ARMY TM 9-2320-366-10-1
AIR FORCE T.0. 36A12-1C-1091-1

TECHNICAL MANUAL
OPERATOR'S INSTRUCTIONS
M1083 SERIES, 5 TON, 6x6,
MEDIUM TACTICAL VEHICLES (MTV)

VOLUME NO. 1 OF 2

MODEL	NSN	EIC
TRK, CAR., MTV, M1083		
W/WN	**2320-01-360-1895**	**BT3**
W/O WN	**2320-01-354-3386**	**BR2**
TRK, CAR., MTV, W/MATL HDLG EQPT (MHE) M1084	**2320-01-354-3387**	**BR3**
TRK, CAR., MTV, LWB, M1085		
W/WN	**2320-01-360-1897**	**BT5**
W/O WN	**2320-01-354-4530**	**BR7**
TRK, CAR., MTV, LWB, W/MATL HDLG EQPT (MHE) M1086	**2320-01-354-4531**	**BR8**
TRK, TRACTOR, MTV, M1088		
W/WN	**2320-01-360-1892**	**BTY**
W/O WN	**2320-01-355-4332**	**BTJ**
TRK, WKR, MTV, M1089	**2320-01-354-4528**	**BR4**
TRK, DUMP, MTV, M1090		
W/WN	**2320-01-360-1893**	**BTZ**
W/O WN	**2320-01-354-4529**	**BR5**
TRK, CHAS, MTV, M1092	**2320-01-354-3382**	**BRZ**
TRK, CAR., MTV, AIR DROP, M1093		
W/WN	**2320-01-360-1896**	**BT4**
W/O WN	**2320-01-355-3063**	**BR9**
TRK, DUMP, MTV, AIR DROP, M1094		
W/WN	**2320-01-360-1894**	**BT2**
W/O WN	**2320-01-355-3062**	**BTK**
TRK, CHAS, MTV, LWB, M1096	**2320-01-354-4527**	**BR6**

TABLE OF CONTENTS ii

HOW TO USE THIS MANUAL vi

EQUIPMENT DESCRIPTION 1-17

DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS 2-3

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) 2-50

VEHICLE OPERATION 2-214

DISTRIBUTION STATEMENT A. **Approved for public release; distribution is unlimited.**

HEADQUARTERS, DEPARTMENTS OF THE ARMY AND THE AIR FORCE
15 September 1998

WARNING SUMMARY

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 any type of personnel heater or engine is operated for any purpose. Failure to comply may result in serious injury or death to personnel.

DO NOT operate heater or engine in an enclosed area without adequate ventilation.

DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment covers 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 is present, IMMEDIATELY VENTILATE personnel compartments. Treatment of affected personnel shall be: expose to fresh air; keep warm; DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give cardiopulmonary resuscitation, as described in FM 21-11, and get immediate medical attention. Failure to comply may result in serious injury or death to personnel.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU.

DO NOT operate engine in an enclosed area without adequate ventilation. NEVER sleep in a vehicle when heater is operating or the engine is idling. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY (CONT)

WARNING

Nuclear, Biological, or Chemical (NBC) contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5 and TB 700-4) are followed. The unit standard operating procedures are responsible for final disposal of contaminated air filters. Failure to comply may result in serious injury or death to personnel.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. 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. Failure to comply may result in serious injury or death to personnel.

WARNING

When required to remain inside the vehicle during extreme heat, occupants should follow the water intake, work/rest cycle, and other heat stress preventive medicine measures contained in FM 31-70, Basic Cold Weather Manual. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not touch extremely cold metal (below -26°F, -32°C). Bare skin may freeze to cold metal. Failure to comply may result in injury to personnel.

WARNING

Pressure in coolant reservoir must be released before removing cap. Failure to comply may result in injury to personnel.

WARNING

Never raise cab while occupied or when parked uphill on a steep grade. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not allow personnel near cab while cab is being lowered. Cab doors could open. Failure to comply may result in serious injury or death to personnel.

WARNING

Cab hydraulic latch must be locked before driving vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not pull seat belt more than 1 in. (2.54 cm) away from shoulder and lock comfort latch. Seat belt will not be effective if accident occurs. Failure to comply may result in serious injury or death to personnel.

WARNING

Vehicle must be secure. Chock wheels when stopped on incline. Vehicle may roll. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure vehicle is parked on level ground before changing flat tire. Vehicle may roll. Failure to comply may result in serious injury or death to personnel.

WARNING

Both suspension compression plates must be installed on axle studs. Failure to comply may result in serious injury or death to personnel.

WARNING

Engine compartment and accessories may be extremely hot when engine is running or has been running recently. Use caution around engine when cab is raised. Failure to comply may result in injury to personnel.

WARNING SUMMARY (CONT)

WARNING

Engine compartment contains a partially exposed fan blade. Use extreme caution around front of engine. Failure to comply may result in injury to personnel.

WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). Long Wheel Base (LWB) cargo cover weighs approximately 80 lbs (36 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Ensure engine oil is cool before performing any maintenance. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure safety strap is fastened across back and front of vehicle before transporting troops. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure both doors are securely closed before cab is raised/lowered. Do not allow personnel near cab when cab is being raised/lowered. Cab doors could open. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Data and instruction plates given below must be followed at all times to safely operate vehicle. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Extreme care should be taken when removing coolant fill cap if temperature gage reads above 180°F (32°C). Contact with steam or hot coolant under pressure may result. Failure to comply may result in injury to personnel.

WARNING

Tire weighs approximately 350 lbs (159 kgs). If treads of tire catch on tool box during lowering, raise tire and pull tire away from tool box and continue lowering. Use extreme care when handling tire. Failure to comply may result in injury to personnel.

WARNING

Tire weighs approximately 350 lbs (159 kgs). Use extreme care when handling tire. Failure to comply may result in injury to personnel.

WARNING

Place hydraulic jack on flat surface. Do not allow personnel under vehicle when jacking. Failure to comply may result in serious injury or death to personnel.

WARNING

Handle tire with care. Tire may have exposed broken metal cords or sharp debris in it. Failure to comply may result in injury to personnel.

WARNING

All cleaning procedures must be accomplished in well-ventilated areas. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Use caution when inflating tire. Overinflation may cause tire to blow apart. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Wheels must be chocked and service brakes applied before parking brake is re-leased. Vehicle may roll if wheels are not chocked. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY (CONT)

WARNING

Protective gloves, clothing, and/or respiratory equipment must be worn whenever caustic, toxic, or flammable cleaning solutions are used. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

A fire extinguisher must be available and ready during all cleaning operations involving solvents. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Manifold operator must stand near hydraulic manifold and observe spare tire. Guide person must stand to the right front of vehicle, well clear of spare tire. Failure to comply may result in serious injury or death to personnel.

WARNING

Cab roof weighs approximately 130 lbs (59 kgs). Use care when handling cab roof. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Vehicle must not be operated until rear panel and side panels are raised and properly secured. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Manifold operator must stand near hydraulic manifold and observe spare tire while spare tire is being lowered from cargo bed. Spare tire will gain momentum as it is being lowered. Failure to comply may result in serious injury or death to personnel.

WARNING

Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using Dry Cleaning Solvent; the flashpoint for Type I Dry Cleaning Solvent is 100 °F (38 °C) and for Type II is 138 °F (50 °C). Failure to comply may result in serious injury or death to personnel.

WARNING

If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush with cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in serious injury or death to personnel.

WARNING

Hydraulic fluid (MIL-H-5606A) is TOXIC. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic fluid should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in injury to personnel.

WARNING

Lead-acid battery gases can explode. Do not smoke, have open flames, or make sparks around a battery, especially if caps are off. Battery may give off gas which can explode. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not back up vehicle without an assistant. Operator has limited vision while backing vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Diesel fuel or gasoline must never be used for cleaning. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Remove rings, bracelets, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry may catch on equipment or may short across an electrical circuit or battery terminal. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not smoke, have open flames, or make sparks near batteries when slave starting vehicle. Batteries can explode. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure master power switch on both vehicles are turned to off before connecting NATO power cable. Vehicles must not touch each other. Failure to comply may result in serious injury or death to personnel.

WARNING

Engine dipstick is located close to starter solenoid connectors which contain 24 vdc and high amperage. Use caution removing/installing engine dipstick to prevent shorting across starter solenoids when checking engine oil level. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Diesel fuel is flammable. Do not fill fuel tank with engine running, while smoking, or when near an open flame. Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not perform fuel/water separator checks, inspections, or draining while smoking, or when near fire or sparks. Fuel could ignite. Failure to comply may result in serious injury or death to personnel.

WARNING

Applying brakes on slick surfaces may cause vehicle to skid. Apply brake pedal very lightly. Failure to comply may result in serious injury or death to personnel.

WARNING

Operating in water and mud causes brake linings to get wet and can impair vehicle braking. Dry brakes by driving vehicle about 500 ft (153 m) while applying service brakes often. If adequate braking is not restored by drying brakes, notify Unit Maintenance. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Rear axle service brakes will not operate if REAR BRAKE AIR pressure gage reads below 65 psi (448 kPa). Rear axle braking will be provided by rear spring brakes for a limited time. Allow greater stopping distance. Discontinue vehicle operation as soon as possible. Failure to comply may result in serious injury or death to personnel.

WARNING

Front axle service brakes will not operate if FRONT BRAKE AIR pressure gage reads below 65 psi (448 kPa). Allow greater stopping distance. Discontinue vehicle operation as soon as possible. Failure to comply may result in serious injury or death to personnel.

WARNING

Notify Unit Maintenance that lugnuts need to be tightened to 415-475 lb-ft (563-644 N·m) as soon as possible. Wheel may come loose if lugnuts are not tightened to proper torque. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not exceed maximum vehicle speed and grade limitations during normal operations. Do not exceed maximum approach or departure angles or ford water greater than maximum depth. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Bridges along your route may be marked with a class number. The bridge class number shows the safe capacity of the bridge. If the bridge class number on your vehicle is equal to or less than the bridge class number, the bridge will hold your vehicle. If the bridge class number on your vehicle is greater than the bridge class number; DO NOT CROSS BRIDGE. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not use HAND THROTTLE lever while driving vehicle. The HAND THROTTLE lever is not to be used as a cruise control. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Vehicle speed should be reduced to 5-10 mph (8-16 km/h) during blackout conditions. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not press brake pedal hard three or four times in a row. Air supply will be used up and service brakes will not work until air pressure builds up again. Do not operate vehicle until FRONT and REAR BRAKE AIR pressure reaches at least 100 psi (690 kPa). Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Transmission incorporates a hold feature to prohibit upshifting above selected gear during normal driving. However, during downhill operation, transmission may upshift above selected gear. On downgrades, vehicle speed may need to be restricted by using service brakes. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Avoid driving diagonally across a hill. Vehicle could roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not straddle or drive on sides of sand mounds. Loose sand will not support vehicle on steep slopes. Avoid driving diagonally across a hill. Vehicle may roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Brake pedal must be held down and personnel kept clear of vehicle path while WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) or WTEC III transmission Pushbutton Shift Selector (TPSS) is in DRIVE. Transmission will sometimes shift into third gear when in cold operation. Transmission will shift into second when engine reaches operating temperature (165° F (74°C) on WATER TEMP gage) causing the vehicle to lurch or move forward. The vehicle cannot move if SYSTEM PARK is engaged and the brake pedal is held down. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not leave vehicle at any time without first returning HAND THROTTLE lever to full down position and placing transmission to Neutral. Failure to comply may result in serious injury or death to personnel.

WARNING

The engine must be shut down prior to exhaust restrictor removal. Failure to comply may result in injury to personnel.

WARNING

Do not handle exhaust restrictor or tailpipe with bare hands. Failure to comply may result in injury to personnel.

WARNING

Towing vehicle and disabled vehicle must have parking brakes applied before connecting/disconnecting towbar. Vehicle may roll into each other. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY (CONT)

WARNING

Towbar weighs approximately 150 lbs (68 kgs) and requires two or more personnel to carry. Failure to comply may result in injury to personnel.

WARNING

Do not place hands near pintle hook when connecting/disconnecting towbar from pintle hook. Towing vehicle may move suddenly. Failure to comply may result in injury to personnel.

WARNING

Personnel must not occupy towed vehicle during towing operation. Towed vehicle may become disconnected while being towed. Failure to comply may result in serious injury or death to personnel.

WARNING

Ground guide is required to guide vehicle backing up. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.

WARNING

Use care when installing exhaust pipe extension. Failure to comply may result in injury to personnel.

WARNING

Ensure no one is behind tailgate before dump body is raised. Failure to comply may result in serious injury or death to personnel.

WARNING

Set up stifflegs if load is swung around rear of vehicle. Vehicle could turn over if not supported. Failure to comply may result in serious injury or death to personnel.

WARNING

Underlift assembly must be operated with remote control if Operator is not able to keep underlift assembly and disabled vehicle in sight at all times during operation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Stinger cam lock must be locked into first rectangular hole on stinger before underlift assembly is folded into its stowed position. Crossbar could shift suddenly. Failure to comply may result in injury to personnel.

WARNING

Goggles must be worn when using wrecker control panel. Blowing dust and debris may become airborne while engine is running. Failure to comply may result in injury to personnel.

WARNING

Ensure there are at least five wraps of cable on hoist drum at all times. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not exceed rated payload of vehicle. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Sandshoe weighs approximately 70 lbs (32 kgs). Use the aid of an assistant to lower/raise sandshoe. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Keep hands and feet clear of stifflegs during operation. Failure to comply may result in injury to personnel.

WARNING

Do not raise vehicle tires off ground with stifflegs. Vehicle may roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Stifflegs must be positioned so that vehicle is level from side to side. Vehicle may roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Slowly take out slack in cable before recovering equipment. Failure to comply may result in serious injury or death to personnel.

WARNING

Use extreme caution when disconnecting cable. Cable may spin rapidly to the left approximately 1 1/2 turns when disconnected. Failure to comply may result in serious injury or death to personnel.

WARNING

Keep all personnel clear of area when tension is on cable. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

M1089 should not be operated at speeds over 15 mph (24 km/h) when towing, except on paved roads when Operator determines terrain conditions allow safe operation. The following are maximum speeds for safe operation.

WARNING

TERRAIN CONDITION	MAXIMUM SPEED
on road (level)	35 mph (56 km/h)
on road (hilly)	30 mph (48 km/h)
off road	15 mph (24 km/h)

Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

M1089 and disabled vehicle must have parking brakes applied before connecting/disconnecting towbar. Failure to comply may cause vehicles to roll into each other and may result in serious injury or death to personnel or damage to equipment.

WARNING

Never stand against or between tractor tires, stand between tractor and trailer, allow anyone behind trailer during movement, or allow anyone to stand on opposite side of operator during fifth wheel release. Always chock trailer tires before coupling, connect trailer brakes air supply and set trailer brakes before sliding fifth wheel. Use release tool when releasing and engaging slide latch lever. Failure to comply may result in serious injury or death to personnel.

WARNING

Use release tool with hook side up when closing slide latch release lever. Failure to comply may result in injury to personnel.

WARNING

Underlift assembly must be operated with remote control if Operator is not able to keep underlift assembly and disabled vehicle in sight at all times during operation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Keep personnel clear of underlift assembly and disabled vehicle when raising. Disabled vehicle could fall suddenly. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY (CONT)

WARNING

M1089 hydraulic hoses are under 3,000 lbs (13,344 N) pressure and must be handled carefully to prevent damage or personal injury. Failure to comply may result in serious injury or death to personnel.

WARNING

MODE SELECTOR SWITCH must be in NORMAL position to relieve pressure before disconnecting hydraulic hoses. Failure to comply may result in serious injury or death to personnel.

WARNING

Keep hands and feet clear of outriggers during operation. Failure to comply may result in injury to personnel.

WARNING

Keep boom clear of all electrical lines and other obstacles while operating Material Handling Crane (MHC). Failure to comply may result in serious injury or death to personnel.

WARNING

Area must be clear of personnel before operating swing or telescoping boom. Boom must be rotated and telescoped slow enough so Operator has control of load. If Operator cannot see load during operation, operate Material Handling Crane (MHC) with REMOTE CONTROL UNIT. Failure to comply may result in serious injury or death to personnel.

WARNING

Operator must keep load in sight at all times while operating Material Handling Crane (MHC). Load may unexpectedly shift. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not operate Material Handling Crane (MHC) and 15K Self-Recovery Winch (SRW) at the same time. Load may unexpectedly shift. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not operate Material Handling Crane (MHC) unless outriggers are set up and MHC is level from side to side. Failure to comply may result in serious injury or death to personnel.

WARNING

Material Handling Crane (MHC) must be operated with REMOTE CONTROL UNIT if Operator is not able to keep load in sight at all times during operation. Failure to comply may result in serious injury or death to personnel.

WARNING

Main panel Material Handling Crane (MHC) controls must not be used when REMOTE CONTROL UNIT is connected. MHC may move inadvertently. Failure to comply may result in serious injury or death to personnel.

WARNING

Wheels must always be chocked before operating Material Handling Crane (MHC). Vehicle may move or load may shift. Failure to comply may result in serious injury to personnel or damage to equipment.

WARNING

Goggles must be worn while operating Material Handling Crane (MHC) controls. Blowing dust and debris may become airborne while engine is running. Failure to comply may result in serious injury to personnel.

WARNING

Outriggers must be positioned so that Material Handling Crane (MHC) is level from side to side. Use of MHC when vehicle is not level can cause vehicle to roll over. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY (CONT)

WARNING

Attach guide lines to load to keep control of load at all times. An assistant is required to attach guide lines. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not raise vehicle tires off ground with outriggers. Vehicle may roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

There must always be at least five wraps of cable on 15K Self-Recovery Winch (SRW). If load is applied with less than five wraps of cable on 15K SRW, cable may come loose on drum. Failure to comply may result in serious injury or death to personnel.

WARNING

Keep all personnel clear of area when tension is on cable. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure line pull does not exceed capacity of 15K Self-Recovery Winch (SRW). Failure to comply may result in serious injury or death to personnel.

WARNING

Cab protector is spring loaded and weighs approximately 180 lbs (82 kgs). Hold cab protector down before removing pins. Slowly allow cab protector to raise to vertical position after pins are removed. Failure to comply may result in injury to personnel.

WARNING

Cab protector is spring loaded and weighs approximately 180 lbs (82 kgs). Keep pressure on cab protector when lowering and when installing pins. Failure to comply may result in injury to personnel.

WARNING

Do not press dump TAILGATE switch while tailgate is not connected at the top. Tailgate will fall from dump body. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Ensure no one is behind tailgate before dump body is raised. Failure to comply may result in serious injury or death to personnel.

WARNING

Dump body must be supported by maintenance legs at any time that maintenance is performed with dump body up. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Assistant must stand clear when dump body is being lowered. Failure to comply may result in injury to personnel.

WARNING

Dump cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift dump cover. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Position of assistant must be known at all times. Do not allow anyone to stand between tractor and trailer, behind trailer, or under trailer neck during coupling of tractor to trailer. Failure to comply may result in serious injury or death to personnel.

WARNING

Trailer wheels must be chocked before coupling/uncoupling with fifth wheel. Trailer wheels may roll if they are not chocked. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Listen for air leaks coming from the connections at the service and emergency gladhands. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Use this procedure only in the event of an emergency. Using the MANUAL OVERRIDE switch to operate the Material Handling Crane (MHC) defeats the overload shutdown circuits and allows the MHC to exceed the rated capacity. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not attempt to use hydraulic jack without jack adapter installed. Failure to comply may result in serious injury or death to personnel.

WARNING

Place hydraulic jack on flat surface. Do not allow personnel under vehicle when jacking. Failure to comply may result in serious injury or death to personnel.

WARNING

Extreme care should be taken when removing coolant fill cap if temperature gage reads above 180°F (82°C). Contact with steam or hot coolant under pressure may result. Failure to comply may result in injury to personnel.

WARNING

Pressure in coolant reservoir must be released before removing cap. Failure to comply may result in injury to personnel.

WARNING

Use care when removing debris from engine fan. Engine components will be hot. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kgs). An assistant is required to remove LMHC boom and winch. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). An assistant is required to remove mast from cargo bed pocket. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kg). An assistant is required to install boom and winch. Failure to comply may result in injury to personnel.

WARNING

Cargo bed is approximately 5 ft (600 mm) above ground level. Use care during any Light Material Handling Crane (LMHC) operation. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure that wheels are chocked prior to setting up Light Material Handling Crane (LMHC). Failure to comply may result in injury to personnel.

WARNING

Power cable must be connected to Light Material Handling Crane (LMHC) before being connected to circuit breaker box. Failure to comply may result in serious injury or death to personnel.

WARNING

Determine required Light Material Handling Crane (LMHC) settings prior to raising boom. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Ensure there are at least two wraps of cable on hoist drum at all times. Cable could come off hoist drum while load is being lifted. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Safety ring must be installed on handle and pin installed on bracket prior to moving handle to upright position. Failure to comply will result in injury to personnel.

WARNING

Chock wheels when stopped on incline. Vehicle may roll downhill. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

When operating vehicle in snowy or icy conditions, apply the brake pedal momentarily, every few miles. This will ensure that brake linings do not become encrusted with snow or ice. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Do not change tire pressure with tire chains installed. Changing tire pressure with tire chains installed could result in chain slippage. Failure to comply may result in serious injury to personnel or damage to equipment.

WARNING

DO NOT flat tow a fully loaded MTV and trailer combination. The MTV wrecker towbar can be damaged if weight capacity is exceeded. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

When towing a vehicle with nonfunctional brakes, use extreme caution and reduce/adjust speed accordingly. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Vehicle Operator and all crew members must wear properly fitted and approved hearing protection devices when operating M1084 and M1085 cargo vehicles at speeds of 50 MPH (80 km/h) and above. Failure to comply may result in injury to personnel.

WARNING

Vehicle Operator and all crew members must wear properly fitted and approved hearing protection devices when operating the M1089 wrecker at speeds of 40 MPH (64 km/h) and above. Failure to comply may result in injury to personnel.

WARNING

Operators of the M1084, M1086, and M1089 Material Handling Cranes (MHC) must wear properly fitted and approved hearing protection devices during all craning operations. Failure to comply may result in injury to personnel.

WARNING

All personnel working within 12 ft (3.5 m) of an operating M1084 or M1085 cargo vehicle must wear properly fitted and approved hearing protection devices. Failure to comply may result in injury to personnel.

WARNING

All personnel working with 18 ft (5.5 m) of an operating M1089 wrecker must wear properly fitted and approved hearing protection devices. Failure to comply may result in injury to personnel.

WARNING

Personnel firing the M240/M2HB machine gun or Mark 19 grenade launcher from an FMTV vehicle during training exercises must be wearing properly fitted and approved hearing protection devices. Failure to comply may result in injury to personnel.

WARNING SUMMARY (CONT)

WARNING

All personnel within 180 ft (55 m) of weapons being fired from an FMTV vehicle during training exercises must be wearing properly fitted and approved hearing protection devices. Failure to comply may result in injury to personnel.

WARNING

When mission requires the vehicle Operator and crew to remain in a stationary FMTV vehicle with the engine running in outside temperatures above 90°F (32°C), vehicle Operator and crew must observe proper safety precautions to prevent heat stress injury. Refer to FM 21-10 Field Hygiene and Sanitation, and FM 21-11 First Aid for Soldiers for proper precautions and preventive measures. Failure to comply may result in injury to personnel.

WARNING

When mission requires the vehicle Operator and crew to operate the FMTV vehicle in outside temperatures above 90°F (32°C) with the windows closed, vehicle Operator and crew must observe proper safety precautions to prevent heat stress injury. Refer to FM 21-10 Field Hygiene and Sanitation, and FM 21-11 First Aid for Soldiers for proper precautions and preventive measures. Failure to comply may result in injury to personnel.

LIST OF EFFECTIVE PAGES

Insert latest changed pages. Destroy superseded pages.

NOTE: New or changed material is indicated by a vertical bar in the outer margin of the page.

Dates of issue for original and changed pages are:

Original..... 0 .....15 September 1998
Change..... 1 .....31 May 2001

THE TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 1598, CONSISTING OF THE FOLLOWING:

Page No.	*Change No.
VOLUME 1	
Cover	0
Blank	0
a thru x	1
A thru D Added	1
i thru ix	1
x Blank	0
1-1 thru 1-16	0
1-17 and 1-18	1
1-19 thru 1-22	0
1-23	1
1-24 thru 1-36	0
1-36.1 Added	1
1-36.2 Blank Added	1
1-37	1
1-38	0
1-39 thru 1-42	1
1-43 and 1-44	0
1-45 thru 1-48	1
1-49	0
1-50	1
1-51	0
1-52	1
1-53	0
1-54	1
1-55 and 1-56	0
1-57	1
1-58	0
1-59	1
1-60 and 1-61	0
1-62	1
1-63 thru 1-65	0
1-66	1
1-67 thru 1-71	0
1-72	1
1-73 thru 1-76	0
2-1	0
2-2 thru 2-4	1
2-5	0
2-6	1
2-7	0
2-8 and 2-9	1
2-10	0
2-11	1
2-12 and 2-13	0
2-14	1
2-15 thru 2-23	0
2-24	1
2-25	0
2-26	1
2-27	0
2-28 and 2-29	1
2-30	0
2-31	1
2-32 thru 2-46	0
2-47	1
2-48 Blank	1
2-49 Blank	1
2-50	1
2-51 thru 2-54	0
2-55 and 2-56	1
2-57 thru 2-59	0
2-60	1
2-60.1 and 2-60.2 Added	1
2-61 thru 2-63	1
2-64	0
2-65 thru 2-68	1
2-69	0
2-70	1
2-71	0
2-72	1
2-73 and 2-74	0
2-75 thru 2-77	1
2-78	0
2-79 and 2-80	1
2-80.1 Added	1
2-80.2 Blank Added	1
2-81 and 2-82	0
2-83 thru 2-85	1
2-86 and 2-87	0
2-88 and 2-89	1
2-90	0
2-91	1
2-92	0
2-93 and 2-94	1
2-94.1 Added	1
2-94.2 Blank Added	1
2-95	1
2-96 thru 2-98	0
2-99 and 2-100	1
2-101 thru 2-104	0
2-105 thru 2-107	1
2-108	0
2-109 thru 2-112	1
2-113 and 2-114	0
2-115	1
2-116 and 2-117	0
2-118 and 2-119	1
2-120	0
2-121	1
2-122 thru 2-124	0
2-125	1
2-126	0
2-127 and 2-128	1
2-129 thru 2-134	0
2-135	1
2-136 thru 2-140	0
2-141	1
2-142	0
2-143 and 2-144	1
2-145 thru 2-173	0
2-174 and 2-175	1
2-176 and 2-177	0
2-178	1
2-179 thru 2-181	0
2-182 thru 2-184	1
2-185	0
2-186	1
2-187 thru 2-196	0
2-197	1
2-198	0
2-199	1
2-200 thru 2-203	0
2-204 and 2-205	1
2-206 thru 2-211	0

***** Zero in this column indicates an original page.

LIST OF EFFECTIVE PAGES (CONT)

Insert latest changed pages. Destroy superseded pages.

Page No.	*Change No.
2-212	1
2-212.1 Added	1
2-212.2 Blank Added	1
2-213 and 2-214	1
2-215	0
2-216 thru 2-219	1
2-220	0
2-221 thru 2-223	1
2-224	0
2-225	1
2-226 thru 2-230	0
2-231	1
2-232 thru 2-236	0
2-237	1
2-238 thru 2-239	0
2-240 thru 2-242	1
2-243	0
2-244 and 2-245	1
2-246	0
2-247	1
2-248 and 2-249	0
2-250	1
2-251 thru 2-261	0
2-262 and 2-263	1
2-264 thru 2-268	0
2-269	1
2-270 thru 2-273	0
2-274	1
2-275 and 2-276	0
2-277	1
2-278 thru 2-292	0
2-293 and 2-294	1
2-295 thru 2-298	0
2-298.1 thru 2-298.3 Added	1
2-298.4 Blank Added	1
2-299 and 2-300	1
2-300.1 thru 2-300.63 Added	1
2-300.64 Blank Added	1
2-301 thru 2-322	1
2-323 thru 2-332	0
2-333	1
2-334 thru 2-355	0
2-356 thru 2-358	1
2-359	0
2-360	1
2-361	0
2-362	1
2-363	0
2-364	1
2-365	0
2-366	1
2-367	0
2-368	1
2-369	0
2-370	1
2-371	0
2-372	1
2-373	0
2-374	1
2-375	0
2-376	1
2-377	0
2-378	1
2-379 thru 2-390	0
2-391 and 2-392	1
2-393 and 2-394	0
2-395	1
2-396 thru 2-401	0
2-402	1
2-403	0
2-404 and 2-405	1
2-406	0
2-407	1
2-408 thru 2-411	0
2-412	1
2-413	0
2-414 and 2-415	1
2-416 thru 2-420	0
2-421	1
2-422 and 2-423	0
2-424 thru 2-429	1
2-430 and 2-431	0
2-432 Blank	0
A-1 and A-2	0
A-3	1
A-4 Blank	0
B-1 and B-2	0
B-3 thru B-25	1
B-26 Blank	1
B-27 and B-28 Deleted	1
C-1	0
C-2 thru C-4	1
D-1	0
D-2 thru D-4	1
E-1	0
E-2	1
E-3 thru E-6	0
E-7	1
E-8 thru E-10	0
F-1	0
F-2 thru F-4	1
F-5 and F-6	0
F-7	1
F-8 thru F-11	0
F-12 and F-13	1
F-14 and F-15	0
F-16	1
INDEX-1 thru INDEX-53	1
INDEX-54 Blank	1
VOLUME 2	
Cover	1
Blank	0
a thru v	1
w and x Added	1
A and B Added	1
i thru v	1
vi Blank	0
2-433 and 2-434	1
2-435 thru 2-449	0
2-450	1
2-451	0
2-452 and 2-453	1
2-454 thru 2-462	0
2-463	1
2-464 thru 2-466	0
2-467 and 2-468	1
2-468.1 Added	1
2-468.2 Blank Added	1
2-469 thru 2-485	0
2-486 thru 2-490	1
2-491 and 2-492	0
2-493	1
2-494 thru 2-498	0
2-499	1
2-500 and 2-501	0
2-502	1
2-503 thru 2-506	0
2-507	1
2-508	0
2-509	1
2-510 thru 2-514	0
2-515	1
2-516 and 2-517	0
2-518	1
2-519 thru 2-523	0
2-524 and 2-525	1
2-526 thru 2-529	0
2-530	1
2-531 and 2-532	0
2-533	1
2-534 thru 2-538	0
2-539 and 2-540	1

* Zero in this column indicates an original page.

LIST OF EFFECTIVE PAGES (CONT)

Insert latest changed pages. Destroy superseded pages.

Page No.	*Change No.
2-541 thru 2-544	0
2-545	1
2-546 and 2-547	0
2-548	1
2-549 thru 2-552	0
2-553 and 2-554	1
2-555 thru 2-559	0
2-560	1
2-561 and 2-562	0
2-563	1
2-564 thru 2-567	0
2-568	1
2-569	0
2-570	1
2-571 thru 2-574	0
2-575	1
2-576 and 2-577	0
2-578	1
2-579 thru 2-582	0
2-583 and 2-584	1
2-585 thru 2-594	0
2-595	1
2-596 and 2-597	0
2-598	1
2-599 thru 2-605	0
2-606 and 2-607	1
2-608 thru 2-611	0
2-612 and 2-613	1
2-614 and 2-615	0
2-616 and 2-617	1
2-618	0
2-619	1
2-620 and 2-621	0
2-622 thru 2-624	1
2-624.1 Added	1
2-624.2 Blank Added	1
2-625 thru 2-630	0
2-631	1
2-632 and 2-633	0
2-634	1
2-635 thru 2-641	0
2-642	1
2-642.1 Added	1
2-642.2 Blank Added	1
2-643	1
2-644 thru 2-649	0
2-650 and 2-651	1
2-652 and 2-653	0
2-654 and 2-655	1
2-656 thru 2-659	0
2-660	1
2-661 thru 2-676	0
2-677	1
2-678 thru 2-686	0
2-687	1
2-688 thru 2-693	0
2-694 thru 2-696	1
2-697 thru 2-700	0
2-700.1 Added	1
2-700.2 Blank Added	1
2-701 thru 2-717	0
2-718	1
2-719	0
2-720	1
2-721 and 2-722	0
2-723	1
2-724 thru 2-736	0
2-737 and 2-738	1
2-738.1 Added	1
2-738.2 Blank Added	1
2-739 and 2-740	1
2-741 thru 2-747	0
2-748	1
2-748.1 Added	1
2-748.2 Blank Added	1
2-749 and 2-750	1
2-751 and 2-752	0
2-753	1
2-754 Blank	1
2-755 thru 2-758 Deleted	1
2-759	1
2-760 thru 2-776	0
2-777	1
2-778 Blank	1
2-779 thru 2-786 Deleted	1
2-787 Blank	1
2-788 thru 2-793	1
2-794 thru 2-803	0
2-804	1
2-805 thru 2-817	0
2-818 thru 2-821	1
2-822 Blank	1
2-823 thru 2-848 Deleted	1
2-849	1
2-850	0
2-851	1
2-852 thru 2-860	0
2-861	1
2-862 thru 2-873	0
2-874	1
2-875 thru 2-881	0
2-882	1
2-883	0
2-884 thru 2-886	1
2-887 thru 2-894	0
3-1 thru 3-84	1
3-84.1 thru 3-84.20 Added	1
3-85 and 3-86	1
3-87 and 3-88	0
3-89 thru 3-92	1
3-93 thru 3-95	0
3-96 thru 3-100	1
3-101	0
3-102	1
3-103 thru 3-105	0
3-106	1
3-107 thru 3-118	0
3-119 thru 3-122	1
3-123	0
3-124 thru 3-128	1
3-128.1 thru 3-128.6 Added	1
3-129 and 3-130	0
3-131 and 3-132	1
3-132.1 thru 3-132.3 Added	1
3-132.4 Blank Added	1
3-133 thru 3-140	1
3-141	0
3-142 thru 3-144	1
3-144.1 and 3-144.2 Added	1
3-145 and 3-146	1
3-146.1 thru 3-146.6 Added	1
3-147 thru 3-163	1
3-164	0
3-165 thru 3-167	1
3-168 thru 3-171	0
3-172	1
3-173 thru 3-181	0
3-182	1
3-183 thru 3-186	0
3-187 thru 3-189	1
3-190 thru 3-192	0
3-193	1
3-194	0
3-195 and 3-196	1
3-197 and 3-198	0
3-199 and 3-200	1
3-201	0
3-202	1
3-203	0
3-204	1
3-205	0
3-206	1

* Zero in this column indicates an original page.

LIST OF EFFECTIVE PAGES (CONT)

Insert latest changed pages. Destroy superseded pages.

Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
3-207	0				
3-208	1				
3-209 thru 2-228	0				
3-229 thru 3-231 Added	1				
3-232 Blank Added	1				
A-1 and A-2	0				
A-3	1				
A-4 Blank	0				
B-1 and B-2	0				
B-3 thru B-25	1				
B-26 Blank	1				
B-27 and B-28 Deleted	1				
C-1	0				
C-2 thru C-4	1				
D-1	0				
D-2 thru D-4	1				
E-1	0				
E-2	1				
E-3 thru E-6	0				
E-7	1				
E-8 thru E-10	0				
F-1	0				
F-2 thru F-4	1				
F-5 and F-6	0				
F-7	1				
F-8 thru F-11	0				
F-12 and F-13	1				
F-14 and F-15	0				
F-16	1				
INDEX-1 thru INDEX-44	1				
INDEX-45 and INDEX-46 Deleted	1				

* Zero in this column indicates an original page.

ARMY TM 9-2320-366-10-1
AIR FORCE T.O. 36A12-1C-1091-1

CHANGE NO. 1

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE

Washington, D.C., 31 May 2001

OPERATOR'S INSTRUCTIONS MANUAL
M1083 SERIES, 5-TON, 6x6,
MEDIUM TACTICAL VEHICLE (MTV)

VOLUME NO. 1 OF 2

TM 9-2320-366-10-1, 15 September 1998, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the outer margin of the page.
3. Added or revised illustrations are indicated by a vertical bar adjacent to the illustration.

Remove Pages	Insert Pages	Remove Pages	Insert Pages
a thru w/(x Blank)	a thru x	2-125 thru 2-128	2-125 thru 2-128
none	A thru D	2-135 and 2-136	2-135 and 2-136
i thru ix/(x Blank)	i thru ix/(x Blank)	2-141 thru 2-144	2-141 thru 2-144
1-17 and 1-18	1-17 and 1-18	2-173 thru 2-178	2-173 thru 2-178
1-23 and 1-24	1-23 and 1-24	2-181 thru 2-186	2-181 thru 2-186
none	1-36.1/(1-36.2 Blank)	2-197 thru 2-200	2-197 thru 2-200
1-37 thru 1-42	1-37 thru 1-42	2-203 thru 2-206	2-203 thru 2-206
1-45 thru 1-54	1-45 thru 1-54	2-211 and 2-212	2-211 and 2-212
1-57 thru 1-62	1-57 thru 1-62	none	2-212.1/(2-212.2 Blank)
1-65 and 1-66	1-65 and 1-66	2-213 thru 2-226	2-213 thru 2-226
1-71 and 1-72	1-71 and 1-72	2-231 and 2-232	2-231 and 2-232
2-1 thru 2-14	2-1 thru 2-14	2-237 thru 2-250	2-237 thru 2-250
2-23 thru 2-32	2-23 thru 2-32	2-261 thru 2-264	2-261 thru 2-264
2-47 and 2-48	2-47/(2-48 Blank)	2-269 and 2-270	2-269 and 2-270
2-49 and 2-50	(2-49 Blank)/2-50	2-273 and 2-274	2-273 and 2-274
2-55 and 2-56	2-55 and 2-56	2-277 and 2-278	2-277 and 2-278
2-59 and 2-60	2-59 and 2-60	2-293 and 2-294	2-293 and 2-294
none	1-60.1 and 2-60.2	none	2-298.1 thru 2-298.3/
2-61 thru 2-72	2-61 thru 2-72		(2-298.4 Blank)
2-75 thru 2-80	2-75 thru 2-80	2-299 and 2-300	2-299 and 2-300
none	2-80.1/(2-80.2 Blank)	none	2-300.1 thru 2-300.63/
2-83 thru 2-88	2-83 thru 2-88		(2-300.64 Blank)
2-89 and 2-90	2-89 and 2-90	2-301 thru 2-322	2-301 thru 2-322
2-91 thru 2-94	2-91 thru 2-94	2-333 and 2-334	2-333 and 2-334
none	2-94.1/(2-94.2 Blank)	2-355 thru 2-378	2-355 thru 2-378
2-95 and 2-96	2-95 and 2-96	2-391 and 2-392	2-391 and 2-392
2-99 and 2-100	2-99 and 2-100	2-395 and 2-396	2-395 and 2-396
2-105 thru 2-112	2-105 thru 2-112	2-401 thru 2-408	2-401 thru 2-408
2-115 thru 2-122	2-115 thru 2-122	2-411 thru 2-416	2-411 thru 2-416

Place this change sheet in the front of the publication for reference purposes.

Remove Pages	Insert Pages	Remove Pages	Insert Pages
2-421 thru 2-430	2-421 thru 2-430		
A-3/(A-4 Blank)	A-3/(A-4 Blank)		
B-3 thru B-24	B-3 thru B-25/ (B-26 Blank)		
B-27 and B-28	none		
C-1 thru C-3/ (C-4 Blank)	C-1 thru C-4		
D-1 thru D-4	D-1 thru D-4		
E-1 and E-2	E-1 and E-2		
E-7 and E-8	E-7 and E-8		
F-1 thru F-4	F-1 thru F-4		
F-7 and F-8	F-7 and F-8		
F-11 thru F-16	F-11 thru F-16		
INDEX-1 thru INDEX-53/ (INDEX-54 Blank)	INDEX-1 thru INDEX-53/ (INDEX-54 Blank)		
DA Form 2028-2 Sample	none		
DA Form 2028-2	none		
DA Form 2028-2	none		
DA Form 2028-2	none		
Metric Conversion Chart	Metric Conversion Chart		

Place this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United Stales Army
Chief of Staff

JOEL B. HUDSON
Administrative Assistant to the
Secretary *of* **the Army**
0034208

DISTRIBUTION: To be distributed in accordance with the initial distribution number (IDN) 380938, requirements for TM 9-2320-366-10-1.

