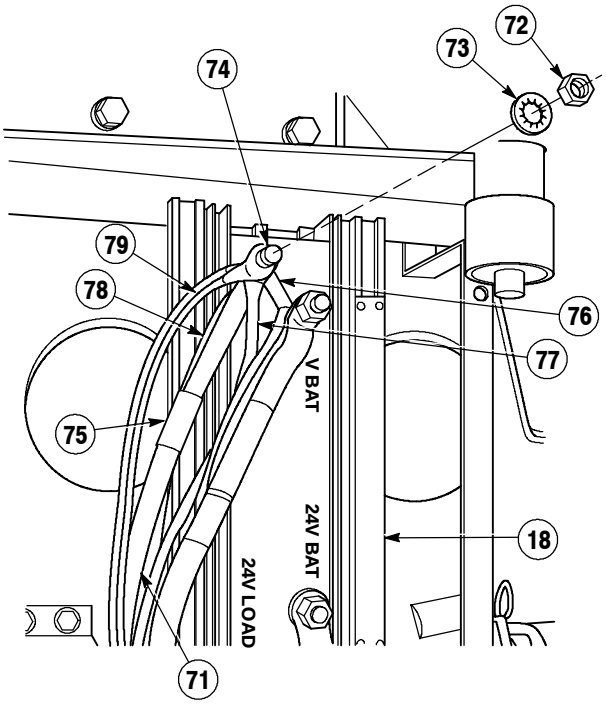


NOTE

Wire 1281 is part of polarity wire harness (200 AMP)

(40) Install wire 1431/1431 (61), wire 1281 (70), lockwasher (68) and nut (67) on 24 volt load terminal (69).

(41) Position DDEC battery power wire harness (200 AMP) (71) in truck.



NOTE

Wire 1430, wire 1866, wire 1079, and wire 1075 are part of the polarity wire harness (200 AMP) and wire 240/241 is part of the DDEC battery power wire harness (200 AMP). All wires are installed on the 12 volt load terminal of the polarity protection control.

(42) Remove nut (72) and lockwasher (73) from 12 volt load terminal (74) of the polarity protection control (18).

(43) Install wire 1430 (75), wire 1866 (76), wire 1079 (77), wire 1075 (78), wire 240/241 (79), lockwasher (73) and nut (72) on 12 volt load terminal (74).

18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

NOTE

1020 wires in steps (44) through (48) are part of chassis wire harness and were removed in Step (1).

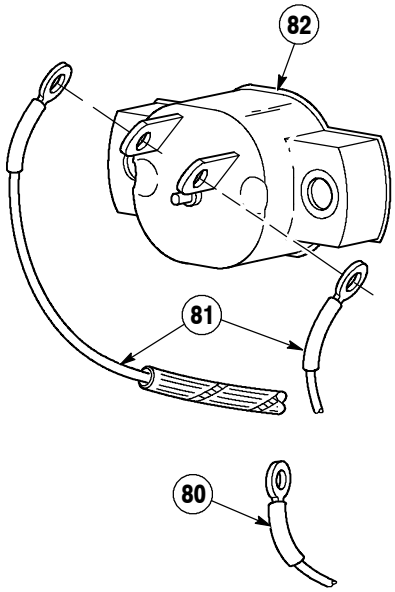
(44) Set multimeter select switch to Ohms.

(45) Connect positive (+) multimeter lead to wire 1020 (80) that was removed from DUVAC IGN terminal.

(46) Connect negative (-) multimeter lead to one of the 1020 wires (81) that were removed from circuit breaker (82).

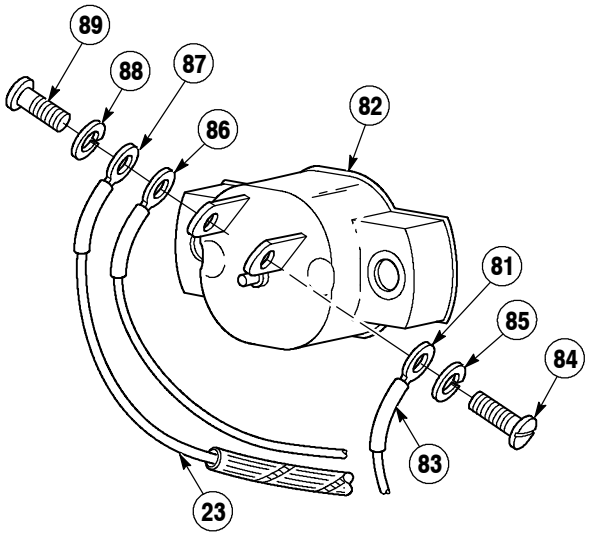
(47) Connect negative (-) multimeter lead to remaining wire 1020 (81) from circuit breaker (82).

(48) Tie back and tape off wire 1020 (81) removed from circuit breaker (82) and wire 1020 (80) from DUVAC IGN terminal that had continuity.



(49) Install remaining wire 1020 (81) from chassis wire harness (83) to circuit breaker (82) with screw (84) and lockwasher (85).

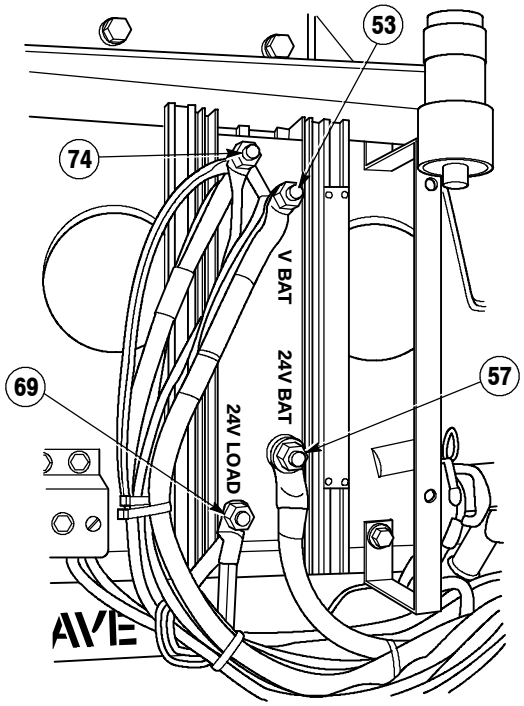
(50) Install wire 1020A (86) and wire 1020 (87) of 200 AMP polarity wire harness (23), lockwasher (88) and screw (89) on circuit breaker (82).

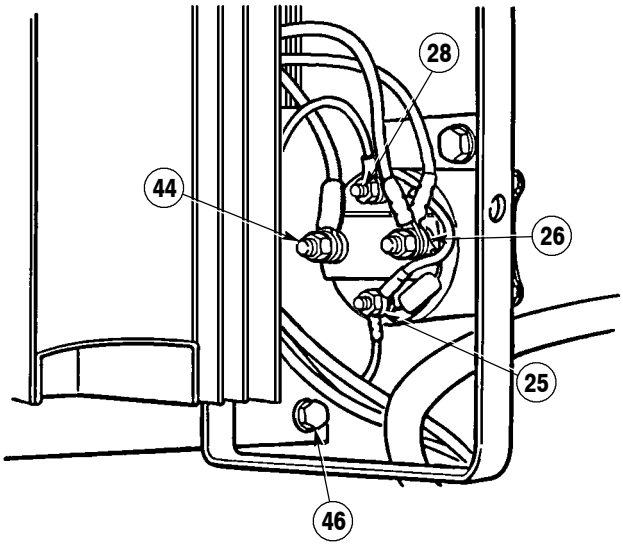


WARNING

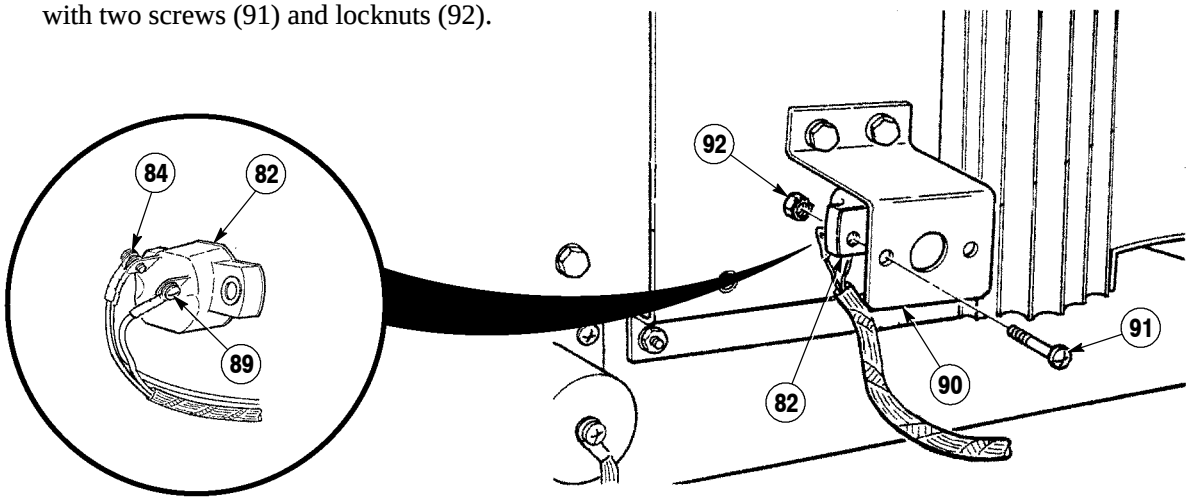
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(51) Apply electrical sealant to screws (46), (84), (89), studs (25), (26), (28), (44), 12 volt battery terminal (53), 24 volt battery terminal (57), 24 volt load terminal (69) and 12 volt load terminal (74).





(52) Install circuit breaker (82) on bracket (90) with two screws (91) and locknuts (92).



18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

(53) Install wire harnesses from polarity protection control (not shown) on bracket (93) with cushion clip (94), screw (95) and locknut (96).

(54) Position STE/ICE-R wire harness (97) in truck.

NOTE

Wire 1860 is part of the STE/ICE-R wire harness and wire 1274 is part of the 200 AMP polarity wire harness.

(55) Remove nut (98), lockwasher (99) and washer (100) from 12 volt terminal (101) of alternator (12).

(56) Install wire 1860 (102), wire 1274 (103), washer (100), lockwasher (99) and nut (98) on 12 volt terminal (101).

(57) Tighten nut (98) to 15 lb-ft (20 N·m).

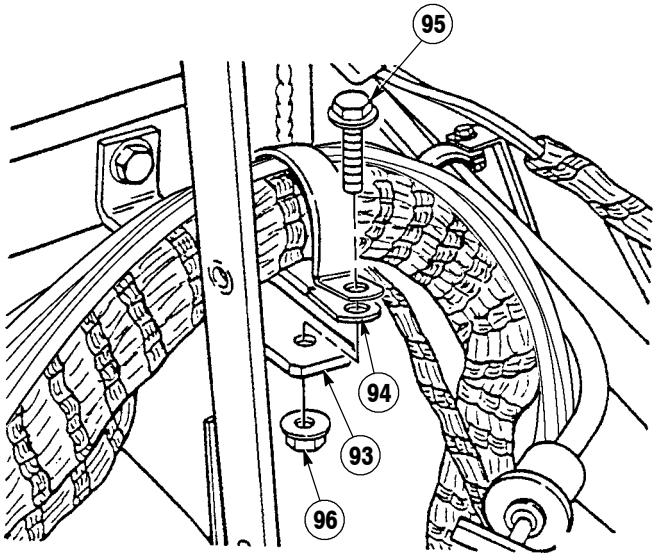
NOTE

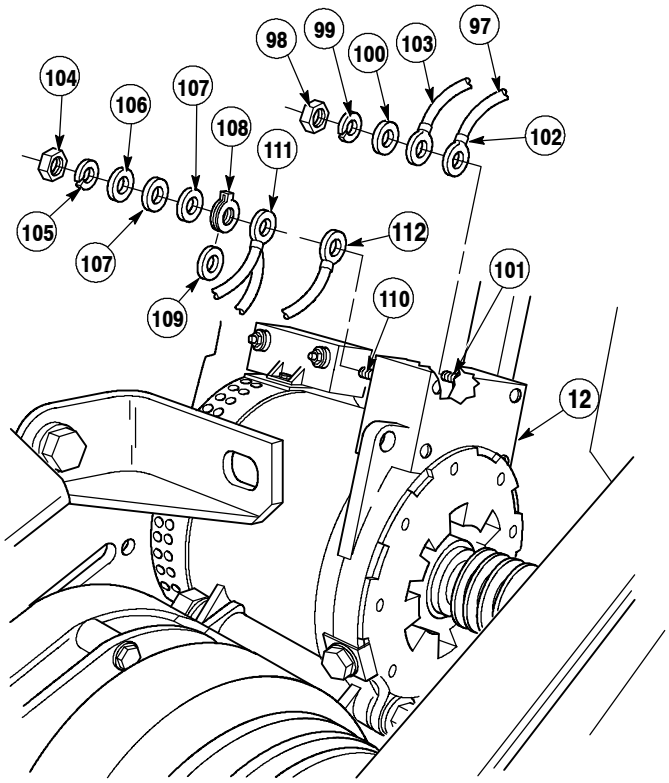
Wire 1820/1953 are part of STE/ICE-R wire harness and wire 1281A is part of 200 AMP polarity wire harness.

(58) Remove nut (104), lockwasher (105), washer (106), washer(s) if present (107), and fuse link (108) with insulator washer (109) from 24 volt terminal (110) of alternator (12).

(59) Install wire 1820/1953 (111), wire 1281A (112), fuse link (108) with insulator washer (109), washer(s) (if removed) (107), washer (106), lockwasher (105) and nut (104) on 24 volt terminal (110).

(60) Tighten nut (104) to 15 lb-ft (20 N·m).





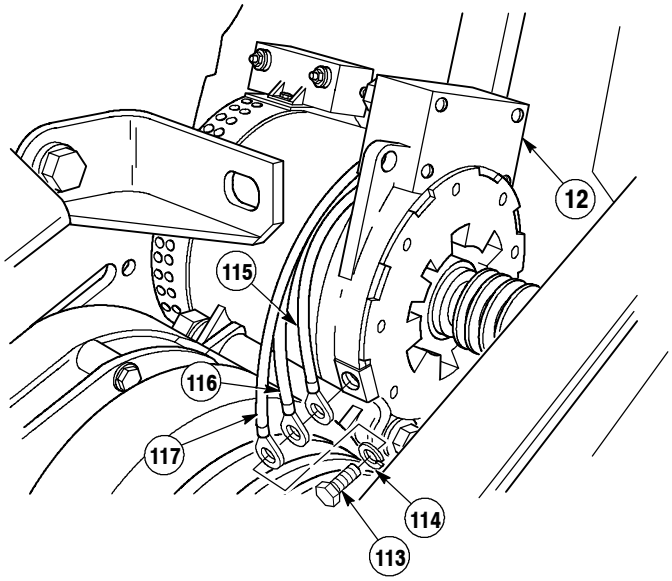
NOTE

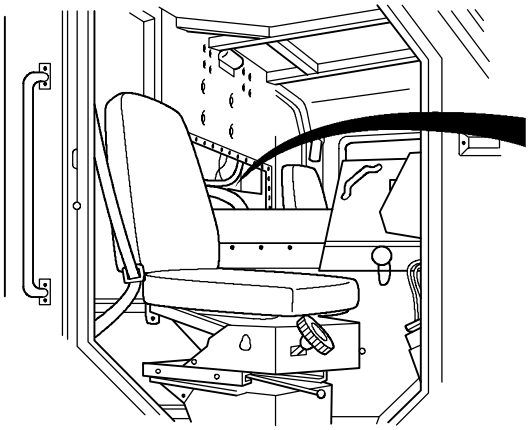
Wire 1815 is part of STE/ICE-R wire harness and wire 1435 and wire 1275 are part of 200 AMP polarity wire harness.

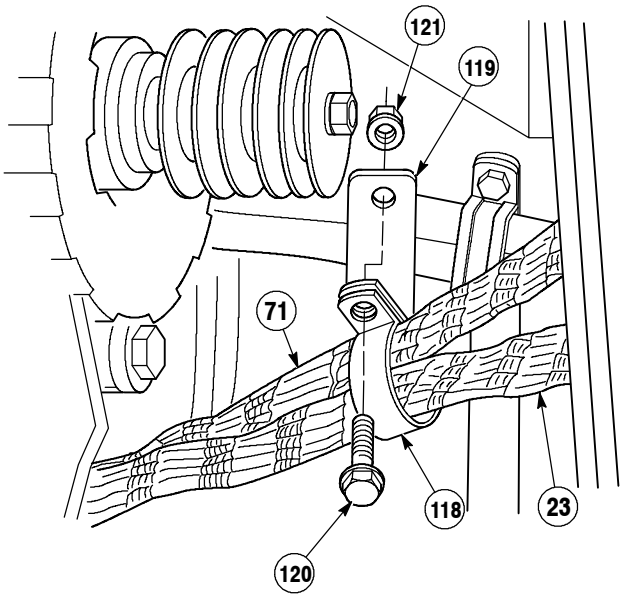
(61) Remove screw (113) and lockwasher (114) from alternator (12).

(62) Install wire 1815 (115), wire 1435 (116), wire 1275 (117), lockwasher (114) and screw (113) on alternator (12).

(63) Tighten screw (113) to 17 lb-ft (23 N·m).







(64) Install 200 AMP polarity wire harness (23) and DDEC battery power wire harness (71) in cushion clip (118).

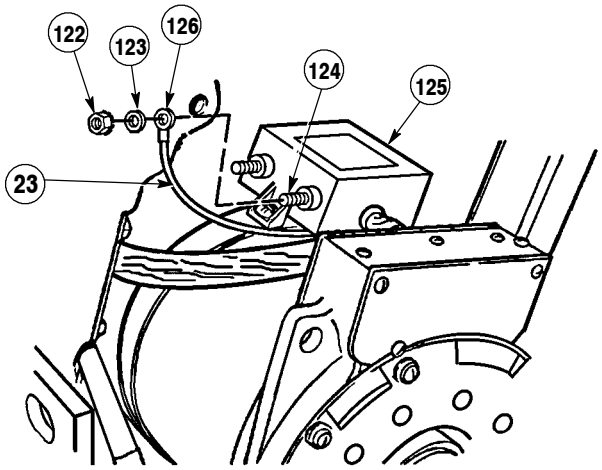
(65) Position cushion clip (118) on bracket (119) and secure with screw (120) and locknut (121).

18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

(66) Remove locknut (122) and washer (123) from terminal (124) of regulator (125).

(67) Install wire 1020B (126) of 200 AMP polarity wire harness (23), washer (123) and locknut (122) on terminal (124).

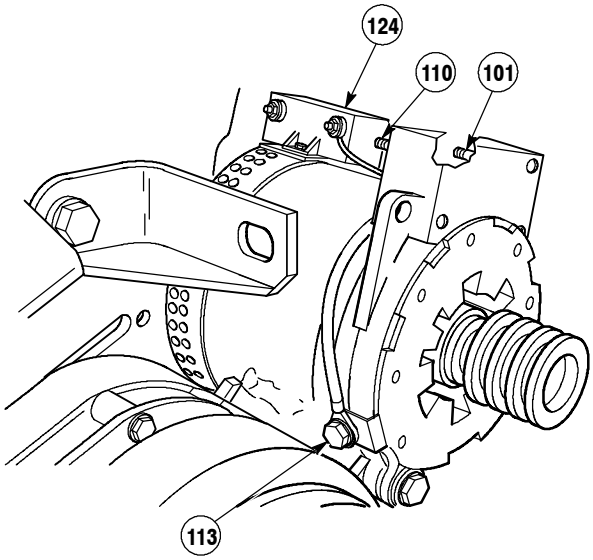
(68) Tighten locknut (122) to 25 lb-in. (3 N·m).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(69) Apply electrical sealant to screw (113), 12 volt terminal (101), 24 volt terminal (110) and terminal (124).



(70) Position three alternator belts (127) on alternator (12) and engine pulley (128).

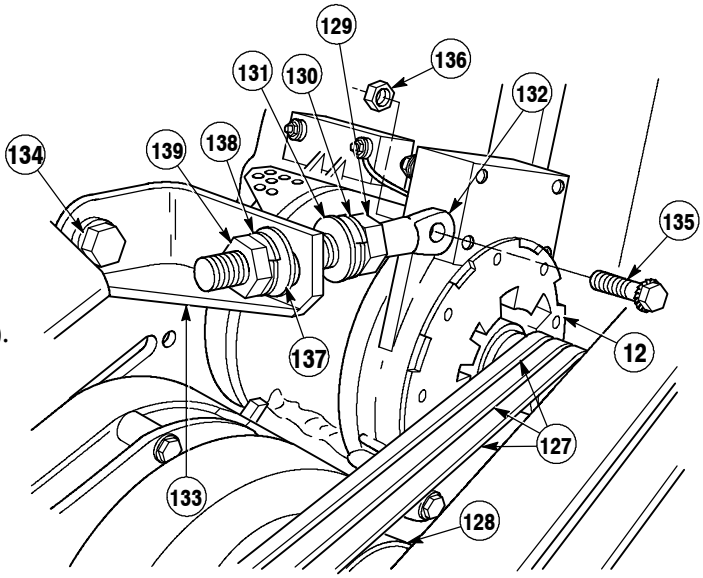
(71) Install nut (129), lockwasher (130) and washer (131) on alternator support arm (132).

(72) Position alternator support arm (132) in bracket (133).

(73) Tighten screw (134) to 170 lb-ft (230 N·m).

(74) Position alternator support arm (132) on alternator (12) with screw (135) and locknut (136).

(75) Position washer (137), lockwasher (138) and nut (139) on alternator support arm (132).



(76) Install belt tensioning gage on belts (127).

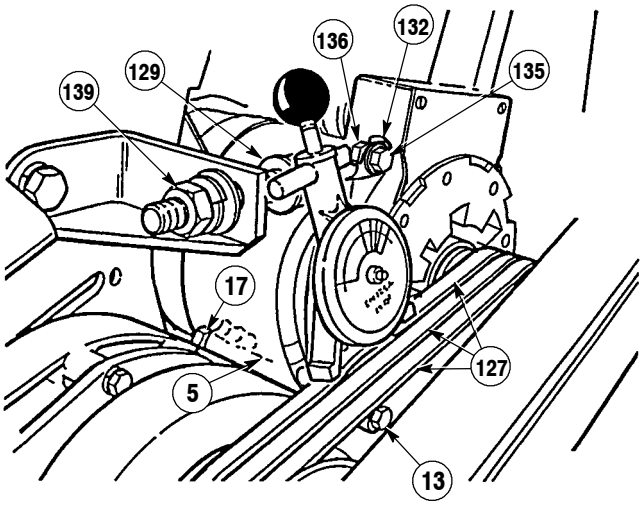
(77) Tighten nut (129) on alternator support arm (132) until alternator belts tension reaches 60 to 65 lbs (260 to 289 N).

(78) Tighten nut (139) on alternator support arm (132).

(79) Remove belt tensioning gage from belts (127).

(80) Tighten locknut (136) on screw (135) to 26-30 lb-ft (30-41 N·m).

(81) Tighten nut (17) on screw (13) and alternator mounting bracket (5) to 90 lb-ft (122 N·m).



18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

(82) Remove and discard plug (140) from manifold (141).

(83) Install reducer (142) and oil pressure switch (143) in manifold (141).

NOTE

Wire 1020B and wire 1020A are part of 200 AMP polarity wire harness.

(84) Remove two screws (144) from oil pressure switch (143).

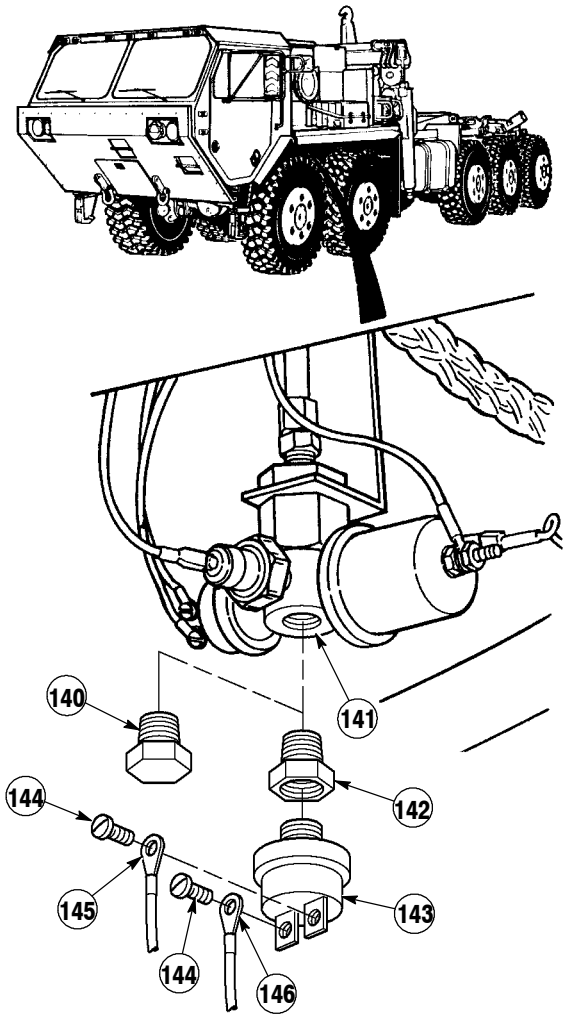
(85) Install wire 1020B (145), wire 1020A (146) and two screws (144) on oil pressure switch (143).

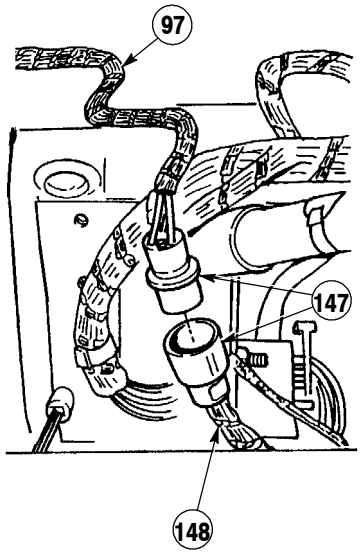
WARNING

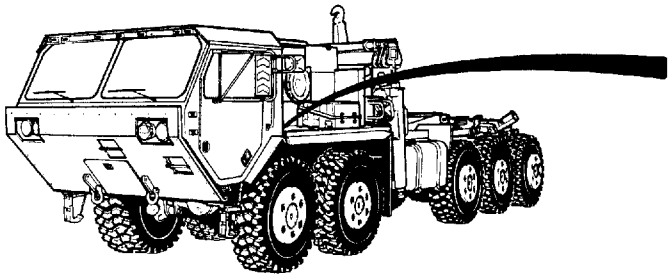
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

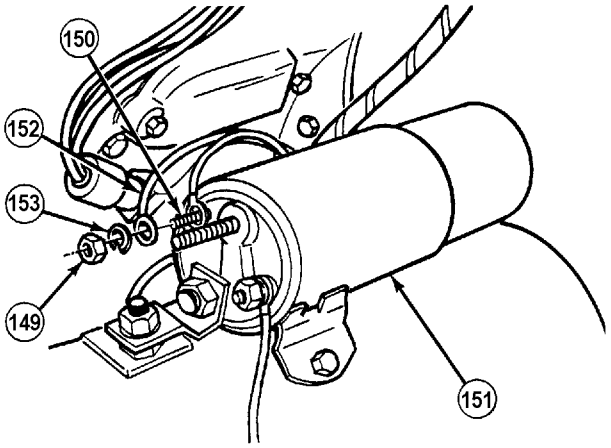
(86) Apply electrical sealant to two screws (144).

(87) Connect MC24 connector (147) on STE/ICE-R wire harness (97) and STE/ICE-R harness (148).









NOTE

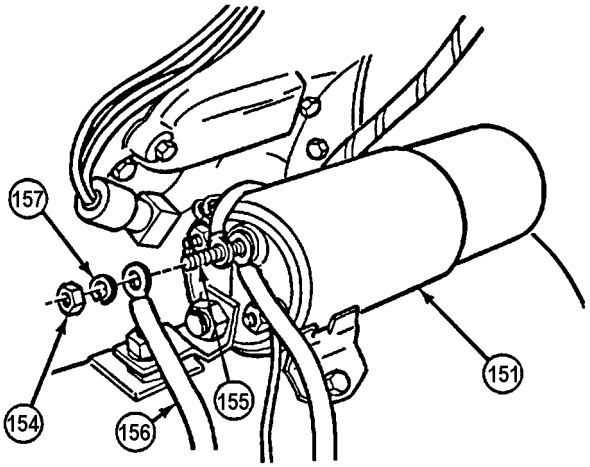
Wire 1045 and wire 1055 are part of 200 AMP polarity wire harness.

(88) Remove nut (149) from terminal (150) of starter solenoid (151).

(89) Install wire 1045 (152), lockwasher (153) and nut (149) on terminal (150).

(90) Remove nut (154) from terminal (155) of starter solenoid (151).

(91) Install wire 1055 (156), lockwasher (157) and nut (154) on terminal (155).

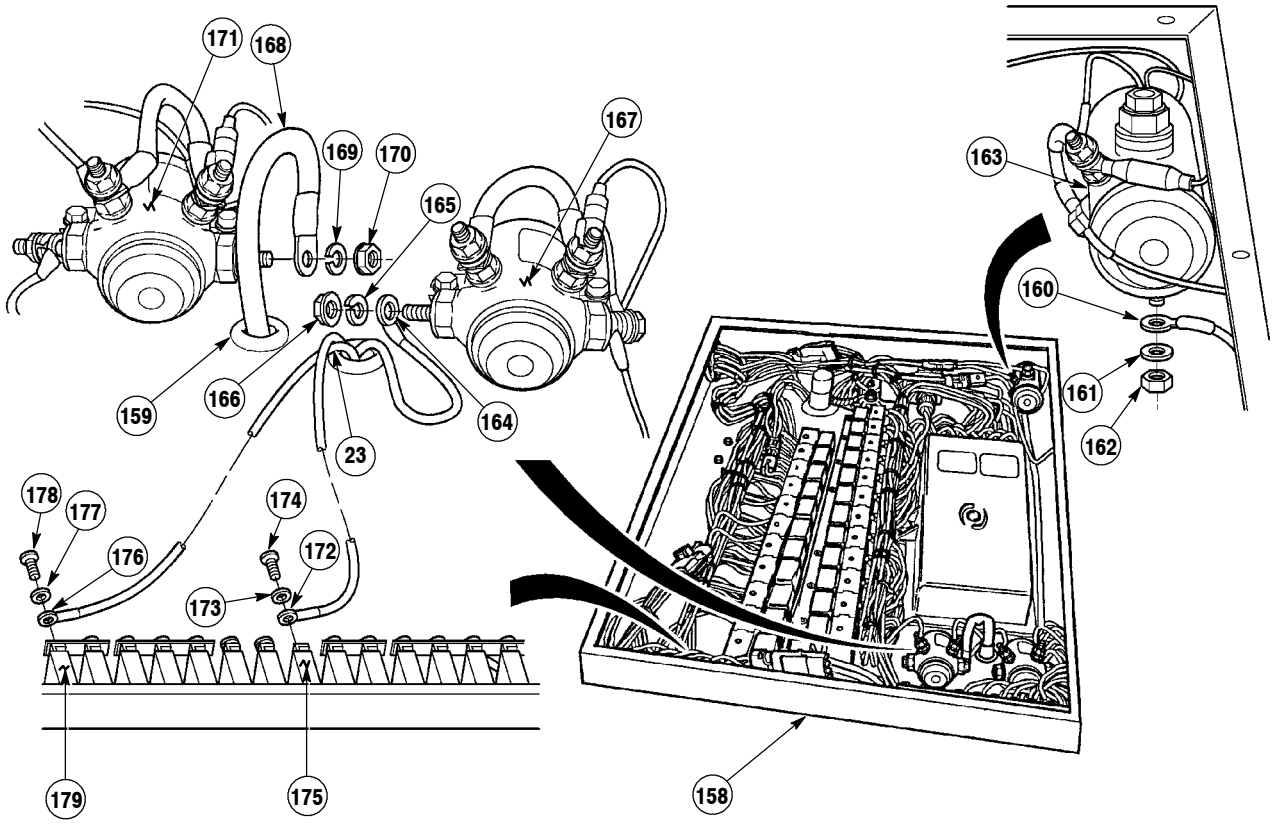


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(92) Apply electrical sealant to terminal (150) and (155).

18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).



NOTE

Wires in Steps (93) through (98) are part of 200 AMP polarity wire harness.

(93) Position 200 AMP polarity wire harness (23) in ECB (158) through grommets (159).

(94) Position wire 1075 (160), lockwasher (161) and nut (162) on solenoid (163). Tighten nut to 30 to 35 lb-in (3 to 4 N·m).

(95) Position wire 1281 (164), lockwasher (165), and nut (166) on solenoid (167). Tighten nut to 30 to 35 lb-in (3 to 4 N·m).

(96) Position wire 1430 (168), lockwasher (169) and nut (170) on solenoid (171). Tighten nut to 30 to 35 lb-in (3 to 4 N·m).

(97) Install wire 1866 (172), lockwasher (173) and screw (174) on circuit breaker CB12 (175).

(98) Install wire 1079 (176), lockwasher (177) and screw (178) on circuit breaker CB5 (179).

(99) Push two wires 240 (180) and (181) and two wires 241 (182) and (183) and MC14 connector (184) through grommet (185) on ECB (158).

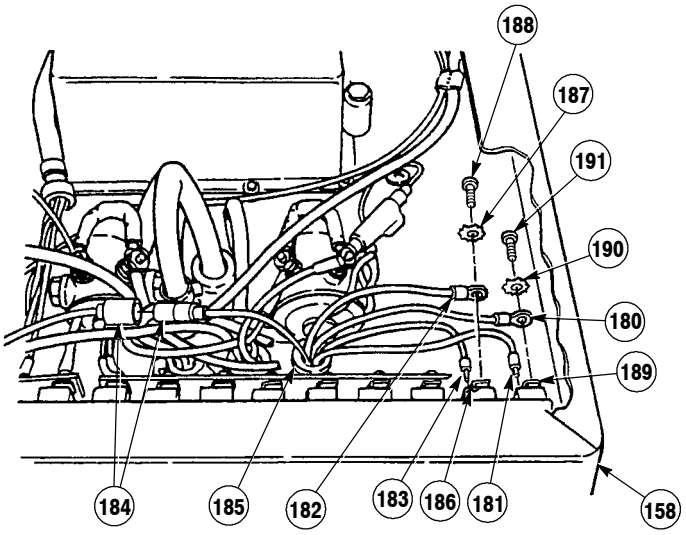
(100) Connect MC14 connector (184).

(101) Connect wire 241 (183) on circuit breaker CB22 (186).

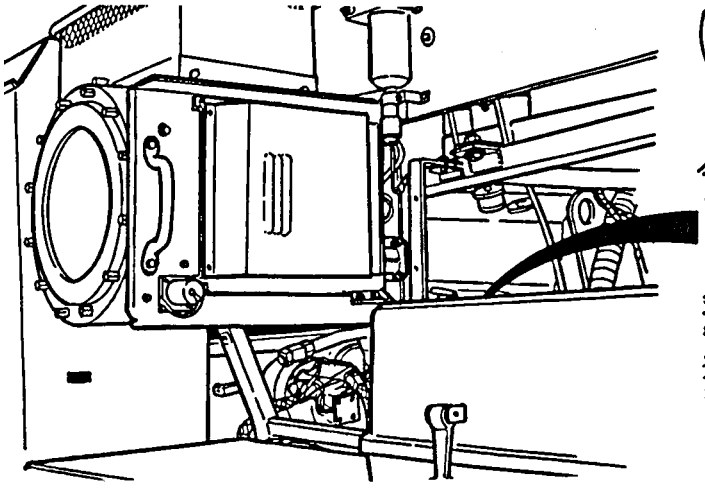
(102) Install wire 241 (182) on circuit breaker CB22 (186) with lockwasher (187) and screw (188).

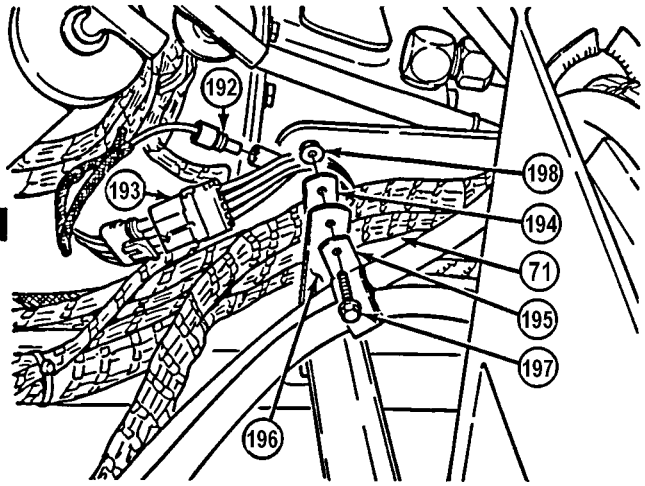
(103) Connect wire 240 (181) on circuit breaker CB23 (189).

(104) Install wire 240 (180) on circuit breaker CB23 (189) with lockwasher (190) and screw (191).



18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).





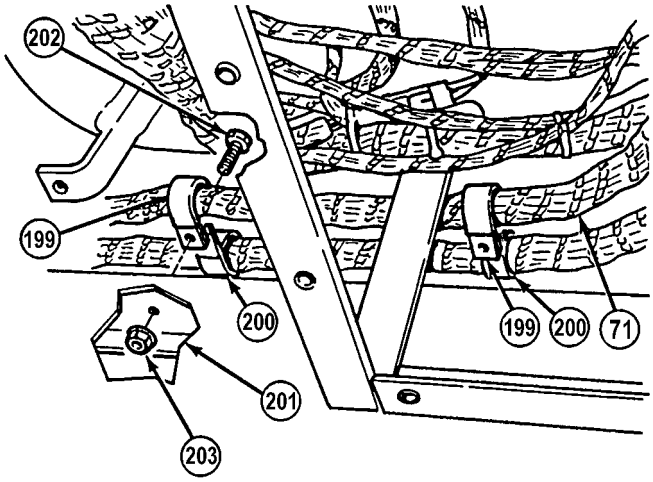
(105) Connect MC95 connector (192) and MC62 connector (193).

(106) Install cushion clip (194) on DDEC battery power wire harness (71).

(107) Install cushion clips (195) and (194) on bracket (196) with screw (197) and locknut (198).

(108) Install cushion clips (199) and (200) on DDEC battery power wire harness (71).

(109) Install cushion clips (199) and (200) on fender (201) with two screws (202) and locknuts (203).

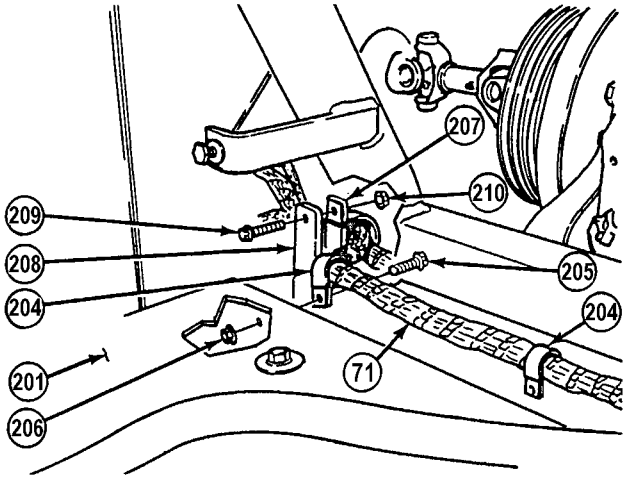


(110) Install two cushion clips (204) on DDEC battery power wire harness (71).

(111) Install two cushion clips (204) on fender (201) with two screws (205) and locknuts (206).

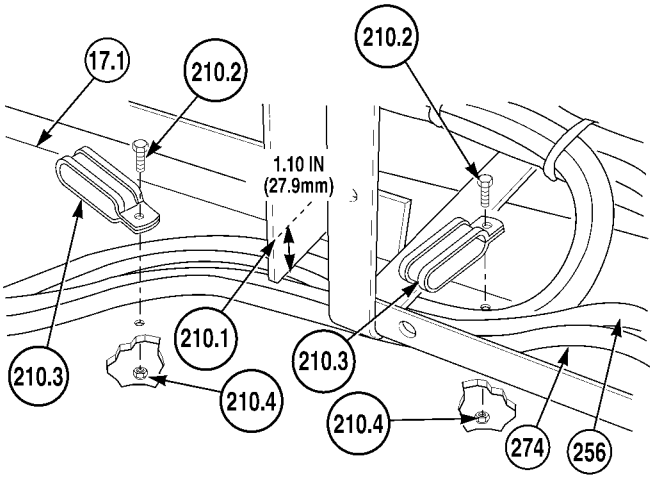
(112) Install cushion clip (207) on DDEC battery power wire harness (71).

(113) Install cushion clip (207) on bracket (208) with screw (209) and locknut (210).

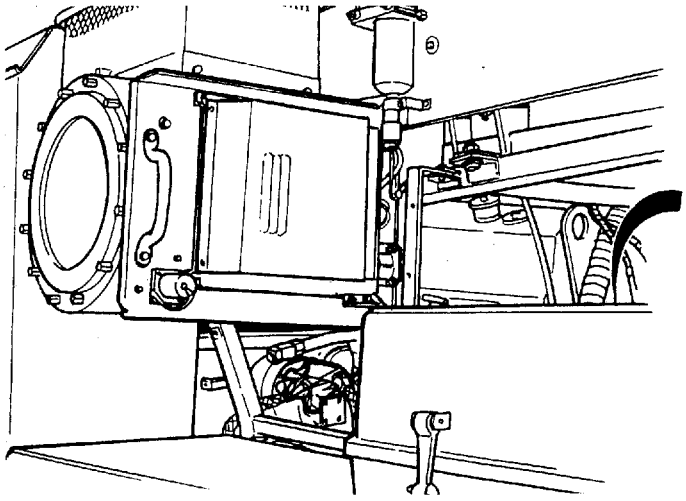


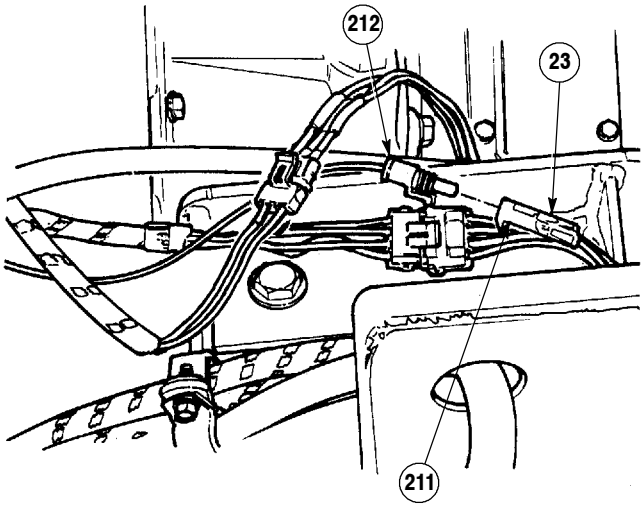
(113.1) Trim bottom of noise panel (210.1) 1.10 in (27.94 mm).

(113.2) Secure wires 1281A (58), 1274 (54), 1281A (274) and 1566 (256) to left fender (17.1) with two screws (210.2), clamps (210.3) and locknuts (210.4).

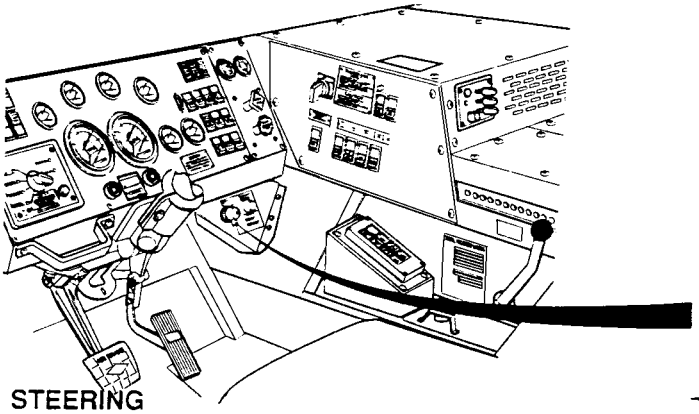


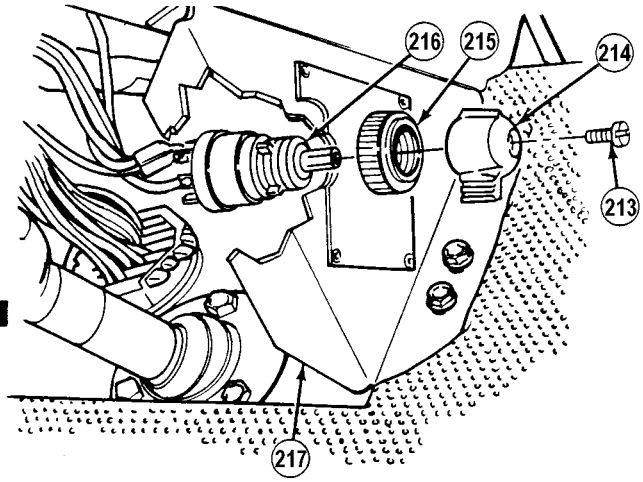
18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).





(114) Connect MC60 connector (211) of 200 AMP polarity wire harness (23) to MC60 connector of engine harness (212).





(115) Remove screw (213), lever (214) and nut (215) from engine switch (216).

(116) Remove engine switch (216) from instrument panel (217).

NOTE

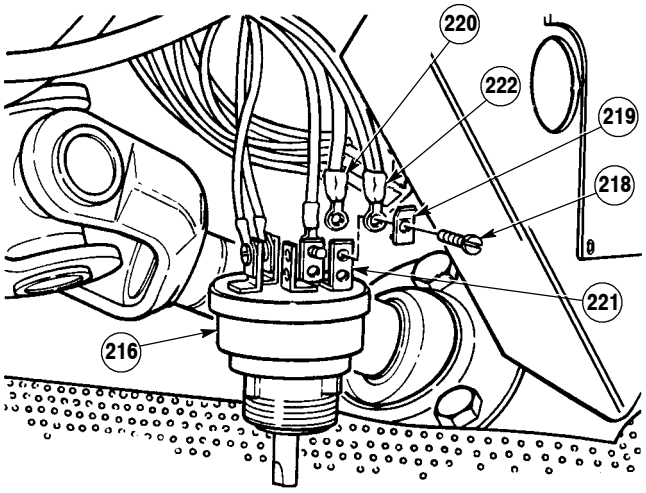
Wire 1431 removed in Step (117) was jumper wire removed from isolator in Step (6).

(117) Remove screw (218), washer (219) and wire 1431 (220) from BAT post (221) on engine switch (216). Discard wire 1431.

NOTE

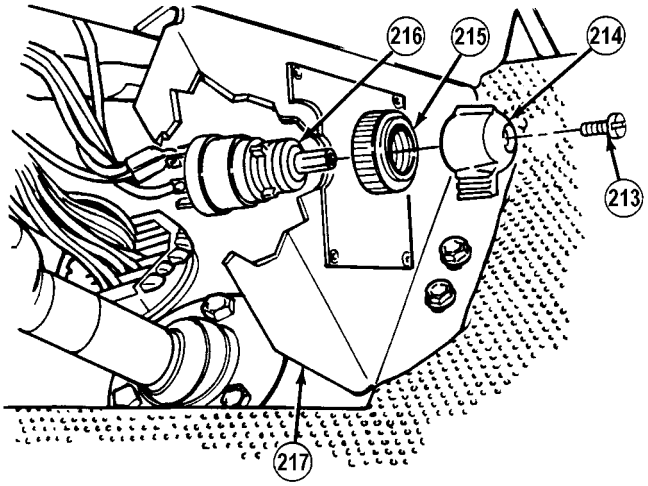
Wire 1431/1431 installed in Step (118) is from cab wire harness and was removed in Step (6).

(118) Install wire 1431/1431 (222), washer (219) and screw (218) on BAT post (221) on engine switch (216).

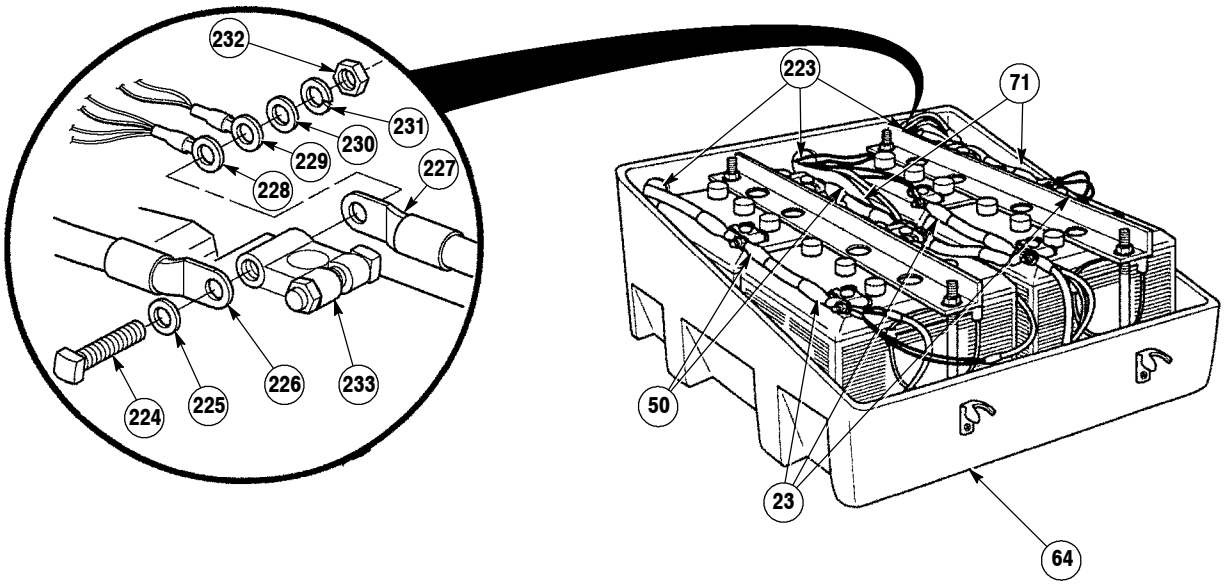


(119) Install engine switch (216) in instrument panel (217).

(120) Install nut (215), lever (214) and screw (213) on engine switch (216).



18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

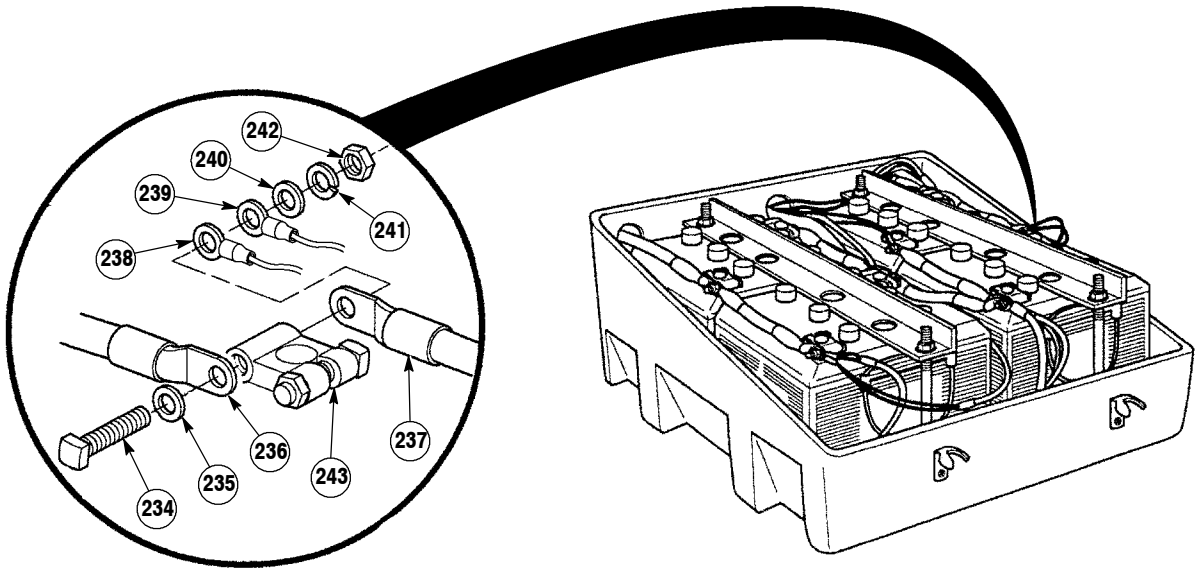
(121) Position 200 AMP polarity wire harness (23), DDEC battery power wire harness (71) and battery disconnect wire harness (50) through holes (223) of battery box (64).

(122) Position screw (224), washer (225), cable 1137 (226), cable 1138 (227), wires 208/209 (228), wires 150/150/151/953 (229), washer (230), lockwasher (231) and nut (232) on negative terminal (233).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(123) Tighten nut (232) to 12 to 16 lb-ft (16-22 N·m).



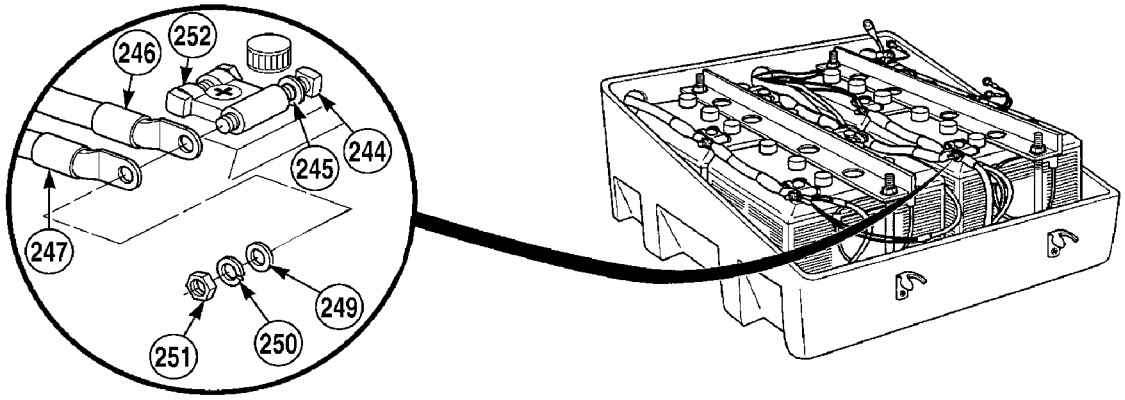
(124) Position screw (234), washer (235), cable 1137 (236), cable 1275 (237), wire 1821 (238), wire 1813 (239), washer (240), lockwasher (241) and nut (242) on negative terminal (243).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(125) Tighten nut (242) to 12 to 16 lb-ft (16 to 22 N·m).

18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).

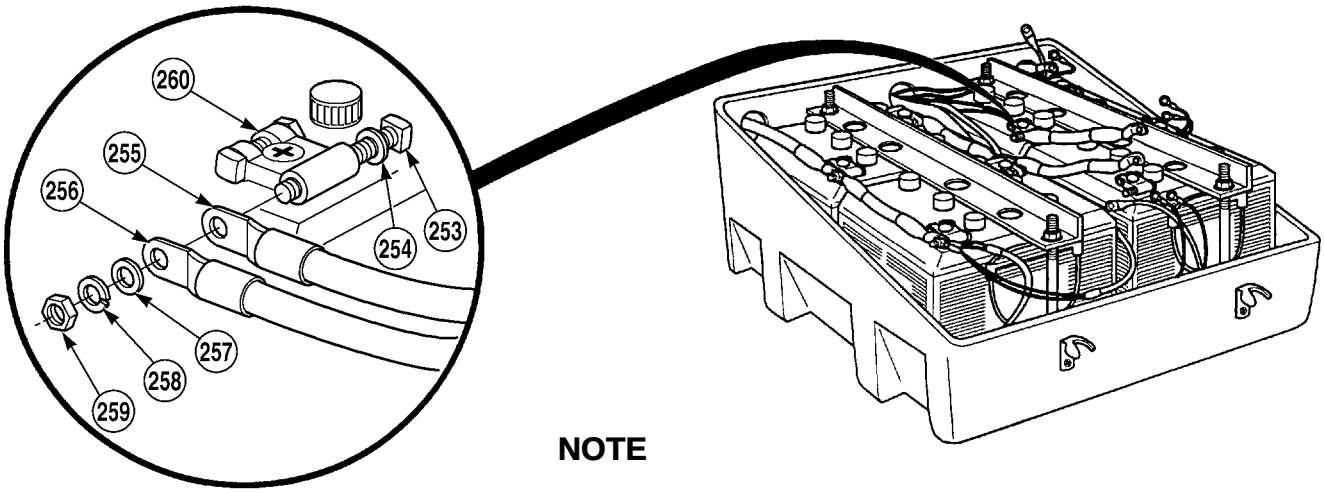


(126) Position screw (244), washer (245), cable 1137 (246), cable 1137 (247), washer (249), lockwasher (250) and nut (251) on positive terminal (252).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(127) Tighten nut (251) to 12 to 16 lb-ft (16-22 N·m).



NOTE

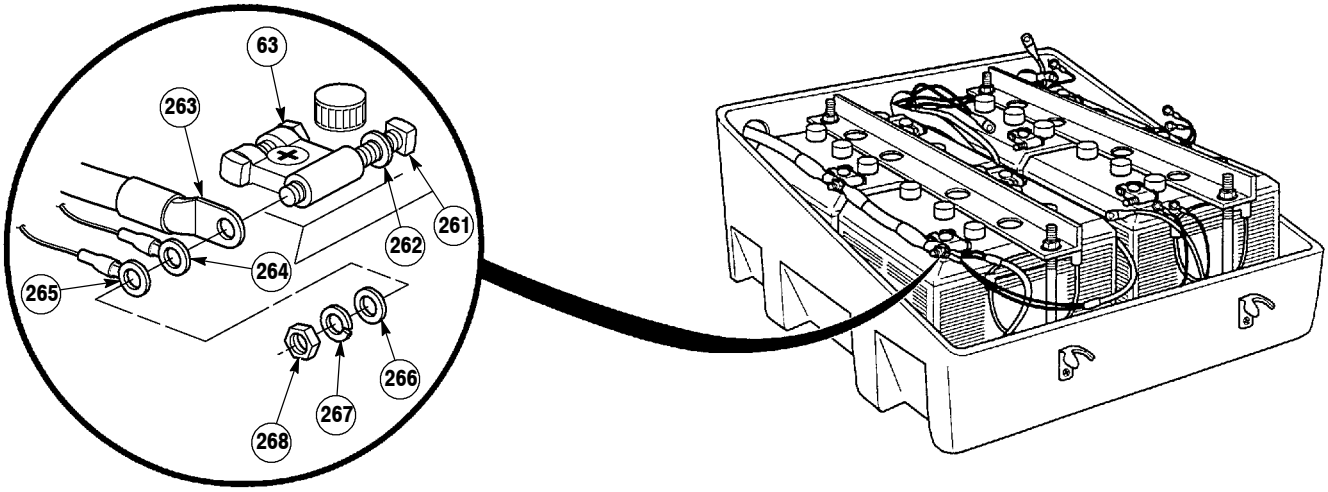
If installing battery quick disconnect, cable 1566 will not be installed in Step (128).

(128) Position screw (253), washer (254), cable 1137 (255), cable 1566 (256), washer (257), lockwasher (258) and nut (259) on positive terminal (260).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(129) Tighten nut (259) to 12 to 16 lb-ft (16-22 N·m).



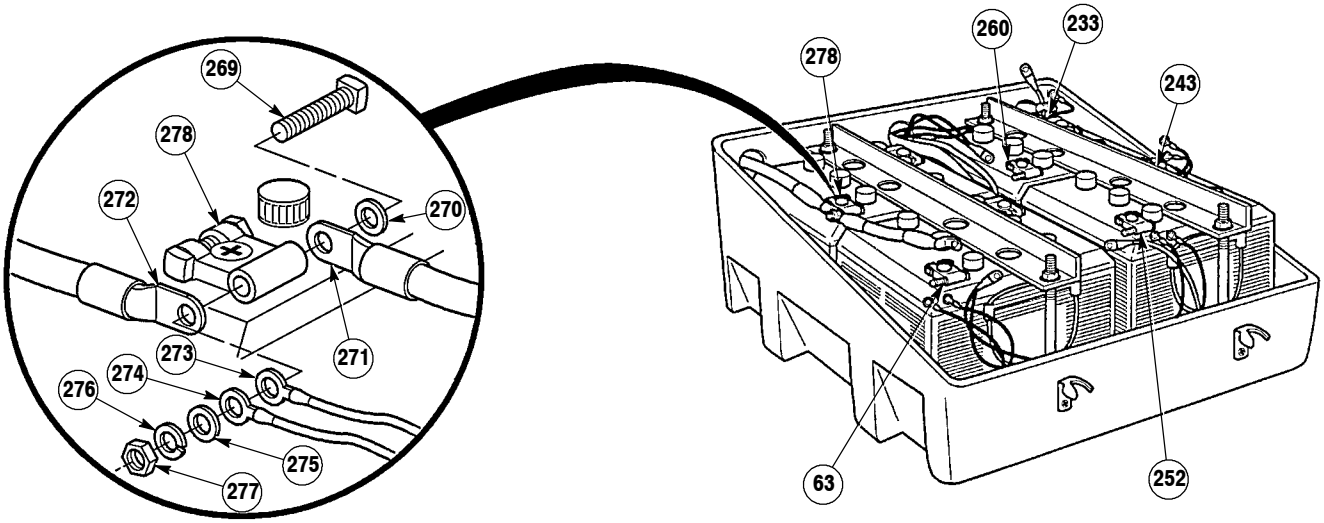
(130) Position screw (261), washer (262), cable 1137 (263), wire 1822 (264), wire 1814 (265), washer (266), lockwasher (267) and nut (268) on positive terminal (63).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(131) Tighten nut (268) to 12 to 16 lb-ft (16-22 N·m).

18-3. ALTERNATOR KIT (200 AMP) AND BATTERY DISCONNECT SWITCH KIT INSTALLATION (CONT).



(132) Position screw (269), washer (270), cable 1137 (271), cable 1139 (272), cable 1281A (273), cable 1281A (274), washer (275), lockwasher (276) and nut (277) on positive terminal (278).

CAUTION

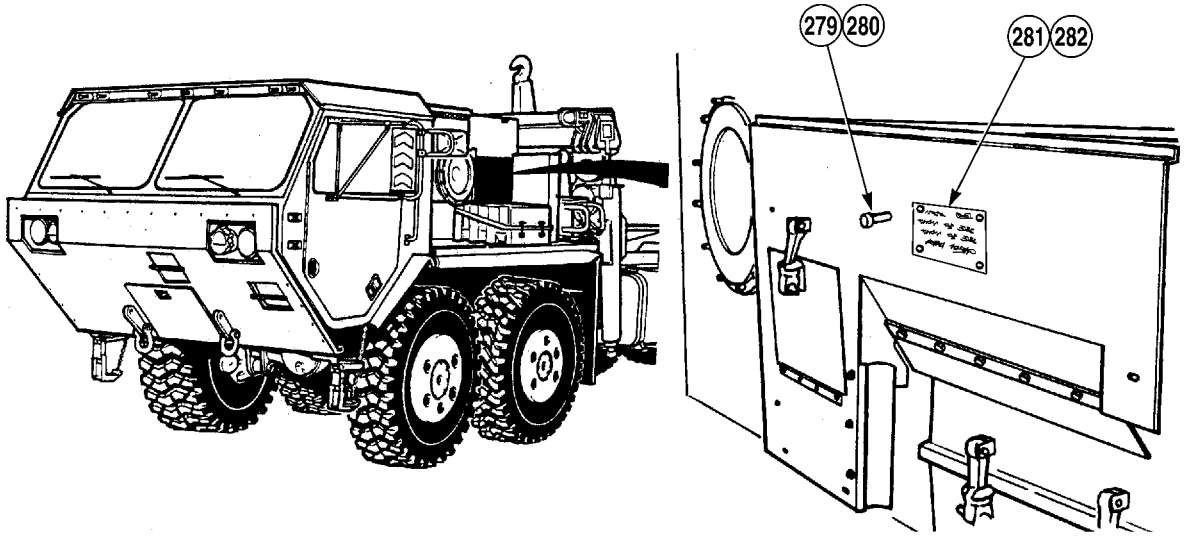
While applying torque to nut, hold screw with wrench or damage to battery may occur.

(133) Tighten nut (277) to 12 to 16 lb-ft (16-22 N·m).

WARNING

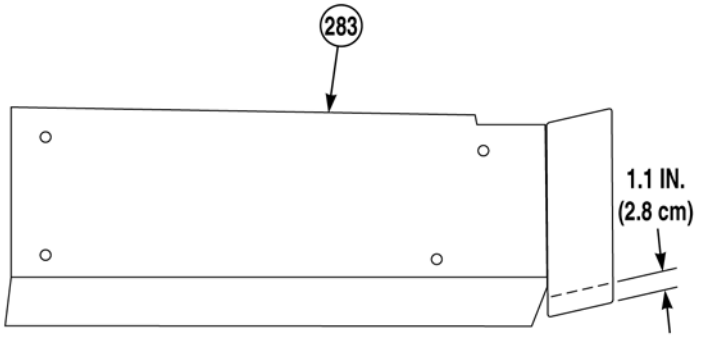
Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water at least 15 minutes and get immediate medical attention.

(134) Apply corrosion preventative compound to battery terminals (233), (243), (252), (260), (63) and (278).



(135) Remove four rivets (279) and data plate (280). Discard rivets and data plate.

(136) Install data plate (281) and four rivets (282).



(137) Cut 1.1 in. (2.8 cm) of material from bottom edge of left front noise panel (283) as shown.

b. Follow-On Maintenance:

- Deleted.
- Install cab engine access panel, (TM 9-2320-364-20).
- Install Electronic Control Box (ECB) cover, (TM 9-2320-364-20).
- Install left front and rear fender skirt, (TM 9-2320-364-20).
- Install left front noise panel, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-4. SINCGARS RADIO KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Tape, Electrical (Item 74, Appendix B)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Right side noise panel removed,
(TM 9-2320-364-20)

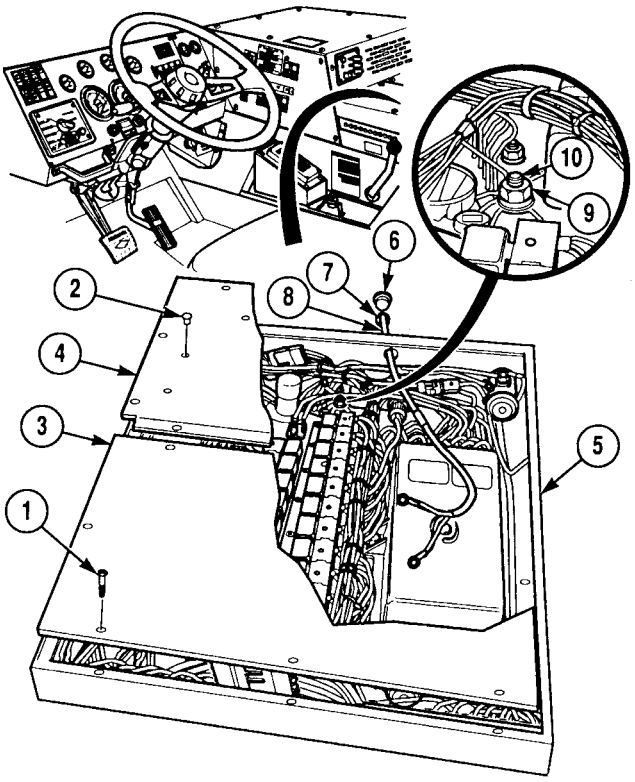
a. Installation.

WARNING

Always disconnect battery ground cable or power source before working on electrical components or injury to personnel may result. Discharge capacitors as noted. If personnel receive an electrical shock, get immediate medical attention.

NOTE

Retain removed plugs for future use.



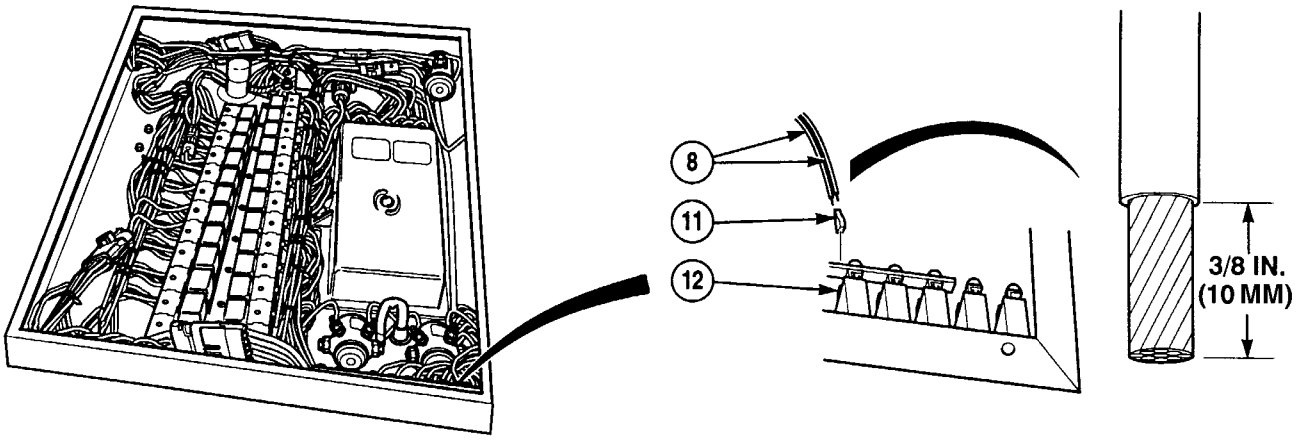
(1) Remove 15 screws (1), five plugs (2), left cover (3) and right cover (4) from Electronic Control Box (ECB) (5).

(2) Remove plug (6) from ECB (5).

(3) Install grommet (7) in right side of ECB (5) and position harness (8) through grommet (7) into ECB (5).

(4) Remove locknut (9) from stud (10). Discard locknut.

(5) Install wire harness (8) on stud (10) with locknut (9).



(6) Cut eyelet from wire harness (8) red wires, strip back insulation 3/8 in. (10 mm) and install connector (11). Discard eyelet.

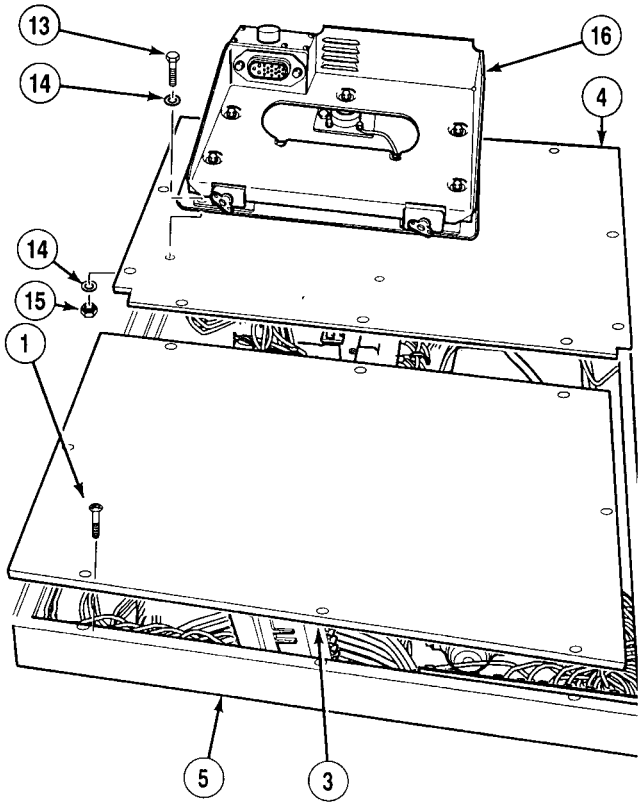
(7) Install connector (11) on circuit breaker CB19 (12).

(8) Install five screws (13), ten lockwashers (14), five nuts (15) and mounting base (16) on right cover (4).

NOTE

Leave right rear two screws holes open.

(9) Install right ECB cover (4), left ECB cover (3) with 15 screws (1) on ECB (5).

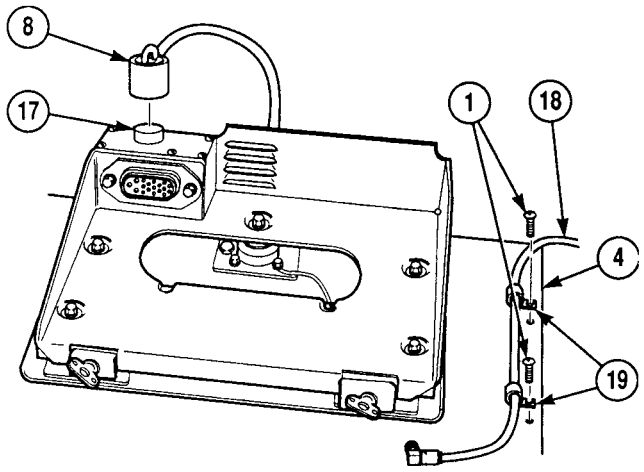


18-4. SINCGARS RADIO KIT INSTALLATION (CONT).

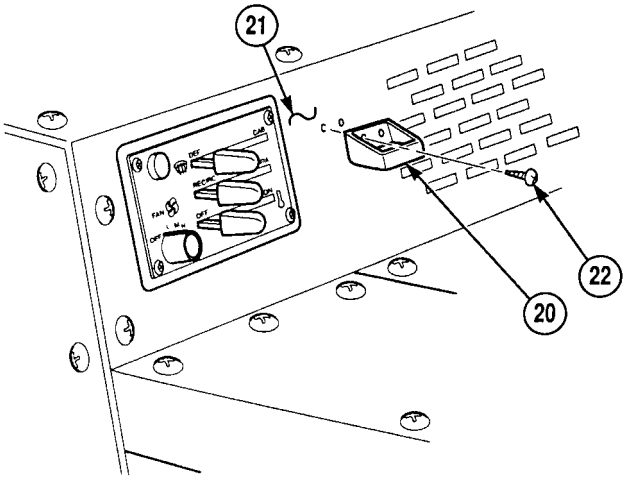
(10) Install remaining end of wire harness (8) on receptacle J1 (17).

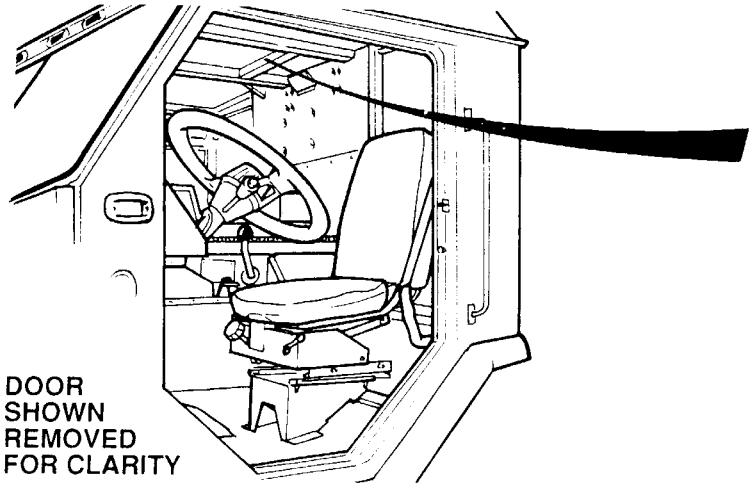
(11) Position radio end of antenna cable (18) in two clamps (19).

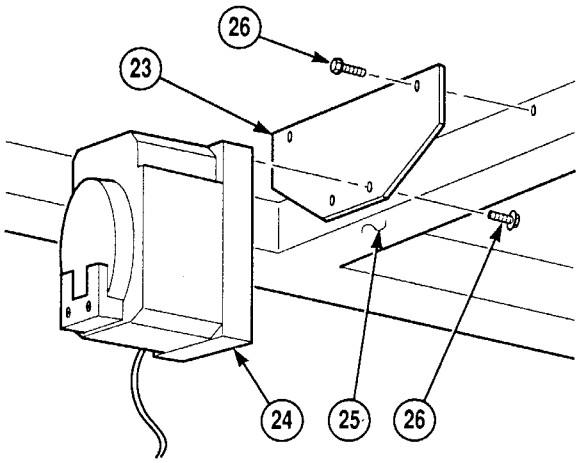
(12) Install two clamps (19) on right cover (4) with screws (1), leaving 18 in. (46 cm) of cable (18) on radio side of clamps.



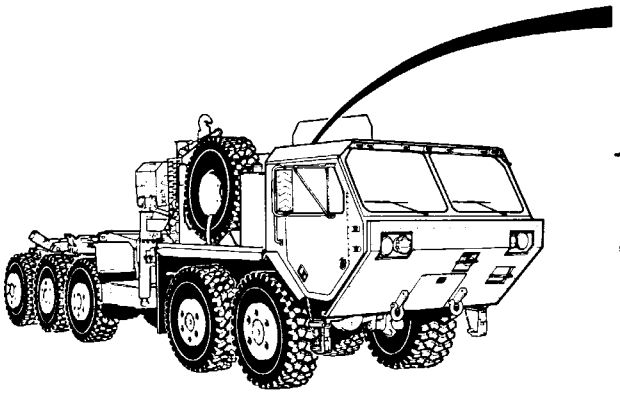
(13) Install bracket (20) in holes on heater control panel (21) with two screws (22).

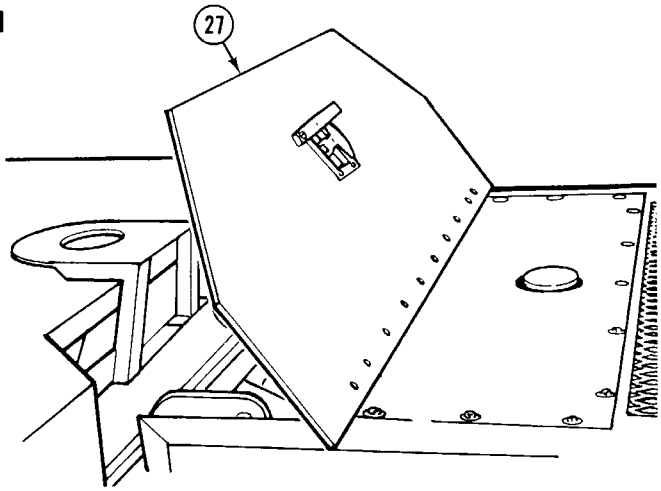




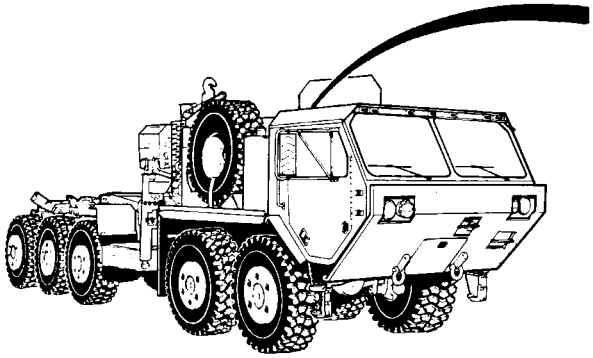


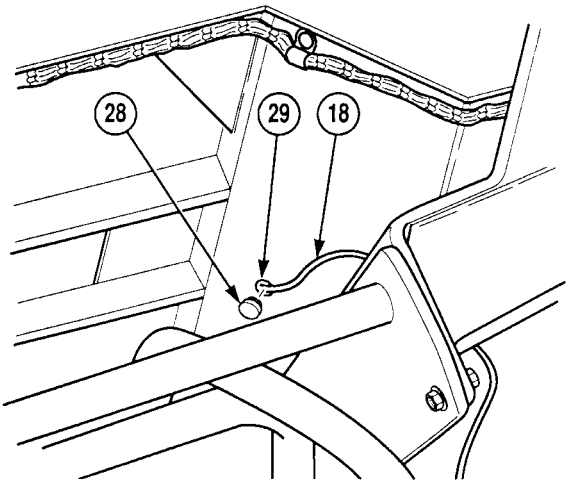
(14) Install bracket (23) and speaker (24) on cab (25) with four screws (26).





(15) Open engine access cover (27).





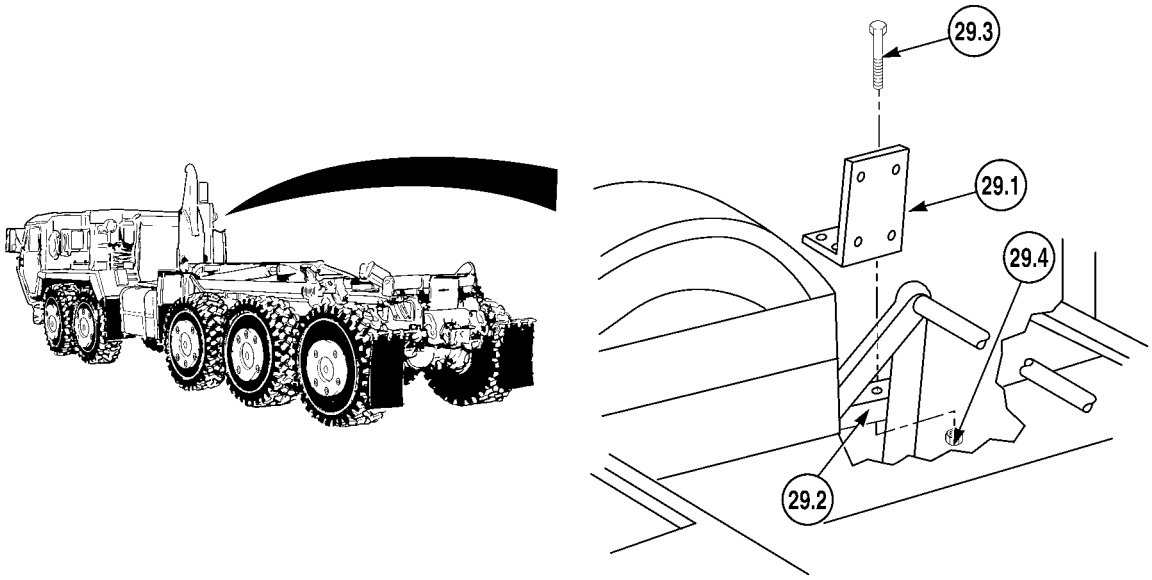
NOTE

Retain cab plug for future use.

(16) Remove plug (28) and insert screwdriver through antenna hole (29) and insulation to determine where antenna hole (29) is from inside cab.

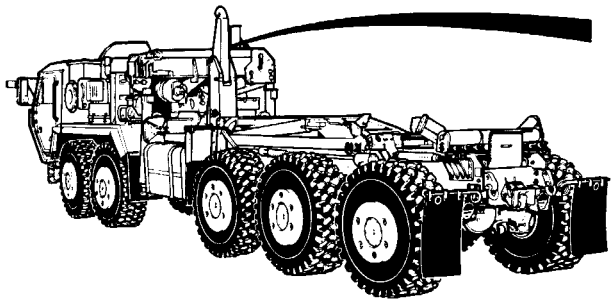
(17) Cut cab insulation only enough to thread antenna cable (18) through hole (29).

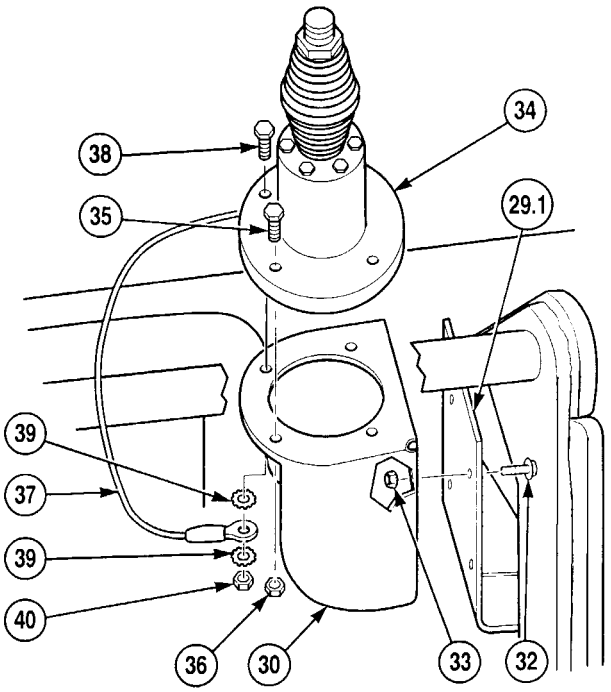
(18) With the aid of an assistant, push antenna cable (18) through hole (29) and out of cab.



(18.1) Install bracket (29.1) on bracket (29.2) with two screws (29.3) and locknuts (29.4).

18-4. SINCGARS RADIO KIT INSTALLATION (CONT).





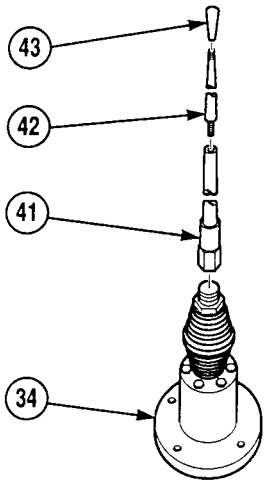
(19) Install support (30), in lowest position, on bracket (29.1) with four screws (32) and locknuts (33).

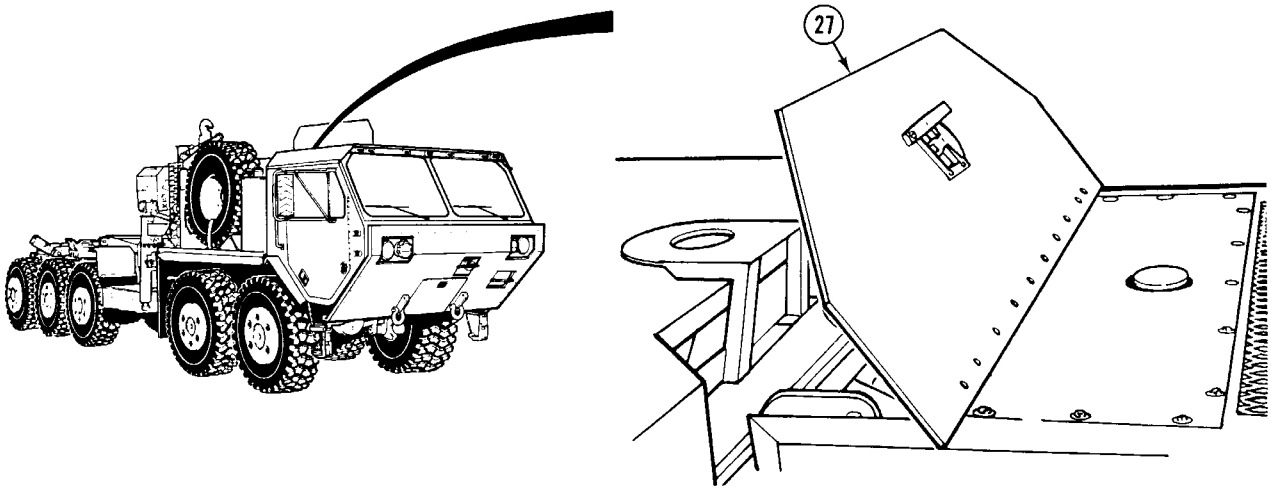
(20) Install antenna base (34) on support assembly (30) with three screws (35) and locknuts (36).

(21) Install ground wire (37) on antenna base (34) and support assembly (30) with screw (38), two lockwashers (39) and nut (40).

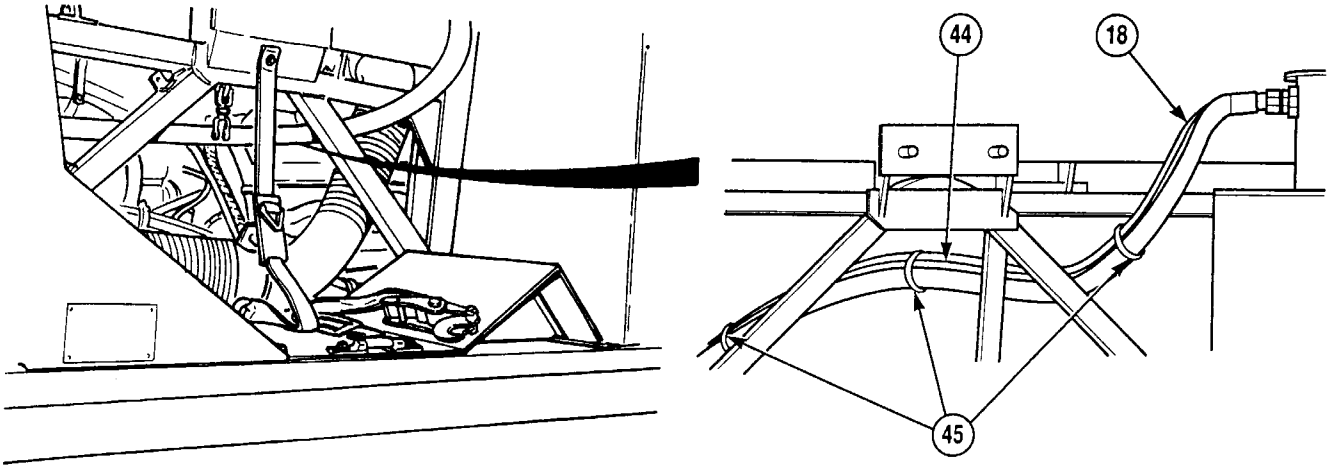
(22) Install antenna (41), antenna extension (42) and tip (43) on antenna base (34).

(23) Wrap tip (43) and top 6.0 in. (152.4 mm) of extension (42) with electrical tape to prevent tip from coming off.





(24) Close engine access cover (27).



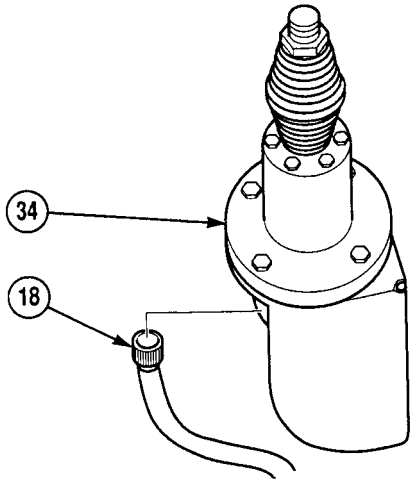
NOTE

- Ensure antenna cable cannot swing or shift into hot exhaust.
- Install cable ties as required.

(25) Install antenna cable (18) on hydraulic hoses (44) using cable ties (45).

18-4. SINCGARS RADIO KIT INSTALLATION (CONT).

(26) Install antenna cable (18) connector on antenna base (34).



b. Follow-On Maintenance:

- Install right side noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-5. MACHINE GUN KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

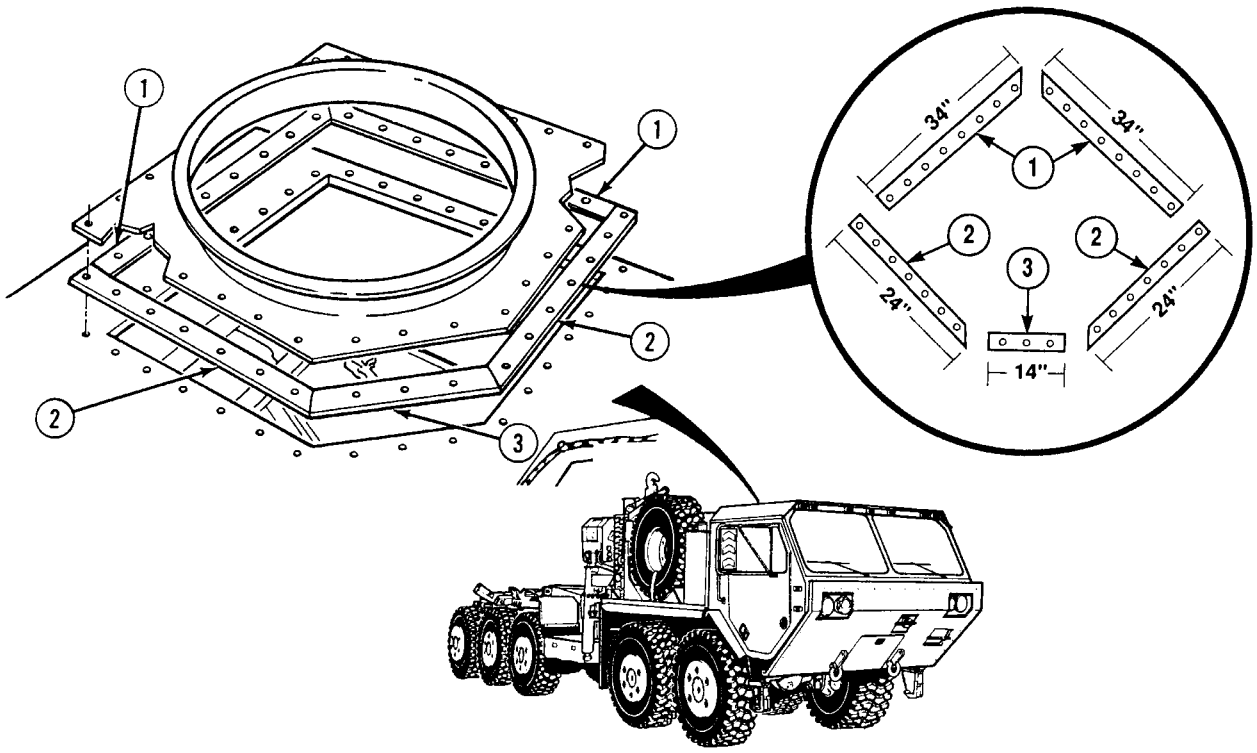
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 350 lbs
(159 kg)

Materials/Parts
Adhesive (Item 1, Appendix B)
Sealing Compound (Item 54, Appendix B)

Personnel Required
Two

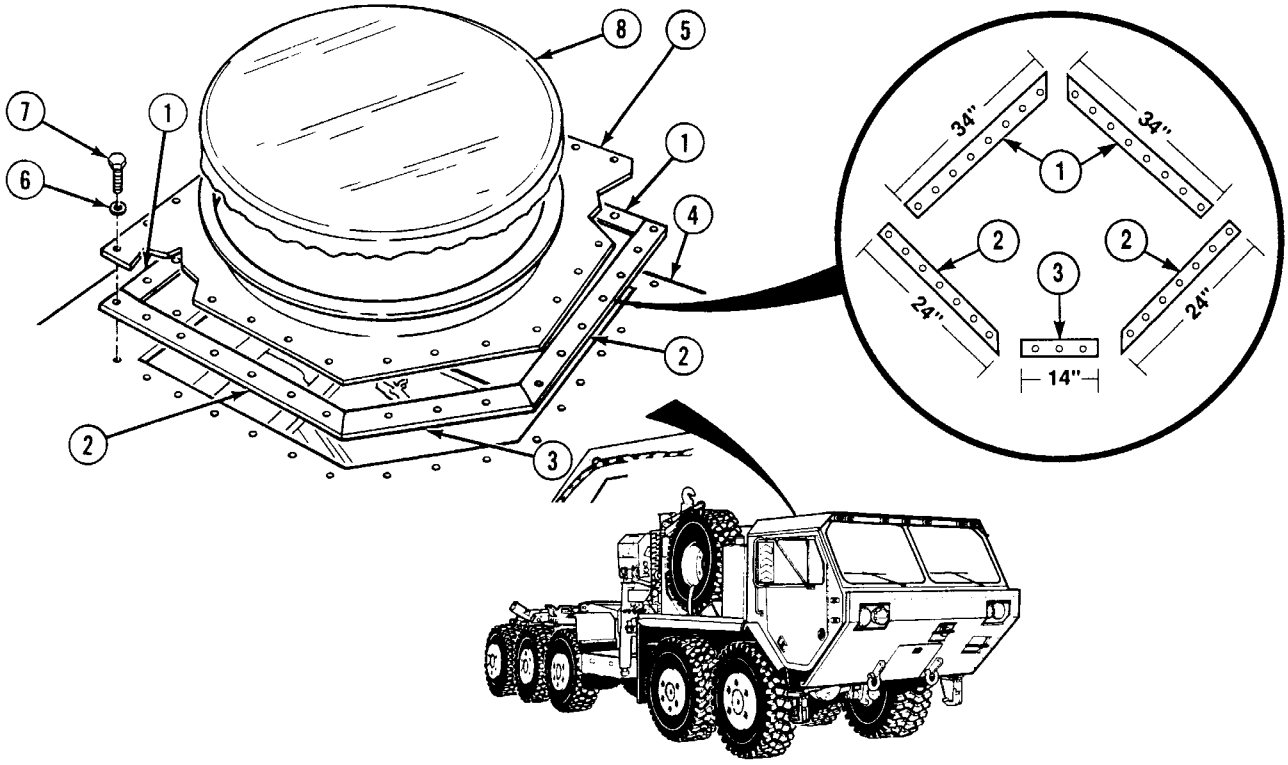
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Right roof cover plate removed,
(TM 9-2320-364-20)
Heater access panel removed,
(TM 9-2320-364-20)
ECB cover removed, (TM 9-2320-364-20)

a. Installation.



(1) Cut gasket strips (1), (2), and (3) to correct lengths shown.

18-5. MACHINE GUN KIT INSTALLATION (CONT).



(2) Apply adhesive to gasket strips (1), (2) and (3).

(3) Install gasket strips (1), (2) and (3) on roof (4).

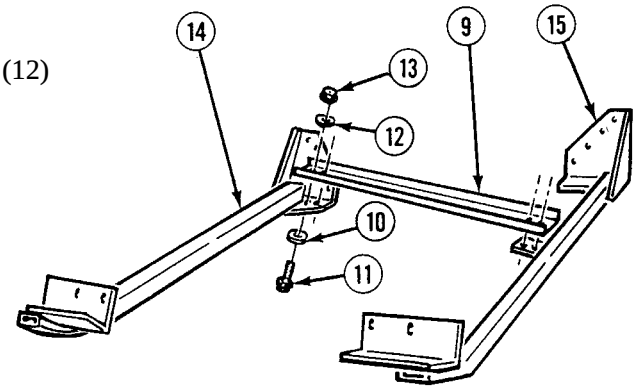
(4) Position hatch ring assembly (5) on roof (4).

(5) Punch 34 holes in five gasket strips (1), (2) and (3) using hatch ring assembly (5) as template.

(6) Install 34 sealing washers (6) and self-tapping screws (7) in hatch ring assembly (5).

(7) Install hatch cover (8) on hatch ring assembly (5).

(8) Install front support channel (9), four washers (10), screws (11), lockwashers (12) and nuts (13) on bracket (14) and front support (15).



WARNING

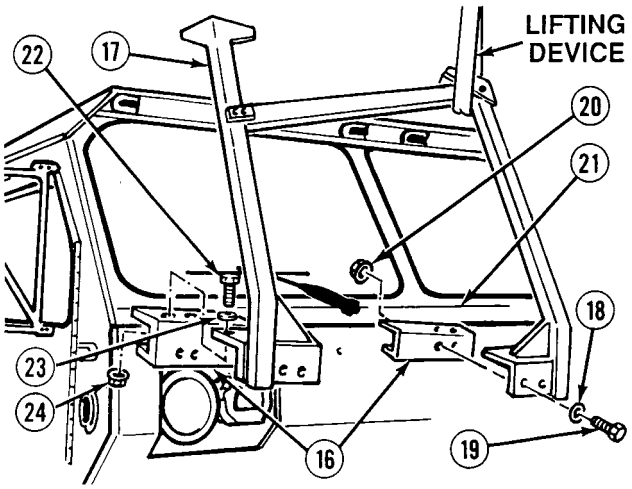
Machine gun ring front support weighs 55 lbs (25 kg). Attach suitable lifting device prior to installation to prevent injury to personnel.

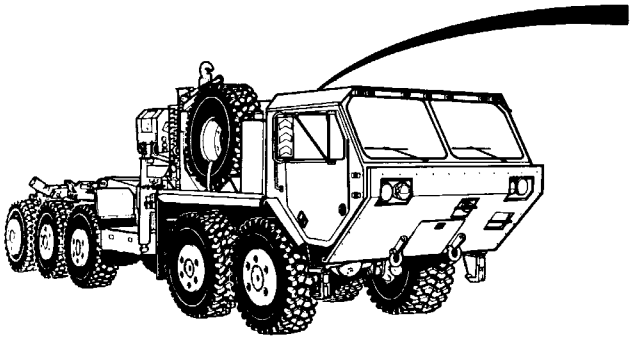
(9) With the aid of an assistant, position two spacers (16), front support (17), four washers (18), screws (19) and locknuts (20) on skid plate (21).

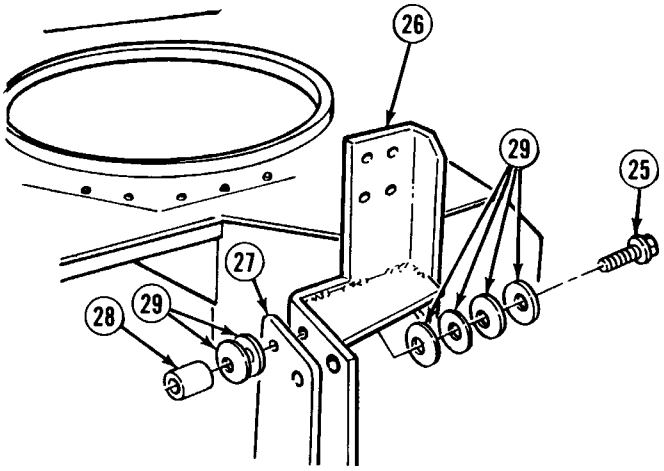
(10) Position four screws (22), washers (23) and locknuts (24) on front support (17).

(11) Tighten four locknuts (20) on skid plate (21).

(12) Tighten four locknuts (24) on front support (17).







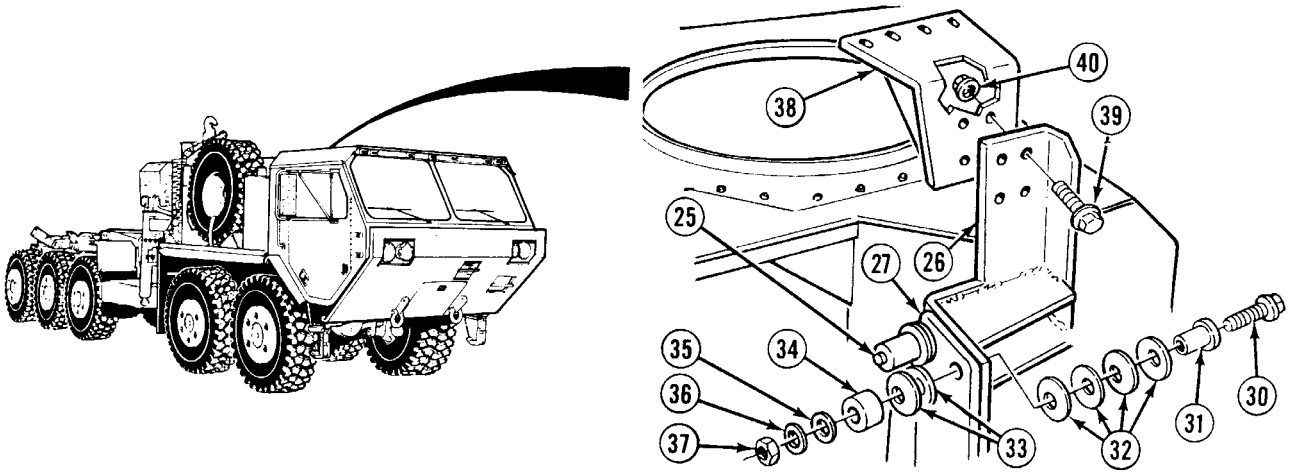
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(13) Apply sealing compound on threads of screw (25).

(14) Position rear support (26) on power module right frame (27) using spacer (28), six washers (29) and screw (25).

18-5. MACHINE GUN KIT INSTALLATION (CONT).



WARNING

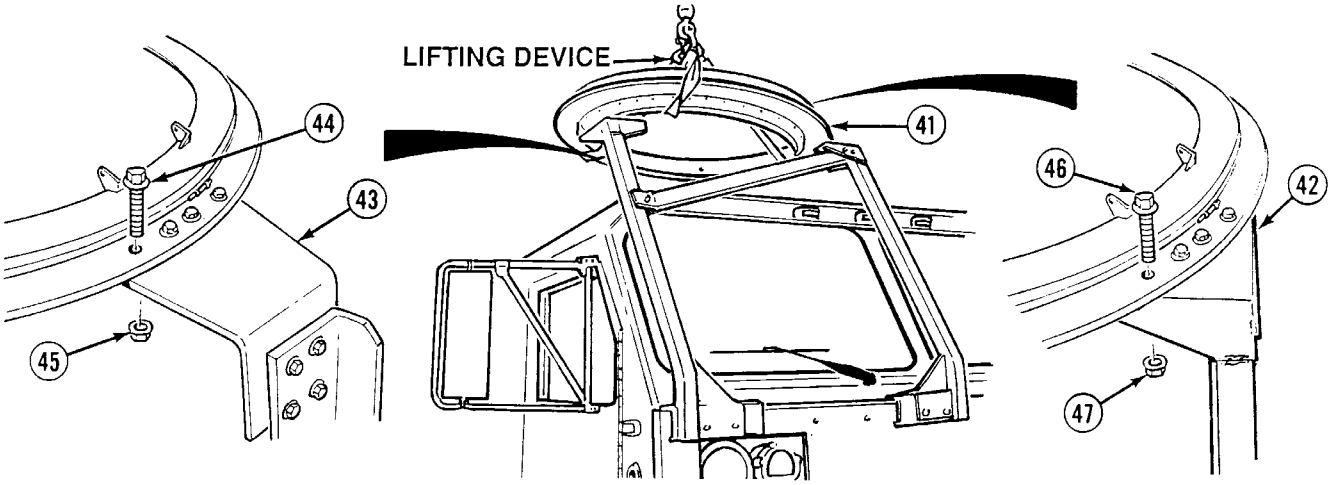
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(15) Apply sealing compound on threads of screw (30).

(16) Install four washers (31), sleeve (32), screw (30), washers (33), spacer (34), washer (35), lockwasher (36) and nut (37) on power module right frame (27). Tighten nut to 170 lb-ft (231 N·m).

(17) Tighten screw (25) to 128 lb-ft (174 N·m) on rear support (26).

(18) Install bracket (38) on rear support (26) with four screws (39) and locknuts (40).



WARNING

Machine gun ring weighs 295 lbs (134 kg). Attach suitable lifting device prior to installation to prevent injury to personnel.

(19) Attach lifting device to machine gun ring (41).

(20) With the aid of an assistant, position machine gun ring (41) on front and rear supports (42) and (43).

(21) Position four screws (44) and locknuts (45) on rear support (43).

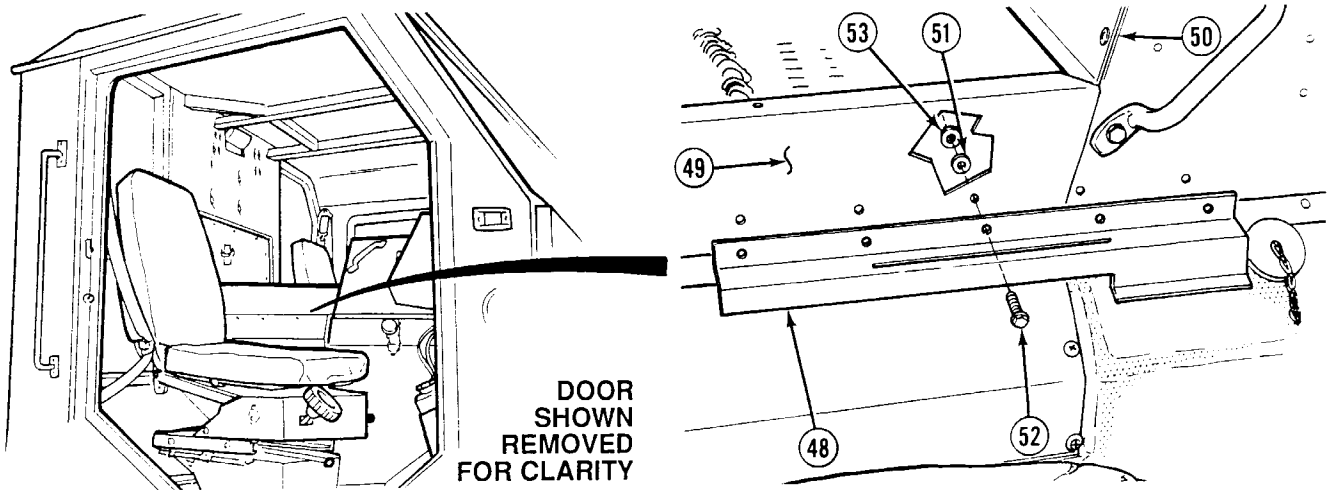
(22) Position eight screws (46) and locknuts (47) on front support (42).

(23) Tighten four locknuts (45) on rear support (43).

(24) Tighten eight locknuts (47) on front support (42).

(25) Remove lifting device from machine gun ring (41).

18-5. MACHINE GUN KIT INSTALLATION (CONT).



(26) Install platform bracket (48) on ECB (49) and heater panel (50) with five washers (51), screws (52) and locknuts (53).

(27) Remove screw (54) from CTIS manifold (55).

(28) Install bracket (56) to CTIS manifold (55) with screw (54).

NOTE

Tab on platform assembly fits in slot in platform bracket.

(29) Release leg assembly (57) from spring clip (58).

NOTE

Platform may be assembled.

(30) Position platform assembly (59) on platform bracket (48).

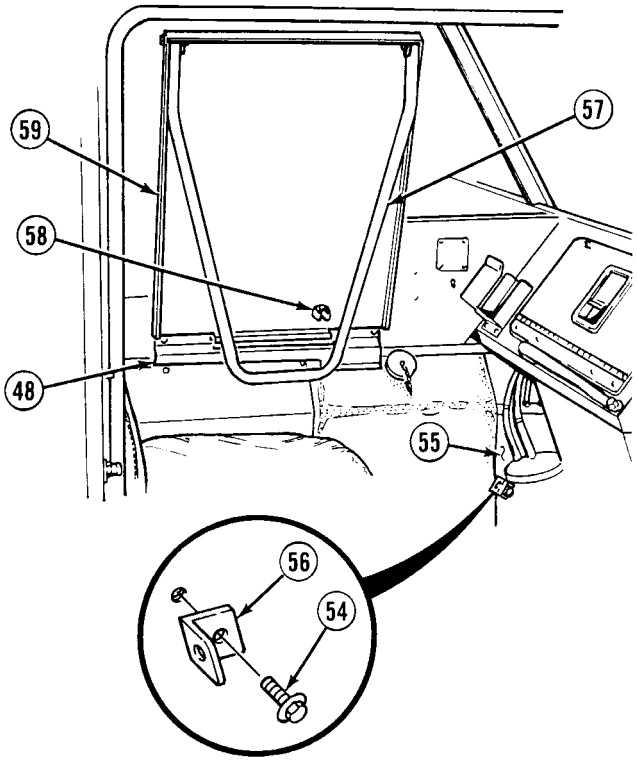
(31) Extend leg assembly (57) out from platform assembly (59).

(32) Lower platform assembly (59) to floor.

(33) Remove platform assembly (59) from platform bracket (48).

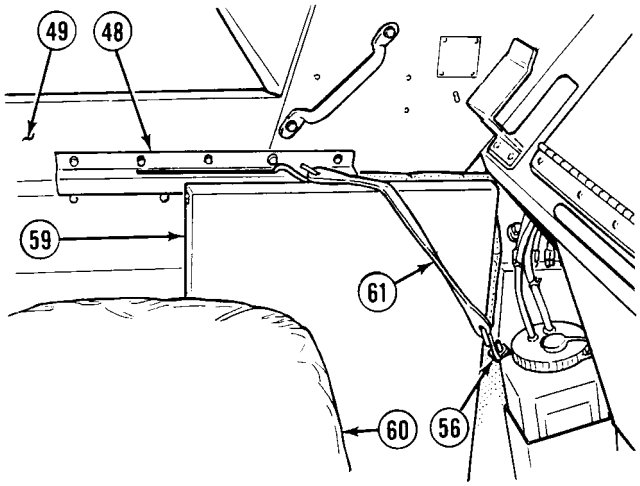
(34) Fold leg assembly (57) against platform assembly (59).

(35) Install leg assembly (57) in spring clip (58).



(36) Position platform assembly (59) between seat (60) and electrical control box (49).

(37) Hook strap (61) to bracket (56) and platform bracket (48) to secure platform assembly (59).



b. Follow-On Maintenance:

- Install Electronic Control Box (ECB) cover, (TM 9-2320-364-20).
- Install heater access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-6. AUXILIARY FUEL TANK KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Hammer, Soft Faced (Item 88, Appx F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

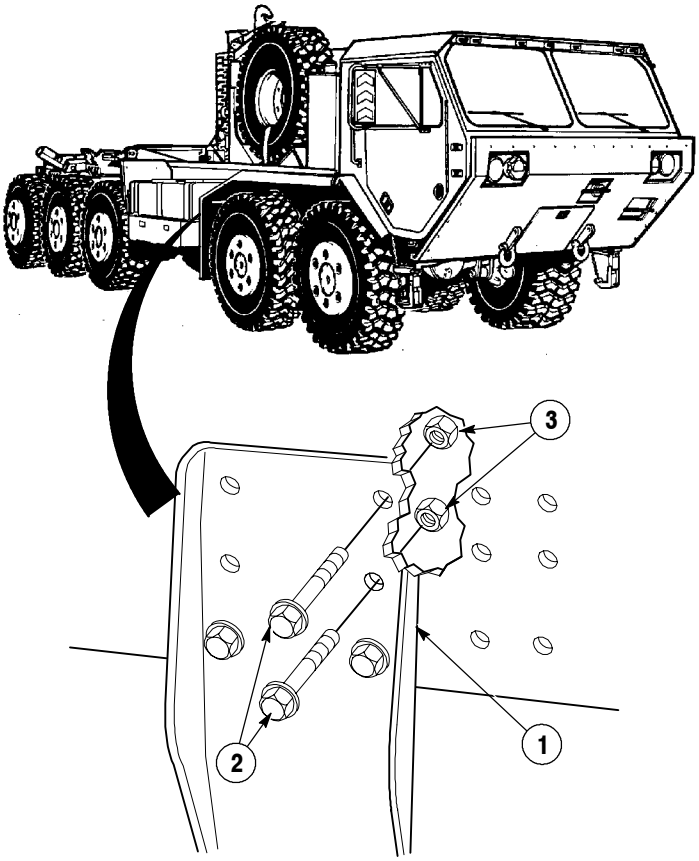
Materials/Parts
Adhesive (Item 1, Appendix B)
Lubricant, Tire (Item 31, Appx B)
Sealing Compound (Item 54, Appendix B)
Locknut (4) (Item 166, Appx E)
Locknut (2) (Item 176, Appx E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
LHS extended, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Main fuel tank drained,
(TM 9-2320-364-20)
Decontamination Kit Bracket removed,
(TM 9-2320-364-20)
Stowage Box and Brackets removed,
(TM 9-2320-364-20)

NOTE

- Vehicle can not be equipped with winch or crane.
- Auxiliary fuel tank kits can not be installed on truck with a material handling crane or self-recovery winch.



a. Installation.

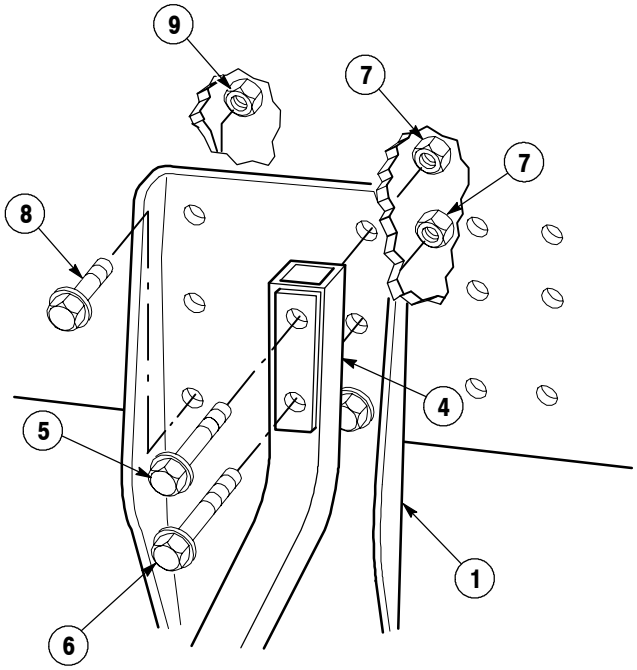
(1) With the aid of an assistant, support crossmember bracket (1) and remove two screws (2) and locknuts (3). Discard screws and locknuts.

NOTE

Rear stowage box bracket in Step (2) was removed in Equipment Conditions.

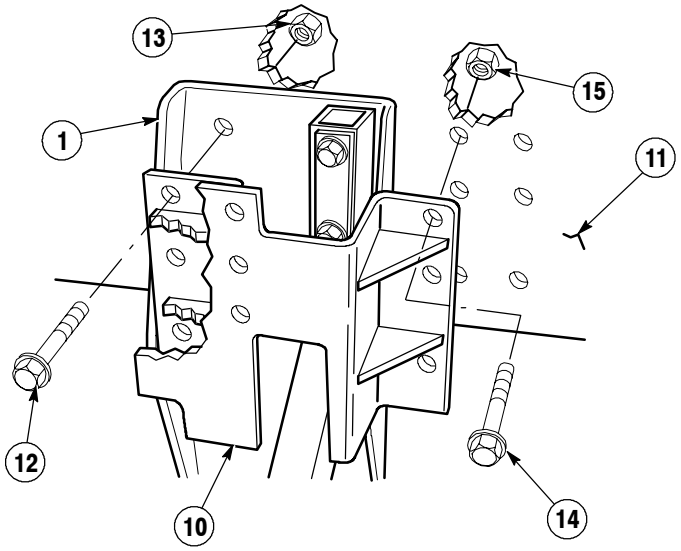
(2) Install rear stowage box bracket (4), screw (5), screw (6) and two locknuts (7) to crossmember bracket (1).

(3) Remove screw (8) and locknut (9) from crossmember bracket (1). Discard screw and locknut.



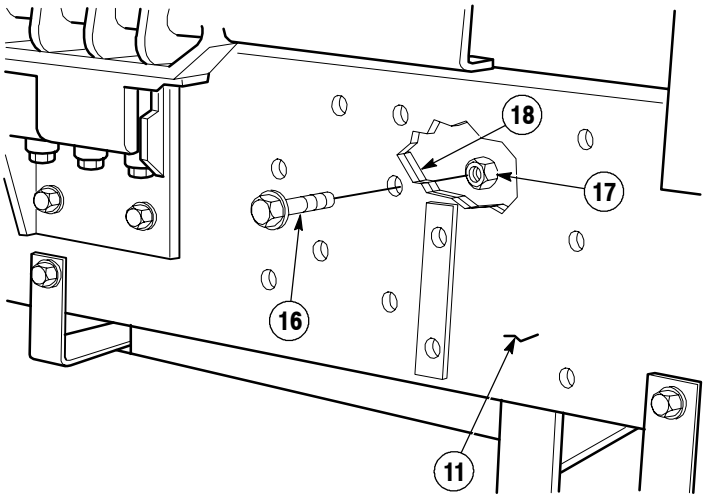
(4) Position rear fuel tank bracket (10) on frame (11) and crossmember bracket (1), with three 2.25 in. (5.715 cm) screws (12), locknuts (13), 2 in. (5.08 cm) screws (14) and locknuts (15).

(5) Tighten locknuts (13) to 375 lb-ft (508 N·m). Tighten locknuts (15) to 210 lb-ft (285 N·m).



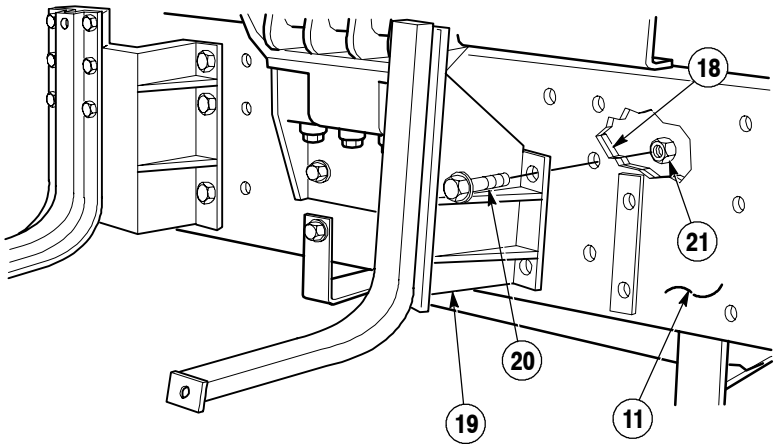
18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).

(6) Remove six corner screws (16) and locknuts (17) from transfer case bracket (18) and frame (11). Discard screws and locknuts.



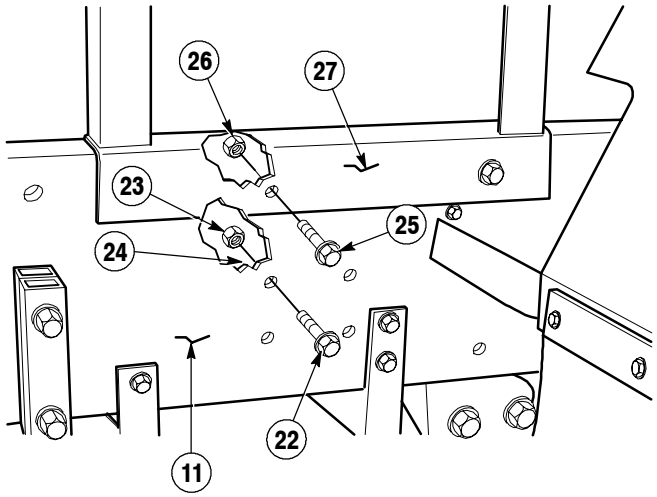
(7) Position middle fuel tank bracket (19) on frame (11) and transfer case bracket (18) with six 2.25 in. (5.715 cm) screws (20) and locknuts (21).

(8) Tighten locknuts (21) to 210 lb-ft (285 N·m).



(9) Remove four lower screws (22) and locknuts (23) from crossmember bracket (24) and frame (11). Discard screws and locknuts.

(10) Remove screw (25) and locknut (26) from deck weldment (27) and frame (11). Discard screw and locknut.

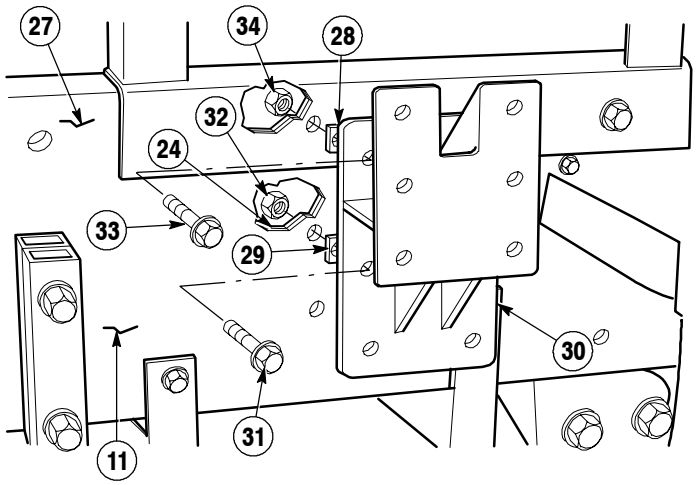


NOTE

If truck is equipped with CHU kit, spacers will not be present in Step (11).

(11) Install spacer (28), two spacers (29) and front fuel tank bracket (30) on frame (11), crossmember bracket (24) and deck weldment (27) with four 2.25 in. (5.715 cm) screws (31), locknuts (32), 2.75 in. (6.985 cm) screw (33) and locknut (34).

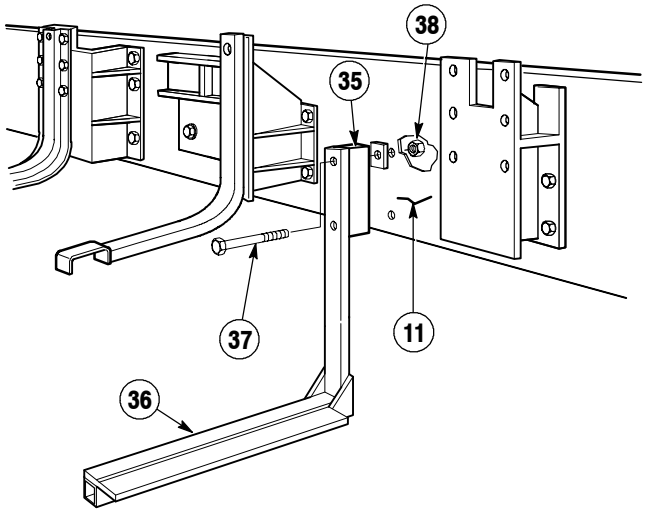
(12) Tighten four locknuts (32) to 210 lb-ft (285 N·m). Tighten locknut (34) to 375 lb-ft (508 N·m).



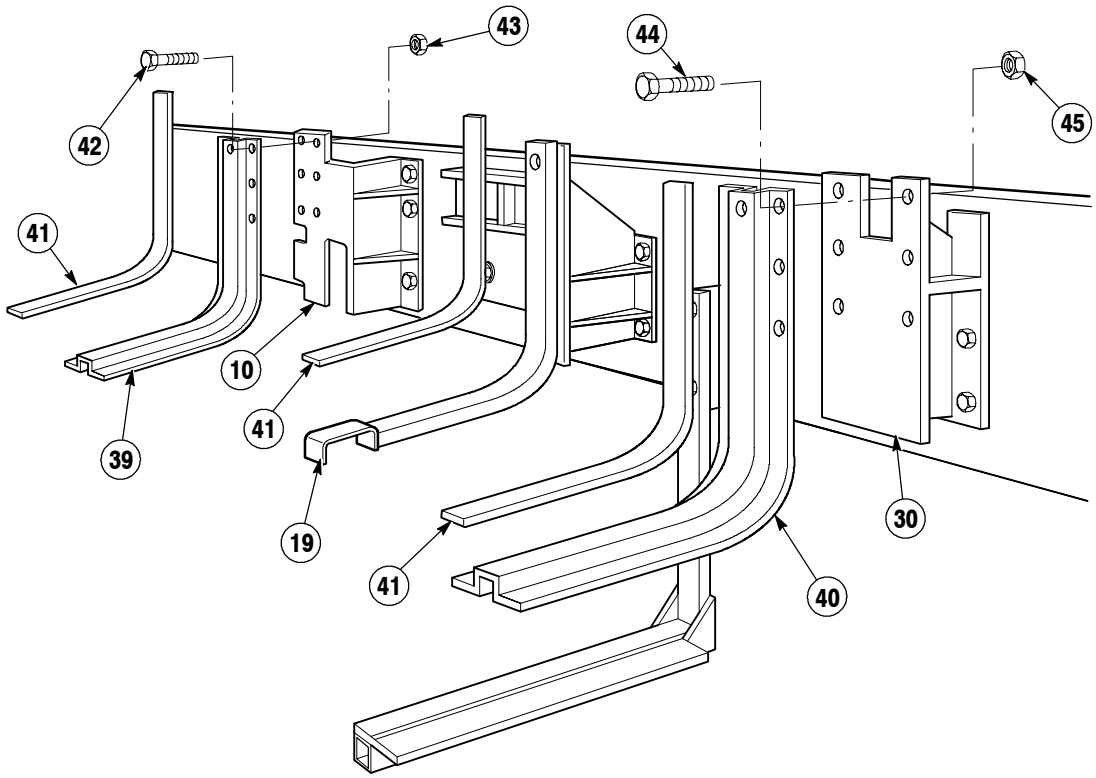
NOTE

- Front stowage box bracket in Step (13) is from auxiliary fuel tank kit.
- If truck is equipped with CHU kit, spacer will not be present in Step (13).

(13) Install spacer (35) and front stowage box bracket (36) on frame (11) with two screws (37) and locknuts (38).



18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).



WARNING

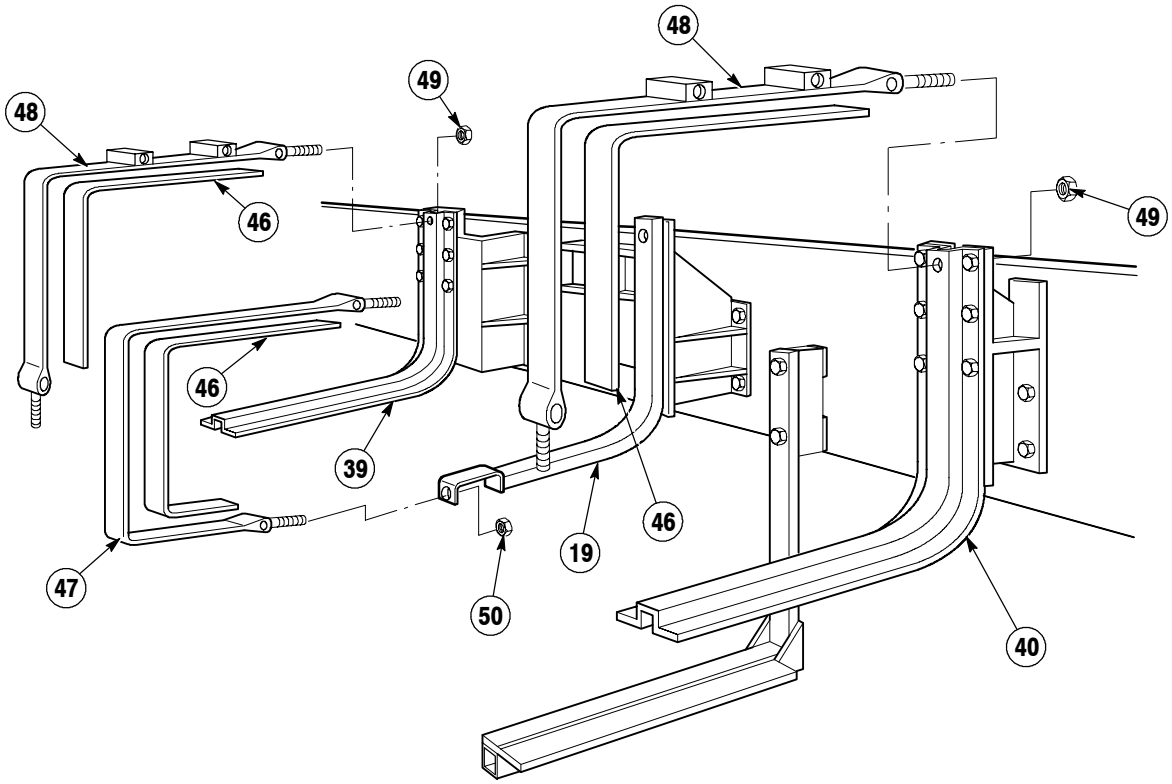
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(14) Apply spray adhesive to fuel tank brackets (39) and (40) and middle fuel tank bracket (19).

(15) Install rubber liners (41) by removing protective backing and installing on middle fuel tank bracket (19) and fuel tank brackets (39) and (40).

(16) Install fuel tank bracket (39) with six screws (42) and locknuts (43) on rear fuel tank bracket (10). Tighten locknuts to 210 lb-ft (285 N·m).

(17) Install fuel tank bracket (40) with six screws (44) and locknuts (45) on front fuel tank bracket (30). Tighten locknuts to 210 lb-ft (285 N·m).



NOTE

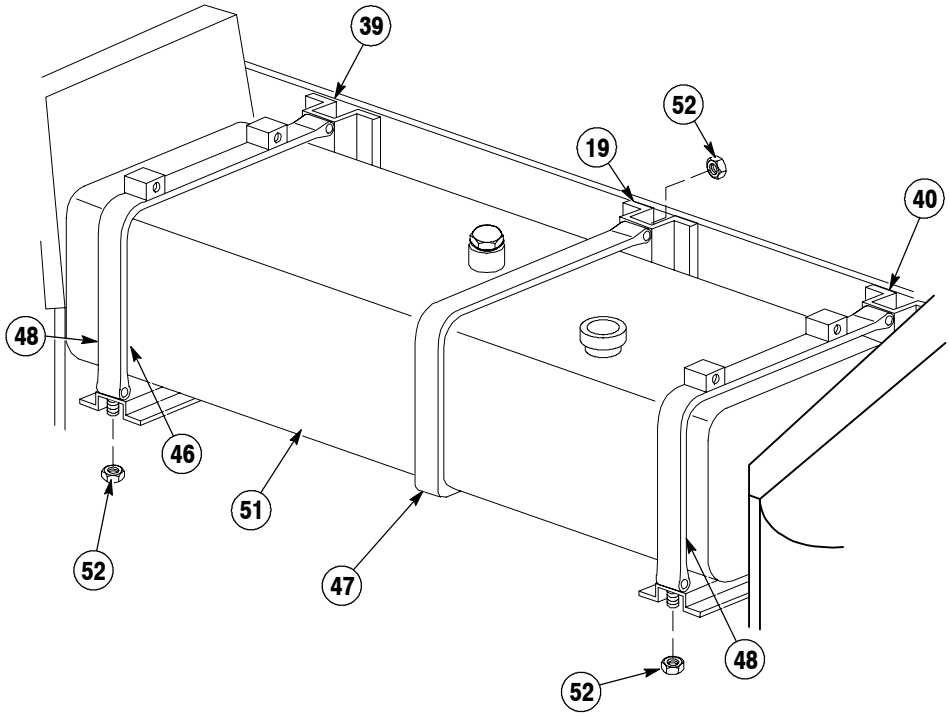
Fuel tank straps are properly installed when three threads are showing through end of nut.

(18) Install strap liners (46) on fuel tank strap (47) and two fuel tank straps (48).

(19) Attach two fuel tank straps (48) on fuel tank brackets (39) and (40) with two locknuts (49).

(20) Attach fuel tank strap (47) on middle fuel tank bracket (19) with locknut (50).

18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).



(21) With the aid of an assistant, position auxiliary fuel tank (51) on fuel tank brackets (39) and (40) and middle fuel tank bracket (19).

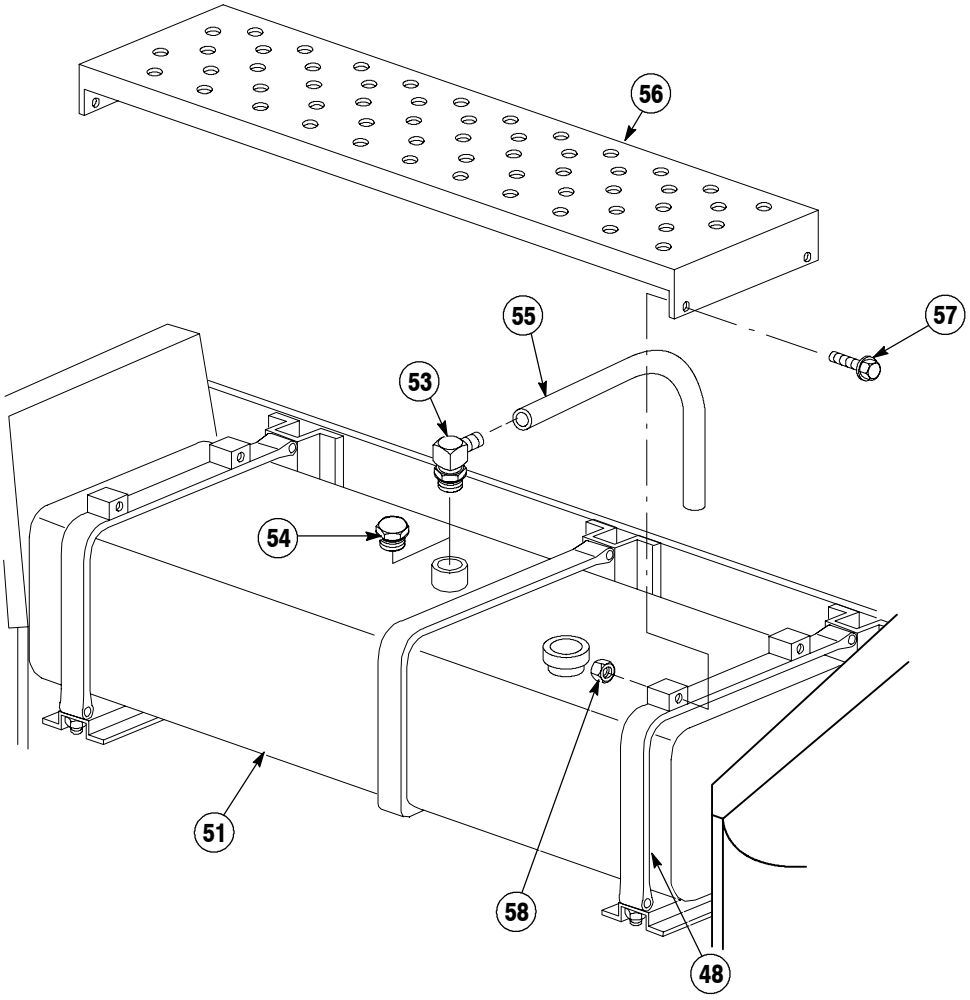
(22) Coat strap liners (46) and fuel tank (51) contact area with tire lubricant.

CAUTION

Do not overtighten locknuts or fuel tank straps will crush fuel tank.

(23) Secure auxiliary fuel tank (51) with two fuel tank straps (48), fuel tank strap (47) and three locknuts (52). Tighten locknuts to 25 to 30 lb-ft (34 to 41 N·m).

(24) Using soft faced hammer, tap on fuel tank straps (48) and (47) and retighten as necessary until torque remains at 25 to 30 lb-ft (34 to 41 N·m).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(25) Apply sealing compound to threads of soft tank vent valve (53).

NOTE

If auxiliary fuel tank is equipped with plug, perform Step (26).

(26) Remove plug (54).

(27) Install tank vent valve (53) into auxiliary fuel tank (51).

(28) Connect overflow hose (55) to tank vent valve (53).

(29) Install treaded platform (56), four screws (57) and four locknuts (58) to fuel tank straps (48).

18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Do not coat last two threads of fittings with sealing compound. Sealing compound will contaminate fuel system and cause damage to equipment.

NOTE

Install elbows, reducers, adapter, fuel shutoff valves and safety valves as noted prior to removal.

(30) Remove plug (59) from auxiliary fuel tank (51), if present.

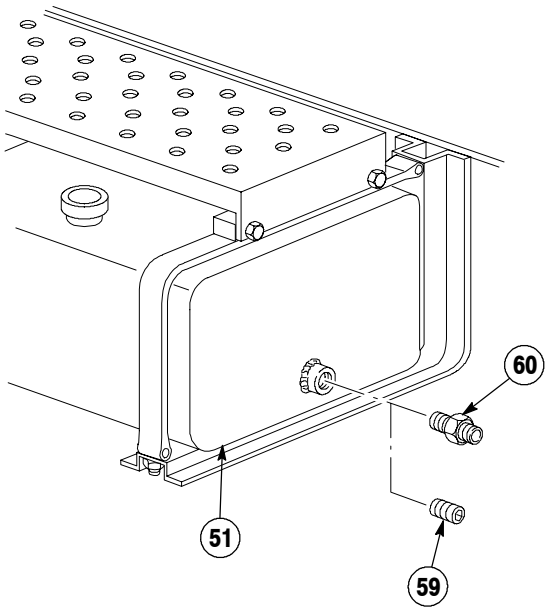
(31) Coat threads of reducer (60) with sealing compound.

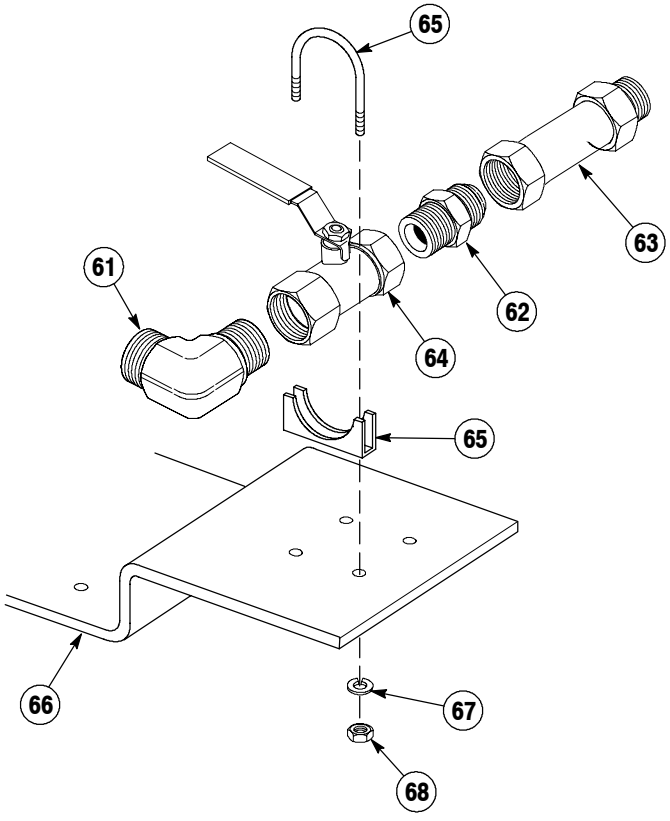
(32) Install reducer (60) on auxiliary fuel tank (51).

(33) Coat threads of elbow (61), adapter (62), and safety valve (63) with sealing compound.

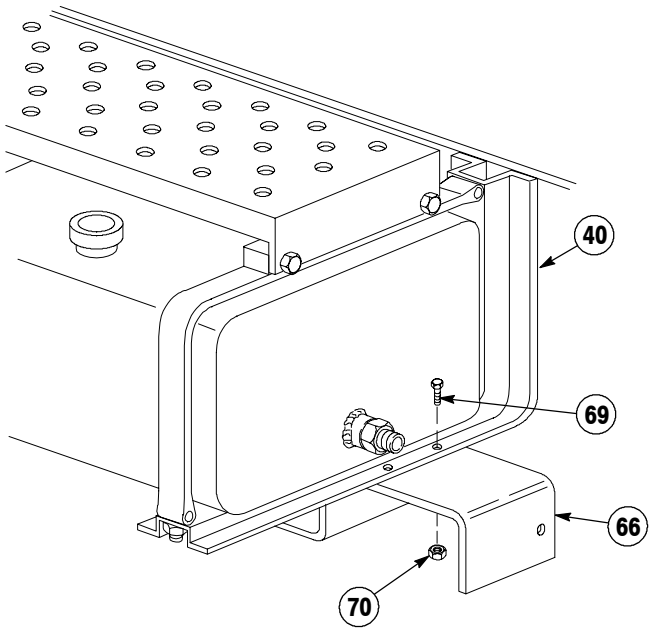
(34) Assemble elbow (61), fuel shutoff valve (64), adapter (62) and safety valve (63).

(35) Position fuel shutoff valve (64) between two clamps (65) and install on fuel tank guard (66) with four lockwashers (67) and nuts (68).





(36) Install fuel tank guard (66), two screws (69) and locknuts (70) to fuel tank bracket (40).



(37) Connect hose 2320 (71) to reducer (60).

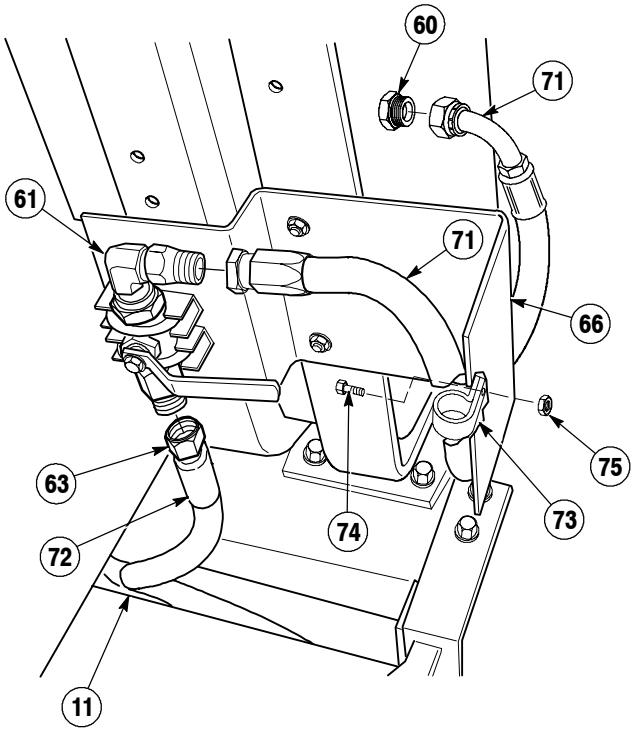
(38) Connect hose 2320 (71) to elbow (61).

(39) Connect hose 2320 (72) to safety valve (63).

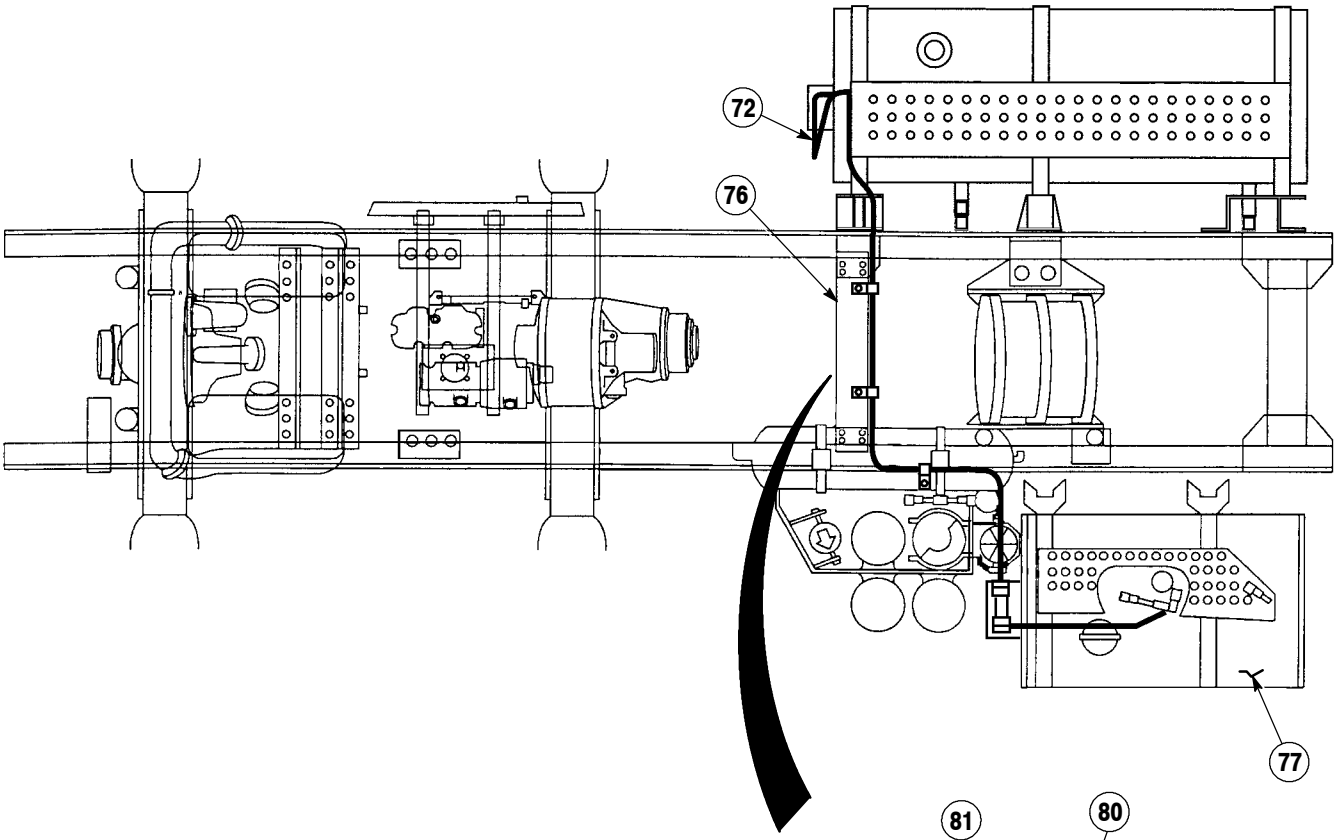
(40) Position cushion clip (73) on hose 2320 (71).

(41) Install cushion clip (73), screw (74) and locknut (75) on fuel tank guard (66).

(42) Position hose 2320 (72) under frame (11).



18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).



(43) Route hose 2320 (72) under crossmember (76) towards existing main fuel tank (77).

NOTE

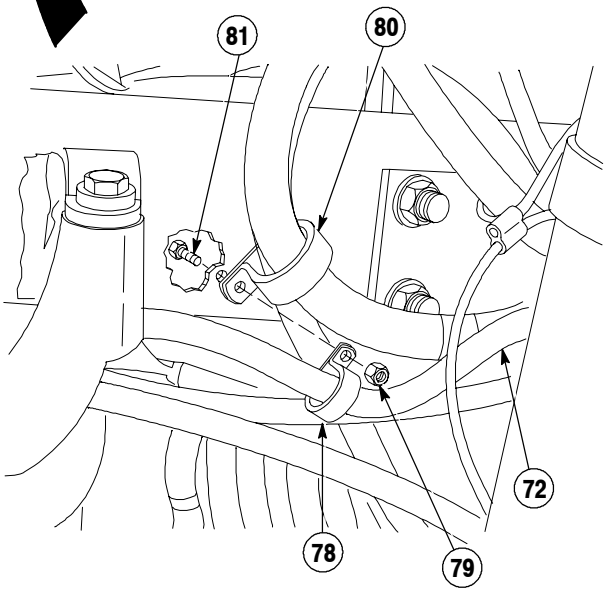
Three new cushion clips will be installed with two existing cushion clips on crossmember.

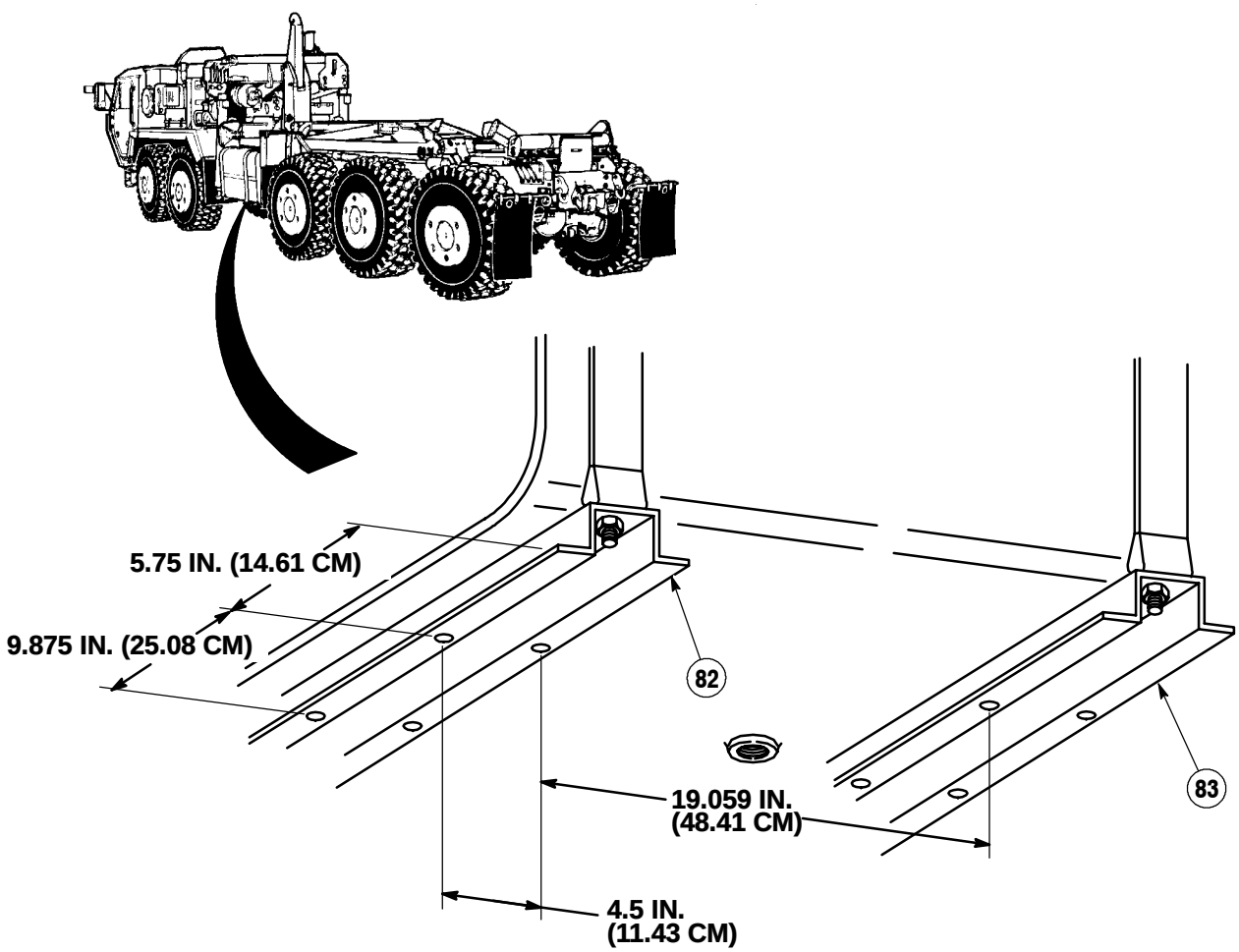
(44) Position three cushion clips (78) on hose 2320 (72).

(45) Remove locknut (79), cushion clip (80) and screw (81). Discard locknut.

(46) Install screw (81), cushion clip (80), cushion clip (78) and locknut (79).

(47) Repeat Steps (45) and (46) for remaining cushion clips (78).





NOTE

Fuel tank guard may be used as template in Step (48).

(48) Mark and drill four holes in front fuel tank bracket (82) and two holes in back fuel tank bracket (83) as shown.

18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).

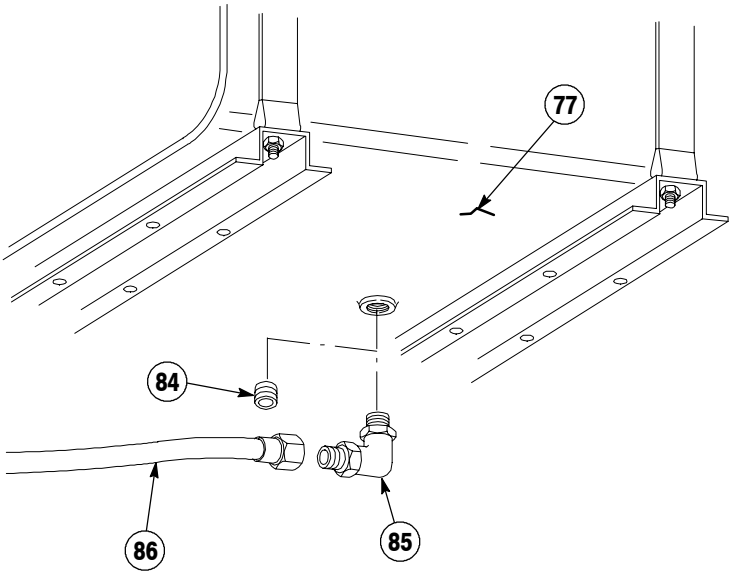
(49) Remove drain plug (84) from main fuel tank (77).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Do not coat last two threads of fittings with sealing compound. Sealing compound will contaminate fuel system and cause damage to equipment.



(50) Apply sealing compound to threads of reducer (85).

(51) Install reducer (85) in main fuel tank (77).

(52) Attach hose 2320 (86) to reducer (85).

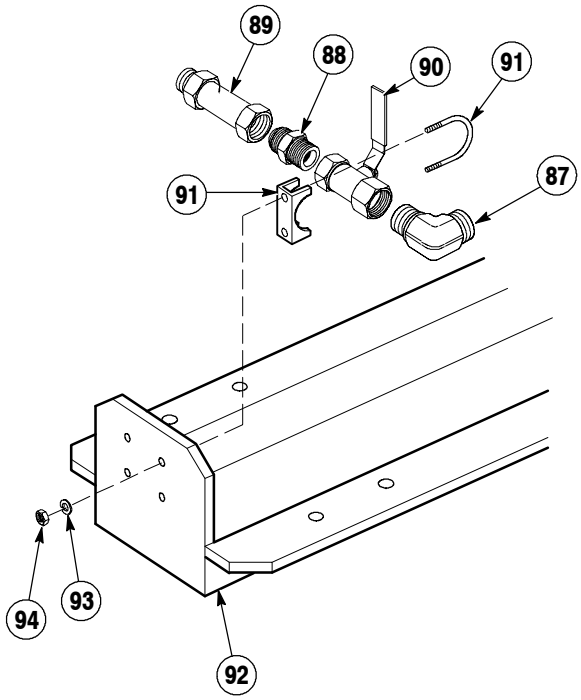
(53) Apply sealing compound to threads of elbow (87), adapter (88), and safety valve (89).

NOTE

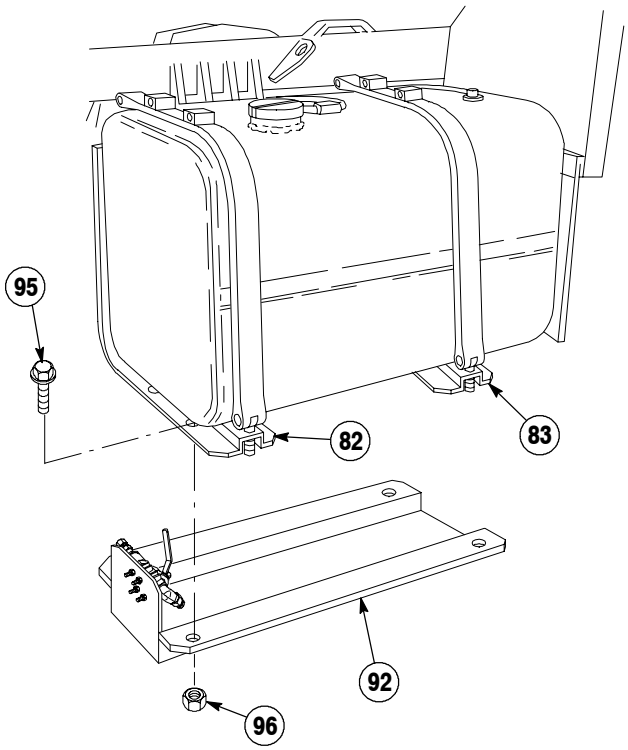
Ensure elbow, fuel shutoff valve and check valve are positioned as shown.

(54) Assemble elbow (87), fuel shutoff valve (90), adapter (88) and safety valve (89).

(55) Position fuel shutoff valve (90) between two muffler clamps (91) and install on fuel tank guard (92) with four lockwashers (93) and nuts (94).

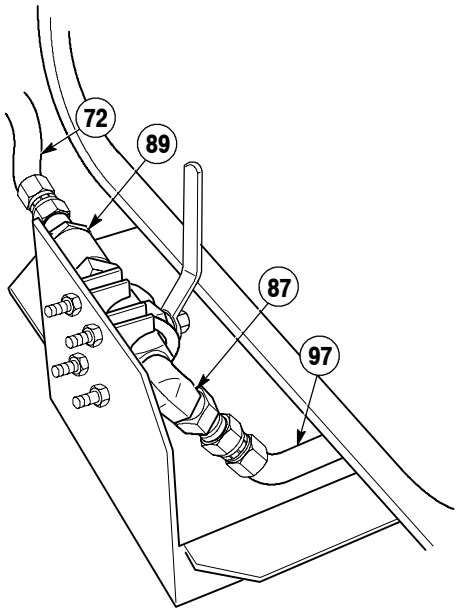


(56) Install fuel tank guard (92), six screws (95) and locknuts (96) to fuel tank brackets (82) and (83).



(57) Connect hose 2320 (97) to elbow (87).

(58) Connect hose 2320 (72) to safety valve (89).



b. Follow-On Maintenance:

- Install stowage box, (TM 9-2320-364-20).
- Fill fuel tanks, (TM 9-2320-364-10).
- Check fuel tanks and connections for leaks. Tighten any connections that leak.
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-7. AIR DRYER GUARD KIT INSTALLATION.

This task covers:

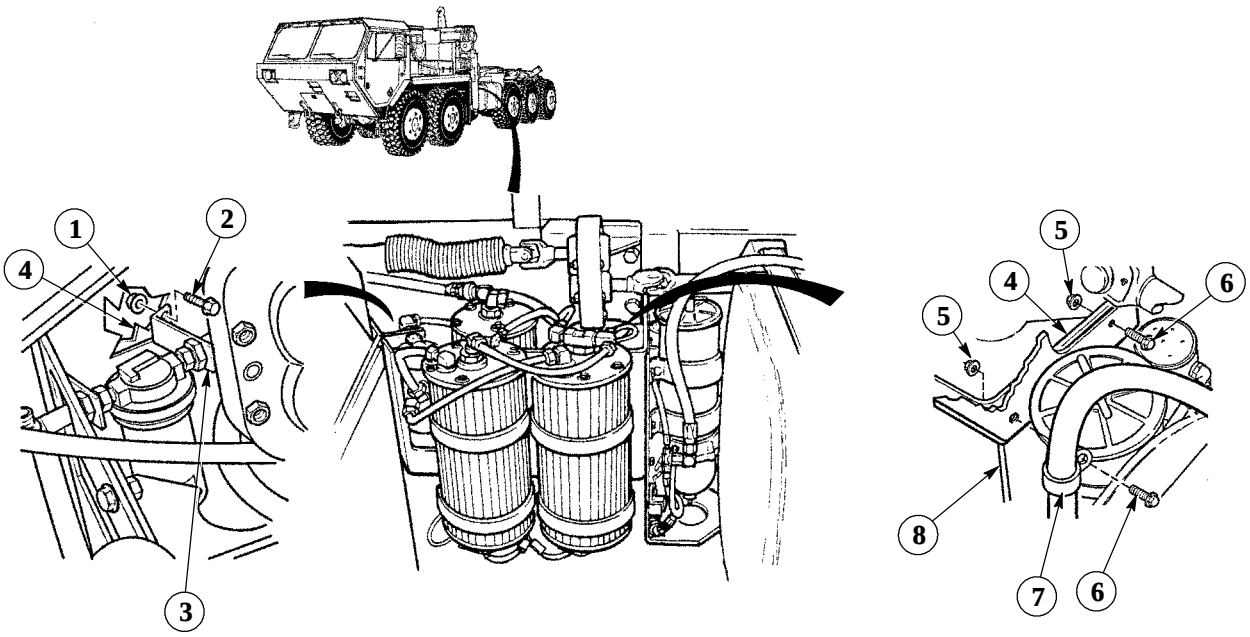
a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Item 241, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Left mud flap removed, (TM 9-2320-364-20)

a. Installation.



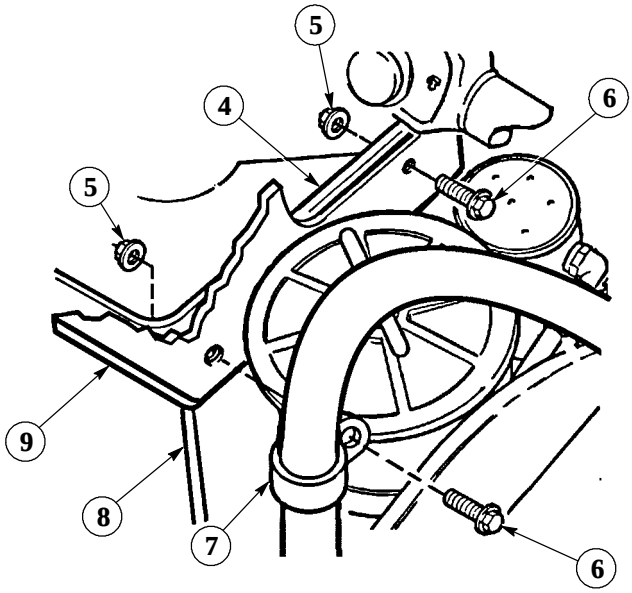
NOTE

Support coalescing filter in Step (1) when removing screws.

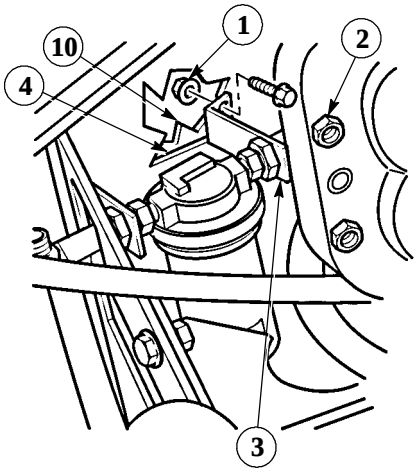
(1) Remove four locknuts (1), screws (2) from coalescing filter mounting brackets (3) and air dryer bracket (4). Discard locknuts and screws.

(2) Remove two locknuts (5), screws (6) from hose 2259 cushion clip (7), fuel/water separator bracket (8) and air dryer bracket (4). Discard locknuts and screws.

(3) Position hose 2259 cushion clip (7), rear air dryer guard bracket (9) and fuel/water separator bracket (8) on air dryer bracket (4) with two screws (6) and locknuts (5).



(4) Position front air dryer guard bracket (10) and coalescing filter mounting bracket (3) on air dryer bracket (4) with four screws (2) and locknuts (1).

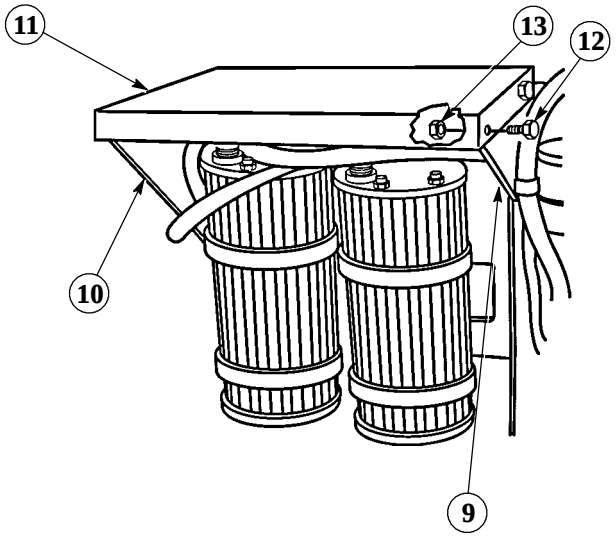


NOTE

- Position air dryer guard screw holes to align with front and back air dryer guard brackets.
- Front and back air dryer guard brackets mount to the inside of the air dryer guard.