TECHNICAL MANUAL
NO. 9-2320-366-10-1

TECHNICAL ORDER
NO. 36A12-1C-1091-1

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE

Washington, D.C., 15 September 1998

Operator's Instructions Manual
M1083 SERIES, 5-TON, 6x6,
MEDIUM TACTICAL VEHICLES (MTV)
VOLUME NO. 1 OF 2

MODEL	NSN	EIC
TRK, CAR., MTV, M1083		
W/WN	2320-01-360-1895	BT3
W/O WN	2320-01-354-3386	BR2
TRK, CAR., MTV, W/MATL HDLG EQPT (MHE) M1084	2320-01-354-3387	BR3
TRK, CAR., MTV, LWB, M1085		
W/WN	2320-01-360-1897	BT5
W/O WN	2320-01-354-4530	BR7
TRK, CAR., MTV, LWB, W/MATL HDLG EQPT (MHE) M1086	2320-01-354-4531	BR8
TRK, TRACTOR, MTV, M1088		
W/WN	2320-01-360-1892	BTY
W/O WN	2320-01-355-4332	BTJ
TRK, WKR, MTV, M1089	2320-01-354-4528	BR4
TRK, DUMP, MTV, M1090		
W/WN	2320-01-360-1893	BTZ
W/O WN	2320-01-354-4529	BR5
TRK, CHAS, MTV, M1092	2320-01-354-3382	BRZ
TRK, CAR., MTV, AIR DROP, M1093		
W/WN	2320-01-360-1896	BT4
W/O WN	2320-01-355-3063	BR9
TRK, DUMP, MTV, AIR DROP, M1094		
W/WN	2320-01-360-1894	BT2
W/O WN	2320-01-355-3062	BTK
TRK, CHAS, MTV, LWB, M1096	2320-01-354-4527	BR6

REPORTING 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 (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 or DA Form 2028 direct to: AMSTA-LC-CI/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, 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.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

TABLE OF CONTENTS

Page

HOW TO USE THIS MANUAL vi

CHAPTER 1. INTRODUCTION 1-1

Section I. General Information 1-1

Section II Equipment Description 1-17

Section III. Principles of Operation 1-50

CHAPTER 2. OPERATING INSTRUCTIONS 2-1

Section I. Description and Use of Operator's Controls and Indicators 2-3

Section II. Preventive Maintenance Checks and Services 2-50

Section III. Operation Under Usual Conditions 2-207

Section IV. Operation Under Unusual Conditions 2-720

Page

CHAPTER 3. MAINTENANCE INSTRUCTIONS 3-1

Section I. Lubrication Instructions 3-1

Section II. Troubleshooting Procedures 3-2

Section III. Maintenance Procedures 3-87

APPENDIX A. REFERENCES A-1

APPENDIX B. COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) B-1

APPENDIX C. ADDITIONAL AUTHORIZATION LIST (AAL) C-1

APPENDIX D. EXPENDABLE AND DURABLE ITEMS LIST D-1

APPENDIX E. STOWAGE LOCATION/DECAL/STENCIL GUIDE E-1

APPENDIX F. LUBRICATION ORDER F-1

ALPHABETICAL (SUBJECT) INDEX INDEX-1

LIST OF ILLUSTRATIONS

Figure	Title	Page
1-1	M1083 Truck, Cargo: 5-Ton, 6x6, Dropside	1-3
1-2	M1084 Truck, Cargo: 5-Ton, 6x6, Dropside, W/MHC	1-4
1-3	M1085 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB	1-5
1-4	M1086 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB, W/MHC	1-6
1-5	M1088 Truck, Tractor: 5-Ton, 6x6	1-7
1-6	M1089 Truck, Wrecker: 5-Ton, 6x6	1-8
1-7	M1090 Truck, Dump: 5-Ton, 6x6	1-9
1-8	M1092 Truck, Chassis: 5-Ton, 6x6	1-10
1-9	M1093 Truck, Cargo 5-Ton, 6x6, Dropside, Air Drop	1-11
1-10	M1094 Truck, Dump: 5-Ton, 6x6, Air Drop	1-12

LIST OF ILLUSTRATIONS (CONT)

Figure	Title	Page
1-11	M1096 Truck, Chassis: 5-Ton, 6x6, LWB	1-13
1-12	Common Vehicle Components Location	1-19
1-13	M1083 and M1085 Cargo Vehicles and M1093 Air Drop Cargo Vehicles Components Location	1-26
1-14	M1084 and M1086 Cargo Vehicles With Material Handling Crane (MHC) Components Location	1-27
1-15	M1088 Tractor Components Location	1-28
1-16	M1090 and M1094 Dump Truck Components Location	1-30
1-17	M1089 Wrecker Components Location	1-31
1-18	M1093 and M1094 Air Drop Vehicle Components Location	1-35
1-19	Powertrain	1-50
1-20	Engine Air Intake System	1-53
1-21	Fuel System	1-54
1-22	Cooling System	1-56
1-23	Electrical System	1-59
1-24	Brake System	1-63
1-25	15K Self-Recovery Winch (SRW)	1-65
1-26	Material Handling Crane (MHC)	1-68
1-27	Material Handling Crane (MHC), 30K Winches, and Underlift Assembly	1-71
1-28	Air System	1-75
2-1	Instrument Panel Controls and Indicators	2-3
2-2	Lighted Indicator Display	2-7
2-3	Main Light Switch	2-10
2-4	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS)	2-11
2-5	WTEC III Transmission Pushbutton Shift Selector (TPSS)	2-12
2-6	Auxiliary Panel Controls and Indicators for M1083, M1084, M1085, M1086, M1088, M1089, and M1093	2-13
2-7	Auxiliary Panel Controls and Indicators for M1090 and M1094	2-15
2-8	Air System Controls	2-16
2-9	Heater/Defrost Controls	2-17
2-10	Central Tire Inflation System (CTIS) Electronic Control Unit (ECU) Controls and Indicators	2-18
2-11	Steering Column Controls	2-19
2-12	Floor-Mounted Controls	2-20
2-13	Door-Mounted Controls	2-21
2-14	Driver's Seat Controls	2-22
2-15	Right Passenger Seat Controls	2-22
2-16	Passenger Side Exterior Controls	2-23
2-17	Hydraulic Manifold Controls	2-24
2-18	Driver's Side Exterior Controls and Indicators	2-25

LIST OF ILLUSTRATIONS (CONT)

Figure	Title	Page
2-19	Material Handling Crane (MHC) Controls	2-26
2-20	Material Handling Crane (MHC) Remote Control	2-28
2-21	Cargo Truck with Material Handling Crane (MHC) Boom Angle and Extension Indicators	2-29
2-22	Exterior Dump Body Controls	2-30
2-23	Tractor Fifth Wheel Controls	2-31
2-24	Wrecker Control Panel Fixed Operators Station	2-32
2-25	Wrecker Remote Control	2-36
2-26	Wrecker Material Handling Crane (MHC) Controls	2-39
2-27	Wrecker Material Handling Crane (MHC) REMOTE CONTROL UNIT	2-42
2-28	Other Wrecker and Material Handling Crane (MHC) Controls and Indicators	2-43
2-29	Troop Transport Alarm Switch	2-46
2-30	Light Material Handling Crane (LMHC)	2-47
2-31	Deleted	
2-32	Deleted	
2-33	Area Definition Chart	2-661

LIST OF TABLES

Number	Title	Page
1-1	Differences Between Models	1-36
1-2	Vehicle Dimensions	1-38
1-3	Vehicle Weights and Payloads	1-39
1-4	Vehicle Performance Data	1-41
1-5	Fluid Capacities	1-42
1-6	System Data	1-42
1-7	Vehicle Classification	1-49
2-1	Preventive Maintenance Checks and Services (all Models)	2-54
2-2	Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)	2-114
2-3	Preventive Maintenance Checks and Services (M1084 and M1086)	2-131
2-4	Preventive Maintenance Checks and Services (M1088)	2-147
2-5	Preventive Maintenance Checks and Services (M1089)	2-154
2-6	Preventive Maintenance Checks and Services (M1090 and M1094)	2-189
2-7	Preventive Maintenance Checks and Services (M1093)	2-195

LIST OF TABLES (CONT)

Number	Title	Page
2-8	Preventive Maintenance Checks and Services (M1094)	2-202
2-9	Capacity Chart for Light Material Handling Crane (LMHC)	2-247
2-10	Central Tire Inflation System (CTIS) Tire Pressures and Restrictions for M1083, M1084, M1085, M1086, M1090, M1093, and M1094 Models	2-275
2-11	Central Tire Inflation System (CTIS) Tire Pressure and Restrictions for M1088 and M1089 Models	2-276
2-12	Cargo Bed Side Panel Stowage Information	2-295
2-13	Cargo Bed Side Panel Stowage Information	2-297
2-14	Material Handling Crane (MHC) (M1084/M1086) Range Diagram Summary	2-357
2-15	Material Weight by Volume	2-380
2-16	M1088 Speed and Tire Pressure on Highways	2-425
2-17	M1088 Speed and Tire Pressure on Gravel/Dirt	2-426
2-18	M1088 Speed and Tire Pressure for Cross Country	2-427
2-19	M1088 Speed and Tire Pressure for Sand/Mud/Snow	2-428
2-20	30K Winch Pull Capacity	2-442
2-21	Load Chart	2-662
2-22	Wrecker Material Handling Crane (MHC) Range Diagram Summary	2-664
2-23	Wrecker Material Handling Crane (MHC) Range Diagram Summary	2-681
2-24	15K Self-Recovery Winch (SRW) Pull Capacity	2-770
2-25	Deleted	
3-1	Malfunction Index	3-2
3-2	Troubleshooting	3-18
3-3	Cold Tire Inflation Pressures and Restrictions for M1083, M1084, M1085, M1086, M1090, M1092, M1093, M1094, and M1096 Models	3-103
3-4	Cold Tire Inflation Pressures and Restrictions for M1088 and M1089 Models	3-104
3-5	General Cleaning Instructions	3-112

HOW TO USE THIS MANUAL

OVERVIEW

This Technical Manual (TM) is provided to help you operate and maintain the Medium Tactical Vehicles (MTV). This volume, volume 1, contains general information, equipment description, and operating instructions. Volume 2 contains the remainder of chapter 2, lubrication, troubleshooting, and maintenance procedures. Volume 1 is divided into the following major sections in order of appearance.

- **FRONT COVER INDEX.** The front cover index contains a list of the most important topics contained in the volume. It features a black box at the right edge of the cover which corresponds with a black box on the page containing the topic. The topics listed on the front cover are highlighted in the table of contents with a box.

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual. Read all warnings and cautions before performing any operation, troubleshooting or maintenance procedures.

- **TABLE OF CONTENTS.** Lists the chapters, sections, appendixes, and alphabetical index with page number in order of appearance.

- **CHAPTER 1, INTRODUCTION.** Describes the MTV and provides equipment data.

- **CHAPTER 2, OPERATING INSTRUCTIONS (PARAGRAPH 2-1 THROUGH 2-40).** Describes operator's controls and indicators, preventive maintenance checks and services (PMCS), and operating instructions.

- **APPENDIX A, REFERENCES.** Lists publications used with the MTV and reference publications which contain information regarding the equipment.

- **APPENDIX B, COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS.** Lists and illustrates COEI and BII items issued with the MTV.

- **APPENDIX C, ADDITIONAL AUTHORIZATION LIST (AAL).** Lists additional items you are authorized for support of the MTV.

- **APPENDIX D, EXPENDABLE AND DURABLE ITEMS LIST.** Lists expendable and durable items used in the performance of maintenance procedures.

- **APPENDIX E, STOWAGE AND DECAL/DATA PLATE GUIDE.** Shows the location of signs and details the location of COEI, BII, and AAL items.

- **APPENDIX F, LUBRICATION INSTRUCTIONS.** Gives operator lubrication instructions and the time interval at which lubrication is conducted. Lubrication points are also illustrated.

- **SUBJECT INDEX.** Lists important subjects contained in Volume 1 and Volume 2 in alphabetical order and gives the paragraph number where they are located.

OVERVIEW (CONT)

Volume 2 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the warnings that appear throughout the manual. Read all WARNINGS and CAUTIONS before performing any operation, troubleshooting or maintenance procedures.
- **TABLE OF CONTENTS.** Lists the chapters, sections, appendixes, and alphabetical index with page number in order of appearance.
- **CHAPTER 2, OPERATING INSTRUCTIONS (PARAGRAPH 2-41 THROUGH 2-80).** Describes the remaining operating instructions.
- **CHAPTER 3, MAINTENANCE INSTRUCTIONS.** Provides instructions for lubrication, troubleshooting, and operator maintenance.
- **APPENDIX A, REFERENCES.** Lists publications used with the MTV and reference publications which contain information regarding the equipment.
- **APPENDIX B, COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS.** Lists and illustrates COEI and BII items issued with the MTV.
- **APPENDIX C, ADDITIONAL AUTHORIZATION LIST (AAL).** Lists additional items you are authorized for support of the MTV.
- **APPENDIX D, EXPENDABLE AND DURABLE ITEMS LIST.** Lists expendable and durable items used in the performance of maintenance.
- **APPENDIX E, STOWAGE AND DECAL/DATA PLATE GUIDE.** Shows the location of signs and details the location of COEI, BII, and AAL items.
- **APPENDIX F, LUBRICATION INSTRUCTIONS.** Gives operator lubrication instructions and the time interval at which lubrication is conducted. Lubrication points are also illustrated.
- **SUBJECT INDEX.** Lists important subjects contained in Volume 2 in alphabetical order and gives the paragraph number where they are located.

FINDING INFORMATION

There are several ways to find the information you need in this manual. They are as follows:

- **TABLE OF CONTENTS.** Lists chapters, sections, appendixes, and indexes with page numbers in order of appearance.
- **CHAPTER INDEXES.** List paragraphs contained in the individual chapters with paragraph and page numbers in order of appearance.
- **MALFUNCTION INDEX.** Lists malfunctions contained in the troubleshooting table with page numbers in order of appearance.
- **ALPHABETICAL (SUBJECT) INDEX.** Lists all important topics with page numbers in alphabetical order.

TROUBLESHOOTING

Troubleshooting is contained in Volume 2, Chapter 3. When you have a problem with the operation of your equipment, look at Table 3-1, Malfunction Index on page 3-2. Find the malfunction in the index. Turn to the page number listed for the malfunction in Table 3-2, Troubleshooting. Perform the steps required to correct the malfunction. If you can not find the malfunction, or the malfunction is not corrected, notify Unit Maintenance.

OPERATION AND MAINTENANCE

- **OPERATION.** Before you operate the MTV, familiarize yourself with the controls and indicators (Chapter 2, Section I). Perform your BEFORE preventive maintenance (Chapter 2, Section II). Read the operating instructions contained in Chapter 2, Sections III and IV. Always follow the WARNINGS and CAUTIONS. During operation, perform your DURING preventive maintenance, and after operation perform your AFTER preventive maintenance (Chapter 2, Section II).
- **MAINTENANCE.** When you perform maintenance, look over the entire procedure before starting. Make sure you have the necessary tools and materials at hand. Always observe WARNINGS and CAUTIONS.

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION 1-1
1-1. SCOPE 1-1
1-2. MAINTENANCE FORMS AND PROCEDURES 1-14
1-3. CORROSION PREVENTION AND CONTROL (CPC) 1-14
1-4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE 1-14
1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR) 1-14
1-6. WARRANTY INFORMATION 1-15
1-7. NOMENCLATURE CROSS-REFERENCE LIST 1-15
1-8. LIST OF ABBREVIATIONS 1-15
1-9. GLOSSARY 1-17

Section II. EQUIPMENT DESCRIPTION 1-17
1-10. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES . . . 1-17
1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS 1-19
1-12. DIFFERENCES BETWEEN MODELS 1-36
1-13. EQUIPMENT DATA 1-38

Section III. PRINCIPLES OF OPERATION 1-50
1-14. POWERTRAIN 1-50
1-15. ENGINE AIR INTAKE SYSTEM 1-53
1-16. FUEL SYSTEM 1-54
1-17. COOLING SYSTEM 1-56
1-18. ELECTRICAL SYSTEM 1-59
1-19. BRAKE SYSTEM 1-63
1-20. 15K SELF-RECOVERY WINCH (SRW) 1-65
1-21. M1084/M1086 MATERIAL HANDLING CRANE (MHC) 1-68
1-22. M1089 MATERIAL HANDLING CRANE (MHC), 30K WINCHES, AND UNDERLIFT ASSEMBLY 1-71
1-23. AIR SYSTEM 1-75

Section I. GENERAL INFORMATION

1-1. SCOPE

This chapter provides general information, equipment description, and principles of operation for the M1083 series Medium Tactical Vehicle (MTV). The MTV will herein be referred to as the vehicle.

a. Type of Manual. This manual provides instructions for operation and Operator maintenance of the vehicle.

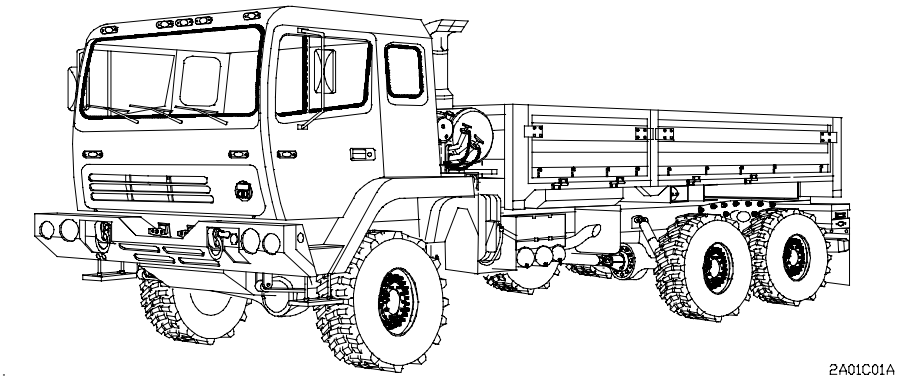
1-1. SCOPE (CONT)

b. Name and Model. The vehicle model numbers and names are listed below:

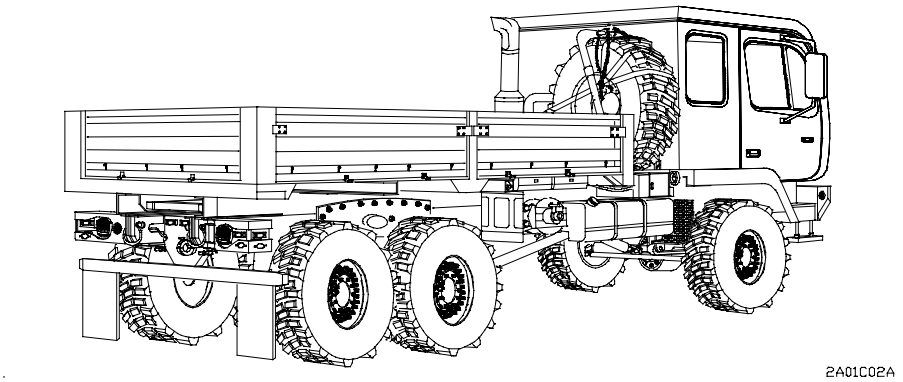
M1083 Truck, Cargo: 5-Ton, 6x6, Dropside (Figure 1-1).
M1084 Truck, Cargo: 5-Ton, 6x6, Dropside, W/MHC (Figure 1-2).
M1085 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB (Figure 1-3).
M1086 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB, W/MHC (Figure 1-4).
M1088 Truck, Tractor: 5-Ton, 6x6 (Figure 1-5).
M1089 Truck, Wrecker: 5-Ton, 6x6 (Figure 1-6).
M1090 Truck, Dump: 5-Ton, 6x6 (Figure 1-7).
M1092 Truck, Chassis: 5-Ton, 6x6 (Figure 1-8).
M1093 Truck, Cargo 5-Ton, 6x6, Dropside, Air Drop (Figure 1-9).
M1094 Truck, Dump: 5-Ton, 6x6, Air Drop (Figure 1-10).
M1096 Truck, Chassis: 5-Ton, 6x6, LWB (Figure 1-11).

c. Purpose of Equipment. The MTV series is a family of 6x6 wheeled vehicles. The purpose of these vehicles is as follows:

(1) M1083 - Cargo hauling vehicle; can be outfitted for troop transport when equipped with a troopseat kit.
(2) M1084 - Cargo hauling vehicle; it is equipped with a Material Handling Crane (MHC).
(3) M1085 - Long Wheelbase (LWB) cargo hauling vehicle; can be outfitted for troop transport when equipped with a troopseat kit.
(4) M1086 - Long wheelbase (LWB) cargo hauling vehicle; it is equipped with a Material Handling Crane (MHC).
(5) M1088 - Tractor with fifth wheel; used to pull various types of fifth wheel trailers.
(6) M1089 - Wrecker with two winches, an underlift assembly, and Material Handling Crane (MHC); used for recovering disabled vehicles.
(7) M1090 - Dump truck; can be outfitted for troop transport when equipped with a troopseat kit.
(8) M1092 - Standard wheelbase vehicle chassis; this chassis will accept a standard cargo bed or may be modified for special missions.
(9) M1093 - Cargo hauling vehicle; can be airdropped and outfitted for troop transport when equipped with a troopseat kit.
(10) M1094 - Dump truck; can be airdropped and outfitted for troop transport when equipped with a troopseat kit.
(11) M1096 - Long Wheelbase (LWB) vehicle chassis; this chassis will accept a long cargo bed or may be modified for special missions.



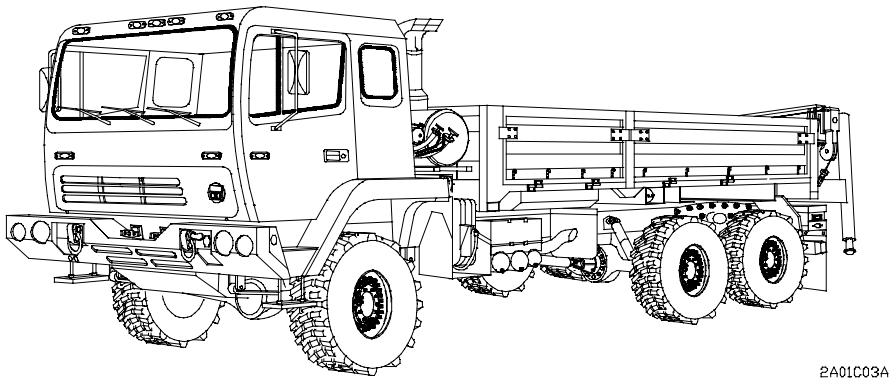
LEFT FRONT VIEW



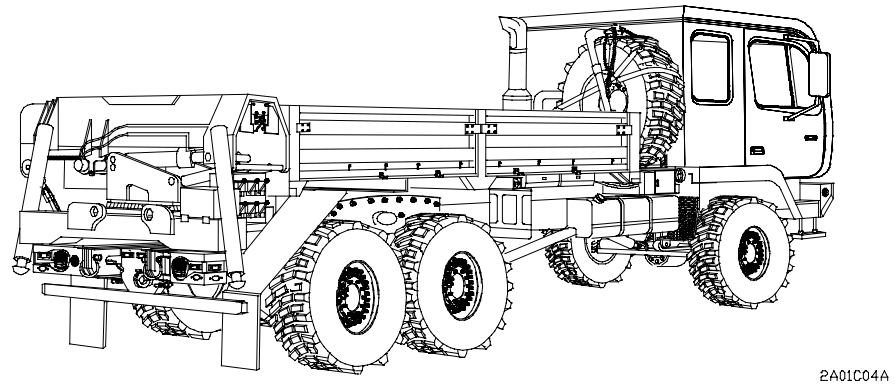
RIGHT REAR VIEW

Figure 1-1. M1083 Truck, Cargo: 5-Ton, 6x6, Dropside

1-1. SCOPE (CONT)

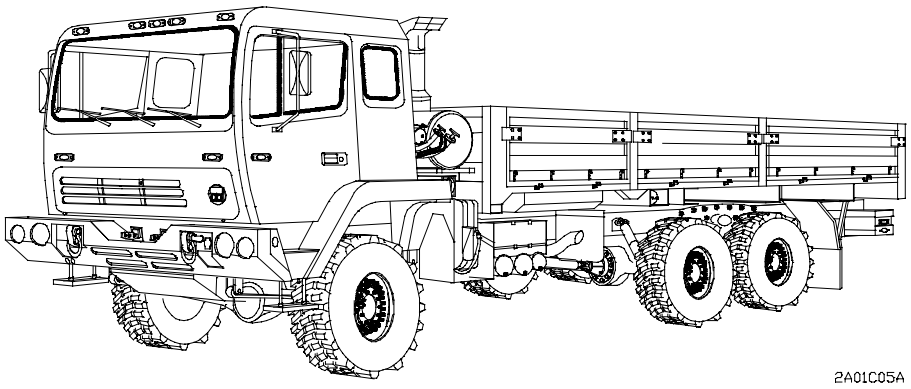


LEFT FRONT VIEW

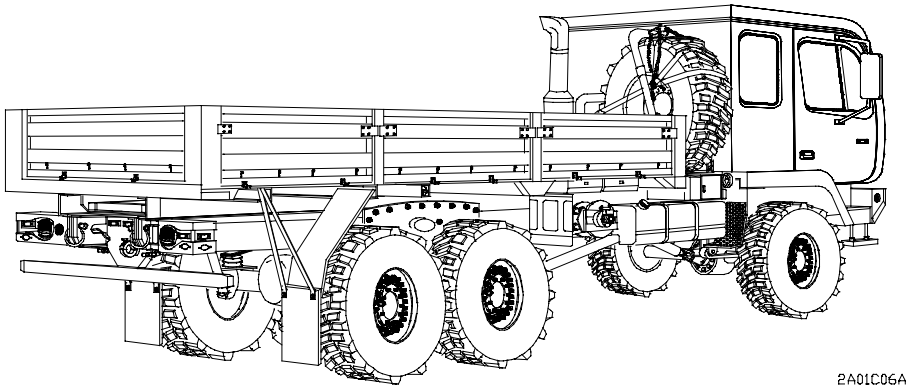


RIGHT REAR VIEW

Figure 1-2. M1084 Truck, Cargo: 5-Ton, 6x6, Dropside, w/MHC



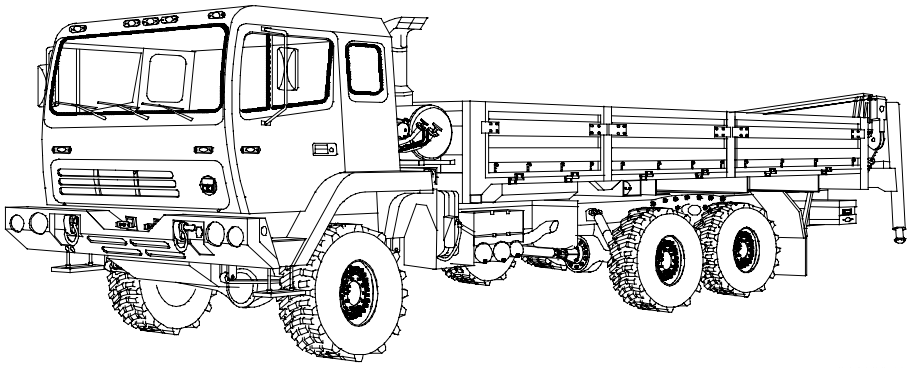
LEFT FRONT VIEW



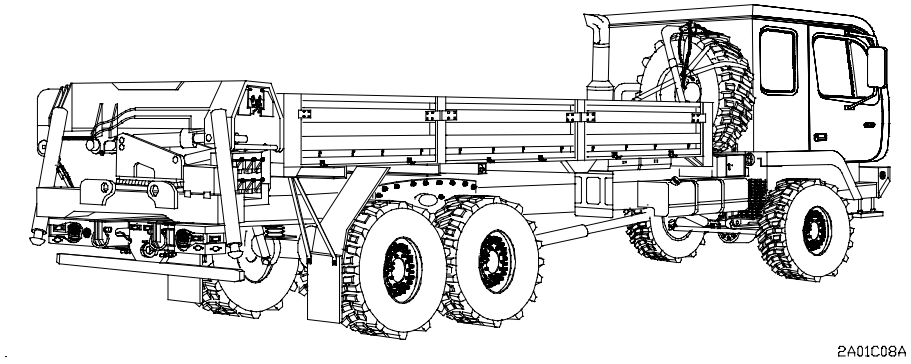
RIGHT REAR VIEW

Figure 1-3. M1085 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB

1-1. SCOPE (CONT)

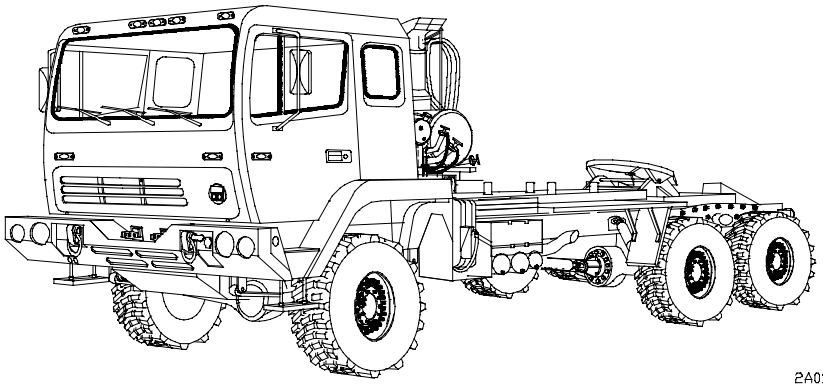


LEFT FRONT VIEW

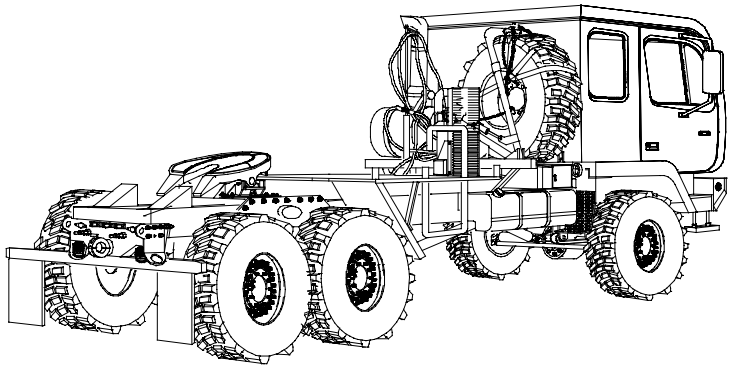


RIGHT REAR VIEW

Figure 1-4. M1086 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB, w/MHC



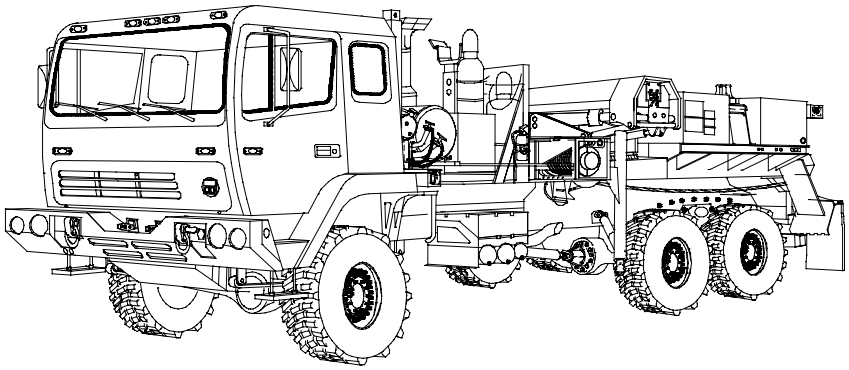
LEFT FRONT VIEW



RIGHT REAR VIEW

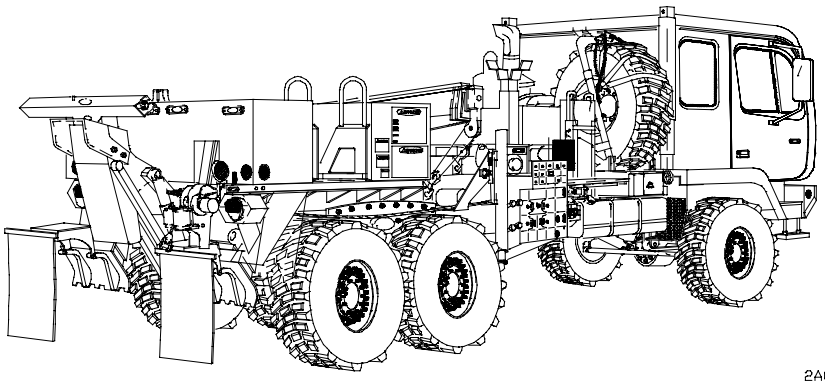
Figure 1-5. M1088 Truck, Tractor: 5-Ton, 6x6

1-1. SCOPE (CONT)



2A01C11A

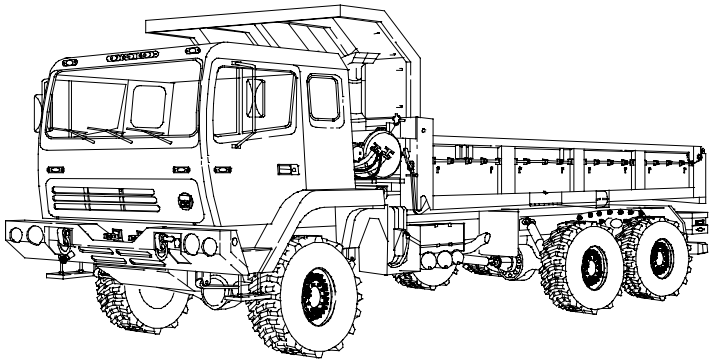
LEFT FRONT VIEW



2A01C12A

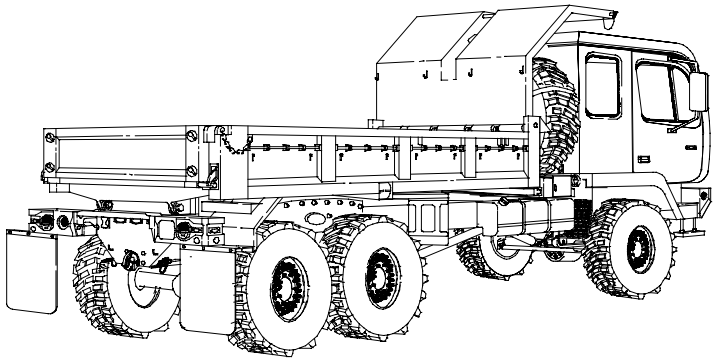
RIGHT REAR VIEW

Figure 1-6. M1089 Truck, Wrecker: 5-Ton, 6x6



2A01C131

LEFT FRONT VIEW

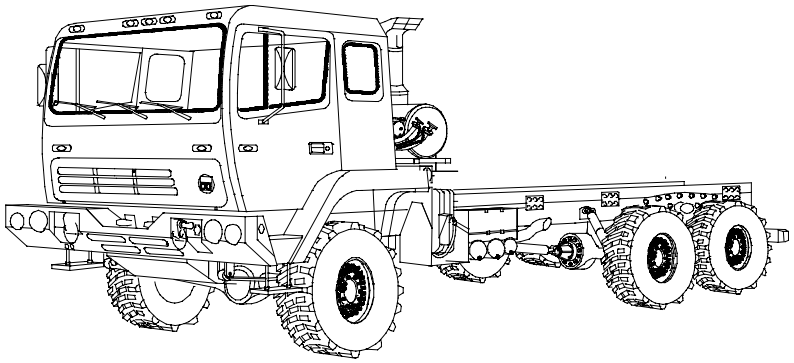


2A01C141

RIGHT REAR VIEW

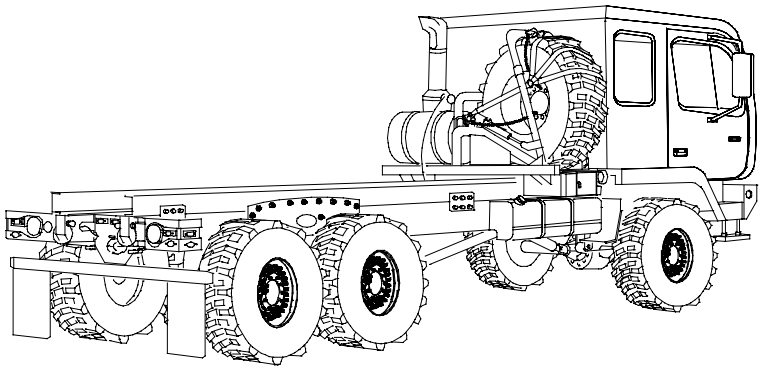
Figure 1-7. M1090 Truck, Dump: 5-Ton, 6x6

1-1. SCOPE (CONT)



2A01C15A

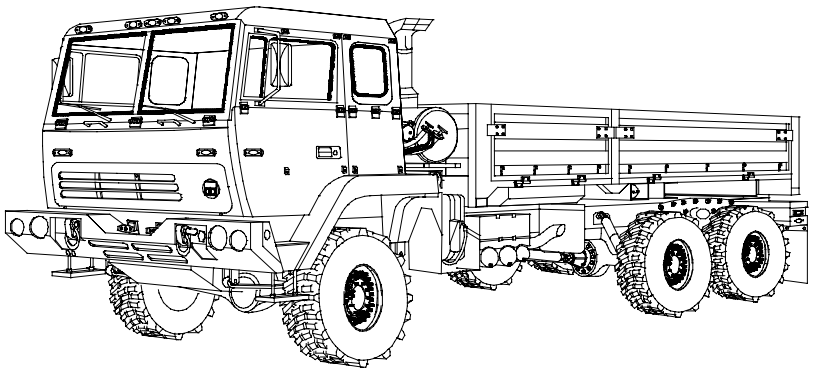
LEFT FRONT VIEW



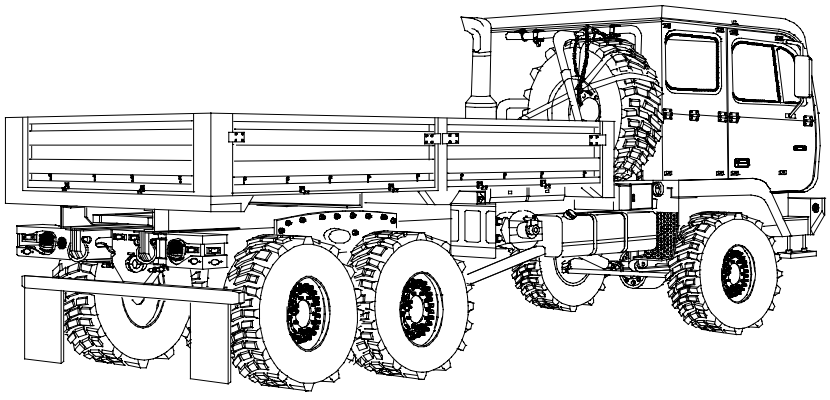
2A01C16A

RIGHT REAR VIEW

Figure 1-8. M1092 Truck, Chassis: 5-Ton, 6x6



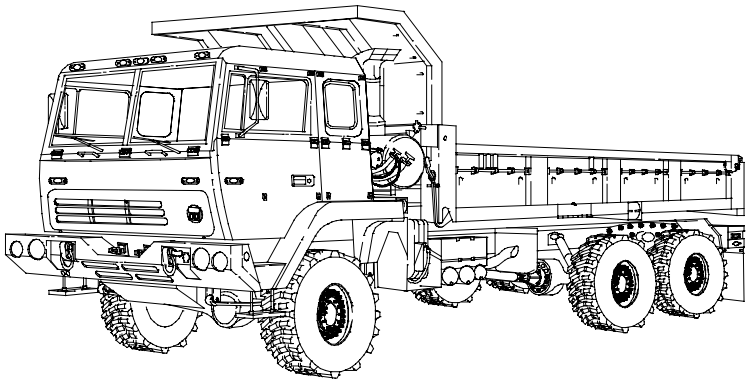
LEFT FRONT VIEW



RIGHT REAR VIEW

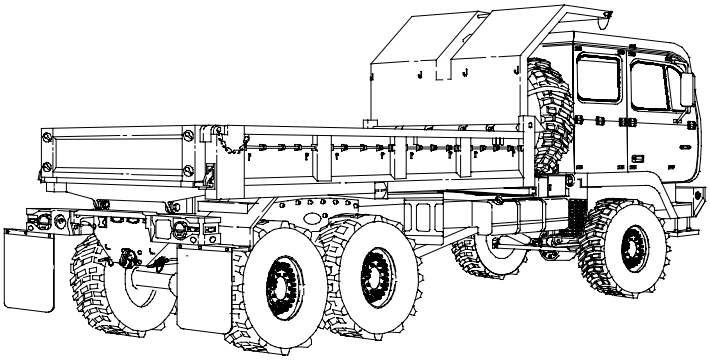
Figure 1-9. M1093 Truck, Cargo: 5-Ton, 6x6, Dropside, Air Drop

1-1. SCOPE (CONT)



2A01C191

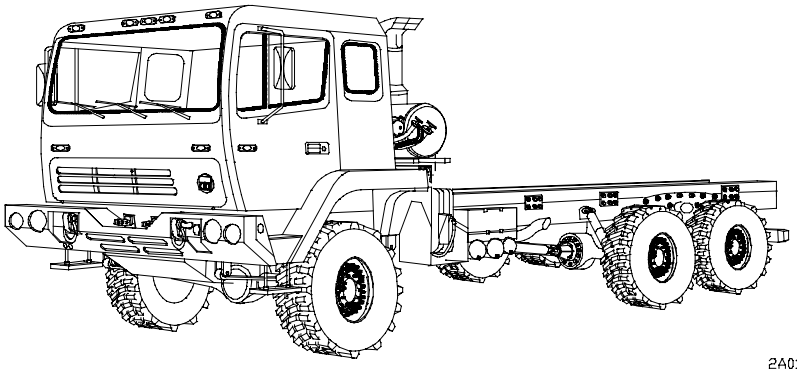
LEFT FRONT VIEW



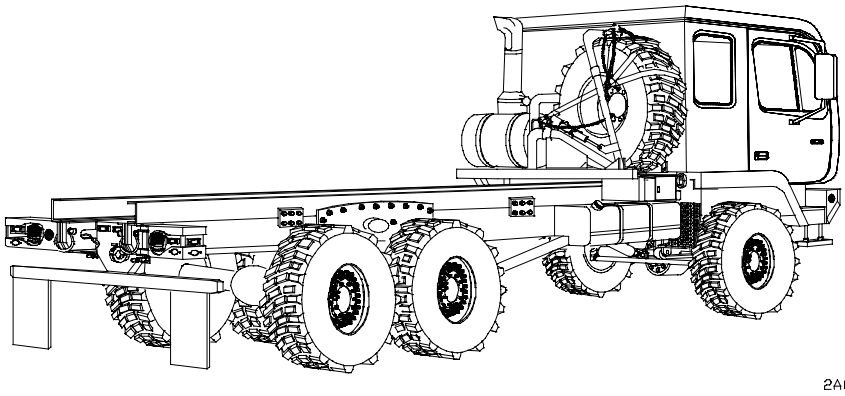
2A01C201

RIGHT REAR VIEW

Figure 1-10. M1094 Truck, Dump: 5-Ton, 6x6, Air Drop



LEFT FRONT VIEW



RIGHT REAR VIEW

Figure 1-11. M1096 Truck, Chassis: 5-Ton, 6x6, LWB

1-2. MAINTENANCE FORMS AND PROCEDURES

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 as contained in the Maintenance Management Update.

1-3. CORROSION PREVENTION AND CONTROL (CPC)

The vehicle has a total service life of 20 years which allows for extended periods of operation in a corrosive environment. A corrosive environment includes exposure to high humidity, salt spray, road de-icing chemicals, gravel damage, and atmospheric contamination. No action beyond normal washing and repair of damaged areas is needed to control corrosion. To prevent moisture accumulation, drain holes are provided on structural and sheet metal areas where needed, and stowage boxes are provided with seals and baffled drains.

Corrosion Prevention and Control (CPC) of Army material is a continuing concern. It is important that any corrosion problems with the vehicle be reported so that the problem can be corrected and improvements made to prevent the problem in the future.
While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.
If a corrosion problem is identified, it can be reported using form SF 368 (Product Quality Deficiency Report). Using keywords such as "corrosion", "rust", "cracking", or "deterioration" will ensure that the information is identified as a CPC problem.
Form SF 368 should be submitted to the address specified in DA PAM 738-750.

1-4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Command decision, according to the tactical situation, will determine when the using organization is to destroy a vehicle. A destruction plan will be prepared by the using organization, unless one was prepared by a higher authority. For general vehicle destruction procedures, refer to TM 750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-automotive and Armaments Command).

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your vehicle needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368. Mail it to us at: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/MPA, Warren, MI 48397-5000. We'll send you a reply.

1-6. WARRANTY INFORMATION

The vehicle is warranted by Stewart & Stevenson Services, Inc., Tactical Vehicle Systems Division for 18 months or 12,000 miles (19,308 km), whichever comes first. For complete information covering this warranty, refer to TB 9-2300-366-15, Warranty Program for M1083 Series, 5 Ton, 6x6, Medium Tactical Vehicles (MTV).

1-7. NOMENCLATURE CROSS-REFERENCE LIST

COMMON NAME	OFFICIAL NOMENCLATURE
Cold Start System	Ether quick-start system
Engine Coolant	Antifreeze, ethylene glycol mixture
Gladhand	Quick-disconnect coupling
Parking Brake	SYSTEM PARK Control
Throttle Pedal	Accelerator pedal

1-8. LIST OF ABBREVIATIONS

ABBREVIATION	NAME
AAL	Additional Authorization List
amp	Amperes
AOAP	Army Oil Analysis Program
ATAAC	Air to Air Aftercooler
BII	Basic Issue Item
°C	Degrees Celsius
CAC	Charge Air Cooler
CBR	Chemical, Biological, and Radiological
CCW	Counterclockwise
cid	Cubic Inch Displacement
cm	Centimeter
COEI	Component of End Item
CPC	Corrosion Prevention and Control
CTIS	Central Tire Inflation System
CW	Clockwise
DA	Department of the Army
ECU	Electronic Control Unit
EIR	Equipment Improvement Recommendation
°F	Degrees Fahrenheit
FMVSS	Federal Motor Vehicle Safety Standard

1-8. LIST OF ABBREVIATIONS (CONT)

ABBREVIATION	NAME
ft	Foot
gal	Gallon, U.S.
GCWR	Gross Combination Weight Rating
GPFU	Gas Particulate Filter Unit
GVW	Gross Vehicle Weight
HI	High
hp	Horse Power
in.	Inch
kg	Kilogram
km/h	Kilometer Per Hour
kPa	Kilopascal
kw	Kilowatt
L	Liter
lb	Pound
LED	Light Emitting Diode
LH	Left Hand
m	Meter
MGVW	Maximum Gross Vehicle Weight
MHC	Material Handling Crane
mi	Mile
mm	Millimeter
mph	Miles Per Hour
MTOE	Modified Table of Organization and Equipment
MTV	Medium Tactical Vehicle
NBC	Nuclear, Biological, Chemical
PMCS	Preventive Maintenance Checks and Services
psi	Pounds Per Square Inch
PTO	Power Take-Off
PDP	Power Distribution Panel
qt	Quart
RH	Right Hand
RPM	Revolutions Per Minute
SAE	Society of Automotive Engineers
SRW	15K Self-Recovery Winch
TAMMS	The Army Maintenance Management System
TM	Technical Manual
vac	Volts Alternating Current
vdc	Volts Direct Current
WTEC II	World Transmission Electronic Control II
WTEC II TEPSS	WTEC II Transmission ECU Pushbutton Shift Selector
WTEC III	World Transmission Electronic Control III
WTEC II TPSS	WTEC III Transmission Pushbutton Shift Selector
XMSN	Transmission

1-9. GLOSSARY

NOMENCLATURE	DEFINITION
Alternator	Engine-driven generator used to charge batteries.
Fuel Injection	Method that fuel enters engine cylinders; through specially designed nozzles (injectors).
Parallel Connection	More than one battery connected together from positive to positive and from negative to negative.
Power Take-Off (PTO)	Gear-driven device used to power hydraulic equipment (e.g., 15K Self-Recovery Winch [SRW]).
Rigging	Cable, chains and straps used to secure loads.
Series Connection	More than one battery connected together from positive to negative.
Turbocharger	Air compressor driven by exhaust gases. Used to increase engine power.

Section II. EQUIPMENT DESCRIPTION

1-10. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. Characteristics. The MTVs are a series of 6x6 tactical vehicles designed for use over all types of roads, cross-country terrain, and in all weather conditions. The cab and chassis for all vehicle models are similar. Each vehicle model is equipped with a unique body and may be equipped with other auxiliary equipment depending on vehicle mission.

b. Capabilities.

(1) The vehicle operates in temperatures from -25°F to 120°F (-32°C to 49°C).

(2) The vehicle can ford water up to 30 in. (76 cm) deep for 15 minutes without damage or requiring maintenance before operation can continue.

1-10. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (CONT)

(3) The normal operating range for the vehicle is 300 mi (483 km), based on 54 gal (204 L) of fuel and vehicle at maximum gross combination weight (wrecker at Maximum Gross Vehicle Weight (MGVW)) when operated at an average speed of 25 mph (40 km/h). Varying loads, prolonged idle, use of Power Take-Off (PTO), off-road driving, and climatic conditions will affect operating range.

(4) Tiedown points are located so that the vehicle can be restrained in all directions during air transport in C-130 and C-141 aircraft. The vehicles are capable of being transported by highway, rail, and sea.

c. Features.

(1) An in-line, six-cylinder, 403 cid (6.6 L), turbocharged diesel engine, producing 290 hp (216 kW).

(2) An automatic transmission with seven forward speeds and one reverse speed. The transmission incorporates an integral transfer case. Normal mode is used when operating the vehicle under usual conditions. Off-road mode is used when operating on unimproved road surfaces. When operating in the normal mode, 70 percent of the power is distributed to the rear axles and 30 percent to the front axle. When operating in the off-road mode, power is evenly distributed between the front and rear axles.

(3) A power steering system consisting of a recirculating ball type steering gear box with hydraulic boost. Mechanical linkage provides the Operator with control in the event of steering oil pressure loss.

(4) A fuel system that includes; a 56 gal (212 L) capacity, 54 gal (204 L) usable fuel tank, fuel/water separator with fuel priming pump, fuel transfer pump, secondary fuel filter, and fuel injectors.

(5) Two front and two rear towing eyes with shackles.

(6) A manually operated pintle hook for towing a trailer or a disabled vehicle.

(7) A Central Tire Inflation System (CTIS) that allows the Operator to adjust tire pressure, with the touch of a button, to suit terrain conditions.

(8) A cab with accommodations for three personnel, or two personnel if a radio is installed.

(9) Service and emergency gladhands at the rear and front of the vehicle for towing a trailer or disabled vehicle, or for being towed.

(10) An air powered hydraulically operated system that allows the Operator to raise and lower the cab and spare tire quickly and easily. This system also provides the Operator with the means to safely and easily lower and raise the vehicle suspension for internal air transport. In addition, a back-up hydraulic pump is provided in the event that there is not enough air pressure available to operate the primary system.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

a. Major External Components Common to All Vehicle Variants.

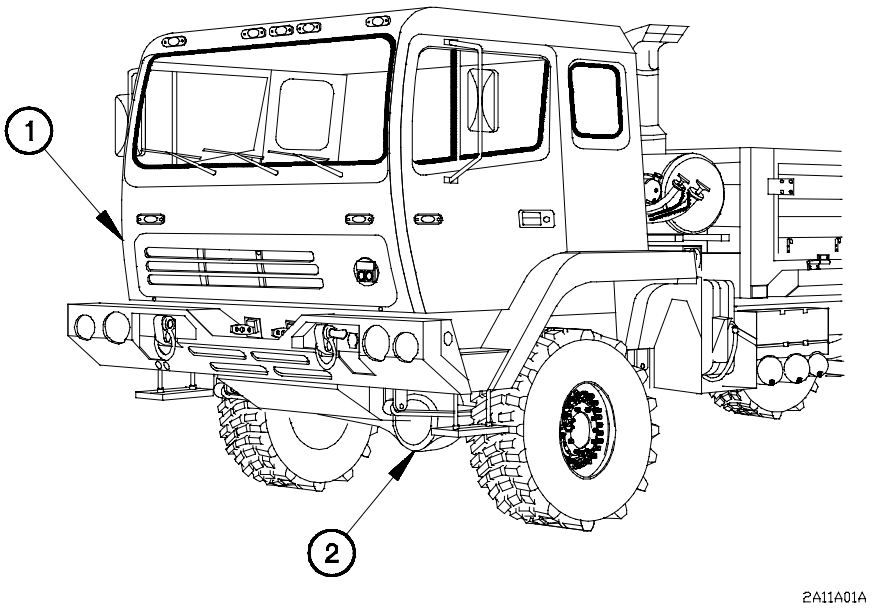


Figure 1-12. Common Vehicle Components Location

(1) CAB. The cab provides the crew with protection from the weather and contains the controls, gages, and indicators needed to operate the vehicle. The cab accommodates three fully-equipped personnel if no radio is installed, and two fully-equipped personnel if a radio is installed. The cab can be raised and lowered from the hydraulic manifold located on the passenger side of the vehicle.

(2) FRONT DRIVING AXLE. Supports the weight of the vehicle and transmits power to drive the front wheels.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

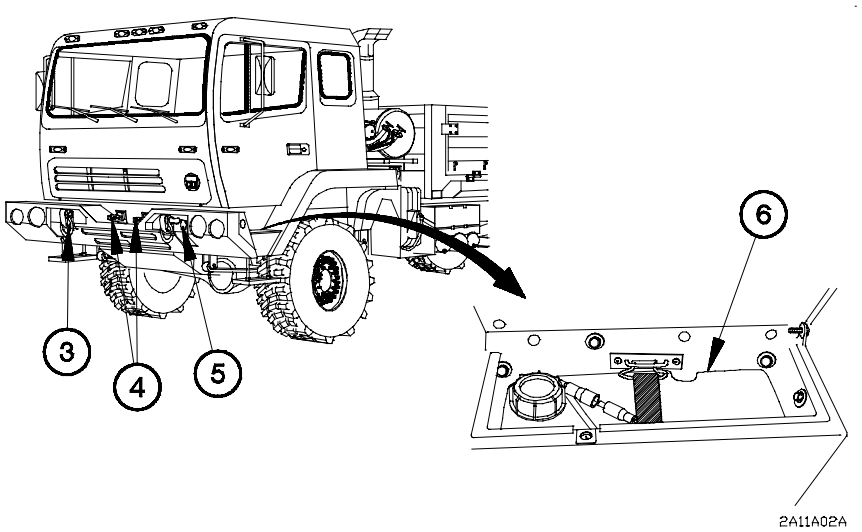


Figure 1-12. Common Vehicle Components Location (Cont)

(3) FRONT TOW EYES/SHACKLES. Provides attachment points for towing.

(4) FRONT GLADHANDS. Allows connection of brake air supply between vehicles during towing operations.

(5) FRONT ELECTRICAL CONNECTOR. A connector that receives 12 vdc power from a towing vehicle through an intervehicular cable.

(6) WINDSHIELD WASHER RESERVOIR. A three quart (3 L) reservoir that stores fluid used to clean the windshield.

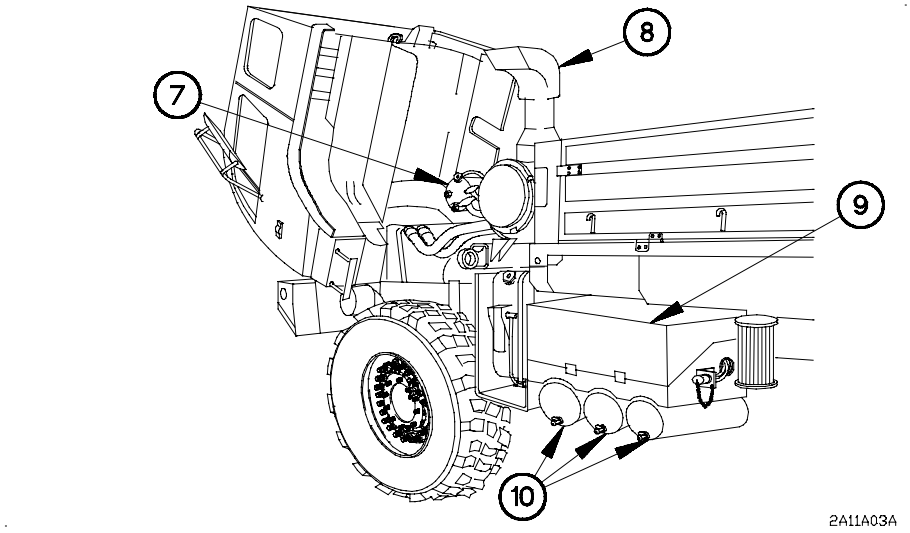


Figure 1-12. Common Vehicle Components Location (Cont)

(7) RADIATOR OVERFLOW TANK. A reservoir that can store up to eight quarts (7 L) of engine coolant.

(8) INTAKE AIR CLEANER ASSEMBLY. A cartridge-type filter that removes particles from the air before it enters the turbocharger.

(9) BATTERY BOX. The battery box contains four 12 vdc batteries connected in series and parallel.

(10) AIR TANKS. The primary and secondary air tanks and the wet tank store compressed air for operation of the brakes, CTIS, and the air/hydraulic power unit.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

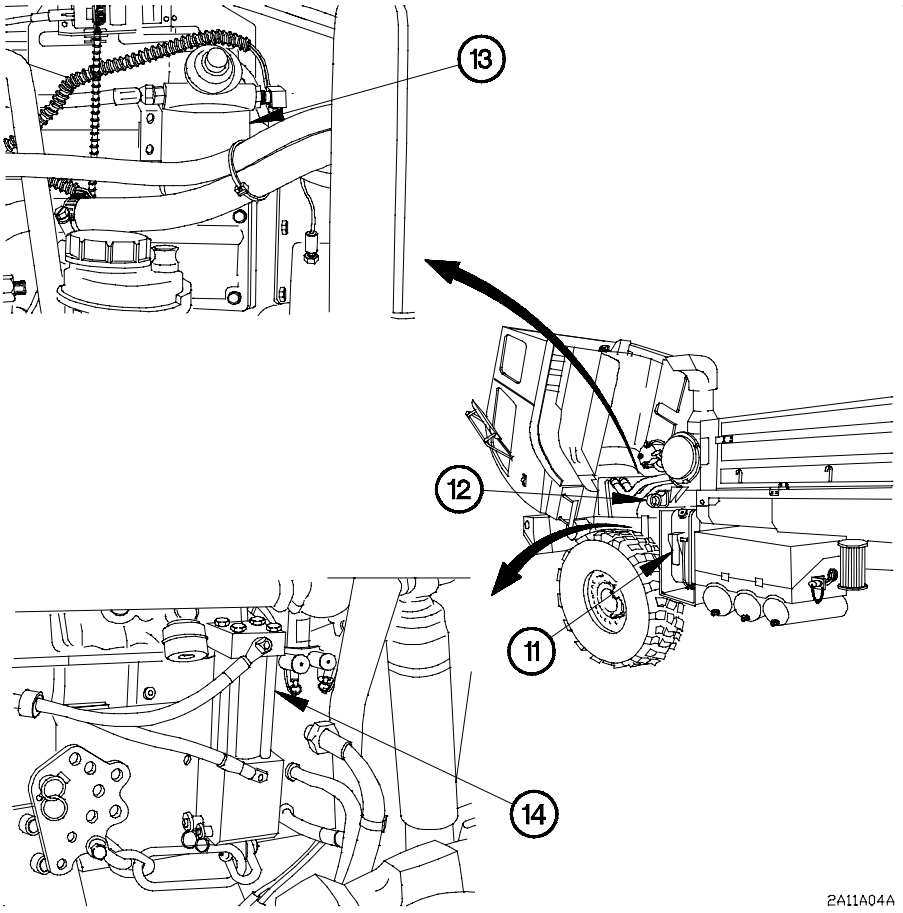


Figure 1-12. Common Vehicle Components Location (Cont)

(11) HYDRAULIC RESERVOIR. A 27 gal (102 L) reservoir that stores the oil needed to operate the 15K Self-Recovery Winch (SRW) and/or the Material Handling Crane (MHC). May be installed on any vehicle model except M1089.

(12) FRONT LIFT BEAM. Provides attachment points for lifting/loading operations.

(13) FUEL/WATER SEPARATOR. Removes moisture and contaminants from the fuel before it enters the fuel pump. The fuel/water separator incorporates a fuel priming pump and an electric heater to prevent gelling of the fuel in cold weather.

(14) SUSPENSION CYLINDER. Provides a means of compressing the vehicle suspension in preparation for internal air transport.

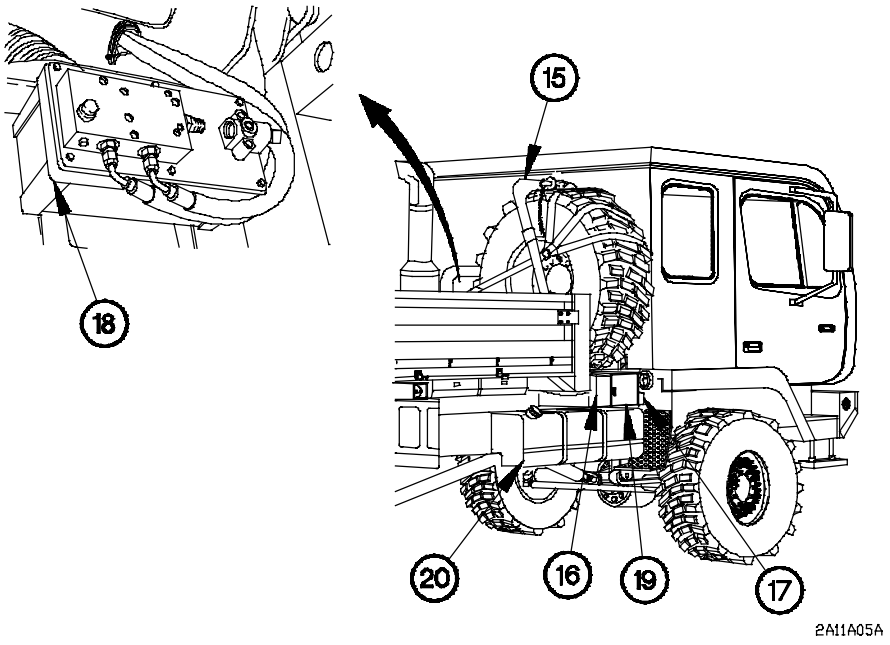


Figure 1-12. Common Vehicle Components Location (Cont)

(15) SPARE TIRE RETAINER. Provides a stowage location for the spare tire. The operation of the spare tire retainer is controlled from the hydraulic manifold.

(16) HYDRAULIC MANIFOLD. The hydraulic manifold contains the valves and controls used to raise and lower the cab, spare tire, and vehicle suspension.

(17) BACK-UP HYDRAULIC PUMP. This manual pump serves as a backup for the hydraulic manifold. This pump is used in the event that there is not enough air pressure in the air tanks to operate the air/hydraulic power unit.

(18) AIR/HYDRAULIC POWER UNIT. Converts air pressure into hydraulic pressure to operate the cylinders used to raise and lower the cab, spare tire, and vehicle suspension.

(19) TOOL BOX. Used to stow Basic Issue Items (BII), Components of End Item (COEI), and Additional Authorization List (AAL) items. ■

(20) FUEL TANK. A 56 gal (212 L) capacity, 54 gal (204 L) usable tank stores fuel used to operate the engine. ■

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

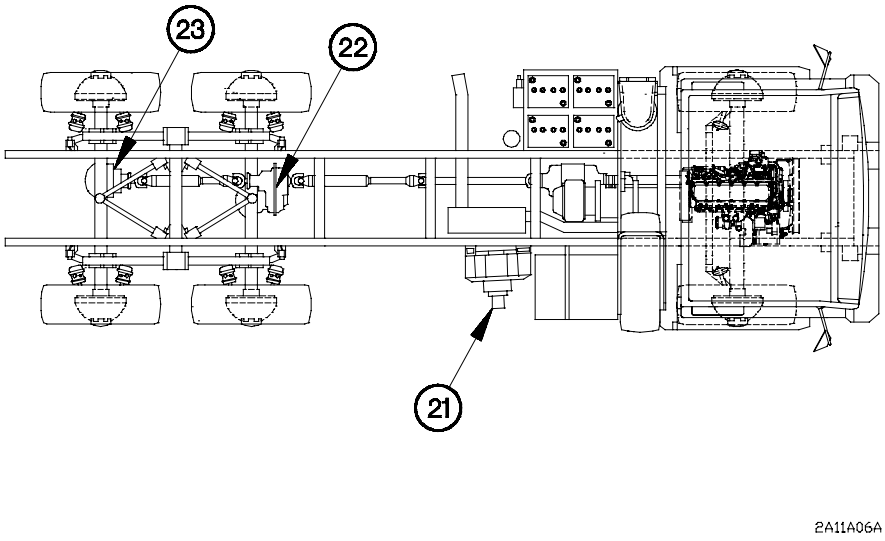


Figure 1-12. Common Vehicle Components Location (Cont)

(21) 15K SELF-RECOVERY WINCH (SRW) (if equipped). Provides the Operator with the ability to recover the vehicle from a stranded condition. It also allows the Operator to attempt retrieval of a medium or light vehicle not equipped with a 15K SRW.

(22) INTERMEDIATE DRIVING AXLE. Supports the weight of the vehicle and transmits power to drive the intermediate wheels.

(23) REAR DRIVING AXLE. Supports the weight of the vehicle and transmits power to drive the rear wheels.

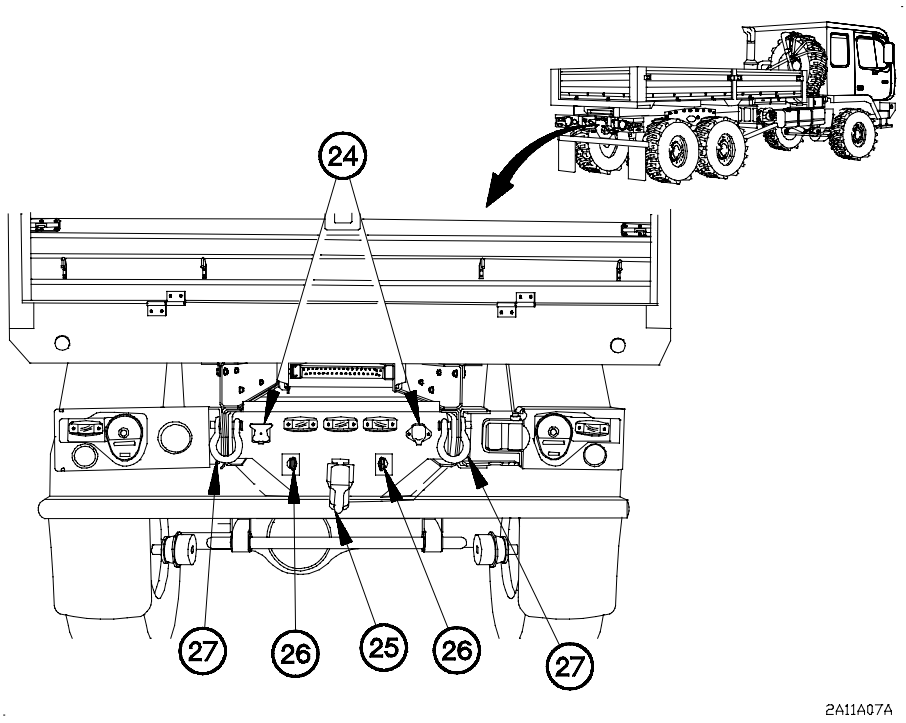


Figure 1-12. Common Vehicle Components Location (Cont)

(24) REAR ELECTRICAL CONNECTORS. Two connectors (24 vdc/12-pin and 12-vdc/7-pin) that supply electrical power to a trailer or a towed vehicle through an intervehicular cable.

(25) PINTLE HOOK. Hook used for towing a trailer. Model M1089 is equipped with towing pintle assembly that is attached to the underlift assembly when required by the mission. The towing pintle assembly on model M1089 is stowed in a tool box when not in use.

(26) REAR GLADHANDS. Allows connection of brake air supply between vehicles or between the towing vehicle and the trailer during towing operations.

(27) REAR TOW EYES/SHACKLES. Provides attachment points for towing.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

b. Major External Components Common to M1083 and M1085 Cargo Vehicles and M1093 Air Drop Cargo Vehicles.

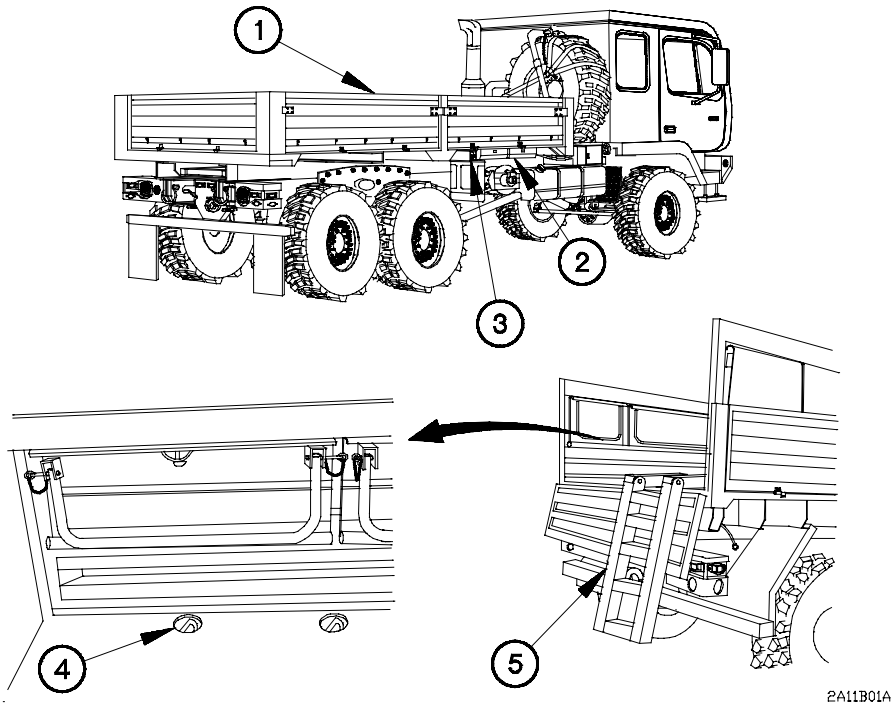


Figure 1-13. M1083 and M1085 Cargo Vehicles and M1093 Air Drop Cargo Vehicles Components Location

(1) CARGO BED SIDE PANELS. Aluminum panels used to keep cargo from falling out of cargo bed. They may be raised or lowered, or removed and stowed under the cargo bed.

(2) CARGO BED SIDE STOWAGE BOXES. Two boxes used to stow cargo bed side panels when removed.

(3) LIFT BEAM ASSEMBLIES. Two extendable beams that act as sling spreaders, when deployed, to prevent damage to cargo bed side panels during external air transport.

(4) CARGO BED TIE DOWNS. Anchor points for securing cargo.

(5) ACCESS LADDER. Used to assist personnel when climbing into or out of cargo bed. The access ladder is stored underneath the cargo bed when not in use.

c. Major External Components Common to M1084 and M1086 Cargo Vehicles With Material Handling Crane (MHC).

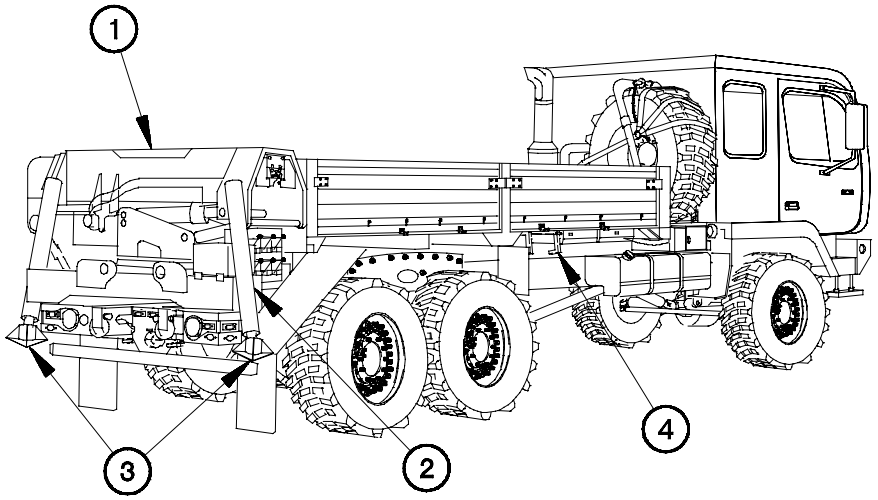


Figure 1-14. M1084 and M1086 Cargo Vehicles With Material Handling Crane (MHC) Components Location.

(1) MATERIAL HANDLING CRANE (MHC). The Material Handling Crane (MHC) is powered by hydraulic pressure supplied from a single stage hydraulic pump. The MHC is controlled from a fixed Operator station or from a remote control.

(2) OUTRIGGER JACK CYLINDERS. Two hydraulic cylinders used to stabilize the MHC when in use; also used to help level the MHC on uneven terrain. The MHC cannot be operated unless the outrigger jack cylinders are extended to the ground.

(3) OUTRIGGER PADS. Steel pads that attach to the bottom of the outrigger jack cylinders to support and anchor the vehicle during MHC operations.

(4) ACCESS LADDER. Used to assist personnel when climbing into or out of cargo bed. The access ladder is stored underneath the right side of the cargo bed when not in use.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

d. Major External Components of M1088 Tractors.

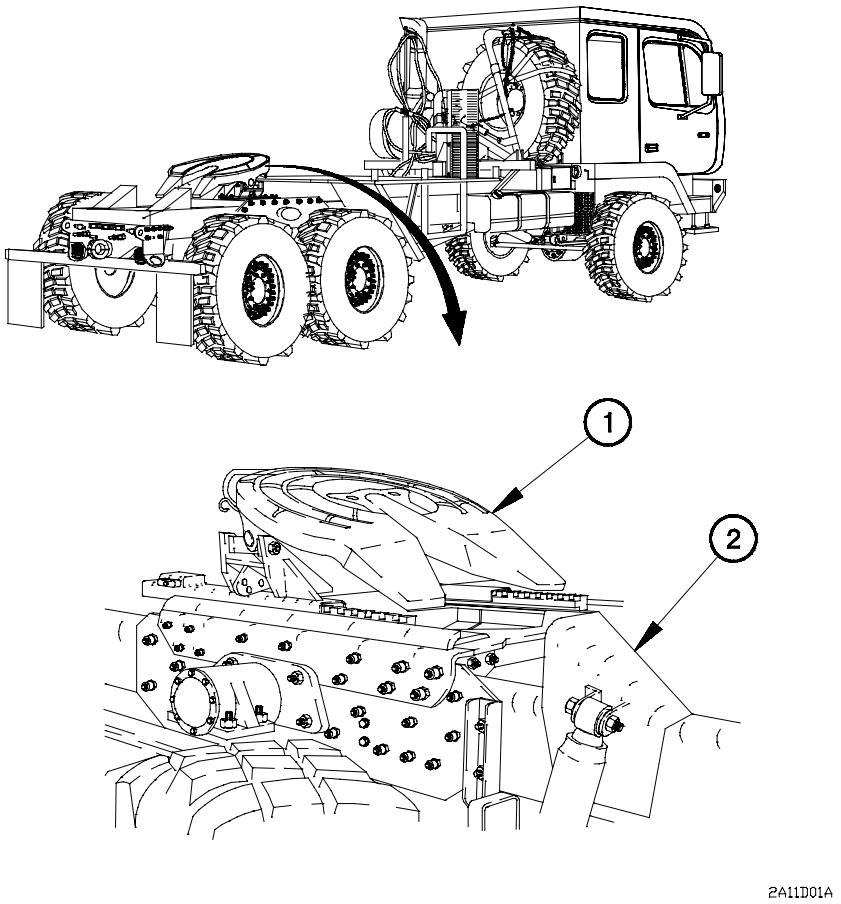


Figure 1-15. M1088 Tractor Components Location

(1) FIFTH WHEEL. A pivoting plate with locking jaws for connecting the M1088 vehicle to a trailer equipped with a kingpin-type hitch. The fifth wheel allows the M1088 vehicle to rotate approximately 180 degrees around the trailer kingpin.

(2) APPROACH RAMPS. The approach ramps raise the front end of a trailer to guide the trailer kingpin into the fifth wheel.

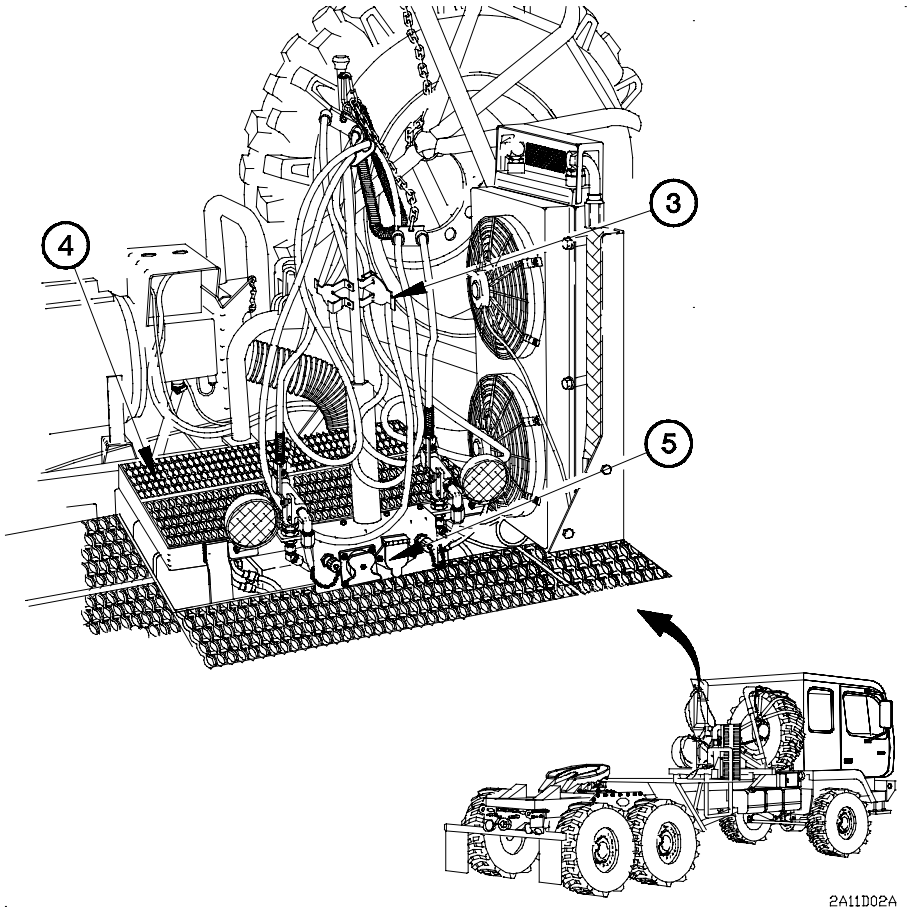


Figure 1-15. M1088 Tractor Components Location (Cont)

(3) SEMITRAILER GLADHANDS. Connects brake air supply to trailer.

(4) WORK PLATFORM. An open grating that extends the width of the vehicle from the rear of the cab to the front of the fifth wheel and allows for working around the fifth wheel.

(5) TRAILER ELECTRICAL CONNECTORS. Two connectors (24 vdc/12-pin and 12 vdc/7-pin) that provide power for the trailer electrical system.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

e. Major External Components Common to M1090 and M1094 Dump Trucks.

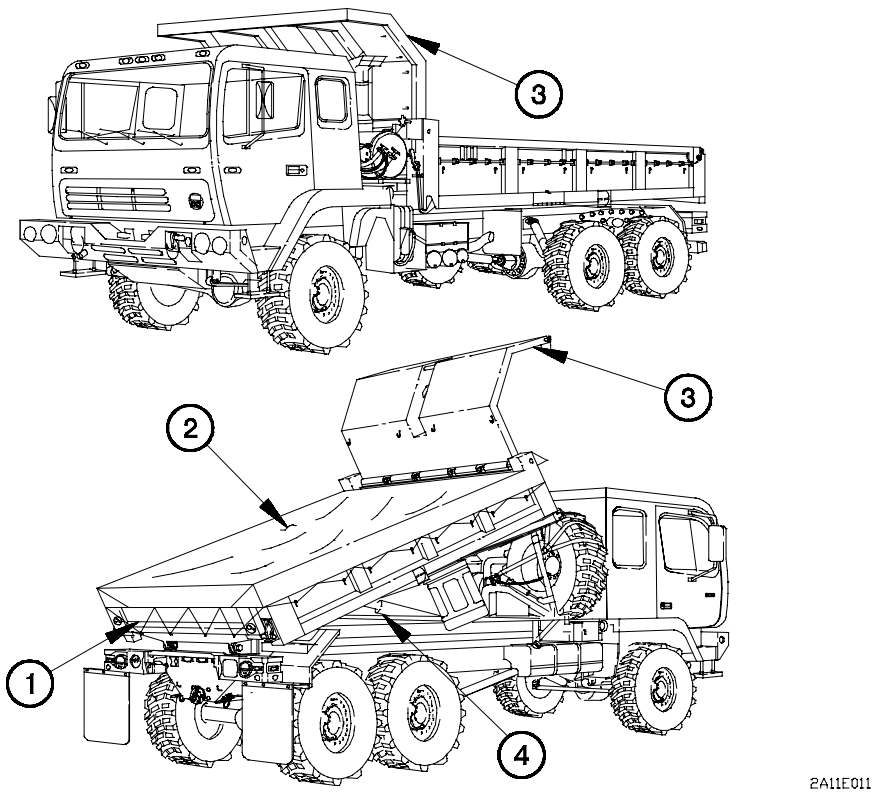


Figure 1-16. M1090 and M1094 Dump Truck Components Location

(1) DUMP BODY TAILGATE. A panel, at the rear of the dump body, which can be opened from the top or bottom.

(2) DUMP BODY DEBRIS COVER. A cover used to prevent loose cargo (sand, gravel, etc.) from being blown out of the dump body.

(3) DUMP BODY CAB PROTECTOR. Protects the cab from damage caused by shifting loads.

(4) DUMP BODY LIFT CYLINDER. A hydraulic cylinder which is used to raise and lower the dump body.

f. Major External Components of M1089 Wreckers.

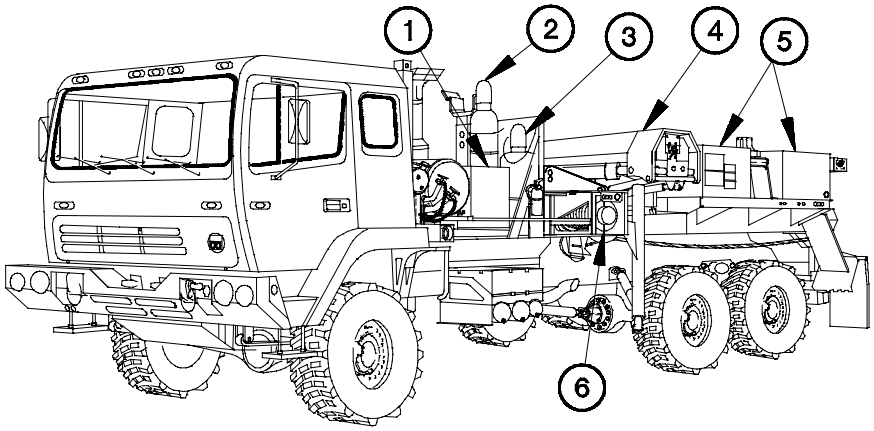


Figure 1-17. M1089 Wrecker Components Location

(1) HYDRAULIC TANK. A 73 gal (276 L) tank which contains oil for the underlift assembly, stifflegs, Material Handling Crane (MHC), 30K winches, and 15K Self-Recovery Winch (SRW).

(2) OXYGEN TANK. Used for welding operations.

(3) ACETYLENE TANK. Used for welding operations.