(5) Position air dryer guard (11) on front air dryer guard bracket (10) and rear air dryer guard bracket (9) with four screws (12) and locknuts (13).

(6) Tighten four locknuts (13), two locknuts (5), and four locknuts (1).



b. Follow-On Maintenance:

- Install left center mud flap, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-8. AIR HORN KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

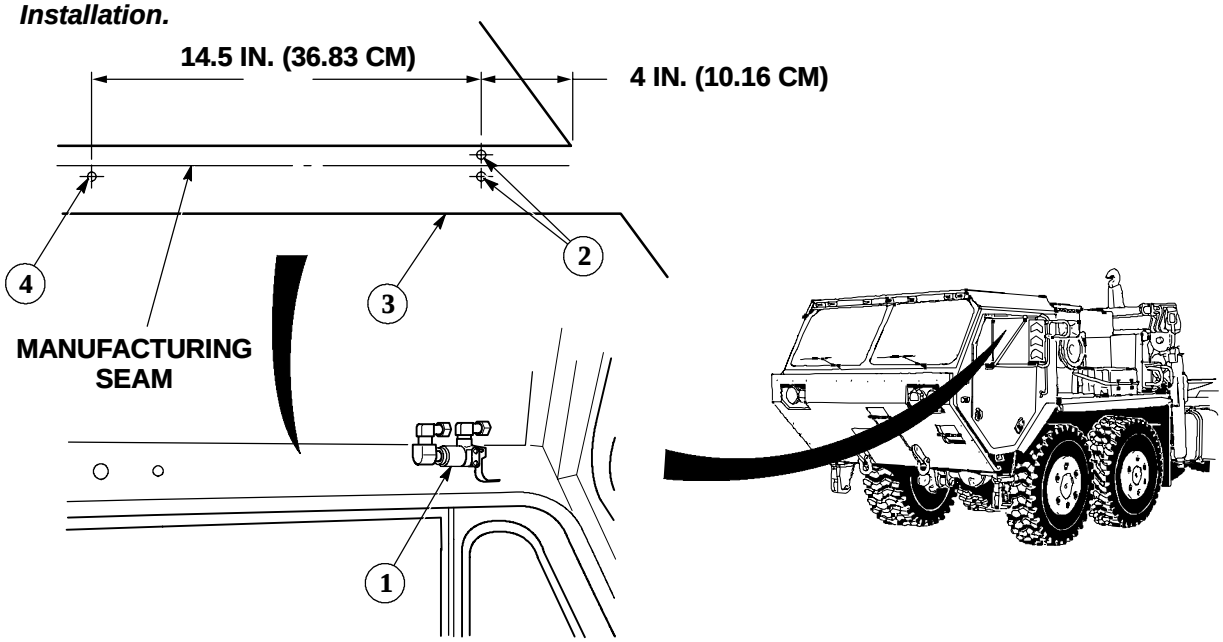
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Sealing Compound (Item 61, Appendix B)

Materials/Parts (cont)
Locknut (2) (Item 210, Appendix E)
Locknut (6) (Item 179, Appendix E)
Screw, Self-Locking (2) (Item 552, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Skid plate removed, (TM 9-2320-364-20)

a. Installation.



CAUTION

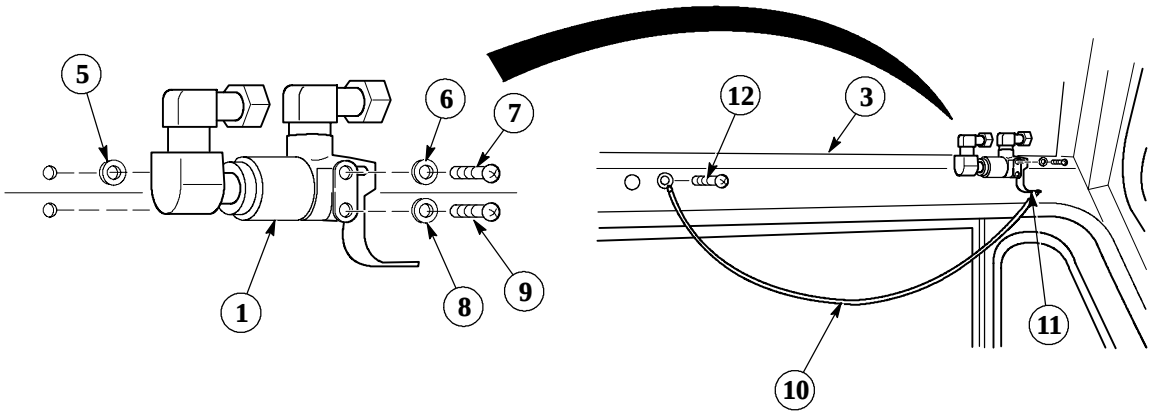
Ensure to drill only inner shell of door frame.

NOTE

Install cable ties as required.

(1) Using air horn valve (1) as template, mark and drill two 1/4 in. (6.35 mm) holes (2) in door frame (3).

(2) Measure distance, center, mark, and drill one 1/4 in. (6.35 mm) hole (4), in door frame (3).



NOTE

- Ensure rear elbow is slightly turned toward passenger side of cab to allow for air hose installation.
- One washer is installed between door frame and air horn valve, held in place by the top screw.

(3) Position air horn valve (1), to door frame with washer (5), washer (6) and screw (7).

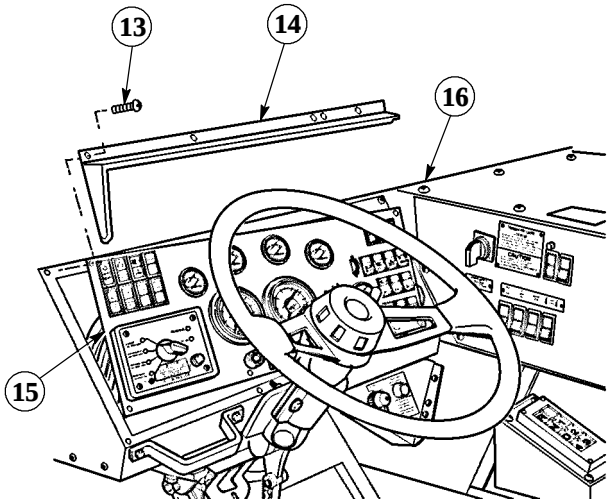
(4) Install washer (8) and screw (9) to air horn valve (1) and door frame (3).

(5) Connect pull chain (10) to S-hook on lever (11).

(6) Install remaining end of pull chain (10) to door frame (3) using screw (12).

18-8. AIR HORN KIT INSTALLATION (CONT).

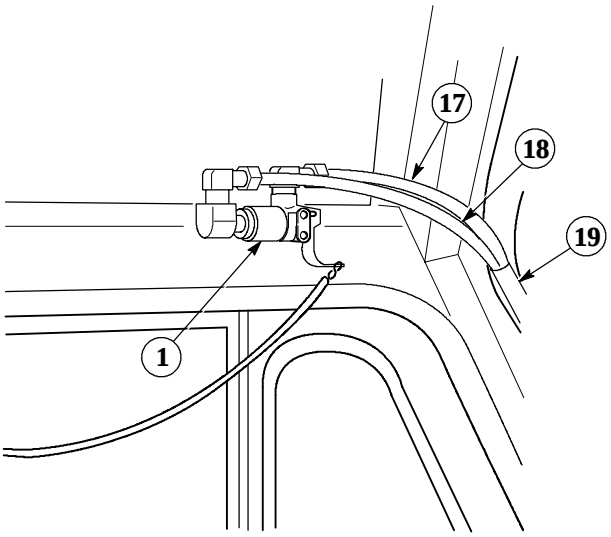
(7) Remove ten screws (13), sun shield (14) and instrument panel (15) from dash (16).



NOTE

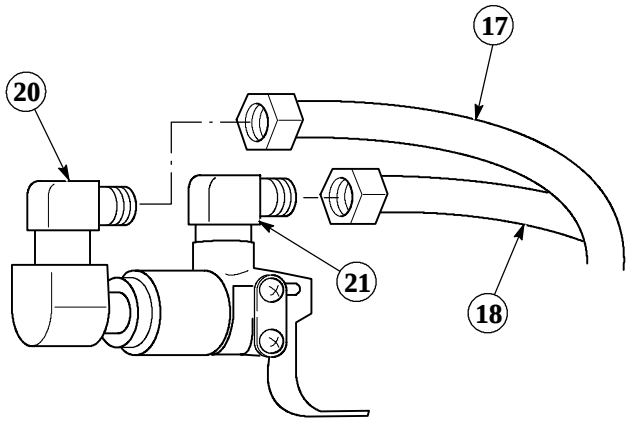
There are two air hoses 2039, use longer air hose for hose routing between air horn valve and valve manifold.

(8) Position air hose 2037 (17) and air hose 2039 (18) down through A-pillar (19).

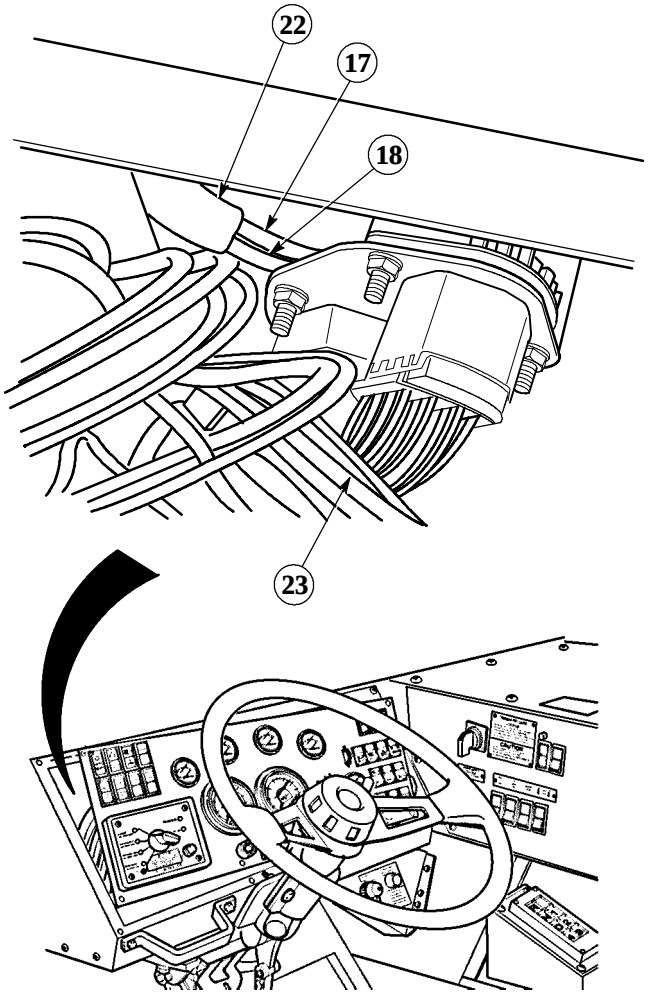


(9) Connect air hose 2037 (17) to elbow (20).

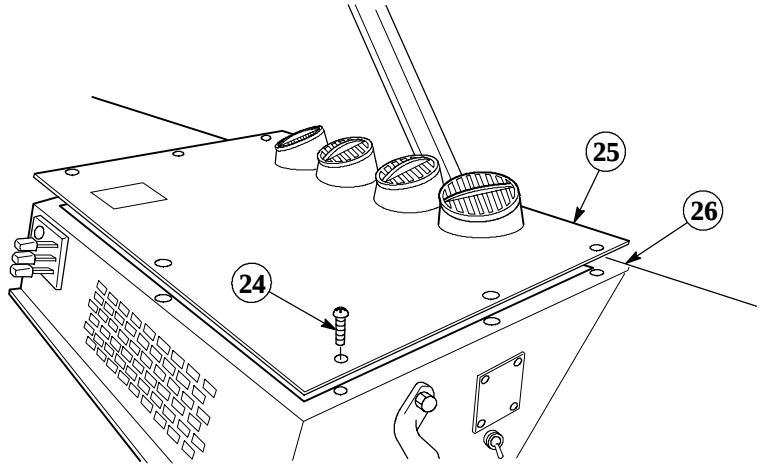
(10) Connect air hose 2039 (18) to elbow (21).



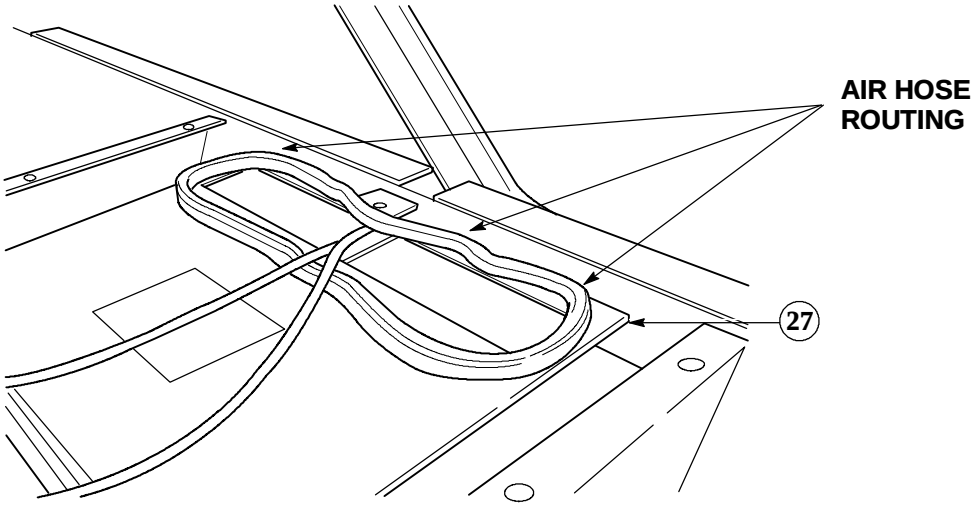
(11) Position two air hoses (17) and (18) through A-pillar tubing (22) and under instrument panel wiring (23) toward cab heater box.



18-8. AIR HORN KIT INSTALLATION (CONT).

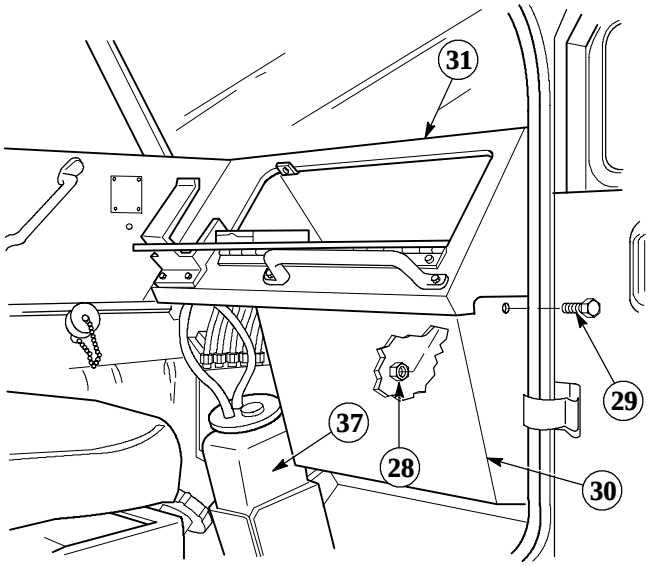


(12) Remove eight screws (24) and heater vent cover (25) from heater compartment (26).



(13) Position air hoses along front of heater box (27).

(14) Remove six locknuts (28), screws (29) and glove box (30) from dash (31).



(15) Continue routing both air hoses through heater box to passenger side foot well until all slack is taken up.

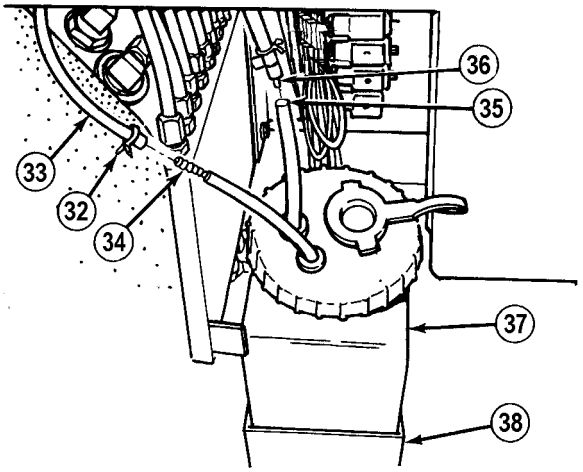
NOTE

Tag and mark hoses prior to removal.

(16) Slide clamp (32) up on hose (33) and remove hose from hose connector (34).

NOTE

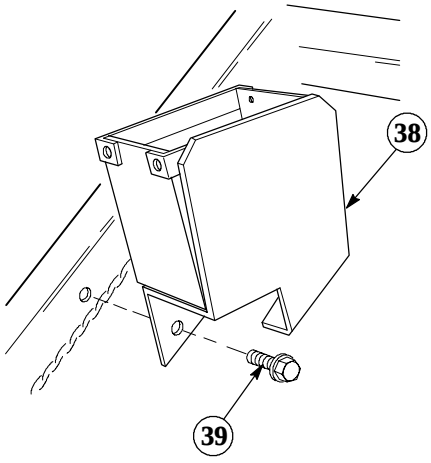
Perform Step (17) if relief valve is present.



(17) Remove hose (35) from relief valve (36)

(18) Remove windshield washer reservoir (37) from windshield washer reservoir bracket and mount (38).

(19) Remove two lock screws (39) and bracket and mount (38) from cab. Discard lock screws.

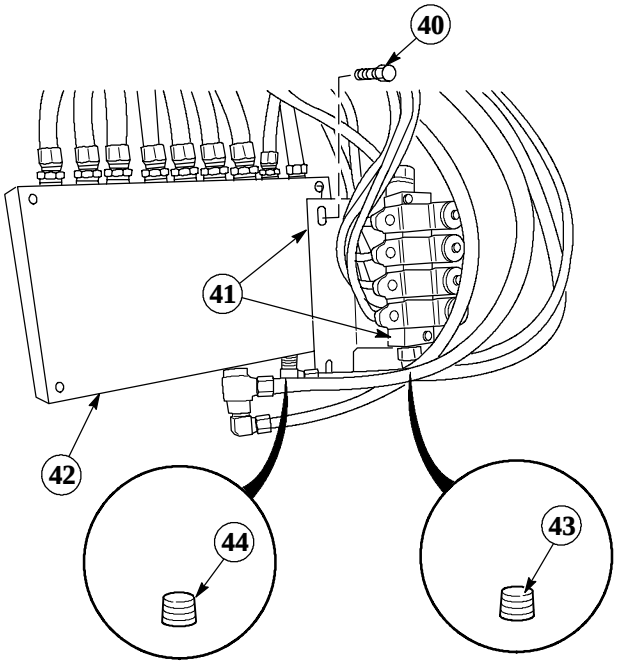


18-8. AIR HORN KIT INSTALLATION (CONT).

(20) Remove two screws (40) from solenoid mounting plate (41) and manifold (42).

(21) Remove plug (43) from solenoid (41).

(22) Remove plug (44) from manifold (42).



WARNING

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(23) Coat threads of elbow (45) with sealing compound.

(24) Install elbow (45) in solenoid (41).

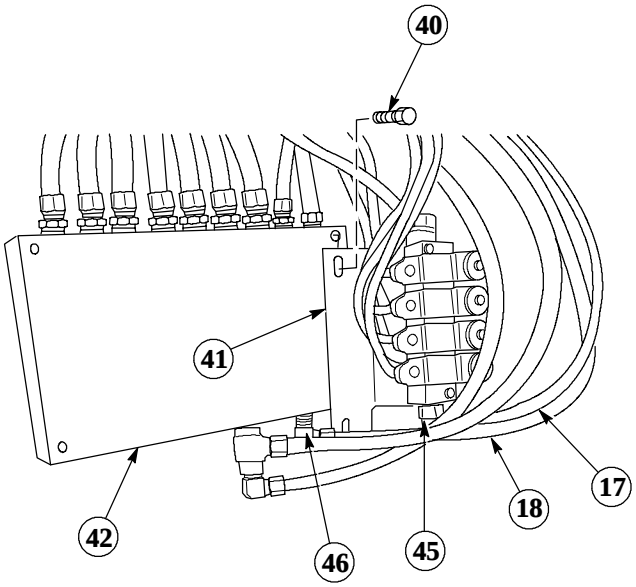
(25) Coat threads of elbow (46) with sealing compound.

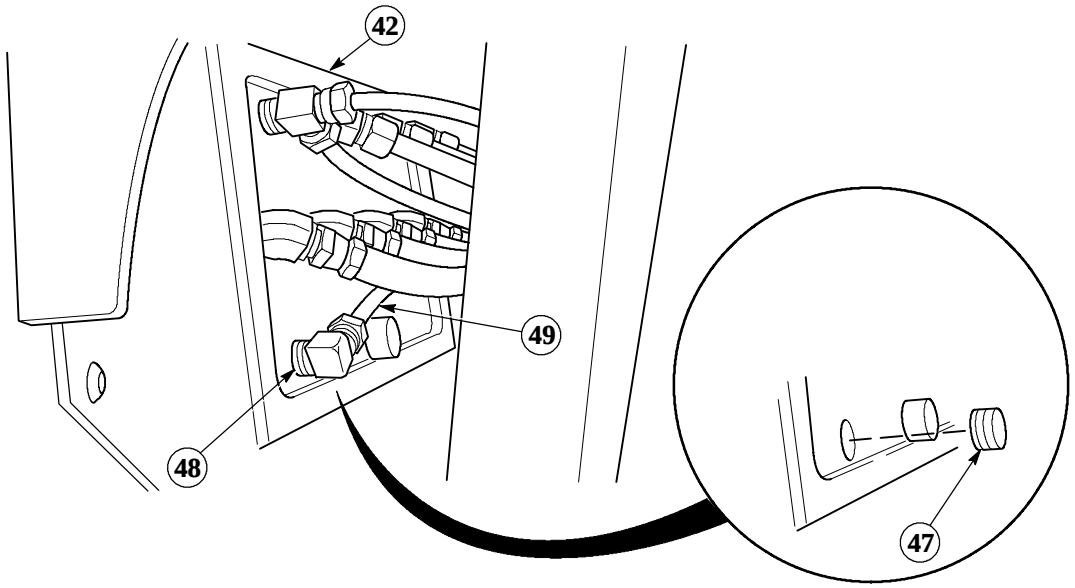
(26) Install elbow (46) in manifold (42).

(27) Connect air hose 2037 (17) to elbow (45).

(28) Connect air hose 2039 (18) to elbow (46).

(29) Install solenoid (41) with two screws (40) on manifold (42).





(30) Remove plug (47) from manifold (42).

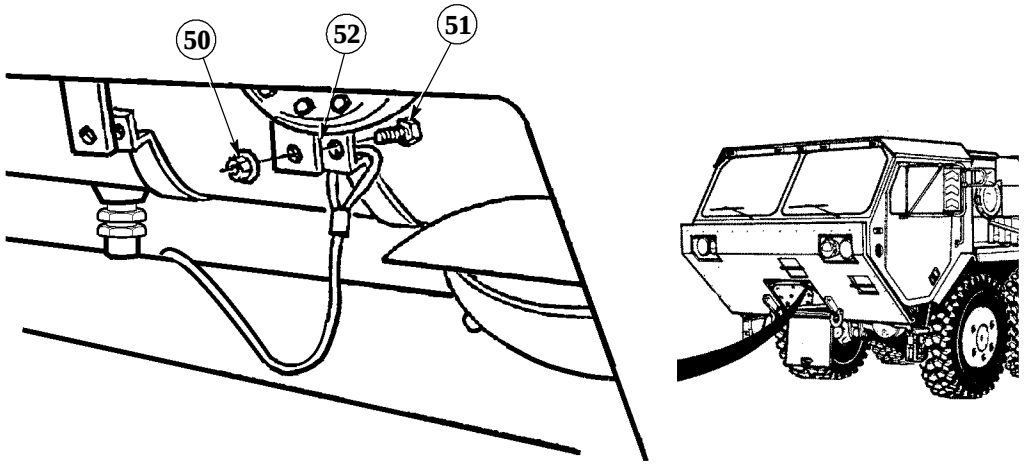
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(31) Coat threads of elbow (48) with sealing compound.

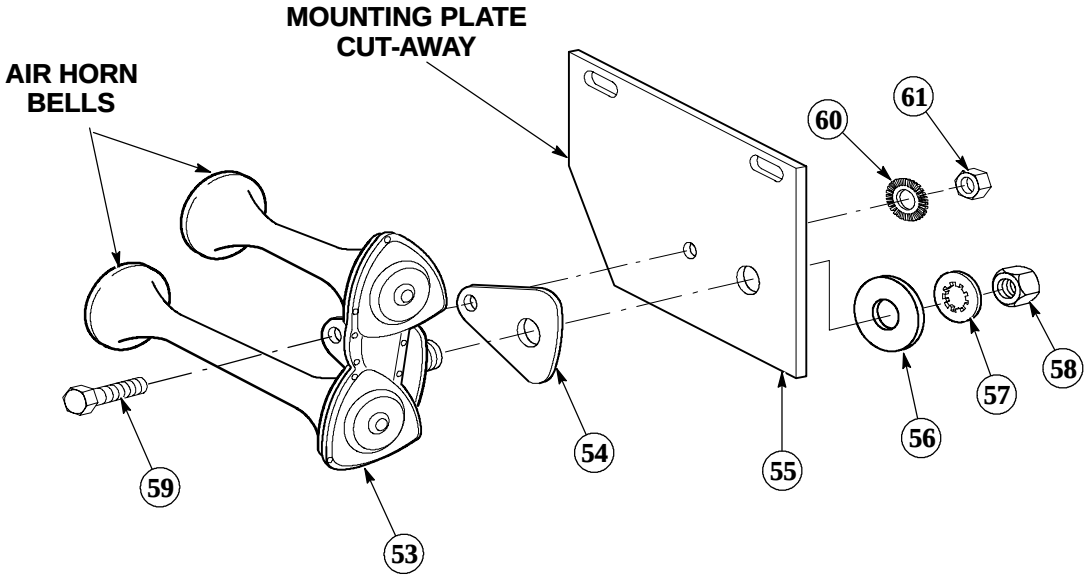
(32) Install elbow (48) in valve manifold (42).

(33) Connect air hose 2039 (49) to elbow (48).



(34) Remove and discard two locknuts (50) and screws (51) from air reservoir brackets (52).

18-8. AIR HORN KIT INSTALLATION (CONT).



NOTE

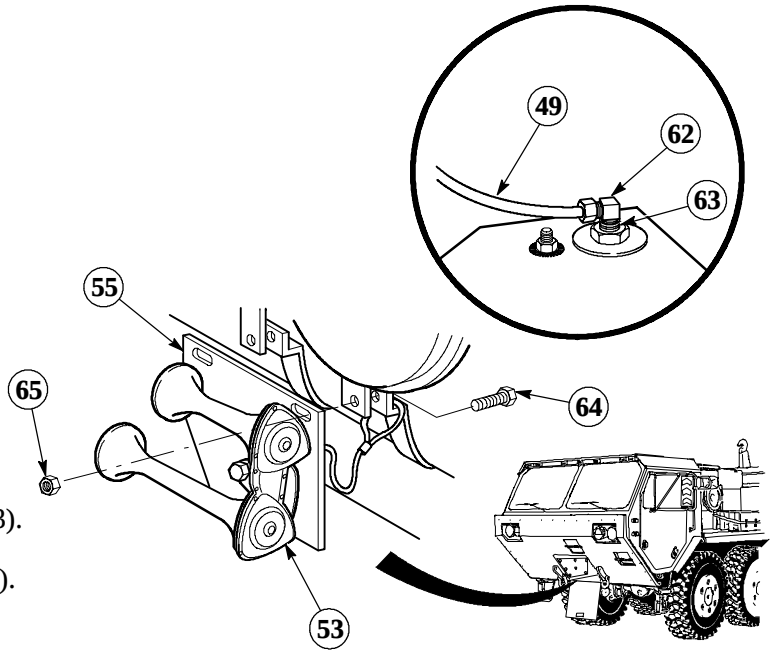
Mounting plate cut-away and air horn bells are mounted facing passenger side of truck.

(35) Position air horn (53) and gasket (54) on mounting plate (55) with washer (56), lockwasher (57) and nut (58).

(36) Install air horn (53) to mounting plate (55) with screw (59), star washer (60) and nut (61).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(37) Coat threads of elbow (62) with sealing compound.

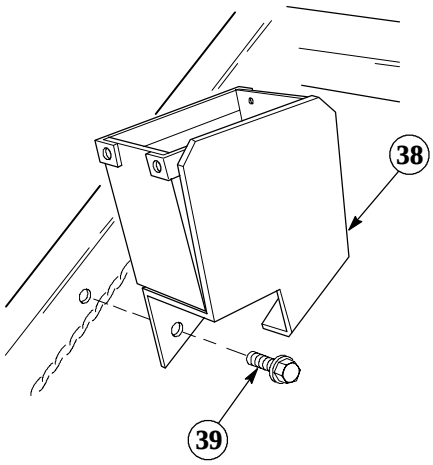
(38) Install elbow (62) in air horn air inlet (63).

(39) Connect air hose 2039 (49) to elbow (62).

(40) Install air horn (53) and mounting plate (55) to two brackets (52) with two screws (64) and nuts (65).

(41) Install bracket and mount (38) using two lock screws (39).

(42) Install windshield washer reservoir (37) on windshield washer reservoir bracket (38).



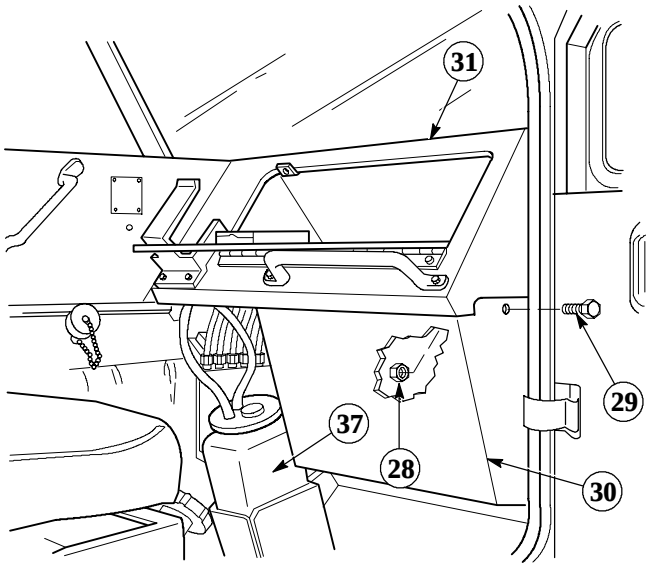
NOTE

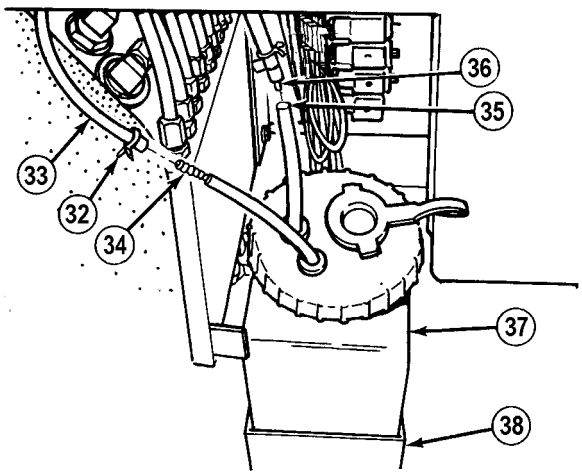
Perform step (43) if relief valve is present.

(43) Install hose (35) on relief valve (36).

(44) Install hose connector (34) on hose (33) and slide clamp (32) down on hose.

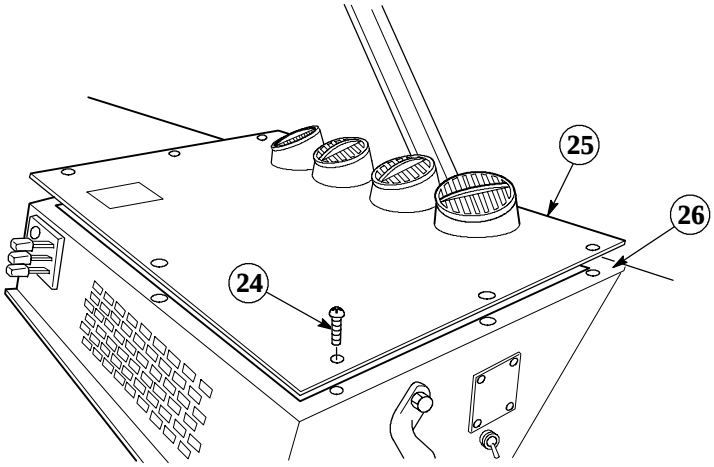
(45) Install glove box (30) on dash (31) using six nuts (28) and screws (29).



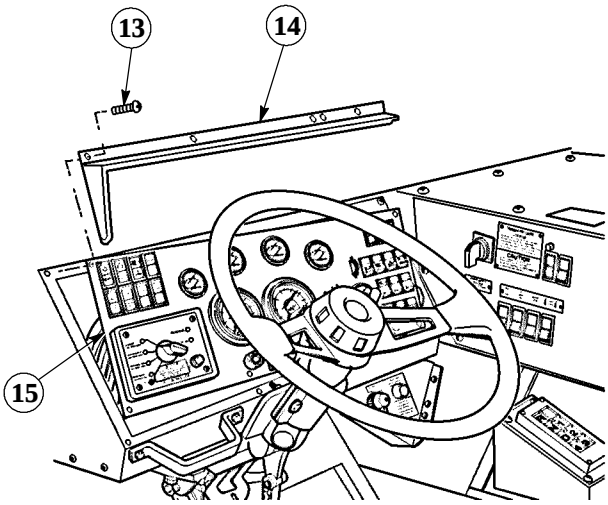


18-8. AIR HORN KIT INSTALLATION (CONT).

(46) Install heater vent cover (25) on heater compartment (26) using eight screws (24).



(47) Install instrument panel (15) and sun shield (14) using ten screws (13).



b. Follow-on Maintenance:

- Connect batteries, (TM 9-2320-364-10).
- Start engine and allow to idle for five minutes, (TM 9-2320-364-10).
- Shut off engine and check for air leaks, (TM 9-2320-364-10).
- Check air horn operation, (TM 9-2320-364-10).
- Install skid plate, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-9. INTERFACE KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Blade Kit, Hole Saw (Item 18, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable 1/4 in. (Item 49, Appendix F)
Pan, Drain 4 Gal. (Item 144, Appendix F)
Tool Kit, Blind Rivet (Item 238.1, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 53, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (4) (Item 167, Appendix E)
Locknut (1) (Item 212, Appendix E)
Lockwasher (Item 251, Appendix E)
Lockwasher (26) (Item 282, Appendix E)
Lockwasher (Item 283, Appendix E)
Lockwasher (Item 286, Appendix E)
Preformed Packing (Item 388, Appendix E)

Personnel Required
Two

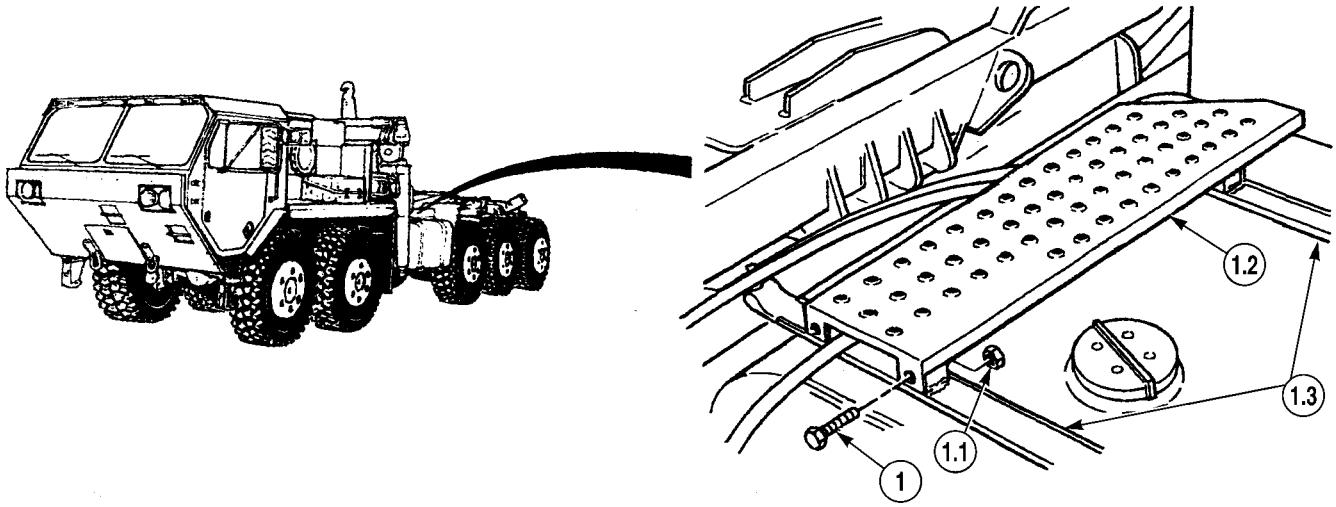
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
Air system drained, (TM 9-2320-364-10)
Fire extinguisher removed, (TM 9-2320-364-10)
Left side noise panel removed, (TM 9-2320-364-20)
Left front noise panel removed, (TM 9-2320-364-20)
Rear noise panel removed, (TM 9-2320-364-20)
Heater compartment cover removed, (TM 9-2320-364-20)
Batteries disconnected, (TM 9-2320-364-20)
Hydraulic reservoir drained, (TM 9-2320-364-20)

a. Installation.

CAUTION

- Power interface kit cannot be installed on trucks equipped with a material handling crane (MHC) or self-recovery winch (SRW).
- Trucks must be equipped with a 200 AMP alternator before power interface kit can be installed.

18-9. INTERFACE KIT INSTALLATION (CONT).

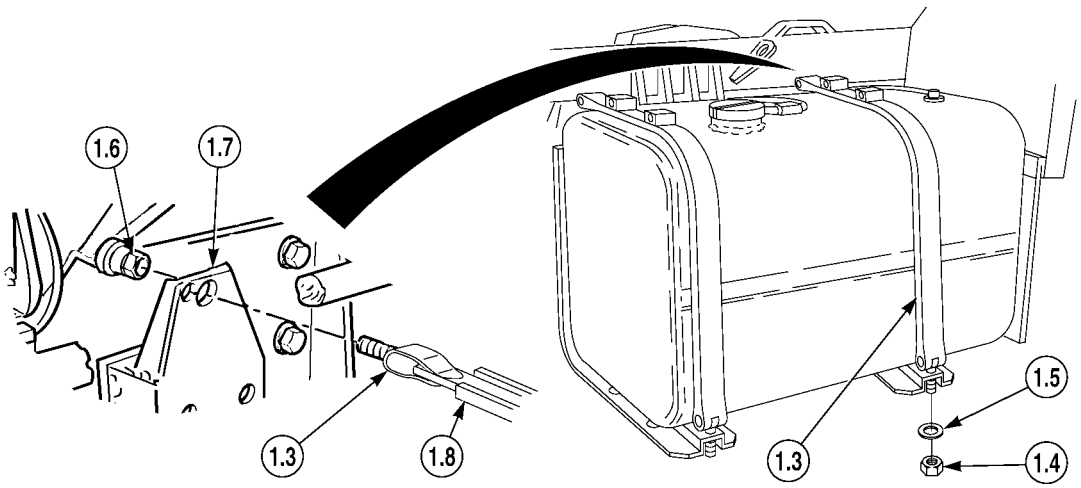


(1) Remove four screws (1) locknuts (1.1) and tread platform assembly (1.2) from fuel tank straps (1.3). Discard locknuts.

WARNING

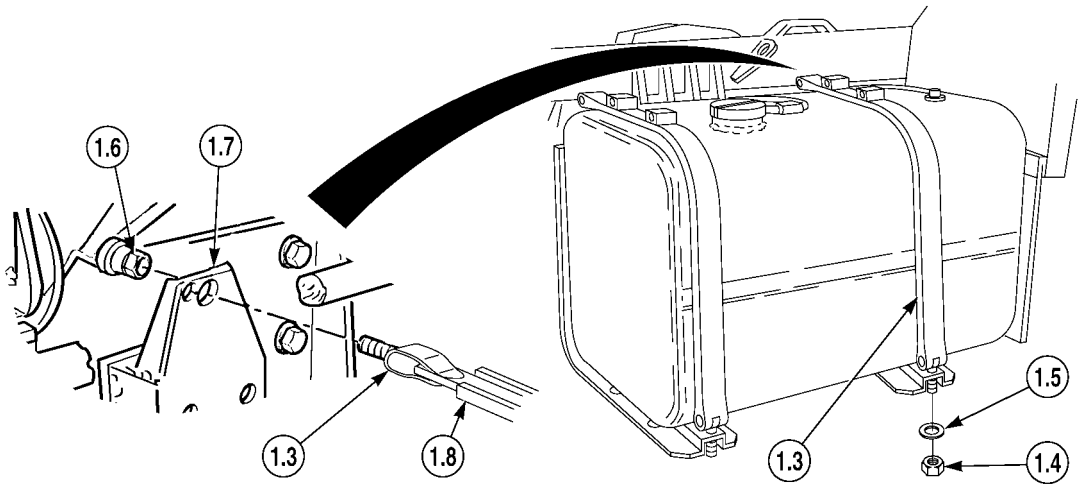
Do not move fuel tank position or damage to equipment and serious injury to personnel may occur.

(1.1) Remove locknut (1.4) and washer (1.5) from fuel tank strap (1.3). Discard locknut.



(1.2) Remove nut (1.6) and fuel tank strap (1.3) from bracket (1.7).

(1.3) Remove strap liner (1.8) from fuel tank strap (1.3).



(1.4) Clean strap liner (1.8) with soapy water. Rinse with clean water.

(1.5) Inspect strap liner (1.8) for brittleness, cracks, or breaks.

(1.6) Install strap liner (1.8) on interface kit tank strap (1.3).

NOTE

Fuel tank straps are properly installed when three threads are showing through end of nut.

(1.7) Install strap liner (1.8) on interface kit tank strap (1.3).

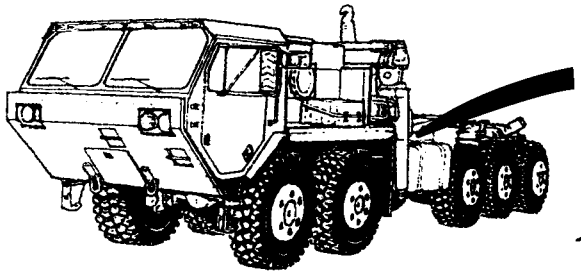
CAUTION

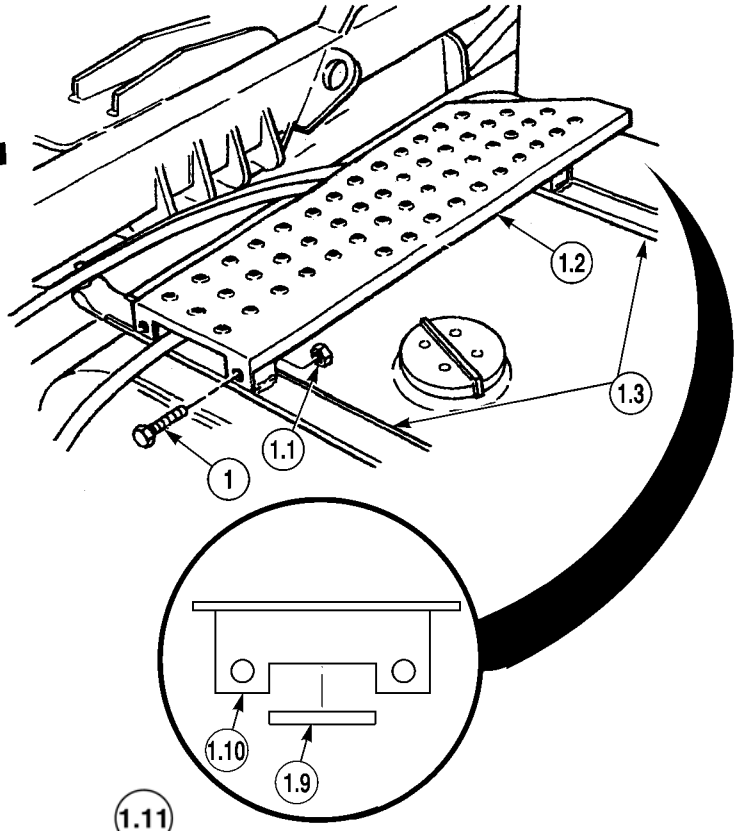
Do not overtighten locknut or fuel tank strap will crush fuel tank.

(1.8) Install tank strap (1.3) on bracket (1.7) with washer (1.5) and locknut (1.4). Tighten locknut (1.4) to 25 to 30 lb-ft (34 to 41 N·m).

(1.9) Using a soft faced hammer, tap on fuel tank (1.3) and retighten as necessary until torque remains at 25 to 30 lb-ft (34 to 41 N·m).

18-9. INTERFACE KIT INSTALLATION (CONT).

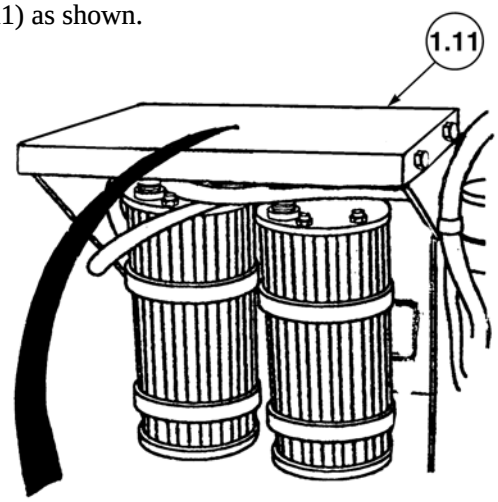


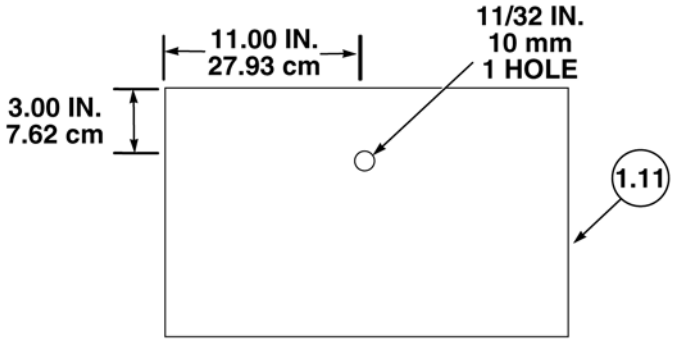


(1.10) Install tread platform assembly (1.2) on mounting straps (1.3) with four screws (1) and locknuts (1.1).

(1.11) Install quick edge moulding (1.9) to tread platform bracket (1.10).

(1.12) Drill one 13/32 in. (10 mm) hole in air dryer guard (1.11) as shown.





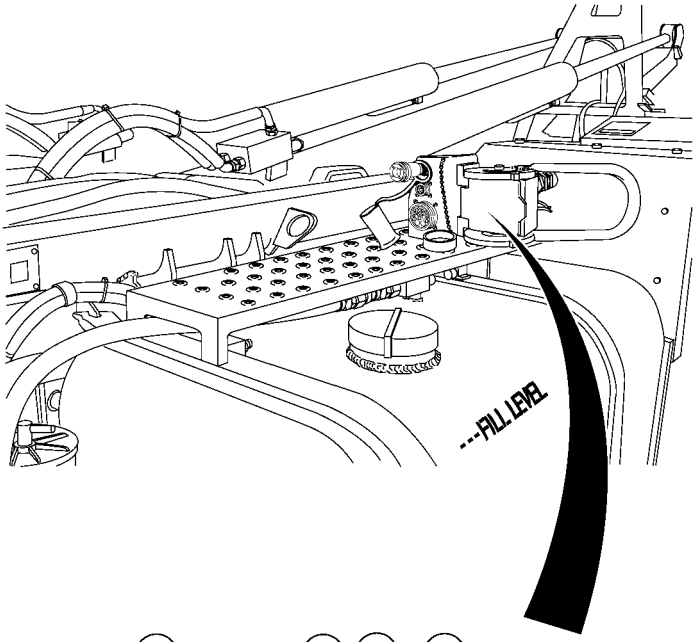
CAUTION

Deleted.

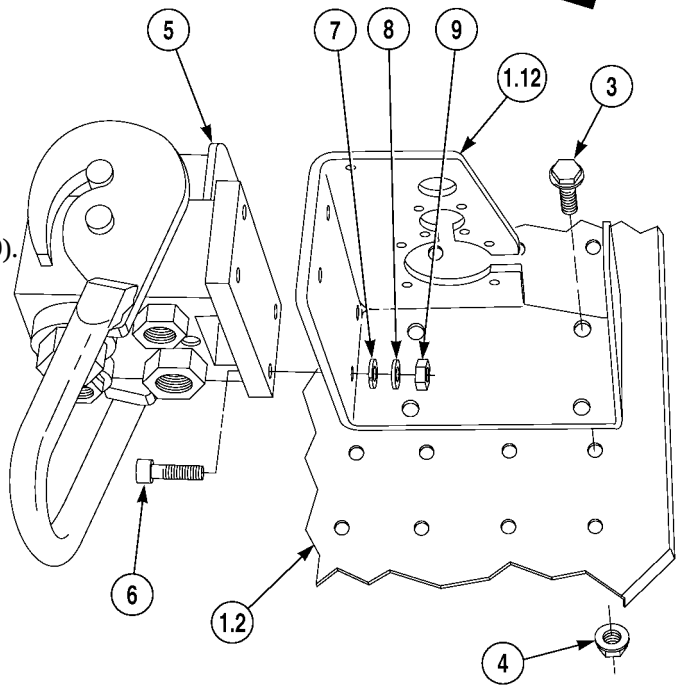
NOTE

Use existing holes in step to mount bracket. Rear inside screw should be located in first hole from the rear and first row from inside.

(1.13) Install mounting bracket (1.12) to tread platform (1.2) with four screws (3) and locknuts (4).



(2) Install quick disconnect (5) to mounting bracket (1.12) with four socket head screws (6), washers (7), lockwashers (8) and nuts (9).



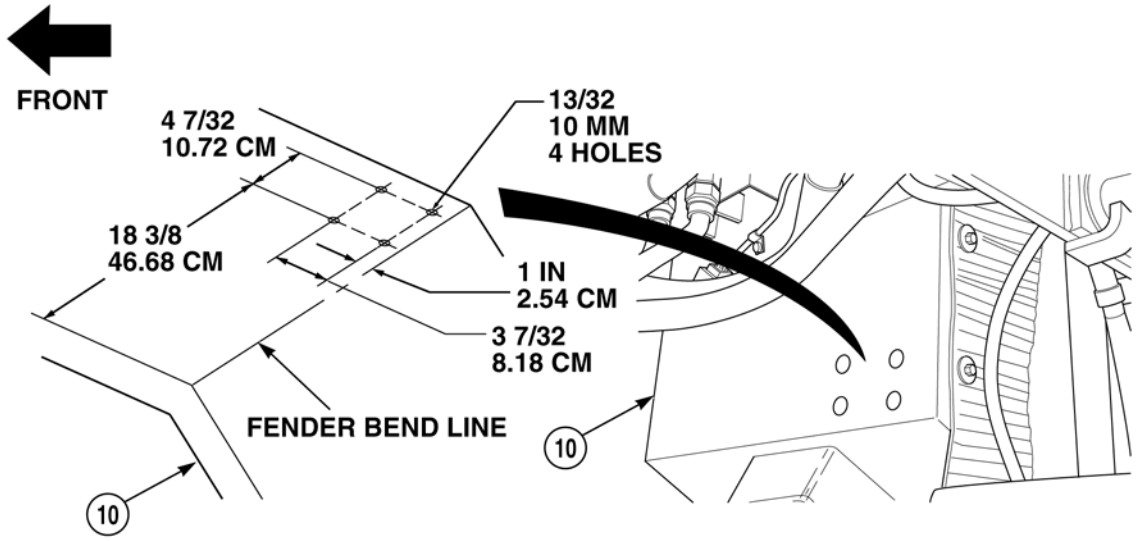
18-9. INTERFACE KIT INSTALLATION (CONT).

(3) Deleted.

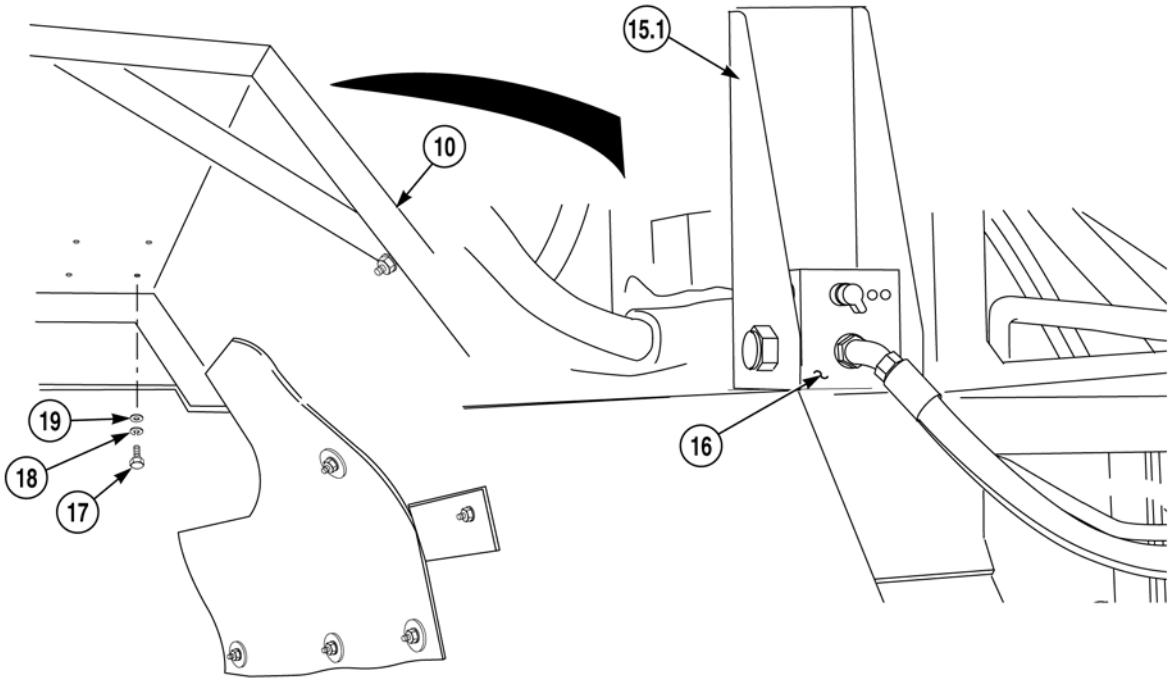
(4) Deleted.

(5) Deleted.

(6) Deleted.

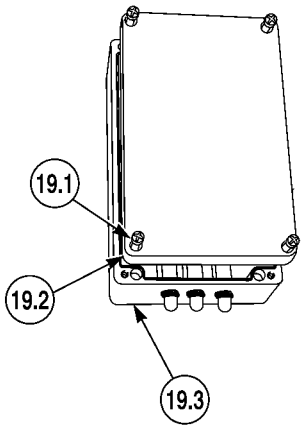


(7) Drill four 13/32 in. (10mm) holes in left front fender (10) as shown.

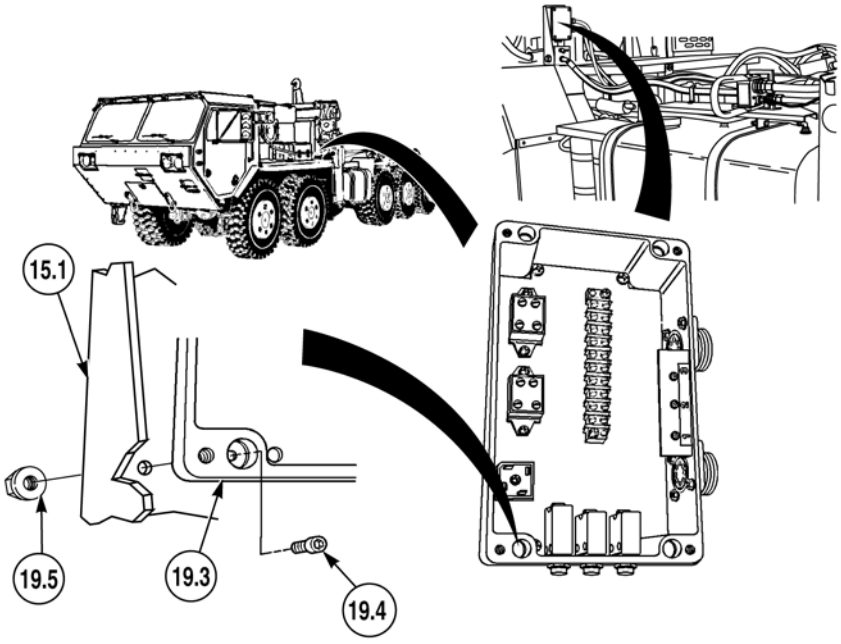


(8) Install bracket (15.1) and valve (16) on fender (10) with four screws (17), lockwashers (18) and washers (19).

18-9. INTERFACE KIT INSTALLATION (CONT).

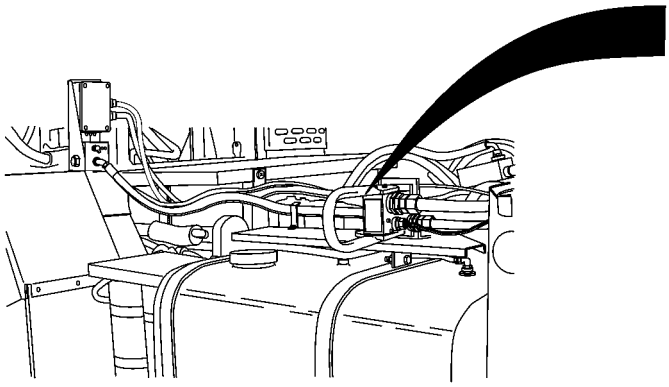


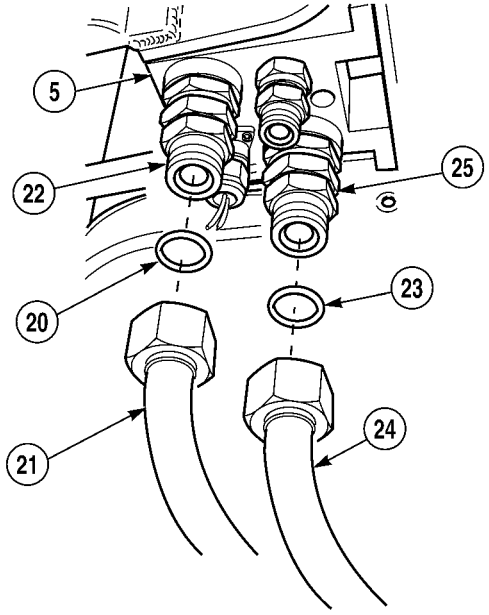
(8.1) Loosen four screws (19.1) and remove cover (19.2) from powerbox (19.3).



(8.2) Install powerbox (19.3) on bracket (15.1) with four socket head screws (19.4) and locknuts (19.5).

(8.3) Position cover (19.2) on powerbox (19.3) and tighten four screws (19.1).





(9) Apply hydraulic oil to preformed packing (20).

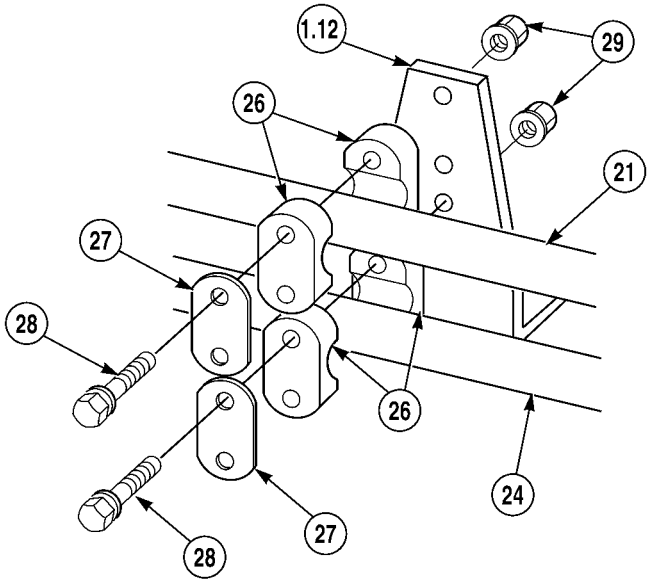
(10) Position tube 2724 (21) and preformed packing (20) on fitting (22) of quick disconnect (5).

(11) Apply hydraulic oil to preformed packing (23).

(12) Position tube 2810 (24) and preformed packing (23) on fitting (25).

(13) Install four clamp halves (26), two cover plates (27), four screws (28), locknuts (29), tube 2810 (24) and tube 2724 (21) on quick disconnect mounting bracket (1.12).

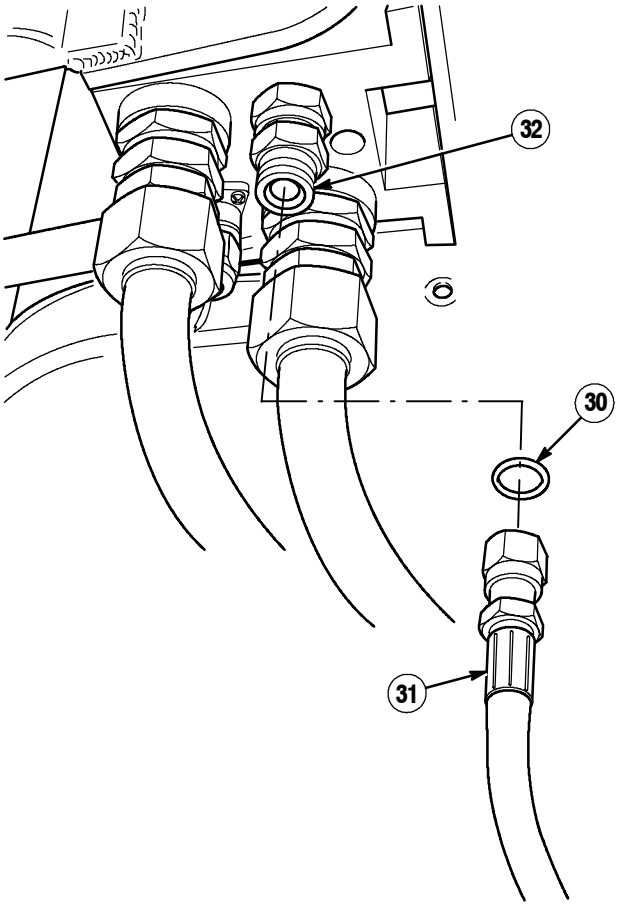
(14) Tighten tubes 2810 (24) and 2724 (21) on fittings (22) and (25).



18-9. INTERFACE KIT INSTALLATION (CONT).

(15) Apply hydraulic oil to preformed packing (30).

(16) Install hose 2776 (31) and preformed packing (30) on fitting (32).

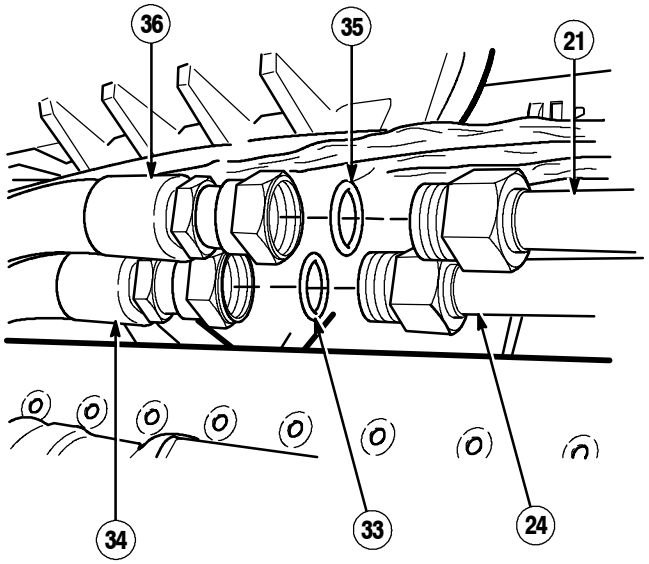


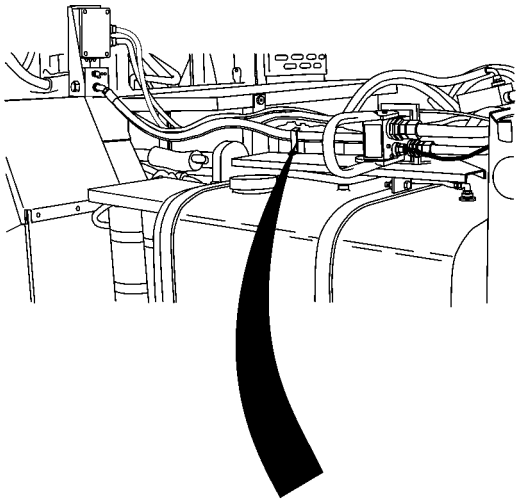
(17) Apply hydraulic oil to preformed packing (33).

(18) Install hose 2810 (34) and preformed packing (33) on tube 2810 (24).

(19) Apply hydraulic oil to preformed packing (35).

(20) Install hose 2724 (36) and preformed packing (35) on tube 2724 (21).





(21) Position hose 2810 (34) and hose 2724 (36) along step (2).

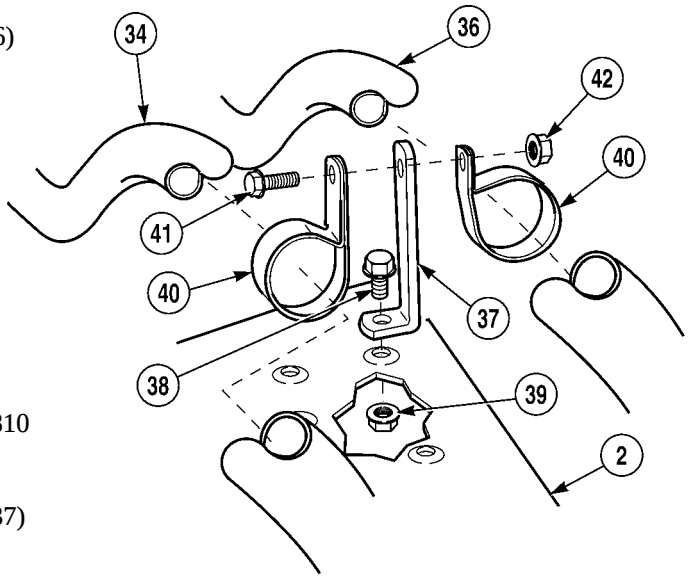
NOTE

Use existing hole in step to mount bracket. Bracket should be mounted in first hole from front and in first row from inside.

(22) Install bracket (37) to step (2) with screw (38) and locknut (39).

(23) Position two cushion clips (40) on hose 2810 (34) and hose 2724 (36).

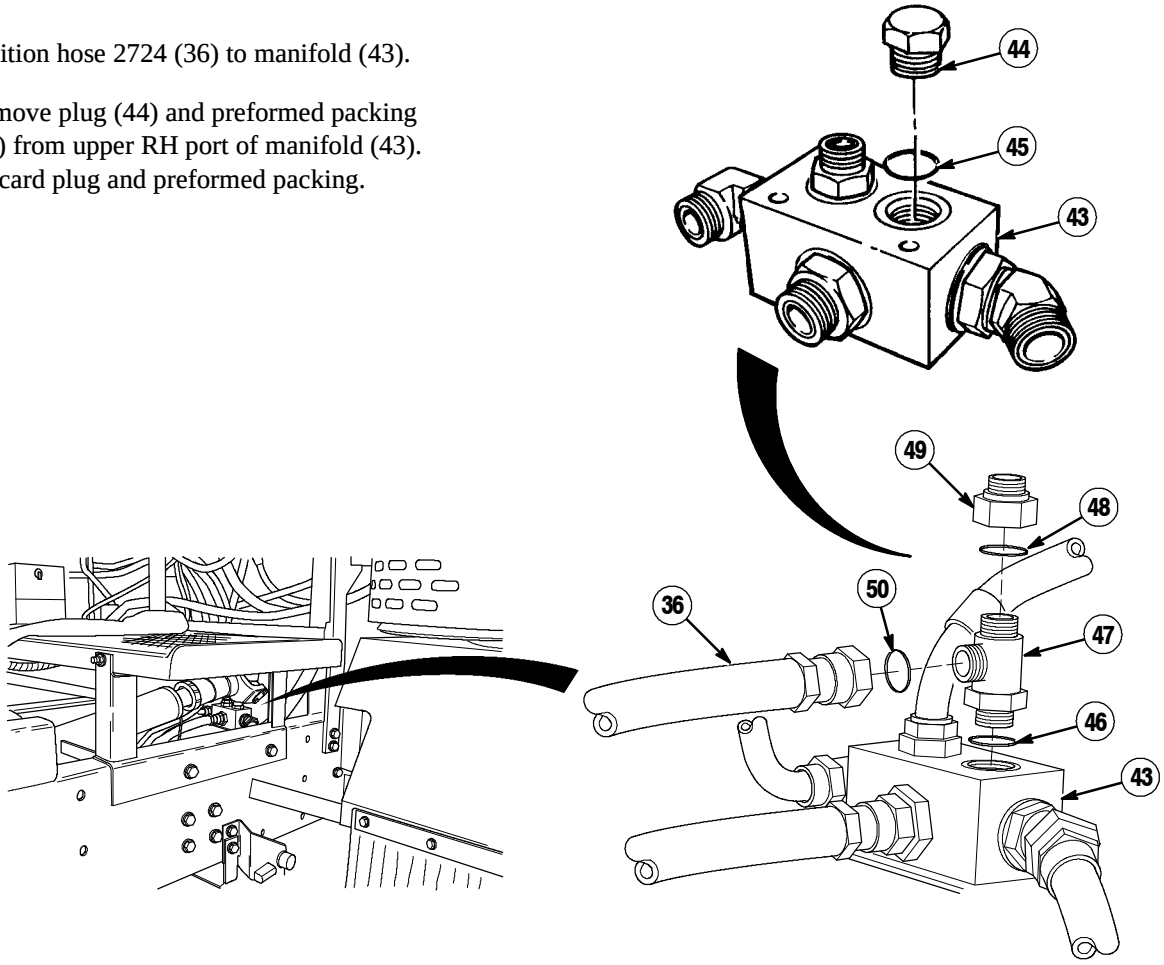
(24) Install two cushion clips (40) to bracket (37) with screw (41) and locknut (42).



18-9. INTERFACE KIT INSTALLATION (CONT).

(25) Position hose 2724 (36) to manifold (43).

(26) Remove plug (44) and preformed packing (45) from upper RH port of manifold (43). Discard plug and preformed packing.



(27) Apply hydraulic oil to preformed packing (46).

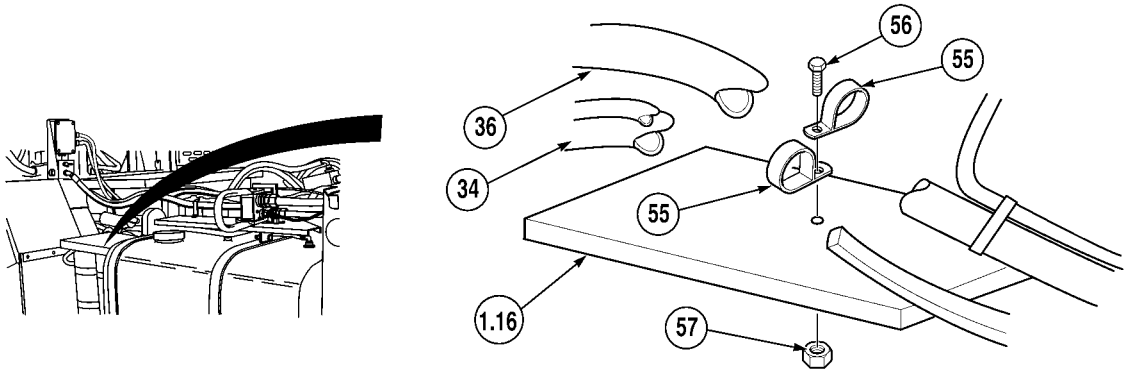
(28) Install tee (47) and preformed packing (46) in upper RH port of manifold (43).

(29) Apply hydraulic oil to preformed packing (48).

(30) Install reducer (49) and preformed packing (48) on tee (47).

(31) Apply hydraulic oil to preformed packing (50).

(32) Install hose 2724 (36) and preformed packing (50) on tee (47).

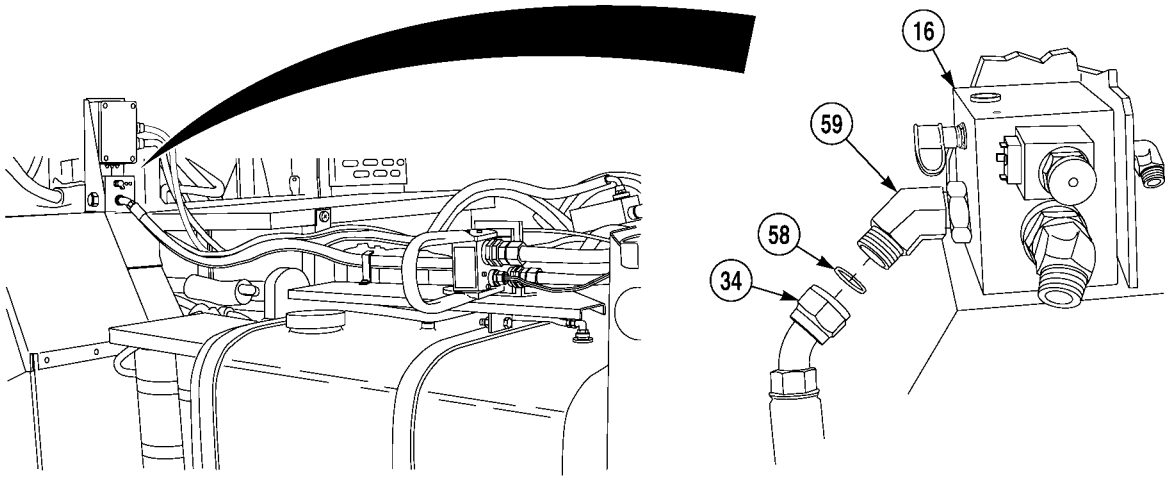


(33) Deleted.

(34) Deleted.

(35) Position two cushion clips (55) on hose 2810 (34) and hose 2724 (36).

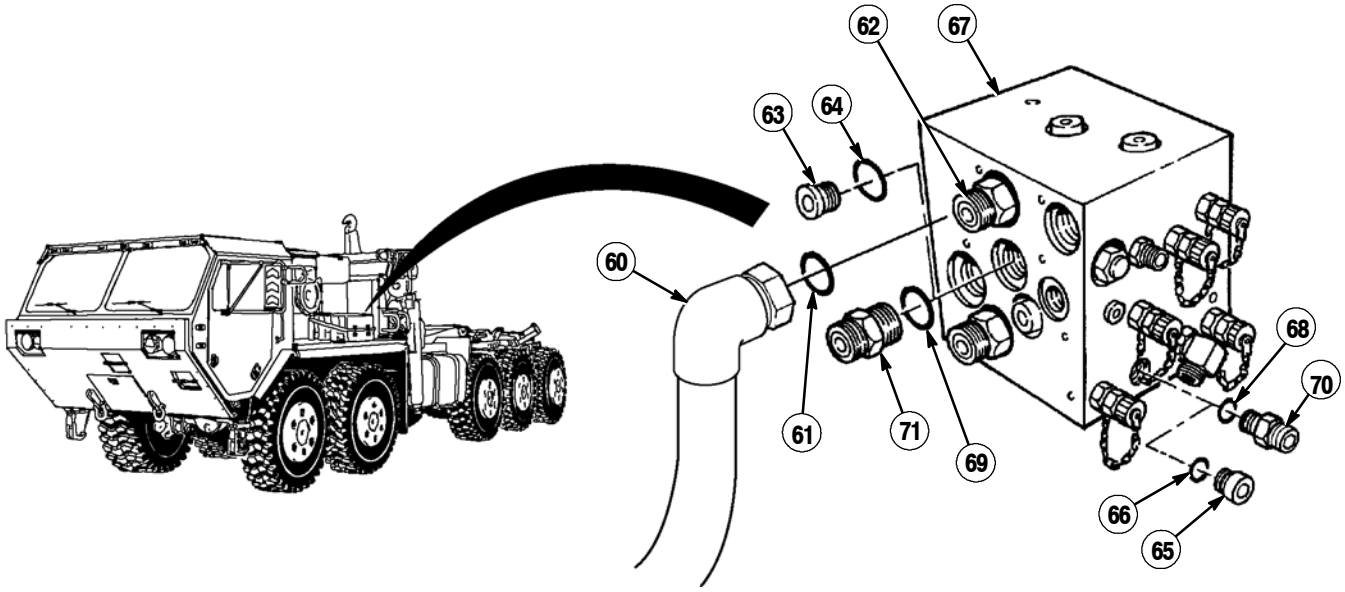
(36) Install two cushion clips (55) on on air dryer guard (1.16) with screw (56) and locknut (57).



(37) Apply hydraulic oil to preformed packing (58).

(38) Install hose 2810 (34) and preformed packing (58) on fitting (59) in valve (16).

18-9. INTERFACE KIT INSTALLATION (CONT).



(39) Remove hose 2936 (60) and preformed packing (61) from fitting (62). Discard preformed packing.

(40) Remove and discard plug (63), preformed packing (64), plug (65) and preformed packing (66) from manifold (67).

(41) Apply hydraulic oil to preformed packing (68) and preformed packing (69).

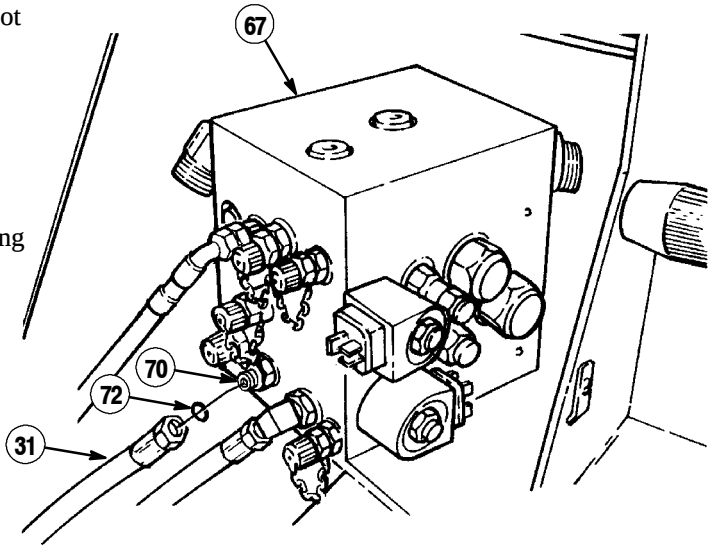
(42) Install fitting (70) and preformed packing (68) in manifold (67).

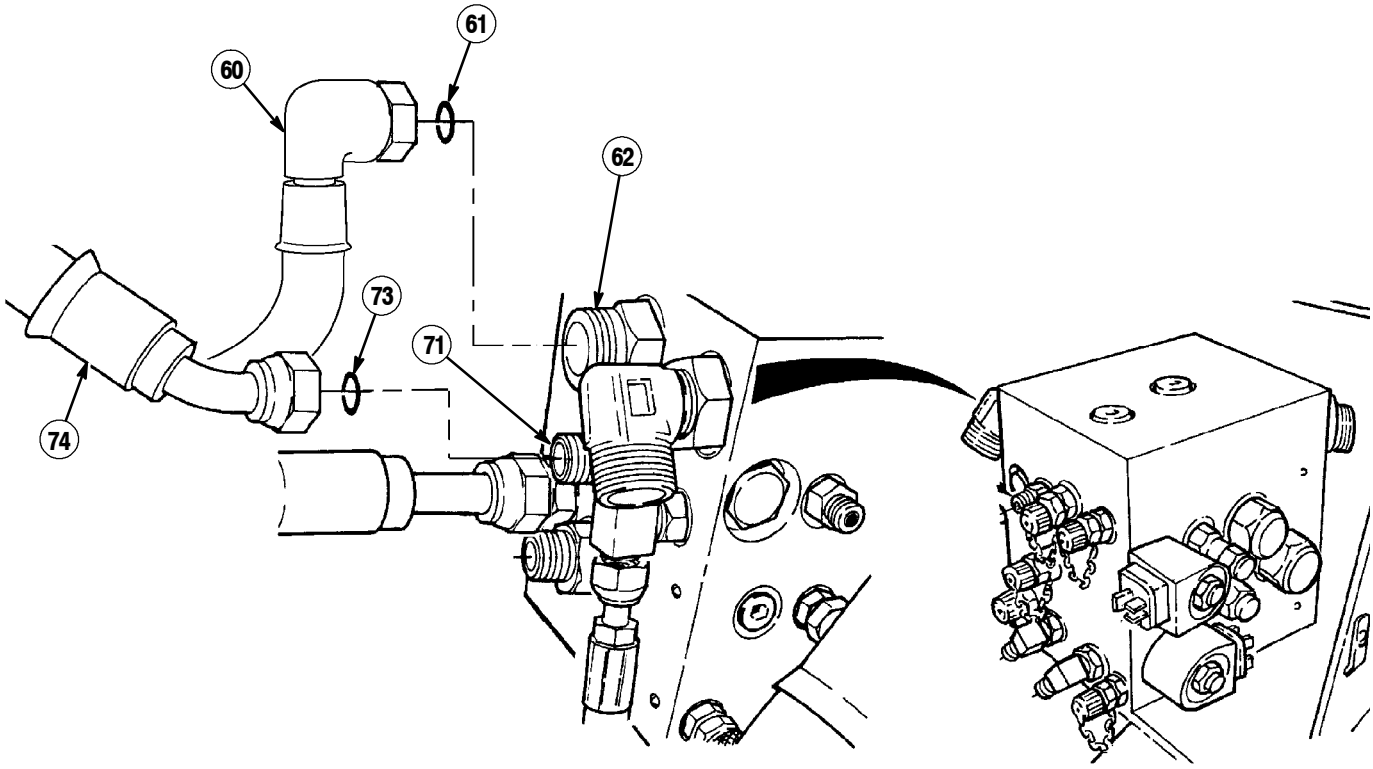
(43) Install fitting (71) and preformed packing (69) in manifold (67).

(44) Position 2776 hose (31) along hose 2724 (not shown) and hose 2810 (not shown) to manifold (67).

(45) Apply hydraulic oil to preformed packing (72).

(46) Install hose 2776 (31) and preformed packing (72) on fitting (70).





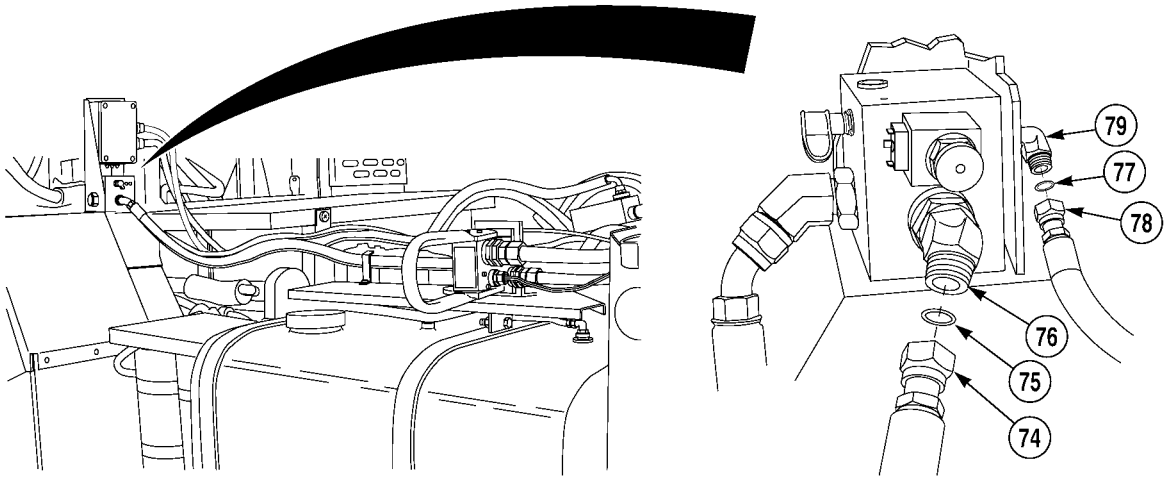
(47) Apply hydraulic oil to preformed packing (73)

(48) Install hose 2902 (74) and preformed packing (73) on fitting (71).

(49) Apply hydraulic oil to preformed packing (61).

(50) Install hose 2936 (60) and preformed packing (61) on fitting (62).

18-9. INTERFACE KIT INSTALLATION (CONT).

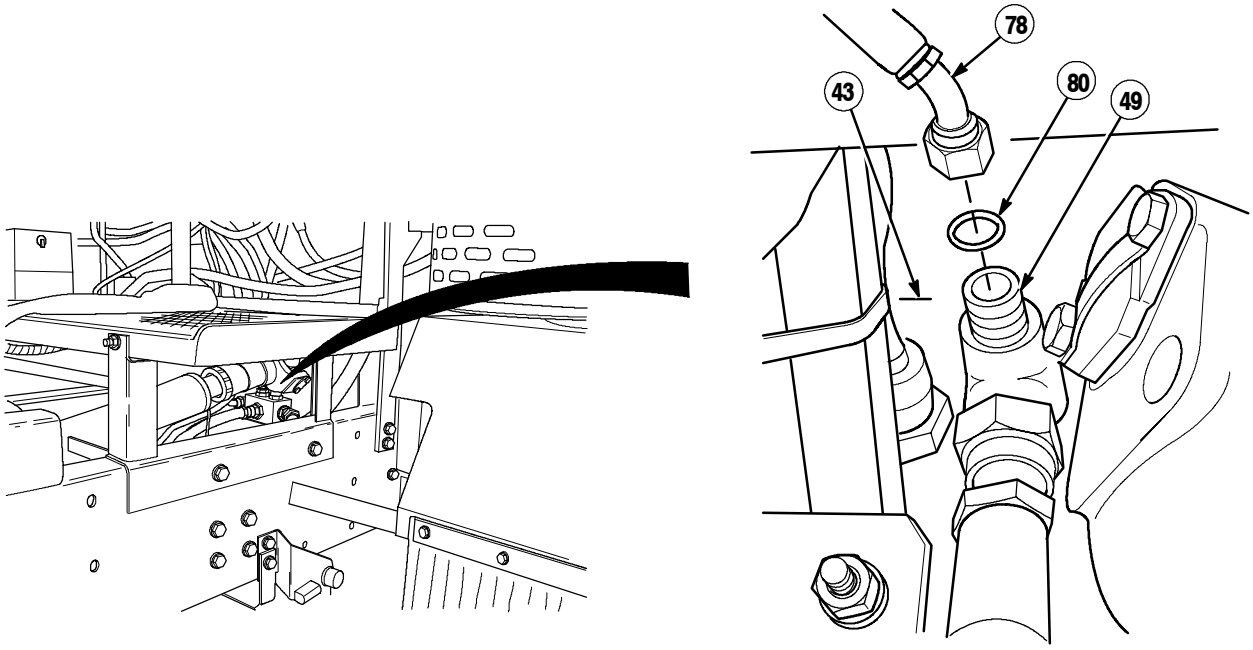


(51) Apply hydraulic oil to preformed packing (75).

(52) Install hose 2902 (74) and preformed packing (75) on fitting (76).

(53) Apply hydraulic oil to preformed packing (77).

(54) Install hose 2774 (78) and preformed packing (77) on elbow (79).



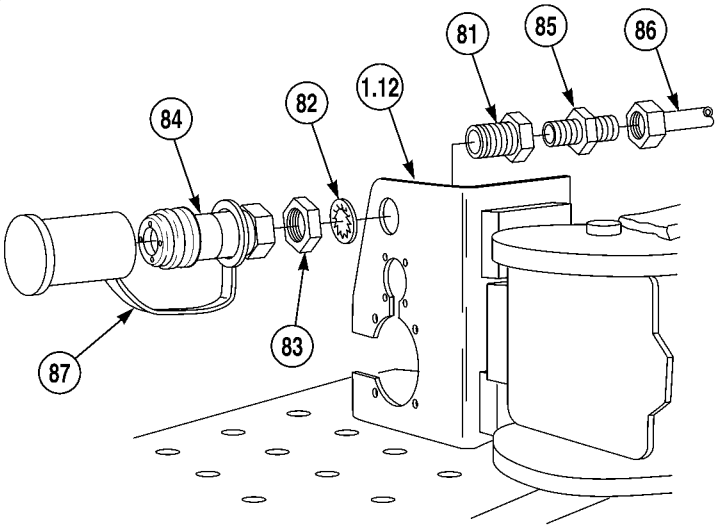
(55) Position hose 2774 (78) to manifold (43).

(56) Apply hydraulic oil to preformed packing (80).

(57) Install hose 2774 (78) and preformed packing (80) on reducer (49).

18-9. INTERFACE KIT INSTALLATION (CONT).

(58) Install fitting (81) in mounting bracket (1.12) with lockwasher (82) and jam nut (83).



WARNING

Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(59) Apply sealing compound on threads of fitting (81).

(60) Install quick disconnect (84) on fitting (81).

(61) Apply sealing compound on threads of fitting (85).

(62) Install fitting (85) in fitting (81).

(63) Install air line 2133 (86) on fitting (85).

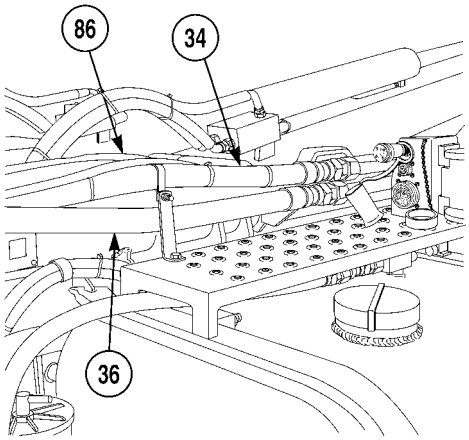
(64) Install cover (87) on air quick disconnect (84).

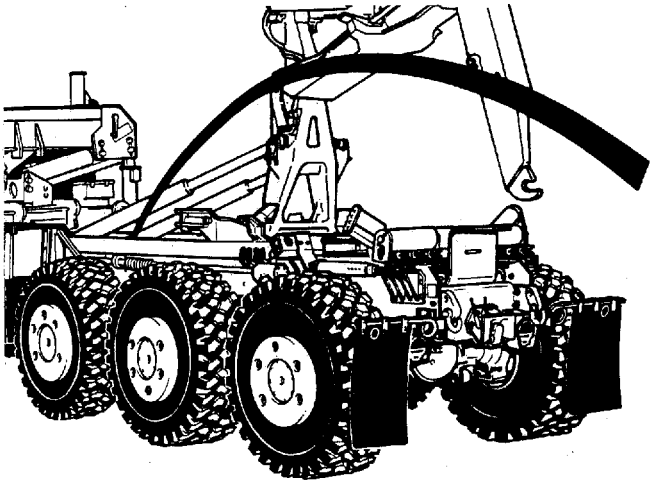
18-9. INTERFACE KIT INSTALLATION (CONT).

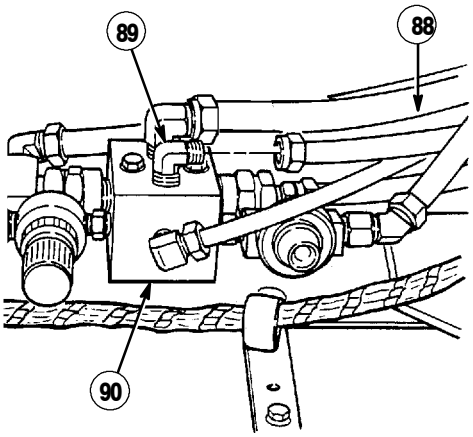
(65) Position air line 2133 (86) along hose 2724 (36) and hose 2810 (34).

(66) Remove existing air line 2133 (88) from elbow (89).

(67) Remove and discard elbow (89) from manifold (90).







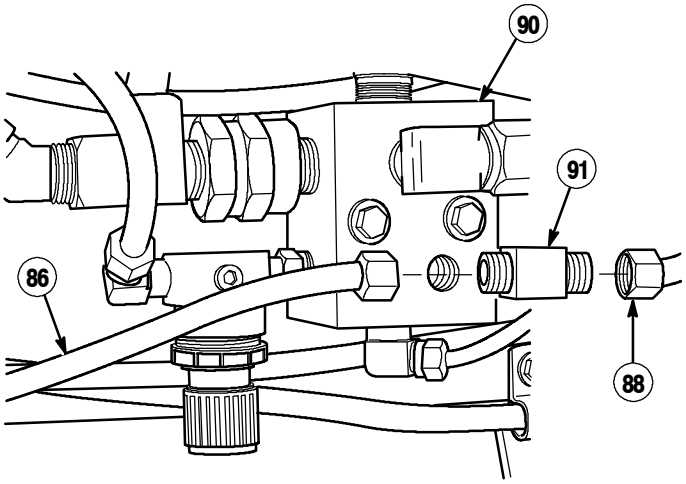
WARNING

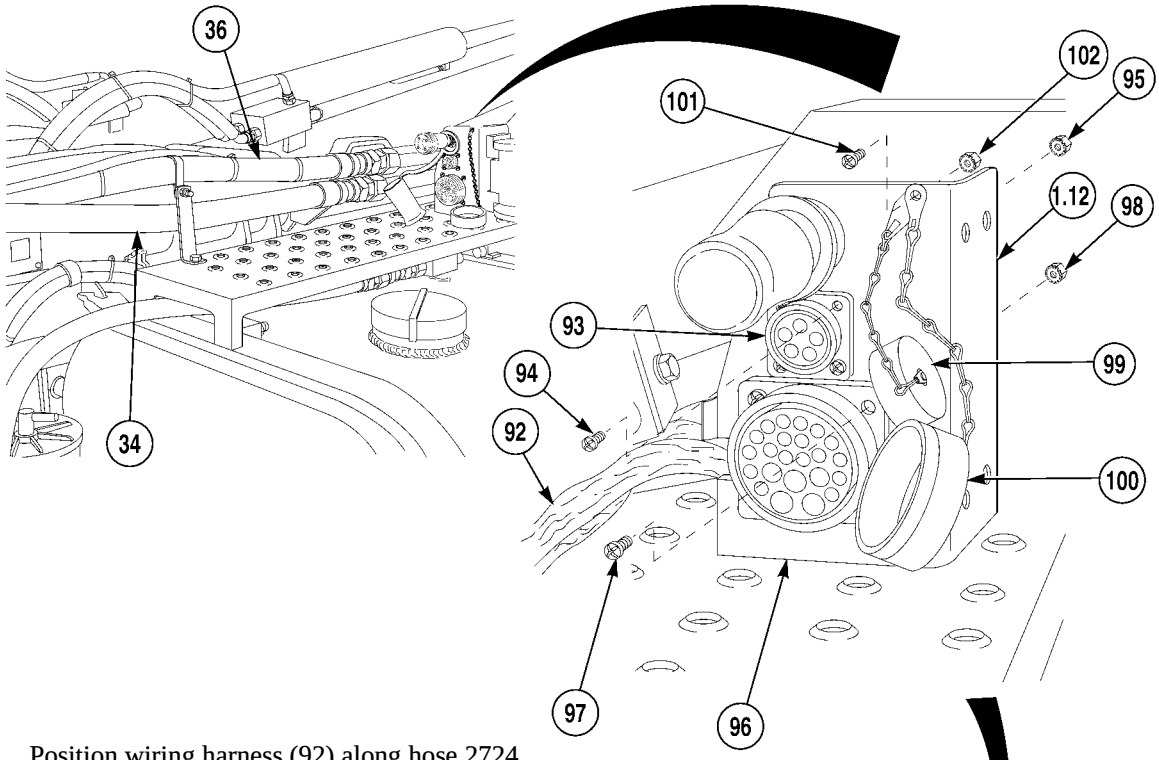
Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(68) Apply sealing compound on threads of tee (91).

(69) Install tee (91) in manifold (90).

(70) Install existing air line 2133 (88) and new air line 2133 (86) on tee (91).





(71) Position wiring harness (92) along hose 2724 (36) and hose 2810 (34).

(72) Position MC138 connector (93) through slots in mounting bracket (1) and install with four screws (94) and locknuts (95).

(73) Install MC130 connector (96) to mounting bracket (1.12) with four screws (97) and locknuts (98).

(74) Install cap with chain (99) and cap with chain (100) with screw (101) and locknut (102) on mounting bracket (1).

(75) Install cap (100) on MC130 connector (96).

(76) Install cap (99) on MC138 connector (93).

18-9. INTERFACE KIT INSTALLATION (CONT).

(77) Remove nut (103) from fitting (104).

(78) Remove fitting (104) from quick disconnect (5).

(79) Position wires 1435 (105), 1435A (106) and 1435B (107) through nut (103) and fitting (104).

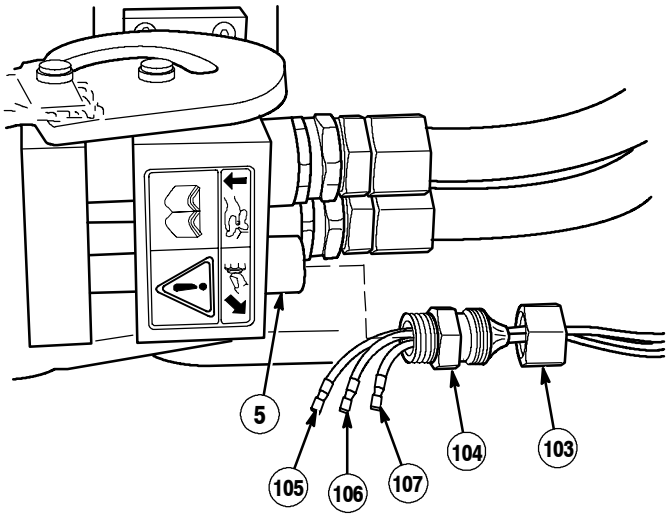
(80) Install wire 1435 (105) to terminal (108).

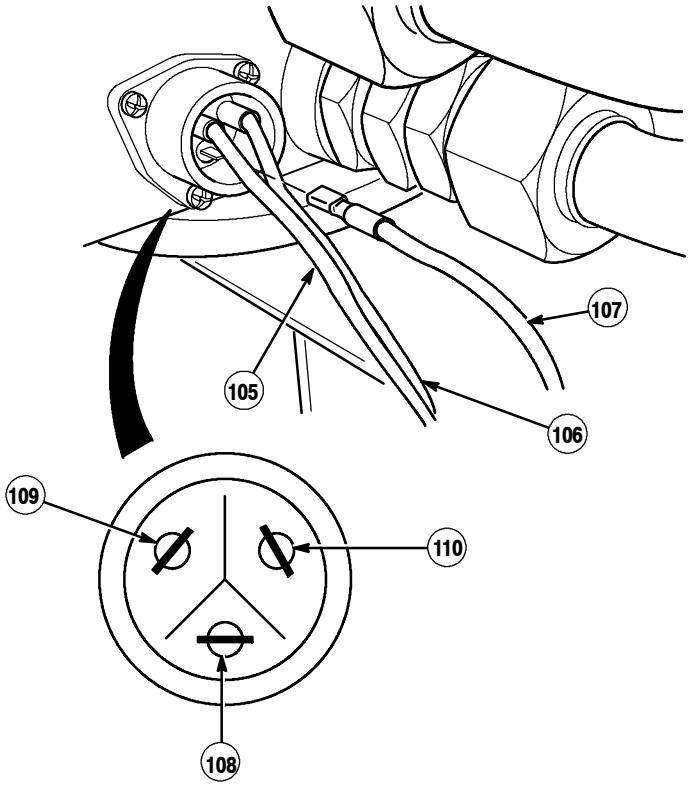
(81) Install wire 1435A (106) to terminal (109).

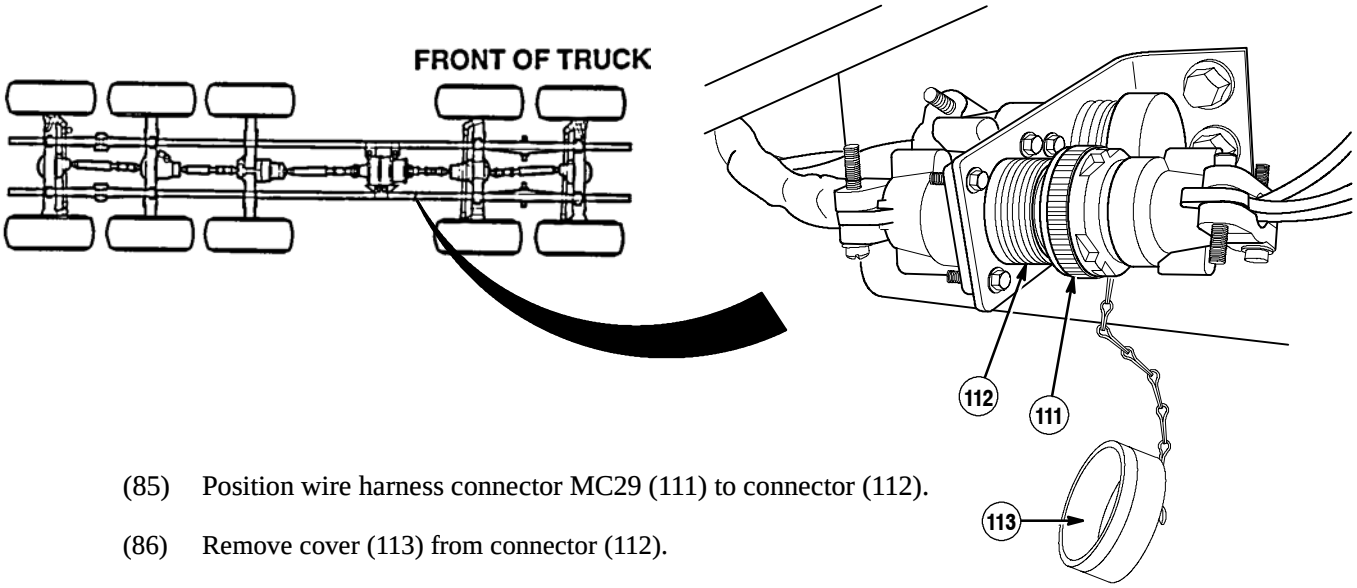
(82) Install wire 1435B (107) to terminal (110).

(83) Install fitting (104) on quick disconnect (5).

(84) Install nut (103) on fitting (104).



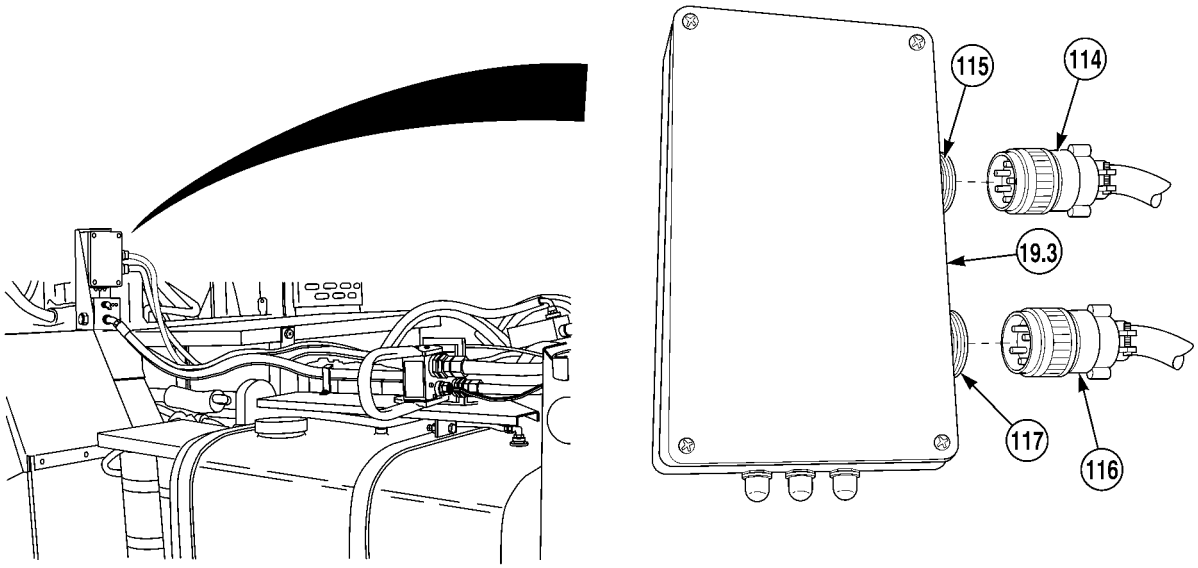




(85) Position wire harness connector MC29 (111) to connector (112).

(86) Remove cover (113) from connector (112).

(87) Connect wire harness connector MC29 (111) to connector (112).



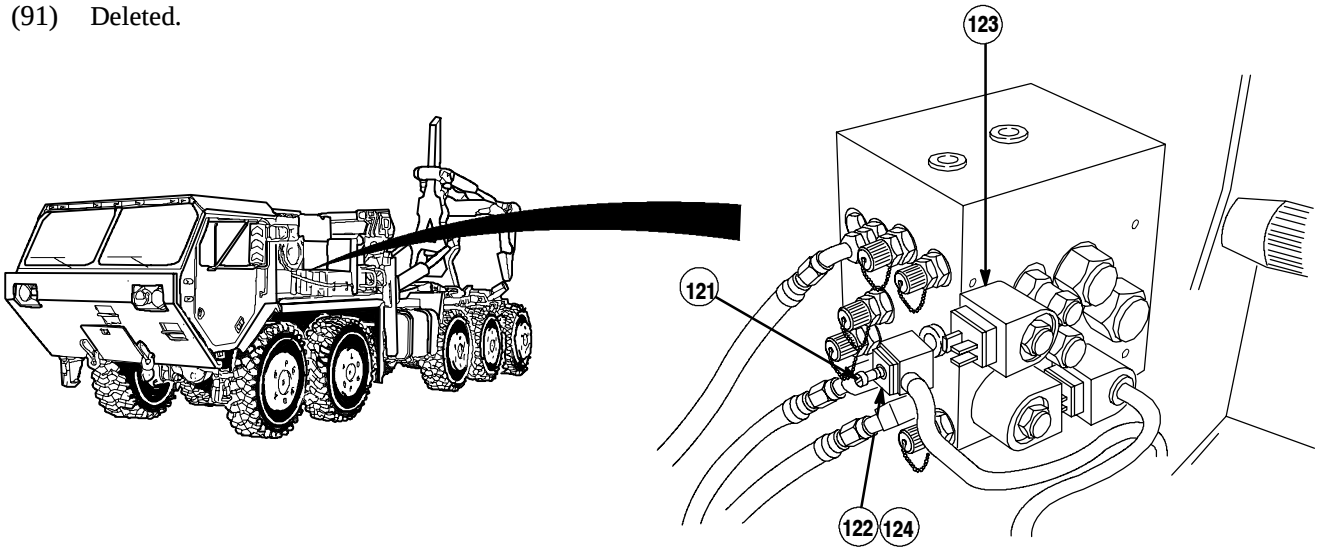
(88) Connect MC135 connector (114) to MC135 connector (115) on powerbox (19.3).

(89) Connect MC136 connector (116) to MC136 connector (117) on powerbox (19.3).

18-9. INTERFACE KIT INSTALLATION (CONT).

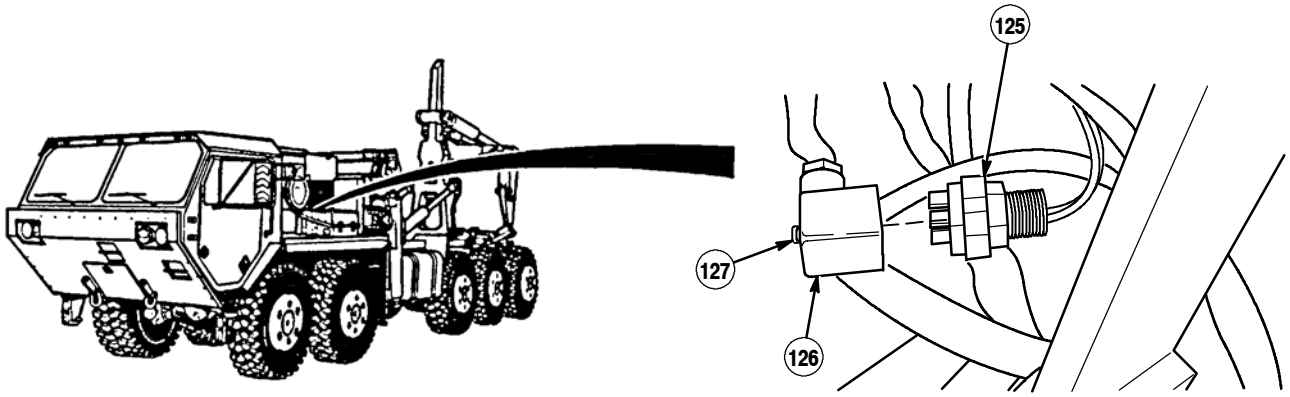
(90) Deleted.

(91) Deleted.



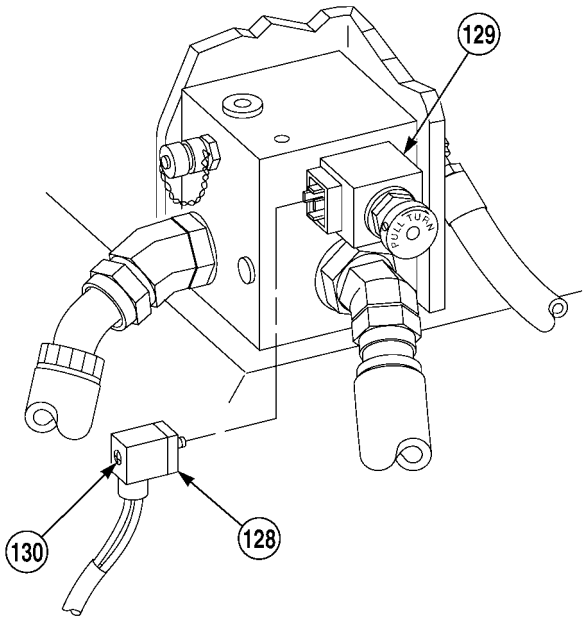
(92) Loosen screw (121) and disconnect MC10 connector (122) from solenoid valve (123).

(93) Connect MC133 connector (124) to valve (123) and tighten screw (121).



(94) Connect MC132 connector (125) to M10 connector (126) and tighten screw (127).

(95) Connect MC134 connector (128) to manual override solenoid (129) and tighten screw (130).

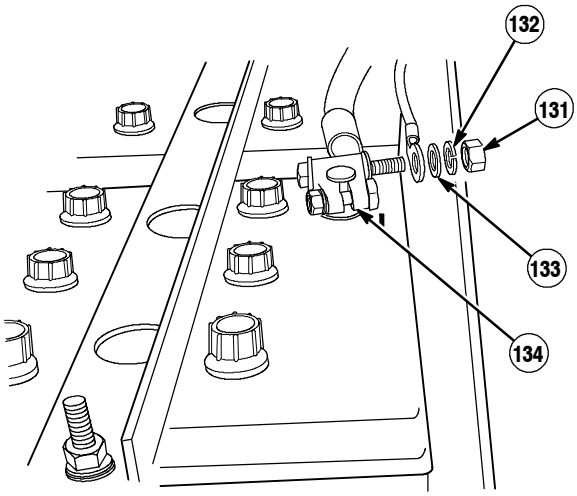


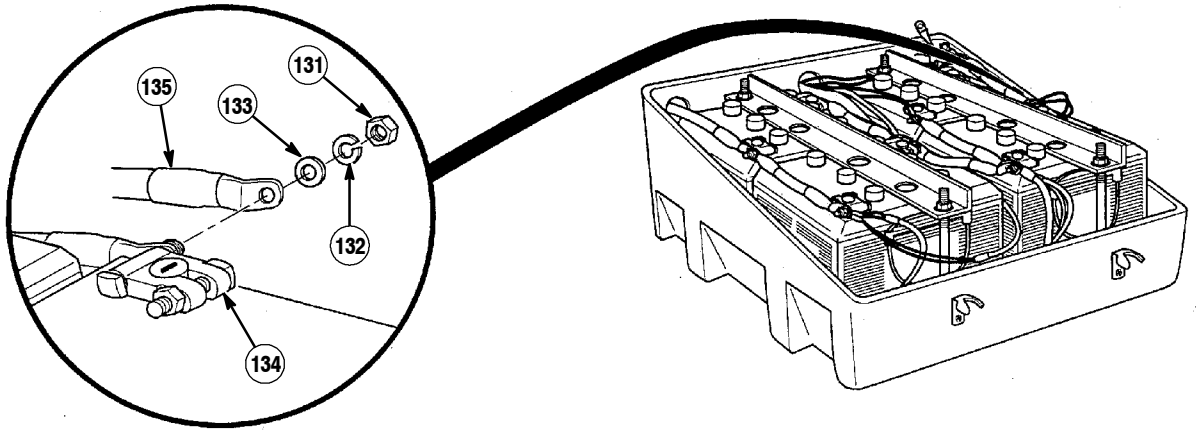
18-9. INTERFACE KIT INSTALLATION (CONT).

WARNING

- Upon installation of all wires and cables, ensure no contact is made with battery terminals or other wires and cables. Strap wires as required to prevent injury or death to personnel or damage to equipment.
- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing from being damaged.
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

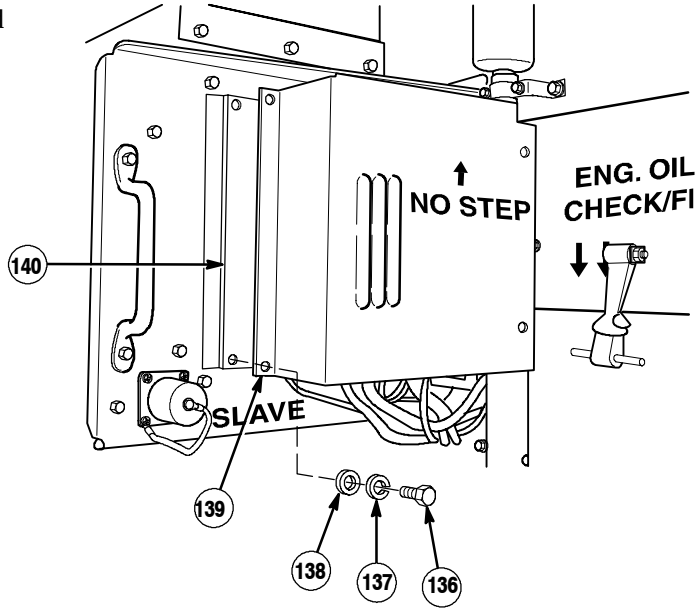
(96) Remove nut (131), lockwasher (132) and washer (133) from negative terminal (134). Discard lockwasher.





(97) Install wire 1435 (135) to negative terminal (134) with washer (133), lockwasher (132) and nut (131).

(98) Remove four screws (136), lockwashers (137), washers (138) and splash guard (139) from panel (140). Discard lockwashers.



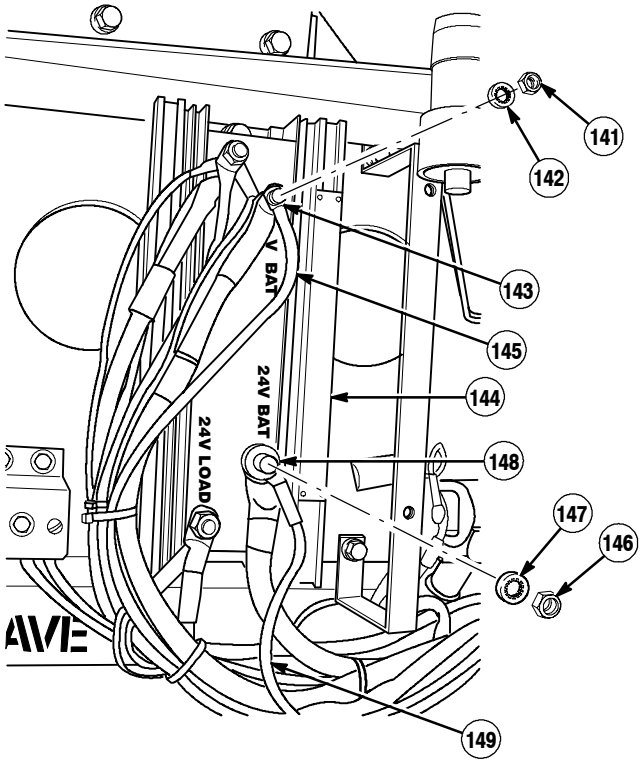
(99) Remove nut (141) and lockwasher (142) from 12V BAT terminal (143) on polarity protection (144). Discard lockwasher.

(100) Install wire 1785 (145) on 12V BAT terminal (143) with lockwasher (142) and nut (141).

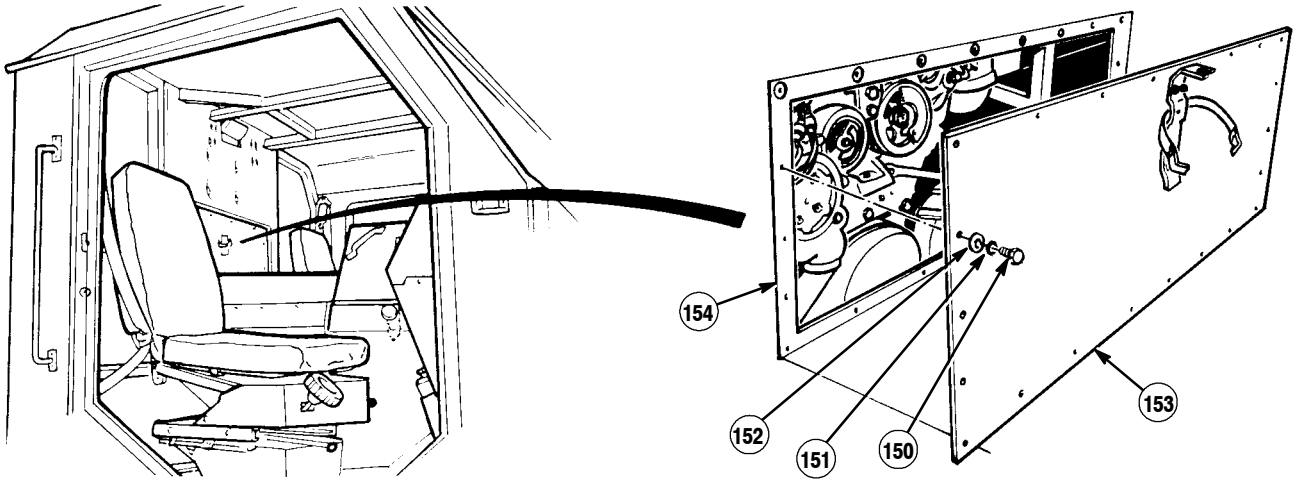
(101) Remove nut (146) and lockwasher (147) from 24V BAT terminal (148) on polarity protection (144). Discard lockwasher.

(102) Install wire 1784 (149) on 24V BAT terminal (148) with lockwasher (147) and nut (146).

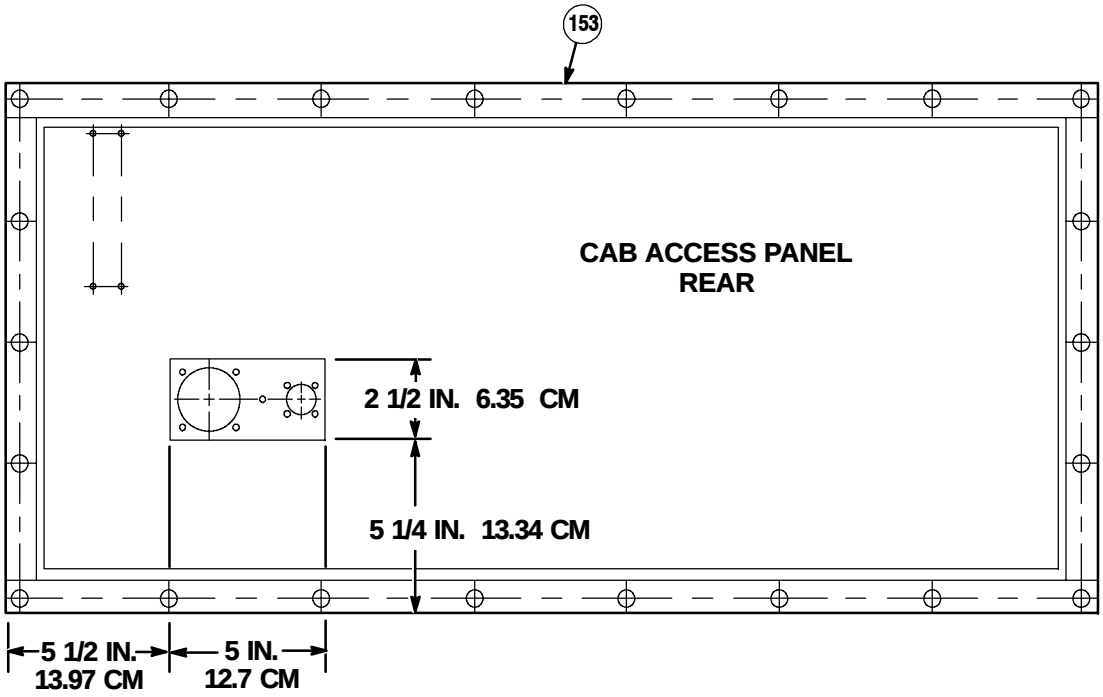
(103) Install splash guard (139) on panel (140) with four washers (138), lockwashers (137) and screws (136).



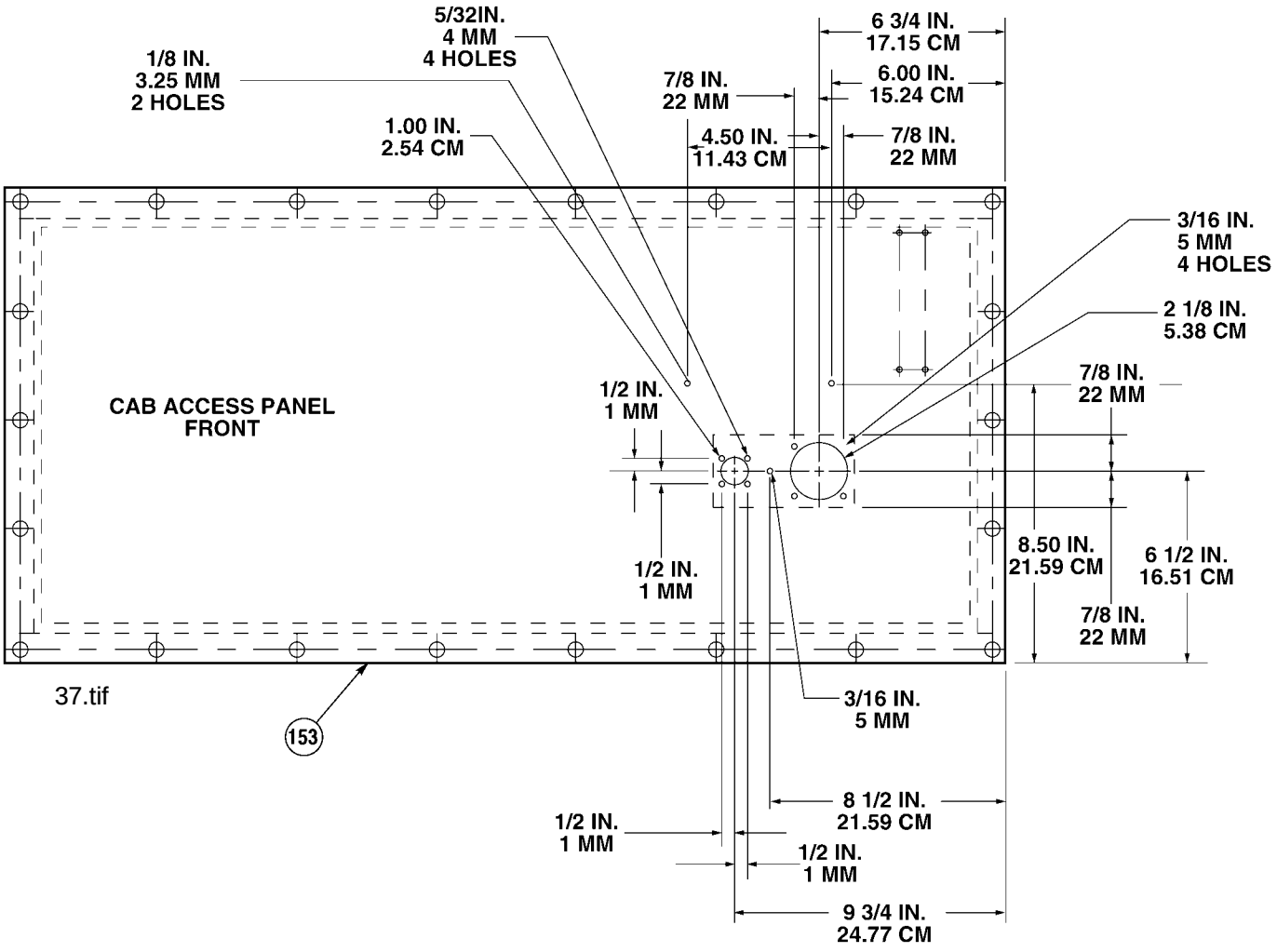
18-9. INTERFACE KIT INSTALLATION (CONT).



(104) Remove 22 screws (150), lockwashers (151), washers (152) and cab engine access panel (153) from cab (154). Discard lockwashers.



(105) Cut out and remove insulation from cab engine access panel (153) in dimensions shown.



(106) Drill thirteen holes in cab engine access panel (153) in dimensions shown.

18-9. INTERFACE KIT INSTALLATION (CONT).

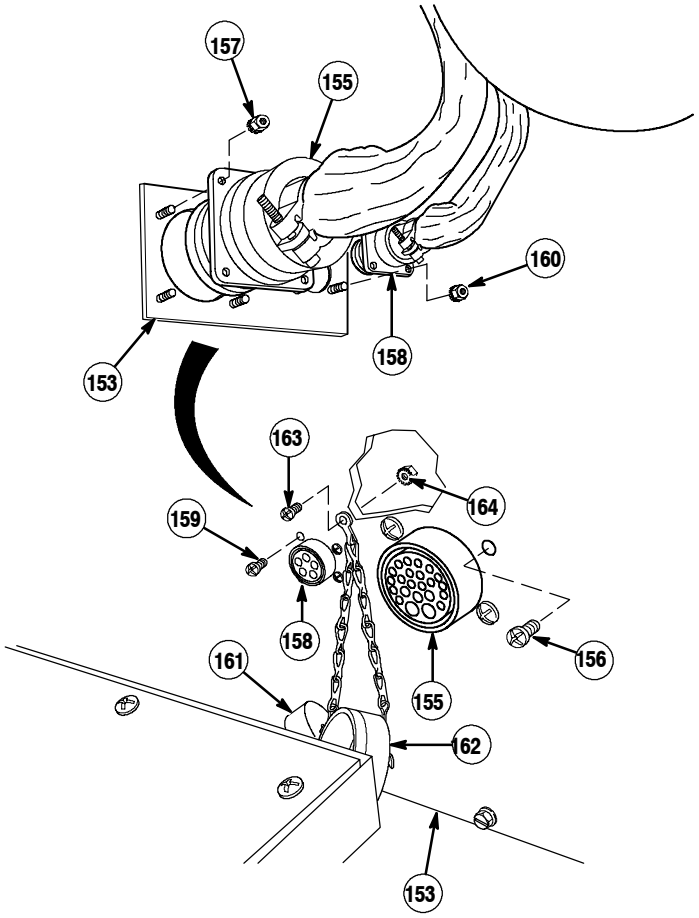
(107) Install MC129 connector (155) to cab engine access panel (153) with four screws (156) and locknuts (157).

(108) Install MC137 connector (158) to cab engine access panel (153) with four screws (15) and locknuts (160).

(109) Install cap with chain (161) and cap with chain (162) to cab engine access panel (153) with screw (163) and locknut (164).

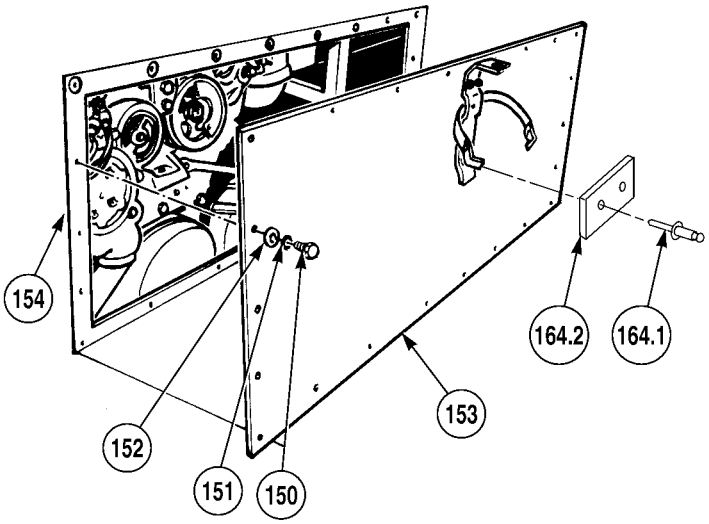
(110) Install cap (162) to MC129 connector (155).

(111) Install cap (161) to MC137 connector (159).



(112) Install cab engine access panel (153) to cab (154) with 22 washers (152), lockwashers (151) and screws (150).

(112.1) Install interface kit data plate (164.1) on engine access panel (153) with two blind rivets (164.2)

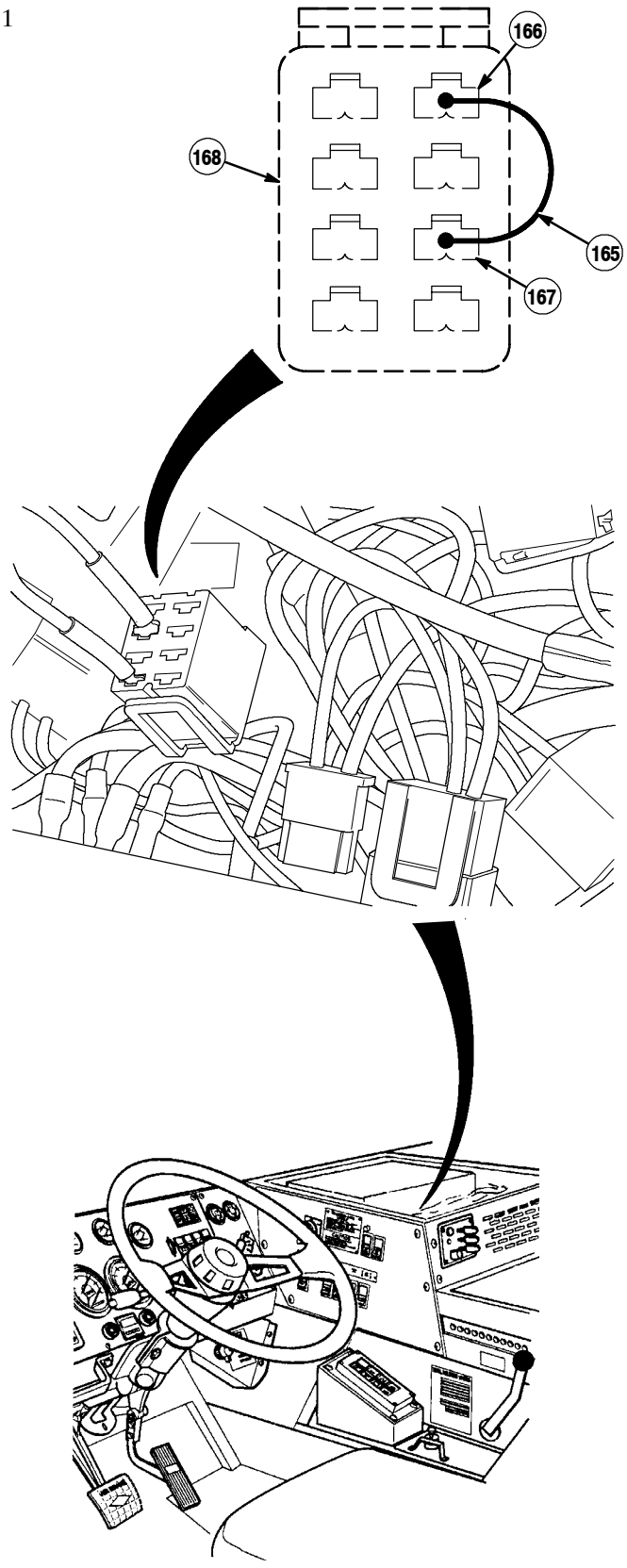


(113) Install jumper wire (165) between terminal 1 (166) and terminal 5 (167) of S4 connector (168).

CAUTION

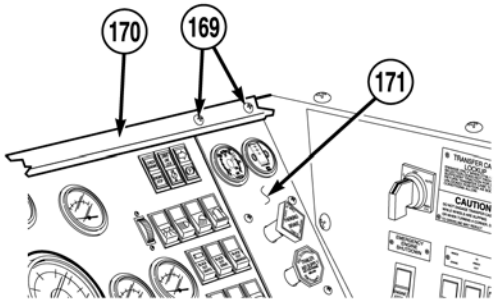
Ensure all wires and hoses are away from moving parts and are not rubbing or making contact with metal parts. Failure to comply may result in damage to equipment.

(114) Install cable ties to all hoses and wires as required.



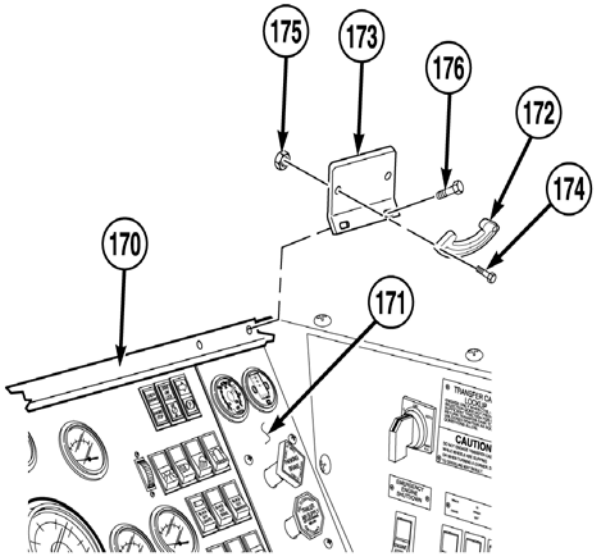
18-9. INTERFACE KIT INSTALLATION (CONT).

(115) Remove and discard two screws (169) from sun shield (170) and dash air panel (171).



(116) Install side slope gauge (172) on bracket (173) with two screws (174) and locknuts (175).

(117) Install bracket (173) on sun shield (170) and dash air panel (171) with two screws (176).



b. Follow-On Maintenance:

- Fill hydraulic system, (TM 9-2320-364-20).
- Install heater compartment cover, (TM 9-2320-364-20).
- Install left front noise panel, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Install rear noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Install fire extinguisher, (TM 9-2320-364-10).
- Stow LHS, (TM 9-2320-364-10).
- Check for leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-10. LHS CONTROLLER PROTECTION KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit General Mechanic's
(Item 240, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in.
(Item 49, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Tape, Electrical (Item 74, Appendix B)

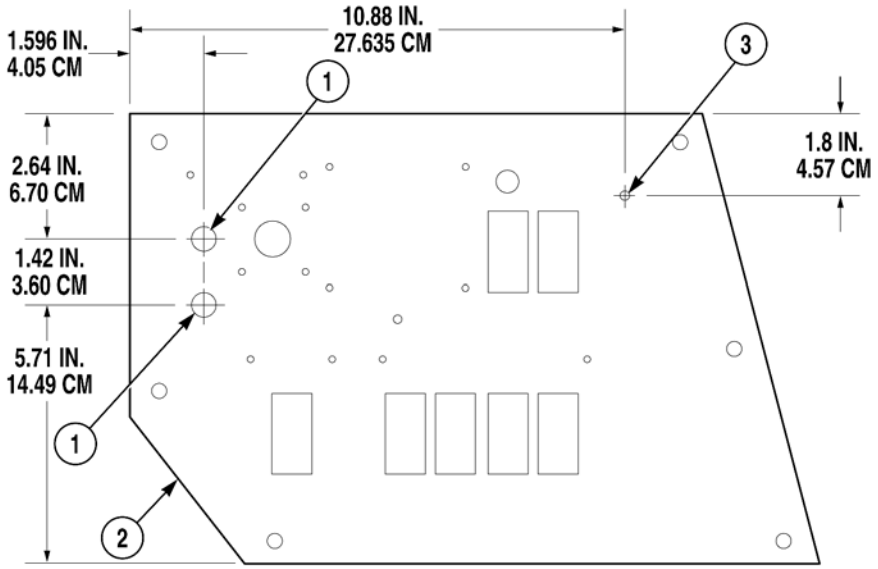
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Heater cover removed, (TM 9-2320-364-20)

a. Installation.

(1) Remove LHS cab interface wire harness, (Para 6-32).

(2) Remove ECB side panel, (TM 9-2320-364-20).

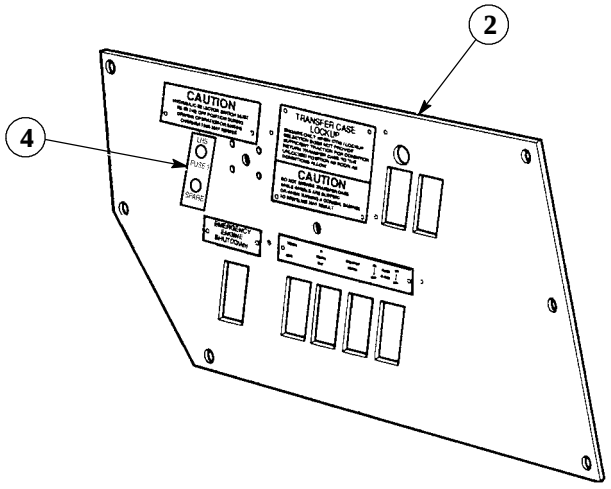


(3) Drill two 0.531 in. (13.487 mm) holes (1) in side panel (2) as shown.

(4) Drill 0.203 in. (5.16 mm) hole (3) in side panel (2) as shown.

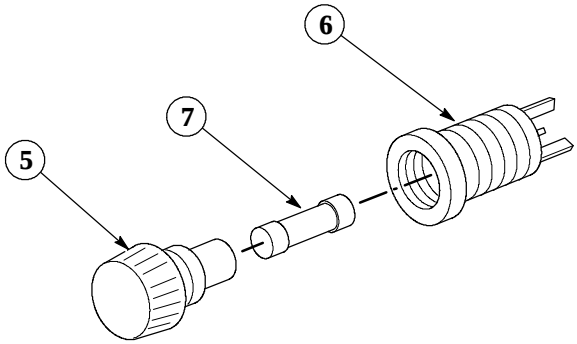
18-10. LHS CONTROLLER PROTECTION KIT INSTALLATION (CONT).

(5) Position fuse data plate (4) on side panel (2).



(6) Remove two covers (5) from fuse holders (6).

(7) Position two fuses (7) in fuse holders (6) and install covers (5).

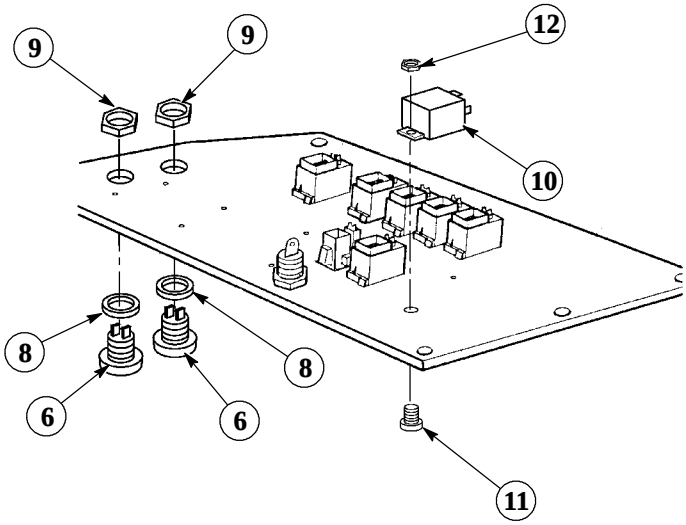


NOTE

There are two fuse holders. Both are installed the same way.

(8) Install two seals (8), fuse holders (6) and nuts (9) through data plate (4) on side panel (2).

(9) Install relay (10) on side panel (2) with screw (11) and locknut (12).



NOTE

- Evenly distribute any slack in harness.
- Install cable ties as required.

(10) Position cab interface wire harness in truck.

(11) Connect MC33 connector (13).

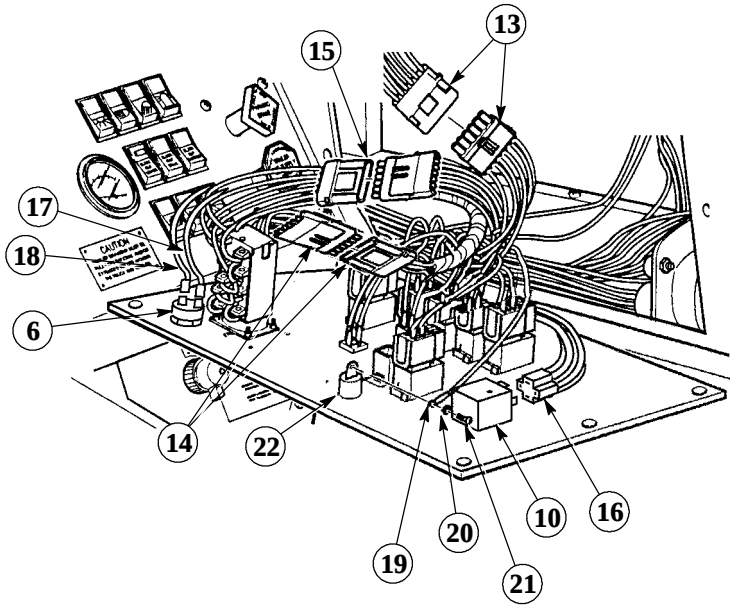
(12) Connect MC93 connector (14).

(13) Connect MC94 connector (15).

(14) Connect relay connector (16) to relay (10).

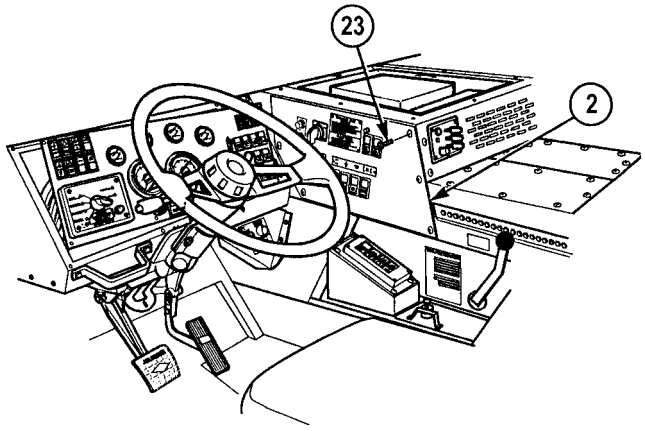
(15) Connect wires 1755A (17) and 1755 (18) to LHS fuse holder (6).

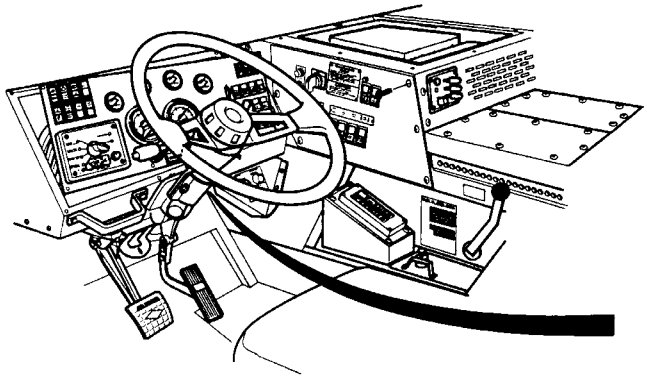
(16) Install wire 1052 (19), lockwashers (20) and screw (21) on panel light (22).

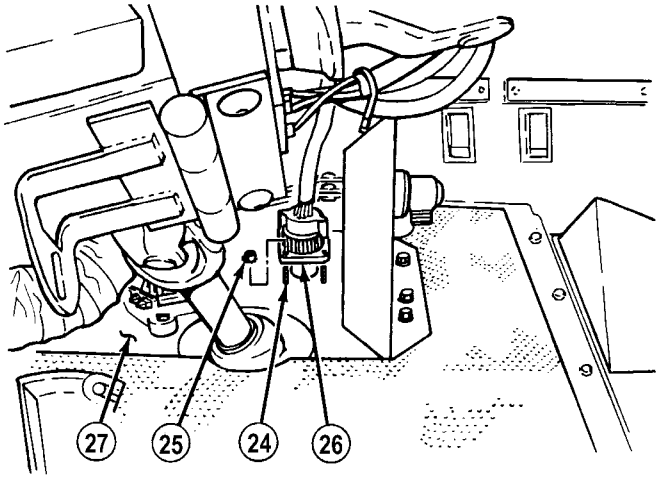


18-10. LHS CONTROLLER PROTECTION KIT INSTALLATION (CONT).

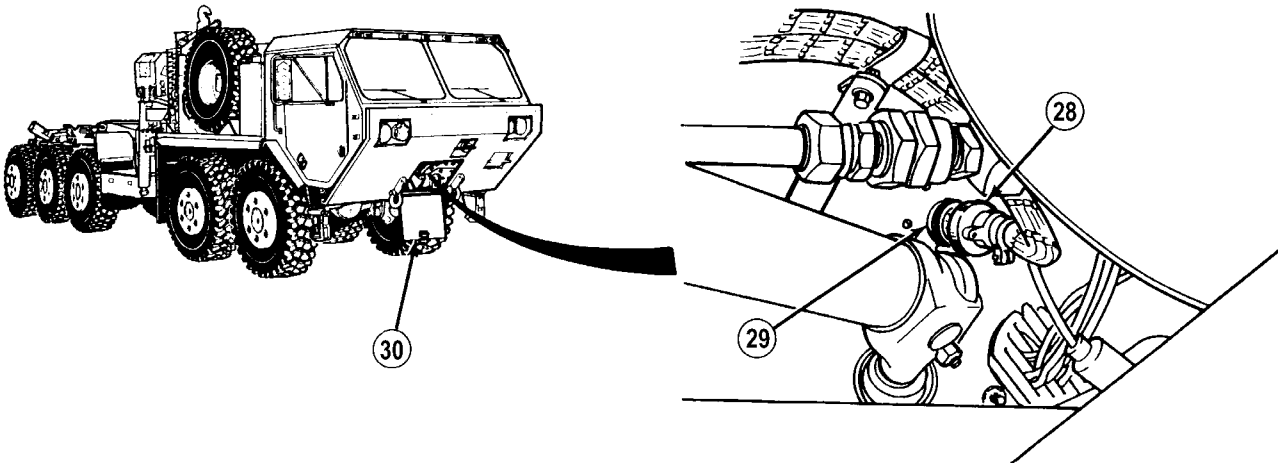
(17) Position side panel (2) in truck and install six screws (23) in side panel.







(18) With the aid of an assistant, install four screws (24), locknut (25), and MC84 connector (26) on cab (27).



(19) Connect MC84 connector (28) to bulkhead connector (29).

(20) Close front access cover (30).

b. Follow-On Maintenance:

- Install heater cover, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

All data on page 124 through page 133 has been deleted.

18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)

Materials/Parts
Sealing Compound, (Item 56, Appendix B)
Sealing Compound, (Item 57, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Engine oil filter adapter removed,
(TM 9-2320-364-20)
Right fender front skirt removed,
(TM 9-2320-364-20)
Engine oil filter removed,
(TM 9-2320-364-20)

a. Installation.

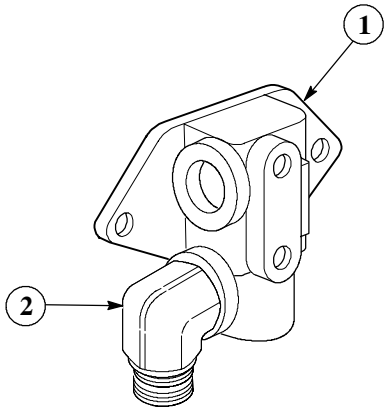
NOTE

Remote engine oil filter kit cannot be installed on trucks equipped with an arctic kit (Model A).

(1) Position engine oil filter manifold (1) in soft jawed vise.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



NOTE

Ensure threads on adapters and engine oil filter manifold are clean and free of oil and grease.

(2) Apply sealing compound to pipe threads of adapter (2).

NOTE

Adapter in Step (3) is installed in bottom port marked ”IN” and facing down.

(3) Install adapter (2) in engine oil filter manifold (1).

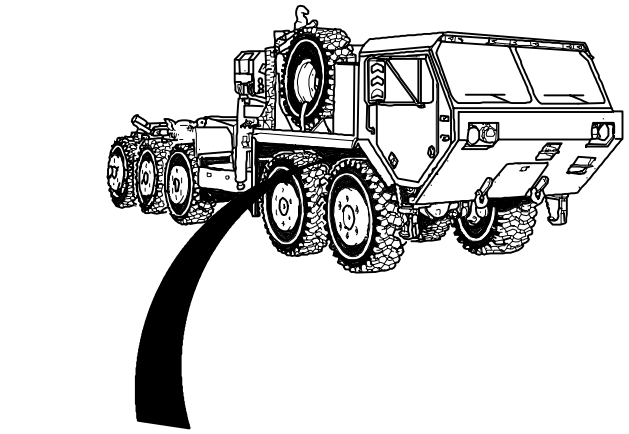
(4) Remove engine oil filter manifold (1) from vise.

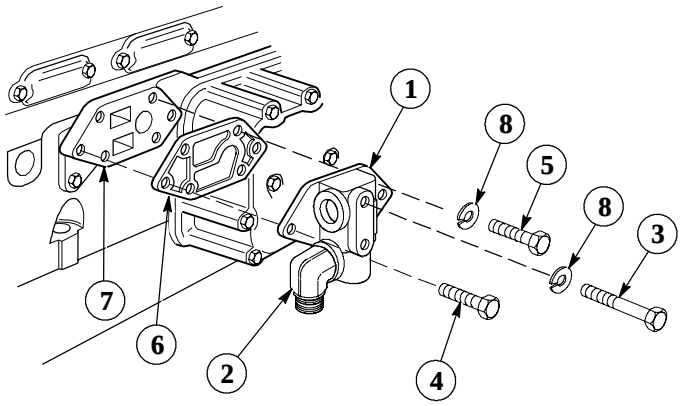
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(5) Apply sealing compound to threads of two screws (3), screws (4), and screws (5).

(6) Install gasket (6) and engine oil filter manifold (1) on oil cooler adapter cover (7) with two screws (3), screws (4), screws (5) and four lockwashers (8). Tighten screws 30 to 35 lb-ft (41 to 47 N·m).





18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION (CONT).

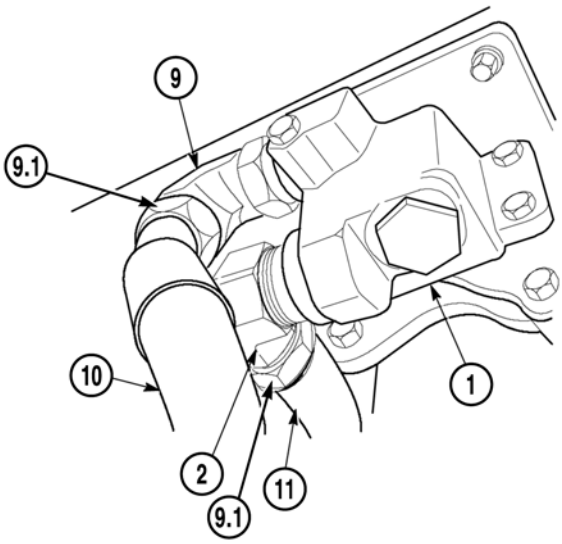
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure threads on adapters and engine oil filter manifold are clean and free of oil and grease.

(7) Apply sealing compound to pipe threads of adapter (9).



NOTE

Adapter in Step (8) is installed in upper port marked “OUT” facing down.

(8) Install adapter (9) on engine oil filter manifold (1).

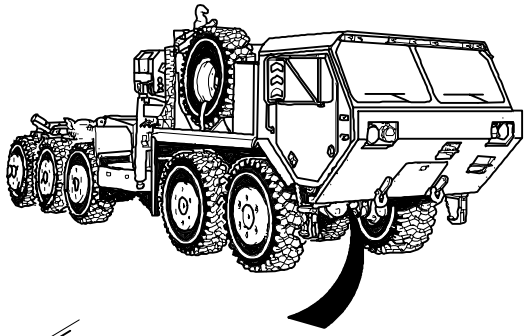
(8.1) Apply clean engine oil to two preformed packings (9.1).

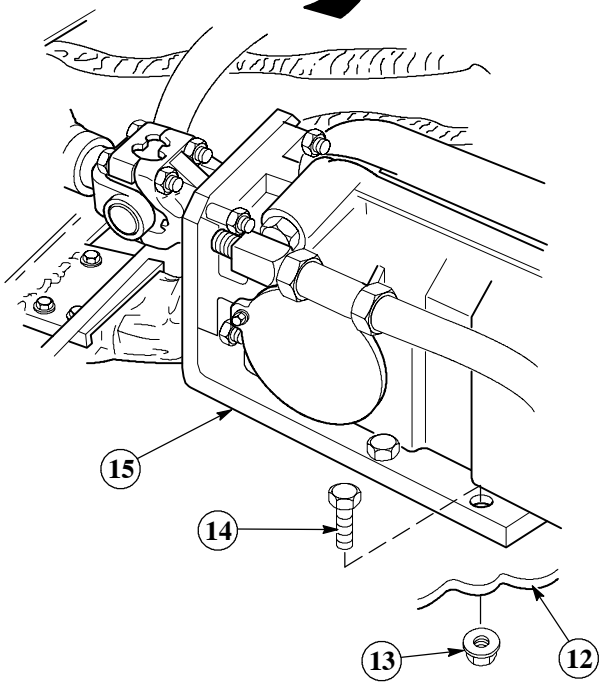
(8.2) Install preformed packing (9.1) on adapter (2) and adapter (9).

(9) Install hose 2830 (10) to adapter (9) and hose 2831 (11) to adapter (2).

(10) Position hoses 2830 (10) and 2831 (11) under front crossmember (12).

(11) Remove two locknuts (13) and screws (14) from hydraulic pump support (15). Discard locknuts.





NOTE

Remote engine oil filter kit will include longer screws for filter head bracket. If longer screws cannot be installed, existing screws may be used.

(12) Install filter head bracket (16) with two screws (17) and locknuts (18) to hydraulic pump support (15).

(13) Position filter head (19) in soft jawed vise.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure threads on adapters and filter head bracket are clean and free of oil and grease.

(14) Apply sealing compound to pipe threads of adapter (20) and adapter (21).

NOTE

Adapters are properly positioned when facing away from filter head mount.

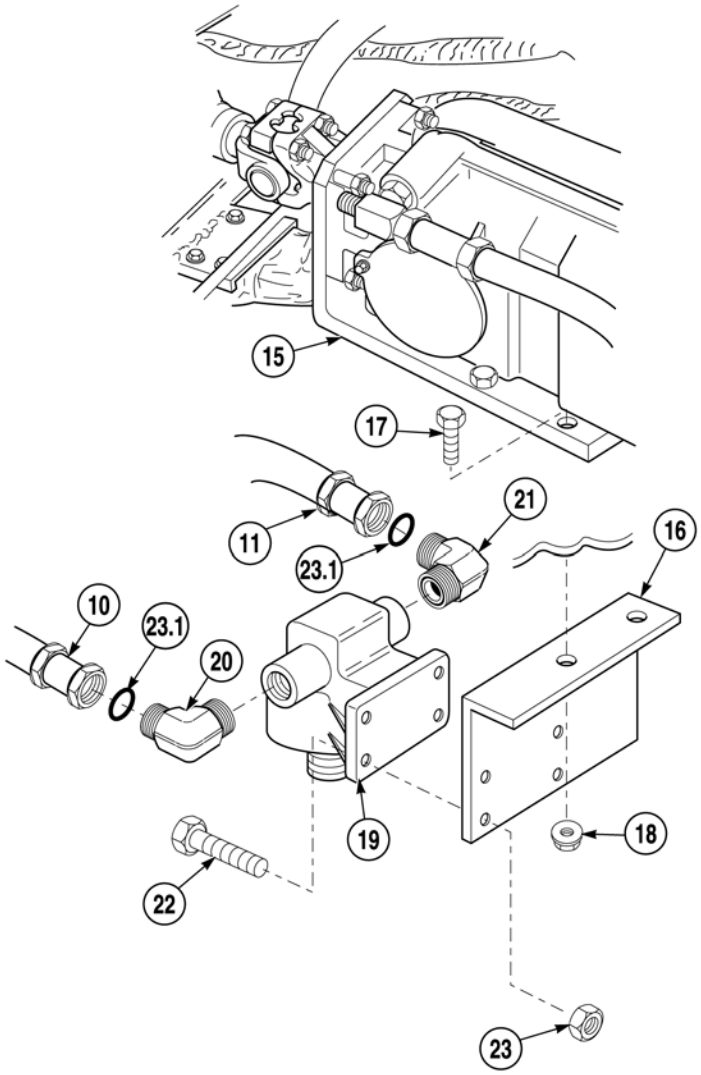
(15) Install adapter (20) and adapter (21) in filter head (19).

(16) Remove filter head (19) from vise.

(17) Install filter head (19) on filter head bracket (16) with four screws (22) and locknuts (23).

(17.1) Apply clean engine oil to two preformed packings (23.1).

(17.2) Install preformed packing (23.1) on adapter (20) and adapter (21).



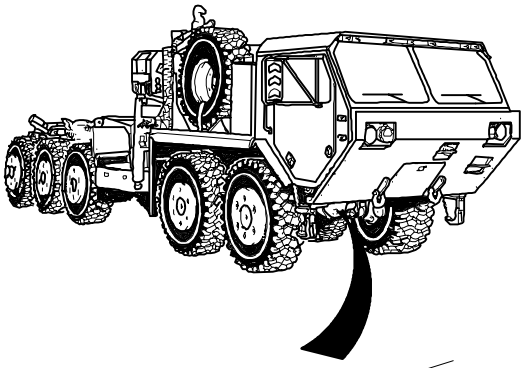
CAUTION

Ensure hose 2830 is installed to “IN” port of filter head and hose 2831 is installed to “OUT” port of filter head.

(18) Install hose 2830 (10) to adapter (20) and hose 2831 (11) to adapter (21).

18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION (CONT).

(19) Remove locknut (24) and washer (25) from right side motor mount (26). Discard washer and locknut.

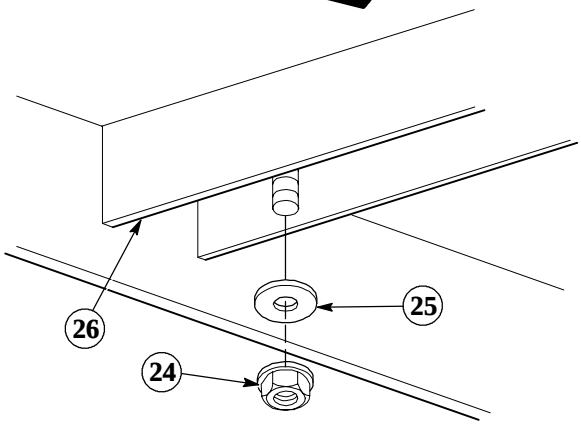


NOTE

Bend in bracket faces towards center of cab.

(20) Attach bracket (27) to right side motor mount (26) with locknut (28).

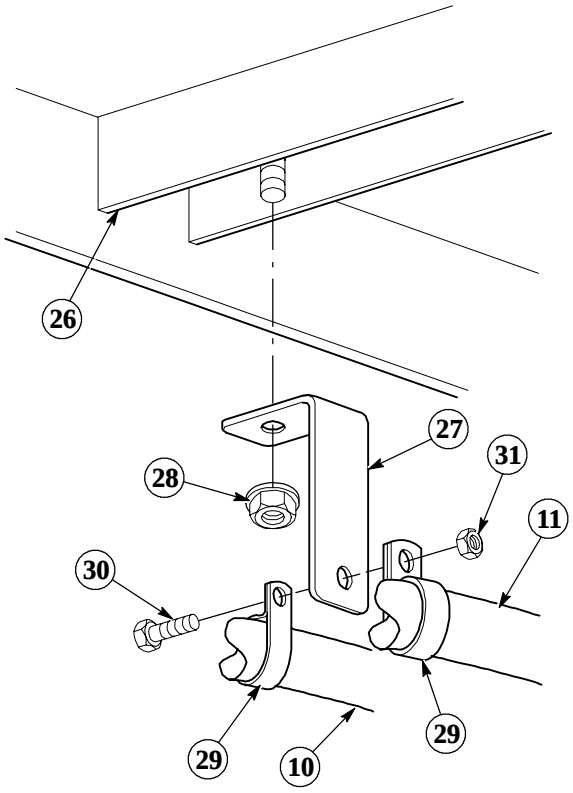
(21) Position two cushion clips (29) to hose 2831 (11) and hose 2830 (10).



NOTE

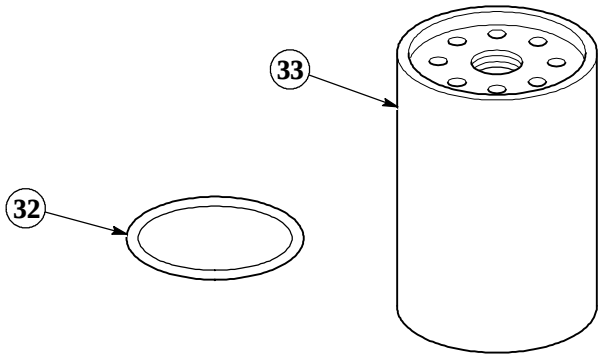
Ensure hoses do not contact any components on truck.

(22) Install two cushion clips (29) on bracket (27) with screw (30) and locknut (31).



(23) Lubricate preformed packing (32) with clean engine oil and install preformed packing on engine oil filter (33).

(24) Fill engine oil filter (33) 2/3 full with clean engine oil.



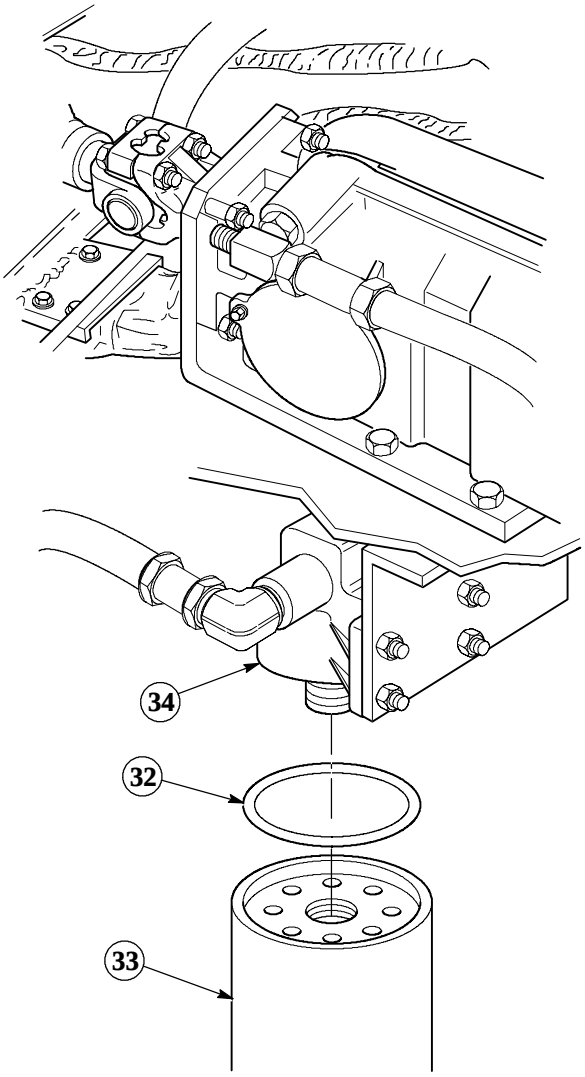
(25) Install engine oil filter (33) on filter head (34).

CAUTION

Do not use oil filter removal tool to tighten engine oil filter or possible damage to filter head may result.

(26) By hand, tighten engine oil filter (33) until preformed packing (32) makes contact with filter head (34).

(27) By hand, tighten engine oil filter (33) 2/3 turn on filter head (34).



18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION (CONT).

b. Follow-On Maintenance:

- Start and run engine for three minutes, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine and allow oil to drain for 20 minutes, (TM 9-2320-364-10).
- Check oil level and add engine oil as needed, (TM 9-2320-364-10).
- Install right fender front skirt, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION.

This task covers:

a. Installation b. Adjustment c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Clamp, Machinist (2) (Item 32, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Chain 3 pt. or 4 pt.
Lifting Device, Minimum Capacity 2000 lbs
(907 kg)

Materials/Parts
Cable ties (Item 9, Appendix B)
Compound, Corrosion Preventive
(Item 15, Appendix B)
Sealing Compound (Item 53, Appendix B)
Silicone Compound, Anti-Corrosion
(Item 66, Appendix B)
Soap Solution (Item 67, Appendix B)
Locknut (6) (Item 166, Appendix E)
Locknut (18) (Item 174, Appendix E)
Locknut (4) (Item 180, Appendix E)
Lockwasher (8) (Item 255, Appendix E)
Lockwasher (8) (Item 266, Appendix E)
Lockwasher (2) (Item 282, Appendix E)
Lockwasher (4) (Item 303, Appendix E)
Self-tapping screw (4) (Item 558, Appendix E)
Wooden blocks

References
TM 43-0139

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Rear noise panel removed,
(TM 9-2320-364-20)
Bumper stop bracket removed,
(TM 9-2320-364-20)
Platform assembly removed, (M1075 only)
(TM 9-2320-364-20)
Gear reducer removed, (Para 12-6)
Rear marker light assembly removed and
disassembled, (TM 9-2320-364-20)
Rear roller assembly removed,
(TM 9-2320-364-20)
Angled roller removed,
(TM 9-2320-364-20)
Horizontal roller removed,
(TM 9-2320-364-20)
Rear hard lift assembly removed,
(TM 9-2320-364-20
Self recovery winch (SRW) rear tension
guide removed (if equipped),
(TM 9-2320-364-20)
Self recovery winch (SRW) rear guide
removed (if equipped), (TM 9-2320-364-20)
Auxiliary fuel tank removed (if equipped),
(TM 9-2320-364-20)

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

a. Installation.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

NOTE

- Container Handling Unit (CHU) can only be installed on PLS M1075 (without crane).
- Remove all banding and screws during installation that are supporting components for packaging and shipping.
- A cross-reference of kit parts to kit installation procedures is located in Table 18-1 at the end of **b.** ***Adjustment***.
- Remove all tags and protection coverings on components and clean bare metal surfaces with dry cleaning solvent prior to installation.
- Adhesives, epoxy, sealants and grease required for kit installation can be found in box A, pack no. 2 of CHU kit crate.
- It may be necessary to unpack boxes as required to locate required box.

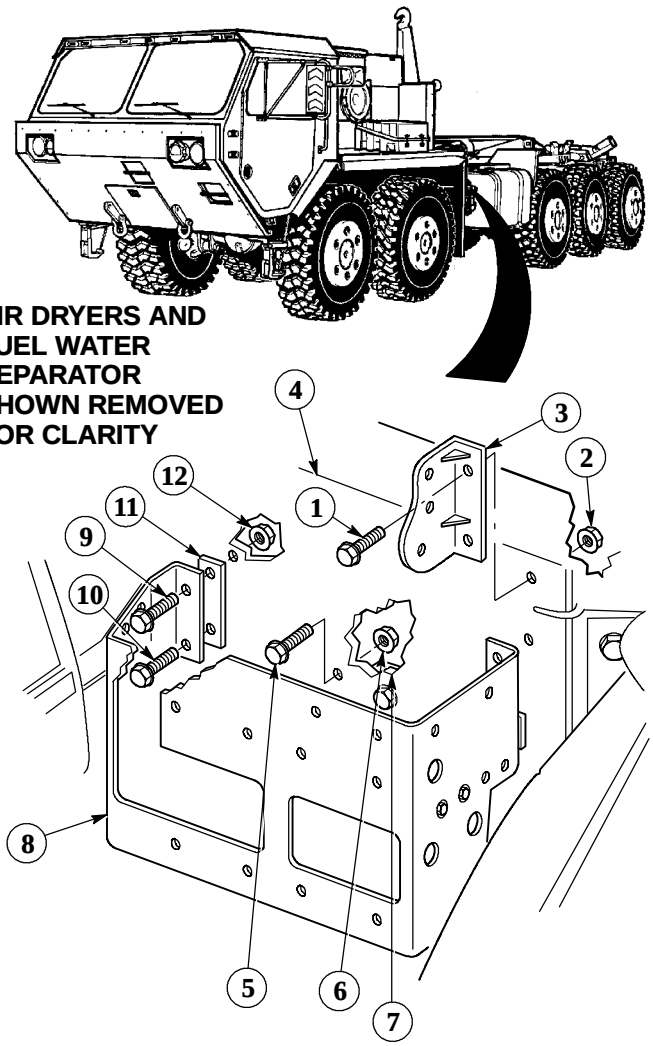
(1) Remove two screws (1), locknuts (2) and gear reducer mount (3) from frame (4). Discard screws, locknuts and gear reducer mount.

(2) Remove top two screws (5) and locknuts (6) from intermediate crossmember (7). Discard screws and locknuts.

NOTE

Retain bottom front screw from air dryer bracket for assembly.

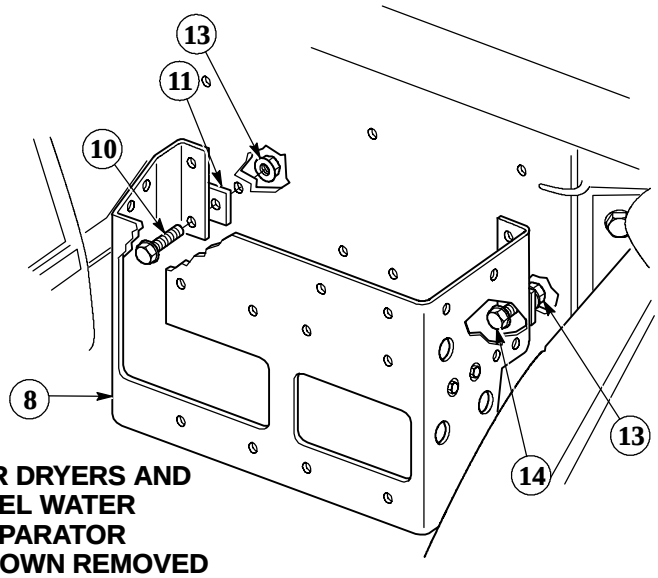
(3) With the aid of an assistant, support air dryer bracket (8) and remove front two screws (9) and (10), spacer (11) and two locknuts (12). Discard screw (9) and locknuts.



AIR DRYERS AND FUEL WATER SEPARATOR SHOWN REMOVED FOR CLARITY

(4) Rotate spacer (11) 90 degrees and position screw (10), spacer (11) and locknut (13) on air dryer bracket (8). Do not tighten.

(5) Loosen bottom rear screw (14) and locknut (13) on air dryer bracket (8). Do not remove.



AIR DRYERS AND FUEL WATER SEPARATOR SHOWN REMOVED FOR CLARITY

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Left front support bracket weighs 98 lbs (44 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

Hardware for mounting front support bracket can be found in box D, pack no. 31 and 32 of CHU kit crate.

(6) From CHU kit pallet, remove wood blocking and attach lifting device to left front support bracket (15).

(7) With the aid of an assistant, position left front support bracket (15) between air dryer bracket (8) and frame (16).

(8) Position five screws (17), screw (18) and six locknuts (19) to left front support bracket (15) and frame (16). Do not tighten.

(9) Position two screws (20) and locknuts (21) to left front support bracket (15) and frame (16). Do not tighten.

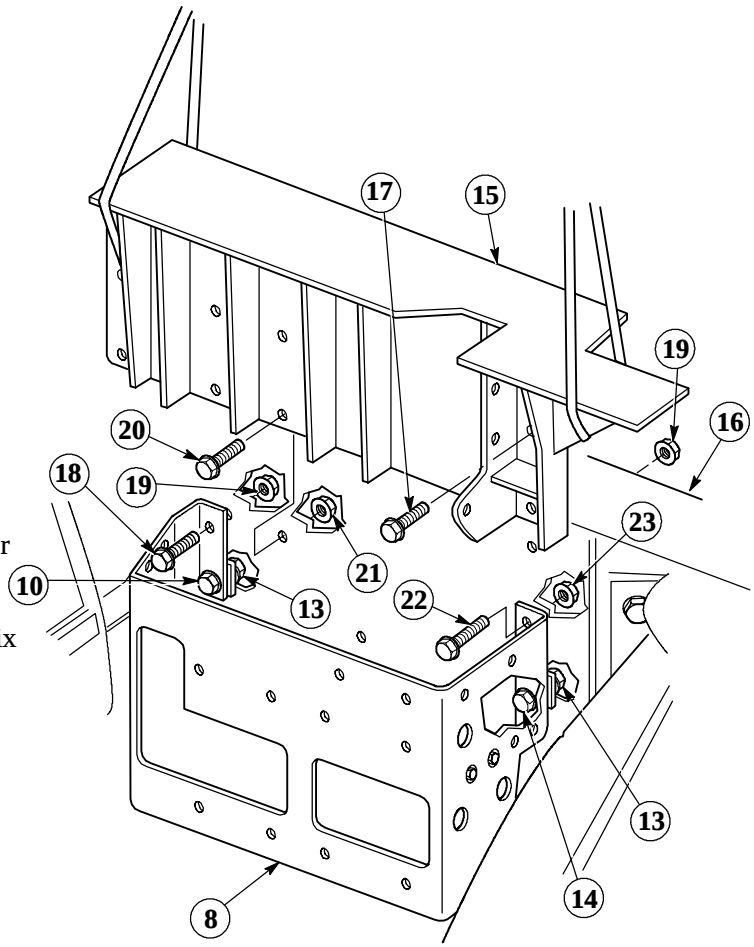
(10) Position screw (22) and locknut (23) to left front support bracket (15) and frame (16). Do not tighten.

(11) Remove locknut (13) from screw (14). Discard locknut.

(12) Position locknut (13) on screw (14). Do not tighten.

(13) Tighten six locknuts (19), two locknuts (21) and (13), locknut (23) on screw (10), (14), (18) and (22), five screws (17) and two screws (20).

(14) Remove lifting device from left front support bracket (15).



AIR DRYERS AND FUEL WATER SEPARATOR SHOWN REMOVED FOR CLARITY

NOTE

Perform Steps (15) and (16) if truck is equipped with auxiliary fuel tank.

(15) With the aid of an assistant, remove middle two locknuts (24), spacers (25) and screws (26) from frame (27) and auxiliary fuel tank support (28). Discard locknuts.

(16) Loosen bottom two screws (29) and locknuts (30) on auxiliary fuel tank support (28). Do not remove.

WARNING

Box assembly weighs 92 lbs (42 kg). Ensure box assembly is properly supported prior to removal to prevent possible injury to personnel.

(17) Support stowage box assembly (31).

(18) Remove top screw (32), spacer (33) and locknut (34) from bracket (35) and frame (27). Discard locknut and spacer.

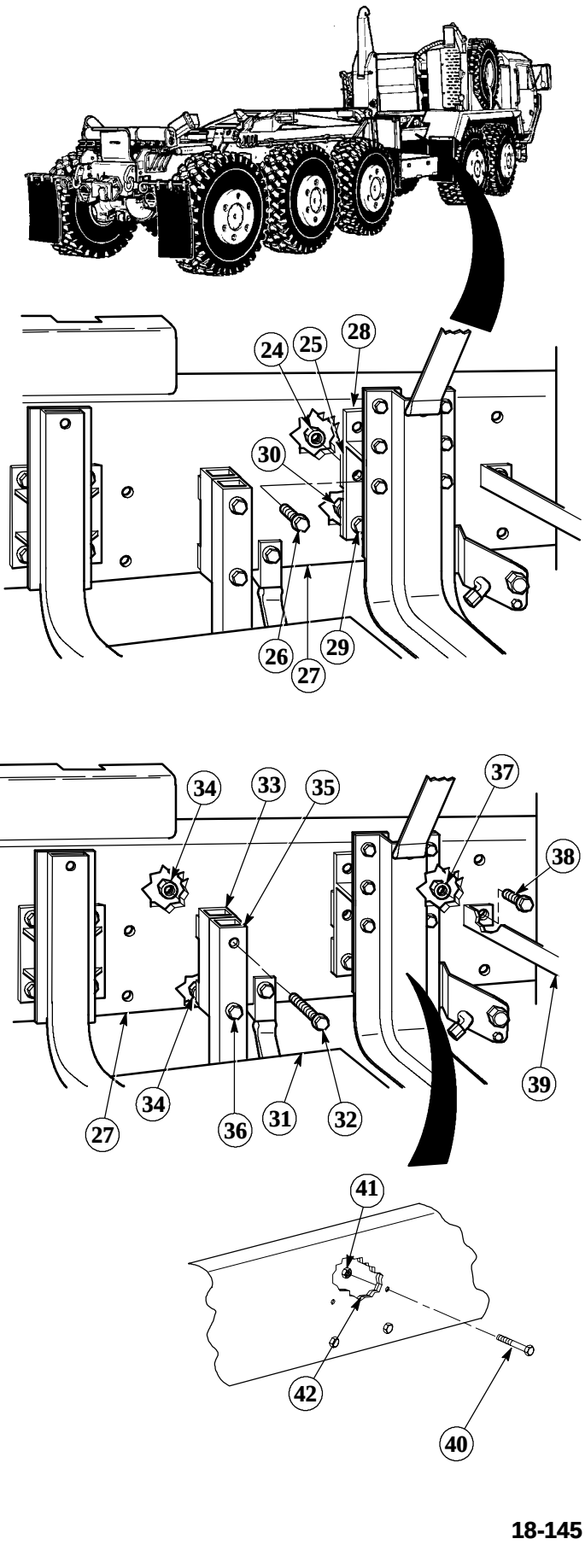
(19) Loosen bottom screw (36) and locknut (34) on right hand bracket (35). Do not remove.

(20) With the aid of an assistant remove locknut (37) and screw (38) from rear fender support (39) and frame (27). Discard locknut and screw.

NOTE

Perform Step (21) for trucks not equipped with auxiliary fuel tank.

(21) Remove two screws (40) and locknuts (41) from crossmember bracket (42). Discard locknuts and screws.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Right front support bracket weighs 98 lbs (44 kg). Attach suitable lifting device to prevent possible injury to personnel.

(22) From CHU kit pallet, attach lifting device to right front support bracket (43).

(23) With the aid of an assistant, position right front support bracket (43) between frame (27), bracket (35), auxiliary fuel tank support (28) and rear fender support (39).

NOTE

- Ensure top front screw is installed from inside of frame.
- Perform Step (24) for trucks equipped with auxiliary fuel tank.
- Screw installed in rear upper hole of auxiliary fuel tank support was removed with platform assembly.
- Perform Step (25) for trucks not equipped with auxiliary fuel tank.

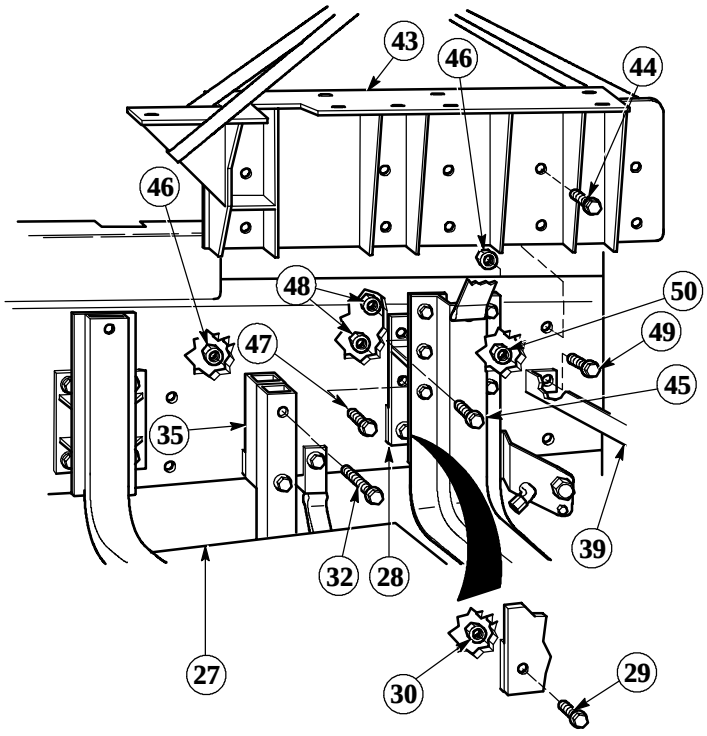
(24) With the aid of an assistant install screw (32), four screws (44), screw (45), six locknuts (46), two screws (47), locknuts (48), screw (49) and locknut (50) in auxiliary fuel tank support (28).

(25) With the aid of an assistant install six screws (44), six locknuts (46), two screws (47), locknuts (48), screw (49) and locknut (50).

(26) Remove two locknuts (30) from screws (29). Discard locknuts.

(27) Install two locknuts (30) on two screws (29).

(28) Remove lifting device from right front support bracket (43).

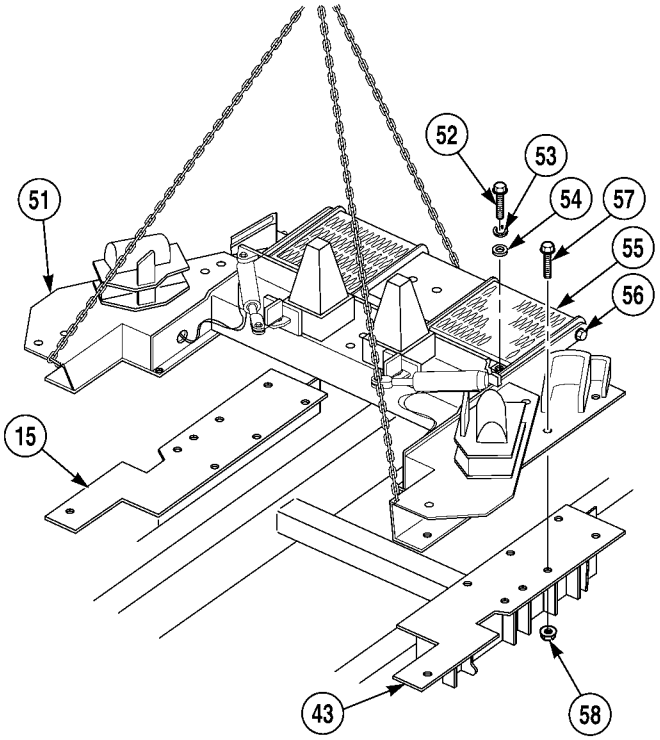


WARNING

Front support assembly weighs 660 lbs (300 kg). Attach suitable lifting device to prevent possible injury to personnel.

CAUTION

Ensure lifting device does not contact air cylinders or air lines. Failure to comply may result in damage to equipment.



(29) From CHU kit pallet, attach lifting device to front support assembly (51).

(30) With the aid of an assistant, position front support assembly (51) on left front support bracket (15) and right front support bracket (43).

NOTE

Hardware for mounting front support assembly can be found in box D, pack no. 21 of CHU kit crate.

(31) Remove two screws (52), lockwashers (53) and washers (54) from deck weldment (55). Discard lockwashers.

(32) Loosen two screws (56) and rotate deck weldment (55) toward front of truck.

(33) Repeat Steps (31) and (32) for remaining deck weldment (55).

(34) With the aid of an assistant, install front support assembly (51) on left front support bracket (15) and right front support bracket (43) with 18 screws (57) and locknuts (58).

(35) Remove lifting device from front support assembly (51).

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Stow weldment weighs 410 lbs (186 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

Hardware for mounting stow weldment can be found in box D, pack no. 24 of CHU kit crate.

(36) From CHU kit pallet, attach lifting device to stow weldment (59).

(37) With the aid of an assistant, position stow weldment (59) on front support assembly (51).

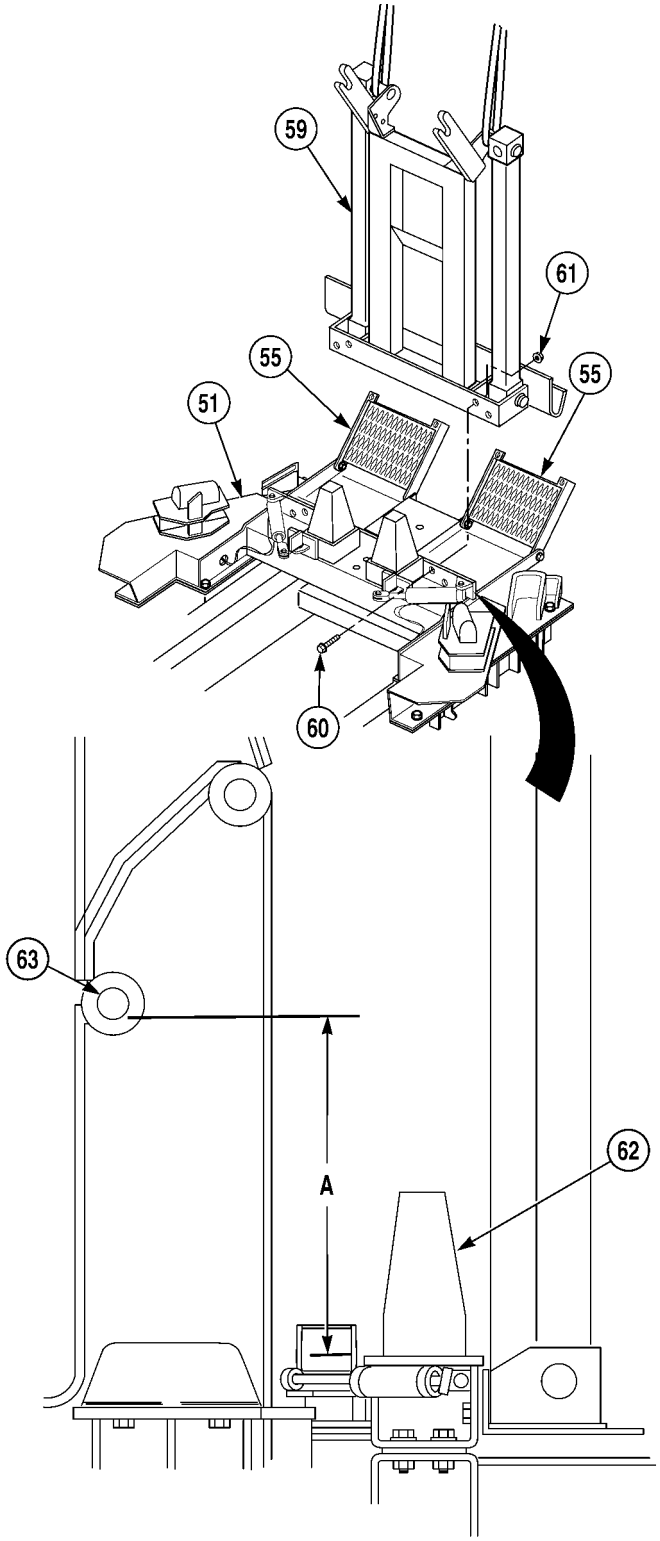
(38) Install stow weldment (59) on front support assembly (51) with four screws (60) and locknuts (61).

(39) Rotate two deck weldments (55) towards rear of truck.

NOTE

- Measurements should be taken on both sides of cone weldment.
- If measurement “A” is not 18.1 in. (46 cm) ± 0.125 in. (3.18 mm), perform Steps (42) and (45).
- If measurement “A” is 18.1 in. (46 cm) ± 0.125 in. (3.18 mm), go to Step (41).
- Cone weldment shims are already installed. Remove shims as required.

(40) Measure distance between base of cone weldment (62) and bottom of pivot pin (63). Record as measurement “A”.



NOTE

- Measurements should be taken on both sides of cone weldment.
- If measurement “B” is not 5.87 in. (15 cm) ± 0.125 in. (3.18 mm), perform Steps (43) through (45).
- If measurement “B” is 5.87 in. (15 cm) ± 0.125 in. (3.18 mm), go to Step (41.1).

(41) Measure distance between base of cone weldment (62) and LHS hook arm (64). Record as measurement “B”

NOTE

- Measurements should be taken on both sides of cone weldment.
- If measurement “C” is not 3.00 in. (76 mm) ± 0.375 in. (9.5 mm), perform Steps (42) through (45).
- If measurement “C” is 3.00 in. (76 mm) ± 0.375 in. (9.5 mm), go to Step (47).

(41.1) Measure distance between side of cone weldment (62) and side of LHS hook arm (64). Record as measurement “C”.

(42) Remove six locknuts (65), screws (66), cone weldment (62) and shim(s), as required, (67) from front support assembly (51). Discard locknuts and shim(s).

(43) Remove six locknuts (65) and screws (66) from cone weldment (62) and front support assembly (51). Discard locknuts.

(44) Position cone weldment (62) to proper position to achieve measurements “B” and “C”.

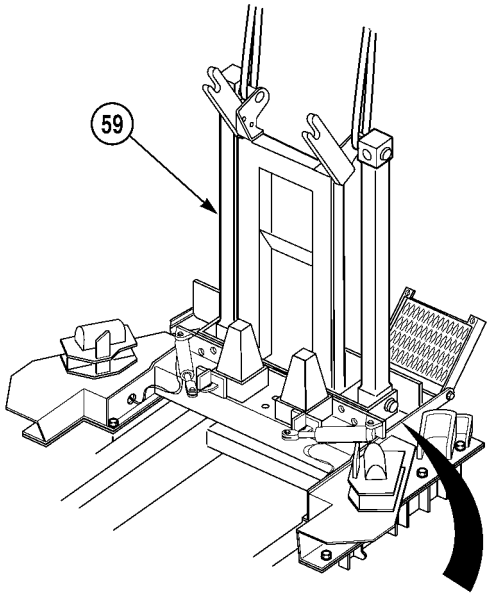
NOTE

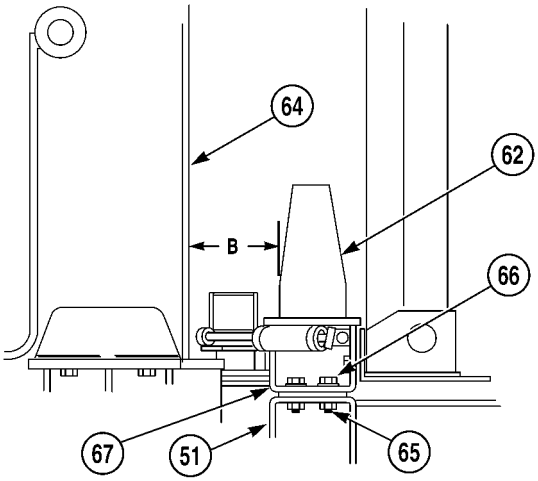
Locknuts can be found in box F, pack no. 70 of CHU kit crate.

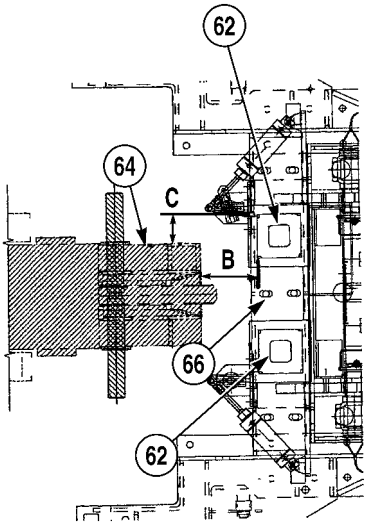
(45) Install cone weldment (62) and shim(s) (67) on front support assembly (51) with six screws (66) and locknuts (65).

(46) Repeat Steps (40) and (41).

(47) Remove lifting device from stow weldment (59).







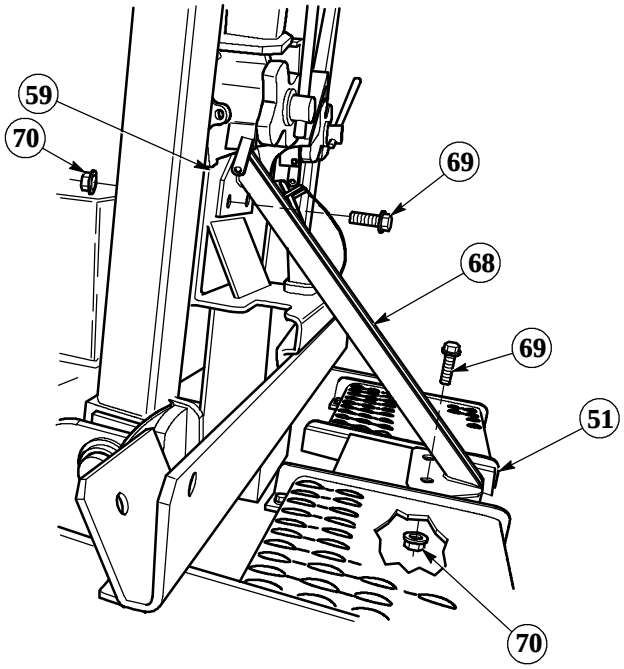
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Hardware for mounting stow weldment support brace can be found in box D, pack no. 25 of CHU kit crate.

(48) From CHU kit crate, remove stow weldment support brace (68).

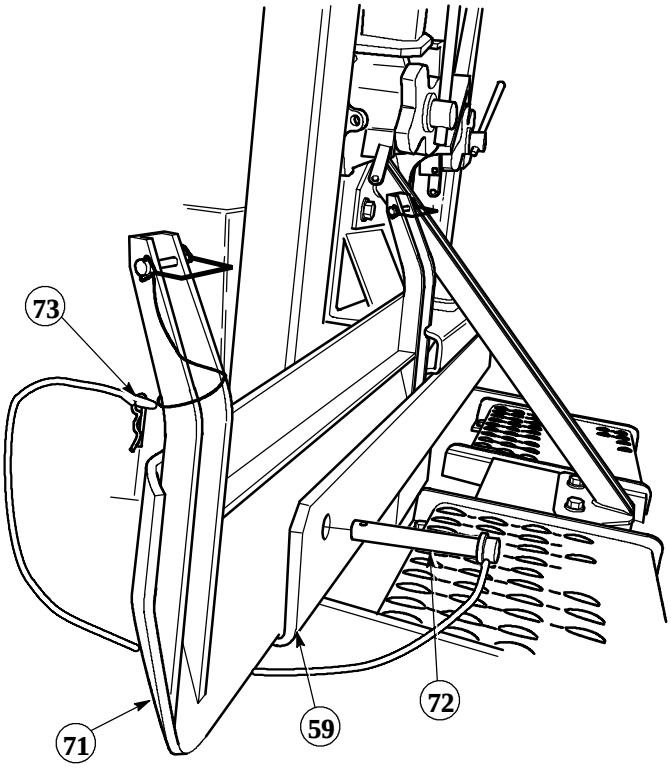
(49) Install stow weldment support brace (68) to stow weldment (59) and front support assembly (51) with four screws (69) and locknuts (70).

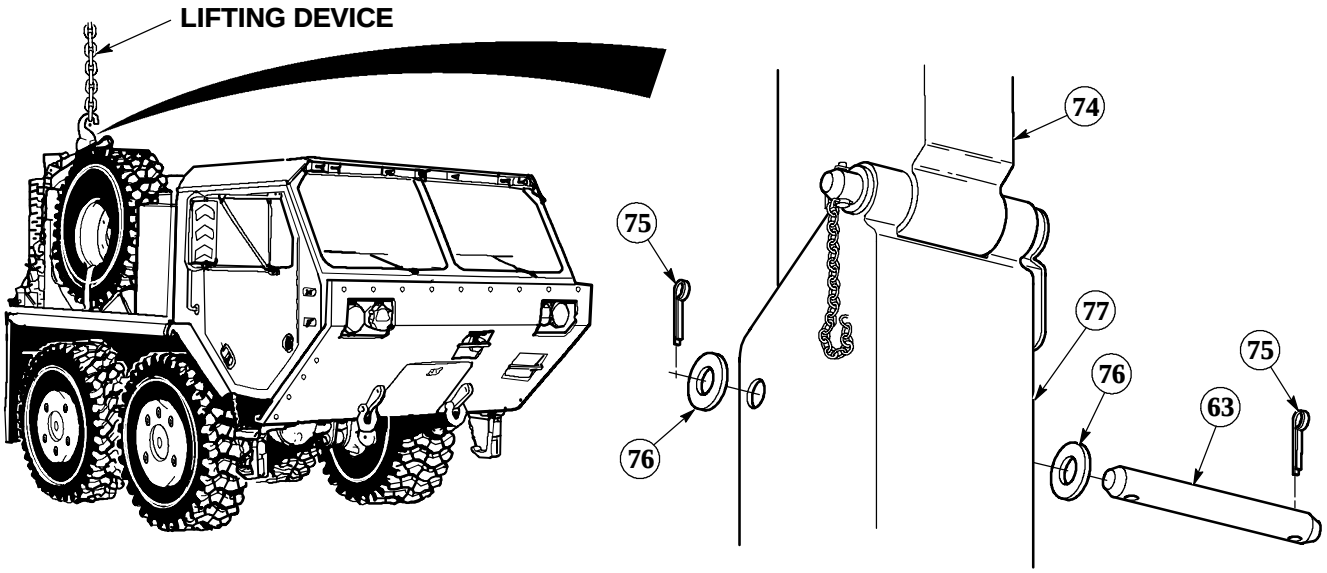


NOTE

- Both container guides are stowed the same way. Right side shown.
- From CHU kit crate, remove container guides.

(50) Position two container guides (71) on stow weldment (59) and install two pins (72) and quick release pins (73).





WARNING

Hook weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(51) Attach lifting device to hook (74).

(52) With the aid of an assistant, support hook (74) and remove two cotter pins (75), washers (76) and pivot pin (63) from hook arm (77). Discard cotter pins, pivot pin and washers.

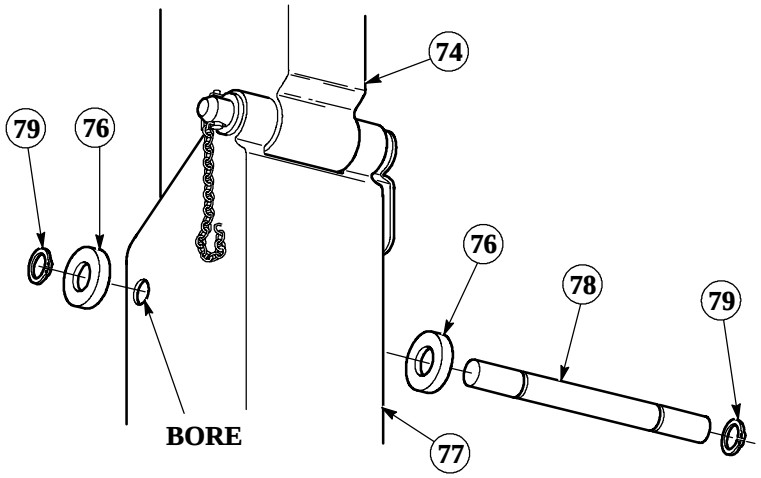
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Pivot pin can be found in box D, pack no. 30 of CHU kit crate.
- Antiseize compound can be found in box A of CHU kit crate.



(53) Apply antiseize compound to pivot pin (78).

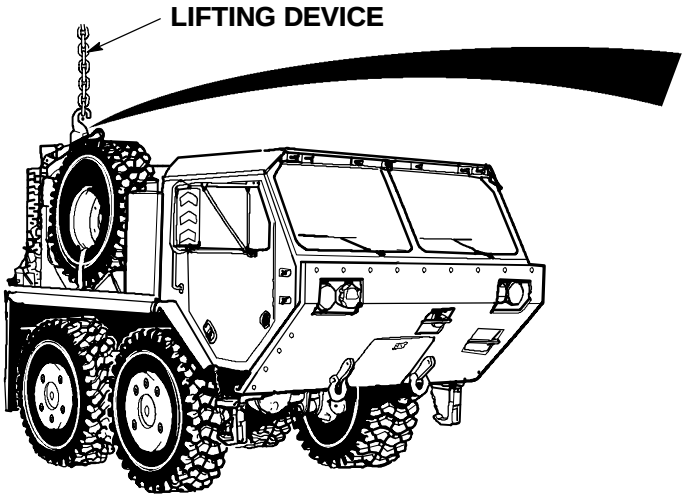
WARNING

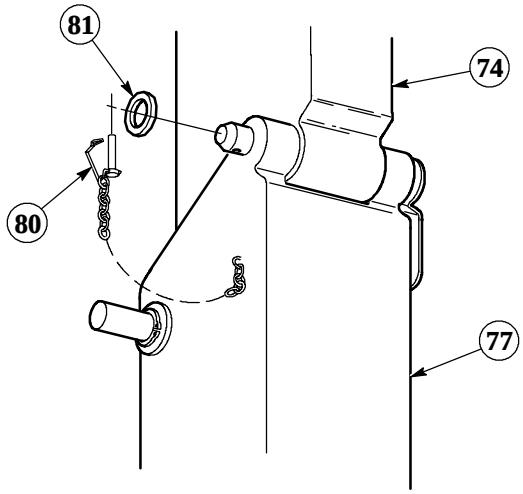
Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

NOTE

- Retaining rings and washer guards can be found in box D, pack no. 15 of CHU kit crate.
- Bore in hook arm may need to be cleaned for installation of pivot pin.

(54) Install pivot pin (78), two washer guards (76) and retaining rings (79) on hook arm (77) and hook (74).





(55) Support hook (74) and remove snapper pin (80) and washer (81) from hook arm (77). Discard washer.

(56) Position retaining pin (82) with handle pointing down in hook arm (77) and hook (74).

NOTE

Retaining bracket can be found in box D, pack no. 23 of CHU kit crate.

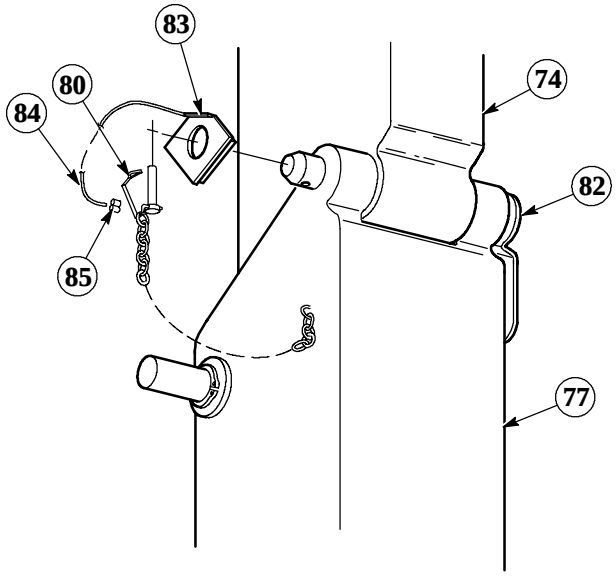
(57) Install retaining bracket (83) and snapper pin (80) to retaining pin (82).

NOTE

Wire tether is properly installed when wire tether is positioned through loop in snapper pin.

(58) Install wire tether (84) to snapper pin (80) with swaging sleeve (85).

(59) Remove lifting device from hook (74).

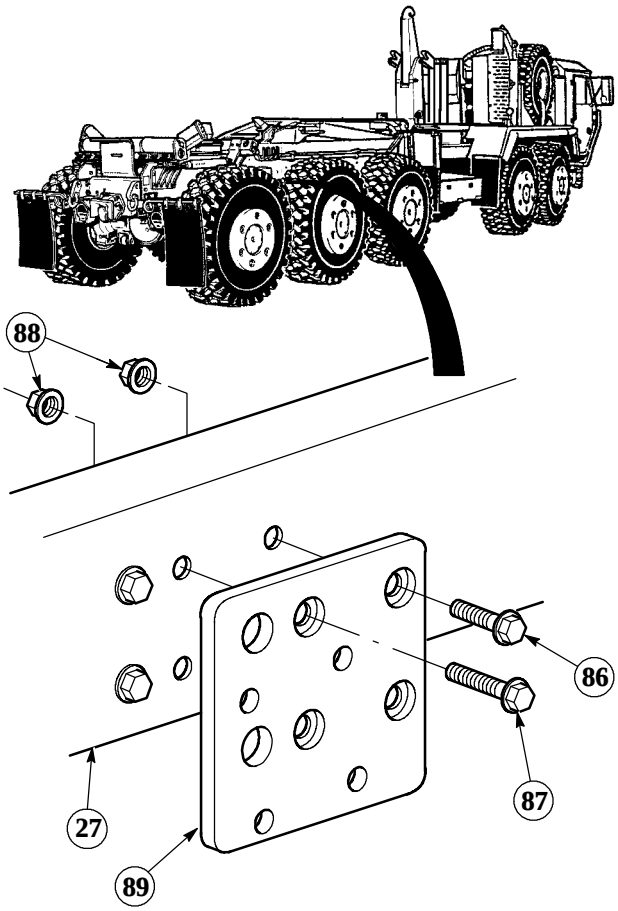


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

- Perform Steps (60) through (76) if truck is equipped with self-recovery winch.
- Adapter plate and guide bracket are bolted to CHU kit pallet. Hardware is in box E, pack no. 35 and 36 of CHU kit crate.
- Two screws in Step (60) were removed with rear tension guide.

(60) With the aid of an assistant install two screws (86), screws (87), four locknuts (88) and adapter plate (89) to frame (27).

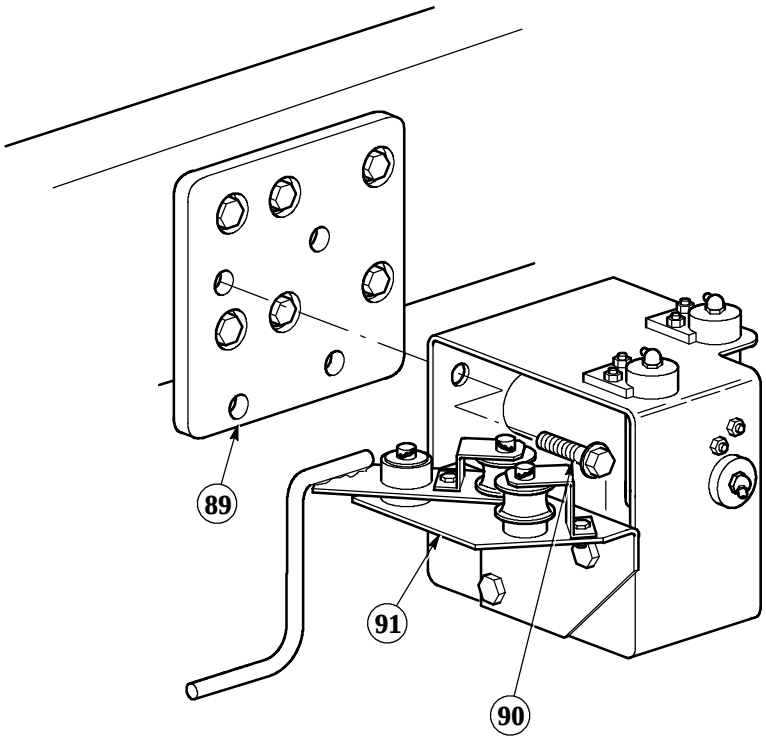


WARNING

- Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.
- Rear tension guide weighs 50 lbs (23 kg). Attach suitable lifting device to prevent possible injury to personnel.

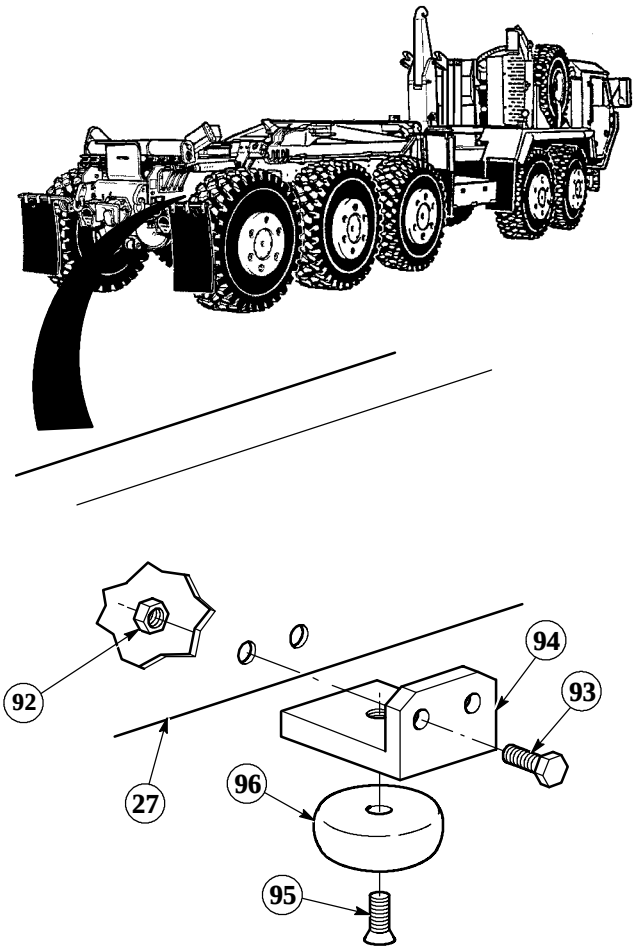
(61) Apply sealing compound (loctite 242) to threads of four screws (90).

(62) With the aid of an assistant, install rear tension guide assembly (91) on adapter plate (89) with four screws (90).



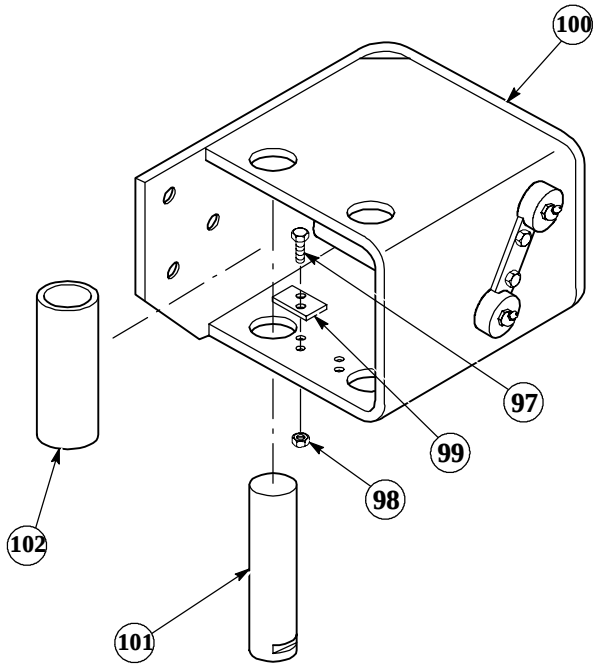
(63) Remove two locknuts (92) screws (93) and axle stop bracket (94) from truck frame (27). Discard locknuts.

(64) Remove screw (95) and axle stop (96) from axle stop bracket (94). Discard screw and axle stop bracket.



(65) Remove four screws (97), locknuts (98) and two lock plates (99) from rear guide weldment (100). Discard locknuts.

(66) Remove two short shafts (101) and short rollers (102) from rear guide weldment (100). Discard rear guide weldment.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Rear guide assembly weighs 70 lbs (32 kg). Attach suitable lifting device to prevent possible injury to personnel.

(67) From CHU kit pallet, attach lifting device to rear guide (103).

(68) Install two short shafts (101) and short rollers (102) into rear guide (103).

NOTE

Lock plates are properly installed on inside of rear guide in slots of roller shafts.

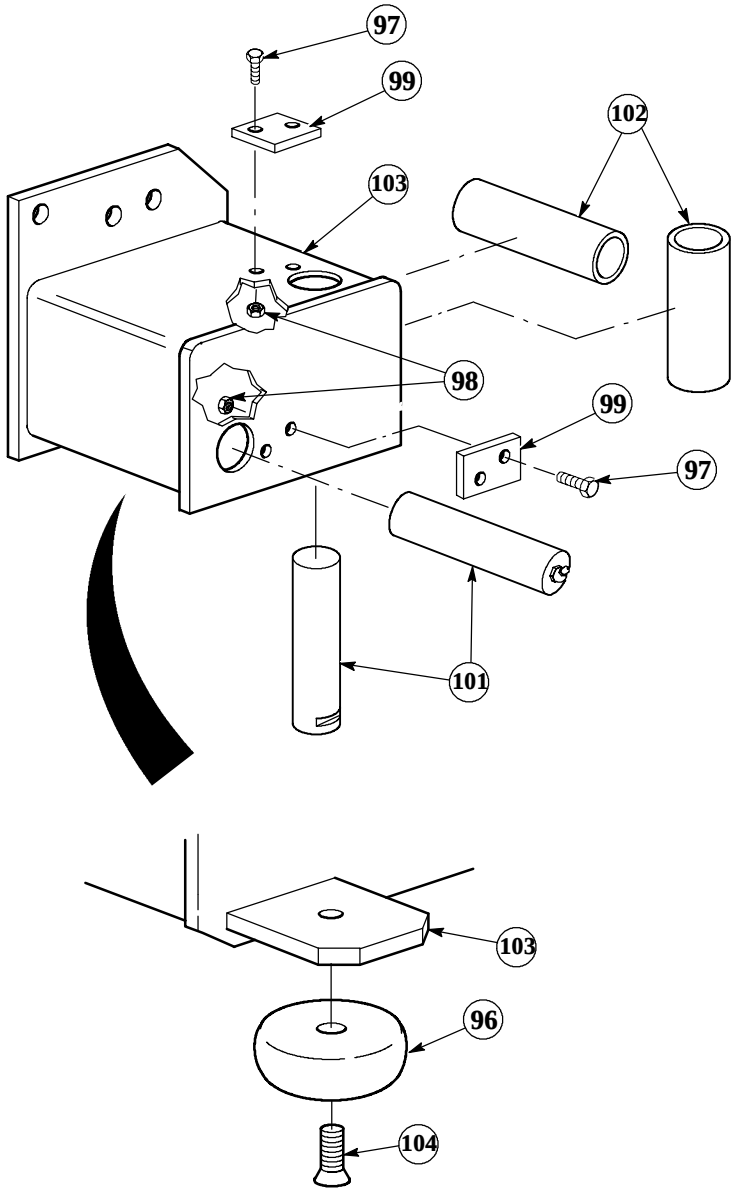
(69) Install two lock plates (99), four screws (97) and locknuts (98) on rear guide (103) and two short shafts (101).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(70) Apply sealing compound (loctite 242) to threads of screw (104).

(71) Install screw (104) and axle stop (96) on rear guide (103).



NOTE

Screws in Step (72) were removed with rear tension guide.

(72) With the aid of an assistant, position rear guide (103) on frame (27) with two lockwashers (105) and screws (106).

(73) With the aid of an assistant, position four locknuts (107) and screws (108) on rear guide (103).

NOTE

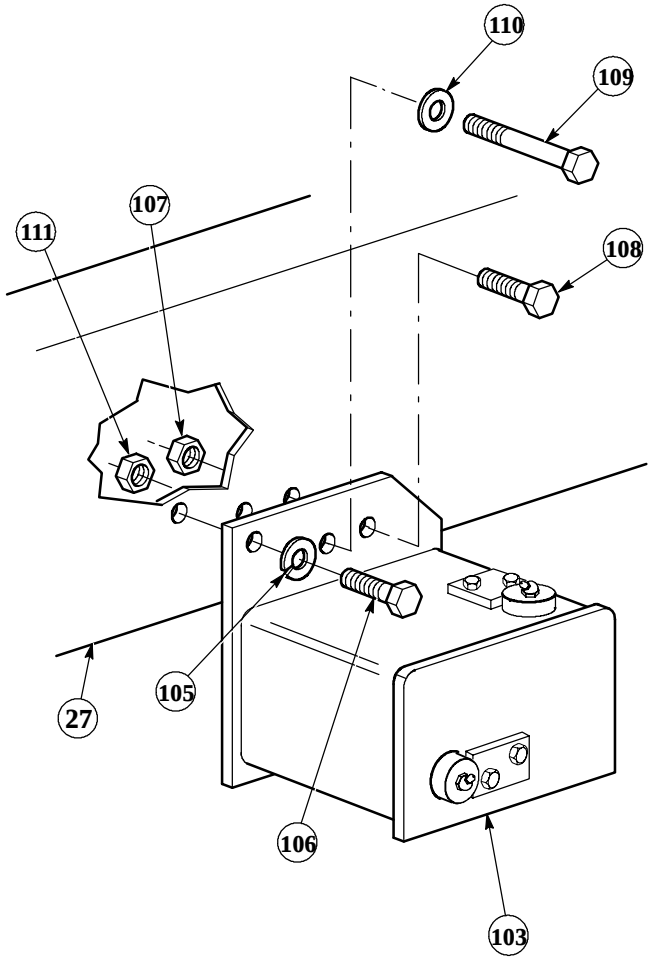
Screw in Step (74) was removed with rear tension guide.

(74) Install screw (109) with washer (110) and locknut (111).

(75) With the aid of an assistant, tighten two screws (106) on rear guide (103).

(76) With the aid of an assistant, tighten four locknuts (107) on rear guide (103).

(77) Remove lifting device from rear guide (103).

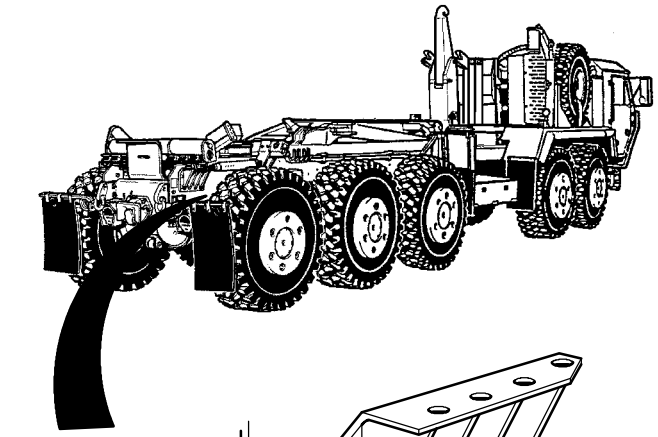


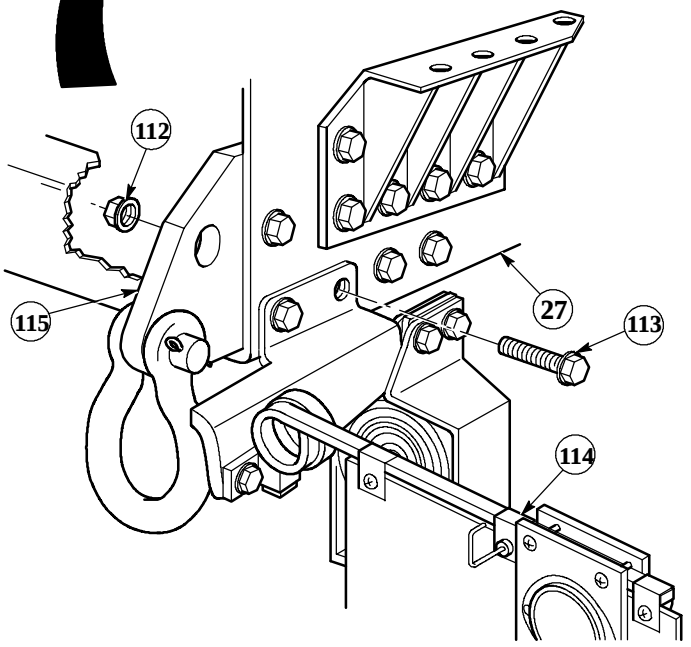
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Both rear splash guard assemblies are removed the same way unless noted. Right side shown.

(78) Remove two locknuts (112), screws (113) and rear splash guard assembly (114) from frame (27) and rear crossmember (115). Discard locknuts and screws.





WARNING

Rear roller bracket weighs 155 lbs (70 kg). Attach suitable lifting device to prevent possible injury to personnel.

(79) Attach lifting device to rear roller bracket (116).

NOTE

Perform Step (80) for right side of truck only.

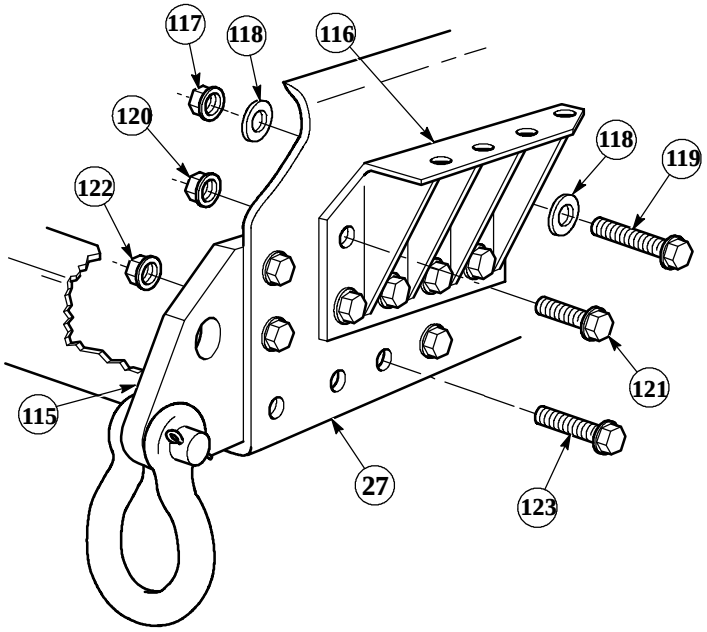
(80) Remove locknut (117), two washers (118) and screw (119). Discard locknut.

(81) With the aid of an assistant, remove eight locknuts (120), screws (121) and rear roller bracket (116) from frame (27) and rear crossmember (115). Discard locknuts, screws and roller bracket.

(82) Remove lifting device from rear roller bracket (116).

(83) Remove two locknuts (122) and screws (123) from frame (27) and rear crossmember (115). Discard locknuts and screws.

(84) Repeat Steps (78) through (83) for left side of truck.

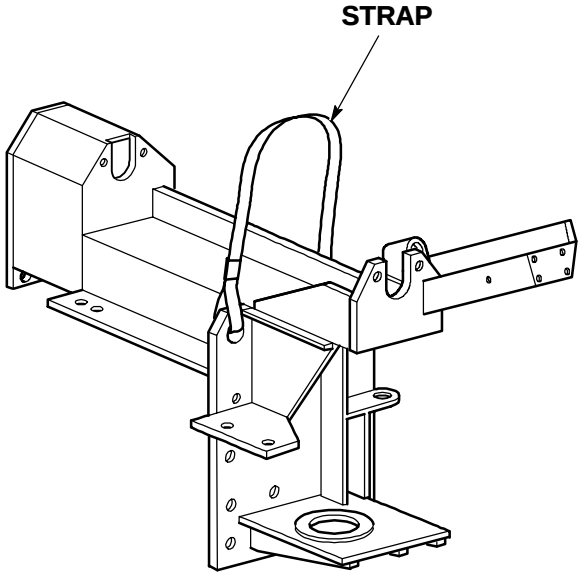


WARNING

- Rear roller brackets weigh 150 lbs (68 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

- Hardware for rear brackets is in pack no. 33 of CHU kit crate.
- Shim(s) are in box D, pack no. 27 of CHU kit crate.
- Shim hardware is in box B, pack no. 44 of CHU kit crate.
- Straps are used to install rear brackets on truck. After rear brackets are on truck the straps are removed and installed on the lift frame.



(85) Unscrew and remove wood blocking from CHU kit crate to allow removal of rear brackets.

(86) Attach lifting device to strap (124) on right rear roller bracket (125). Lift and remove right roller bracket from CHU kit crate and position on ground.

(87) Reposition strap (124) on right rear roller bracket (125) and lift bracket onto truck frame (27).

(88) With the aid of an assistant, position right rear roller bracket (125) on truck frame (27) with five screws (126) and locknuts (127). Do not tighten.

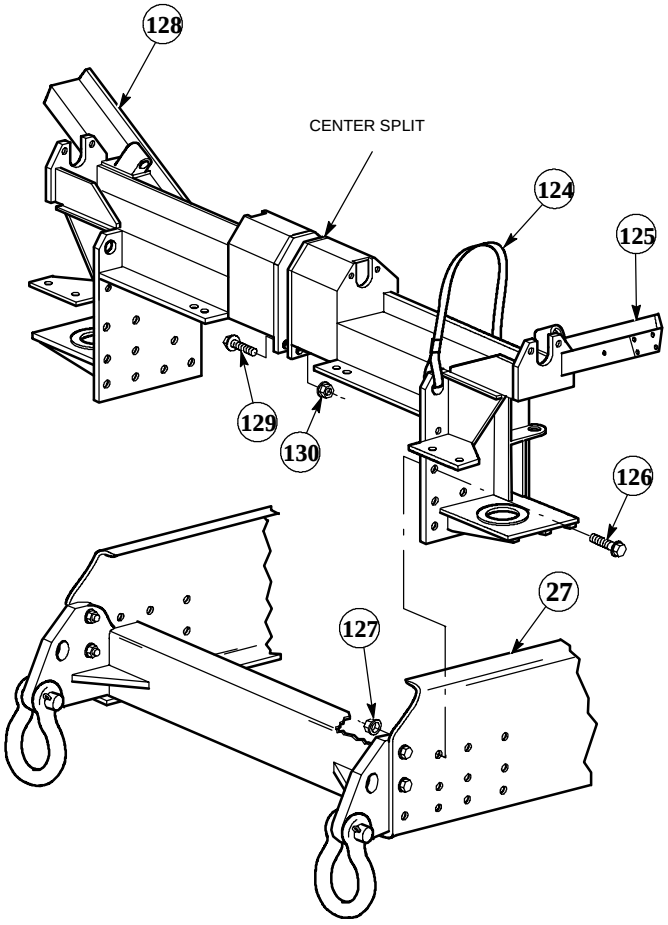
(89) Repeat Steps (86) through (88) for left rear roller bracket (128).

(90) Position bottom two screws (129) and locknuts (130) at center split of right rear roller bracket (125) and left rear roller bracket (128). Do not tighten.

NOTE

Take up slack in mounting position by pulling top of rear roller brackets towards front of truck when tightening locknuts.

(91) Tighten 10 locknuts (127) on screws (126) to 50 lb-ft (68 N·m).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Shims are 1/16 in. (1.59 mm) thick. Add one shim per every 1/16 in. (1.59 mm) gap.

(92) Measure gap at center split and determine number of shims (131) required.

(93) Position shim(s) if required (131) in center split and install remaining four screws (129) and locknuts (130).

(94) With the aid of an assistant, position five screws (132) and locknuts (127) on right rear roller bracket (125), frame (27) and rear crossmember (115).

NOTE

Perform Step (95) for right side only.

(95) Install screw (119), two washers (118) and locknut (117). Tighten to 175 lb-ft (237 N·m).

(96) Repeat Step (94) for left side of truck.

(97) Tighten six locknuts (130) on screws (129).

(98) Tighten ten locknuts (127) on screws (132).

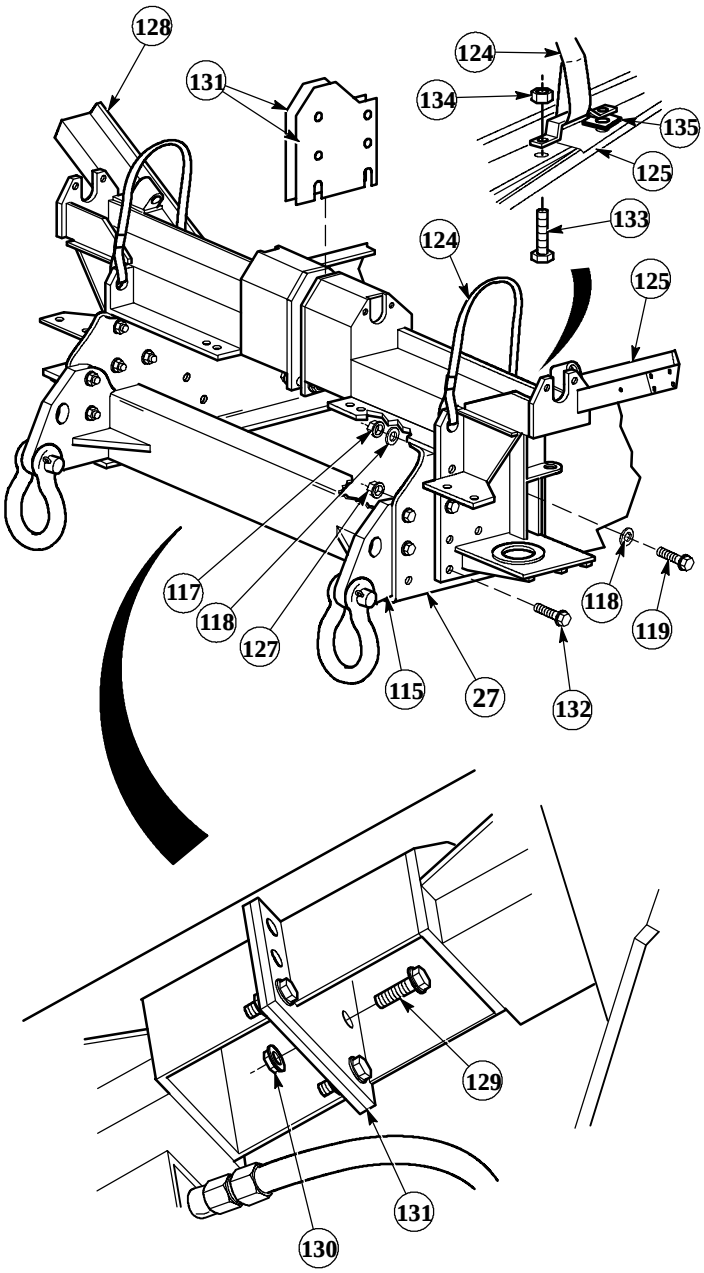
(99) Remove lifting device from left rear roller bracket (128).

NOTE

- Screws and locknuts are used in Step (299).
- Spacers are used in Step (102).

(100) Remove two screws (133), locknuts (134), spacer (135) and strap (124) from right rear roller bracket (125). Retain hardware.

(101) Repeat Steps (98) and (100) for left side of truck.

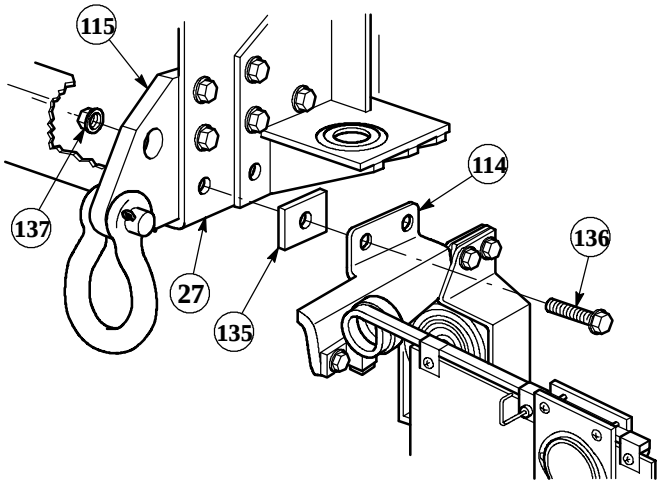


NOTE

Both rear splash guard assemblies are installed the same way. Right side shown.

(102) Install two screws (136), locknuts (137), spacer (135) and rear splash guard assembly (114) on frame (27) and rear crossmember (115).

(103) Repeat Step (102) for left side of truck.

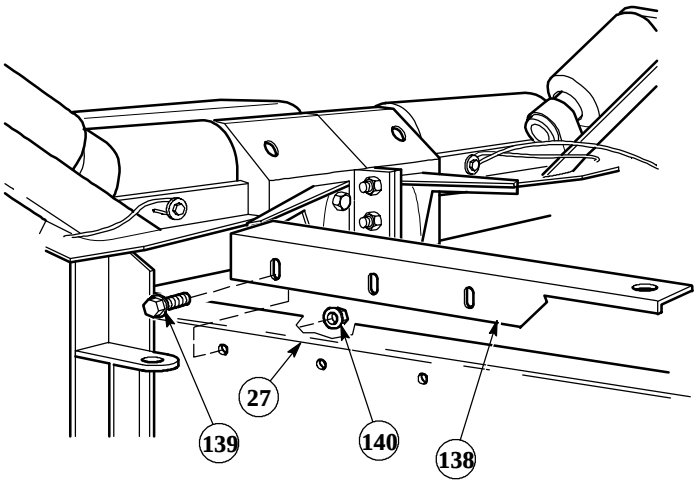


NOTE

- Deck brackets can be found standing in corners of CHU kit crate.
- Hardware for mounting deck and deck brackets can be found in box D, pack no. 28 of CHU kit crate.
- Hard lift deck brackets are installed the same way. Right side shown.

(104) Install right hard lift deck bracket (138) on frame (27) and position screw (139) and locknut (140) in rear position. Do not tighten.

(105) Repeat Step (104) for left side of truck.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

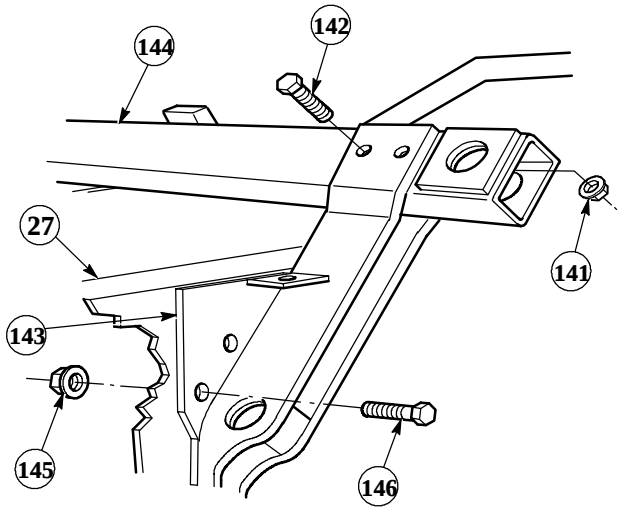
NOTE

- Hardware for strut brackets can be found in box A, pack no. 1 of CHU kit crate.
- Both sides of hard lift brackets are the same. Right side shown.

(106) Remove two locknuts (141) and screws (142) from hard lift bracket (143) and crossover tube (144). Discard locknuts and screws.

(107) Remove two locknuts (145) and screws (146) from hard lift bracket (143) and truck frame (27). Discard locknuts and screws.

(108) Repeat Steps (106) and (107) for left side of truck.



WARNING

Right strut bracket assembly weighs 80 lbs (36 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

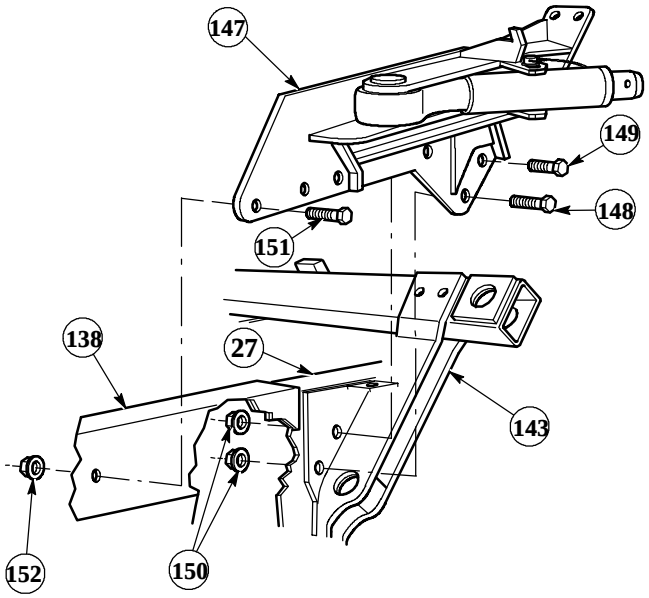
Strut bracket assemblies are installed the same way. Right side shown.

(109) From CHU kit crate, unbolt and remove right strut bracket assembly (147).

(110) Install screw (148), screw (149), two locknuts (150) and strut bracket assembly (147) on hard lift bracket (143) and frame (27).

(111) Position two screws (151) and two locknuts (152) on strut bracket assembly (147), hard lift deck bracket (138) and frame (27).

(112) Tighten screw (139) and two screws (151).

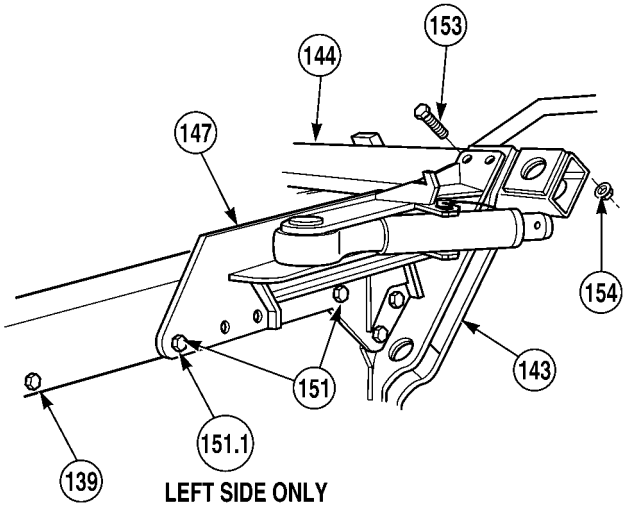


NOTE

Inside screw on crossover tube should be installed and tightened first to ease installation.

(113) Install two screws (153), locknuts (154) and strut bracket assembly (147) on hard lift bracket (143) and crossover tube (144).

(114) Repeat Steps (109) through (113) for left side of truck, except use one screw (151.1).



NOTE

- Preformed packings, seals, thrust washers, shims and retaining rings can be found in box C, pack no. 6, 9, 12, 13 and 39 of CHU kit crate.
- Pivot pins are in pack no. 56 of CHU kit crate.

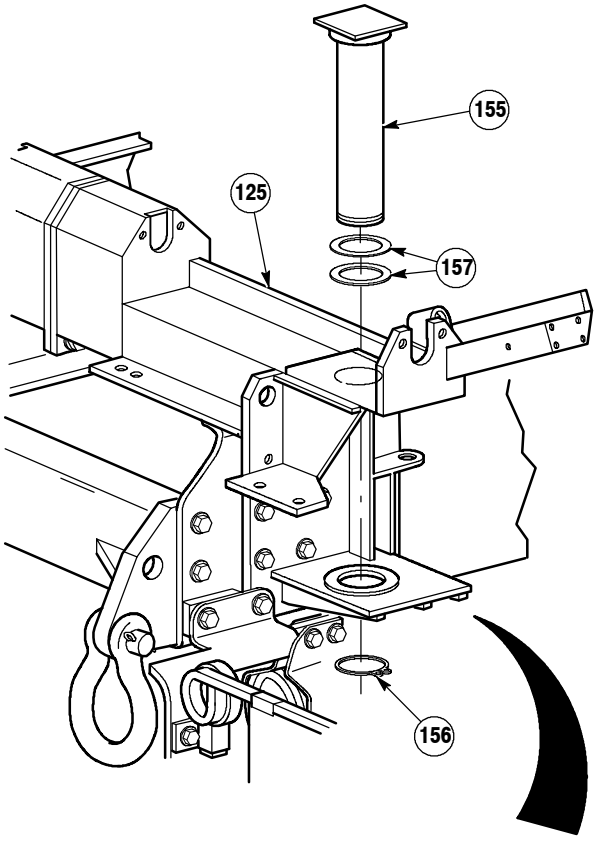
(115) Install pivot pin (155) and retaining ring (156) in right rear roller bracket (125).

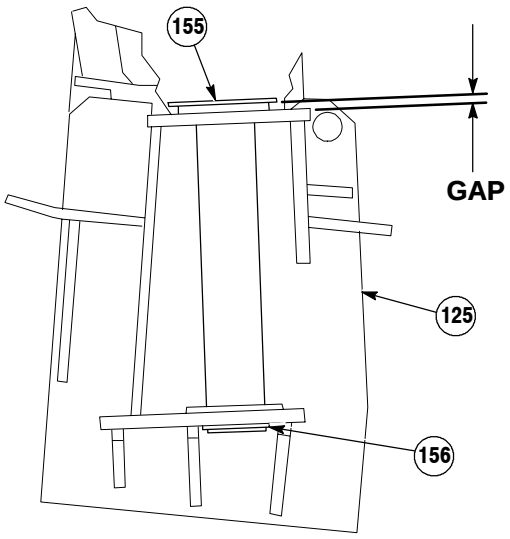
NOTE

- Shim is .06 in. (1.5 mm) thick. Add one shim per every gap between retaining ring and bottom edge of roller bracket.
- Only add shim(s) if gap between retaining ring and bottom edge of roller bracket exceeds .06 in. (1.5 mm).

(116) Measure distance between retaining ring (156) and roller bracket (125).

(117) Determine amount of shims(s) (157) required and remove retaining ring (156) and pivot pin (155) from roller bracket (125).



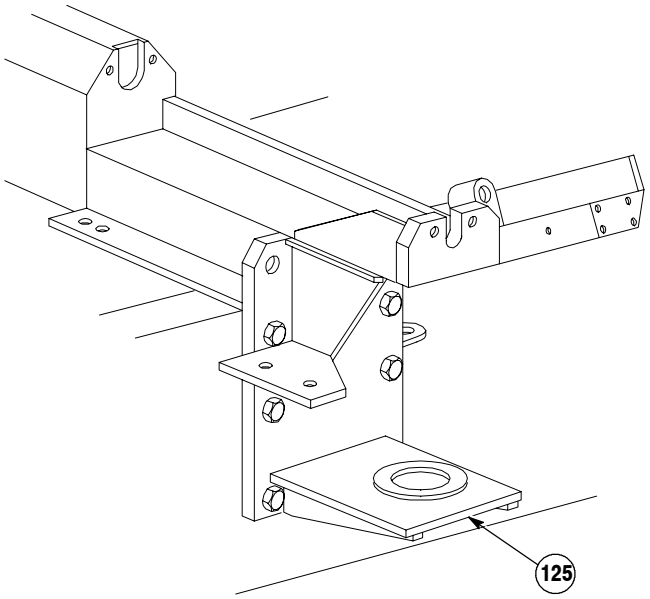


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(118) Clean preservative from right rear roller bracket (125) with dry cleaning solvent.



NOTE

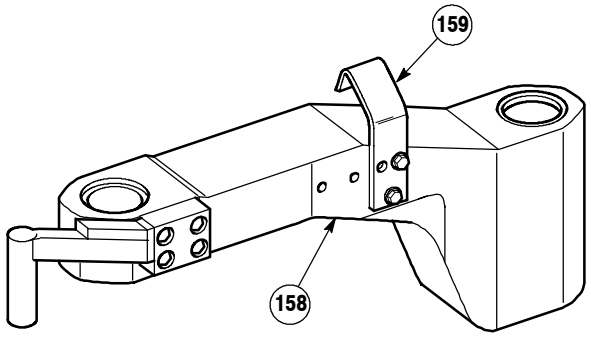
Arm assemblies are installed the same way. Right side shown.

(119) From CHU kit crate, unbolt and remove wood blocking between arm assemblies (158).

WARNING

Arm assembly weighs 240 lbs (109 kg). Attach suitable lifting device to prevent possible injury to personnel.

(120) Attach lifting device to lifting bracket (159) on right arm assembly (158) and remove from CHU kit crate.



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Sealing compound is applied to metallic side of thrust washer.

(121) Apply sealing compound (loctite 680) supplied in kit to thrust washers (160).

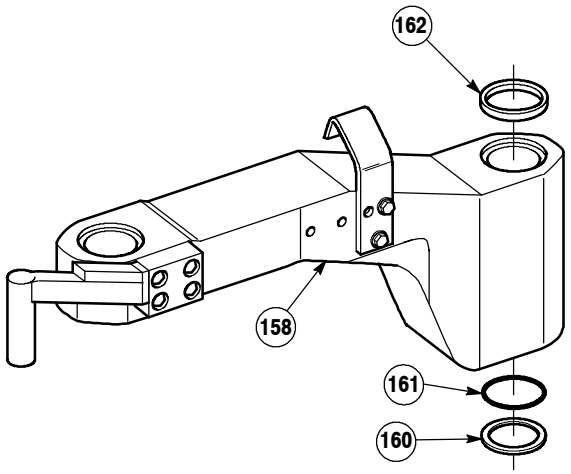
(122) Apply adhesive (loctite 409) supplied in kit to 6 points in recessed groove for preformed packing (161).

NOTE

Thrust washer is properly installed with metallic side to arm.

(123) Install seal (162), preformed packing (161) and thrust washer (160) on arm assembly (158).

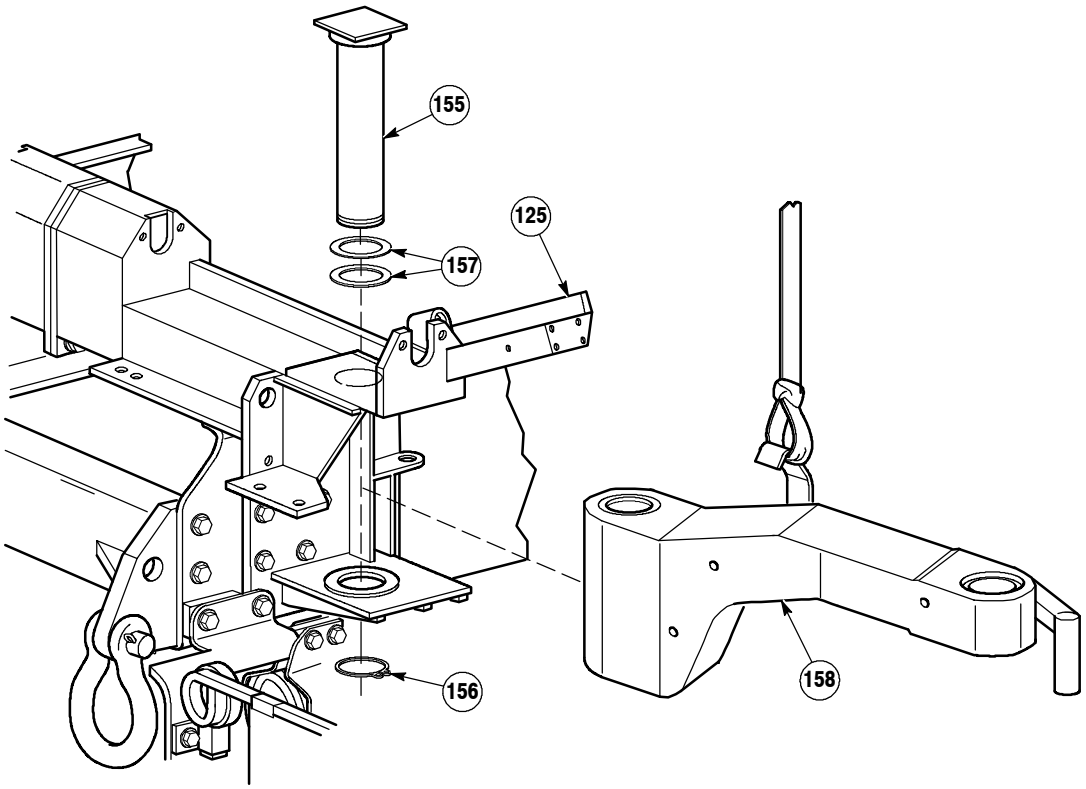
(124) Apply grease, supplied in kit, to face of seal (162), preformed packing (161), thrust washer (160), and bore in large end of arm assembly (158).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Shims are installed between head of pivot pin and rear roller bracket.



(125) Apply grease, supplied in kit, to bores and machined surfaces of right rear roller bracket (125).

CAUTION

Ensure not to damage bottom preformed packing during arm installation.

(126) With the aid of an assistant, position right arm assembly (158) in right rear roller bracket (125).

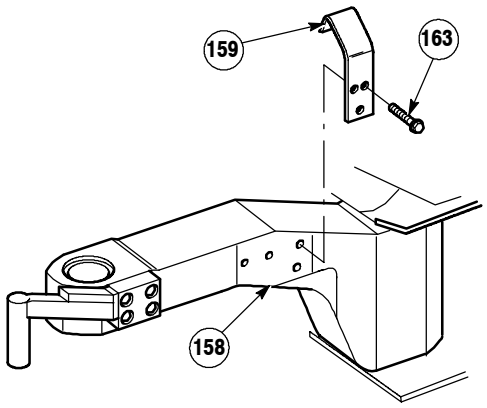
WARNING

Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

(127) Apply grease to outer surface of pivot pin (155) and install pivot pin, shim(s) (if required) (157) and retaining ring (156) in right arm assembly (158) and right rear roller bracket (125).

(128) Remove lifting device from lifting bracket (159).

(129) Remove two screws (163) and lifting bracket (159) from right arm assembly (158). Discard screws.



(130) Deleted.

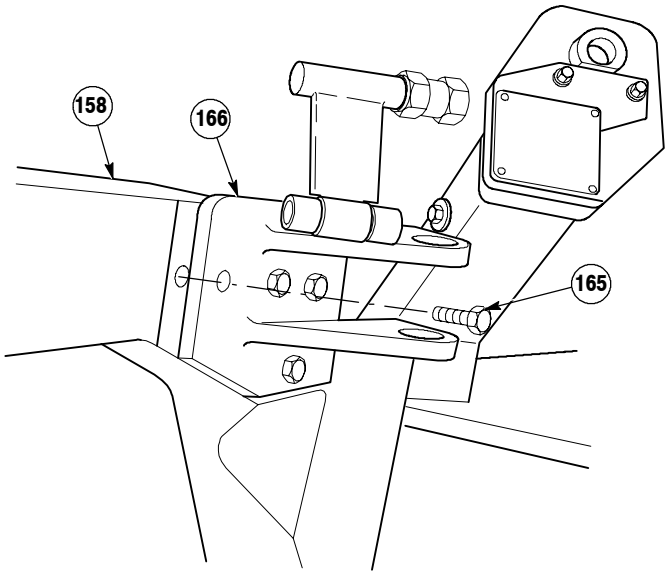
(131) Repeat Steps (115) through (129) for left side of truck.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Pin bracket assemblies are in pack no. 62 and 63 located in bottom of CHU kit crate.
- Hardware is in box D, pack no. 26 of CHU kit crate.
- Pin bracket assemblies, struts and sliders are installed the same way. Right side shown.



(132) Apply sealing compound (loctite 242) to threads of four screws (165).

(133) With the aid of an assistant, install four screws (165) and right pin bracket assembly (166) on right arm assembly (158). Tighten to 80 lb-ft (108 N·m).

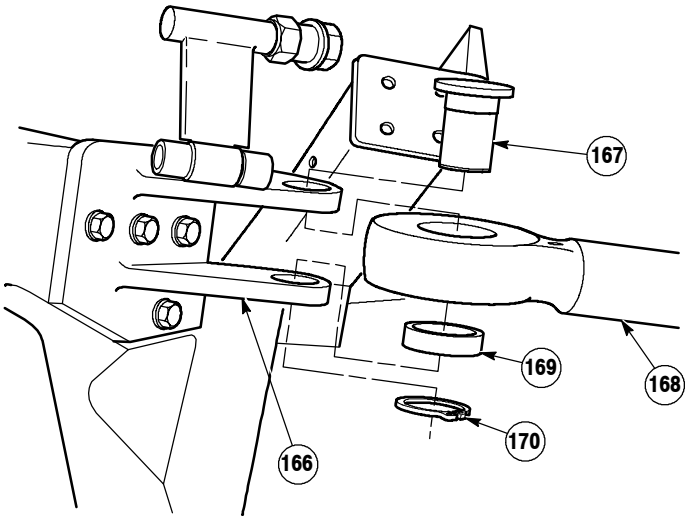
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

- Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.
- Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

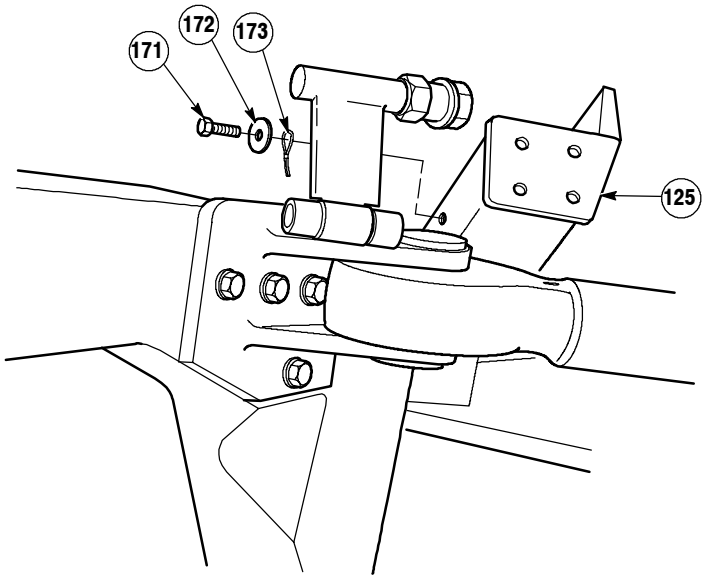
- Short struts can be found in box E, pack no. 34 of CHU kit crate.
- Retaining ring, ring support and pin can be found in box B, pack no. 42 and 43 of CHU kit crate.
- Hole in short strut for attaching spring should be located on top.
- Beveled edge of spacer faces bearing in short strut.



(134) Apply light coat of grease to outer surface of pin (167) and install pin, short strut (168), ring support (169) and retaining ring (170) on pin bracket assembly (166).

NOTE

Wire rope and hardware can be found in box B, pack no. 14 of CHU kit crate.



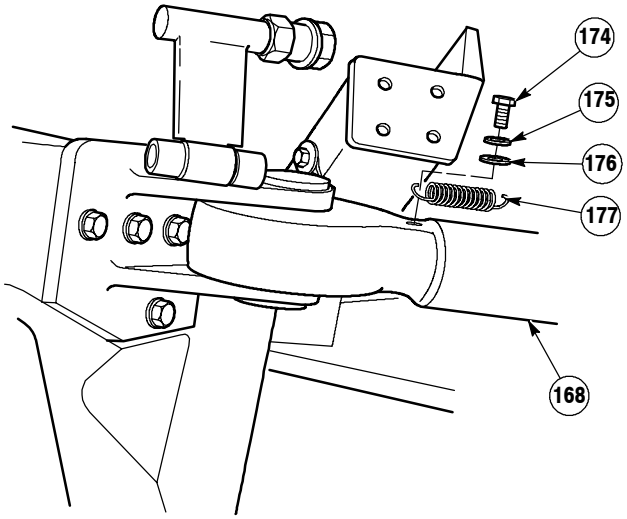
(135) Apply sealing compound (loctite 242) to threads of screw (171).

(136) Position screw (171), washer (172) and loop end of wire rope (173) on right rear roller bracket (125). Do not tighten screw.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(137) Apply sealing compound (loctite 242) to threads of screw (174).



NOTE

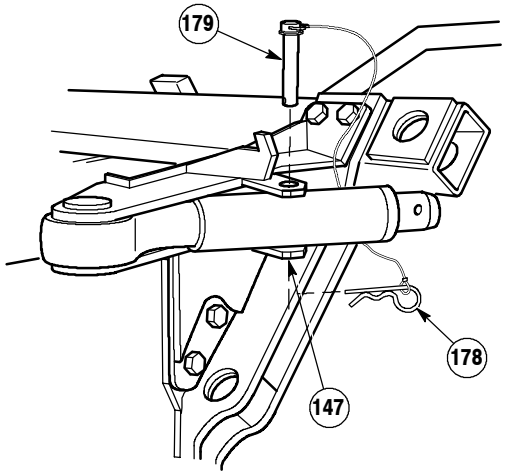
Screw is properly installed when head of screw is .50 in. (1.27 mm) from surface of short strut.

(138) Install screw (174), washer (175), washer (176) and spring (177) on short strut (168).

NOTE

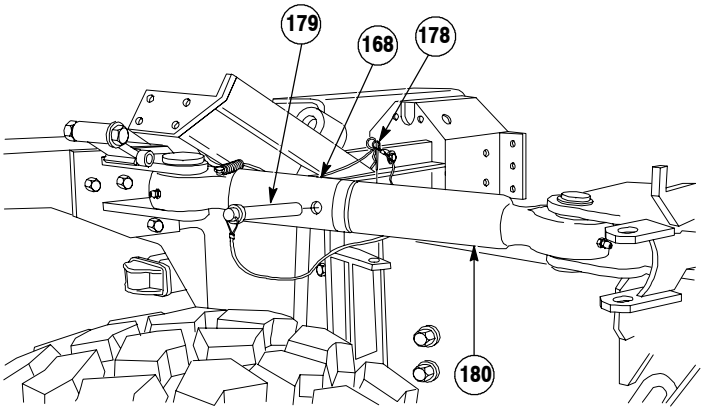
It may be necessary to bend brackets if pin cannot be removed or installed.

(139) Remove quick release pin (178) and pin (179) from strut bracket (147).



(140) Rotate long strut (180) to rear of truck.

(141) Position long strut (180) in short strut (168) and install pin (179) and quick release pin (178).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(142) Position wire rope (173) through end loop of spring (177).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(143) Apply sealing compound (loctite 242) to threads of screw (181).

(144) Position screw (181), washer (182) and end of wire (173) on right rear roller bracket (125).

NOTE

Wire must be pulled tight against roller bracket when installed.

(145) Wrap wire (173) around screw (181) and under washer (182) and tighten screw (181) and (171) on right rear roller bracket (125).

NOTE

- Preformed packings, seals, thrust washers, spacers and retaining rings can be found in boxes B and C, pack no. 7, 8, 11, 13 and 39 of CHU kit crate.
- Sealing compound is applied to metallic side of thrust washer.

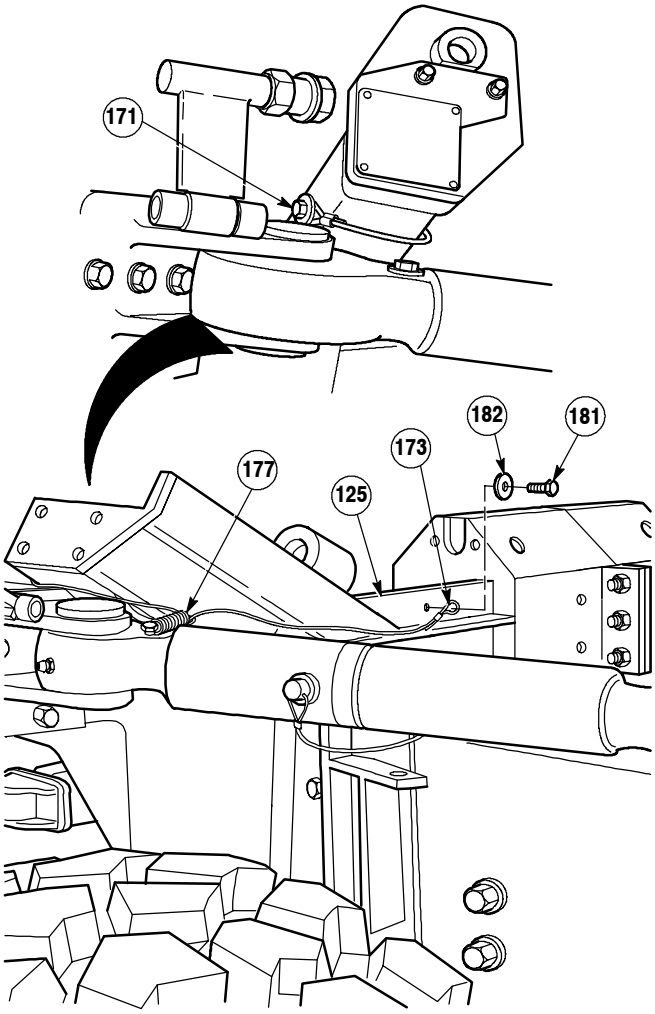
(146) Apply sealing compound (loctite 680) supplied in kit to thrust washer (183).

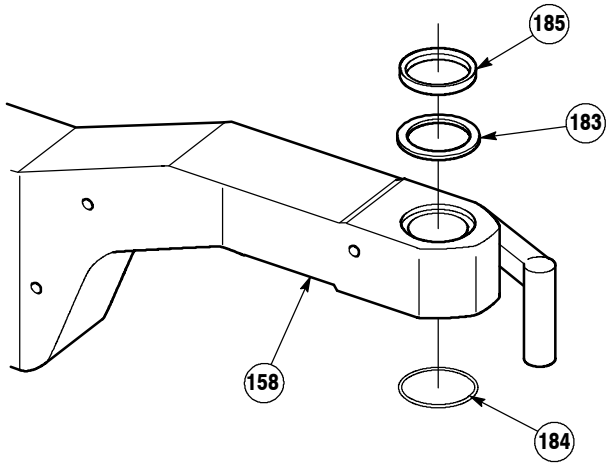
(147) Apply adhesive (loctite 409) supplied in kit to 6 points in recessed groove for preformed packing (184).

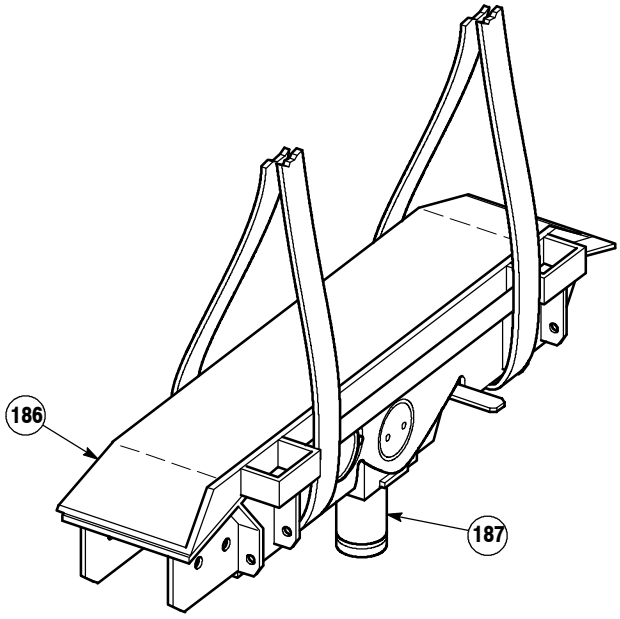
NOTE

Thrust washer is properly installed with metallic side to arm.

(148) Install seal (185), preformed packings (184) and thrust washer (183) on arm assembly (158).







WARNING

Slider weighs 142 lbs (64 kg). Attach suitable lifting device to prevent possible injury to personnel.

(149) From CHU kit crate, remove wood blocking covering sliders at the bottom and attach suitable lifting device to right slider (186).

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(150) Clean preservative from slider pivot pin (187) with dry cleaning solvent.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(151) Apply light coat of grease to outer surface of slider pivot pin (187), spacer (188) and retaining ring (189) and thrust washer, seals and bore on right arm assembly (158).

WARNING

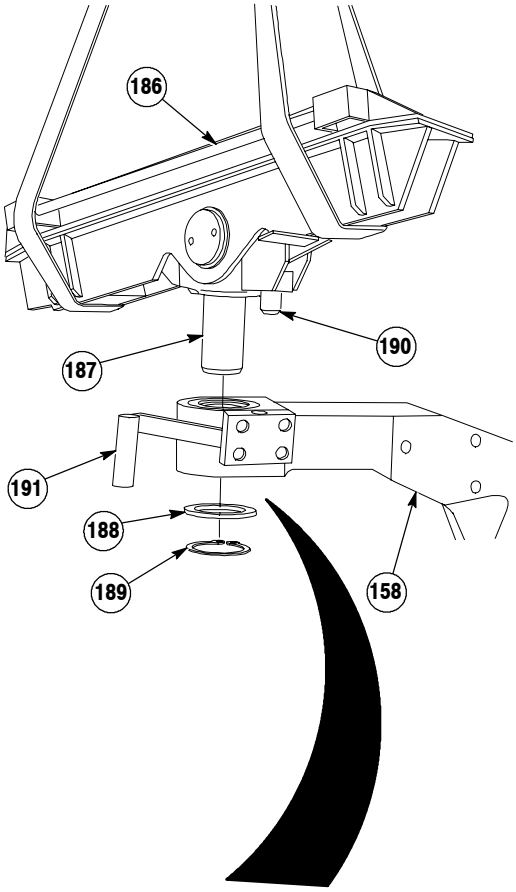
Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

NOTE

Ensure retaining ring is fully seated after installation.

(152) With the aid of an assistant, position right slider assembly (186) and install slider pivot (187) in right arm assembly (158) with spacer (188) and retaining ring (189).

(153) Remove lifting device from right slider assembly (186).



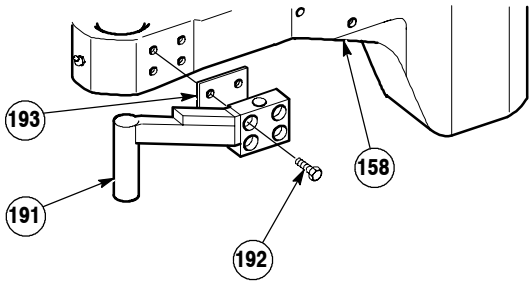
(154) Check that pivot lock pin (190) properly locks into handle (191).

NOTE

If pivot lock pin properly locks into handle go to Step (160).

(155) Remove four screws (192), shim(s) (193) (if present) and handle (191) from right arm assembly (158).

(156) Remove or add shim(s) (193) to right arm assembly (158) as required.



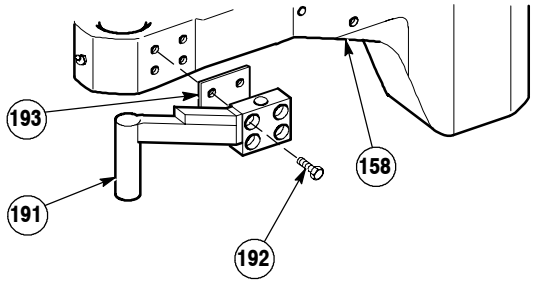
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(157) Apply sealing compound (loctite 242) to threads of four screws (192).

(158) Install four screws (192), handle (191) and shim(s) (193) (as required) on right arm assembly (158).

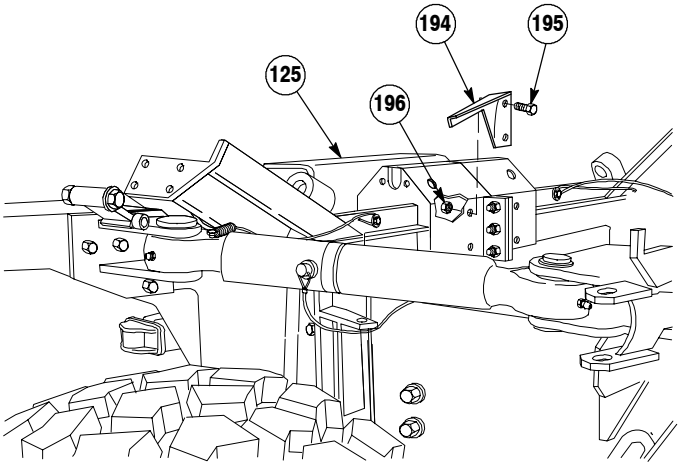
(159) Repeat Step (154).



NOTE

Stow plates, screws and locknuts can be found in box F, pack no. 69, 71 and 72 of CHU kit crate.

(160) Position stow plate (194) on right rear roller bracket (125) with two screws (195) and locknuts (196). Do not tighten.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

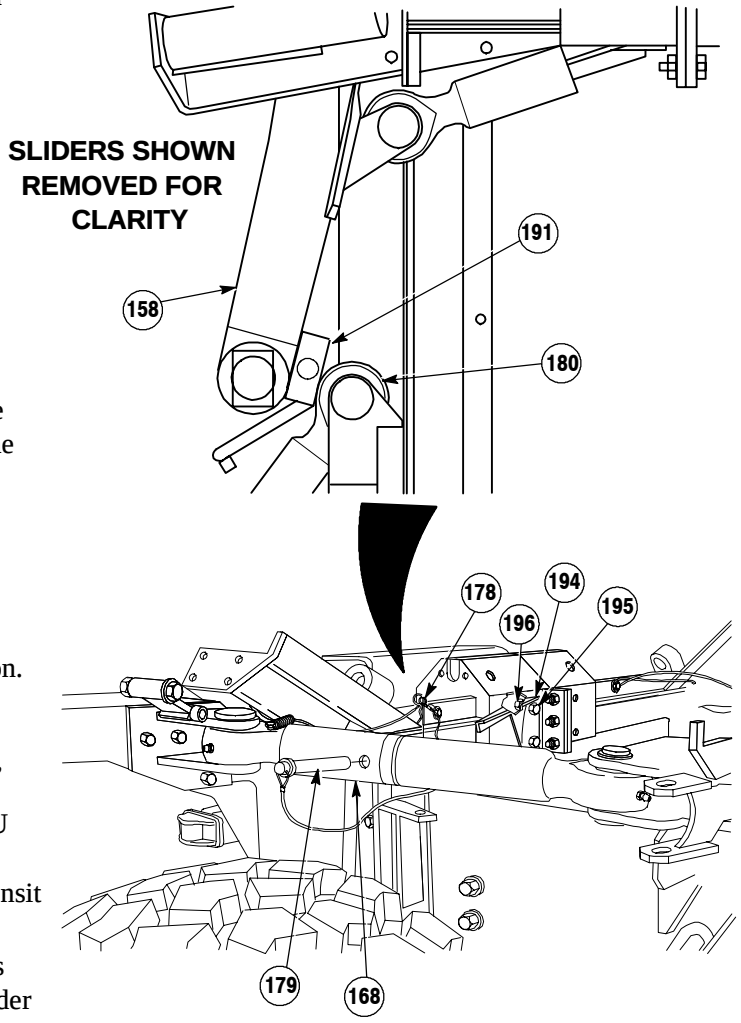
(161) Remove quick release pin (178) and pin (179) from short strut (168).

NOTE

- Stow plate should be positioned in center of short strut.
- Ensure slider arm is fully stowed and slider arm handle contacts long strut prior to tightening two screws.

(162) Position short strut (168) on stow plate (194) in stowed position and that handle (191) of arm assembly (158) contacts the long strut (180).

(163) Tighten two screws (195) and locknuts (196) on stow plate (194).



(164) Push down handle (197) and stow right slider assembly (186) in forward position.

NOTE

Cushion clip can be found in box B, pack no. 41 and hardware can be found in box B, pack no. 40 of CHU kit crate.

(165) Position three cushion clips (198) on transit lock switch wire harness (199).

(166) Position transit lock switch wire harness (199) along arm assembly (158) and under right rear roller assembly (125) with existing wire harnesses towards front of truck.

WARNING

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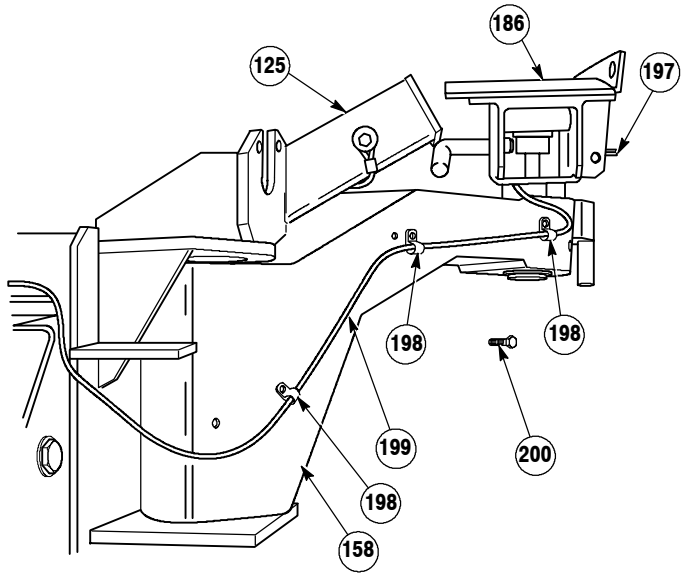
(167) Apply sealing compound (loctite 242) to threads of three screws (200).



CAUTION

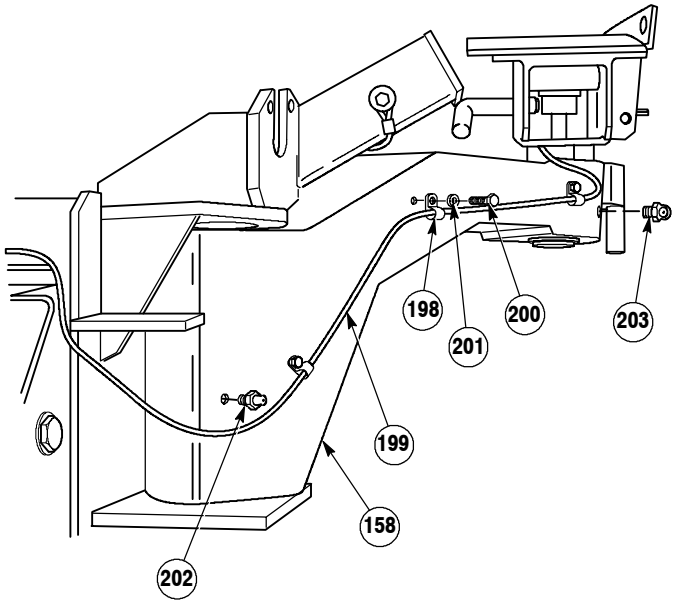
Leave enough slack in wire harness around pivot assembly to rotate slider without causing damage to harness. (In stowed position.)

(168) Install transit lock switch wire harness (199) with three screws (200), washers (201) and cushion clips (198) on arm assembly (158).

NOTE

Grease fittings can be found in box B, pack no. 10 of CHU kit crate.

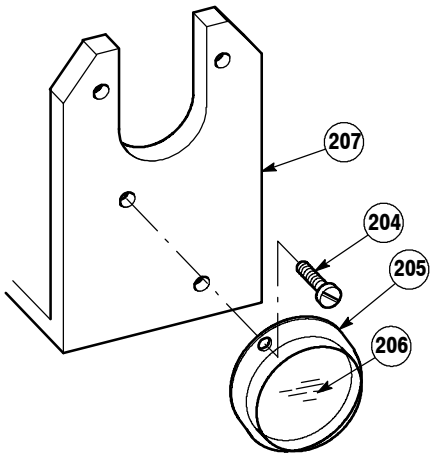
(169) Install grease fittings (202) and (203) in arm assembly (158).



NOTE

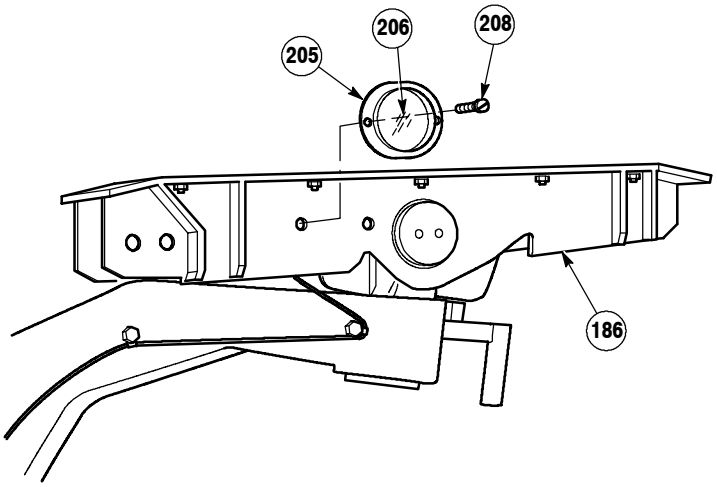
Reflectors are located on removed roller bracket.

(170) Remove two self tapping screws (204), reflector housing (205) and reflector (206) from roller bracket (207). Discard self-tapping screws.

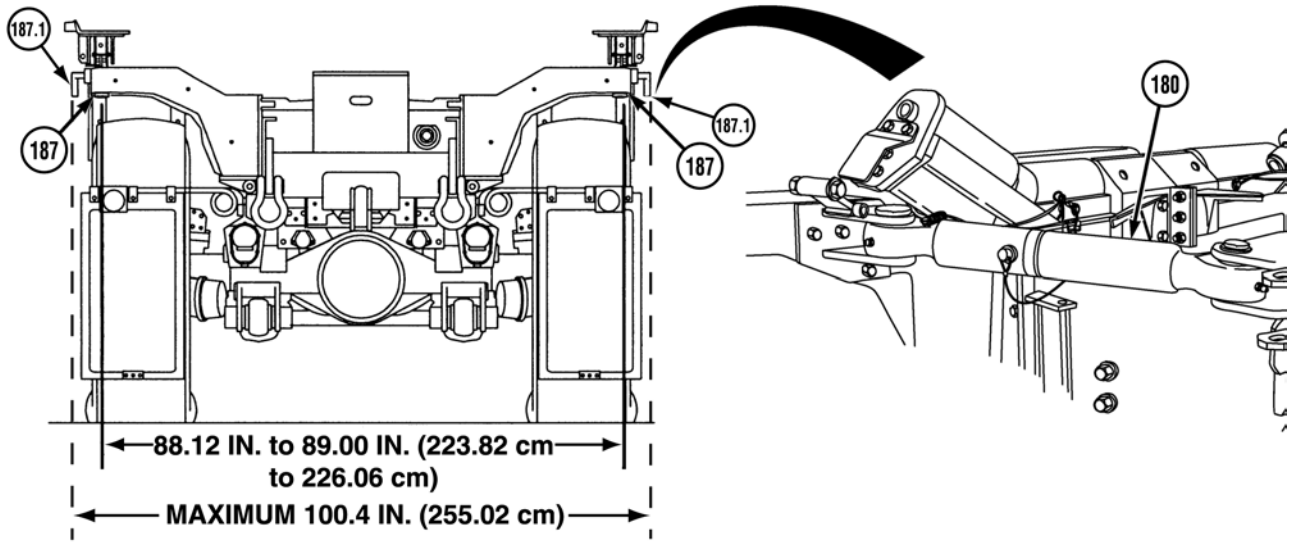


(171) Using two self tapping screws (208) install reflector (206) and reflector housing (205) on slider (186).

(172) Repeat Steps (132) through (171) for left side of truck.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



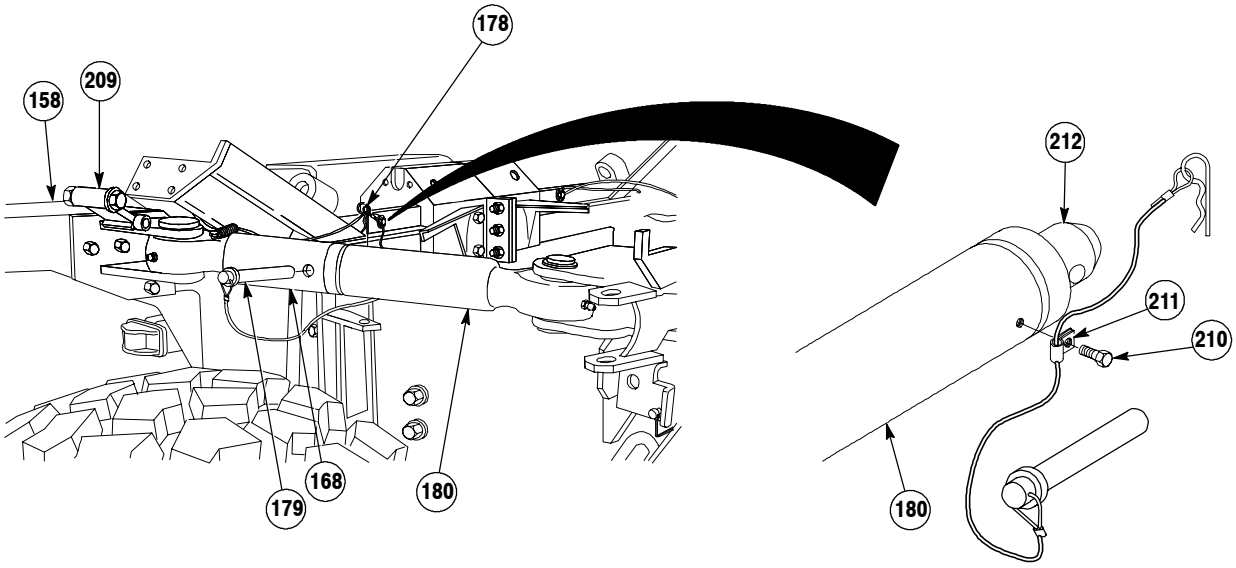
(173) Deploy both slider assemblies by extending short and long struts (TM 9-2320-364-10).

NOTE

Distance measured to outside edges of handles should be as close to but not exceed 100.4 in. (255.02 cm). If distance measured between centers of slider pivot pins is 88.12 to 89.00 in. (223.82 to 226.06 cm), no adjustment is required. Adjustment of struts is performed in steps (174) through (186).

(174) With the aid of an assistant, measure distance between center of slider pivot pins (187), and distance from outside edges of handles (187.1).

(175) Adjust long struts (180) so distance measured is 88.12 in. to 89 in. (223.82 cm to 226.06 cm) between slider pivot pin (187) centers.



(176) Remove quick release pin (178) and pin (179) from short strut (168) and long strut (180).

(177) Using handle of arm assembly (158), rotate arm assembly out to separate short strut (168) and long strut (180).

(178) Position flip lock (209) up to hold arm assembly (158) out. Release arm assembly.

NOTE

- Rotating pin end of long strut counterclockwise 1/2 turn will decrease width measurement by approximately 1/16 in. (1.59 mm).
- Rotating pin end of long strut clockwise 1/2 turn will increase width measurement by approximately 1/16 in. (1.59 mm).
- Adjust both RH and LH long struts equally to obtain the correct width measurement.

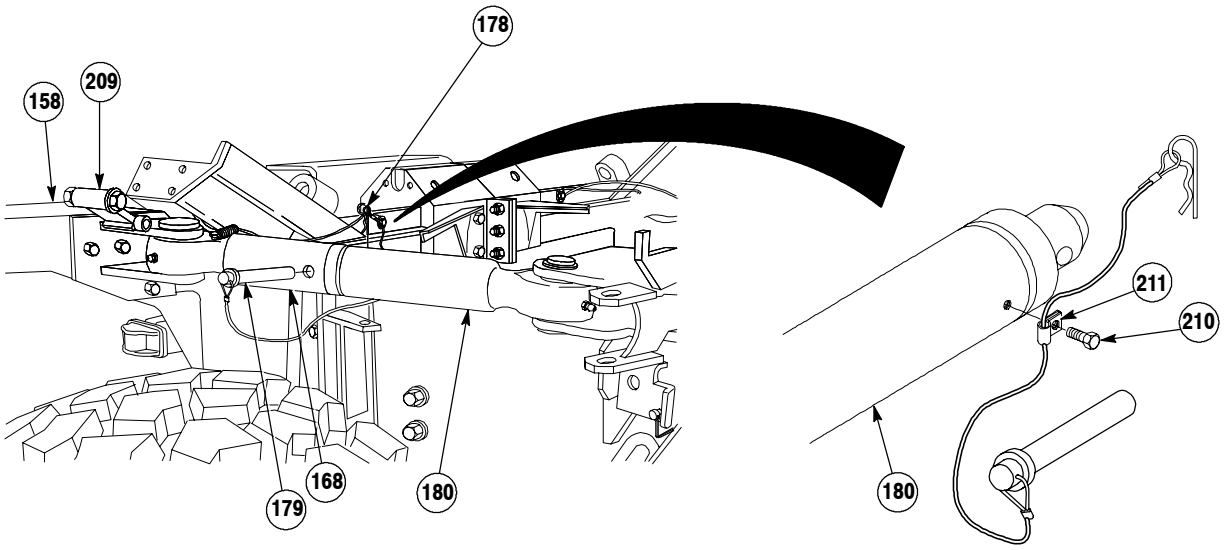
(179) Remove screw (210) and cushion clip (211) from long strut (180).

CAUTION

Do not unscrew pin end too far. Gap between long strut tube and pin end flange should not exceed 1.00 in. (2.54 cm). Failure to have sufficient engagement of pin end into long strut could result in damage to equipment.

(180) Rotate pin end (212) as required for correct width measurement.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



WARNING

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NOTE

Ensure hole in pin end align with hole for cushion clip.

(181) Apply sealing compound (loctite 242) to threads of screw (210).

(182) Install screw (210) and cushion clip (211) to long strut (180).

(183) Align long strut (180) with short strut (168).

(184) Using handle of arm assembly (158), rotate arm assembly and disengage flip lock (209).

(185) Position long strut (180) in short strut (168) and install pin (179) and quick release pin (178).

(186) Repeat Steps (175) through (185) for left side.

(187) Deleted.

WARNING

Horizontal roller weighs 75 lbs. (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

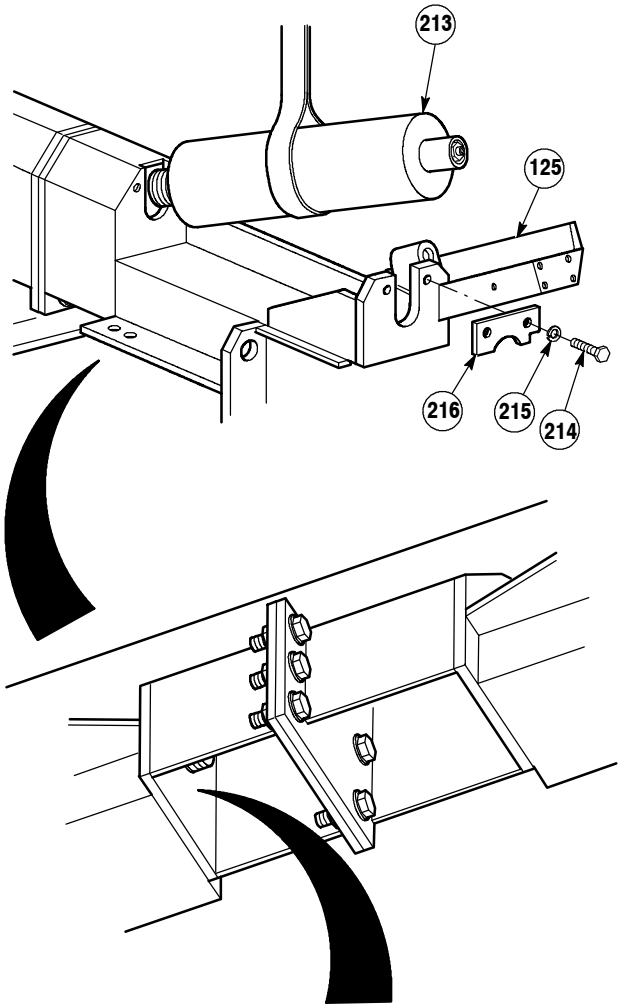
NOTE

- Reuse roller, screw, locknut and thrust washer from removal of horizontal roller.
- Lock plates can be found in box B, pack no. 46 of CHU kit crate.
- Both rollers are installed the same way. Right side shown.

(188) Attach lifting device to roller (213).

(189) With the aid of an assistant, position roller (213) in right rear roller bracket (125).

(190) Install two screws (214), lockwashers (215) and lockplate (216) in right rear roller bracket (125).



NOTE

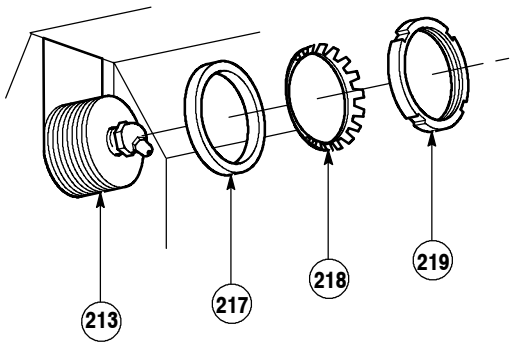
Locknut is installed properly when locknut is tightened and roller does not bind.

(191) Install thrust washer (217), lockwasher (218), and locknut (219) on roller (213).

(192) Bend tab of lockwasher (218) into slot of locknut (219).

(193) Remove lifting device from roller (213).

(194) Repeat Steps (188) through (193) for left side of truck.

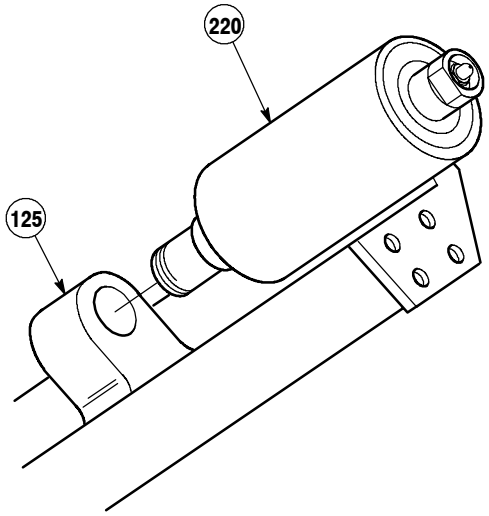


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

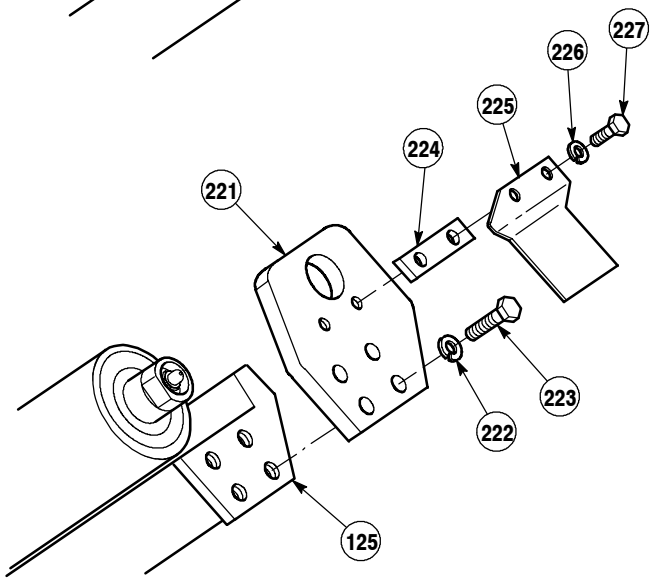
- Reuse roller, lockplate and screws from removal of angled roller.
- New end plates can be found in box B, pack no. 47 and 48 of CHU kit crate.
- Brackets can be found in box B, pack no. 49 and 50 of CHU kit crate.

(195) Position roller (220) in right rear roller bracket (125).



(196) Install endplate (221), four lockwashers (222) and screws (223).

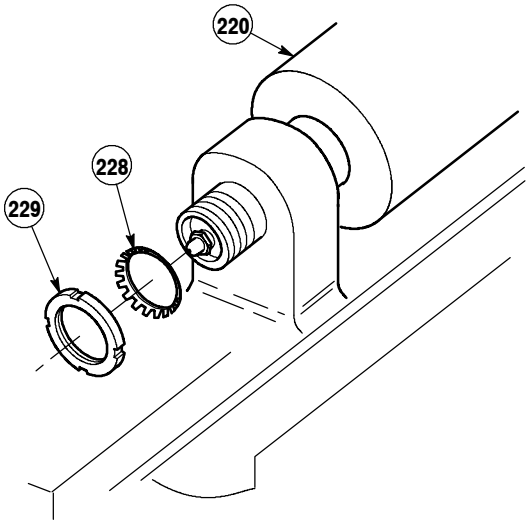
(197) Install lockplate (224), bracket (225), two lockwashers (226) and screws (227) on rear roller bracket (125).



(198) Install lockwasher (228) and locknut (229) on roller (220).

(199) Bend tab of lockwasher (228) into slot of locknut (229).

(200) Repeat Steps (195) through (199) for left side of truck.



WARNING

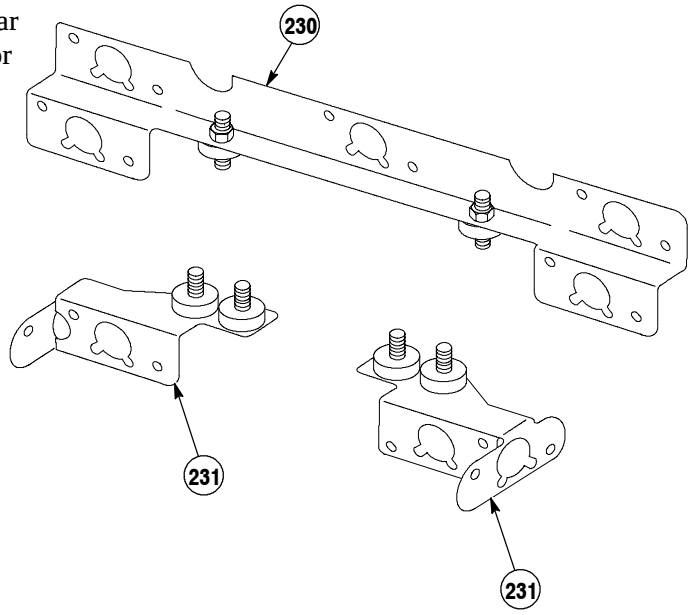
CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

- ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
- DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
- DO NOT use CARC paint without adequate ventilation.
- NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

NOTE

- Reuse parts from removal and disassembly of rear marker light assembly.
- Inspect all wires, connectors, parts for cracks and damage and replace as necessary.
- There are two blackout lights. Both blackout lights are installed the same way.
- Light bar can be found in CHU crate secured with wood blocking securing rear brackets.
- Rear brackets can be found in box A, pack no. 4 of CHU kit crate.

(201) Grind off paint on areas of marker light bar assembly (230) and rear brackets (231) for grounding surfaces.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

CAUTION

Keep all moisture and oils off lamp. Do not touch lamp with bare hands. Use a clean dry, oil free cloth to hold lamp while installing lamp in blackout light.

(202) Install gasket (232), blackout light assembly (233), two screws (234), ground wire (235) and locknuts (236) on rear marker light bar assembly (230).

CAUTION

Corrosion inhibitor contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

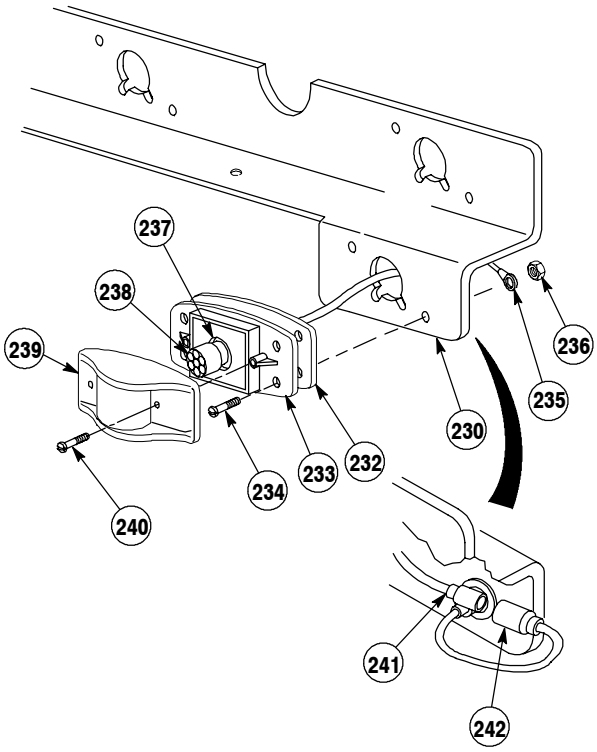
(203) Apply anti-corrosion silicone compound to inside of blackout lamp socket (237).

(204) Install blackout lamp (238) in blackout lamp socket (237).

(205) Install lens cover (239) with two screws (240) in blackout light assembly (233).

(206) Connect wire 1680 (241) to wire 490 (242).

(207) Repeat Steps (202) through (206) for remaining blackout light.



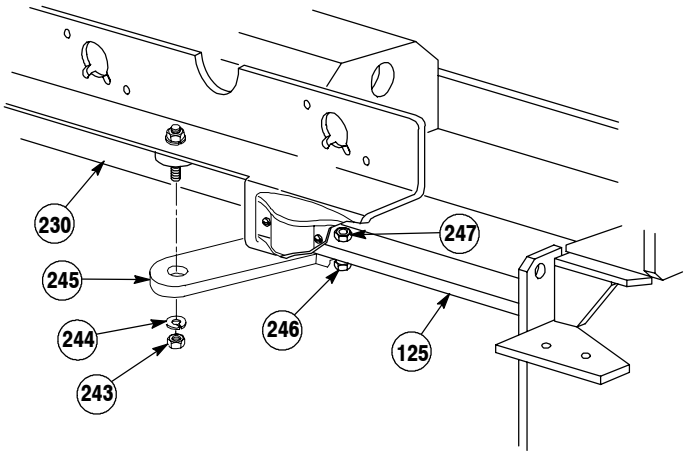
NOTE

Hardware can be found in box A, pack no. 45 of CHU kit crate.

(208) Position rear marker light bar assembly (230) on rear roller brackets (125).

(209) Install rear marker light bar assembly (230) with nut (243) and lockwasher (244) on light mounting plate (245).

(210) With the aid of an assistant, pull rear marker light bar assembly (230) towards rear of truck and tighten four screws (246) and locknuts (247) on light mounting plate (245).

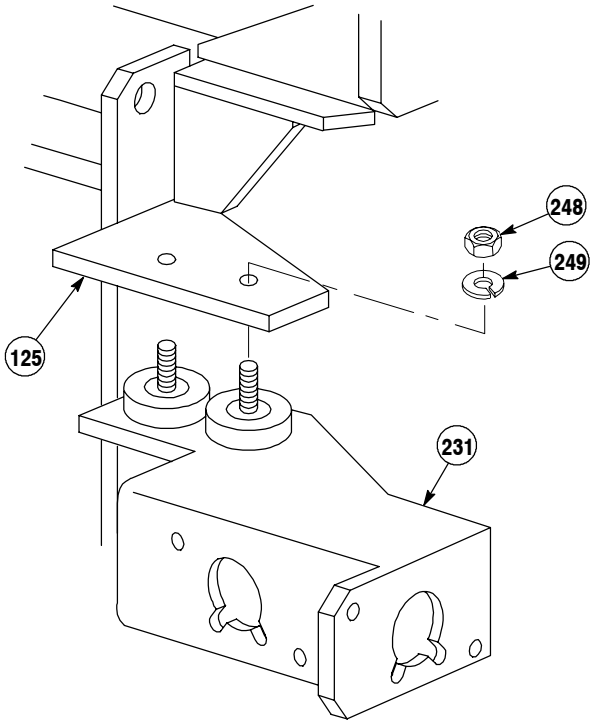


NOTE

Both rear brackets are installed the same way. Right side shown.

(211) Install rear bracket (231) with two nuts (248) and lockwashers (249) on rear roller brackets (125).

(212) Repeat Steps (209) and (211) for left side of truck.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

- All seven red marker lights are installed the same way.
- Perform Steps (213) through (217) for marker light with lamp.
- Perform Steps (219) through (223) for marker light with LED.

(213) Install gasket (250), marker light assembly (251), two screws (252), wire 489 (253), ground wire 1435 (254) and two locknuts (255) on rear bracket (231).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

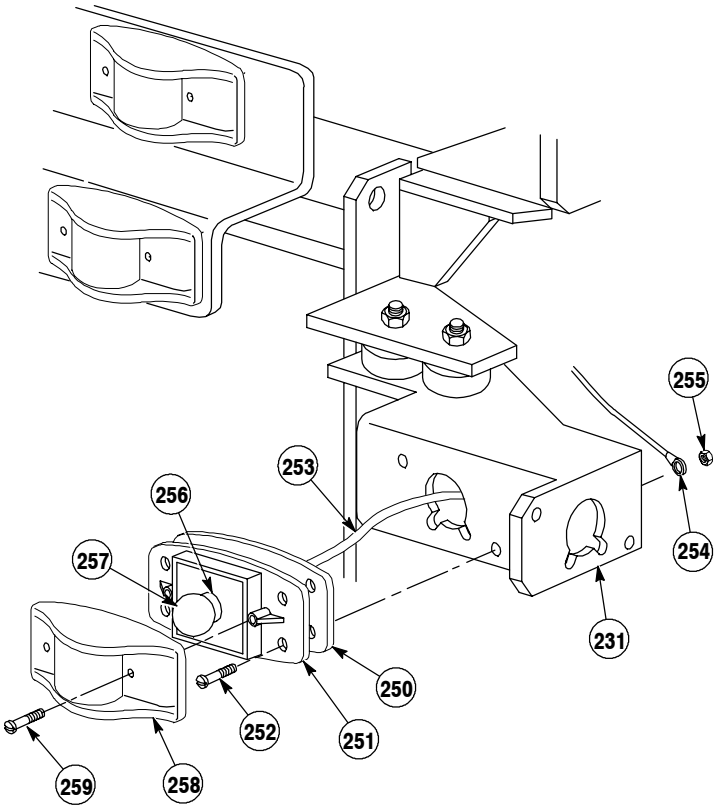
(214) Apply anti-corrosion silicone compound to inside of lamp socket (256).

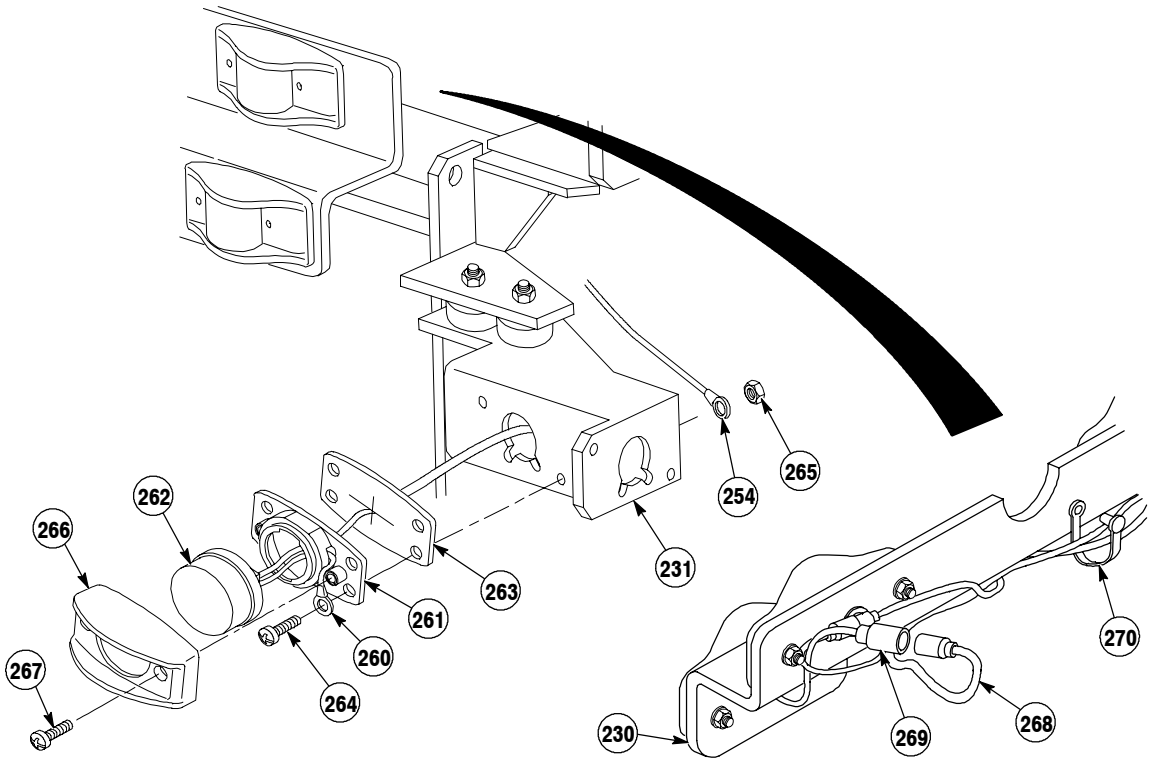
(215) Install lamp (257) in lamp socket (256).

(216) Install lens cover (258) with two screws (259) in marker light assembly (251).

(217) Apply corrosive preventive compound to ground wire 1435 (254).

(218) Repeat Steps (213) through (217) for remaining marker light assemblies (251).





(219) Position ground wire 1435 (260) through hole in marker light assembly (261).

(220) Install LED (262) in marker light assembly (261) and turn 1/4 turn clockwise.

(221) Install gasket (263), marker light assembly (261), two screws (264), ground wire (260), ground wire 1435 (254) and two locknuts (265) on rear bracket (231).

(222) Install lens cover (266) with two screws (267) in marker light assembly (261).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(223) Apply corrosive preventive compound to ground wire 1435 (254).

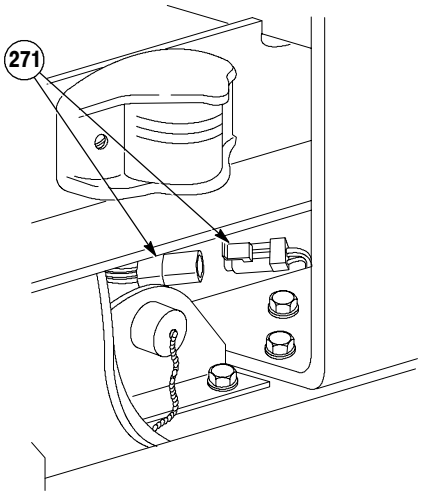
(224) Connect wire 1012 (268) to wire 489 (269).

(225) Repeat Steps (219) through (224) for remaining marker light assemblies (261).

(226) Position two push clips (270) on wires 489 (269).

(227) Install push clip (270) and two wires 489 (269) on rear marker light bar assembly (230).

(228) Connect MC90 connector (271).

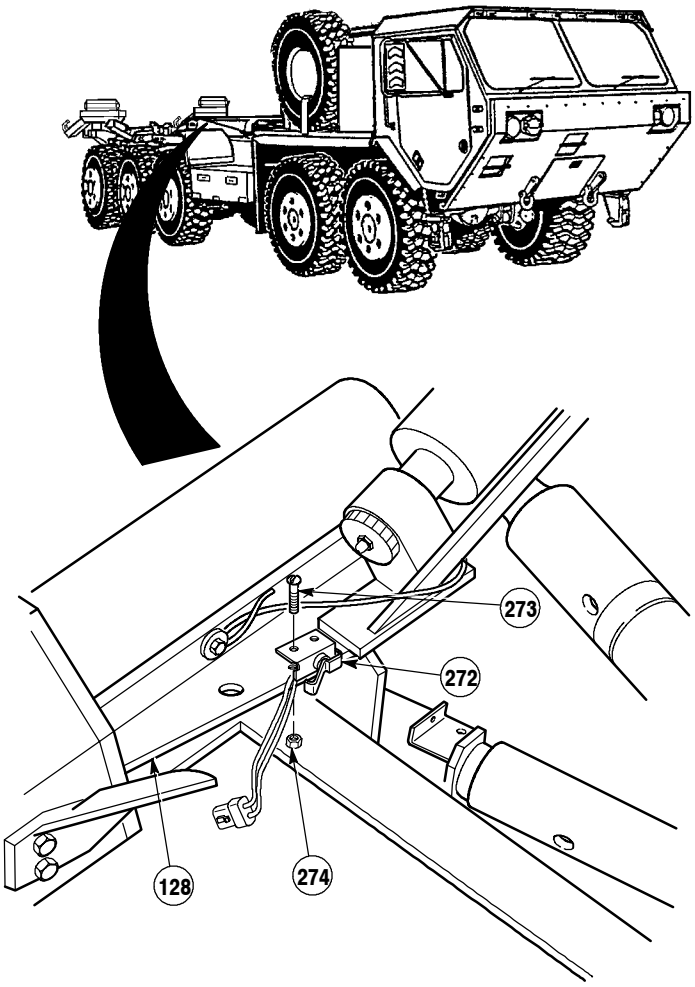


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

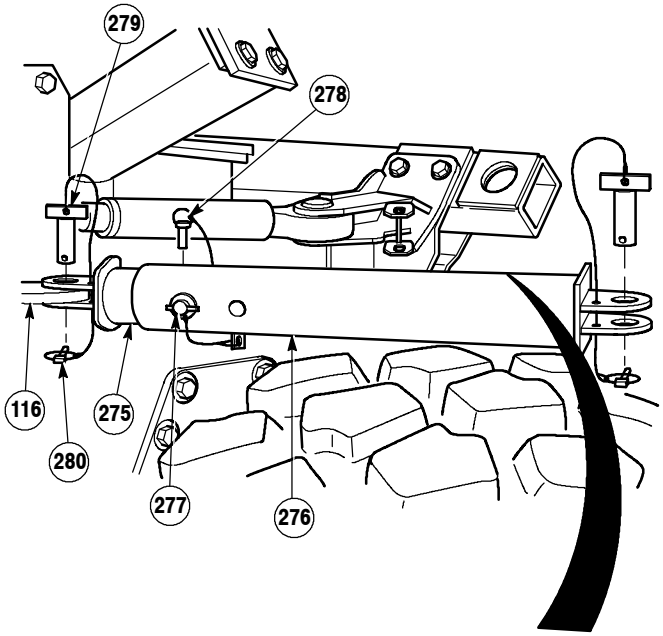
- Mode switch and hardware can be found in box D, pack no. 18 of CHU kit crate.
- Mode switch is installed on top of gusset of left rear roller bracket.

(229) Position mode switch (272) on left rear roller bracket (128) using two screws (273) and locknuts (274). Do not tighten.



NOTE

- Rear hard lift struts are in box D, pack no. 29 of CHU kit crate.
- Hard lift slider bracket, tether, swaging sleeve and pin are in box B, pack no. 37 and 38 of CHU kit crate.



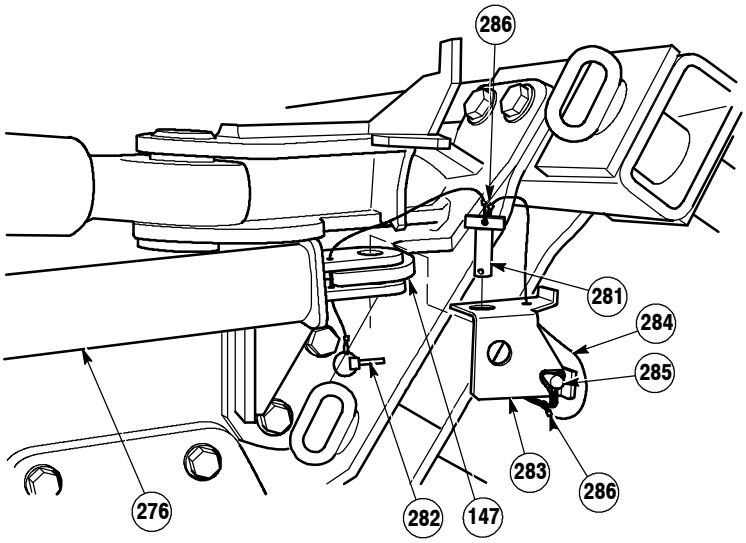
(230) Position rear hard lift strut (275) in front hard lift strut (276) and install pin (277) and quick disconnect pin (278).

(231) Install pin (279), quick disconnect pin (280) and rear hard lift strut (275) on rear roller bracket (116).

(232) Install pin (281), quick disconnect pin (282), hard lift slider bracket (283) and front hard lift strut (276) on strut bracket (147).

NOTE

Wire tether is properly installed when positioned through loop in snapper pin.



(233) Install wire tether (284) to snapper pin (285) with swaging sleeve (286).

(234) Install snapper pin (285) in hard lift slider bracket (283).

NOTE

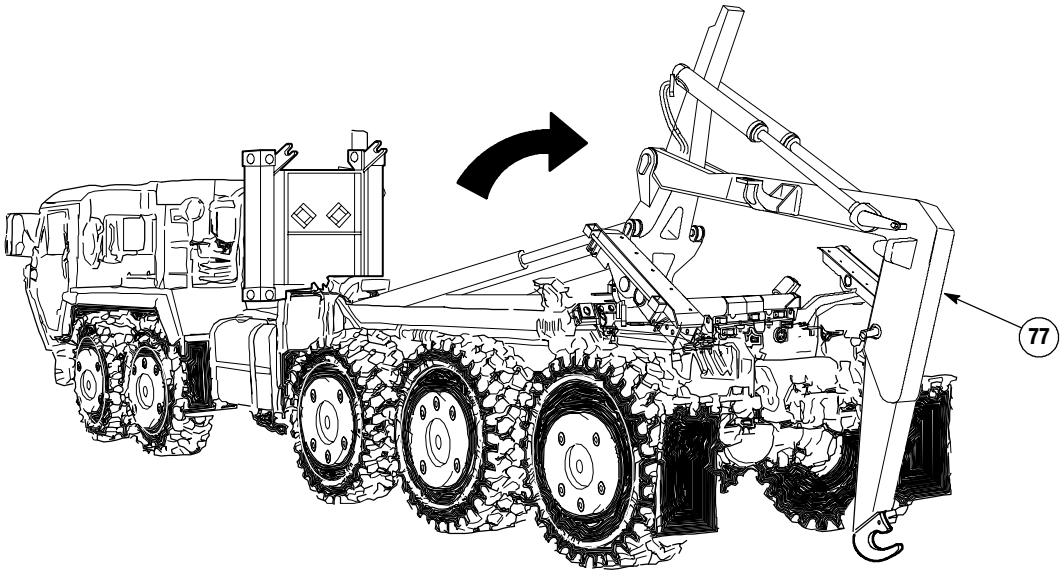
Wire tether is properly installed when positioned through front hole of hard lift slider bracket and hole in pin.

(235) Position wire tether (284) through hard lift slider bracket (283) and install to pin (281) with swaging sleeve (286).

(236) Install hard lift slider bracket (283) on front hard lift strut (276) and strut bracket (147) with pin (281) and quick disconnect pin (282).

(237) Repeat Steps (230) through (236) for left side of truck.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

Do not turn steering wheel with rear steering shaft disconnected, or if steering wheel is turned, steering may need realignment.

(238) Connect batteries (TM 9-2320-364-20).

(239) Start engine and extend hook arm (77) fully to take tension off of pivot point (TM 9-2320-364-10).

WARNING

- Hook arm weighs 1,100 lbs (499 kg). Attach suitable lifting device to prevent possible injury to personnel.
- Ensure hook arm is supported with lifting device during installation to prevent possible injury to personnel.

(240) Attach lifting device to hook arm (77).

(241) Ensure hook arm (77) is positioned fully to left side of truck. Use a pry bar if needed.

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

- Shim is .0747 in. (1.9 mm) thick. Add one shim per every .0747 in. (1.9 mm) gap between inside lip and hook arm.
- Only add shim if area between inside lip and hook arm exceeds .0747 in. (1.9 mm).
- Perform Steps (243) through (246) if shim(s) are required.

(242) Measure distance between hook arm (77) and inside lip (287) of middle frame (288). Record as measurement “A”.

(243) With the aid of an assistant, support hook arm (77) and remove retaining ring (289) from left side of pivot pin (290).

NOTE

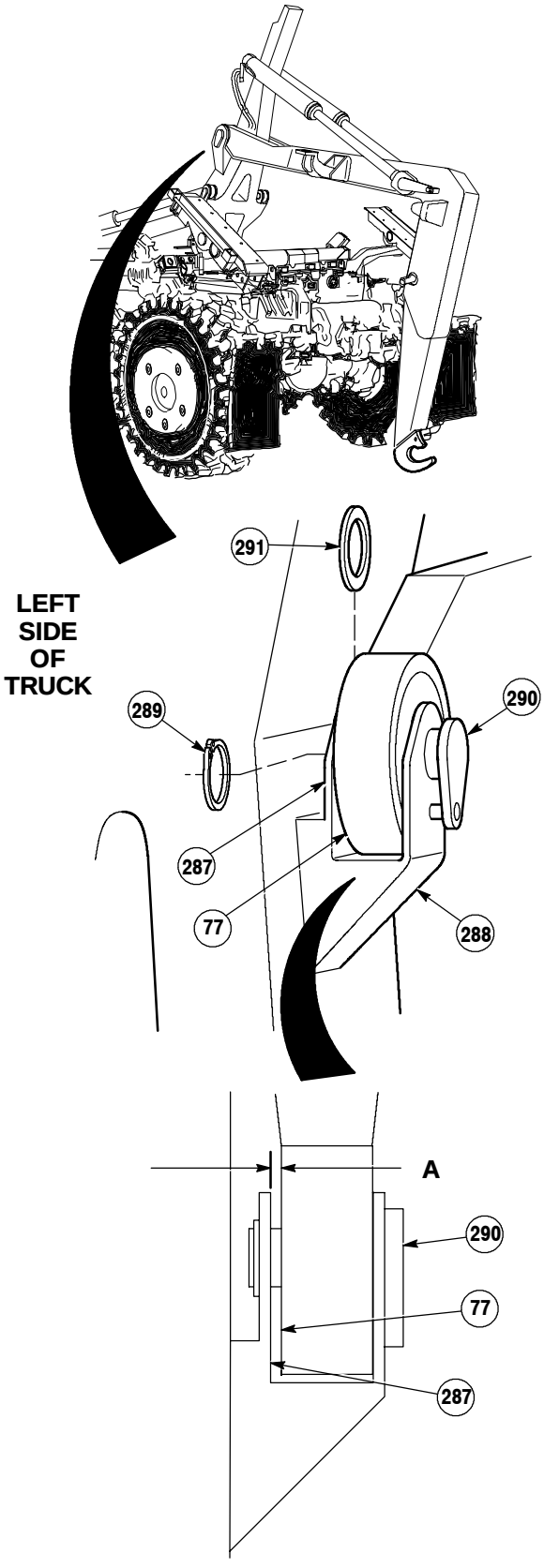
- Shims can be found in box D, pack no. 15 of CHU kit crate.
- Do not completely remove pivot pin.

(244) Partially remove left side pivot pin (290) until shim(s) (291) can be installed between hook arm (77) and middle frame (288).

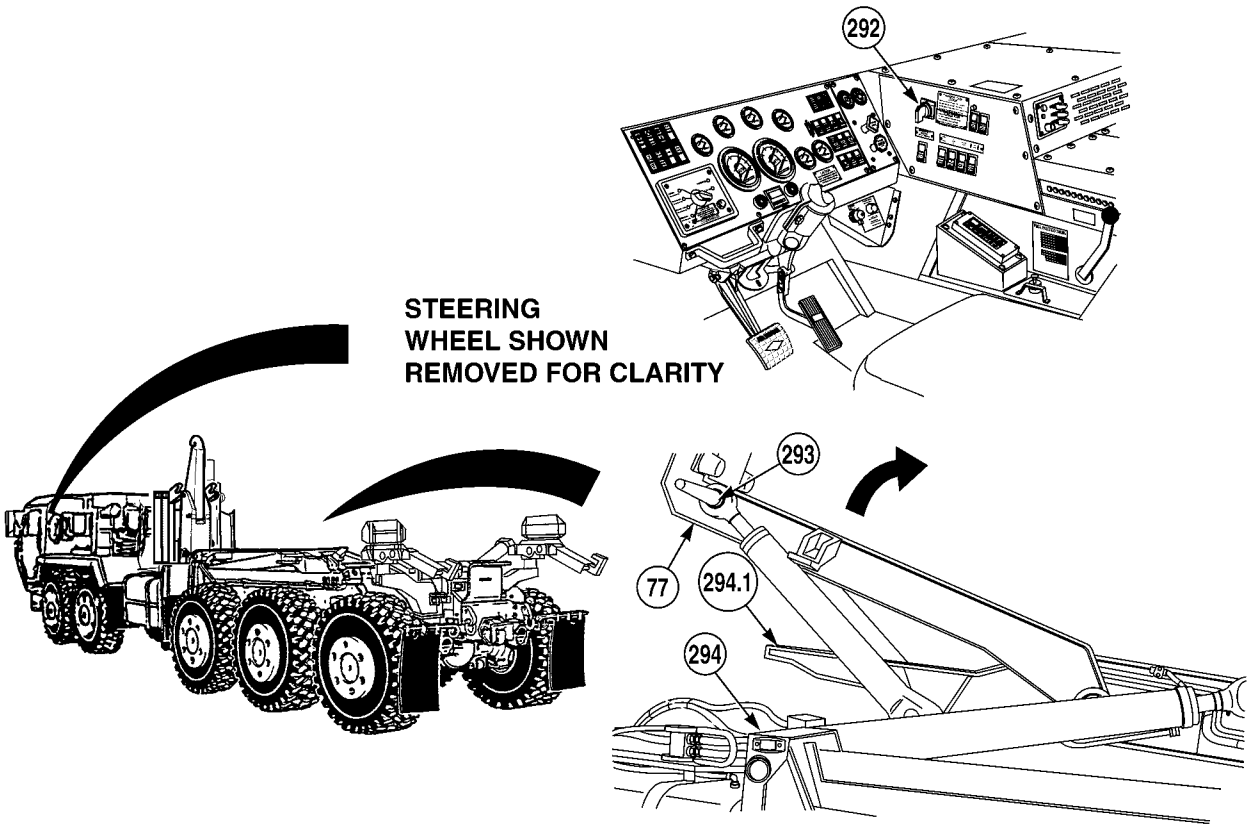
(245) Position shim(s) (as required) (291) between inside lip (287) of middle frame (288) and hook arm (77).

(246) Install left side pivot pin (290) through shim(s) (291) and inside lip (287) and install retaining ring (289).

(247) Remove lifting device from hook arm (77).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

LHS is being raised to expose area to install sensor plate.

(248) Start engine and stow LHS (TM 9-2320-364-10).

CAUTION

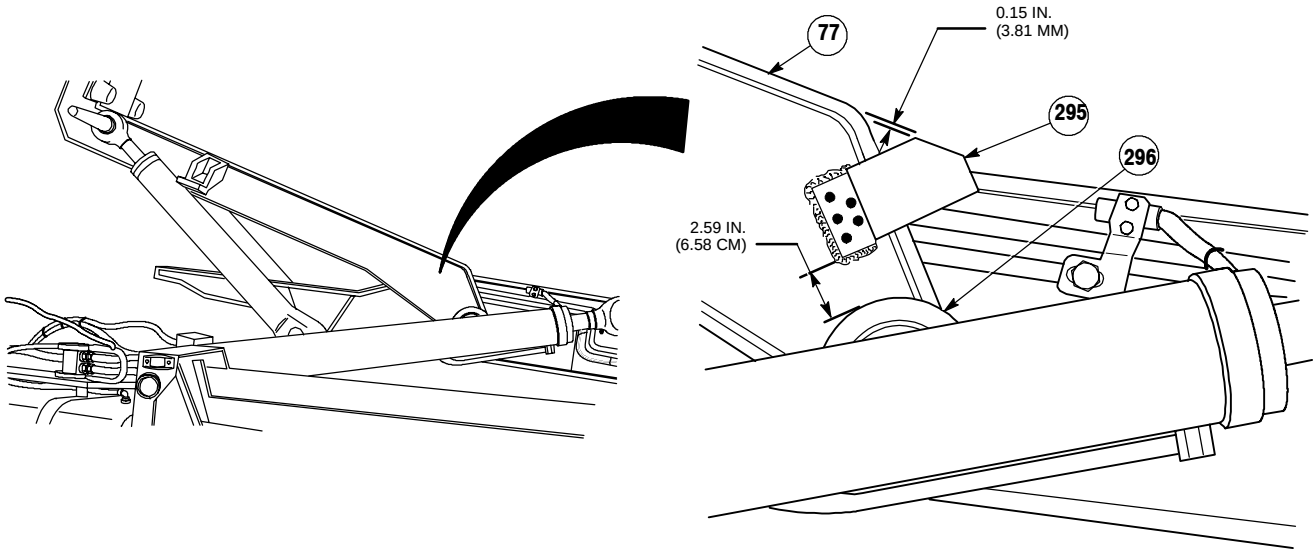
Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(249) Set hydraulic selector switch (292) to MAN H.A. and raise hook arm (77) until hook arm cylinder pivot pin (293) is 25 in. (63.5 cm) from compression frame (294).

(250) Set hydraulic selector switch (292) to MAN M.F. and raise main frame (294.1) until hook arm cylinder pivot pin (293) is 45 in. (114.3 cm) from compression frame (294).

(251) Shut OFF engine.

(252) Disconnect batteries (TM 9-2320-364-20).



WARNING

CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

- ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
- DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
- DO NOT use CARC paint without adequate ventilation.
- NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

NOTE

Sensor plate can be found in box D, pack no. 17 of CHU kit crate.

(253) Measure and mark an area on hook arm (77) for sensor plate (295) to be mounted as shown.

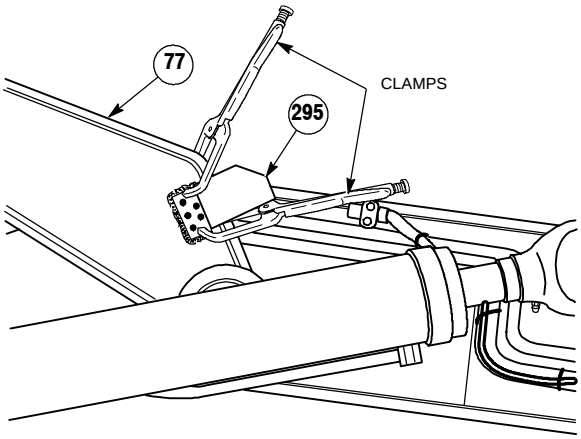
(254) Grind off paint in area marked in Step (253) for sensor plate (295) to be mounted.

(255) Mark hook arm (77) 2.59 in. (6.59 cm) from boss (296) on hook arm.

(256) Align sensor plate (295) 0.15 in. (3.81 mm) below top edge of hook arm (77).

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(257) Position sensor plate (295) with two clamps on hook arm (77) as shown.



NOTE

To install sensor plate using epoxy, perform Steps (258) through (261). To install sensor plate using welding procedures, perform Steps (261.1) through (261.4).

(258) Mark line around sensor plate (295) on hook arm (77).

(259) Remove two clamps and sensor plate (295) from hook arm (77).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Epoxy and mixing stick can be found in box A, pack no. 2 of CHU kit crate.
- Mix epoxy according to directions on package.

(260) Mix epoxy supplied with CHU kit and apply to sensor plate (295) and hook arm (77).

NOTE

Epoxy takes approximately 15 minutes to cure.

(261) Clamp sensor plate (295) to hook arm (77) in position marked until cured. Proced with Step (262).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(261.1) Prepare PLS truck for welding following General Welding Maintenance procedures in paragraph 6-39a.

(261.2) Attach sensor plate (295) by welding to hook arm (77) 1 inch long on three sides of sensor plate (295) following welding procedures in TM 9-237.

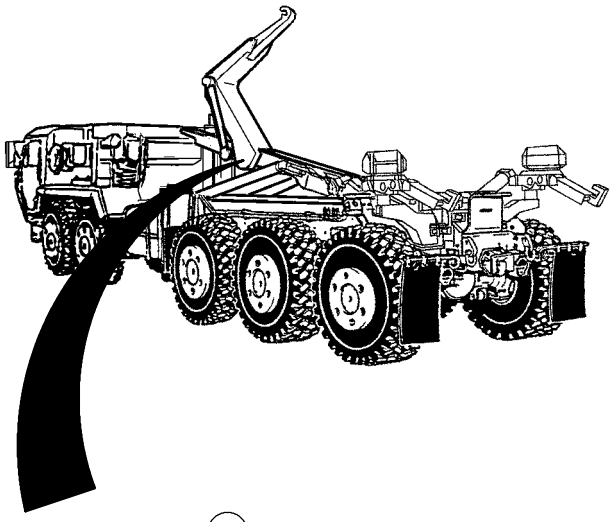
(261.3) After welding is complete, reconnect electrical system following General Welding Maintenance procedures in paragraph 6-39c.

(261.4) Once weld has cooled, clean surfaces of loose material and continue with Step (262).

(262) Remove clamps from hook arm (77).

(263) Prime and paint area as necessary (TM 43-0139).

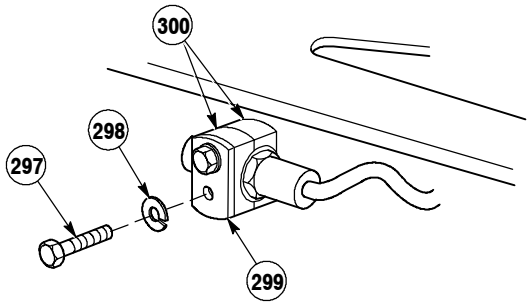
(264) Remove two screws (297), lockwashers (298) and plate (299) from two clamp halves (300). Discard lockwashers and plate.



NOTE

- Mounting plate can be found in box D, pack no. 22 of CHU kit crate.
- Proximity switch can be found in box D, pack no. 20 of CHU kit crate.

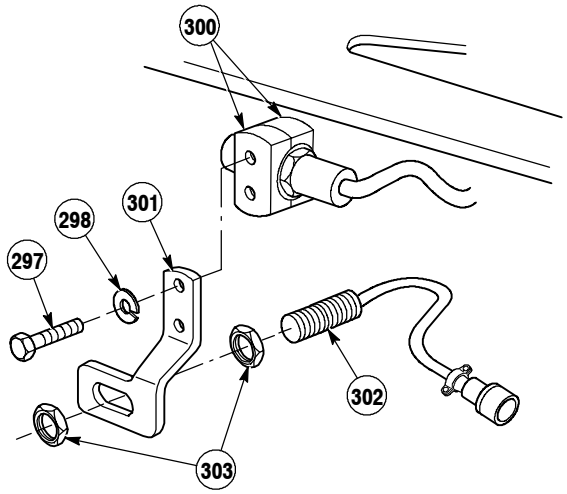
(265) Install two screws (297), lockwashers (298) and proximity switch mount (301) on two clamp halves (300).



NOTE

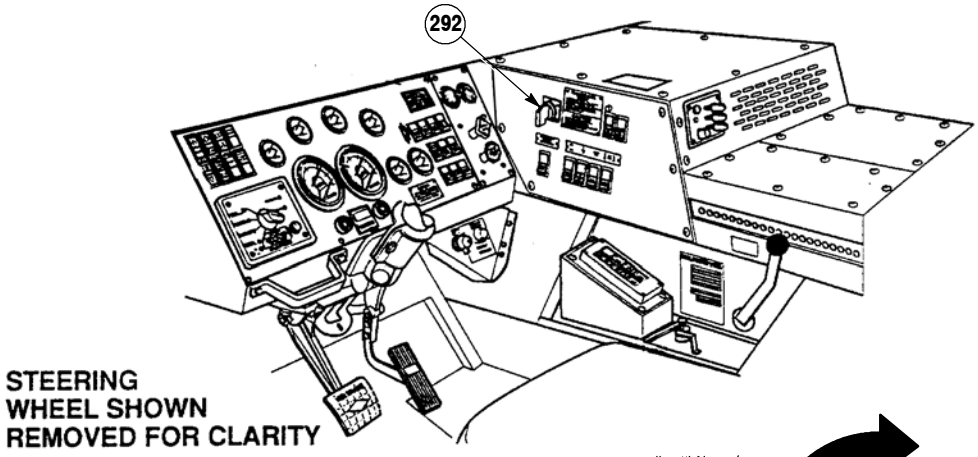
Proximity switch is properly positioned when two threads extend past edge of nut.

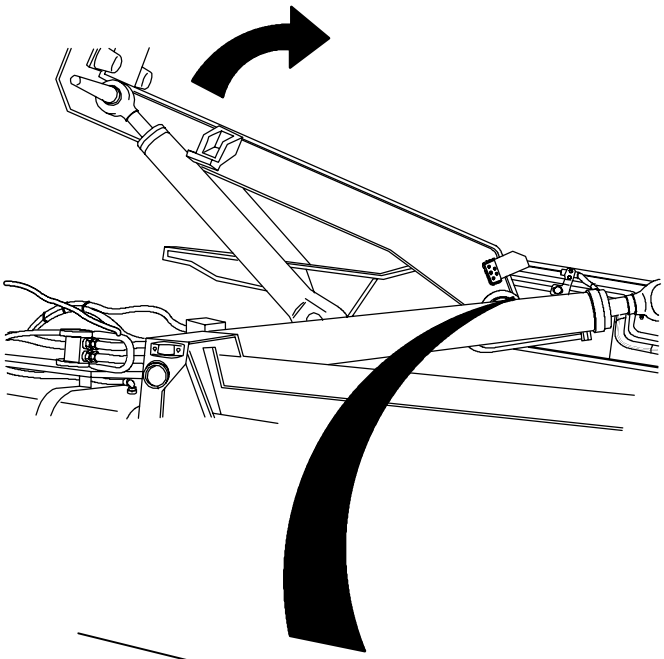
(266) Position CHU hook up arm proximity switch (302) and two nuts (303) on proximity switch mount (301).