(4) MATERIAL HANDLING CRANE (MHC). A hydraulic powered crane used for material handling operations. The MHC can be controlled from the FIXED OPERATOR STATION or from a remote control.

(5) TOOL BOXES. Four compartments used to stow Basic Issue Items (BII), Components of End Item (COEI), and Additional Authorization List (AAL) items.

(6) 30K WINCHES. Two hydraulic powered winches used to recover disabled vehicles.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

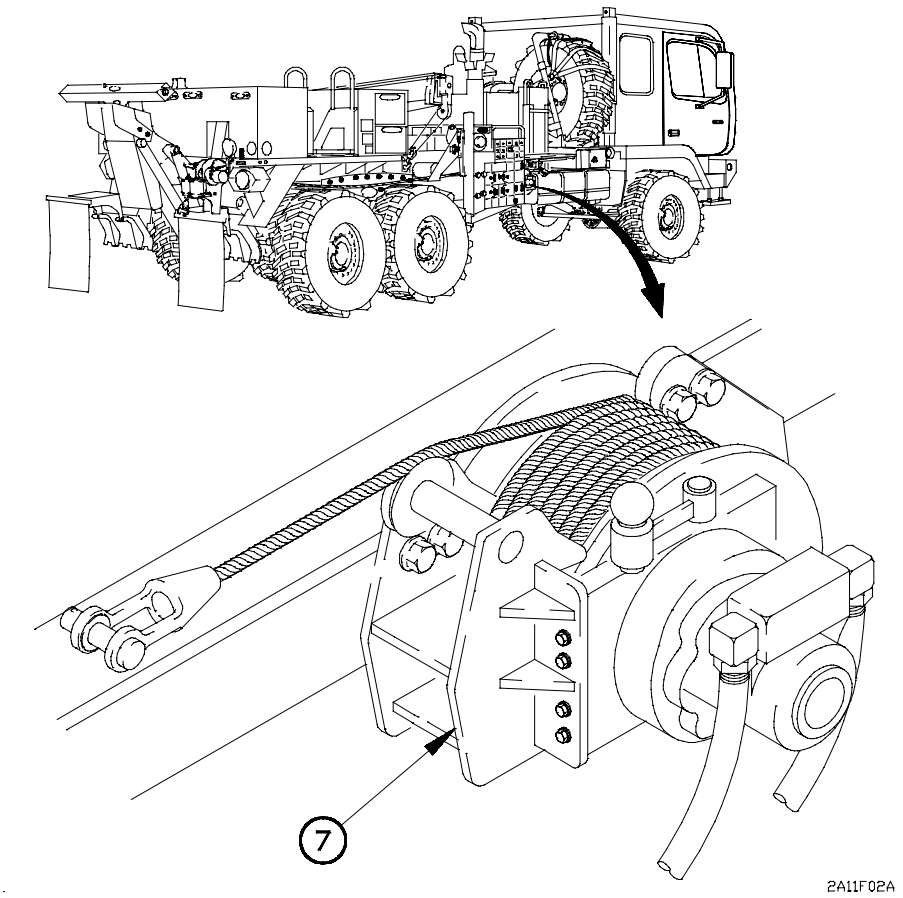


Figure 1-17. M1089 Wrecker Components Location (Cont)

(7) 15K SELF-RECOVERY WINCH (SRW). A hydraulic powered winch used for vehicle self-recovery operations.

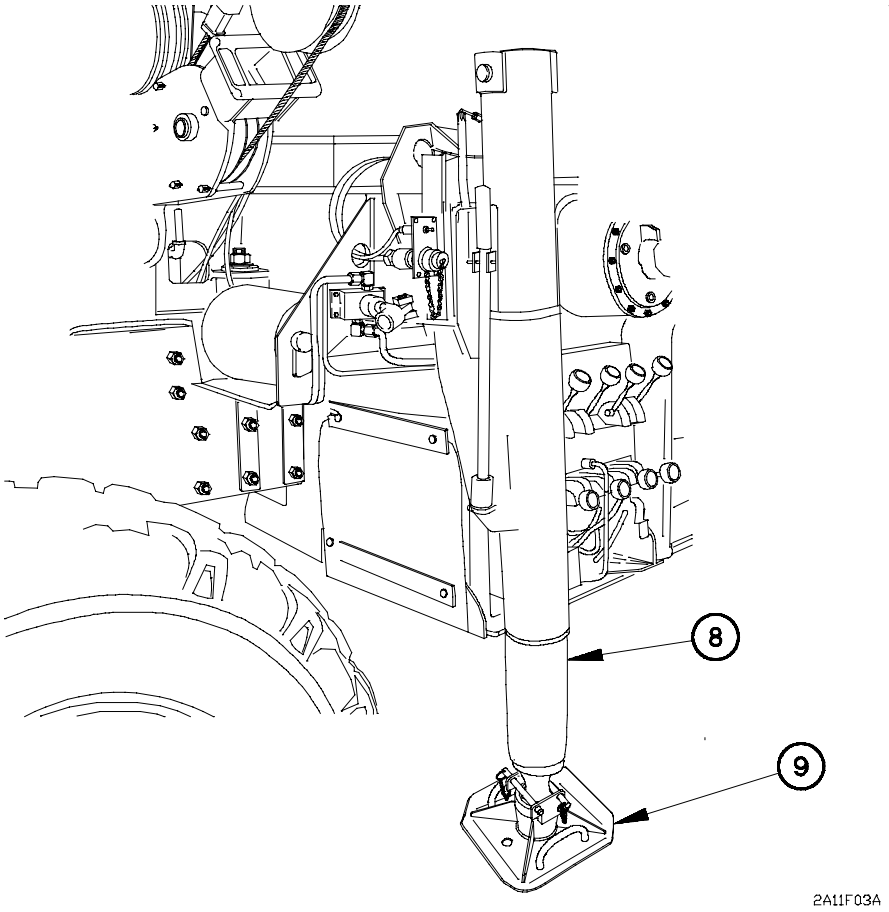


Figure 1-17. M1089 Wrecker Components Location (Cont)

(8) OUTRIGGERS AND JACK CYLINDERS. The hydraulic powered outrigger beams provide the MHC with a wider base circle of support. The jack cylinders help to stabilize and level the MHC during crane operations.

(9) OUTRIGGER PADS. Steel pads attached to the bottom of the jack cylinders to support and anchor the vehicle during crane operations.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

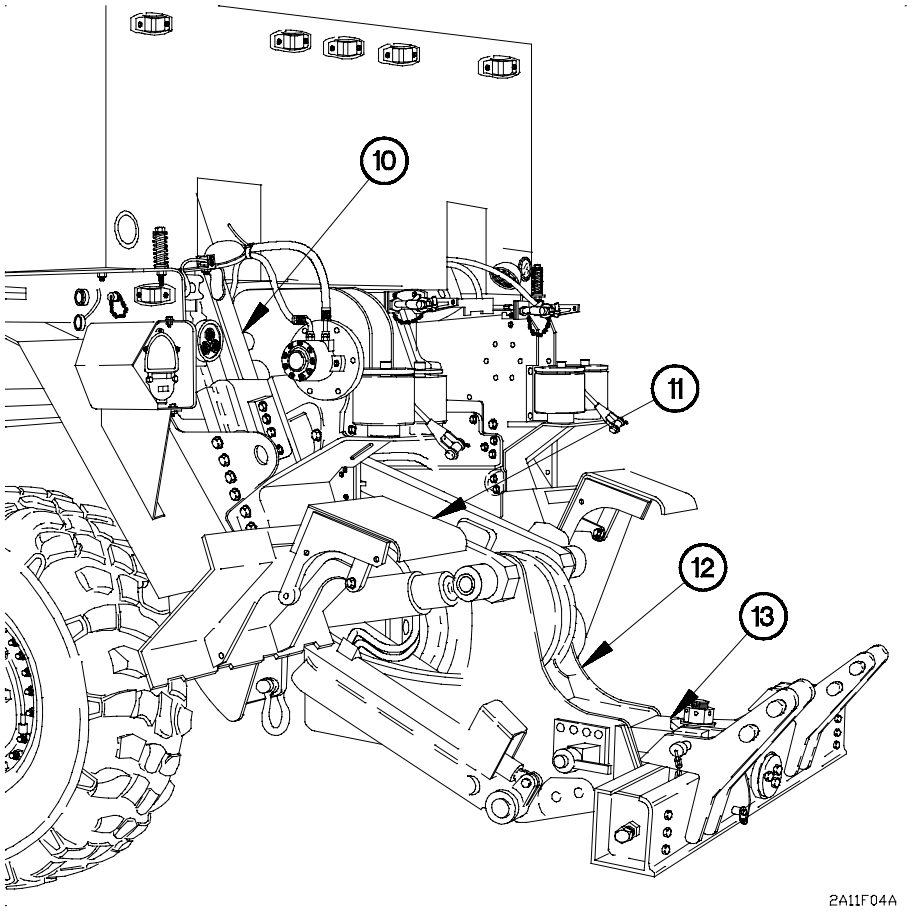


Figure 1-17. M1089 Wrecker Components Location (Cont)

(10) STIFFLEGS. Two hydraulic powered stabilizers used during 30K winch and MHC operations.

(11) SANDSHOES. Steel pads attached to the ends of the stifflegs to anchor the vehicle during 30K winch and MHC operations.

(12) UNDERLIFT ASSEMBLY. A hydraulic powered unit used to lift and support the front or rear of a disabled vehicle for towing.

(13) STINGER. A hydraulic powered cylinder used to extend and retract the crossbar during a recovery operation.

g. Major External Components Common to M1093 and M1094 Air Drop Vehicles.

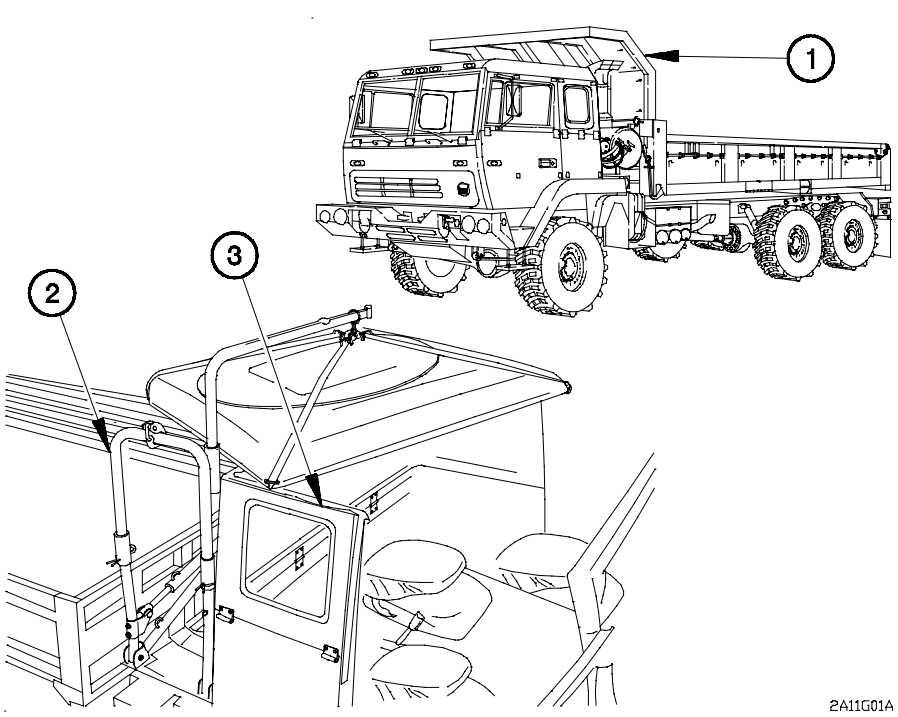


Figure 1-18. M1093 and M1094 Air Drop Vehicle Components Location

(1) FOLDING CAB PROTECTOR (M1094). A cab protector that can be folded and stowed in the dump body for air drop operations.

(2) COLLAPSIBLE SPARE TIRE RETAINER. A spare tire retainer that can be taken apart for air drop operations. This spare tire retainer is provided with a davit used in preparing the cab for air drop operations.

(3) AIR DROP CAB. A cab capable of being partially disassembled, to reduce vehicle height, in preparation for internal air transport (C-130 or C-141).

1-12. DIFFERENCES BETWEEN MODELS

Table 1-1. Differences Between Models shows major equipment and operational differences between models of the M1083 series vehicles. An "X" means that model is provided with the equipment/capability listed.

Table 1-1. Differences Between Models

FEATURE	M1083	M1084	M1085	M1086	M1088	M1089	M1090	M1092	M1093	M1094	M1096
BODY FEATURE											
Cargo Bed, 14 ft (4.3 m)	X	X							X		
Cargo Bed, 20 ft (6.1 m)			X	X							
Dump Body							X			X	
Fifth wheel					X						
Air drop capable									X	X	
MHC (5,000 lbs (2,270 kgs) capacity)		X		X							
MHC (11,000 lbs (4,994 kgs) capacity)						X					
Underlift Assembly						X					
30K Winches						X					
15K Self-Recovery Winch (SRW)	X	X	X	X		X	X		X	X	
OPERATING FUNCTION											
Personnel/Cargo Transport	X	X	X	X			X		X	X	
Material Handling		X		X		X					
Semitrailer Hauling					X						
Dump Operations							X			X	
Vehicle Recovery						X					

Table 1-1. Differences Between Models (Cont)

FEATURE	M1083	M1084	M1085	M1086	M1088	M1089	M1090	M1092	M1093	M1094	M1096
SPECIAL PURPOSE KITS[1]											
Deleted											
Deleted											
Deleted											
Deleted											
Deleted											
Cargo Cover Kit, Green	X	X	X	X			X		X	X	
Cargo Cover, Tan	X	X							X		
Deleted											
Deleted											
Light Material Handling Crane (LMHC)	X		X						X		
Machine Gun Ring Mount Kit	X	X	X	X	X	X	X	X	X	X	X
Rotating Amber Warning Light Kit	X	X	X	X	X	X	X	X	X	X	X
Troopseat Kit	X		X				X		X	X	
200 Amp Alternator Kit	X	X	X	X	X	X	X	X	X	X	X
Tiedown, S-280 Shelter	X		X						X		
Ladder Adapter, S-280 Shelter	X		X						X		
Wrecker Fuel/Water Can						X					

[1] Vehicles may or may not be equipped with special purpose kits. If an "X" appears under the model number, it means that a special purpose kit is available for that vehicle model.

Table 1-1. Differences Between Models (Cont)

FEATURE	M1083	M1084	M1085	M1086	M1088	M1089	M1090	M1092	M1093	M1094	M1096
WHEELBASES											
161 in. (410 cm)	X	X			X		X	X	X	X	
177 in. (450 cm)			X								X
209 in. (530 cm)						X					
217 in. (550 cm)				X							

1-13. EQUIPMENT DATA

a. Table 1-2. Vehicle Dimensions provides overall dimensions for the M1083 series vehicles.

Table 1-2. Vehicle Dimensions

Vehicle	Overall Length	Overall Width	Overall Height
Truck, Cargo, M1083	22 ft 10 in. (7.0 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Cargo w/MHC, M1084	25 ft 8 in. (7.8 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Cargo, Long Wheelbase, M1085	29 ft 4 in. (8.9 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Cargo, Long Wheelbase w/MHC, M1086	31 ft 10 in. (9.7 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Tractor, M1088	23 ft 5 in. (7.1 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Wrecker, M1089	30 ft (9.1 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Dump, M1090	23 ft 6 in. (7.2 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Chassis, M1092	22 ft 11 in. (7.0 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Cargo, Air Drop, M1093	22 ft 10 in. (7.0 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Dump, Air Drop, M1094	23 ft 6 in. (7.2 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Chassis, Long Wheelbase, M1096	27 ft 5 in. (8.4 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)

b. Table 1-3. Vehicle Weights and Payloads provides information regarding the weight and payload of the M1083 series vehicles.

Table 1-3. Vehicle Weights and Payloads

Vehicle	Curb Weight[2]	Payload	Maximum Towed Load[3]	Vertical Load
Truck, Cargo, M1083	20,896 lbs (9,487 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 lbs (953 kgs)
Truck, Cargo w/MHC, M1084	24,692 lbs (11,210 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 lbs (953 kgs)
Truck, Cargo, Long Wheelbase, M1085	22,451 lbs (10,193 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 lbs (953 kgs)
Truck, Cargo, Long Wheelbase w/MHC, M1086	26,133 lbs (11,864 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 lbs (953 kgs)
Truck, Tractor, M1088	19,650 lbs (8,921 kgs)	N/A	60,000 lbs (27,204 kgs) on fifth wheel[4]	25,000 (11,350 kgs) on Fifth Wheel
			21,000 lbs (9,534 kgs) on pintle hook	2,100 lbs (953 kgs)
Truck, Wrecker, M1089	35,582 lbs (16,154 kgs)	N/A	21,000 lbs (9,534 kgs) on pintle hook	2,100 lbs (953 kgs)
			36,678 lbs (16652 kgs) w/underlift	20,000 lbs (9080 kgs) w/underlift retracted
Truck, Dump, M1090	22,987 lbs (10,436 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 (953 kgs)

[2] Curb weight is defined as vehicle weight plus 404 lbs (183 kgs) of fuel weight and 606 lbs (275 kgs) of crew weight.

[3] Any 5-ton MTV vehicle can flat tow any other MTV vehicle up to GVW. (Gross Vehicle Weight = Curb Weight+Payload).

[4] Special trailer limitations may prevent towing the maximum load under off-road or other conditions. Consult the specific trailer manual to determine what, if any, limitations apply.

Table 1-3. Vehicle Weights and Payloads

Vehicle	Curb Weight[5]	Payload	Maximum Towed Load[6]	Vertical Load
Truck, Chassis, M1092	17,977 lbs (8,162 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 (953 kgs)
Truck, Cargo, Air Drop, M1093	23,083 lbs (10,479 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 (953 kgs)
Truck, Dump, Air Drop, M1094	24,993 lbs (11,347 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 (953 kgs)
Truck, Chassis, Long Wheelbase, M1096	18,504 lbs (8,401 kgs)	10,000 lbs (4,540 kgs)	21,000 lbs (9,534 kgs)	2,100 (953 kgs)

[5] Curb weight is defined as vehicle weight plus 404 lbs (183 kgs) of fuel weight and 606 lbs (275 kgs) of crew weight.

[6] Curb weight is defined as vehicle weight plus 404 lbs (183 kgs) of fuel weight and 606 lbs (275 kgs) of crew weight.

WARNING

Do not exceed maximum vehicle speed and grade limitations during normal operations. Do not exceed maximum approach or departure angles or ford water greater than maximum depth. Failure to comply may result in serious injury or death to personnel or damage to equipment.

c. Table 1-4. Vehicle Performance Data provides information that is applicable to all M1083 series vehicles.

Table 1-4. Vehicle Performance Data

Maximum Speed	Cruising Range	Maximum Grade	Maximum Approach Angle	Maximum Departure Angles	Maximum Fording Depth
55 mph (88 km/h)	300 mi (480 km)	60 percent	40 degrees	40 degrees (M1088 and M1089)	30 in. (76 cm)
		30 percent (M1088 and M1089 when not towing vehicle or trailer)		38.2 degrees (M1084)	
		22 percent (M1088 and M1089 when towing vehicle or trailer)		63 degrees (all other models)	

1-13. EQUIPMENT DATA (CONT)

d. Table 1-5. Fluid Capacities provides information regarding fluid requirements for all M1083 series vehicles.

Table 1-5. Fluid Capacities

Cooling system	43.8 qt (41.5 L)
Deleted	
Deleted	
Engine crankcase	25 qt (24 L)
Transmission/transfer case assembly (all models except M1088/M1089)	49.3 qt (46.7 L)
Transmission/transfer case assembly (M1088/M1089)	58.6 qt (55.4 L)
Fuel tank	56 gal (212 L) capacity, 54 gal (204 L) usable)
Steering system reservoir	5 qt (4.7 L)
Windshield washer reservoir	3 qt (2.8 L)
Front differential housing	9.5 qt (9 L)
Rear differential housing	9.5 qt (9 L)
Intermediate differential housing	13.7 qt (13 L)
Hydraulic reservoir (M1083, M1084, M1085, M1086, M1088, M1090, M1093, M1094)	27 gal (103 L)
Hydraulic tank (M1089)	108.7 gal (411 L)
Air transport hydraulic system (total system)	3 qt (2.8 L)
Air/hydraulic power unit	3 pt (1.4 L)
Back-up hydraulic pump	19 oz (562 mL)

e. Table 1-6. System Data provides detail information for the major components of the M1083 series vehicles.

Table 1-6. System Data

ENGINE	
Make	Caterpillar
Model	3116 ATAAC
Type	in-line diesel, 4-cycle, turbocharged
Number of Cylinders	6
Bore	4.13 in. (10.5 cm)
Stroke	5.0 in. (12.7 cm)
Displacement	403 cid (6.6 L)
Maximum Brake Horsepower (at 2,600 rpm)	290 hp SAE (216 kW)
Maximum Governed Engine Speed (loaded)	2,600 rpm
Maximum Governed Engine Speed (no load)	2,860 rpm
Fuel Governor	Auto/Mechanical
Oil Filter Type	Full flow, replaceable element
Oil Filter Quantity	1

FUEL SYSTEM

Type	Mechanical Injection, Cam-Driven
Number of Fuel Tanks	1
Fuel Types	Diesel, DF-2, JP-4, VV-F-800
Fuel Filter (primary)	Fuel/Water Separator
Fuel Filter (secondary)	Particulate type
Air Cleaner Type	Dry element

COOLING SYSTEM

Type	Water, Radiator
Maximum Radiator Working Pressure	15 psi (103 kPa)
Fan	Engine-driven, clutch-type

AIR COMPRESSOR

Make	Midland
Model	EL 1600
Type	Piston-type, Two-cylinder

ELECTRICAL SYSTEM

Alternator

Make	C.E. Niehoff
Model (100 Amps, 14 vdc/28 vdc)	N1506-1
Type	Engine-driven, EMI/RFI suppressed, waterproof

Voltage Regulator

Make	C.E. Niehoff
Model	N3030
Type	Solid State

Starter

Make	Prestolite
Model	M0017703MD

Batteries

Make	Exide
Type	6TL
Quantity	4
Battery Connection	Series-parallel
Ratings	600 cold cranking amps at 0°F (-18°C) for 60 seconds 350 cold cranking amps at -40°F (-40°C) for 60 seconds

TRANSMISSION

Make	Allison
Model	MD3070PT
Type	Automatic
Forward Speeds	7
Reverse Speeds	1

1-13. EQUIPMENT DATA (CONT)

Table 1-6. System Data (Cont)

TRANSMISSION (Cont)
Power Take-Off (PTO) (if equipped)
Make . . . . . Chelsea
Model 275 XMFJX-D5XK

AXLES
Front
Make . . . . . Rockwell
Carrier Type . . . . . Single reduction, amboid gearing
Wheel End Type . . . . . Bevel wheel end reduction
Wheel End Ratio . . . . . 2 to 1
Overall Axle Gear Ratio . . . . . 7.8 to 1
Steering Angle . . . . . 35 degrees

Intermediate
Make . . . . . Rockwell
Carrier Type . . . . . Single reduction, amboid gearing
Wheel End Type . . . . . Bevel wheel end reduction
Wheel End Ratio . . . . . 2 to 1
Overall Axle Gear Ratio . . . . . 7.8 to 1

Rear
Make . . . . . Rockwell
Carrier Type . . . . . Single reduction, amboid gearing
Wheel End Type . . . . . Bevel wheel end reduction
Wheel End Ratio . . . . . 2 to 1
Overall Axle Gear Ratio . . . . . 7.8 to 1

PROPELLER SHAFTS
Make . . . . . Rockwell

SUSPENSION SYSTEM
Make
Front . . . . . Standen's Limited
Rear . . . . . Standen's Limited

Type
Front . . . . . Multiple Leaf Spring
Rear . . . . . Multiple Leaf Spring w/Bogeys

CAB
Personnel Capacity 3
Seat Design . . . . . Cushioned with Springs, Driver's Forward/Backward Adjustable
Steering Column . . . . . Adjustable, Tilt and Telescopic

BRAKE SYSTEM

Front

Make . . . . . Rockwell
Model (all variants) . . . . . Stopmaster, RSA-1550-830
Type . . . . . Full air, wedge-type, self-adjusting
Drum Size . . . . . 17.2 in. (437 mm) diameter by 8.2 in. (208 mm) wide
Number of Brake Air Chambers . . . . . 1 per wheel
Pressure Range . . . . . 60-120 psi (414-827 kPa)

Rear

Make . . . . . Rockwell
Model (all models except M1088/M1089) . . . . . Stopmaster, RDA-1550-831
Model (M1088 and M1089) . . . . . Stopmaster, RDA-1550-833
Type . . . . . Full air, wedge-type, self-adjusting
Drum Size . . . . . 17.2 in. (437 mm) diameter by 8.2 (208 mm) wide
Number of Brake Air Chambers . . . . . 2 per wheel
Pressure Range . . . . . 60-120 psi (414-827 kPa)

TOWING EYES

Quantity . . . . . 4 (2 front, 2 rear)

PINTLE HOOK

Type . . . . . Manual-release
Maximum Load Capacity
Pulling . . . . . 21,000 lbs (9,534 kgs)
Vertical . . . . . 2,100 lbs (953 kgs)

WHEELS

Make . . . . . Titan
Rim Size and Type . . . . . 20 by 10, two-piece, bolt-together
Quantity . . . . . 7 (including spare)
Studs Per Wheel 10
Maximum Wheel Load . . . . . 9,000 lbs (4,086 kgs)

TIRES

Make . . . . . Michelin
Size . . . . . 395/85 R20 XML
Tread Design . . . . . Non-directional, on-off road
Ply Rating PR14
Tube or Tubeless . . . . . Tubeless
Load Range 159G
Maximum Load . . . . . 9,645 lbs (4,379 kgs)
Maximum Cold Inflation Pressure . . . . . 95 psi (655 kPa)
Maximum Highway Speed . . . . . 55 mph (88 km/h)

1-13. EQUIPMENT DATA (CONT)

Table 1-6. System Data (Cont)

CENTRAL TIRE INFLATION SYSTEM (CTIS)

Make . . . . . Eaton

TIRE PRESSURES (all models except M1088/M1089)

Terrain Condition	Maximum Speed	Tire Pressure
Highway	55 mph (88 km/h)	60 psi (414 kPa)
Cross Country	40 mph (64 km/h)	37 psi (255 kPa)
Sand (soft terrain)	12 mph (19 km/h)	22 psi (152 kPa)
Emergency	5 mph (8 km/h) (10 minutes)	16 psi (110 kPa)

TIRE PRESSURES (M1088/M1089)

Terrain Condition	Maximum Speed	Tire Pressure
Highway	55 mph (88 km/h)	81 psi (558 kPa)
Cross Country	40 mph (64 km/h)	54 psi (372 kPa)
Sand (soft terrain)	12 mph (19 km/h)	32 psi (221 kPa)
Emergency	5 mph (8 km/h) (10 minutes)	24 psi (165 kPa)

30K WINCHES (M1089)

Make . . . . . dp Manufacturing
Model SD30
Rated Capacity . . . . . 30,000 lbs (133,440 N)
Speeds 2
Cable Dimension . . . . . 0.75 in. (1.9 cm) diameter by 325 ft (122 m)

MATERIAL HANDLING CRANE (MHC)

M1084/M1086
Make . . . . . Grove
Maximum Capacity at Boom Length of 7 ft (2.1 m) . . . . . 5,000 lbs (2,270 kgs)

MATERIAL HANDLING CRANE (MHC)

M1089
Make . . . . . Grove
Maximum Capacity at Boom Length of 11 ft (3.4 m) . . . . . 11,000 lbs (4,994 kgs)

FIFTH WHEEL (M1088)

Make . . . . . Holland
Type . . . . . Fully-oscillating with kingpin lock

FIFTH WHEEL (M1088) (Cont)

Diameter . . . . . 36 in. (91.4 cm) diameter
Rating
Vertical Load . . . . . 40,000 lbs (18,160 kgs)
Drawbar Load . . . . . 150,000 lbs (68,100 kgs)
Lateral Load . . . . . 25,382 lbs (11,523 kgs)
Kingpin Size . . . . . 2 in. (5 cm)

15K SELF-RECOVERY WINCH (SRW) (if equipped)

Make . . . . . dp Manufacturing
Model . . . . . 15 K
Rated Capacity . . . . . 15,500 lbs (68,944 N)
Speeds 1
Cable Dimension . . . . . 0.5 in. (12.7 mm) diameter by 280 ft (85 m)

SPECIAL PURPOSE KITS[7]

Deleted
Deleted
Deleted
Deleted

Deleted
Deleted
Deleted

Deleted
Deleted
Deleted
Deleted

Cargo Cover Kit (Green)
Part No. (M1083/M1084/M1093) 57K1899
Part No. (M1085/M1086) 57K1900
Part No. (M1090/M1094) 57K1901

Cargo Cover Kit (Tan)
Part No. (M1083/M1084/M1093) 57K1926

Deleted
Deleted

Deleted
Deleted
Deleted

[7] Vehicle may be equipped with these items depending on mission, climate, and other factors.

1-13. EQUIPMENT DATA (CONT)

Table 1-6. System Data (Cont)

SPECIAL PURPOSE KITS (Cont)	
Light Material Handling Crane (LMHC) Kit	
Part No. (M1083/M1085/M1093)	57K1215
Machine Gun Ring Mount Kit	
Part No.	57K1224
Rotating Amber Warning Light Kit	
Part No.	57K1220
Type	12 vdc, Magnet-Mounted
Troopseat Kit	
Part No. (M1083/M1093)	57K1894
Part No. (M1085)	57K1896
Part No. (M1090/M1094)	57K1897
200 Amp Alternator Kit	
Part No.	57K1912
Deleted	
Deleted	
Wrecker Fuel/Water Can Stowage Kit	
Part No. (M1089)	57K1921
Deleted	
Deleted	
Deleted	
Deleted	
Deleted	
Deleted	
Tiedown, S-280 Shelter Part No. (M1083/M1093)	57K1949
Ladder, Adapter, s-280 Shelter Part No. (M1083/M1085/M1093)	57K1950

Table 1-7. Vehicle Classification lists the vehicle class number to be displayed on the front of each model. Refer to FM 5-36 Route Reconnaissance and Classification for more information on bridge classification.

WARNING

Bridges along your route may be marked with a class number. The bridge class number shows the safe capacity of the bridge. If the bridge class number on your vehicle is equal to or less than the bridge class number, the bridge will hold your vehicle. If the bridge class number on your vehicle is greater than the bridge class number; DO NOT CROSS BRIDGE. Failure to comply may result in serious injury or death to personnel.

Table 1-7. Vehicle Classification

Vehicle	Vehicle Class Number
	Cross-Country/off Highway
M1083	16
M1083 w/SRW	16
M1084	17
M1085	16
M1085 w/SRW	16
M1086	17
M1088[8]	22
M1088 w/SRW[9]	23
M1089	22
M1090	16
M1090 w/SRW	17
M1092	8
M1093	16
M1093 w/SRW	17
M1094	17
M1094 w/SRW	17
M1096	8

[8] Weight of trailer and payload must be known to determine class number.

[9] Weight of trailer and payload must be known to determine class number.

Section III. PRINCIPLES OF OPERATION

1-14. POWERTRAIN

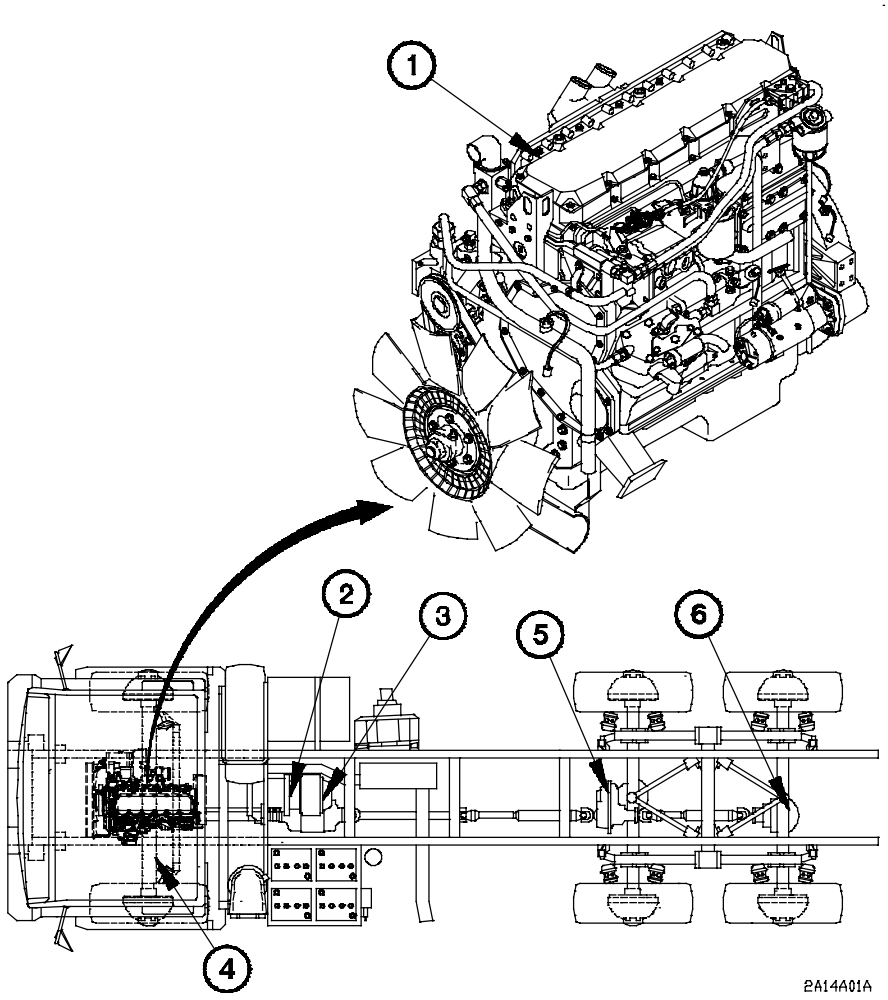


Figure 1-19. Powertrain

The Powertrain for the vehicle is composed of a diesel engine (1, Figure 1-19) which is coupled directly to an automatic transmission (2). Power from the automatic transmission is supplied to the transfer case (3) and on to the front steering axle (4), intermediate drive axle (5), and rear drive axle (6) through a series of drive shafts and universal joints. The capability of the powertrain is enhanced by the use of a seven-speed transmission.

a. Engine. The vehicle is equipped with a Caterpillar model 3116 ATAAC diesel engine (1, Figure 1-19), rated at 290 hp (216 kW).

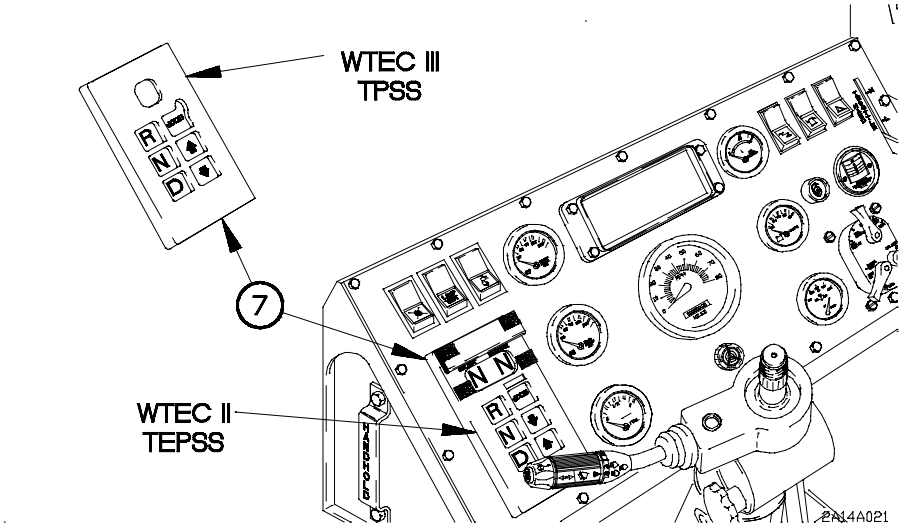


Figure 1-19. Powertrain (Cont)

b. Transmission. The vehicle is equipped with a fully automatic, electronically controlled, seven-speed close-ratio Allison transmission Model MD3070PT (2, Figure 1-19). WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) has a velcro cover, WTEC III Transmission Pushbutton Shift Selector (TPSS) does not have a velcro cover.

(1) The WTEC II TEPSS (7) or WTEC III TPSS (7) is located in the instrument panel to the Operator's left.

(2) The transmission defaults to Neutral (**N**) whenever electrical power is removed from the vehicle. When electrical power is first supplied to the vehicle, the WTEC II TEPSS or WTEC III TPSS will momentarily display **MODE ON** in the LED display. **MODE ON** display will disappear and **N N** will be left in the LED display. This lets you know that the transmission is in highway mode and Neutral (**N**) range.

(3) The Drive (**D**) gear selection is used for normal driving conditions. The transmission will engage 2nd gear when **D** is selected and the vehicle is stopped. The LED display will illuminate **7 2**, indicating that the transmission is in 2nd gear and there are seven forward gears available. Low gear (1st gear), is available only through manual selection by pressing the down arrow button until **1 1** is displayed in the LED display. You may manually downshift or upshift to a lower or higher gear range as required. However, the transmission will not downshift to a lower gear if the engine speed is too high for the gear selected. Selecting a specific gear; for example, 3rd; will prevent the transmission upshifting past the selected gear.

1-14. POWERTRAIN (CONT)

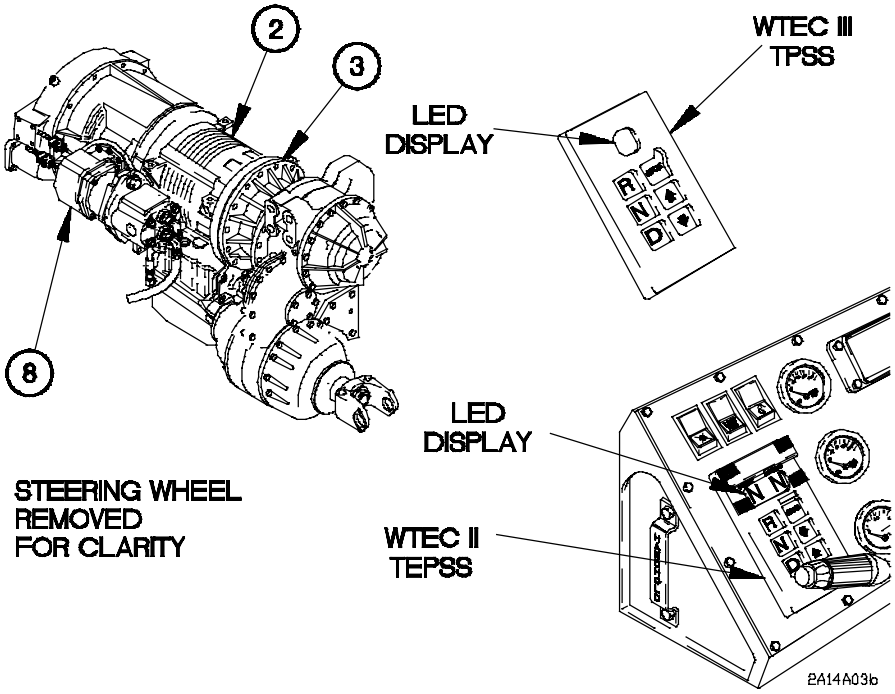


Figure 1-19. Powertrain (Cont)

(4) When the **MODE** button is pressed, **MODE ON** will illuminate in the LED display. If the vehicle is stopped; the LED display will illuminate **5 MODE ON 2**, indicating that the transmission is in 2nd gear and there are five forward gears available. This off-road mode is useful if road or load conditions require the use of a lower gear range for maximum torque. The vehicle must be completely stopped and engine operating at idle speed before the transmission will allow you to shift from a forward gear to Reverse (**R**) gear.

(5) The transmission may include an electrically controlled Power Take-Off (PTO) (8). The PTO provides power to a hydraulic pump, which powers the 15K Self-Recovery Winch (SRW) (if equipped) and/or the MHC (M1084 and M1086). The transmission will not shift from Neutral (**N**) if the PTO is engaged and the winch switch is in the on position.

c. Transfer Case. The transfer case (3) contains the gears and clutches that provide the transmission (2) with the seventh gear. The transfer case delivers power from the transmission to the front driveshaft and rear driveshaft. In normal driving conditions, the transfer case splits the output torque of the transmission, providing 70 percent of the torque to the rear and 30 percent to the front. In 1st gear, or any time **MODE ON** is illuminated in the LED display, the output torque of the transmission is split evenly between front and rear.