(267) Connect batteries (TM 9-2320-364-20).

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



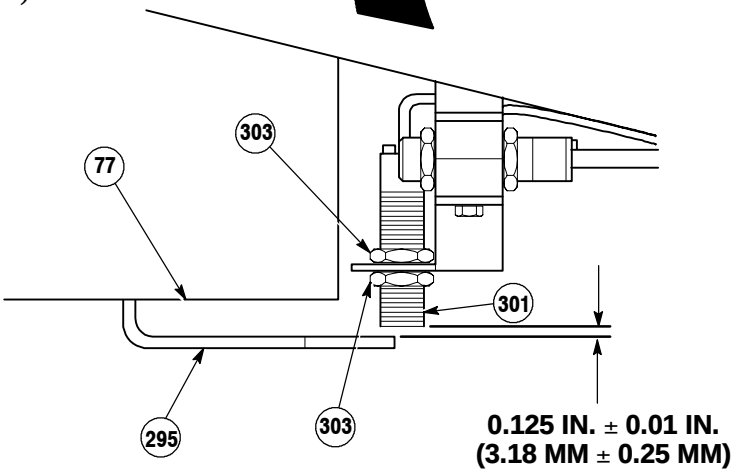


(268) Start engine, set hydraulic selector switch (292) to MAN H.A. and raise hook arm (77) until sensor plate (295) covers approximately half of proximity switch (302) (TM 9-2320-364-10).

(269) Shut OFF engine.

(270) Using feeler gage, adjust clearance between CHU proximity switch (302) and sensor plate (295) to 0.125 in. ± 0.01 in. (3.18 mm ± 0.25 mm) and tighten nuts (303).

(271) Disconnect batteries (TM 9-2320-364-20).



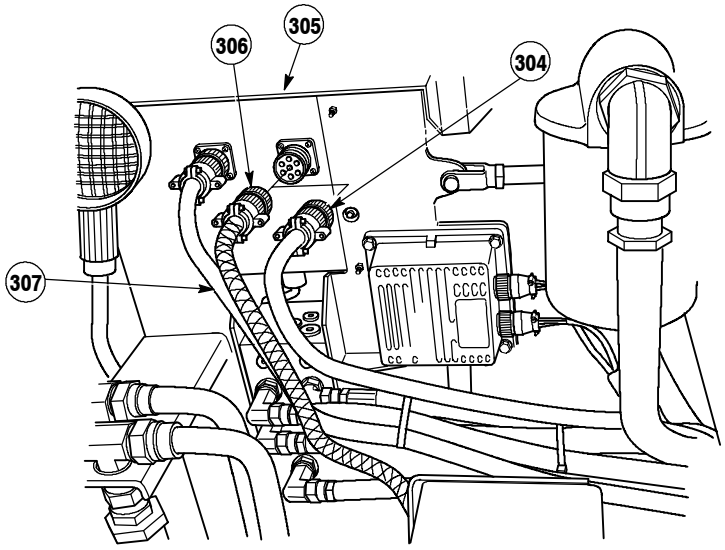
NOTE

- Cut existing cable ties as necessary for routing wire harnesses.
- Jumper harness and cable ties can be found in box D, pack no. 16 of CHU kit crate.
- CHU harness can be found in box D, pack no. 19 of CHU kit crate.

(272) Disconnect MC85 connector (304) from LHS main junction box (305).

(273) Connect wire jumper harness MC81 connector (306) to LHS main junction box (305).

(274) Position wire jumper harness (307) and MC85 connector (304) along existing wire harness to CHU electrical box (308).



CAUTION

Keep wires away from prop shaft or damage to wire harness may result.

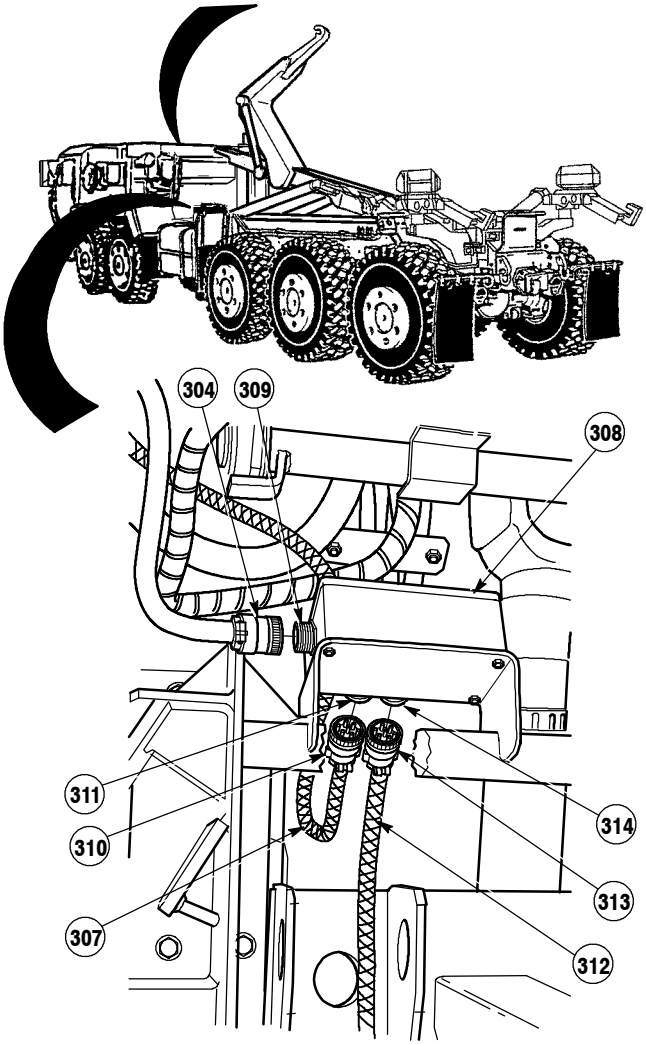
NOTE

Existing wire harness on truck plugs into side of CHU electrical box.

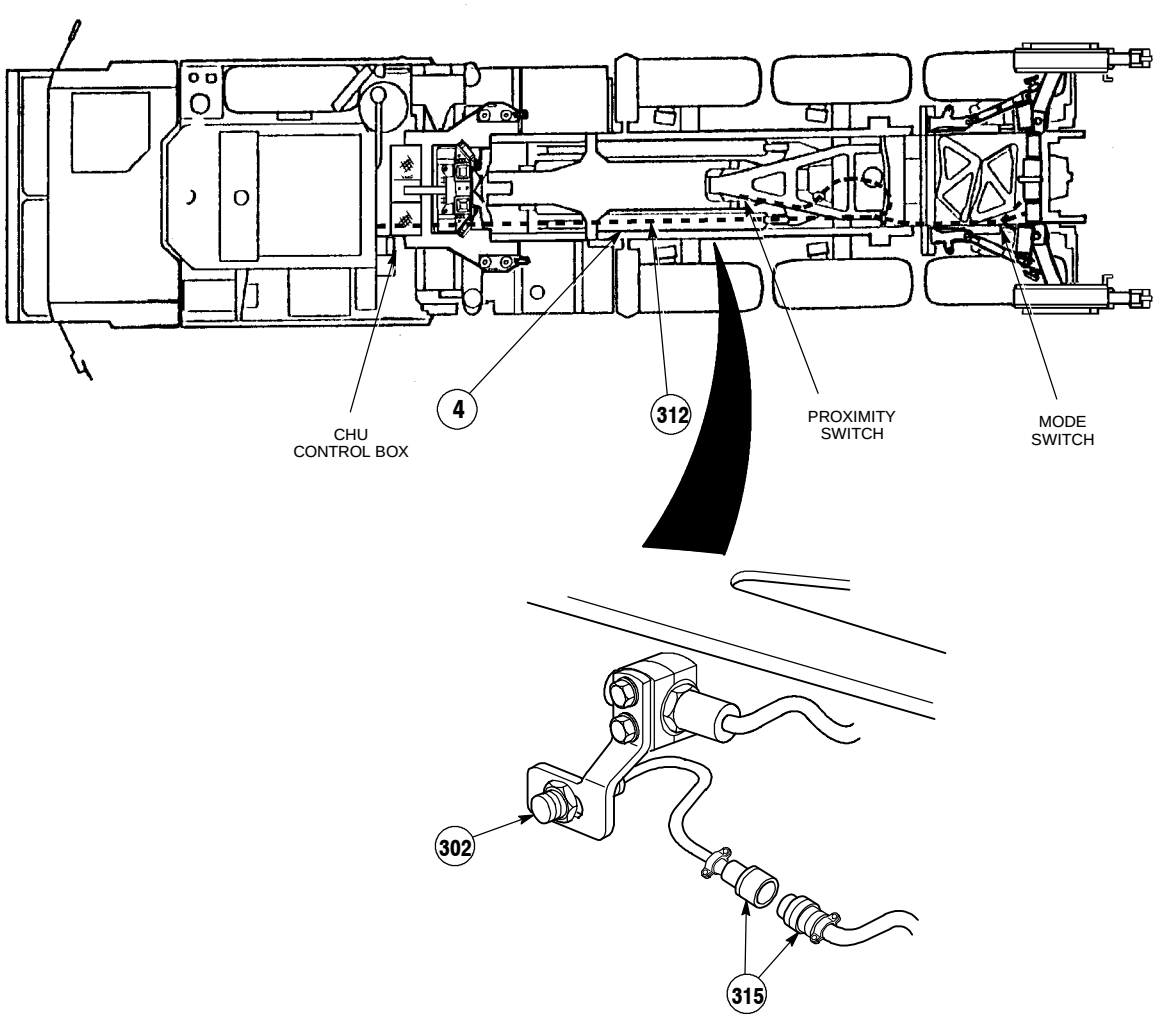
(275) Connect MC85 connector (304) to CHU electrical box MC82A connector (309).

(276) Connect wire jumper harness MC82 connector (310) to CHU electrical box MC82B connector (311).

(277) Connect CHU wire harness (312) MC185 connector (313) to CHU electrical box MC185 connector (314).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

- Position wire harness under crossmember if difficult to feed through crossmember holes.
- It may be necessary to remove existing clamps and hydraulic lines to route CHU wire harness.
- It may be necessary to raise or lower LHS to aid in CHU wire harness installation (TM 9-2320-364-10).

(278) Position CHU wire harness (312) along frame (4) and existing wire harnesses.

(279) Connect connector MC188 (315) to hook up arm proximity switch (302).

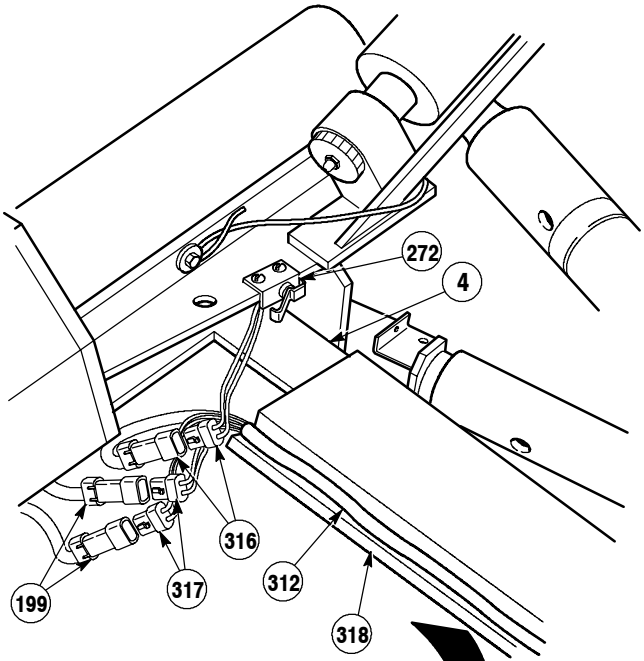
(280) Position CHU wire harness (312) with MC189 connector (316) and two MC190 connectors (317) along inside of frame (4) and in groove of left hardlift deck bracket (318).

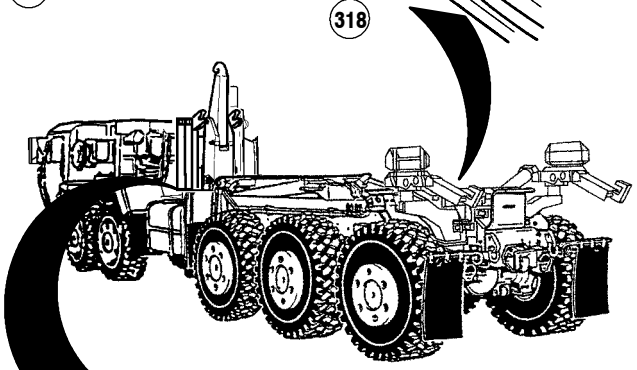
NOTE

Position wires so they are supported by switch.

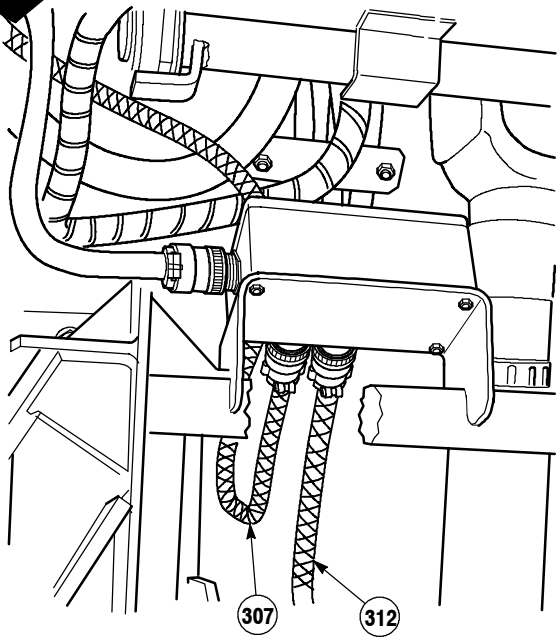
(281) Connect MC189 connector (316) to mode switch (272).

(282) Connect two connectors MC190 (317) to right and left rear lock limit switch (199).

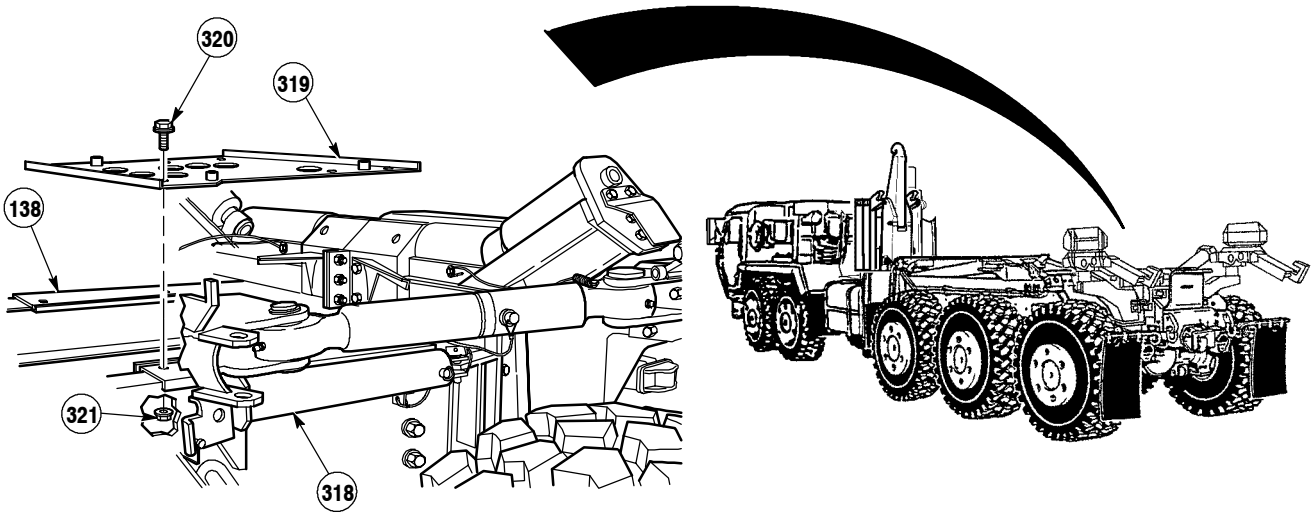




(283) Install cable ties along CHU wire harness (312) and jumper wire harness (307) as required.



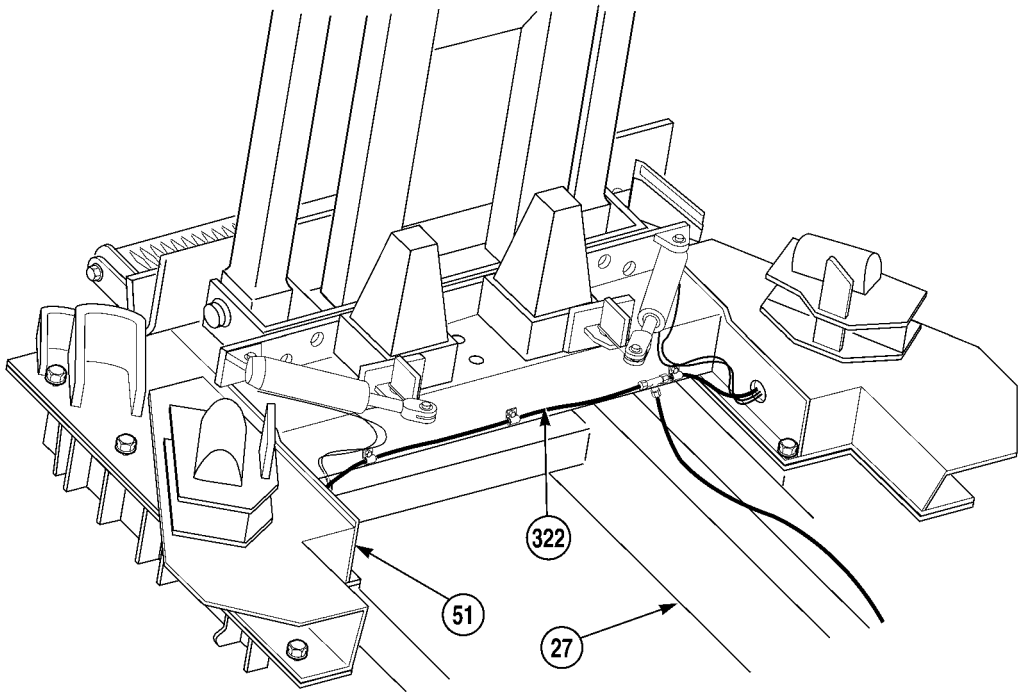
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

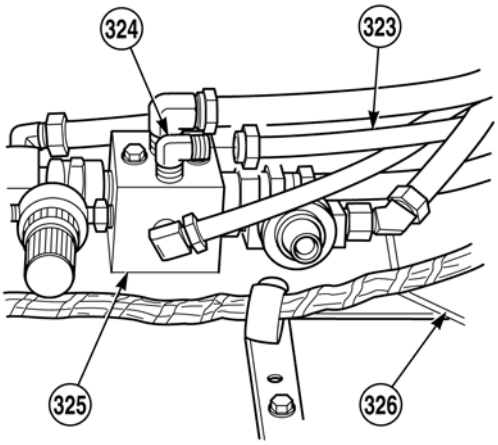
Locknuts and screws can be found in box D, pack no. 28 of CHU kit crate.

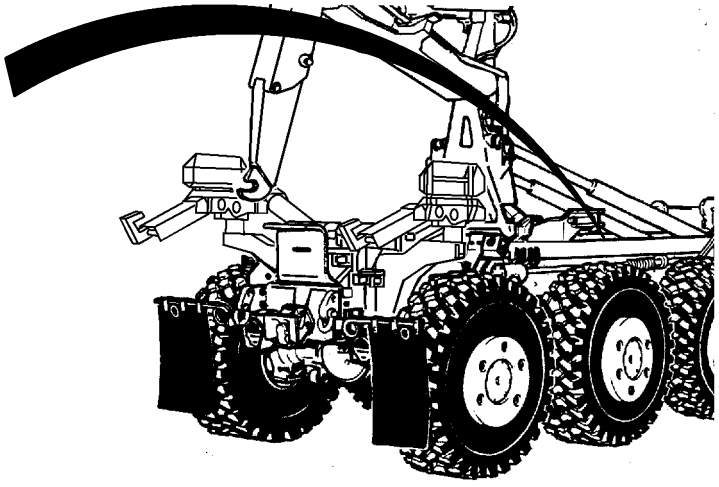
(284) Install deck assembly (319) on left hardlift deck bracket (318) and right hardlift deck bracket (138) with six screws (320) and locknuts (321).



(285) Drain air system (TM 9-2320-364-10).

(286) Unwrap and position air supply line 2501 (322) from front support assembly (51) along frame (27) towards rear of truck.





(287) Remove air line 2133 (323) and elbow (324) from air manifold (325) on crossmember (326). Discard elbow.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

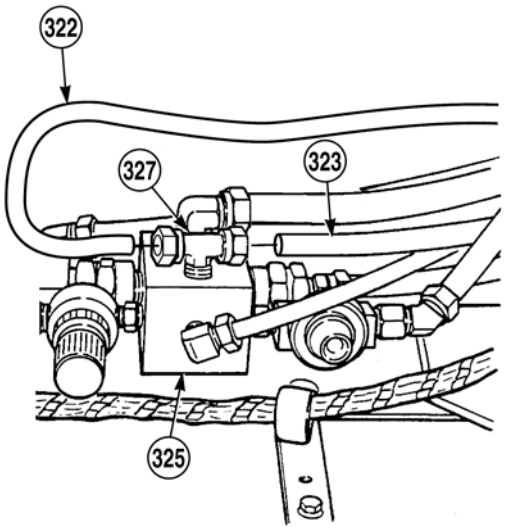
(288) Apply sealing compound on threads of tee (327).

(289) Install tee (327) on air manifold (325).

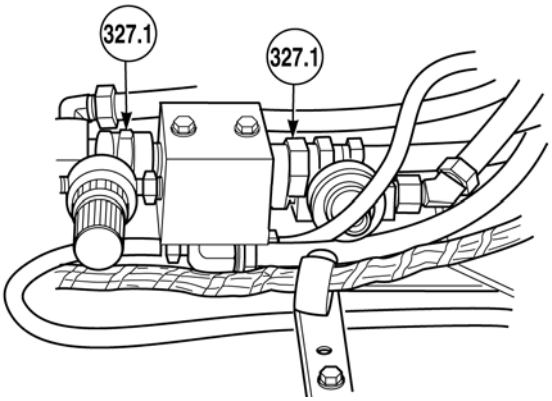
NOTE

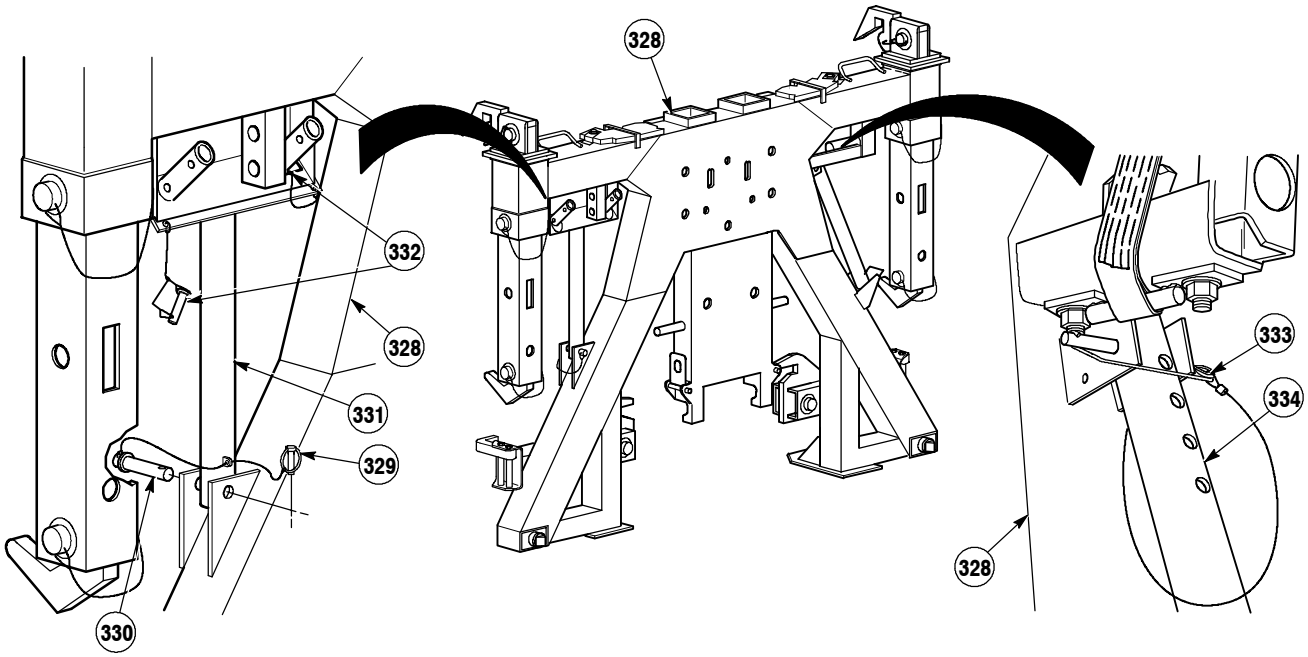
Air line should be cut to remove excess without kinking line.

(290) Cut end of air supply line 2501 (322) and air line 2133 (323) and install on tee (327).



(290.1) Loosen two nuts (327.1), enough to rotate air manifold 180 degrees, so air lines can be routed under rail flange, then re-tighten nuts (327.1).





WARNING

Lifting frame weighs 1,600 lbs (704 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(291) Attach lifting device to lifting frame (328).

(292) With the aid of an assistant, lift lifting frame (328) and remove quick release pin (329) and pin (330) from upper strut (331).

(293) Remove two quick release pins (332) and upper strut (331) from lifting frame (328).

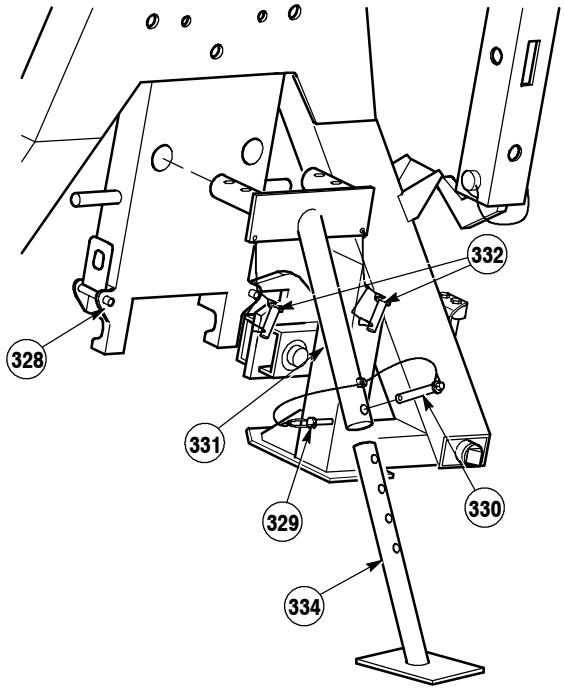
(294) Install upper strut (331) on lifting frame (328) with two quick release pins (332).

(295) Remove quick release pin (333) and lower strut (334) from lifting frame (328).

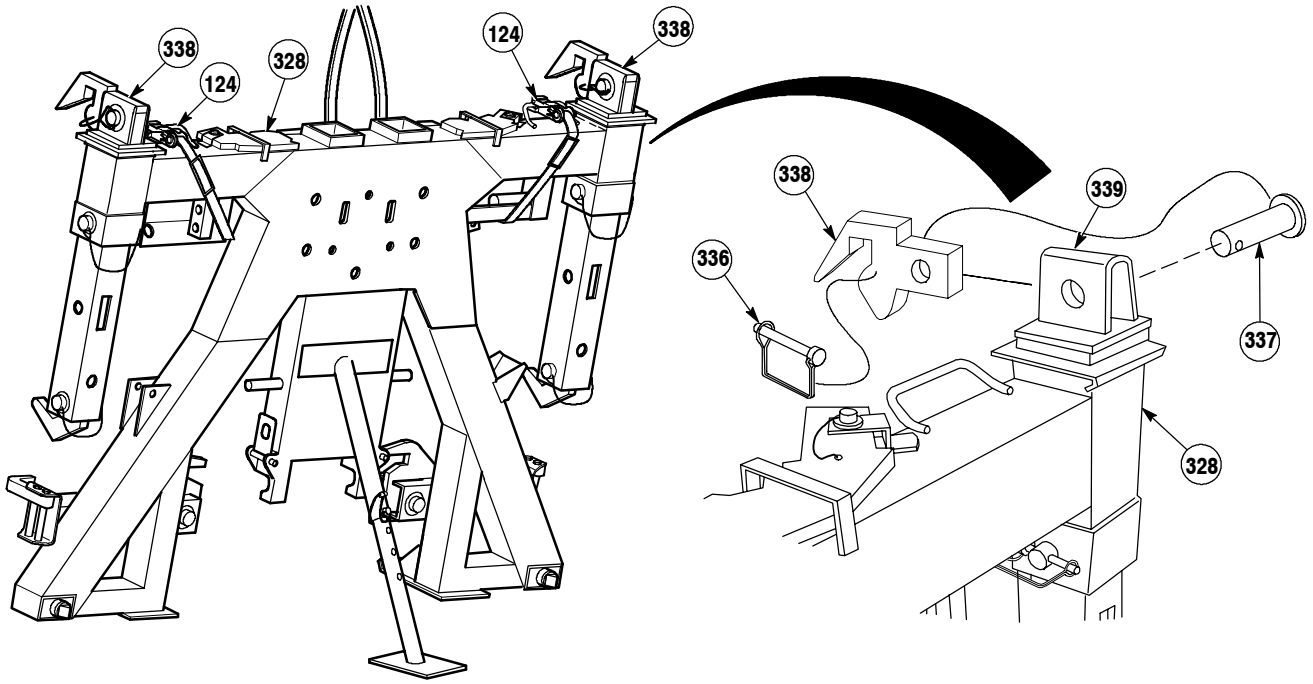
NOTE

When installing lower strut, use second pin hole, adjust as necessary.

(296) Install lower strut (334) on upper strut (331) and with pin (330) and quick release pin (329).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

Position lifting frame on the ground so PLS can lift with the hook arm.

(297) Lower lifting frame (328) to the ground.

(298) Remove lifting device from lifting frame (328).

(299) Install two screws (133), locknuts (134) and strap (124) on lifting frame (328).

(300) Attach hook end of strap (124) to lifting frame (328) strap stow bar (335).

(301) Remove lock pin (336), pin (337) and hook (338) from front of slide arm (339).

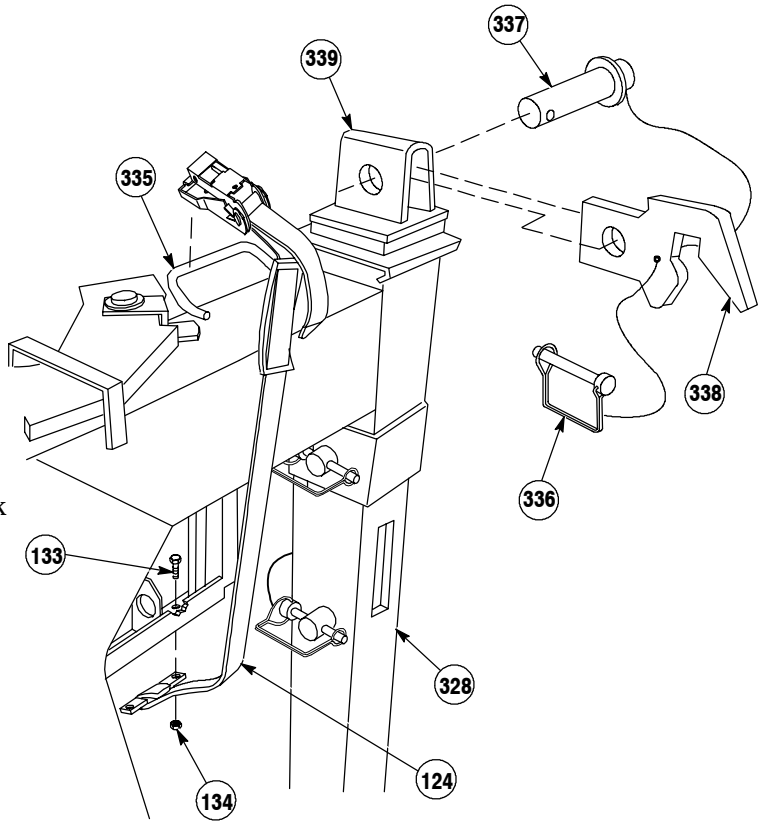
NOTE

Both hooks are removed and installed the same way. Right side shown.

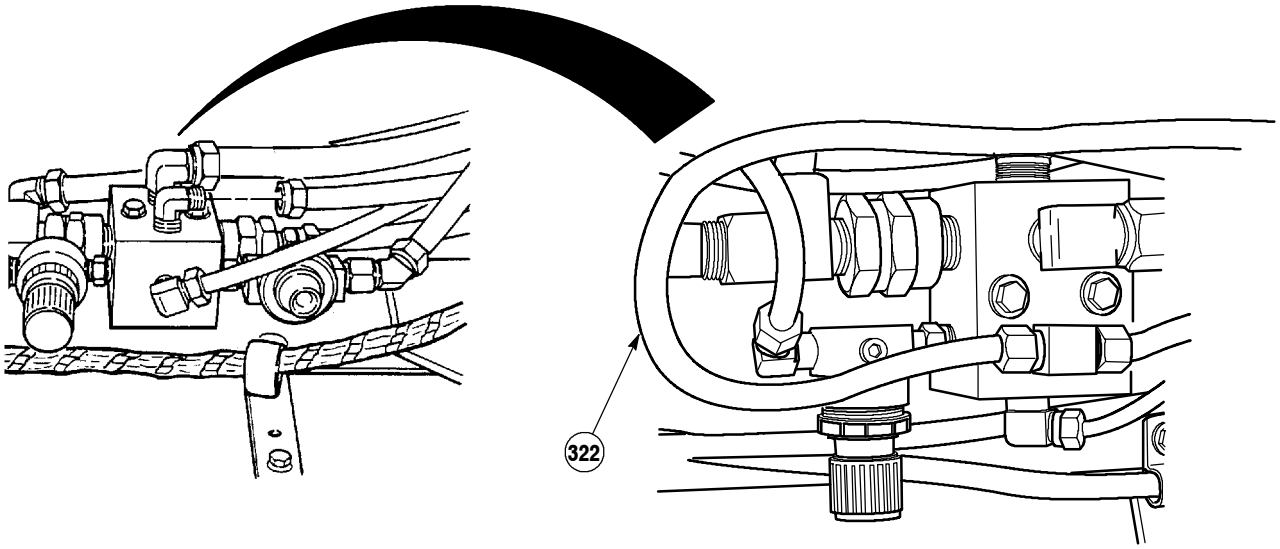
(302) Install hook (338), pin (337) and lock pin (336) in back of slide arm (339).

(303) Repeat Steps (299) through (302) for left side.

(304) Install gear reducer (Para 12-6).



b. Adjustment.

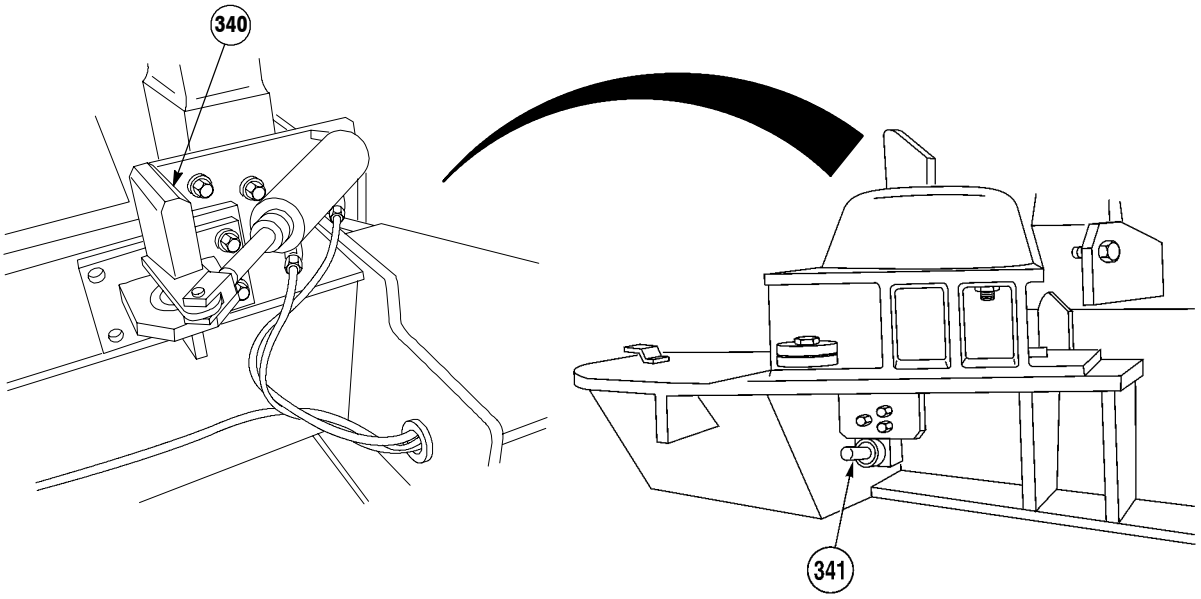


(1) Connect batteries, (TM 9-2320-364-20).

(2) Start engine (TM 9-2320-364-10).

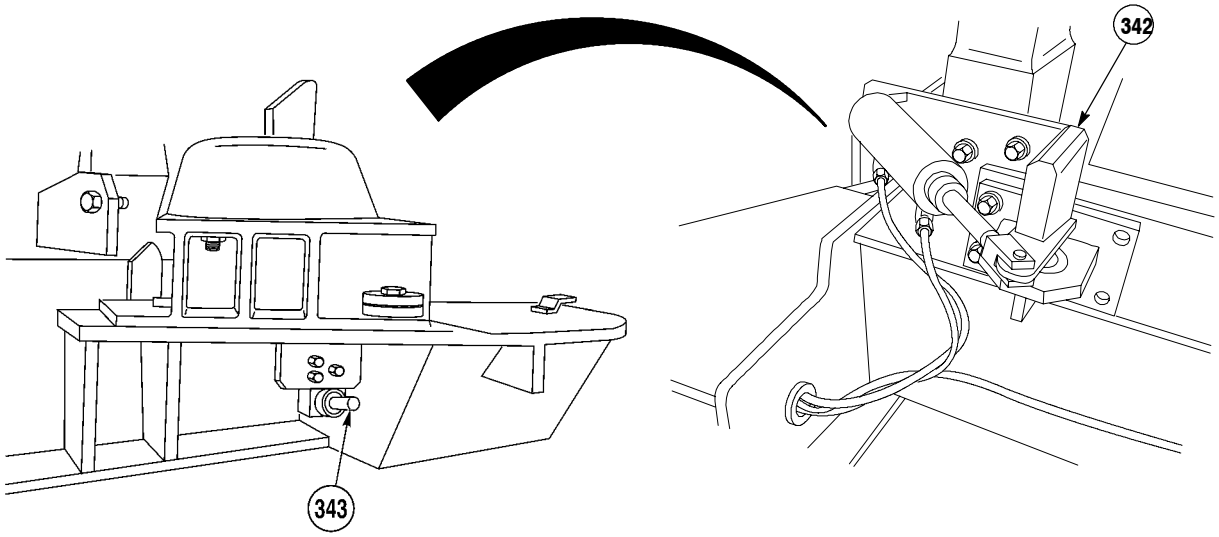
(3) .0Build air pressure to 125 psi (861 kPa).

(4) Check air line 2501 (322) for leaks.



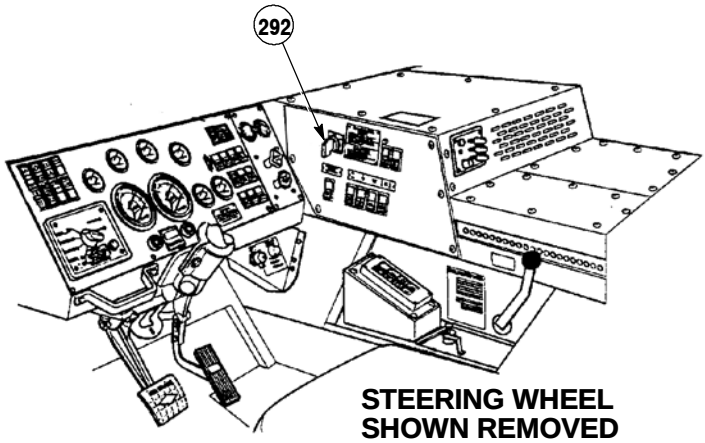
(5) Check right rotary paddle (340) to ensure rotation using right lock valve (341).

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



(6) Check left rotary paddle (342) to ensure rotation using left lock valve (343).

(7) Shut OFF engine.



STEERING WHEEL SHOWN REMOVED FOR CLARITY

(8) Configure lifting frame (328) for stowing. Refer to installing lifting frame on PLS truck in flatrack mode (TM 9-2320-364-10).

(9) Start engine (TM 9-2320-364-10).

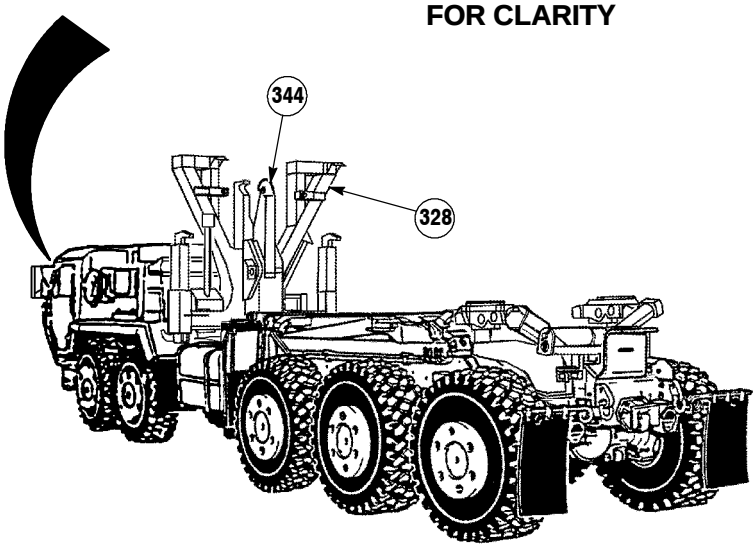
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(10) Set hydraulic selector switch (292) to AUTO and extend LHS (TM 9-2320-364-10).

(11) Extend LHS (344) to lifting frame (328).

(12) Position lifting frame (328) on truck with LHS in stow mode (TM 9-2320-364-10).



NOTE

Lifting frame is properly stowed when completely seated on cone weldment.

(13) Ensure lifting frame (328) is completely seated on cone weldment (62).

NOTE

Perform Steps (14) and (15), as necessary, if lifting frame is not completely seated.

(14) Raise lifting frame (328) with LHS (344) approximately 12 in. (30 cm) then lower lifting frame on cone weldment (62).

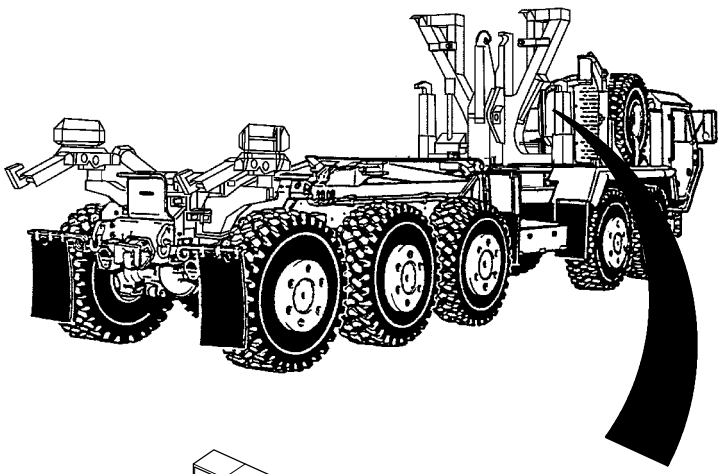
(15) Repeat Step (13).

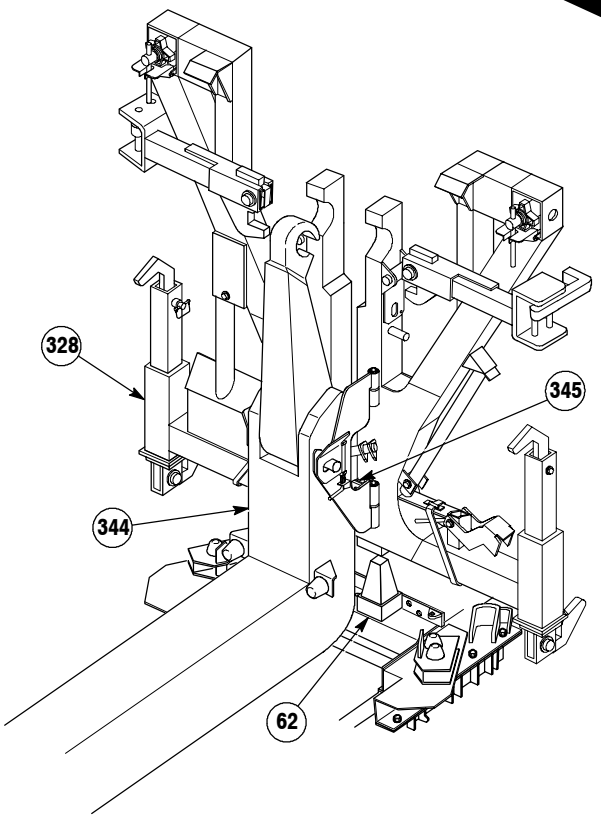
(16) Shut OFF engine.

NOTE

Ensure LF wear pads contact LHS hook arm.

(17) With the aid of an assistant, position lifting frame (328) towards rear of truck until LF wear pads (345) contact LHS.





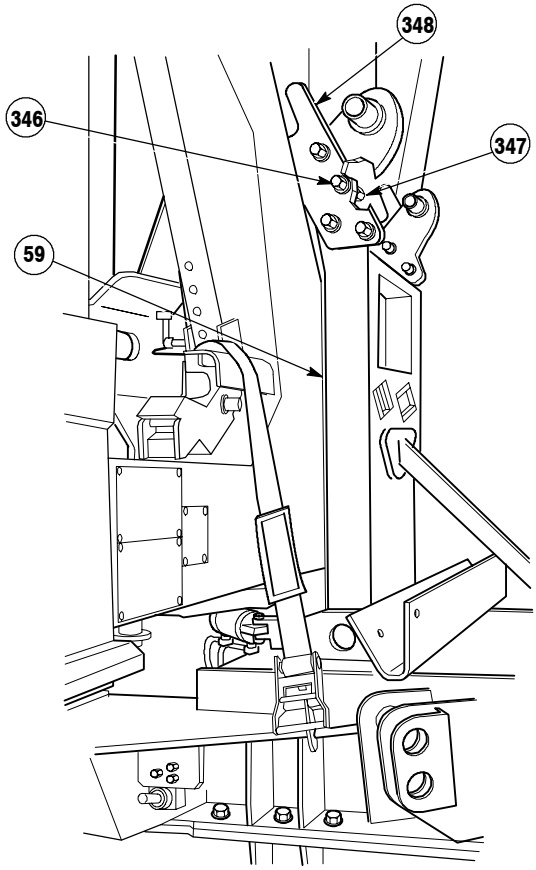
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

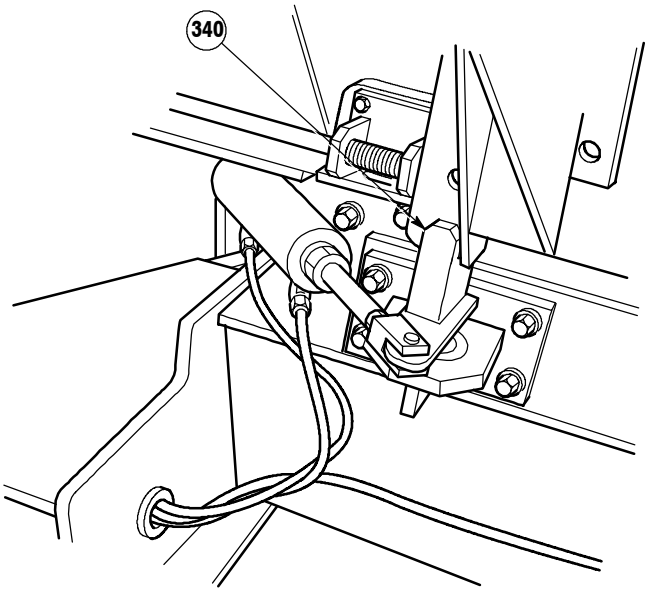
NOTE

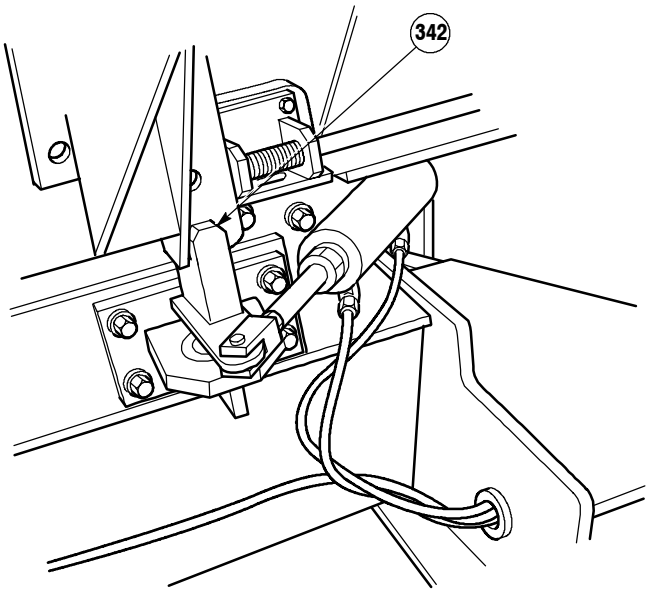
- Stow hooks are not tightened on stow weldment.
- Stow hook should have an even gap around LF pin.

(18) Tighten eight screws (346) and locknuts (347) on two hooks (348) and stow weldment (59).

(19) Verify LF wear pad gap to LHS hook arm is less than 1/8 in. (3.2 mm). If not repeat Steps (13) through (18).







(20) Operate right rotary paddle (340) and left rotary paddle (342) (TM 9-2320-364-10).

(21) If right rotary paddle (340) or left rotary paddle (342) bind, adjust rotary paddles (TM 9-2320-364-20).

(22) Position lifting frame in stowed position (TM 9-2320-364-10).

NOTE

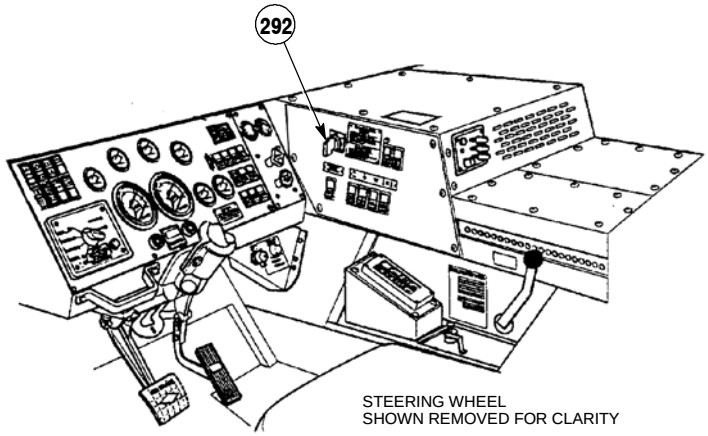
Ensure rear sliders are deployed in Step (23).

(23) Start engine (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(24) Set hydraulic selector switch (292) to AUTO.



NOTE

LHS may be extended approximately 12 in. (30 cm) after hook arm cylinder stops and main frame cylinder extends to make measurement in Step (27) easier.

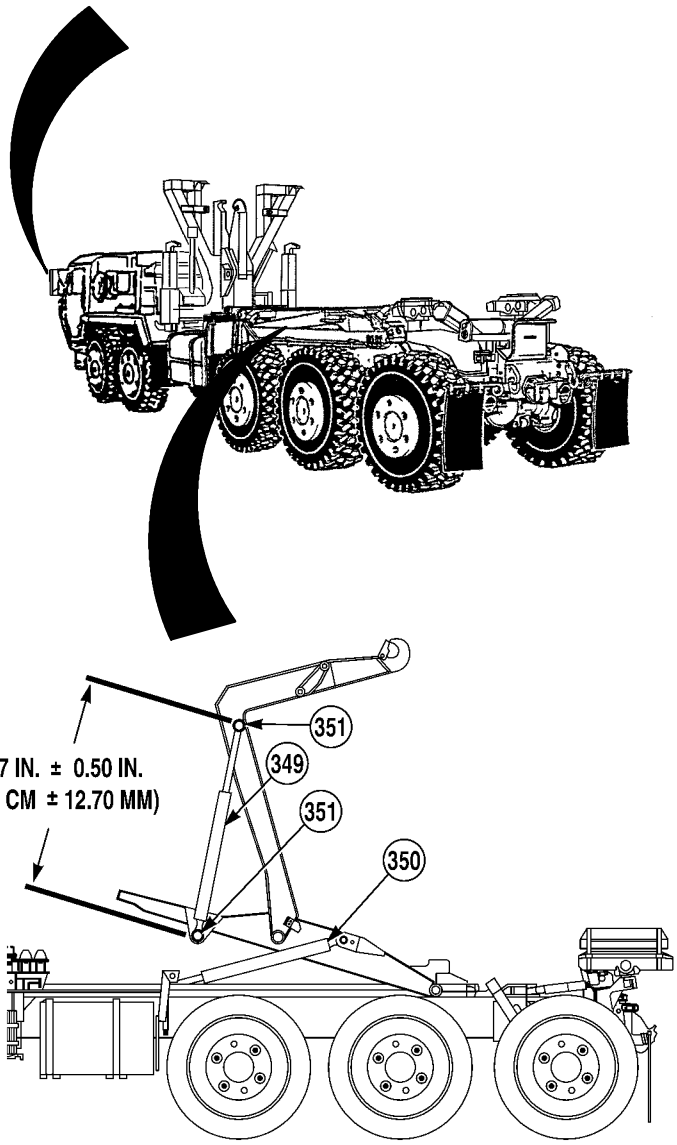
(25) Extend hook arm cylinder (349) until hook arm cylinder stops and main frame cylinders (350) starts to move.

(26) Shut OFF engine.

NOTE

- If measurement in Step (27) is 77 in. ± 0.50 in. (196 cm ± 12.7 mm), go to Step (33).
- If measurement in Step (27) is not 77 in. ± 0.50 in. (196 cm ± 12.7 mm), perform Steps (28) through (32).

(27) With the aid of an assistant, measure distance between center of two hook arm cylinder pivot pins (351).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

- Moving proximity switch towards rear lengthens hook arm cylinder.
- Moving proximity switch towards front shortens hook arm cylinder.

(28) Loosen two nuts (303) on proximity switch (302) and move proximity switch as required.

(29) Tighten two nut (303) on proximity switch (302).

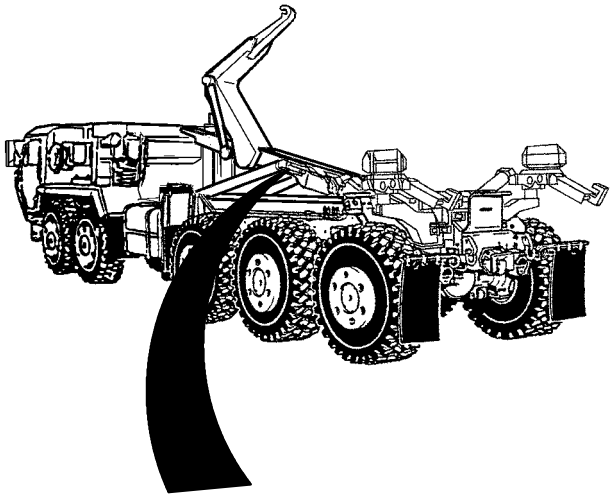
(30) Start engine and stow LHS (TM 9-2320-364-10).

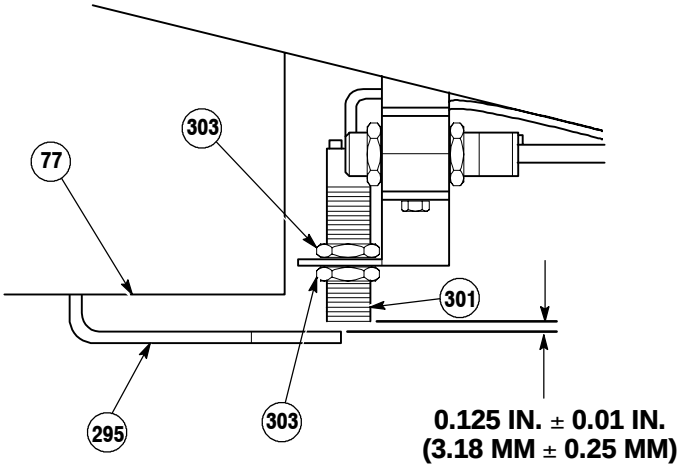
(31) Repeat Steps (25) through (28) until hook arm cylinder length is 77 in. ± 0.50 in. (196 cm ± 12.7 mm).

(32) Using feeler gage, adjust clearance between CHU proximity switch (302) and sensor plate (295) to 0.125 in. ± 0.01 in. (3.18 mm ± 0.25 mm) and tighten nuts (303).

(33) Start engine and stow LHS (TM 9-2320-364-10).

(34) Shut OFF engine.





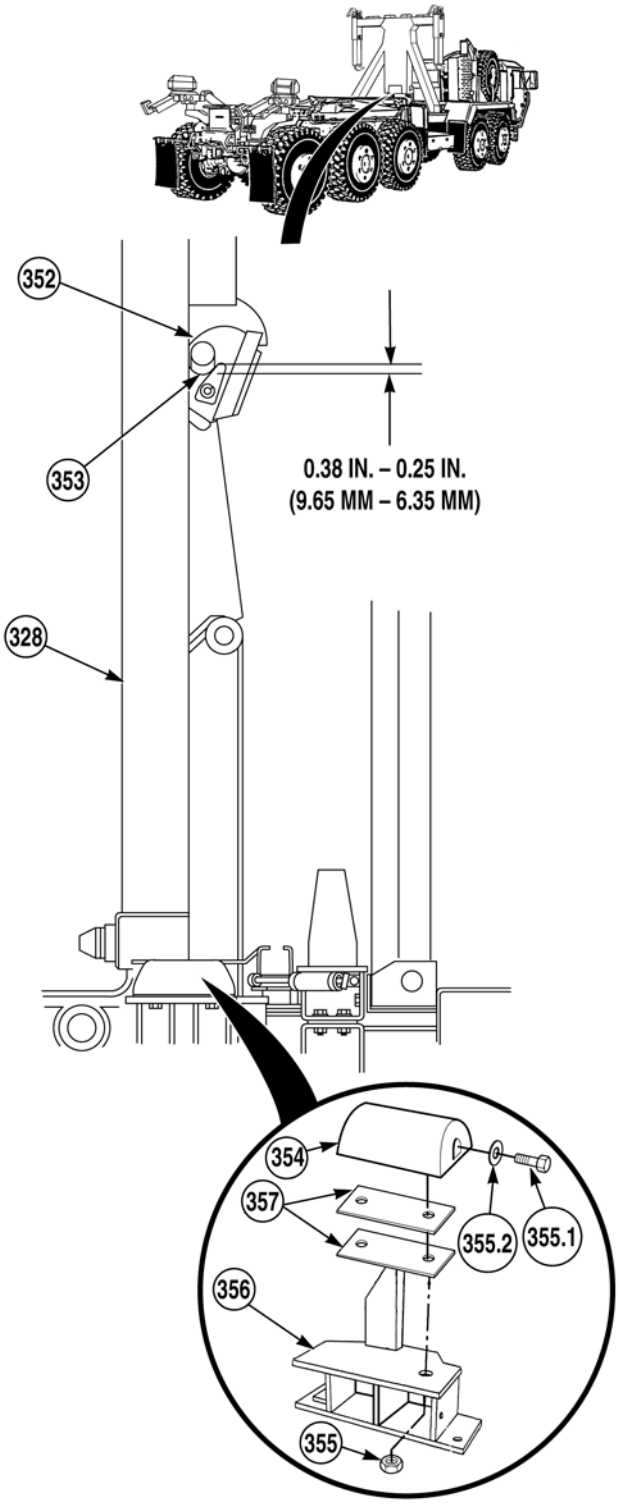
(35) Remove lifting frame (328) from PLS truck in flatrack mode (TM 9-2320-364-10).

(36) Install lifting frame (328) on PLS truck in container mode (TM 9-2320-364-10).

(37) Measure gap between bail bar (352) and hook (353) as shown.

NOTE

- Both rubber bumpers are removed the same way. Right side shown.
- Shims and locknuts can be found in boxes D and F, pack no. 16 and 70 of CHU kit crate.
- Shims are 0.104 in. (2.7 mm) thick.
- Add shims to decrease clearance.
- Remove shims to increase clearance.
- If gap is not 0.38 in. ± 0.25 in. (9.65 mm ± 6.35 mm), perform Steps (38) through (46).
- If gap is 0.38 in. ± 0.25 in. (9.65 mm ± 6.35 mm), perform Step (47).



(38) Start engine (TM 9-2320-364-10).

(39) Using LHS, raise lifting frame (328) approximately 12 in. (30 cm) off of rubber bumpers (354).

(40) Shut OFF engine.

(41) Remove two locknuts (355), screws (355.1), washers (355.2) and rubber bumper (354) from bumper weldment (356). Discard locknuts.

(42) Install rubber bumper (354), shim(s) (357), as required, with two screws (355.1), washers (355.2) and locknuts (355) on bumper weldment (356).

(43) Repeat Steps (41) and (42) for left side.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(44) Start engine (TM 9-2320-364-10).

(45) Position lifting frame on cone weldment (TM 9-2320-364-10).

(46) Shut OFF engine (TM 9-2320-364-10).

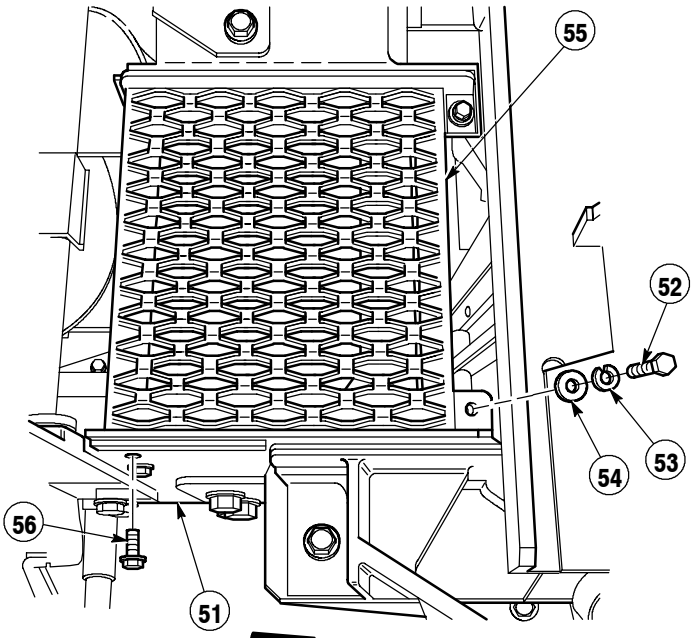
NOTE

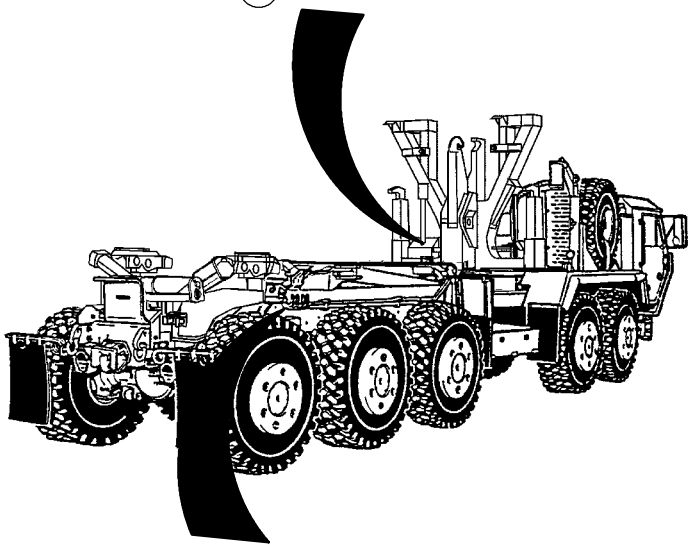
- Both deck weldments are installed the same way. Right side shown.
- Lockwashers can be found in box F, pack no. 70 of CHU kit crate.

(47) Position deck weldment (55) on front support assembly (51) and install two screws (52), lockwashers (53) and washer (54).

(48) Tighten two screws (56) on front support assembly (51).

(49) Repeat Steps (47) and (48) for left side.



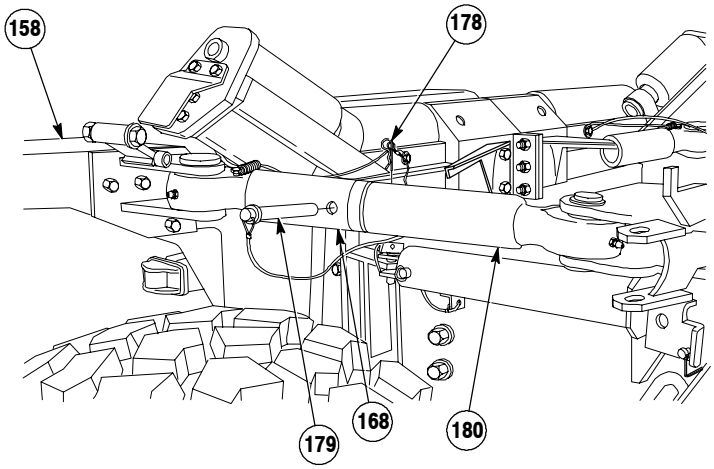


NOTE

- Ensure slider arm is deployed.
- Both flip lock brackets are adjusted the same way. Right side shown.

(50) Remove quick release pin (178) and pin (179) from short strut (168) and long strut (180).

(51) With the aid of an assistant and using handle of arm assembly (158), rotate arm assembly out and separate short strut (168) from long strut (180).



(52) With assistant holding arm assembly (158) out, position flip lock (209) up.

(53) Measure gap between stop bolt (358) and right rear roller bracket (125).

NOTE

- If gap is not 3/8 in. ± 1/8 in. (9.5 mm ± 3.2 mm), perform Steps (54) and (55).
- If gap is 3/8 in. ± 1/8 in. (9.5 mm ± 3.2 mm), go to Step (57).

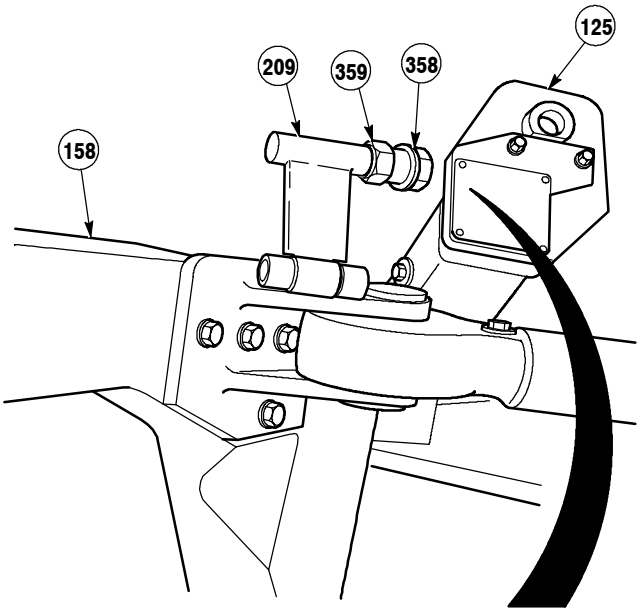
(54) Loosen jam nut (359) and adjust stop bolt (358) as required.

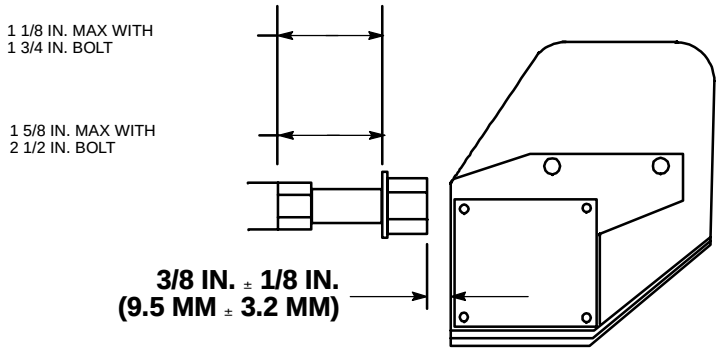
(55) Tighten jam nut (359) on stop bolt (358).

NOTE

Longer bolts for flip lock, 2 1/2 in., can be found in box F, pack no. 70 of CHU kit crate.

(56) If proper adjustment could not be made repeat Steps (52) thru (55) using longer bolt.



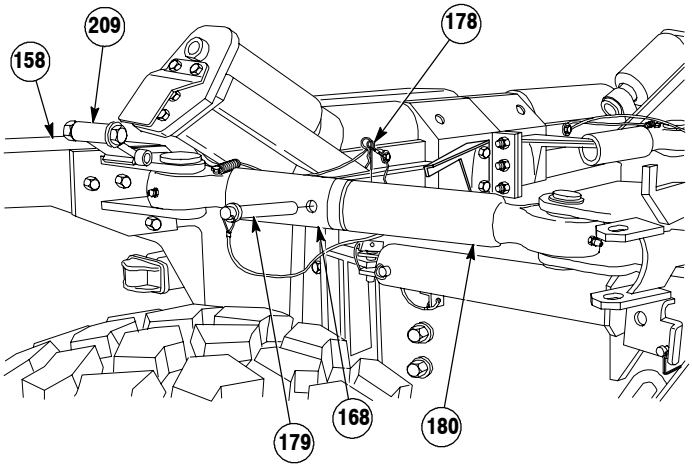


(57) Align long strut (180) with short strut (168).

(58) Using handle of arm assembly (158), rotate arm assembly out and release flip lock (209).

(59) Position long strut (180) into short strut (168) and install pin (179) and quick release pin (178).

(60) Repeat Steps (50) through (59) for left side.

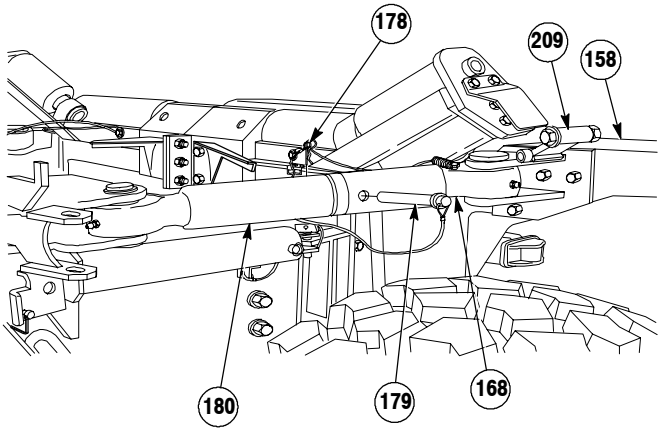


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

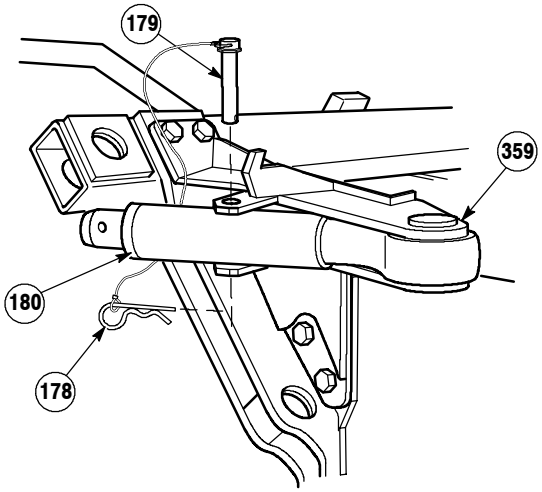
(61) Remove quick release pin (178) and pin (179) from left side short strut (168) and long strut (180).

(62) With the aid of an assistant and using handle of arm assembly (158), rotate arm assembly out and separate short strut (168) from long strut (180).

(63) With the aid of an assistant holding arm assembly (158), position flip lock (209) up.

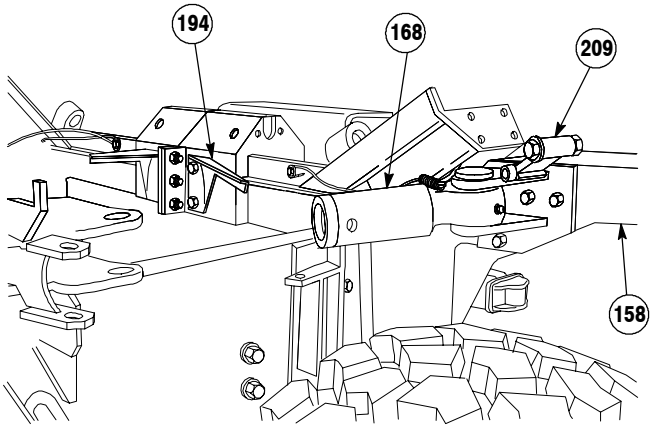


(64) Position long strut (180) on stowage bracket (359) and install pin (179) and quick release pin (178).



(65) Using handle of arm assembly (158), rotate arm assembly, out and release flip lock (209).

(66) Position short strut (168) in stowed position on stow plate (194).



NOTE

Ensure that when slider assembly is fully stowed, handle of arm assembly contacts the long strut.

(67) Push down handle (197) and stow slider assembly (186) in stowed position and ensure handle of arm assembly (158) contacts long strut (180).

(68) Check wire rope (173) is tight.

(69) Measure distance between short strut (168) and mode switch bracket (360).

NOTE

- If gap between short strut and mode switch bracket is not 7/16 in. ± 1/16 in. (11.11 mm ± 1.59 mm), perform Step (70).
- If gap between short strut and mode switch bracket is 7/16 in. ± 1/16 in. (11.11 mm ± 1.59 mm), go to Step (71).

(70) Position mode switch (272) to dimension shown.

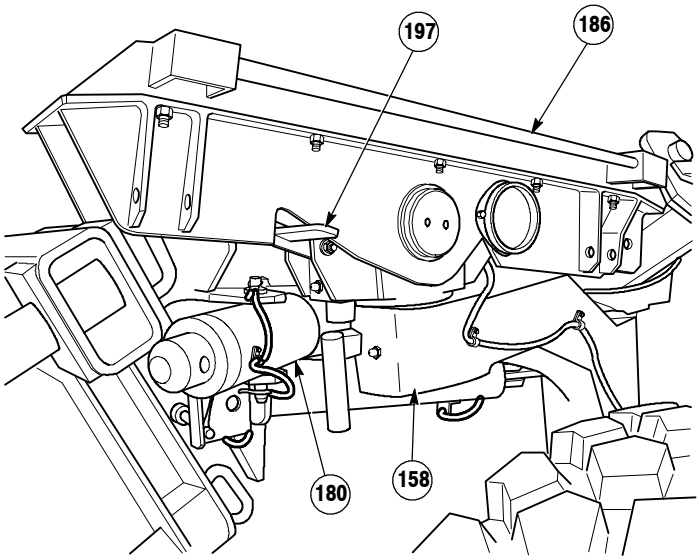
WARNING

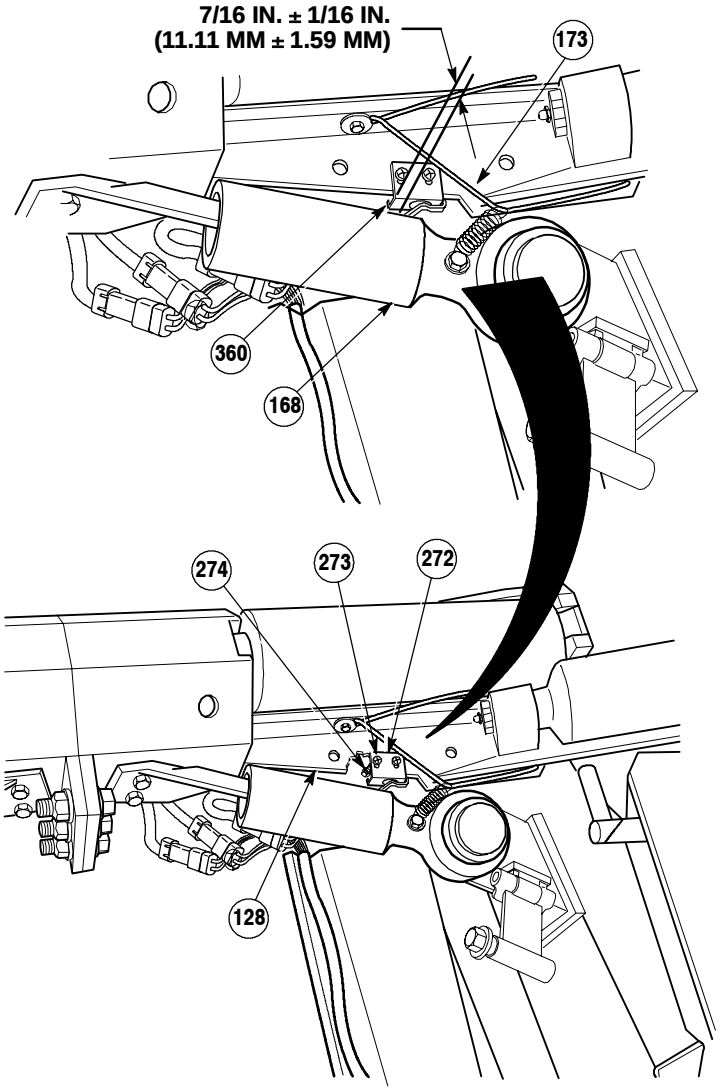
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(70.1) Apply sealing compound (loctite 242) to threads of screws (269).

(71) Tighten two screws (273) and locknuts (274) on mode switch (272) and rear roller bracket (128). Tighten locknuts to 21 in-lbs.(2.37 N·m).

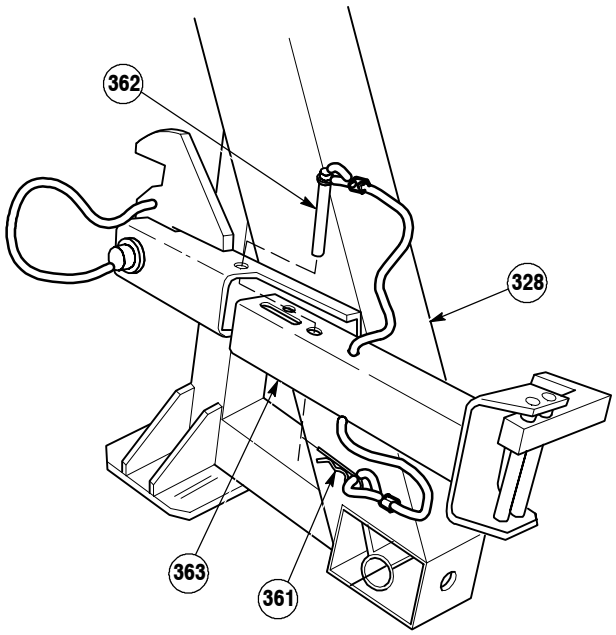
(72) Deploy left arm assembly (TM 9-2320-364-10).





18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(73) Remove two lock pins (361), pins (362) and rear container locks (363) from lifting frame (328).

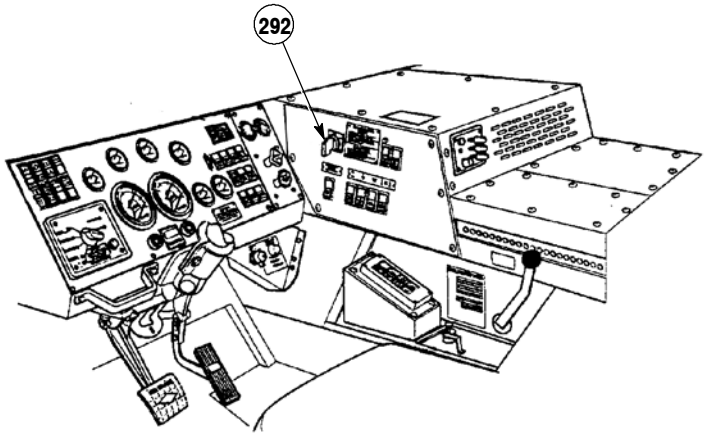


(74) Start engine (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(75) Set hydraulic selector switch (292) to AUTO.



STEERING WHEEL
SHOWN REMOVED FOR CLARITY

(76) Raise LHS in auto mode approximately 18 inches (46 cm). Release joystick (364).

NOTE

- Both rear container locks are installed the same way. Left side shown.
- Lock handle is unlocked when facing front of slider.

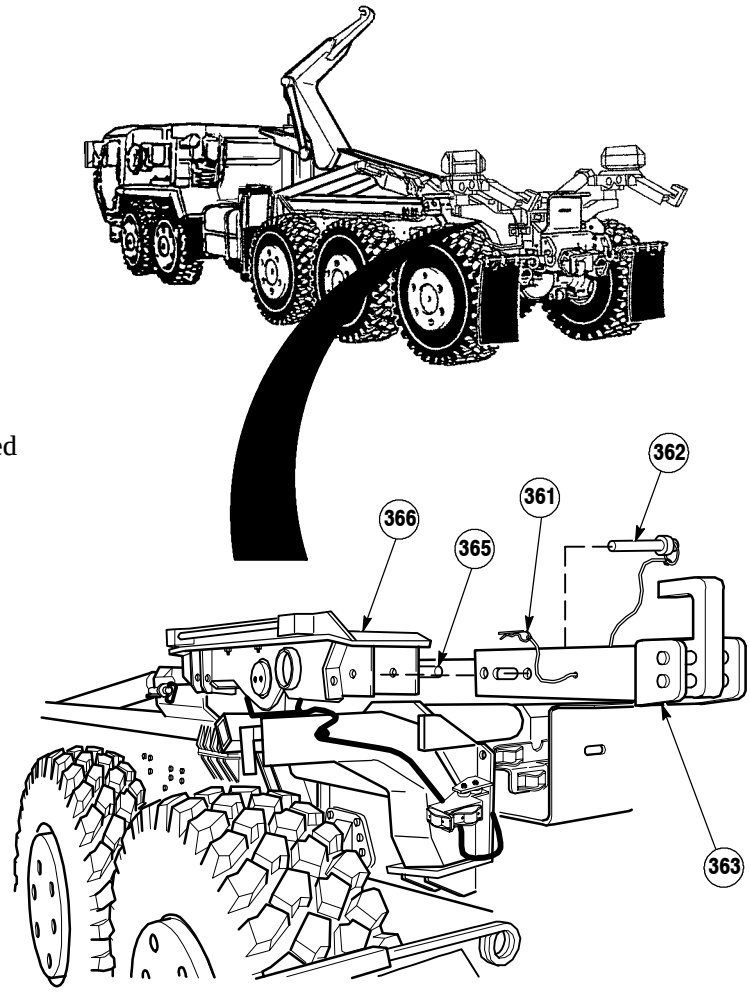
(77) Turn lock handle (365) on left rear slider assembly (366) forward to unlocked position.

(78) Position rear container lock (363) in locked position on left rear slider assembly (366) and install pin (362) and lock pin (361).

(79) Turn lock handle (365) on left rear slider assembly (366) back to locked position.

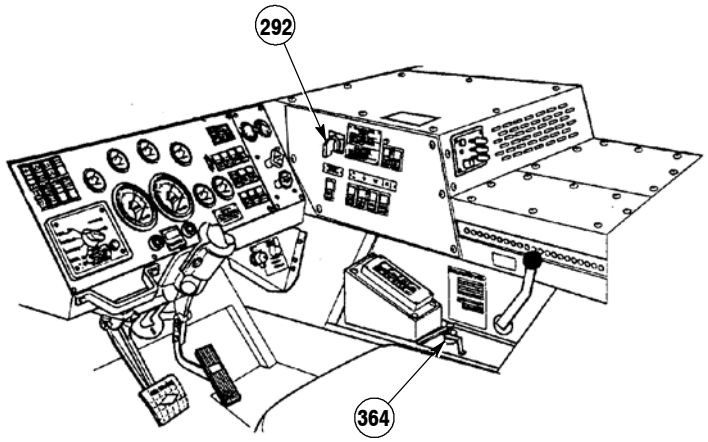
NOTE

- LHS should not move when joystick is in unload position.
- If LHS does not move in unload position, go to Step (82).
- If LHS moves in unload position, perform Step (81).



(80) Move joystick (364) to unload position and check LHS for movement.

(81) Adjust rear lock limit switch (TM 9-2320-364-20).



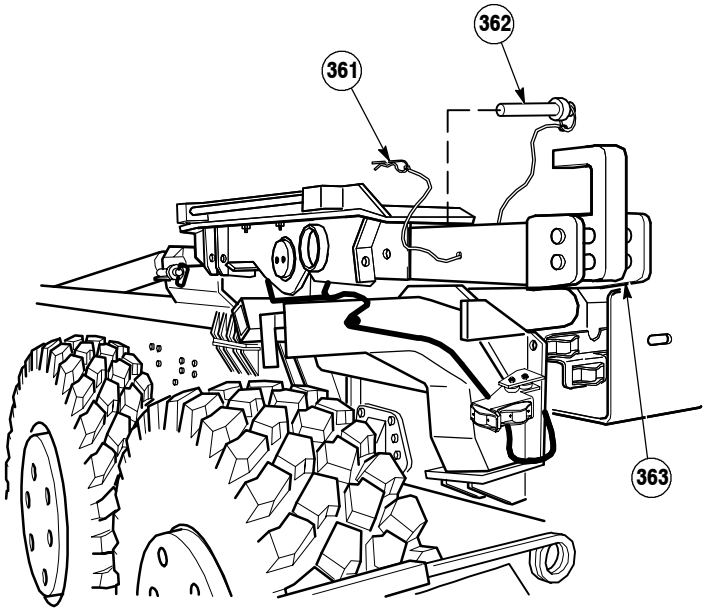
STEERING WHEEL
SHOWN REMOVED FOR CLARITY

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

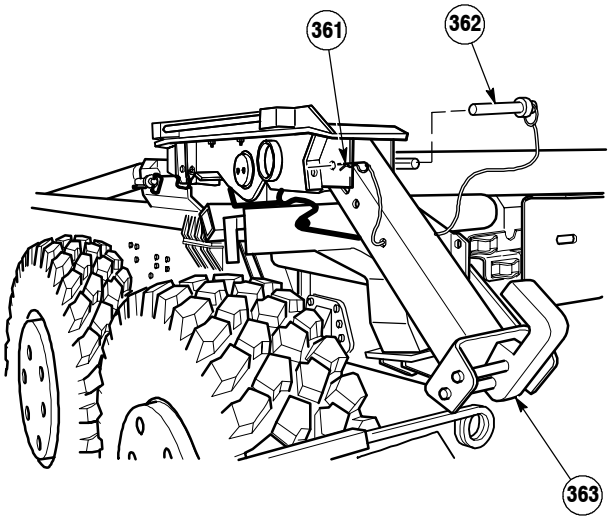
Container lock could drop suddenly if not supported. Failure to comply may result in injury to personnel.

(82) Support rear container lock (363) and remove lock pin (361) and pin (362) from rear container lock.



(83) Position and lock rear container lock (363) in ready mode position by pulling out, rotating down and inserting pin (362) and lock pin (361).

(84) Repeat Steps (77) through (83) for right side of truck.



(85) Raise LHS in auto mode to unload until HA stops and MF starts to raise. Release joystick (364).

(86) With the aid of an assistant, manually engage mode switch (272).

NOTE

- Hook arm cylinders should move when mode switch is engaged.
- If hook arm cylinders fully extend go to Step (89).
- If hook arm cylinder does not move, perform Step (88).

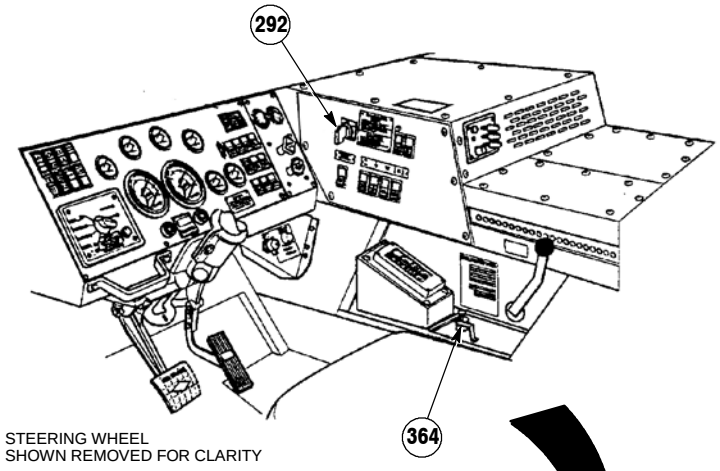
(87) Move joystick (364) to unload in auto mode and ensure HA fully extends before main frame moves.

(88) Adjust mode switch (TM 9-2320-364-20).

(89) Stow LHS and lifting frame on truck in container mode (TM 9-2320-364-10).

(90) Set hydraulic selector switch (292) to OFF.

(91) Shut OFF engine (TM 9-2320-364-10).



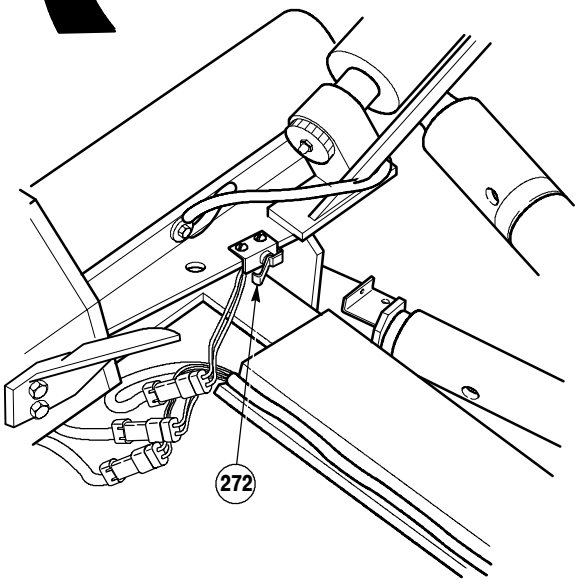


Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
111454A	SCREW, .075–10 X 2.25	6	1	COMBINE IN ONE 8 X 10 POLY BAG	149, 153
1324980	SCREW, 0.75–10 X 2.75	2	1		148
110312A	LOCKNUT, .075–10 G8	8	1		150, 154
15217A	SCREW, 0.62–11 X 1.50	4	1	ONE 6 X 8 POLY–BAG	151
110311A	LOCKNUT, 0.62–11	4	1		152
1663880	EPOXY & MIXING STICK	1	2	COMBINE IN ONE 6 X 8 POLY BAG (Took callout off)	
3221426	LOCTITE 680	2	2		
3221425	ADHESIVE # 242 LOCTITE	4	2	OTC REF 65270AX	
3221427	ANTI SEIZE 4 OZ CAN	1	2	OTC REF 1302130	
3230311	LOCTITE 409	1	2		
3221428	GREASE 1 LB CAN	1	3	ID ONLY OTC REF1864450	
2270080W	REAR BRACKET, RH LIGHT ASSEMBLY	1	4	ID ONLY	231
2270090W	REAR BRACKET, LH LIGHT ASSEMBLY	1	5	ID ONLY	231
2282350	SEAL,V–LIP (3.75 in. O.D.)	2	6	PLACE BOTH IN 4 X 1 X 4 PAPERBOARD CARTON	162
2282330	PREFORMED PACKING	2	7	PLACE BOTH BE-TWEEN TWO 4 X 4 CORRUGATED STIFFENERS. 200# SW	184
2282340	SEAL,V–LIP (4.34 in. O.D.)	2	8	PLACE BOTH IN 4 X 1 X 4 PAPERBOARD CARTON	185
2282320	PREFORMED PACKING	2	9	PLACE BOTH BE-TWEEN TWO 5 X 5 CORRUGATED STIFFENERS. 200# SW	161

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE - Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
615FX	GREASE FITTING	2	10	ONE 3 X 5 POLY-BAG	202
2305HX	GREASE FITTING	2	10	ONE 3 X 5 POLY-BAG	203
2253880	SPACER	2	11	ONE 3 X 5 VCI POLY-BAG	188
3124572	SHIM	4	12	ONE 6 X 8 VCI POLY-BAG	157
2254220	THRUST WASHER	4	13	ONE 6 X 8 VCI POLY-BAG	160, 183
3197833	SPRING	2	14	ONE 6 X 8 POLY-BAG	177
66420AX	SCREW, 0.25-20 X 100	2	14		174
703HX	WASHER, 0.25	2	14		175
2302HX	WASHER, 0.25	4	14		172, 182
	WASHER, 0.375	2	14		
1606140	SCREW, 0.25-20 X 0.75	4	14		171, 181
3205630	WIRE ROPE ASSEMBLY	2	14		173
2221970	SHIM, LHS	2	15	ONE 6 X 8 VCI POLY-BAG	291
2176780	RETAINING RING	2	15		79
	TEE, AIR CONNECTION	1	15	OTC REF 2719FX	327
3227120	GUARD, WASHER	2	15		76
3135770	HARNESS, JUMPER	1	16	ONE 12 X 12 POLY-BAG	307
5201HX	NYLON TIE, LONG	3	16		
3147469	SHIM, BUMPER	8	16		357
5193HX	TIE, CABLE, 7.31	10	16		
5193HX	TIE, CABLE, 7.31	11	16		
2265340	SENSOR PLATE	1	17	ONE 6 X 8 VCI POLY-BAG	295
3129160	MODE SWITCH	1	18	ONE 4 X 6 POLY-BAG	272

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE - Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
1571850	LOCKNUT, 10-24 X 0.75	2	18		274
59031AX	SCREW, 10-24 X 0.75	2	18		273
3181842	HARNESS,CHU	1	19	ONE 18 X 18 POLY-BAG	312
3135832	PROXIMITY SWITCH ASSEMBLY	1	20	ONE 3.5 X 1 X 7.75 PAPERBOARD CARTON	302
115217A	SCREW, 0.62-11 X 2.00	18	21	ONE 9 X 12 POLY-BAG	57
110311A	LOCKNUT, 0.62-11	18	21		58
3122223	PROXIMITY SWITCH MOUNT	1	22	ID ONLY	301
3205629	RETAINING BRACKET	1	23	ID ONLY	83
115217A	SCREW, 0.62-11 X 2.00	4	24	ONE 6 X 8 POLY-BAG	60
110311A	LOCKNUT, 0.62-11	4	24		61
115304A	SCREW, 0.50-13 X 1.25	4	25	ONE 6 X 8 POLY-BAG	69
110310A	LOCKNUT, 0.50-13	4	25		70
115304A	SCREW, 0.50-13 X 1.25	8	26	ONE 4 X 6 POLY-BAG	165
3124573	SHIM	4	27	ID ONLY	131
115289A	SCREW, 0.62-11 X 1.50	2	28	ONE 6 X 8 POLY-BAG	139
110311A	LOCKNUT, 0.62-11	2	28		140
115304A	SCREW, 0.5-13 X 1.25	6	28		320
115310A	LOCKNUT, 0.5-13	6	28		321
3117425	STRUT ASSEMBLY, HARDLIFT	2	29	ID ONLY	275
2152010	PIVOT PIN	1	30	ID ONLY	78

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
1336700	SCREW, 0.75–10 X 1.75	11	31	ONE 9 X 12 POLY–BAG	17, 44
110312A	LOCKNUT, SP,0.75–10	14	31		13, 19, 46
126536A	SCREW, 0.75–10 X 3.00	1	31		22
115217A	SCREW, 0.62–11 X 2.00	4	32	ONE 6 X 8 POLY–BAG	20, 47
110311A	LOCKNUT, 0.62–11	4	32		21, 48
111320A	SCREW, 0.75–10 X 2.00	2	32		18, 49
110312A	LOCKNUT, 0.75–10	2	32		23, 50
1337430	SCREW, 0.75–10 X 4.00	4	33	ONE 8 X 6 X 4 CORRUGATED CARTON, 200# SW	136
1317120	SCREW, 0.75–10 X 3.50	10	33		132
111320A	SCREW, 0.75–10 X 2.00	10	33		126
110312A	LOCKNUT, 0.75–10	24	33		127, 137
60861AX	LOCKNUT, 0.625–10	1	33		117
3121882	SHORT STRUT ASSEMBLY	2	34	ID ONLY	168
60861AX	LOCKNUT 0.62–11	1	35		111
1568960	SCREW, 0.50–13 X 1.0	1	35	ONE 3 X 5 POLY–BAG	104
318BX	LOCKWASHER, 0.62	2	35		105
2560HX	LOCKNUT, 0.31–18	4	35		98
111321A	SCREW, 0.62–11 X 1.00	4	36	ONE 6 X 8 POLY–BAG	90
111316A	SCREW 0.62–11 X 1.75	4	36		108
110311A	LOCKNUT, 0.62–11	8	36		107, 88
3126569	HARDLIFT SLIDER BRACKET	2	37	ID ONLY	283
1533100	WIRE ROPE, 10”	2	38	ONE 4 X 6 POLY–BAG	284
1864270	SWAGING SLEEVE	4	38		286
2218230	SNAPPER PIN	2	38		285
1369280	RETAINING RING	4	39	ONE 3 X 5 VCI POLY–BAG	156, 189

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE - Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
2109HX1	SCREW, 0.25-20 X 0.62	6	40	ONE 3 X 5 POLY-BAG	200
703HX	WASHER, 0.25	6	40		201
33855AX	CLIP,CUSHION	6	41	ONE 3 X 5 POLY-BAG	198
3227252	PIN	2	42	ONE 6 X 8 VCI POLY-BAG	167
3127711	RING SUPPORT	2	43	ONE 3 X 5 VCI POLY-BAG	169
2176780	RETAINING RING	2	43		170
1337720	SCREW, 0.75-10 X 2.5	6	44	ONE 6 X 8 POLY-BAG	129
100312A	LOCKNUT, SP, 0.75-10	6	44		130
434AX1	NUT, 0.38-16	6	45	ONE 3 X 5 POLY-BAG	243, 248
351AX	LOCKWASHER, 0.38	6	45		244, 249
3117420	LOCK PLATE	2	46	ID ONLY	216
2255150	END PLATE,RH	1	47	ID ONLY	221
2255160	END PLATE,LH	1	48	ID ONLY	221
3124574	BRACKET DATA PLATE MTG LH	1	49	ID ONLY	225
3138310	BRACKET DATA PLATE MTG RH	1	50	ID ONLY	225
2270050	REAR MARKER LIGHT BAR ASSEMBLY	1	51	PLACE 4 X 12 X .25 FOAM AROUND CENTER	230
3188476	CONTAINER GUIDE	2	52		71
3182113	HARDLIFT DECK BRACKET, RH	1	53		138

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
3182114	HARDLIFT DECK BRACKET, LH	1	54		318
3121819	REAR ROLLER BRACKET RH ASSEMBLY	1	55	P-19 ALL EXPOSED METAL, ID	125
3119744	PIVOT PIN (ARM)	2	56	ONE 8.5 X 4.5 X 14.5 PAPER BOARD CAR-TON	155
3121820	REAR ROLLER BRACKET LH ASSEMBLY	1	57	P-19 ALL EXPOSED MEATL, ID	128
3123917	SLIDER/PIVOT ASSEMBLY RH	1	58	P-19 ALL EXPOSED MEATL, ID	186
3123918	SLIDER/PIVOT ASSEMBLY LH	1	59	P-19 ALL EXPOSED MEATL, ID	186
3121846	RH ARM ASSEMBLY	1	60	12 X 18 VCI BAG TAPED AROUND UP-PER ARM BEARING, 24 X 20 VCI	158
				PAPER WRAPPED AROUND LOWER ARM BEARING, ID.	
3121847	LH ARM ASSEMBLY	1	61	12 X 18 VCI BAG TAPED AROUND UP-PER ARM BEARING, 24 X 20 VCI	158
				PAPER WRAPPED AROUND LOWER ARM BEARING, ID.	
3126527	RH PIN BRACKET ASSEMBLY	1	62	ID ONLY	166
3126528	LH PIN BRACKET ASSEMBLY	1	63	ID ONLY	166
3233870	LH STRUT BRACKET ASSEMBLY	1	64	P-19 ALL EXPOSED METAL, ID, LAG SCREW TO BUILD UP ”L”	147
3233869	RH STRUT BRACKET ASSEMBLY	1	65	P-19 ALL EXPOSED MEATL, ID, LAG SCREW TO BUILD UP ”L”	147

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE - Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
3202766	BRACE, STOW WELDMENT SUPPORT	1	66	ID ONLY	68
3145953	REAR GUIDE	1	67	LAG SCREW TO PAL-LET	103
3145954	ADAPTER PLATE, TENSIONER	1	68	LAG SCREW TO PAL-LET	89
115293A	SCREW, 0.50-13X1.50	4	69	4 X 6 POLY BAG	195
110310A	LOCKNUT, 0.50-13	4	69		196
	HARDWARE		70	6 X 8 POLY BAG	
1337720	SCREW, 0.75-10X2.50	2	70		106, 358
1598030	LOCKNUT, 0.50-13	4	70		355
110311A	LOCKNUT, 0.62-11	6	70		65
111454A	SCREW, 0.75-10 X 2.25	1	70		45
351AX	LOCKWASHER, 0.38	8	70		53, 176
3192798	STOW PLATE, RH	1	71	ID ONLY	194
3192799	STOW PLATE, LH	1	72	ID ONLY	194
3121898	LIFTING FRAME	1	73	ID ONLY	328
3188580	STOW WELDMENT ASSY	1	74	ID ONLY	59
3143293	FRONT SUPPORT ASSEMBLY	1	75	ID ONLY	51
3143292	FRONT SUPPORT BRACKET, LH	1	76	ID ONLY	15
3143291	FRONT SUPPORT BRACKET, RH	1	77	ID ONLY	43
3233488	SHIM	2	78	ID ONLY	193
3233489	SHIM	2	79	ID ONLY	
A: COMBINE PACKS 1-5, & 45, INTO ONE 12 X 6 X 6 CORRUGATED CARTON, 200# SW					
B: COMBINE PACKS 10-11, 14, 37-38, 40-44 & 46- 50 INTO ONE 8 X 8 X 6 CORRUGATED CARTON, 200# SW.					

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
C: COMBINE PACKS 6–9, 12–13, & 39, 78, 79 INTO ONE 6 X 6 X 4 CORRUGATED CARTON, 200# SW.					
D: COMBINE PACKS 15–32 INTO ONE 22 X 14 X 4 CORRUGATED CARTON, 200# SW.					
E: COMBINE PACKS 34–36 INTO ONE 14 X 8 X 3.5 CORRUGATED CARTON, 200# SW.					
F: COMBINE PACKS 69–72 INTO ONE TBD CORRUGATED CARTON, 200# SW.					

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).
- Install rear noise panel, (TM 9-2320-364-20).
- Install bumper stop bracket, (TM 9-2320-364-20).
- Install rear hard lift extension assemblies, (TM 9-2320-364-20).
- Install auxiliary fuel tank, (if equipped), (TM 9-2320-364-20).
- Install self recovery winch (SRW) rear tension guide, (if equipped),(TM 9-2320-364-20).
- Lubricate CHU, (TM 9-2320-364-10).

END OF TASK

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY.

This task covers:

a. Installation

b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools

Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
Adapter, Mechanical Puller (Item 4, Appendix F)
Connector Remover (Item 42, Appendix F)
Puller Kit, Universal (Item 174, Appendix F)
Wrench, Combination, 1-1/4 in. (Item 256, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0 to 44 lb-ft [0-60 N·m]) (Item 276, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m]) (Item 278, Appendix F)

Materials/Parts

Cable Ties (Item 9, Appendix B)
Compound, Antiseize (Item 14, Appendix B)
Compound, Corrosion Preventative (Item 15, Appendix B)
Sealing Compound (Item 61, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (2) (Item 176, Appendix E)
Locknut (Item 210, Appendix E)
Lockwasher (2) (Item 252, Appendix E)
Lockwasher (Item 256, Appendix E)
Lockwasher (Item 258, Appendix E)
Lockwasher (Item 280, Appendix E)
Lockwasher (3) (Item 281, Appendix E)
Lockwasher (2) (Item 283, Appendix E)
Lockwasher (4) (Item 284, Appendix E)
Lockwasher (Item 286, Appendix E)

Materials/Parts (Cont)

Lockwasher (Item 288, Appendix E)
Packing, Preformed (2) (Item 355, Appendix E)

Personnel Required

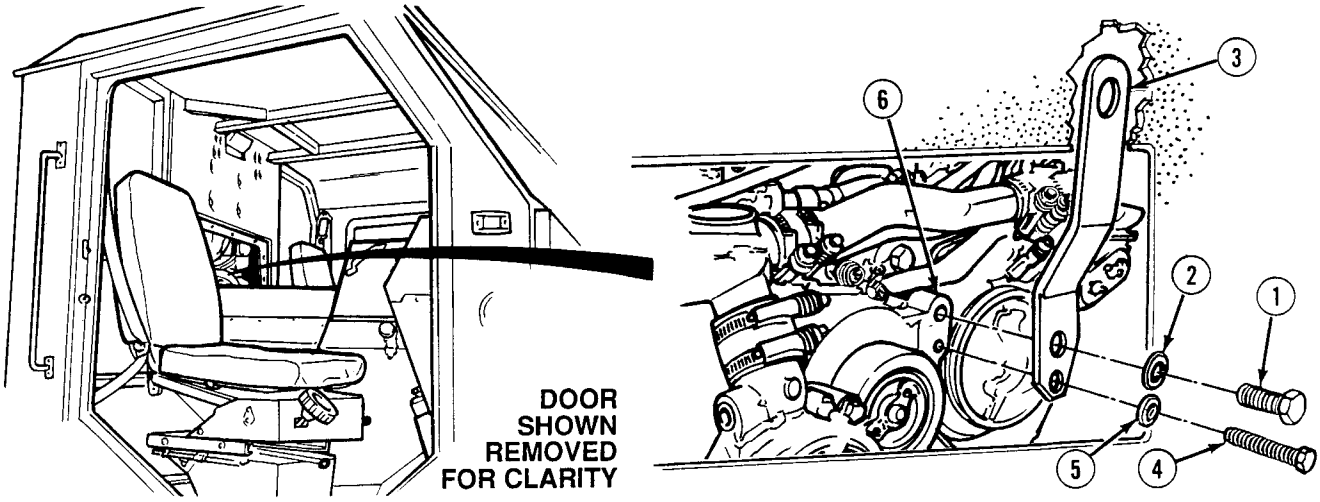
Two

Equipment Conditions

Engine OFF (in truck only), (TM 9-2320-364-10)
Wheels chocked (in truck only), (TM 9-2320-364-20)
Cooling system drained (in truck only), (TM 9-2320-364-20)
Convert DDEC II cab assembly to DDEC III/IV cab assembly (in truck only), (para. 18-15)
Right rocker cover removed, (TM 9-2320-364-20)
Left rocker cover removed, (TM 9-2320-364-20)
Secondary fuel filter removed, (TM 9-2320-364-20)
Batteries disconnected (in truck only), (TM 9-2320-364-20)
Left side noise panel removed (in truck only), (TM 9-2320-364-20)
Right side noise panel removed (in truck only), (TM 9-2320-364-20)
Left front noise panel removed (in truck only), (TM 9-2320-364-20)
Electronic control box (ECB) right access panel removed (in truck only), (TM 9-2320-364-20)
Left front splash guard removed (in truck only), (TM 9-2320-364-20)
Cab engine access panel removed (in truck only), (TM 9-2320-364-20)
Right front fender skirt removed (in truck only), (TM 9-2320-364-20)

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

a. Installation.

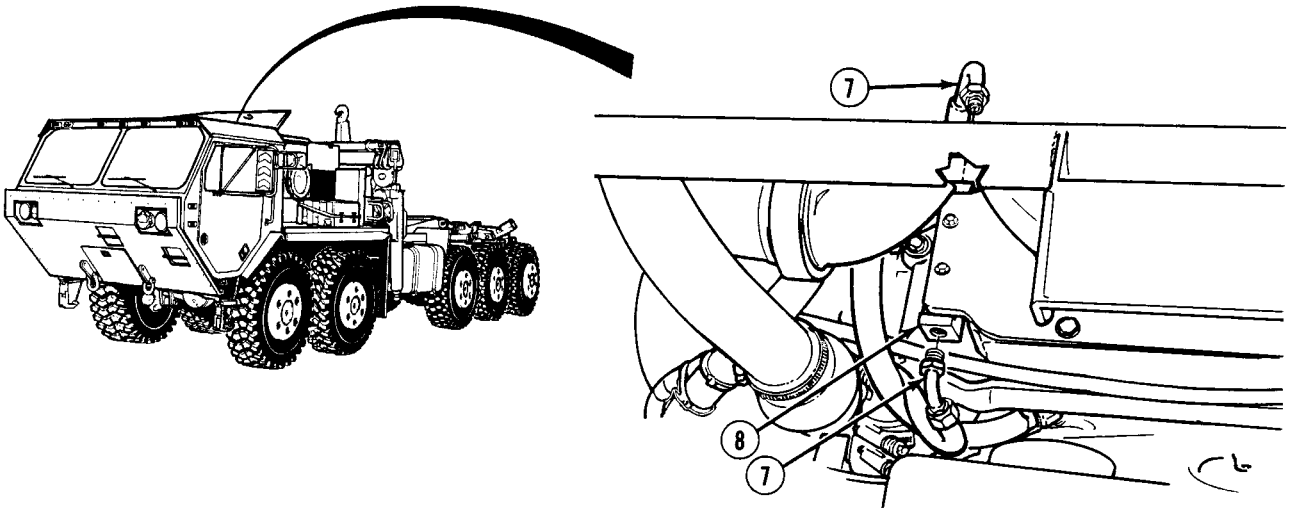


NOTE

- This task is written to be performed on a DDEC II engine in truck. Conversion is same for when engine is installed on stand unless noted.
- Remove cable ties as required.
- Tag and mark all screws, washers, and hardware during removal.
- Tag and mark wires and connectors prior to removal.
- Items not discarded must be retained and used during installation.
- The DDEC II ECM, which is removed as part of this conversion, should be returned to the supply system for credit. All other parts which are not reused can be discarded.

(1) Remove screw (1) and lockwasher (2) from engine lifting bracket (3). Discard lockwasher.

(2) Remove screw (4), lockwasher (5), and engine lifting bracket (3) from front balance cover (6). Discard lockwasher.



WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.

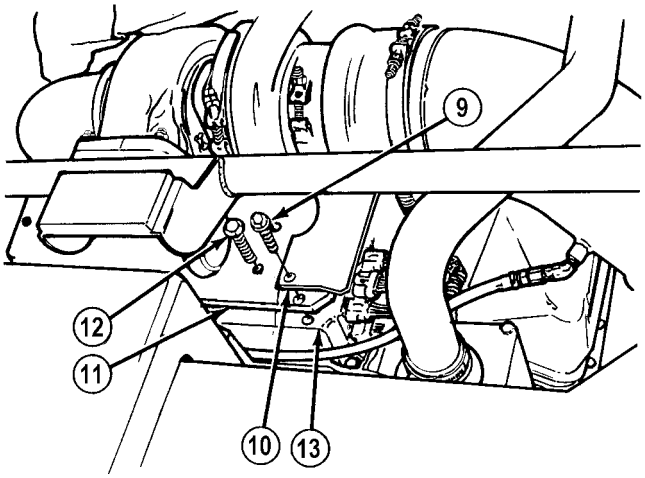
NOTE

Tag and mark all hoses prior to removal.

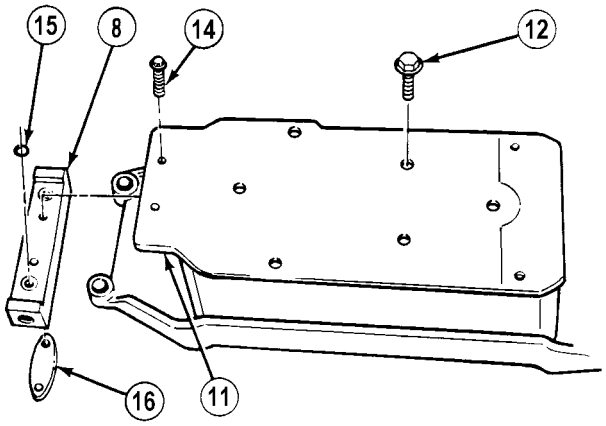
(3) Remove two fuel lines (7) from plastic fitting block (8).

(4) Remove two lockscrews (9) and shield (10) from engine cold plate (11). Discard lockscrews.

(5) Remove six lockscrews (12) and engine cold plate (11) from electronic control module (13). Discard lockscrews.



(6) Remove two screws (14), plastic fitting block (8), two preformed packings (15), and plate (16) from engine cold plate (11). Discard preformed packings.



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

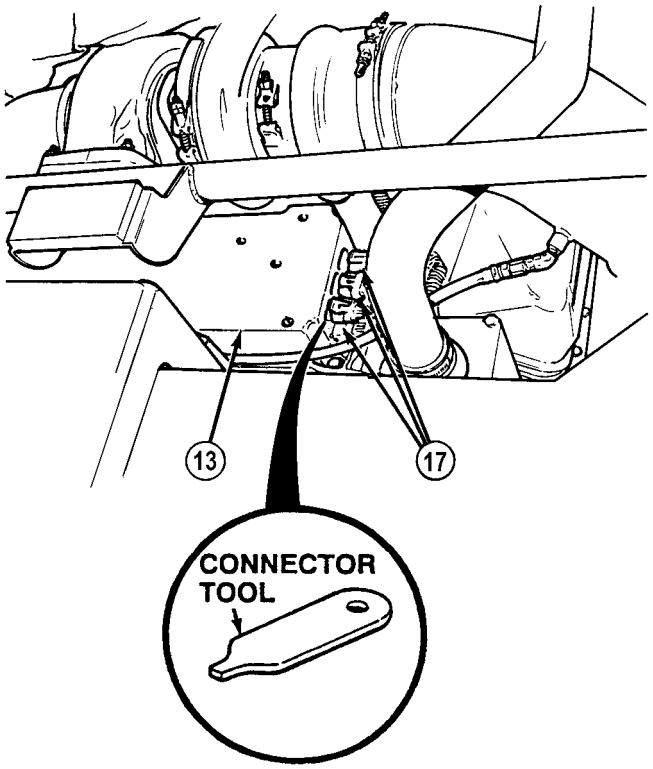
CAUTION

Use caution while removing connectors from ECM. The ECM has plastic retainers that may break if connectors are not properly removed.

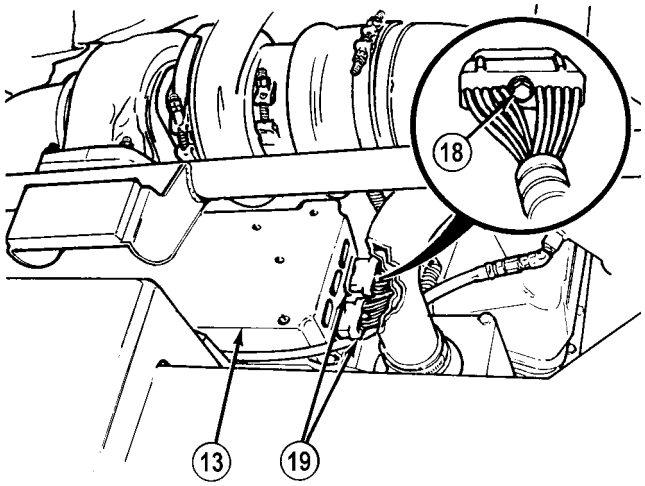
NOTE

Connectors are removed by gently prying up on locking tab with connector tool and pulling connector out.

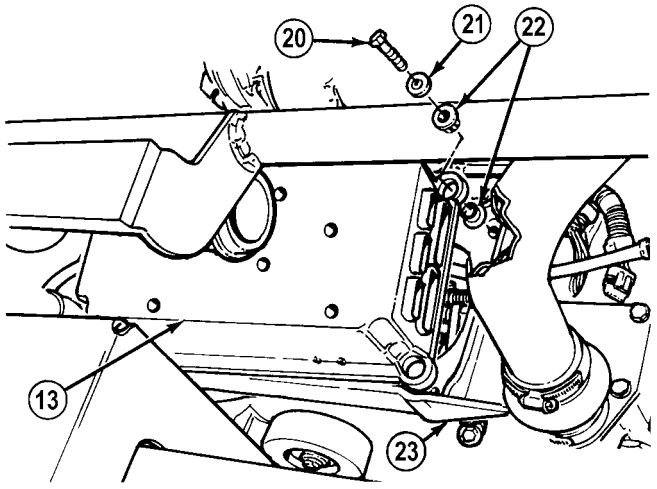
(7) Using connector tool, remove three wiring harness connectors (17) from ECM (13).



(8) Loosen two screws (18) and remove wiring harness connectors (19) from ECM (13).



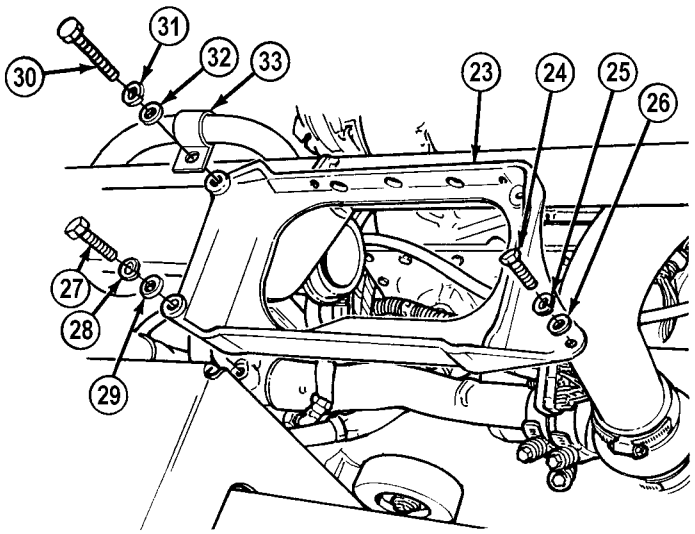
(9) Remove four screws (20), washers (21), eight mounts (22), and ECM (13) from ECM mounting bracket (23).



(10) Remove screw (24), lockwasher (25), and washer (26) from ECM mounting bracket (23). Discard lockwasher and screw.

(11) Remove screw (27), lockwasher (28), and washer (29) from ECM mounting bracket (23). Discard lockwasher.

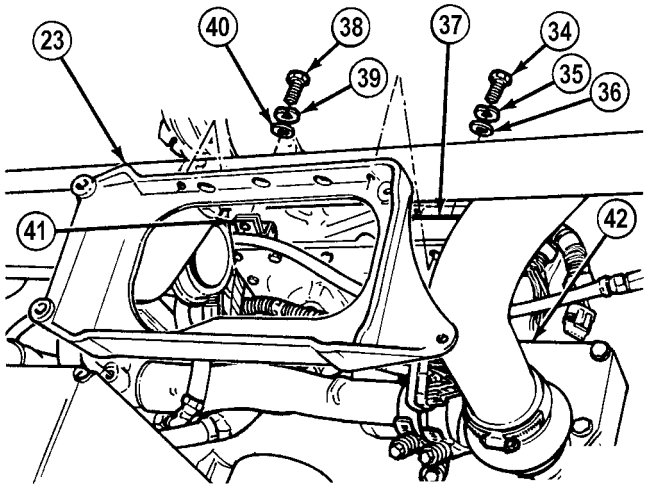
(12) Remove screw (30), lockwasher (31), washer (32), and fuel line clamp (33) from ECM mounting bracket (23). Discard lockwasher.



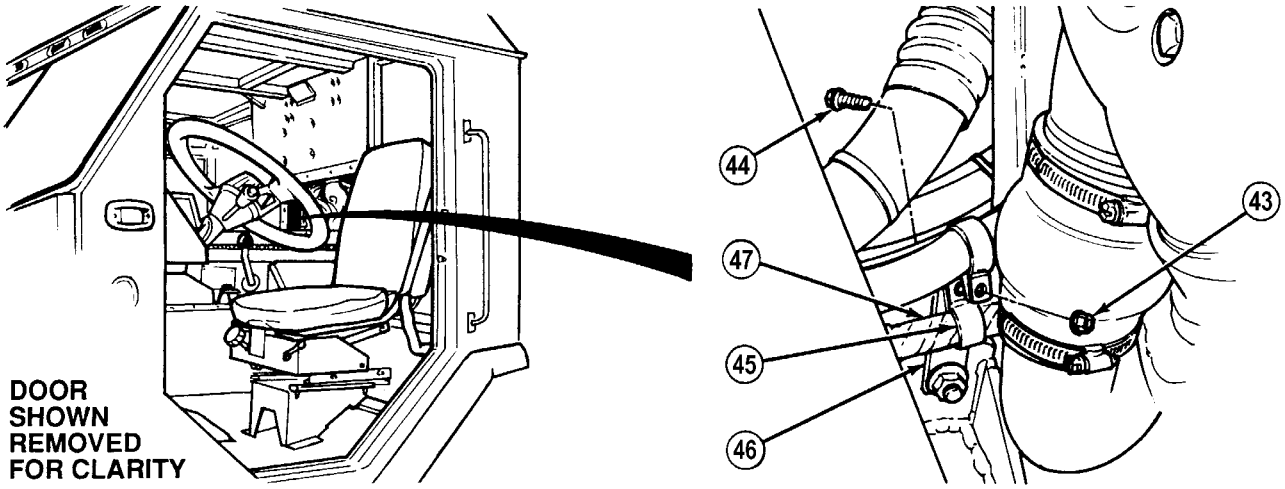
(13) Remove screw (34), lockwasher (35), washer (36), and turbo boost sensor bracket (37) from ECM mounting bracket (23). Discard lockwasher.

(14) Remove screw (38), lockwasher (39), washer (40), and turbo oil line clamp (41) from ECM mounting bracket (23). Discard lockwasher.

(15) Remove ECM mounting bracket (23) from engine (42).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

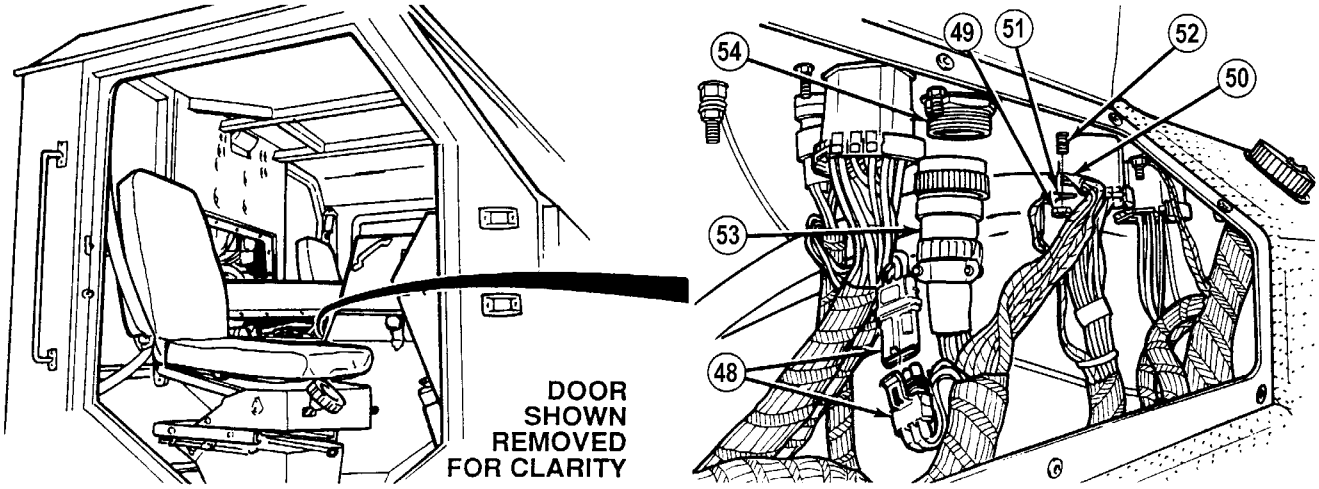


NOTE

If engine is installed in stand, go to Step (27).

(16) Remove locknut (43), screw (44), and cushion clip (45) from bracket (46). Discard locknut.

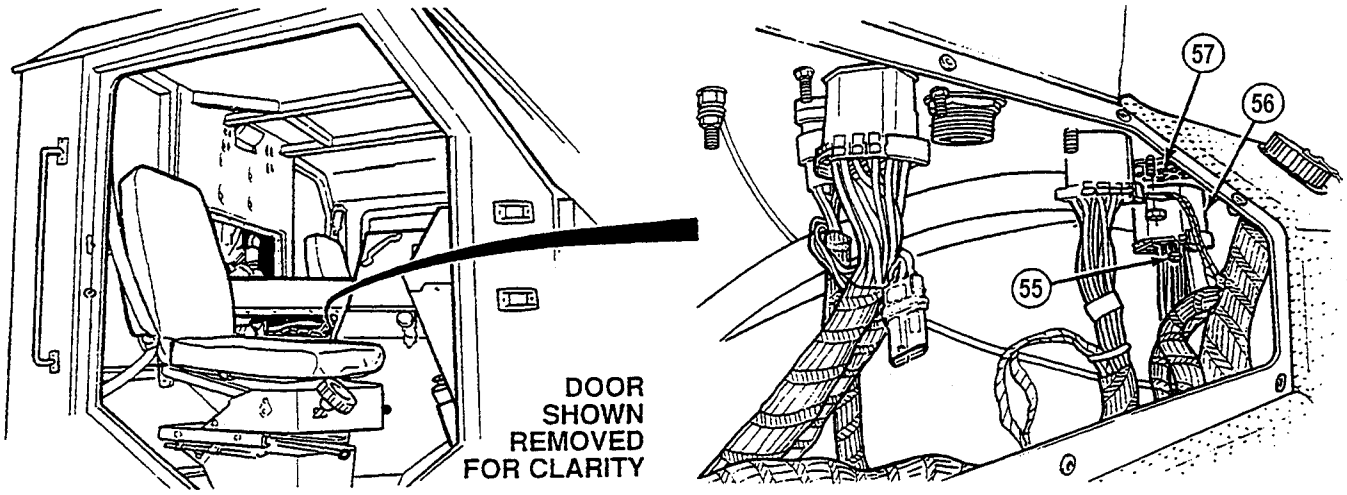
(17) Remove engine wire harness (47) from cushion clip (45).



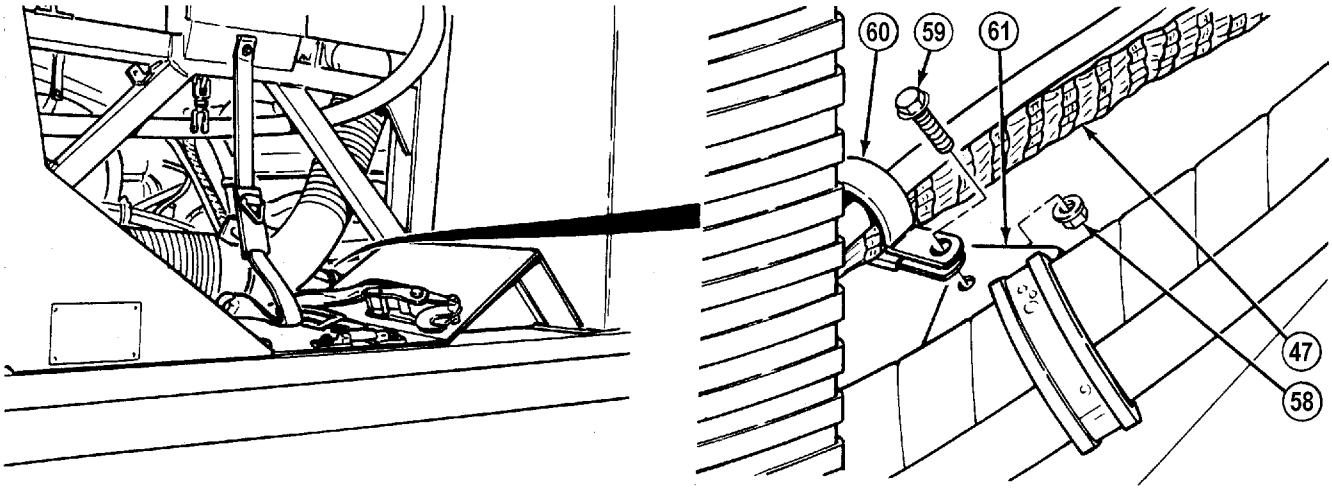
(18) Disconnect MC118 connector (48).

(19) Remove locknut (49) and shield wires (50) and (51) from stud (52). Discard locknut.

(20) Disconnect MC11 connector (53) from bulkhead connector (54).



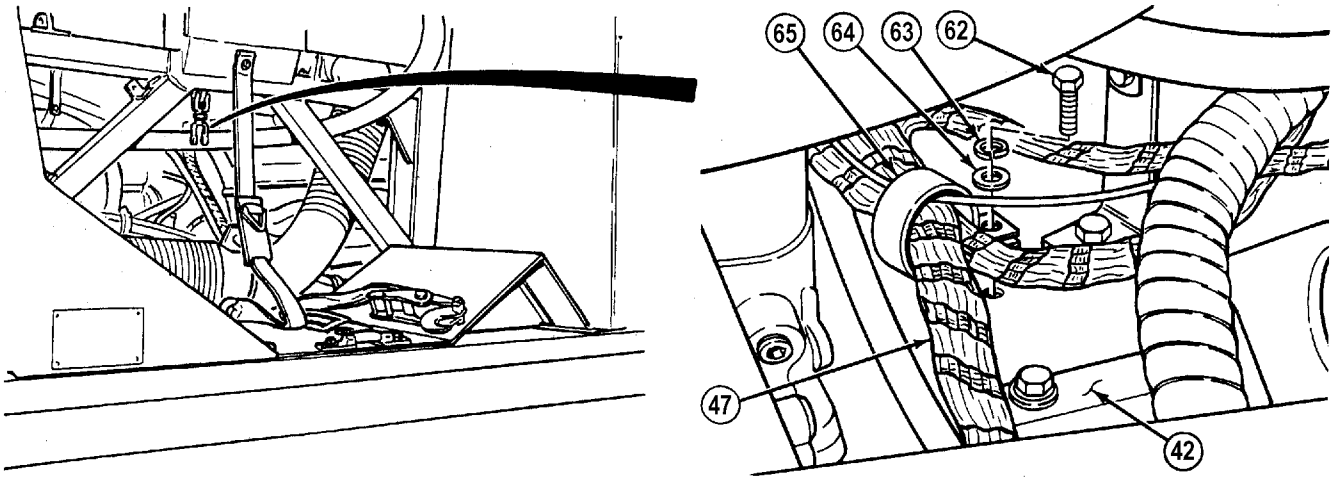
(21) Loosen screw (55) and disconnect MC21 connector (56) from bulkhead connector (57).



(22) Remove locknut (58), screw (59), and cushion clip (60) from bracket (61). Discard locknut.

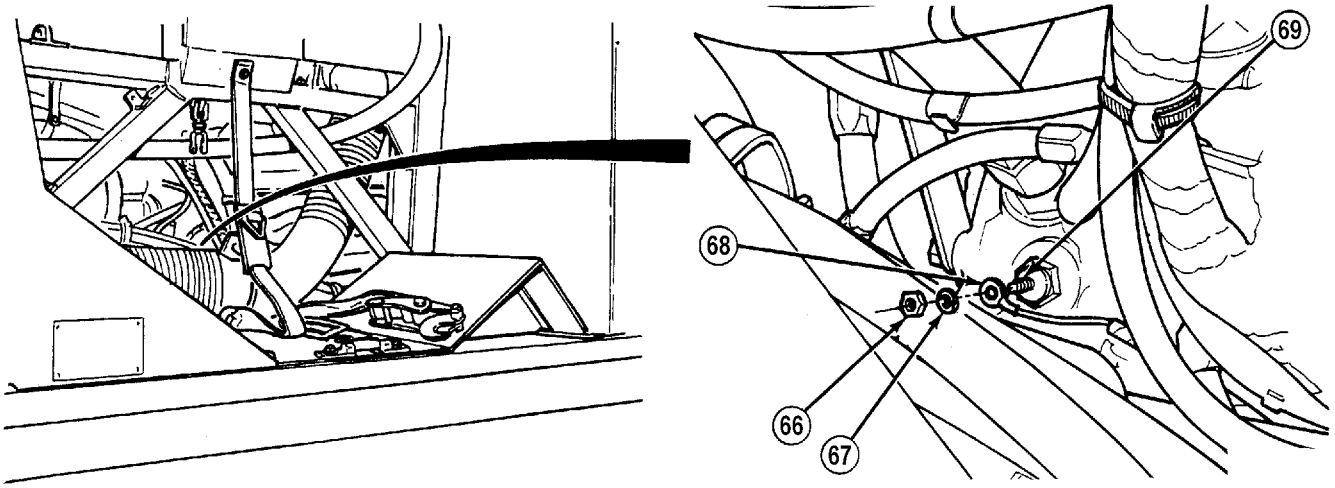
(23) Remove engine wire harness (47) from cushion clip (60).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

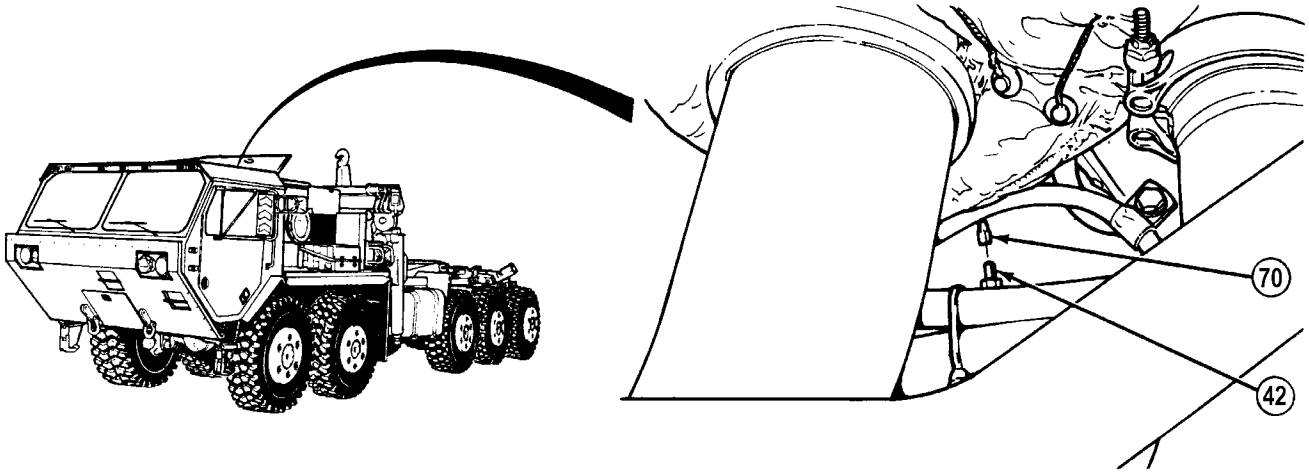


(24) Remove screw (62), lockwasher (63), washer (64), and cushion clip (65) from engine (42). Discard lockwasher.

(25) Remove engine wire harness (47) from cushion clip (65).



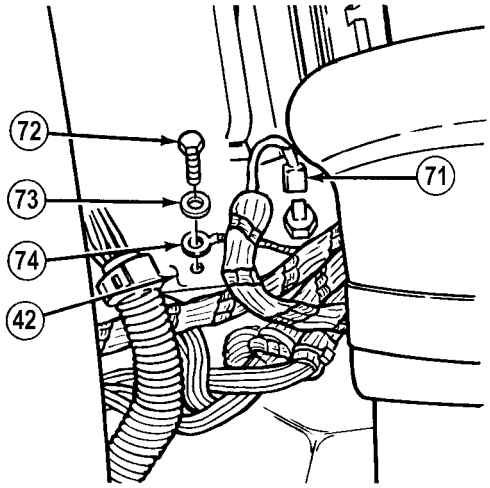
(26) Remove nut (66), lockwasher (67), and wire 1449 (68) from transmission oil temperature sending unit (69). Discard lockwasher.



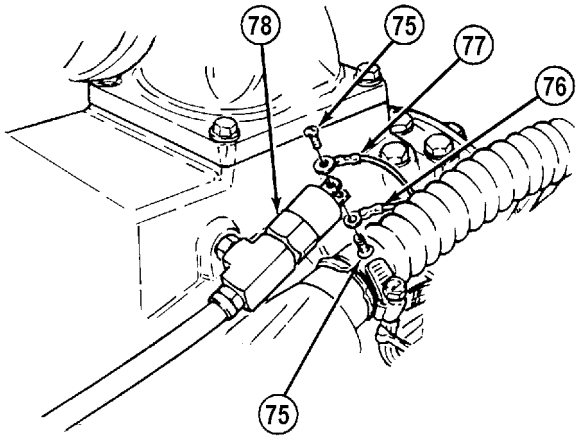
(27) Remove wire 1715 (70) from engine (42).

(28) Remove wire 1716 (71) from engine (42).

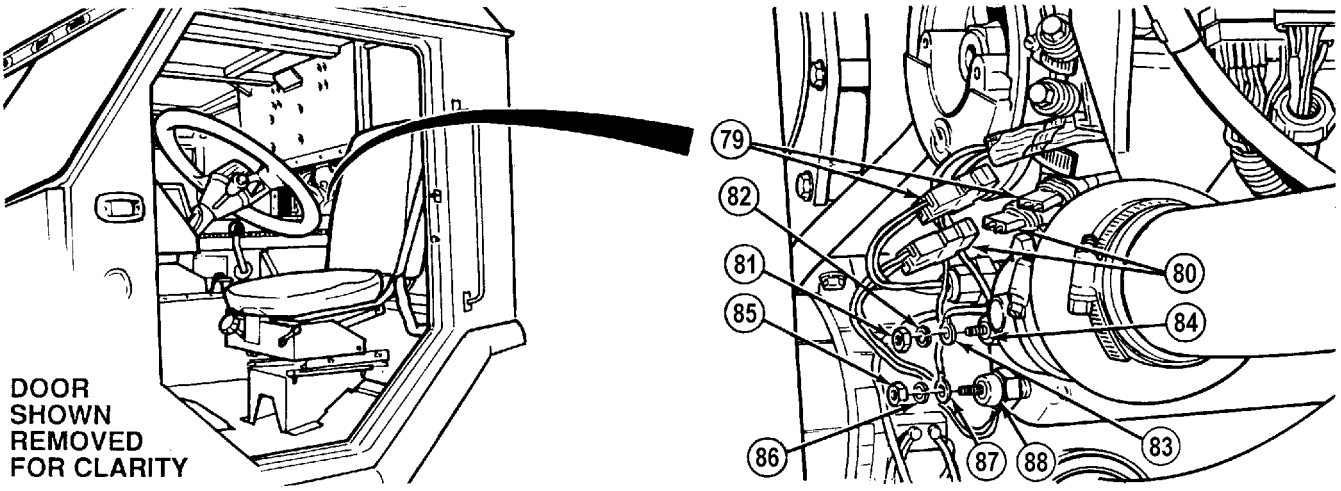
(29) Remove screw (72), washer (73), and shield wire (74) from engine (42).



(30) Remove two screws (75), wire 1955 (76), and wire 1957 (77) from pressure switch (78).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

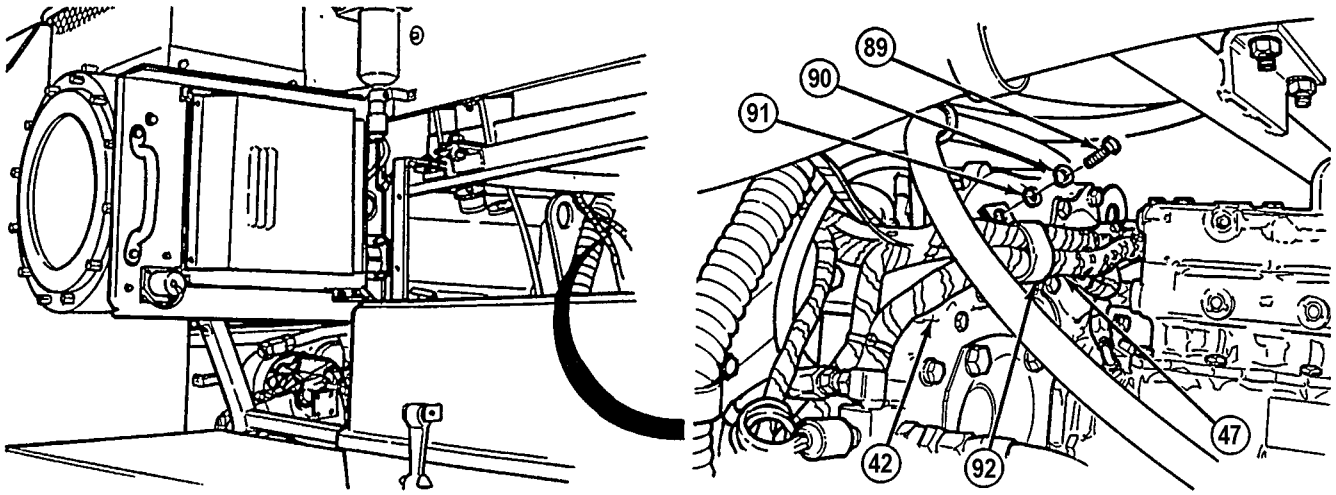


(31) Disconnect MC61 connector (79).

(32) Disconnect MC128 connector (80).

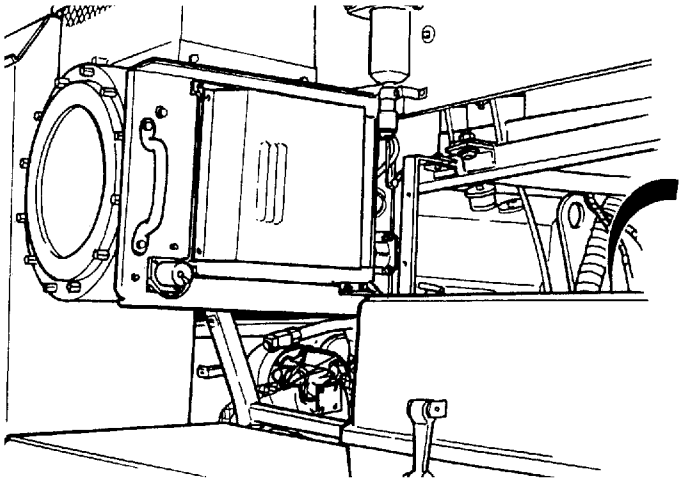
(33) Remove nut (81), lockwasher (82), and wire 1147 (83) from temperature sending unit (84). Discard lockwasher.

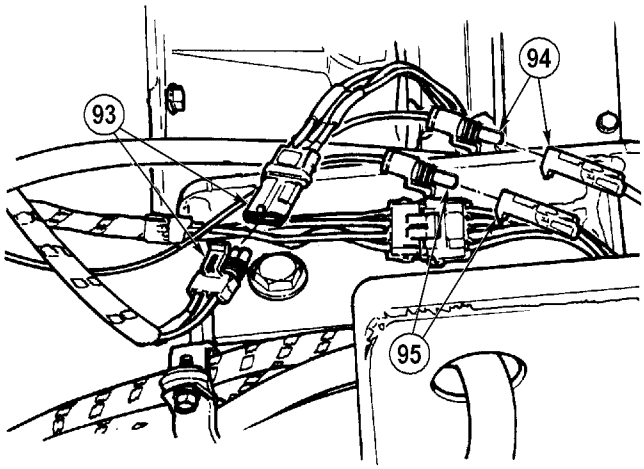
(34) Remove nut (85), lockwasher (86), and wire 1320 (87) from temperature sending unit (88). Discard lockwasher.



(35) Remove screw (89), lockwasher (90), washer (91), and cushion clip (92) from engine (42). Discard lockwasher.

(36) Remove engine wire harness (47) from cushion clip (92).





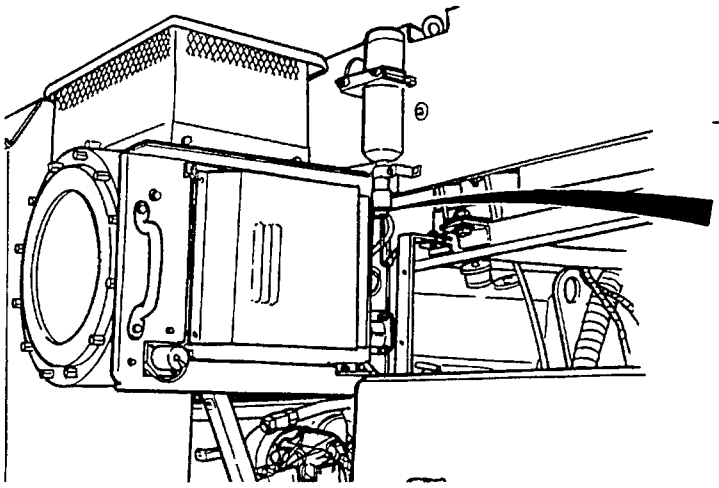
(37) Disconnect MC63 connector (93).

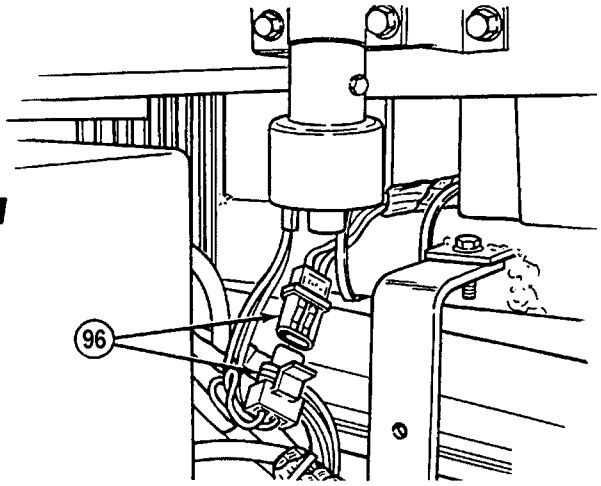
(38) Disconnect MC95 connector (94).

NOTE

Perform Step (39) if truck is equipped with a 200-amp alternator.

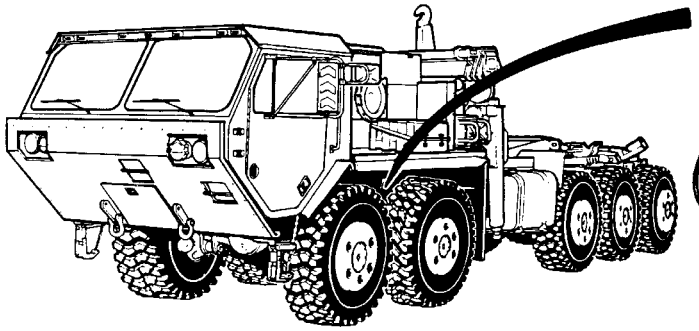
(39) Disconnect MC60 connector (95).

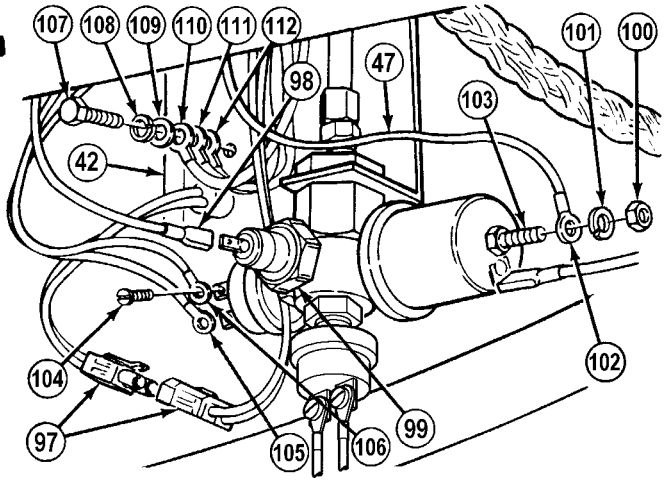




(40) Disconnect MC23 connector (96).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).





(41) Disconnect MC56 connector (97).

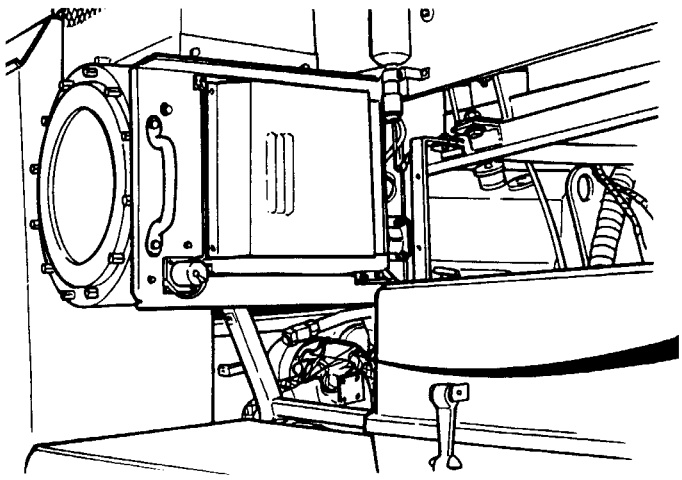
(42) Remove wire 1032 (98) from engine oil switch (99).

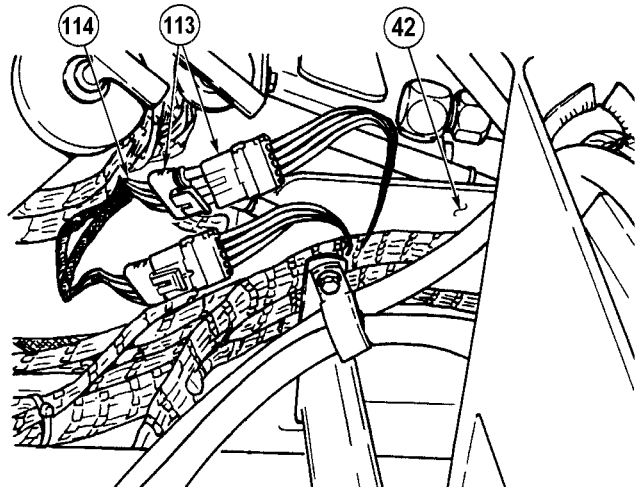
(43) Remove nut (100), lockwasher (101), and wire 1113 (102) from engine oil sending unit stud (103). Discard lockwasher.

(44) Remove two screws (104) and wires 1871 (105) and 1517 (106) from engine oil switch (99).

(45) Remove screw (107), lockwasher (108), washer (109), wire 1435 (110), and shield wires (111) and (112) from engine (42). Discard lockwasher.

(46) Remove engine wire harness (47) from engine (42).



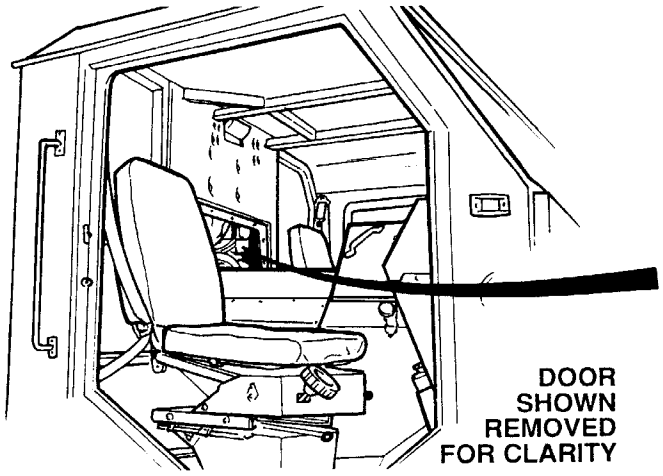


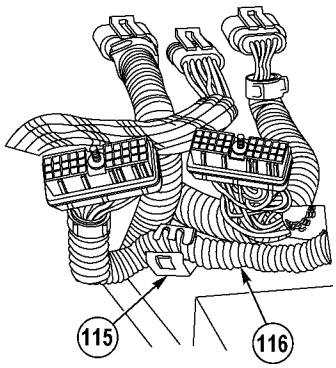
NOTE

DDEC II battery power wire harness has a 4-pin MC62 connector on one end and a straight 6-pin MC17 connector from ECM on remaining end.

(47) Disconnect MC62 connector (113).

(48) Remove DDEC II battery power wire harness (114) from engine (42).



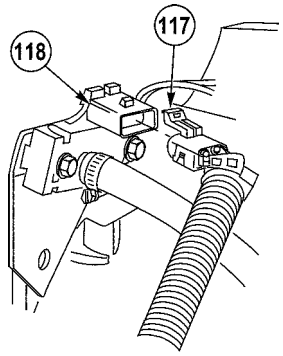


(49) Open clip (115) and remove DDEC II wire harness (116) from clip (115).

NOTE

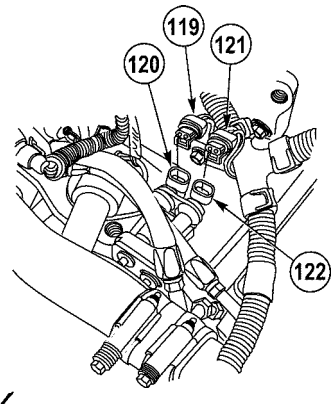
Connectors are removed by gently prying up on tab and pulling connector apart.

(50) Disconnect connector (117) from turbo boost sensor (118).

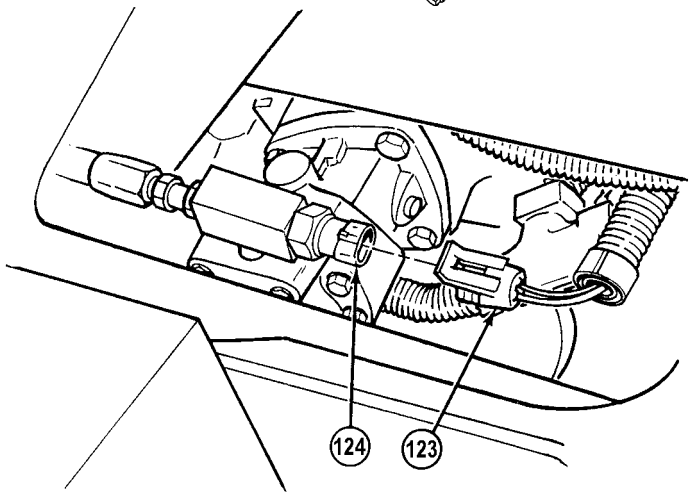


(51) Disconnect connector (119) from TRS sensor (120).

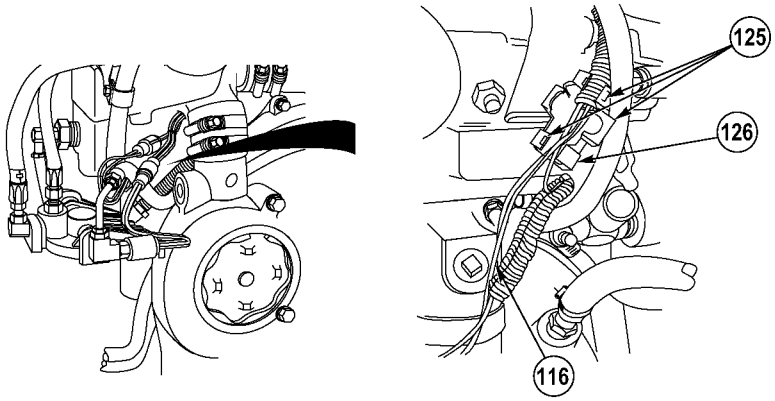
(52) Disconnect connector (121) from SRS sensor (122).



(53) Disconnect connector (123) from fuel temperature sensor (124).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

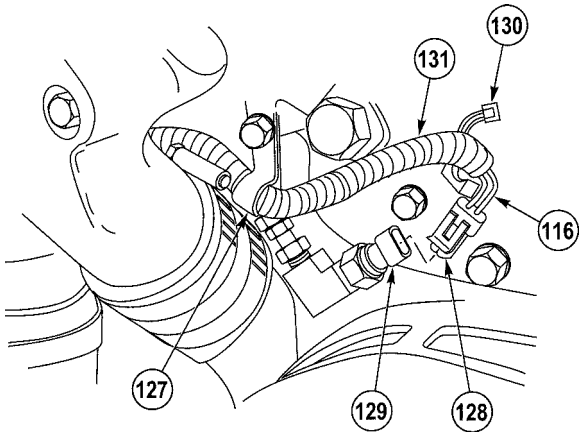


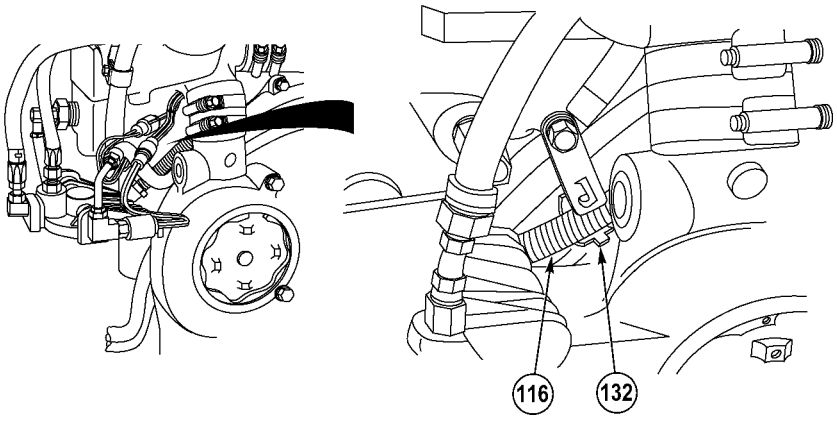
(54) Open three clips (125) and remove tee (126) from DDEC II wire harness (116).

(55) Open clip (127) and remove DDEC II wire harness (116) from clip (127).

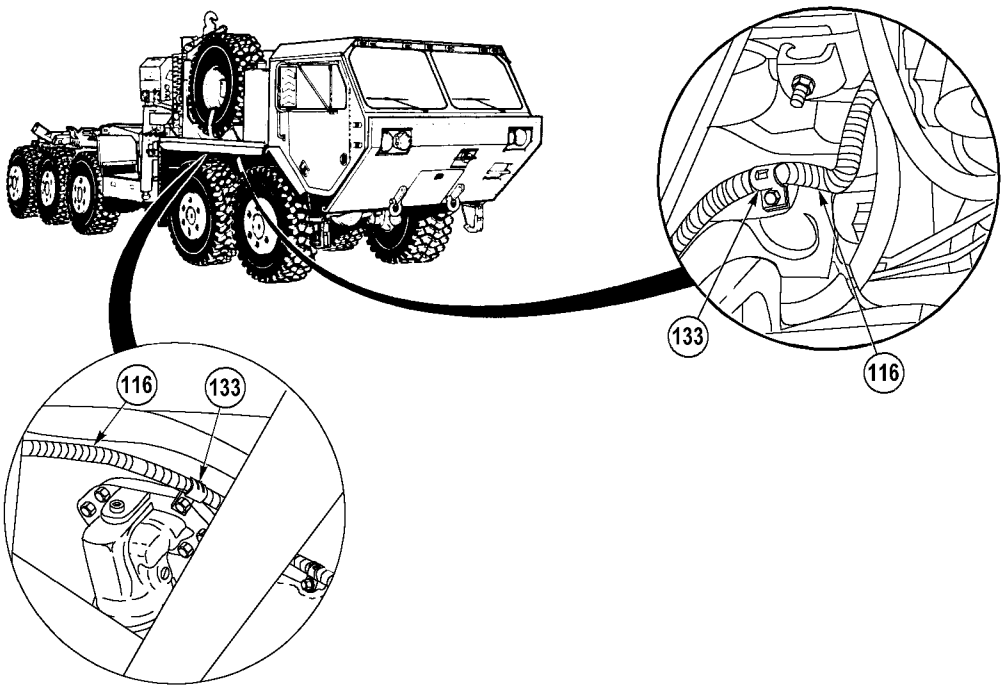
(56) Disconnect connector (128) from oil temperature sensor (129).

(57) Remove clip (130) and wire loom (131) from oil temperature sender portion of DDEC II wire harness (116).

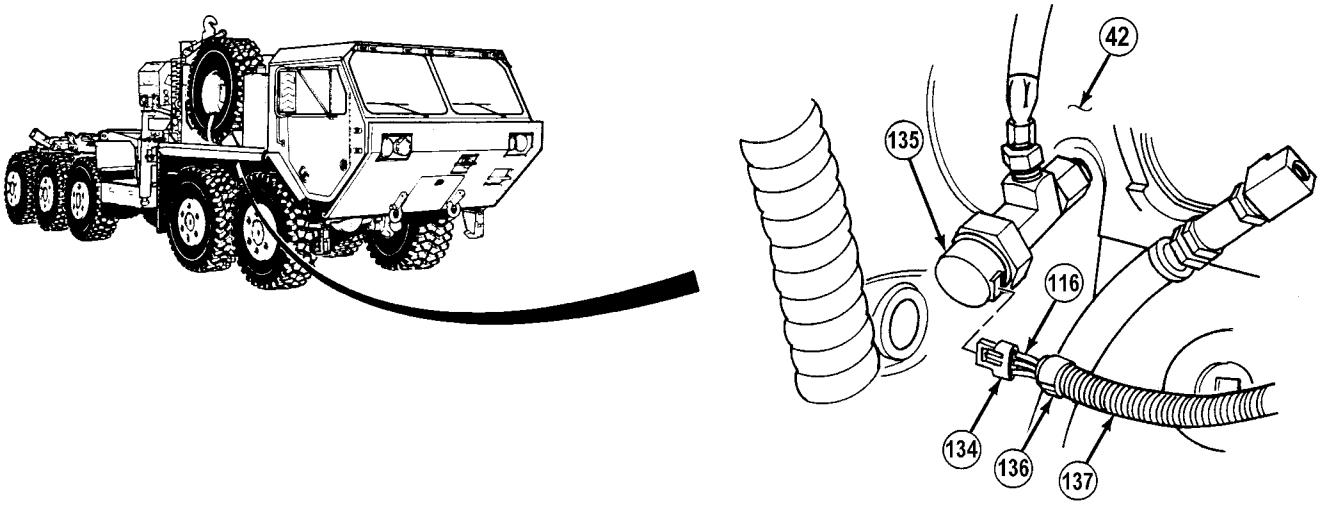




(58) Open clip (132) and remove DDEC II wire harness (116) from clip (132).



(59) Open two clips (133) and remove DDEC II wire harness (116) from clips (133).



NOTE

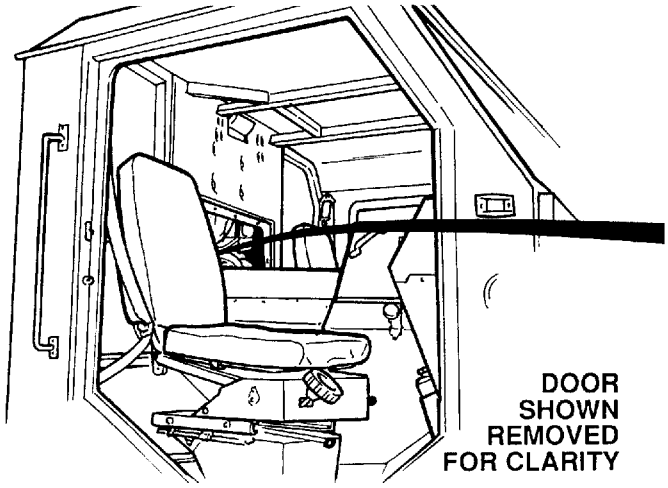
Connectors are removed by gently prying up on tab and pulling apart connectors.

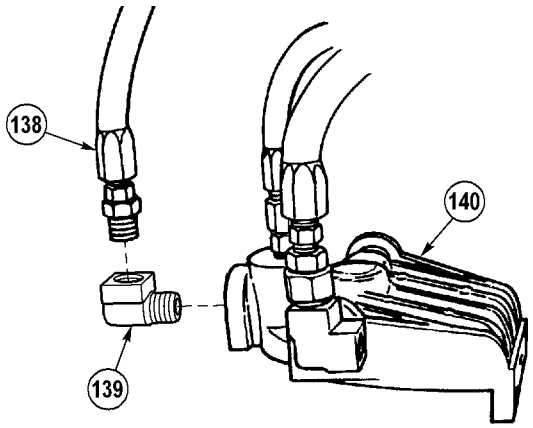
(60) Disconnect connector (134) from DDEC engine oil pressure sensor (135).

(61) Remove clip (136) and loom (137) from DDEC oil pressure sensor portion of DDEC II wire harness (116).

(62) Remove DDEC II wire harness (116) from engine (42).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).



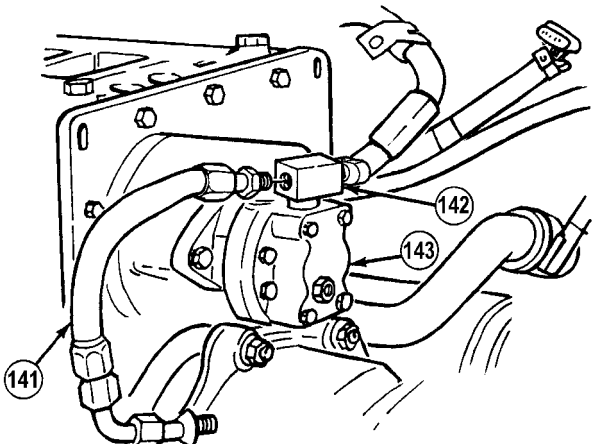


WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.

(63) Remove fuel line (138) from elbow (139) on fuel filter head (140).