1-15. ENGINE AIR INTAKE SYSTEM

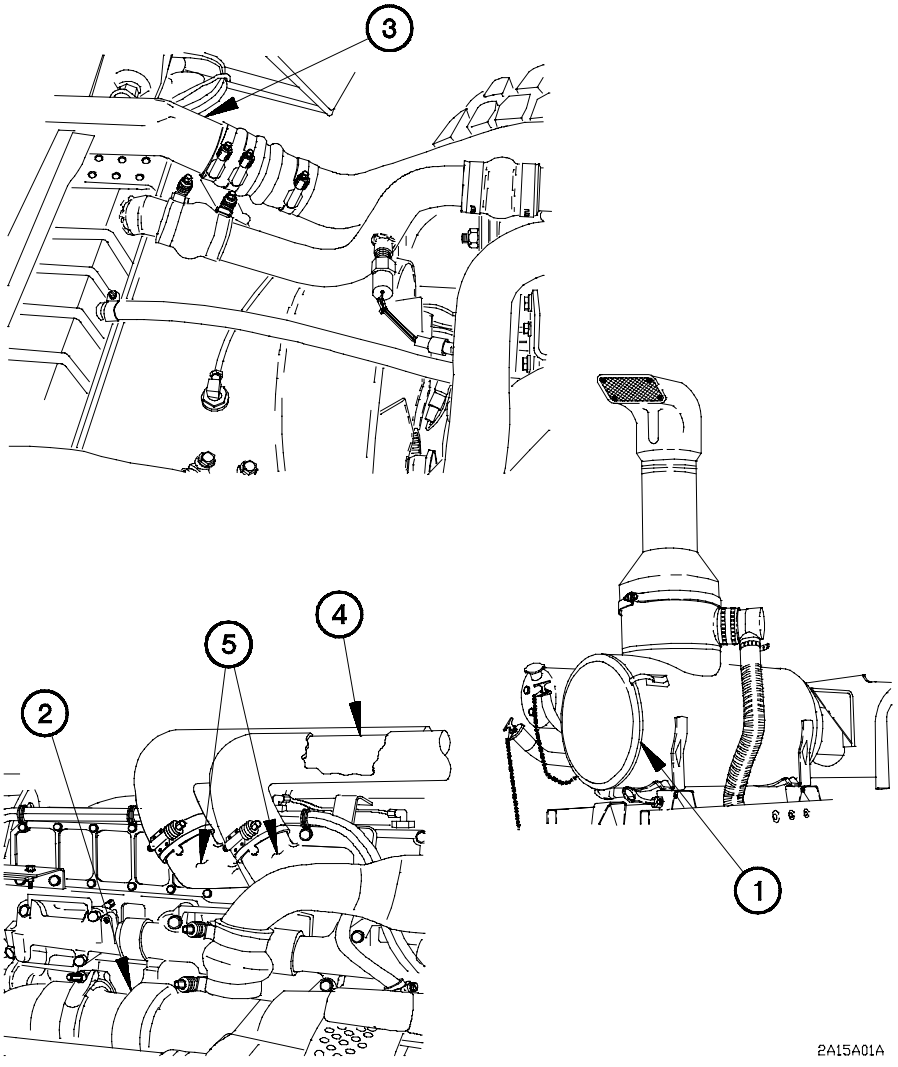


Figure 1-20. Engine Air Intake System

The Engine Air Intake System consists of a dry-type air cleaner (1, Figure 1-20), turbocharger (2), and a Charge Air Cooler (CAC) (3). The turbocharger increases engine horsepower by delivering a higher volume of air to the engine. The turbocharger compresses the air and delivers it to the CAC. The air flows through the CAC which cools the air before it is delivered to the engine cylinders. The air aspiration tubes (4) are wrapped with a layer of insulating material to prevent the charged air being reheated before it enters the engine inlet manifold (5). The compressed air/fuel mixture allows more complete burning of the fuel. The result is an increase in horsepower and lower emissions.

1-16. FUEL SYSTEM

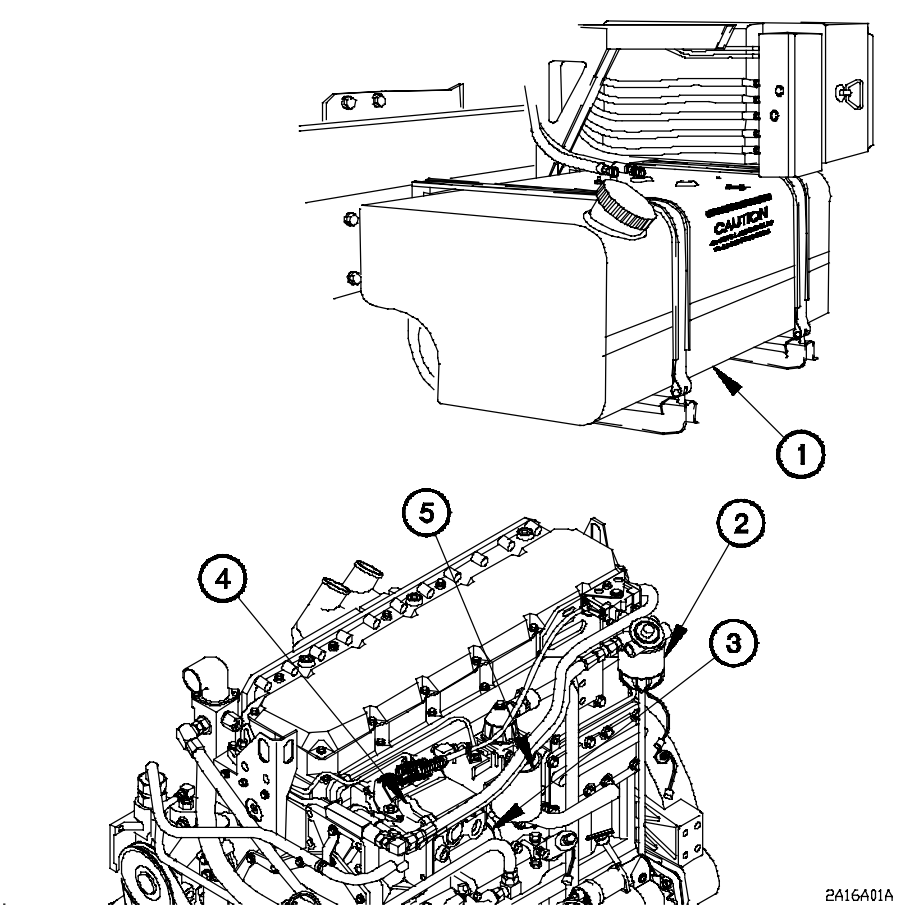


Figure 1-21. Fuel System

The Fuel System consists of a 56 gal (212 L) capacity, 54 gal (204 L) usable fuel tank (1, Figure 1-21), fuel priming pump and fuel/water separator (2), fuel shutoff solenoid (3), fuel governor (4), and secondary fuel filter (5).

(1) The fuel priming pump is hand actuated and is used to pump fuel to the fuel governor after maintenance is performed on certain parts of the fuel system.

(2) The fuel/water separator removes water and large solid particles from the fuel before it is passed to the fuel governor.

(3) The fuel governor responds to input from the accelerator pedal and causes an increase or decrease in engine speed. The fuel governor adjusts the amount of fuel delivered to the engine as engine speed changes.

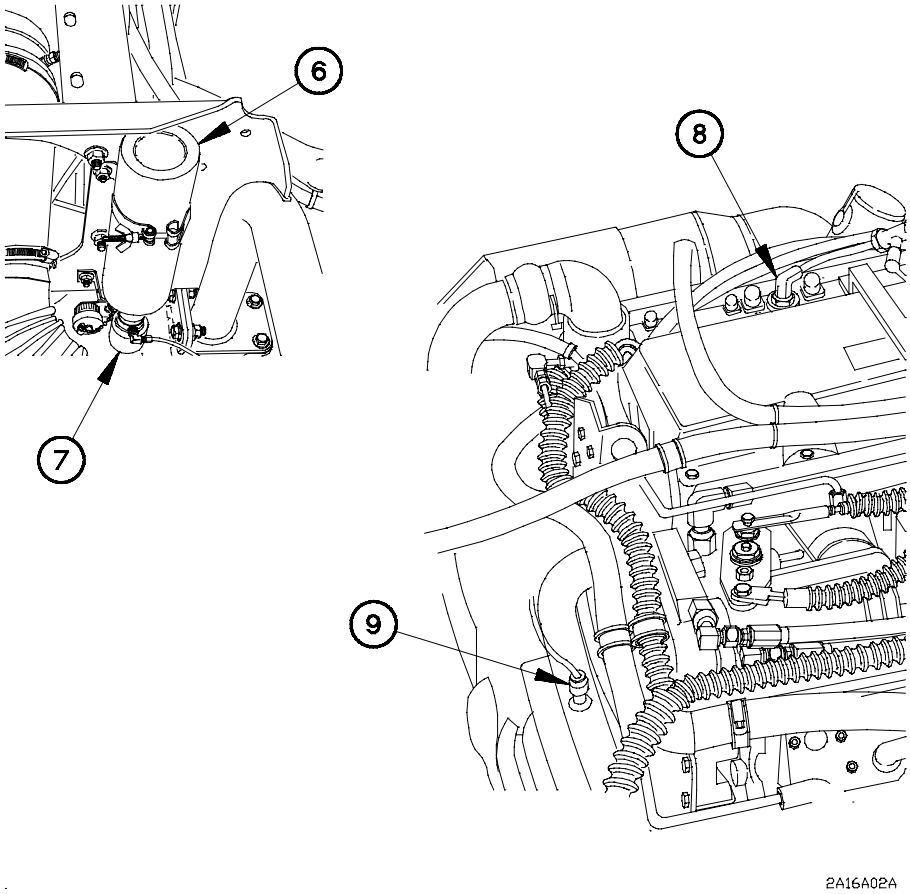


Figure 1-21. Fuel System (Cont)

(4) The secondary fuel filter removes finer particles from the fuel before it reaches the cylinder head.

(5) The vehicle is also equipped with an ether quick start system for starting the engine when the outside temperature is below 32°F (0°C). The ether quick start system is composed of an ether cylinder (6), ether valve (7), two ether nozzles (8), and an ether sensor switch (9). The ether sensor switch detects the temperature of the engine coolant and disables the ether valve if the coolant temperature is above 100°F (38°C).

1-17. COOLING SYSTEM

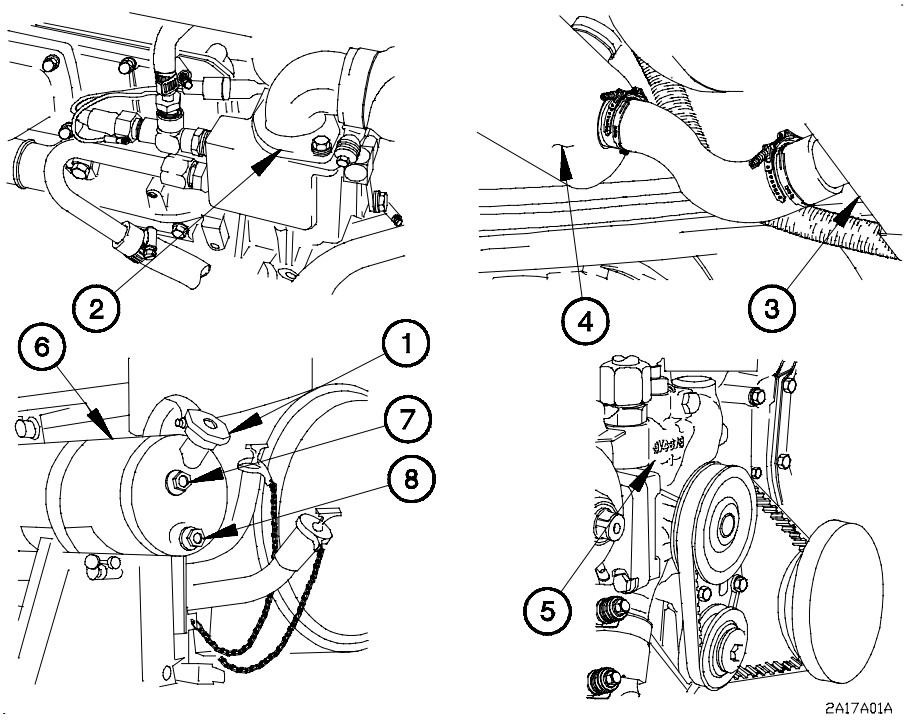


Figure 1-22. Cooling System

The Cooling System protects the engine, transmission, and air compressor by providing a means of removing the heat generated during operation of the vehicle.

(1) The radiator pressure cap (1, Figure 1-22), in combination with the ethylene glycol-based antifreeze, effectively raises the boiling point of the coolant to well above 212°F (100°C).

(2) The thermostat (2) helps the engine to warm up quickly by remaining closed until the coolant temperature reaches approximately 199°F (93°C). When the coolant temperature reaches approximately 199°F (93°C), the thermostat opens and coolant is circulated through the water jacket in the engine to maintain the correct operating temperature for the engine. Coolant is drawn from the radiator (3), through the transmission oil cooler (4), and circulated through the cooling system by the water pump (5). Heat is drawn from the radiator by the engine fan pulling air over the radiator cooling fins.

(3) A radiator overflow tank (6) is provided to allow for expansion of the coolant. The radiator overflow tank also serves as the point where new coolant is introduced into the cooling system. The radiator overflow tank has two sight glasses; the upper sight glass (7) indicates the level to fill to with engine shut down. If coolant is not visible in the lower sight glass (8), do not operate the vehicle.

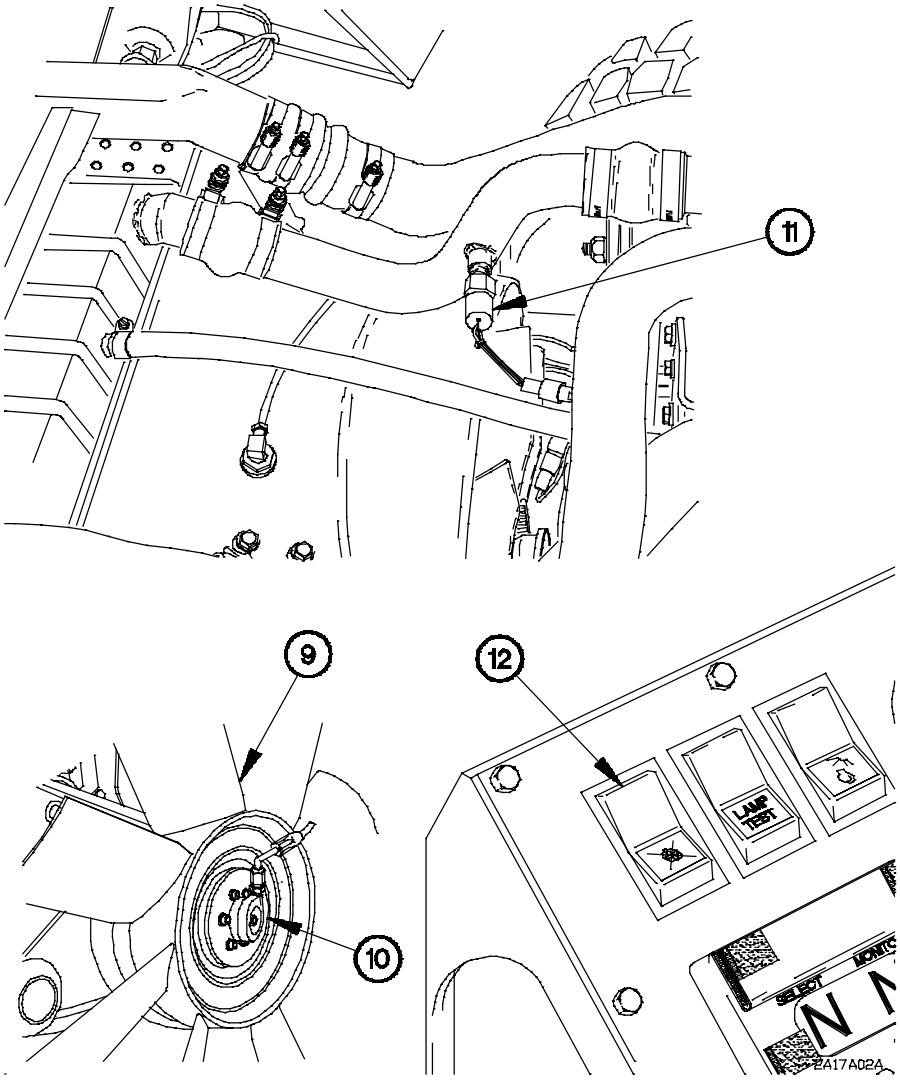


Figure 1-22. Cooling System (Cont)

(4) The engine fan (9), with pneumatic fan clutch (10), is activated by the water temperature sensor (11). Whenever this sensor detects a high engine temperature condition, air pressure is removed from the fan clutch and the engine fan is engaged.

(5) Positioning the radiator fan off switch (12) to the on position keeps the engine fan from engaging.

1-17. COOLING SYSTEM (CONT)

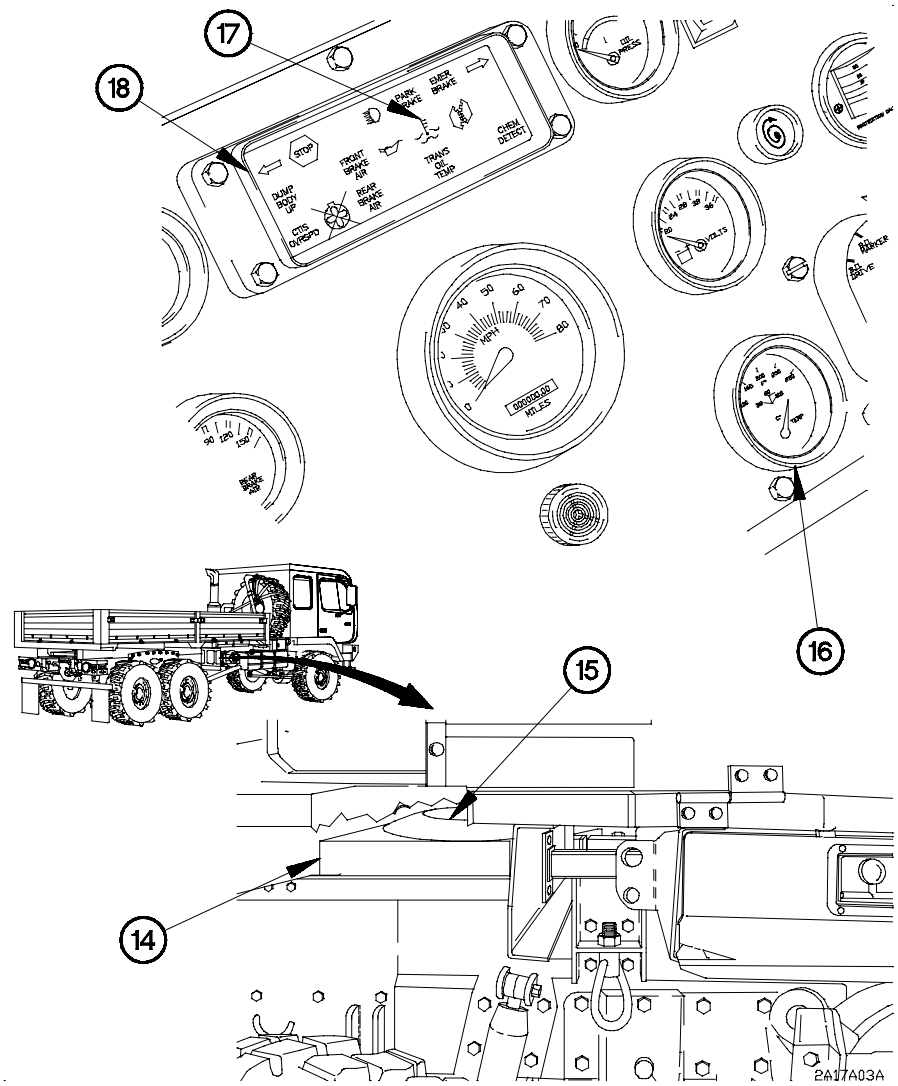


Figure 1-22. Cooling System (Cont)

(6) Cooling capacity for the transmission is increased by the use of a transmission auxiliary oil cooler (14). An electric fan (15) provides air flow through the oil cooler core. The WATER TEMP gage (16) on the instrument panel allows you to monitor coolant temperature. In addition, the high engine temperature indicator (17) on the lighted indicator display (18) illuminates when the coolant temperature exceeds 230°F (110°C). When the personnel heater is in use, warm coolant is used to heat the air in the cab before being returned to the radiator. Otherwise, coolant is returned directly to the radiator to be cooled.

1-18. ELECTRICAL SYSTEM

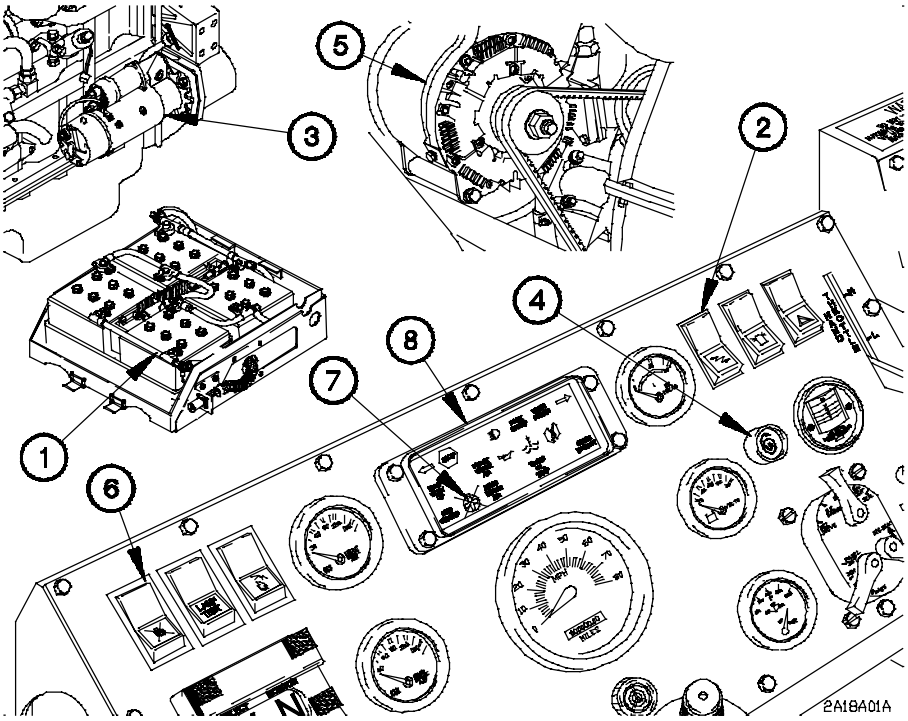


Figure 1-23. Electrical System

The vehicle Electrical System is a combined 12/24 vdc system. Four 12-volt batteries (1, Figure 1-23) are connected in series-parallel with the negative terminal grounded to the vehicle chassis.

(1) Positioning the master power switch (2) to on applies power to all electrical circuits needed to operate the vehicle.

(2) The starting motor (3) operates directly from the 24 vdc source through the starter pushbutton (4).

(3) A 12/24-volt belt-driven alternator (5) with a 100 amp capacity maintains the charge on the batteries. The 24 vdc source supplies electrical power to operate the starting motor, Central Tire Inflation System (CTIS), fuel/water separator, air dryer, ether injection system, instrument panel gages, windshield wipers/washer, and the Material Handling Crane (MHC). The 12 vdc source supplies electrical power to the vehicle lights and instrument panel lights.

(4) The radiator fan off switch (6) is used to keep the radiator fan from engaging. The fan off indicator (7) will illuminate on the lighted indicator display (8) when the radiator fan off switch is disabled.

1-18. ELECTRICAL SYSTEM (CONT)

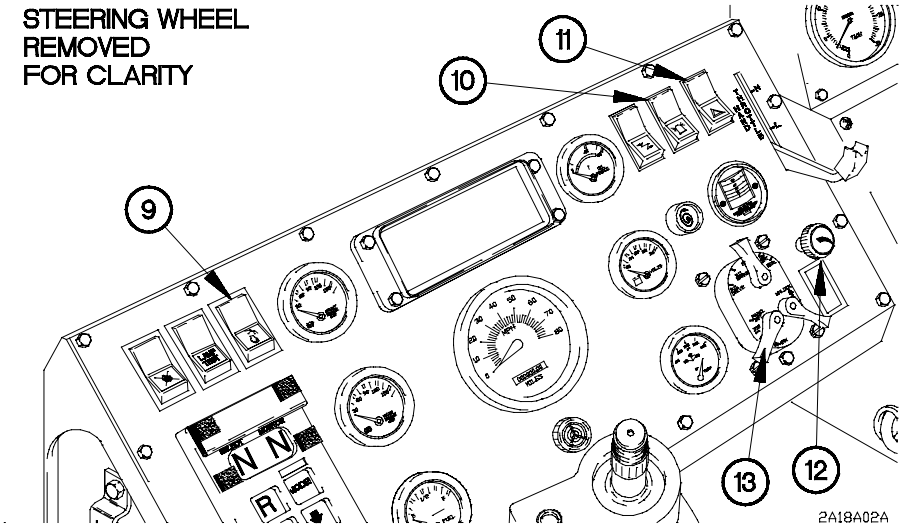


Figure 1-23. Electrical System (Cont)

(5) The ether start switch (9) is used to start the engine when the outside temperature is 32°F (0°C) or below. Pressing the ether start switch sends a measured charge of ether to the engine to make starting easier.

(6) The amber warning light switch (10) operates the amber warning light on the cab roof when installed.

(7) Positioning the hazard lights switch (11) to on causes both left and right turn signals to flash.

(8) A dimmer switch (12) is provided so that you can adjust the brightness of the instrument panel lighting.

(9) The main light switch (13) is the only switch that is active even when the master power switch is off.

a. Positioning the main selector lever to SER DRIVE causes the headlights, taillights, marker lights, and clearance lights to illuminate; stoplights will illuminate when brake pedal is depressed.

b. Positioning the main selector lever to STOP LIGHT extinguishes all vehicle lights but allows stoplights to illuminate when brake pedal is depressed.

c. Positioning the auxiliary lever to PARK with the main selector lever in SER DRIVE causes the headlights to extinguish and the front parking lights to illuminate.

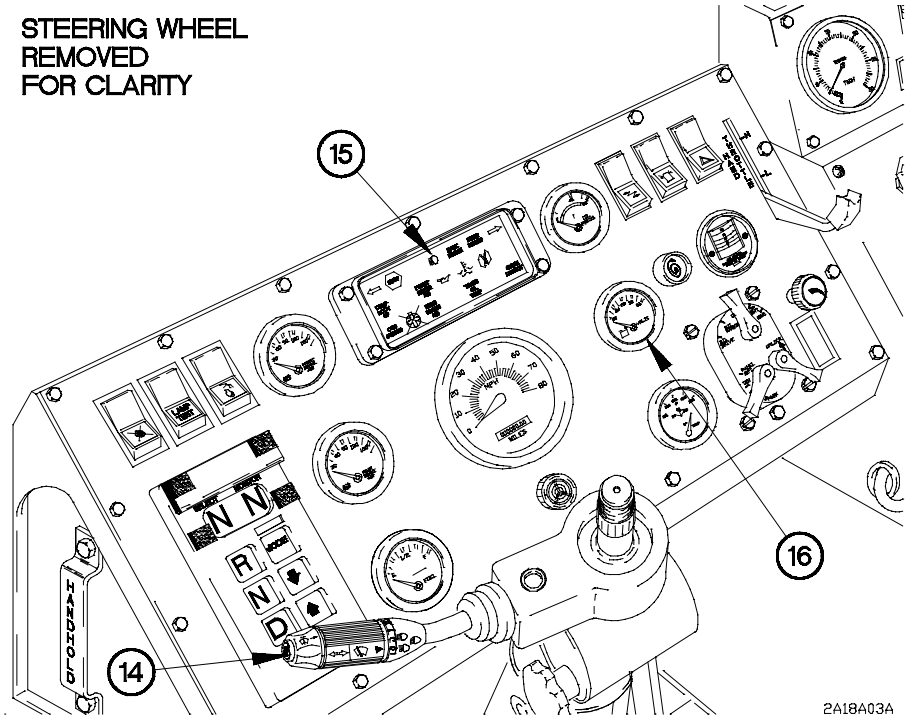


Figure 1-23. Electrical System (Cont)

d. Positioning the main selector lever to BO MARKER causes the blackout marker lights to illuminate.

e. Positioning the main selector lever to BO DRIVE causes the blackout drive light and blackout marker lights to illuminate.

f. Instrument panel lights are illuminated when the main selector lever is in BRT position.

(10) Headlight high beams are controlled from the turn signal stalk (14).

a. Pulling the turn signal stalk towards you will switch the headlights from low beam to high beam. The high beam indicator (15) will illuminate when your high beams are on.

b. Pulling the turn signal stalk again will switch the headlights from high beam to low beam.

(11) The VOLTS gage (16) shows the voltage output for the 24 vdc system.

1-18. ELECTRICAL SYSTEM (CONT)

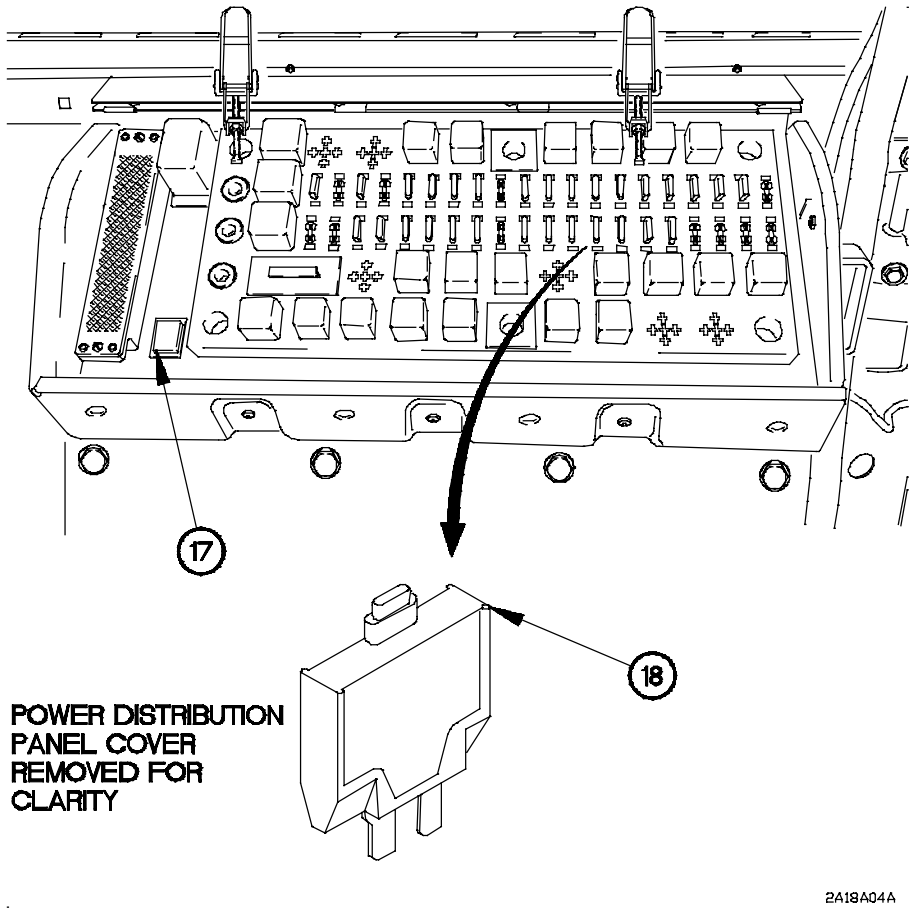


Figure 1-23. Electrical System (Cont)

(12) The start inhibit pushbutton switch (17) removes power from the fuel shutoff solenoid. When the master power switch is positioned to on and the start inhibit pushbutton switch is pressed, the engine will crank but will not start until the master power switch has been turned off and then turned back on again. The start inhibit pushbutton switch is to be used to assist with troubleshooting. It is not intended to be used during maintenance.

(13) All electrical circuits are protected against overloads by circuit breakers (18).

(14) Wiring harnesses and electrical cable assemblies carry electrical current to operate equipment and accessories. Most electrical equipment and accessories are grounded directly to the vehicle chassis.

1-19. BRAKE SYSTEM

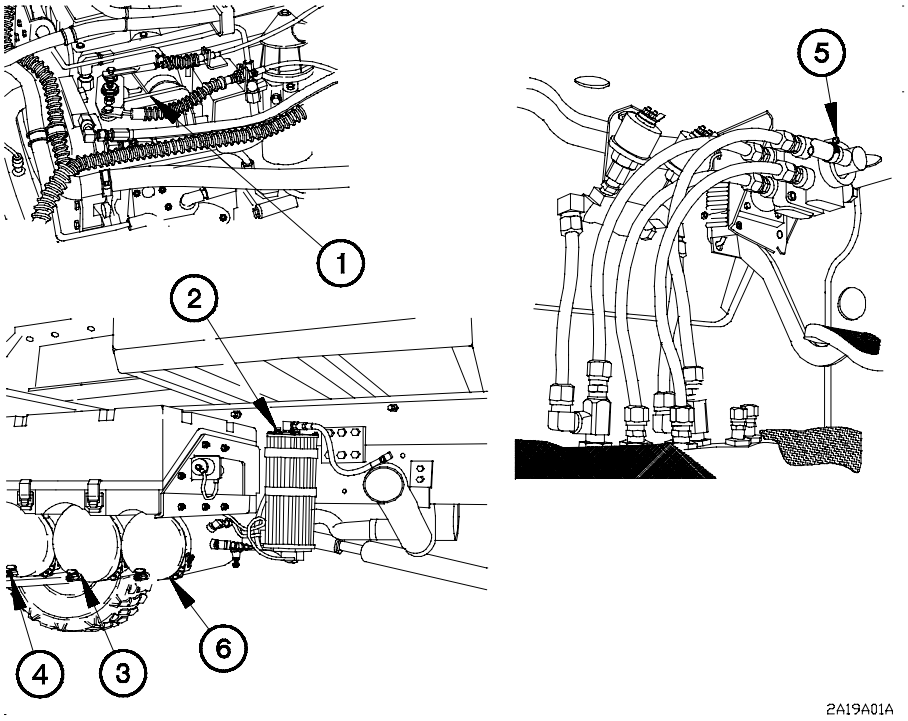


Figure 1-24. Brake System

The vehicle is equipped with a brake system which complies with the Federal Motor Vehicle Safety Standard (FMVSS) 121. The brake system is made up of an air compressor, air dryer, primary and secondary air tanks, and several valves which control the application and release of the brakes.

(1) The air compressor (1, Figure 1-24) supplies approximately 120 psi (827 kPa) to the air dryer (2).

(2) The air dryer contains a heating element and a desiccant cartridge to remove moisture from the air before it is delivered to the primary air tank (3) and secondary air tank (4).

(3) The foot control valve (5) receives pressurized air from both the primary and secondary air tanks. The foot control valve is a two circuit design, with one set of ports directing air to the front brakes from the secondary air tank and a second set of ports directing air to the rear brakes from the primary air tank. The plumbing between the primary and secondary air tanks is designed to allow controlled braking in the event of a failure in either the primary (rear brakes) or secondary (front brakes) brake circuit. When air pressure in the wet tank (6) falls below a preset limit, pressurized air, normally used for the CTIS, is redirected to the primary brake circuit.

1-19. BRAKE SYSTEM (CONT)

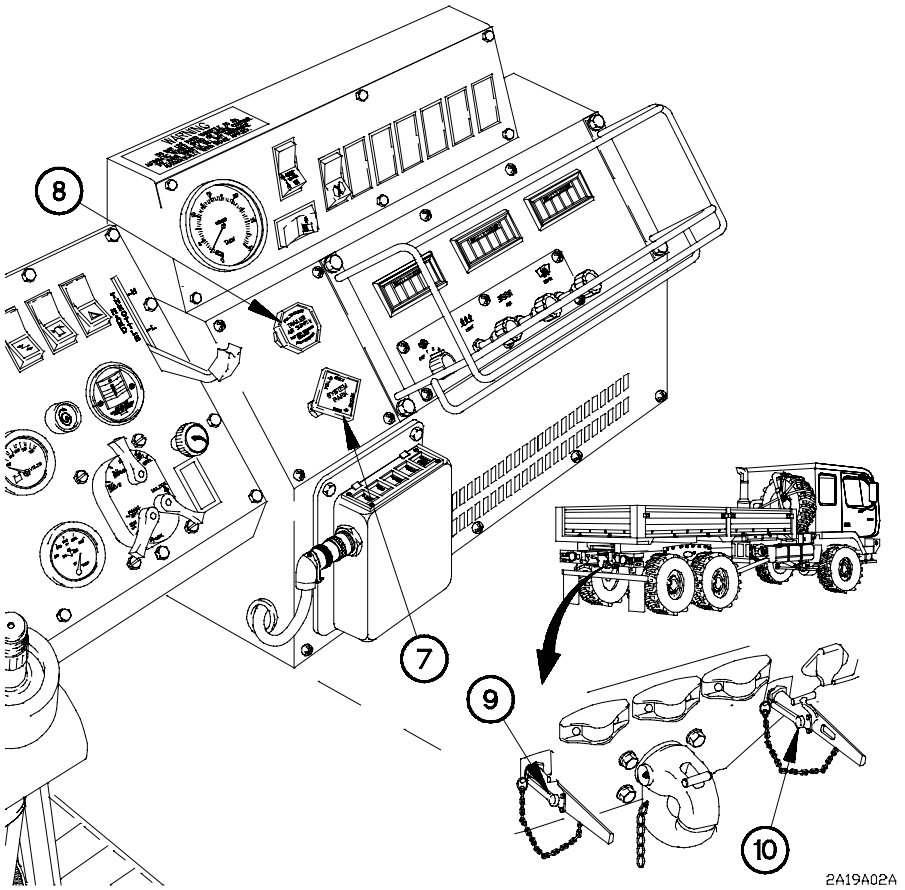


Figure 1-24. Brake System (Cont)

(4) The SYSTEM PARK control (7) vents air pressure from the primary brake circuit and applies the rear spring brakes.

(5) The TRAILER AIR SUPPLY control (8) supplies brake air pressure to a towed vehicle or trailer.

(6) SERVICE gladhand (9) and EMERGENCY gladhand (10) provide the necessary connections to supply a towed vehicle or trailer with brake air pressure.

1-20. 15K SELF-RECOVERY WINCH (SRW)

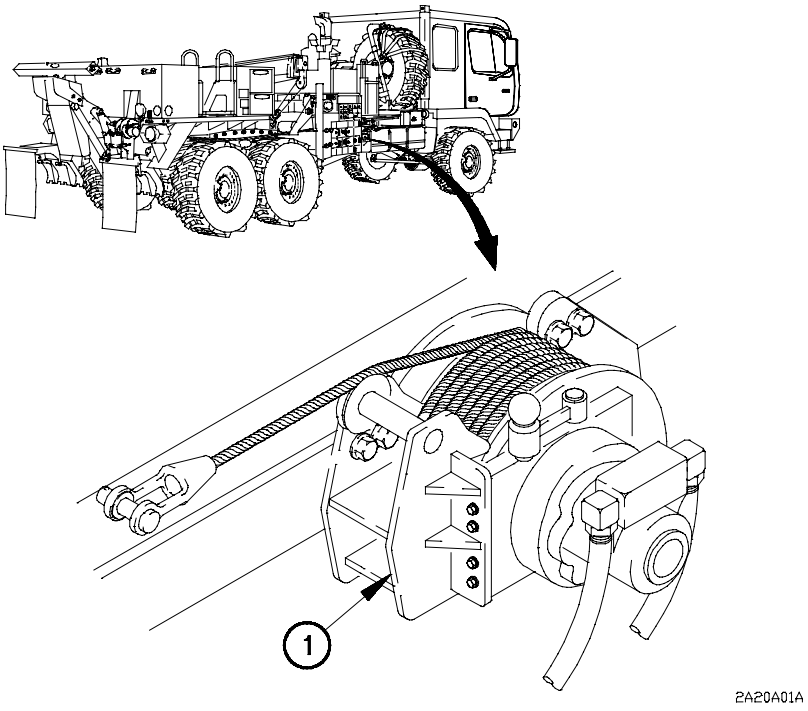


Figure 1-25. 15K Self-Recovery Winch (SRW)

a. 15K Self-Recovery Winch (SRW). When specified, any vehicle except models M1084 and M1086 may be equipped with a 15K SRW (1) (Figure 1-25) mounted on the right hand frame rail. The 15K SRW is rated for 15,500 lbs (68,944 N) pull when the winch drum has one full layer of cable. Pulling capacity is reduced with each layer of cable that is added to the winch drum. One full layer of cable is the minimum amount of cable that may be left on the drum when using the 15K SRW. Pulling capacity with seven full layers of cable on the winch drum is 9,090 lbs (40,432 N). For recovery operations, the cable may be routed to the front on all vehicles so equipped. The cable may be routed to the rear of the vehicle on models M1083, M1085, M1090, M1093, and M1094.

1-20. 15K SELF-RECOVERY WINCH (SRW) (CONT)

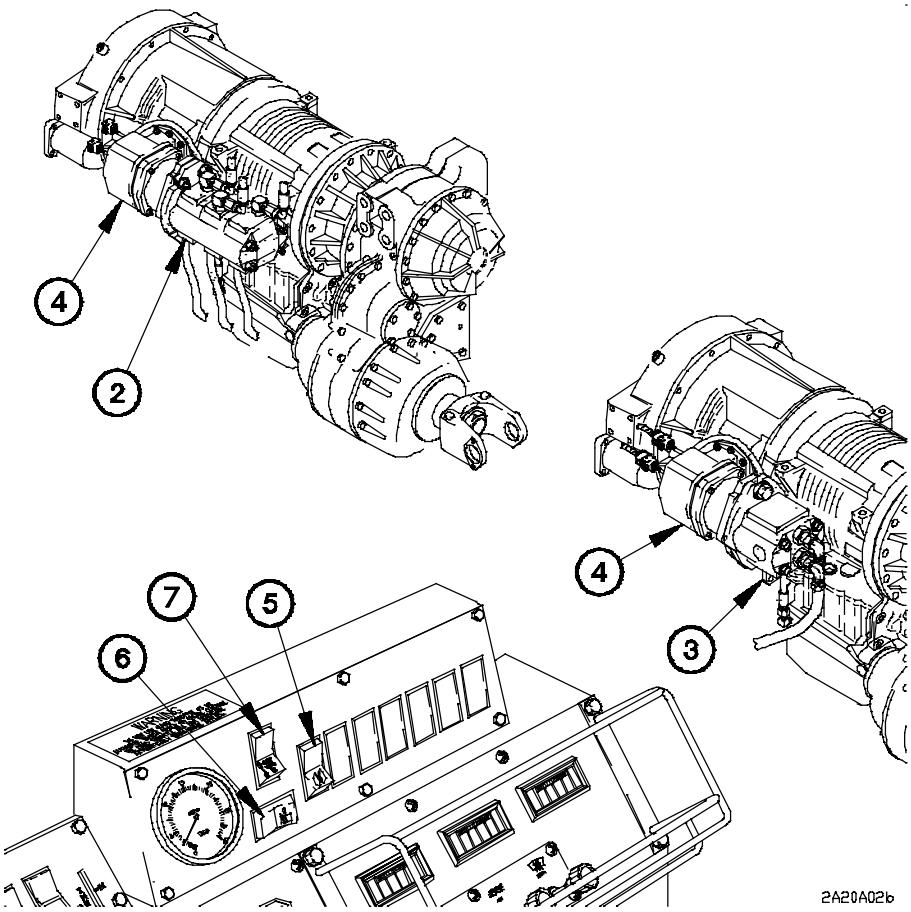


Figure 1-25. 15K Self-Recovery Winch (SRW) (Cont)

(1) Hydraulic pressure to operate the 15K SRW is supplied by a three stage hydraulic pump (2) on model M1089 and a single stage hydraulic pump (3) for all other models. The hydraulic pump is mounted on the back of the PTO (4).

(2) Placing the PTO switch (5) in the ON position causes the PTO drive gear to engage with the transmission. When the PTO is engaged, it drives the hydraulic pump.

(3) When the 15K SRW switch (6) is turned on, hydraulic power is supplied to the 15K SRW and the transmission is locked in Neutral.

(4) The cable can be payed out or reeled in by pressing the WINCH IN/OUT switch (7).

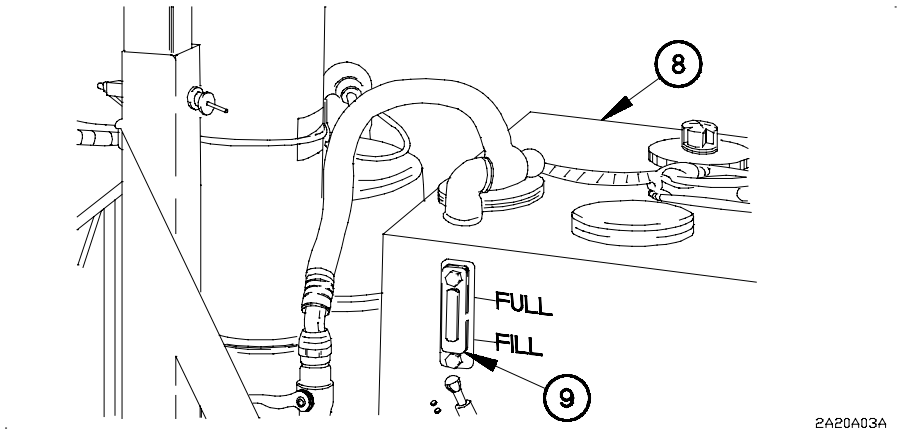


Figure 1-25. 15K Self-Recovery Winch (SRW) (Cont)

b. Hydraulic Tank (M1089). The M1089 hydraulic tank (8) is mounted on the vehicle bed, in the middle of the vehicle. The hydraulic tank holds 78 gal (295 L) of oil and is equipped with an oil level gage (9). An internal fluid filter is installed in the hydraulic reservoir to remove contaminates.

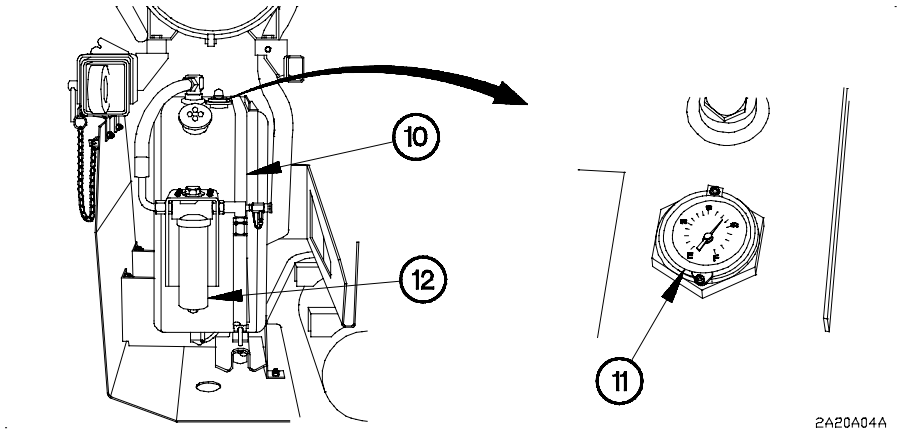


Figure 1-25. 15K Self-Recovery Winch (SRW) (Cont)

c. Hydraulic Reservoir (all models except M1089). The hydraulic reservoir (10) is mounted on the left hand frame rail and contains the oil needed to operate the 15K SRW. The hydraulic reservoir holds 27 gal (102 L) of oil and is equipped with an oil gage (11). A fluid filter (12) is also mounted on the hydraulic reservoir to remove contaminates.

1-21. M1084/M1086 MATERIAL HANDLING CRANE (MHC)

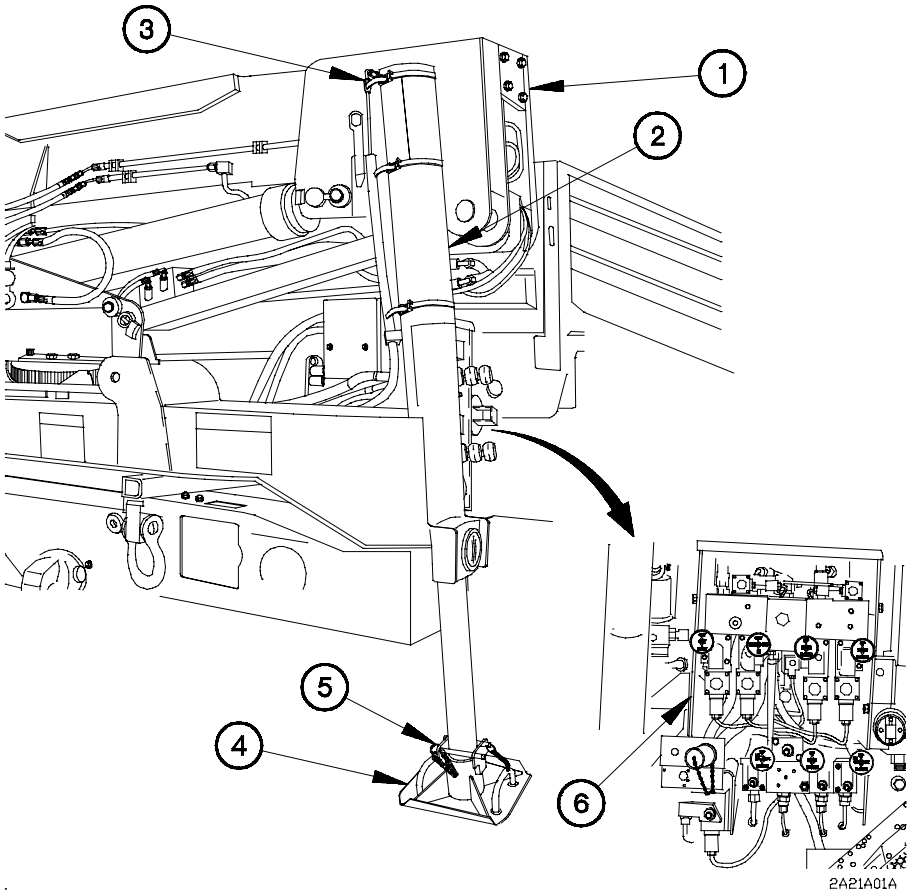


Figure 1-26. Material Handling Crane (MHC)

a. Material Handling Crane (MHC). The MHC (1) (Figure 1-26) is mounted on the frame at the rear of the vehicle. The MHC has a lifting capacity of 5,000 lbs (2,270 kgs). The MHC contains an Overload Shutdown System which monitors boom angle, boom extension, and load weight. If the Overload Shutdown System senses an overload condition; hoist up, boom telescope out, and boom up functions become locked out.

(1) The vehicle is stabilized during MHC operation by jack cylinders (2). Proximity sensors (3) are attached to the jack cylinders to prevent operation of the MHC unless the jack cylinders are extended to the ground. Outrigger pads (4) are provided and are attached to the bottom of the jack cylinders by quick release pins (5). All MHC functions are controlled by levers at the control panel (6).

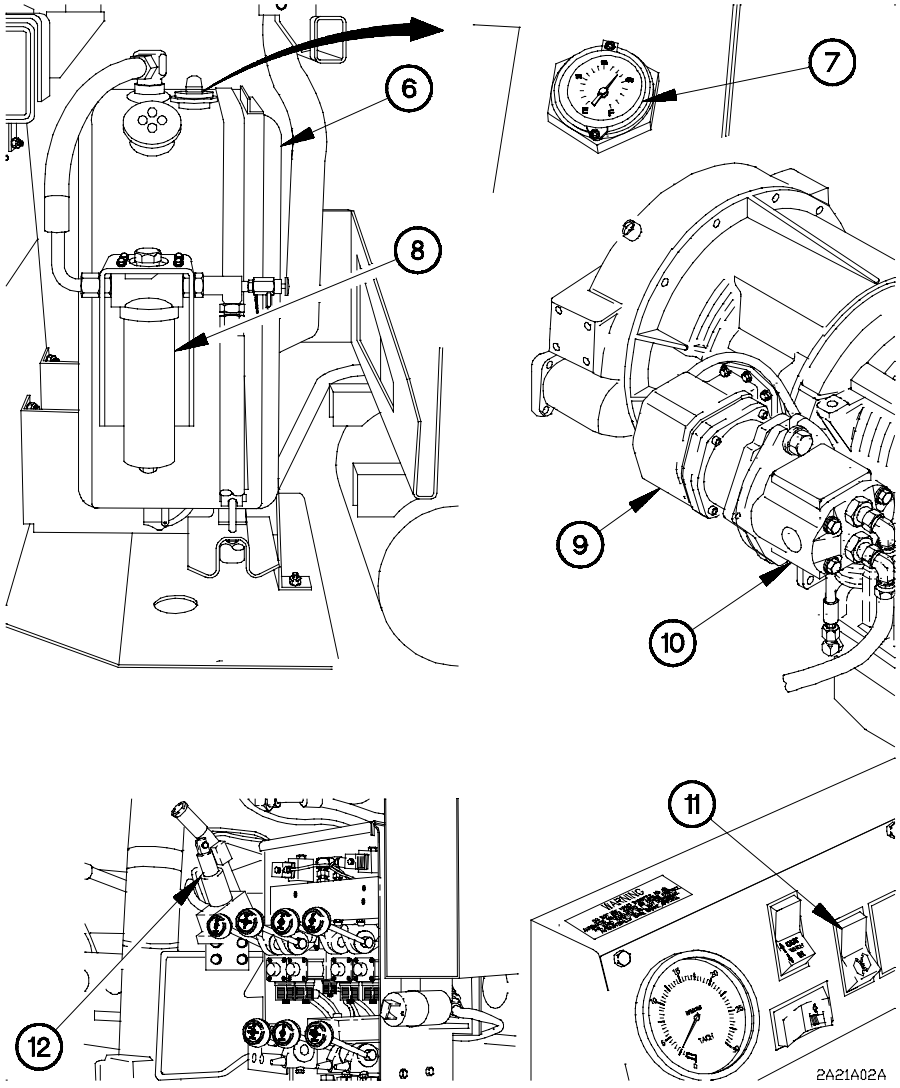


Figure 1-26. Material Handling Crane (MHC) (Cont)

b. Hydraulic System. The hydraulic reservoir (6) contains the oil needed to operate the MHC. The hydraulic reservoir (6) holds 27 gal (102 L) of oil and is equipped with an oil level gage (7). A fluid filter (8) is mounted on the reservoir to remove contaminants. Hydraulic pressure is supplied by a single stage hydraulic pump (9) mounted on the back of the PTO (10). Placing the PTO switch (11) in the on position causes the PTO drive gear to engage with the transmission and drive the single stage hydraulic pump. A manually operated hydraulic pump (12) allows you to lower any load to the ground and stow the MHC if the single stage hydraulic pump fails.

1-21. M1084/M1086 MATERIAL HANDLING CRANE (MHC) (CONT)

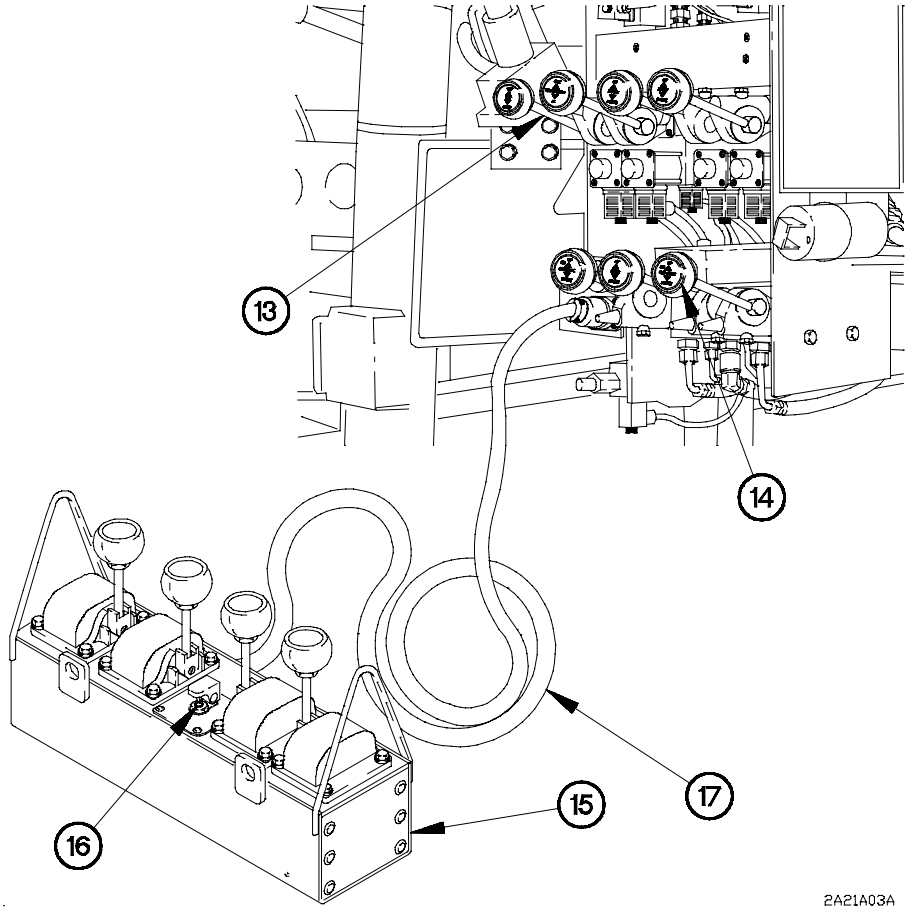


Figure 1-26. Material Handling Crane (MHC) (Cont)

c. Control Levers and REMOTE CONTROL UNIT. All control levers (13) are spring-loaded and will return to the center position when released. Moving the lever slightly from the center position results in a slow movement of the function which that valve controls. Moving the lever further from the center position results in a faster movement. The function of each control lever is identified on the end of the control knob (14). The MHC REMOTE CONTROL UNIT (15) allows you to operate the MHC from either side of the vehicle. This means that you can keep the load in sight at all times. A remote control switch (16) switches power to the REMOTE CONTROL UNIT. The REMOTE CONTROL UNIT is attached to the MHC by a cable (17). The MHC responds to the remote control levers the same as it does to the levers at the control panel. The levers on the REMOTE CONTROL UNIT are also spring-loaded and will return to the center position when released. The REMOTE CONTROL UNIT has levers to operate hoist up/down, boom up/down, boom telescope in/out, and swing clockwise/counterclockwise.

1-22. M1089 MATERIAL HANDLING CRANE (MHC), 30K WINCHES, AND UNDERLIFT ASSEMBLY

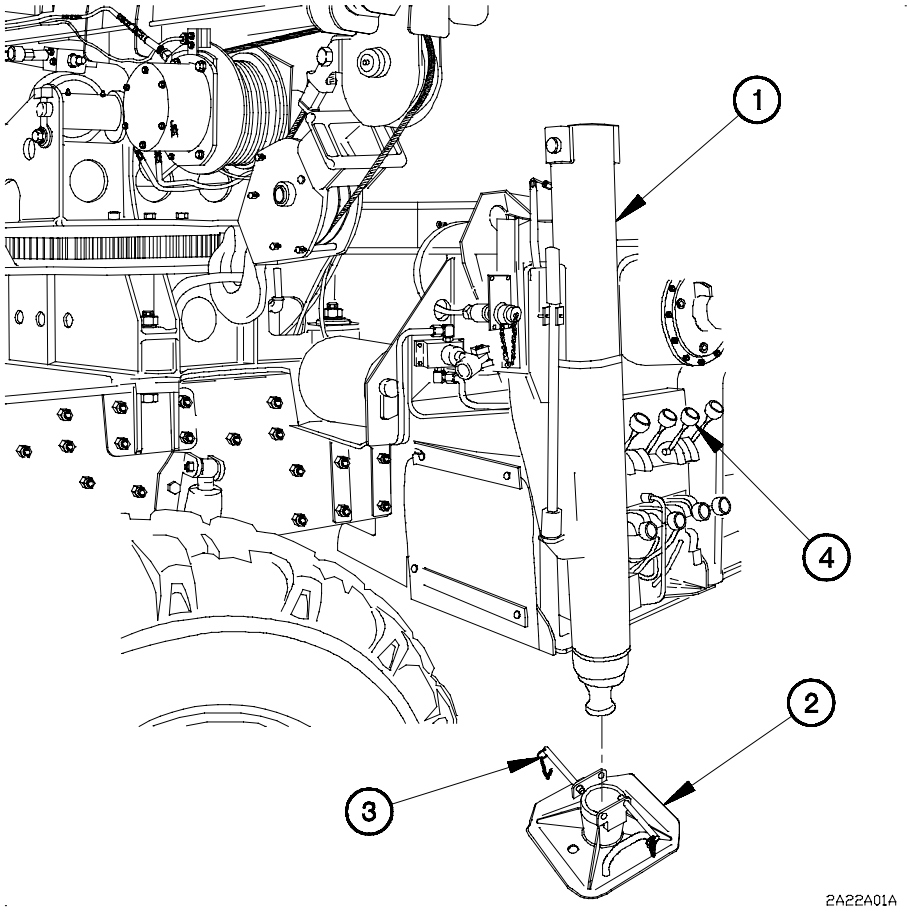


Figure 1-27. Material Handling Crane (MHC), 30K Winches, and Underlift Assembly

a. Material Handling Crane (MHC). The MHC is mounted on the frame near the middle of the vehicle. The MHC has a lifting capacity of 11,000 lbs (4,994 kgs). The MHC contains an Overload Shutdown System which monitors boom angle, boom extension, and load weight. If the Overload Shutdown System senses an overload condition; hoist up, boom telescope out, and boom up functions become locked out.

(1) The vehicle is stabilized during MHC operation by jack cylinders (1) attached to outrigger beams. Outrigger pads (2) are provided and are attached to the bottom of the jack cylinders by quick release pins (3). All MHC functions are controlled by levers at the control panel (4).

1-22. M1089 MATERIAL HANDLING CRANE (MHC), 30K WINCHES, AND UNDERLIFT ASSEMBLY (CONT)

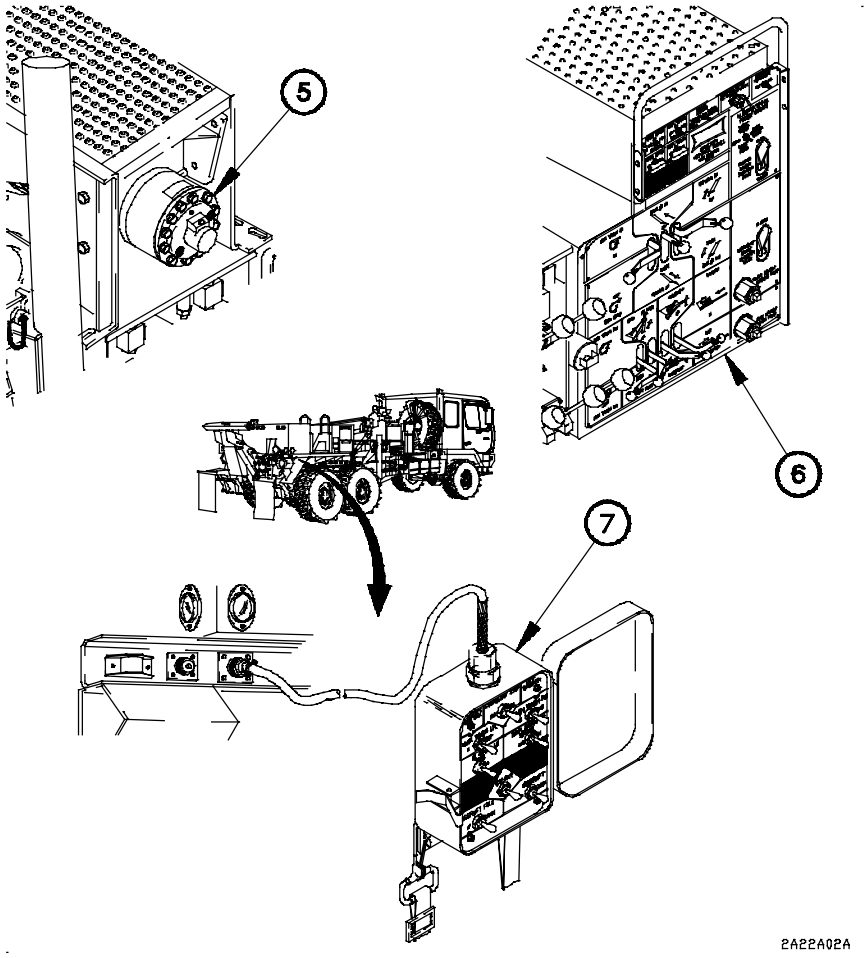


Figure 1-27. Material Handling Crane (MHC), 30K Winches, and Underlift Assembly (Cont)

b. 30K Winches. The left and right 30K winches (5) are located ahead of the MHC, and stranded vehicles from the rear of the M1089. The 30K winches are rated for a 30,000 lbs (13,620 kgs) pull with only one full layer of cable on the winch drum. Pulling capacity is reduced with each layer of cable that is added to the winch drum. Pulling capacity with a full drum of cable is 15,830 lbs (7,187 kgs). One full layer of cable is the minimum amount of cable that may be left on the drum when using the 30K winches. The 30K winches can be controlled from the WRECKER CONTROL PANEL (6) or from the wrecker remote control (7) which is connected to a remote control connector by a cable. The 30K winches respond to the remote control switches the same as they do to the levers at the WRECKER CONTROL PANEL.

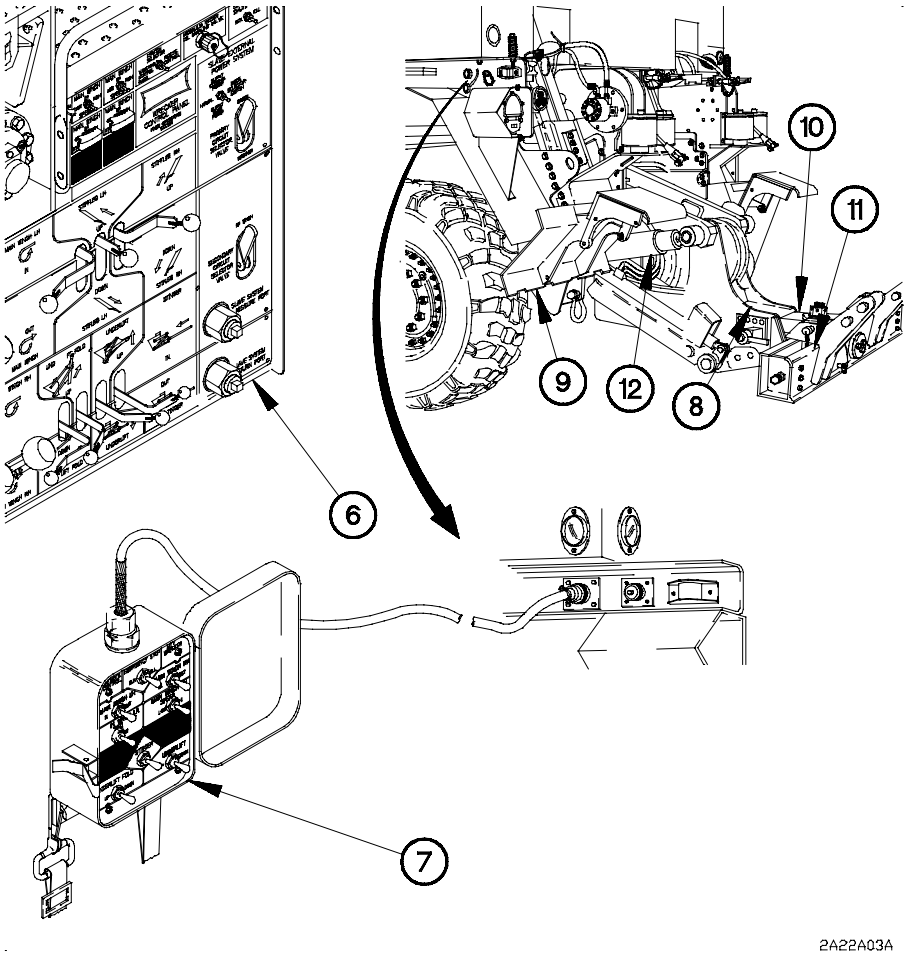


Figure 1-27. Material Handling Crane (MHC), 30K Winches, and Underlift Assembly (Cont)

c. Underlift Assembly. The hydraulic underlift assembly (8) is attached to the rear of the vehicle and is used for towing a disabled vehicle. Stifflegs (9) are used to keep the M1089 stable during recovery operations. The stinger (10) can be extended to position the crossbar (11) beneath the vehicle being recovered. The crossbar is equipped with adapters which allow it to tow a wide range of vehicles. Two underlift assembly cylinders (12) control the height of the crossbar to allow the Operator to lift and tow a disabled vehicle. Underlift assembly functions are controlled from the WRECKER CONTROL PANEL (6) or from the wrecker remote control (7).

1-22. M1089 MATERIAL HANDLING CRANE (MHC), 30K WINCHES, AND UNDERLIFT ASSEMBLY (CONT)

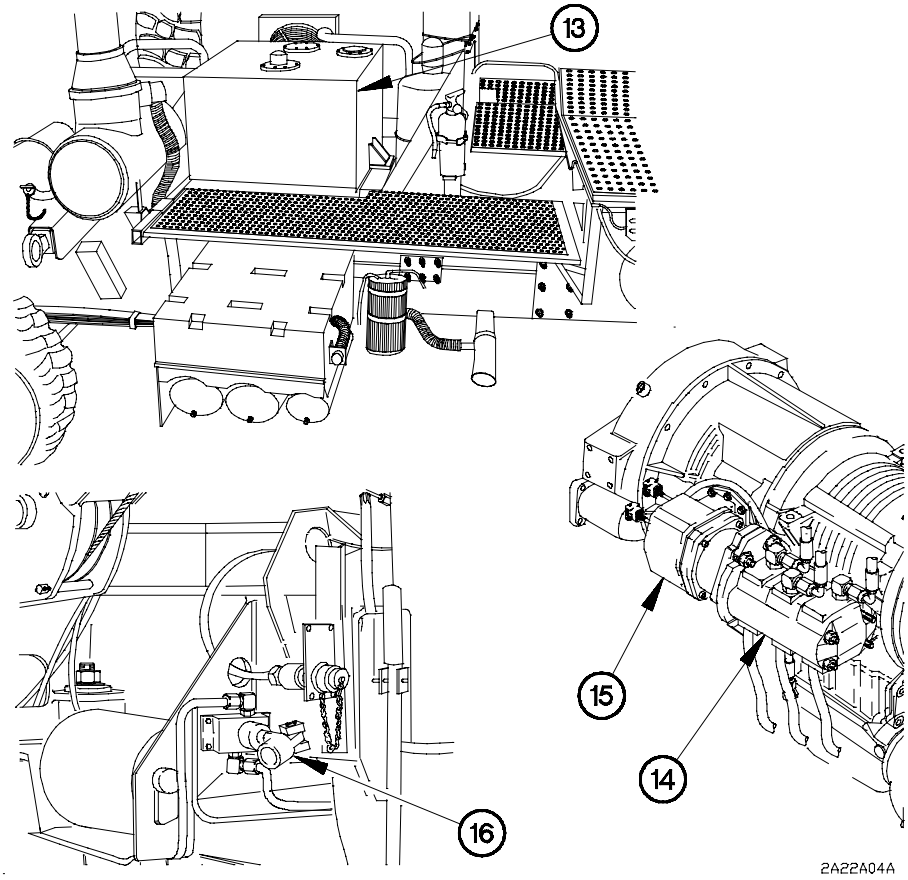


Figure 1-27. Material Handling Crane (MHC), 30K Winches, and Underlift Assembly (Cont)

d. Hydraulic System. All of the hydraulics on the M1089 are connected to a common power source and supply system. The M1089 is provided with a hydraulic tank (13) with a capacity of 74 gallons (280 L) of fluid. Hydraulic pressure for the MHC is supplied by a three stage hydraulic pump (14) attached to the rear of the PTO (15). The hydraulic cylinders on the MHC contain valves which stop the movement of the cylinder in case of sudden hydraulic pressure loss. A manually operated back-up hydraulic pump (16) allows you to lower any load to the ground and stow the MHC if the three stage hydraulic pump fails.

1-23. AIR SYSTEM

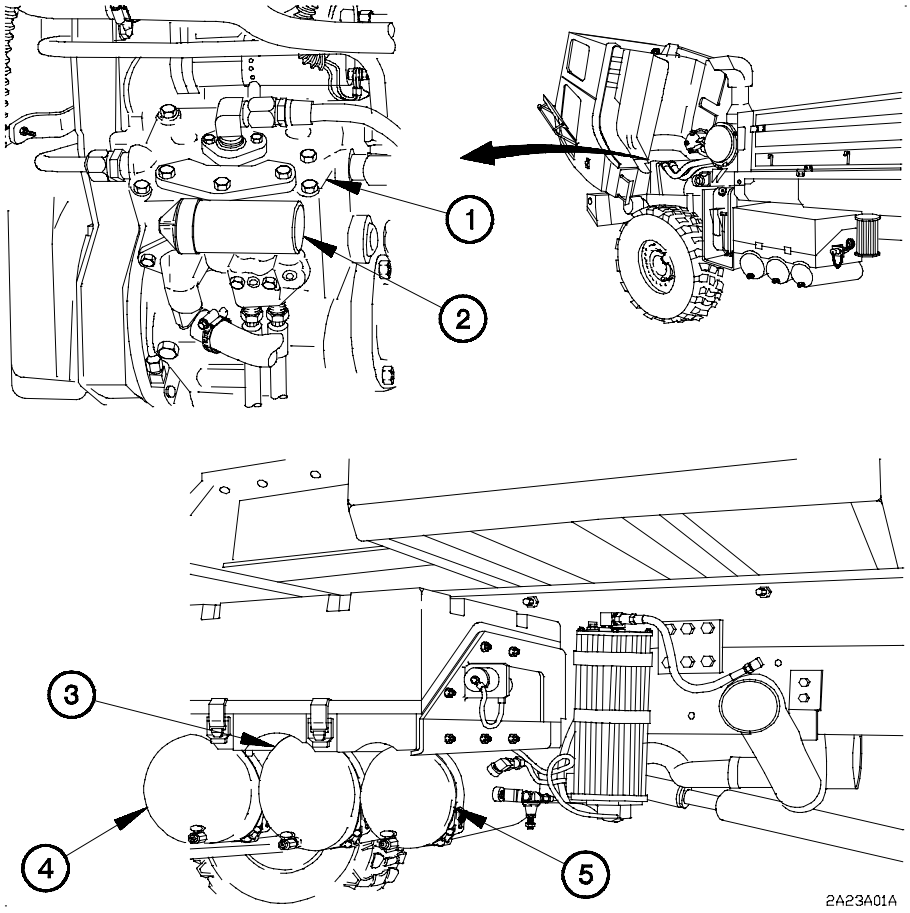


Figure 1-28. Air System

The air system provides clean, dry air for use in the air brake system and the CTIS.

(1) The air system is pressurized by an engine driven air compressor (1, Figure 1-28) with an average output pressure of 125 psi (862 kPa). The system pressure is controlled by a pressure governor (2) which maintains the output pressure between 105-125 psi (724-862 kPa).

(2) Air is supplied to the air brake portion of the system by the primary air tank (3) and secondary air tank (4). Air for the CTIS comes from the wet tank (5).

1-23. AIR SYSTEM (CONT)

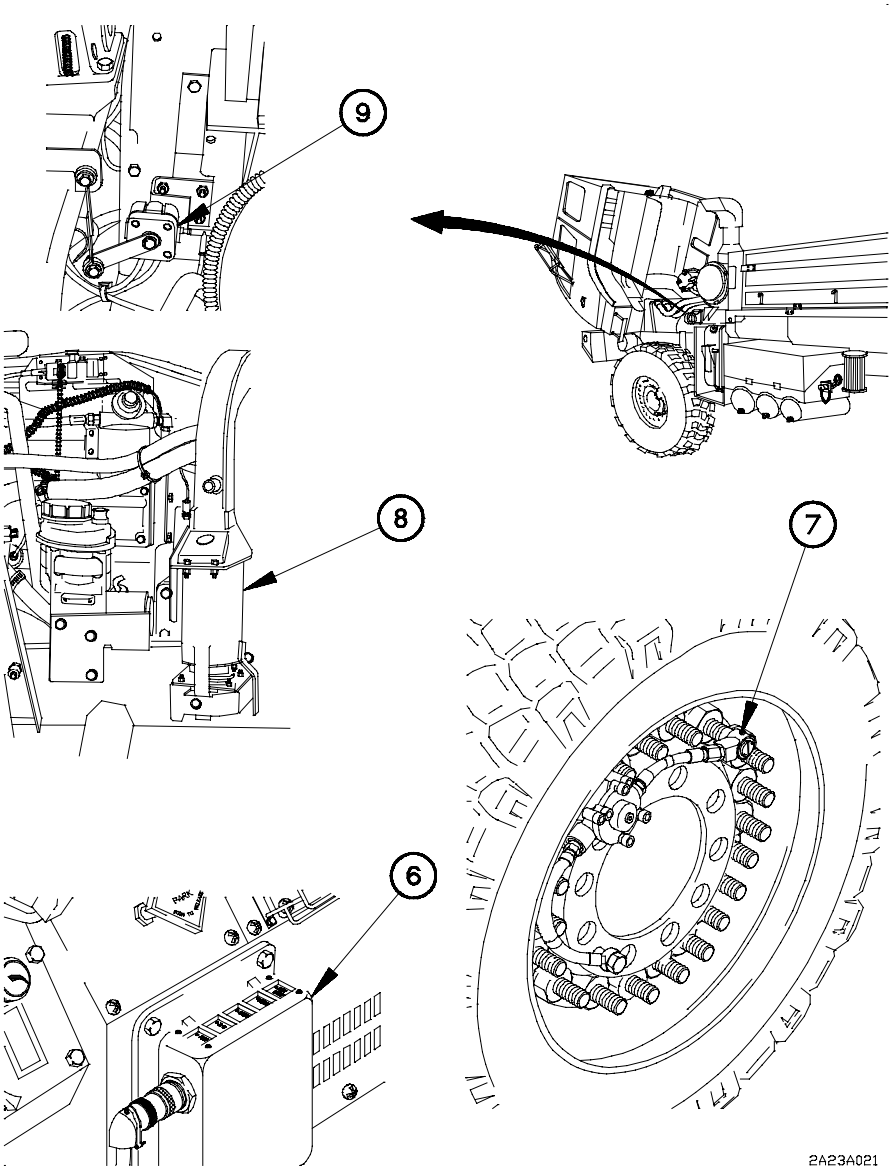


Figure 1-28. Air System (Cont)

(3) Air pressure in the tires is controlled by the CTIS ECU (6). The CTIS ECU provides for five tire pressure settings which are; highway, cross-country, sand, emergency, and run-flat. Kneeling valves (7) on the front tires allow the front of the vehicle to be lowered for internal air transport (C-130 and C-141). Air pressure is also used to keep the cab level through the use of air springs (8), mounted below the rear cab support, and a cab leveling valve (9).

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS 2-3
2-1. INSTRUMENT PANEL CONTROLS AND INDICATORS 2-3
2-2. AUXILIARY PANEL CONTROLS AND INDICATORS 2-13
2-3. CENTER CONSOLE CONTROLS AND INDICATORS 2-16
2-4. STEERING COLUMN CONTROLS 2-19
2-5. FLOOR-MOUNTED CONTROLS 2-20
2-6. DOOR-MOUNTED CONTROLS 2-21
2-7. SEAT CONTROLS 2-22
2-8. EXTERIOR CONTROLS AND INDICATORS 2-23
2-9. M1084/M1086 MATERIAL HANDLING CRANE (MHC) CONTROLS AND INDICATORS 2-26
2-10. DUMP BODY CONTROLS 2-30
2-11. TRACTOR CONTROLS 2-31
2-12. WRECKER CONTROLS AND INDICATORS 2-32
2-13. SPECIAL PURPOSE KIT CONTROLS AND INDICATORS 2-46

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) . . 2-50
2-14. PMCS INTRODUCTION 2-50
2-15. PMCS PROCEDURES 2-50
2-16. GENERAL MAINTENANCE INSTRUCTIONS 2-51
2-17. FLUID LEAKAGE 2-52
2-18. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (ALL MODELS) 2-53
2-19. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1083, M1084, M1085, M1086, AND M1093) 2-113
2-20. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1084 AND M1086) 2-130
2-21. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1088) 2-146
2-22. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1089) 2-153
2-23. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1090 AND M1094) 2-188
2-24. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1093) 2-194
2-25. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1094) 2-201

Section III. OPERATION UNDER USUAL CONDITIONS 2-207
2-26. PREPARATION FOR USE 2-207
2-27. VEHICLE OPERATION 2-214
2-28. RAISING/LOWERING CAB 2-242
2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION 2-247
2-30. CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION 2-274
2-31. HEATER/DEFROST OPERATION 2-280

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION 2-282
2-33. CARGO COVER KIT INSTALLATION/REMOVAL 2-299
2-34. CARGO COVER FLAP OPERATION 2-322
2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/REMOVAL 2-330
2-36. TROOPSEAT KIT LOWERING/RAISING 2-351
2-37. MATERIAL HANDLING CRANE (MHC) OPERATION (M1084/M1086) 2-356
2-38. DUMP TRUCK OPERATION 2-379
2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING 2-402
2-40. M1088 TRACTOR WITH TRAILER OPERATION 2-425

Volume 2

2-41. STIFFLEGS OPERATION (M1089) 2-435
2-42. 30K WINCH OPERATION 2-442
2-43. WRECKER FLAT TOWING 2-467
2-44. M1089 UNDERLIFT ASSEMBLY OPERATION 2-483
2-45. M998 SERIES TOWING CONNECTION/DISCONNECTION 2-493
2-46. M1008 SERIES TOWING CONNECTION/DISCONNECTION 2-525
2-47. M35 SERIES TOWING CONNECTION/DISCONNECTION 2-553
2-48. M939/M939A1 AND M809 SERIES TOWING CONNECTION/DISCONNECTION 2-584
2-49. M1078 AND M1083 SERIES TOWING CONNECTION/DISCONNECTION 2-623
2-50. WRECKER MATERIAL HANDLING CRANE (MHC) OPERATION 2-661
2-51. AUXILIARY EQUIPMENT OPERATION 2-690
2-52. BACK-UP HYDRAULIC PUMP OPERATION 2-694
2-53. DATA AND INSTRUCTION PLATES 2-696

Section IV. OPERATION UNDER UNUSUAL CONDITIONS 2-720
2-54. OPERATION IN EXTREME HEAT 2-720
2-55. OPERATION IN EXTREME DUST 2-723
2-56. OPERATION IN FOREST OR ON ROCKY TERRAIN 2-725
2-57. OPERATION IN SAND OR MUD 2-726
2-58. OPERATION IN DESERT ENVIRONMENT 2-729
2-59. FIRE EXTINGUISHER OPERATION 2-729
2-60. HIGHWAY EMERGENCY MARKER KIT SETUP 2-732
2-61. TOWBAR CONNECTION/DISCONNECTION 2-737
2-62. TOWING DISABLED VEHICLE 2-749
2-63. DELETED
2-64. DELETED
2-65. 15K SELF-RECOVERY WINCH (SRW) OPERATION 2-759
2-66. DELETED
2-67. EMERGENCY PROCEDURES 2-788
2-68. PREPARATION FOR SHIPMENT 2-803
2-69. PREPARATION FOR INTERNAL AIR TRANSPORT 2-804
2-70. RAPID ENGINE WARM-UP 2-818
2-71. PREPARATION FOR MACHINE GUN OPERATION 2-849
2-72. HYDRAULIC SYSTEM OPERATION (M1089 TO M1089) 2-852

2-73. M1089 EXTERNAL HYDRAULIC POWER OPERATION 2-861
2-74. AMBER WARNING LIGHT KIT INSTALLATION/REMOVAL 2-865
2-75. STARTING ON HILL OPERATION 2-874
2-76. TIRE CHAINS INSTALLATION/REMOVAL 2-874
2-77. SNATCH BLOCK INSTALLATION/REMOVAL 2-882
2-78. VEHICLE OPERATION IN COLD ENVIRONMENT (32°F, 0°C TO -25°F, -32°C) 2-884
2-79. DELETED
2-80. M1088 TRACTOR PREPARATION FOR AIR OR SHIP TRANSPORT 2-887

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. INSTRUMENT PANEL CONTROLS AND INDICATORS

a. Instrument Panel. Figure 2-1 shows all controls and indicators on the instrument panel.