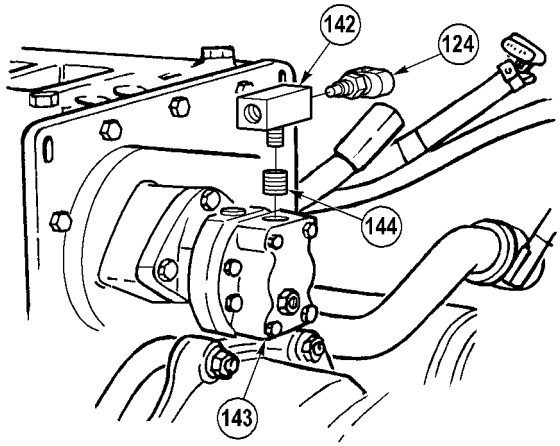
(64) Remove elbow (139) from fuel filter head (140).



NOTE

Note position and location of tee prior to removal.

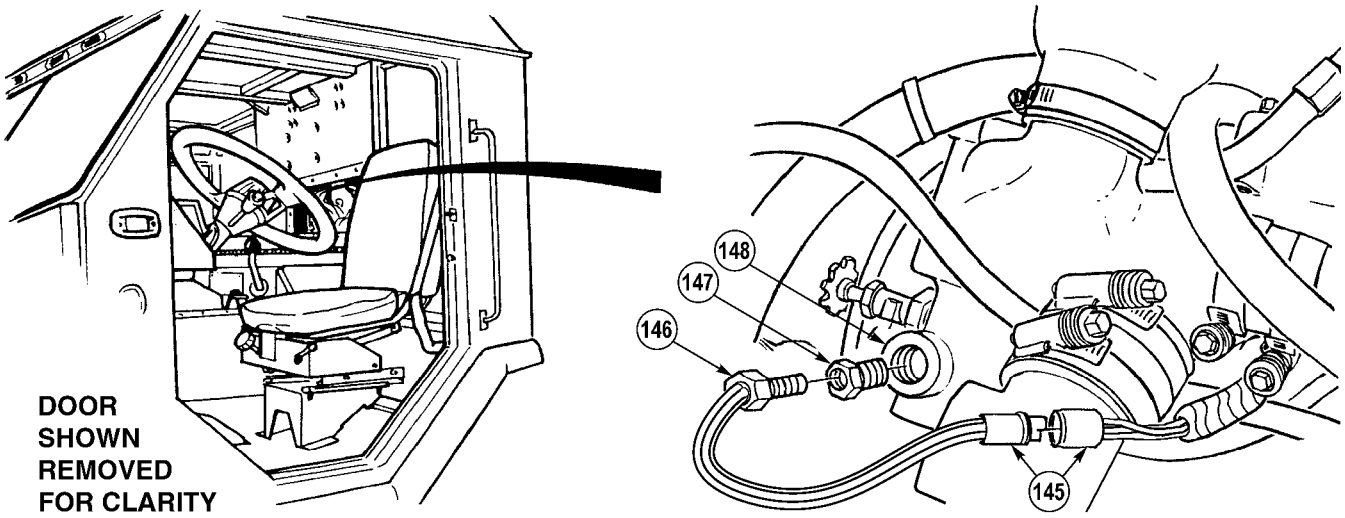
(65) Remove hose (141) from tee (142) on fuel pump (143).



(66) Remove fuel temperature sensor (124) from tee (142).

(67) Remove tee (142) from fuel pipe bushing (144). Discard tee.

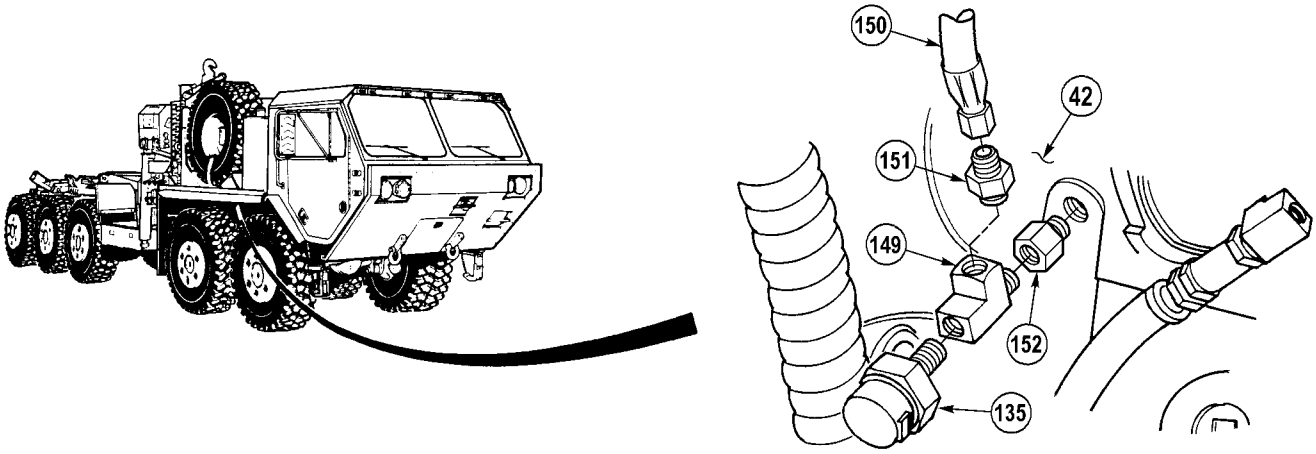
(68) Remove pipe bushing (144) from fuel pump (143). Discard pipe bushing.



(69) Disconnect MC71 connector (145).

(70) Remove STE/ICE sensor (146) from bushing reducer (147).

(71) Remove bushing reducer (147) from thermostat housing (148).



(72) Remove DDEC engine oil pressure sensor (135) from tee (149).

(73) Remove hose (150) from adapter (151).

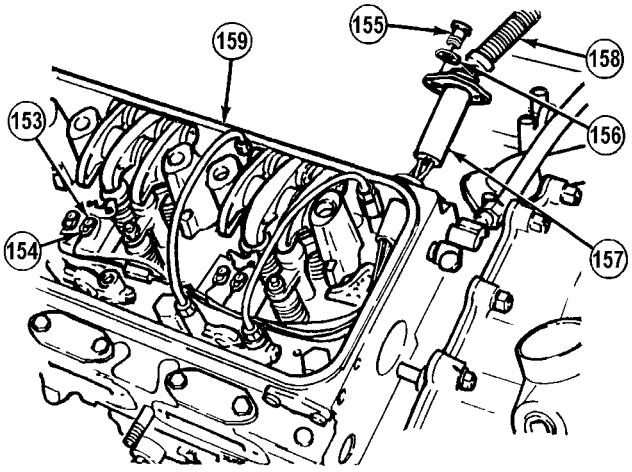
(74) Remove adapter (151) from tee (149).

(75) Remove tee (149) and reducer (152) from engine (42).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

NOTE

- Wire terminal retaining screws are designed to be loosened, not removed.
- All eight injector wire harness terminal retaining screws are loosened the same way.
- Right side and left side injector wire harnesses are removed the same way. Right side shown.

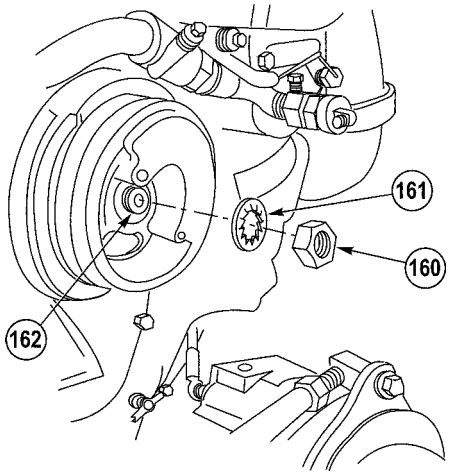


(76) Loosen wire terminal retaining screws (153) on fuel injectors (154).

(77) Remove two screws (155), washers (156), flange with gasket (157), and wire harness (158) from cylinder head (159). Discard gasket.

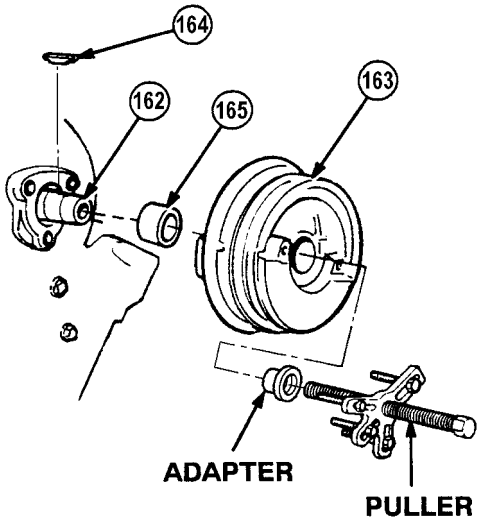
NOTE

One screw and washer was removed in Step (29).



(78) Perform Steps (76) and (77) for left side harness.

(79) Remove nut (160) and lockwasher (161) from left side camshaft (162). Discard lockwasher.



(80) Using puller and adapter, remove camshaft from balance pulley (163) from left camshaft (162).

NOTE

Perform Step (81) if key or spacer are damaged.

(81) Remove key (164) and spacer (165) from end of left camshaft (162).

WARNING

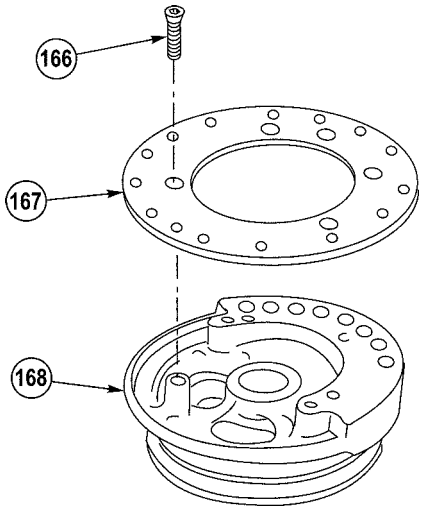
Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Two alignment pins on pulse wheel must be installed in alignment holes on back of camshaft pulley.
- DDEC II engines have a 13 tooth pulse wheel; DDEC III/IV engines have a 36 tooth pulse wheel.

(82) Apply sealing compound to threads of four screws (166).

(83) Install DDEC III/IV speed sensor pulse wheel (167) on front balance pulley (168) with four screws (166). Tighten to 60 to 84 lb-in (7 to 10 N·m).

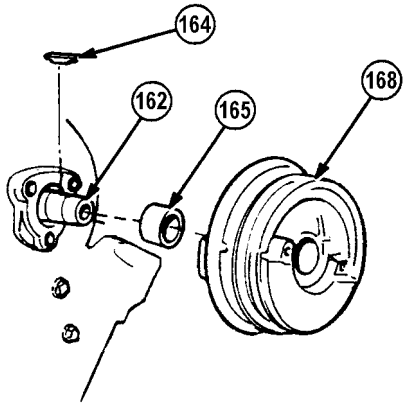


NOTE

Perform Step (84) if spacer or key was damaged.

(84) Install spacer (165) and key (164) on end of left camshaft (162).

(85) Position front balance pulley (168) on left camshaft (162).

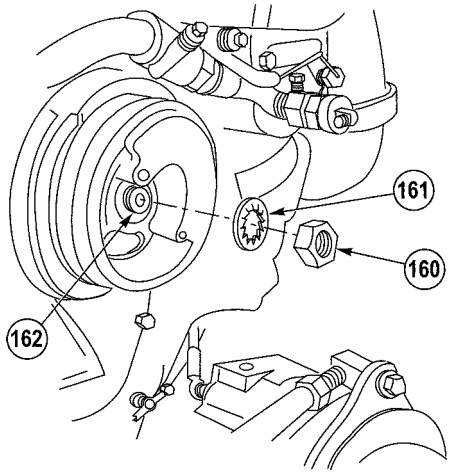


18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

NOTE

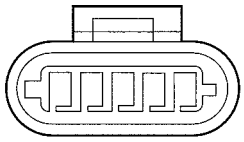
Pry bar positioned in hydraulic pump driveshaft yoke on crankshaft pulley will prevent camshaft pulley from turning.

(86) Install lockwasher (161) and nut (160) on left camshaft (162). Tighten to 300 to 325 lb-ft (407 to 441 N·m).

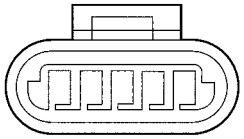


NOTE

- Right side and left side injector harness are installed the same way. Right side shown.
- Right side harness has black connector, left side has gray connector. Left side harness is longer.



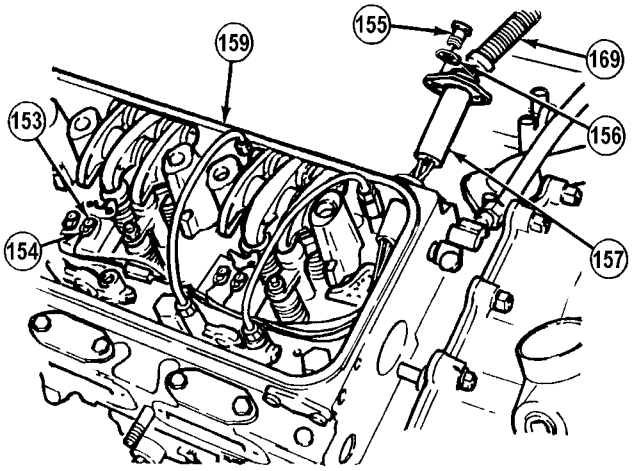
FUEL INJECTOR HARNESS LEFT SIDE CONNECTOR



FUEL INJECTOR HARNESS RIGHT SIDE CONNECTOR

(87) Install fuel injector wire harness (169) and flange with gasket (157) on cylinder head (159) with two washers (156) and screws (155).

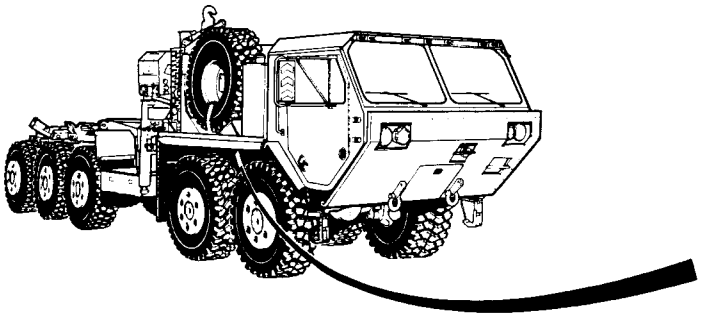
(88) Connect wire terminals to fuel inlet block on fuel injector (154) and tighten retaining screws (153).

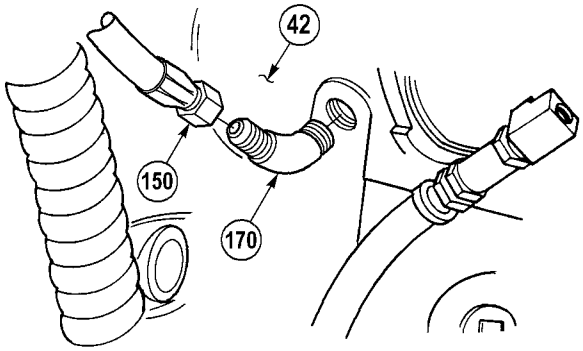


NOTE

Only install one screw and washer in fuel injector harness towards front of engine. Remaining screw and washer will be installed in Step (150).

(89) Perform Steps (87) and (88) for left side harness.





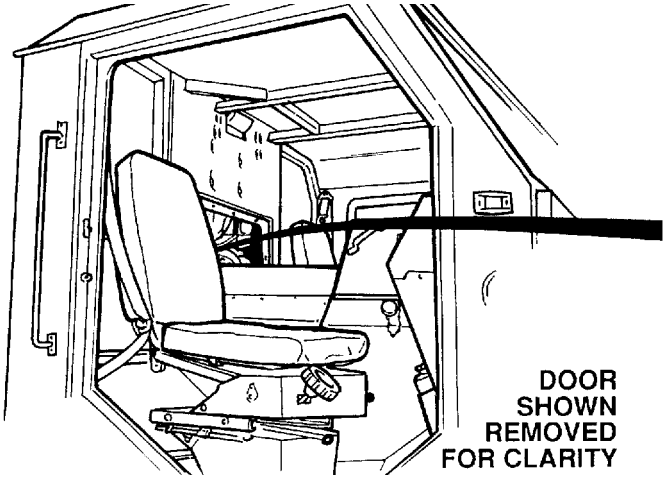
WARNING

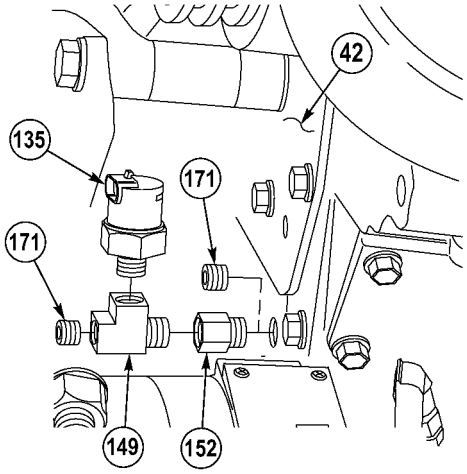
Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(90) Apply sealing compound to threads of elbow (170).

(91) Install elbow (170) in engine (42).

(92) Install hose (150) on elbow (170).





(93) Remove plug (171) from engine (42).

WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(94) Apply sealing compound to threads of DDEC engine oil pressure sensor (135), tee (149), plug (171), and reducer (152).

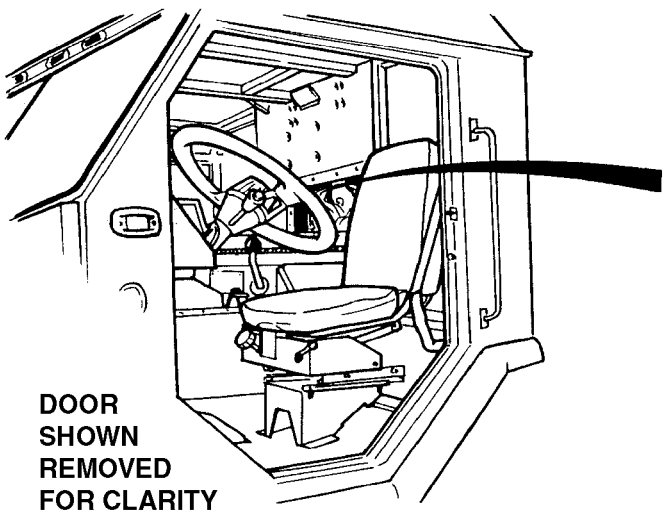
(95) Install reducer (152) in engine (42).

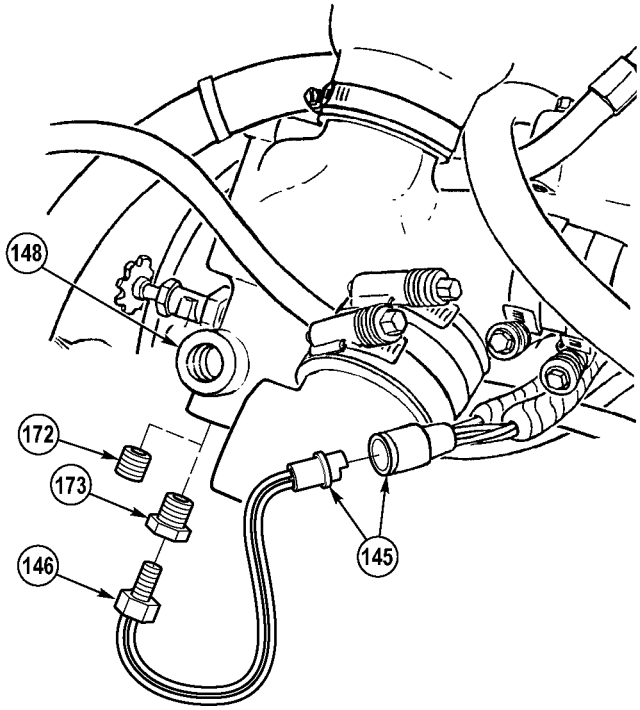
(96) Install tee (149) in reducer (152).

(97) Install DDEC engine oil pressure sensor (135) on tee (149).

(98) Install plug (171) in tee (149).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).





(99) Remove plug (172) from thermostat housing (148).

WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(100) Apply sealing compound to threads of bushing reducer (173).

(101) Install bushing reducer (173) in thermostat housing (148).

(102) Apply sealing compound to threads of STE\ICE sensor (146).

(103) Install STE\ICE sensor (146) in bushing reducer (173).

(104) Connector MC71 connector (145).

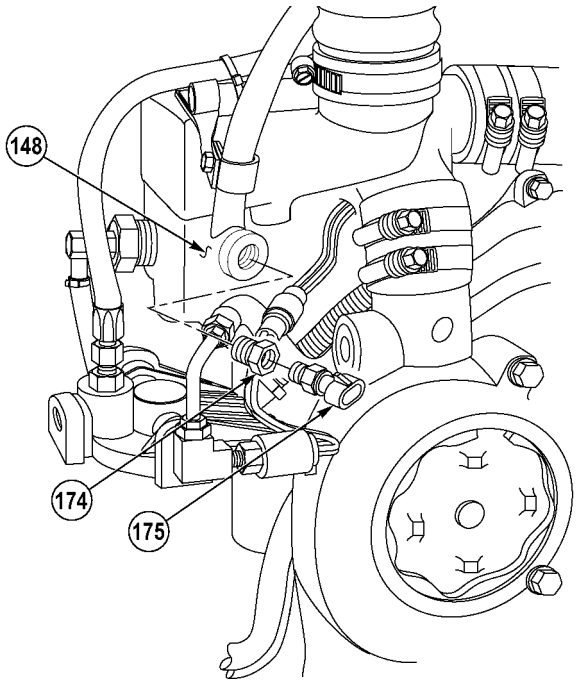
WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(105) Apply sealing compound to threads of bushing reducer (174) and coolant temperature sensor (175).

(106) Install bushing reducer (174) in right thermostat housing (148).

(107) Install coolant temperature sensor (175) in bushing reducer (174).



WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

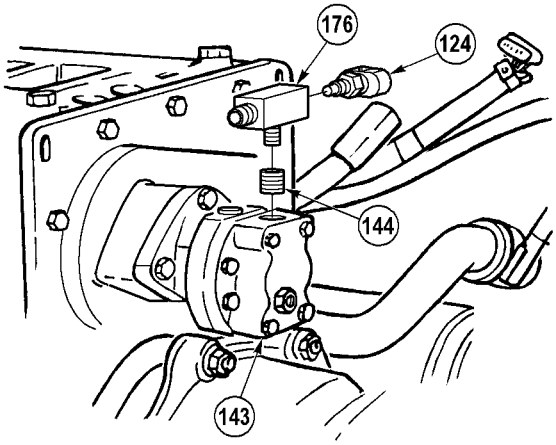
(108) Apply sealing compound to threads of pipe bushing (144), tee (176), and fuel temperature sensor (124).

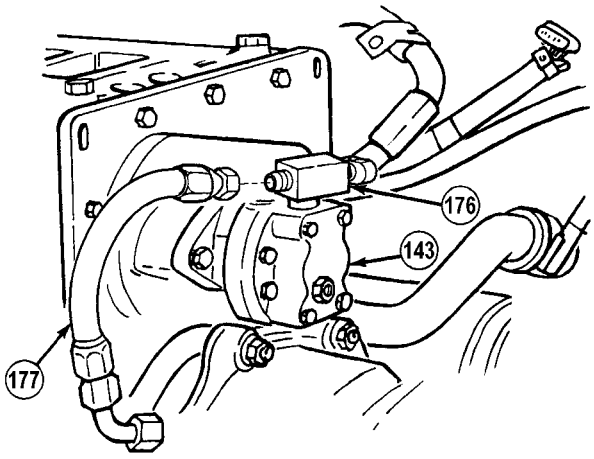
(109) Install pipe bushing (144) in fuel pump (143).

(110) Install tee (176) in pipe bushing (144).

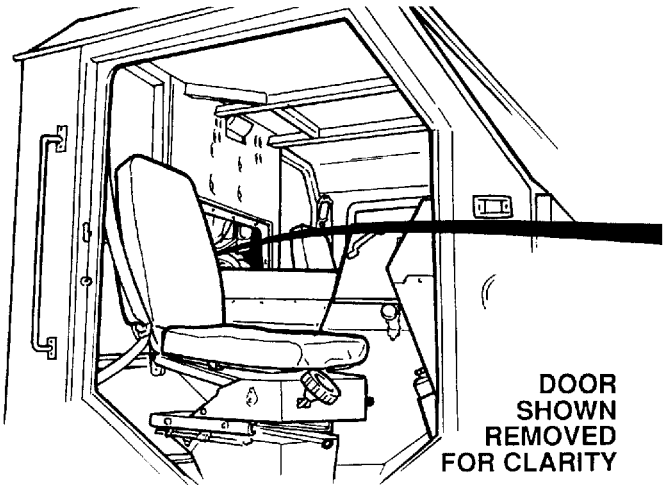
(111) Install fuel temperature sensor (124) in tee (176).

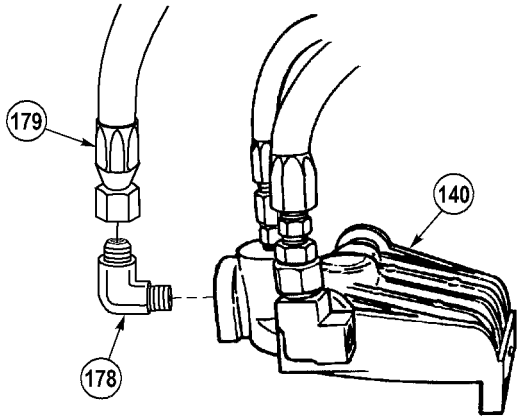
(112) Install hose (177) on tee (176) of fuel pump (143).





18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).





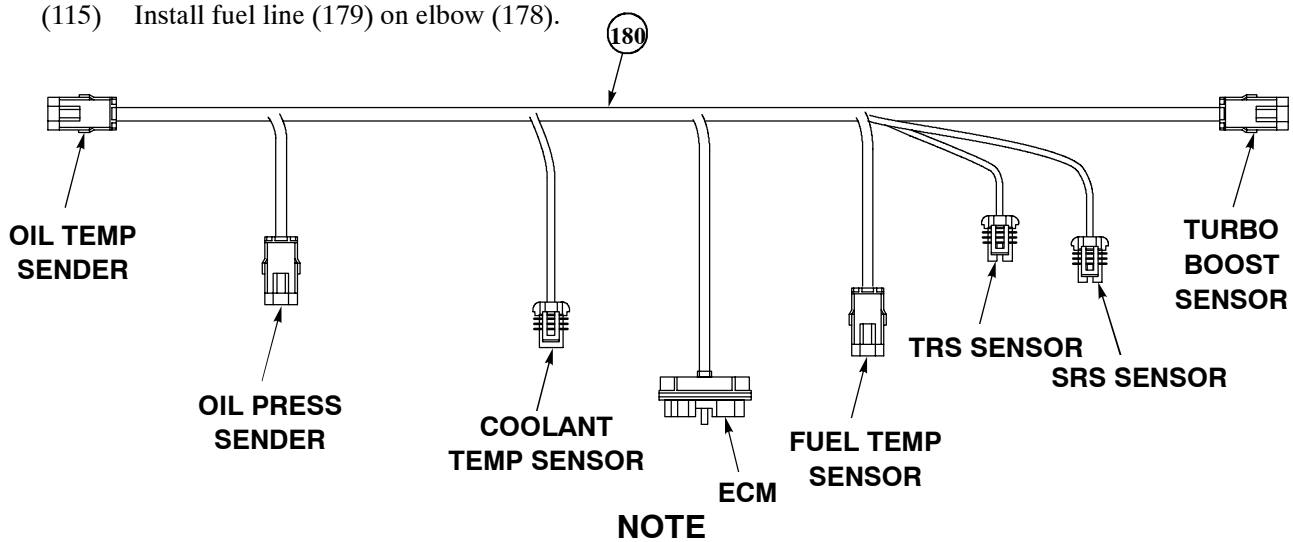
WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(113) Apply sealing compound to threads of elbow (178).

(114) Install elbow (178) on fuel filter head (140).

(115) Install fuel line (179) on elbow (178).



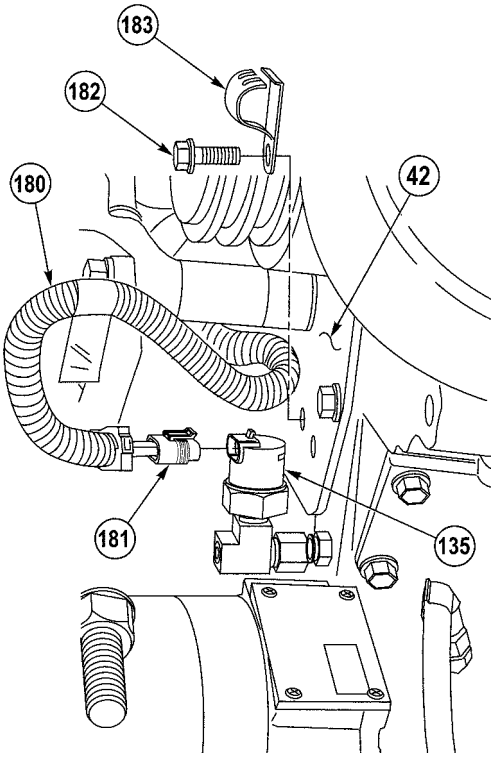
NOTE

- Evenly distribute any slack in harness.
- Extra clip on DDEC III/IV wire harness may be removed.

(116) Position DDEC III/IV wire harness (180) on engine.

(117) Connect connector (181) on oil pressure sensor (135).

(118) Remove screw (182) from engine (42).



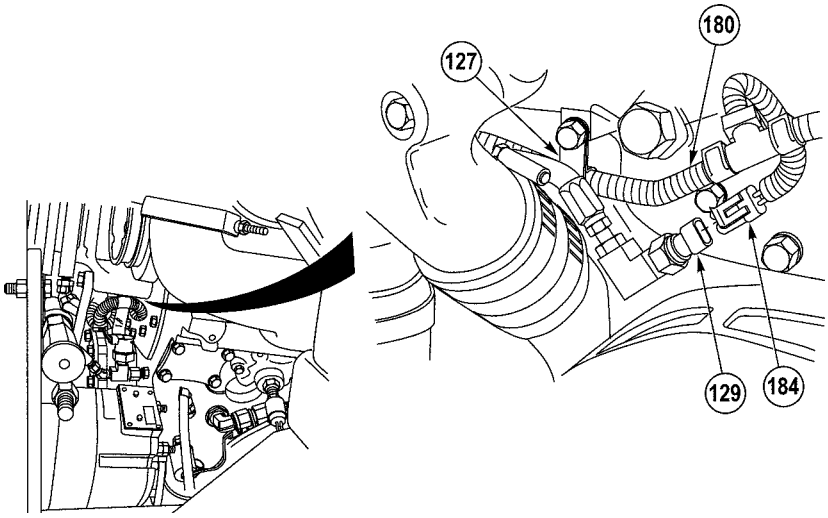
WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(119) Apply sealing compound to threads of screw (182).

(120) Install DDEC III/IV wire harness (180) in clip (183) and close clip.

(121) Install clip (183) on engine (42) with screw (182). Tighten to 30 to 35 lb-ft (41 to 47 N·m)

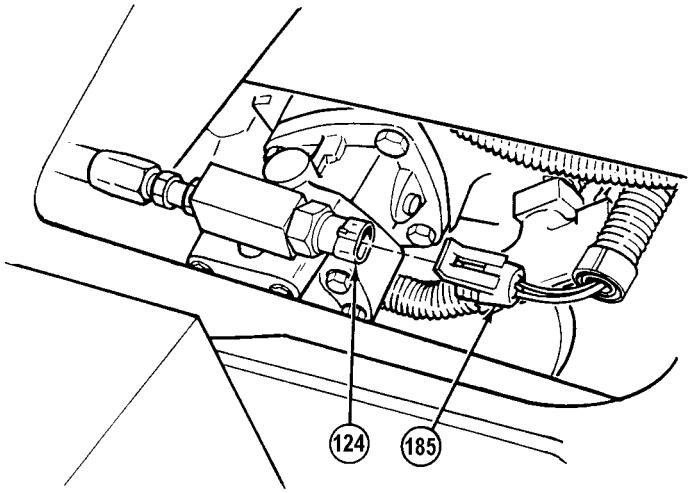


(122) Install DDEC III/IV wire harness (180) in clip (127) and close clip.

(123) Connect connector (184) on oil temperature sensor (129).

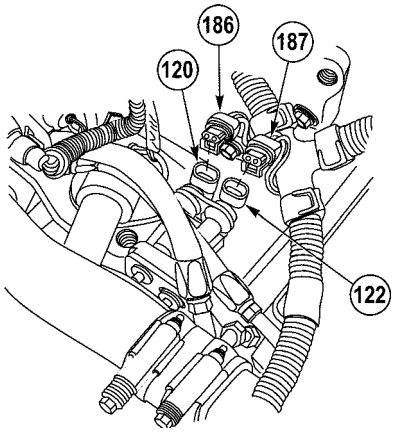
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

(124) Connect connector (185) on fuel temperature sensor (124).

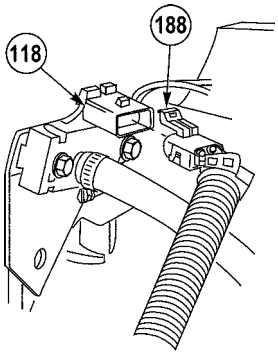


(125) Connect connector (186) on TRS sensor (120).

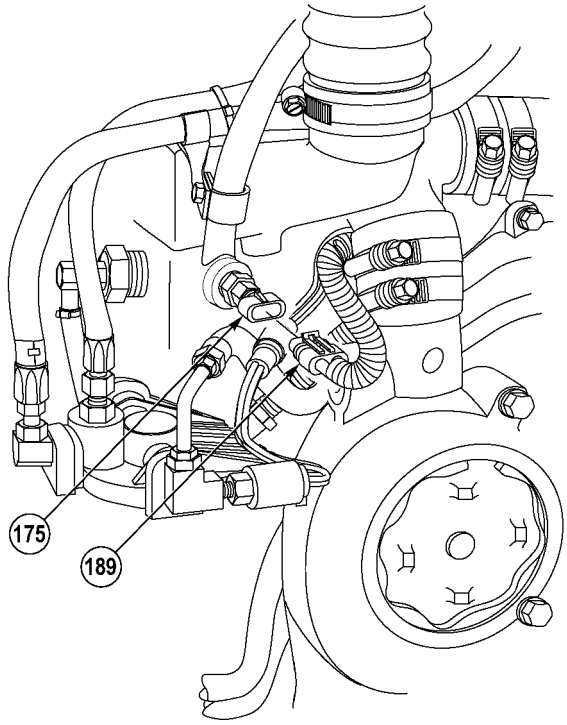
(126) Connect connector (187) on SRS sensor (122).



(127) Connect connector (188) on turbo boost sensor (118).

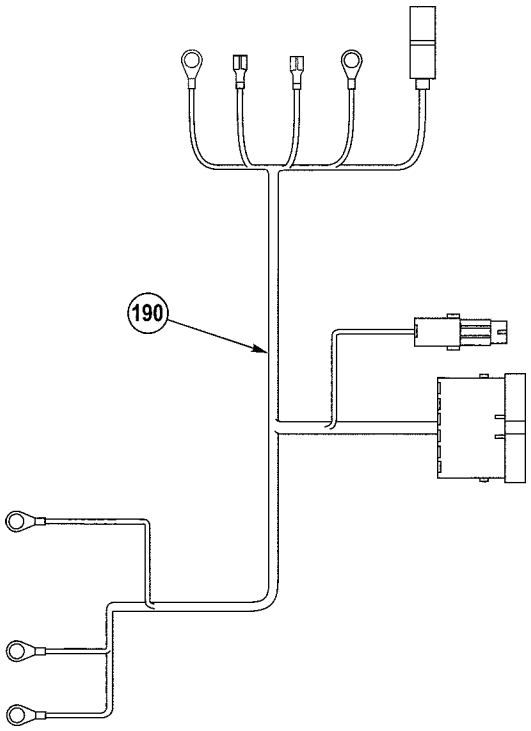


(128) Connect connector (189) on coolant temperature sensor (175).

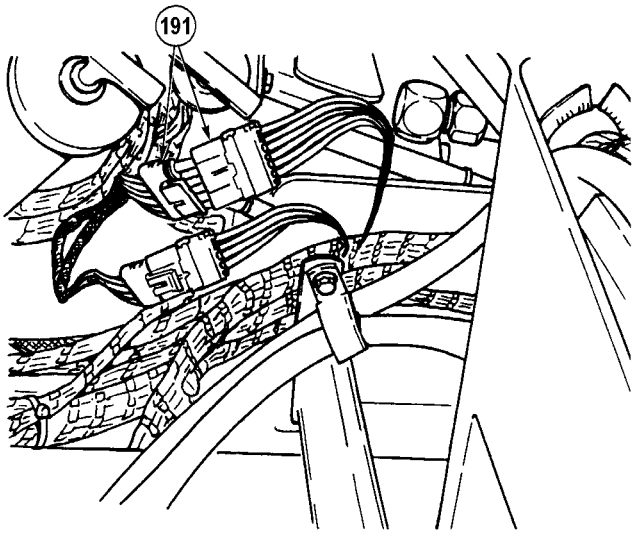


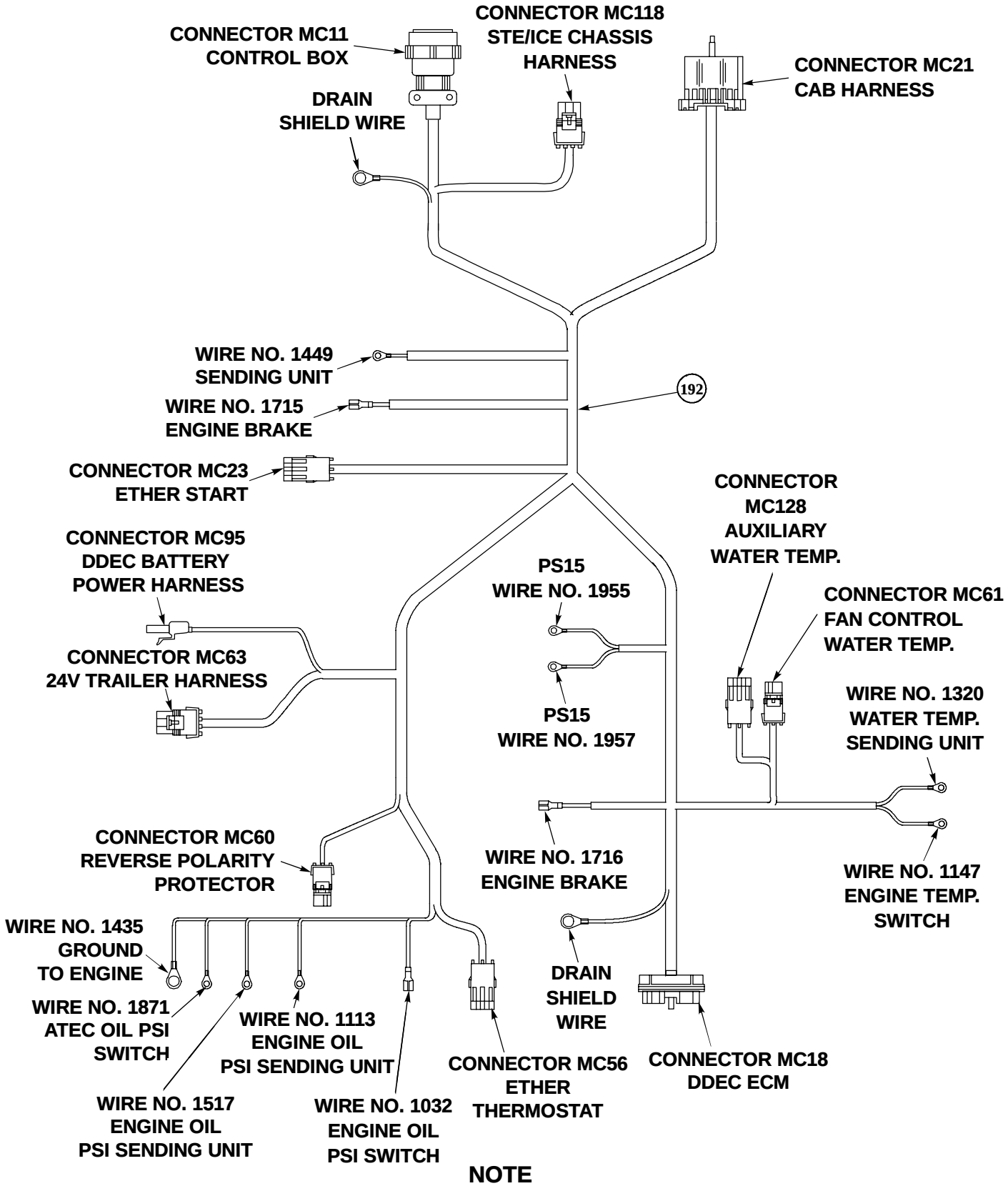
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

(129) Position DDEC III/IV battery power wire harness (190) on engine.



(130) Connect 6 pin MC62 connector (191).



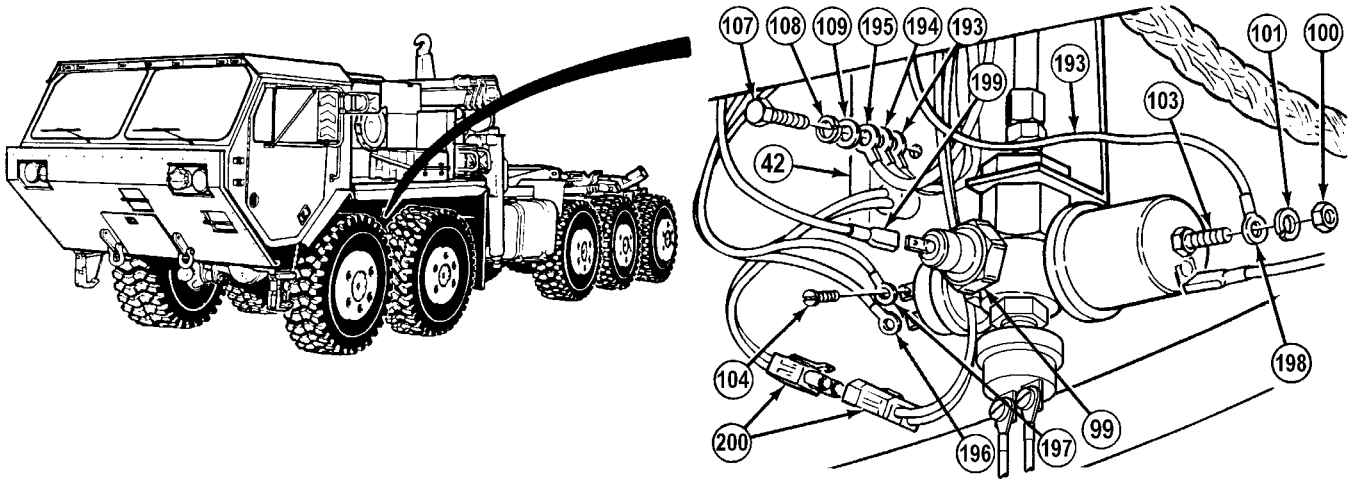


NOTE

- Evenly distribute any slack in harness and install cable ties as required.
- To ease installation of engine wire harness, start at cab electronic control box (in truck only).

(131) Position engine wire harness (192) on engine.

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).



(132) Install shield wires (193) and (194), wire 1435 (195), washer (109), lockwasher (108), and screw (107) on engine (42).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear safety goggles\glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush with large amounts of water for at least 15 minutes and get immediate medical attention.

(133) Coat screw (107) with corrosion preventative compound.

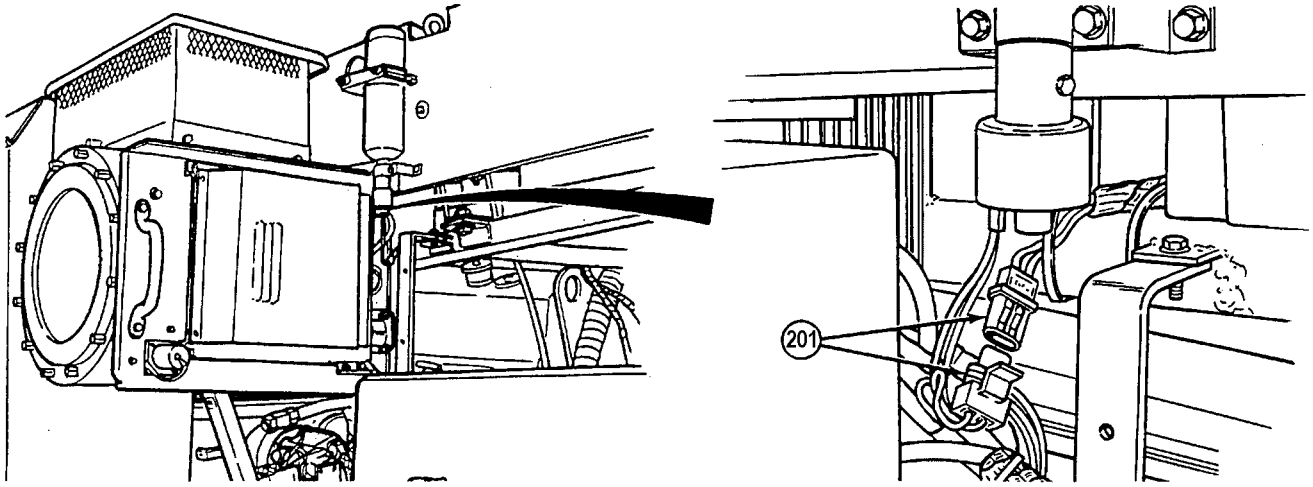
(134) Install wire 1871 (196) and 1517 (197) and two screws (104) on engine oil switch (99).

(135) Coat two screws (104) with corrosion preventative compound.

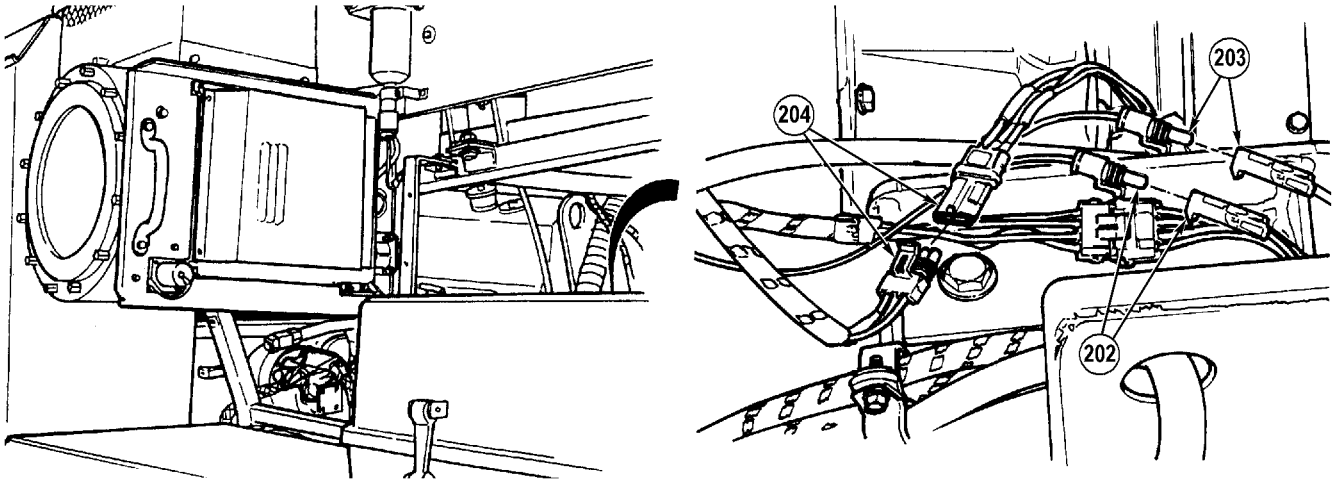
(136) Install wire 1113 (198), lockwasher (101), and nut (100) on engine oil sending unit stud (103).

(137) Install wire 1032 (199) on engine oil switch (99).

(138) Connect MC56 connector (200).



(139) Connect MC23 connector (201).



NOTE

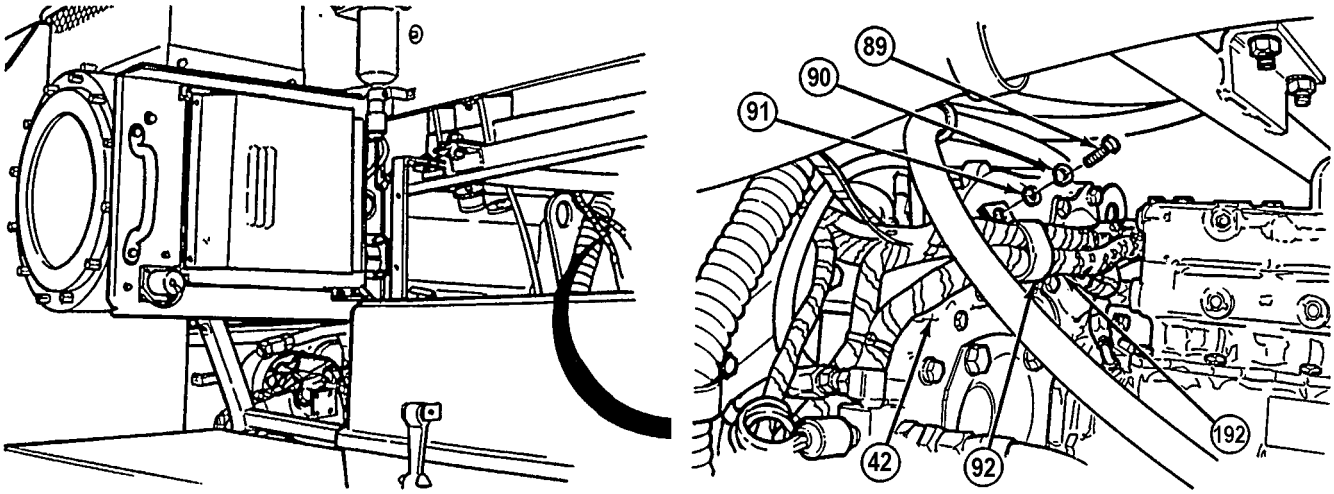
Perform Step (140) if truck is equipped with 200-amp alternator.

(140) Connect MC60 connector (202).

(141) Connect MC95 connector (203).

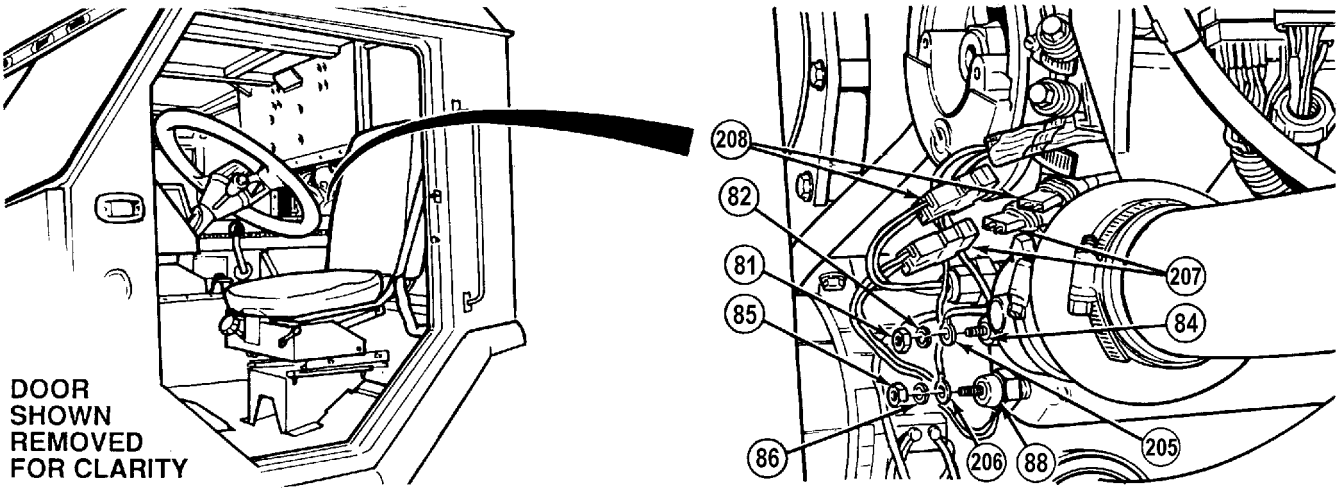
(142) Connect MC63 connector (204).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).



(143) Position engine wire harness (192) in cushion clip (92).

(144) Install cushion clip (92), washer (91), lockwasher (90), and screw (89) on engine (42).



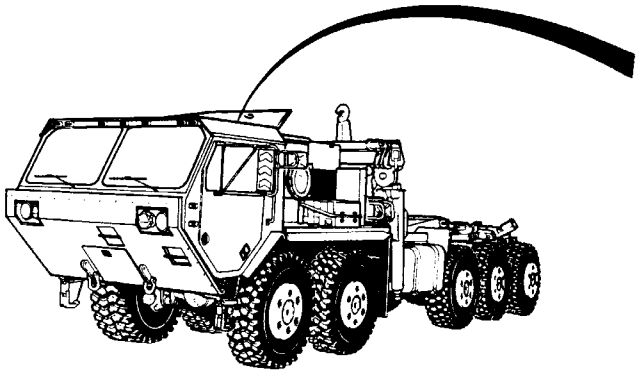
(145) Install wire 1147 (205), lockwasher (82), and nut (81) on temperature sending unit (84).

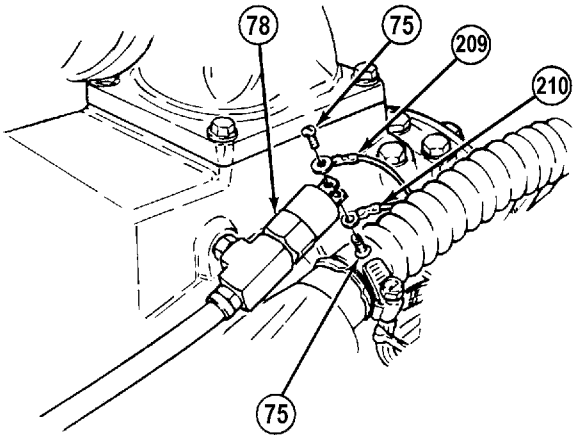
(146) Install wire 1320 (206), lockwasher (86), and nut (85) on temperature sending unit (88).

(147) Connect MC128 connector (207).

(148) Connect MC61 connector (208).

(149) Install wire 1957 (209) and wire 1955 (210) on pressure switch (78) with two screws (75).

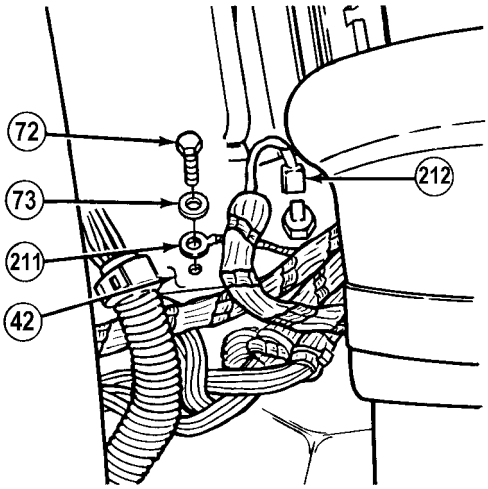




(150) Install shield wire (211), washer (73), and screw (72) on engine (42).

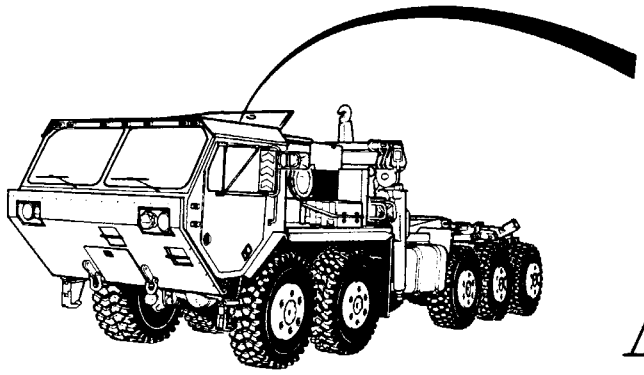
WARNING

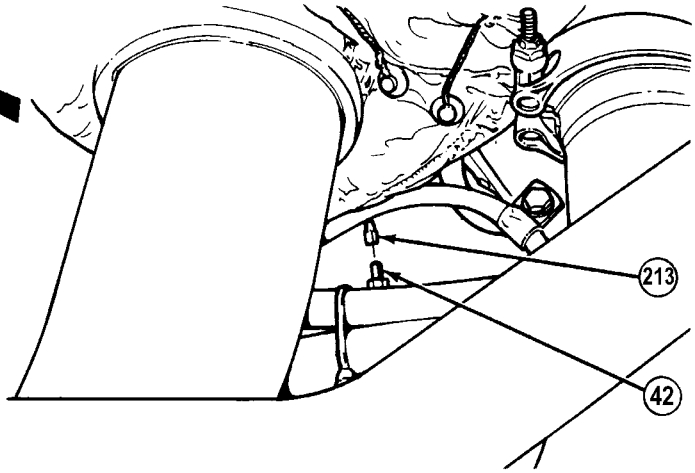
Corrosion compound contains alkali. Do not get in eyes; wear safety goggles/glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush with large amounts of water for at least 15 minutes and get immediate attention.



(151) Coat screw (72) with corrosion preventative compound.

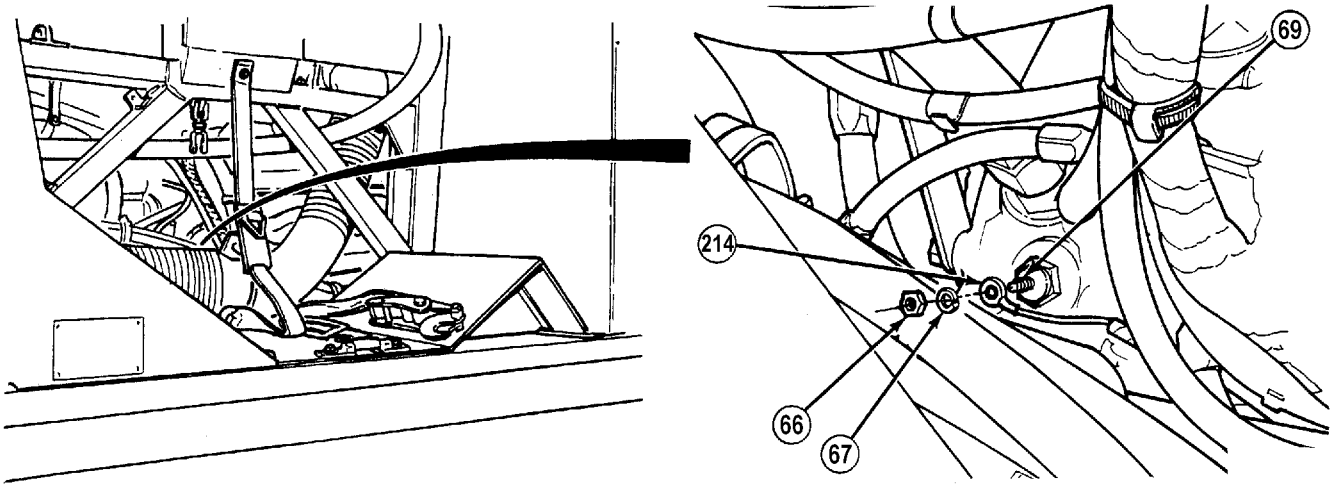
(152) Install wire 1716 (212) on engine (42).





(153) Install wire 1715 (213) on engine (42).

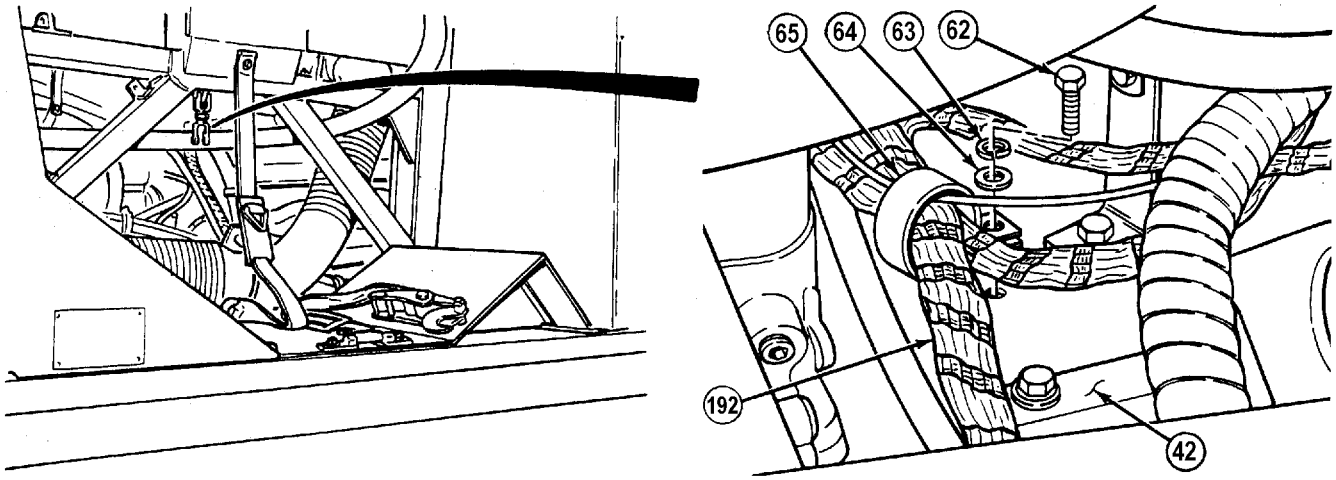
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).



NOTE

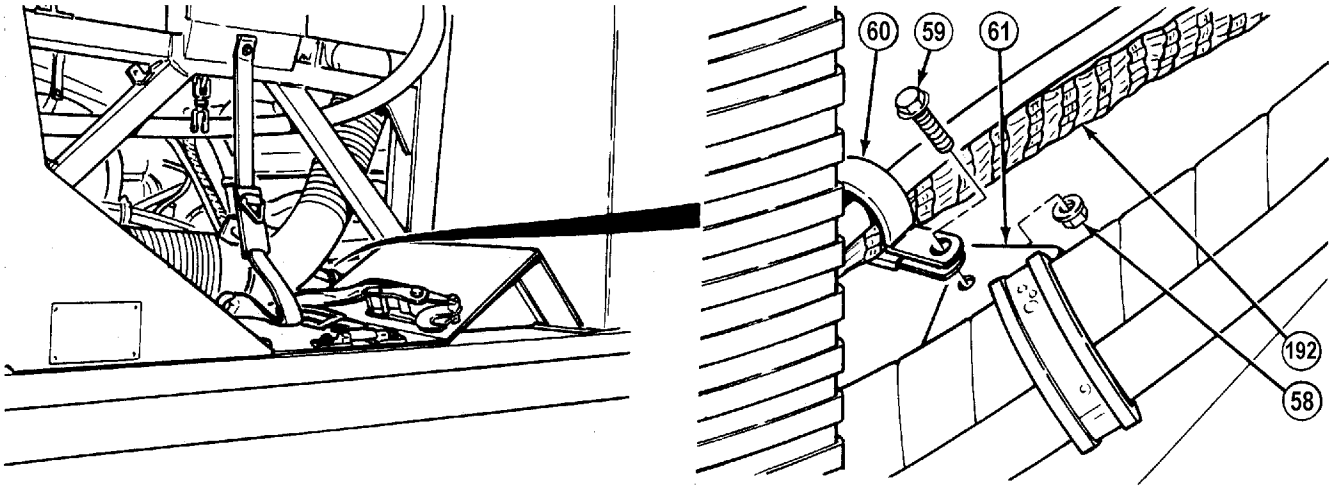
If engine is installed in stand, go to Step (165).

(154) Install wire 1449 (214), lockwasher (67), and nut (66) on transmission oil temperature sending unit (69).



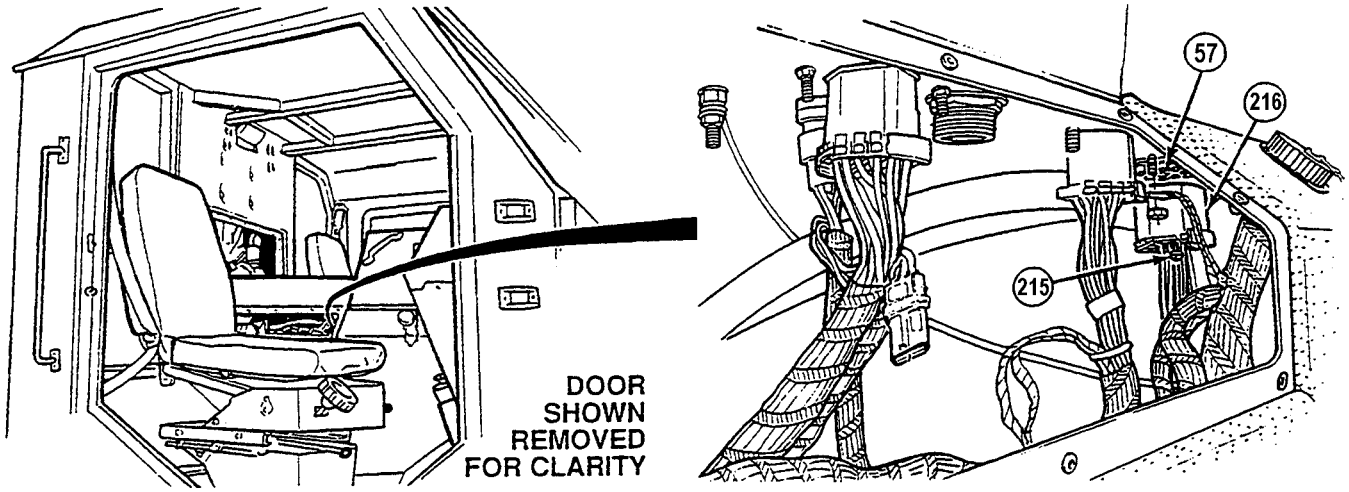
(155) Position engine wire harness (192) in cushion clip (65).

(156) Install cushion clip (65), washer (64), lockwasher (63), and screw (62) on engine (42).



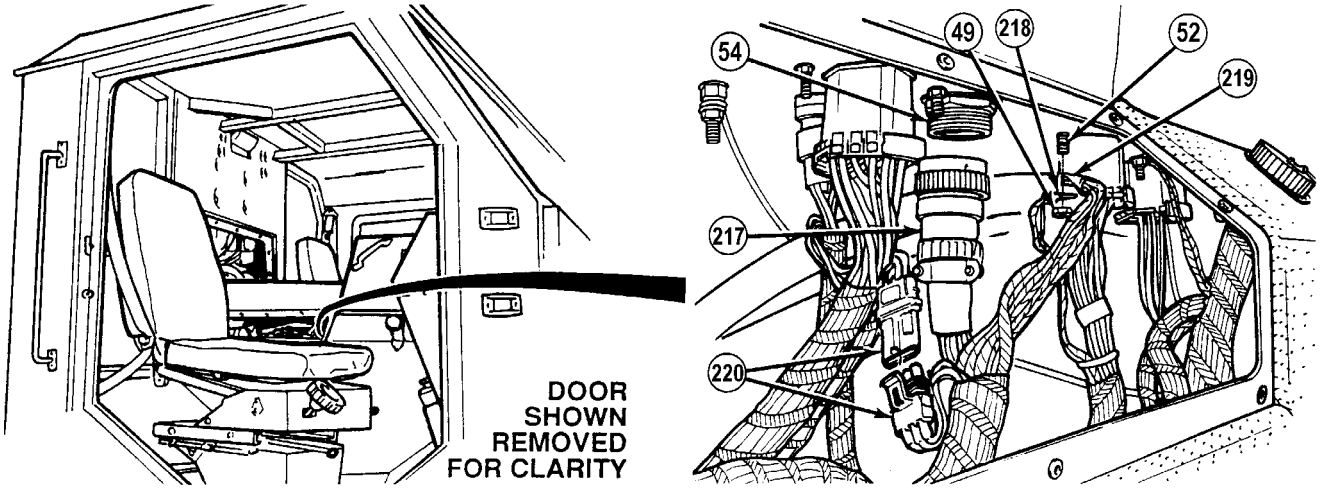
(157) Position engine wire harness (192) in cushion clip (60).

(158) Install cushion clip (60), screw (59), and locknut (58) on bracket (61).



(159) Connect MC21 connector (215) to bulkhead connector (57). Tighten screw (216).

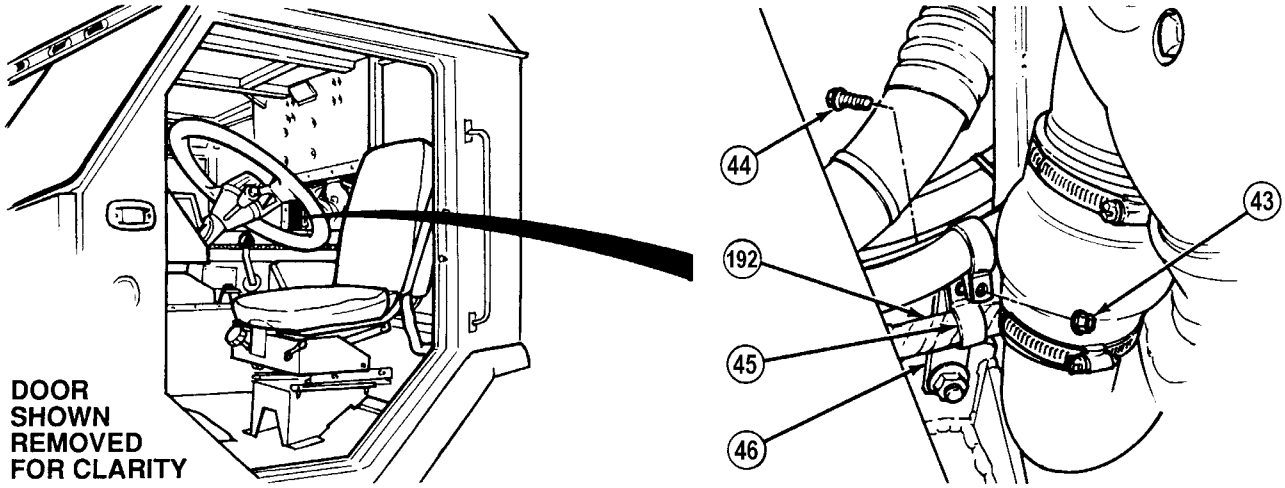
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).



(160) Connect MC11 connector (217) to bulkhead connector (54).

(161) Install shield wires (218) and (219) and locknut (49) on stud (52).

(162) Connect MC118 connector (220).



(163) Position engine wire harness (192) in cushion clip (45).

(164) Install screw (44), cushion clip (45), and locknut (43) on bracket (46).

(165) Position four isolators (221) on ECM (222).

(166) Install ECM (222) on ECM bracket (223) with four isolators (224) and screws (225). Tighten screws to 60 to 84 lb-in (7 to 9 N·m).

(167) Install communication protective cover (226) on ECM (222).

WARNING

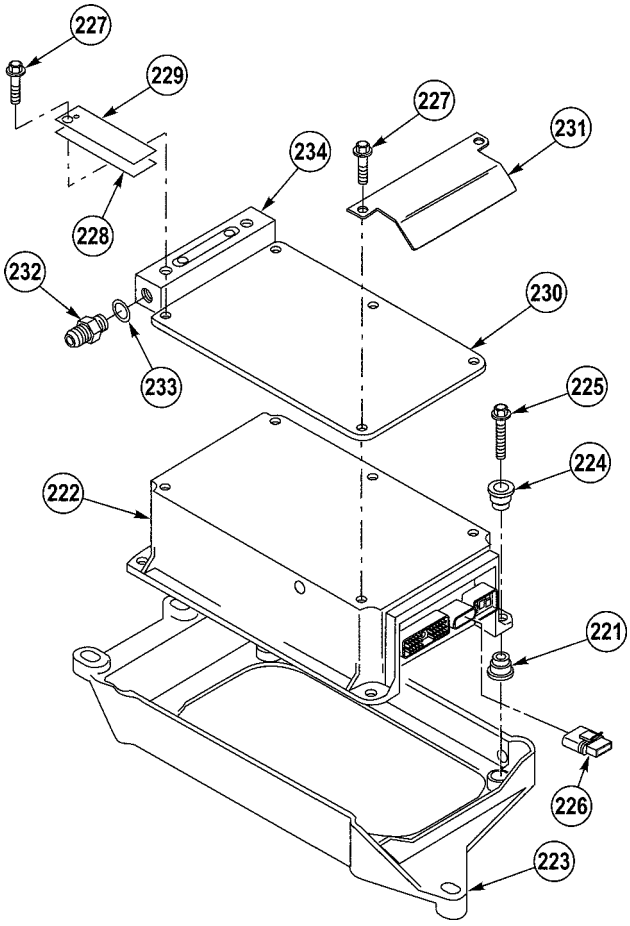
Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(168) Coat threads of five screws (227) with antiseize compound.

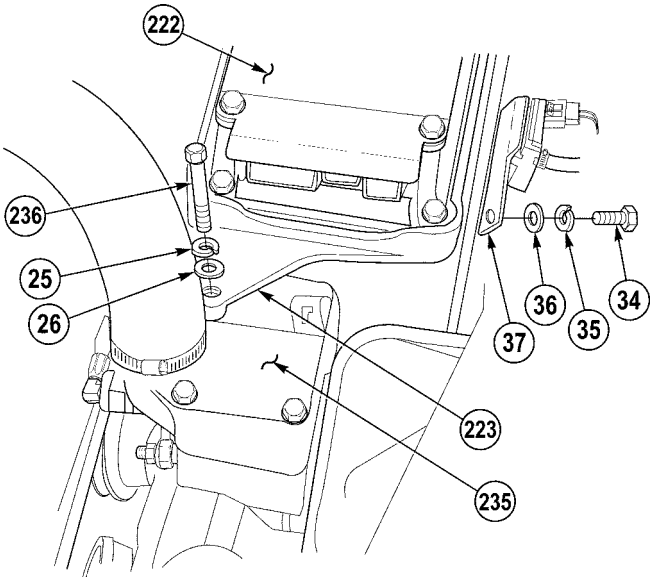
(169) Remove backing (228) from DDEC III/IV data plate (229).

(170) Install engine cold plate (230), heat shield (231), and DDEC III/IV data plate (229) on ECM (222) with five screws (227). Tighten five screws to 180 lb-in (20 N·m).

(171) Install two fittings (232) and preformed packings (233) on fitting (234).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).



NOTE

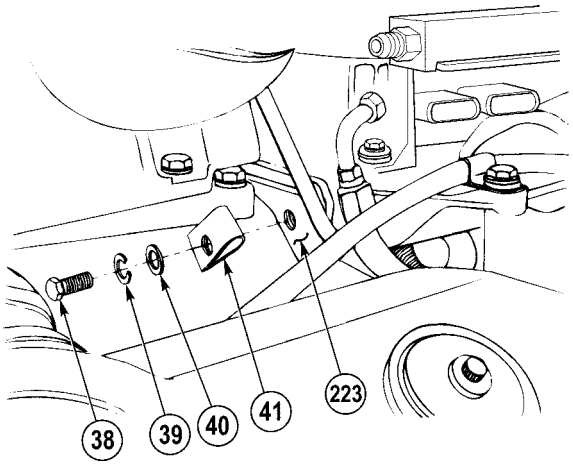
Left injector wire harness should be positioned under ECM bracket.

(172) Position ECM (222) and ECM bracket (223) on thermostat housing (235).

(173) Position turbo boost sensor bracket (37) on ECM bracket (223) with washer (36), lockwasher (35) and screw (34). Do not tighten screw.

(174) Position washer (26), lockwasher (25) and screw (236) and ECM bracket (223). Do not tighten screw.

(175) Position clip (41), washer (40), lockwasher (39) and screw (38) on ECM bracket (223). Do not tighten screw.



(176) Position clip (33), washer (32), lockwasher (31) and screw (237) on ECM bracket (223). Do not tighten screw.

(177) Position washer (29), lockwasher (28), and screw (27) on ECM bracket (223). Do not tighten screw.

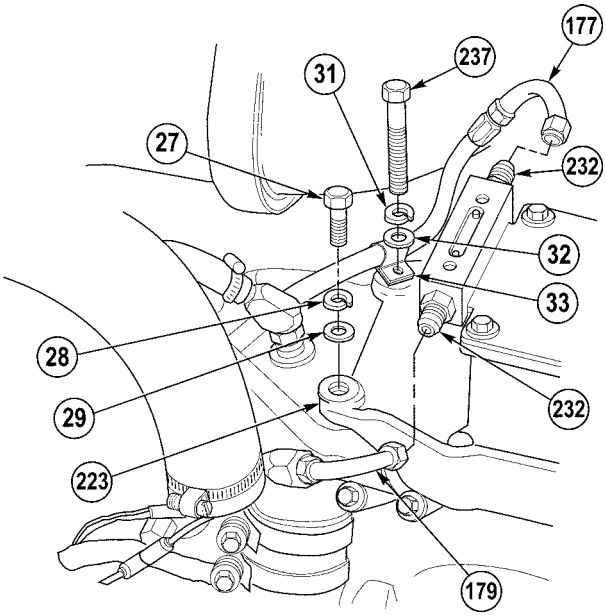
CAUTION

Screws connecting bracket to blower must be tightened first to prevent damage to housing.

(178) Tighten two screws (34) and (38) to 120 to 156 lb-in (14 to 18 N·m).

(179) Tighten three screws (236), (237) and (27) to 17 to 20 lb-ft (23 to 27 N·m).

(180) Install two fuel lines (177) and (179) on fittings (232).

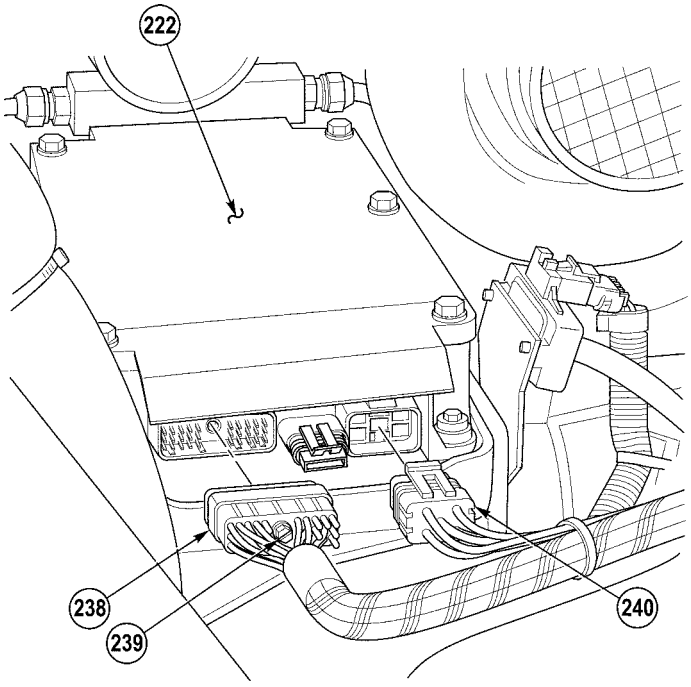


CAUTION

Use caution while installing connectors from ECM. The ECM has plastic retainers that may break if connectors are not properly installed.

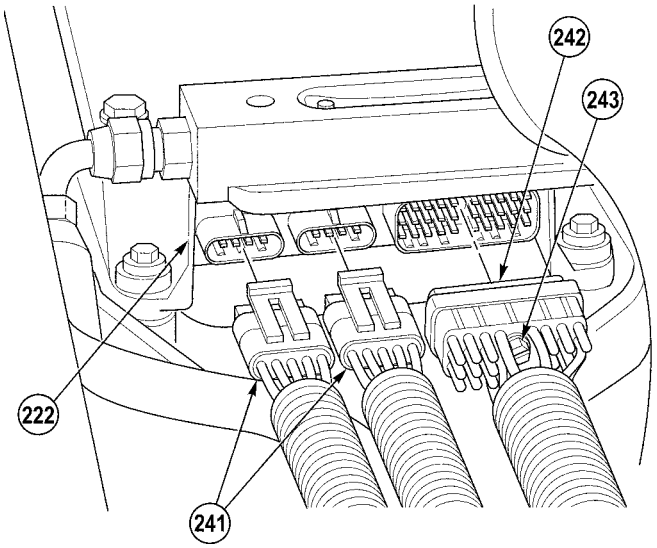
NOTE

- Ensure locking tangs are locked in place when installing wiring harness connectors.
- ECM wiring harnesses are designed to be installed in only one location.



(181) Connect chassis wire harness connector (238) to left side of ECM (222) and tighten screw (239).

(182) Connect power wire harness connector (240) to left side of ECM (222).



(183) Connect two injector wiring harness connectors (241) to right side of ECM (222).

(184) Connect engine wiring harness connector (242) to right side of ECM (222) and tighten screw (243).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III/IV ENGINE ASSEMBLY (CONT).

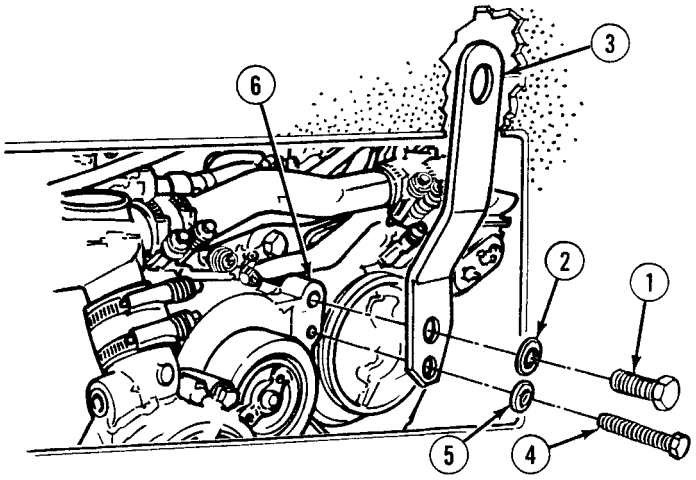
(185) Position engine lifting bracket (3) on front balance cover (6) with lockwashers (2) and (5) and screws (4) and (1).

(186) Tighten screw (1) on engine lifting bracket (3) to 71 to 75 lb-ft (96 to 102 N·m).

(187) Tighten screw (4) on engine lifting bracket (3) to 53 to 56 lb-ft (72 to 76 N·m).

(188) Tighten screw (1) on engine lifting bracket (3) to 103 to 110 lb-ft (140 to 149 N·m).

(189) Tighten screw (4) on engine lifting bracket (3) to 71 to 75 lb-ft (96 to 102 N·m).



b. Follow-On Maintenance:

- Install secondary fuel filter, (TM 9-2320-364-20).
- Install left rocker cover, (TM 9-2320-364-20).
- Install right rocker cover, (TM 9-2320-364-20).
- Fill cooling system, (in truck only), (TM 9-2320-364-20).
- Connect batteries, (in truck only), (TM 9-2320-364-20).
- Start engine, (in truck only), (TM 9-2320-364-10).
- Check for leaks, (in truck only), (TM 9-2320-364-10).
- Shut off engine, (in truck only), (TM 9-2320-364-10).
- Close engine cover, (in truck only), (TM 9-2320-364-10).
- Install right front fender skirt, (in truck only), (TM 9-2320-364-20).
- Install cab engine access panel, (in truck only), (TM 9-2320-364-20).
- Install left front splash guard, (in truck only), (TM 9-2320-364-20).
- Install electronic control box (ECB) right access panel, (in truck only), (TM 9-2320-364-20).
- Install left front noise panel, (in truck only), (TM 9-2320-364-20).
- Install right side noise panel, (in truck only), (TM 9-2320-364-20).
- Install left side noise panel, (in truck only), (TM 9-2320-364-20).
- Remove wheel chocks, (in truck only), (TM 9-2320-364-20).

18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
DDEC Repair Kit (Item 44, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Heat (Item 87, Appendix F)
Weatherpac crimper (Item 250, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

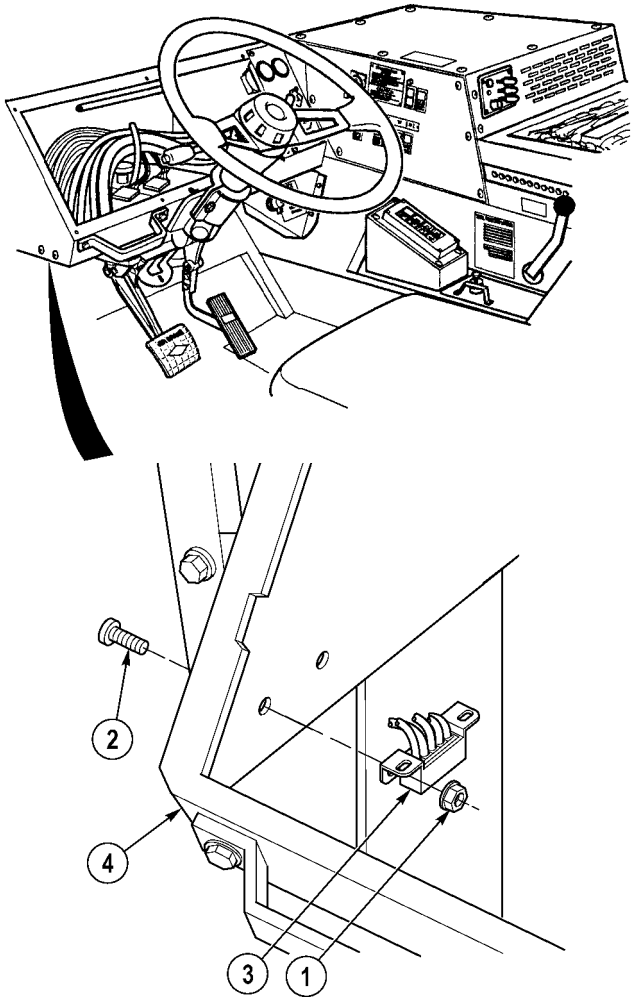
Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Prevention (Item 15, Appendix B)
Heatshrink (Item 29, Appendix B)
Heatshrink (Item 30, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (11) (Item 174, Appendix E)
Lockwasher (Item 294, Appendix E)
Lockwasher (Item 251, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10).
Wheels chocked, (TM 9-2320-364-10).
Batteries disconnected, (TM 9-2320-364-20).
Left side noise panel removed, (TM 9-2320-364-20).
Left fender front skirt removed, (TM 9-2320-364-20).
Electronic Control Box (ECB) cover removed, (TM 9-2320-364-20).
Cab engine access panel removed, (TM 9-2320-364-20).
Instrument panel removed, (TM 9-2320-364-20).

18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY (CONT).

a. Installation.

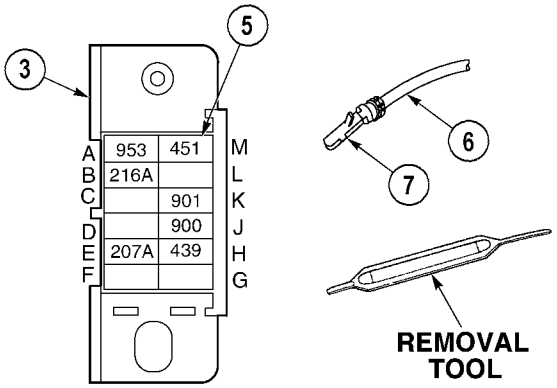
(1) Remove two locknuts (1), screws (2), and MC13 diagnostic connector (3) from dash (4). Discard locknuts.



(2) Insert removal tool in position M (5) on MC13 connector (3) until seated.

(3) Remove wire 451 (6) from position M (5) of MC13 connector (3) and remove tool.

(4) Cut off terminal (7) from end of wire 451 (6).

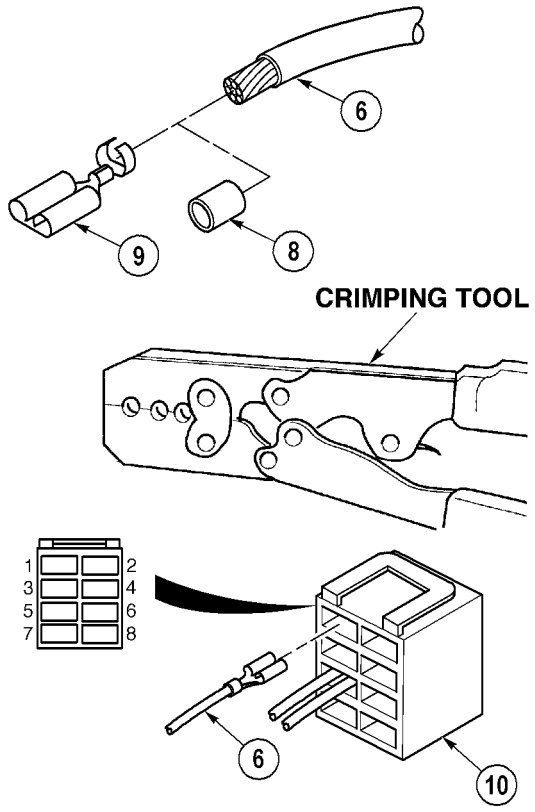


(5) Remove .25 in. (.6 cm) of insulation (8) from end of wire 451 (6).

(6) Position terminal (9) in crimping tool.

(7) Position wire (6) in terminal (9) and crimp terminal to wire.

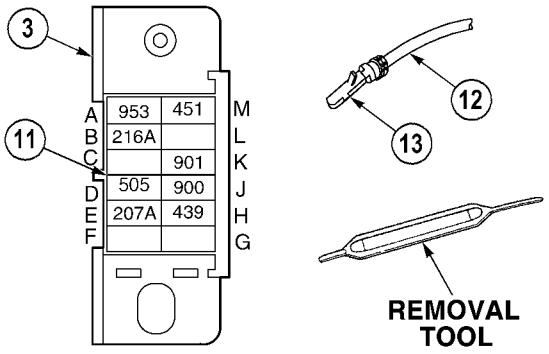
(8) Install wire 451 (6) in position 1 on S17 connector (10) on kit harness.



(9) Install removal tool in position D (11) on MC13 connector (3) until seated.

(10) Remove wire 505 (12) from position D (11) of MC13 connector (3) and remove tool.

(11) Cut off terminal (13) from end of wire 505 (12).



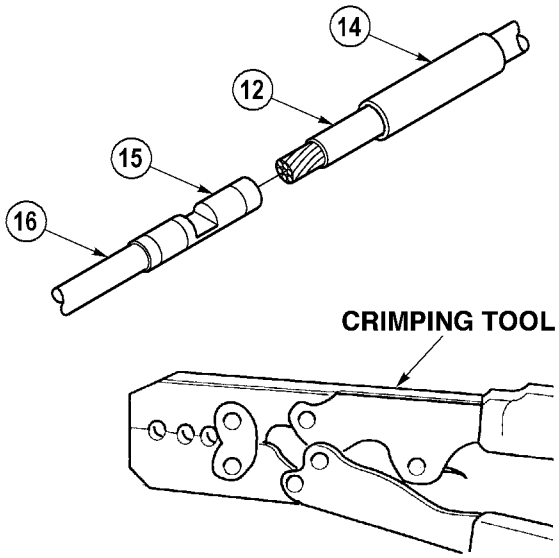
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY (CONT).

(12) Position heat shrink (14) over wire 505 (12).

(13) Remove .25 in. (.6 cm) of insulation from end of wire 505 (12).

(14) Install end of wire 505 (12) in butt splice (15) on wire 953 (16) of kit harness and crimp using crimping tool.

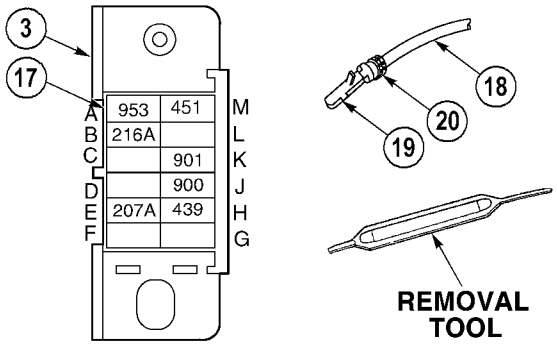
(15) Position heat shrink (14) over butt splice (15) and heat using heat gun.



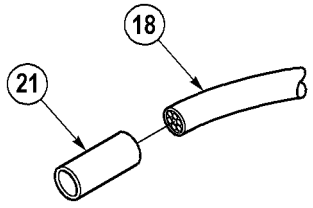
(16) Insert removal tool in position A (17) of M13 connector (3) until seated.

(17) Remove wire 435 (18) from position A (17) on MC13 connector (3) and removal tool.

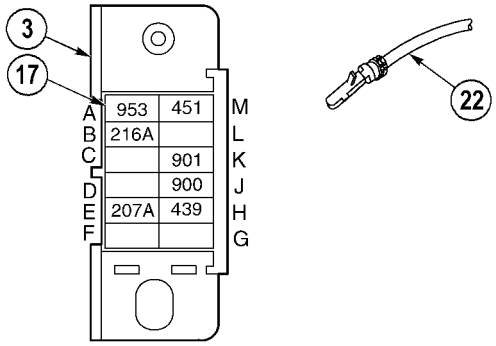
(18) Cut off terminal (19) and wire seal (20) from end of wire 435 (18). Discard terminal and wire seal.



(19) Install heat shrink (21) over end of wire 435 (18) and seal using heat gun.



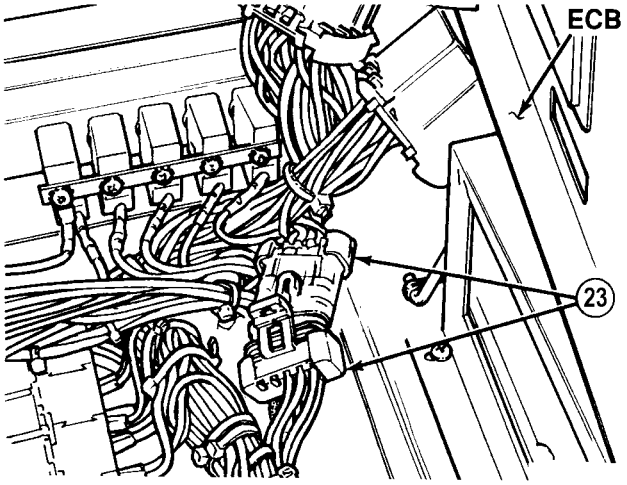
(20) Install wire 953 (22) of kit harness in position A (17) of MC13 connector (3).



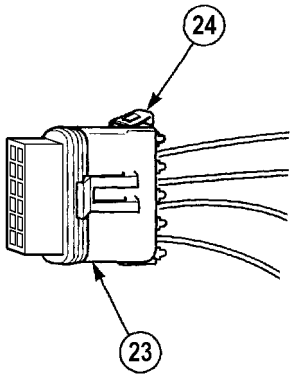
NOTE

Disconnect connector by prying up on tabs and gently pulling apart connector.

(21) Disconnect MC106 connector (23).



(22) Unlatch and open two secondary locks (24) on MC106 connector (23).



WARNING

Tip of removal tool is very sharp. Use caution when using tool. Failure to comply may result in injury to personnel.

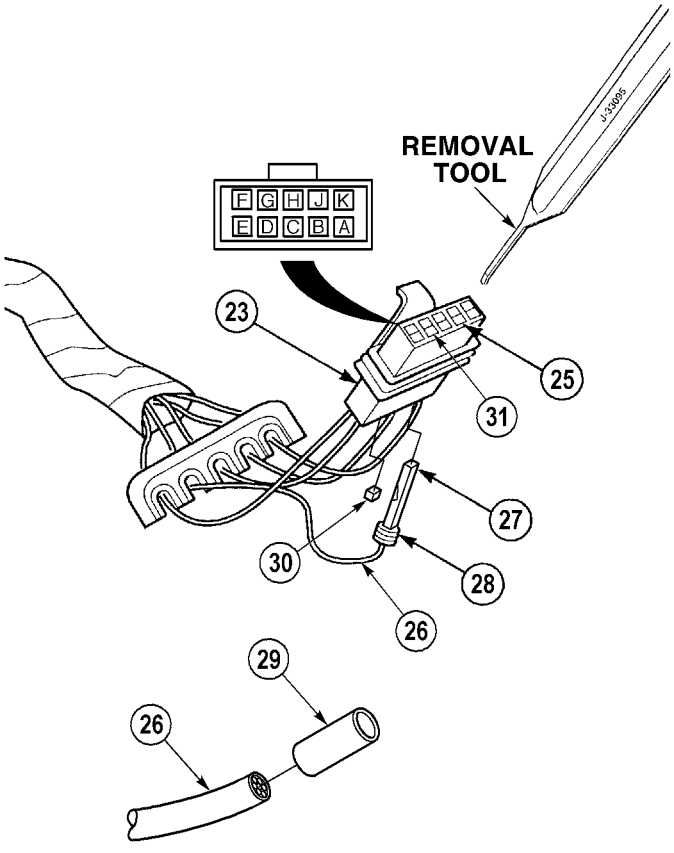
(23) Insert removal tool into position B (25) on MC106 connector (23) until seated.

(24) Pull wire 505 (26) back through MC106 connector (23) and remove tool.

(25) Cut terminal (27) and wire seal (28) from end of wire 505 (26). Discard terminal and seal.

(26) Install heat shrink (29) over end of wire 505 (26) and seal using heat gun.

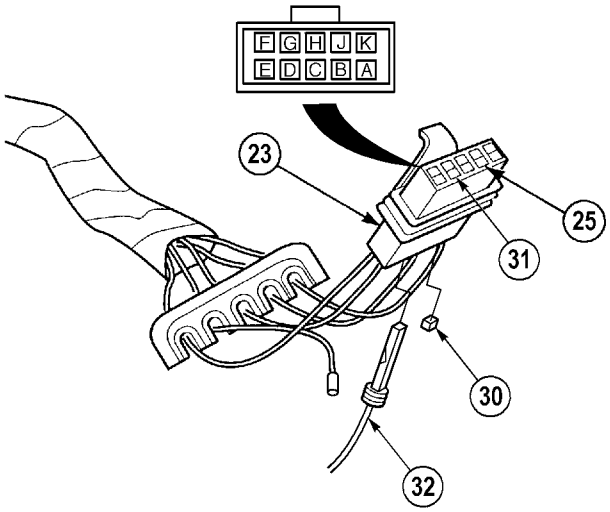
(27) Remove plug (30) from position D (31) on MC106 connector (23).



18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY (CONT).

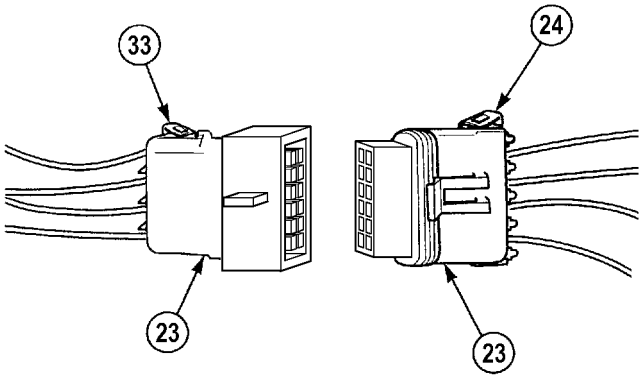
(28) Install plug (30) in position B (25) on MC106 connector (23).

(29) Install wire 953 (32) of kit harness in position D (31) on MC106 connector (23) until seated.



(30) Close two secondary locks (24) on MC106 connector (23).

(31) Unlatch and open two secondary locks (33) on MC106 connector (23).



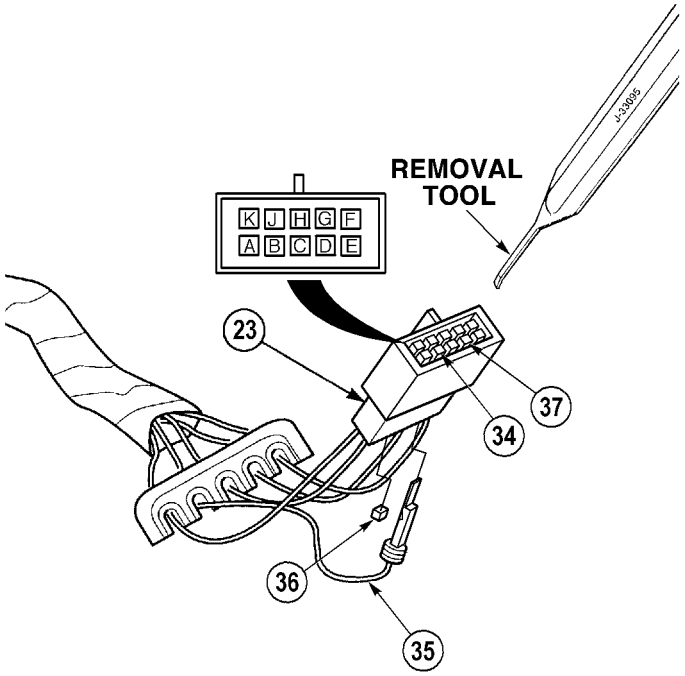
WARNING

Tip of removal tool is very sharp. Use caution when using tool. Failure to comply may result in injury to personnel.

(32) Insert removal tool into position B (34) on MC106 connector (23) until seated.

(33) Pull wire 505 (35) back through MC106 connector (23) and remove tool.

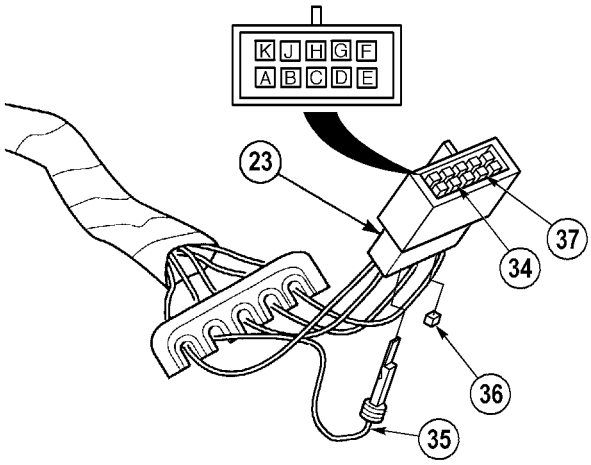
(34) Remove plug (36) from position D (37) on MC106 connector (23).



(35) Install plug (36) in position B (34) on MC106 connector (23).

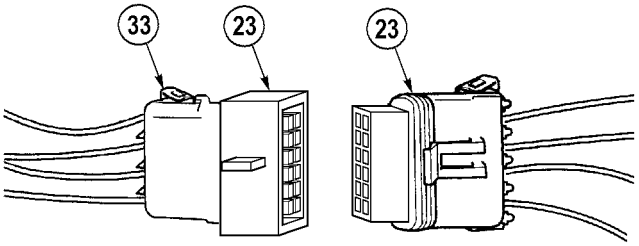
(36) Mark wire 505 (35) as wire 953.

(37) Install wire 953 (35) in position D (37) on MC106 connector (23) until seated.



(38) Close secondary locks (33) on MC106 connector (23).

(39) Connect MC106 connector (23).



(40) Disconnect MC102 connector (38) from DDEC 6.8k resistor (39).

(41) Unlatch and open two secondary locks (40) on MC102 connector (38).

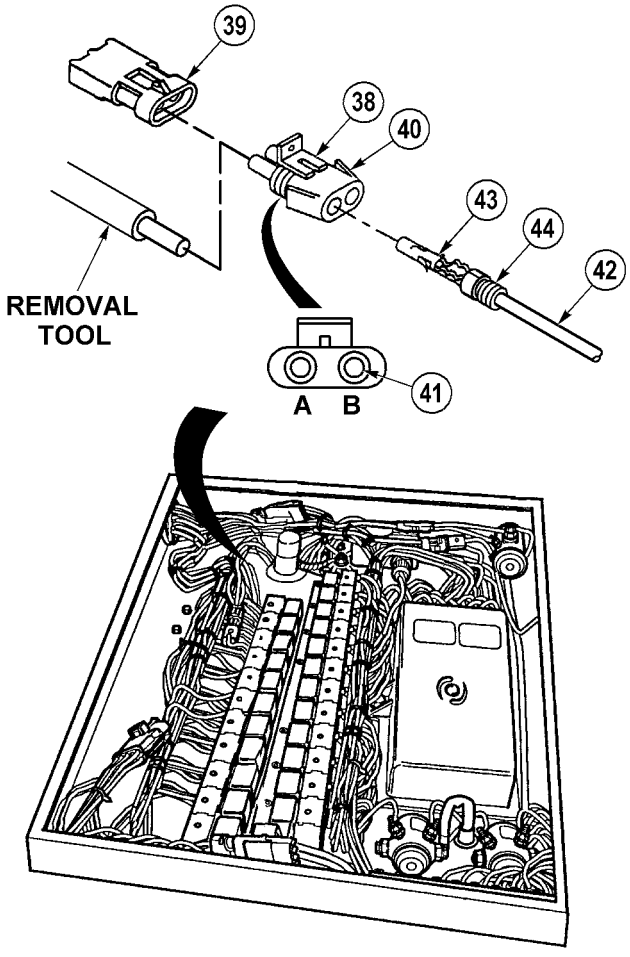
WARNING

Tip of removal tool is very sharp. Use caution when using tool. Failure to comply may result in injury to personnel.

(42) Insert removal tool into position B (41) on MC102 connector (38) until fully seated.

(43) Remove wire 1435 (42) back through MC102 connector (38) and remove tool.

(44) Cut terminal (43) and wire seal (44) from end of wire 1435 (42). Discard terminal and seal.



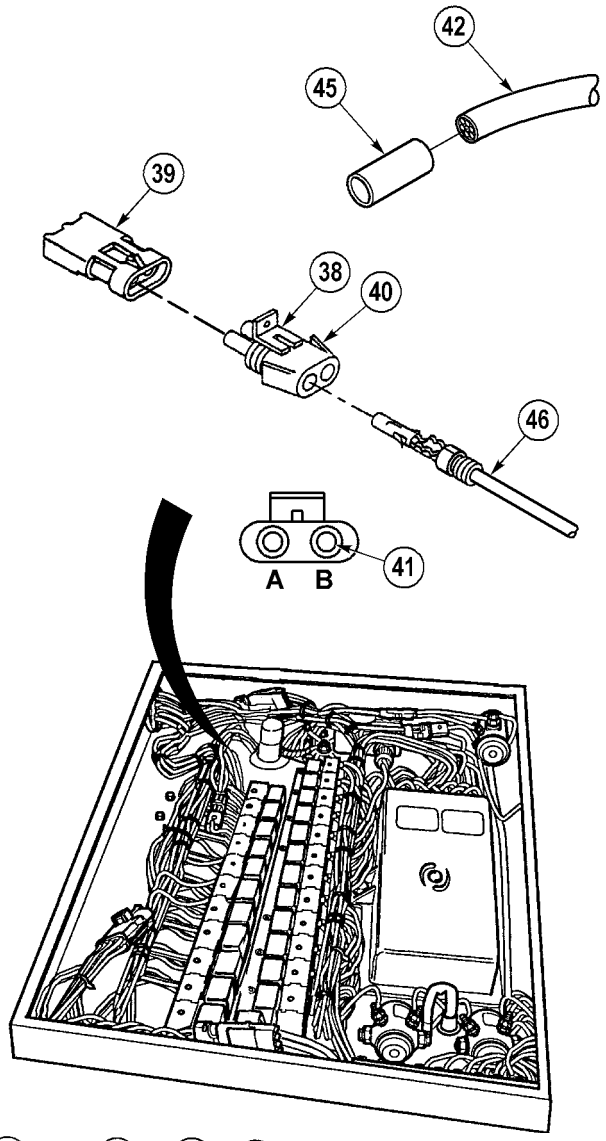
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC IIII/IV CAB ASSEMBLY (CONT).

(45) Install heat shrink (45) over end of wire 1435 (42) and seal using heat gun.

(46) Install wire 953 (46) of kit harness in position B (41) on MC102 connector (38).

(47) Close two secondary locks (40) on MC102 connector (38).

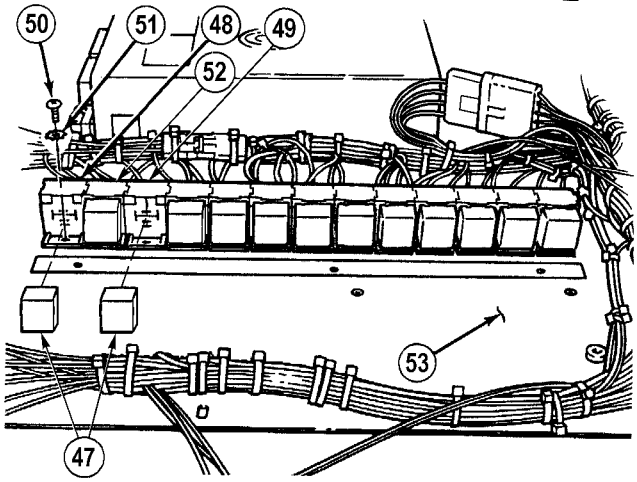
(48) Connect MC102 connector (38) on DDEC 6.8k resistor (39).



(49) Remove two 24 volt relays (47) from relay sockets R24 (48) and R22 (49).

(50) Remove screw (50) and lockwasher (51) from relay socket R24 (48). Discard lockwasher.

(51) Remove relay sockets R24 (48), R23 (52) and R22 (49) from ECB (53).



NOTE

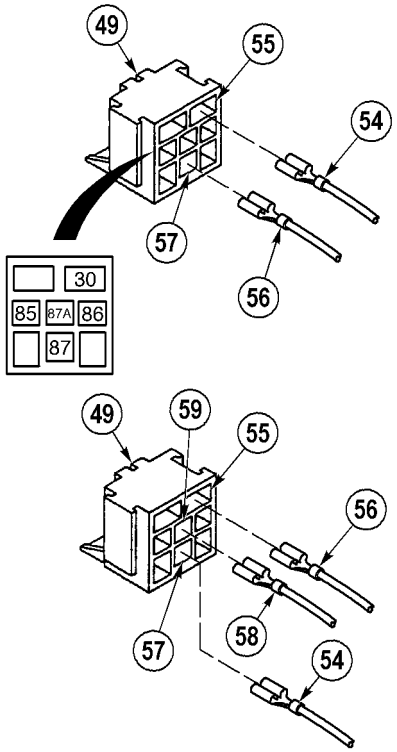
Tag and mark wires prior to removal.

(52) Remove wire 510 (54) from position 30 (55) on relay socket R22 (49).

(53) Remove wire 510 (56) from position 87 (57) and install in position 30 (55) on relay socket R22 (49).

(54) Install wire 510 (54) in position 87 (57) on relay socket R22 (49).

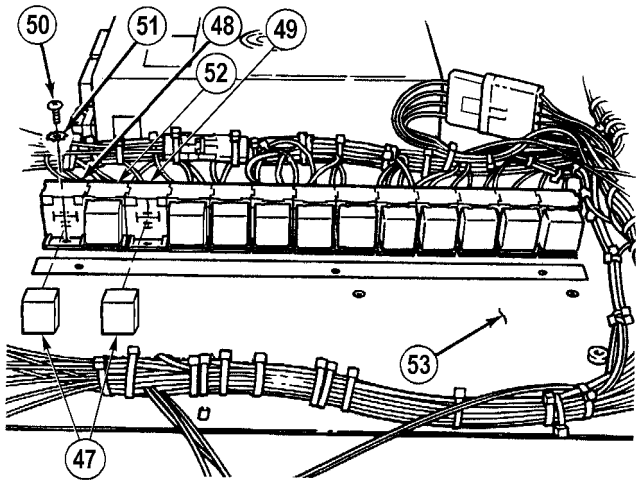
(55) Install wire 953 (58) from kit harness in position 87A (59) on relay socket R22 (49).



(56) Position relay sockets R22 (49), R23 (52) and R24 (48) in ECB (53).

(57) Install screw (50) and lockwasher (51) in relay socket R24 (48).

(58) Install two 24 volt relays (47) in relay sockets R24 (48) and R22 (49).



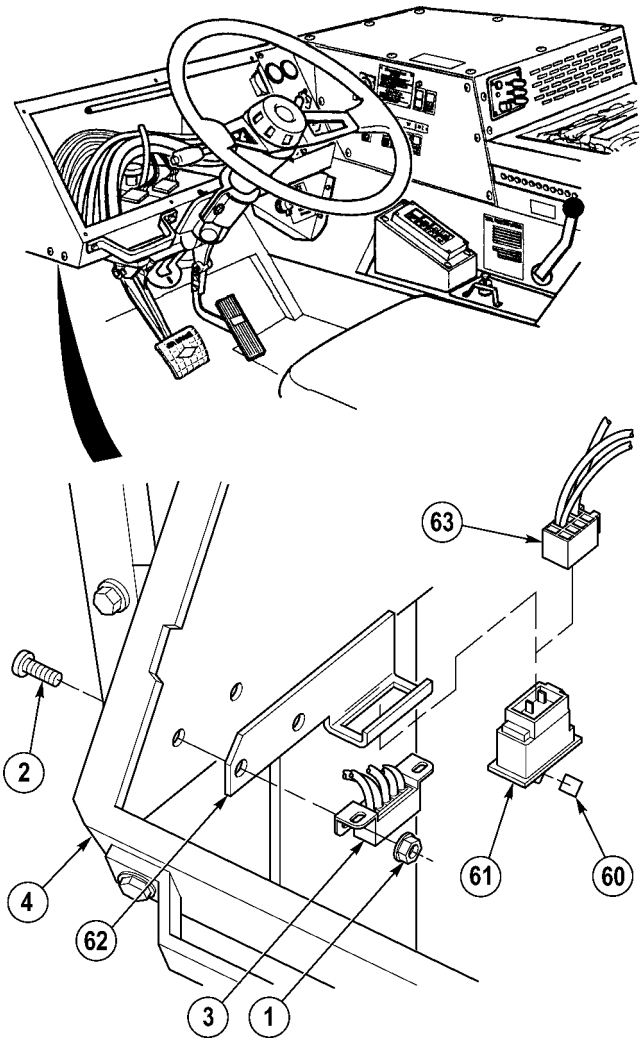
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY (CONT).

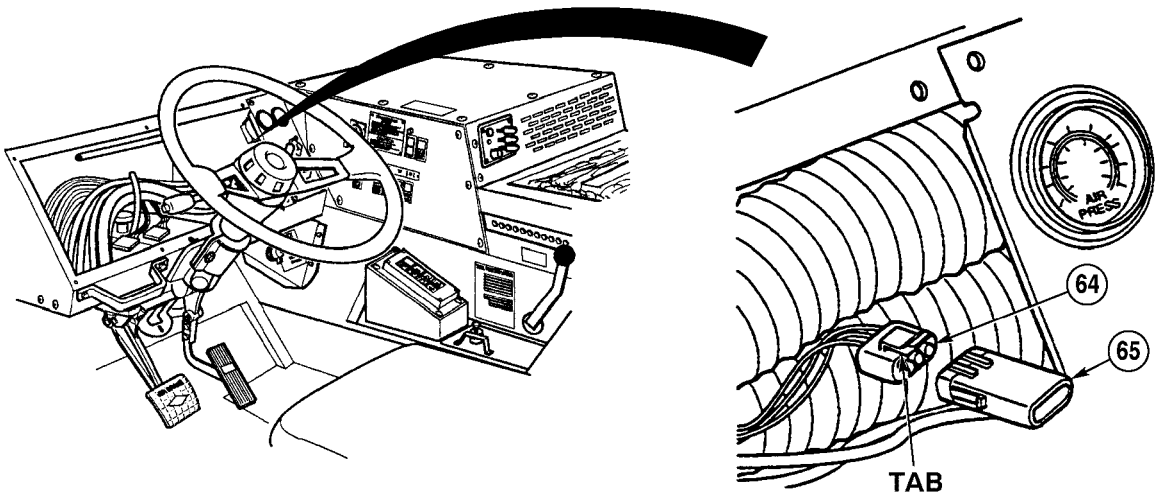
(59) Install appliqué (60) on diagnostic request switch (61).

(60) Install diagnostic request switch (61) on bracket (62).

(61) Install S17 connector (63) on rear of diagnostic request switch (61).

(62) Install bracket (62), MC13 diagnostic connector (3) on dash (4) with two screws (2) and locknuts (1).





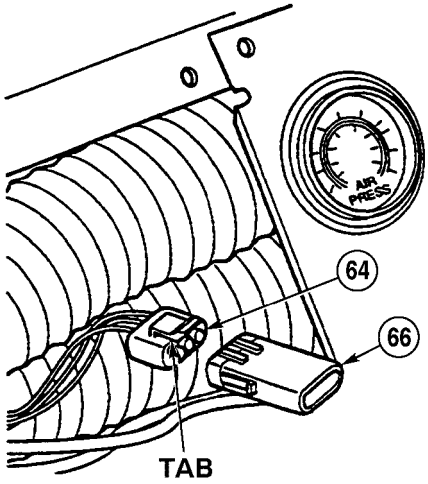
NOTE

Connector is disconnected by gently pulling up on tab on connector.

(63) Disconnect MC38 connector (64) from vernier control (65).

CAUTION

Vernier controls for DDEC II and DDEC III/lV are not interchangeable. Installation of wrong part will cause high idle speed to be either too high or too low, which may result in serious engine damage.



(64) Connect MC38 connector (64) to DDEC III/lV vernier control (66).

18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY (CONT).

WARNING

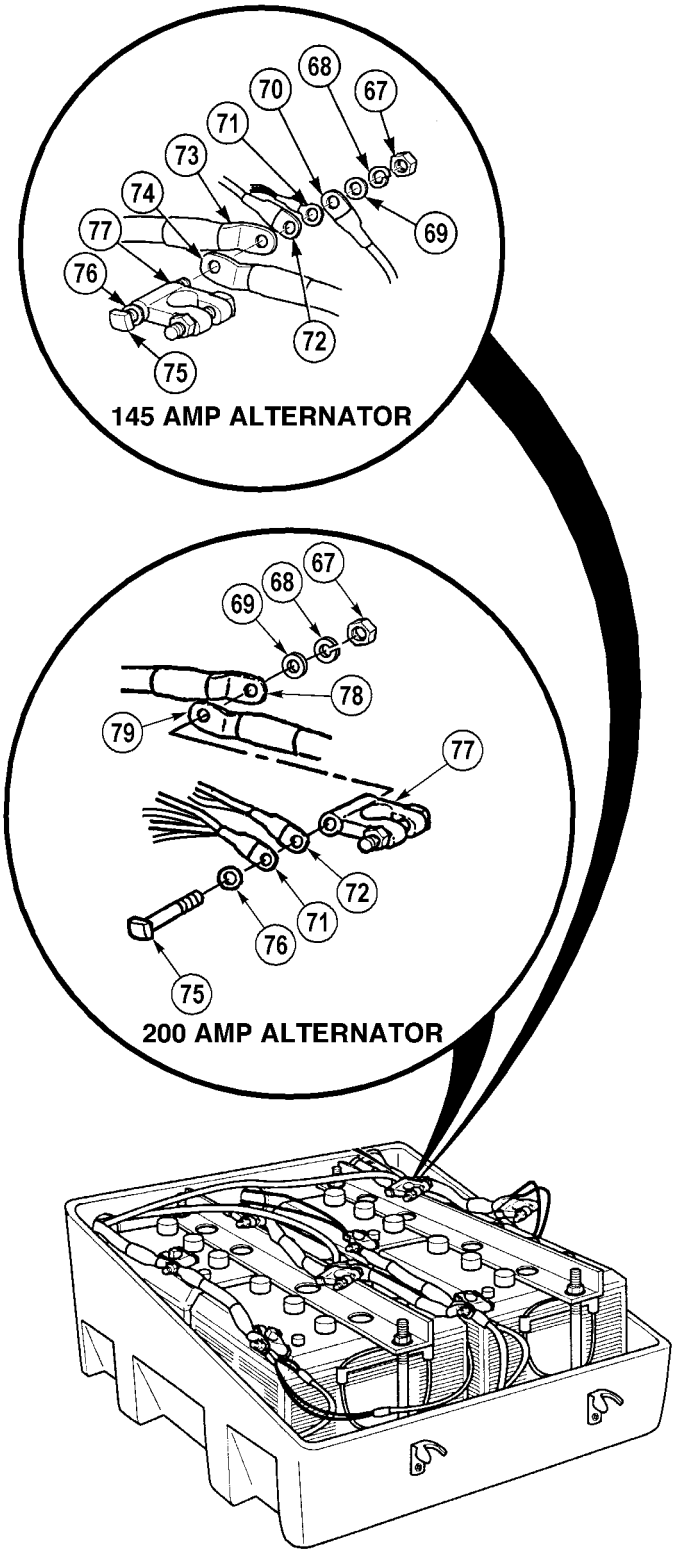
Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

NOTE

- Perform Step (65) for trucks equipped with 145 amp alternator.
- Perform Step (66) for trucks equipped with 200 amp alternator.

(65) Remove nut (67), lockwasher (68), washer (69), wire 1275 (70), wire 150/150 (71), wire 208/209 (72), cable (73), cable (74), screw (75), and washer (76) from negative terminal (77). Discard lockwasher.

(66) Remove nut (67), lockwasher (68), washer (69), cable 1138 (78), cable 1137 (79), wire 208/209 (72), wire 150/150 (71), screw (75), and washer (76) from negative terminal (77). Discard lockwasher.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

(67) Position wire 151/953 (80) of DDEC II to DDEC III/lV kit harness through hole (81) in battery box (82).

NOTE

- Perform Steps (68) and (69) for trucks equipped with 200 amp alternator.
- Perform Steps (70) and (71) for trucks equipped with 145 amp alternator.

(68) Position screw (75), washer (76), cable 1137 (79), cable 1138 (78), wire 208/209 (72), wire 150/150 (71), wire 151/953 (83), washer (69), lockwasher (68), and nut (67) on negative terminal (77).

(69) Tighten nut (67) to 12 to 16 lb-ft (16 to 22 N·m).

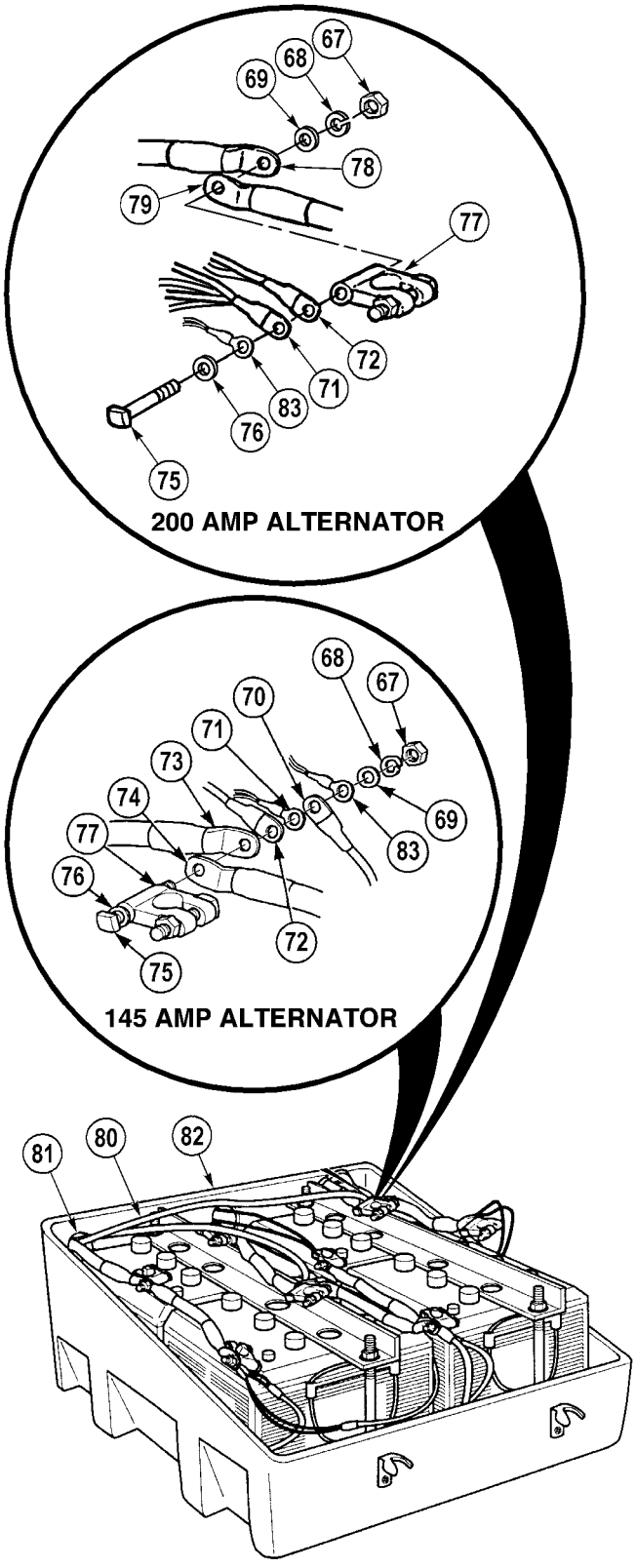
(70) Position washer (76), screw (75), cable (74), cable (73), wire 208/209 (72), wire 150/150 (71), wire 1275 (70), wire 151/953 (83), washer (69), lockwasher (68), and nut (67) on negative terminal (77).

(71) Tighten nut (67) to 12 to 16 lb-ft (16 to 22 N·m).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water at least 15 minutes and get immediate medical attention.

(72) Apply corrosion preventative compound to terminal (77).

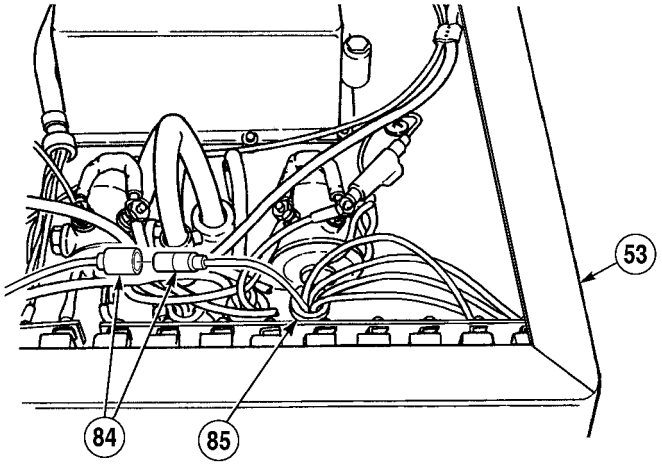


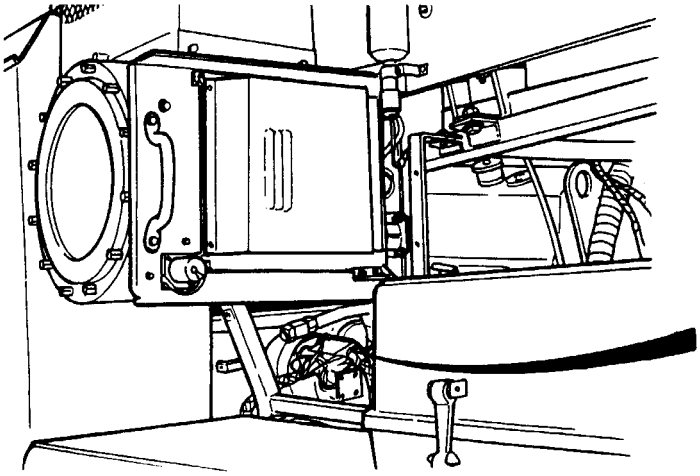
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY (CONT).

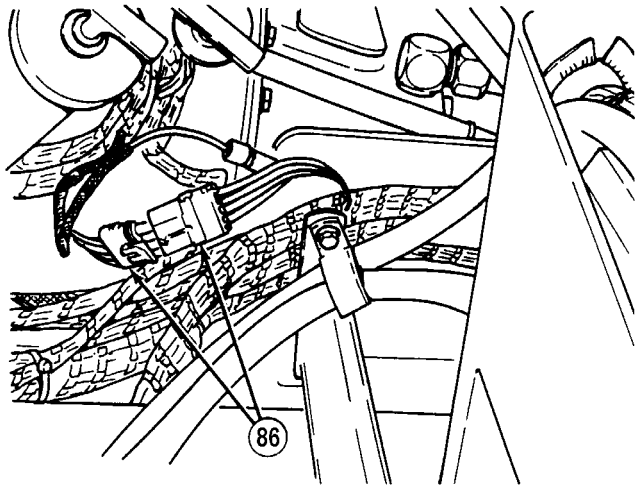
(73) Position DDEC II to DDEC III/IV kit harness along existing harness to cab.

(74) Push MC14 connector (84) through grommet (85) on ECB (53).

(75) Connect MC14 connector (84).







NOTE

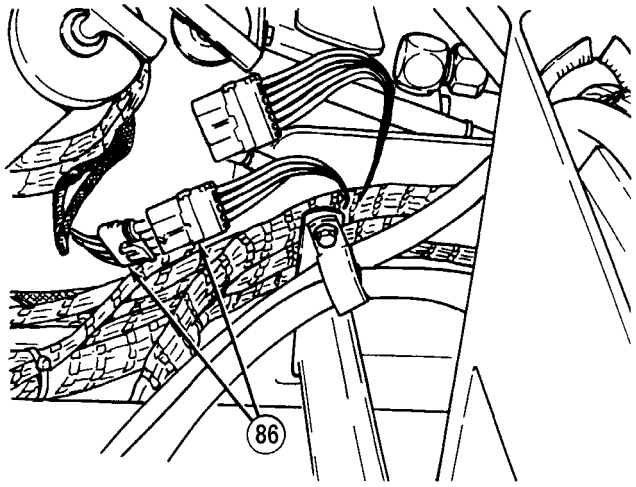
Disconnect connector by prying up on tabs and gently pulling apart connector.

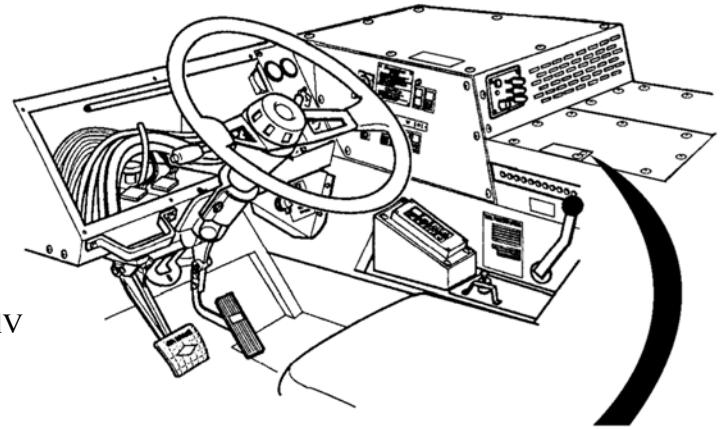
(76) Disconnect 4 pin MC62 connector (86).

NOTE

Install cable ties as required.

(77) Connect 4 pin MC62 connector (86) from DDEC II to DDEC III/IV kit wiring harness.

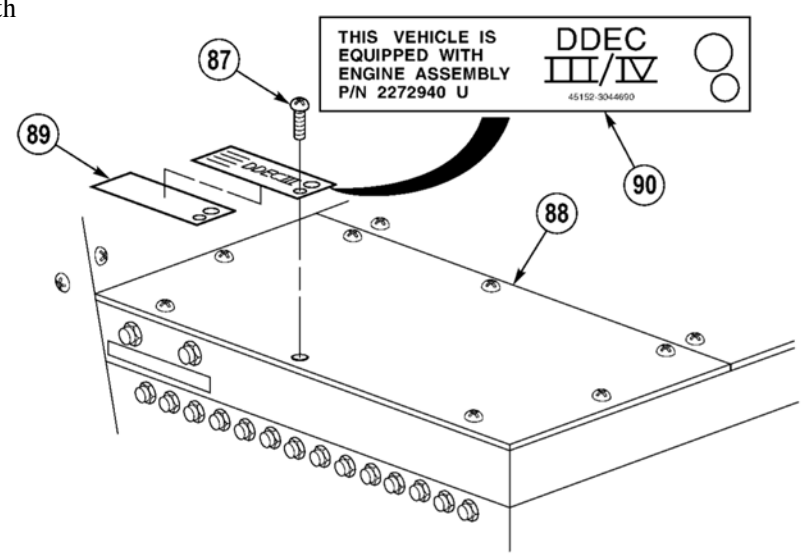




(78) Remove screw (87) from electronic control box cover (88).

(79) Remove backing (89) from DDEC III/IV data plate (90).

(80) Install DDEC III/IV data plate (90) on electronic control box cover (88) with screw (87).

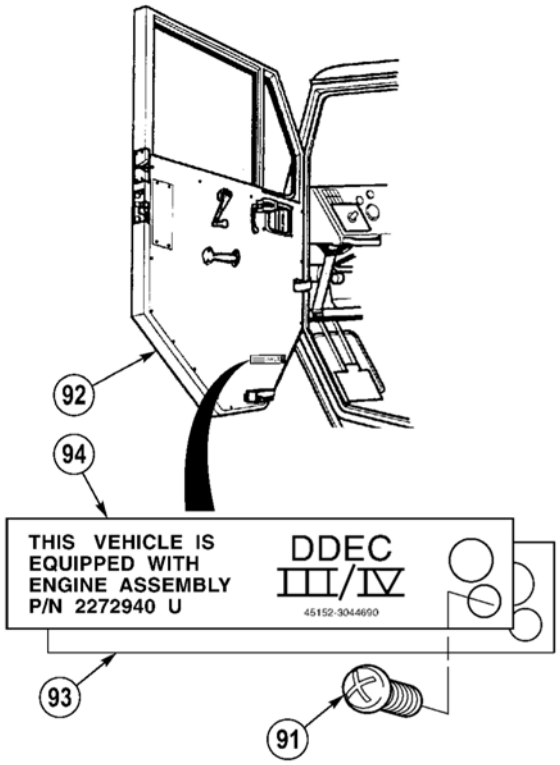


18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III/IV CAB ASSEMBLY (CONT).

(81) Remove screw (91) from cab door (92).

(82) Remove backing (93) from DDEC III/lV data plate (94).

(83) Install DDEC III/lV data plate (94) on left side cab door (92) with screw (91).



b. Follow-On Maintenance:

- Install instrument panel, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Install Electronic Control Box (ECB) cover, (TM 9-2320-364-20).
- Install left fender front skirt, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Remove wheels chocks, (TM 9-2320-364-10).

18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION.

This task covers:

a. Sheet Metal Preparation
b. Air Line Installation
c. Seat Belt Installation
d. Brackets and Seat Installation
e. Door Skin Modification
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0 to 44 lb-ft [0-60 N·m]) (Item 276, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)
Blade Kit, Hole Saw (Item 18, Appendix F)

Materials/Parts
Sealing Compound (Item 65.1, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (2) (Item 282, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Seat belts removed, (TM 9-2320-364-20)
Cab seats removed, (TM 9-2320-364-20)
Electronic control box (ECB) cover removed, (TM 9-2320-364-20)
Cab engine access panel removed, (TM 9-2320-364-20)
Glove box removed, (TM 9-2320-364-20)
Rifle stowage bracket (driver side) removed, (TM 9-2320-364-20)

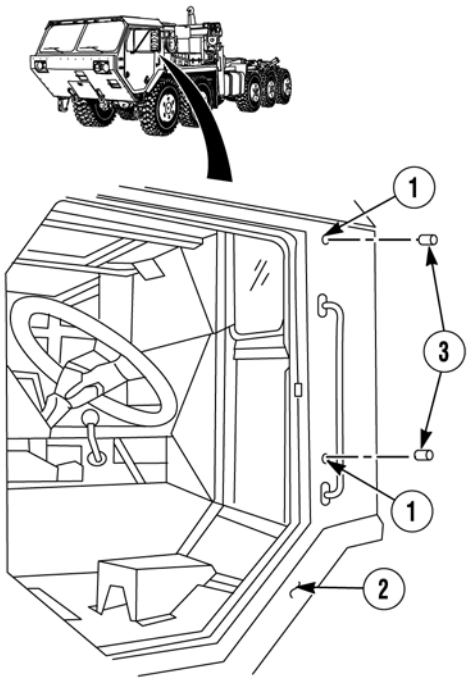
a. Sheet Metal Preparation.

WARNING

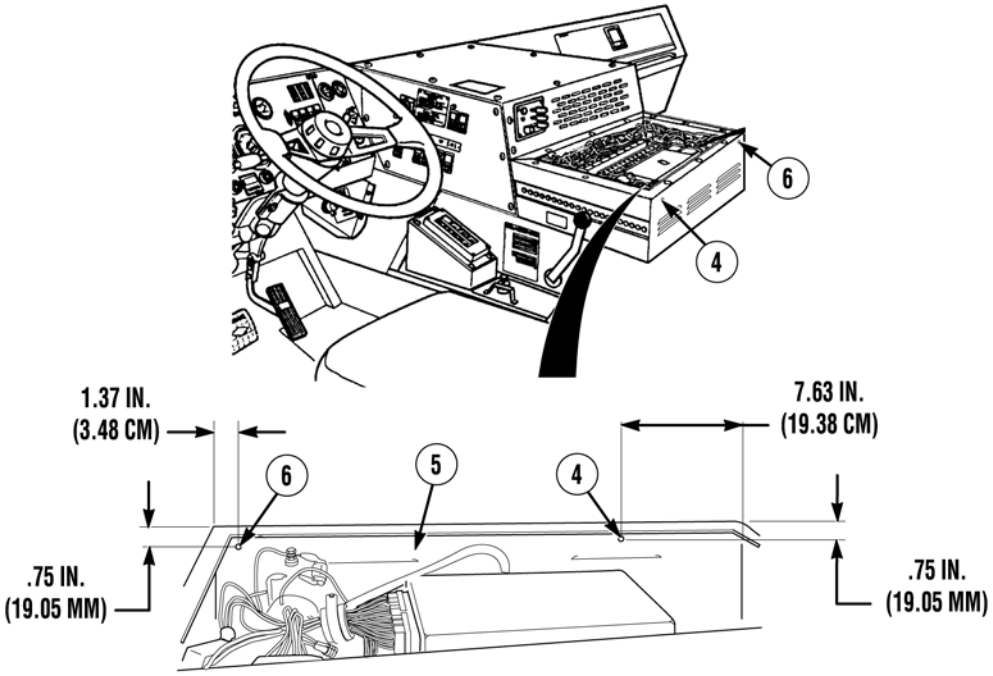
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply adhesive around four holes (1) in driver and passenger side of cab (2).

(2) Install four plugs (3) in holes (1) on driver and passenger side of cab (2).

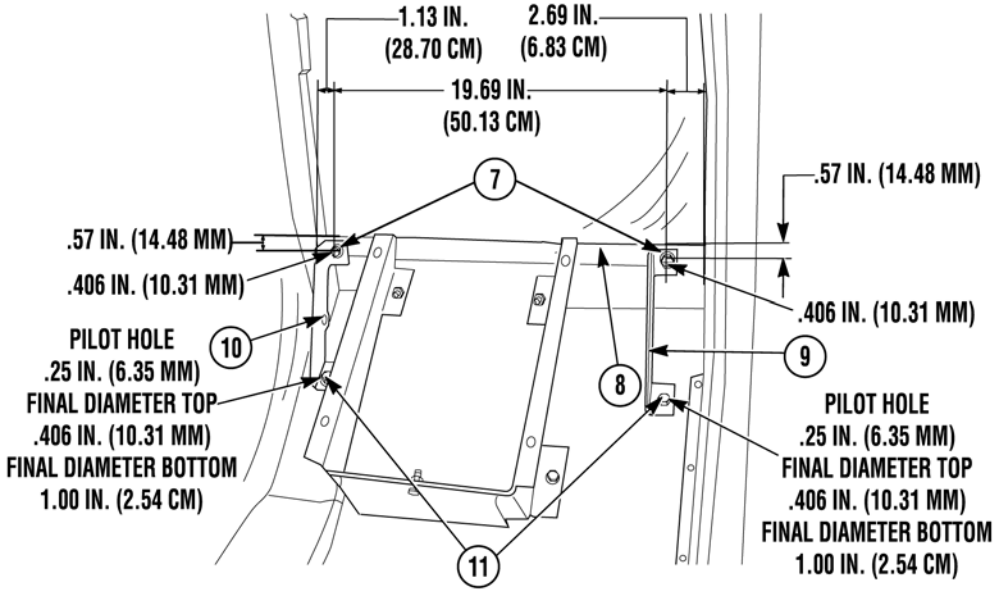


18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).



(3) Drill one .438 in. (11.13 mm) hole (4) on left side of electronic control box (5).

(4) Drill one .438 in. (11.13 mm) hole (6) on right side of electronic control box (5).



NOTE

Holes for both right and left side lower retractor brackets are drilled the same way. Driver side shown.

(5) Drill two .406 in. (10.31 mm) holes (7) in two lower seat support brackets (8) on driver and passenger side of vehicle.

(6) Using two lower retractor brackets (9 and 10) as templates, mark two holes (11) on cab floor on driver and passenger side of vehicle.

NOTE

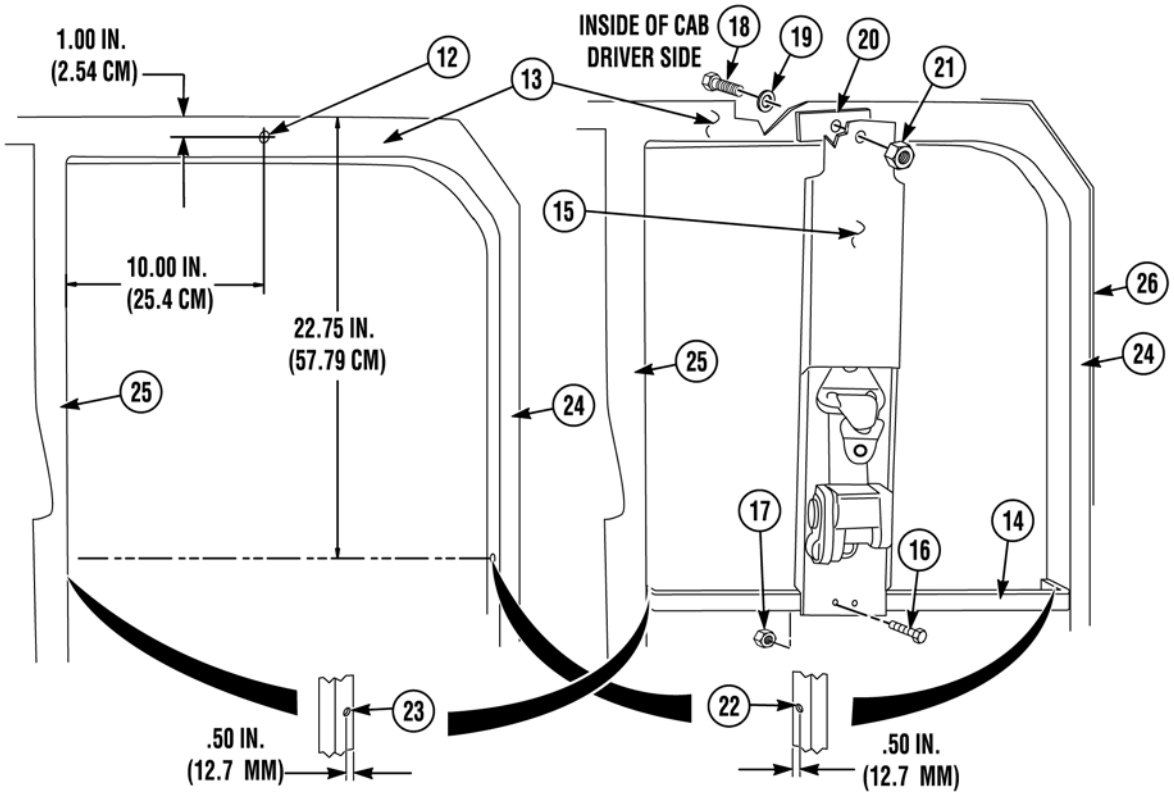
Drill bit used for drilling two lower retractor bracket holes must first be drilled with a .25 in. (6.35 mm) drill bit. Drill bit will pass through cab floor, top of support tube, and bottom of support tube. Bottom hole in support tube will need to be enlarged to 1.00 in. (2.54 cm) using a .25 in. (6.35 mm) pilot guided 1.00 in. (2.54 cm) hole saw to provide clearance for attaching hardware.

(7) Drill two .25 in. (6.35 mm) holes (11) in cab floor on driver and passenger side of vehicle.

(8) Enlarge top two holes (11) to .406 in. (10.31 mm).

(9) Using a 1.00 in. (2.54 cm) pilot guided hole saw, enlarge bottom two holes (11) to 1.00 in. (2.54 cm).

18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).



NOTE

Holes for both driver and passenger tether brackets are drilled the same way. Driver side shown.

(10) Drill one .50 in. (12.7 mm) hole (12) through tube (13).

(11) Attach angle bracket (14) on upper tether bracket (15) with two screws (16) and locknuts (17).

NOTE

- Temporarily attaching top of tether bracket (15) to tube (13), and using angle bracket (14) as a template along with measurement given, will permit accurate location of two side mounting holes on vertical supports tubes.
- Spacer is used on driver side only.

(12) Temporarily attach top of upper tether bracket (15) on tube (13) with screw (18), washer (19), spacer (20) and locknut (21).

(13) Using angle bracket (14) as a template, mark location of two holes (22 and 23) on outside tube (24) and inside tube (25).

(14) Remove locknut (21), washer (19), screw (18), spacer (20) and upper tether bracket (15) from tube (13).

CAUTION

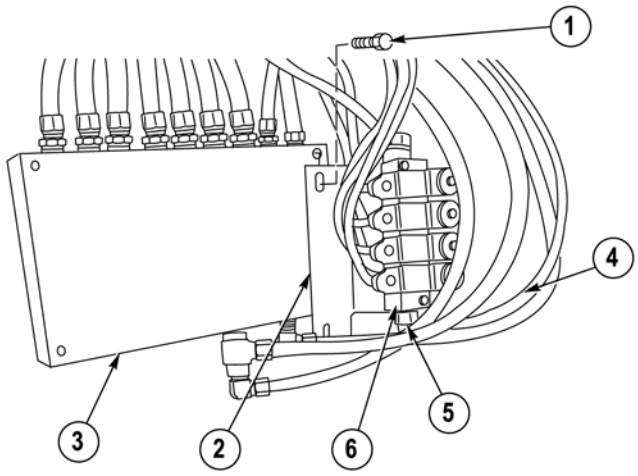
Cab wire harness is secured on exterior of inside tube (25). Care must be taken when drilling hole (23) so that drill bit does not damage wire harness.

(15) Drill two .50 in. (12.7 mm) holes (22 and 23) through outside tube (24), cab frame (26) and inside tube (25).

b. Air Line Installation.

NOTE

- Perform Steps (1) through (11) if vehicle is equipped with air horn.
- Perform Steps (12) through (19) if vehicle is not equipped with air horn.
- Tag and mark air lines before removing.



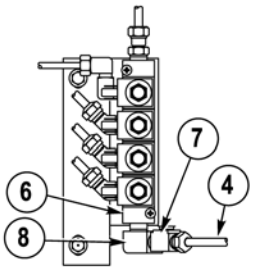
(1) Remove two screws (1) and bracket (2) from manifold (3).

(2) Remove air line 2037 (4) from elbow (5).

(3) Remove and discard elbow (5) from valve (6).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(4) Coat threads of tee (7) with sealing compound.

(5) Install tee (7) on elbow (8).

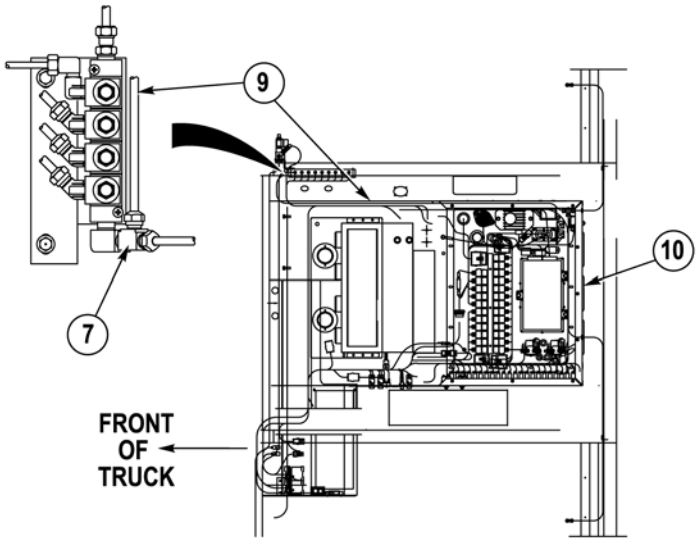
(6) Coat threads of elbow (8) with sealing compound.

(7) Install elbow (8) and tee (7) on valve (6).

(8) Install bracket (2) on manifold (3) with two screws (1).

(9) Install air line 2037 (4) on tee (7).

18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).



(10) Route air line 2041 (9) along left side of electronic control box (10) and down to tee (7).

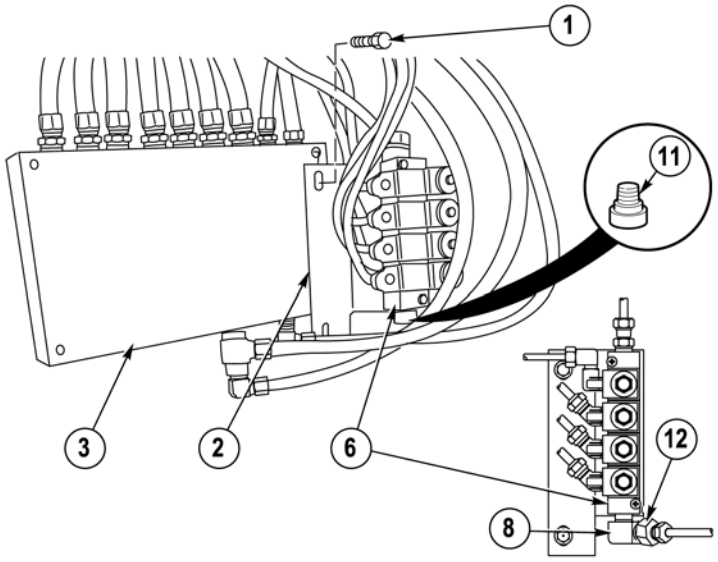
(11) Install air line 2041 (9) on tee (7).

(12) Remove and discard plug (11) from valve (6).

(13) Remove two screws (1) and bracket (2) from manifold (3).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(14) Coat threads of fitting (12) with sealing compound.

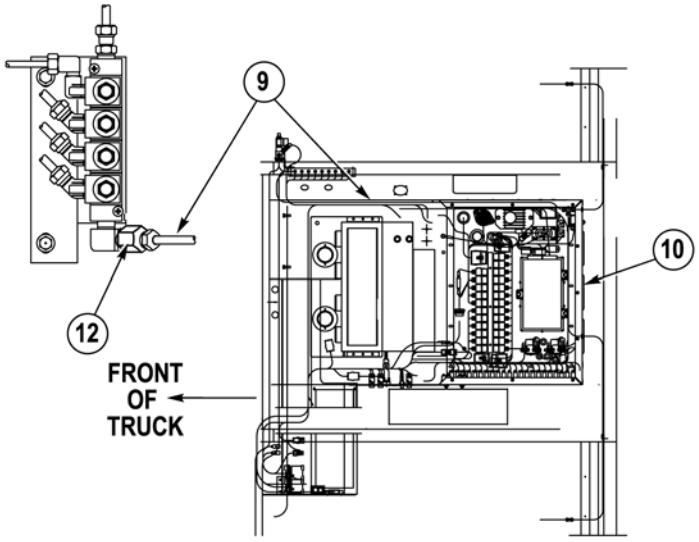
(15) Install fitting (12) on elbow (8).

(16) Coat threads of elbow (8) with sealing compound.

(17) Install elbow (8) and fitting (12) on valve (6).

(18) Route air line 2041 (9) along left side of electronic control box (10) and down to fitting (12).

(19) Install air line 2041 (9) on fitting (12).



(20) Install two grommets (13 and 14) on right and left side of electronic control box (10).

(21) Route two air lines 2041A (15) and 2041B (16) through two grommets (13 and 14).

(22) Install three air lines 2041 (9), 2041A (15) and 2041B (16) on tee (17).

NOTE

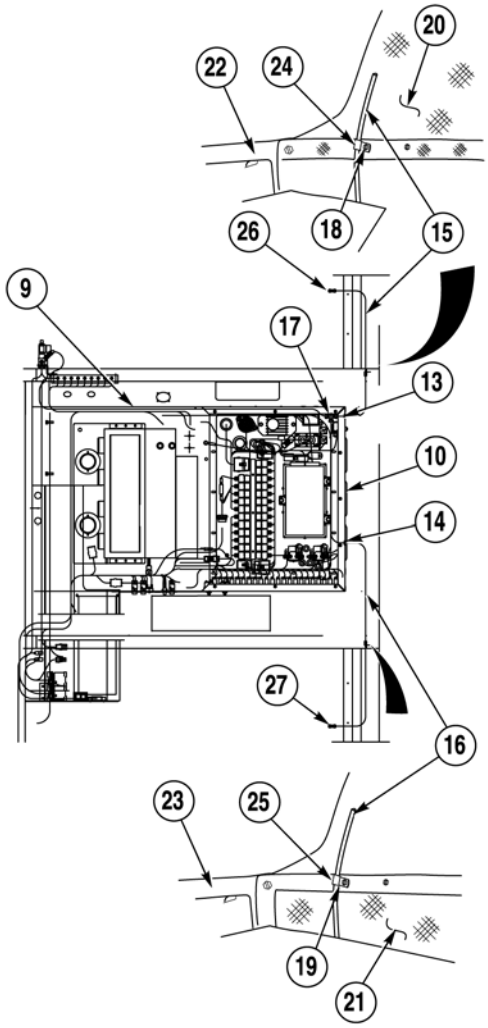
Two existing screws securing cargo netting to vehicle are used with cushion clips to secure air lines when routing air lines to air-ride seats.

(23) Remove two screws (18 and 19) from cargo nets (20 and 21) and tubes (22 and 23).

(24) Install cushion clip (24) and air line 2041A (15) on cargo net (20) and tube (22) with screw (18).

(25) Install cushion clip (25) and air line 2041B (16) on cargo net (21) and tube (23) with screw (19).

(26) Attach two fittings (26 and 27) on air lines 2041A (15) and 2041B (16).



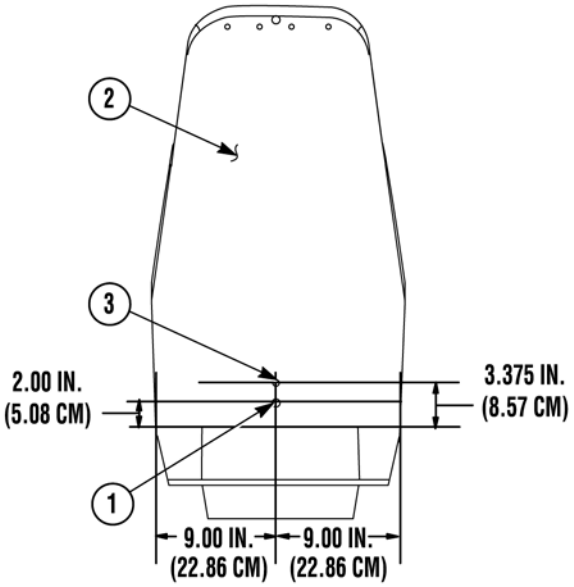
18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).

c. Seat Belt Installation.

NOTE

- Two mounting holes for upper retractable tether and lower belt retractor must be located and seat cover fabric cut prior to installation.
- Four mounting holes for two loops must be located and marked prior to installing two loops on back of seat.
- Hole for lower belt retractor can be felt through fabric with tip of finger.

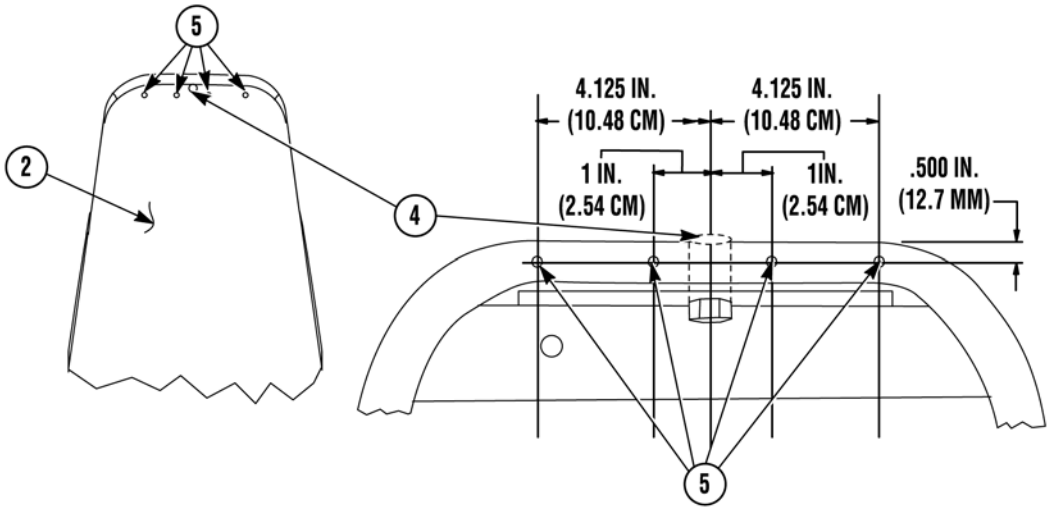
(1) Locate and cut a .50 in. (12.7 mm) hole (1) in seat cover (2).



NOTE

- 1.375 in. (3.49 cm) above lower belt retractor mounting hole (1), is a .25 in. (6.35 mm) hole used for lower belt retractor alignment pin.
- Hole for lower belt retractor alignment pin can be located with pin pushed through fabric.

(2) Locate and cut a .25 in. (6.35 mm) hole (3) in seat cover (2).



CAUTION

Hole being cut for upper retractable tether must not cut through seam on seat cover. Cutting through seam will cause seam to open. If hole is cut above or below seam, seat cover can be repositioned enough to allow attaching hardware to secure upper retractable tether D-ring.

NOTE

Holes for upper retractable tether in support tubing can be felt through fabric with tip of finger.

(3) Locate and cut a .50 in. (12.7 mm) hole (4) in seat cover (2).

(4) Locate and mark four holes (5).

NOTE

- Seat belt kit has attaching hardware temporarily secured to tethers with discardable fiber retaining washers. Fiber retaining washers should be discarded prior to installation.
- Alignment pin on lower belt retractor must seat in alignment hole.

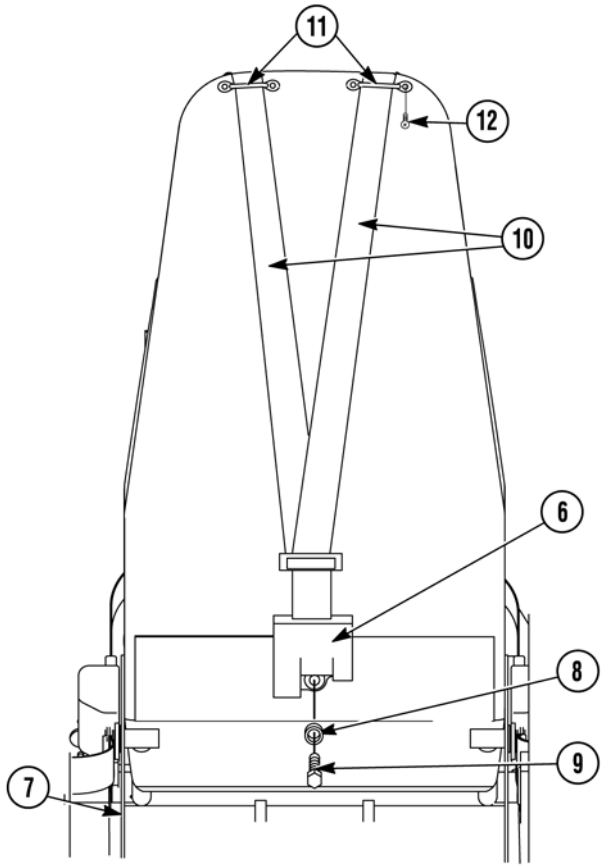
(5) Attach lower belt retractor (6) on seat (7) with washer (8) and screw (9).

NOTE

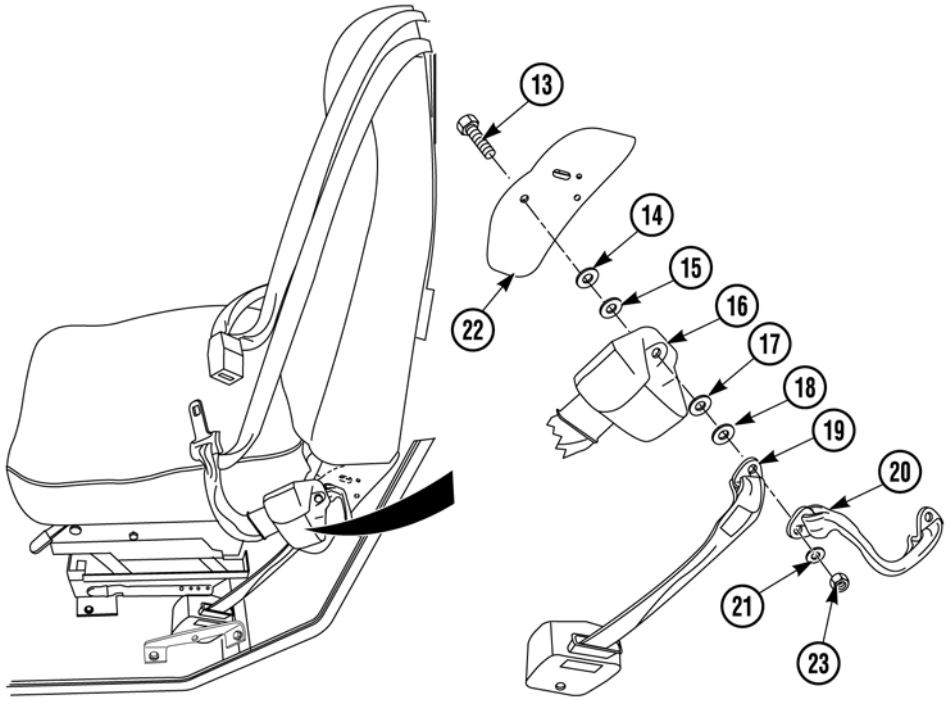
Straps must be positioned between four holes identified for mounting two loops.

(6) Position two straps (10) over back of seat (7).

(7) Install two loops (11) on seat (7) with four screws (12).



18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).



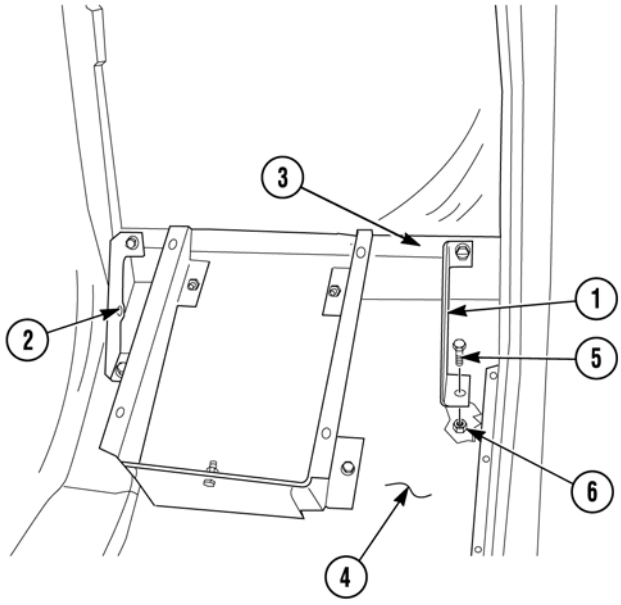
NOTE

- Both right and left belt retractors are installed on seat frame the same way. Left side shown. Large washer (14) is between seat frame and smaller washer.
- Locknut must be tightened so tethers can just rotate on screw.

(8) Install screw (13), two washers (14 and 15), belt retractor (16), two washers (17 and 18), lower retractable tether (19), side tether (20) and washer (21) on seat frame (22) with locknut (23).

d. Brackets and Seat Installation.

(1) Install two lower retractor brackets (1 and 2) on lower seat support bracket (3) and cab floor (4) with four screws (5) and locknuts (6).



WARNING

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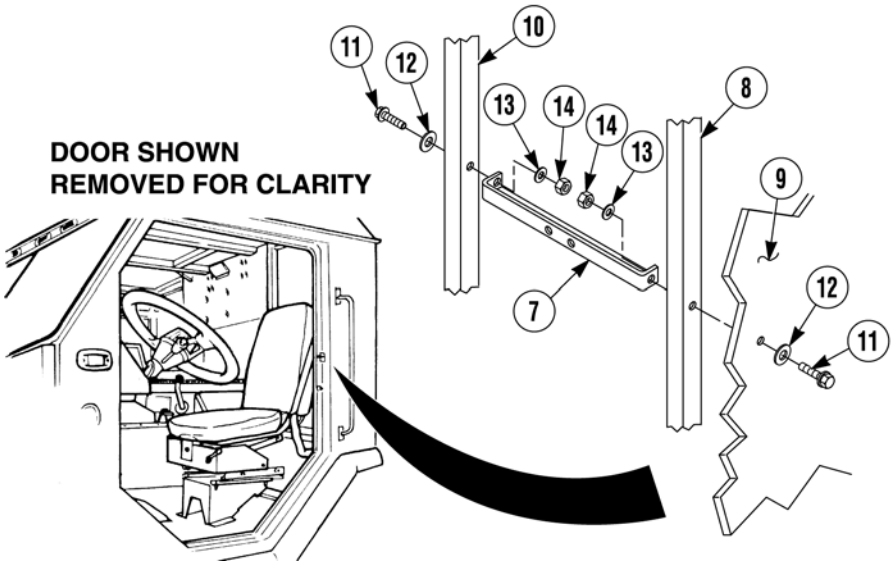
NOTE

Before installing locking hardware, a small bead of adhesive must be applied around holes on outside of cab.

(2) Install angle bracket (7) on outside tube (8) cab frame (9) and inside tube (10) with two screws (11), washers (12), washers (13) and locknuts (14). Tighten locknuts to 70 to 75 lb-in (7.9 to 8.5 N·m).



18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).