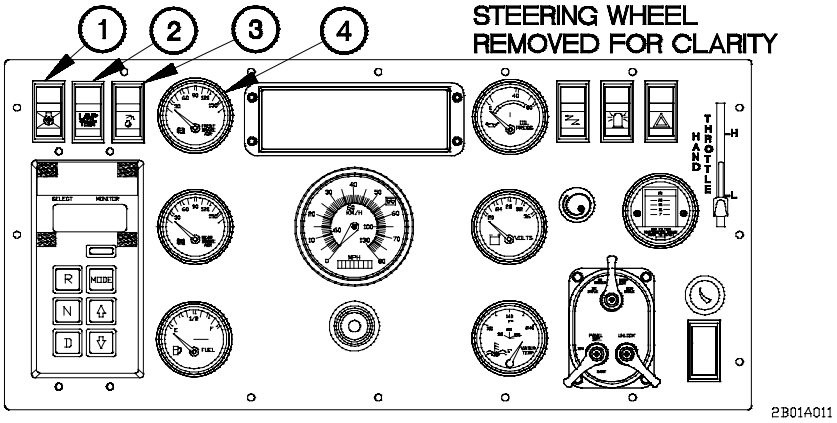


Figure 2-1. Instrument Panel Controls and Indicators

1. **Radiator Fan Off Switch.** When positioned to on, switch will illuminate to indicate the radiator fan is disabled. Radiator fan off switch will remain in the off position and not illuminate, unless otherwise directed.

2. **Lamp Test Switch.** Tests the lights on high engine temperature and TRANS OIL TEMP indicators on Lighted Indicator Display.

3. **Ether Start Switch.** Injects ether into engine intake system to assist with cold weather starting when switch is pressed.

4. **FRONT BRAKE AIR Pressure Gage.** Shows air pressure (in psi) available to operate front brakes. Normal air pressure range is 65-120 psi (448-827 kPa).

2-1. INSTRUMENT PANEL CONTROLS AND INDICATORS (CONT)

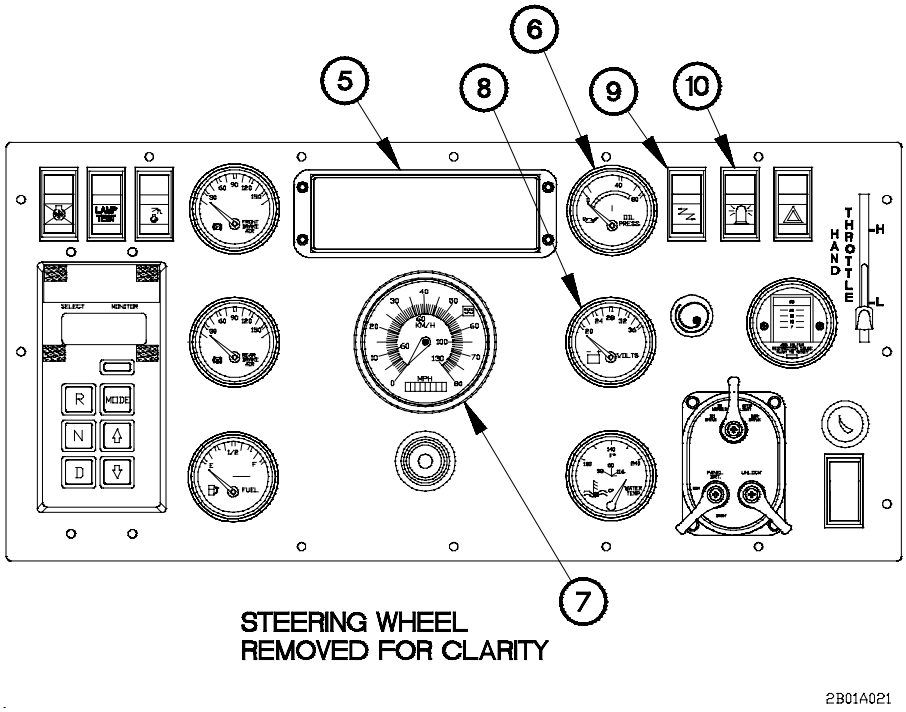


Figure 2-1. Instrument Panel Controls and Indicators (Cont)

5. **Lighted Indicator Display.** Indicators light to indicate operating characteristics of the vehicle. Figure 2-2 shows all indicators on the Lighted Indicator Display.

6. **OIL PRESS Gage.** Shows engine oil pressure (in psi). Normal oil pressure range is 15-80 psi (103-552 kPa).

7. **Speedometer/Odometer.** Speedometer shows vehicle speed in miles per hour (mph) and kilometers per hour (km/h). Odometer indicates number of miles the vehicle has traveled.

8. **VOLTS Gage.** Shows battery output voltage when engine is not running and alternator output voltage when engine is running.

9. **Master Power Switch.** Controls electrical power for engine starting and/or electrical system operation.

10. **Amber Warning Light Switch.** Operates vehicle amber warning light when main light switch is positioned to SER DRIVE and vehicle is equipped with warning light kit.

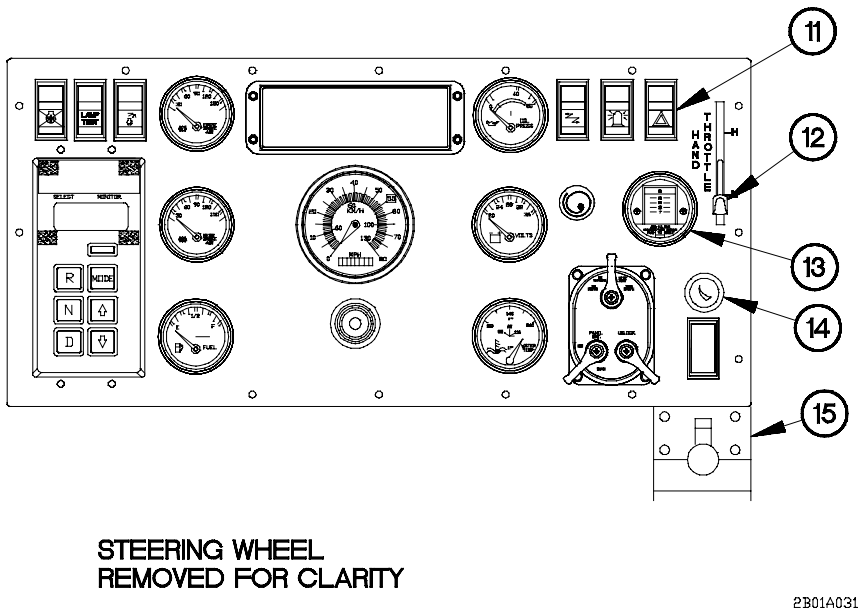


Figure 2-1. Instrument Panel Controls and Indicators (Cont)

WARNING

Do not use HAND THROTTLE lever while driving vehicle. The HAND THROTTLE lever is not to be used as a cruise control. Failure to comply may result in serious injury or death to personnel or damage to equipment.

11. **Hazard Lights Switch.** Operates hazard lights. Left and right turn signals and indicators flash when switch is on.

12. **HAND THROTTLE Lever.** Adjusts engine speed to assist with engine warm up and to set engine rpm when using the Power Take-Off (PTO).

13. **AIR FILTER RESTRICTION GAUGE.** Indicates when air filter is restricted. Diaphragm enters red zone when air filter is clogged and needs service. RESET button on face of gage can be pressed to reset gage after air cleaner is serviced.

14. **Dimmer Switch.** Controls brightness of instrument panel lighting. Turn control left to increase brightness, right to decrease brightness.

15. **Trailer Handbrake Control (M1088).** Applies and releases trailer service brakes without engaging vehicle service brakes.

2-1. INSTRUMENT PANEL CONTROLS AND INDICATORS (CONT)

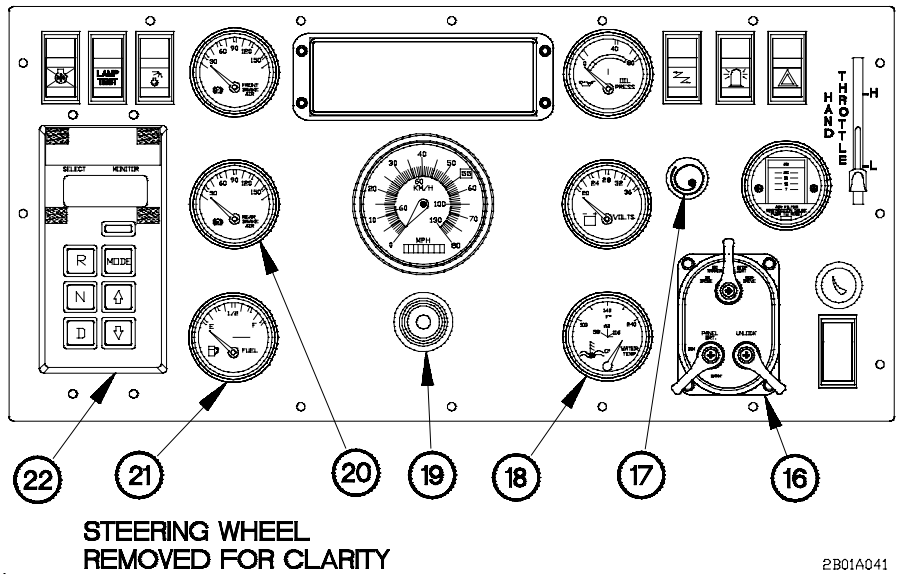


Figure 2-1. Instrument Panel Controls and Indicators (Cont)

16. **Main Light Switch.** Controls service and blackout lights. Figure 2-3 shows all controls on the main light switch.

17. **Starter Pushbutton.** Starts engine. Starter pushbutton operates only when master power switch is in the on position.

18. **WATER TEMP Gage.** Shows engine coolant temperature in degrees Fahrenheit. Normal temperature range is 160-230° F (71-110°C).

19. **Audible Alarm.** A steady tone sounds when air pressure is below 65 psi. Wavering (dual tone) sounds when troop transport alarm switch is actuated (on vehicles with troopseat kits).

20. **REAR BRAKE AIR Pressure Gage.** Shows air pressure (in psi) available to operate rear brakes. Normal air pressure range is 65-120 psi (18-49°C).

21. **FUEL Gage.** Shows fuel level in fuel tank.

22. **WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS).** Used to select forward or reverse range, to set highest gear range, to switch from highway to off-road mode, and to monitor transmission operation. Figure 2-4 shows all controls and indicators on the WTEC II TEPSS. Figure 2-5 shows all controls and indicators on the WTEC III Transmission Pushbutton Shift Selector (TPSS).

b. Lighted Indicator Display. Figure 2-2 shows all indicators on the lighted indicator display.

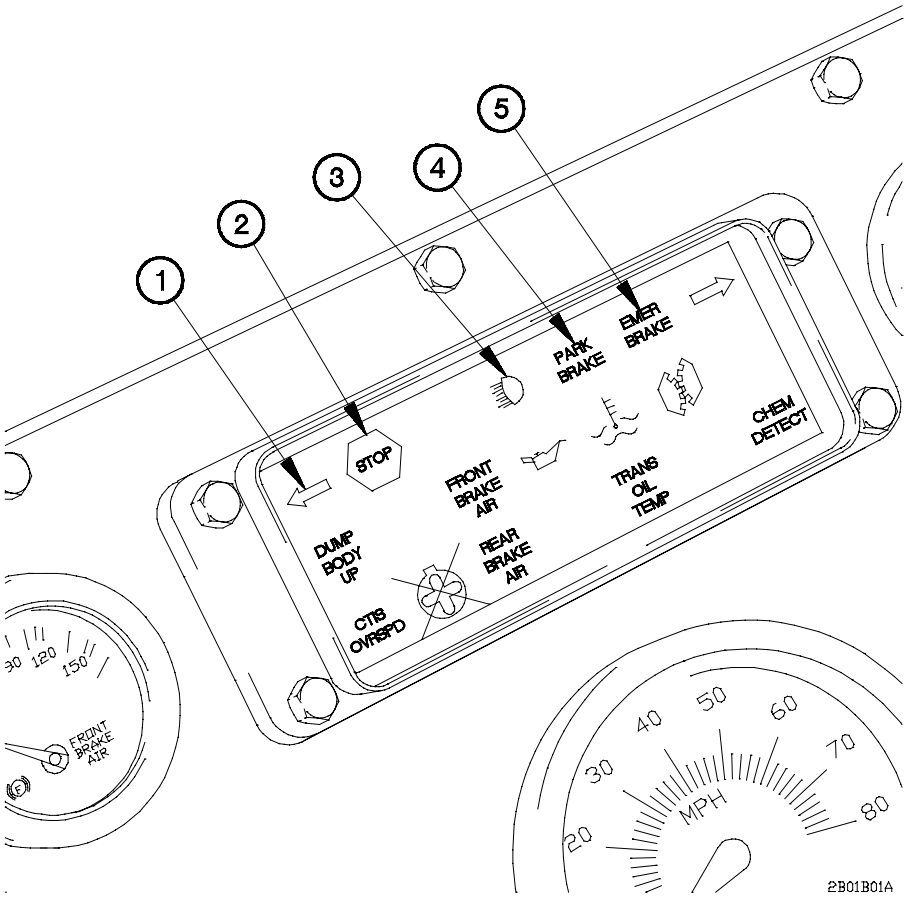


Figure 2-2. Lighted Indicator Display

1. **Left Turn Signal.** Flashes (green) when left turn signal is on.

2. **STOP Indicator.** Illuminates (red) when low engine oil pressure, high water temperature, or front or rear air pressure is low.

3. **High Beams ON Indicator.** Illuminates (green) when high beam headlights are on.

4. **PARK BRAKE Indicator.** Illuminates (amber) when parking brake is applied.

5. **EMER BRAKE Indicator.** Illuminates (amber) when SYSTEM PARK control is applied.

2-1. INSTRUMENT PANEL CONTROLS AND INDICATORS (CONT)

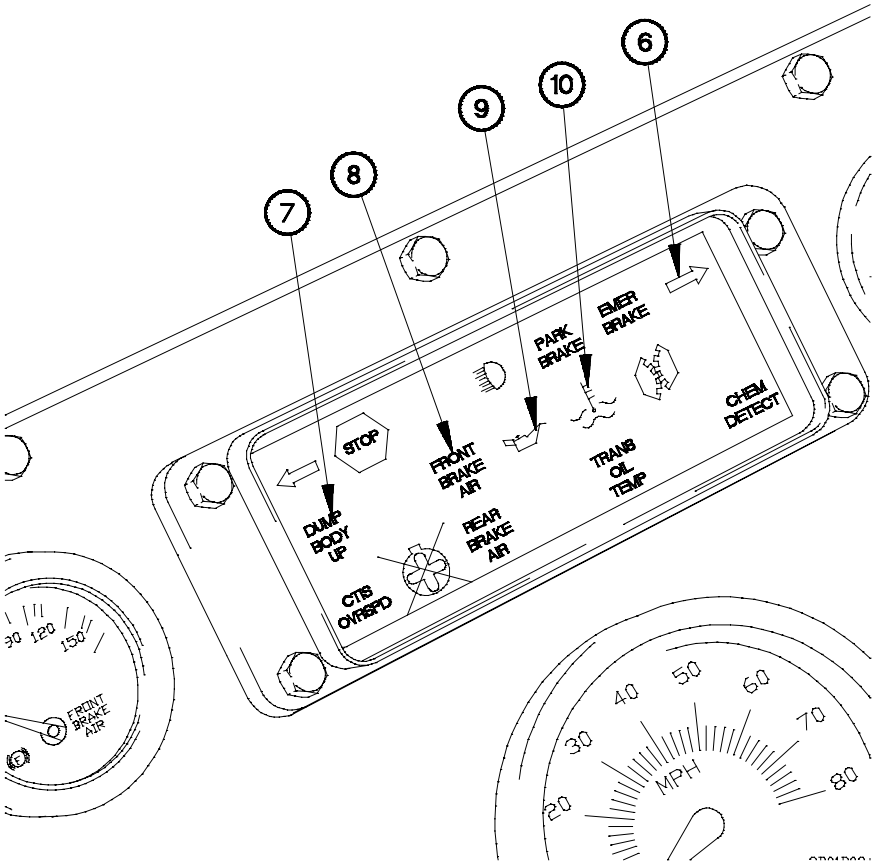


Figure 2-2. Lighted Indicator Display (Cont)

6. **Right Turn Signal.** Flashes (green) when right turn signal is on.

7. **DUMP BODY UP Indicator (M1090 and M1094).** Illuminates (red) when dump body is raised.

8. **FRONT BRAKE AIR Indicator.** Illuminates (red) when air pressure for the front service brakes drops below 65 psi (448 kPa). Audible alarm sounds and STOP indicator illuminates when FRONT BRAKE AIR indicator is on.

9. **Engine Oil Pressure Indicator.** Illuminates (red) when engine oil pressure drops below 12 psi (83 kPa). STOP indicator illuminates when engine oil pressure indicator is on.

10. **High Engine Temperature Indicator.** Illuminates (red) when engine coolant temperature is greater than 230° F (110°C).

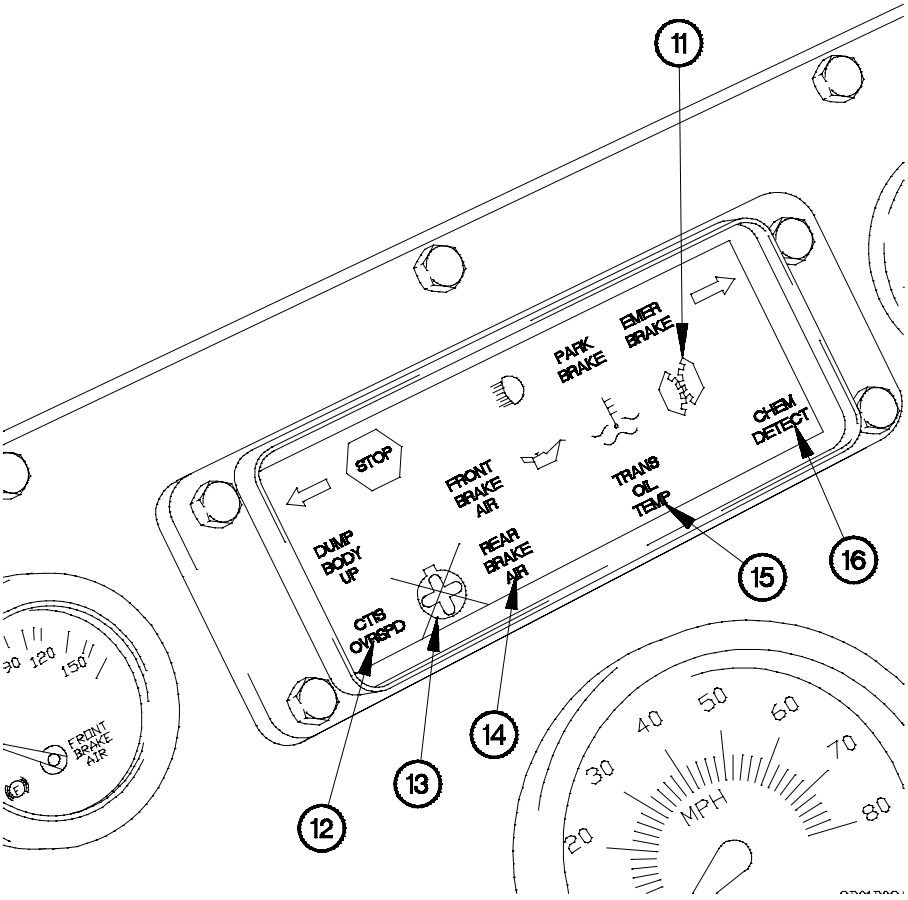


Figure 2-2. Lighted Indicator Display (Cont)

11. PTO ON Indicator. Illuminates (green) when Power Take-Off (PTO) is engaged.

12. CTIS OVRSPD Indicator. Illuminates (amber) when vehicle speed exceeds safe limit for selected tire inflation pressure.

13. Fan OFF Indicator. Illuminates (amber) when the radiator fan is disabled for deep water fording. Indicates the radiator fan off switch is on.

14. REAR BRAKE AIR Indicator. Illuminates (red) when air pressure for the rear service brakes drops below 65 psi (448 kPa). Audible alarm sounds and STOP indicator illuminates when REAR BRAKE AIR indicator is on. ■

15. TRANS OIL TEMP Indicator. Illuminates (red) when transmission oil temperature is greater than 225° F (107°C). ■

16. CHEM DETECT Indicator. Illuminates (red) when M43 chemical detector senses a chemical agent. M42 alarm sounds when CHEM DETECT indicator is on.

2-1. INSTRUMENT PANEL CONTROLS AND INDICATORS (CONT)

c. Main Light Switch. Figure 2-3 shows all controls on the main light switch.

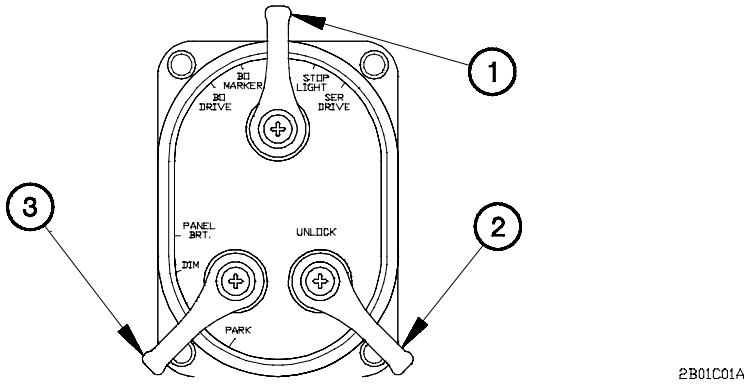


Figure 2-3. Main Light Switch

1. Main Selector Lever. Controls operation of service and blackout lights.

a. All blackout lights operate when main selector lever is positioned to BO DRIVE.

b. Blackout marker lights operate when main selector lever is positioned to BO MARKER.

c. Stoplights operate when main selector lever is positioned to STOP LIGHT and brake pedal is pressed.

d. All service drive lights operate when main selector lever is positioned to SER DRIVE.

e. No exterior lights operate when main selector lever is positioned to OFF.

2. UNLOCK Lever. Locks main light switch. UNLOCK lever must be lifted and held in order to place main selector lever in any position except BO MARKER.

3. Auxiliary Lever. Controls operation of parking lights.

a. Operates parking lights when auxiliary lever is positioned to PARK and main selector lever is positioned to SER DRIVE.

b. PANEL BRT position allows adjustment of instrument panel illumination by using the dimmer switch.

c. DIM position sets instrument panel illumination to its lowest setting and does not allow use of the dimmer switch.

d. WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS). Figure 2-4 shows all controls and indicators on the WTEC II TEPSS.

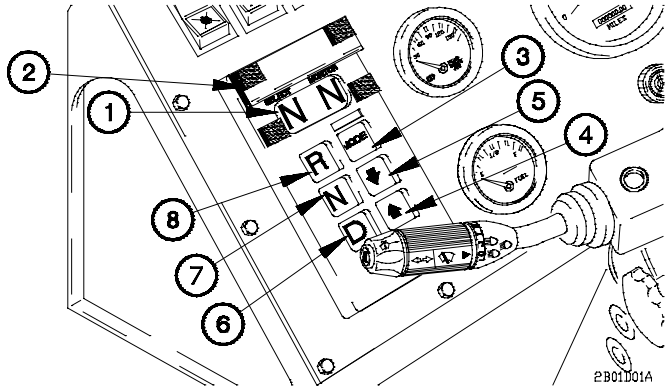


Figure 2-4. WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS)

1. **LED Display.** Displays the following information:

   a. Forward gear selected (shown in left side of LED Display).

   b. Current forward gear (shown in right side of LED Display).

   c. Operating mode (blank for highway mode, MODE ON displayed when off-road mode is selected).

   d. DELETED

2. **WTEC II TEPSS Blackout Filter Cover.** Used to cover LED Display during blackout condition.

3. **MODE Select Button.** Switches transmission between highway mode and off-road mode.

4. **Up Arrow Button.** Switches transmission to next higher forward gear or to select maximum forward gear.

5. **Down Arrow Button.** Switches transmission to next lower forward gear or to downshift to first gear.

6. **D Range Button.** Switches transmission to Drive. Automatically selects seventh gear as maximum forward gear. Second gear is the lowest gear available. First gear is available only as a manual selection.

7. **N Range Button.** Switches transmission to Neutral.

8. **R Range Button.** Switches transmission to Reverse.

2-1. INSTRUMENT PANEL CONTROLS AND INDICATORS (CONT)

e. WTEC III Transmission Pushbutton Shift Selector (TPSS). Figure 2-5 shows all controls and indicators on the WTEC III TPSS.

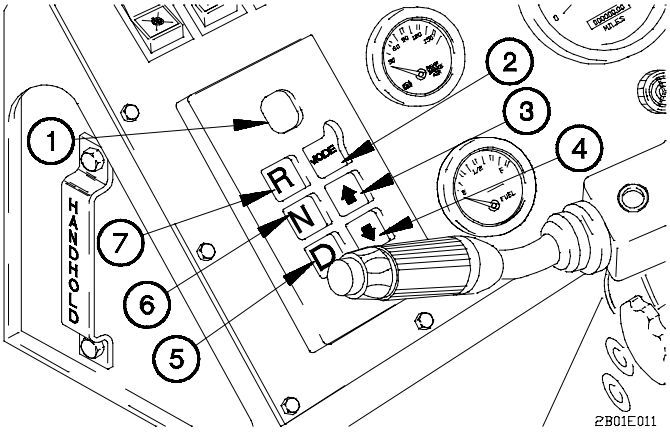


Figure 2-5. WTEC III Transmission Pushbutton Shift Selector (TPSS)

1. **LED Display.** Displays the following information:

   a. R-Reverse gear selected.

   b. N-Neutral (no gear selector mode or transmission placed in Neutral.

   c. 1 through 7-Current forward gear selected.

2. **Mode Select Button.** Switches transmission between highway mode and off road mode.

3. **Up Arrow Button.** Switches transmission to next higher forward gear or to select maximum forward gear.

4. **Down Arrow Button.** Switches transmission to next lower forward gear or to downshift to first gear.

5. **D Range Button.** Switches transmission to Drive. Automatically selects seventh gear as maximum forward gear. Second gear is the lowest gear available. First gear is available only as a manual selection.

6. **N Range Button.** Switches transmission to Neutral.

7. **R Range Button.** Switches transmission to Reverse.

2-2. AUXILIARY PANEL CONTROLS AND INDICATORS

a. Auxiliary Panel Controls and Indicators for M1083, M1084, M1085, M1086, M1088, M1089, and M1093. Figure 2-6 shows all controls and indicators that may be located on the auxiliary panel. Some switch locations may be blank, depending on the model of your vehicle.

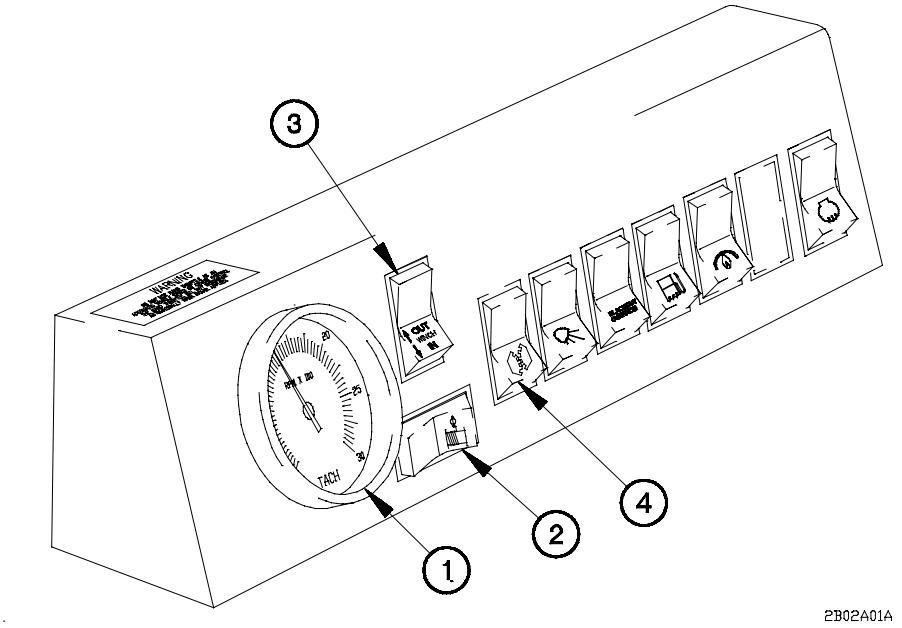


Figure 2-6. Auxiliary Panel Controls and Indicators for M1083, M1084, M1085, M1086, M1088, M1089, and M1093

1. **TACH (Tachometer) (Models with Power Take-Off [PTO]).** Shows speed of engine crankshaft in revolutions per minute (rpm x 100). Tachometer is used to monitor engine speed for PTO operation.

2. **Winch Switch (Models with 15K Self-Recovery Winch [SRW]).** Locks transmission in Neutral for self-recovery operation.

3. **WINCH IN/OUT Switch (Models with 15K Self-Recovery Winch [SRW]).** Controls reel in/pay out of cable. PTO switch must be positioned to on before WINCH IN/OUT switch will operate. Push top half of switch to pay out cable, bottom half of switch to reel in cable.

4. **PTO Switch (Models with PTO).** Controls operation of PTO.

2-2. AUXILIARY PANEL CONTROLS AND INDICATORS (CONT)

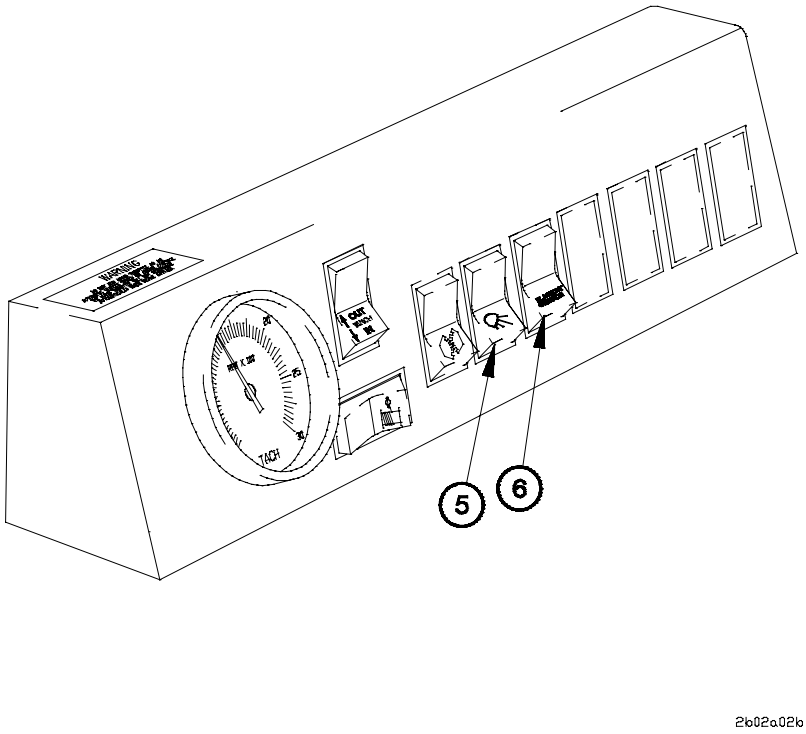


Figure 2-6. Auxiliary Panel Controls and Indicators for M1083, M1084, M1085, M1086, M1088, M1089, and M1093 (Cont)

5. **Work Lights Switch (M1084, M1086, M1088, and M1089).** Controls operation of work lights.

6. **BLACKOUT OVERRIDE Switch (M1084, M1086, M1088, and M1089).** Allows work lights to operate when vehicle is operating in blackout mode.

7. **DELETED**

8. **DELETED**

9. **DELETED**

b. Auxiliary Panel Controls and Indicators for M1090 and M1094. Figure 2-7 shows all controls and indicators that may be located on the auxiliary panel for the M1090 and M1094.

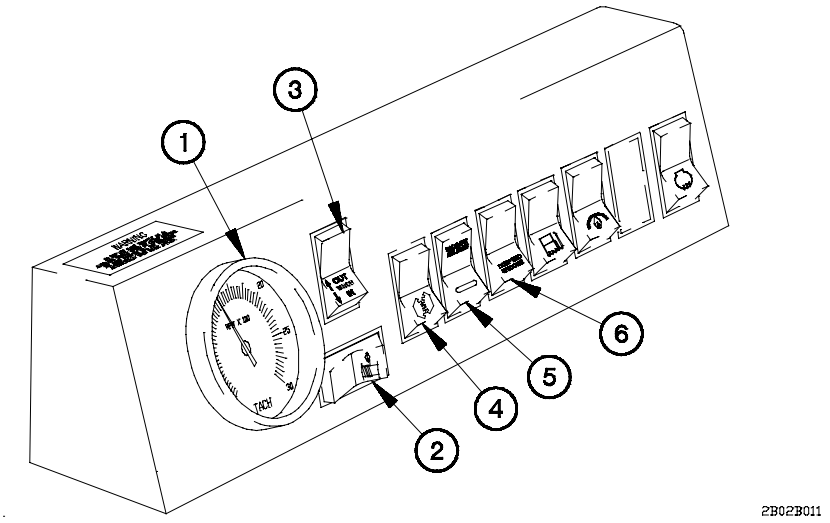


Figure 2-7. Auxiliary Panel Controls and Indicators for M1090 and M1094

1. **TACH (Tachometer) (Models with Power Take-Off [PTO]).** Shows speed of engine crankshaft in revolutions per minute (rpm x 100). Tachometer is used to monitor engine speed for PTO operation.

2. **Winch Switch (Models with 15K Self-Recovery Winch [SRW]).** Locks transmission in Neutral for self-recovery operation.

3. **WINCH IN/OUT Switch (Models with 15K Self-Recovery Winch [SRW]).** Controls reel in/pay out of cable. PTO and winch switches must be turned on before WINCH IN/OUT switch will operate. Push top half of switch to pay out cable, bottom half of switch to reel in cable.

4. **PTO Switch (Models with PTO).** Controls operation of PTO.

5. **TAILGATE RELEASE Switch.** Push and hold bottom half of switch to release TAILGATE RELEASE switch. Push top half of switch to control opening and closing of tailgate on the dump body.

6. **DUMP BED UP/DOWN Switch.** Controls raising and lowering of the dump body. Push top half of switch to raise dump body UP, bottom half of switch to lower dump body DOWN.

2-3. CENTER CONSOLE CONTROLS AND INDICATORS

a. Air System Controls. Figure 2-8 shows all air system controls on the center console.

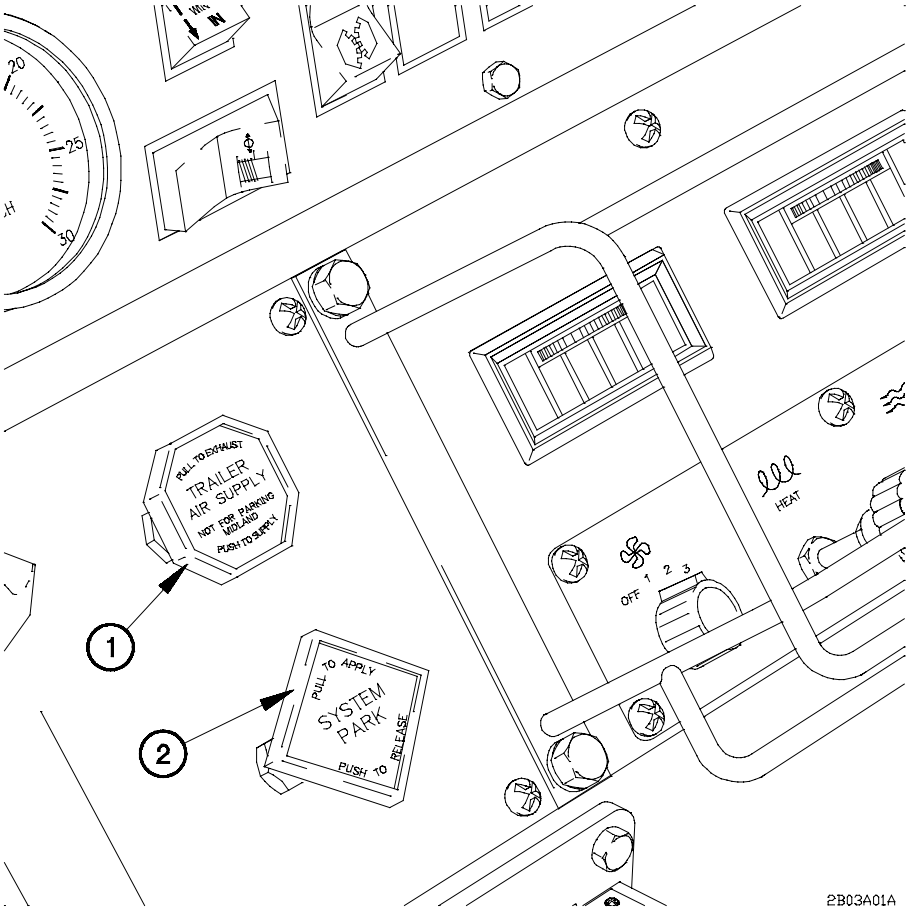


Figure 2-8. Air System Controls

1. **TRAILER AIR SUPPLY Control.** Controls air supply to trailer brakes. Air is supplied to trailer when control is pushed in.

2. **SYSTEM PARK Control.** Applies and releases the parking brakes and trailer parking brakes (if equipped). Parking brakes are applied when control is pulled.

b. Heater/Defrost Controls. Figure 2-9 shows all heater controls on the center console.

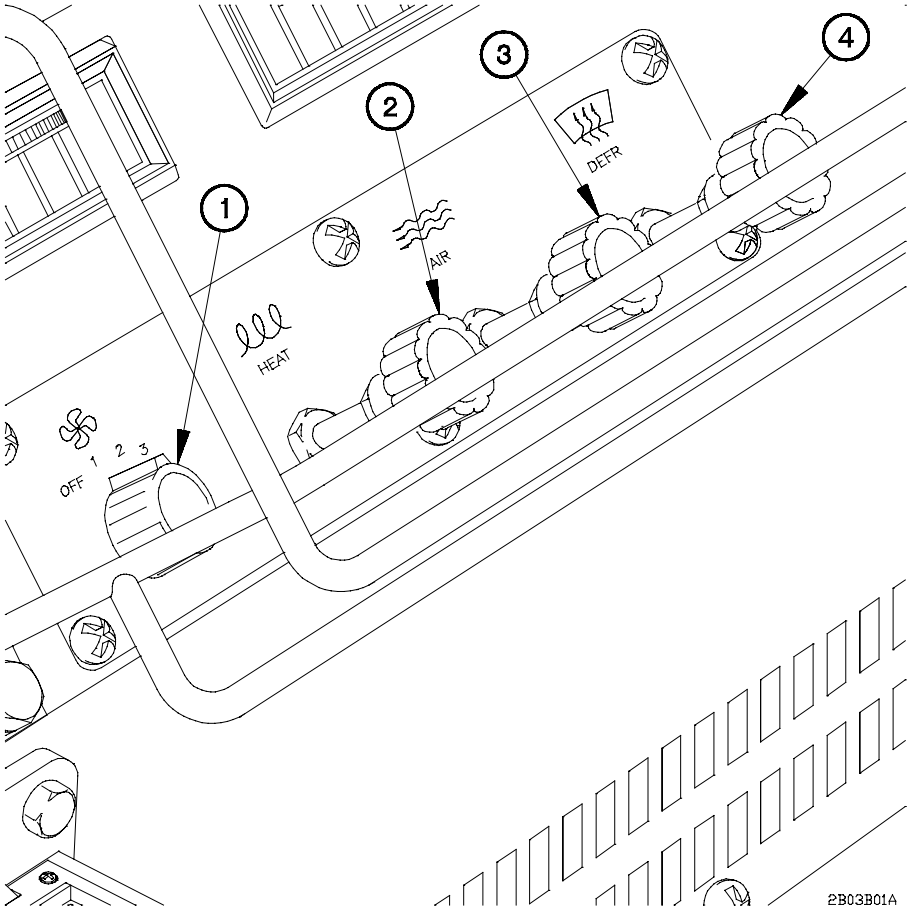


Figure 2-9. Heater/Defrost Controls

1. **Fan Switch.** Four-position switch used to control operation and speed of heater fan.

2. **HEAT Control.** Controls temperature of air that heats cab interior and defrosts windshield. Temperature of air increases when control is pulled.

3. **VENT Control.** Controls flow of outside air to cab. When control is pulled, fresh air is vented into cab.

4. **DEFR (Defrost) Control.** Controls windshield defrosting. Air is routed from heater to defrost windshield when control is pulled.