(3) Install upper retractable tether (15) on upper tether bracket (16) with screw (17), washer (18) and locknut (19).

(4) Install upper retractable tether belt guide (20) on upper tether bracket (16) with screw (21), washer (22), bushing (23) and locknut (24).

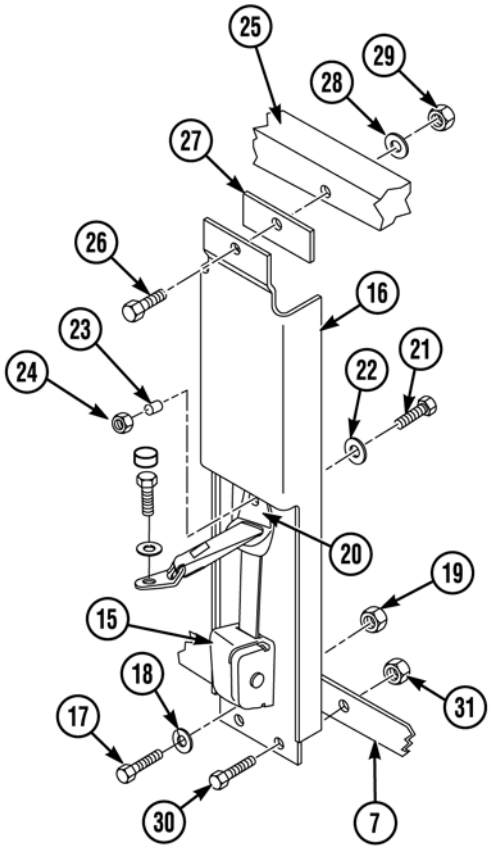
NOTE

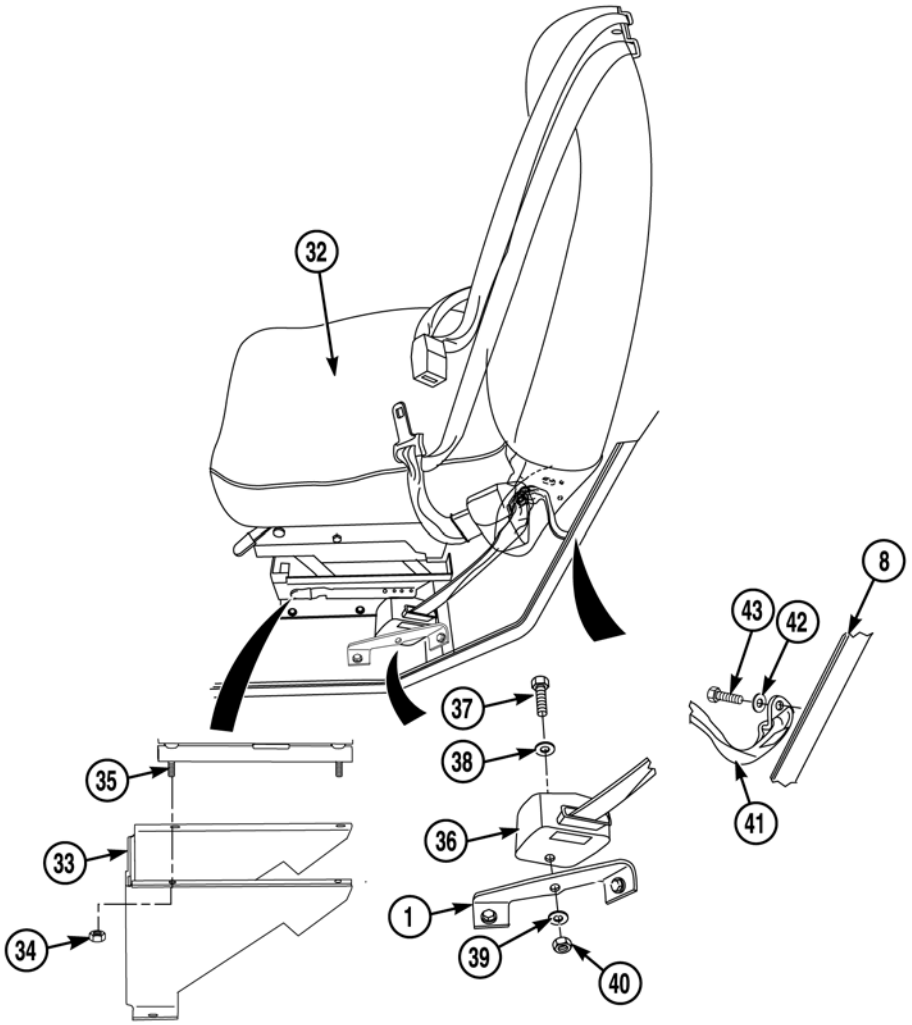
Spacer is used on driver side only.

(5) Install upper tether bracket (16) on tube (25) with screw (26), spacer (27), washer (28) and locknut (29). Do not tighten locknut.

(6) Install upper tether bracket (16) on angle bracket (7) with two screws (30) and locknuts (31).

(7) Tighten locknut (29) to 70 to 75 lb-in (7.9 to 8.5 N·m).





(8) Soldier A and Soldier B position seat (32) on seat support (33).

(9) Install four locknuts (34) on studs (35).

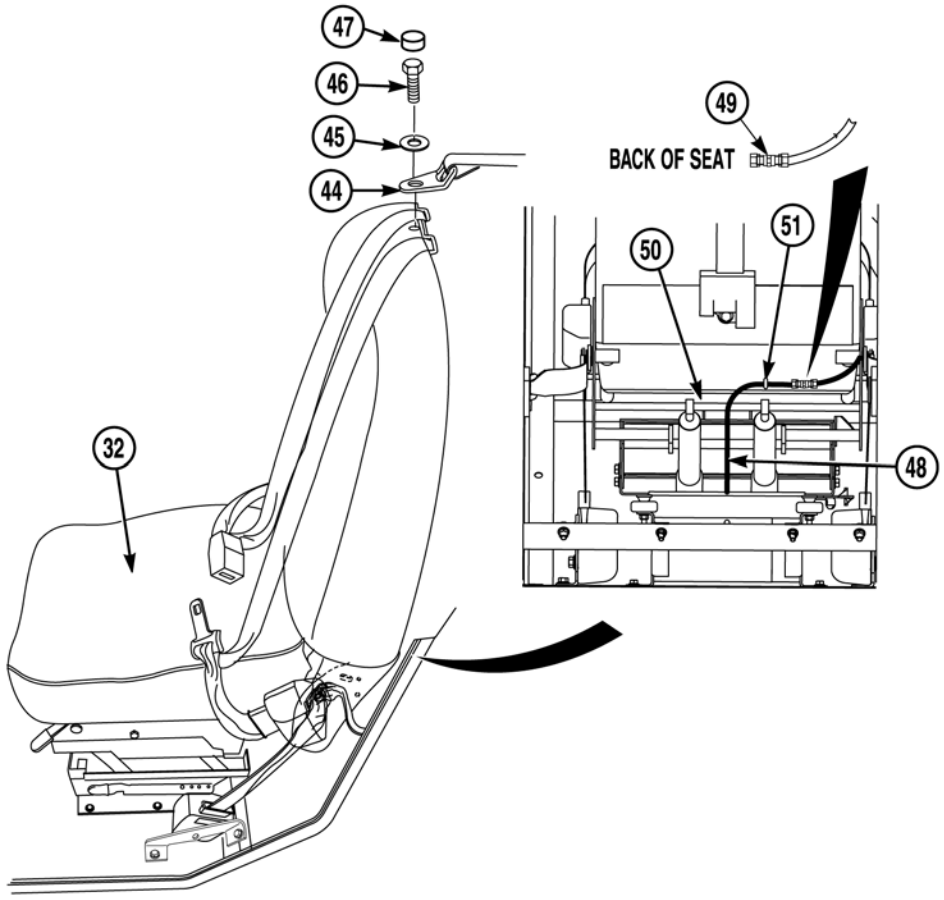
NOTE

Both right and left belt retractors are installed on two lower retractor brackets the same way. Left side shown.

(10) Install belt retractor (36) on lower retractor bracket (1) with screw (37), two washers (38 and 39) and locknut (40).

(11) Install side tether (41) on outside tube (8) with lockwasher (42) and screw (43).

18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).



NOTE

Both side tethers are installed the same way. Left side shown.

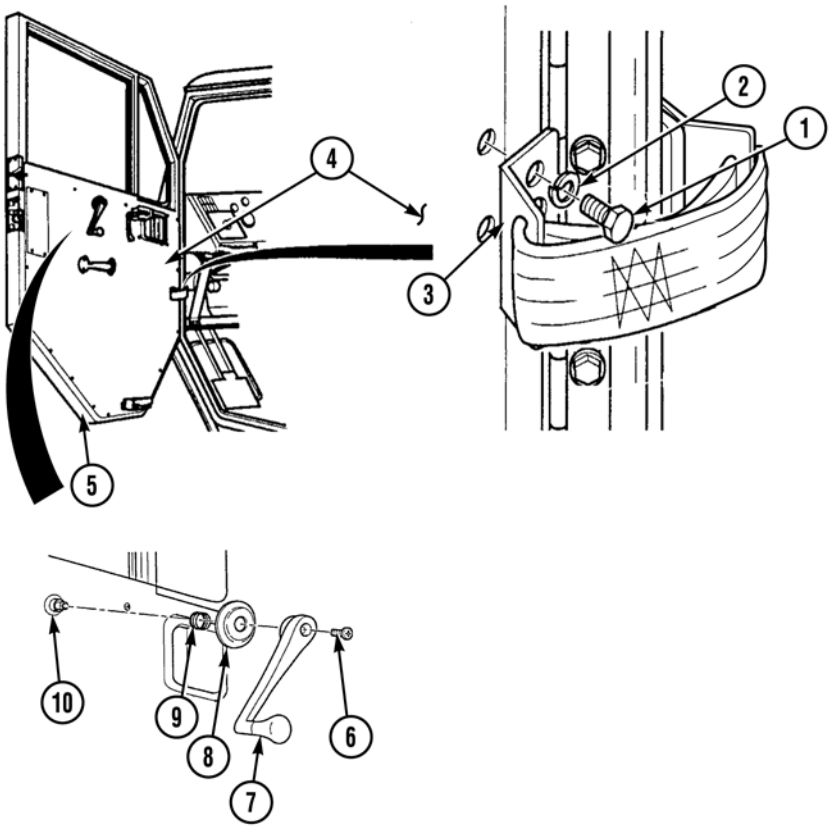
(12) Install upper retractable tether D-ring (44) on seat (32) with lockwasher (45) and screw (46).

(13) Install cap (47) on screw (46).

(14) Install air line (48) on fitting (49).

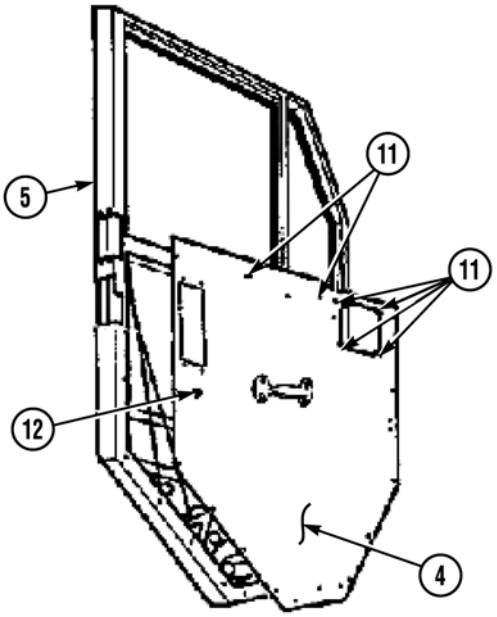
(15) Secure air line (48) on seat bar (50) with cable tie (51).

e. Door Skin Modification.



NOTE

Driver and passenger side rifle stowage brackets are installed on door skins the same way. Driver side shown.



(1) Remove two screws (1), lockwashers (2) and door strap (3) from door skin (4) and door frame (5). Discard lockwashers.

(2) Remove screw (6), window crank (7), cover (8) and spring (9) from stud (10).

(3) Remove six screws (11) from door skin (4) and door frame (5).

(4) Remove 14 screws (12) and door skin (4) from door frame (5).

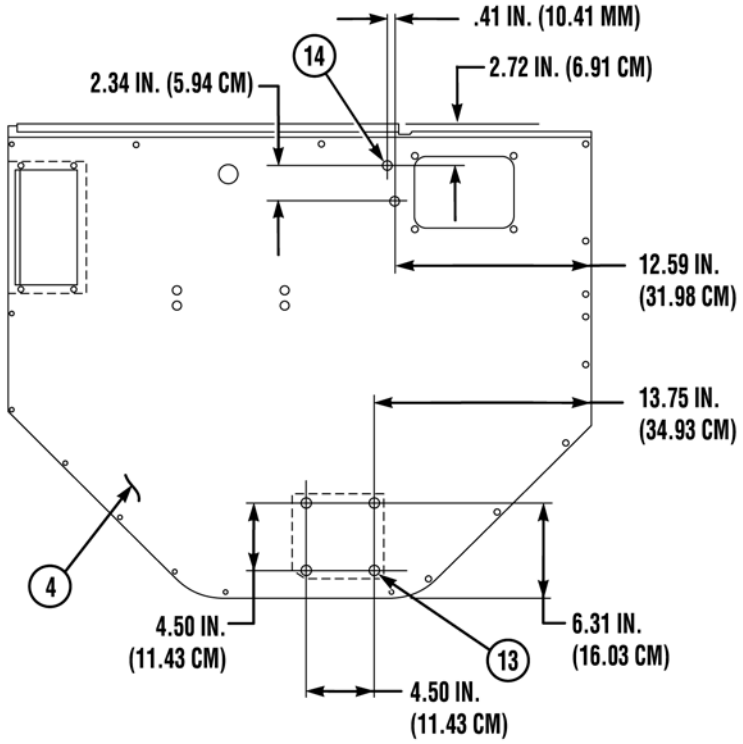
18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).

NOTE

- If drilling top two holes for stiffener plate interferes with data plate(s), data plate(s) must be mounted higher on door skin.
- Some vehicles may already have two lower holes for stiffener plate drilled, plugged, and with inserts installed on door skin. If two lower holes are present, remove and discard plugs, hardware, inserts, and mark and drill top two holes only.

(5) Drill four .50 in. (12.7 mm) holes (13) on door skin (4).

(6) Drill two .391 in. (9.93 mm) holes (14) on door skin (4).



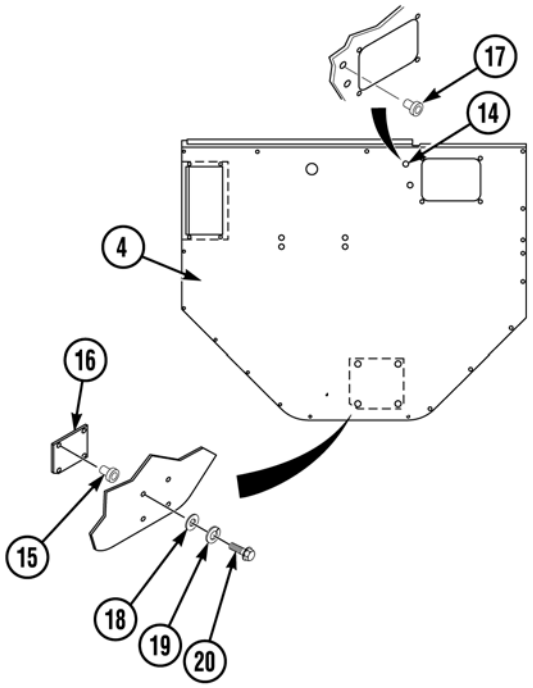
(7) Install four inserts (15) on stiffener plate (16).

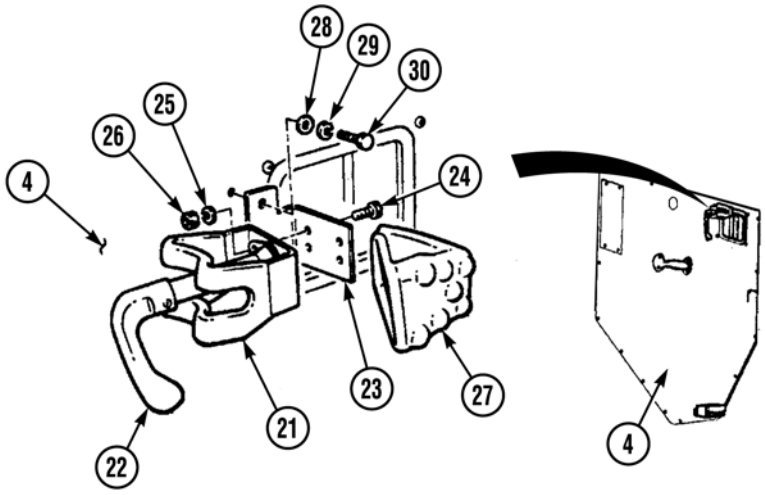
(8) Install two inserts (17) in holes (14) on door skin (4).

NOTE

Two washers, lockwashers and screws are installed in top two holes of stiffener plate.

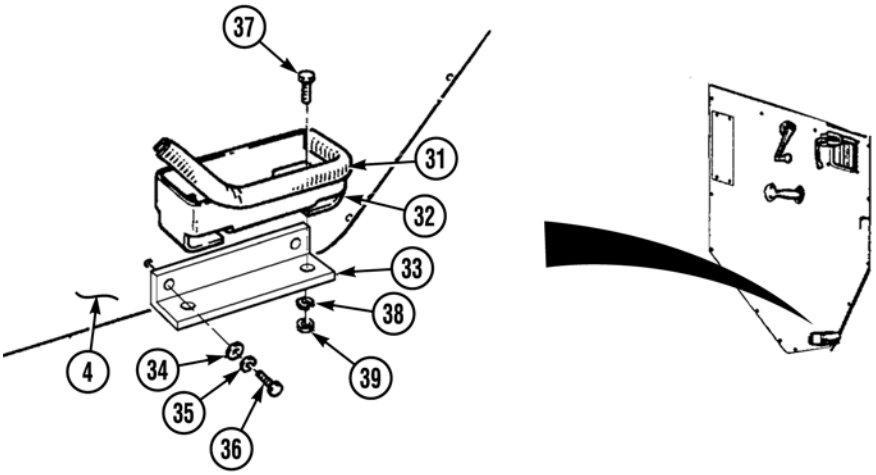
(9) Install stiffener plate (16) on inside of door skin (4) with two washers (18), lockwashers (19) and screws (20).





(10) Install catch bracket (21) and rifle catch (22) on angle bracket (23) with two screws (24), lockwashers (25) and nuts (26).

(11) Install boot (27) and angle bracket (23) on door skin (4) with two washers (28), lockwashers (29) and screws (30).



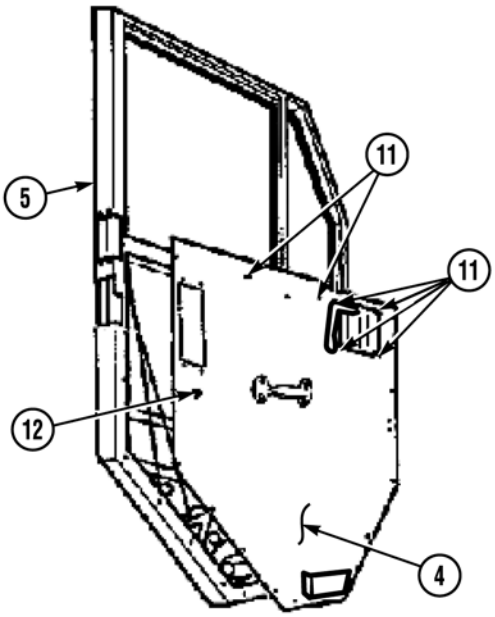
(12) Install quickedge (31) on rifle support (32).

(13) Install bracket (33) on door skin (4) with two washers (34), lockwashers (35) and screws (36).

(14) Install rifle support (32) on bracket (33) with two screws (37), lockwashers (38) and nuts (39).

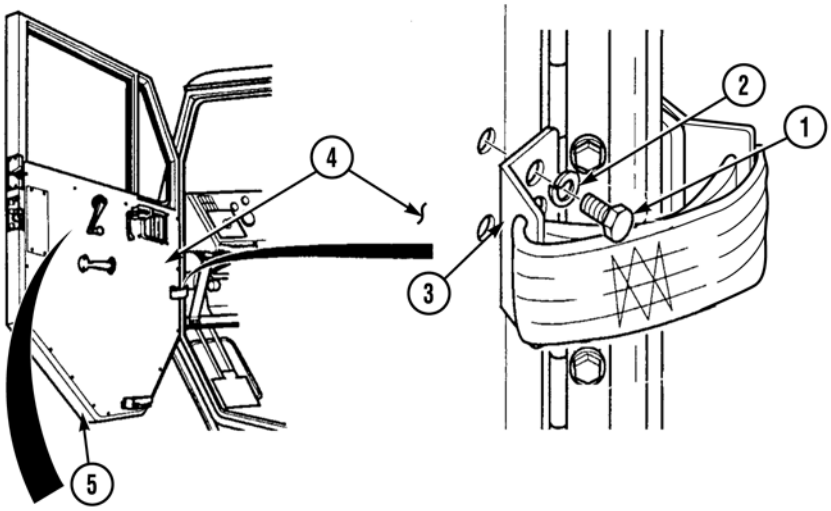
18-16. AIR-RIDE SEAT AND SEAT BELT (FOUR POINT) KIT INSTALLATION (CONT).

(15) Install door skin (4) on door frame (5) with six screws (11) and 14 screws (12).



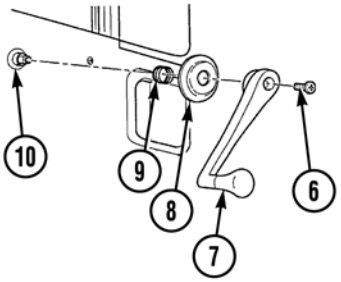
(16) Install spring (9), cover (8) and window crank (7) on stud (10) with screw (6).

(17) Install door strap (3) on door skin (4) and door frame (5) with two lockwashers (2) and screws (1).



f. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Build up air pressure to 125 psi, (861 kPa).
- Shut off engine, (TM 9-2320-364-10).
- Check for air leaks, (TM 9-2320-364-10).
- Install glove box, (TM 9-2320-364-20).
- Install Electronic Control Box (ECB) cover, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Remove wheels chocks, (TM 9-2320-364-10).



END OF TASK

CHAPTER 19

CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL (CBR) EQUIPMENT MAINTENANCE

Para **Contents** **Page**

19-1. DIRECT SUPPORT CBR EQUIPMENT MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for installing CBR components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

19-2. GAS PARTICULATE FILTER UNIT (GPFU) KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Locknut (4) (Item 176, Appendix E)
Lockwasher (2) (Item 282, Appendix E)
Screw, Self-Locking (Item 553, Appendix E)
Screw, Self-Tapping (2) (Item 561, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Installation.

(1) Remove eight screws (1) and heater control access panel (2) from panel (3).

(2) Remove blank cover (4) from switch panel (5).

(3) Install applique (6) on ON/OFF rocker switch (7).

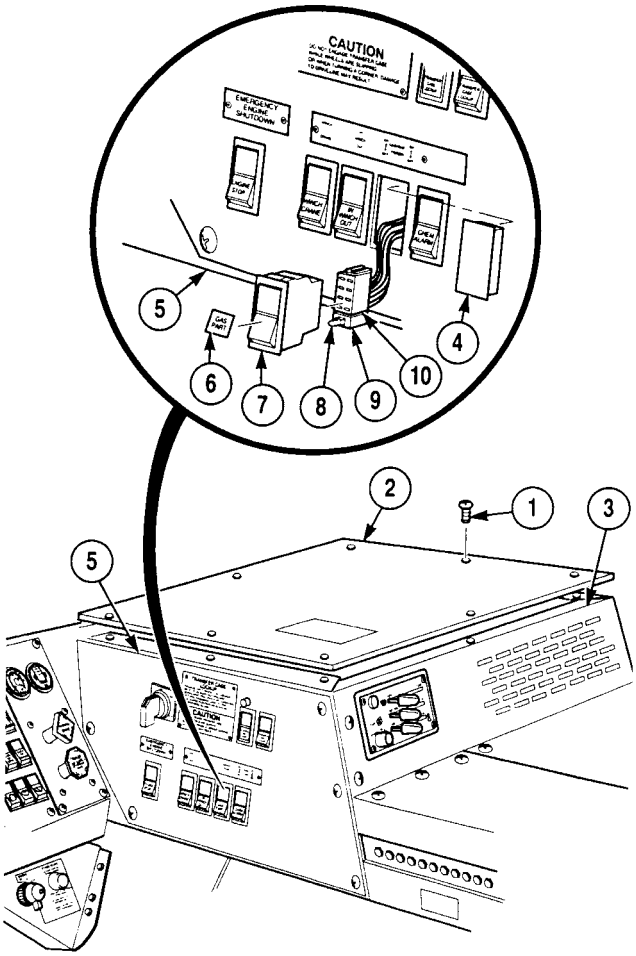
(4) Install ON/OFF rocker switch (7) on switch panel (5).

(5) Install lamp (8) on connector (9).

(6) Install connector (9) on ON/OFF rocker switch (7).

(7) Connect S19 connector (10) to ON/OFF rocker switch (7).

(8) Install heater control access panel (2) on panel (3) with eight screws (1).



(9) Remove eight screws (11) and ECB cover (12) from ECB (13).

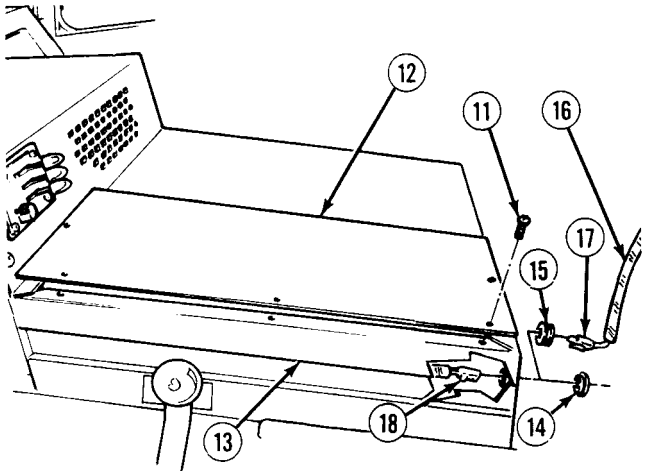
(10) Remove plastic hole plug (14) from ECB (13).

(11) Install grommet (15) on ECB (13).

(12) Install GPFU wire harness (16) through grommet (15).

(13) Connect connector (17) to MC58 connector (18).

(14) Install ECB cover (12) on ECB (13) with eight screws (11).



(15) Remove screw (19) from roof support (20).

(16) Install bracket (22) on roof support (20) with screw (19).

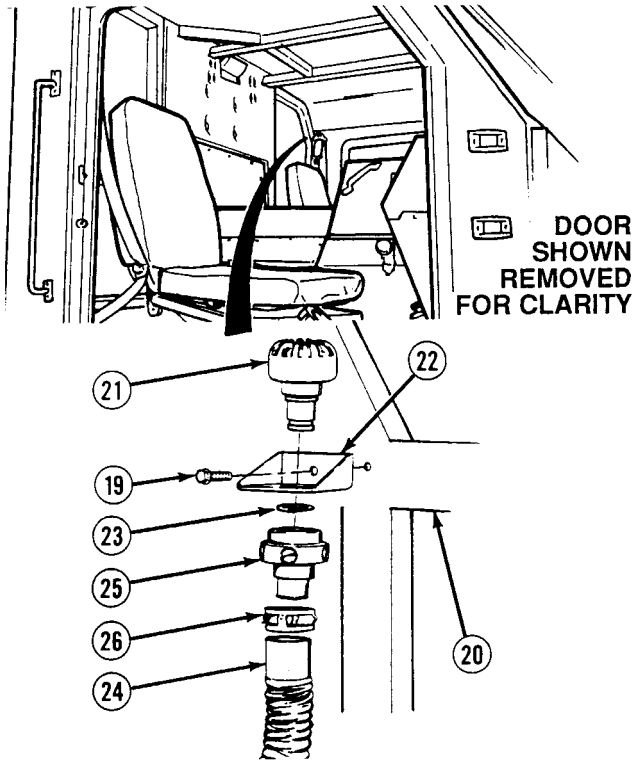
WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(17) Install orifice connector assembly (21) to bracket (22) with retaining ring (23).

(18) Install hose (24) to quick release coupling (25) with hose clamp (26).

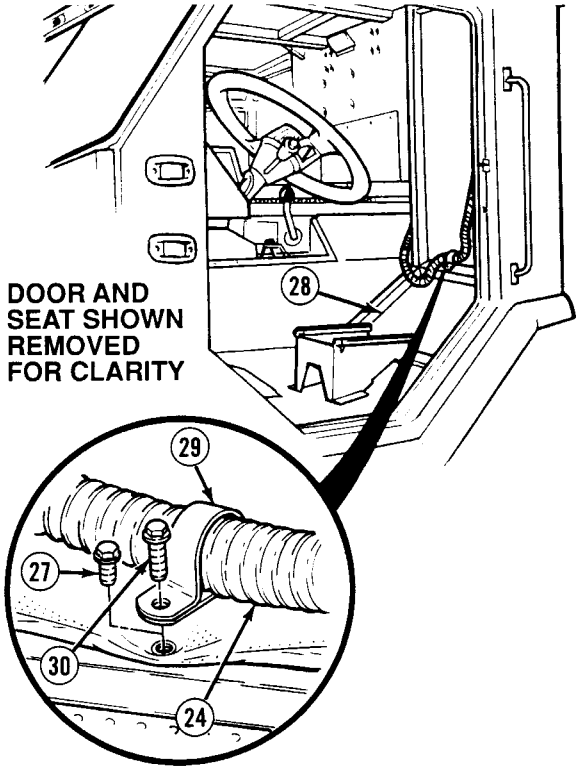
(19) Install quick release coupling (25) on orifice connector assembly (21).



19-2. GAS PARTICULATE FILTER UNIT (GPFU) KIT INSTALLATION (CONT).

(20) Remove screw (27) from cab body (28). Discard screw.

(21) Install hose (24) to cab body (28) with cushion clip (29) and screw (30).



(22) Remove two screws (31) from roof support (20).

(23) Install bracket (22) to bracket (32) with screw (33), lockwasher (34) and nut (35).

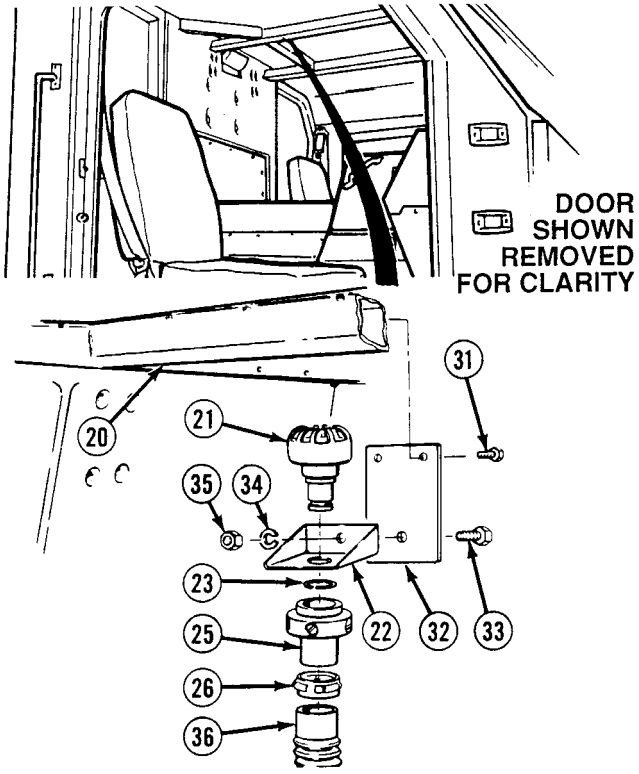
WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(24) Install orifice connector assembly (21) to bracket (22) with retaining ring (23).

(25) Install hose (36) to quick release coupling (25) with hose clamp (26).

(26) Install quick release coupling (25) to orifice connector assembly (21).

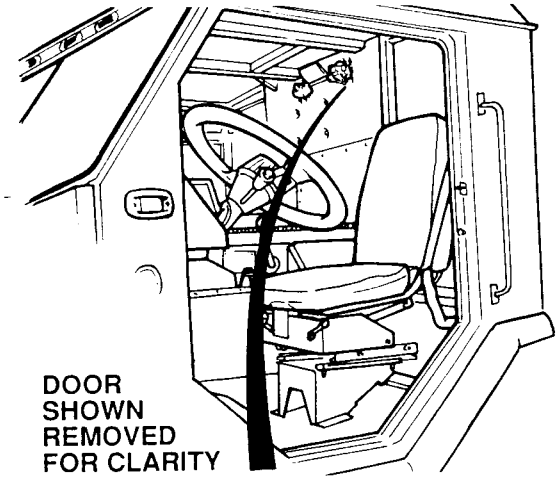


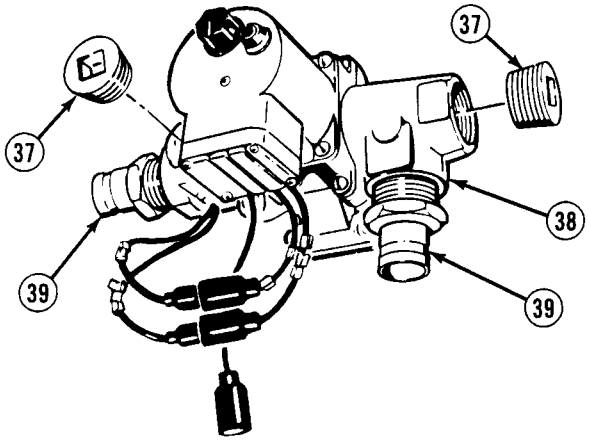
NOTE

Right and left heaters are installed in the same way. Left side shown.

(27) Install two plugs (37) to left air heater assembly (38).

(28) Install two straight pipe adapters (39) to left air heater assembly (38).





NOTE

Washers may fall from cab wall when screws and locknuts are removed.

(29) With the aid of an assistant, remove four screws (40) and locknuts (41) from cab wall (28). Discard locknuts.

(30) Install left air heater (38) to cab wall (28) with four screws (40) washers (42) and locknuts (41).

(31) Repeat Steps (27) through (30) for the right air heater.

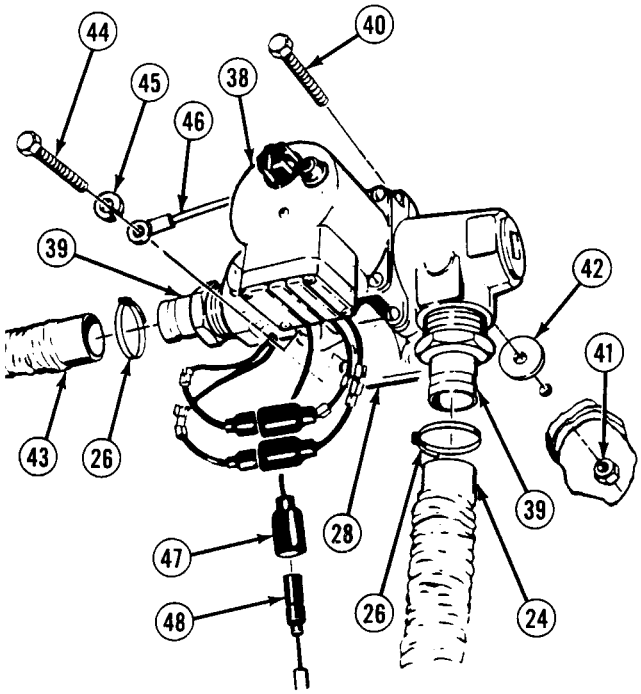
(32) Install hose (24) to left air heater (38) and pipe adapter (39) with hose clamp (26).

(33) Install hose (43) to left air heater (38) and pipe adapter (39) with hose clamp (26)

(34) Remove screw (44) and lockwasher (45) from left air heater (38). Discard lockwasher.

(35) Install wire 1435 (46) to left air heater (38) with lockwasher (45) and screw (44).

(36) Connect input wire (47) on left air heater (38) to wire 1708 (48) connector.



19-2. GAS PARTICULATE FILTER UNIT (GPFU) KIT INSTALLATION (CONT).

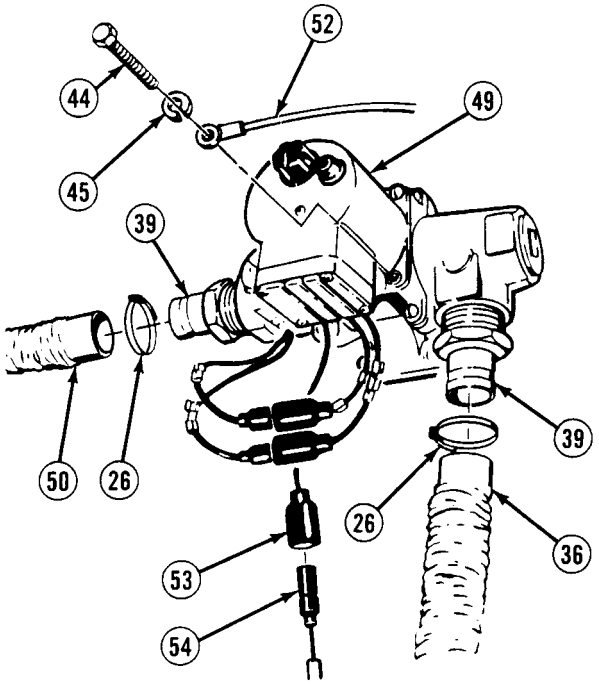
(37) Install hose (36) to pipe adapter (39) with hose clamp (26).

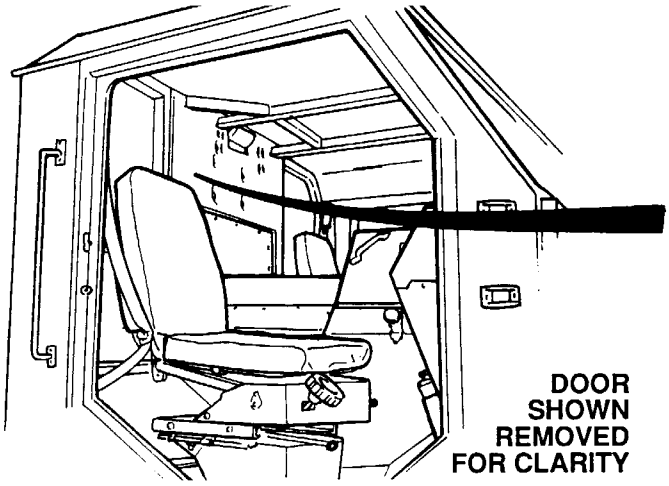
(38) Install hose (50) to pipe adapter (39) with hose clamp (26).

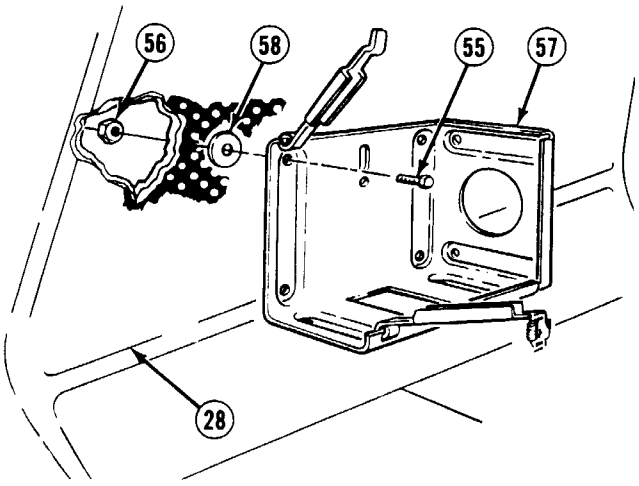
(39) Remove screw (44) and lockwasher (45) from right air heater (49). Discard lockwasher.

(40) Install wire 1435 (52) to right air heater (49) with lockwasher (45) and screw (44).

(41) Connect input wire (53) on right air heater (49) to wire 1710 (54) connector.







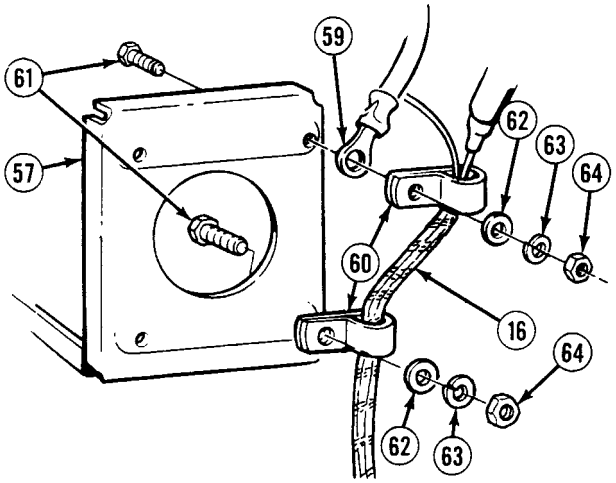
NOTE

Washers may fall from cab wall when screws and locknuts are removed.

(42) With the aid of an assistant, remove four screws (55) and locknuts (56) from cab wall (28). Discard locknuts.

(43) Install filter unit frame (57) to cab wall (28) with four screws (55), washers (58) and locknuts (56).

(44) Install wire 1435 (59), two cushion clips (60) and wire harness (16) to filter unit frame (57) with two screws (61), washers (62), lockwashers (63) and nuts (64).

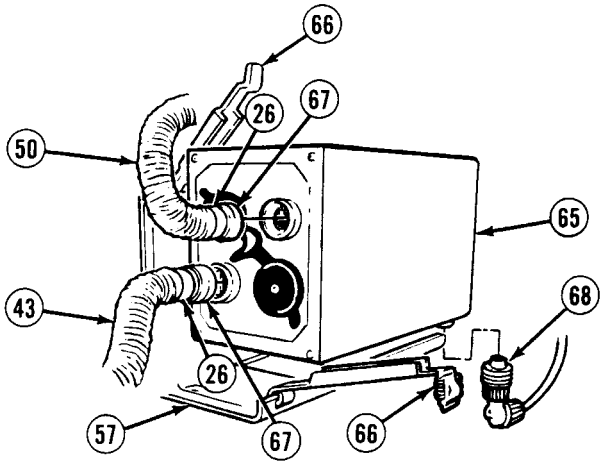


(45) Install filter unit (65) to filter unit frame (57) and tighten clamps (66).

(46) Install two plugs (67) to hoses (43) and (50) with two clamps (26).

(47) Install hoses (43) and (50) to filter unit (65).

(48) Connect connector (68) to filter unit (65).



b. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

19-3. CHEMICAL ALARM KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

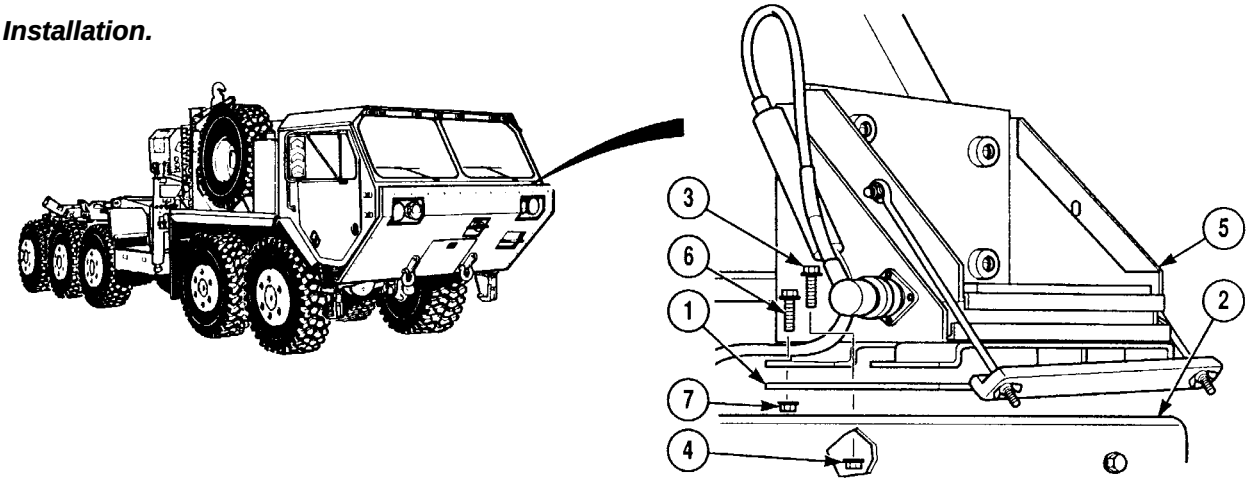
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)

Materials/Parts
Adhesive, RTV 732 (Item 2, Appendix B)

Materials/Parts (Cont)
Solvent, Drycleaning (Item 68, Appendix B)
Locknut (10) (Item 176, Appendix E)
Locknut (2) (Item 210, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Installation.



(1) Install bracket (1) on skid plate (2) with two screws (3) and locknuts (4).

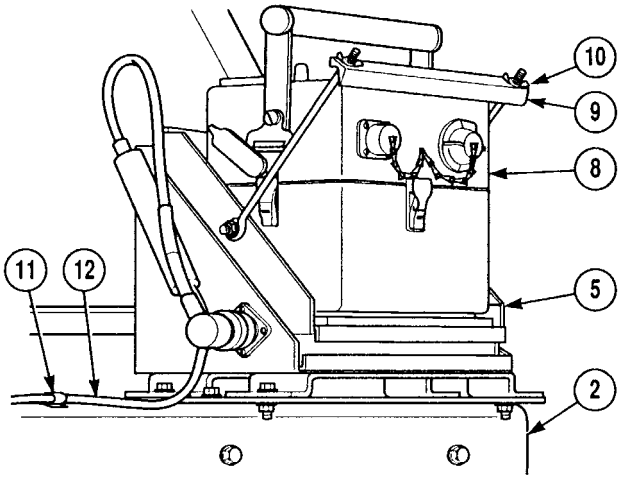
(2) Install mount (5) on bracket (1) with four screws (6) and locknuts (7).

(3) Position chemical detector (8) on mount (5).

(4) Position holder (9) on chemical detector (8) and tighten two nuts (10).

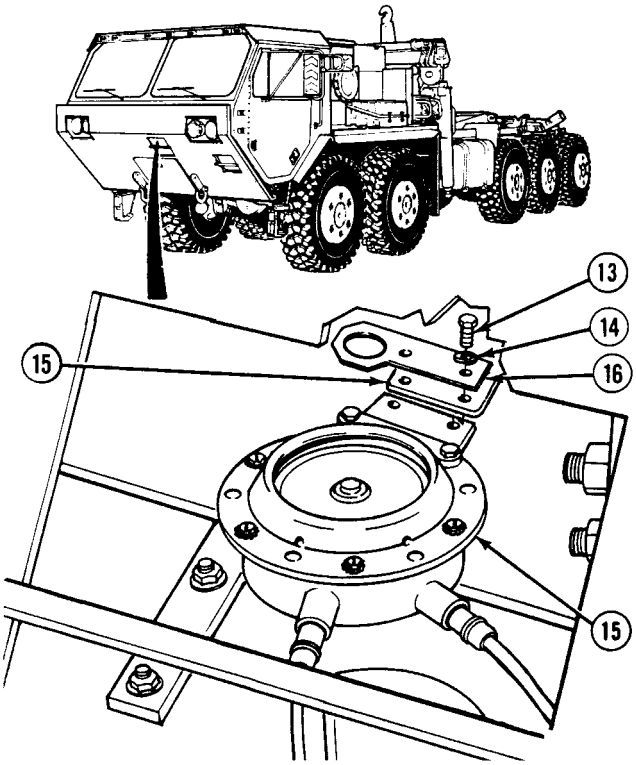
(5) Install three clips (11) on skid plate (2).

(6) Route power input cable (12) along upper edge of skid plate (2) and secure with two clips (11).



(7) Remove two screws (13) and lockwashers (14) from horn mounting bracket (15). Discard lockwashers.

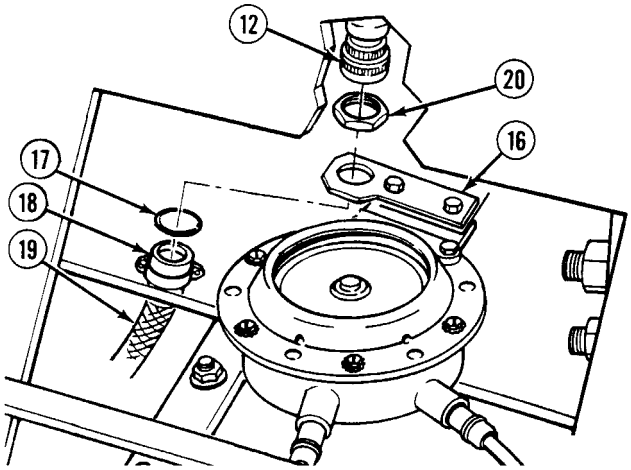
(8) Install bracket (16) on horn mounting bracket (15) with two screws (13) and lockwashers (14).



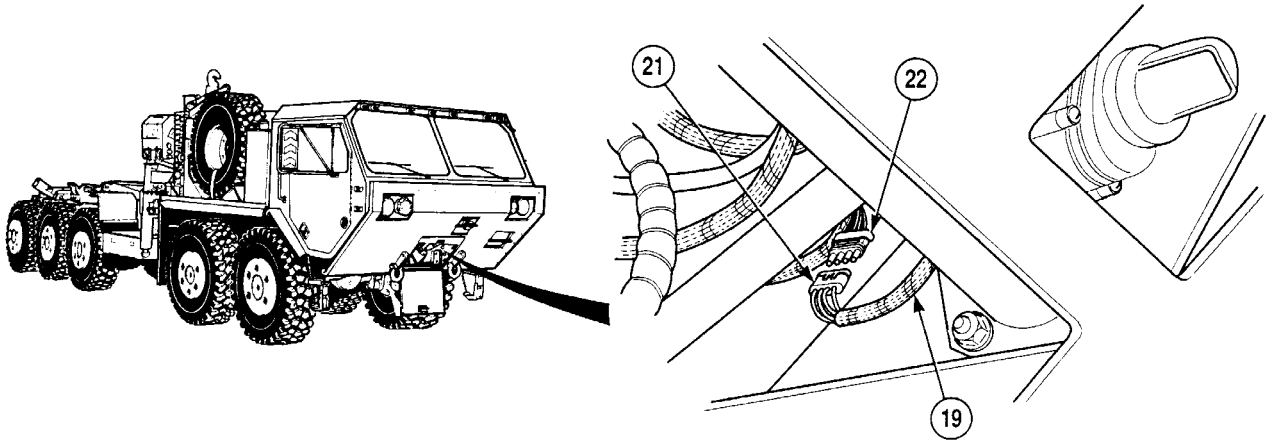
(9) Install preformed packing (17) on bulkhead connector (18).

(10) Install chemical alarm wire harness (19) and bulkhead connector (18) to bracket (16) with locking nut (20).

(11) Connect power input cable (12) to bulkhead connector (18).



19-3. CHEMICAL ALARM KIT INSTALLATION (CONT).



(12) Connect chemical alarm wire harness (19) connector (21) to MC103 connector (22).

(13) Remove eight screws (23) and heater control access panel (24) from panel (25).

(14) Remove blank cover (26) from switch panel (27).

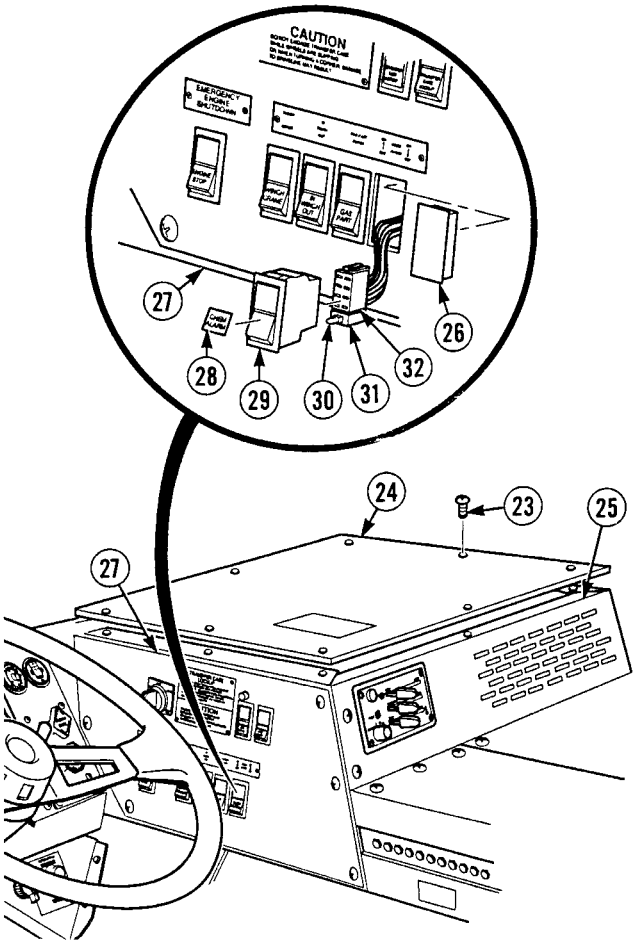
(15) Install applique (28) to ON/OFF rocker switch (29).

(16) Install ON/OFF rocker switch (29) to switch panel (27).

(17) Install lamp (30) to connector (31).

(18) Install connector (31) to ON/OFF rocker switch (29).

(19) Connect S20 connector (32) to ON/OFF rocker switch (29).



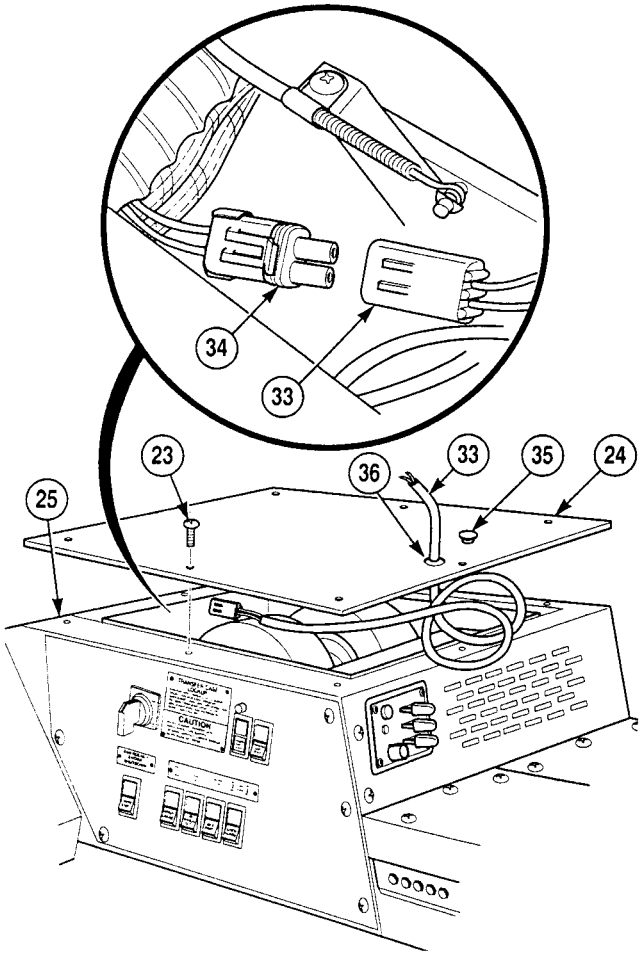
(20) Connect chemical alarm wiring harness (33) to MC104 connector (34).

(21) Remove plastic hole plug (35) from heater control access panel (24).

(22) Install grommet (36) to heater control access panel (24).

(23) Install chemical alarm wiring harness (33) through grommet (36).

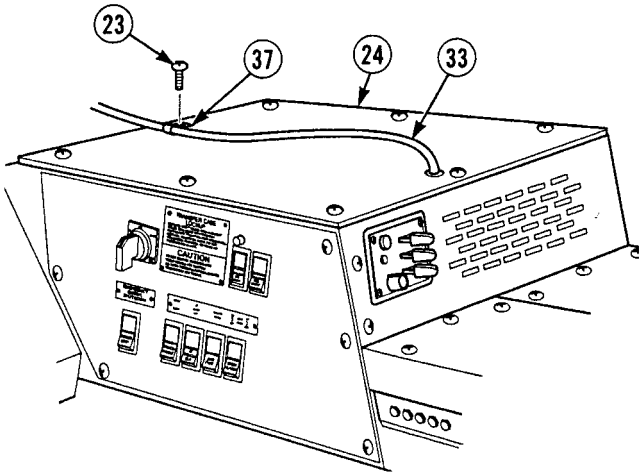
(24) Install heater control access panel (24) to panel (25) with seven screws (23).



NOTE

Approximately 44 in. (112 cm) of the chemical alarm wiring harness must protrude from the heater control access panel in order for the harness to reach the chemical alarm.

(25) Secure chemical alarm wiring harness (33) to heater control access panel (24) with cushion clip (37) and screw (23).



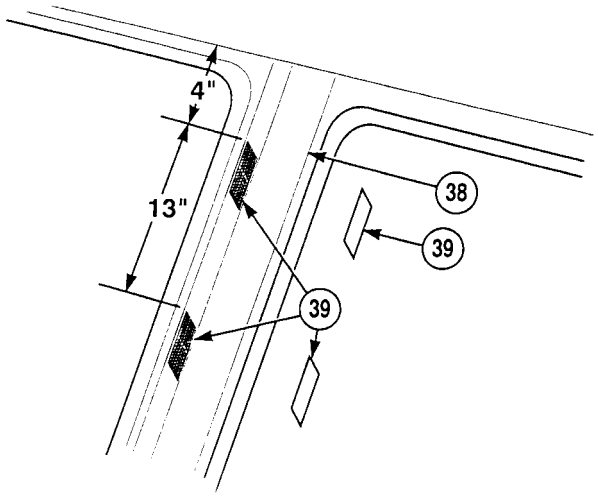
19-3. CHEMICAL ALARM KIT INSTALLATION (CONT).

WARNING

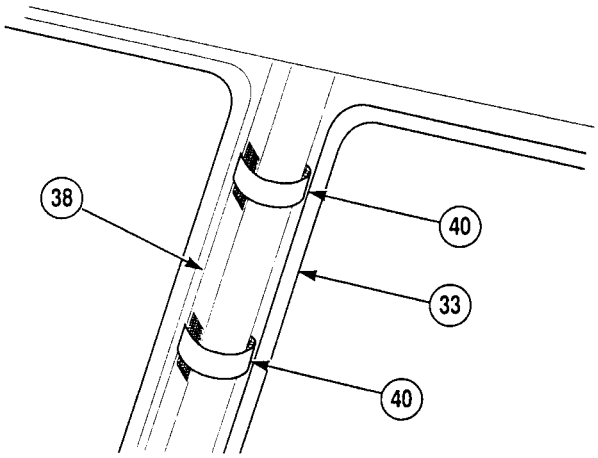
- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(26) Clean two areas on center support tube (38) with drycleaning solvent.

(27) Install four velcro strips (39) to center support tube (38).



(28) Secure chemical alarm wiring harness (33) to support tube (38) with two velcro strips (40).



(28.1) Apply adhesive to threads of four screws (43).

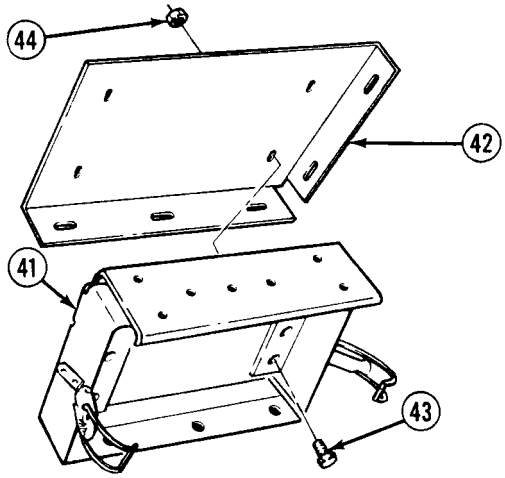
(29) Install alarm mount (41) to alarm bracket (42) with four screws (43) and locknuts (44).

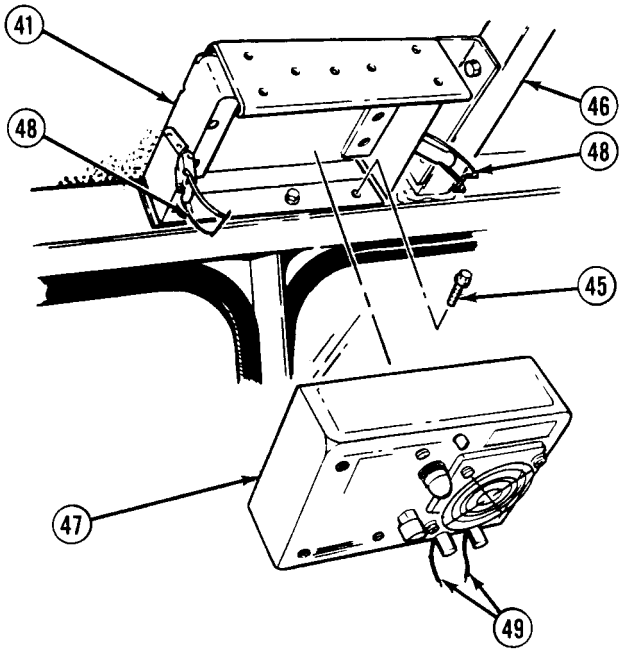
(30) Remove five screws (45) from cab roof supports (46).

(31) Install alarm mount (41) and alarm bracket (42) to cab roof supports (46) with five screws (45).

(32) Install alarm (47) to alarm mount (41) with two clamps (48).

(33) Connect two chemical alarm wire harness wires (49) to alarm (47).





b. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

19-4. DECONTAMINATION KIT INSTALLATION (WITHOUT AUXILIARY FUEL TANK).

This task covers:

a. Installation b. Follow-On Maintenance

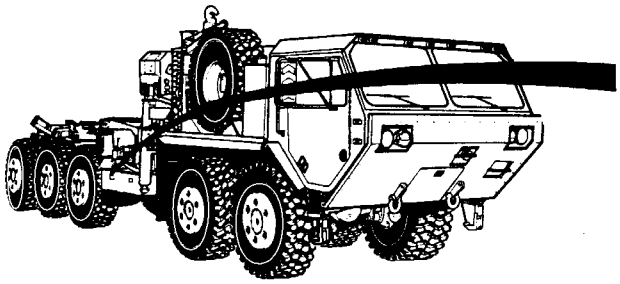
INITIAL SETUP

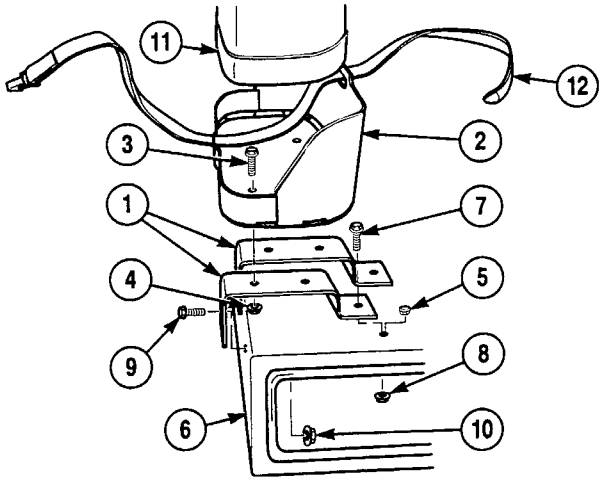
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Locknut (8) (Item 210, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Parking brake applied, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Installation.





(1) Install two lower support brackets (1) on bracket assembly (2) with four screws (3) and locknuts (4).

(2) Remove four hole plugs (5) from stowage box (6).

(3) Position bracket assembly (2) on stowage box (6).

(4) Position two screws (7) and locknuts (8) in lower brackets (2) and stowage box (6).

(5) Position two screws (9) and locknuts (10) in lower brackets (2) and stowage box (6).

(6) Tighten four locknuts (10) and (8).

(7) Install decontamination apparatus (11) in bracket assembly (2) and tighten strap (12).

b. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

19-5. DECONTAMINATION KIT INSTALLATION (WITH AUXILIARY FUEL TANK).

This task covers:

a. Installation b. Follow-On Maintenance

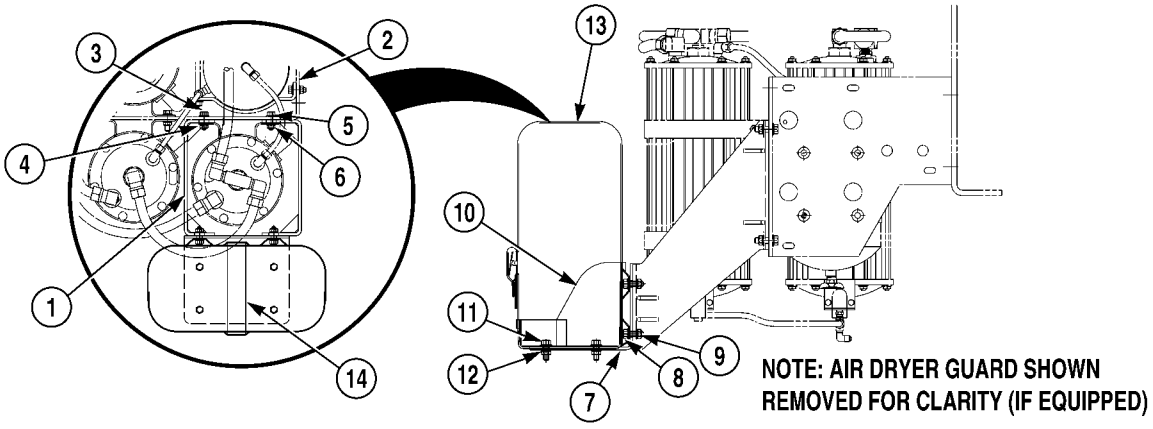
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N•m])
(Item 95, Appendix G)

Materials/Parts
Locknuts (8) (Item 210, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Installation.



(1) Install front bracket (1) on air dryer bracket (2) with two screws (3) and locknuts (4). Tighten screws to 30 lb-ft (40 N·m).

(2) Install rear bracket (5) on air dryer bracket (2) with two screws (5) and locknuts (6). Tighten screws to 30 lb-ft (40 N·m).

(3) Install bracket (7) on front bracket (1) and rear bracket (5) with four screws (8) and locknuts (9).

(4) Install bracket (10) on bracket (7) with four screws (11) and locknuts (12).

(5) Install can (13) on bracket (10) with strap (14).

b. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

APPENDIX A

REFERENCES

A-1. SCOPE.

Indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to material covered in this publication.

Military Publication Indexes.

Consolidated Index of Army Publications and Forms ..... DA PAM 310-1

A-2. FORMS.

Refer to DA PAM 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to the vehicle.

A-3. FIELD MANUALS.

The following publications contain information pertinent to the vehicle material.

Camouflage ..... FM 20-3

Manual for Wheel Vehicle Driver ..... FM 21-305

Nuclear, Biological, and Chemical Defense ..... FM 21-40

Basic Cold Weather Manual ..... FM 31-70

Northern Operations ..... FM 31-71

Chemical, Biological, and Radiological (CBR) Decontamination ..... FM 3-5

Nuclear, Biological, and Chemical (NBC) Reconnaissance and Decontamination Operations (How to Fight) ..... FM 3-87 (HTF)

Army Motor Transport Units and Operations ..... FM 55-30

Operation and Maintenance of Ordnance Materiel in Cold Weather 0°F to -65°F ..... FM 9-207

A-4. TECHNICAL MANUALS.

Painting Instructions ..... TM 43-0139

General Shop Practice Requirements for Repair, Maintenance, and Test of Electronic Equipment ..... TM 43-0158

A-4. TECHNICAL MANUALS (CONT).

Administrative Storage of Equipment ..... TM 740-90-1

Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-Automotive Command) ..... TM 750-244-6

Operator's and Organizational Support Maintenance Manual for Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes ..... TM 9-2610-200-14

Operator/Unit/Direct Support/General Support Maintenance Manual Including Repair Parts and Special Tools List for Simplified Test Equipment For Internal Combustion Engines ..... TM 9-4910-571-12&P

Maintenance and Repair for Lead-Acid Storage Batteries ..... TM 9-6140-200-14

Inspection, Care, and Maintenance of Antifriction Bearings ..... TM 9-214

Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordinance Material and Related Materials Including Chemicals ..... TM 9-247

A-5. MISCELLANEOUS PUBLICATIONS.

Description, Use, Bonding Techniques, and Properties of Adhesives ..... TB ORD1032

Safety Inspection and Testing of Lifting Devices ..... TB 43-0142

Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems ..... TB 750-651

Operator's Circular for Welding Theory and Application ..... TC 9-237

APPENDIX B

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

B-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain the truck. These items are authorized to you by CTA50-970, Expendable Items (Except Medical, Class V, Repair Parts and Heraldic Items) or CTA8-100, Army Medical Department Expendable/Durable Items.

B-2. EXPLANATION OF COLUMNS.

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative task box to identify the material (e.g., "Compound, Antiseize, Item 14, Appendix B").

b. Column (2) - Level. This indicates the level of maintenance authorized to use the material as approved by the Maintenance Allocation Chart (MAC).

c. Column (3) - National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Commercial and Government Entity (CAGE) code in parentheses followed by the part number.

e. Column (5) - Unit of Measure. Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	F		Adhesive, RTV 108 (80244) MIL-A-46106 GP1TY1	
		8040-00-843-0802	3 ounce kit	oz
		8040-00-225-4548	12 ounce tube	oz
2	F		Adhesive, RTV 732	kt
		8040-00-865-8991	(19207) 12266964	
3	F		Adhesive, (0PMN0) Sika 255FC BLK (45152) 3145938	oz
4	F		Adhesive, Spray (45152) 1537350	oz
5	F		Alcohol, Isopropyl (53390) 7618-19-4	
		6810-01-075-5546	40 ounce bottle	oz
6	F	6850-00-181-7940	Antifreeze	gl
7	F		Brush, Bristle	
		7920-00-062-5468	(72387) 2-305SBN	ea
8	H		Brush, Paint	
		8020-00-324-9700	(96906) MS 16866	ea
9	F		Cable Ties	
		5975-00-273-8133	(96906) MS3367-3	pk
10	F		Chalk	
		7510-00-223-6706	(58536) A-A-318	bx
11	F		Cloth, Cleaning (81349) MIL-C-85043	
		7920-00-165-7195	Type 1 - 10 lb box	lb
		7920-00-044-9281	Type 2 - 10 lb box	lb
12	F		Cloth, Crocus (81348) P-C-458	
		5350-00-221-0872	50 sheet package	sh
13	F		Coating, Protective (09687) 57-021-102	
		8030-01-106-8393	1 quart can	qt
14	F		Compound, Antiseize (81399) MIL-A-907	
		8030-01-087-8254	8 ounce can with brush applicator	oz
		8030-00-155-6444	16 ounce aerosol can	oz

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
15	F		Compound, Corrosion Preventive (81349) MIL-C-16173	
		8030-00-062-6950	Grade 1 - 1 quart can	qt
		8030-01-149-1731	Grade 2 - 1 quart can	qt
		8030-00-837-6557	Grade 3 - 1 pint can	pt
		8030-00-903-0931	Grade 4 - 1 pint can	pt
16	F		Compound, International No. 2 (45152) 5198563	oz
17	H		Compound, Retaining Type II (81349) MIL-R-46082B	oz
18	F		Compound, Rust Preventive (81349) MIL-R-10036	
		8030-00-231-2349	1 gallon can	gl
		8030-00-231-2344	5 gallon can	gl
19	F		Compound, Silicone (75037) 1609	
		6950-01-092-3550	can aerosol	oz
20	H		Dye, Prussian Blue	
		8010-00-889-9745	(45152) 15963	oz
21	F		Grease, Automotive and Artillery (81349) MIL-G-10924	
		9150-01-197-7688	2.25 ounce tube	oz
		9150-01-197-7689	6.5 pound can	lb
22	F		Grease, General Purpose (81349) MIL-G-23549	
		9150-01-306-9202	1 pound can	lb
		9150-00-823-8047	35 pound can	lb
23	F		Grease, High Temperature	
		9150-01-145-1259	(81349) DOD-G-85733	qt
24	F		Grease, HI-Vacuum	
		9150-01-137-4657	(98079) 269352-2	qt
25	H		Grease, Instrument (97343) SRI-2	
		9150-01-235-5057	1 pint can	pt
26	F		Grease, Lithium	
		9150-00-076-1587	(07748) 5555	oz
27	F		Grease, Molybdenum Disulfide (58372) 60G	
		9150-01-091-9336	1.5 pound can	lb

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
28	F		Grease, Molybdenum Disulfide (81349) MIL-G-21164	
		9150-00-754-2595	1.75 pound can	lb
		9150-00-965-2003	35 pound can	lb
29	F		Heatshrink, Sealed (46152) 1704940	ea
30	F		Heatshrink, Sealed	
		5970-00-815-1295	(45152) 1704950	ea
31	F		Lubricant, Tire (96980) AA20	
		2540-00-256-5529	5 gallon can	gl
		2540-00-256-5526	1 quart can	qt
			(96980) AA17	
		2540-00-256-5527	1 gallon can	gl
32	F		Oil, Diesel, Fuel BULK	
		9140-00-286-5294	(81348) VVF800GRADEDF2RE	gl
33	H		Oil, Honing	
		9150-01-024-6059	(58436) MB-30	qt
34	F		Oil, Hydraulic OE/HDO 10 (81349) MIL-L-2104	
		9150-00-189-6727	1 quart can	qt
		9150-00-183-7807	55 gallon drum	gl
35	F		Oil, Injector Test	
		6850-00-779-6851	(33287) J 26400-5	oz
36	F		Oil, Lubricating OE/HDO 30 (81349) MIL-L-2104	
		9150-00-186-6681	1 quart can	qt
		9150-00-189-6729	55 gallon drum	gl
37	F		Oil, Lubricating, Engine OE/HDO 40 (81349) MIL-L-2104	
		9150-00-189-6730	1 quart can	qt
		9150-00-405-2987	55 gallon drum	gl
38	F		Oil, Lubricating, Engine OE/HDO 15W/40 (81349) MIL-L-2104	
		9150-01-152-4117	1 quart can	qt
		9150-01-152-4119	55 gallon drum	gl
39	F		Oil, Lubricating, Engine OE/HDO 10W/30 (81349) MIL-L-46152	
		9150-00-186-6699	1 quart can	qt
		9150-00-186-6703	55 gallon drum	gl

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
40	F		Oil, Lubricating, Gear 75 W/90 (81349) MIL-L-2105	qt
41	F		Oil, Lubricating, Gear 80W/90 (81349) MIL-L-2105	
		9150-01-035-5392	1 quart can	qt
		9150-00-001-9395	5 gallon can	gl
42	H		Paint, Black (45152) PS-025-9	oz
43	H		Petrolatum (81348) VV-P-236	
		9150-00-250-0931	8 ounce tube	oz
		9150-00-250-0933	7.5 pound can	lb
44	H		Plastigage	
		5210-00-640-6178	(77220) PR-1	ea
45	F		Primer, (0PMN0) Sika Cleaner 205 (45152) 3145939	oz
46	F		Primer, “T” 7471	
		8030-01-388-5604	(05972) 19267	oz
47	F		Rags, Wiping (58536) A-A-531	
		7920-00-205-1711	50 pound bale	lb
48	F		Rope, 3/4 in. thick, 20 ft.	
		4020-00-106-9342	(19207) MIL-R-24050	ea
49	F		Sealant, Adhesive (81349) MIL-S-46163	
		8030-00-111-2762	50 cc bottle	bt
		8030-01-253-2319	12 ounce tube	tu
50	F		Sealant, Electrical (00CE9) RTV200-257	
51	F		Sealer, Automotive (45152) 706786X	oz
52	H		Sealing Compound (77247) 51D	
		8030-00-954-9371	1 pint can	pt
53	F		Sealing Compound	
		8030-01-166-0675	(05972) 56765	tu
54	F		Sealing Compound (05972) MIL-S-46163 Type 1 Grade K	
		8030-01-158-6070	10 milliliter bottle	bt

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
55	F		Sealing Compound (111280A)	
		8030-01-069-3046	(05972) MIL-S-46163A Type II Grade M	bt
56	F		Sealing Compound	
			(05972) Loctite #242	
			(80244) MIL-S-46163A Type 2 Grade N	
		8030-01-104-5392	10 milliliter bottle	bt
		8030-01-025-1692	250 milliliter bottle	bt
57	F		Sealing Compound	
			(05972) Loctite #262	
		8030-01-159-4374	10 milliliter bottle	ml
		8030-01-142-9830	50 milliliter bottle	ml
		8030-01-142-3131	250 milliliter bottle	ml
58	F		Sealing Compound	
			(05972) Loctite #680	
		8030-01-303-0502	50 milliliter bottle	ml
		8030-01-387-2007	250 milliliter bottle	ml
59	F		Sealing Compound	
			(05972) Loctite #609	
			(80244) MIL-R-46082B Type 1	
		8030-00-180-6150	10 milliliter bottle	bt
		8030-00-180-6222	50 milliliter bottle	bt
		8030-00-891-8358	250 milliliter bottle	bt
60	F		Sealing Compound	
			(05972) Loctite #518	
			50 milliliter bottle	bt
			300 milliliter cartridge	cr
61	O		Sealing Compound	
			(05972) Loctite #567	
		8030-01-054-0740	50 milliliter bottle	ml
		8030-00-204-9149	250 milliliter tube	ml
			(05972) Loctite #567-47	
		8030-01-166-0675	50 milliliter tube	ml
62	F		Sealing Compound	
		8040-01-260-1939	(71984) RTV 738	oz
63	F		Sealing Compound	
			(81349) MIL-S-45180	
		8030-00-291-1787	1 pint can	pt
		8030-00-291-1789	1 gallon can	gl
64	F		Sealing Compound	
			(77247) Permatex-3D	
		8030-00-656-1426	1 pint can	pt

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
65	F		Sealing Compound	
			(05972) Loctite #515	
		8030-01-137-6964	50 milliliter tube	tu
65.1	F		Sealing Compound	
			(05972) Loctite #569	
		8030-01-026-1538	250 milliliter bottle	bt
66	O		Silicone Compound, Anti-Corrosion	
			(71984) DC4-2OZ	
		6850-00-177-5094	2 ounce tube	oz
67	F		Solution, Soap	
		6810-00-252-1345	(81349) MIL-W-15000 Class C	bt
68	F		Solvent, Drycleaning	
			(81348) P-D-680	
		6850-00-664-5685	1 quart can	qt
		6850-00-264-9038	5 gallon can	gl
			(Evironmentally Compliant Solvent)	
			(0K209) Breakthrough	
		6850-01-378-0679	5 gallon can	gl
69	F		Spirits, Mineral	
		8010-00-440-4224	(83992) 3526	gl
70	F		Strip, Metal	
		9515-01-268-9500	(39428) 9500K18	in
71	F		Strip, Rubber	
		9320-00-491-5351	(98882) 70-17-13	ft
72	F		Tags, Identification	
			(81349) MIL-T-12755	
		9905-00-537-8957	White	ea
		9905-00-537-8955	Yellow	ea
73	F		Tape, Masking	
		7510-00-680-2395	(26066) 231	ea
74	F		Tape, Electrical	
		5970-00-547-0966	(19207) BISEALTYPE3	ea
75	F		Tape, Pressure Sensitive	
			(52152) 4950	
		7510-01-358-8770	36 yard roll	yd
76	H		Varnish	
		8010-00-401-0421	(79810) FIXATIF	qt
77	F		Varnish, Insulating, Electrical	
		5970-00-901-5331	(15202) 10-9002	oz

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
78	F	6145-01-074-7535	Wire, 16 Gage (45152) 1927FX	ft
79	H	9505-00-331-3275	Wire, Nonelectrical (96906) MS20995C41	lb

APPENDIX C

ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I. INTRODUCTION

C-1. SCOPE.

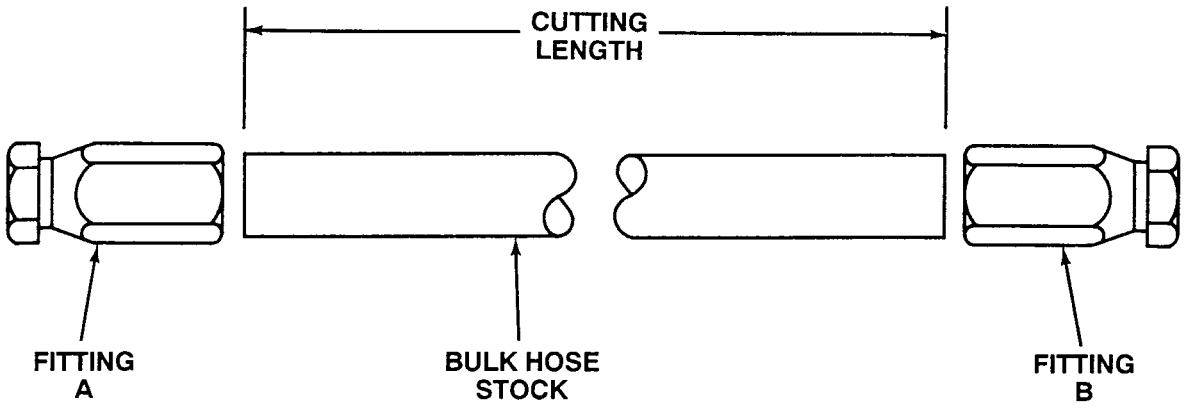
This appendix includes complete instructions for manufacturing or fabricating authorized items locally. All bulk materials needed to manufacture an item are listed by part number or specification number in a tabular list with an illustration, as needed.

Section II. MANUFACTURED ITEMS

C-2. FUEL HOSE FABRICATION.

The following hoses are cut from bulk hose using a fine-toothed hacksaw or suitable cutting device. Locations and installation instructions for fuel hoses are found in TM 9-2320-364-20. Table C-1 lists the fuel hoses.

Table C-1. Fuel System Hoses



Hose Assembly P/N	Bulk Hose P/N	Cut off Length	
		Inches	cm
65068AX-024	2575-48RL	24	610
47371AXU-018	FC350-04	18	457
EU102958-025	FC350-06	25	635
EU101958-052	FC350-06	52	1321
1924600U-034	FC350-10	34	864
56845AXU-005	FC350-10	5	127

C-3. AIR INTAKE HOSE FABRICATION.

There are two hoses in the air intake system that require fabrication. Both hoses can be cut from bulk stock using a fine-toothed hacksaw or suitable cutting device. Refer to TM 9-2320-364-20 for locations and installation instructions.

Table C-2. Air Intake Hoses

Hose Assembly P/N	Bulk Hose P/N	Cutoff Length	
		Inches	mm
2103FXW-120	21020FX	120	3048
1732400U-067	FC300-16	67	1702

C-4. COOLING SYSTEM HOSES FABRICATION.

The following hoses for the cooling system are cut from bulk hose using a fine-toothed hacksaw or suitable cutting device. Locations and installation instructions are found in TM 9-2320-364-20.

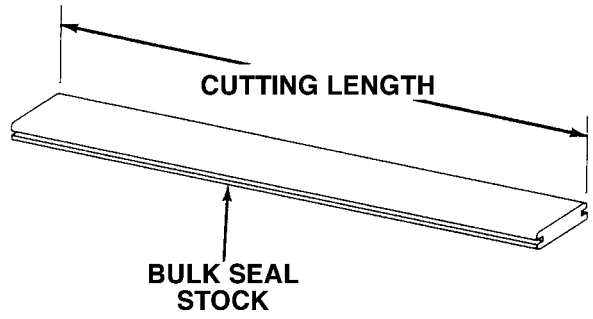
Table C-3. Cooling System Hoses

Hose Assembly P/N	Bulk Hose P/N	Cutoff Length	
		Inches	mm
69940AX-048	3230-0293	48	1219
4811FX-100	4811FX	100	2540
46754AX-U-020	FC350-06	20	508

C-5. SEAL FABRICATION.

Fabricate seals from bulk seal stock listed in Table C-4. Use a suitable cutting tool to cut seal to length required.

Table C-4. Seal, Nonmetallic

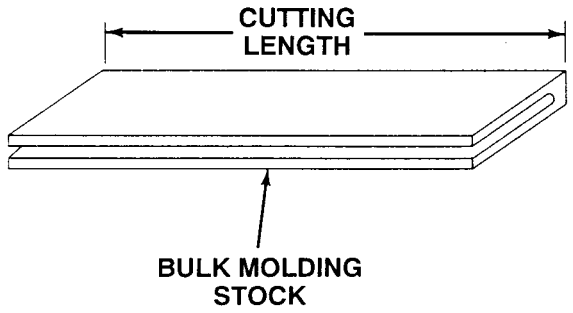


Seal P/N	Seal Bulk P/N	Cutoff Length	
		inches	mm
59747AX-040	101-2203	40	1016
59747AX-055	101-2203	55	1397
59745AX-040	75000519	40	1016
59745AX-055	75000519	55	1397
125865A-047	75001366	47	1194
125865A-116	75001366	116	2946
125865A-160	75001366	160	4064

C-6. EDGING AND MOLDING FABRICATION.

Edging and molding can be fabricated from bulk stock listed in Table C-5. Use suitable cutting tool to cut to length required.

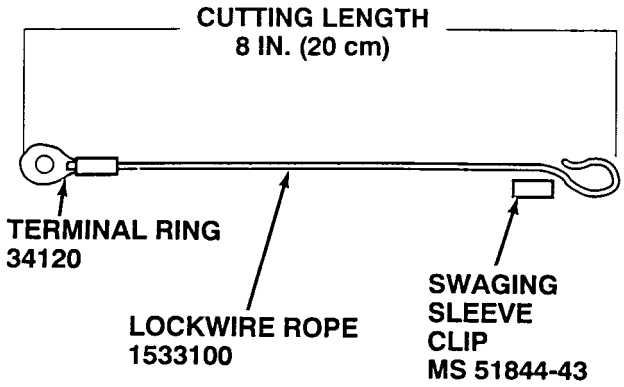
Table C-5. Edging and Molding



Edging/Molding P/N	Edging/Molding Bulk P/N	Cutoff Length	
		inches	mm
1339700-011	1339700	11	279
26927AX-026	26927AX	26	660
26947BX-002	75000317	2	51
26947BX-003	75000317	3	76
26947BX-004	75000317	4	102
26947BX-005	75000317	5	127
26947BX-006	75000317	6	152
26947BX-017	75000317	17	432
26947BX-018	75000317	18	457
1467160-012	75000317	12	305
42925AX-005	OR40	5	127
27022AX-002	R-422-N	2	5
27022AX-019	R-422-N	19	483
27022AX-024	R-422-N	24	610
27022AX-043	R-422-N	43	1092
27022AX-093	R-422-N	93	2362
27022AX-101	R-422-N	101	2565
27022AX-130	R-422-N	130	3302

C-7. LOCKWIRE ROPE FABRICATION.

The lockwire length is shown in Table C-6. Crimped button stop caps are used to attach the lockwire to other components. Each application requires two swaging sleeve clips.



NOTES:

1. Obtain all components required to fabricate lockwire.
2. Use a fine toothed hacksaw or suitable cutting device, and cut lockwire to length required.
3. Slide wire through hole in component, until lockwire comes through other side.
4. Slide cap onto lockwire, until cap bottoms against component and wire comes through cap.
5. Crimp cap to lockwire.
6. Slide opposite end of wire through assembly, and slide other cap over end of wire.
7. Slide wire through hole in component, until lockwire comes through other side.
8. Slide cap onto lockwire, until cap bottoms against component and wire comes through cap.
9. Crimp cap to lockwire

The following wire rope is cut from bulk stock. Refer to Table C-6 for cutting lengths.

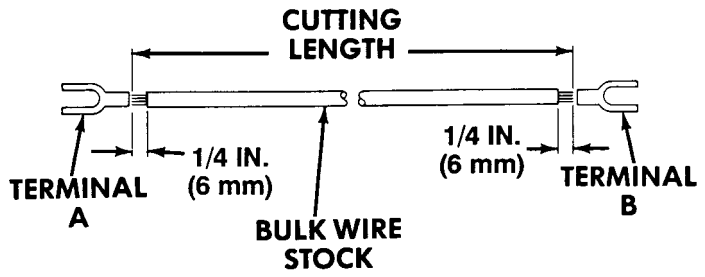
Table C-6. Lockwire Rope

Lockwire Rope Part Number	Lockwire Rope Bulk Park Number	Cutoff Length	
		Inches	cm
1533100-010	1533100	10	25
1533100-015	1533100	15	38
1533100-020	1533100	20	51
1533100-024	1533100	24	61

C-8. WIRE AND WIRE ASSEMBLIES FABRICATION.

Fabricate from bulk wire stock listed in Table C-7. Use wire cutters to cut wire to required length, then strip ends of wire 1/4 in (6.35 mm). Crimp the required lugs or terminals onto wire ends.

Table C-7. Wire and Wire Assemblies

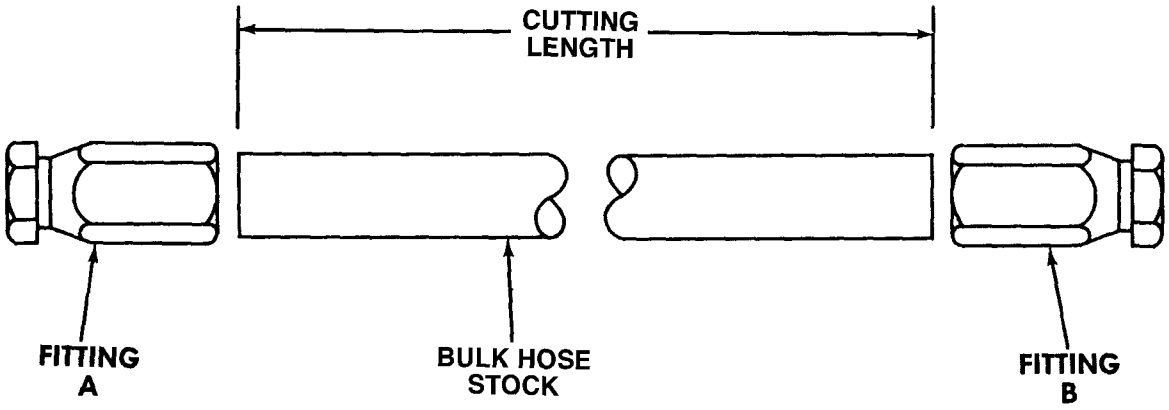


Wire/Assembly Part Number	Bulk Wire Part Number	Cutoff Length	
		inches	cm
1884540W-012	121782A	12	31
1947560W-012	121782A	12	31
1959390W-012	121782A	12	31
1959600W-012	121782A	12	31
1977300W-010	4127FX	10	25
1974580-013	R-64951	13	33
1974590-005	R-64951	5	13
1978470W-005	R-64951	5	13

C-9. HOSES AND TUBES.

Fabricate hoses and tubes from bulk hose or tube stock listed in Table C-8. Use a fine toothed hacksaw or suitable cutting device and cut hose/tube to desired length. Place fitting A in vise and screw hose/tube counterclockwise until hose/tube bottoms out in fitting. Back off 1/4 turn. Repeat for fitting B.

Table C-8. Hoses and Tubes



Hose/Tube Part Number	Bulk Hose Part Number	Cutoff Length	
		Inches	cm
5113689-12	1525-6	12	31
21021FX-026	2102CFX	26	66
32850AX-014	22020	14	36
32850AX-016	22020	16	41
32850AX-030	22020	30	76
32850AX-036	22020	36	91
32850AX-51	22020	51	130
31270AX-029	31270AX	29	74
31270AX-082	31270AX	82	208
31270AX-096	31270AX	96	244
31270AX-140	31270AX	140	356
69940AX-006	3230-0293	6	15
69940AX-065	3230-0293	65	165
31271AX-040	3250-101	40	102
31271AX-047	3250-101	47	119
31271AX-053	3250-101	53	135
31271AX-092	3250-101	92	234
31271AX-150	3250-101	150	381

Table C-8. Hoses and Tubes (Cont)

Hose/Tube Part Number	Bulk Hose Part Number	Cutoff Length	
		Inches	cm
AAAC0085	5199575	85	216
AAAC0105	5199575	105	267
AAAC0190	5199575	190	483
AAAC0260	5199575	260	660
AAAE0090	5199575	90	229
1944510	70-062		Variable
1944520	70-062		Variable
23319FX-012	C604-200 BLK	12	31
23319FX-023	C604-200 BLK	23	58
23319FX-029	C604-200 BLK	29	74
23319FX-244	C604-200 BLK	244	620
23319FX-257	C604-200 BLK	257	653
23323FX-008	C606 BLACK	8	20
23323FX-008	C606 BLACK	8	20
23323FX-010	C606 BLACK	10	25
23323FX-010	C606 BLACK	10	25
23323FX-012	C606 BLACK	12	31
23323FX-014	C606 BLACK	14	36
23323FX-019	C606 BLACK	19	48
23323FX-022	C606 BLACK	22	56
23323FX-026	C606 BLACK	26	66
23323FX-030	C606 BLACK	30	76
23323FX-033	C606 BLACK	33	84
23323FX-042	C606 BLACK	42	107
23323FX-042	C606 BLACK	42	107
23323FX-044	C606 BLACK	44	112
23323FX-046	C606 BLACK	46	117
23323FX-050	C606 BLACK	50	127
23323FX-052	C606 BLACK	52	132
23323FX-055	C606 BLACK	55	140
23323FX-057	C606 BLACK	57	145
23323FX-060	C606 BLACK	60	152
23323FX-060	C606 BLACK	60	152
23323FX-082	C606 BLACK	82	208
23323FX-087	C606 BLACK	87	221
23323FX-089	C606 BLACK	89	226

Table C-8. Hoses and Tubes (Cont)

Hose/Tube Part Number	Bulk Hose Part Number	Cutoff Length	
		Inches	cm
23323FX-148	C606 BLACK	148	376
23323FX-159	C606 BLACK	159	404
23323FX-163	C606 BLACK	163	414
23323FX-200	C606 BLACK	200	508
23323FX-335	C606 BLACK	335	851
23323FX-377	C606 BLACK	377	958
198872A U-200	FC300-04	20	51
115134A W-004	FC300-04	4	10
1732400 U-067	FC300-16	67	170
1620950 U-099	FC350-04	99	252
47371AX U-055	FC350-04	5	13
47371AX U-006	FC350-04	6	15
47371AX U-012	FC350-04	12	31
47371AX U-017	FC350-04	17	43
47371AX U-018	FC350-04	18	46
47371AX U-120	FC350-04	120	305
60264AX U-031	FC350-04	31	79
60264AX U-034	FC350-04	34	86
60264AX U-054	FC350-04	54	137
60264AX U-057	FC350-04	57	145
60264AX U-063	FC350-04	63	160
60264AX U-082	FC350-04	82	208
60296AX U-029	FC350-04	29	74
60296AX U-036	FC350-04	36	91
60296AX U-061	FC350-04	61	155
1780700 U-032	FC350-06	32	81
1780700 U-035	FC350-06	35	89
1780700 U-039	FC350-06	39	99
1780700 U-041	FC350-06	41	104
1782400 U-022	FC350-06	22	56
1782410 U-021	FC350-06	21	53
1782450 U-025	FC350-06	25	64
47336AX-060	FC350-06	60	152
47554AX U-020	FC350-06	20	51
118971A U-022	FC350-08	22	56
118971A U-095	FC350-08	95	241

Table C-8. Hoses and Tubes (Cont)

Hose/Tube Part Number	Bulk Hose Part Number	Cutoff Length	
		Inches	cm
119784A U-010	FC350-08	10	25
119784A U-021	FC350-08	21	53
119784A U-047	FC350-08	47	119
1782340 U-019	FC350-08	19	48
1782360 U-020	FC350-08	20	51
1921290 U-025	FC350-08	25	64
1936150 U-032	FC350-08	32	81
1936150 U-034	FC350-08	34	86
1936150 U-038	FC350-08	38	97
1936150 U-040	FC350-08	40	102
69390AX U-006	FC350-08	6	15
69390AX U-019	FC350-08	19	48
69390AX U-020	FC350-08	20	51
69390AX U-020	FC350-08	20	51
69390AX U-021	FC350-08	21	53
69390AX U-025	FC350-08	25	37
1780720 U-020	FC350-10	20	51
1780720 U-051	FC350-10	51	130
1782370 U-037	FC350-10	37	94
1782380 U-031	FC350-10	31	79
1782390 U-020	FC350-10	20	51
1782420 U-039	FC350-10	39	99
1782430 U-031	FC350-10	31	79
1782440 U-019	FC350-10	19	48
1924600 U-090	FC350-10	90	229
47750AX U-009	FC350-10	9	23
58989AX U-020	FC350-10	20	51
58989AX U-034	FC350-10	34	86
58989AX U-064	FC350-10	64	163
66798AX U-020	FC350-10	20	51
66798AX U-025	FC350-10	25	64
66798AX U-030	FC350-10	30	76
66798AX U-077	FC350-10	77	196
1780710 U-082	FC350-12	82	208
1780710 U-083	FC350-12	83	211
47369AX U-127	FC350-12	127	323

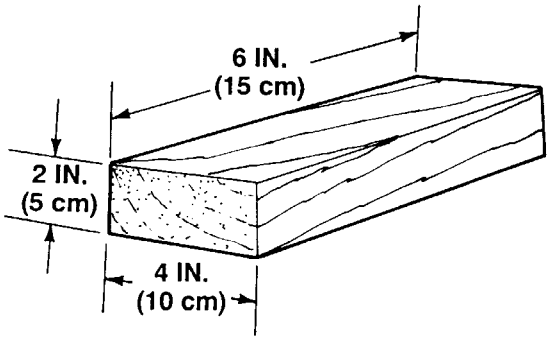
Table C-8. Hoses and Tubes (Cont)

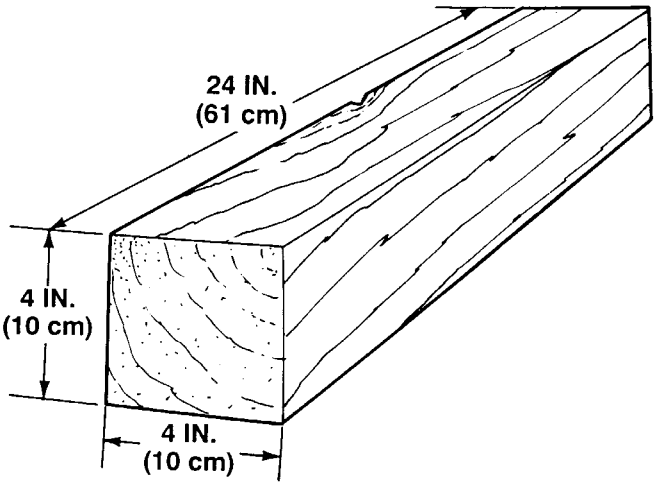
Hose/Tube Part Number	Bulk Hose Part Number	Cutoff Length	
		Inches	cm
61608AX U-093	FC350-12	93	236
61608AX U-142	FC350-12	142	361
47468AX U-011	FC350-16	11	28
47468AX U-022	FC350-16	22	56
47468AX U-045	FC350-16	45	114
47468AX U-046	FC350-16	46	117
47468AX U-089	FC350-16	89	226
47213AX-012	NT10012-50FT	12	31
47213AX-016	NT10012-50FT	16	41
47213AX-021	NT10012-50FT	21	53
47213AX-023	NT10012-50FT	23	58
47213AX-025	NT10012-50FT	25	64
47213AX-025	NT10012-50FT	25	64
47213AX-060	NT10012-50FT	60	152
47213AX-073	NT10012-50FT	73	185
47213AX-073	NT10012-50FT	73	185
47213AX-173	NT10012-50FT	173	439
47213AX-194	NT10012-50FT	194	493
1656470-030	PFT-4A-BLU	30	76
1656470-104	PFT-4A-BLU	104	264
1656470-115	PFT-4A-BLU	115	292
1656470-139	PFT-4A-BLU	139	353
1605260-008	PFT-4A-GRN	8	20
1605330-020	PFT-4A-ORG	20	51
1605330-040	PFT-4A-ORG	40	102
1605330-071	PFT-4A-ORG	71	180
1605330-112	PFT-4A-ORG	112	285
1605330-124	PFT-4A-ORG	124	315
1605170-007	PFT-4A-RED	7	18
1605270-023	PFT-6B-GRN	23	58
1605270-028	PFT-6B-GRN	28	71
1605270-056	PFT-6B-GRN	56	142
1605270-057	PFT-6B-GRN	57	145
1605270-100	PFT-6B-GRN	100	254
1605270-108	PFT-6B-GRN	108	274
1605270-146	PFT-6B-GRN	146	371

Table C-8. Hoses and Tubes (Cont)

Hose/Tube Part Number	Bulk Hose Part Number	Cutoff Length	
		Inches	cm
1605320-205	PFT-6B-ORG	205	521
1605160-012	PFT-6B-RED	12	31
1605160-014	PFT-6B-RED	14	36
1605160-030	PFT-6B-RED	30	76
1605160-031	PFT-6B-RED	31	79
1605160-047	PFT-6B-RED	47	119
1605160-048	PFT-6B-RED	48	122
1605160-049	PFT-6B-RED	49	125
1605160-055	PFT-6B-RED	55	140
1605160-102	PFT-6B-RED	102	259
1605160-103	PFT-6B-RED	103	262
1605160-114	PFT-6B-RED	114	290
1605160-165	PFT-6B-RED	165	419
1605160-213	PFT-6B-RED	213	541
1605300-026	PFT-6B-YEL	26	66
1605300-066	PFT-6B-YEL	66	168
1605300-070	PFT-6B-YEL	70	178
1605300-129	PFT-6B-YEL	129	328
1605300-132	PFT-6B-YEL	132	335
1605300-150	PFT-6B-YEL	150	381
1605300-022	PFT-8B-BLU	22	56
1605300-316	PFT-8B-BLU	316	802
1656500-128	PFT-10B-GRN	128	325
1656500-183	PFT-10B-GRN	183	465
1656490-102	PFT-10B-RED	102	259
1656490-202	PFT-10B-RED	202	513
1656490-257	PFT-10B-RED	257	653
W-22-13	W-22	13	33
W-22-9	W-22	9	23
40AW168-010	W-22-L	10	25
40AW168-050	W-22-L	50	127
40AW168-19	W-22-L	19	48
40AW168-27	W-22-L	27	69
40AW168-45	W-22-L	45	114

C-10. WOODEN BLOCKS.





a. Fabricate from MML751 lumber stock.

b. Using saw and standard planing machine, cut stock to size required in Table C-9.

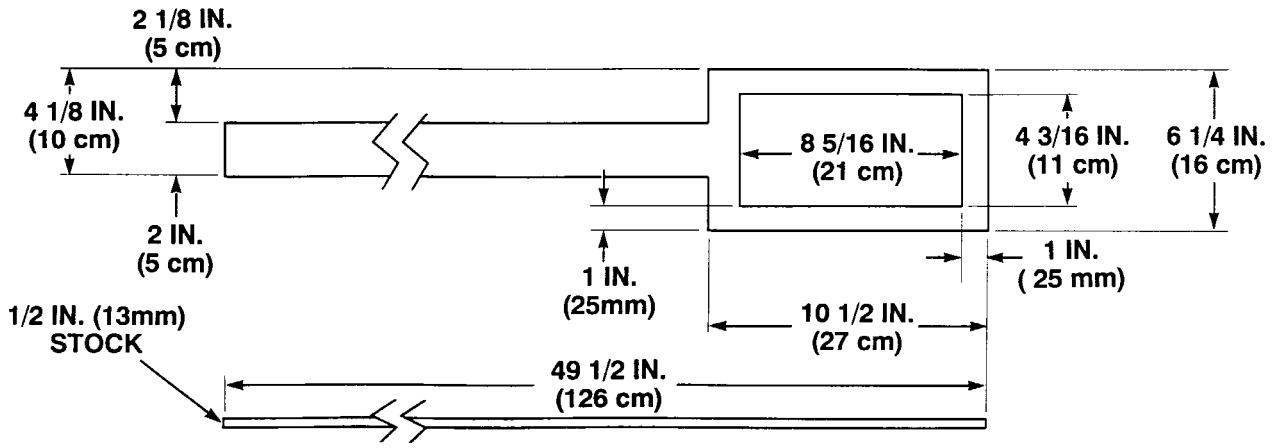
Table C-9. Wooden Blocks

Para Number	Finished Dimensions of Block In. (cm)	Qty.
2-14	3 by 12 by 72 in. (8 by 30 by 183 cm)	4
2-15	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
2-15	4 by 4 by 24 in. (10 by 10 by 61 cm)	1
3-7	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
3-12	2 by 4 by 16 in. (5 by 10 by 41 cm)	2
3-18	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
3-19	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
3-33	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
5-7	2 by 4 by 12 in. (5 by 10 by 30 cm)	2
6-31	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
7-10	2 by 4 by 30 in. (5 by 10 by 76 cm)	2
9-3	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
9-11	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
9-13	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
12-9	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
12-9	2 by 4 by 11 in. (5 by 10 by 28 cm)	1
12-9	4 by 6 by 11 in. (10 by 15 by 28 cm)	1
12-10	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
12-11	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
13-2	2 by 4 by 6 in. (5 by 10 by 15 cm)	2
13-4	2 by 4 by 6 in. (5 by 10 by 15 cm)	2
13-13	6 by 7 by 15 in. (15 by 18 by 38 cm)	2
14-6	1 by 3 by 12 in. (3 by 8 by 30 cm)	1
15-2	2 by 2 by 4 in. (5 by 5 by 10 cm)	2
16-2	4 by 6 by 42 in. (10 by 15 by 107 cm)	4
16-3	2 by 4 by 12 in. (5 by 10 by 30 cm)	1
16-3	4 by 4 by 36 in. (10 by 10 by 91 cm)	1

Table C-9 Wooden Blocks (Continued)

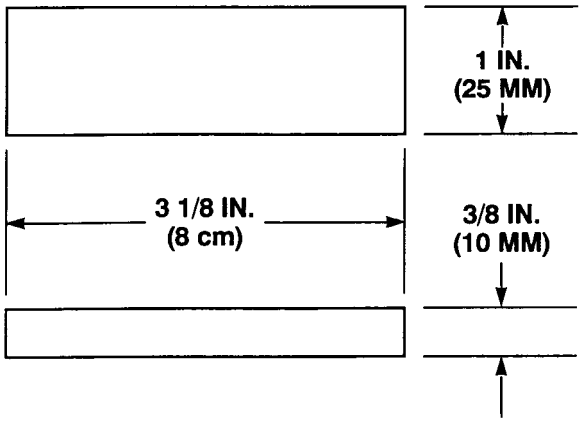
Para Number	Finished Dimensions of Block In. (cm)	Qty.
16-6	4 by 4 by 18 in. (10 by 10 by 46 cm)	1
16-17	4 by 6 by 42 in. (10 by 15 by 107 cm)	2
16-26	4 by 4 by 18 in. (10 by 10 by 46 cm)	1
16-31	2 by 4 by 6 in. (5 by 10 by 15 cm)	1
16-38	4 by 6 by 35 in. (10 by 15 by 89 cm)	2
16-40	4 by 6 by 35 in. (10 by 15 by 89 cm)	2
16-41	2 by 4 by 6 in. (5 by 10 by 15 cm)	2
17-8	2 by 4 by 6 in. (5 by 10 by 15 cm)	2
17-12	4 by 6 by 35 in. (10 by 15 by 89 cm)	2
17-13	4 by 6 by 35 in. (10 by 15 by 89 cm)	2
17-14	1 by 2 by 6 in. (3 by 5 by 15 cm)	2
17-15	4 by 6 by 35 in. (10 by 15 by 89 cm)	2
17-16	4 by 6 by 35 in. (10 by 15 by 89 cm)	2
20-19	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
20-39	2 by 4 by 12 in. (5 by 10 by 30 cm)	2
20-47	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
20-48	2 by 4 by 36 in. (5 by 10 by 91 cm)	2
20-49	2 by 4 by 36 in. (5 by 10 by 91 cm)	2
20-50	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
20-52	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
20-53	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
21-2	4 by 4 by 16 in. (10 by 10 by 41 cm)	2
23-12	2 by 4 by 30 in. (5 by 10 by 76 cm)	2
23-13	4 by 6 by 24 in. (10 by 15 by 61 cm)	2
23-14	6 by 6 by 16 in. (15 by 15 by 41 cm)	2
23-15	4 by 4 by 16 in. (10 by 10 by 41 cm)	2
23-18	2 by 4 by 30 in. (5 by 10 by 76 cm)	1
23-18	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
23-19	4 by 4 by 24 in. (10 by 10 by 61 cm)	2
28-2	2 by 2 by 12 in. (5 by 5 by 30 cm)	2
28-3	2 by 2 by 12 in. (5 by 5 by 30 cm)	1
28-6	2 by 2 by 12 in. (5 by 5 by 30 cm)	2
28-9	4 by 6 by 35 in. (10 by 15 by 89 cm)	1
28-11	2 by 2 by 12 in. (5 by 5 by 30 cm)	2
28-13	2 by 2 by 12 in. (5 by 5 by 30 cm)	2
28-14	4 by 4 by 24 in. (10 by 10 by 61 cm)	2

C-11. FLANGE HOLDER.



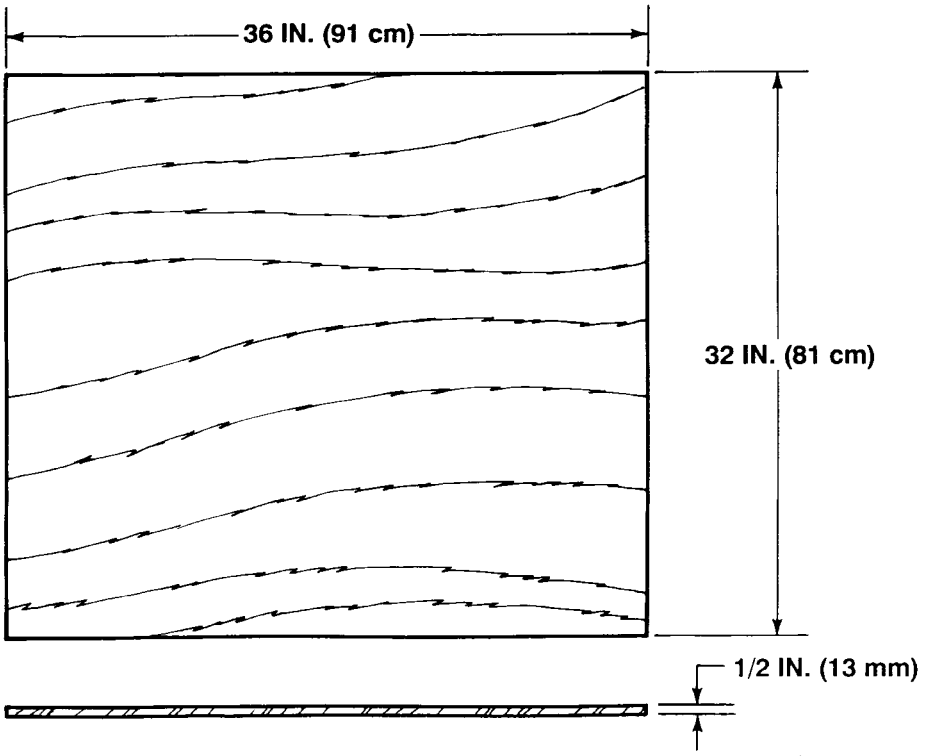
Fabricate the flange holder from 1/2 in. (13 mm) thick mild steel stock. Using a torch, cut steel stock to dimensions shown. Using a grinder, remove all rough edges.

C-12. JET EXTRACTOR.



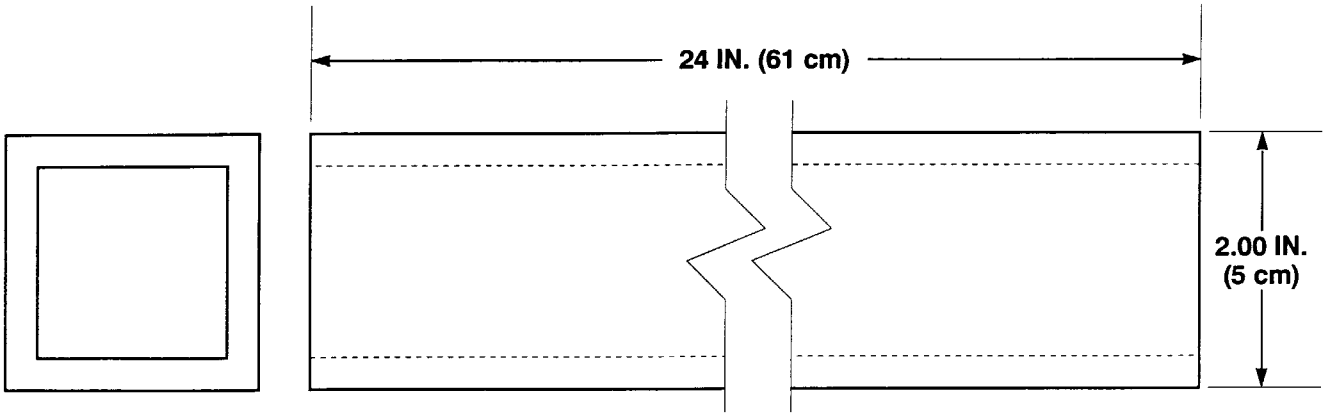
Fabricate from 3/8 in. (10 mm) thick mild steel stock. Using a hacksaw, cut to dimensions shown. Using a file or grinder, remove all rough edges.

C-13. PLYWOOD SHEET.



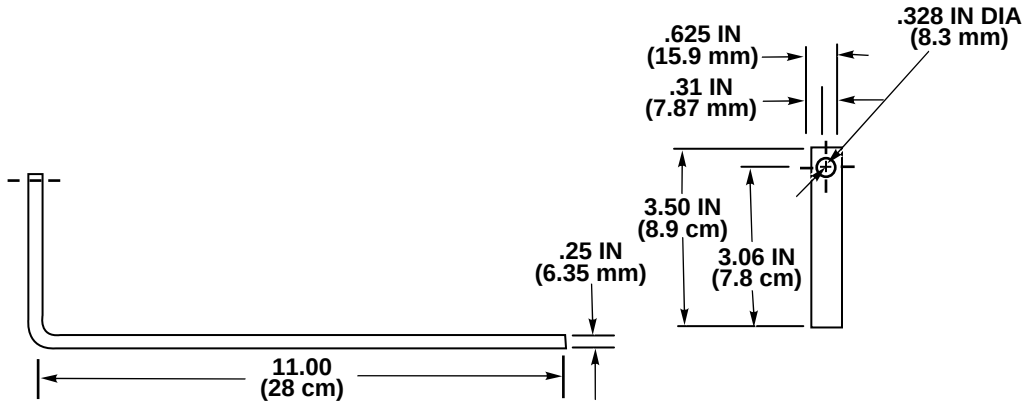
Fabricate from 1/2 in. (13 mm) thick plywood stock. Using a saw, cut to dimensions shown. Using a file or sandpaper, remove all rough edges.

C-14. STEEL TUBE.



Fabricate from 1/4 in. (6 mm) thick steel square tube stock. Using a hacksaw, cut a 24 in. (61 cm) length piece of tube. File off rough edges.

C-15. ADAPTER DIFFERENTIAL PRELOAD.

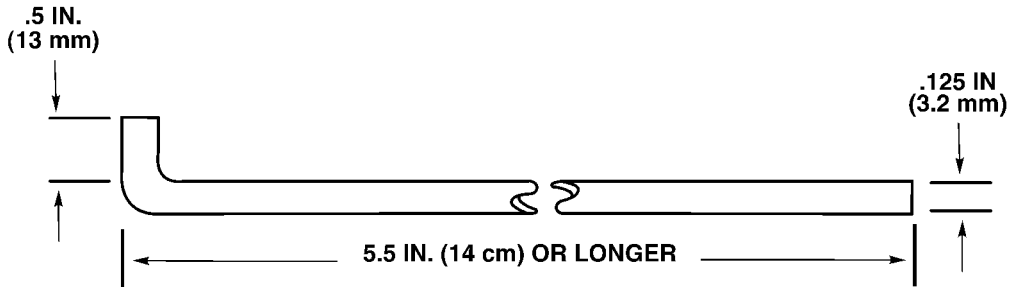


(1) Fabricate from .250 in. (6.4 mm) thick x .625 in. (13 mm) wide mild steel stock.

(2) Drill .328 in. (8.3 mm) hole where indicated.

(3) Bend 90° where indicated.

C-16. WIRE HOOK.

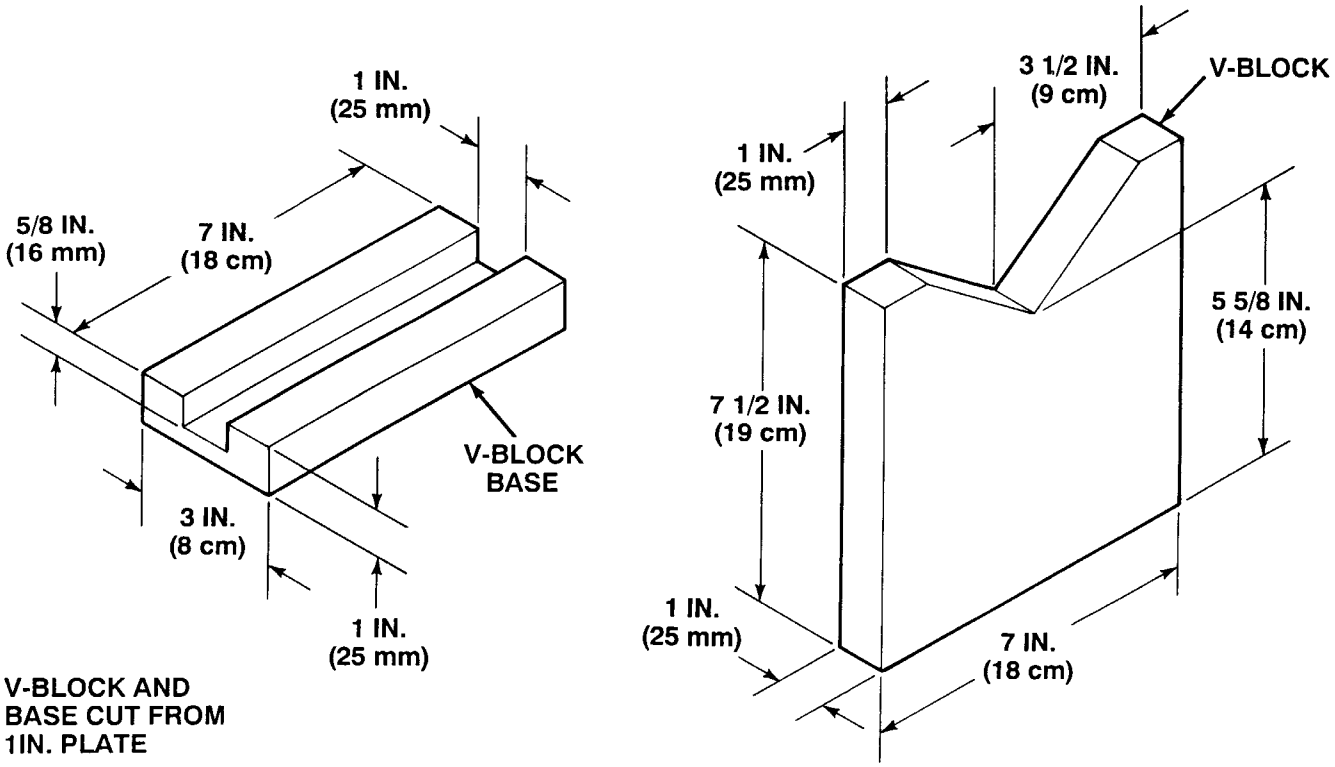


(1) Fabricate from 1/8 in. (3.2 mm) diameter steel welding rod or equivalent stiff wire.

(2) Using cutting pliers, cut welding rod to 6 in. (15.2 cm) length or longer.

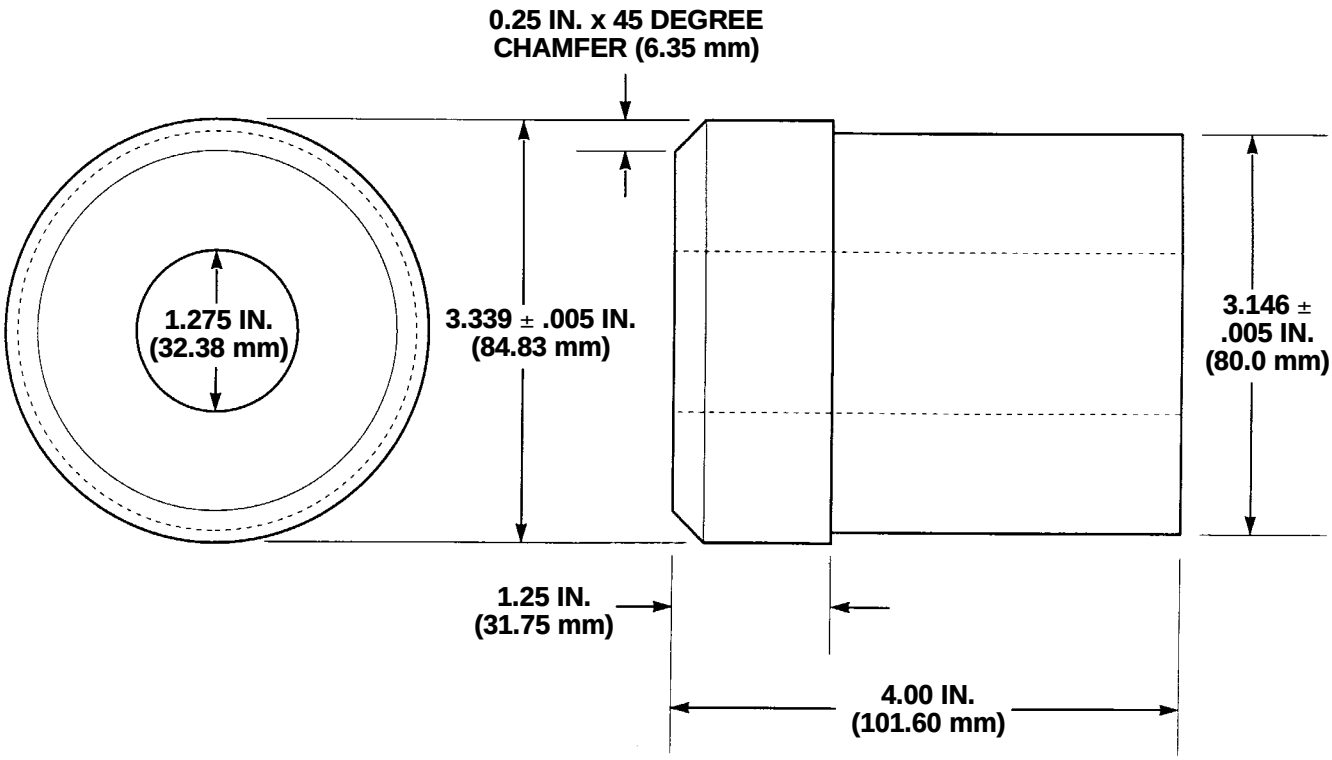
(3) Using machinist's vise, bend 1/2 in. (13 mm) length of rod 90 degrees.

C-17. V-BLOCK BASE AND V-BLOCK.



Fabricate V-Block from 1 in. (25 mm) thick mild steel stock. Using a grinder, remove any sharp edges. Using a file and then a sharpening stone, remove roughness from the inside surface of the V.

C-18. LHS BUSHING REMOVER/INSTALLER (SMALL).



Fabricate large LHS bushing remover/installer from 4 in. (101 mm) x 3.339 in. diameter steel stock.

a. Turn round stock to 3.339 in. ± .005 in.

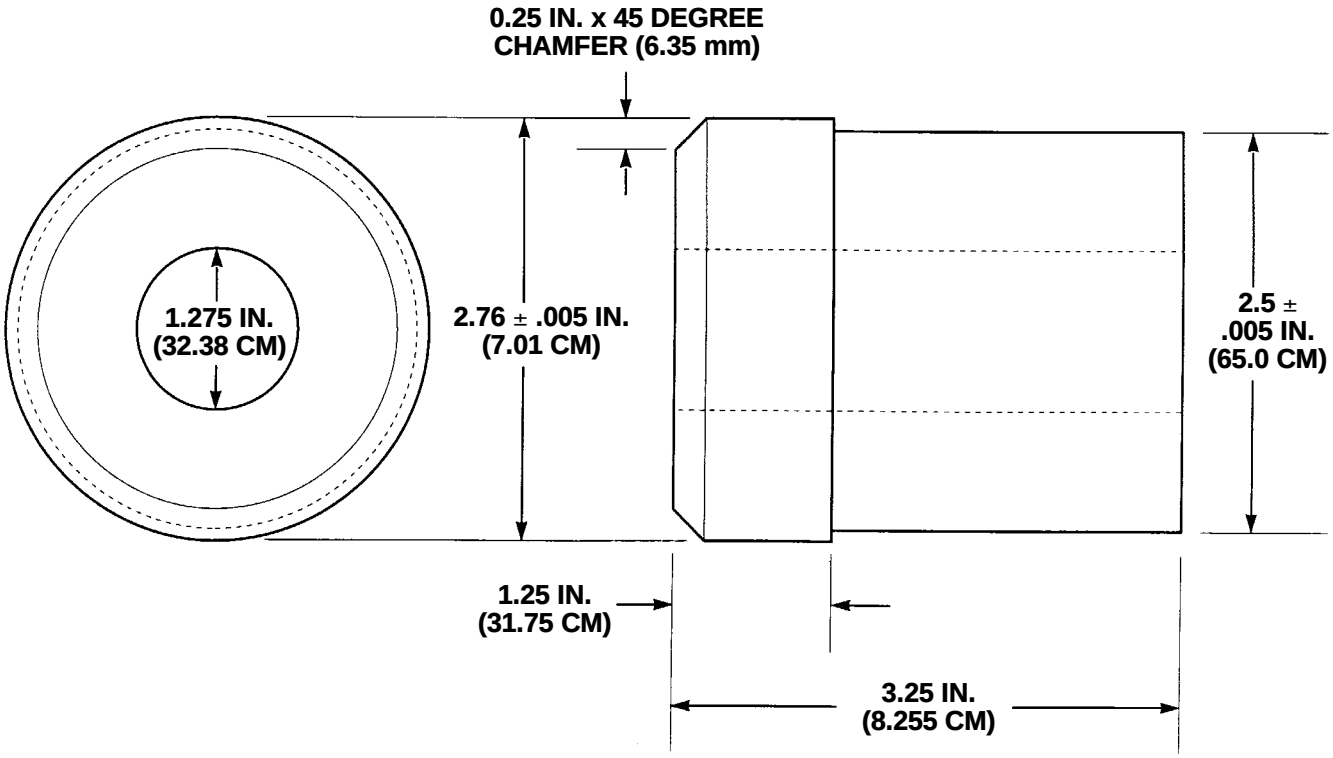
b. Cut a 1/4 in. (6 mm) x 45 degree chamfer where indicated.

c. Drill through a 1.275 in. hole in the center of the 3.339 in. diameter steel stock where indicated.

d. Starting at the end opposite of the chamfer, turn a length of 2.75 in. down to 3.146 in. ± .005 in. where indicated.

e. Paint as required.

C-19. CHU BUSHING REMOVER/INSTALLER (SMALL).



Fabricate small CHU bushing remover/installer from 3.25 in. (8.255 cm) x 2.76 in. (7.01 cm) diameter steel stock.

a. Turn round stock to 2.76 in. ± .005 in. (7.01 cm ± ∝∝®≥

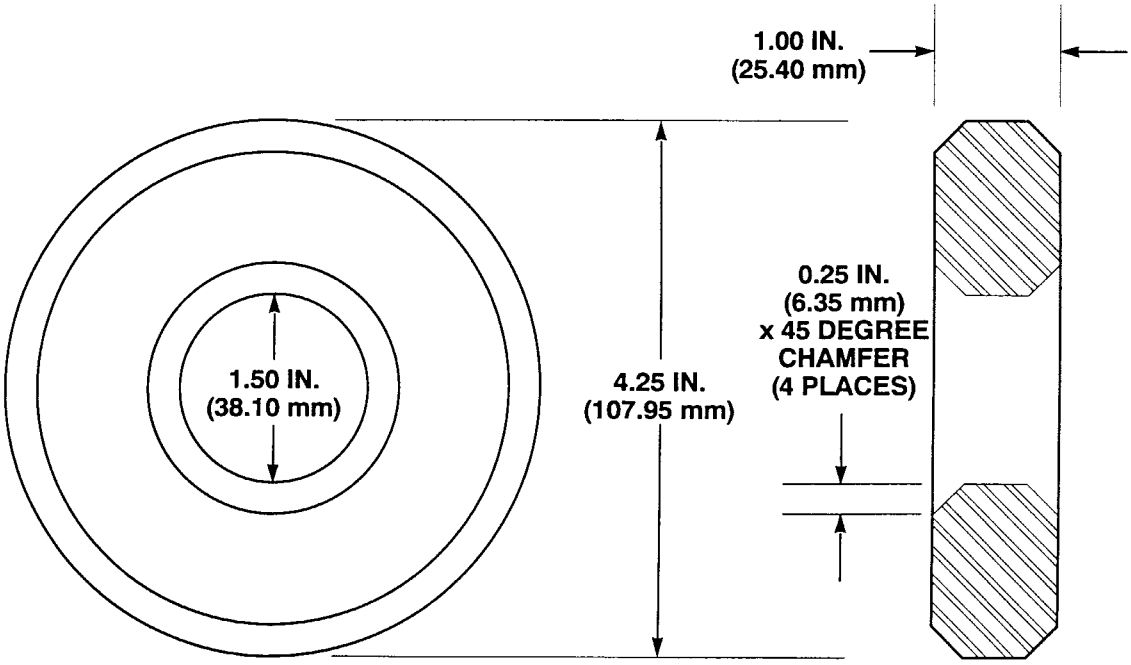
b. Cut a 1/4 in. (6 mm) x 45 degree chamfer where indicated.

c. Drill through a 1.275 in. (32.38 mm) hole in the center of the 2.76 in. diameter steel stock where indicated.

d. Starting at the end opposite of the chamfer, turn a length of 2.00 in. down to 2.5 in. ± .005 in. where indicated.

e. Paint as required.

C-20. LHS BUSHING REMOVER/INSTALLER (LARGE).



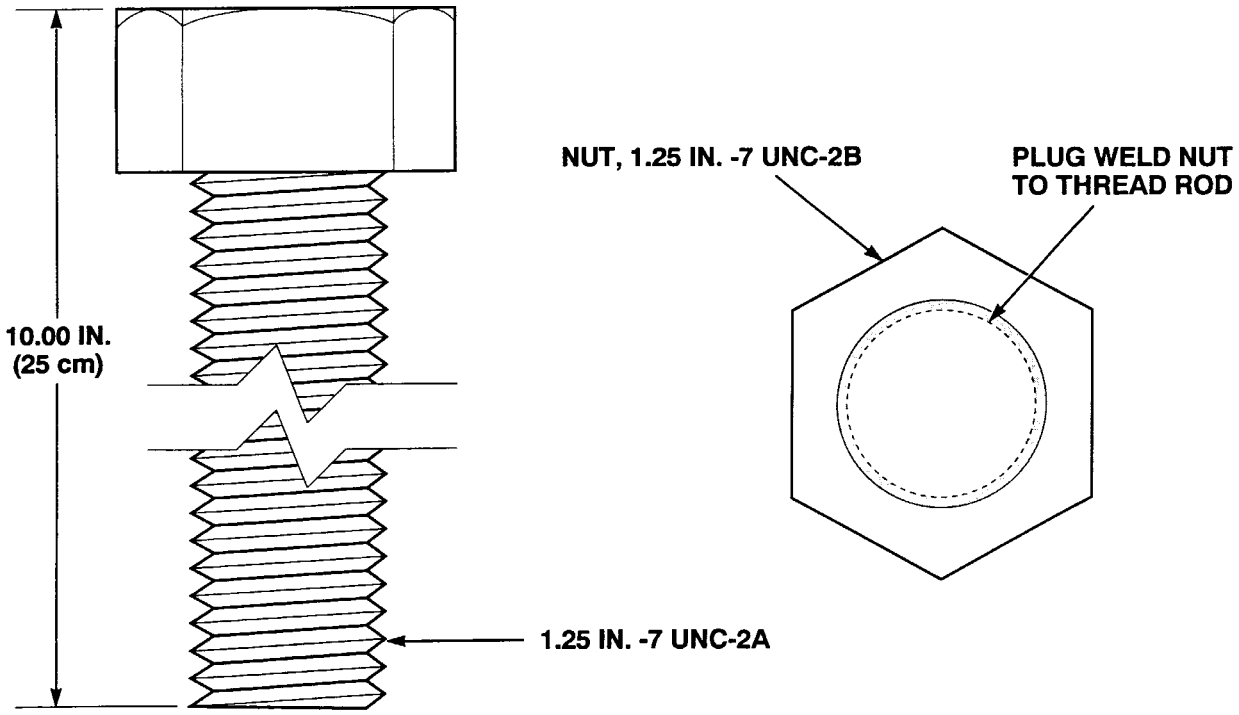
Fabricate small LHS bushing remover/installer from 1 in. (25 mm) x 4 1/4 in. (108 mm) diameter steel stock.

a. Drill 1 1/2 in. (38 mm) through steel stock where indicated.

b. Cut a 1/4 in. (6.35 mm) x 45 degree chamfer on both inside and outside diameters where indicated.

c. Paint as required.

C-21. LHS LEAD SCREW.



Fabricate LHS lead screw from grade 8 steel.

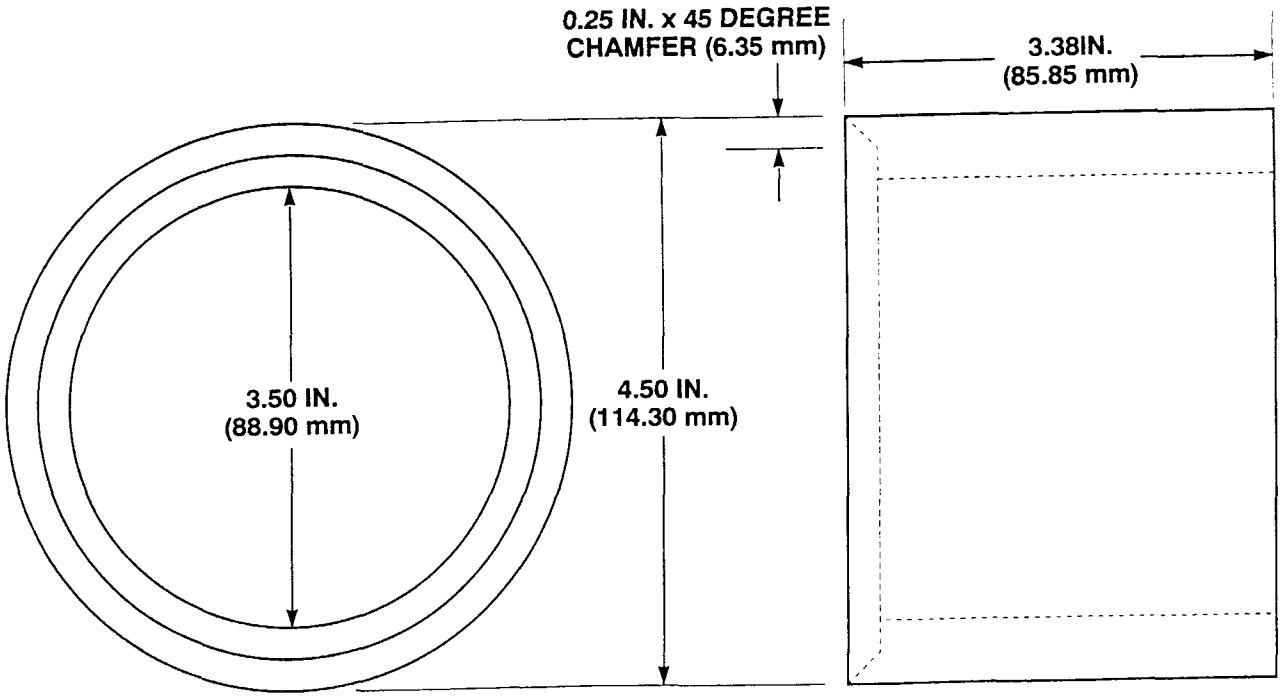
a. Cut length of thread rod to 9.750 in. (25 cm).

b. Thread nut on rod until total length measures 10.00 in. (25 cm).

c. Plug weld nut to thread rod.

d. Two grade 8 nuts are required, one loose and one welded.

C-22. LHS BUSHING REMOVER.



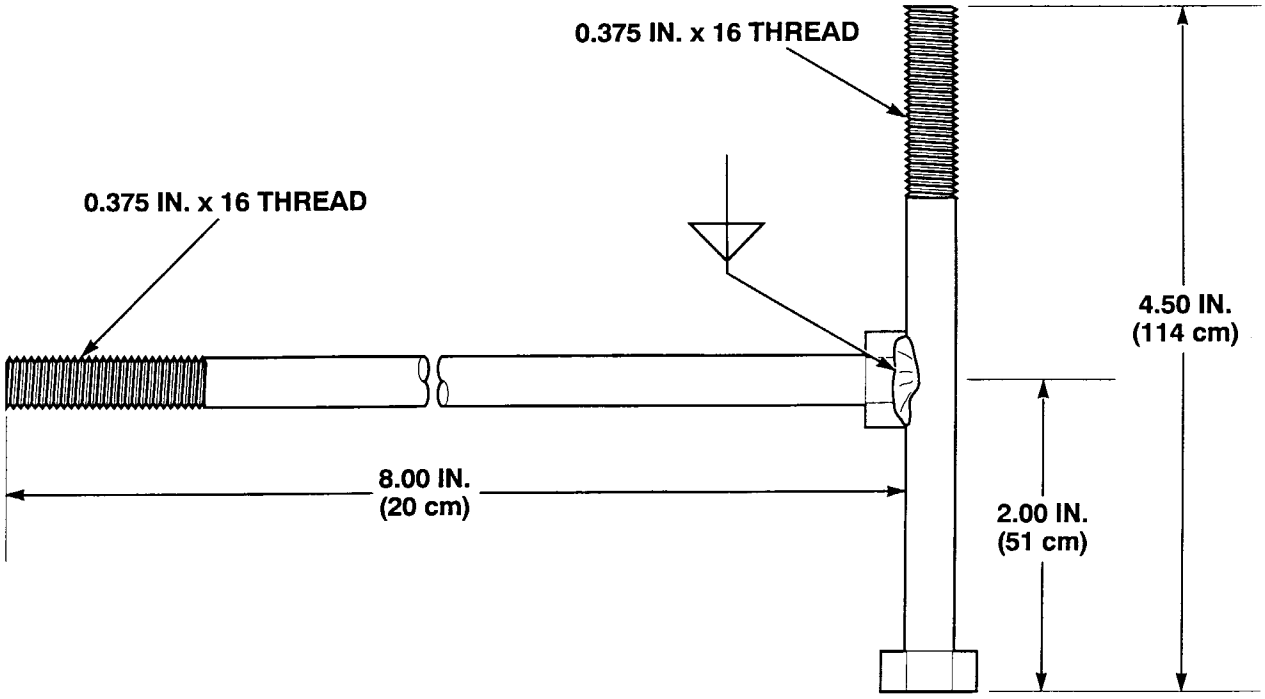
Fabricate LHS bushing remover from 3.38 in. (85.85mm) x 4 1/2 in. (114 mm) diameter steel tubing.

a. Cut 4 1/2 in. (114 mm) outside diameter x 1/2 in. (13 mm) thick tubing to cut length of 3.38 in. (85.85 mm).

b. Cut a 1/4 in. (6 mm) x 45 degree chamfer where indicated.

c. Paint as required.

C-23. LIFTING TEE HANDLES.

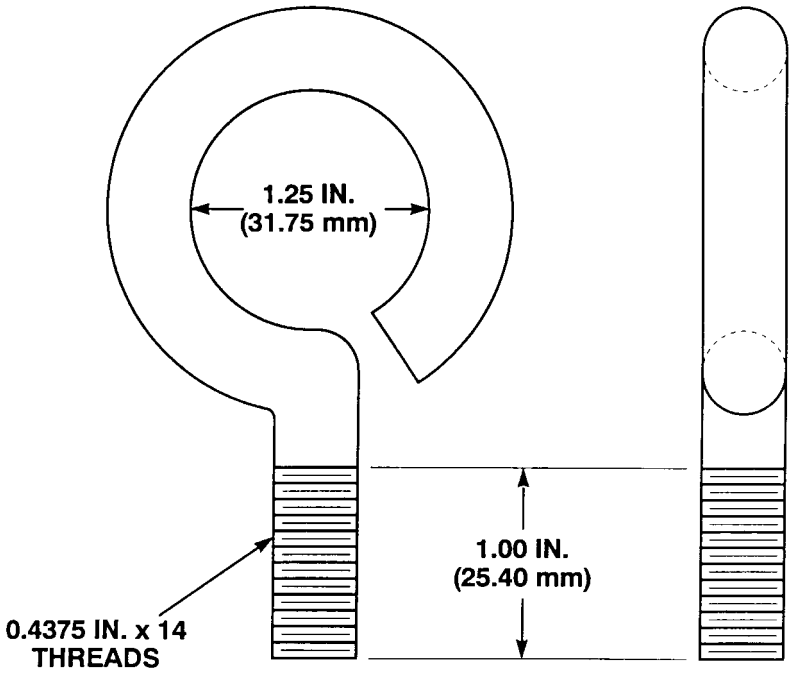


Fabricate material from: screw (1) .375 in. x 16 x 8 in. (20 cm) grade 5, and screw (1) .375 in. x 16 x 4 1/2 in. (11 cm) grade 5.

a. Weld together screws where indicated.

b. Paint as required.

C-24. LIFTING EYES.

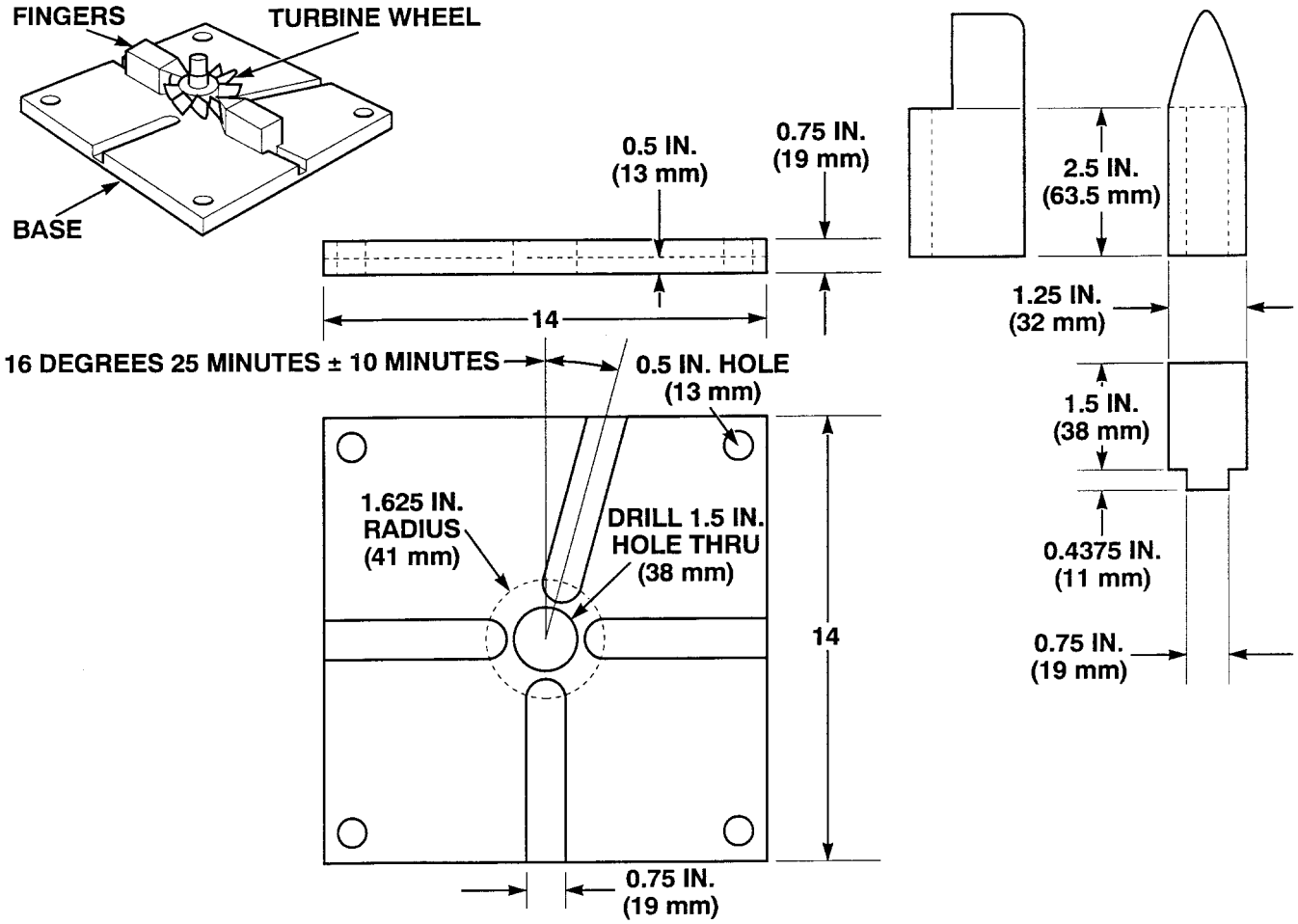


Fabricate from 7/16 in. (11 mm) x 6 in. (152 mm) cold rolled steel.

a. Thread 7/16 x 14 x 1 in. (25 mm) long.

b. Heat unthreaded end and bend over 1 1/4 in. (32 mm) diameter rod.

C-25. TURBOCHARGER HOLDING FIXTURE.



Fabricate from 3/4 in. (19 mm) exterior grade plywood.

a. Drill 1 1/2 in (38 mm) diameter hole in center of base.

b. Drill four 1/2 in. (13 mm) diameter holes in corners of base.

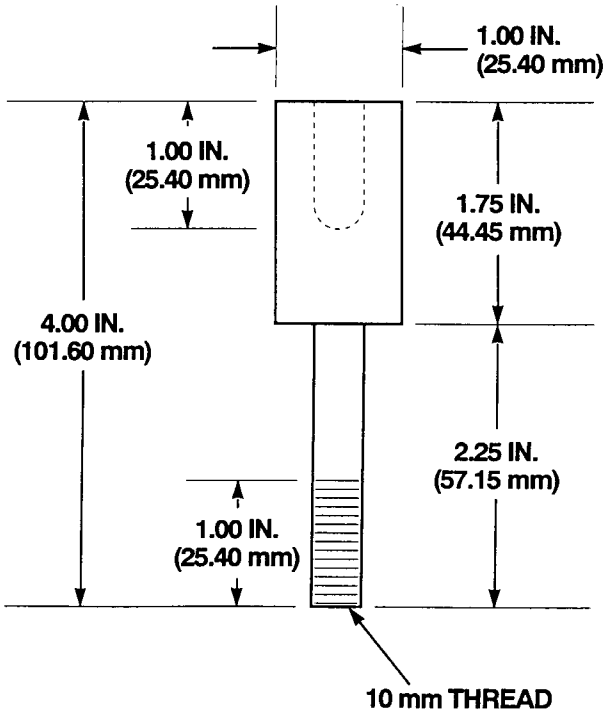
c. Draw a circle with a 1 5/8 in. (41 mm) radius.

d. Route four 1/2 in. (13 mm) x 3/4 in. (19 mm) slots in base into circle as shown.

e. Fabricate two 1 15/16 in. (49 mm) x 2 1/2 in (63.5 mm) x 1 1/4 in. (32 mm) fingers from plywood.

f. Grind bottom of fingers 23/32 in. (18 mm) wide and 7/16 in. (11 mm) high. Contour front surface of fingers to fit turbine wheel blades.

C-26. CONSTANT VELOCITY U-JOINT BEARING CAP REMOVAL TOOL.



Fabricate from 1 in. (25.4 mm) mild steel round stock; 4 in. (101.6 mm) long.

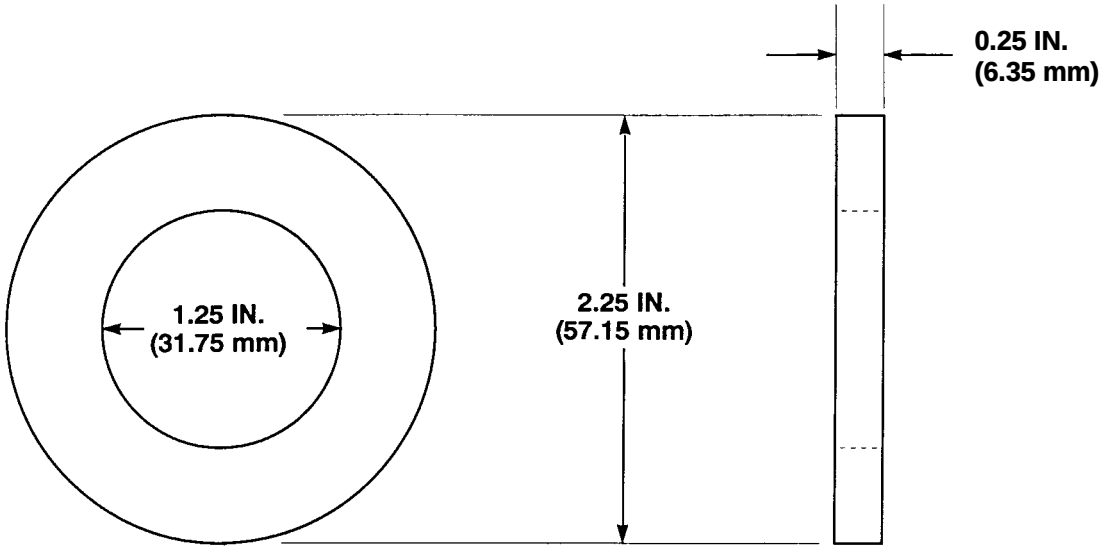
a. Turn down 2 1/4 in. (57.15 mm) of 1 in. (25.4 mm) mild steel round stock to .39 in. (10 mm).

b. Tap 1 in. (25.4 mm) of 10 mm diameter shaft with 10 mm by 1 in. (25.4 mm) threads.

c. Drill 5/8 in. (16mm) hole 1 in. (25.4mm) deep in 1 in. (25.4 mm) end of mild steel round stock.

d. Tap 1 in. (25.4 mm) of 3/4 in. by 16 diameter hole in 1 in. (25.4 mm) end of mild steel round stock.

C-27. LHS WASHER.



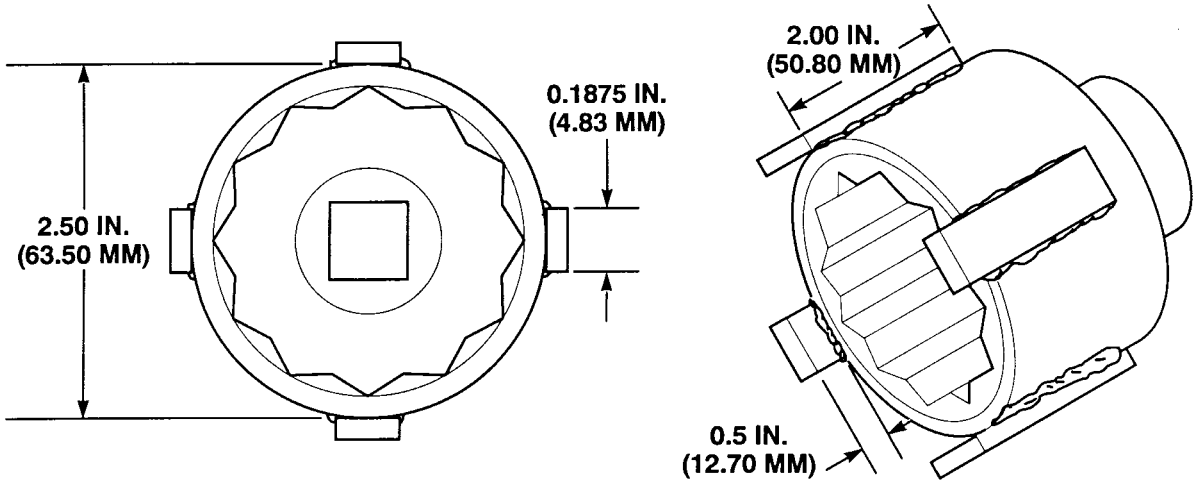
Fabricate LHS washer from 2 1/4 in. (57.15 mm) by 1/4 in. (6.35 mm) diameter steel stock.

a. Drill 1 1/4 in. (31.75 mm) hole through steel stock where indicated.

b. Paint as required.

c. An alternate flat washer that may be used is part number MS51412-44.

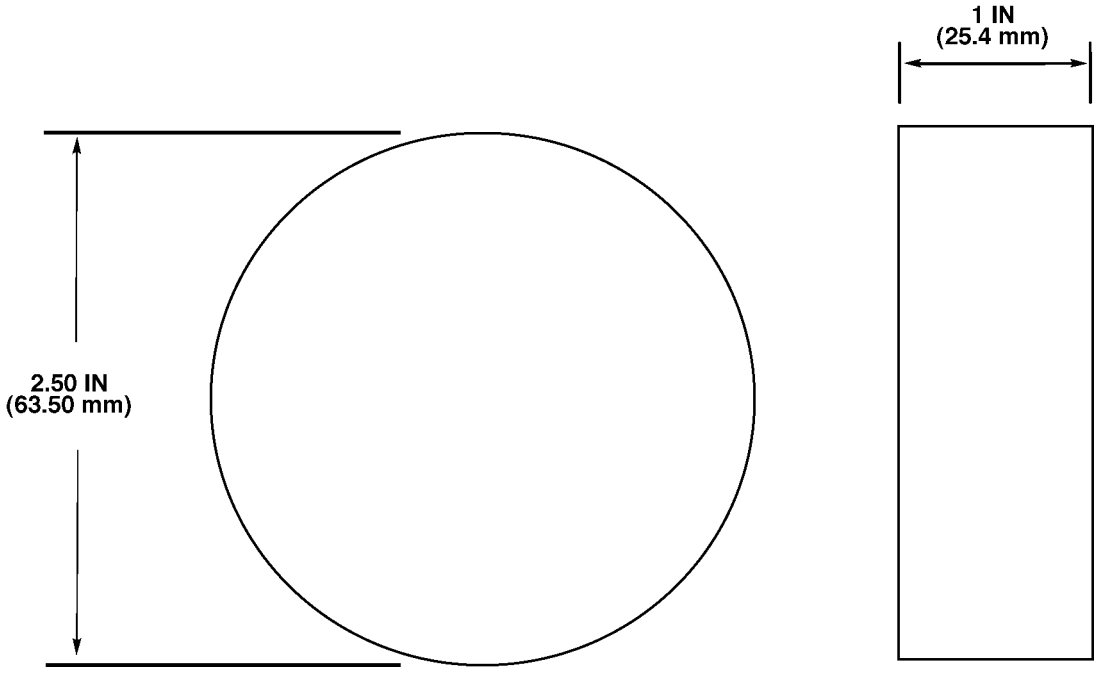
C-28. SPANNER SOCKET.



Fabricate spanner wrench from any 2 1/2 in. (63.50 mm) OD socket.

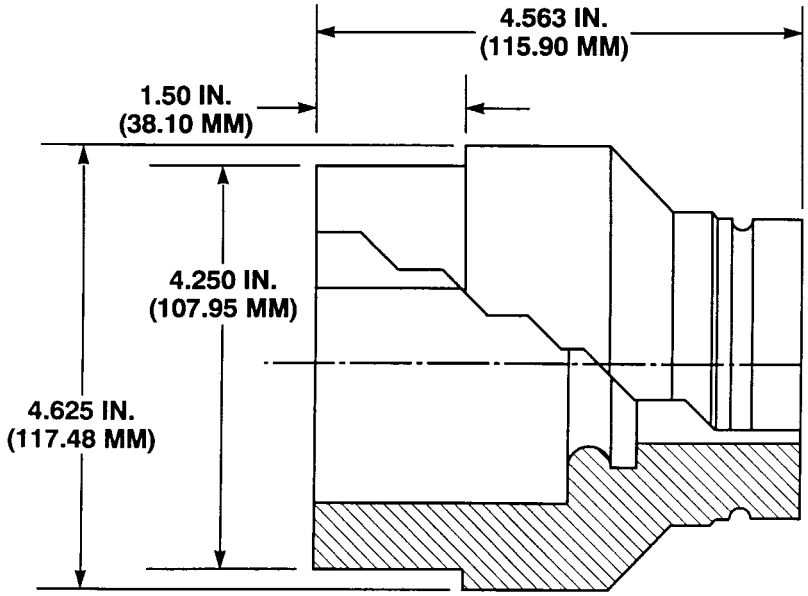
a. Weld four 2 in. (50.80 mm) long strips of 3/16 in. (4.83 mm) keystock on socket, so that 1/2 in. (12.70 mm) extends beyond socket face.

C-29. STEEL DISC.



Fabricate steel disc from 2.5 in. (63.5 mm) round steel stock. Using a hacksaw, cut to dimension shown. File off rough edges.

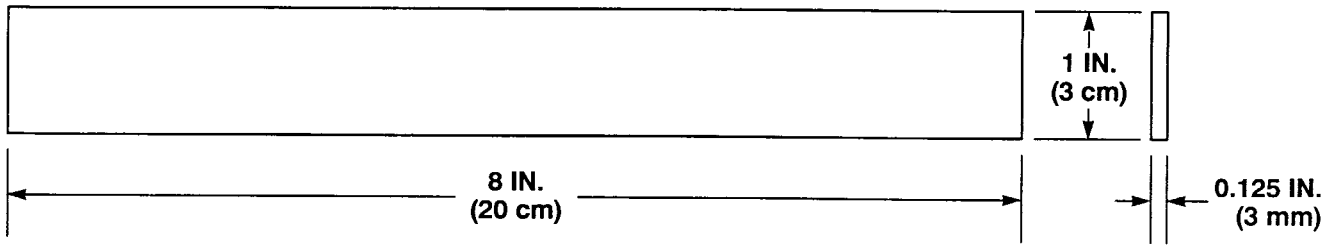
C-30. FLANGE NUT SOCKET.



Fabricate flange nut socket from socket P/N 1M1005 NSN 5130-00-234-1890.

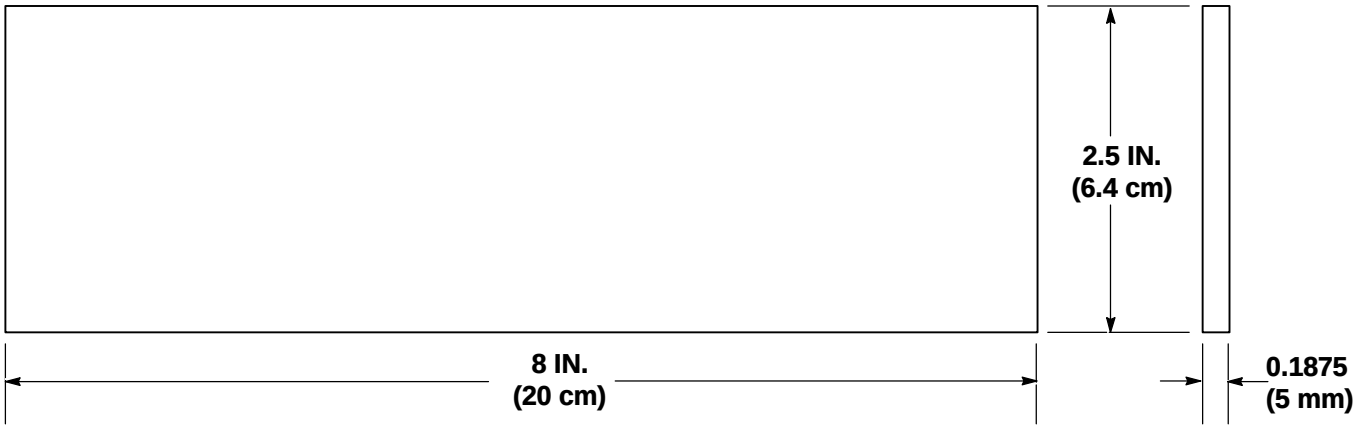
a. Machine down outside diameter, face end of socket by 4.250 in. (107.95 mm) at a depth of 1.50 in. (38.10 mm).

C-31. STEERING STOP PLATE.



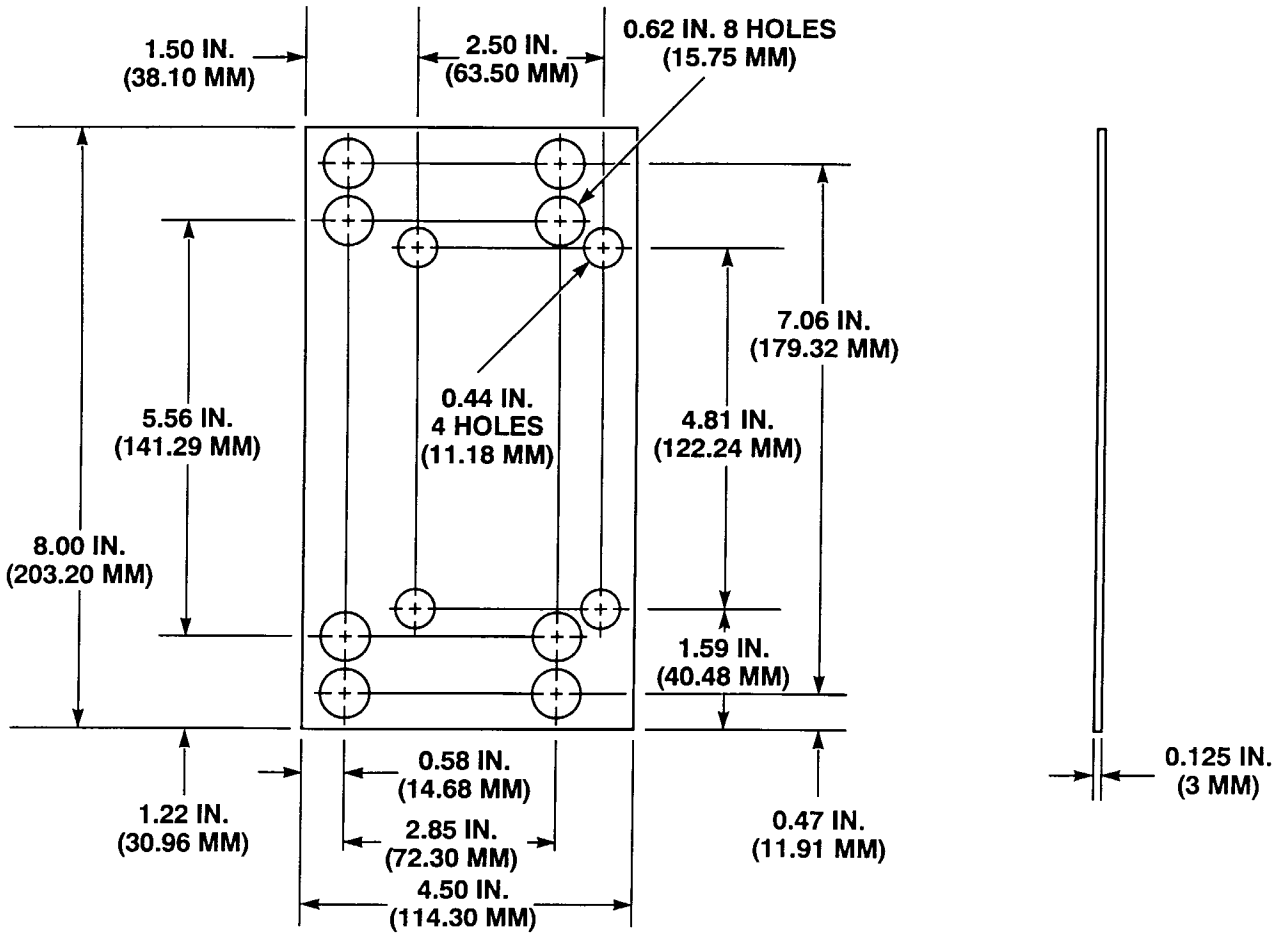
Fabricate steering stop plate from 1/8 in. (3 mm) thick mild steel stock. Using a hacksaw, cut to dimension shown. File off rough edges.

C-32. PITMAN ARM ANGLE PLATE.



Fabricate pitman arm angle plate from 3/16 in. (4.76 mm) thick mild steel stock. Using a hacksaw, cut to dimension shown. File off rough edges.

C-33. AXLE PLATE.



Fabricate axle plate from 1/8 in. (3 mm) thick mild steel stock.

a. Cut a steel plate 4.50 in. (114.30 mm) by 8 in. (203.20 mm).

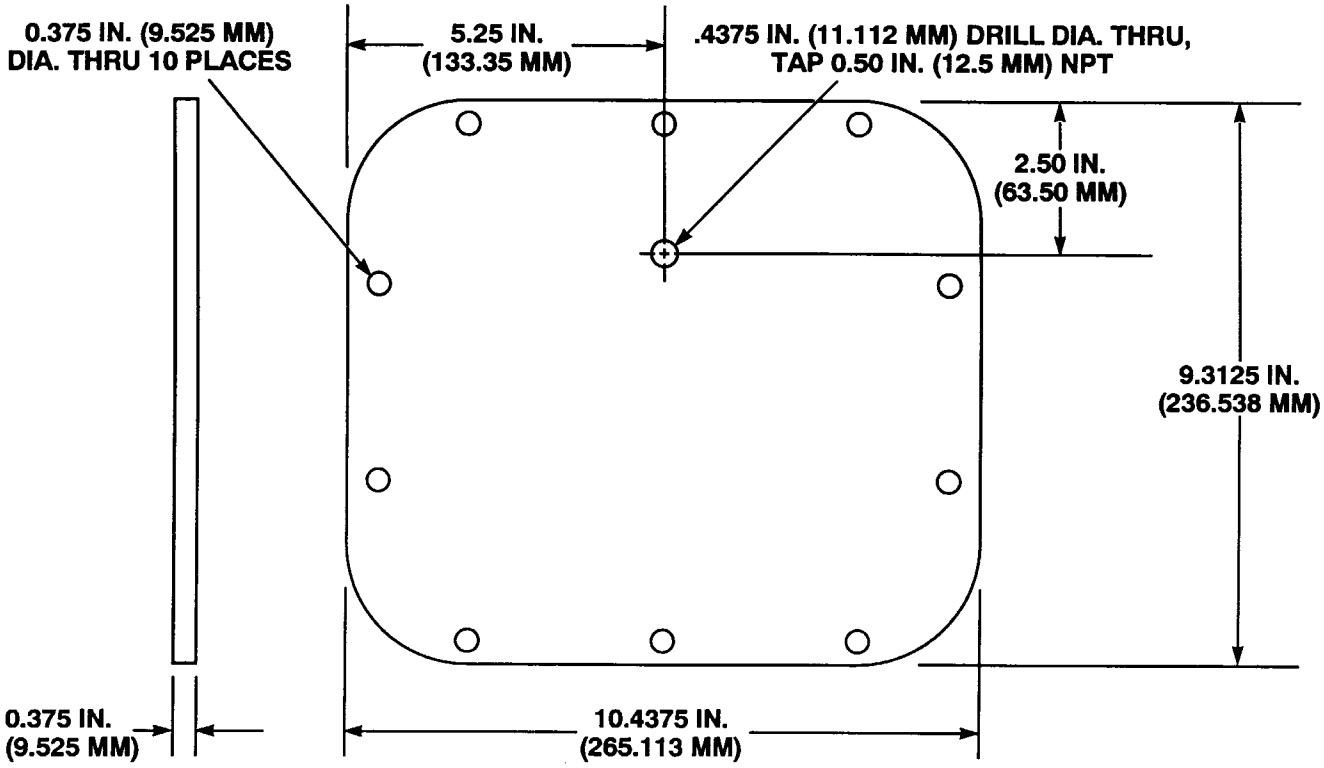
b. Drill eight .62 in. (15.75 mm) diameter holes where shown.

c. Drill four .44 in. (11.18 mm) diameter holes where shown.

d. File off rough edges.

e. Paint as required.

C-34. OIL COOLER TEST PLATE.



Fabricate oil cooler test plate from 3/8 in. (9.525 mm) thick mild steel stock.

a. Using oil cooler gasket for template, cut a steel plate 9 5/16 in. (236 mm) by 10 7/16 in. (265 mm).

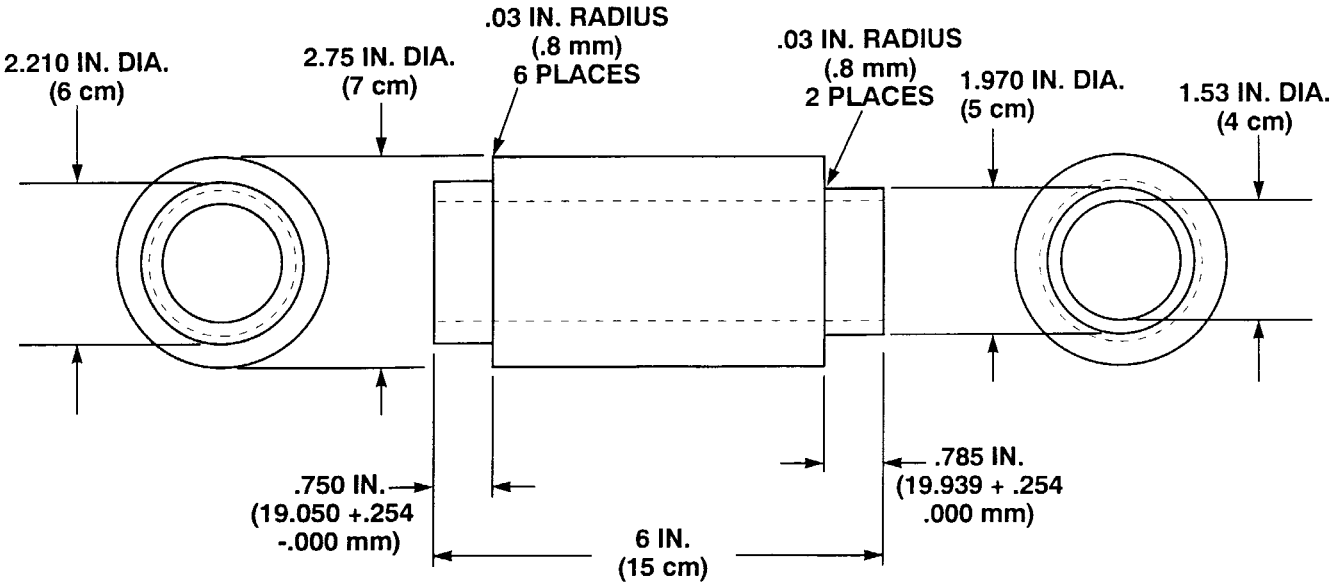
b. Drill ten 3/8 in. (9.525 mm) diameter holes where shown.

c. Drill 7/16 in. (11 mm) diameter hole where shown and tap to fit 1/2 in. NPT fitting.

d. File off rough edges.

e. Paint as required.

C-35. SEAL INSTALLER.



Machine seal installer from 2.75 in. (7 cm) diameter aluminum round stock.

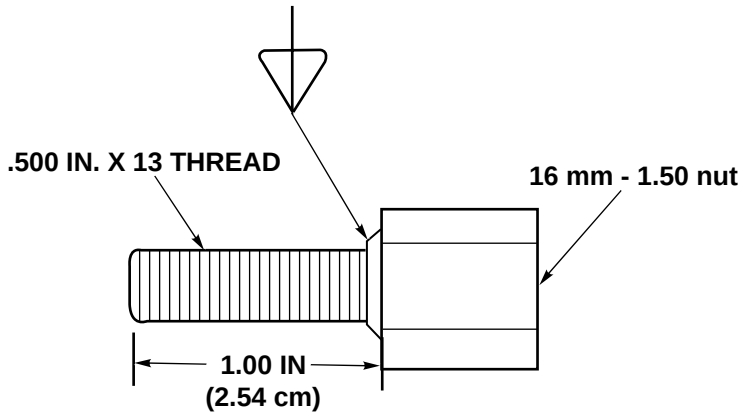
a. Cut a 6 in. (15 cm) piece of 2.75 in. (7 cm) diameter aluminum round stock.

b. Drill 1.53 in. (4 cm) diameter hole through center of piece.

c. Turn down to 1.970 in. (5 cm) diameter by .785 in. (20 cm) deep.

d. Turn down to 2.210 in. (6 cm) diameter by .750 in. (19 cm) deep.

C-36. ADAPTER.

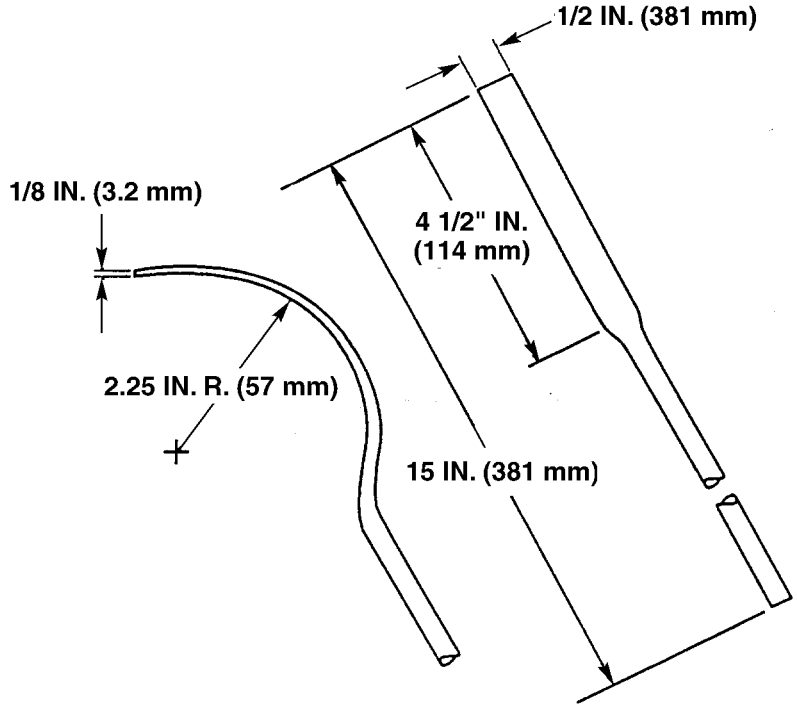


Fabricate from: screw (1) .500 in. x 13 x 1 in. grade 5, and nut 16mm x 1.50.

a. Weld together screw and nut where indicated.

b. Paint as required.

C-37. BEARING SHELL REMOVER.



(1) Fabricate from 3/8 in. (9.5 mm) diameter cold rolled steel.

(2) Heat and flatten 4-1/2 in. (114 mm) length of round stock until end is 1/8 X 1/2 X 4-1/2 in. (3.2 X 13 X 114 mm).

(3) All dimensions are in inches (millimeters).

APPENDIX D

TORQUE LIMITS

D-1. SCOPE.

This section provides general torque limits for the screws, hoses and fittings used on the truck. Special torque limits are listed in the maintenance procedures for applicable components. The general torque limits given in this appendix shall be used when specific torque limits are not indicated in the maintenance procedure. These general torque limits cannot be applied to screws that retain rubber components. The rubber components will be damaged before the torque limit is reached. If a special torque limit is not given in the maintenance instructions, tighten the screw or nut until it touches the metal bracket then tighten it one more turn.

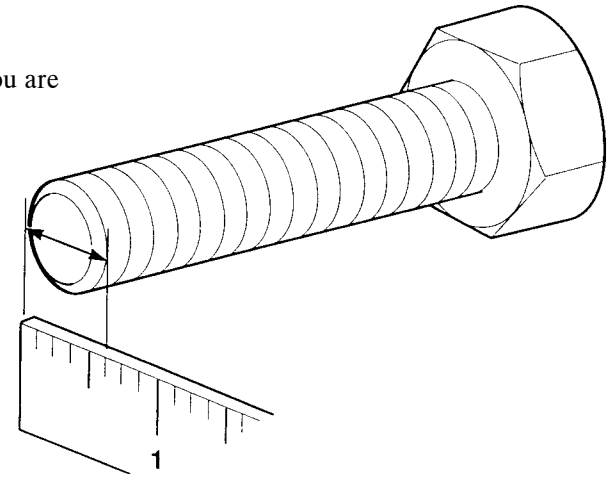
D-2. TORQUE LIMITS.

Table D-1 lists the torque limits for wet flange nuts. Table D-2 lists the torque limits for wet socket head capscrews. Table D-3 lists dry torque limits for capscrews. Dry torque limits are used on screws that do not have high pressure lubricants applied to the threads. Table D-4 lists wet torque limits for capscrews. Wet torque limits are used on screws that have high pressure lubricants applied to the threads. Table D-5 lists the torque limits for SAE 37 degree flare hose connections. Table D-6 lists the torque limits for SAE 45 degree flare hose connections. Table D-7 lists the torque limits for ORS preformed packing face seal hose connections. Table D-8 lists the torque limits for NPSM swivel connections.

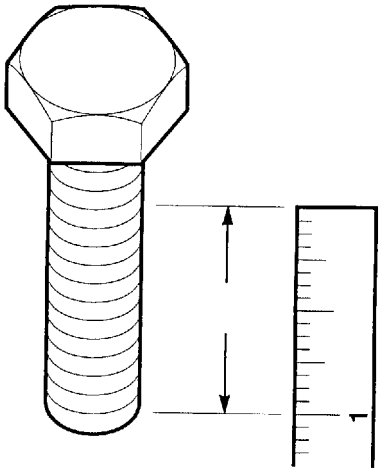
D-3. HOW TO USE TORQUE TABLE.

a. Screws and Nuts.

(1) Measure the diameter of the screw you are installing with a ruler.



D-3. HOW TO USE TORQUE TABLE (CONT).



(2) Measure out one inch with a ruler and count the number of threads per inch.

(3) Under the heading SIZE, look down the left hand column until you find the diameter of the screw you are installing (there will usually be two lines beginning with the same size).

(4) In the second column under SIZE, find the number of threads per inch that matches the number of threads per inch you counted in Step 2. (Not required for metric screws).

(5) To find the grade screw you are installing, match the markings on the head to the correct picture of CAPSCREW HEAD MARKINGS on the torque table.

(6) Look down the column under the picture you found in Step 5. until you find the torque limit (lb-ft or N·m) for the diameter and threads per inch of the screw you are installing.

(7) Use wet torque values.

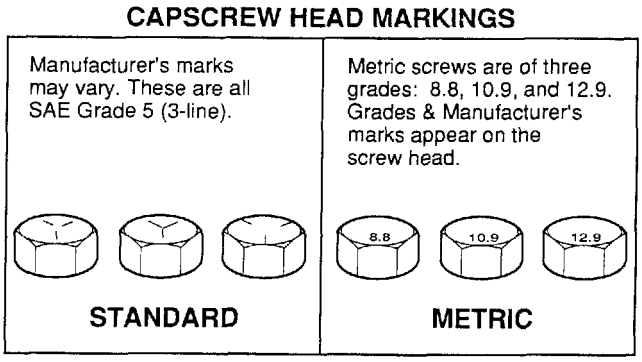


Table D-1. Torque Limits For Wet Flange Nuts

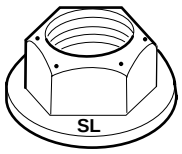
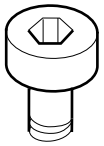
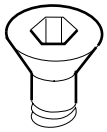
SPIRALOCK FLANGE NUT MARKINGS GRADE 8	DIAMETER		THREADS PER INCH	TORQUE	
	IN.	MM		LB-FT	N·m
	1/4	6.35	20	15	20
	5/16	7.94	18	25	34
	3/8	9.65	16	45	61
	1/2	12.70	13	110	149
	5/8	15.87	11	210	285
	3/4	19.05	10	375	508

Table D-1.1. Torque Limits For Wet Socket Head Cap Screws

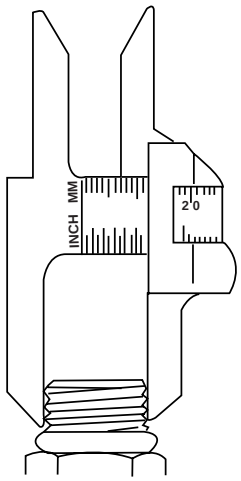
SOC HEAD/12 PT.  SOC FLAT HEAD 	TORQUE IN FT. LBS. (CAP SCREWS) LUBED		
	SIZE	SOC HD OR 12 PT	SOC FLAT HD
	.10-24	5	2.5
	.25-20	12	6
	.31-18	25	12
	.38-16	44	22
	.50-13	70	36
	.56-12	106	53
	.62-11	212	106
	.75-10	375	187
	1.00-8	781	

b. Hoses and Fittings.

NOTE

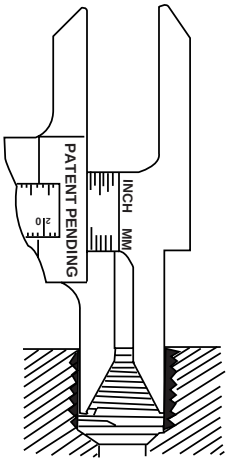
Most fluid piping system sizes are measured by dash numbers. These are universally used abbreviations for the size of the component expressed as the numerator of the fraction with the denominator always being 16. For example, a -04 port is 4/16 or 1/4-inch. Dash numbers are usually nominal (in name only) and are abbreviations that make ordering of components easier.

(1) Measure the I.D./O.D. diameter with a caliper as shown.



O.D.
(MALE THREADS)

(2) Under the heading MALE THREAD O.D. and FEMALE THREAD I.D., match the measurements with the row in table to determine proper torque.



I.D.
(FEMALE THREADS)

(3) To find the sealing surface angle, use a protractor and measure the sealing surface parallel to the center line of the fitting.

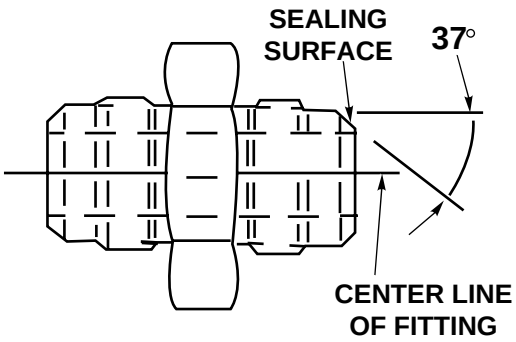
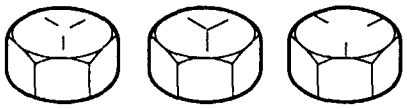
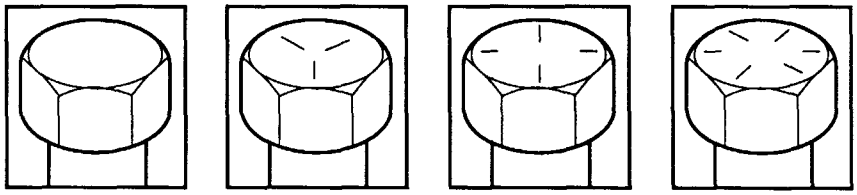


Table D-2. Torque Limits For Dry Fasteners

CAPSCREW HEAD MARKINGS



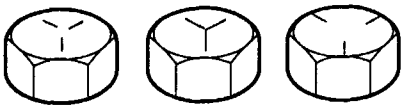


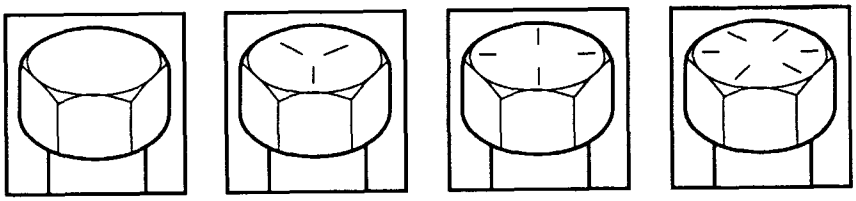
Manufacturer's marks may vary.
These are all SAE Grade 5 (3-line).

SIZE			TORQUE							
			SAE GRADE NO. 2		SAE GRADE NO. 5		SAE GRADE NO. 6 or 7		SAE GRADE NO. 8	
DIA. INCHES	THREADS PER INCH	MILLIMETERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS
1/4	20	6.35	5	7	8	11	10	14	12	16
1/4	28	6.35	6	9	10	14	12	16	14	19
5/16	18	7.94	11	15	17	23	21	28	25	34
5/16	24	7.94	12	16	19	26	24	33	25	34
3/8	16	9.53	20	27	30	41	40	54	45	61
3/8	24	9.53	23	31	35	47	45	61	50	68
7/16	14	11.11	30	41	50	68	60	81	70	95
7/16	20		35	47	55	75	70	95	80	108
1/2	13	12.70	50	68	75	102	95	129	110	149
1/2	20		55	75	90	122	100	136	120	163
9/16	12	14.29	65	88	110	149	135	183	150	203
9/16	18		75	102	120	163	150	203	170	231
5/8	11	15.88	90	122	150	203	190	258	220	298
5/8	18		100	136	180	244	210	285	240	325
3/4	10	19.05	160	217	260	353	320	434	380	515
3/4	16		180	244	300	407	360	488	420	570
7/8	9	22.23	140	190	400	542	520	705	600	814
7/8	14		155	210	440	597	580	786	660	895
1	8	25.40	220	298	580	786	800	1085	900	1220
1	12		240	325	640	868	860	1166	1000	1356
1-1/8	7	25.58	300	407	800	1085	1120	1519	1280	1736
1-1/8	12		340	461	880	1193	1260	1709	1440	1953
1-1/4	7	31.75	420	570	1120	1519	1580	2142	1820	2468
1-1/4	12		460	624	1240	1681	1760	2387	2000	2712
1-3/8	6	34.93	560	759	1460	1980	2080	2820	2380	3227
1-3/8	12		640	868	1680	2278	2380	3227	2720	3688
1-1/2	6	38.10	740	1003	1940	2631	2780	3770	3160	4285
1-1/2	12		840	1139	2200	2983	3100	4204	3560	4827

Table D-3. Torque Limits For Wet Fasteners

CAPSCREW HEAD MARKINGS

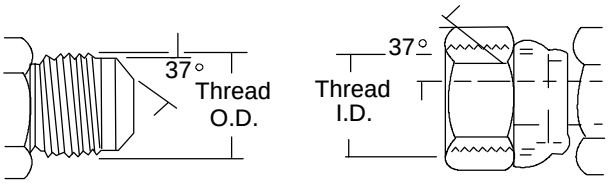




Manufacturer's marks may vary.
These are all SAE Grade 5 (3-line).

SIZE			TORQUE							
			SAE GRADE NO. 2		SAE GRADE NO. 5		SAE GRADE NO. 6 or 7		SAE GRADE NO. 8	
DIA. INCHES	THREADS PER INCH	MILLIMETERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS
1/4	20	6.35	4	6	6	8	8	11	9	12
1/4	28	6.35	5	7	7	9	9	12	10	14
5/16	18	7.94	8	11	13	18	16	22	18	24
5/16	24	7.94	9	12	14	19	18	24	20	27
3/8	16	9.53	15	20	23	31	30	41	35	47
3/8	24	9.53	17	23	25	34	30	41	35	47
7/16	14	11.11	24	33	35	47	45	61	55	75
7/16	20		25	34	40	54	50	68	60	81
1/2	13	12.70	35	47	55	75	70	95	80	108
1/2	20		40	54	65	88	80	108	90	122
9/16	12	14.29	50	68	80	108	100	136	110	149
9/16	18		55	75	90	122	110	149	130	176
5/8	11	15.88	70	95	110	149	140	190	170	231
5/8	18		80	108	130	176	160	217	180	244
3/4	10	19.05	120	163	200	271	240	325	280	380
3/4	16		140	190	220	298	280	380	320	434
7/8	9	22.23	110	149	300	407	400	542	460	624
7/8	14		120	163	320	434	440	597	500	678
1	8	25.40	160	217	440	597	600	814	680	922
1	12		170	231	480	651	660	895	740	1003
1-1/8	7	25.58	220	298	600	814	840	1139	960	1320
1-1/8	12		260	353	660	895	940	1275	1080	1464
1-1/4	7	31.75	320	434	840	1139	1100	1492	1360	1844
1-1/4	12		360	488	920	1248	1320	1790	1500	2034
1-3/8	6	34.93	420	570	1100	1492	1560	2115	1780	2414
1-3/8	12		460	624	1260	1709	1780	2414	2040	2776
1-1/2	6	38.10	560	760	1460	1980	2080	2820	2360	3200
1-1/2	12		620	841	1640	2224	2320	3146	2660	3607

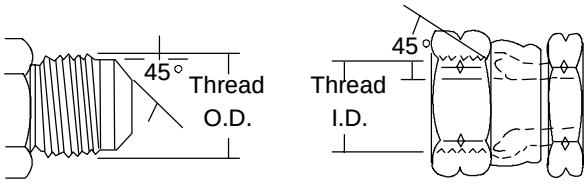
Table D-4. Torque Limits For 37 Degree Flare Hose Connections



Male Half **Female Half**

INCH SIZE	DASH NO.	THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/4	04	7/16-20	11-12	15-16
3/8	06	9/16-18	18-21	24-28
1/2	08	3/4-16	36-39	49-53
5/8	10	7/8-14	57-62	77-84
3/4	12	1 1/16-12	79-87	107-118
7/8	14	1 3/16-12	83-91	113-123
1	16	1 5/16-12	108-113	146-153
1 1/4	20	1 5/8-12	127-133	172-180
1 1/2	24	1 7/8-12	158-167	214-224
2	32	2 1/2-12	245-258	332-350

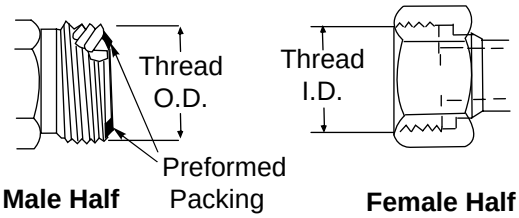
Table D-5. Torque Limits For 45 Degree Flare Hose Connections



Male Half **Female Half**

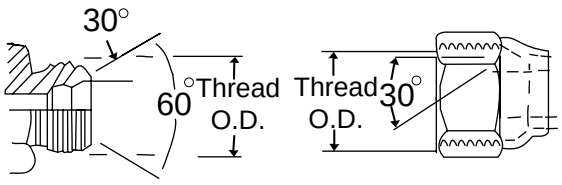
INCH SIZE	DASH NO.	THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/4	04	7/16-20	8-9	11-12
3/8	06	5/8-18	18-20	24-27
1/2	08	3/4-16	36-38	49-51
5/8	10	7/8-14	52-54	70-73
3/4	12	1 1/16-14	71-74	97-100

Table D-6. Torque Limits For ORS Preformed Packing Face Seal Hose Connections



INCH SIZE	DASH NO.	THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/4	04	9/16-18	10-12	14-16
3/8	06	11/16-16	18-20	24-27
1/2	08	13/16-16	32-35	43-47
5/8	10	1-14	46-50	62-68
3/4	12	1 3/16-12	65-70	88-95
1	16	1 7/16-12	108-113	146-153
1 1/4	20	1 11/16-12	127-133	172-180
1 1/2	24	2-12	158-167	214-226

Table D-7. Torque Limits For NPSM Swivel Connections



INCH SIZE	DASH NO.	THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/8	02	1/8-27	3-4	4-5
1/4	04	1/4-18	10-11	14-15
3/8	06	3/8-18	16-18	22-24
1/2	08	1/2-14	25-27	34-37
3/4	12	3/4-14	46-48	62-65
1	16	1-1 1/2	80-83	108-113
1 1/4	20	1 1/4-11/2	130-134	176-182
1 1/2	24	1 1/2-11/2	160-164	217-222
2	32	2-11/2	170-174	231-240

APPENDIX E

MANDATORY REPLACEMENT PARTS

Section I. INTRODUCTION

E-1. SCOPE.

This appendix lists all mandatory replacement parts required for performance of Direct and General Support Maintenance of the PLS truck. It authorizes the requisitioning, issue, and disposition of consumable repair parts. All consumable repair parts listed in the maintenance tasks are listed here for ease of reference.

E-2. EXPLANATION OF COLUMNS (SECTION II).

a. Column (1) - Replacement Part Reference Code. This number is assigned to the entry in the listing and is referenced in the narrative task box to identify the part e.g., Clamp (Item 12, Appendix E).

b. Column (2) - Nomenclature. Indicates the federal item name and, if required, a description to identify the item.

c. Column (3) - Part Number. This is the vendor number assigned to the item.

d. Column (4) - National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.

Section II. MANDATORY REPLACEMENT PARTS LIST

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
1	Adapter, Fuel	8928631	4730-01-336-6943
2	Ball	4B9880	3110-00-949-1438
3	Beam Center Bushing	29481-5	5365-01-161-4062
4	Beam Center Bushing	49400	3120-01-329-4297
5	Beam Center Bushing	C-2159	5365-01-344-2477
6	Beam End Bushing	45163	3120-01-345-0940
7	Beam End Bushing	45900	3120-01-155-4522
8	Bearing	23503649	3110-01-359-4525
9	Bearing	23503687	3110-01-359-4677
10	Bearing	441843-0001	3120-01-239-1369
11	Bearing Kit, Taper	V88130017	3120-01-346-7757
12	Bearing Set	2405CPA	3120-01-157-6832
13	Bearing, Intermediate	5196026	3120-00-843-6994
14	Bearing, Piston Pin	23501687	3120-00-094-3552
15	Bearing, Taper	V75650169	3110-01-273-0041
16	Bearing, Thrust	443688-1	3120-01-239-5139
17	Bearing, Thrust	TP612	3120-00-596-7688
18	Bolt Kit, Air Spring	A-10284	5305-01-345-3748
19	Bolt Set	A-5332	5306-01-344-7993
20	Bolt, Self-Locking	N9077	5306-01-223-4345
21	Bushing	209P-8-4	4730-01-348-6542
22	Bushing	5122445	3120-00-811-4699
23	Bushing	5123700	3120-00-662-1651
24	Bushing	GLY.PG 808560 A	5364-01-355-9529
25	Bushing, Plastic, Spacer	194	5365-01-154-8511
26	Clamp	24433	5340-01-131-8313
27	Clamp	5132650	5340-01-048-7743
28	Clamp	5143999	4730-00-080-5799
29	Clamp	700-88	5340-01-355-7648
30	Clamp	X300	5340-01-197-1196
31	Clip	COV0713	5340-01-029-9172
32	Collar, Adjustment	B-2848	3040-01-346-9820
33	Collar, Shaft	8925751	3040-01-234-8467
34	Copper Washer	265850FC88	5310-00-193-9753
35	Copper Washer	23513842	5310-01-395-1250
36	Copper Washer	5108436	5310-00-486-3129
37	Cover, Access	5117733	5340-00-833-0822
38	Cross	V75750400	2520-01-352-9164
39	Cross And Bearing	5-103X	2530-01-244-4949
40	Dust Cover	L-28-VC-121	5340-01-346-2252
41	Dust Shield	23016012	5340-01-318-9153

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
42	Element	5101760	2940-00-089-2520
43	Element	5106910	4730-01-160-5668
44	Filter Element	2020PMOR	2910-01-344-5791
45	Filter Element	23014205	2940-01-328-5584
46	Filter Element	25010643	4330-01-132-4842
47	Filter Element	25010778	2910-01-022-8183
48	Fitting, Grease	N1199N1860	4730-01-348-9511
49	Fitting, Grease	V75501903	4730-01-345-0734
50	Fitting, Grease	V75503714	4730-01-384-6286
51	Fitting, Lubrication	MS15002-3	4730-00-172-0015
52	Front/Rear Steer Gear Repair Kit	5518181	2530-01-335-7776
53	Fuel Pipe, Jumper	8928628	4710-01-337-4466
54	Gasket	02-23-00870-150	5330-01-281-1842
55	Gasket	03158320033	
56	Gasket	03158320035	
57	Gasket	0601-16501	5330-01-356-9971
58	Gasket	11007B	5330-01-344-0539
59	Gasket	11028B	5330-01-147-2520
60	Gasket	14079550	5330-00-107-3925
61	Gasket	23016017	5330-01-302-5092
62	Gasket	23017225	5330-01-328-7635
63	Gasket	23045365	5330-01-341-6493
64	Gasket	23046658	5330-01-088-5980
65	Gasket	23501587	5330-01-058-0587
66	Gasket	23506157	5330-01-348-3331
67	Gasket	23515145	5330-01-390-9045
68	Gasket	23520287	5330-01-447-1706
69	Gasket	2-510-011-860	5330-01-145-4573
70	Gasket	3921989	5330-00-107-3925
71	Gasket	5100638	5330-01-058-0586
72	Gasket	5100860	5330-01-058-8267
73	Gasket	5101408	5330-01-133-0119
74	Gasket	5104081	5330-01-078-7186
75	Gasket	5104105	5330-01-163-8178
76	Gasket	5104507	5330-01-088-5984
77	Gasket	5104978	5330-01-163-8179
78	Gasket	5117231	5330-00-972-8108
79	Gasket	5117243	5330-00-735-4289
80	Gasket	5117254	5330-00-745-7831
81	Gasket	5117269	5330-00-735-4291
82	Gasket	5117332	5330-00-725-2301
83	Gasket	5117535	5330-00-844-2907
84	Gasket	5117734	5330-00-745-7776

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
85	Gasket	5117786	5330-00-781-7117
86	Gasket	5117993	5330-00-973-1415
87	Gasket	5120224	5330-00-862-6929
88	Gasket	5121714	5330-00-745-7669
89	Gasket	5121835	5330-00-847-4967
90	Gasket	5123240	5330-00-054-8290
91	Gasket	5123570	5330-00-915-2835
92	Gasket	5123638	5330-00-862-6934
93	Gasket	5123812	5330-00-892-1764
94	Gasket	5126160	5330-00-458-2325
95	Gasket	5126161	5330-00-458-2324
96	Gasket	5126499	5330-00-736-0228
97	Gasket	5130995	5330-00-980-1546
98	Gasket	5136678	5330-00-198-7953
99	Gasket	5138659	5330-00-769-4882
100	Gasket	23520012	5330-00-915-4511
101	Gasket	5144901	5330-01-054-2399
102	Gasket	5145581	5330-00-222-0801
103	Gasket	5148810	5330-01-058-0585
104	Gasket	5150193	5330-00-212-6290
105	Gasket	6750186	5330-00-537-2388
106	Gasket	6-794-000557	3040-01-199-7951
107	Gasket	6833980	5330-01-236-1753
108	Gasket	6839213	5330-01-049-0552
109	Gasket	6880389	5330-01-141-9579
110	Gasket	731740-002	5330-01-355-4809
111	Gasket	79031	5330-01-078-2825
112	Gasket	8921312	5330-01-206-3263
113	Gasket	8923492	5330-01-037-4129
114	Gasket	8923512	5330-01-206-3264
115	Gasket	8923791	5330-01-088-5982
116	Gasket	8923792	5330-01-206-3265
117	Gasket	8924266	5330-01-270-1161
118	Gasket	8924413	
119	Gasket	8925778	5330-01-247-2474
120	Gasket	8926782	5330-00-758-2863
121	Gasket	97706	5330-01-078-2826
122	Gasket	D346-177	5330-00-364-3550
123	Gasket, Compression	5100404	5330-01-054-2398
124	Gasket, Cylinder Block	297428	5330-01-346-1605
125	Gasket, Cylinder Cover	297429	5330-01-348-8352
126	Gasket, Cylinder Head	297427	5330-01-346-1604
127	Gasket, Manifold	243430	5330-00-262-3272

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
128	Gasket, Oil Pan	23013339	5330-01-363-8833
129	Gasket, Seal Strip	5183476	5330-00-171-8763
130	Hardware Kit, Electronic	5234934	2920-01-408-8145
131	Impeller	23505995	2930-01-354-4353
132	Insert, Liner	5148501	2815-01-058-0254
133	Inserts, Screw	5121459	5340-00-921-6413
134	Intermediate Steer Gear Repair Kit	5541261	5330-01-344-0581
135	Isolator	23512307	5340-01-414-2177
136	Isolators	5104515	5340-01-057-4230
137	Key	49749AX	5315-00-837-2919
138	Key	5131724	5315-00-089-8807
139	Key	6772552	5315-00-402-0421
140	Key	7-569-000030	5315-01-203-6490
141	Key	8-47-17-06-002	5315-01-280-7372
142	Key	8926247	5315-01-214-1876
143	Key	8928537	5315-01-260-4595
144	Key	8928545	5315-01-304-9174
145	Kit, Overhaul	23012606	2520-01-176-6004
146	Kit, Plug	3331322K	5365-01-394-5979
147	Kit, Repair	5199617	5330-01-056-1111
148	Kit, Repair	711917	5330-01-362-0907
149	Kit, Repair	7350-5	5330-01-352-8831
150	Kit, Repair	75251-01SK	5330-01-372-4652
151	Kit, Repair	75251-13SK	5330-01-373-2973
152	Kit, Repair	75252-08SK	5330-01-392-8534
152.1	Kit, Repair	9-752-101062	5330-01-398-8749
153	Kit, Repair	9-752-101064	5330-01-374-3260
154	Kit, Repair	9-752-101065	5330-01-372-4651
155	Kit, Repair	MS28775-008	5330-00-579-3158
156	Kit, Repair	SK-16-2	4820-01-233-3441
157	Kit, Repair	SKMEH-3	5330-01-372-5297
158	Kit, Repair	SKMEH-4	5330-01-372-5296
159	Kit, Seal Replacement	RPGC-QAN	5330-01-K63-2529
160	Kit, Wire Gate	K240111	
161	Lip Seal	2-283-001-378	5330-01-233-8692
162	Lock, Valve	5111337	2815-00-529-8193
163	Locknut	0223-01030-011	5310-01-395-6272
164	Locknut	103026	5310-00-011-7049
165	Locknut	110310A	5310-01-159-8178
166	Locknut	110311-A	5310-01-111-0645
167	Locknut	110312A	5310-01-150-5918
168	Locknut	111316A	5306-01-106-7496
169	Locknut	115307A	5310-01-151-1036

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
170	Locknut	11841	5310-01-151-5546
171	Locknut	1244954-2	5310-00-074-1387
172	Locknut	1333510	5310-01-340-5671
173	Locknut	1408910	5310-01-111-0645
174	Locknut	1571850	5310-01-288-5096
175	Locknut	1598030	5310-01-342-8595
176	Locknut	1600460	5310-01-346-9445
177	Locknut	1764650	5301-01-346-3692
178	Locknut	192481	5310-01-058-3353
179	Locknut	22NM04	5310-00-207-9341
180	Locknut	2560HX	5310-01-081-5351
181	Locknut	29749	5310-01-019-3129
182	Locknut	30191	5310-01-178-5976
183	Locknut	41NE120	5310-00-530-0239
184	Locknut	44NTE-1210	5310-01-346-3789
185	Locknut	5117972	5310-00-043-0427
186	Locknut	5149163	2835-01-015-5419
187	Locknut	5151601	5310-00-270-7111
188	Locknut	60861A	5310-01-061-5678
189	Locknut	6772182	5310-01-228-6394
190	Locknut	8925752	5310-01-268-6783
191	Locknut	9174746	5310-00-844-0127
192	Locknut	93604342	5310-01-081-5351
193	Locknut	9413533	5310-01-018-5266
194	Locknut	L-10-MNS-500-X-1	5310-01-345-2350
195	Locknut	MA219-21065	5310-01-328-9940
196	Locknut	MS51849-74	5305-00-470-3321
197	Locknut	MS35690-525	5310-00-012-0368
197.1	Locknut	MS51922-17	5310-00-087-4652
198	Locknut	MS51922-21	5310-00-959-1488
199	Locknut	MS51922-37	5310-00-067-9507
200	Locknut	MS51922-53	5310-00-225-6408
201	Locknut	MS51922-9	5310-00-984-3806
202	Locknut	MS51943-31	5310-00-061-4650
203	Locknut	MS51967-14	5310-00-768-0318
204	Locknut	MS51967-23	5310-00-763-8921
205	Locknut	MS51967-27	5310-00-880-8187
206	Locknut	N12	5310-00-185-6345
207	Locknut	N9091	5310-01-050-5005
208	Locknut	N9406	5310-01-362-6171
209	Locknut	N9410	5310-01-348-8398
210	Locknut	T893R	5310-01-288-1116
211	Locknut	TLA-10008-GRC	5310-01-080-9201

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
212	Locknut	TLA-1213-GRC	5310-01-081-8244
213	Locknut	TLA-3816-GRC	5310-01-222-9097
214	Locknut	TLNF-0832-S	5310-01-165-1312
215	Locknut	V75502830	5310-01-344-6738
216	Locknut	V75503336	5310-01-344-6740
217	Locknut	V75503716	5310-01-357-3768
218	Lockplate	57022	5340-01-127-5636
219	Lockscrew	190770	5305-00-019-0770
220	Lockscrew	5101196	5306-01-120-3659
221	Lockscrew	5148324	5306-01-083-9374
222	Lockscrew	9409047	5306-01-210-3836
223	Lockscrew	9409620	5306-01-336-9667
224	Lockscrew	9412014	5305-01-165-3295
225	Lockstrip	6880899	5340-01-056-0037
225.1	Lockwasher	0400139971	
226	Lockwasher	103321	5310-00-261-7340
227	Lockwasher	112264	5310-01-081-0799
228	Lockwasher	114021	5310-01-081-0798
229	Lockwasher	11500879	5305-01-320-2395
230	Lockwasher	11501719	5306-01-407-7190
231	Lockwasher	122078A	5310-01-344-5946
232	Lockwasher	1388	5310-01-162-5737
233	Lockwasher	1459-254	5310-00-171-1734
234	Lockwasher	1495-Z	5310-01-161-2527
235	Lockwasher	1498	5310-01-161-7311
236	Lockwasher	1813	5310-01-132-0955
237	Lockwasher	187130	5310-00-584-5272
238	Lockwasher	1937550	5310-01-355-8798
239	Lockwasher	2150HX1	5310-01-141-5565
240	Lockwasher	2152HX	5310-00-939-1060
241	Lockwasher	2250HX	
242	Lockwasher	2261H	5310-00-080-9786
243	Lockwasher	23016303	5310-01-081-0799
244	Lockwasher	237648	5310-00-085-3891
245	Lockwasher	237686	5310-00-465-5643
246	Lockwasher	2434	5310-00-775-5139
247	Lockwasher	2435	5310-00-045-3299
248	Lockwasher	2523	5310-00-775-5182
249	Lockwasher	318B	5310-01-061-5302
250	Lockwasher	3231	5310-00-032-1814
251	Lockwasher	351AX	5310-01-129-0450
252	Lockwasher	352A	5310-01-081-1283
253	Lockwasher	352AX	5310-01-081-1283

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
254	Lockwasher	353AX	5310-00-582-5965
255	Lockwasher	355AX	5310-01-133-2130
256	Lockwasher	371AX	5310-00-775-5139
257	Lockwasher	50001716	5310-01-372-6391
258	Lockwasher	5177769	5310-00-209-1543
259	Lockwasher	7520854	5310-00-264-1888
260	Lockwasher	777-A	5310-01-061-4481
261	Lockwasher	7-949-000235	5310-01-173-3637
262	Lockwasher	7-949-000527	5310-01-205-3471
263	Lockwasher	7-949-000534	5310-01-259-6358
264	Lockwasher	7-950-160050	5310-01-292-4150
265	Lockwasher	8926285	5310-01-233-1338
266	Lockwasher	93613642	5310-01-068-8446
267	Lockwasher	AE30574	5310-00-092-6831
268	Lockwasher	MS15795-19	5310-00-209-0693
269	Lockwasher	MS27183-12	5310-00-081-4219
270	Lockwasher	MS35333-105	5310-00-019-0669
271	Lockwasher	MS35335-31	5310-00-596-7693
272	Lockwasher	MS35335-62	5310-00-184-9562
273	Lockwasher	MS35338-100	5310-00-261-8278
274	Lockwasher	MS35338-101	5310-00-184-8970
275	Lockwasher	MS35338-103	5310-00-184-8971
276	Lockwasher	MS35338-105	5310-00-577-5354
277	Lockwasher	MS35338-138	5310-00-933-8120
278	Lockwasher	MS35338-15	5310-00-012-1326
279	Lockwasher	MS35338-41	5310-00-045-4007
280	Lockwasher	MS35338-42	5310-00-045-3299
281	Lockwasher	MS35338-43	5310-00-045-3296
282	Lockwasher	MS35338-44	5310-00-582-5965
283	Lockwasher	MS35338-45	5310-00-407-9566
284	Lockwasher	MS35338-46	5310-00-637-9541
285	Lockwasher	MS35338-47	5310-00-209-0965
286	Lockwasher	MS35338-48	5310-00-584-5272
287	Lockwasher	MS35338-49	5310-00-167-0680
288	Lockwasher	MS35338-50	5310-00-820-6653
289	Lockwasher	MS35338-51	5310-00-584-7888
290	Lockwasher	MS35338-6	5310-00-010-3319
291	Lockwasher	MS35338-7	5310-00-010-3320
292	Lockwasher	MS35338-8	5310-00-261-7340
293	Lockwasher	MS35340-45	5310-00-959-4679
294	Lockwasher	MS45904-60	5310-00-080-9786
295	Lockwasher	MS51848-7	5310-01-040-7762
296	Lockwasher	N9015	4310-01-046-0186

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
297	Lockwasher	N9018	5310-01-032-4827
298	Lockwasher	N9265	5310-01-136-4888
299	Lockwasher	N9461	5310-01-348-8392
300	Lockwasher	N9574	5310-01-439-0818
301	Lockwasher	V88350241	5310-01-346-0138
302	Lockwasher	V88412056	2835-01-355-1918
303	Lockwasher	W08	5310-01-355-8794
304	Lockwasher	W 12	5310-00-010-6265
304.1	Lockwasher	Z093078423	
304.2	Lockwasher	Z095002434	
305	Machine Gun Kit	1878620U	1005-01-363-2502
306	Mount, Resilient	5104515	5340-01-057-4230
307	Nut, Adjusting	V75502102	5310-01-344-6280
308	Nut, Adjusting	V88140038	5310-01-344-6279
309	Nut, Flange	298125	5310-01-346-3787
310	Nut, Flanged Wiz Lock	31 WLF 51618	5310-00-166-8341
311	Nut, Plain, Hex	V75700689	5310-01-345-3757
312	Nut, Push-On	390963	5310-01-143-0542
313	Nut, Spanner	V75503561	5310-01-344-6313
314	Nut, Spanner	V88350222	5310-01-345-5495
315	Nut, Spanner	V88900207	5310-01-344-6312
316	Nut, Spring Clip	7-659-000256	5310-01-271-3286
317	Ring Set, Piston	23524350	2815-01-058-2204
318	Packing, Preformed	001081	5330-01-086-1013
319	Packing, Preformed	001082	5330-01-085-3105
320	Packing, Preformed	001083	5330-01-086-6196
321	Packing, Preformed	00908-77-00-00	5330-01-361-1181
322	Packing, Preformed	1081	5330-00-408-9895
323	Packing, Preformed	1082	5330-01-352-3354
324	Packing, Preformed	1083	5330-01-157-3798
325	Packing, Preformed	11007B	5330-01-344-0539
326	Packing, Preformed	11350	5330-01-147-6003
327	Packing, Preformed	11-910	5330-01-106-4336
328	Packing, Preformed	1332	
329	Packing, Preformed	177969	5330-01-353-9388
330	Packing, Preformed	19265FX	5330-01-054-7297
331	Packing, Preformed	200-116-4490	5330-01-361-1505
332	Packing, Preformed	200-214-4490	5330-01-116-8112
333	Packing, Preformed	200-912-4490	5330-00-395-5737
334	Packing, Preformed	2-011N103-70	5330-00-419-0749
335	Packing, Preformed	2-011N507-90	5330-01-265-8308
336	Packing, Preformed	2-012N507-90	5330-01-092-5502
337	Packing, Preformed	2-014N103-70	5330-00-213-8722

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
338	Packing, Preformed	2-016N552-90	5330-01-115-8225
339	Packing, Preformed	2-018N507-90	5330-01-092-5503
340	Packing, Preformed	2-021N507-90	5330-01-109-1366
341	Packing, Preformed	2-029N507-90	5330-01-093-3503
342	Packing, Preformed	2-040N674-70	5330-00-137-3204
343	Packing, Preformed	2-112N507-90	5330-01-093-3504
344	Packing, Preformed	2-114N507-90	5330-01-288-4786
345	Packing, Preformed	22012-10	5330-00-966-8620
346	Packing, Preformed	22012-12	5330-00-966-8621
347	Packing, Preformed	22012-6	5330-00-200-8125
348	Packing, Preformed	22012-8	5330-00-996-8627
348.1	Packing, Preformed	22100070001	5331-01-475-3921
349	Packing, Preformed	2-219N674-70	5330-00-013-7784
350	Packing, Preformed	22617-10	5330-01-040-4772
351	Packing, Preformed	22617-12	5330-00-228-7196
352	Packing, Preformed	22617-16	5330-01-168-0885
353	Packing, Preformed	22617-20	5330-01-168-1802
354	Packing, Preformed	22617-6	5330-01-198-8439
355	Packing, Preformed	22617-8	5330-01-244-2273
356	Packing, Preformed	23017303	5330-01-334-9946
357	Packing, Preformed	23045075	5330-01-341-6763
358	Packing, Preformed	23503769	5365-01-286-3994
359	Packing, Preformed	23504352	5330-01-420-8670
360	Packing, Preformed	235063	5330-00-454-0370
360.1	Packing, Preformed	32075110	5331-01-475-3917
360.2	Packing, Preformed	32075111	5331-01-475-3907
361	Packing, Preformed	32185	5330-00-013-7784
362	Packing, Preformed	353264	5330-01-358-5432
363	Packing, Preformed	3-924N552-90	5330-01-038-3074
363.1	Packing, Preformed	405420	4730-01-351-7845
364	Packing, Preformed	405862	5330-00-490-1899
365	Packing, Preformed	5101138	5330-01-062-0942
366	Packing, Preformed	5101160	5330-01-058-0281
367	Packing, Preformed	5101198	5330-00-090-4638
368	Packing, Preformed	5101419	5330-01-164-0344
369	Packing, Preformed	6830007	5330-01-049-0547
370	Packing, Preformed	71040	5330-01-012-2722
371	Packing, Preformed	71041	5330-00-633-6827
372	Packing, Preformed	7-543-002870	4720-01-352-6004
373	Packing, Preformed	7-755-014003	5330-00-472-2783
374	Packing, Preformed	7-755-166003	5330-01-353-9544
375	Packing, Preformed	7-755-238003	5330-01-352-7742
376	Packing, Preformed	7-755-246003	5330-01-354-0235

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
377	Packing, Preformed	85318952	5330-01-155-4277
378	Packing, Preformed	8-74-80-09-059	5330-01-388-3727
379	Packing, Preformed	8923959	5330-00-166-1020
380	Packing, Preformed	8928676	5330-01-346-0846
381	Packing, Preformed	962	5330-00-056-4405
382	Packing, Preformed	9631	5330-00-232-0635
383	Packing, Preformed	A307777000-8	5330-00-920-4157
384	Packing, Preformed	FF446-25	5330-01-269-6152
385	Packing, Preformed	FF9446-12	5330-01-115-8226
386	Packing, Preformed	FF9446-14	5330-01-269-8580
387	Packing, Preformed	FF9446-18	5330-01-092-5503
388	Packing, Preformed	FF9446-21	5330-01-269-4323
389	Packing, Preformed	FF9855-12	5330-01-376-9629
390	Packing, Preformed	FF9855-16	5330-01-372-3867
391	Packing, Preformed	FF9855-18	5330-01-363-7073
392	Packing, Preformed	FF9855-21	5330-01-363-7074
393	Packing, Preformed	J200AS128	5330-00-111-3747
393.0.1	Packing, Preformed	M053225163	
393.1	Packing, Preformed	MS28775-013	5331-00-684-3420
394	Packing, Preformed	MS28775-026	5330-00-631-1342
395	Packing, Preformed	MS28775-121	5330-00-542-1398
396	Packing, Preformed	MS28778-16	5330-00-804-5694
397	Packing, Preformed	MS28778-20	5330-00-816-3546
398	Packing, Preformed	MS28778-4	5330-00-805-2966
399	Packing, Preformed	MS29512-16	5330-00-263-8054
400	Packing, Preformed	MS29561-14	5330-00-729-5254
401	Packing, Preformed	RK11341	5330-01-214-5090
402	Packing, Preformed	V75502787	5330-01-354-4160
402.1	Packing, Preformed	XA-2265	
403	Packing, Preformed	Z053071038	5330-00-633-6818
403.1	Packing, Preformed	Z053074979	
403.2	Packing, Preformed	Z053074980	
403.3	Packing, Preformed	Z053074981	
404	Packing, Preformed	Z053095777	5330-01-304-3453
405	Parts Kit, Air Flow	289352	2530-01-134-1834
406	Parts Kit, Gear Box	02-23-01251-022	5330-00-633-6188
407	Parts Kit, Hydraulic	23012606	2520-01-176-6004
408	Parts Kit, Seal	SK-10-2	5330-01-162-8277
409	Parts Kit, Seal	SK-10-3	2920-00-060-3411
410	Parts Kit, Seal	SK3-0002N-1	5330-01-357-7904
411	Parts Kit, Seal	SK3-10-3S	5330-01-358-3739
412	Parts Kit, Seal	SK3-16-3S	5330-01-358-3740
413	Pin	274889	5315-00-823-4333

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
414	Pin	5106909	5315-01-089-6864
415	Pin	5156295	5315-00-238-0843
416	Pin, Cotter	MS24665-134	5315-00-839-5820
417	Pin, Cotter	MS24665-283	5315-00-842-3044
418	Pin, Cotter	MS24665-287	5315-00-011-9120
419	Pin, Cotter	MS24665-291	5315-00-019-0777
420	Pin, Cotter	MS24665-353	5315-00-839-5822
421	Pin, Cotter	MS24665-360	5315-00-298-1499
422	Pin, Cotter	MS24665-624	5315-00-059-0217
423	Pin, Cotter	MS24665-625	5315-00-209-7273
424	Pin, Cotter	MS24665-627	5315-00-013-7308
425	Pin, Cotter	MS24665-752	5315-00-546-4297
426	Pin, Dowel	141346	5315-00-014-1346
427	Pin, Dowel	142522	5315-00-081-9924
428	Pin, Dowel	5103045	5315-01-137-3373
429	Pin, Dowel	5151576	5315-00-524-7660
430	Pin, Dowel	5175641	5315-00-829-0381
431	Pin, Lube Valve	6838442	5315-01-055-4411
432	Pin, Roll	WLM110004	5315-01-174-4642
433	Pin, Spring	6835729	5360-01-083-1433
434	Pin, Spring	7-690-081044	5315-01-382-8969
435	Plastic Bushing	45289-2	5365-01-163-8204
436	Plate	5103307	2815-01-058-3683
437	Plate, Separator	29501599	5365-01-342-8541
438	Plug	121-6T	5365-01-272-1481
439	Plug	8923313	4730-01-188-3492
440	Plug	8924749	4730-00-005-7376
441	Plug	8924750	4730-01-210-4251
442	Plug	8924751	4730-01-210-4253
443	Plug, Expansion	5139989	5340-00-255-4423
444	Plug, Lube Orifice	6883707	4730-01-127-6900
445	Plug, Nylon	715001A	5340-01-372-3982
446	Preformed Packing Kit	22617-12	5330-00-228-7196
447	Preformed Packing Kit	9S000104	5330-01-363-0667
448	Preformed Packing Kit	9S-000105	5330-01-393-5075
449	Preformed Packing Kit	9S000106	5330-01-372-8377
450	Preformed Packing Kit	FF9446-11	5330-01-214-4857
451	Preformed Packing Kit	SK2-10-2	5330-01-226-6810
452	Preformed Packing Kit	SK3-0017N-1	5330-01-357-7511
453	Preformed Packing Kit	SK3-0039N-1	5330-01-357-7510
454	Preformed Packing Kit	SK3-0024N-1	5330-01-357-7512
455	Preformed Packing Kit	SK3-0088N-1	5330-01-355-9248
456	Pump Assembly	V75503039	5365-01-345-1088

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
457	Push Clips	H360-4-2	5340-01-151-8391
458	Quickedge Molding	75000317	2510-01-176-1177
459	Repair Kit	60539	5330-01-302-2413
460	Repair Kit	711921	5330-01-393-4779
461	Repair Kit	711922	5330-01-354-4314
462	Repair Kit	9400	2530-01-344-5748
463	Repair Kit	9403	5330-01-344-2572
464	Repair Kit	9436	2520-01-344-9375
465	Repair Kit	9-752-100778	5330-01-353-9623
466	Repair Kit	9-752-100788	5330-01-352-6659
467	Repair Kit	9-752-100901	5330-01-353-9513
468	Repair Kit	9-752-100915	5330-01-354-3834
469	Repair Kit	9-752-101050	5330-01-353-9514
470	Retainer	1790632	2530-01-340-4080
471	Retainer	5149154	5365-01-015-5414
472	Retainer	MS28783-16	5330-00-171-5910
473	Retainer	MS28783-26	5330-00-944-9577
474	Retainer, Piston Pin	5180250	5340-00-792-9020
475	Retaining Ring	6758779	5365-00-852-2641
476	Ring Set	282525	2530-01-104-9031
477	Ring, Lock	14-00-139-040	5365-01-201-8981
478	Ring, Lock	5115572	5365-00-590-1739
479	Ring, Locking	2262131	5310-01-344-0559
480	Ring, Oil Collector	23011130	2520-01-145-0301
481	Ring, Piston	23524191	2815-01-337-3963
482	Ring, Piston	8923113	2815-01-321-2231
483	Ring, Piston	8923729	2815-01-247-7125
484	Ring, Piston	T-560-0330-001	3040-01-341-2340
485	Ring, Piston	T-561-0329-002	2815-01-345-1068
486	Ring, Retaining	001023	5365-01-087-8727
487	Ring, Retaining	1023	5365-01-157-3779
488	Ring, Retaining	14-00-139-033	5365-01-202-2587
489	Ring, Retaining	14-02-053-001	5365-01-205-9013
490	Ring, Retaining	23514733	
491	Ring, Retaining	329-1	5365-00-843-8601
492	Ring, Retaining	5198049	5365-00-930-3257
493	Ring, Retaining	MS16224-1087	5365-00-804-2025
494	Ring, Retaining	MS16624-1250	5365-00-806-2357
495	Ring, Retaining	MS16624-1315	5365-00-200-6684
496	Ring, Retaining	MS16625-1081	5365-00-804-9740
497	Ring, Retaining	MS16625-1200	5365-00-804-2784
498	Ring, Retaining	MS16625-1525	5365-00-504-3138
499	Ring, Retaining	V75501125	5365-01-344-8448

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
500	Ring, Retaining	V75503628	5365-01-345-2353
501	Ring, Retaining	V88150021	5360-01-345-2728
502	Ring, Retaining	V88510252	5330-01-354-4218
503	Ring, Retaining	V88510253	5330-01-345-0157
504	Ring, Retaining (Blue)	6882795	5365-01-083-1532
505	Ring, Retaining (Red)	6882797	5365-01-083-1533
506	Ring, Retaining (Yellow)	6882796	5365-01-083-1534
507	Ring, Seal	23019653	5330-01-338-6302
508	Ring, Seal	5103544	5330-01-088-6596
509	Ring, Seal	5197583	5330-00-930-3254
510	Ring, Seal	5198936	5365-01-016-0443
511	Ring, Seal, Cylinder Liner	8927189	5330-01-054-2267
512	Ring, Spindle	V88350243	5365-01-344-6016
513	Rod Bearing Set	23501025	3120-01-336-3064
514	Screw	115289A	5306-01-150-5884
515	Screw	1344950	5305-01-155-6107
516	Screw	1514640	5305-01-347-9802
517	Screw	1756870	5306-01-341-0712
518	Screw	186292	5306-00-849-8812
519	Screw	2009HX	5305-01-210-7413
520	Screw	2271280	
521	Screw	23045343	5306-01-245-9837
522	Screw	23512308	5306-01-411-6384
523	Screw	3829139	5306-00-024-6580
524	Screw	5103530	5306-01-084-4413
525	Screw	5103534	5306-01-078-4981
526	Screw	5103642	5305-01-078-1999
527	Screw	5121466	5306-00-894-2391
528	Screw	5148794	5305-01-058-5320
529	Screw	54067AX	5305-01-150-8714
530	Screw	7092	5305-00-335-4067
531	Screw	711053A	5305-01-355-2641
532	Screw	8-73-412	5306-01-336-8874
533	Screw	8920631	5306-01-169-5526
534	Screw	8923569	5305-01-192-2168
535	Screw	8923570	5306-01-208-7957
536	Screw	8923571	5306-01-128-3980
537	Screw	8925603	5306-01-297-6987
538	Screw	8927580	5306-01-193-9291
539	Screw	B1821BH038C400N	5305-00-781-3928
540	Screw	C95A37	5305-01-066-1825
541	Screw	CPR102737	5306-00-182-9230
542	Screw	MS35295-58	5305-01-056-5448

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
543	Screw	MS51095-416	5305-00-964-0589
544	Screw	MS90725-5	5305-00-068-0501
545	Screw	MS90725-60	5305-00-269-3211
546	Screw	MS90728-193	5305-00-947-4356
546.1	Screw	Z112007092	
547	Screw And Washer Assy	23018827	5305-01-341-8904
548	Screw, Cap W/Lockwasher	237757	5305-01-133-7193
549	Screw, Lock	5145092	5306-00-869-2868
550	Screw, Self-Locking	11504603	5305-01-336-6757
551	Screw, Self-Locking	23015458	5306-01-363-4057
552	Screw, Self-Locking	31 WLFS 51618-062	5306-01-350-8223
553	Screw, Self-Locking	378429-8	5306-01-145-6949
554	Screw, Self-Locking	9409010	5306-00-940-9010
555	Screw, Self-Locking	9409037	5305-00-292-4595
556	Screw, Self-Locking	MS35763-1033	5306-00-842-8223
557	Screw, Self-Tapping	1324510	5305-01-157-5624
558	Screw, Self-Tapping	1345280	5305-01-159-8544
559	Screw, Self-Tapping	1723180	5305-01-145-4003
560	Screw, Self-Tapping	58368AX	5305-01-167-0288
561	Screw, Self-Tapping	B71-10015-002	5305-01-352-2066
562	Screw, Tapping	234-94420-382	5305-01-351-8783
563	Seal	001332	5330-01-173-6825
564	Seal	23504641	5330-01-336-2997
565	Seal	23511486	5330-01-397-6491
565.1	Seal	251816010004	5340-01-474-7928
565.2	Seal	251816011300	5340-01-474-7934
565.3	Seal	251816991107	5340-01-474-8059
565.4	Seal	252044010012	5330-01-474-7061
566	Seal	3S9643-00	5330-00-246-6380
567	Seal	5102098	5330-01-058-5220
568	Seal	5103646	5330-01-088-2740
569	Seal	513439	5330-01-384-9330
570	Seal	5148502	5365-01-062-0943
571	Seal	589332	5330-01-372-5634
572	Seal	71246	5330-01-187-3640
573	Seal	80X100X10	5330-01-355-9269
574	Seal	8922140	5330-00-764-1659
575	Seal	NA1205A2315	5330-01-344-0635
576	Seal	NA1205W2259	5330-01-345-4712
577	Seal Kit	430457B	5330-01-394-3549
578	Seal Kit	9638	5330-01-344-2573
579	Seal Kit, Needle	23500533	5340-00-678-0944
580	Seal, Double Lipped, Teflon	3J3598	5330-01-162-8277

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
581	Seal, Oil	10124	5330-01-281-0907
582	Seal, Oil	13585	5330-00-202-1292
583	Seal, Oil	23016947	5330-01-245-0159
584	Seal, Oil	31333CRWH1	5330-01-204-5486
585	Seal, Oil	415023-SSR	5330-01-340-9882
586	Seal, Oil	415025-SSR	5330-01-340-9882
587	Seal, Oil	415304	5330-01-033-2697
588	Seal, Oil	5106223	5330-01-083-3980
589	Seal, Oil	5148502	5365-01-062-0943
590	Seal, Oil	5177786	5330-00-961-9801
591	Seal, Oil	6773311	5330-00-999-3752
592	Seal, Oil	8-74-21-25-017	5330-01-138-2629
593	Seal, Oil	8-74-21-25-021	5330-01-207-6676
594	Seal, Oil	8921150	5330-01-166-3618
595	Seal, Oil	8921209	5330-00-992-0695
596	Seal, Oil	9-734-100635	5330-01-208-7006
597	Seal, Oil	A11507	5330-00-846-8177
598	Seal, Oil	E75503729	5330-01-344-8263
598.1	Seal, Oil	M054097799	
599	Seal, Oil	V75503486	5330-01-344-8935
600	Seal, Oil	V75503596	5330-01-350-2906
601	Seal, Oil	V88350180	5330-01-344-0639
602	Seal, Oil, Rear	8929750	5330-01-324-0437
603	Seal, Plain	6836799	5330-01-145-0697
604	Seal, Plain, Encased	5177786	5330-00-961-9801
605	Seal, Ring	23011453	5330-01-088-5847
606	Seal, Ring	23011454	5365-01-084-5258
607	Seal, Ring	23011455	2520-01-149-3273
608	Seal, Ring	23014441	5330-01-087-6849
609	Seal, Ring	23014631	5935-01-342-3363
610	Seal, Ring	23019652	5330-01-054-2242
611	Seal, Ring	23045519	5330-01-280-7491
612	Seal, Ring	6758740	5330-00-582-0456
613	Seal, Ring	6770492	5330-00-999-3760
614	Seal, Ring	6833980	5330-01-236-1753
615	Seal, Ring	6836796	5330-01-336-6709
616	Seal, Ring	6836799	5330-01-145-0697
617	Seal, Ring	6836800	5330-01-336-2998
618	Seal, Ring	NA1205A2315	5330-01-344-0635
619	Seal, Ring	NA1205W2259	5330-01-345-4712
620	Seal, Valve	23045075	5330-01-341-6763
621	Seal, Water	23506248	5330-01-359-2143
622	Seal, Water	5148502	5365-01-062-0943

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
623	Sealing Kit (Inner)	V88510252	5330-01-354-4218
624	Sealing Kit (Outer)	V88510253	5330-01-345-0157
625	Setscrew	8927479	5305-01-297-7528
626	Setscrew	8927579	5305-01-336-5925
627	Setscrew Assy	35370-2	5305-01-167-0232
628	Shaft	23506053	3040-01-354-0406
629	Shim	4-195-9-00297	5365-01-354-0251
630	Shim	4-195-9-00298	5365-01-354-0252
631	Shim	4-195-9-00299	5365-01-354-0253
632	Shim	5183323	5365-00-377-2888
633	Shim	5185318	5365-00-377-2889
634	Shim	5185319	5365-00-377-2887
635	Shim Kit, Adjusting	V86010008	5365-01-344-6846
636	Shim Kit, Adjusting	V86010009	5365-01-344-6847
637	Shim Kit, Adjusting	V86010010	5365-01-344-4425
638	Shim Kit, Adjusting	V86010012	5365-01-344-6848
639	Shim Kit, Adjusting	V86010048	5310-01-345-2637
640	Shim Kit, Adjusting	V86010049	5365-01-350-3080
641	Shim Kit, Adjusting	V86010079	5365-01-345-2639
642	Shim Kit, Adjusting	V86010080	5365-01-345-3969
643	Shim Kit, Adjusting	V86010081	5365-01-345-3962
644	Shim Kit, Adjusting	V86020076	5365-01-345-0228
645	Shims	5100703	5365-01-082-1972
646	Skirt, Piston	23508986	2815-01-406-1952
647	Sleeve	V75503563	5365-01-344-4387
648	Snap Ring	8922605	5365-01-173-3437
649	Snap Ring	N1229N4408	5365-01-344-2598
650	Spacer	2262141	5310-01-344-0560
651	Spacer, Plate	59808BX	5365-01-156-0026
652	Spring	001288	5360-01-174-3821
653	Spring	007500	5360-01-145-7555
654	Spring	011434	5360-01-209-8802
655	Spring	12321866	5360-01-216-7059
656	Spring	3-4X1MD	5360-01-043-4761
657	Spring	5108918	5360-00-689-8264
658	Spring	5108919	2815-00-053-8992
659	Spring	5134477	5360-00-930-3264
660	Spring	5144857	
661	Spring	53733AX	5360-01-145-4724
662	Spring	54396AX	5360-01-086-1419
663	Spring	6768544	5360-00-679-7009
664	Spring	6831656	5360-00-211-9547
665	Spring	6880418	5360-01-035-9396

(1) Index No.	(2) Nomenclature	(3) Part Number	(4) National Stock Number
666	Spring	8923176	5360-01-206-3186
667	Spring	8927794	5360-01-336-9229
668	Spring Kit	23013754	5360-01-128-5646
669	Spring, Converter By-Pass	6834666	4820-01-082-9452
670	Spring, Lockup Shift Val	6839419	5360-01-144-6170
671	Spring, Lube Valve	6837882	5360-01-128-5645
672	Spring, Main Pressure Reg	6839209	5360-01-084-2394
673	Standard Piston Kit	282525	2530-01-104-9031
674	Standoff	23019304	3040-01-K62-9137
675	Strainer, Element	5126143	2940-00-745-7741
676	Stud	5130488	5307-01-044-7270
677	Stud	8925804	5307-00-550-1879
678	Thrust Washer, Oversize	5116485	5365-00-837-8352
679	Thrust Washer, Standard	5111424	3120-00-585-3282
680	Tube, Vent	6769580	4710-00-124-5737
681	U-Bolt	90359-A	4730-01-353-9723
682	U-Bolt	X125	5340-01-351-5690
683	Union, Bulkhead	1890800	4730-01-356-8646
684	Valve Guide	5149771	2815-01-062-0855
685	Valve Seat Insert	5148490	2815-01-055-7659
686	Valve, Lube	6837881	2520-01-051-6670
687	Valve, Seat	5148490	2815-01-055-7659
688	Washer	31425BX	2520-01-041-3542
689	Washer	40393AX	3120-01-146-9782
690	Washer	5104701	5330-00-599-0505
691	Washer	5125108	5310-00-785-3961
692	Washer	8925749	5365-01-239-9477
692.1	Washer, Fiber	Z082073500	3110-01-302-9300
693	Washer, Flat	5198988	5310-00-153-2717
694	Washer, Flat	60598	5310-00-663-7617
695	Washer, Seal	1760040	5310-01-353-2062
695.1	Washer, Seal	XA-1470	
696	Washer, Spring	M12133/1-12P	5310-01-038-2294
697	Washer, Thrust	5111424	3120-00-585-3282
698	Washer, Thrust	5117005	2815-00-735-4202
699	Washer, Thrust	6835321	3120-01-084-4607
700	Washer, Thrust	6881352	3120-01-056-2112
701	Washer, Thrust	6881638	3120-01-053-1819
702	Wear Pad	4-198-9-00020	2590-01-199-7975
703	Wear Pad	6-671-000306	2590-01-354-8240
704	Wear Pad	6-671-000308	2590-01-354-5443
705	Wear Pad	6-671-000362	2590-01-352-2339
706	Windshield Seal/Locking Strip	7500690	5330-01-178-7174

APPENDIX F

TOOL IDENTIFICATION LIST

Section I. INTRODUCTION

F-1. SCOPE.

This appendix lists all of the tools needed to repair the PLS.

F-2. GENERAL.

This appendix is a list of tools, both common and special, test equipment and tool kits used at Direct and General Support Maintenance level to repair the truck. This list is arranged alphabetically and shows the nomenclature, Part Number (P/N) and National Stock Number (NSN), when applicable. The index number corresponds to the index number found in the task box of maintenance procedures.

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS

Item No.	Description	Part No.	NSN	Reference
1	Adapter, Engine Stand	J33850	4910-00-146-9624	
2	Adapter Kit, Transfer Case	J-39911	4910-01-385-6779	
3	Adapter, Maintenance Stand, Differential	J-39929-A	4910-01-384-6264	
4	Adapter, Mechanical Puller	J7932	5120-00-733-8890	
5	Adapter, Press	206457	5120-01-357-0740	
6	Adapter, Radiator	J-29003-A	4910-01-170-4929	
7	Adapter, Slip Test	J33765	5935-01-297-2481	
8	Adapter, Socket (3/4 in. male to 1/2 in. female)	11655788-3	5120-00-144-5207	SC 4910-95-A31
9	Adapter, Socket (3/4 in. female to 1/2 in. male)	97-3725	5120-00-227-8088	
10	Adapter, Socket (3/4 in. female to 1 in. male)	A-A-2172	5120-00-227-8104	
11	Adapter, Socket (3/8 in. female to 1/4 in. male)	A-6	5120-00-227-8095	SC 4940-95-B20-HR
12	Alignment Tool, Blower	J33001	5120-01-158-3991	
13	Alignment Tool, Clutch	J-24221	5120-01-115-1156	
14	Alignment Tool, Pin	J24285	5120-01-232-0007	
15	Analyzer Set, STE/ICE-R	12259266	4910-01-222-6589	
16	Attachment, Ball, Micro	J4757	5210-00-221-1921	
17	Bit Set, Screwdriver	38699-1	5120-01-170-4454	SC 4910-95-A72-HR
18	Blade Kit, Hole Saw	GGG-S-66	3455-00-684-3918	

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
19	Box, Chalk, Reel and Line	GGG-C-291	5210-00-273-9793	
20	Bracket, Lifting	J-24196	5120-01-115-1157	
21	Bracket, Lifting	J24408-A	5306-01-338-6292	
22	Bracket, Mounting, Cylinder Liner	J24565-02	5340-01-158-3984	
23	Brush, Wire, Scratch	HB178	7920-00-291-5815	SC 4910-95-31
24	Brush, Wire, Valve Cylinder	J5437	5120-00-766-2141	
25	Caliper, Dial, 0-6 in. w/Dial	599-579-2	5210-01-010-4522	SC 3470-95-A02
26	Cap and Plug Set	10935405	5340-00-450-5718	
27	Caps, Vise Jaw	GGG-C-137	5120-00-246-4747	
28	Cartridge, ATEC	J38500-303	4940-01-367-6194	
29	Cartridge, DDEC	J38500-750	4940-01-367-4657	
29.1	Cartridge DDEC III/IV	J38500-1500	7025-01-482-8761	
30	Charging Kit, Pressure	12252157	4910-01-046-7109	
31	Clamp	42052	5340-01-084-4459	
32	Clamp, Machinist's	GGG-C-406	5120-00-222-1612	SC 4910-95-A72-HR
33	Clamp Plate	206459	5120-01-357-0741	
34	Collector Ring Installer and Staking Set	J24200	5120-01-048-3124	
35	Compressor Unit, Air	MIL-C-13874	4130-00-752-9633	
36	Compressor, Ring	J24204-1	5120-01-048-3130	
37	Compressor, Ring	J24227	4910-01-158-3974	
38	Compressor, Ring, Piston	RC40C	5120-00-250-6055	
39	Compressor, Spring	J24204-3	5120-01-048-2159	
40	Compressor, Spring	J24219	5120-01-048-2160	
41	Compressor, Spring, Valve	J7455-A	5120-01-297-2347	
42	Connector Remover	J38384	5120-01-355-3012	
43	Crowbar	1051985	5120-00-224-1390	SC 4910-95-A31
44	DDEC Repair Kit	J35888	2815-01-355-5993	
45	Detector, Leak, Vacuum Gage	J-23987-B	6685-01-061-4253	
46	Die Set, Metal Stamping	GGG-D-280	5110-00-289-0004	SC 4910-95-A31
47	Drill Machine, Upright	MIL-D-80038	3413-00-165-4117	
48	Drill Set, Twist	GGG-D-751	5133-00-449-6775	SC 3470-95-A02
49	Drill, Electric, Portable, 1/4 in.	1070	5130-00-889-8993	SC 4910-95-A31
50	Driver	2HS115	5120-01-374-6200	
51	Driver Bearing, Gear	J25257	5120-01-033-8902	

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
52	Driver, CTIS Seal	J41112	5120-01-355-0857	
53	Driver, CTIS Seal	J41113	5120-01-355-0858	
54	Expander, Seal, Oil	J4239	5120-00-336-0445	
55	Expander, Seal, Oil	J8682	5120-01-232-0005	
56	Extractor, Inertial	2HE226	5120-01-355-3010	
57	Extractor, Inertial	2HE227	5120-01-354-9543	
58	Eyes, Lifting	3016T39	5306-01-197-6569	
59	Eyes, Lifting	8891T82	5306-01-333-5486	
60	Eyes, Lifting	3016T65	5306-01-239-5053	
60.1	Fault Code Retrieval Device (FCRD)	CA1 05 020		
61	Fixture, Holding	J-24310	5120-01-115-1165	
62	Fixture, Lifting, Cylinder Head	J22062-01	4910-00-456-7620	
63	Fixture, PTO, Gear	J26899	4910-01-158-3969	
64	Fixture, Test, Head	J28454	4910-01-158-3985	
65	Gage Set, Cylinder Compression	J7334-E	4910-01-148-1236	
66	Gage Set, Feeler	FB310B	5210-01-119-7601	
67	Gage Set, Feeler	J 1698-02	5210-01-245-9564	
68	Gage Set, Feeler, Piston	J5438-01	5210-00-116-1631	
69	Gage Set, Telescoping	599-590	5210-00-473-9350	SC 4910-95-A63
70	Gage, Center And Front	J-29198-3	5210-01-133-6888	
71	Gage, Depth	J-22273-01	5210-00-023-4798	
72	Gage, Depth, Cylinder Liner	J24898	5210-01-174-4498	
73	Gage, Depth, Micrometer	GGG-C-105	5210-00-619-4045	SC 3470-95-A02
74	Gage, Dial	J-8165-2	4910-00-779-7103	
75	Gage, Dial, Bore, Cylinder	J5347-B	5210-01-070-4543	
76	Gage, Feeler	J3174-02	5210-00-671-2275	
77	Gage, Feeler	J9708-15	5210-01-156-7302	
78	Gage, Feeler, Jacobs Brake	007958	5210-01-214-2938	
79	Gage, Piston, Groove	J24599	5220-01-028-1109	
80	Gage, Timing, Injector	J25502	5220-01-348-1638	
81	Gloves, Chemical Oil Protective	ZZ-G-381	8415-00-641-4601	
82	Gloves, Heavy Duty	A-A-50022	8415-00-268-7859	SC 4910-95-A31
83	Goggles, Industrial	GGG-G-513	4240-00-269-7912	SC 4910-95-A31
84	Grinding Kit, Valve Seat	1750	4910-00-473-6437	SC 4910-95-A63

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
85	Grinding Machine, Valve Face	00G686	4910-00-540-4679	SC 4910-95-A63
86	Gun, Airblow	GGG-G-770	4940-00-333-5541	SC 4910-95-A31
87	Gun, Heat	500	4940-00-561-1002	SC 4910-95-A31
88	Hammer, Hand, Soft Plastic	3-HD	5120-01-065-9037	SC 4910-95-A72-HR
89	Hammer, Slide	J6125-1B	5120-01-112-2165	
90	Handle, Driver	J8092	5120-00-677-2259	
91	Handle, Driver	J-3154-1	5120-00-808-5082	
92	Handle, Driver	J24202-4	5120-01-054-4048	
93	Handle, Installer	J7079-2	5120-00-977-5578	
94	Harness, Breakout	J34517	6150-01-373-7771	
95	Holder, Stator Roller	J24218-2	5120-01-115-1158	
96	Honing Unit, Cylindrical Bore, Portable	J5902-01	5130-00-629-9782	
97	Indicator, Dial, Set	J5959-01	5120-00-794-9178	SC 4910-95-A31
98	Indicator, Dial, Set w/Magnetic Base	J7872	5120-00-402-9619	
99	Indicator, Dial, Timing Tool	J34930A	2815-01-355-6628	
100	Inserter and Remover, Charge Pump	J33080	5120-01-166-0572	
101	Inserter, Bearing And Bushing	J25562	5120-01-158-3946	
102	Inserter, Center Bushing, Front	302031	5120-01-186-3126	
103	Inserter, Plug, Cylinder Block	J-21850	5120-01-166-5419	
104	Inserter, Seal	J35373	5120-01-340-1820	
105	Installation Tool, Cup Plug	J33420	5120-01-297-2457	
106	Installer and Remover	J25275	5120-01-048-2180	
107	Installer, Bearing	J-24197	5120-01-115-1160	
108	Installer, Guide, Valve	J-21520	5120-00-999-8617	
109	Installer, Lock Ring	J24453	5120-01-054-4050	
110	Installer, Oil Seal, Sleeve	J21983	5120-01-227-8483	
111	Installer, Output Shaft Seal	J-24202-1A	5120-01-054-4042	
112	Installer, Plug	J-24411	5120-01-385-7288	
113	Installer, Plug	J24369	5120-01-054-4053	
114	Installer, Seal, Crankshaft, Front	J9783	5120-00-936-4377	
115	Installer, Seal	J9791	5120-01-013-1678	
116	Installer, Seal	J8550	5120-00-977-5579	
117	Installer, Seal	J24198	5120-01-054-4049	

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
118	Installer, Seal, Oil	J8501	5120-00-937-7267	
119	Installer, Seal, Transfer Case	6227 TRS	5120-01-383-7878	
120	Installer, Sleeve	J21983	5120-01-227-8483	
121	Installer, Valve Bridge	J7482	5120-00-999-8616	
122	Installer, Water Pump Seal	J-38858	5120-01-365-4079	
123	Installer Tool, Center Bushing, Rear	302026	4910-01-158-3941	
124	Installing Tool, Piston	J-23762-A	5120-00-127-7757	
125	Installing Tool, Valve	J24357	5120-01-048-3118	
126	Installing/Removing Tool	J-23019	5120-01-130-8864	
127	Jack, Dolly Type	93660	4910-00-289-7233	SC 4910-95-A31
128	Jack, Hydraulic, Hand	5029209-111-101	5120-00-188-1790	SC 4910-95-A31
129	Jack, Kit, Hydraulic, Hand	GGG-J-60	5120-00-595-8387	SC 4910-95-A31
130	Jack, Stabilizer	LO-J		
131	Jack, Transmission	49	4910-00-585-3622	SC 4910-95-A62
132	Jackstand	306	4910-00-251-8013	SC 4910-95-A74
133	Lathe, Brake Drum	4100	4910-01-028-9849	SC 4910-95-A31
134	Level	2579573-002	4920-00-064-8974	
135	Lifting, Bracket, Center	J-24195	5120-01-116-6048	
136	Lifting, Bracket, Flywheel	J-24365	5120-01-116-6049	
137	Lifting, Fixture, Clutch	J-24209	5120-01-115-1159	
138	Mag Ins Unit, Stat	MIL-M-6867C	6635-00-566-9772	
139	Micrometer, Outside, Caliper, Set	GGG-C-105	5210-00-554-7134	SC 3470-95-A02
140	Multimeter	ANURM105C	6625-00-999-6282	SC 4910-95-A31
141	Multiplier, Torque	292	5120-00-574-9318	SC 4910-95-A72-HR
142	OSS Tester	13189	4910-00-370-4908	
143	Oil, Seal, Expander	J8682	5120-01-232-0005	
144	Pan, Drain 4 gal	450	4910-00-387-9592	SC 4910-95-A31
145	Pan, Drain 6 gal	MIL-P-45819	4910-00-287-2944	
146	Pin, Guide	J1126	5315-01-165-1469	
147	Pin, Guide Set	J24315	5315-01-141-9458	
148	Plate Kit, Gear Bearing	2SK900	5180-01-167-4285	
149	Plate, Adapter, Transfer Case	TRS4114	5340-01-372-6413	
150	Pliers, Brake Repair	131A	5120-00-690-8044	SC 4910-95-A31
151	Pliers, Channel Lock	GGG-W-649	5120-00-287-2512	

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
152	Pliers, Retaining Ring	2BH945	5120-01-375-5699	
153	Pliers, Retaining Ring	0200	5120-00-288-9717	SC 4910-95-A31
154	Pliers, Retaining Ring	0500	5120-00-293-0046	SC 4910-95-A31
155	Pliers, Retaining Ring	0100	5120-00-293-0048	SC 4910-95-A31
156	Pliers, Retaining Ring	0400	5120-00-293-0049	SC 4910-95-A31
157	Pliers, Retaining Ring	0900	5120-00-293-0186	SC 4910-95-A31
158	Pliers, Retaining Ring	407	5120-00-595-9551	SC 4910-95-A31
159	Pliers, Retaining Ring	S6800	5120-00-595-9552	SC 4910-95-A31
160	Plug, Cylinder Block	J24597	5120-01-166-5421	
161	Plumb Bob	GGG-P-501	5210-00-007-8229	
162	Press, Arbor, Hand Operated	MIL-P-80261	3444-00-163-4338	SC 4910-95-A31
163	Press Plate	51100	5120-01-357-0743	
164	Press, 60 Ton	26A49	3444-00-449-7295	SC 4910-95-A31
165	Pressure Test Kit	3SK912	4910-01-378-8863	
166	Pressure Test Kit	3SK911	4910-01-378-9068	
167	Protector, Piston	J24210	5120-01-048-2156	
168	Protector, Seal	J24216-01	5120-01-048-2157	
169	Protector, Spindle	2HE234	3830-01-349-7390	
170	Protractor, Magnetic	2150A251	5210-01-415-0075	
171	Protractor, Square	05-12INCH	5210-00-273-1937	
172	Puller, Bolts	J26901-A	5210-01-185-6811	
173	Puller, Mechanical	J1902-B	5120-00-219-8397	
174	Puller Kit, Universal	1677	5180-00-423-1596	SC 4910-95-A31
175	Puller Kit, Universal, Slide Hammer	1178	5120-00-313-9496	SC 4910-95-A74
176	Pulley Kit, Pump, Roof Mount	2HP645	5120-01-375-5700	
177	Pulley Remover	J5356	5120-00-944-0363	
178	Pump, Force	466-46483	4130-01-192-0496	
179	Punch, Drift	PWA14920	5120-00-004-4921	
180	Reader, Diagnostic	J 38500-1	4910-01-343-3508	
181	Reamer Set, Hand	GGG-R-180	5110-00-357-6858	SC 3470-95-A02
182	Reconditioning Set, Injector Tube	J-22525-B	5180-00-019-4208	
183	Remover and Installer, Piston Ring	7950177	5120-00-494-1846	
184	Remover Assembly	J24563-A	4910-01-158-3982	
185	Remover Set, Valve Bridge	J7091-01	5120-00-999-8614	

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
186	Remover, Bearing, Front Support	J28557	5120-01-117-2523	
187	Remover, Bushing, Beam End	302030	5120-01-186-3125	
188	Remover, Center Bushing, Front	302032	5120-01-374-8970	
189	Remover, Center Bushing, Rear	302027	5120-01-357-0742	
190	Remover, Guide, Valve	J6569	5120-00-733-8880	
191	Remover, Snap Ring	J26598-A	4910-01-158-3996	
192	Remover, Valve Bridge	J7453	5120-00-999-8615	
193	Remover, Valve Pin	J-24412-2	5120-01-048-3128	
194	Remover, Valve Seat	J23479-E	5120-01-165-1935	
195	Respirator, Air Filter	GGG-M-125/6	4240-00-022-2524	SC 4910-95-A31
196	Rivet Gun	352	5130-00-982-8078	
197	Rule, Steel, Machinist	GGG-R-791	5210-00-204-1283	
198	Sander, Portable, Disk Electric	OOS90	5130-00-596-9728	SC4910-95-A31
199	Scale, Tension	J-8129	4910-00-779-6832	
200	Screw, Guide	J-1927-01	5120-01-144-4483	
201	Seal Installer, Flywheel	J21112-B	4910-01-176-4230	
202	Sleeve, Puller	J25007-4	4910-01-162-3633	
202.1	Smart Card	J38500-2300	7025-01-482-8800	
203	Snap Ring Assembly	J-24208-D	5120-01-116-5016	
204	Socket Set, 3/8 in.	221FSMY	5120-01-117-3876	SC 4910-94-A72-HR
205	Socket Set, Deep Well, 1/2 in.	GGG-W-641	5120-00-596-8622	SC 4910-95-A72-HR
206	Socket, Socket Head Screw, 12 mm	SAM12A	5120-01-104-5346	SC 4910-95-A31
207	Socket, Socket Head Screw, 14 mm	SAM14A	5120-01-079-8033	SC 4910-95-A31
208	Socket, Socket Head Screw, 3/4 in.	LAW124A	4470-01-350-0895	
209	Socket, Socket Head Screw, 1/8 in., 3/8 in. Drive	FA4A	5120-00-516-4979	
210	Socket, Socket Head Screw, 3/16 in., 3/8 in. Drive	4080-12	5120-00-683-8597	SC 4910-95-A31
211	Socket, Socket Head Screw, 5/16 in., 1/2 in. Drive	SA10A	5120-01-022-9505	
212	Socket, Socket Head Screw, 9/16 in., 1/2 in. Drive	SA18A	5120-01-367-3466	
213	Socket, Socket Head Screw, 5/8 in., 3/4 in. Drive	LAW120A	5120-00-601-6934	

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
214	Socket, Socket Head Screw, 3/8 in., 1/2 in. Drive	SA12A	5120-00-585-6237	
215	Socket, 12 mm Hex Head	849550-3-8AF	5120-00-240-6148	
216	Socket, 1-11/16 in.	GGG-W-641	5120-01-024-0168	
217	Socket, 55 mm	J39938	5120-01-386-5999	
218	Socket, 63 mm	J39939	5120-01-386-5988	
219	Socket, Spindle Nut	J41111	5120-01-354-9451	
220	Socket, Swivel 13/16 in.	A-A-1396	5120-00-236-7619	
221	Socket, Wrench Attachment, Screwdriver	J34650	5120-01-297-2374	
222	Spanner	2HE229	5120-01-354-9452	
223	Spanner	2HE230	5120-01-354-9450	
224	Spanner	2HE231	5120-01-354-9449	
225	Stand, Maintenance, Axle	150-AX	4910-00-241-3329	
226	Stand, Maintenance, Engine	J29109	4910-00-808-3372	
227	Steam Cleaner	PRO 12-5	7910-01-157-8272	
228	Stone, Abrasive, Cylinder	J5902-14	5130-00-937-7280	
229	Stone, Sharpening	A6F0	5345-00-584-4607	
230	Straight Edge	11-1480	4920-00-442-1030	SC 3470-95-A02
231	Stud Remover and Setter	GGG-S-775	5120-00-596-0980	SC 4910-95-A31
232	Stud Set	J25002	5120-01-048-2155	
233	Studs, Guide	J-24748	5315-01-162-3630	
234	Tap and Die Set	TDM99117	5136-01-119-0005	
235	Tape, Measuring	D-1420-A	5210-00-234-6745	SC 4910-95-A31
236	Tension Gage, Belt	J-23600-B	6635-01-093-3710	
237	Tester, Pressure, Radiator	J24460-01	4910-01-170-4928	
238	Testing Kit, Cylinder Block	2SK737	5180-01-252-9800	
238.1	Tool Kit, Blind Rivet	D-100-MIL-1	5180-01-201-4978	SC 4910-95-A74
239	Tool Kit, Electric	7550526	5180-00-876-9336	SC 4910-95-A01
240	Tool Kit, General Mechanic's	SC5180-90-CL-N05	5180-00-699-5273	
241	Tool Kit, General Mechanic's: Automotive	SC5180-90-N26	5180-00-177-7033	
242	Tool Set, Blower	J-6270-G	4940-00-611-7945	
243	Tool, Knuckle, Adjusting	J41115	5120-01-355-6571	
244	Tool, Lifting	J33079	5120-01-159-1736	
245	Tool, Staking	J24200-1	5120-01-359-2757	

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
246	Tool, Timing, SRS/TRS	J39815	5120-01-343-1001	
247	Torch, Propane	737-1-0000	3433-01-161-4998	
248	Vise, Machinist's	504M2	5120-00-293-1439	SC 4910-95-A31
249	Vise, Pipe, Chain	CV12	5120-00-078-6662	
250	Weatherpac Crimper	J38852	5120-00-374-8936	
251	Welder, Arc	MIL-W-4125	3433-00-357-6311	SC 3433-90-N01-HR
252	Winch, Cable, Hand Operating	415526-1	3950-00-079-1202	
253	Wrench, Chain	CW24	5120-01-192-9403	
254	Wrench, Combination 1-1/16 in.	1234	5120-00-228-9515	SC 4910-95-A74
255	Wrench, Combination 1-1/8 in.	1172	5210-00-228-9516	SC 4910-95-A74
256	Wrench, Combination 1-1/4 in.	1173	5120-00-228-9517	SC 4910-95-A74
257	Wrench, Combination 1-5/16 in.	1174	5120-00-228-9518	SC 4910-95-A74
258	Wrench, Combination 1-3/8 in.	1175	5120-00-277-8833	SC 4910-95-A74
259	Wrench, Combination 1-7/16 in.	1176	5120-00-228-9519	SC 4910-95-A74
260	Wrench, Combination 1-1/2 in.	1178	5120-00-277-8834	SC 4910-95-A74
261	Wrench, Combination 1-5/8 in.	1180	5120-01-016-7144	
262	Wrench, Combination 1-11/16 in.	A-A-1351	5120-00-184-8566	
263	Wrench, Combination 1-3/4 in.	1256	5120-00-020-8658	
264	Wrench, Combination 1-13/16 in.	GGG-W-636TY4	5120-00-081-9099	
265	Wrench, Combination 1-7/8 in.	1260	5120-00-020-8632	
266	Wrench, Combination 2-1/8 in.	1268	5120-00-203-4795	
267	Wrench, Crowfoot, 7/8 in., 3/8 in. Drive	FC28A	5120-00-541-4071	
268	Wrench, Crowfoot, 3/4 in., 3/8 in. Drive	FC024	5120-00-187-7898	SC 4910-95-A31
269	Wrench, Crowfoot, 9/16 in., 3/8 in. Drive	GGG-W-646	5120-00-222-7975	SC 4910-95-A31
270	Wrench, Fuel Line	J-8932-B	5120-00-019-5232	
271	Wrench, Pipe 3-1/2 in. Opening	GGG-W-651	5120-00-277-1485	SC 4910-95-A31
272	Wrench Set, Pushrod	J21100-D	5120-00-132-2109	
273	Wrench Set, Socket 3/8 in. Drive	51200017510	5120-00-322-6231	SC 4910-95-A31
274	Wrench Set, Socket 3/4 in. Drive	FEDSTD353	5120-00-204-1999	SC 4910-95-A31
275	Wrench, Spanner	J41108	5120-01-375-4502	
276	Wrench, Torque (0-60 N·m)	TESI60	5120-01-112-9531	SC 4910-95-A31
277	Wrench, Torque (0-175 lb-ft [0-237 N·m])	A-A-2411	5120-00-640-6364	SC 4910-95-A31

Section II. TOOLS, TEST EQUIPMENT AND TOOL KITS (CONT)

Item No.	Description	Part No.	NSN	Reference
278	Wrench, Torque (0-600 lb-ft [0-814 N·m])	SW130-301	5120-00-221-7983	SC 4910-95-A31
279	Wrench, Torque Driver	TQSC6A	5120-01-112-9532	SC 4910-95-A72-HR
280	Zonal Separator, Oil and Water Spray Gun	MIL-S-12928CLASS1	4940-00-242-4100	SC 4910-95-A73

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SCHEMATICS

The following sections contain the schematics which are the same in all volumes of TM 9-2320-364-20 and TM 9-2320-364-34.

Section I contains the schematics for trucks equipped with the 145 amp alternator and the DDEC II engine.

Section II contains the schematics for trucks equipped with the 200 amp alternator and the DDEC III/IV engine.

SCHEMATICS

Section I. 145 AMP ALTERNATOR AND DDEC II ENGINE.

Section I contains the schematics for trucks equipped with the 145 amp alternator and the DDEC II engine.

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MULTIPLE CONNECTORS

NUMBER	ZONE	SH	DESCRIPTION
MC1	H3	3	CAB/ELECTRICAL BOX
MC1	C26	4	CAB/ELECTRICAL BOX
MC2	D3	3	CAB/ELECTRICAL BOX
MC2	D26	4	CAB/ELECTRICAL BOX
MC3	C3	3	CHASSIS
MC3	H17	6	CHASSIS
MC4	G10	3	SWITCHES
MC5	B12	3	WIPER MOTOR
MC6	D15	3	THROTTLE SENSOR
MC7	H8	3	TURN SIGNAL
MC8	F19	3	GAUGES
MC9	G4	4	ECU ATEC
MC10	G4	4	ECU ATEC
MC11	D3	4	DDEC
MC11	D26	5	DDEC
MC12	H26	4	SHIFT CONT ATEC
MC13	F6	3	DIGN CONN DDEC
MC15	B4	6	MILITARY CONNECTOR
MC16	D4	6	TRAILER
MC17	G11	5	DDEC
MC18	E11	5	DDEC
MC19	E13	5	TRANSMISSION
MC20	E12	5	TRANSMISSION
MC21	E2	3	ENGINE SENSOR
MC21	H26	5	ENGINE SENSOR
MC22	G21	5	REGULATOR
MC23	B23	5	ETHER START
MC24	G19	5	ALTERNATOR
MC25	C17	6	TRAILER 24VDC
MC27	F18	6	FRONT TOW
MC28	E6	3	BEACON LIGHT
MC29	F8	6	CRANE
MC30	C5	6	TRAILER
MC31	B21	3	CAB/CHASSIS
MC32	B23	3	CTI CHASSIS
MC33	F17	7	LHS CAB
MC34	C19	3	24V METERS
MC35	D24	3	CTI
MC36	A5	4	THROTTLE SENSOR
MC38	C15	3	VERNIER CONTROL
MC39	H7	5	STE/ICE
MC40	G5	5	STE/ICE MODULE
MC41	G2	5	PULSE TACH DRIVE
MC42	H4	5	DIFFERENTIAL PRESS
MC43	F2	5	FUEL PRESSURE
MC44	C5	3	CAB/TRANSMISSION
MC44	F26	4	CAB/TRANSMISSION
MC45	D5	4	ECU ATEC

MULTIPLE CONNECTORS

NUMBER	ZONE	SH	DESCRIPTION
MC50	C7	4	RELAYS/ATEC
MC51	C6	4	ECU ATEC
MC52	B23	4	HEATER/DIMMER
MC53	F23	3	ENGINE BRAKE
MC54	F8	6	WORK LIGHT
MC55	B13	6	SELF RECOVERY WINCH
MC56	C23	5	ETHER THERMOSTAT
MC57	F6	6	DRIVE LINE LOCK
MC58	E7	3	GAS PART FILTER
MC59	G13	6	FAN CONTROL
MC60	G24	5	REVERSE PLRT PROTR
MC61	G10	6	FAN CONTL WTR TEMP
MC62	F13	5	DDEC ENGINE POWER
MC63	G11	6	FAN CONTROL
MC64	D15	6	AUXILIARY CTI MANF
MC65	E5	5	STE/ICE ENGINE
MC66	G2	5	TURBO OUTLET PSI
MC67	E2	5	AIR CLEANER
MC68	D2	5	AIR BOX PSI
MC69	D2	5	FUEL RETURN
MC70	C2	5	ENGINE OIL TEMP
MC71	B2	5	ENGINE WATER TEMP
MC73	F13	6	FAN CONTROL
MC76	F11	6	FAN CONTROL VALVE
MC77	E3	6	BACK UP LIGHT
MC78	F4	6	REAR LIGHT GROUP
MC79	G7	6	WORK LIGHT
MC80	G4	6	REAR LIGHT GROUP
MC81	E13	7	LHS
MC82	E12	7	LHS
MC83	E14	7	LHS
MC84	E15	7	LHS
MC85	E9	7	LHS
MC86	E7	7	LHS
MC87	D5	7	LHS
MC88	E6	7	LHS
MC90	C3	6	REAR LIGHT GP HARN
MC91	G8	3	STRN COL.-CAB HARN
MC92	F8	3	STRG COL.-CAB HARN
MC93	C17	7	LHS
MC94	B17	7	LHS
MC95	B15	5	DDEC BATTERY POWER
MC96	C2	3	LOW HYD OIL
MC97	B10	6	AIR DRYER
MC98	B9	6	AIR DRYER
MC99	B8	6	AFTER COOLER
MC102	A3	4	DDEC 6.8K RESISTOR
MC103	E5	3	CHEM DETECTOR
MC104	E5	3	CHEM ALARM

MULTIPLE CONNECTORS

NUMBER	ZONE	SH	DESCRIPTION
MC105	E24	3	CTI ACCESS OUTPUT
MC106	H4	3	DDEC DIAGNOSTIC
MC107	D6	6	FUEL WATER SEP
MC108	C20	5	FUEL PUMP
MC109	C15	6	CTI POWER MANIFOLD
MC110	C24	3	CTI AUX MANF CAB
MC111	B24	3	CTI POWER MANF CAB
MC112	B19	3	LHS LIGHTS
MC113	F16	6	EMERGENCY STEER SW
MC114	G18	5	200 AMP OPTION
MC115	H16	5	200 AMP OPTION
MC116	B12	4	EMER ENG SHUT DOWN
MC118	A9	5	STE/ICE
MC119	B22	4	ARCTIC PUMP
MC120	B7	6	ARCTIC PUMP
MC121	C12	6	SELF RECOVERY WINCH
MC122	D12	6	SELF RECOVERY WINCH
MC123	D12	6	SELF RECOVERY WINCH
MC124	E3	6	BACK-UP LIGHT/ALARM
MC125	G18	3	AIR RESTRICTION LT
MC126	E11	3	STOP LIGHTS
MC127	B15	3	THROTTLE POSN SW
MC128	G10	6	AUX WATER TEMP SW

LIGHTS

NUMBER	ZONE	SH	DESCRIPTION
L1	G16	3	PARKING BRAKE IND
L2	G17	3	LOW AIR INDICATOR
L3	G17	3	CHECK GAUGES IND
L4	G17	3	RH TURN INDICATOR
L5	G24	3	TRANS CHECK IND
L6	G18	3	CHECK ENGINE IND
L7	G17	3	DRIVE LINE LOCK IND
L8	G24	3	HI WATER TEMP IND
L9	G24	3	LOW OIL PSI IND
L10	G25	3	HI BEAM INDICATOR
L11	G28	3	LH TURN INDICATOR
L12	F27	3	RH HEADLIGHT
L13	G27	3	RH SIDE TURN SIGNAL
L14	F27	3	RH COMPOSITE
L15	E27	3	BLACKOUT DRIVE
L16	D27	3	LH COMPOSITE
L17	C27	3	LH HEADLIGHT
L18	C27	3	LH SIDE TURN SIGNAL
L19	B27	3	ID & CLEARANCE
L20	H10	3	DOME
L21	G7	6	RH WORK LIGHT
L22	G2	6	RH REAR COMPOSITE
L23	G2	6	BACK UP
L24	F2	6	LH REAR COMPOSITE
L25	C2	6	ID/CLEARANCE REAR
L26	E22	3	LHS INDICATOR
L27	E22	3	AUXILLARY HYDR IND
L28	E23	3	TRANSIT INDICATOR
L29	E23	3	LHS OVERLOAD IND
L31	D2	6	RH REAR S MKR (RED)
L32	H4	6	RH SIDE MKR (AMBER)
L33	B2	6	LH SIDE MKR (AMBER)
L34	H4	6	LH REAR S MKR (RED)
L35	G16	3	EMERGENCY STEERING
L36	G16	3	LOW HYD OIL
L37	D21	3	ENGINE BRAKE
L38	D21	3	FLAT RACK
L39	F7	6	LH WORK LIGHT
L40	F7	3	T.C. LOCKUP
L41	C2	6	L.H. B.O. CL LIGHT
L42	D2	6	R.H. B.O. CL LIGHT
L43	B5	3	POST LIGHT
L44	F5	3	HEATER PANEL LIGHT

SWITCHES

NUMBER	ZONE	SH	DESCRIPTION
S1	H6	3	TURN SIGNAL/DIMMER
S2	E13	3	IGNITION
S3	F5	3	HEATER
S4	D8	3	SELF RECOVERY CRANE
S5	H12	3	BEACON LIGHT
S6	H13	3	WORK LIGHT
S7	H14	3	WINDSHIELD WASHER
S8	G15	3	WINDSHIELD WIPER
S9	F16	3	BLACK OUT SVCE SEL
S10	F54	3	BLACK OUT MARKER
S11	F14	3	BLACK OUT DRIVE
S12	F14	3	HEADLIGHTS
S13	F5	6	DRIVE LINE LOCK
S14	F12	3	RHEOSTAT
S15	F7	3	HORN
S16	F13	3	ENGINE BRAKE
S18	D7	3	SELF RECOVERY WINCH
S19	D6	3	GAS PARTIULATE FLTR
S20	D5	3	CHEMICAL ALARM
S21	H15	3	DOME LIGHT
S22	C8	5	STE/ICE ZEROING
S23	C22	7	PROX SW HOOK ARM UP
S24	C23	7	PROX SW MDL FR DOWN
S25	D13	3	ETHER START
S26	F7	3	TC LOCKUP
S27	E5	7	HOOK ARM DOWN
S28	G8	7	OVERLOAD PSI
S29	B19	4	ARCTIC PUMP
S30	E9	3	EMER ENG SHUT DOWN
S31	C16	3	THROTTLE POSITION

PRESSURE SWITCHES

NUMBER	ZONE	SH	DESCRIPTION
PS1	G9	3	FRONT BRAKE
PS2	F9	3	REAR BRAKE
PS3	F9	3	HAND BRAKE
PS4	C14	3	PARKING BRAKE
PS5	B15	3	PARKING BRAKE SW
PS6	D17	3	LOW AIR PRESSURE
PS7	D17	3	LOW AIR PRESSURE
PS8	C22	5	ATEC OIL PRESSURE
PS9	D22	5	ENGINE OIL
PS10			GOVERNOR PRESSURE
PS11			GOVERNOR PRESSURE
PS13	F15	6	EMERGENCY STEER
PS15	F26	5	BOOST PRESSURE

TEMPERATURE SWITCHES

NUMBER	ZONE	SH	DESCRIPTION
TS1	C23	5	ETHER START
TS2	D23	5	ENGINE WATER
TS3	F10	6	ENGINE WATER
TS4	G10	6	ENGINE WATER

RELAYS

NUMBER	ZONE	SH	DESCRIPTION
R1	G24	4	HEADLIGHTS
R2	G23	4	ID/CLEARANCE LIGHTS
R3	G22	4	HORN
R4	G21	4	WORK LIGHTS
R5	G20	4	DIMMER
R6	G19	4	BEACON LIGHTS
R7	G18	4	TRANSMISSION
R8	G18	4	RATARDER
R9	G18	4	CK TRANSMISSION
R10	G17	4	REVERSE
R11	G16	4	NEUTRAL START
R12	G15	4	12 V MAG SWITCH
R13	G15	4	B.O. STOP
R14	G14	4	BO SERVICE TAIL LTS
R15	G13	4	LH TURN SIGNAL
R16	G12	4	RH TURN SIGNAL
R17	G12	4	BLACK OUT TAIL LTS
R18	G11	4	DDEC
R19	G10	4	TRANS DDEC
R20	G9	4	INTER AXLE
R21	G9	4	DIFFERENTIAL LOCK
R22	G8	4	CRANE HI IDLE
R23	G7	4	HIGH RANGE LOCKOUT
R24	G6	4	T.C. DUAL MODE
R25	B17	4	MAGNETIC SWITCH
R26	B18	4	MAGNETIC SWITCH
R27	D19	5	MAGNETIC SWITCH
R28	C21	4	MAGNETIC SWITCH
R29	C10	7	MIDDLE FR LOCKOUT
R32	B21	4	ARCTIC PUMP
R33	B20	4	ARCTIC PUMP

SENDING UNIT

NUMBER	ZONE	SH	DESCRIPTION
SU1	E21	5	WATER TEMPERATURE
SU2	D21	5	TRANSMISSION TEMP
SU3	D21	5	ENGINE OIL PRESSURE
SU4	F6	6	SPEEDOMTER
SU5	D6	6	FUEL LEVEL

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
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CIRCUIT BREAKERS

NUMBER	ZONE	SH	DESCRIPTION
CB1	D22	4	15 AMP
CB2	D22	4	15 AMP
CB3	D21	4	15 AMP
CB4	D21	4	15 AMP
CB5	D20	4	20 AMP
CB6	D20	4	15 AMP
CB7	D19	4	10 AMP
CB8	D19	4	15 AMP
CB9	D18	4	10 AMP
CB10	D17	4	3 AMP
CB11	D16	4	8 AMP
CB12	D16	4	8 AMP
CB13	D15	4	8 AMP
CB14	D14	4	15 AMP
CB15	D13	4	15 AMP
CB16	D12	4	15 AMP
CB17	D12	4	3 AMP
CB18	D11	4	10 AMP
CB19	D10	4	15 AMP
CB20	D9	4	15 AMP
CB21	D9	4	30 AMP
CB22	D7	4	20 AMP
CB23	D7	4	20 AMP
CB24	C20	5	3 AMP

GAUGES

NUMBER	ZONE	SH	DESCRIPTION
G1	G20	3	WATER TEMPERATURE
G2	G21	3	OIL PRESSURE
G3	G22	3	FUEL LEVEL
G4	G22	3	TACHOMETER
G5	G23	3	SPEEDOMTER
G6	G19	3	VOLTMETER 12V
G7	G19	3	VOLTMETER 24V
G10	G20	3	XMSN OIL TEMP
G11	G18	3	AIR PRESSURE
G12	H18	3	AIR RESTRICTION

MISCELLANEOUS

NUMBER	ZONE	SH	DESCRIPTION
M1	B6	3	WINDSHIELD WSHR SOL
M2	B13	3	WIPER MOTOR
M3	E17	3	LOW OIL & AIR ALARM
M4	A5	4	THROTTLE POSN CONT
M5	C20	4	FLASHER
M6	C16	5	BATTERIES
M7	E17	5	STARTER
M8	B22	5	ETHER START
M9	D6	6	FUEL/WATER SEP
M10	C10	6	LHS SOLENOID VALVE
M11	C8	6	AFTERCOOLER
M12	C20	5	FUEL PUMP
M13	B10	6	AIR DRYER
M14	E6	3	CHEMICAL DETECTOR
M14	B9	6	AIR DRYER
M15	D1	3	HORN
M16	D16	3	VERNIER CONTROL
M17	F5	3	HEATER MOTOR
M18	F24	3	LOW OIL PRESS ALARM
M19	F21	5	REGULATOR/DVS
M20	G22	5	ALTERNATOR,STD
M21	C25	5	RH SIDE ENG BK COIL
M22	C24	5	LH SIDE ENG BK COIL
M23	D18	5	SLAVE CONNECTER
M24	B15	6	CTI POWER MANIFOLOD
M25	D15	6	CTI AUXILIARY MANF
M26	E13	7	LHS CAB CONTROLLER
M27	B13	6	SELF RECOVERY WINCH
M28	E25	3	CTI CONTROLLER
M29	G14	7	CHEMICAL ALARM
M30	D11	3	GAS PART FILTER
M31	D11	3	AIR HEATER DRIVER
M32	D12	3	AIR HEATER PASS
M33	D3	7	SRW SOLENOID VALVE
M35	E15	3	THROTTLE POSITIONER
M36	C9	4	DIODE
M39	F9	4	RECTIFIER
M40	G2	5	PULSE TACH DRIVE
M41	H5	5	DIFFERENTIAL PRESS
M42	F2	5	FUEL PRESSURE
M43	G5	5	STE/ICE MODULE
M45	F10	6	FAN CONTROL VALVE
M48	D16	5	SHUNT
M49	B9	3	XFR CASE LKUP SOL
M50	B8	3	INTER AXLE SOL V
M51	B8	3	DIFF SOLENOID VALVE
M51	C11	6	FAN
M52	A21	4	RECTIFIER
M53	G11	7	LHS HOOK ARM B
M54	G10	7	LHS HOOK ARM A
M55	G10	7	LHS MAIN CYLINDER B
M56	G10	7	LHS MAIN CYLINDER A

MISCELLANEOUS

NUMBER	ZONE	SH	DESCRIPTION
M57	G9	7	LHS FREEFLOW
M58	G9	7	LHS TRANSIT
M59	F3	7	LHS LH HOOK ARM A
M60	F3	7	LHS LH HOOK ARM B
M61	F2	7	LHS RH HOOK ARM A
M62	F2	7	LHS RH HOOK ARM B
M64	H21	5	DUVAC CONTROLLER
M65	G17	5	ALTNTR 200 AMP OPT.
M66	G16	3	RECTIFIER
M67	C8	3	RECTIFIER
M68	G12	7	RECTIFIER
M70	F2	5	TURBO OUTLET PSI
M71	E2	5	AIR CLEANER
M72	D2	5	AIR BOX PSI
M73	C2	5	FUEL RETURN
M74	C2	5	ENGINE OIL TEMP
M75	B2	5	ENGINE WATER TEMP
M76	E10	4	RECTIFIER
M77	B17	5	ARCTIC BATTERIES
M78	E2	6	BACK-UP ALARM
M80	B7	6	ARCTIC PUMP
M81	F4	3	RECTIFIER
M82	E13	3	ISOLATOR

CODE SORT

CODE	ROUTING	SH	DESCRIPTION
104	MC36-M4	4	THROTTLE SENSOR
104	MC10-MC36	4	THROTTLE SENSOR
105	MC10-MC19	4/5	ATEC
106A	MC10-MC36	4	THROTTLE SENSOR
106A	MC36-M4	4	THROTTLE SENSOR
106A	MC10-1068	4/5	ATEC
106B	106A-MC19	4/5	ATEC
107	MC10-MC19	4/5	ATEC
108	MC10-MC19	4/5	ATEC
109	MC10-MC19	4/5	ATEC
110	MC10-MC19	4/5	ATEC
111	MC10-MC19	4/5	ATEC
112	MC10-MC20	4/5	ATEC
113	MC10-MC20	4/5	ATEC
114	MC10-MC19	4/5	ATEC
115	MC11-MC18	5	ECM
115	MC11-MC102	4	6.8K RESISTOR
115	MC10-MC19	4/5	ATEC
116	MC10-MC19	4/5	ATEC
117	MC10-MC19	4/5	ATEC
118	MC10-MC19	4/5	ATEC
119	MC10-MC19	4/5	ATEC
120	MC10-MC19	4/5	ATEC
121	MC10-MC19	4/5	ATEC
122	MC10-MC19	4/5	ATEC
123	MC10-MC19	4/5	ATEC
124	MC36-M4	4	THROTTLE SENSOR
124	MC10-MC36	4	THROTTLE SENSOR
150	MC62-MC62	5/4	
150	MC17-MC62	5	
195	MC5-M2	3	
201	MC51-GROUND	4	
201	MC9-MC51	4	
202A	MC9-SPLICE	4	
203	MC9-MC51	4	
203	MC51-CB12	4	
204	MC9-MC12	4	ATEC
206	MC9-MC12	4	ATEC
207A	MC51-MC106	4	ATEC
207A	MC9-MC51	4	ATEC
207A	MC106-MC13	4	
208/209	MC11-SPLICE	4	
208/209	SPLICE-MC51	4	
208/209	M6-MC95	5	
208/209	MC95-MC11	5	
208/209	MC51-MC9	4	
210A	MC9-MC12	4	
211	R8-MC50	4	
211	MC50-R8	4	RETARDER
211	MC9-MC50	4	

CODE SORT

CODE	ROUTING	SH	DESCRIPTION
212	MC9-MC12	4	
213	MC50-R8	4	RETARDER
213	MC9-MC50	4	
214	MC50-R10	4	REVERSE
214	MC9-MC50	4	
215	MC9-MC50	4	
215	MC50-R9	4	CHECK TRANSMISSION
216A	MC106-MC13	3	
216A	MC9-MC51	4	ATEC
216A	MC51-MC106	4	ATEC
218	MC9-MC12	4	ATEC
219	MC9-MC12	4	ATEC
220	MC9-MC12	4	ATEC
221	MC9-MC12	4	ATEC
222	MC9-GROUND	4	ATEC
223A	MC51-CB14	4	TRANSMISSION
223A	MC51-SPLICE	4	
223A	SPLC-SPLC	4	
223A	SPLC-SPLC	4	
223A	SPLC-SPLC	4	
223A	SPLICE-MC9	4	
223B	MC12-SPLICE	4	
225	CB11-MC12	4	
230	MC12-234	4	
231	MC50-MC12	4	
231	MC50-R22	4	CRANE HI IDLE
231	MC50-M36	4	
231	M36-R11	4	NEUTRAL START
233	MC50-MC12	4	
234	MC12-GROUND	4	
240	MC62-CB23	5/4	
240	CB23-M6	4/5	
240	MC17-MC62	5	
240	MC62-M6	5	
241	MC62-CB22	5/4	
241	MC62-M6	5	
241	MC17-MC62	5	
241	CB22-M6	4/5	
309	MC45-R24	4	TC DUAL MODE
313	MC45-R24	4	TC DUAL MODE
315	MC45-R24	4	TC DUAL MODE
417	MC6-M35	3	
417	MC11-MC44	4	
417	MC11-MC18	5	ECM
417	MC44-MC6	3	THROTTLE SENSOR
419	MC11-MC18	5	ECM
419	MC11-MC44	4	
419	MC44-MC8	3	
419	MC8-L6	3	CHECK ENGINE LIGHT

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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
439	MC116-MC106	4	EMERGENCY ENG STOP
439	MC116-S30	3	EMERGENCY ENG STOP
439	MC116-S30	3	EMERGENCY ENG STOP
439	MC116-CB13	4	DDEC
439	MC106-MC13	3	
439	SPLC-MC106	4	
439	MC11-MC18	5	ECM
439	MC8-L6	3	CHECK ENGINE LIGHT
439	MC8-L3	3	ENGINE STOP LIGHT
439	MC44-MC8	3	
439	MC11-SPLICE	4	
439	SPLICE-MC44	4	
439	SPLC-MC116	4	
451	MC11-MC18	5	ECM
451	MC106-MC13	3	
451	MC11-MC106	4	
505	MC106-MC13	3	
505	MC11-MC106	4	
505	MC11-MC18	5	ECM
508	MC11-R7	4	TRANSMISSION
508	MC11-MC18	5	ECM
509	MC11-MC18	5	ECM
509	MC8-L3	3	ENGINE STOP LIGHT
509	MC44-MC8	3	
509	MC11-MC44	4	
510	MC11-MC18	5	ECM
510	MC44-PS4	3	PARKING BRAKE
510	R22-MC44	4	
510	MC11-R22	4	
900	MC11-MC106	4	
900	MC11-MC18	5	ECM
900	MC106-MC13	3	
901	MC11-MC18	5	ECM
901	MC106-MC13	3	
901	MC11-MC106	4	
908	MC11-MC18	5	ECM
908	MC11-M4	4	THROTTLE POSN CONT
916	MC44-MC6	3	
916	MC11-MC44	4	
916	MC38-M16	3	
916	MC6-MC38	3	VERNIER CONTROL
916	MC6-M35	3	THROTTLE SENSOR
916	MC11-MC18	5	ECM
952	MC38-M16	3	
952	MC11-MC44	4	
952	MC44-MC6	3	THROTTLE SENSOR
952	MC11-MC18	5	ECM
952	MC6-MC38	3	VERNIER CONTROL
1001	MC8-L4	3	
1001	MC7-SPLICE	3	
1001	MC8-SPLICE	3	
1001	SPLICE-L13	3	
1001	SPLICE-L14	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1001	S1-MC7	3	RH HEADLIGHT
1002	S1-MC7	3	LH HEADLIGHT
1002	MC8-L11	3	
1002	MC7-SPLICE	3	
1002	SPLICE-MC8	3	
1002	SPLICE-L18	3	
1002	SPLICE-L16	3	
1003	MC7-MC3	3	
1003	S1-MC7	3	LH RR TURN SIGNAL
1003	MC3-MC80	6	
1003	MC3-MC16	6	TRAILER CONN 12VDC
1003	MC1-R15	4	LH TURN LIGHT
1003	MC80-L24	6	LH STOP LIGHT
1003	MC27-MC3	6	FRONT TOW
1003	MC7-MC1	3	
1003C	MC25-R17	4	LH TURN LIGHT
1003C	MC25-MC15	6	TRAILER CONN 12VDC
1004	MC7-MC1	3	
1004	MC7-MC3	3	
1004	S1-MC7	3	
1004	MC3-MC80	6	
1004	MC80-L22	6	RH STOP LIGHT
1004	MC27-MC3	6	
1004	MC3-MC78	6	
1004	MC3-MC16	6	
1004	MC1-R16	4	
1004C	MC25-R16	4	RH TURN LIGHT
1004C	MC25-MC15	6	TRAILER CONN 24VDC
1005	MC126-S9	3	
1005	PS3-MC3	3	
1005	MC3-MC16	6	TRAILER CONN 24VDC
1005	MC126-PS1	3	
1005	PS2-PS3	3	
1005	MC27-MC3	6	FRONT TOW
1005	PS1-PS2	3	
1005A	MC7-MC126	3	
1005A	MC126-S9	3	
1005A	S1-MC7	3	TURN SIGNAL/DIM SW
1006	MC2-SPLICE	3	
1006	SPLICE-L12	3	
1006	SPLICE-L17	3	
1006	MC2-R5	4	DIMMER
1007	MC2-R5	4	DIMMER
1007	MC2-SPLICE	3	
1007	SPLICE-L12	3	
1007	SPLICE-L17	3	
1008	MC3-MC78	6	
1008	MC4-S12	3	HEADLIGHTS

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1008	MC27-MC3	6	FRONT TOW
1008	MC3-SPLICE	3	
1008	MC3-MC4	3	
1008	MC3-MC16	6	TRAILER CONN 12VDC
1008	MC78-L22	6	RH TAIL LIGHT
1008	MC78-L24	6	LH TAIL LIGHT
1008C	MC25-MC15	6	TRAILER CONN 24VDC
1008C	MC25-R14	4	B.O. SERVICE
1009	PS2-PS3	3	
1009	PS1-PS2	3	
1009	MC2-PS1	3	
1009	MC2-CB6	4	STOP LIGHT
1012	MC3-SPLICE	3	
1012	SPLC-SPLC	3	
1012	MC2-SPLICE	3	
1012	SPLC-SPLC	3	
1012	SPLICE-L19	3	
1012	MC2-R2	4	CLEARANCE LIGHTS
1012	MC3-SPLICE	6	
1012	SPLICE-MC27	6	
1012	SPLICE-MC80	6	
1012	SPLICE-L32	6	RH SIDE MARKER
1012	SPLICE-L34	6	LH SIDE MARKER
1012	MC90-L31	6	RR SIDE MARKER
1012	MC90-L25	6	ID LIGHTS
1012	MC80-MC90	6	
1012	MC90-L33	6	RR SIDE MARKER
1016	MC92-MC2	3	
1016	S15-MC92	3	
1016	MC2-R3	4	HORN
1017	SPLICE-R5	4	
1017	MC52-R14	4	
1017	R2-MC52	4	
1017	MC2-SPLICE	4	
1017	SPLICE-R1	4	
1017	MC91-MC2	3	
1017	S1-MC91	3	
1017A	MC91-MC2	3	
1017A	S1-MC91	3	
1017A	MC2-R5	4	
1018	MC8-L10	3	HIGH BEAM
1018	MC8-1007	3	
1019	L15-1679	3	
1020	L14-L16	3	
1020	DUVAC IGN	5	FUEL PUMP
1020	S2-MC21	3	
1020	R27-MC48	5	
1020	MC60-IGN	5	DUVAC CONTROLLER
1020	MC21-MC60	5	
1020	MC108-M81	5	
1020	M81-MC60	5	
1021	MC2-S2	3	
1021	MC2-R11	4	
1021	R11-M76	4	

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1021	MC52-R11	4	FRONT TOW
1021A	R11-MC1	4	
1021A	MC1-MC21	3	
1021A	MC21-MC60	5	
1021A	MC60-R27	5	
1026	MC52-CB16	4	
1029	MC2-R6	4	BEACON
1029	MC2-MC28	3	
1031	R3-SPLICE	4	
1032	MC8-MC21	3	
1032	M39-L9	3	LOW OIL PSI
1032	MC8-M39	3	
1032	PS9-MC21	5	ENGINE OIL PSI SW
1033	M39-M18	3	OIL PSI/H WTR ALM
1036	MC23-M8	5	
1036	MC23-M7	5	
1036	MC21-MC56	5	ETHER START
1036	MC21-S25	3	
1040	CB4-R4	4	WORKLIGHT
1040A	S6-MC4	3	
1040A	MC2-R4	4	WORKLIGHT
1040A	MC4-MC2	3	
1040B	MC3-MC79	6	RH WORKLIGHT
1040B	MC2-MC3	3	
1040B	MC2-R4	4	WORKLIGHT
1040B	MC3-MC54	6	LH WORKLIGHT
1045	R27-M7	5	
1049	MC2-R1	4	HEADLIGHTS
1049	MC4-MC2	3	
1049	S12-MC4	3	
1052	S20-S19	3	CHEM ALM-GPF
1052	S19-S18	3	GAS PART FLTR-SRW
1052	S18-S4	3	SRW-SRW/MHC
1052	S4-S30	3	SRW/MHC-EMER ENG S D
1052	S30-SPLICE	3	EMER ENG SHUT DOWN
1052	SPLICE-G11	3	AIR PRESSURE GAUGE
1052	MC4-SPLICE	3	
1052	SPLICE-L44	3	HEATER PANEL LIGHT
1052	S5-S6	3	BEACON LT-WORK LT
1052	S6-S7	3	WORK LT-WSHLD WSHR
1052	S7-S8	3	WSHLD WASHER-WIPERS
1052	S8-S21	3	WIPERS-DOME LIGHT
1052	S21-S9	3	DOME LT-B.O.SERV SEL
1052	S9-S10	3	BO SERV SEL-BO MKR
1052	S10-S11	3	B.O. MARKER-B.O. DR
1052	S11-S12	3	B.O. DRIVE-HEADLTS
1052	S12-S16	3	HEADLIGHTS-ENG BK
1052	S16-S14	3	ENG BRAKE-RHEO/DOME
1052	S14-SPLICE	3	RHEOSTAT/DOME
1052	SPLICE-G6	3	VOLTMETER 12V
1052	SPLC-SPLC	3	
1052	SPLICE-G10	3	XMSN OIL TEMP GAUGE
1052	SPLICE-G1	3	WATER TEMP GAUGE
1052	SPLICE-G2	3	OIL PRESSURE GAUGE
1052	SPLICE-G4	3	TACHOMETER
1052	SPLICE-G5	3	SPEEDOMETER
1052	SPLICE-G3	3	FUEL GAUGE

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1052	MC1-SPLICE	3	
1052	SPLICE-L43	3	POST LIGHT
1052	SPLC-MC125	3	
1052	MC125-G12	3	AIR RESTRICTION GA
1052	MC1-SPLICE	3	
1052	MC1-CB1	4	15 AMP HEADLIGHT
1052	MC50-MC1	4	
1055	MC115-M7	5	
1055	M7-1277	5	
1055	M7-1281	5	
1056	MC111-MC32	3	
1056	MC32-MC109	6	CTI POWER MANIFOLD
1057	M20-M20	5	
1057	MC111-MC32	3	
1057	MC32-MC109	6	CTI POWER MANIFOLD
1058	MC32-MC109	6	CTI POWER MANIFOLD
1058	MC111-MC32	3	
1059	MC32-MC109	6	CTI POWER MANIFOLD
1059	MC111-MC32	3	
1061	MC22-MC109	6	CTI POWER MANIFOLD
1061	MC111-MC32	3	
1062	MC32-MC109	6	CTI POWER MANIFOLD
1062	MC111-MC32	3	
1063	MC32-MC109	6	CTI POWER MANIFOLD
1064	MC32-MC109	6	CTI POWER MANIFOLD
1064	MC111-MC32	3	
1065	MC32-MC109	6	CTI POWER MANIFOLD
1065	MC111-MC32	3	
1066	MC32-MC64	6	CTI AUX MANIFOLD
1066	MC110-MC32	3	
1067	MC32-MC64	6	CTI AUX MANIFOLD
1068	MC32-MC64	6	CTI AUX MANIFOLD
1068	MC110-MC32	3	
1070	MC32-MC64	6	CTI AUX MANIFOLD
1070	MC110-MC32	3	
1071	MC110-MC32	3	
1071	MC32-MC64	6	CTI AUX MANIFOLD
1072	R26-R25	3	
1072	MC110-MC32	3	
1072	MC32-MC64	6	CTI AUX MANIFOLD
1073	MC32-MC64	6	CTI AUX MANIFOLD
1073	MC110-MC32	3	
1074	MC110-MC32	3	
1074	R25-CB10	4	
1074	MC32-MC64	6	CTI AUX MANIFOLD
1075	M6-R25	4/3	
10758	R25-R18	4	
1076	MC110-MC32	3	
1076	MC32-MC64	6	CTI AUX MANIFOLD
1079	CB5-M6	4	HAZARD LIGHTS
1080	MC7-MC2	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1080	MC2-M5	4	TURN SIGNAL/FLASHER
1082	MC2-MC52	4	
1082	MC2-M81	3	
1082	M81-S3	3	
1082	MC52-CB15	4	HEATER
1084	MC1-CB5	4	B.O. LIGHTS
1084	MC4-MC1	3	
1084	MC4-S9	3	
1091	L17-GROUND	3	
1092	L7-MC8	3	
1092	MC8-M51	3	
1093	MC31-MC57	6	
1093	MC1-MC31	3	
1093	MC1-CB16	4	
1093	MC57-S13	6	DRIVE LINE LOCK-UP
1094	S5-S14	3	
1095	R23-R24	4	
1095	MC44-R23	4	
1095	MC31-MC44	3	
1095	MC57-S13	6	DRIVE LINE LOCK-UP
1095	MC31-MC57	6	
1108	MC44-MC8	3	
1108	505-MC44	4	
1108	MC8-G4	3	TACHOMETER
1113	MC8-MC21	3	
1113	G2-MC8	3	OIL PSI GAUGE
1113	SU3-MC21	5	ENG OIL PSI SNDG UN
1114	M66-MC8	3	
1114	MC96-MC8	3	LOW OIL LEVEL LIGHT
1114	MC8-L36	3	
1114	L36-M66	3	
1118	MC4-1919	3	
1118	S8-MC4	3	
1120	M66-MC8	3	
1120	M66-M3	3	
1120	PS6-PS7	3	
1120	PS6-MC8	3	
1120	L2-M66	3	
1137	M6(1)-M6(2)	5	
1137	M6(3)-M6(4)	5	
1138	M48-M7	5	SHUNT
1138	M7-M23	5	SLAVE
1138	M6-M48	5	SHUNT
1138	M77-M7	5	ARCTIC BATTERIES
1139	M7-M23	5	SLAVE
1139	M6-M7	5	
1139	M77-M7	5	ARCTIC BATTERIES
1147	TS2-MC21	5	ENG WTR TEMP SNDG UN
1147	M39-L8	3	HIGH WATER TEMP
1147	MC8-MC21	3	
1147	MC8-M39	3	
1149	MC1-R10	4	REVERSE
1149	MC3-MC78	6	
1149	MC1-MC124	3	
1149	MC78-MC77	6	REVERSE LIGHT
1149	MC124-MC77	6	

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1153	S21-MC4	3	
1153	MC4-L20	3	DOME LIGHT
1168	MC2-R3	4	HORN
1168	MC2-M15	3	
1174	BUS BAR	4	
1175	R28-CB5	4	
1176	MC113-PS13	6	EMERGENCY STEER
1184	S5-MC4	3	
1184	MC2-R6	4	
1184	MC2-MC4	3	
1189	MC4-S9	3	
1189	MC44-R28	4	
1189	MC4-SPLICE	3	
1189	MC4-S21	3	
1189	MC2-SPLICE	3	
1189	MC2-M5	4	
1189	SPLICE-MC44	3	
1274	MC115-SPLC	5	
1274	M64-SPLICE	5	
1274	M8-SPLICE	5	
1275	M6-M20	5	
1275	M6-200 AMP	5	
1276	MC2-MC4	3	
1276	MC2-CB8	3	
1276	SPLICE-S14	3	
1276	SPLICE-MC53	3	
1276	MC4-SPLICE	3	
1276	MC2-SPLICE	4	
1276	MC53-SPLICE	3	
1276	SPLC-SPLC	3	
1276	SPLC-SPLC	3	
1276	SPLC-SPLC	3	
1276	SPLICE-M3	3	LOW AIR ALARM
1276	SPLICE-G5	3	SPEEDOMETER
1276	SPLICE-L1	3	PARKING BRAKE
1276	SPLICE-L2	3	LOW AIR
1276	SPLICE-L35	3	EMERGENCY STEERING
1276	SPLICE-L36	3	LOW HYDR OIL
1276	SPLC-SPLC	3	
1276	SPLICE-L5	3	XMSN CHECK
1276	SPLICE-L8	3	HIGH WATER TEMP
1276	SPLICE-L9	3	LOW OIL PSI
1276	SPLICE-G3	3	FUEL GAUGE
1276	SPLICE-G6	3	VOLTMETER 12V
1276	SPLICE-G1	3	WATER TEMP GAUGE
1276	SPLICE-G2	3	OIL PRESSURE GAUGE
1276	SPLICE-G4	3	TACHOMETER
1276	SPLICE-G10	3	XMSN OIL TEMP GAUGE
1276	SPLICE-M18	3	ALARM
1277	MC115-SPLC	5	
1277	MC8-SPLICE	5	
1278	M20-M79	5	
1278	MC8-SPLICE	5	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1279	PS14-1277	5	
1279	MC115-PS14	5	
1279	M64-1280	5	
1280	CB21-R26	4	
1280	1281-R26	5	
1281	1280-MC47	5	
1281	R27-M81	5	
1281	1281-1281	5	
1292	MC4-S6	3	
1292	CB4-MC2	4	
1292	MC2-MC4	3	
1292	MC4-S12	3	
1314	1118-S7	3	
1318	MC3-MC8	3	
1318	MC3-G3	3	FUEL GAUGE
1318	MC3-SU5	6	FUEL LEVEL
1320	SU1-MC2	5	WATER TEMP SNDG UN
1320	G1-MC8	3	WATER TEMP
1320	MC8-MC21	3	
1340	CB15-MC14	4	SWING FIRE
1344	M20-MC22	5	
1362	R27-M64	5	
1371	MC8-PS5	3	
1371	L1-MC8	3	
1409	MC8-MC1	3	
1409	L5-MC8	3	
1409	MC1-R9	4	
1413	CB3-SPLICE	4	
1413	SPLICE-R6	4	
1430	R28-SH5	4/5	
1430	1832-R28	5	
1431	MC3-S2	3	
1431	MC3-M6	6	BATTERIES
1431	MC3-M6	6	BATTERIES
1431	MC1-MC119	4	
1431	MC119-R32	4	
1431	R32-S29	4	ARCTIC PUMP
1431	MC119-CB20	4	
1435	MC78-MC124	6	
1435	MC124-M78	6	
1435	MC77-MC124	6	
1435	MC85-MC86	7	
1435	MC86-MC87	7	
1435	MC33-MC84	7	
1435	GROUND	3	
1435	MC81-MC82	7	
1435	MC84-MC83	7	
1435	MC81-MC82	7	
1435	MC108-GND	5	
1435	GND	5	
1435	MC22-GND	5	
1435	M52-R26	4	
1435	M52-R28	4	
1435	R27-GND	5	
1435	MC125-GND	3	
1449	MC8-MC21	3	
1449	G10-MC8	3	TRANS OIL TEMP

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1449	SU2-MC21	5	TRANS TEMP SNDG UN
1454	MC81-MC82	7	
1460	MC81-MC82	7	
1461	MC86-MC87	7	
1461	MC85-MC86	7	
1462	MC81-MC82	7	
1463	MC81-MC82	7	
1464	MC81-MC82	7	
1465	MC81-MC82	7	
1466	MC85-MC86	7	
1466	MC86-MC87	7	
1467	MC81-MC82	7	
1468	MC81-MC82	7	
1469	MC81-MC82	7	
1469	MC86-MC87	7	
1469	MC85-MC86	7	
1470	MC86-MC87	7	
1470	MC85-MC86	7	
1471	MC85-MC86	7	
1471	MC86-MC87	7	
1471	MC81-MC82	7	
1472	MC85-MC86	7	
1472	MC81-MC82	7	
1472	MC86-MC88	7	
1475	MC85-MC86	7	
1475	MC86-MC87	7	
1480	MC84-MC93	7	
1480	MC84-MC83	7	
1481	MC84-MC83	7	
1481	MC84-MC93	7	
1482	MC84-MC93	7	
1482	MC84-MC83	7	
1483	MC83-MC84	7	
1483	MC84-MC93	7	
1484	MC83-MC84	7	
1484	MC84-MC93	7	
1485	MC84-MC94	7	
1485	MC83-MC84	7	
1486	MC84-MC94	7	
1486	MC83-MC84	7	
1487	MC1-S25	3	
1487	MC1-CB15	4	
1487	MC83-MC84	7	
1487	MC84-MC94	7	
1488	MC84-MC94	7	
1488	MC83-MC84	7	
1489	MC83-MC84	7	
1489	MC84-MC94	7	
1490	MC84-MC94	7	
1490	MC83-MC84	7	
1491	L16-1008	3	
1491	L14-1008	3	
1517	PS8-MC11	5	ATEC OIL PSI SWITCH
1517	MC11-R9	4	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1519	MC8-MC35	3	CTI OVERSPEED
1519	MC3-MC8	3	SPEEDOMETER
1519	MC8-MC35	3	CTI OVERSPEED
1519	G5-MC8	3	SPEEDOMETER
1519	MC3-SU4	6	SPEEDOMETER
1519	G5-MC8	3	SPEEDOMETER
1519	MC3-MC8	3	SPEEDOMETER
1519	MC3-SU4	6	SPEEDOMETER
1525	M16-PS4	3	
1534	MC107-M9	6	FUEL/WATER SEP
1534	MC2-SPLICE	4	
1534	SPLICE-CB8	4	
1534	MC3-MC107	6	
1534	MC2-MC3	3	
1534	MC3-S22	3	T-CASE LOCK-UP
1534	CB15-M76	4	
1538	MC97-M13	6	AIR DRYER
1538	MC25-MC97	6	
1538	MC25-CB15	4	
1538	MC25-MC98	6	
1538	MC99-M11	6	AFTER COOLER
1538	MC98-M14	6	AIR DRYER
1538	MC25-MC99	6	
1538	MC25-MC73	6	FAN CONTROL
1538	M76-MC25	4	
1640	MC119-SPLC	4	
1640	SPLICE-R26	4	
1640	SPLICE-MC44	4	
1640	MC44-S2	3	
1640	MC119-R32	4	
1644	MC119-R33	4	
1644	R33-R33	4	
1644	MC119-S29	4	ARCTIC PUMP
1644	R33-S29	4	ARCTIC PUMP
1644	MC119-MC25	4	
1644	MC25-MC120	6	
1644	MC120-M80	6	ARCTIC PUMP
1645	S29-R33	4	ARCTIC PUMP
1665C	MC25-MC15	6	TRAILER CONN 24VDC
1665C	MC25-CB20	4	
1674	S11-S10	3	
1674	S11-S9	3	
1676	R17-R16	4	
1676	R16-R15	4	
1676	R14-R3	4	
1676	R15-R14	4	
1676	CB20-R17	4	
1678	MC3-MC78	6	
1678	MC1-SPLICE	3	
1678	MC78-L24	6	LH B.O. STOP LIGHT

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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1678	MC78-L22	6	RH B.O. STOP LIGHT
1678	SPLICE-MC3	3	
1678	MC1-R13	4	
1678	SPLICE-MC4	3	
1678	MC4-S9	3	
1678C	MC25-R13	4	B.O. STOP LIGHT
1678C	MC25-MC15	6	TRAILER CONN 24VDC
1679	L15-MC4	3	
1679	MC4-S11	3	
1680	MC3-SPLICE	3	
1680	SPLICE-MC1	3	
1680	SPLC-SPLC	3	
1680	SPLICE-MC4	3	
1680	SPLC-SPLC	3	
1680	SPLC-SPLC	3	
1680	SPLICE-L19	3	
1680	SPLICE-L19	3	
1680	MC3-MC78	6	
1680	MC4-S10	3	
1680	MC78-L24	6	LH B.O. TAIL LIGHT
1680	MC1-R17	4	B.O. LIGHTS
1680	MC78-L22	6	RH B.O. TAIL LIGHT
1680C	MC25-MC15	6	TRAILER CONN 24VDC
1680C	MC25-MC15	6	TRAILER CONN 24VDC
1680C	MC25-R17	4	B.O. TAIL LIGHTS
1680C	MC25-MC15	6	TRAILER CONN 24VDC
1702	MC44-MC34	3	
1702	MC34-G7	3	
1702	MC44-R26	4	
1708	M32-1709	3	PASSENGER AIR HTR
1709	MC58-S19	3	GAS PART FILTER SW
1709	MC58-M30	3	
1710	M31-1709	3	DRIVER AIR HEATER
1711	CB11-R7	4	
1712	MC1-C87	4	ENGINE BRAKE
1712	MC4-MC1	3	
1713	MC53-L37	3	
1713	MC4-MC1	3	
1713	S16-MC4	3	ENGINE BRAKE
1713	MC1-R7	4	TRANSMISSION
1713	S16-MC53	3	
1714	MC1-1716	4	
1714	MC4-MC1	3	ENGINE BRAKE
1714	S16-MC4	3	ENGINE BRAKE
1715	MC4-MC1	3	ENGINE BRAKE
1715	S16-MC4	3	ENGINE BK RH COILS
1715	MC11-MC1	4	
1715	MC11-M21	5	LH ENGINE BRAKE
1716	MC11-R5	4	RETARDER
1716	MC11-M22	5	RH ENGINE BRAKE
1717	MC44-S20	3	CHEMICAL ALARM SW
1717	MC44-CB19	4	
1718	M76-M77	6	BACK-UP ALARM
1722	MC34-1734	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1722	L26-MC34	3	
1722	MC33-MC84	7	
1722	MC84-MC83	7	
1723	MC44-S18	3	SELF RECOVERY WN SW
1723	MC44-CB18	4	
1724	MC112-SPLC	3	
1724	SPLICE-MC33	3	
1724	MC33-MC93	7	
1724	L27-MC112	3	
1724	M67-SPLICE	3	
1724	SPLC-MC112	3	
1724	M67-MC33	3	
1725	L28-MC112	3	
1725	MC84-MC83	7	
1725	MC33-MC84	7	
1725	MC112-MC33	3	
1726	MC33-MC84	7	
1726	MC84-MC83	7	
1726	MC112-MC33	3	
1726	L29-MC112	3	
1729	MC31-S18	3	SELF RECOVERY WINCH
1729	MC31-MC55	6	
1729	MC55-MC121	6	SELF RECOVERY WINCH
1730	MC31-S18	3	SELF RECOVERY WINCH
1730	MC55-MC122	6	SELF RECOVERY WINCH
1730	MC31-MC55	6	
1731	MC3-S4	3	SELF RECOVERY WINCH
1731	MC3-S4	3	SELF RECOVERY WINCH
1731	MC3-MC29	6	CRANE
1732	MC55-MC123	6	SELF RECOVERY WINCH
1732	S4-MC31	3	SELF RECOVERY WINCH
1732	MC31-MC55	6	
1733	MC31-M67	3	
1733	MC31-M51	6	
1734	M67-SPLICE	3	
1734	SPLC-SPLC	3	
1734	SPLICE-MC31	3	
1734	MC31-M10	6	
1736	MC39-MC39	5	
1737	MC31-MC1	3	
1737	MC1-R22	4	CRANE HI IDLE
1737	MC31-MC29	6	CRANE
1738	MC44-1755	4	
1738	MC44-MC31	3	
1738	MC31-MC29	6	CRANE
1739	MC44-CB21	4	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1739	MC44-S19	3	GAS PARTICULATE SW
1744	S4-M67	3	
1745	MC103-S20	3	CHEMICAL ALARM
1746	MC103-M29	3	CHEMICAL ALARM
1747	MC103-M29	3	CHEMICAL ALARM
1755	MC84-MC83	7	
1755	MC44-CB18	4	
1755	MC33-MC84	7	
1755	MC33-MC44	3	
1765	MC3-MC113	6	
1765	L35-MC8	3	
1765	MC3-MC8	3	
1809	MC41-MC65	5	PULSE TACH DRIVE
1809	MC65-MC39	5	STE/ICE
1809	MC41-M40	5	PULSE TACH DRIVE
1810	MC65-MC39	5	STE/ICE
1810	MC41-M40	5	PULSE TACH DRIVE
1810	MC41-MC65	5	PULSE TACH DRIVE
1811	MC42-M41	5	DIFFERENTIAL PSI
1811	MC42-MC39	5	STE/ICE
1812	MC42-M41	5	DIFFERENTIAL PSI
1812	MC42-MC39	5	STE/ICE
1813	MC39-M6	5	
1814	MC39-M6	5	BATTERIES
1815	MC39-MC24	5	
1815	MC24-MC114	5	
1815	MC24-M20	5	
1816	MC39-MC65	5	STE/ICE
1816	MC39-M7	5	STARTER

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1818	MC39-M7	5	STARTER
1818	MC39-MC65	5	STE/ICE
1819	MC39-M7	5	
1820	MC24-M20	5	
1820	MC24-M20	5	
1820	MC39-MC24	5	
1821	MC39-M6	5	
1822	MC39-M6	5	BATTERIES
1824	SPLICE-MC67	5	
1824	MC66-M70	5	
1824	MC68-M72	5	
1824	SPLICE-MC70	5	
1824	SPLICE-MC71	5	
1824	MC65-MC39	5	STE/ICE
1824	SPLICE-MC68	5	
1824	MC67-M71	5	
1824	MC43-M42	5	FUEL PSI
1824	MC69-M73	5	
1824	MC70-M74	5	
1824	MC71-M75	5	
1824	SPLICE-MC69	5	
1824	MC66-SPLICE	5	
1824	SPLICE-MC65	5	
1824	SPLICE-MC43	5	
1825	MC68-MC69	5	
1825	MC70-MC71	5	
1825	MC65-MC43	5	
1825	MC43-MC67	5	
1825	MC67-MC68	5	
1825	MC70-M74	5	
1825	MC69-MC70	5	
1825	MC41-MC65	5	
1825	MC68-M72	5	
1825	MC66-M70	5	TURBO OUTLET PSI
1825	MC65-MC39	5	STE/ICE
1825	MC69-M73	5	
1825	MC67-M71	5	
1825	MC39-MC40	5	STE/ICE MODULE
1825	MC43-M42	5	FUEL PSI
1825	MC71-M75	5	
1825A	MC39-MC40	5	STE/ICE MODULE
1826	MC40-MC39	5	
1827	MC40-MC39	5	
1828	MC39-M48	5	SHUNT
1829	MC39-M48	5	SHUNT
1835	R2-C82	4	
1839	R7-R8	4	
1860	MC39-MC24	5	
1860	MC24-MC114	5	
1861	MC24-MC114	5	

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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1861	MC39-MC24	5	
1866	CB12-M6	4	
1866	M6-CB12	4/3	
1867	R19-CB12	4	
1871	MC11-CB11	4	DDEC TRANS
1871	PS8-MC11	5	ATEC OIL PSI SWITCH
1871	MC11-R8	4	
1871	MC11-R11	4	
1871	MC11-R10	4	
1871	MC11-R18	4	
1872	R19-MC44	4	
1872	MC44-R18	4	DDEC
1872	MC44-1020	3	
1875	CB14-R19	4	
1880	MC4-MC35	3	
1880	MC44-CB17	4	CTI
1882	MC52-R21	4	
1882	MC52-SPLICE	4	
1882	MC52-R20	4	
1883	S26-L40	3	TC LOCK-UP LIGHT
1883	S26-M49	3	TC LOCK-UP
1884	MC1-R20	4	INTER AXLE
1884	MC1-M39	4	
1884	MC1-MC105	3	
1885	MC1-M39	4	
1885	MC1-MC105	3	
1885	R23-R21	4	
1885	MC1-R23	4	
1888	CB16-R21	4	DIFFERENTIAL LOCK
1888	CB16-R20	4	INTER AXLE
1889	MC44-R20	4	INTER AXLE
1889	MC44-M50	3	INTER AXLE LOCK
1890	MC44-M51	3	DIFFERENTIAL LOCK
1890	MC44-R21	4	DIFFERENTIAL LOCK
1891	MC52-SPLICE	4	
1891	MC52-R10	4	REVERSE
1916	S8-MC4	3	
1916	MC5-M2	3	WIPER MOTOR
1916	MC5-MC4	3	WIPER MOTOR
1917	MC5-M2	3	
1917	MC5-MC4	3	
1917	S8-MC4	3	
1919	MC2-MC5	3	
1919	MC5-M2	3	
1919	MC5-1118	3	
1919	MC2-CB10	4	
1920	MC2-1008	3	
1920	MC2-R2	4	CLEARANCE LIGHTS
1921	S7-MC4	3	
1921	M1-MC4	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1926	MC56-MC23	5	ETHER START
1927	R1-CB1	4	HEADLIGHTS
1928	MC34-MC31	3	
1928	L38-MC34	3	
1928	MC31-MC30	6	TRAILER
1929	MC31-MC30	6	TRAILER
1929	MC34-MC31	3	
1932	MC128-MC61	6	WATER TEMP
1932	MC61-TS3	6	WATER TEMP
1932	MC59-MC63	6	
1932	MC63-MC128	6	
1933	MC61-TS3	6	WATER TEMP
1933	MC63-MC61	6	
1933	MC59-MC63	6	
1935	MC76-M45	6	FAN CONTROL VALVE
1935	MC59-MC76	6	
1935	MC76-M45	6	FAN CONTROL VALVE
1935	MC59-MC76	6	
1938	MC70-M74	5	
1938	MC70-MC65	5	
1938	MC65-MC39	5	
19388	MC39-S22	5	STE/ICE ZEROING
1939	MC71-M75	5	ENGINE WATER TEMP
1939	MC65-MC39	5	STE/ICE
1939	MC71-MC65	5	
1939B	MC39-S22	5	STE/ICE ZEROING
1940	MC71-MC65	5	
1940	MC71-M75	5	ENGINE WATER TEMP
1940	MC65-MC39	5	STE/ICE
1940B	MC39-S22	5	STE/ICE ZEROING
1941	MC43-M42	5	FUEL PSI
1941	MC43-MC65	5	
1941	MC65-MC39	5	STE/ICE
1942	MC43-MC65	5	
1942	MC65-MC39	5	
1942	MC43-M42	5	FUEL PSI
1943	MC65-MC39	5	STE/ICE
1943	MC66-M70	5	TURBO OUTLET PSI
1943	MC66-MC65	5	TURBO OUTLET PSI
1944	MC66-M70	5	
1944	MC65-MC39	5	STE/ICE
1944	MC66-MC65	5	TURBO OUTLET PSI
1945	MC68-MC65	5	
1945	MC68-M72	5	AIR BOX PSI
1945	MC65-MC39	5	STE/ICE
1946	MC67-M71	5	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1946	MC65-MC39	5	STE/ICE
1946	MC68-M72	5	AIR BOX PSI
1946	MC68-MC65	5	
1947	MC67-MC65	5	
1947	MC65-MC39	5	STE/ICE
1947	MC67-M71	5	AIR CLEANER
1948	MC67-MC65	5	
1948	MC65-MC39	5	STE/ICE
1949	MC69-MC65	5	FUEL RETURN
1949	MC69-MC65	5	
1949	MC65-MC39	5	STE/ICE
1950	MC5-MC4	3	
1950	S8-MC4	3	
1951	MC65-MC39	5	STE/ICE
1951	MC69-M73	5	FUEL RETURN
1951	MC69-MC65	5	
1952	MC65-MC39	5	
1952	MC70-M74	5	ENGINE OIL TEMP
1952	MC70-MC65	5	
19528	MC39-S22	5	STE/ICE ZEROING
1953	MC39-MC24	5	
1953	MC24-MC114	5	
1953	MC24-M20	5	
1955	M67-MC21	3	FAN SPEED CONTROL
1956	MC127-MC44	3	FAN SPEED CONTROL
1957	MC127-MC21	3	FAN SPEED CONTROL
SHIELD	MC32-MC64	6	CTI AUX MANIFOLD
SHIELD	MC32-MC109	6	CTI POWER MANIFOLD

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 7 OF 35
ENGINEERING DWG 1878290 SHEET 2
FP-13/FP-14 BLANK

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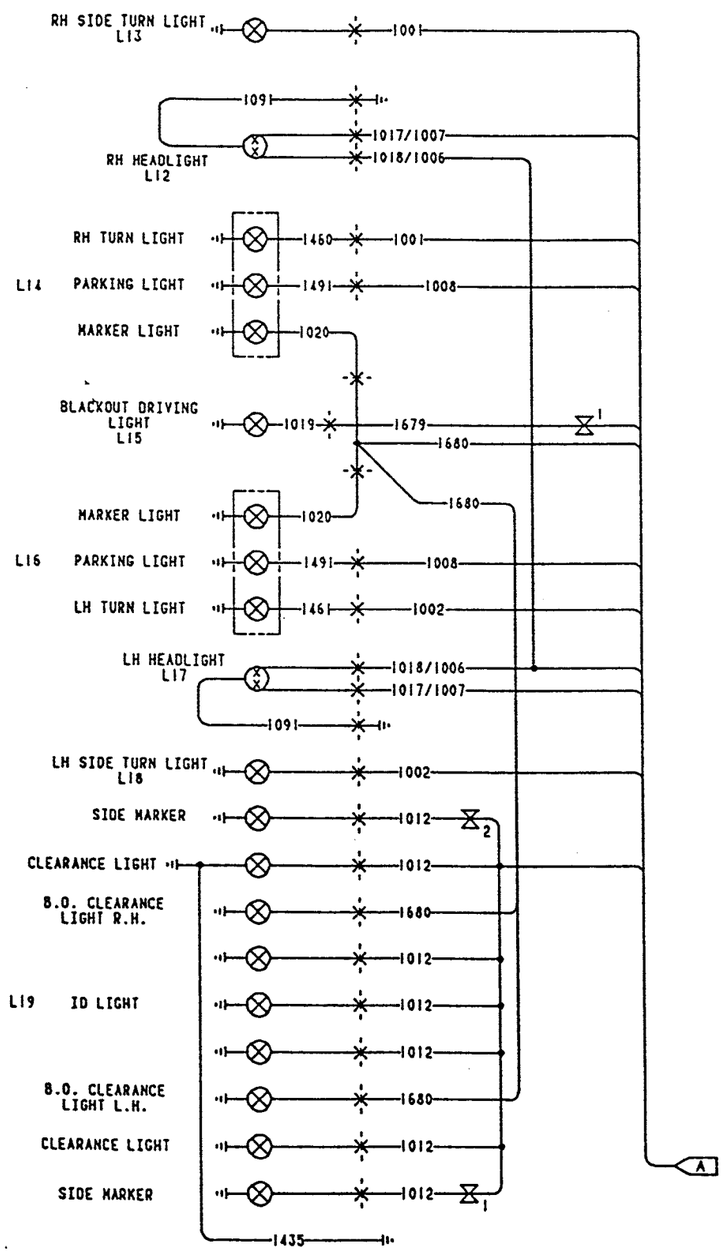

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 8 OF 35
ENGINEERING DWG 1878290 SHEET 3
FP-15/FP-16 BLANK

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LH TURN L11 | HIGH BEAM L10 | LOW OIL PSI L9 | HIGH WATER TEMP L8 | TRANS CHECK L5

1435 | 1276 | 24VDC

1002 | 1018 | 1032 | 1147 | 1409

AC 1147 | AC 1032 | AC M39 | 1033 | 1276

LOW OIL PSI/HI WATER TEMP ALARM CONTINUOUS TONE M18

SPEEDOMETER G5 | WHITE | BLUE | BLACK | RED | 1276 | 1519 | 1519 | 4321 | KPH

18 GA SHIELD

TACH G4 | FUEL GAUGE G3 | OIL PRESSURE GAUGE G2 | WATER TEMP GAUGE G1 | XMSN OIL TEMP GAUGE G10 | VOLTMETER 12V G6 | VOLTMETER 24V G7

1052 | 1435 | 1276 | 1108 | 1318 | 1320 | 1449 | 1113

AIR RESTRICTION GAUGE G12 | AIR PRESSURE GAUGE G11

CHECK ENGINE L6 | DRIVE-LINE L7 | RH TURN L4

439 | 419 | 1092 | 1001

MC53

POS	CODE
A	1713
B	1435
C	1276

MC125

POS	CODE
A	1052
B	1435

1120 | 1052 | 1702

.1 µf

LOW HYD OIL & LOW AIR ALARM INTERMITENT TONE M3

CTI CONTROLLER M28

MC105

POS	CODE
1	1435
2	
3	1884
4	1885

MC35

POS	CODE
1	1519
2	1519
3	
4	
5	PLUG
6	
7	1435
8	1435
9	
10	1880

BRAID

MC110

POS	CODE
1	1072
2	1073
3	1076
4	1071
5	PLUG
6	1070
7	1066
8	SHIELD
9	1068
10	1074

MC111

POS	CODE
1	1056
2	1057
3	1058
4	1059
5	PLUG
6	1061
7	1062
8	SHIELD
9	1064
10	1065

MC32

POS	CODE
A	1056
B	1063/1067
C	1065
D	PLUG
E	1074
F	1076
G	1072
H	1071
I	1070
J	1068
K	SHIELD
L	PLUG
M	1066
N	1061
O	1058
P	1064
Q	1062
R	1059
S	SHIELD
T	1057
U	1073
V	PLUG

SEE SHEET 6

LHS OVERLOAD L29 | NO TRANSIT L28 | AUXILLARY HYDRAULIC L27 | LOAD HANDLING SYSTEM L26 | FLAT RACK L38 | ENGINE BRAKE L37

1726 | 1725 | 1724 | 1722 | 1928 | 1713 | 1435

WHITE MC8

GAUGES

POS	CODE
A	1519
B	1519
C	1435
D	1147
E	1318
F	1320
G	1449
H	1113
I	1765
J	1114
K	1108
L	439
M	419
N	1409
O	1001
P	509
Q	1120
R	1371
S	1002
T	1018
U	1032
V	1092

1519/1519 | 1929 | 1052 | 1435 | 1018 | 1734 | 1724 | 1722 | 1001 | 1002

CAB ← → CHASSIS

MC31

POS	CODE
A	
B	
C	
D	
E	1435
F	1435
G	
H	
I	
J	1729
K	1730
L	1734
M	1733
N	1732
O	
P	1738
Q	1737
R	1095
S	1093
T	1928
U	1929
V	1435

SEE SHEET 6 CHASSIS

MC34

POS	CODE
A	
B	
C	1702
D	1928
E	1929
F	1722

DASH ← → CAB

MC33

POS	CODE
A	1755
B	1435
C	1722
D	1724
E	1725
F	1726

SEE SHEET 7 LHS

CHASSIS

MC112

POS	CODE
A	1724
B	1725
C	1726
D	
E	
F	1435

DASH ← → CAB

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 9 OF 35
ENGINEERING DWG 1878290 SHEET 3
FP-17/FP-18 BLANK

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CHECK GUAGES L3
LOW AIR L2
PARKING BRAKE L1
LOW HYD OIL L36
EMERGENCY STEERING L35
DOME LIGHT S21
WINDSHIELD WIPERS S8
WINDSHIELD WASHER S7
WORK LIGHT S6
BEACON LIGHT S5
DASH → CAB
BLACK
DOME LIGHT L20
MC4

POS	CODE
A	1153
B	1049
C	1040A
D	1715
E	1921
F	1052
G	1118
H	1950
I	1916
J	1917
K	1184
L	1678
M	1189
N	1680
O	1679
P	1276
Q	1292
R	1713
S	1084
T	1008
U	1714
V	1712

AC
M66
BLACK OUT SERVICE SELECT S9
B.O. MARKER S10
B.O. DRIVE S11
HEADLIGHTS S12
ENGINE BRAKE S16
RHEOSTAT/DOME LIGHT S14
OFF
BRIGHT
DIM
MC126

POS	CODE
A	1005
B	1005A

PS6
PS7
LOW AIR PSI SWITCH
SENSOR THROTTLE M35
MC6

POS	CODE
A	916
B	417
C	952

VERNIER CONTROL M16
MC38

POS	CODE
A	952
B	1525
C	916

PARKING BRAKE PS4
ISOLATOR M82
BATT
IGN
ACC
ST
IGNITION SWITCH 24 VDC S2
ETHER START BUTTON S25
AIR HEATER (PASSENGER) M32
GAS PARTICULATE FILTER M30
AIR HEATER (DRIVER) M31
SEE SHEET 4 ZONE B13
THROTTLE POSITION SWITCH S31
MC127

POS	CODE
A	1956
B	1957

PARKING BRAKE SWITCH PS5
WIPER MOTOR M2
MC5

WIPER MOTOR	
POS	CODE
A	1435
B	1950
C	1919
D	1916
E	1917
F	

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 10 OF 35
ENGINEERING DWG 1878290 SHEET 3
FP-19/FP-20 BLANK

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CAB HARNESS | TURN SIGNAL ASSY

MC7

POS	CODE
A	1001
B	1004
C	1002
D	1003
E	1005A
F	1080

TURN SIGNAL/ DIMMER S1

L.H. FRONT LT
R.H. FRONT LT
L.H. REAR LT
R.H. REAR LT
DIMMER

MC91

POS	CODE
A	1017
B	1017A

MC92

POS	CODE
A	1016

FRONT BRAKE PS1
REAR BRAKE PS2
HAND BRAKE PS3

HORN SWITCH S15

S26 SFER CASE LOCK UP

DIAG CONN ODEC

MC13

POS	CODE
A	435
B	216A
C	
D	505
E	207A
F	
G	
H	439
J	900
K	901
L	
M	451

M17 HEATER MOTOR 24VDC

.047 µfd
.010 µfd
FERRITE BEAD

HEATER SWITCH S3
OFF
LOW
MED
HIGH

MC28 BEACON LIGHT

L40 1435
L44
M81

MC106

POS	CODE
A	216A
B	505
C	207A
D	
E	439
F	900
G	901
H	451
J	
K	

SEE SHEET 4

CAB → CONTROL BOX

MC1

POS	CODE
A	1084
B	1052
C	1712
D	1052
E	1021A
F	1149
G	1409
H	1714
I	1093
J	
K	
L	1678
M	1713
N	1715
O	1431
P	1680
Q	1003
R	1004
S	1487
T	1884
U	1885
V	1737

SEE SHEET 4 CONTROL BOX

MC21

POS	CODE
A	1320
B	1449
C	1113
D	1021A
E	1032
F	1147
G	1020
H	1036
I	
J	
K	
L	
M	1957
N	1955
O	
P	
Q	
R	
S	
T	
U	
V	

SEE SHEET 5 ENGINE

CAB → CONTROL BOX

MC2

POS	CODE
A	1017A
B	1049
C	1012
D	1189
E	1168
F	1016
G	10408
H	1040A
I	1017
J	1009
K	1080
L	1007
M	1006
N	1029
O	1184
P	1919
Q	1292
R	1534
S	1021
T	1276
U	1082
V	1920

SEE SHEET 4 CONTROL BOX

1168 HORN M15
CHASSIS

MC58

POS	CODE
A	1709
B	1435

CHEM DET M14

MC103

POS	CODE
A	1746
B	1435
C	1747
D	1745

MC104

POS	CODE
A	1746
B	1747

CHEMICAL ALARM M29
RED
GREEN

MC44

POS	CODE
A	1108
B	509
C	419
D	439
E	510
F	916
G	417
H	952
I	1723
J	1738
K	
L	1755
M	1739
N	1717
O	1095
P	1702
Q	1889
R	1890
S	1640
T	1872
U	1880
V	1189

SEE SHEET 4 CONTROL BOX

S30 EMER ENG SHUTDOWN
CRANE SRC
SRV/WHC (SEE NOTES 1-3) S4
SRV S18
GAS PART FILTER S19
CHEMICAL ALARM S20

M67 AC

M49 T.C.
M50 INTER AXLE
M51 DIFF
M1 WINDSHIELD WASHER

.1 µf
100 Ω

L43 POST LIGHT

LOW OIL LEVEL GUAGE

MC96

POS	CODE
A	
B	1114
C	1435

MC3

POS	CODE
A	1678
B	1008
C	1004
D	1680
E	1003
F	1149
G	1012
H	1731
I	1005
J	1318
K	
L	
M	
N	
O	10408
P	1519
Q	1519
R	1534
S	
T	1765
U	1431
V	1431

SEE SHEET 6 CHASSIS

NOTE:

1. SWITCH IS ONLY REQUIRED ON VEHICLES EQUIPPED WITH BOTH CRANE AND SELF RECOVERY WINCH.
2. WHEN ONLY CRANE IS INSTALLED SWITCH S4 IS ELIMINATED. CONNECT 1744 AND 1731 TOGETHER.
3. WHEN ONLY SELF RECOVERY WINCH IS INSTALLED SWITCH S4 IS ELIMINATED. CONNECT 1744 AND 1732 TOGETHER.
4. GROUND LOCATION:
   - ⚠1 @ LH HEAD LIGHT
   - ⚠2 @ LH SIDE CONTROL BOX
   - ⚠ DIODES TO BE IN4001
5. GROMMET:
   - ⧖1 LH SIDE OF HEATER
   - ⧖2 RH SIDE OF HEATER
   - ▽ SPLICE
   - EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 1 OF 35
ENGINEERING DWG 1878290 SHEET 3
FP-21/FP-22 BLANK

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SHIFT CONTROLLER ATEC 12VDC

MC12	
POS	CODE
1	210A
2	204
3	221
4	206
5	220
6	218
7	219
8	2238
9	231
10	230
11	212
12	225
13	233
14	234
15	

MC44	
POS	CODE
A	1108
B	509
C	419
D	439
E	510
F	916
G	417
H	952
I	1723
J	1738
K	
L	1755
M	1739
N	1717
O	1095
P	1702
Q	1889
R	1890
S	1640
T	1872
U	1880
V	1189

SEE SHEET 3

BLACK

MC2	
POS	CODE
A	1017A
B	1049
C	1012
D	1189
E	1168
F	1016
G	1040B
H	1040A
I	1017
J	1009
K	1080
L	1007
M	1006
N	1029
O	1184
P	1919
Q	1292
R	1534
S	1021
T	1276
U	1082
V	1920

WHITE

MC1	
POS	CODE
A	1084
B	1052
C	1712
D	1052
E	1021A
F	1149
G	1409
H	1714
I	1093
J	
K	
L	1678
M	1713
N	1715
O	1431
P	1680
Q	1003
R	1004
S	1487
T	1884
U	1885
V	1737

MC52	
POS	CODE
A	1017
B	1082
C	1026
D	1021
E	1891
F	1882

HEADLIGHTS R1 · CLEARANCE LIGHTS R2 · HORN R3 · WORK LIGHT R4 · DIMMER R5 · BEACON R6 · XMSN R7 · RETARDER R8 — 12 VDC

CB1 15 AMP HEAD LIGHTS
CB2 15 AMP C.L. LIGHTS
CB3 15 AMP BEACON BACK UP
CB4 15 AMP WORK LIGHT
CB5 20 AMP TURN SIGNAL
CB6 15 AMP STOP LIGHT
CB7 10 AMP ENG. BRAKE
CB8 15 AMP DASH LOCK UP

SEE SHEET 5 — MAG SWITCH R28 12 VDC CIRCUITS

1079 SEE SHEET 5 — TURN SIGNAL FLASHER M5

MC119	
POS	CODE
A	1431
B	1640
C	1644
D	1435

R32 · R33 · S29 ARCTIC PUMP · M52

24 VDC IGN SEE SHEET 5 — 24 VDC ACC

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 12 OF 35
ENGINEERING DWG 1878290 SHEET 4
FP-23/FP-24 BLANK

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CK XMSN R9
REVERSE R10
NEUTRAL START R11
12V MAG R12
BLACK OUT STOP LIGHTS R13
BLACK OUT SERVICE LIGHTS R14
LH TURN LIGHT R15
RH TURN LIGHT R16
BLACK OUT TAIL LIGHTS R17
DDEC R18
TRANS DDEC R19

C89 10 AMP WIPER
C810 3 AMP IGN
C811 8 AMP DDEC TRANS
C812 8 AMP TRANS
C813 8 AMP DDEC
C814 15 AMP TRANS
C815 15 AMP HEATER
C816 15 AMP DRIVE LINE
C817 3 AMP CTI
C818 10 AMP LHS CRANE
C819 15 AMP CHEM ALARM RADIO

SWING FIRE
MC101
POS CODE
A 1340
B 1435

EMERGENCY ENGINE SHUTDOWN
MC116
POS CODE
A 439
B 439

24 VDC CIRCUITS
MAG SWITCH R26
24 VDC MAG SWITCH R25
12 VDC
.1µf
.01µf
SEE SHEET 5
BATT ATEC SEE SHEET 5
SEE SHEET 3 ZONE 9E
RADIO LEAD 9 AMP
M76

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 13 OF 35
ENGINEERING DWG 1878290 SHEET 4
FP-25/FP-26 BLANK

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INTER AXLE R20
DIFF LOCK R21
CRANE HI IDLE 24 VDC R22
HIGH RANGE LOCK OUT R23
T.C. DUAL MODE R24
M39
M36
M4
C821 30 AMP GAS PARTICULATE
C820 15 AMP TRAILER LIGHTING
DDEC CB22 20 AMP
DDEC CB23 20 AMP

MC9 J1A

POS	CODE
1A	208
1B	209
1C	238
1D	239
1E	217
1F	204
1G	206
1H	218
1J	207A
1K	222
2A	202A
2B	223A
2C	210A
2D	214
2E	
2F	221
2G	220
2H	219
2J	216A
2K	201
3A	203
3B	240
3C	241
3D	213
3E	
3F	211
3G	205
3H	215
3J	212
3K	224

MC10 J1B

POS	CODE
1L	112
1M	113
1N	106A
1P	124
1R	116
1S	110
1T	115
1W	105
1X	
1Y	107
2L	123
2L	108
2N	101
2P	104
2R	
2S	
2T	120
2W	119
2X	
2Y	109
3L	114
3M	111
3N	122
3P	118
3R	
3S	
3T	121
3W	
3X	
3Y	117

MC45 J3

POS	CODE
A	301
B	302
C	303
D	304
E	305
F	306
G	307
H	308
J	309
K	310
L	311
M	312
N	313
P	314
R	315
S	316

ECU ATEC

CONTROL BOX — CHASSIS

MC25

POS	CODE
A	1680C
B	1003C
C	1680C
D	1435
E	1008C
F	1678C
G	1680C
H	1004C
I	1665C
J	1435
K	1538
L	1644
M	1435
N	
O	
P	
Q	
R	
S	
T	
U	
V	

SEE SHEET 6
24V TRAILER

KNIT LOOM W/COPPER

TO XSMN CONNECTOR SEE SHEET 5

CONTROL BOX — CHASSIS/ENG

MC11

POS	CODE
A	
B	916
C	419
D	509
E	439
F	901
G	900
H	952
J	417
K	451
L	908
M	505
N	
O	510
P	1517
Q	1871
R	1715
S	1716
T	508
U	206/209
V	115
W	
X	

SEE SHEET 5

MC50

POS	CODE
A	213
B	211
C	215
D	214
E	231
F	233

MC51

POS	CODE
A	206/209
B	207A
C	223A
D	216A
E	201
F	203

MC106

POS	CODE
A	216A
B	505
C	207A
D	
E	439
F	900
G	901
H	451
J	
K	

SEE SHEET 3

MC36

POS	CODE
A	124
B	104
C	106A

THROTTLE SENSOR

THROTTLE POSITION CONTROL M4

MC102

POS	CODE
A	115
B	1439

6.8K

SEE SHEET #5

X = UNUSED SEALED POSITIONS

POS	CODE
1	1000
2	
3	
4	1000
5	
6	
7	

GROUND LOCATION

1. @ LH HEAD LIGHT
2. @ RH SIDE CONTROL BOX
4. FERRISHIELD FAIRRITE PN SS28B2032
5. FERRISHIELD FAIRRITE PN TC28B1500

EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 14 OF 35
ENGINEERING DWG 1878290 SHEET 4
FP-27/FP-28 BLANK

REVISION AA
CN 24575
9-9-94

MC21	
POS	CODE
A	1320
B	1449
C	1113
D	1021A
E	1032
F	1147
G	1020
H	1036
J	X
K	X
L	X
M	1957
N	1955
O	X
P	X
Q	X
R	X
S	X
T	X
U	X
V	X

MC60	
POS	CODE
A	1021A
B	1020

14 GA
14 GA
14 GA

BOOST PRESSURE SWITCH PSI5
SPST-N.C.
@ 7.5 PSI ± .5 PSI
ON RISING PRESSURE

M20
145 AMP
ALTERNATOR

DUVAC CONTROLLER WITH REVERSE POLARITY PROTECTION M64

F+
F-
JUMPER

IGN

MC22	
POS	CODE
1	GREEN
2	ORANGE
3	BROWN
4	RED
5	BLACK
6	PLUG
7	PLUG

REGULATOR M19

MC24	
POS	CODE
1	1860
2	1820
3	1815
4	1861
5	1953

MC114		
POS	CODE	
A	1860	+12V OUTPUT A
B	1820	+24V OUTPUT B
C	1815	GROUND C
D	1861	SCR GATE D
E	1953	FIELD E

18 GA

WATER TEMPERATURE SENDING UNIT SU1

ENGINE OIL PRESSURE SWITCH PS9

TRANSMISSION TEMPERATURE SENDING UNIT SU2

ENGINE WATER TEMP SWITCH TS2

OIL MANIFOLD

ENGINE OIL PRESSURE SENDING UNIT SU3

ATEC OIL PRESSURE SWITCH PS8

R27 MAGNETIC SWITCH 24V

5 MFD 200 VDC

2 MFD

.01 MFD

C824 3 AMP

CONTROL BOX ◄► CHASSIS/ ENGINE

MC11	
POS	CODE
A	X
B	916
C	419
D	509
E	439
F	901
G	900
H	952
J	417
K	451
L	908
M	505
N	X
O	510
P	1517
Q	1871
R	1715
S	1716
T	508
U	208/209
V	115
W	X
X	X

ENGINE BRAKE
RH COILS M21
LH COILS M22

TS1 ETHER START

MC56	
POS	CODE
A	1036
B	1926

MC23	
POS	CODE
A	1926
B	1435

WHITE
BLACK
ETHER START M8

MC108	
POS	CODE
A	1020
B	1435

FUEL PUMP M12

POS	CODE
A	1020
B	1435

4.7 MFD

SEE SHEET 4

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 15 OF 35
ENGINEERING DWG 1878290 SHEET 5
FP-29/FP-30 BLANK

REVISION AA
CN 24575
9-9-94

200 AMP OPTION

MC115 POS	CODE
G	1277
D	PLUG
B	1279
C	1055
A	1274
H	PLUG
E	PLUG
F	PLUG

RECTIFIER
STATOR
STATOR
"R" TERMINAL (PHASE)
ENERGIZE
ENGINE RUN OIL PSI SW PSI4
REVERSE POLARITY PROTECTION 200 A M8
M65
FIELD
+12 VOLT CIRCUIT
+24 VOLT CIRCUIT
REGULATOR
B A D E H F J K L C
1278
1020
1020
1277
1274
1020
1020
1277
1274
1275/1435
A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
S
T
U
V
1274
1020
1020
1275
1281
1819
1435
1138
1138
000
STARTER M7
1818
1816/1818
M
1138
1139
4 GA
10 GA
1816
1055
1055
1055
1139
1045
1055
1139
1138
1139
SLAVE CONNECTOR M23
1139
ARCTIC BATTERIES M77
1137
OPTION
M48 SHUNT
1828
1829
1276
1138
1275
BATTERIES M6
B1 (2)
B2 (1)
A1 (4)
A2 (3)
1137
1137
1137
1137
1079
240/241
208/209
150/150
1816/1818
240/241
150/150
MC95
POS CODE
A 208/209
1813/1821
1814/1822
1816/1818
SEE MC3 SHEET 6
1431/1431
1866/1075
1566
240/241
150/150
1079
SEE CB5 SHEET 4
A
ECM
12' MAX TO SPLICE (TYP)
MC17
POS CODE
A 241
B 241
C 150
D 150
E 240
F 240
16 GA WIRE
MC62
POS CODE
A 240
B 150
C 241
D 150
TWISTED PAIR SHIELDED
TRANSMISSION
TWISTED PAIR 901/900
KNIT LOOM W/COPPER
MC19
POS CODE
A 123
B 114
C 121
D 111
E 101
F 118
G 116
H 122
J
K 108
L 109
M 119
N 117
O 107
P 1068
Q
R
S
T 115
U 105
V 120
W 110
X
MC20
POS CODE
A 113
B 112
18AWG
SEE SHEET 4
18AWG
MC18
POS CODE
A1 508
A2 555
A3 916
B1 419
B2 509
B3 439
C1 901
C2 900
C3 952
D1 510
D2 417
D3 953
E1 451
E2
E3
F1 542
F2 544
F3 903
G1 528
G2 543
G3 545
H1
H2
H3 115
J1 541
J2 531
J3 908
K1 505
K2
K3 972
900
901
12066317
12040947
POS CODE
A 612
B 614
C 618
D 616
E 620
620
614
620
612
620
616
620
618
INJECTOR 4R
INJECTOR 3R
INJECTOR 2R
INJECTOR 1R
2065143
POS CODE
L 611
K 613
J 617
H 615
G 619
619
611
619
617
619
613
619
615
INJECTOR 1L
INJECTOR 2L
INJECTOR 3L
INJECTOR 4L
12034398
POS CODE
L1
L2
L3 925
M1
M2
M3 926
N1
N2
N3
P1 432
P2 530
P3
R1
R2 120
R3 472
S1 112
S2 111
S3
T1 109
T2 110
T3
W1 416
W2
W3
X1
X2
X3
Y1
Y2 452
Y3
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
S
T
U
V
W

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 16 OF 35
ENGINEERING DWG 1878290 SHEET 5
FP-31/FP-32 BLANK

REVISION V
CN 24138
11-24-92

A — 1819

STE/ICE CONNECTOR MC39

POS	CODE	
A		X
B		X
C		X
D	1825A	
E	1822	
F	1821	
G		X
H		X
J		X
K		X
L	1860	
M	1819	
N	1820	
O	1953	
P	1815	
R	1861	
S	1816	
T	1818	
U	1736	
V	1814	
W	1813	
X	1828	
Y	1829	
Z	1736	
A	1736	
B	1736	
C	1809	
D	1810	
E		X
F	1824	
G	1825	
H	1826	
J	1827	
K	1952	
M	1938	
N	1939	
P	1940	
Q		X
R		X
S	1811	
T	1812	
U	1941	
V	1942	
W	1943	
X	1944	
Y	1945	
Z	1946	
AA	1947	
AB	1948	
AC	1949	
AD	1951	
AE	900	
AF	901	
AG		X

DIFFERENTIAL PRESSURE M41

MC42

POS	CODE
1	1811
2	1812

STE/ICE MODULE M43

MC40

POS	CODE	
1		X
2	1826	
3	1827	
4		X
5		X
6	1825A	
7	1825	
8		X
9		X

RJ

MC65

POS	CODE
A	
B	1944
C	
D	1816
E	1818
F	1809
G	1810
H	1824
I	1825
J	1941
K	1942
L	1947
M	1948
N	1945
O	1946
P	1949
Q	1951
R	1952
S	1938
T	1939
U	1940
V	1943

MC41

POS	CODE
1	1809
2	1810

PULSE TACH DRIVE M40

MC66

POS	CODE
1	1824
2	1825
3	1943
4	1944

TURBO OUTLET PSI M70

MC43

POS	CODE
1	1824
2	1825
3	1941
4	1942

FUEL PRESSURE M42

MC67

POS	CODE
1	1824
2	1825
3	1947
4	1948

AIR CLEANER M71

MC68

POS	CODE
1	1824
2	1825
3	1945
4	1946

AIR BOX PSI M72

MC69

POS	CODE
1	1824
2	1825
3	1949
4	1951

FUEL RETURN M73

MC70

POS	CODE
1	1824
2	1825
3	1952
4	1938

ENGINE OIL TEMP M74

MC71

POS	CODE
1	1824
2	1825
3	1939
4	1940

ENGINE WATER TEMP M75

B — 416 GRA — C; C — 432 LT GRN — B; D — 452 BLK — A — TURBO BOOST

E — 109 PPL — A; F — 110 DK GRN — B — SENSOR TIMING

G — 112 WHT — A; H — 111 LTBLU — B — SENSOR SYNC

J — 452 BLK — A; K — 530 BRN — B; L — 416 GRA/BLK — C — SENSOR OIL PSI

M — 452 BLK — A; N — 120 TAN — B — SENSOR OIL TEMP

P — 452 — A; O — 472 — B — FUEL TEMP

STE/ICE ZEROING S22

1940B — 3 — 2 — 1939B

1952B — 6 — 5 — 1938B

R — 1828/1829

S — 1813/1821

T — 1814/1822

U — 1816/1818

V — 1935/1820/1815/1860/1861

W

MC118

POS	CODE
A	900
B	901
C	SHIELD

1818

1816

X = UNUSED SEALED POSITIONS

	POS	CODE
	1	1000
X	2	
	3	
	4	1000
X	5	
X	6	
X	7	

⚠ DIODES TO BE IN4001

EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 17 OF 35
ENGINEERING DWG 1878290 SHEET 5
FP-33/FP-34 BLANK

REVISION M
CN 23742
02-10-92

CAB ◄► CHASSIS

MC3	
POS	CODE
A	1678
B	1008
C	1004
D	1680
E	1003
F	1149
G	1012
H	1731
I	1005
J	1318
K	
L	
M	
N	
O	10408
P	1519
Q	1519
R	1534
S	
T	1765
U	1431
V	1431

1005 1012 1003 1004 1008

1431
1431

BATTERIES
M6
1 2 3 4
BATTERIES SHOWN FOR REFERENCE ONLY
SEE SHEET 5

FRONT TOW

MC27	
POS	CODE
WHITE	1435
BLACK	1012
YELLOW	1003
RED	1005
GREEN	1004
BROWN	1008
BLUE	

1435

1765

MC113	
POS	CODE
A	1765
B	1435

1765
EMER STRG
PS13
1435

1435

CAB ◄► CHASSIS

MC31	
POS	CODE
A	
B	
C	
D	
E	1435
F	1435
G	
H	
I	
J	1729
K	1730
L	1734
M	1733
N	1732
O	
P	1738
Q	1737
R	1095
S	1093
T	1928
U	1929
V	1435

MC32	
POS	CODE
A	1056
B	1063/1067
C	1065
D	PLUG
E	1074
F	1076
G	1072
H	1071
I	1070
J	1068
K	SHIELD
L	PLUG
M	1066
N	1061
O	1058
P	1064
Q	1062
R	1059
S	SHIELD
T	1057
U	1073
V	PLUG

MC25		
POS	CODE	TRAILER CONN 24V
A	1680C	
B	1003C	
C	1680C	
D	1435	
E	1008C	
F	1678C	
G	1680C	
H	1004C	
I	1665C	
J	1435	
K	1538	
L	1644	
M	1435	
N		X
O		X
P		X
Q		X
R		X
S		X
T		X
U		X
V		X

BRAIDED SHIELD
1067

REAR

MC64	
POS	CODE
1	1072
2	1073
3	1076
4	1071
5	PLUG
6	1070
7	1066
8	SHIELD
9	1068
10	1074

CTI AUXILIARY MANIFOLD M25

GROUND IS ATTACHED TO AUXILIARY MANIFOLD

FRONT

MC109	
POS	CODE
1	1056
2	1057
3	1058
4	1059
5	1063
6	1061
7	1062
8	SHIELD
9	1064
10	1065

CTI POWER MANIFOLD M24

1063
BRAIDED SHIELD

GROUND IS ATTACHED TO POWER MANIFOLD

FAN CONTROL

MC59	
POS	CODE
A	1932
B	1933
C	1935
D	1936

MC73	
POS	CODE
A	1538
B	1435

MC63	
POS	CODE
A	1932
B	1933
C	DRAIN

MC128	
POS	CODE
A	1933
B	1932

WATER TEMP. N.C.
TS4

MC61	
POS	CODE
A	1932
B	1932

WATER TEMP.
TS3

MC76	
POS	CODE
A	1936
B	1935

FAN CONTROL VALVE M45

MC123	
POS	CODE
A	1732
B	1435

MC122	
POS	CODE
A	1730
B	1435

MC121	
POS	CODE
A	1729
B	1435

1911980
SELF RECOVERY WINCH M27

MC55	
POS	CODE
A	1729
B	1730
C	1732
D	1435

1435 1538

FAN M51
LHS M10
1899700

1733 1435 1734 1435

AIR DRYER M13

MC97	
POS	CODE
A	1538
B	1435

1435
1538
1435

A B C D

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 18 OF 35
ENGINEERING DWG 1878290 SHEET 6
FP-35/FP-36 BLANK

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L32 1012 SIDE MARKER 1012 L34

MC80
POS	CODE
A	1012
B	1003
C	1004

1678/23 1008/21 1004/22 1680/24 — L22 — B.O. STOP LIGHT, TAIL LIGHT, STOP LIGHT, B.O. TAIL LIGHT — R.H.

1012 1003 1680/24 1435

MC78
POS	CODE
A	1680
B	1678
C	1149
D	1008
E	1435
F	1435

1678/23 1008/21 1003/22 1680/24 — L24 — B.O. STOP LIGHT, TAIL LIGHT, STOP LIGHT, B.O. TAIL LIGHT — L.H.

1435

1149

MC124
POS	CODE
A	1149
B	1435

MC77
POS	CODE
A	1149
B	1435

BACK UP LIGHT L23

1718 1435 — BACK UP ALARM H78

1435

1012 L31 REAR SIDE MARKER
1012 CLEARANCE LIGHTS
1680 L42 B.O. CLEARANCE LIGHT
1012
1012 L25 ID LIGHTS
1012
1680 L41 B.O. CLEARANCE LIGHT
1012 L33 CLEARANCE LIGHTS
1012 REAR SIDE MARKER
1435

MC90
POS	CODE
A	1012
B	1435
C	1680

WORK LIGHT RH

MC79
POS	CODE
A	10408
B	1435

L21

MC54
POS	CODE
A	10408
B	1435

L39

WORK LIGHT LH

CRANE MC29

P		R	
1737	A		THROTTLE WHITE
1435	B		GROUND GREEN
1738	C		+24 VDC BLACK
1731	D		SHUTOFF VALVE FEED RED
1435	E		SHIELD

TWISTED PAIR

1519 — G SPEEDOMETER GENERATOR SU4 — 1519 — 18 GA SHIELDED

MC57
POS	CODE
A	1095
B	1093

S13 DRIVE LINE LOCK TRANSFER CASE HI/LO

1318 1435

FUEL LEVEL SU5

MC107
POS	CODE
A	1534
B	1435

1534 — FUEL/WATER SEPERATOR H9 — 1435

TRAILER CONNECTION 12 VDC

MC16
POS	CODE
1435	WHITE
1012	BLACK
1003	YELLOW
1005	RED
1004	GREEN
1008	BROWN
	BLUE

TRAILER MC30
POS	CODE
A	1928
B	1929
C	PLUG
D	PLUG

AFTERCOOLER H11

AIR DRYER H14

MC98
POS	CODE
A	1538
B	1435

MC99
POS	CODE
A	1538
B	1435

MC120
POS	CODE
A	1644
B	1435

M80 ARCTIC PUMP

1644/1435

B C D

MC15
POS	CODE	
A	1680C	24-484
B	1003C	22-461
C	1680C	24-483
D	1435C	90
E	1008C	21-489
F	1678C	23
H	1680C	490
J	1004C	22-460
K	1665C	37
L	1435C	90
M		53
N		53

MILITARY CONNECTOR

TRAILER CONNECTION 24 VDC

SEPERATE LOOMED HARNESS

1 GROMMET LOCATED LH SIDE OF HEATER

1 DIODES TO BE IN4001

EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 19 OF 35
ENGINEERING DWG 1878290 SHEET 6
FP-37/FP-38 BLANK

REVISION AA
CN 24575
9-9-94

MC33	
POS	CODE
A	1755
B	1435
C	1722
D	1724
E	1725
F	1726

(24 VDC IN)
(GROUND)
(LHS IND & VA.)
(SRW-CRANE & VA.)
(TRANS LIGHT NO)
(OVER LOAD)

SEE SHEET 3

1860810 (7200)

MC84	
POS	CODE
A	1482
B	1481
C	1486
D	1480
E	1755
F	1435
G	1483
H	1484
J	1485
K	1722
L	1487
M	1488
N	1489
P	1490
R	1726
S	1725
T	—

1860800 (7190)

MC83	
POS	CODE
A	1482
B	1481
C	1486
D	1480
E	1755
F	1435
G	1483
H	1484
J	1485
K	1722
L	1487
M	1488
N	1489
P	1490
R	1726
S	1725
T	—

M26
CAB CONTROL BOX
1891370

M.R. "A" SOLENOID	1465
H.A. "B" SOLENOID	1467
M.R. "B" SOLENOID	1468
H.A. "A" SOLENOID	1464
SEQUENCING (3)	1466
24 VOLT +	1472
SEQUENCING (6)	1469
TRANSIT VALVE	1463
FREE FLOW VALVE	1462
0 VOLTS	1435
0 VOLTS	1435
PROXIMITY H.A. DOWN	1471

SEE SHEET 8 FOR DETAIL OF CAB CONTROL BOX

MC81	
POS	CODE
A	1465
B	1467
C	1468
D	1464
E	1466
F	1472
G	1469
H	1463
J	1462
K	1435
L	1435
M	1471
N	1460
P	1459
R	1435
S	1435
T	—

1860790 (7170)

GREEN
RED
WHITE
DRAIN WIRE

MC82	
POS	CODE
A	1465
B	1467
C	1468
D	1464
E	1466
F	1472
G	1469
H	1463
J	1462
K	1435
L	1435
M	1471
N	1460
P	1459
R	1435
S	1435
T	—

1883440

1877480 (7140) HOOKARM SOL A M53

1877470 (7150) HOOKARM SOL B M54

1480
1463
M68
1478
1477
1479

HOOK ARM ELECTRIC SAFE LOWERING
MAIN RAM ELECTRIC SAFE LOWERING

1435/WHITE
1464/BLACK
1435/WHITE
1467/BLACK

A B C D E F G H J K L M N P Q R S T U V W X Y

1465
1465

1884570 U
MAIN JUNCTION BOX

MC93	
POS	CODE
A	1724
B	1480
C	1481
D	1482
E	1483
F	1484

MC94	
POS	CODE
A	1485
B	1486
C	1487
D	1488
E	1489
F	1490

1724 — 22 — 21
18 — 17
1487 — 14 — 13
10 — 9
1481 — 12 — 11
1480 — 24 — 23
6 — 5
1486 — 8 — 7
1482 — 20 — 19
2 — 1
1484 — 4 — 3
1485 — 16 — 15

5 4 3 2 1 0

0 OFF
1 AUTO
2 MAN HA
3 MAN MF
4 MAN TRAN
5 CRANE/SRW

1891360 U
MULTI FUNCTION SWITCH ASSY

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 20 OF 35
ENGINEERING DWG 1878290 SHEET 7
FP-39/FP-40 BLANK

REVISION U
CN 23966
12-1-92

1877450 (7130) MAIN CYLINDER SOL B M56
1877460 (7120) MAIN CYLINDER SOL A M55
1877440 (7110) FREEFLOW M57
1877490 (7160) TRANSIT M58

1435/WHITE 1468/BLACK
1435/WHITE 1465/BLACK
1435/WHITE 1462/BLACK
1435/WHITE 1480/BLACK

OVERLOAD PRESSURE SWITCH N.O. S28
1479/BLACK
1460/WHITE

1891930 W MIDDLE FRAME PROXIMITY SW NORMALLY OPEN S24
1435/BLUE 1461/BROWN 1469/BLACK

1891920 W HOOK ARM UP PROXIMITY SW NORMALLY OPEN S23
1435/BLUE 1474/BROWN 1466/BLACK

1878910 LH HOOK ARM A M59 M60 B
1435/WHITE 1470/BLACK
1435/WHITE 1470/BLACK

1878900 RH HOOK ARM A M61 M62 B
1435/WHITE 1475/BLACK
1435/WHITE 1475/BLACK

1891910 W HOOK ARM DOWN PROXIMITY SW NORMALLY OPEN S27
+ BROWN
S BLACK
- BLUE

MC88	
POS	CODE
A	1472
B	1471
C	1435

1883450

MC85	
POS	CODE
A	1461
B	1472
C	1435
D	1471
E	1435
F	1435
G	1469
H	1466
I	1470
J	1475

1860780 (7100)

MC86	
POS	CODE
A	1461
B	1472
C	1435
D	1471
E	1435
F	1435
G	1469
H	1466
I	1470
J	1475

1860820 (7370)

MC87	
POS	CODE
A	1461
B	1435
C	1435
D	1469
E	1466
F	1470
G	1475
H	—
I	—
J	—

1891410

POS
1
2
3
4
5
6
7

1891530 U
LHS JUNCTION BOX

POS
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

1435
1480

87A 87 85
30 86
R29
MIDDLE FRAME LOCK-OUT

EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 21 OF 35
ENGINEERING DWG 1878290 SHEET 7
FP-41/FP-42 BLANK

REVISION O

MC83	
POS	CODE
A	1482
B	1481
C	1486
D	1480
E	1755
F	1435
G	1483
H	1484
J	1485
K	1722
L	1487
M	1488
N	1489
P	1490
R	1726
S	1725
T	----

MAN. HOOK ARM UP
MAN. MID FRAME DOWN
MAN. HOOK ARM DOWN
MAN. MID FRAME UP
+24V IN
COMMON
MAN./AUTO MODE
AUTO LOAD IN
AUTO UNLOAD IN
LHS LIGHT
MAN. TRANS IN
24V OUT
UNLOAD OUT
LOAD OUT
OVERLOAD LIGHT
NO TRANSIT LIGHT
AUX MODE IN

CR1-MR2400
FU1
RP1 2.7K
LED5
Q1 2N3906
R1-3.3K
RP2 3.3K
RP3 2.7K
LED15
CR16 1.5KE39
+24V
RP1-2.7K LED3
RP1-2.7K LED1
CR2-1.5KE39
RP1-2.7K LED2
CR3-1.5KE39
CR4-1.5KE39
RP1-2.7K LED4
CR5-1.5KE39
RP1-2.7K LED6
CR7-1.5KE39
RP1-2.7K LED7
CR6-1.5KE39
RP2-2.7K LED10
CR10-1.5KE39
RP2-2.7K LED9
CR9-1.5KE39
RP2-2.7K LED8
CR8-1.5KE39

CR24-1N4007
CR27-1N5400
CR28-1N5400
CR22-1N5400
CR23-1N5400
CR29-1N5400
K1
K2
K3
K4
K5
K6
K7
DP1
RP4 1M
U1
C1-1.5µf TANT.
R4 1K
C2 1.5µf TANT
CR25 1N4743 13V
Q2 VN10KM
CR30 1N4007
CR31 1N4753 36V
C3 .022µf
R3-1K
CR26 1N4148
C4 1.5µf TANT

RELAY BOARD

JS-13
JS-14
JS-24
JS-23
LOAD
UNLOAD
JOYSTICK

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 22 OF 35
ENGINEERING DWG 1878290 SHEET 8
FP-43/FP-44 BLANK

REVISION O

MC81

MC81	
POS	CODE
A	1465
B	1467
C	1468
D	1464
E	1466
F	1472
G	1469
H	1463
J	1462
K	1435
L	1435
M	1471
N	1460
P	1459
R	1435
S	1435
T	—

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 23 OF 35
ENGINEERING DWG 1878290 SHEET 8
FP-45/FP-46 BLANK

REVISION 0

SYSTEM SHUTDOWN RELAY

CONTROL LOCKOUT RELAY

THROTTLE RELAY

GROUND

POWER CABLE TO VEHICLE

MC29	
POS	CODE
A	WHT
B	GRN
C	BLK
D	RED
E	SHIELD

PASSENGER SIDE REMOTE CABLE

POS	CODE
A	RED
B	GRN
C	YEL
D	WHT
E	BLU
F	BLK
G	ORG
H	VIO
J	RED/GRN
K	GRY
L	TAN
M	BRN
N	PNK
P	SHIELD

POS	CODE
A	BLK
B	WHT
C	GRN
D	RED

OVERLOAD SHUTDOWN SYSTEM

POS	CODE
A	BLU
B	BLK
C	BRN

19/3

HOIST LAYER SENSING SWITCH

POS	CODE
A	WHT
B	BLK
C	RED
D	GRN
E	SHIELD

HOIST LOAD CELL

CRANE FUNCTION SOLENOIDS

SWING: CCW, CW

TELE: OUT, IN

LIFT: UP, DWN

HOIST: UP, DWN

OVERLOAD SOLENOIDS: MHC MAIN HYD PRESS, LIFT UP & DOWN, HOIST UP, TELE OUT, CRANE FUNCTION L/O

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 24 OF 35
ENGINEERING DWG 1878290 SHEET 9
FP-47/FP-48 BLANK

REVISION O

JUNCTION BOX ASSY

A
B
C
D
E
F
G
H
J
K
L
M

BLU
GRN
BLK
19/3
E

BRN
BLU
BLK
DRIVER SIDE O/R ENGAGED SENSING SWITCH

D6
D7
D9
D8
WHT
RED/GRN

GRN
RED
DLK
WHT
BLK
LINE LOAD
POWER SWITCH 10 AMP MAGNETIC CIRCUIT BREAKER
HIGH IDLE SWITCH LATCH-UNLATCH

BLK
GRN
16/4
D
18/15
F

DRIVER SIDE REMOTE CABLE

POS	CODE
A	RED
B	GRN
C	YEL
D	WHT
E	BLU
F	BLK
G	ORG
H	VIO
J	RED/GRN
K	GRY
L	TAN
M	BRN
N	PNK
P	SHIELD

BRN
BLK
BLU

REMOTE CONTROL CABLE
18/15

C
19/3
BRN
BLU
BLK
PASSENGER SIDE O/R ENGAGED SENSING SWITCH

N
18/2
D2
WHT
BLK
O/R MAST SHUTDOWN SOLENOID

REMOTE CONTROL BOX

POS	CODE
A	RED
B	GRN
C	YEL
D	WHT
E	BLU
F	BLK
G	ORG
H	VIO
J	RED/GRN
K	GRY
L	TAN
M	BRN
N	PNK
P	SHIELD

2

SWING

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	CCW
4	BLU	CW

8
2
9
10

TELE

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	OUT
4	BLU	IN

8
2
11
12

GN
4
25
20
SHUT DOWN

BOOM

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	UP
4	BLU	DWN

8
2
13
14

HOIST

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	UP
4	BLU	DWN

8
2
15
16

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 25 OF 35
ENGINEERING DWG 1878290 SHEET 9
FP-49/FP-50 BLANK

REVISION F
CN 24526
3-28-94

DUAL AIR GAGE
RED GRN
RESTRICTION INDICATOR GAGE
.25 TBG RED
2641
2610 .25 TBG GREEN
.16 ID HOSE
2381
.38 TBG GREEN
2073
.38 TBG RED
2006
.38 TBG BLACK
2029
DASH PANEL
AUX
RSVR 2
RSVR 1
EX
TRAILER CHARGE
SYSTEM PARK
TRACTOR D
TRAILER D
2611 .38 TBG YELLOW
2612 .38 TBG YELLOW
2662 .38 TBG BLACK
PARKING BRAKE STOPLIGHT SWITCH
PARKING BRAKE STOPLIGHT SWITCH
STOPLIGHT SWITCH
2662 .38 TBG BLACK
2663 .38 TBG BLACK
DEL
IN
EX
HAND CONTROL VALVE
2028 .38 TBG BLACK
2027 .38 TBG GREEN
2028 .38 TBG BLACK
2029
2073 .38 TBG GREEN
2027 .38 TBG GREEN
CAB MANIFOLD
2662 .38 TBG BLACK
2663 .38 TBG BLACK
2612 .38 TBG YELLOW
2381 .16 ID HOSE
2623 .38 TBG GREEN
2488 .38 TBG GREEN
ENGINE AIR INTAKE
#4 HOSE
STOPLIGHT SWITCH
TREADLE VALVE
FRONT
REAR
LOW AIR PRESSURE SWITCH
LOW AIR PRESSURE SWITCH
STOPLIGHT SWITCH
2619 .62 TBG GREEN
2005 .62 TBG RED
2665 .38 TBG RED
2006 .38 TBG RED
2489 .38 TBG RED
2665 .38 TBG RED
2489 .38 TBG RED
2684 .38 TBG RED
2686 .38 TBG RED
DOUBLE CHECK VALVE
FOUR POSITION SOLENOID VALVE
2074 .25 TBG BLACK
2074 .25 TBG BLACK
SEE SHEET 2 (CTI FRONT MANIFOLD)
2074 .25 TBG BLUE
DIFF LOCK
INTER AXLE LOCK
TRANSFER CASE LOCK
.25 TBG BLACK
.25 TBG ORANGE
.25 TBG BLUE
.25 TBG ORANGE
2005 .62 TBG RED
2005 .62 TBG RED
2005 .62 TBG RED
WINDSHIELD WASHER BOTTLE
2071 .25 TBG BLACK
OUT
IN
AIR REGULATOR
SERVICE
EMERGENCY
2894 .38 TBG RED
2895
QUICK RELEASE VALVE
GLAD HANDS
2923 .25 TBG ORANGE
2923 .25 TBG ORANGE
2069 .25 TBG BLUE
2069 .25 TBG BLUE
2412 .25 TBG ORANGE
2412 .25 TBG ORANGE
2619 .62 TBG GREEN
2619 .62 TBG GREEN
A B C D E F G H J K L M N P

NOTES:
1. A DASHED LINE WITH A LARGE ARROW SIGNIFIES A HARD CONNECTION DIRECTLY TO THE COMPONENT (WITH A TEE FITTING). THIS SYMBOL DOES NOT REPRESENT THE PRESENCE OF NYLON TUBING.
2. SEE DOD-STD-100 FOR DRAWING INTERPRETATION STANDARDS
3. PARENTHETICAL IDENTITIES ARE FOR REFERENCE ONLY

FIGURE FO-2. AIR SYSTEM SCHEMATIC
FOLDOUT 26 OF 35
ENGINEERING DWG 1878300 SHEET 1
FP-51/FP-52 BLANK

REVISION D
CN 24303
6-25-93

2933
2069
2412
2133
2661 .38 TBG BLACK
2662 .38 TBG BLACK
2663 .38 TBG BLACK
2661 .38 TBG BLACK
2622 .38 TBG YELLOW
2612 .38 TBG YELLOW
DOUBLE CHECK VALVE
DOUBLE CHECK VALVE
2661 .38 TBG GREEN
SPRING BRAKE VALVE
S D
C R
2622 .38 TBG YELLOW
2621 .38 TBG YELLOW
2665 .38 TBG RED
2623 .38 TBG GREEN
2874 .38 TBG BLACK
2874 .38 TBG BLACK
EX
2013 #8 HOSE
2013 #8 HOSE
2874 .38 TBG BLACK
2874 .38 TBG BLACK
2874 .38 TBG BLACK
2874 .38 TBG BLACK
EX
2387 #8 HOSE
2387 #8 HOSE
EXHAUST
2874 .50 TBG BLACK
2874 .38 TBG BLACK
MANIFOLD
2013 #8 HOSE
2012 #8 HOSE
2480 .38 TBG GREEN
2543 #10 HOSE
2544 #10 HOSE
SERVICE BRAKE RELAY VALVE R-12
62 TBG BLACK
2536
2012 #8 HOSE
2012 #8 HOSE
2012 #8 HOSE
2012 #8 HOSE
EX
2874 .38 TBG BLACK
EX
2874 .38 TBG BLACK
.38 TBG BLACK 2874
.38 TBG BLACK 2874
#1 AXLE
2387 #8 HOSE
2387 #8 HOSE
MANIFOLD
2388 #8 HOSE
2388 #8 HOSE
2388 #8 HOSE
2388 #8 HOSE
EX
2874 .38 TBG BLACK
EX
2874 .38 TBG BLACK
.38 TBG BLACK 2874
.38 TBG BLACK 2874
#2 AXLE
BALL VALVE
2044 .38 TBG BLACK
38 TBG BLACK
LOAD SENSING VALVE
.38 TBG BLACK
2376
#4
2793
AIR TANK 836 CU IN
AIR BAG
.75 TBG BLACK
2793
.75 TBG BLACK
2793
2374 .38 TBG BLACK
LOAD SENSING VALVE
2375 .38 TBG BLACK
#5
.75 TBG BLACK 2794
AIR TANK 836 CU IN
#3 AXLE SUSPENSION
.75 TBG BLACK
2793
AIR BAG
EXHAUST
2668 .38 TBG RED
QUICK RELEASE VALVE
2684 .38 TBG RED
2669 .38 TBG RED
EX
2022 #6 HOSE
2874 .38 TBG BLACK
#8 HOSE 2546
2639 .38 TBG RED
2668 .38 TBG RED
SERVICE BRAKE RELAY VALVE R-12
2545 #10 HOSE
#8 HOSE
2075
SPRING BRAKE RELAY VALVE R-14
MANIFOLD
#6 HOSE
2023
#8 HOSE 2547
2874
EX
.38 TBG BLACK
#3 AXLE
2669 .62 TBG RED
2620 .62 TBG BLACK
2014 .62 TBG RED
2011 .62 TBG RED
2620 .62 TBG BLACK
2614 .62 TBG BLACK
2014 .62 TBG RED
2003 .62 TBG BLACK
2003 .62 TBG BLACK
#3
REAR AIR TANK 2500 CU IN
2621 .38 TBG YELLOW
2895 .38 TBG RED
38 TBG BLACK
25 TBG BLACK
38 TBG ORANGE
2044
2074
2133
AIR REGULATOR VALVE
PRESSURE PROTECTION VALVE
PRESET 77 PSIG
MANIFOLD
2536 .62 TBG BLACK
2008 .50 TBG BLACK
2613 .62 TBG BLACK
2007 .75 TBG BLACK
#2
2184 .75 TBG BLACK
2184 .75 TBG BLACK
FRONT AIR TANK 1791 CU IN
2619 .62 TBG GREEN
2620 .62 TBG BLACK
2614 .62 TBG BLACK

FIGURE FO-2. AIR SYSTEM SCHEMATIC
FOLDOUT 27 OF 35
ENGINEERING DWG 1878300 SHEET 1
FP-53/FP-54 BLANK

REVISION D
CN 24303
6-25-93

TRACTOR PROTECTION VALVE
GLAD HANDS
AUXILLARY
EMERGENCY
SERVICE
MANIFOLD
EXHAUST
SERVICE BRAKE RELAY VALVE R-12
SPRING BRAKE RELAY VALVE R-14
#4 AXLE
#5 AXLE
XFER CASE
AXLE #1
AXLE #2
AXLE #3
AXLE #4
AXLE #5
PURGE TANK 390 CU IN
WET TANK 1224 CU IN
AIR DRYER
COALESCING FILTER
AFTERCOOLER
AIR COMPRESSOR
ENGINE AIR INTAKE
GOVERNOR:
CUT IN:105±3 PSI
CUT OUT:125±4 PSI
RSVR
UNL
RES
EXH
SEE SHEET 2 (CTI REAR MANIFOLD)
SEE SHEET 2 (CTI FRONT MANIFOLD)

FIGURE FO-2. AIR SYSTEM SCHEMATIC
FOLDOUT 28 OF 35
ENGINEERING DWG 1878300 SHEET 1
FP-55/FP-56 BLANK

REVISION B
CN 23468
8-8-91

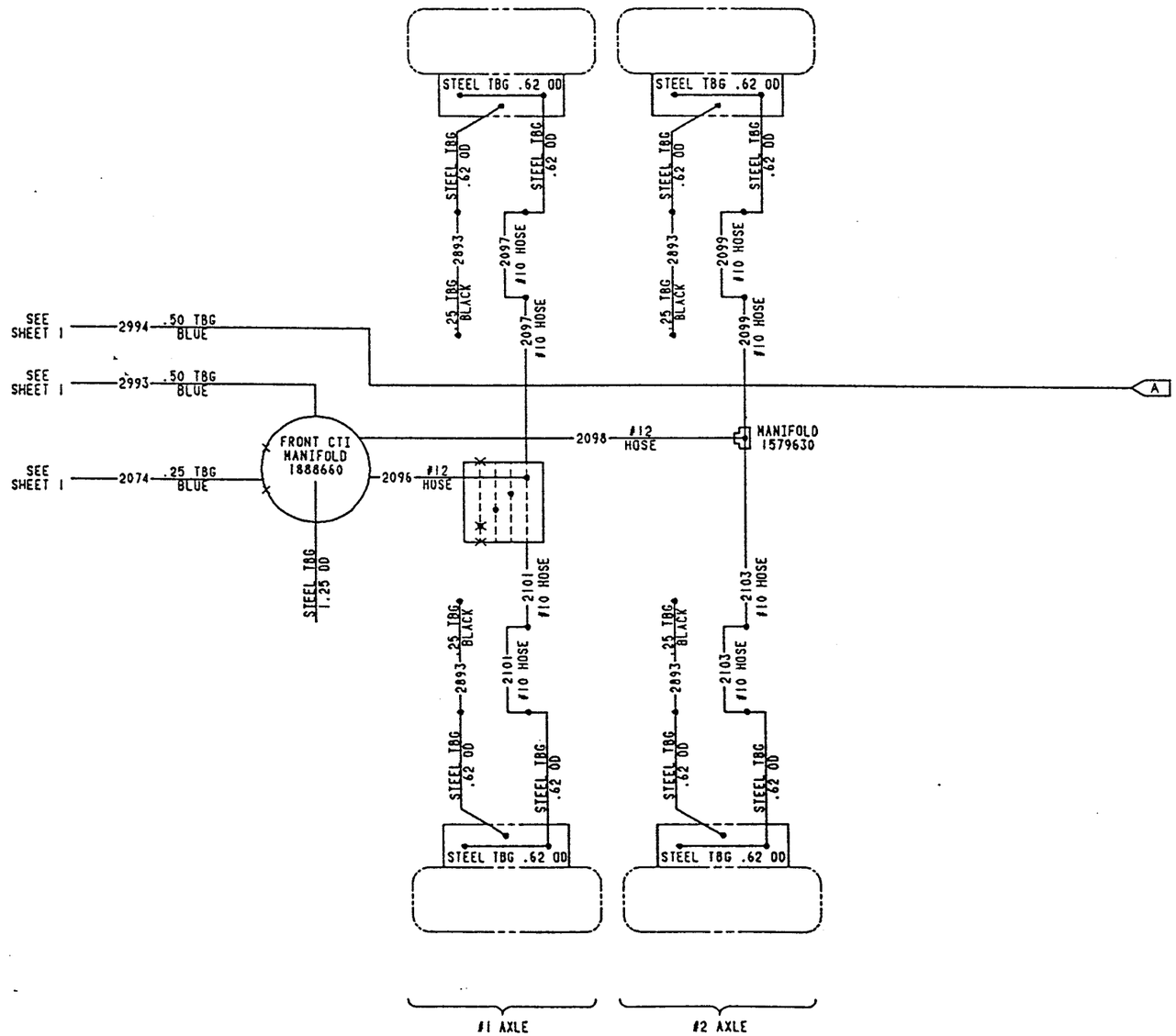

FIGURE FO-2. AIR SYSTEM SCHEMATIC
FOLDOUT 29 OF 35
ENGINEERING DWG 1878300 SHEET 2
FP-57/FP-58 BLANK

REVISION B
CN 23468
8-8-91

STEEL TBG .62 OD

#10 HOSE 2105

#10 HOSE 2107

A — 2994 .50 TBG BLUE — 2872 #12 HOSE

REAR CTI MANIFOLD 1888640

2104 #12 HOSE

2106 #12 HOSE

STEEL TBG 1.25 OD

EXHAUST

#10 HOSE 2869

#10 HOSE 2871

STEEL TBG .62 OD

STEEL TBG .62 OD

#3 AXLE

#4 AXLE

STEEL TBG .62 OD

STEEL TBG .62 OD

2109

#10 HOSE 2109

2893 .25 TBG BLACK

#10 HOSE 2873

#10 HOSE 2873

STEEL TBG .62 OD

STEEL TBG .62 OD

2893 .25 TBG BLACK

STEEL TBG .62 OD

#5 AXLE

FIGURE FO-2. AIR SYSTEM SCHEMATIC
FOLDOUT 30 OF 35
ENGINEERING DWG 1878300 SHEET 2
FP-59/FP-60 BLANK

REVISION H
CN 24303
6-25-93

2776 #4 HOSE
2809
MAIN CYLINDER
Ø125/Ø63-1665 STROKE
CB
CA
MAIN CYLINDER MANIFOLD RH
VB
T
VA
2890 #8 HOSE
2666 #8 HOSE
2887 #8 HOSE
2049 #6 HOSE
MAIN HYDR PUMP
1899690
.015
#16 HOSE 2935
HIGH PRESSURE FILTER
1929250
IN
OUT
2295 #4 HOSE
2291 #6 HOSE
2772 #16 HOSE
2777 #16 HOSE
G5
G6
G7
G3
C3
G11
G8
G9
C2
G2
G4
.043
20
.201 X 17
MULTI-FUNCTION MANIFOLD
1959140
10-12 GPM
21
.312
30 GPM
G10
P1
.228
P2
.191
P
T
2936 #16 HOSE
2902 #12 HOSE
2899 #12 HOSE
2904 #12 HOSE
COMPENSATOR SET APPROX. 3675 PSI
SOLENOID VALVE
1913660 U
2290 #6 HOSE
2291 #6 HOSE
CRACKING PRESSURE 65PSI
2490 #32 HOSE
2781 #10 HOSE
2773 #16 HOSE
OIL COOLER
2028850
2771 #16 HOSE
FAN MOTOR
1945260
FAN MANIFOLD
1945240
2772 #16 HOSE
2918 #20 HOSE
RETURN FILTER
2694 #8 HOSE
1905170 U
MAIN RESERVOIR
MANIFOLD
#8 HOSE 2892
2881 #8 HOSE
2882 #8 HOSE
2891 #8 HOSE
STEEL TBG .75 OD
2882 #8 HOSE
STEEL TBG .75 OD
STEEL TBG .75 OD
2892 #8 HOSE
2881 #8 HOSE
STEEL TBG .75 OD
STEEL TBG .75 OD
2891 #8 HOSE
V8
VA
V8
VA
F
B
A
E
D
C
RH HOOK ARM CYLINDER MANIFOLD
LH HOOK ARM CYLINDER MANIFOLD
CB
CA
CB
CA
HOOK ARM CYLINDER Ø125/Ø 63-870 STROKE
HOOK ARM CYLINDER Ø125/Ø 63-870 STROKE
2777 #16 HOSE
2902 #12 HOSE
2902 #12 HOSE
2694 #8 HOSE
2694 #8 HOSE
2694 #8 HOSE
2904 #12 HOSE
2904 #12 HOSE
2899 #12 HOSE
2918 #20 HOSE
A
B
C
D
E
F
G
H
J
K
L
M
N

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 31 OF 35
ENGINEERING DWG 1878310 SHEET 1
FP-61/FP-62 BLANK

REVISION H
CN 24303
6-25-93

MAIN CYLINDER
Ø125/Ø63-1665 STROKE

MAIN CYLINDER MANIFOLD LH

LOAD HANDLING SYSTEM CONTROL MANIFOLD

LOAD HANDLING SYSTEM

STEEL TBG 1.00 OD

STEEL TUBE 1.00 OD .120 WALL

QUICK DISCONNECTS

RETURN LINE MANIFOLD

CRANE

LOAD SENSE LINE TO PUMP

MAIN SUPPLY LINE 19 GPM

MAIN RETURN LINE

SUCTION LINE HAND PUMP

TELESCOPE CYLINDERS

PILOT RATIO 7.35:1

PILOT RATIO 4.60:1

LIFT CYLINDERS

SELF RECOVERY WINCH

WINCH SUPPLY VALVE 1911980

12 GPM

GROVE HOIST SERVICE RELEASE

4 TO 6 PSI CRACK

MOTOR DRAIN

PILOT RATIO 7.35:1

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 32 OF 35
ENGINEERING DWG 1878310 SHEET 1
FP-63/FP-64 BLANK

REVISION H
CN 24303
6-25-93

SWING DRIVE
BRAKE RELEASE
.089 .089
1780 1780
1780
5 CU. IN. PRECHARGE
190 TO 210 PSI
ACC
LS B1 X1 X2
3000 TO
3100 PSI
CRACK
SWING
TELESCOPE
LIFT
HOIST
.128
.147
.154
.234
2100
PSI
FULL
FLOW
CW 5 GPM A
CCW 5 GPM B
EXTEND 7 GPM A
RETRACT 5 GPM B
T
P
UP 7 GPM A
DOWN 5 GPM B
RAISE 12 GPM A
LOWER 12 GPM B
.040
S1
S2
HP
IN
D
X.040
PILOT RATIO 2.31:1
Z3
LEFT
STABILIZER
(JACK)
CYLINDER
EXTEND
7 GPM
RETRACT
MAST
ERECTION
.030
RIGHT
STABILIZER
(JACK)
CYLINDER
7 GPM
PILOT RATIO 7.35:1
THERMAL 4400
TO 4700 PSI
.062
RIGHT STABILIZER
RATIO 2.97:1
THERMAL 3750
TO 4250 PSI
PILOT RATIO 7.35:1
THERMAL 4400
TO 4700 PSI
.062
LEFT STABILIZER
RATIO 2.97:1
THERMAL 3750
TO 4250 PSI
RETRACT
EXTEND
PRESSURE
TANK
RETRACT
EXTEND
.147
.147
LEFT
STABILIZER
7 GPM
MAIN
RELIEF
RIGHT
STABILIZER
7 GPM
PILOT RATIO 3.75:1
THERMAL 2350 TO 2650 PSI
RETRACT
.50 GPM
X.015
X.015
EXTEND
.75 GPM
MAST ERECTION
CYLINDER

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 33 OF 35
ENGINEERING DWG 1878310 SHEET 1
FP-65/FP-66 BLANK

REVISION E
CN 23777
2-14-92

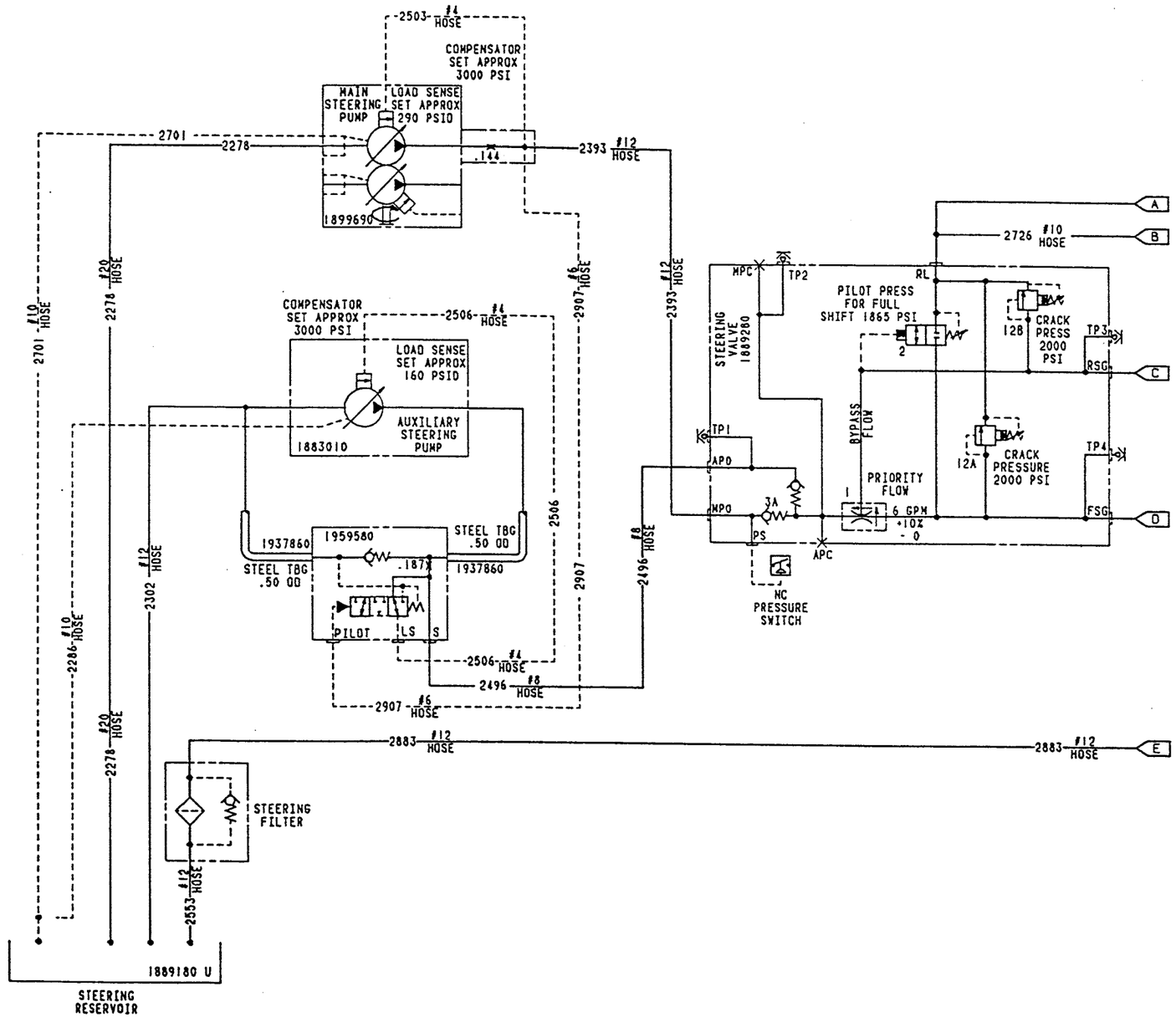

FIGURE FO-3. HYDRAILIC SYSTEM SCHEMATIC
FOLDOUT 34 OF 35
ENGINEERING DWG 1878310 SHEET 2
FP-67/FP-68 BLANK

REVISION E
CN 23777
2-14-92

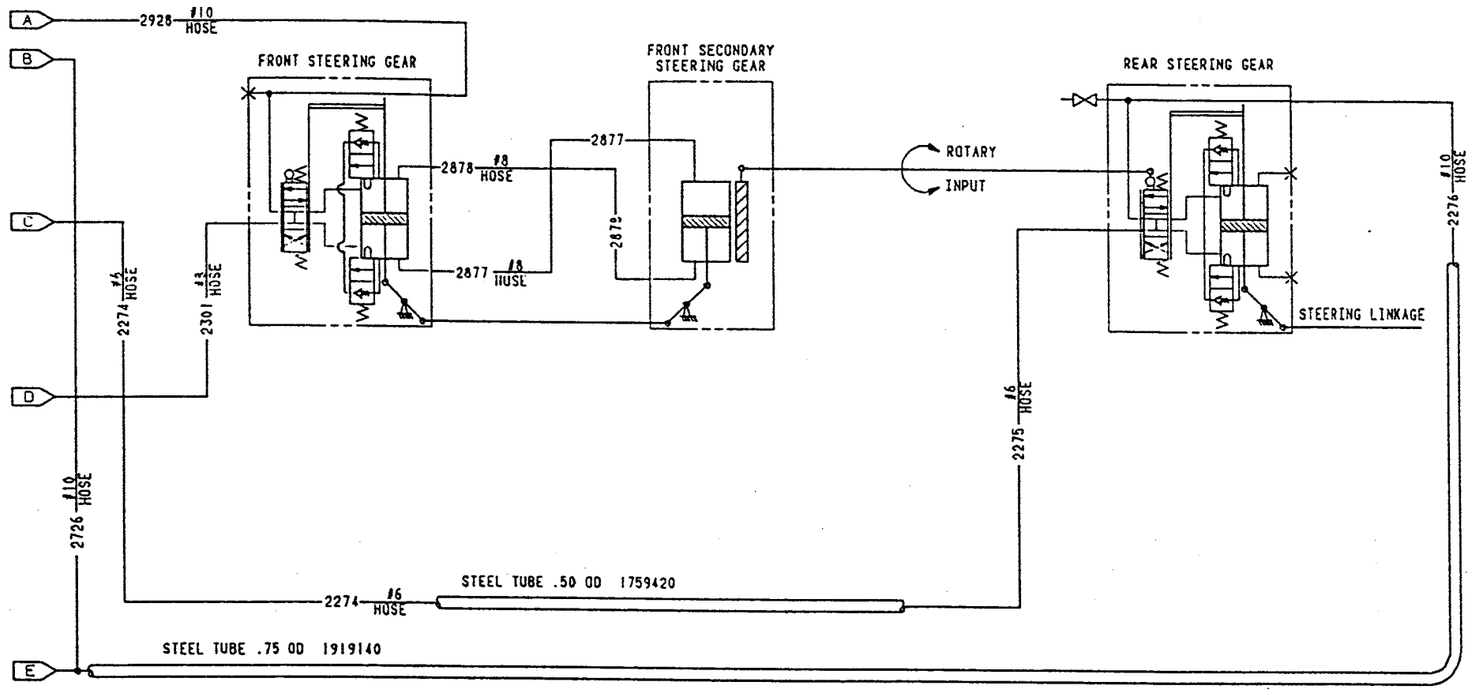

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 35 OF 35
ENGINEERING DWG 1878310 SHEET 2
FP-69/FP-70 BLANK

SCHEMATICS

Section II. 200 AMP ALTERNATOR AND DDEC III/IV ENGINE.

Section II contains the schematics for trucks equipped with the 200 amp alternator and the DDEC III/IV engine.

REVISION H
CN 2225
4/14/00

MULTIPLE CONNECTORS			
NUMBER	ZONE	SH	DESCRIPTION
MC1	H3	3	CAB/ELECTRICAL BOX
MC1	C26	4	CAB/ELECTRICAL BOX
MC2	D3	3	CAB/ELECTRICAL BOX
MC2	D26	4	CAB/ELECTRICAL BOX
MC3	C3	3	CHASSIS
MC3	H17	6	CHASSIS
MC4	G10	3	SWITCHES
MC5	B12	3	WIPER MOTOR
MC6	D15	3	THROTTLE SENSOR
MC7	H8	3	TURN SIGNAL
MC8	F19	3	GAUGES
MC9	G4	4	ECU ATEC
MC10	G4	4	ECU ATEC
MC11	D3	4	DDEC
MC11	D26	5	DDEC
MC12	H26	4	SHIFT CONT ATEC
MC13	F6	3	DIGN CONN DDEC
MC14	B4	4	DDEC SIGNAL GROUND
MC15	B4	6	MILITARY CONNECTOR
MC16	D4	6	TRAILER
MC17	G11	5	DDEC
MC18	E11	5	DDEC
MC19	E13	5	TRANSMISSION
MC20	E12	5	TRANSMISSION
MC21	E2	3	ENGINE SENSOR
MC21	H26	5	ENGINE SENSOR
MC23	B23	5	ETHER START
MC24	G19	5	ALTERNATOR
MC25	C17	6	TRAILER 24VDC
MC27	F18	6	FRONT TOW
MC28	E6	3	BEACON LIGHT
MC29	F8	6	CRANE
MC30	C5	6	TRAILER
MC31	B21	3	CAB/CHASSIS
MC32	B23	3	CTI CHASSIS
MC33	F17	7	LHS CAB
MC34	C19	3	24V METERS
MC35	D24	3	CTI
MC36	A5	4	THROTTLE SENSOR
MC38	C15	3	VERNIER CONTROL
MC39	H7	5	STE/ICE
MC40	G5	5	STE/ICE MODULE
MC41	G2	5	PULSE TACH DRIVE
MC42	H4	5	DIFFERENTIAL PRESS
MC43	F2	5	FUEL PRESSURE
MC44	C5	3	CAB/TRANSMISSION
MC44	F26	4	CAB/TRANSMISSION
MC45	D5	4	ECU ATEC

MULTIPLE CONNECTORS			
NUMBER	ZONE	SH	DESCRIPTION
MC50	C7	4	RELAYS/ATEC
MC51	C6	4	ECU ATEC
MC52	B23	4	HEATER/DIMMER
MC53	F23	3	ENGINE BRAKE
MC54	F8	6	WORK LIGHT
MC55	B13	6	SELF RECOVERY WINCH
MC56	C23	5	ETHER THERMOSTAT
MC57	F6	6	DRIVE LINE LOCK
MC58	E7	3	GAS PART FILTER
MC59	G13	6	FAN CONTROL
MC60	G24	5	REVERSE PLRT PROTR
MC61	G10	6	FAN CONTL WTR TEMP
MC62	F13	5	DDEC ENGINE POWER
MC63	G11	6	FAN CONTROL
MC64	D15	6	AUXILIARY CTI MANF
MC65	E5	5	STE/ICE ENGINE
MC66	G2	5	TURBO OUTLET PSI
MC67	E2	5	AIR CLEANER
MC68	D2	5	AIR BOX PSI
MC69	D2	5	FUEL RETURN
MC70	C2	5	ENGINE OIL TEMP
MC71	B2	5	ENGINE WATER TEMP
MC73	F13	6	FAN CONTROL
MC76	F11	6	FAN CONTROL VALVE
MC77	E3	6	BACK UP LIGHT
MC78	F4	6	REAR LIGHT GROUP
MC79	G7	6	WORK LIGHT
MC80	G4	6	REAR LIGHT GROUP
MC81	E13	7	LHS
MC82	E12	7	LHS
MC83	E14	7	LHS
MC84	E15	7	LHS
MC85	E9	7	LHS
MC86	E7	7	LHS
MC87	D5	7	LHS
MC88	E6	7	LHS
MC90	C3	6	REAR LIGHT GP HARN
MC91	G8	3	STRN COL.-CAB HARN
MC92	F8	3	STRG COL.-CAB HARN
MC93	C17	7	LHS
MC94	B17	7	LHS
MC95	B15	5	DDEC BATTERY POWER
MC96	C2	3	LOW HYD OIL
MC97	B10	6	AIR DRYER
MC98	B9	6	AIR DRYER
MC99	B8	6	AFTER COOLER
MC102	A3	4	DDEC 6.8K RESISTOR
MC103	E5	3	CHEM DETECTOR
MC104	E5	3	CHEM ALARM

MULTIPLE CONNECTORS			
NUMBER	ZONE	SH	DESCRIPTION
MC105	E24	3	CTI ACCESS OUTPUT
MC106	H4	3	DDEC DIAGNOSTIC
MC107	D6	6	FUEL WATER SEP
MC108	C20	5	FUEL PUMP
MC109	C15	6	CTI POWER MANIFOLD
MC110	C24	3	CTI AUX MANF CAB
MC111	B24	3	CTI POWER MANF CAB
MC112	B19	3	LHS LIGHTS
MC113	F16	6	EMERGENCY STEER SW
MC116	B12	4	EMER ENG SHUT DOWN
MC118	A9	5	STE/ICE
MC119	B22	4	ARCTIC PUMP
MC120	B7	6	ARCTIC PUMP
MC121	C12	6	SELF RECOVERY WINCH
MC122	D12	6	SELF RECOVERY WINCH
MC123	D12	6	SELF RECOVERY WINCH
MC124	E3	6	BACK-UP LIGHT/ALARM
MC125	G18	3	AIR RESTRICTION LT
MC126	E11	3	STOP LIGHTS
MC127	B15	3	THROTTLE POSN SW
MC128	G10	6	AUX WATER TEMP SW

LIGHTS			
NUMBER	ZONE	SH	DESCRIPTION
L1	G16	3	PARKING BRAKE IND
L2	G17	3	LOW AIR INDICATOR
L3	G17	3	CHECK GAUGES IND
L4	G17	3	RH TURN INDICATOR
L5	G24	3	TRANS CHECK IND
L6	G18	3	CHECK ENGINE IND
L7	G17	3	DRIVE LINE LOCK IND
L8	G24	3	HI WATER TEMP IND
L9	G24	3	LOW OIL PSI IND
L10	G25	3	HI BEAM INDICATOR
L11	G28	3	LH TURN INDICATOR
L12	F27	3	RH HEADLIGHT
L13	G27	3	RH SIDE TURN SIGNAL
L14	F27	3	RH COMPOSITE
L15	E27	3	BLACKOUT DRIVE
L16	D27	3	LH COMPOSITE
L17	C27	3	LH HEADLIGHT
L18	C27	3	LH SIDE TURN SIGNAL
L19	B27	3	ID & CLEARANCE
L20	H10	3	DOME
L21	G7	6	RH WORK LIGHT
L22	G2	6	RH REAR COMPOSITE
L23	G2	6	BACK UP
L24	F2	6	LH REAR COMPOSITE
L25	C2	6	ID/CLEARANCE REAR
L26	E22	3	LHS INDICATOR
L27	E22	3	AUXILLARY HYDR IND
L28	E23	3	TRANSIT INDICATOR
L29	E23	3	LHS OVERLOAD IND
L31	D2	6	RH REAR S MKR (RED)
L32	H4	6	RH SIDE MKR (AMBER)
L33	B2	6	LH SIDE MKR (AMBER)
L34	H4	6	LH REAR S MKR (RED)
L35	G16	3	EMERGENCY STEERING
L36	G16	3	LOW HYD OIL
L37	D21	3	ENGINE BRAKE
L38	D21	3	FLAT RACK
L39	F7	6	LH WORK LIGHT
L40	F7	3	T.C. LOCKUP
L41	C2	6	L.H. B.O. CL LIGHT
L42	D2	6	R.H. B.O. CL LIGHT
L43	B5	3	POST LIGHT
L44	F5	3	HEATER PANEL LIGHT

SWITCHES			
NUMBER	ZONE	SH	DESCRIPTION
S1	H6	3	TURN SIGNAL/DIMMER
S2	E13	3	IGNITION
S3	F5	3	HEATER
S4	D8	3	SELF RECOVERY CRANE
S5	H12	3	BEACON LIGHT
S6	H13	3	WORK LIGHT
S7	H14	3	WINDSHIELD WASHER
S8	G15	3	WINDSHIELD WIPER
S9	F16	3	BLACK OUT SVCE SEL
S10	F54	3	BLACK OUT MARKER
S11	F14	3	BLACK OUT DRIVE
S12	F14	3	HEADLIGHTS
S13	F5	6	DRIVE LINE LOCK
S14	F12	3	RHEOSTAT
S15	F7	3	HORN
S16	F13	3	ENGINE BRAKE
S17	F7	3	DIAGNOSTIC REQUEST
S18	D7	3	SELF RECOVERY WINCH
S19	D6	3	GAS PARTIULATE FLTR
S20	D5	3	CHEMICAL ALARM
S21	H15	3	DOME LIGHT
S22	C8	5	STE/ICE ZEROING
S23	C22	7	PROX SW HOOK ARM UP
S24	C23	7	PROX SW MDL FR DOWN
S25	D13	3	ETHER START
S26	F7	3	TC LOCKUP
S27	E5	7	HOOK ARM DOWN
S28	G8	7	OVERLOAD PSI
S29	B19	4	ARCTIC PUMP
S30	E9	3	EMER ENG SHUT DOWN
S31	C16	3	THROTTLE POSITION
S32	C17	5	BATTERY DISCONNECT

PRESSURE SWITCHES			
NUMBER	ZONE	SH	DESCRIPTION
PS1	G9	3	FRONT BRAKE
PS2	F9	3	REAR BRAKE
PS3	F9	3	HAND BRAKE
PS4	C14	3	PARKING BRAKE
PS5	B15	3	PARKING BRAKE SW
PS6	D17	3	LOW AIR PRESSURE
PS7	D17	3	LOW AIR PRESSURE
PS8	C22	5	ATEC OIL PRESSURE
PS9	D22	5	ENGINE OIL
PS10			GOVERNOR PRESSURE
PS11			GOVERNOR PRESSURE
PS13	F15	6	EMERGENCY STEER
PS12	D23	5	ALTER. OIL PRESSURE
PS15	F26	5	BOOST PRESSURE

TEMPERATURE SWITCHES			
NUMBER	ZONE	SH	DESCRIPTION
TS1	C23	5	ETHER START
TS2	D23	5	ENGINE WATER
TS3	F10	6	ENGINE WATER
TS4	G10	6	ENGINE WATER

RELAYS			
NUMBER	ZONE	SH	DESCRIPTION
R1	G24	4	HEADLIGHTS
R2	G23	4	ID/CLEARANCE LIGHTS
R3	G22	4	HORN
R4	G21	4	WORK LIGHTS
R5	G20	4	DIMMER
R6	G19	4	BEACON LIGHTS
R7	G18	4	TRANSMISSION
R8	G18	4	RATARDER
R9	G18	4	CK TRANSMISSION
R10	G17	4	REVERSE
R11	G16	4	NEUTRAL START
R12	G15	4	12 V MAG SWITCH
R13	G15	4	B.O. STOP
R14	G14	4	BO SERVICE TAIL LTS
R15	G13	4	LH TURN SIGNAL
R16	G12	4	RH TURN SIGNAL
R17	G12	4	BLACK OUT TAIL LTS
R18	G11	4	DDEC
R19	G10	4	TRANS DDEC
R20	G9	4	INTER AXLE
R21	G9	4	DIFFERENTIAL LOCK
R22	G8	4	CRANE HI IDLE
R23	G7	4	HIGH RANGE LOCKOUT
R24	G6	4	T.C. DUAL MODE
R25	B17	4	MAGNETIC SWITCH
R26	B18	4	MAGNETIC SWITCH
R27	D19	5	MAGNETIC SWITCH
R28	C21	4	MAGNETIC SWITCH
R29	C10	7	MIDDLE FR LOCKOUT
R32	B21	4	ARCTIC PUMP
R33	B20	4	ARCTIC PUMP
R40	G5	10	CRANE/SRW RELAY

SENDING UNIT			
NUMBER	ZONE	SH	DESCRIPTION
SU1	E21	5	WATER TEMPERATURE
SU2	D21	5	TRANSMISSION TEMP
SU3	D21	5	ENGINE OIL PRESSURE
SU4	F6	6	SPEEDOMTER
SU5	D6	6	FUEL LEVEL

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CIRCUIT BREAKERS

NUMBER	ZONE	SH	DESCRIPTION
CB1	D22	4	15 AMP
CB2	D22	4	15 AMP
CB3	D21	4	15 AMP
CB4	D21	4	15 AMP
CB5	D20	4	20 AMP
CB6	D20	4	15 AMP
CB7	D19	4	10 AMP
CB8	D19	4	15 AMP
CB9	D18	4	10 AMP
CB10	D17	4	3 AMP
CB11	D16	4	8 AMP
CB12	D16	4	8 AMP
CB13	D15	4	8 AMP
CB14	D14	4	15 AMP
CB15	D13	4	15 AMP
CB16	D12	4	15 AMP
CB17	D12	4	3 AMP
CB18	D11	4	10 AMP
CB19	D10	4	15 AMP
CB20	D9	4	15 AMP
CB21	D9	4	30 AMP
CB22	D7	4	20 AMP
CB23	D7	4	20 AMP
CB24	C20	5	3 AMP
CB25	A14	4	15 AMP
CB26	A13	4	15 AMP

GAUGES

NUMBER	ZONE	SH	DESCRIPTION
G1	G20	3	WATER TEMPERATURE
G2	G21	3	OIL PRESSURE
G3	G22	3	FUEL LEVEL
G4	G22	3	TACHOMETER
G5	G23	3	SPEEDOMTER
G6	G19	3	VOLTMETER 12V
G7	G19	3	VOLTMETER 24V
G10	G20	3	XMSN OIL TEMP
G11	G18	3	AIR PRESSURE
G12	H18	3	AIR RESTRICTION

MISCELLANEOUS

NUMBER	ZONE	SH	DESCRIPTION
M1	B6	3	WINDSHIELD WSHR SOL
M2	B13	3	WIPER MOTOR
M3	E17	3	LOW OIL & AIR ALARM
M4	A5	4	THROTTLE POSN CONT
M5	C20	4	FLASHER
M6	C16	5	BATTERIES
M7	E17	5	STARTER
M8	B22	5	ETHER START
M9	D6	6	FUEL/WATER SEP
M10	C10	6	LHS SOLENOID VALVE
M11	C8	6	AFTERCOOLER
M12	C20	5	FUEL PUMP
M13	B10	6	AIR DRYER
M14	E6	3	CHEMICAL DETECTOR
M14	B9	6	AIR DRYER
M15	D1	3	HORN
M16	D16	3	VERNIER CONTROL
M17	F5	3	HEATER MOTOR
M18	F24	3	LOW OIL PRESS ALARM
M20	G22	5	ALTERNATOR,STD
M21	C25	5	RH SIDE ENG BK COIL
M22	C24	5	LH SIDE ENG BK COIL
M23	D18	5	SLAVE CONNECTER
M24	B15	6	CTI POWER MANIFOLOD
M25	D15	6	CTI AUXILIARY MANF
M26	E13	7	LHS CAB CONTROLLER
M27	B13	6	SELF RECOVERY WINCH
M28	E25	3	CTI CONTROLLER
M29	G14	7	CHEMICAL ALARM
M30	D11	3	GAS PART FILTER
M31	D11	3	AIR HEATER DRIVER
M32	D12	3	AIR HEATER PASS
M33	D3	7	SRW SOLENOID VALVE
M35	E15	3	THROTTLE POSITIONER
M36	C9	4	DIODE
M39	F9	4	RECTIFIER
M40	G2	5	PULSE TACH DRIVE
M41	H5	5	DIFFERENTIAL PRESS
M42	F2	5	FUEL PRESSURE
M43	G5	5	STE/ICE MOODULE
M45	F10	6	FAN CONTROL VALVE
M48	D16	5	SHUNT
M49	B9	3	XFR CASE LKUP SOL
M50	B8	3	INTER AXLE SOL V
M51	B8	3	DIFF SOLENOID VALVE
M51	C11	6	FAN
M52	A21	4	RECTIFIER
M53	G11	7	LHS HOOK ARM B
M54	G10	7	LHS HOOK ARM A
M55	G10	7	LHS MAIN CYLINDER B
M56	G10	7	LHS MAIN CYLINDER A

MISCELLANEOUS

NUMBER	ZONE	SH	DESCRIPTION
M57	G9	7	LHS FREEFLOW
M58	G9	7	LHS TRANSIT
M59	F3	7	LHS LH HOOK ARM A
M60	F3	7	LHS LH HOOK ARM B
M61	F2	7	LHS RH HOOK ARM A
M62	F2	7	LHS RH HOOK ARM B
M64	C19	5	POLARITY PROTECTION
M66	G16	3	RECTIFIER
M67	C8	3	RECTIFIER
M68	G12	7	RECTIFIER
M70	F2	5	TURBO OUTLET PSI
M71	E2	5	AIR CLEANER
M72	D2	5	AIR BOX PSI
M73	C2	5	FUEL RETURN
M74	C2	5	ENGINE OIL TEMP
M75	B2	5	ENGINE WATER TEMP
M76	E10	4	RECTIFIER
M77	B17	5	ARCTIC BATTERIES
M78	E2	6	BACK-UP ALARM
M80	B7	6	ARCTIC PUMP
M81	F4	3	RECTIFIER
M83	F3	10	LHS FUSE - 5 AMP

CODE SORT

CODE	ROUTING	SH	DESCRIPTION
104	MC36-M4	4	THROTTLE SENSOR
104	MC10-MC36	4	THROTTLE SENSOR
105	MC10-MC19	4/5	ATEC
106A	MC10-MC36	4	THROTTLE SENSOR
106A	MC36-M4	4	THROTTLE SENSOR
106A	MC10-1068	4/5	ATEC
1068	106A-MC19	4/5	ATEC
107	MC10-MC19	4/5	ATEC
108	MC10-MC19	4/5	ATEC
109	MC10-MC19	4/5	ATEC
110	MC10-MC19	4/5	ATEC
111	MC10-MC19	4/5	ATEC
112	MC10-MC20	4/5	ATEC
113	MC10-MC20	4/5	ATEC
114	MC10-MC19	4/5	ATEC
115	MC11-MC18	5	ECM
115	MC11-MC102	4	6.8K RESISTOR
115	MC10-MC19	4/5	ATEC
116	MC10-MC19	4/5	ATEC
117	MC10-MC19	4/5	ATEC
118	MC10-MC19	4/5	ATEC
119	MC10-MC19	4/5	ATEC
120	MC10-MC19	4/5	ATEC
121	MC10-MC19	4/5	ATEC
122	MC10-MC19	4/5	ATEC
123	MC10-MC19	4/5	ATEC
124	MC36-M4	4	THROTTLE SENSOR
124	MC10-MC36	4	THROTTLE SENSOR
150	MC62-MC62	5/4	
150	MC17-MC62	5	
195	MC5-M2	3	
201	MC51-GROUND	4	
201	MC9-MC51	4	
202A	MC9-SPLICE	4	
203	MC9-MC51	4	
203	MC51-CB12	4	
204	MC9-MC12	4	ATEC
206	MC9-MC12	4	ATEC
207A	MC51-MC106	4	ATEC
207A	MC9-MC51	4	ATEC
207A	MC106-MC13	4	
208/209	MC11-SPLICE	4	
208/209	SPLICE-MC51	4	
208/209	M6-MC95	5	
208/209	MC95-MC11	5	
208/209	MC51-MC9	4	
210A	MC9-MC12	4	
211	R8-MC50	4	
211	MC50-R8	4	RETARDER
211	MC9-MC50	4	

CODE SORT

CODE	ROUTING	SH	DESCRIPTION
212	MC9-MC12	4	
213	MC50-R8	4	RETARDER
213	MC9-MC50	4	
214	MC50-R10	4	REVERSE
214	MC9-MC50	4	
215	MC9-MC50	4	
215	MC50-R9	4	CHECK TRANSMISSION
216A	MC106-MC13	3	
216A	MC9-MC51	4	ATEC
216A	MC51-MC106	4	ATEC
218	MC9-MC12	4	ATEC
219	MC9-MC12	4	ATEC
220	MC9-MC12	4	ATEC
221	MC9-MC12	4	ATEC
222	MC9-GROUND	4	ATEC
223A	MC51-CB14	4	TRANSMISSION
223A	MC51-SPLICE	4	
223A	SPLC-SPLC	4	
223A	SPLC-SPLC	4	
223A	SPLC-SPLC	4	
223A	SPLICE-MC9	4	
223B	MC12-SPLICE	4	
225	CB11-MC12	4	
230	MC12-234	4	
231	MC50-MC12	4	
231	MC50-R22	4	CRANE HI IDLE
231	MC50-M36	4	
231	M36-R11	4	NEUTRAL START
233	MC50-MC12	4	
234	MC12-GROUND	4	
240	MC62-CB23	5/4	
240	CB23-M6	4/5	
240	MC17-MC62	5	
240	MC62-M6	5	
241	MC62-CB22	5/4	
241	MC62-M6	5	
241	MC17-MC62	5	
241	CB22-M6	4/5	
309	MC45-R24	4	TC DUAL MODE
313	MC45-R24	4	TC DUAL MODE
315	MC45-R24	4	TC DUAL MODE
417	MC6-M35	3	
417	MC11-MC44	4	
417	MC11-MC18	5	ECM
417	MC44-MC6	3	THROTTLE SENSOR
419	MC11-MC18	5	ECM
419	MC11-MC44	4	
419	MC44-MC8	3	
419	MC8-L6	3	CHECK ENGINE LIGHT

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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
439	MC116-MC106	4	EMERGENCY ENG STOP
439	MC116-S30	3	EMERGENCY ENG STOP
439	MC116-S30	3	EMERGENCY ENG STOP
439	MC116-CB13	4	DDEC
439	MC106-MC13	3	
439	SPLC-MC106	4	
439	MC11-MC18	5	ECM
439	MC8-L6	3	CHECK ENGINE LIGHT
439	MC8-L3	3	ENGINE STOP LIGHT
439	MC44-MC8	3	
439	MC11-SPLICE	4	
439	SPLICE-MC44	4	
439	SPLC-MC116	4	
505	MC44-MC8	3	TACHOMETER
505	MC11-MC44	4	
505	MC8-G4	3	
505	MC11-MC18	5	
509	MC11-MC18	5	ECM
509	MC8-L3	3	ENGINE STOP LIGHT
509	MC44-MC8	3	
509	MC11-MC44	4	
510	MC11-MC18	5	ECM
510	MC44-PS4	3	PARKING BRAKE
510	R22-MC44	4	
510	MC11-R22	4	
528	MC11-MC18	5	DIAG. REQ.
528	MC106-S17	3	
528	MC11-MC106	4	
900	MC11-MC106	4	
900	MC11-MC18	5	ECM
900	MC106-MC13	3	
901	MC11-MC18	5	ECM
901	MC106-MC13	3	
901	MC11-MC106	4	
908	MC11-MC18	5	ECM
908	MC11-M4	4	THROTTLE POSN CONT
916	MC44-MC6	3	
916	MC11-MC44	4	
916	MC38-M16	3	
916	MC6-MC38	3	VERNIER CONTROL
916	MC6-M35	3	THROTTLE SENSOR
916	MC11-MC18	5	ECM
952	MC38-M16	3	
952	MC11-MC44	4	
952	MC44-MC6	3	THROTTLE SENSOR
952	MC11-MC18	5	ECM
952	MC6-MC38	3	VERNIER CONTROL
953	M6-MC14	5	DDEC SIGNAL GROUND
953	MC14-SPLICE	4	
953	SPLICE-MC102	4	
953	SPLICE-R22	4	
953	SPLICE-MC106	4	
953	MC106-S17	3	
953	S17-MC13	3	
988	MC11-R7	4	TRANSMISSION
988	MC11-MC18	5	ECM
1001	MC8-L4	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1001	MC7-SPLICE	3	
1001	MC8-SPLICE	3	
1001	SPLICE-L13	3	
1001	SPLICE-L14	3	
1001	S1-MC7	3	RH HEADLIGHT
1002	S1-MC7	3	LH HEADLIGHT
1002	MC8-L11	3	
1002	MC7-SPLICE	3	
1002	SPLICE-MC8	3	
1002	SPLICE-L18	3	
1002	SPLICE-L16	3	
1003	MC7-MC3	3	
1003	S1-MC7	3	LH RR TURN SIGNAL
1003	MC3-MC80	6	
1003	MC3-MC16	6	TRAILER CONN 12VDC
1003	MC1-R15	4	LH TURN LIGHT
1003	MC80-L24	6	LH STOP LIGHT
1003	MC27-MC3	6	FRONT TOW
1003	MC7-MC1	3	
1003C	MC25-R17	4	LH TURN LIGHT
1003C	MC25-MC15	6	TRAILER CONN 12VDC
1004	MC7-MC1	3	
1004	MC7-MC3	3	
1004	S1-MC7	3	
1004	MC3-MC80	6	
1004	MC80-L22	6	RH STOP LIGHT
1004	MC27-MC3	6	
1004	MC3-MC78	6	
1004	MC3-MC16	6	
1004	MC1-R16	4	
1004C	MC25-R16	4	RH TURN LIGHT
1004C	MC25-MC15	6	TRAILER CONN 24VDC
1005	MC126-S9	3	
1005	PS3-MC3	3	
1005	MC3-MC16	6	TRAILER CONN 24VDC
1005	MC126-PS1	3	
1005	PS2-PS3	3	
1005	MC27-MC3	6	FRONT TOW
1005	PS1-PS2	3	
1005A	MC7-MC126	3	
1005A	MC126-S9	3	
1005A	S1-MC7	3	TURN SIGNAL/DIM SW
1006	MC2-SPLICE	3	
1006	SPLICE-L12	3	
1006	SPLICE-L17	3	
1006	MC2-R5	4	DIMMER
1007	MC2-R5	4	DIMMER
1007	MC2-SPLICE	3	
1007	SPLICE-L12	3	
1007	SPLICE-L17	3	
1008	MC3-MC78	6	
1008	MC4-S12	3	HEADLIGHTS

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1008	MC27-MC3	6	FRONT TOW
1008	MC3-SPLICE	3	
1008	MC3-MC4	3	
1008	MC3-MC16	6	TRAILER CONN 12VDC
1008	MC78-L22	6	RH TAIL LIGHT
1008	MC78-L24	6	LH TAIL LIGHT
1008C	MC25-MC15	6	TRAILER CONN 24VDC
1008C	MC25-R14	4	B.O. SERVICE
1009	PS2-PS3	3	
1009	PS1-PS2	3	
1009	MC2-PS1	3	
1009	MC2-CB6	4	STOP LIGHT
1012	MC3-SPLICE	3	
1012	SPLC-SPLC	3	
1012	MC2-SPLICE	3	
1012	SPLC-SPLC	3	
1012	SPLICE-L19	3	
1012	MC2-R2	4	CLEARANCE LIGHTS
1012	MC3-SPLICE	6	
1012	SPLICE-MC27	6	
1012	SPLICE-MC80	6	
1012	SPLICE-L32	6	RH SIDE MARKER
1012	SPLICE-L34	6	LH SIDE MARKER
1012	MC90-L31	6	RR SIDE MARKER
1012	MC90-L25	6	ID LIGHTS
1012	MC80-MC90	6	
1012	MC90-L33	6	RR SIDE MARKER
1016	MC92-MC2	3	
1016	S15-MC92	3	
1016	MC2-R3	4	HORN
1017	SPLICE-R5	4	
1017	MC52-R14	4	
1017	R2-MC52	4	
1017	MC2-SPLICE	4	
1017	SPLICE-R1	4	
1017	MC91-MC2	3	
1017	S1-MC91	3	
1017A	MC91-MC2	3	
1017A	S1-MC91	3	
1017A	MC2-R5	4	
1018	MC8-L10	3	HIGH BEAM
1018	MC8-1007	3	
1019	L15-1679	3	
1020	L14-L16	3	
1020	S2-MC21	3	
1020	MC60-CB24	5	
1020	MC21-MC60	5	
1020	M12-MC60	5	
1020A	CB24-PS12	5	
10208	PS12-ENG	5	ALTERNATOR
1021	MC2-S2	3	
1021	MC2-R11	4	
1021	R11-M76	4	
1021A	R11-MC1	4	
1021A	MC1-MC21	3	
1021B	MC21-MC60	5	
1021B	MC60-R27	5	

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
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ENGINEERING DWG 3053493 SHEET 1
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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1021	MC52-R11	4	FRONT TOW
1021A	R11-MC1	4	
1021A	MC1-MC21	3	
1021A	MC21-MC60	5	
1021A	MC60-R27	5	
1026	MC52-CB16	4	
1029	MC2-R6	4	BEACON
1029	MC2-MC28	3	
1031	R3-SPLICE	4	
1032	MC8-MC21	3	
1032	M39-L9	3	LOW OIL PSI
1032	MC8-M39	3	
1032	PS9-MC21	5	ENGINE OIL PSI SW
1033	M39-M18	3	OIL PSI/H WTR ALM
1036	MC23-M8	5	
1036	MC23-M7	5	
1036	MC21-MC56	5	ETHER START
1036	MC21-S25	3	
1040	CB4-R4	4	WORKLIGHT
1040A	S6-MC4	3	
1040A	MC2-R4	4	WORKLIGHT
1040A	MC4-MC2	3	
1040B	MC3-MC79	6	RH WORKLIGHT
1040B	MC2-MC3	3	
1040B	MC2-R4	4	WORKLIGHT
1040B	MC3-MC54	6	LH WORKLIGHT
1045	R27-M7	5	
1049	MC2-R1	4	HEADLIGHTS
1049	MC4-MC2	3	
1049	S12-MC4	3	
1052	S20-S19	3	CHEM ALM-GPF
1052	S19-S18	3	GAS PART FLTR-SRW
1052	S18-S4	3	SRW-SRW/MHC
1052	S4-S30	3	SRW/MHC-EMER ENG S D
1052	S30-SPLICE	3	EMER ENG SHUT DOWN
1052	SPLICE-G11	3	AIR PRESSURE GAUGE
1052	MC4-SPLICE	3	
1052	SPLICE-L44	3	HEATER PANEL LIGHT
1052	S5-S6	3	BEACON LT-WORK LT
1052	S6-S7	3	WORK LT-WSHLD WSHR
1052	S7-S8	3	WSHLD WASHER-WIPERS
1052	S8-S21	3	WIPERS-DOME LIGHT
1052	S21-S9	3	DOME LT-B.O.SERV SEL
1052	S9-S10	3	BO SERV SEL-BO MKR
1052	S10-S11	3	B.O. MARKER-B.O. DR
1052	S11-S12	3	B.O. DRIVE-HEADLTS
1052	S12-S16	3	HEADLIGHTS-ENG BK
1052	S16-S14	3	ENG BRAKE-RHEO/DOME
1052	S14-SPLICE	3	RHEOSTAT/DOME
1052	SPLICE-G6	3	VOLTMETER 12V
1052	SPLC-SPLC	3	
1052	SPLICE-G10	3	XMSN OIL TEMP GAUGE
1052	SPLICE-G1	3	WATER TEMP GAUGE
1052	SPLICE-G2	3	OIL PRESSURE GAUGE
1052	SPLICE-G4	3	TACHOMETER
1052	SPLICE-G5	3	SPEEDOMETER
1052	SPLICE-G3	3	FUEL GAUGE

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1052	MC1-SPLICE	3	
1052	SPLICE-L43	3	POST LIGHT
1052	SPLC-MC125	3	
1052	MC125-G12	3	AIR RESTRICTION GA
1052	MC1-SPLICE	3	
1052	MC1-CB1	4	15 AMP HEADLIGHT
1052	MC50-MC1	4	
1055	M7-R27	5	
1056	MC111-MC32	3	
1056	MC32-MC109	6	CTI POWER MANIFOLD
1057	MC111-MC32	3	
1057	MC32-MC109	6	CTI POWER MANIFOLD
1058	MC32-MC109	6	CTI POWER MANIFOLD
1058	MC111-MC32	3	
1059	MC32-MC109	6	CTI POWER MANIFOLD
1059	MC111-MC32	3	
1061	MC22-MC109	6	CTI POWER MANIFOLD
1061	MC111-MC32	3	
1062	MC32-MC109	6	CTI POWER MANIFOLD
1062	MC111-MC32	3	
1063	MC32-MC109	6	CTI POWER MANIFOLD
1064	MC32-MC109	6	CTI POWER MANIFOLD
1064	MC111-MC32	3	
1065	MC32-MC109	6	CTI POWER MANIFOLD
1065	MC111-MC32	3	
1066	MC32-MC64	6	CTI AUX MANIFOLD
1066	MC110-MC32	3	
1067	MC32-MC64	6	CTI AUX MANIFOLD
1068	MC32-MC64	6	CTI AUX MANIFOLD
1068	MC110-MC32	3	
1070	MC32-MC64	6	CTI AUX MANIFOLD
1070	MC110-MC32	3	
1071	MC110-MC32	3	
1071	MC32-MC64	6	CTI AUX MANIFOLD
1072	R26-R25	3	
1072	MC110-MC32	3	
1072	MC32-MC64	6	CTI AUX MANIFOLD
1073	MC32-MC64	6	CTI AUX MANIFOLD
1073	MC110-MC32	3	
1074	MC110-MC32	3	
1074	R25-CB10	4	
1074	MC32-MC64	6	CTI AUX MANIFOLD
1075	M6-R25	4/3	
1075B	R25-R18	4	
1076	MC110-MC32	3	
1076	MC32-MC64	6	CTI AUX MANIFOLD
1079	CB5-M6	4	HAZARD LIGHTS
1080	MC7-MC2	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1080	MC2-M5	4	TURN SIGNAL/FLASHER
1082	MC2-MC52	4	
1082	MC2-M81	3	
1082	M81-S3	3	
1082	MC52-CB15	4	HEATER
1084	MC1-CB5	4	B.O. LIGHTS
1084	MC4-MC1	3	
1084	MC4-S9	3	
1091	L17-GROUND	3	
1092	L7-MC8	3	
1092	MC8-M51	3	
1093	MC31-MC57	6	
1093	MC1-MC31	3	
1093	MC1-CB16	4	
1093	MC57-S13	6	DRIVE LINE LOCK-UP
1094	S5-S14	3	
1095	R23-R24	4	
1095	MC44-R23	4	
1095	MC31-MC44	3	
1095	MC57-S13	6	DRIVE LINE LOCK-UP
1095	MC31-MC57	6	
1113	MC8-MC21	3	
1113	G2-MC8	3	OIL PSI GAUGE
1113	SU3-MC21	5	ENG OIL PSI SNDG UN
1114	M66-MC8	3	
1114	MC98-MC8	3	LOW OIL LEVEL LIGHT
1114	MC8-L36	3	
1114	L36-M66	3	
1118	MC4-1919	3	
1118	S8-MC4	3	
1120	M66-MC8	3	
1120	M66-M3	3	
1120	PS6-PS7	3	
1120	PS6-MC8	3	
1120	L2-M66	3	
1137	M6(1)-M6(2)	5	
1137	M6(3)-M6(4)	5	
1138	M48-M7	5	SHUNT
1138	M7-M23	5	SLAVE
1138	M6-M48	5	SHUNT
1138	M77-M7	5	ARCTIC BATTERIES
1139	M7-M23	5	SLAVE
1139	M6-M7	5	
1139	M77-M7	5	ARCTIC BATTERIES
1147	TS2-MC21	5	ENG WTR TEMP SNDG UN
1147	M39-L8	3	HIGH WATER TEMP
1147	MC8-MC21	3	
1147	MC8-M39	3	
1149	MC1-R10	4	REVERSE
1149	MC3-MC78	6	
1149	MC1-MC124	3	
1149	MC78-MC77	6	REVERSE LIGHT
1149	MC124-MC77	6	

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CODE SORT

CODE	ROUTING	SH	DESCRIPTION
1153	S21-MC4	3	
1153	MC4-L20	3	DOME LIGHT
1168	MC2-R3	4	HORN
1168	MC2-M15	3	
1174	BUS BAR	4	
1175	R28-CB5	4	
1176	MC113-PS13	6	EMERGENCY STEER
1184	S5-MC4	3	
1184	MC2-R6	4	
1184	MC2-MC4	3	
1189	MC4-S9	3	
1189	MC44-R28	4	
1189	MC4-SPLICE	3	
1189	MC4-S21	3	
1189	MC2-SPLICE	3	
1189	MC2-M5	4	
1189	SPLICE-MC44	3	
1274	M20-M6	5	
1274	M8-SPLICE	5	
1275	M6-M20	5	
1276	MC2-MC4	3	
1276	MC2-CB8	3	
1276	SPLICE-S14	3	
1276	SPLICE-MC53	3	
1276	MC4-SPLICE	3	
1276	MC2-SPLICE	4	
1276	MC53-SPLICE	3	
1276	SPLC-SPLC	3	
1276	SPLC-SPLC	3	
1276	SPLICE-M3	3	LOW AIR ALARM
1276	SPLICE-G5	3	SPEEDOMETER
1276	SPLICE-L1	3	PARKING BRAKE
1276	SPLICE-L2	3	LOW AIR
1276	SPLICE-L35	3	EMERGENCY STEERING
1276	SPLICE-L36	3	LOW HYDR OIL
1276	SPLC-SPLC	3	
1276	SPLICE-L5	3	XMSN CHECK
1276	SPLICE-L8	3	HIGH WATER TEMP
1276	SPLICE-L9	3	LOW OIL PSI
1276	SPLICE-G3	3	FUEL GAUGE
1276	SPLICE-G6	3	VOLTMETER 12V
1276	SPLICE-G1	3	WATER TEMP GAUGE
1276	SPLICE-G2	3	OIL PRESSURE GAUGE
1276	SPLICE-G4	3	TACHOMETER
1276	SPLICE-G10	3	XMSN OIL TEMP GAUGE
1276	SPLICE-M18	3	ALARM
1279	PS14-1277	5	
1279	MC115-PS14	5	
1279	M64-1280	5	
1280	CB21-R26	4	

CODE SORT

CODE	ROUTING	SH	DESCRIPTION
1280	1281-R26	5	
1281	1280-MC47	5	
1281	R27-M81	5	
1281A	M6-S32	5	BATTERIES
1281A	S32-SPLICE	5	
1281A	SPLICE-M64	5	
1281A	SPLICE-M20	5	
1292	MC4-S6	3	
1292	CB4-MC2	4	
1292	MC2-MC4	3	
1292	MC4-S12	3	
1314	1118-S7	3	
1318	MC3-MC8	3	
1318	MC3-G3	3	FUEL GAUGE
1318	MC3-SU5	6	FUEL LEVEL
1320	SU1-MC2	5	WATER TEMP SNDG UN
1320	G1-MC8	3	WATER TEMP
1320	MC8-MC21	3	
1340	CB15-MC14	4	SWING FIRE
1344	M20-MC22	5	
1362	R27-M64	5	
1371	MC8-PS5	3	
1371	L1-MC8	3	
1409	MC8-MC1	3	
1409	L5-MC8	3	
1409	MC1-R9	4	
1413	CB3-SPLICE	4	
1413	SPLICE-R6	4	
1430	R28-SH5	4/5	
1430	1832-R28	5	
1431	MC3-S2	3	
1431	MC3-M64	5/6	POLARITY PROTECTION
1431	MC3-M64	5/6	POLARITY PROTECTION
1431	MC1-MC119	4	
1431	MC119-R32	4	
1431	R32-S29	4	ARCTIC PUMP
1431	MC119-CB20	4	
1435	MC78-MC124	6	
1435	MC124-M78	6	
1435	MC77-MC124	6	
1435	MC85-MC86	7	
1435	MC86-MC87	7	
1435	MC33-MC84	7	
1435	GROUND	3	
1435	MC81-MC82	7	
1435	MC84-MC83	7	
1435	MC81-MC82	7	
1435	MC108-GND	5	
1435	GND	5	
1435	MC22-GND	5	
1435	M52-R26	4	
1435	M52-R28	4	
1435	R27-GND	5	
1435	MC125-GND	3	
1435	MC23-M7	5	
1435	MC23-M8	5	EITHER START

CODE SORT

CODE	ROUTING	SH	DESCRIPTION
1449	MC8-MC21	3	
1449	G10-MC8	3	TRANS OIL TEMP
1449	SU2-MC21	5	TRANS TEMP SNDG UN
1454	MC81-MC82	7	
1460	MC81-MC82	7	
1461	MC86-MC87	7	
1461	MC85-MC86	7	
1462	MC81-MC82	7	
1463	MC81-MC82	7	
1464	MC81-MC82	7	
1465	MC81-MC82	7	
1466	MC85-MC86	7	
1466	MC86-MC87	7	
1467	MC81-MC82	7	
1468	MC81-MC82	7	
1469	MC81-MC82	7	
1469	MC86-MC87	7	
1469	MC85-MC86	7	
1470	MC86-MC87	7	
1470	MC85-MC86	7	
1471	MC85-MC86	7	
1471	MC86-MC87	7	
1471	MC81-MC82	7	
1472	MC85-MC86	7	
1472	MC81-MC82	7	
1472	MC86-MC88	7	
1475	MC85-MC86	7	
1475	MC86-MC87	7	
1480	MC84-MC93	7	
1480	MC84-MC83	7	
1481	MC84-MC83	7	
1481	MC84-MC93	7	
1482	MC84-MC93	7	
1482	MC84-MC83	7	
1483	MC83-MC84	7	
1483	MC84-MC93	7	
1484	MC83-MC84	7	
1484	MC84-MC93	7	
1485	MC84-MC94	7	
1485	MC83-MC84	7	
1486	MC84-MC94	7	
1486	MC83-MC84	7	
1487	MC1-S25	3	
1487	MC1-CB15	4	
1487	MC83-MC84	7	
1487	MC84-MC94	7	
1488	MC84-MC94	7	
1488	MC83-MC84	7	
1489	MC83-MC84	7	
1489	MC84-MC94	7	
1490	MC84-MC94	7	
1490	MC83-MC84	7	
1491	L16-1008	3	
1491	L14-1008	3	
1517	PS8-MC11	5	ATEC OIL PSI SWITCH
1517	MC11-R9	4	

CODE SORT

CODE	ROUTING	SH	DESCRIPTION
1519	MC8-MC35	3	CTI OVERSPEED
1519	MC3-MC8	3	SPEEDOMETER
1519	MC8-MC35	3	CTI OVERSPEED
1519	G5-MC8	3	SPEEDOMETER
1519	MC3-SU4	6	SPEEDOMETER
1519	G5-MC8	3	SPEEDOMETER
1519	MC3-MC8	3	SPEEDOMETER
1519	MC3-SU4	6	SPEEDOMETER
1525	M16-PS4	3	
1534	MC107-M9	6	FUEL/WATER SEP
1534	MC2-SPLICE	4	
1534	SPLICE-CB8	4	
1534	MC3-MC107	6	
1534	MC2-MC3	3	
1534	MC3-S22	3	T-CASE LOCK-UP
1534	CB15-M76	4	
1538	MC97-M13	6	AIR DRYER
1538	MC25-MC97	6	
1538	MC25-CB15	4	
1538	MC25-MC98	6	
1538	MC99-M11	6	AFTER COOLER
1538	MC98-M14	6	AIR DRYER
1538	MC25-MC99	6	
1538	MC25-MC73	6	FAN CONTROL
1538	M76-MC25	4	
1640	MC119-SPLC	4	
1640	SPLICE-R26	4	
1640	SPLICE-MC44	4	
1640	MC44-S2	3	
1640	MC119-R32	4	
1644	MC119-R33	4	
1644	R33-R33	4	
1644	MC119-S29	4	ARCTIC PUMP
1644	R33-S29	4	ARCTIC PUMP
1644	MC119-MC25	4	
1644	MC25-MC120	6	
1644	MC120-M80	6	ARCTIC PUMP
1645	S29-R33	4	ARCTIC PUMP
1665C	MC25-MC15	6	TRAILER CONN 24VDC
1665C	MC25-CB20	4	
1674	S11-S10	3	
1674	S11-S9	3	
1676	R17-R16	4	
1676	R16-R15	4	
1676	R14-R3	4	
1676	R15-R14	4	
1676	CB20-R17	4	
1678	MC3-MC78	6	
1678	MC1-SPLICE	3	
1678	MC78-L24	6	LH B.O. STOP LIGHT

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
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CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1678	MC78-L22	6	RH B.O. STOP LIGHT
1678	SPLICE-MC3	3	
1678	MC1-R13	4	
1678	SPLICE-MC4	3	
1678	MC4-S9	3	
1678C	MC25-R13	4	B.O. STOP LIGHT
1678C	MC25-MC15	6	TRAILER CONN 24VDC
1679	L15-MC4	3	
1679	MC4-S11	3	
1680	MC3-SPLICE	3	
1680	SPLICE-MC1	3	
1680	SPLC-SPLC	3	
1680	SPLICE-MC4	3	
1680	SPLC-SPLC	3	
1680	SPLC-SPLC	3	
1680	SPLICE-L19	3	
1680	SPLICE-L19	3	
1680	MC3-MC78	6	
1680	MC4-S10	3	
1680	MC78-L24	6	LH B.O. TAIL LIGHT
1680	MC1-R17	4	B.O. LIGHTS
1680	MC78-L22	6	RH B.O. TAIL LIGHT
1680C	MC25-MC15	6	TRAILER CONN 24VDC
1680C	MC25-MC15	6	TRAILER CONN 24VDC
1680C	MC25-R17	4	B.O. TAIL LIGHTS
1680C	MC25-MC15	6	TRAILER CONN 24VDC
1702	MC44-MC34	3	
1702	MC34-G7	3	
1702	MC44-R26	4	
1708	M32-1709	3	PASSENGER AIR HTR
1709	MC58-S19	3	GAS PART FILTER SW
1709	MC58-M30	3	
1710	M31-1709	3	DRIVER AIR HEATER
1711	CB11-R7	4	
1712	MC1-CB7	4	ENGINE BRAKE
1712	MC4-MC1	3	
1713	MC53-L37	3	
1713	MC4-MC1	3	
1713	S16-MC4	3	ENGINE BRAKE
1713	MC1-R7	4	TRANSMISSION
1713	S16-MC53	3	
1714	MC1-1716	4	
1714	MC4-MC1	3	ENGINE BRAKE
1714	S16-MC4	3	ENGINE BRAKE
1715	MC4-MC1	3	ENGINE BRAKE
1715	S16-MC4	3	ENGINE BK RH COILS
1715	MC11-MC1	4	
1715	MC11-M21	5	LH ENGINE BRAKE
1716	MC11-R5	4	RETARDER
1716	MC11-M22	5	RH ENGINE BRAKE
1717	MC44-S20	3	CHEMICAL ALARM SW
1717	MC44-CB19	4	
1718	M76-M77	6	BACK-UP ALARM
1722	MC34-1734	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1722	L26-MC34	3	
1722	MC33-MC84	7	
1722	MC84-MC83	7	
1723	MC44-S18	3	SELF RECOVERY WN SW
1723	MC44-CB18	4	
1724	MC112-SPLC	3	
1724	SPLICE-MC33	3	
1724	MC33-MC93	7	
1724	L27-MC112	3	
1724	M67-SPLICE	3	
1724	SPLC-MC112	3	
1724	M67-MC33	3	
1725	L28-MC112	3	
1725	MC84-MC83	7	
1725	MC33-MC84	7	
1725	MC112-MC33	3	
1726	MC33-MC84	7	
1726	MC84-MC83	7	
1726	MC112-MC33	3	
1726	L29-MC112	3	
1729	MC31-S18	3	SELF RECOVERY WINCH
1729	MC31-MC55	6	
1729	MC55-MC121	6	SELF RECOVERY WINCH
1730	MC31-S18	3	SELF RECOVERY WINCH
1730	MC55-MC122	6	SELF RECOVERY WINCH
1730	MC31-MC55	6	
1731	MC3-S4	3	SELF RECOVERY WINCH
1731	MC3-S4	3	SELF RECOVERY WINCH
1731	MC3-MC29	6	CRANE
1732	MC55-MC123	6	SELF RECOVERY WINCH
1732	S4-MC31	3	SELF RECOVERY WINCH
1732	MC31-MC55	6	
1733	MC31-M67	3	
1733	MC31-M51	6	
1734	M67-SPLICE	3	
1734	SPLC-SPLC	3	
1734	SPLICE-MC31	3	
1734	MC31-M10	6	
1736	MC39-MC39	5	
1737	MC31-MC1	3	
1737	MC1-R22	4	CRANE HI IDLE
1737	MC31-MC29	6	CRANE
1738	MC44-1755	4	
1738	MC44-MC31	3	
1738	MC31-MC29	6	CRANE
1739	MC44-CB21	4	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1739	MC44-S19	3	GAS PARTICULATE SW
1744	S4-M67	3	
1745	MC103-S20	3	CHEMICAL ALARM
1746	MC103-M29	3	CHEMICAL ALARM
1747	MC103-M29	3	CHEMICAL ALARM
1755	MC84-MC83	7	
1755	MC44-CB18	4	
1755	MC33-MC84	7	
1755	MC33-MC44	3	
1765	MC3-MC113	6	
1765	L35-MC8	3	
1765	MC3-MC8	3	
1809	MC41-MC65	5	PULSE TACH DRIVE
1809	MC65-MC39	5	STE/ICE
1809	MC41-M40	5	PULSE TACH DRIVE
1810	MC65-MC39	5	STE/ICE
1810	MC41-M40	5	PULSE TACH DRIVE
1810	MC41-MC65	5	PULSE TACH DRIVE
1811	MC42-M41	5	DIFFERENTIAL PSI
1811	MC42-MC39	5	STE/ICE
1812	MC42-M41	5	DIFFERENTIAL PSI
1812	MC42-MC39	5	STE/ICE
1813	MC39-M6	5	
1814	MC39-M6	5	BATTERIES
1815	MC39-MC24	5	
1815	MC24-MC114	5	
1815	MC24-M20	5	
1816	MC39-MC65	5	STE/ICE
1816	MC39-M7	5	STARTER

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1818	MC39-M7	5	STARTER
1818	MC39-MC65	5	STE/ICE
1819	MC39-M7	5	
1820	MC24-M20	5	
1820	MC24-M20	5	
1820	MC39-MC24	5	
1821	MC39-M6	5	
1822	MC39-M6	5	BATTERIES
1824	SPLICE-MC67	5	
1824	MC66-M70	5	
1824	MC68-M72	5	
1824	SPLICE-MC70	5	
1824	SPLICE-MC71	5	
1824	MC65-MC39	5	STE/ICE
1824	SPLICE-MC68	5	
1824	MC67-M71	5	
1824	MC43-M42	5	FUEL PSI
1824	MC69-M73	5	
1824	MC70-M74	5	
1824	MC71-M75	5	
1824	SPLICE-MC69	5	
1824	MC66-SPLICE	5	
1824	SPLICE-MC65	5	
1824	SPLICE-MC43	5	
1825	MC68-MC69	5	
1825	MC70-MC71	5	
1825	MC65-MC43	5	
1825	MC43-MC67	5	
1825	MC67-MC68	5	
1825	MC70-M74	5	
1825	MC69-MC70	5	
1825	MC41-MC65	5	
1825	MC68-M72	5	
1825	MC66-M70	5	TURBO OUTLET PSI
1825	MC65-MC39	5	STE/ICE
1825	MC69-M73	5	
1825	MC67-M71	5	
1825	MC39-MC40	5	STE/ICE MODULE
1825	MC43-M42	5	FUEL PSI
1825	MC71-M75	5	
1825A	MC39-MC40	5	STE/ICE MODULE
1826	MC40-MC39	5	
1827	MC40-MC39	5	
1828	MC39-M48	5	SHUNT
1829	MC39-M48	5	SHUNT
1835	R2-CB2	4	
1839	R7-R8	4	
1860	MC39-MC24	5	
1860	MC24-MC114	5	
1861	MC24-MC114	5	

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 6 OF 26
ENGINEERING DWG 3053493 SHEET 2
FP-11/FP-12 BLANK

REVISION 0

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1861	MC39-MC24	5	
1866	CB12-M6	4	
1866	M6-CB12	4/3	
1867	R19-CB12	4	
1871	MC11-CB11	4	DDEC TRANS
1871	PS8-MC11	5	ATEC OIL PSI SWITCH
1871	MC11-R8	4	
1871	MC11-R11	4	
1871	MC11-R10	4	
1871	MC11-R18	4	
1872	R19-MC44	4	
1872	MC44-R18	4	DDEC
1872	MC44-1020	3	
1875	CB14-R19	4	
1880	MC4-MC35	3	
1880	MC44-CB17	4	CTI
1882	MC52-R21	4	
1882	MC52-SPLICE	4	
1882	MC52-R20	4	
1883	S26-L40	3	TC LOCK-UP LIGHT
1883	S26-M49	3	TC LOCK-UP
1884	MC1-R20	4	INTER AXLE
1884	MC1-M39	4	
1884	MC1-MC105	3	
1885	MC1-M39	4	
1885	MC1-MC105	3	
1885	R23-R21	4	
1885	MC1-R23	4	
1888	CB16-R21	4	DIFFERENTIAL LOCK
1888	CB16-R20	4	INTER AXLE
1889	MC44-R20	4	INTER AXLE
1889	MC44-M50	3	INTER AXLE LOCK
1890	MC44-M51	3	DIFFERENTIAL LOCK
1890	MC44-R21	4	DIFFERENTIAL LOCK
1891	MC52-SPLICE	4	
1891	MC52-R10	4	REVERSE
1916	S8-MC4	3	
1916	MC5-M2	3	WIPER MOTOR
1916	MC5-MC4	3	WIPER MOTOR
1917	MC5-M2	3	
1917	MC5-MC4	3	
1917	S8-MC4	3	
1919	MC2-MC5	3	
1919	MC5-M2	3	
1919	MC5-1118	3	
1919	MC2-CB10	4	
1920	MC2-1008	3	
1920	MC2-R2	4	CLEARANCE LIGHTS
1921	S7-MC4	3	
1921	M1-MC4	3	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1926	MC56-MC23	5	ETHER START
1927	R1-CB1	4	HEADLIGHTS
1928	MC34-MC31	3	
1928	L38-MC34	3	
1928	MC31-MC30	6	TRAILER
1929	MC31-MC30	6	TRAILER
1929	MC34-MC31	3	
1932	MC128-MC61	6	WATER TEMP
1932	MC61-TS3	6	WATER TEMP
1932	MC59-MC63	6	
1932	MC63-MC128	6	
1933	MC61-TS3	6	WATER TEMP
1933	MC63-MC61	6	
1933	MC59-MC63	6	
1935	MC76-M45	6	FAN CONTROL VALVE
1935	MC59-MC76	6	
1935	MC76-M45	6	FAN CONTROL VALVE
1935	MC59-MC76	6	
1938	MC70-M74	5	
1938	MC70-MC65	5	
1938	MC65-MC39	5	
1938B	MC39-S22	5	STE/ICE ZEROING
1939	MC71-M75	5	ENGINE WATER TEMP
1939	MC65-MC39	5	STE/ICE
1939	MC71-MC65	5	
1939B	MC39-S22	5	STE/ICE ZEROING
1940	MC71-MC65	5	
1940	MC71-M75	5	ENGINE WATER TEMP
1940	MC65-MC39	5	STE/ICE
1940B	MC39-S22	5	STE/ICE ZEROING
1941	MC43-M42	5	FUEL PSI
1941	MC43-MC65	5	
1941	MC65-MC39	5	STE/ICE
1942	MC43-MC65	5	
1942	MC65-MC39	5	
1942	MC43-M42	5	FUEL PSI
1943	MC65-MC39	5	STE/ICE
1943	MC66-M70	5	TURBO OUTLET PSI
1943	MC66-MC65	5	TURBO OUTLET PSI
1944	MC66-M70	5	
1944	MC65-MC39	5	STE/ICE
1944	MC66-MC65	5	TURBO OUTLET PSI
1945	MC68-MC65	5	
1945	MC68-M72	5	AIR BOX PSI
1945	MC65-MC39	5	STE/ICE
1946	MC67-M71	5	

CODE SORT			
CODE	ROUTING	SH	DESCRIPTION
1946	MC65-MC39	5	STE/ICE
1946	MC68-M72	5	AIR BOX PSI
1946	MC68-MC65	5	
1947	MC67-MC65	5	
1947	MC65-MC39	5	STE/ICE
1947	MC67-M71	5	AIR CLEANER
1948	MC67-MC65	5	
1948	MC65-MC39	5	STE/ICE
1949	MC69-MC65	5	FUEL RETURN
1949	MC69-MC65	5	
1949	MC65-MC39	5	STE/ICE
1950	MC5-MC4	3	
1950	S8-MC4	3	
1951	MC65-MC39	5	STE/ICE
1951	MC69-M73	5	FUEL RETURN
1951	MC69-MC65	5	
1952	MC65-MC39	5	
1952	MC70-M74	5	ENGINE OIL TEMP
1952	MC70-MC65	5	
1952B	MC39-S22	5	STE/ICE ZEROING
1953	MC39-MC24	5	
1953	MC24-MC114	5	
1953	MC24-M20	5	
1955	M67-MC21	3	FAN SPEED CONTROL
1956	MC127-MC44	3	FAN SPEED CONTROL
1957	MC127-MC21	3	FAN SPEED CONTROL
SHIELD	MC32-MC64	6	CTI AUX MANIFOLD
SHIELD	MC32-MC109	6	CTI POWER MANIFOLD

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 7 OF 26
ENGINEERING DWG 3053493 SHEET 2
FP-13/FP-14 BLANK

REVISION 0

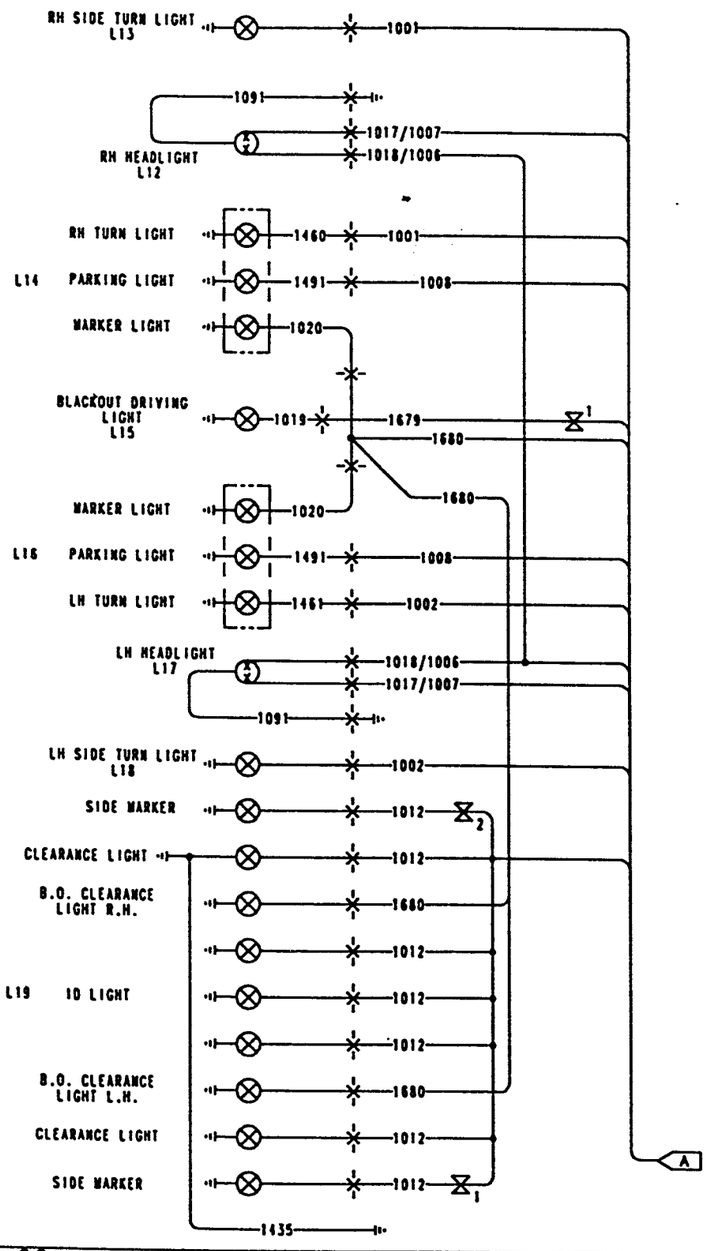

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 8 OF 26
ENGINEERING DWG 3053493 SHEET 3
FP-15/FP-16 BLANK

REVISION O

LH TURN L11 | HIGH BEAM L10 | LOW OIL PSI L9 | HIGH WATER TEMP L8 | TRANS CHECK L5

SPEEDOMETER G5 | TACH G4 | FUEL GAUGE G3 | OIL PRESSURE GAUGE G2 | WATER TEMP GAUGE G1 | XMSN OIL TEMP GAUGE G10 | VOLTMETER 12V G6 | VOLTMETER 24V G7 | AIR RESTRICTION GAUGE G12 | AIR PRESSURE GAUGE G11

CHECK ENGINE L6 | DRIVE-LINE L7 | RH TURN L4

24VDC

KPH

18 GA SHIELD

LOW OIL PSI/HI WATER TEMP ALARM CONTINUOUS TONE M18

LOW HYD OIL & LOW AIR ALARM INTERMITENT TONE M3

CTI CONTROLLER M28

LHS OVERLOAD L29 | NO TRANSIT L28 | AUXILLARY HYDRAULIC L27 | LOAD HANDLING SYSTEM L26 | FLAT RACK L38 | ENGINE BRAKE L37

BRAID

MC105

POS	CODE
1	1435
2	
3	1884
4	1885

MC35

POS	CODE
1	1519
2	1519
3	
4	
5	PLUG
6	
7	1435
8	1435
9	
10	1880

MC110

POS	CODE
1	1072
2	1073
3	1076
4	1071
5	PLUG
6	1070
7	1066
8	SHIELD
9	1068
10	1074

MC111

POS	CODE
1	1056
2	1057
3	1058
4	1059
5	PLUG
6	1061
7	1062
8	SHIELD
9	1064
10	1065

MC32

POS	CODE
A	1056
B	1057/1062
C	1065
D	PLUG
E	1074
F	1076
G	1072
H	1071
I	1070
J	1068
K	SHIELD
L	PLUG
M	1066
N	1061
O	1058
P	1064
Q	1062
R	1059
S	SHIELD
T	1057
U	1073
V	PLUG

SEE SHEET 6

MC53

POS	CODE
A	1713
B	1435
C	1276

MC125

POS	CODE
A	1052
B	1435

WHITE MC8 GAUGES

POS	CODE
A	1519
B	1519
C	1435
D	1147
E	1318
F	1320
G	1449
H	1113
I	1765
J	1114
K	1108
L	439
M	419
N	1409
O	1001
P	509
Q	1120
R	1371
S	1002
T	1018
U	1032
V	1092

MC31

POS	CODE
A	
B	
C	
D	
E	1435
F	1435
G	
H	
I	
J	1729
K	1730
L	1734
M	1733
N	1732
O	
P	1738
Q	1737
R	1095
S	1093
T	1928
U	1929
V	1435

CAB ◄ ► CHASSIS

SEE SHEET 6 CHASSIS

MC34

POS	CODE
A	
B	
C	1702
D	1928
E	1929
F	1722

DASH ◄ ► CAB

MC33

POS	CODE
A	1755
B	1435
C	1722
D	1724
E	1725
F	1726

SEE SHEET 7 LHS

CHASSIS

MC112

POS	CODE
A	1724
B	1725
C	1726
D	
E	
F	1435

DASH ◄ ► CAB

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 9 OF 26
ENGINEERING DWG 3053493 SHEET 3
FP-17/FP-18 BLANK

REVISION D

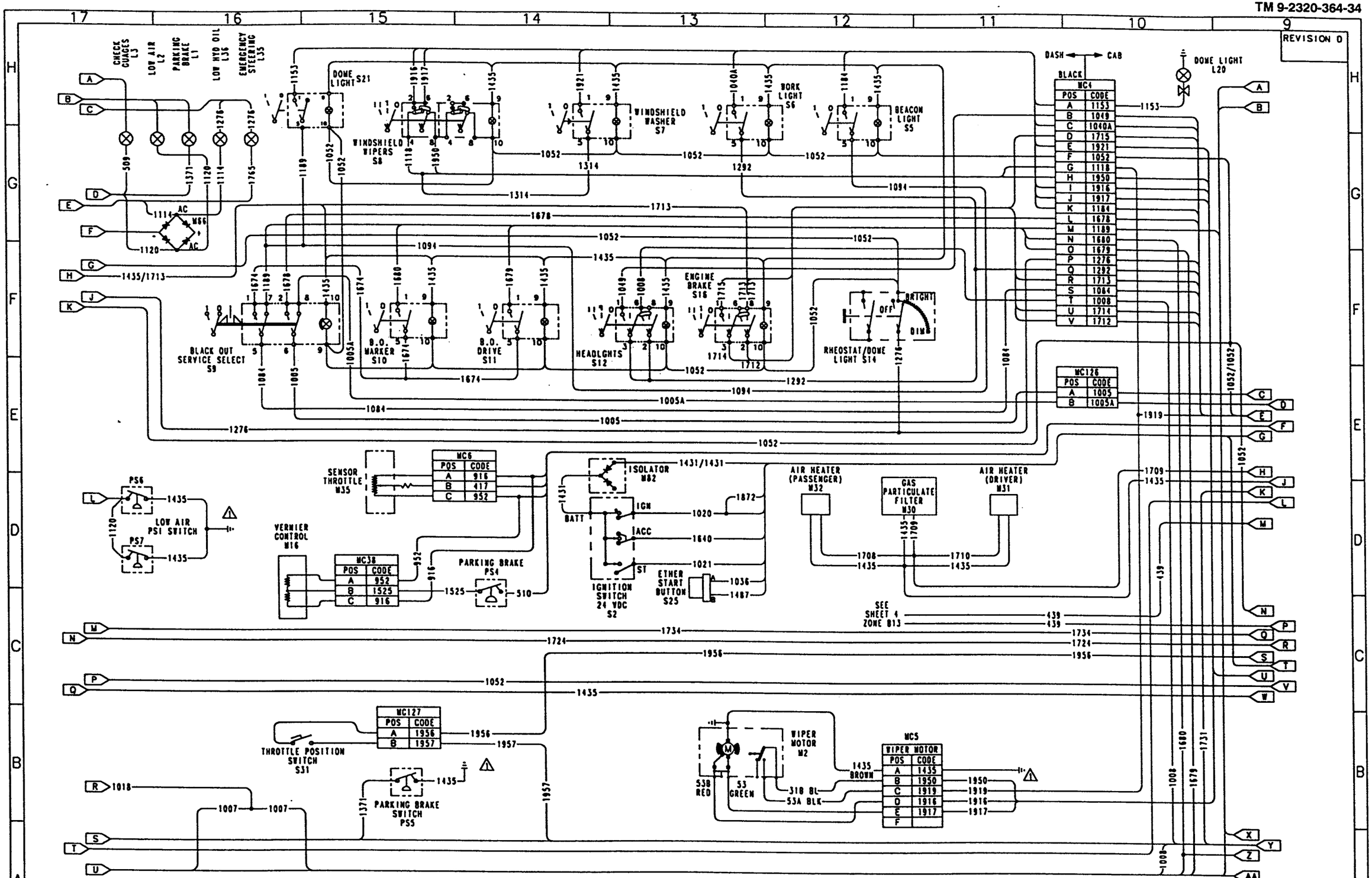

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 10 OF 26
ENGINEERING DWG 3053493 SHEET 3
FP-19/FP-20 BLANK

REVISION O

CAB HARNESS | TURN SIGNAL ASSY

MC7

POS	CODE
A	1001
B	1004
C	1002
D	1003
E	1005A
F	1080

TURN SIGNAL/ DIMMER S1

L.H. FRONT LT
R.H. FRONT LT
L.H. REAR LT
R.H. REAR LT
DIMMER

MC91

POS	CODE
A	1017
B	1017A

MC92

POS	CODE
A	1016

FRONT BRAKE PS1
REAR BRAKE PS2
HAND BRAKE PS3

HORN SWITCH S15

S26 SFER CASE LOCK UP

DIAG CONN DDEC

MC13

POS	CODE
A	953
B	216A
C	
D	
E	207A
F	
G	
H	439
J	900
K	901
L	
M	

M17 HEATER MOTOR 24VDC

FERRITE BEAD

HEATER SWITCH S3

OFF / LOW / MED / HIGH

MC28 BEACON LIGHT

L40 L44

M81

MC106

POS	CODE
A	216A
B	
C	207A
D	953
E	439
F	900
G	901
H	528
J	
K	

SEE SHEET 4

CAB ⟷ CONTROL BOX

MC1

POS	CODE
A	1084
B	1052
C	1712
D	1052
E	1021A
F	1149
G	1409
H	1714
I	1093
J	
K	
L	1678
M	1713
N	1715
O	1431
P	1680
Q	1003
R	1004
S	1487
T	1884
U	1885
V	1737

SEE SHEET 4 CONTROL BOX

MC21

POS	CODE
A	1320
B	1449
C	1113
D	1021A
E	1032
F	1147
G	1020
H	1036
I	
J	
K	
L	
M	1957
N	1955
O	
P	
Q	
R	
S	
T	
U	
V	

SEE SHEET 5 ENGINE

CAB ⟷ CONTROL BOX

MC2

POS	CODE
A	1017A
B	1049
C	1012
D	1189
E	1168
F	1016
G	10408
H	1040A
I	1017
J	1009
K	1080
L	1007
M	1006
N	1029
O	1184
P	1919
Q	1292
R	1534
S	1021
T	1276
U	1082
V	1920

SEE SHEET 4 CONTROL BOX

1168 → CHASSIS

HORN M15

MC58

POS	CODE
A	1709
B	1435

CHEM DET M14

MC103

POS	CODE
A	1746
B	1435
C	1747
D	1745

MC104

POS	CODE
A	1746
B	1747

CHEMICAL ALARM M29 — RED / GREEN

MC44

POS	CODE
A	1108
B	509
C	419
D	439
E	510
F	916
G	417
H	952
I	1723
J	1738
K	
L	1755
M	1739
N	1717
O	1095
P	1702
Q	1889
R	1890
S	1640
T	1872
U	1880
V	1189

SEE SHEET 4 CONTROL BOX

S30 EMER ENG SHUTDOWN

CRANE SRC

SRW/MHC (SEE NOTES 1-3) S4

SRW S18

GAS PART FILTER S19

CHEMICAL ALARM S20

M67

M49 T.C.

M50 INTER AXLE

M51 DIFF

M1 WINDSHIELD WASHER

.1 mf 100 Ω

L43 POST LIGHT

LOW OIL LEVEL GUAGE

MC96

POS	CODE
A	
B	1114
C	1435

MC3

POS	CODE
A	1678
B	1008
C	1004
D	1680
E	1003
F	1149
G	1012
H	1731
I	1005
J	1318
K	
L	
M	
N	
O	10408
P	1519
Q	1519
R	1534
S	
T	1765
U	1431
V	1431

SEE SHEET 6 CHASSIS

NOTE:

1. SWITCH IS ONLY REQUIRED ON VEHICLES EQUIPPED WITH BOTH CRANE AND SELF RECOVERY WINCH.
2. WHEN ONLY CRANE IS INSTALLED SWITCH S4 IS ELIMINATED. CONNECT 1744 AND 1731 TOGETHER.
3. WHEN ONLY SELF RECOVERY WINCH IS INSTALLED SWITCH S4 IS ELIMINATED. CONNECT 1744 AND 1732 TOGETHER.
4. GROUND LOCATION:
   - ⚠1 • LH HEAD LIGHT
   - ⚠2 • LH SIDE CONTROL BOX
   - ⚠3 DIODES TO BE 1N4001
5. GROMMET:
   - ⧖1 LH SIDE OF HEATER
   - ⧖2 RH SIDE OF HEATER
   - ▽ SPLICE
   - EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 11 OF 26
ENGINEERING DWG 3053493 SHEET 3
FP-21/FP-22 BLANK

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SHIFT CONTROLLER ATEC 12VDC

MC12	
POS	CODE
1	210A
2	204
3	221
4	206
5	220
6	218
7	219
8	223B
9	231
10	230
11	212
12	225
13	233
14	234
15	

SEE SHEET 3

MC44	
POS	CODE
A	1108
B	509
C	419
D	439
E	510
F	916
G	417
H	952
I	1723
J	1738
K	
L	1755
M	1739
N	1717
O	1095
P	1702
Q	1889
R	1890
S	1640
T	1872
U	1880
V	1189

BLACK

MC2	
POS	CODE
A	1017A
B	1049
C	1012
D	1189
E	1168
F	1016
G	10408
H	1040A
I	1017
J	1009
K	1080
L	1007
M	1006
N	1029
O	1184
P	1919
Q	1292
R	1534
S	1021
T	1276
U	1082
V	1920

WHITE

MC1	
POS	CODE
A	1084
B	1052
C	1712
D	1052
E	1021A
F	1149
G	1409
H	1714
I	1093
J	
K	
L	1678
M	1713
N	1715
O	1431
P	1680
Q	1003
R	1004
S	1487
T	1884
U	1885
V	1737

HEADLIGHTS R1 — CLEARANCE LIGHTS R2 — HORN R3 — WORK LIGHT R4 — DIMMER R5 — BEACON R6 — XMSN R7 — RETARDER R8 — 12 VDC

CB1 15 AMP HEAD LIGHTS
CB2 15 AMP C.L. LIGHTS
CB3 15 AMP BEACON BACK UP
CB4 15 AMP WORK LIGHT
CB5 20 AMP TURN SIGNAL
CB6 15 AMP STOP LIGHT
CB7 10 AMP ENG. BRAKE
CB8 15 AMP DASH LOCK UP

SEE SHEET 5 — MAG SWITCH R28 12 VDC CIRCUITS — >1uf — .01uf

1079 SEE SHEET 5 — TURN SIGNAL FLASHER M5

MC52	
POS	CODE
A	1017
B	1082
C	1026
D	1021
E	1891
F	1882

MC119	
POS	CODE
A	1431
B	1640
C	1644
D	1435

R32 — R33 — S29 ARCTIC PUMP — M52 — AC

24 VDC IGN SEE SHEET 5 — 24 VDC ACC

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 12 OF 26
ENGINEERING DWG 3053493 SHEET 4
FP-23/FP-24 BLANK

REVISION C
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CK XMSN R9 | REVERSE R10 | NEUTRAL START R11 | 12V MAG R12 | BLACK OUT STOP LIGHTS R13 | BLACK OUT SERVICE LIGHTS R14 | LH TURN LIGHT R15 | RH TURN LIGHT R16 | BLACK OUT TAIL LIGHTS R17 | DDEC R18 | TRANS DDEC R19

CB9 10 AMP WIPER
CB10 3 AMP IGN
CB11 8 AMP DDEC TRANS
CB12 8 AMP TRANS
CB13 8 AMP DDEC
CB14 15 AMP TRANS
CB15 15 AMP HEATER
CB16 15 AMP DRIVE LINE
CB17 3 AMP CTI
CB18 10 AMP LHS CRANE
CB19 15 AMP CHEM ALARM RADIO
CB25 15 AMP 12V AUX
CB26 15 AMP 24V AUX

SWING FIRE MC101

POS	CODE
A	1340
B	1435

EMERGENCY ENGINE SHUTDOWN MC116

POS	CODE
A	439
B	439

24 VDC CIRCUITS | 12 VDC | .1uf | .01uf | MAG SWITCH R26 | 24 VDC MAG SWITCH R25 | BATT ATEC SEE SHEET 5 | SEE SHEET 5 | SEE SHEET 3 ZONE 9E | RADIO LEAD 9 AMP | M76 AC

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 13 OF 26
ENGINEERING DWG 3053493 SHEET 4
FP-25/FP-26 BLANK

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INTER AXLE R20
DIFF LOCK R21
CRANE HI IDLE 24 VDC R22
HIGH RANGE LOCK OUT R23
T.C. DUAL MODE R24
M39
CB21 30 AMP GAS PARTICULATE
CB20 15 AMP TRAILER LIGHTING
DDEC CB22 20 AMP
DDEC CB23 20 AMP
M36
SEE SHEET #5
SEE SHEET 6 24V TRAILER
KNIT LOOM W/COPPER
TO XSMN CONNECTOR SEE SHEET 5
SEE SHEET 3
SEE SHEET 5
ECU ATEC
THROTTLE POSITION CONTROL M4
THROTTLE SENSOR
6.8K
CONTROL BOX
CHASSIS
CONTROL BOX
CHASSIS/ENG

MC9 J1A

POS	CODE
1A	208
1B	209
1C	238
1D	239
1E	217
1F	204
1G	206
1H	218
1J	207A
1K	222
2A	202A
2B	223A
2C	210A
2D	214
2E	
2F	221
2G	220
2H	219
2J	216A
2K	201
3A	205
3B	240
3C	241
3D	213
3E	
3F	211
3G	205
3H	215
3J	212
3K	224

MC10 J1B

POS	CODE
1L	112
1M	113
1N	106A
1P	124
1R	116
1S	110
1T	115
1W	105
1X	
1Y	107
2L	123
2L	108
2N	101
2P	104
2R	
2S	
2T	120
2W	119
2X	
2Y	109
3L	114
3M	111
3N	122
3P	118
3R	
3S	
3T	121
3W	
3X	
3Y	117

MC25

POS	CODE
A	1680C
B	1003C
C	1680C
D	1435
E	1008C
F	1678C
G	1680C
H	1004C
I	1665C
J	1435
K	1538
L	1644
M	1435
N	
O	
P	
Q	
R	
S	
T	
U	
V	

MC45 J3

POS	CODE
A	301
B	302
C	303
D	304
E	305
F	306
G	307
H	308
J	309
K	310
L	311
M	312
N	313
P	314
R	315
S	316

MC11

POS	CODE
A	
B	916
C	419
D	509
E	439
F	981
G	980
H	952
J	417
K	451
L	988
M	505
N	
O	510
P	1517
Q	1871
R	1715
S	1716
T	508
U	208/209
V	115
W	
X	

MC50

POS	CODE
A	213
B	211
C	215
D	214
E	231
F	233

MC51

POS	CODE
A	208/209
B	207A
C	223A
D	216A
E	201
F	203

MC106

POS	CODE
A	216A
B	
C	207A
D	953
E	439
F	900
G	901
H	528
J	
K	

MC14

POS	CODE
A	953

MC102

POS	CODE
A	115
B	953

MC36

POS	CODE
A	124
B	104
C	106A

x = UNUSED SEALED POSITIONS

POS	CODE
1	1000
2	
3	
4	1000
5	
6	
7	

GROUND LOCATION
⚠1 • LH HEAD LIGHT
⚠2 • RH SIDE CONTROL BOX
⚠3 FERRISHIELD FAIRRITE PN 5S2882032
⚠4 FERRISHIELD FAIRRITE PN TC2881500
EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 14 OF 26
ENGINEERING DWG 3053493 SHEET 4
FP-27/FP-28 BLANK

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MC21	
POS	CODE
A	1320
B	1449
C	1113
D	1021A
E	1032
F	1147
G	1020
H	1036
J	
K	
L	
M	1957
N	1955
O	
P	
Q	
R	
S	
T	
U	
V	

BOOST PRESSURE SWITCH
PS15
SPST-N.C.
@ 7.5 PSI ± .5 PSI
ON RISING PRESSURE

MC60	
POS	CODE
A	1021A
B	1020

14 GA

200 AMP ALTERNATOR
M20

RECTIFIER
STATOR
SCR
FIELD
+24 VOLTS
+12 VOLTS
ENG
DUAL VOLTAGE REGULATOR
FIELD SENSE (NEGATIVE)
SCR REGULATOR RECEPTACLE

STE/ICE

MC24	
POS	CODE
1	1860
2	1820
3	1815
4	1861
5	1953

WATER TEMPERATURE SENDING UNIT SU1

ENGINE OIL PRESSURE SWITCH PS9

TRANSMISSION TEMPERATURE SENDING UNIT SU2

OIL MANIFOLD

ENGINE WATER TEMP SWITCH TS2

ALT OIL PSI SW PS12

ENGINE OIL PRESSURE SENDING UNIT SU3

ATEC OIL PRESSURE SWITCH PS8

C824
3 AMP

R27 MAGNETIC SWITCH 24V

5 MFD 200 VDC

2 MFD

.01 MFD

CONTROL BOX ↔ CHASSIS/ENGINE

MC11	
POS	CODE
A	
B	916
C	419
D	509
E	439
F	901
G	900
H	952
J	417
K	528
L	908
M	505
N	
O	510
P	1517
Q	1871
R	1715
S	1716
T	988
U	208/209
V	115
W	
X	

ENGINE BRAKE
RH COILS M21
LH COILS M22

TS1 ETHER START

MC56	
POS	CODE
A	1036
B	1926

MC23	
POS	CODE
A	1926
B	1435

ETHER START M8

MC108	
POS	CODE
A	1020
B	1435

FUEL PUMP M12

4.7 MFD

SEE MC3 SHEET 6 —1431/1431

POLARITY PROTECTION DEVICE M64

24 VDC
12 VDC

1079 SEE C85 SHEET 4

SEE SHEET 4

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 15 OF 26
ENGINEERING DWG 3053493 SHEET 5
FP-29/FP-30 BLANK

REVISION C
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STARTER M7
SLAVE CONNECTOR M23
M48 SHUNT
BATTERIES M6
ARCTIC BATTERIES M77
OPTION
SEE SHEET 4
TRANSMISSION
TWISTED PAIR SHIELDED
TWISTED PAIR 901/900
KNIT LOOM W/COPPER
ECM
INJECTOR 4R
INJECTOR 3R
INJECTOR 2R
INJECTOR 1R
INJECTOR 1L
INJECTOR 2L
INJECTOR 3L
INJECTOR 4L

MC62
POS	CODE
A	240
B	151
C	241
D	150
E	150

MC17
POS	CODE
A	240
B	151
C	241
D	150
E	150

MC19
POS	CODE
A	123
B	114
C	121
D	111
E	101
F	118
G	116
H	122
J	
K	108
L	109
M	119
N	117
O	107
P	1068
Q	
R	
S	
T	115
U	105
V	120
W	110
X	

MC20
POS	CODE
A	113
B	112

MC18
POS	CODE
A1	988
A2	555
A3	916
B1	419
B2	509
B3	439
C1	901
C2	900
C3	952
D1	510
D2	417
D3	749
E1	451
E2	
E3	
F1	542
F2	544
F3	499
G1	528
G2	543
G3	545
H1	
H2	
H3	115
J1	541
J2	531
J3	908
K1	505
K2	
K3	

12040947
POS	CODE
A	612
B	614
C	618
D	616
E	620

2065143
POS	CODE
L	611
K	613
J	617
H	615
G	619

12066317

12051398
POS	CODE
L1	
L2	
L3	925
M1	
M2	
M3	926
N1	
N2	
N3	
P1	432
P2	530
P3	
R1	
R2	120
R3	472
S1	112
S2	111
S3	
T1	109
T2	110
T3	
W1	416
W2	
W3	
X1	
X2	
X3	
Y1	
Y2	452
Y3	

MC14
POS	CODE
A	953

MC95
POS	CODE
A	208/209

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 16 OF 26
ENGINEERING DWG 3053493 SHEET 5
FP-31/FP-32 BLANK

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STE/ICE CONNECTOR MC39

POS	CODE	
A		X
B		X
C		X
D	1825A	
E	1822	
F	1821	
G		X
H		X
J		X
K		X
L	1860	
M	1819	
N	1820	
O	1953	
P	1815	
R	1861	
S	1816	
T	1818	
U	1736	
V	1814	
W	1813	
X	1828	
Y	1829	
Z	1736	
A	1736	
B	1736	
C	1809	
D	1810	
E		X
F	1824	
G	1825	
H	1826	
J	1827	
K	1952	
M	1938	
N	1939	
P	1940	
Q		X
R		X
S	1811	
T	1812	
U	1941	
V	1942	
W	1943	
X	1944	
Y	1945	
Z	1946	
AA	1947	
AB	1948	
AC	1949	
AD	1951	
AE	900	
AF	901	
AG		X

DIFFERENTIAL PRESSURE M41

MC42

POS	CODE
1	1811
2	1812

STE/ICE MODULE M43

MC40

	POS	CODE
X	1	
	2	1826
	3	1827
X	4	
X	5	
	6	1825A
	7	1825
X	8	
X	9	

R3

MC65

POS	CODE
A	
B	1944
C	
D	1816
E	1818
F	1809
G	1810
H	1824
I	1825
J	1941
K	1942
L	1947
M	1948
N	1945
O	1946
P	1949
Q	1951
R	1952
S	1938
T	1939
U	1940
V	1943

MC41

POS	CODE
1	1809
2	1810

PULSE TACH DRIVE M40

MC66

POS	CODE
1	1824
2	1825
3	1943
4	1944

TURBO OUTLET PSI M70

MC43

POS	CODE
1	1824
2	1825
3	1941
4	1942

FUEL PRESSURE M42

MC67

POS	CODE
1	1824
2	1825
3	1947
4	1948

AIR CLEANER M71

MC68

POS	CODE
1	1824
2	1825
3	1945
4	1946

AIR BOX PSI M72

MC69

POS	CODE
1	1824
2	1825
3	1949
4	1951

FUEL RETURN M73

MC70

POS	CODE
1	1824
2	1825
3	1952
4	1938

ENGINE OIL TEMP M74

MC71

POS	CODE
1	1824
2	1825
3	1939
4	1940

ENGINE WATER TEMP M75

X = UNUSED SEALED POSITIONS

	POS	CODE
	1	1000
X	2	
	3	
	4	1000
X	5	
X	6	
X	7	

⚠ DIODES TO BE 1N4001

TURBO BOOST: B 416 GRA C; C 432 LT GRN B; D 452 BLK A

SENSOR TIMING: E 109 PPL A; F 110 DK GRN B

SENSOR SYNC: G 112 WHT A; H 111 LTBLU B

SENSOR OIL PSI: I 452 BLK A; J 530 BRN B; K 416 GRA/BLK C

SENSOR OIL TEMP: L 452 BLK A; M 120 TAN B

FUEL TEMP: N 452 A; O 472 B

STE/ICE ZEROING S22: 1 — 3 (1940B) / 6 (1952B); 2 (1939B) / 5 (1938B)

P 1828/1829
Q 1813/1821
R 1814/1822
S 1816/1818
T 1935/1820/1815/1860/1861
U

1818

MC118

POS	CODE
A	900
B	901
C	SHIELD

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 17 OF 26
ENGINEERING DWG 3053493 SHEET 5
FP-33/FP-34 BLANK

REVISION 0

CAB ◄► CHASSIS

MC3

POS	CODE
A	1678
B	1008
C	1004
D	1680
E	1003
F	1149
G	1012
H	1731
I	1005
J	1318
K	
L	
M	
N	
O	10408
P	1519
Q	1519
R	1534
S	
T	1765
U	1431
V	1431

1005 1012 1003 1004 1008

BATTERIES M6

1431
1431

1 2 3 4

BATTERIES SHOWN FOR REFERENCE ONLY SEE SHEET 5

FRONT TOW

MC27

POS	CODE
WHITE	1435
BLACK	1012
YELLOW	1003
RED	1005
GREEN	1004
BROWN	1008
BLUE	

1435

1765

MC113

POS	CODE
A	1765
B	1435

1765

EMER STRG PS13

1435

1435

CAB ◄► CHASSIS

MC31

POS	CODE
A	
B	
C	
D	
E	1435
F	1435
G	
H	
I	
J	1729
K	1730
L	1734
M	1733
N	1732
O	
P	1738
Q	1737
R	1095
S	1093
T	1928
U	1929
V	1435

MC32

POS	CODE
A	1056
B	1063/1067
C	1065
D	PLUG
E	1074
F	1076
G	1072
H	1071
I	1070
J	1068
K	SHIELD
L	PLUG
M	1066
N	1061
O	1058
P	1064
Q	1062
R	1059
S	SHIELD
T	1057
U	1073
V	PLUG

MC25

POS	CODE
A	1680C
B	1003C
C	1680C
D	1435
E	1008C
F	1678C
G	1680C
H	1004C
I	1665C
J	1435
K	1538
L	1644
M	1435
N	
O	
P	
Q	
R	
S	
T	
U	
V	

TRAILER CONN 24V

BRAIDED SHIELD
1067

REAR

MC84

POS	CODE
1	1072
2	1073
3	1076
4	1071
5	PLUG
6	1070
7	1066
8	SHIELD
9	1068
10	1074

CTI AUXILIARY MANIFOLD M25

GROUND IS ATTACHED TO AUXILIARY MANIFOLD

FRONT

MC109

POS	CODE
1	1056
2	1057
3	1058
4	1059
5	1063
6	1061
7	1062
8	SHIELD
9	1064
10	1065

CTI POWER MANIFOLD M24

1063

BRAIDED SHIELD

GROUND IS ATTACHED TO POWER MANIFOLD

FAN CONTROL

MC59

POS	CODE
A	1932
B	1933
C	1935
D	1936

MC73

POS	CODE
A	1538
B	1435

MC63

POS	CODE
A	1932
B	1933
C	DRAIN

MC128

POS	CODE
A	1933
B	1932

WATER TEMP. N.C.

TS4

MC61

POS	CODE
A	1932
B	1932

WATER TEMP.

TS3

MC76

POS	CODE
A	1936
B	1935

FAN CONTROL VALVE M45

MC123

POS	CODE
A	1732
B	1435

MC122

POS	CODE
A	1730
B	1435

MC121

POS	CODE
A	1729
B	1435

1911980

SELF RECOVERY WINCH M27

MC55

POS	CODE
A	1729
B	1730
C	1732
D	1435

FAN MS1

1899700

LHS M10

AIR DRYER M13

MC97

POS	CODE
A	1538
B	1435

1435 1538

1435

1733 1435 1734 1435

1435

1538

1435

A B C D

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 18 OF 26
ENGINEERING DWG 3053493 SHEET 6
FP-35/FP-36 BLANK

REVISION 0

L32 1012
SIDE MARKER
1012 L34

MC80
POS	CODE
A	1012
B	1003
C	1004

1678/23
1008/21
1004/22
1680/24
L22
B.O. STOP LIGHT
TAIL LIGHT
STOP LIGHT
B.O. TAIL LIGHT
R.H.

1012
1003
1680/24
1678/23
1008/21
1003/22
1680/24
L24
1435
B.O. STOP LIGHT
TAIL LIGHT
STOP LIGHT
B.O. TAIL LIGHT
L.H.

MC78
POS	CODE
A	1680
B	1678
C	1149
D	1008
E	1435
F	1435

1435

MC124
POS	CODE
A	1149
B	1435

MC77
POS	CODE
A	1149
B	1435

BACK UP LIGHT L23

1718
1435
BACK UP ALARM M78

1149
1435

MC79
POS	CODE
A	10408
B	1435

WORK LIGHT RH
L21

MC54
POS	CODE
A	10408
B	1435

L39
WORK LIGHT LH

TWISTED PAIR

CRANE MC29
P		R
1737	A	THROTTLE WHITE
1435	B	GROUND GREEN
1738	C	+24 VDC BLACK
1731	D	SHUTOFF VALVE FEED RED
1435	E	SHIELD

1519
SPEEDOMETER GENERATOR SU4
1519
18 GA SHIELDED

MC57
POS	CODE
A	1095
B	1093

S13
DRIVE LINE LOCK TRANSFER CASE HI/LO

1318
1435
FUEL LEVEL SU5

MC107
POS	CODE
A	1534
B	1435

1534
FUEL/WATER SEPERATOR M9
1435

TRAILER CONNECTION 12 VDC

MC16
POS	CODE
1435	WHITE
1012	BLACK
1003	YELLOW
1005	RED
1004	GREEN
1008	BROWN
	BLUE

TRAILER MC30
POS	CODE
A	1928
B	1929
C	PLUG
D	PLUG

1012 L31 REAR SIDE MARKER
1012 CLEARANCE LIGHTS
1680 L42 B.O. CLEARANCE LIGHT
1012
1012 L25 ID LIGHTS
1012
1680 L41 B.O. CLEARANCE LIGHT
1012 L33 CLEARANCE LIGHTS
1012 REAR SIDE MARKER
1435

MC90
POS	CODE
A	1012
B	1435
C	1680

AIR DRYER M14
AFTERCOOLER M11

MC98
POS	CODE
A	1538
B	1435

MC99
POS	CODE
A	1538
B	1435

MC120
POS	CODE
A	1644
B	1435

M80 ARCTIC PUMP
1644/1435

B
C
D

MC15
POS	CODE	
A	1680C	24-484
B	1003C	22-461
C	1680C	24-483
D	1435C	90
E	1008C	21-489
F	1678C	23
H	1680C	490
J	1004C	22-460
K	1665C	37
L	1435C	90
M		53
N		53

MILITARY CONNECTOR
TRAILER CONNECTION 24 VDC
SEPERATE LOOMED HARNESS

Σ1 GROMMET LOCATED LH SIDE OF HEATER
△1 DIODES TO BE 1N4001
EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 19 OF 26
ENGINEERING DWG 3053493 SHEET 6
FP-37/FP-38 BLANK

REVISION 0

MC33	
POS	CODE
A	1755
B	1435
C	1722
D	1724
E	1725
F	1726

(24 VDC IN)
(GROUND)
(LHS IND & VA.)
(SRW-CRANE & VA.)
(TRANS LIGHT NO)
(OVER LOAD)

SEE SHEET 3

1860810 (7200)

MC84	
POS	CODE
A	1482
B	1481
C	1486
D	1480
E	1755
F	1435
G	1483
H	1484
J	1485
K	1722
L	1487
M	1488
N	1489
P	1490
R	1726
S	1725
T	—

1860800 (7190)

MC83	
POS	CODE
A	1482
B	1481
C	1486
D	1480
E	1755
F	1435
G	1483
H	1484
J	1485
K	1722
L	1487
M	1488
N	1489
P	1490
R	1726
S	1725
T	—

M26

CAB CONTROL BOX
1891370

M.R. "A" SOLENOID	
H.A. "B" SOLENOID	
M.R. "B" SOLENOID	
H.A. "A" SOLENOID	
SEQUENCING (3)	
24 VOLT +	
SEQUENCING (6)	
TRANSIT VALVE	
FREE FLOW VALVE	
0 VOLTS	
0 VOLTS	
PROXIMITY H.A. DOWN	

SEE SHEET 8 FOR DETAIL OF CAB CONTROL BOX

MC81	
POS	CODE
A	1465
B	1467
C	1468
D	1464
E	1466
F	1472
G	1469
H	1463
J	1462
K	1435
L	1435
M	1471
N	1460
P	1459
R	1435
S	1435
T	—

1860790 (7170)

GREEN
RED
WHITE
DRAIN WIRE

MC82	
POS	CODE
A	1465
B	1467
C	1468
D	1464
E	1466
F	1472
G	1469
H	1463
J	1462
K	1435
L	1435
M	1471
N	1460
P	1459
R	1435
S	1435
T	—

1883440

1877480 (7140) HOOKARM SOL A M53

1877470 (7150) HOOKARM SOL B M54

1435/WHITE
1464/BLACK
1467/BLACK

1480
1463
1478
1477
1479

M68

HOOK ARM ELECTRIC SAFE LOWERING

MAIN RAM ELECTRIC SAFE LOWERING

A B C D E F G H J K L M N P Q R S T U V W X Y

1465

1884570 U
MAIN JUNCTION BOX

MC93	
POS	CODE
A	1724
B	1480
C	1481
D	1482
E	1483
F	1484

MC94	
POS	CODE
A	1485
B	1486
C	1487
D	1488
E	1489
F	1490

1724 — 22 — 21
18 — 17
1487 — 14 — 13
10 — 9
1481 — 12 — 11
1480 — 24 — 23
6 — 5
1486 — 8 — 7
1482 — 20 — 19
2 — 1
1484 — 4 — 3
1485 — 16 — 15

5 4 3 2 1 0

1891360 U
MULTI FUNCTION SWITCH ASSY

0 OFF
1 AUTO
2 MAN HA
3 MAN MF
4 MAN TRAN
5 CRANE/SRW

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 20 OF 26
ENGINEERING DWG 3053493 SHEET 7
FP-39/FP-40 BLANK

REVISION 0

1877450 (7130) MAIN CYLINDER SOL B M56
1877460 (7120) MAIN CYLINDER SOL A M55
1877440 (7110) FREEFLOW M57
1877490 (7160) TRANSIT M58

OVERLOAD PRESSURE SWITCH N.O. S28

1479/BLACK
1460/WHITE

1435/WHITE 1468/BLACK
1435/WHITE 1465/BLACK
1435/WHITE 1462/BLACK
1435/WHITE 1480/BLACK

POS 1–18 (A–W)

1883450

MC85	
POS	CODE
A	1461
B	1472
C	1435
D	1471
E	1435
F	1435
G	1469
H	1466
I	1470
J	1475

1860780 (7100)

MC86	
POS	CODE
A	1461
B	1472
C	1435
D	1471
E	1435
F	1435
G	1469
H	1466
I	1470
J	1475

1891910 W HOOK ARM DOWN PROXIMITY SW NORMALLY OPEN S27

MC88	
POS	CODE
A	1472
B	1471
C	1435

+ BROWN
S BLACK
– BLUE

1860820 (7370)

MC87	
POS	CODE
A	1461
B	1435
C	1435
D	1469
E	1466
F	1470
G	1475
H	—
I	—
J	—

1891410

POS
1
2
3
4
5
6
7

1891530 U LHS JUNCTION BOX

1891930 W MIDDLE FRAME PROXIMITY SW NORMALLY OPEN S24
1435/BLUE 1461/BROWN 1469/BLACK

1891920 W HOOK ARM UP PROXIMITY SW NORMALLY OPEN S23
1435/BLUE 1474/BROWN 1466/BLACK

1878910 LH HOOK ARM
A M59 — 1435/WHITE 1470/BLACK
M60 B — 1435/WHITE 1470/BLACK

1878900 RH HOOK ARM
A M61 — 1435/WHITE 1475/BLACK
M62 B — 1435/WHITE 1475/BLACK

1435

X — 87A 87 85 — 1480 — Y
30 86
R29 MIDDLE FRAME LOCK-OUT

EMI SHIELDED WIRES

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 21 OF 26
ENGINEERING DWG 3053493 SHEET 7
FP-41/FP-42 BLANK

REVISION O

MC83	
POS	CODE
A	1482
B	1481
C	1486
D	1480
E	1755
F	1435
G	1483
H	1484
J	1485
K	1722
L	1487
M	1488
N	1489
P	1490
R	1726
S	1725
T	----

MAN. HOOK ARM UP
MAN. MID FRAME DOWN
MAN. HOOK ARM DOWN
MAN. MID FRAME UP
+24V IN
COMMON
MAN./AUTO MODE
AUTO LOAD IN
AUTO UNLOAD IN
LHS LIGHT
MAN. TRANS IN
24V OUT
UNLOAD OUT
LOAD OUT
OVERLOAD LIGHT
NO TRANSIT LIGHT
AUX MODE IN

CR1-MR2400
FU1
R1-3.3K
Q1 2N3906
RP1 2.7K
RP2 3.3K
RP3 2.7K
LED5
LED3
LED1
LED2
LED4
LED6
LED7
LED10
LED9
LED8
CR2-1.5KE39
CR3-1.5KE39
CR4-1.5KE39
CR5-1.5KE39
CR7-1.5KE39
CR6-1.5KE39
CR10-1.5KE39
CR9-1.5KE39
CR8-1.5KE39
CR16 1.5KE39
LED15
+24V

CR24-1N4007
CR27-1N5400
CR28-1N5400
CR22-1N5400
CR23-1N5400
CR29-1N5400
K1
K2
K3
K4
K5
K6
K7
DP1
RP4 1M
C1-1.5uf TANT.
C2 1.5uf TANT
C3 .022uf
C4 1.5uf TANT
R4 1K
R3-1K
CR25 1N4743 13V
CR30 1N4007
CR31 1N4753 36V
CR26 1N4148
Q2 VN10KM
U1

JS-13
JS-14
JS-24
JS-23
LOAD
UNLOAD
JOYSTICK

RELAY BOARD

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 22 OF 26
ENGINEERING DWG 3053493 SHEET 8
FP-43/FP-44 BLANK

REVISION O

MC81

A — MAIN RAM A SOL.
B — HOOK ARM B SOL
C — MAIN RAM B SOL.
D — HOOK ARM A SOL.
E — HOOK ARM UP
F — +24V OUT
G — MID FRAM DOWN
H — TRANSIT VALVE
J — FREE FLOW VALVE
K — 0 VOLTS
L — 0 VOLTS
M — HOOK ARM DOWN
N — OVERLOAD IN
P
R
S
T

MC81	
POS	CODE
A	1465
B	1467
C	1468
D	1464
E	1466
F	1472
G	1469
H	1463
J	1462
K	1435
L	1435
M	1471
N	1460
P	1459
R	1435
S	1435
T	---

RP3-2.7K LED14 — 8 7 — CR14-1.5KE39
RP2-2.7K LED13 — 9 6 — CR13-1.5KE39
RP2-2.7K LED12 — 10 5 — CR12-1.5KE39
RP2-2.7K LED11 — 11 4 — CR11-1.5KE39
RP3-2.7K LED15 — 9 8 — CR15-1.5KE39
+24V
RP3-2.7K LED21 — 10 5 — CR21-1.5KE39
RP3-2.7K LED19 — 12 13 — CR19-1.5KE39
RP3-2.7K LED17 — 14 1 — CR17-1.5KE39
RP3-2.7K LED18 — 13 2 — CR18-1.5KE39
RP3-2.7K LED20 — 11 4 — CR20-1.5KE39

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 23 OF 26
ENGINEERING DWG 3053493 SHEET 8
FP-45/FP-46 BLANK

REVISION D

SYSTEM SHUTDOWN RELAY

CONTROL LOCKOUT RELAY

THROTTLE RELAY

GROUND

POWER CABLE TO VEHICLE

WC29	
POS	CODE
A	WHT
B	GRN
C	BLK
D	RED
E	SHIELD

PASSENGER SIDE REMOTE CABLE

POS	CODE
A	RED
B	GRN
C	YEL
D	WHT
E	BLU
F	BLK
G	ORG
H	VIO
J	RED/GRN
K	GRY
L	TAN
M	BRN
N	PNK
P	SHIELD

POS	CODE
A	BLK
B	WHT
C	GRN
D	RED

OVERLOAD SHUTDOWN SYSTEM

POS	CODE
A	BLU
B	BLK
C	BRN

HOIST LAYER SENSING SWITCH

POS	CODE
A	WHT
B	BLK
C	RED
D	GRN
E	SHIELD

HOIST LOAD CELL

CRANE FUNCTION SOLENOIDS

SWING: CCW, CW

TELE: OUT, IN

LIFT: UP, DWN

HOIST: UP, DWN

MHC MAIN HYD PRESS

OVERLOAD SOLENOIDS: LIFT UP & DOWN, HOIST UP, TELE OUT, CRANE FUNCTION L/O

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 24 OF 26
ENGINEERING DWG 3053493 SHEET 9
FP-47/FP-48 BLANK

REVISION D

JUNCTION BOX ASSY

A
B
C
D
E
F
G
H
J
K
L
M

BLU
BRN
BLK
19/3
E

BRN
BLU
BLK
DRIVER SIDE O/R ENGAGED SENSING SWITCH

D6 WHT
D7 WHT
D9
D8 RED GRN

GRN
RED
BLK
WHT
LINE LOAD
POWER SWITCH 10 AMP MAGNETIC CIRCUIT BREAKER
HIGH IDLE SWITCH LATCH-UNLATCH

BLK
WHT RED
GRN
16/4
D
18/15
F

DRIVER SIDE REMOTE CABLE

POS	CODE
A	RED
B	GRN
C	YEL
D	WHT
E	BLU
F	BLK
G	ORG
H	VIO
J	RED/GRN
K	GRY
L	TAN
M	BRN
N	PNK
P	SHIELD

BRN BLK BLU

REMOTE CONTROL CABLE
18/15

POS	CODE
A	RED
B	GRN
C	YEL
D	WHT
E	BLU
F	BLK
G	ORG
H	VIO
J	RED/GRN
K	GRY
L	TAN
M	BRN
N	PNK
P	SHIELD

C
19/3
BRN
BLU
BLK
PASSENGER SIDE O/R ENGAGED SENSING SWITCH

N
0
18/2
D22
WHT
BLK
O/R MAST SHUTDOWN SOLENOID

REMOTE CONTROL BOX

SWING

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	CCW
4	BLU	CW

8
2
9
10

TELE

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	OUT
4	BLU	IN

8
2
11
12

ON
4
26
SHUT DOWN
20

BOOM

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	UP
4	BLU	DWN

8
2
13
14

HOIST

POS	CODE	
1	RED	+
2	GRN	-
3	WHT	UP
4	BLU	DWN

8
2
15
16

2

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 25 OF 26
ENGINEERING DWG 3053493 SHEET 9
FP-49/FP-50 BLANK

REVISION 0

1724

87A 87 85

30 86

CRANE/SRW
POWER RELAY
R40

1724A

1755

1435

CHASSIS ◄ ► CAB

MC33	
POS	CODE
A	1755 (24 VDC IN)
B	1435 (GROUND)
C	1722 (LHS IND & VA.)
D	1724 (SRW-CRANE & VA.)
E	1725 (TRANS LIGHT NO)
F	1726 (OVER LOAD)

SEE SHEET #3
FOR CONTINUATION

MULTI FUNCTION
SWITCH ASSY
1891360 U

0 OFF
1 AUTO
2 MAN HA
3 MAN MF
4 MAN TRAN
5 CRANE/SRW

21 — 22 — 1724A
17 — 18 — NOT USED
13 — 14 — 1487
23 — 24 — 1480
11 — 12 — 1481
9 — 10 — 1483
5 — 6
7 — 8 — 1486
19 — 20 — 1482
1 — 2
3 — 4 — 1484
15 — 16 — 1485

MC93	
POS	CODE
A	1724A
B	1480
C	1481
D	1482
E	1483
F	1484

MC94	
POS	CODE
A	1485
B	1486
C	1487
D	1488
E	1489
F	1490

LHS
FUSE
M83

5 AMP

1755 — 1755A

3159734

CHASSIS ►

MC84	
POS	CODE
A	1482
B	1481
C	1486
D	1480
E	1755A
F	1435
G	1483
H	1484
J	1485
K	1722
L	1487
M	1488
N	1489
P	1490
R	1726
S	1725
T	—

SEE SHEET #7
FOR CONTINUATION

FOR LHS CIRCUIT
PROTECTION CONFIGURATION

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 26 OF 26
ENGINEERING DWG 3053493 SHEET 10
FP-51/FP-52 BLANK

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

SANDRA R. RILEY
Administrative Assistant to the
Secretary of the Army
0525712

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PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2320-364-34-3	30 November 2005	Palletized Load System, Models M1074/M1075

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible).
	0004 00-2	4-7				Wrong POC is listed. 

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Your Name		Your Signature

DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPPC V3.00

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PUBLICATION NUMBER	DATE	TITLE
TM 9-2320-364-34-3	30 November 2005	Palletized Load System, Models M1074/M1075

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*

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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 9-2320-364-34-3	DATE 30 November 2005	TITLE Palletized Load System, Models M1074/M1075

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter=10 Millimeters=0.01 Meters=0.3937 Inches
1 Meter=100 Centimeters=1000 Millimeters=39.37 Inches
1 Kilometer=1000 Meters=0.621 Miles

WEIGHTS
1 Gram=0.001 Kilograms=1000 Milligrams=0.035 Ounces
1 Kilogram=1000 Grams=2.2 Lb
1 Metric Ton=1000 Kilograms=1 Megagram=1.1 Short Tons

LIQUID MEASURE
1 Milliliter=0.001 Liters=0.0338 Fluid Ounces
1 Liter=1000 Milliliters=33.82 Fluid Ounces

SQUARE MEASURE
1 Sq Centimeter=100 Sq Millimeters=0.155 Sq Inches
1 Sq Meter=10,000 Sq Centimeters=10.76 Sq Feet
1 Sq Kilometer=1,000,000 Sq Meters=0.386 Sq Miles

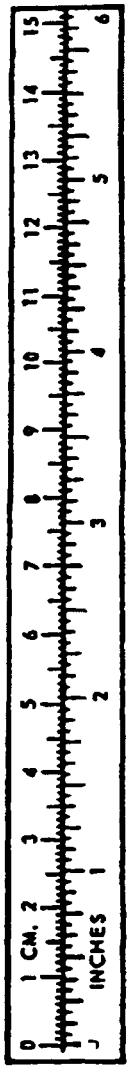
CUBIC MEASURE
1 Cu Centimeter=1000 Cu Millimeters=0.06 Cu Inches
1 Cu Meter=1,000,000 Cu Centimeters=35.31 Cu Feet

TEMPERATURE
5/9 (°F − 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° + 32 = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



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