2-3. CENTER CONSOLE CONTROLS AND INDICATORS (CONT)

c. Central Tire Inflation System (CTIS) Electronic Control Unit (ECU). Figure 2-10 shows all CTIS controls and indicators on the center console.

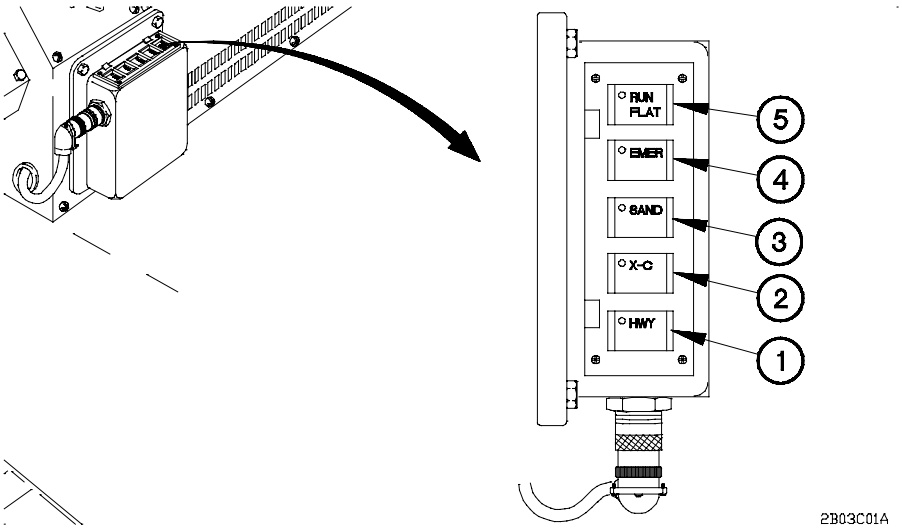


Figure 2-10. Central Tire Inflation System (CTIS) Electronic Control Unit (ECU) Controls and Indicators

1. **HWY (Highway) Mode Button and Indicator.** Pressed to set CTIS in highway mode. Indicator illuminates steady when tire pressure is 60 psi (414 kPa) (81 psi (558 kPa) for the M1088 and M1089). Maximum speed is 55 mph (88 km/h) in HWY mode.

2. **X-C (Cross-Country) Mode Button and Indicator.** Pressed to set CTIS in cross-country mode. Indicator illuminates steady when tire pressure is 37 psi (255 kPa) (54 psi (372 kPa) for the M1088 and M1089). Maximum speed is 40 mph (64 km/h) in X-C mode.

3. **SAND (Soft Terrain) Mode Button and Indicator.** Pressed to set CTIS in soft terrain mode. Indicator illuminates steady when tire pressure is 22 psi (152 kPa) (32 psi (221 kPa) for the M1088 and M1089). Maximum speed is 12 mph (19 km/h) in SAND mode.

4. **EMER (Emergency) Mode Button and Indicator.** Pressed to set CTIS in emergency mode. Indicator illuminates steady when tire pressure is 16 psi (110 kPa) (24 psi (165 kPa) for the M1088 and M1089). Maximum speed is 5 mph (8 km/h) in EMER mode.

5. **RUN FLAT Mode Button and Indicator.** Mode used to maintain tire air pressure in the event of a leak.

2-4. STEERING COLUMN CONTROLS

Figure 2-11 shows all controls on the steering column.

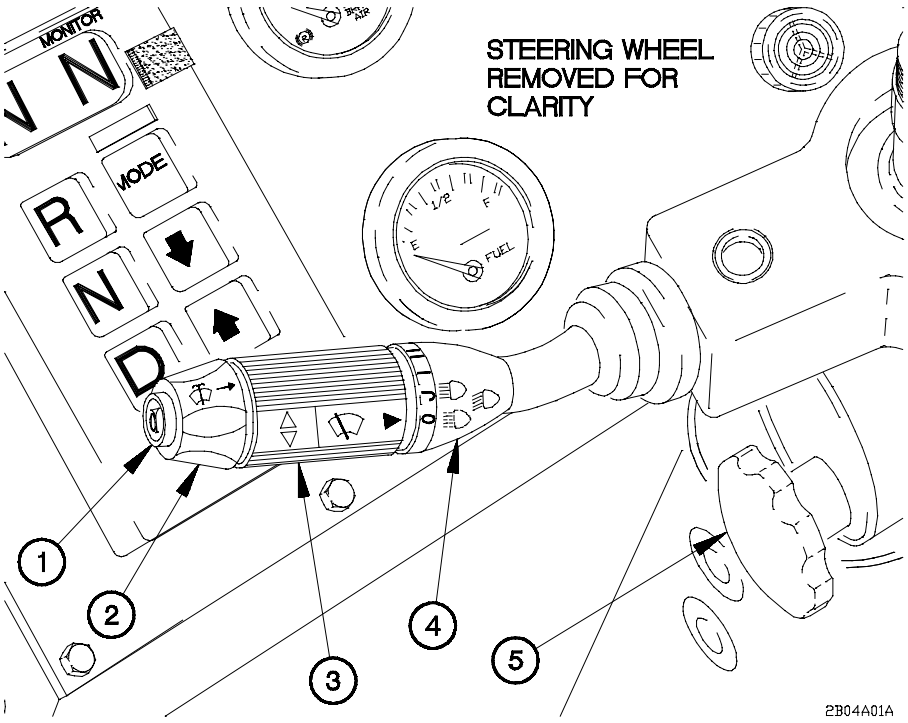


Figure 2-11. Steering Column Controls

1. **Horn Button.** Sounds horn when pressed.

2. **Windshield Washer Switch.** Activates windshield washer when pushed in.

3. **Windshield Wiper Switch.** Four-position switch used to operate and control the speed of the windshield wipers. Windshield wipers operate intermittently when switch is placed in the "J" position. Windshield wipers operate at low or high speed when switch is placed in the "I" or "II" position.

4. **Turn Signal/Headlight Dimmer Control.** Operates turn signals and controls headlight dimming. Right turn signal indicator will flash when control is pushed up. Left turn signal indicator will flash when control is pushed down. Headlight dimming is controlled by pulling the control toward the Operator. High beam headlight indicator lights when high beam headlights are on.

5. **Steering Wheel Tilt/Telescope Control.** Adjusts angle and height of steering wheel.

2-5. FLOOR-MOUNTED CONTROLS

Figure 2-12 shows all floor-mounted controls.

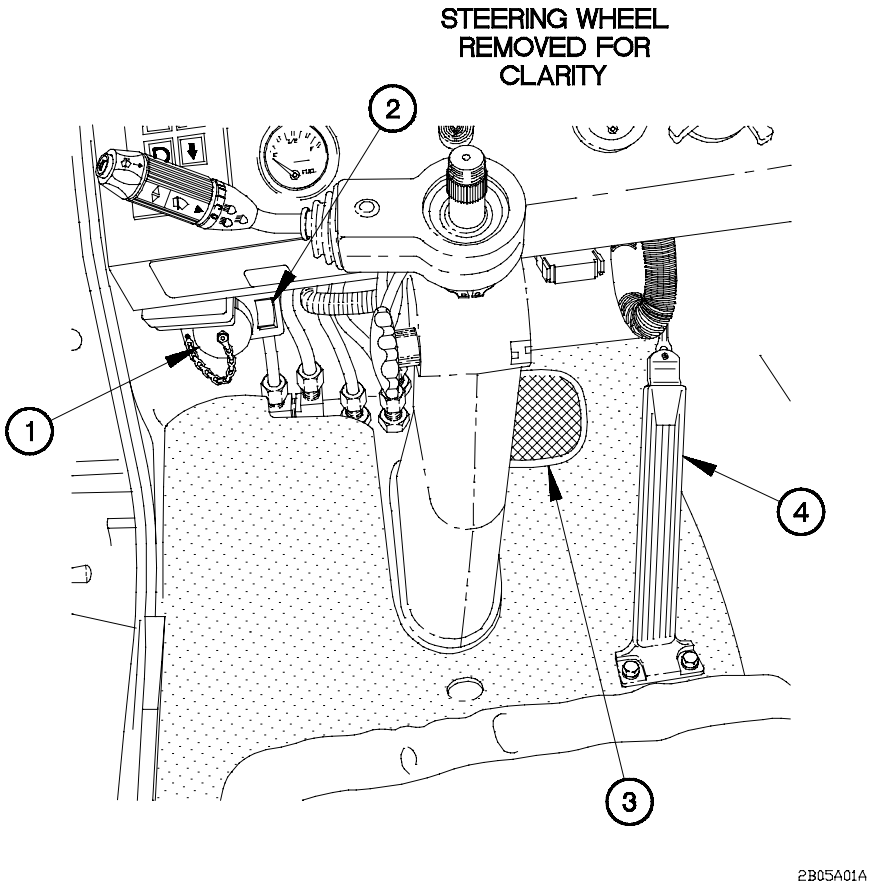


Figure 2-12. Floor-Mounted Controls

1. **STE/ICE-R Receptacle.** Connects Simplified Test Equipment/Internal Combustion Engine-Reprogrammable (STE/ICE-R).

2. **STE/ICE-R Zero Offset Switch.** Resets STE/ICE-R instrument connected to STE/ICE-R receptacle to zero.

3. **Brake Pedal.** Applies service brakes when pressed. Also applies trailer service brakes when the vehicle is coupled to a trailer and TRAILER AIR SUPPLY control is pushed in.

4. **Accelerator Pedal.** Controls engine speed.

2-6. DOOR-MOUNTED CONTROLS

Figure 2-13 shows all door-mounted controls.

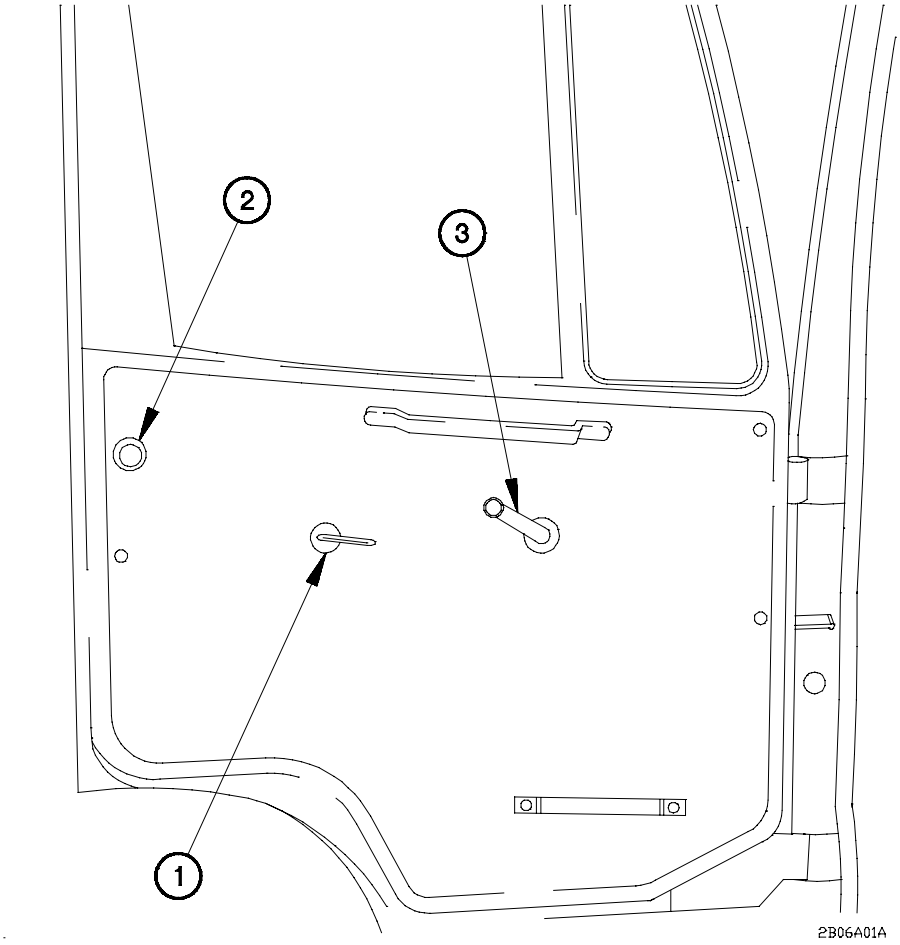


Figure 2-13. Door-Mounted Controls

1. **Cab Door Latch.** Opens cab door from inside or outside of vehicle when pulled.

2. **Cab Door Lock.** Locks door so that it cannot be opened from the inside or outside of the vehicle.

3. **Cab Door Window Glass Regulator.** Raises and lowers window glass when handle is turned.

2-7. SEAT CONTROLS

a. Driver's Seat Controls. Figure 2-14 shows all controls on the driver's seat.

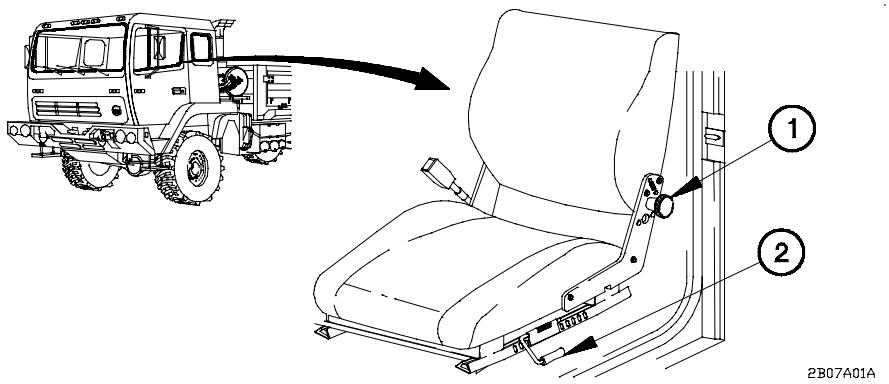


Figure 2-14. Driver's Seat Controls

1. **Seat Back Release Knob.** Allows the seat back to fold forward to allow access to stowage area behind seat.

2. **Forward/Backward Adjustment Control.** Pulling outward (towards door) allows the seat to be moved forward or backward.

b. Right Passenger Seat Controls. Figure 2-15 shows the control on the right passenger seat.

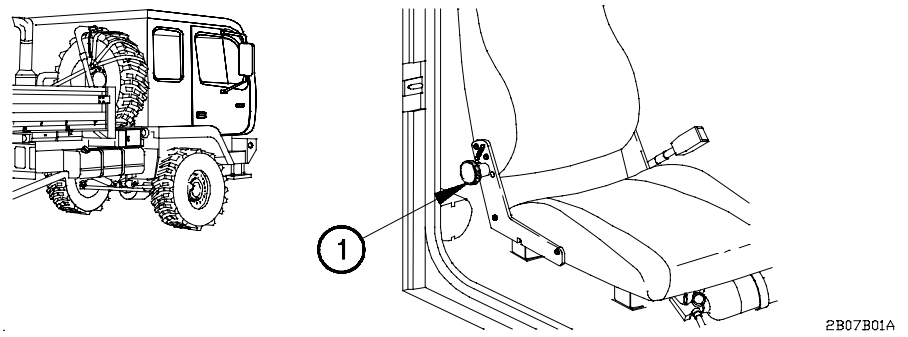


Figure 2-15. Right Passenger Seat Controls

1. **Seat Back Release Knob.** Allows the seat back to fold forward to allow access to stowage area behind seat.

2-8. EXTERIOR CONTROLS AND INDICATORS

a. Passenger Side Exterior Controls and Indicators. Figure 2-16 shows all controls on the exterior passenger side of the vehicle.

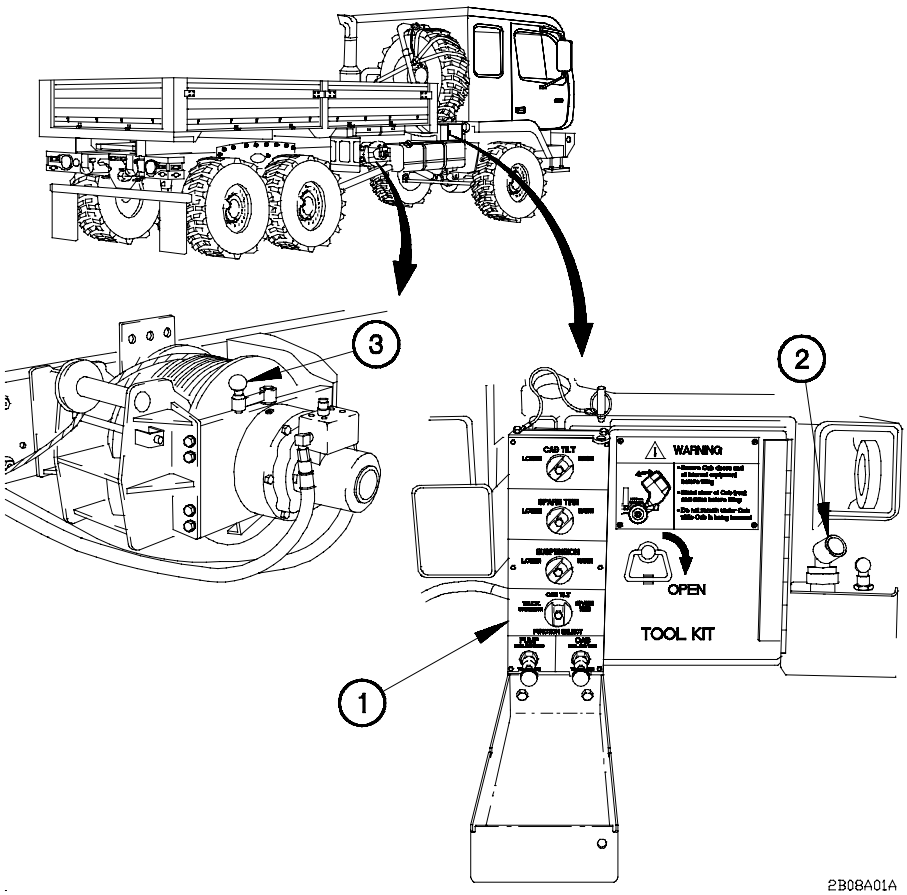


Figure 2-16. Passenger Side Exterior Controls

1. **Hydraulic Manifold.** Used to raise and lower the cab and spare tire, and to compress the suspension for internal air transport. Figure 2-17 shows all controls on hydraulic manifold.

2. **Back-up Hydraulic Pump.** Hydraulic hand pump that provides backup power in case of failure to the hydraulic manifold.

3. **Winch Clutch Control Lever (Models with 15K SRW).** Engages and disengages 15K SRW clutch. When disengaged, winch drum will spool freely and cable can be payed out by hand. When engaged, winch operation is controlled from the WINCH IN/OUT switch inside cab.

2-8. EXTERIOR CONTROLS AND INDICATORS (CONT)

b. Hydraulic Manifold Controls. Figure 2-17 shows all controls on the hydraulic manifold.

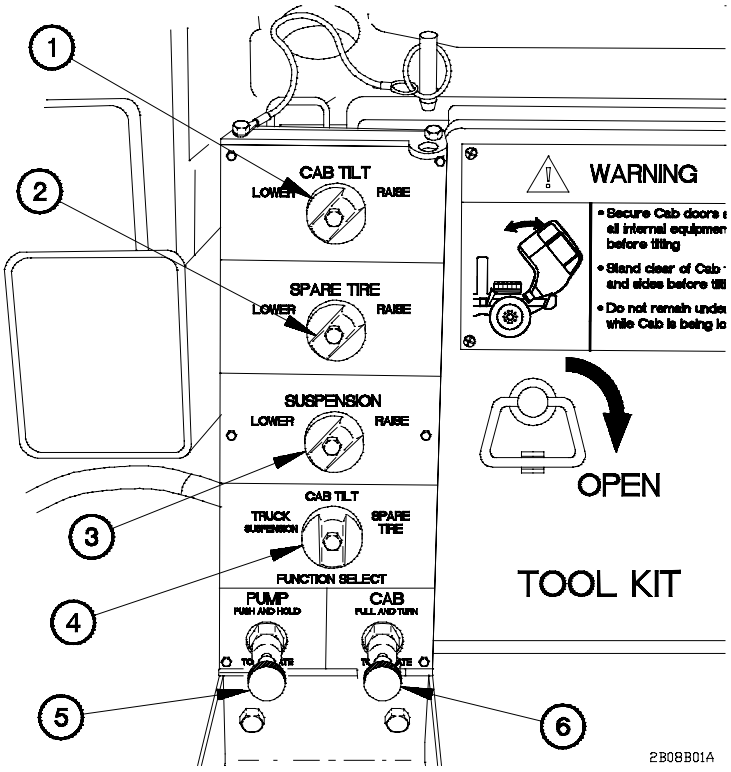


Figure 2-17. Hydraulic Manifold Controls

1. **CAB TILT Knob.** Allows operator to raise or lower the cab.

2. **SPARE TIRE Knob.** Allows operator to raise or lower the spare tire.

3. **SUSPENSION Knob.** Allows operator to raise or lower the suspension.

4. **FUNCTION SELECT Knob.** Allows operator to determine what component will receive hydraulic pressure.

5. **PUMP Knob.** Pushing in and holding PUMP knob will activate pre-selected system; TRUCK SUSPENSION, CAB TILT, or SPARE TIRE. Works with FUNCTION SELECT knob.

6. **CAB Knob.** Turn knob to the left and pull out to deflate cab air springs. Press and turn knob to the right to inflate cab air springs.

c. Driver's Side Exterior Controls and Indicators. Figure 2-18 shows all controls and indicators on the exterior driver's side of the vehicle.

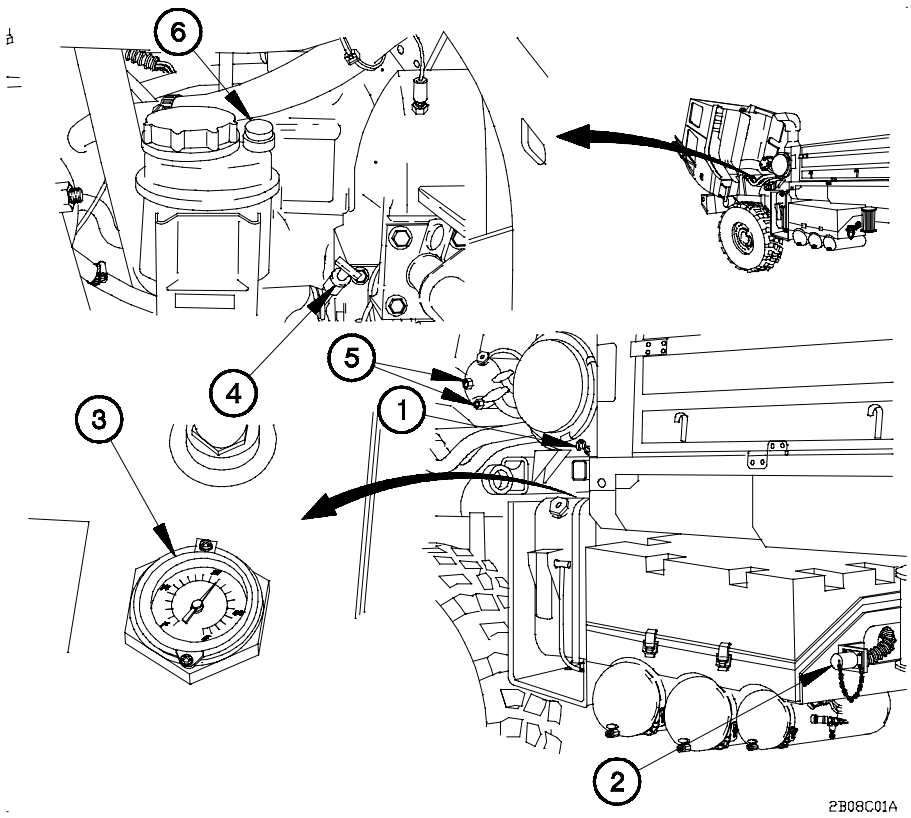


Figure 2-18. Driver's Side Exterior Controls and Indicators

1. **XMSN (Transmission) DIPSTICK.** Indicates oil level in the transmission.

2. **NATO Receptacle.** Receptacle used for starting the vehicle using external power.

3. **Hydraulic Reservoir Gage (Models with 15K SRW).** Indicates oil level in the hydraulic reservoir.

4. **Engine Oil Dipstick.** Indicates oil level in the engine.

5. **Radiator Overflow Tank Sight Glasses.** Top sight glass indicates safe coolant level with the engine not running.

6. **Power Steering Dipstick.** Indicates oil level in the power steering reservoir.

2-9. M1084/M1086 MATERIAL HANDLING CRANE (MHC) CONTROLS AND INDICATORS

a. MHC Controls. Figure 2-19 shows all controls on the MHC.

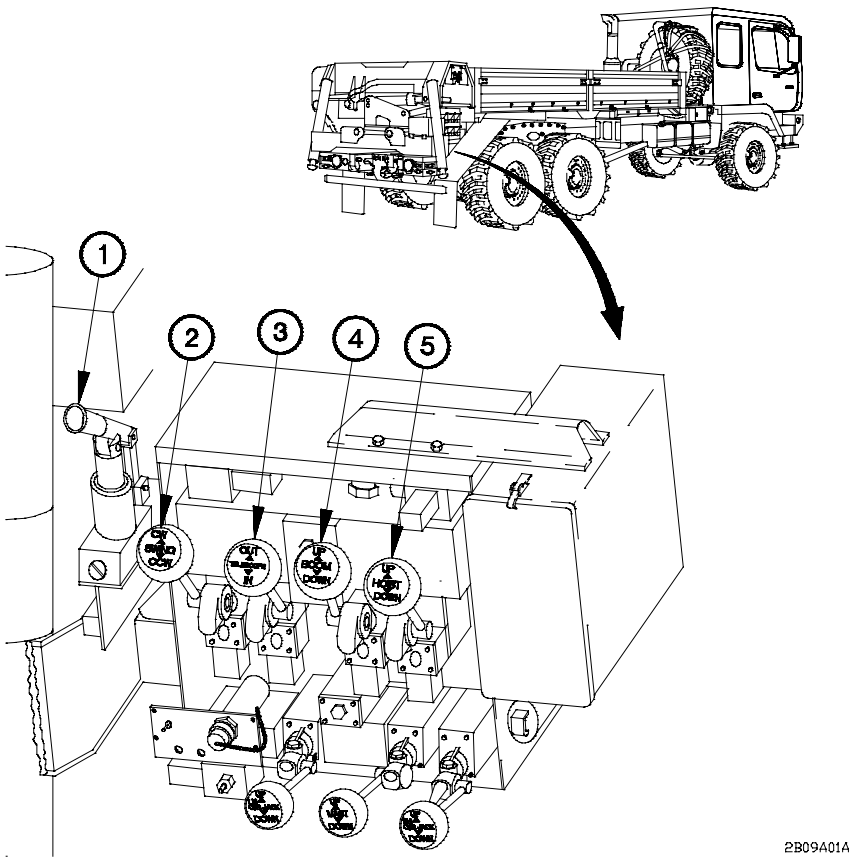


Figure 2-19. Material Handling Crane (MHC) Controls

1. **Manual Hydraulic Pump.** Used to manually retract and stow the MHC in the event of hydraulic pump failure.

2. **SWING Lever.** Swings the boom to the right (CW) and to the left (CCW).

3. **TELESCOPE Lever.** Extends and retracts the boom.

4. **BOOM Lever.** Raises and lowers the boom.

5. **HOIST Lever.** Pays out and reels in the cable.

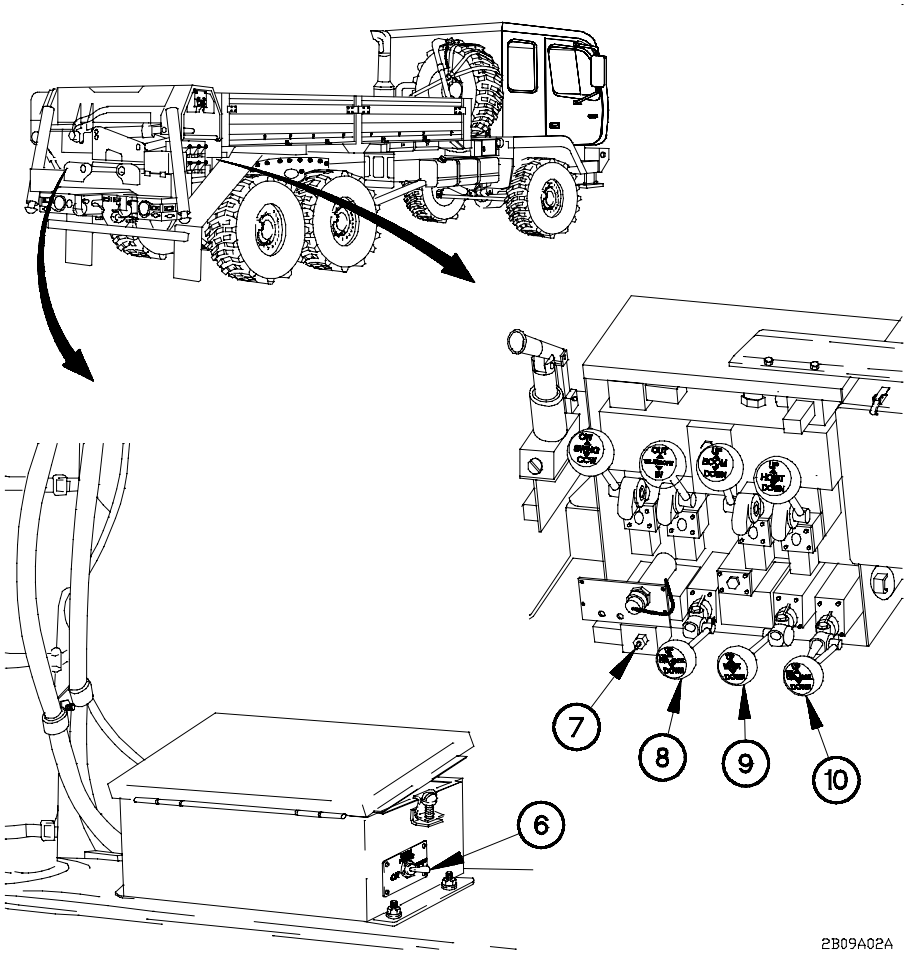


Figure 2-19. Material Handling Crane (MHC) Controls (Cont)

6. **POWER Switch.** Two-position switch controls electrical power to the MHC.

7. **MANUAL OVERRIDE Switch.** Pushbutton switch used to override the MHC overload protection system in an emergency.

8. **LH O/R (Left Hand Outrigger) JACK Lever.** Raises and lowers the left side outrigger.

9. **MAST Lever.** Raises and lowers the mast.

10. **RH O/R (Right Hand Outrigger) JACK Lever.** Raises and lowers the right side outrigger.

2-9. M1084/M1086 MATERIAL HANDLING CRANE (MHC) CONTROLS AND INDICATORS (CONT)

b. REMOTE CONTROL UNIT. Figure 2-20 shows all controls on REMOTE CONTROL UNIT.

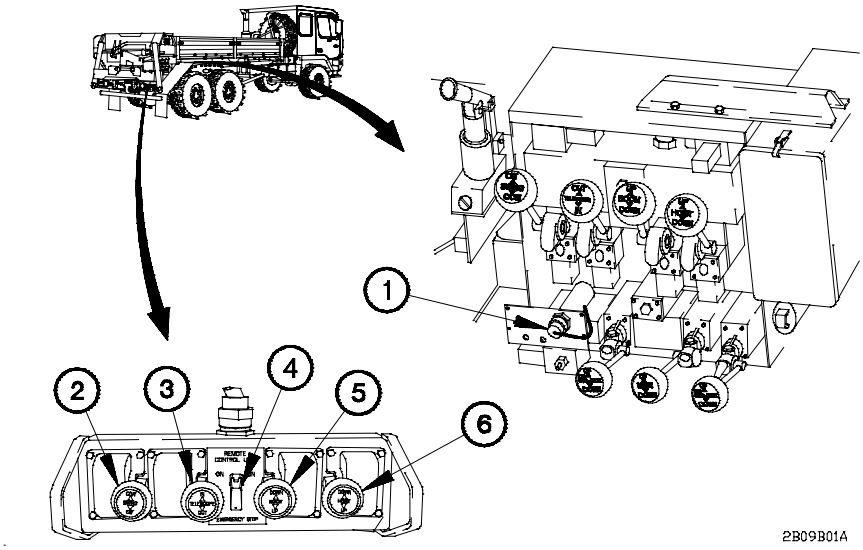


Figure 2-20. REMOTE CONTROL UNIT

1. **REMOTE CONTROL UNIT Receptacle.** Used to connect REMOTE CONTROL UNIT to MHC.

2. **SWING Lever.** Swings the boom to the right (CW) and to the right (CCW) when REMOTE CONTROL UNIT switch is positioned to ON.

3. **TELESCOPE Lever.** Extends and retracts the boom when REMOTE CONTROL UNIT switch is positioned to ON.

4. **REMOTE CONTROL UNIT Switch.** Two-position switch controls power to the REMOTE CONTROL UNIT. The POWER switches on both the MHC controls and REMOTE CONTROL UNIT must be positioned to ON before the REMOTE CONTROL UNIT will operate.

5. **BOOM Lever.** Raises and lowers the boom when REMOTE CONTROL UNIT switch is positioned to ON.

6. **HOIST Lever.** Pays out and reels in the cable when REMOTE CONTROL UNIT switch is positioned to ON.

c. MHC Indicators. Figure 2-21 shows indicators on the MHC.

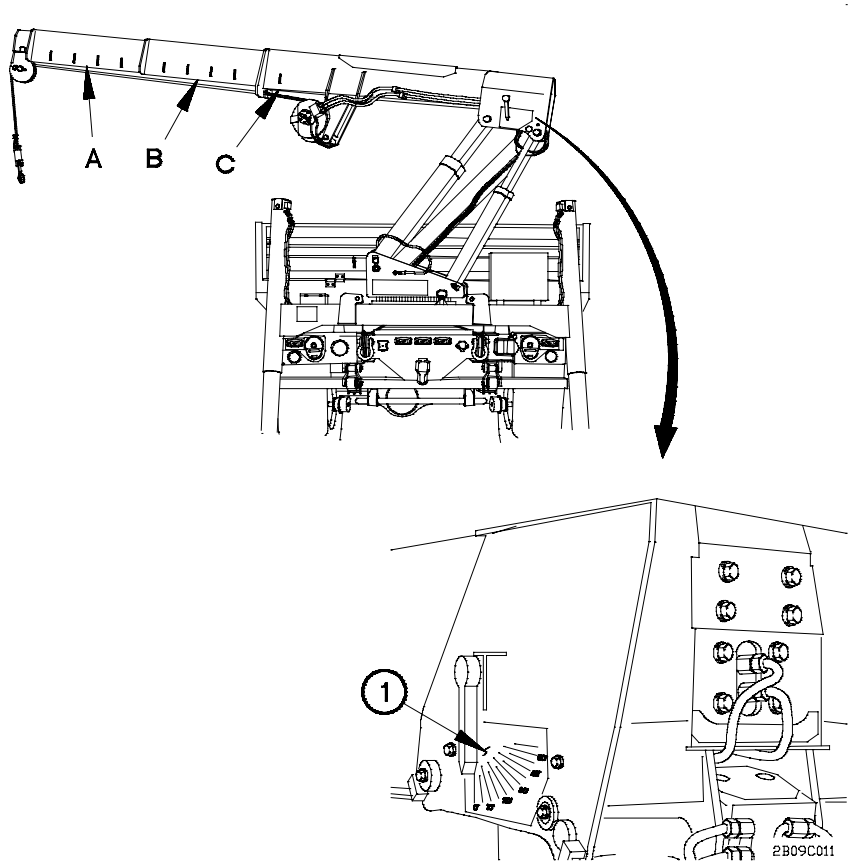


Figure 2-21. Material Handling Crane (MHC) Boom Angle and Extension Indicators

1. Boom Angle Indicator. Indicates the angle of the boom.

NOTE

To determine the extended length of the boom, add the measurements at points A and B to C.

2. **Boom Extension Indicators.** Indicates the boom extension from minimum retraction to maximum extension. Boom extension indicators are marked every 12 in. (30 cm).

2-10. DUMP BODY CONTROLS

Dump Body Controls. Figure 2-22 shows all exterior controls on the dump body.

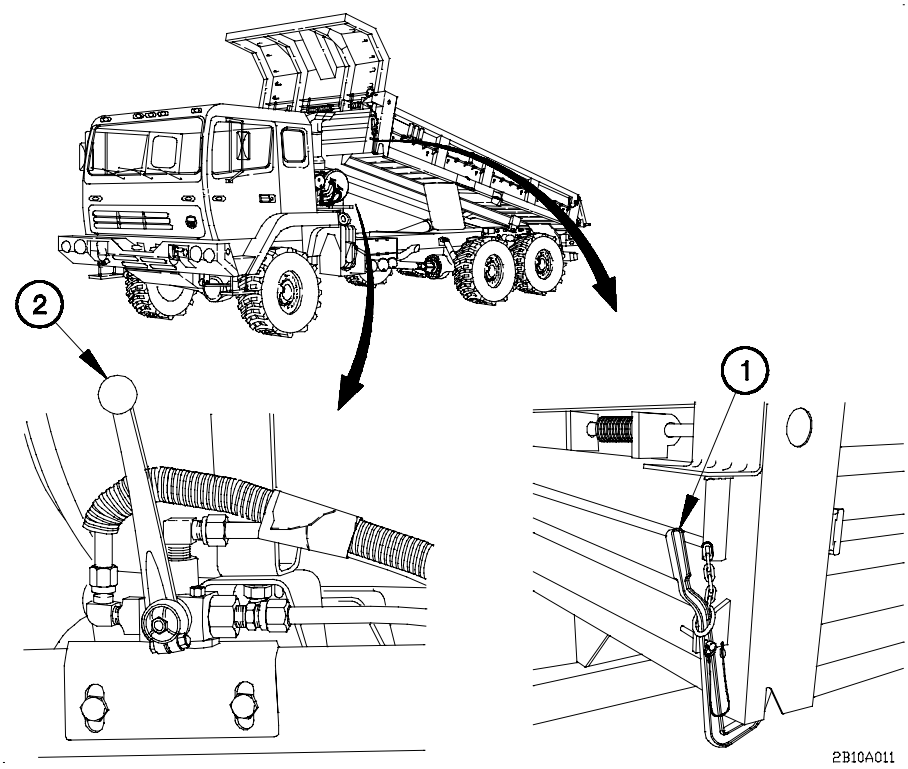


Figure 2-22. Exterior Dump Body Controls

1. **Manual Tailgate Control.** Is used to manually release the tailgate in the event of air pressure loss.

2. **Tailgate Manual Release.** Is used to release the tailgate in the event of electrical and/or pneumatic failure.

2-11. TRACTOR CONTROLS

Tractor Controls. Figure 2-23 shows all controls on the tractor fifth wheel.

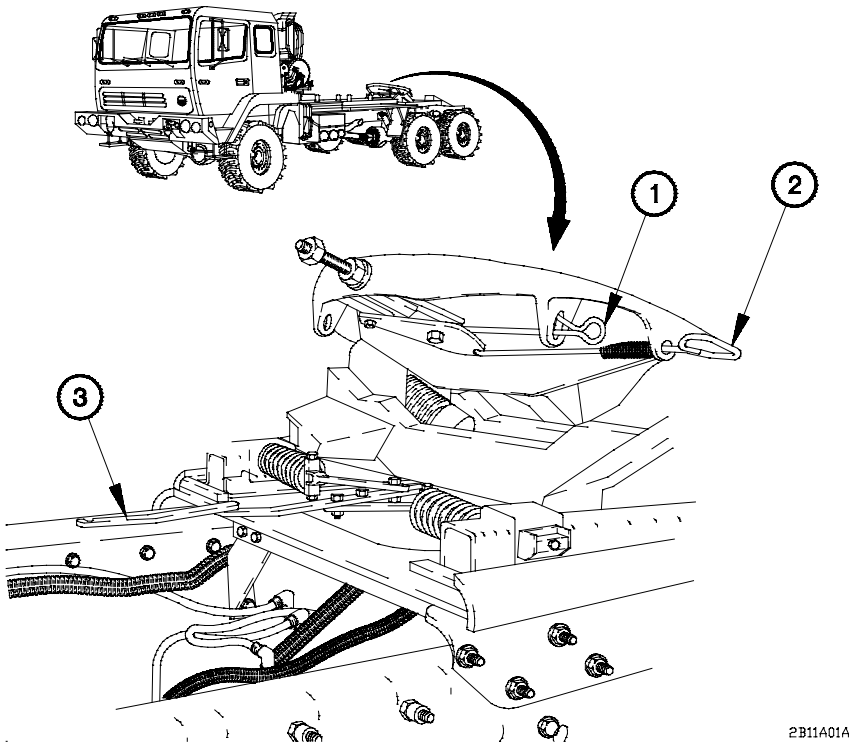


Figure 2-23. Tractor Fifth Wheel Controls

1. **Secondary Lock Release Handle.** Unlocks fifth wheel coupler jaws and allows them to be opened with primary lock release handle. Coupler jaws unlock when handle is pulled.

2. **Primary Lock Release Handle.** Opens fifth wheel coupler jaws. Coupler jaws open when handle is pulled.

CAUTION

Ensure fifth wheel is in forward most position at all times except for air or ship transport TM 9-2320-366-10-2. Failure to comply may result in damage to equipment.

3. **Slide Release Lever.** Unlocks/locks fifth wheel when fifth wheel must be able to slide to the rear or slide to the front.

2-12. WRECKER CONTROLS AND INDICATORS

a. Wrecker Controls. Figure 2-24 shows all controls on the WRECKER CONTROL PANEL FIXED OPERATORS STATION.

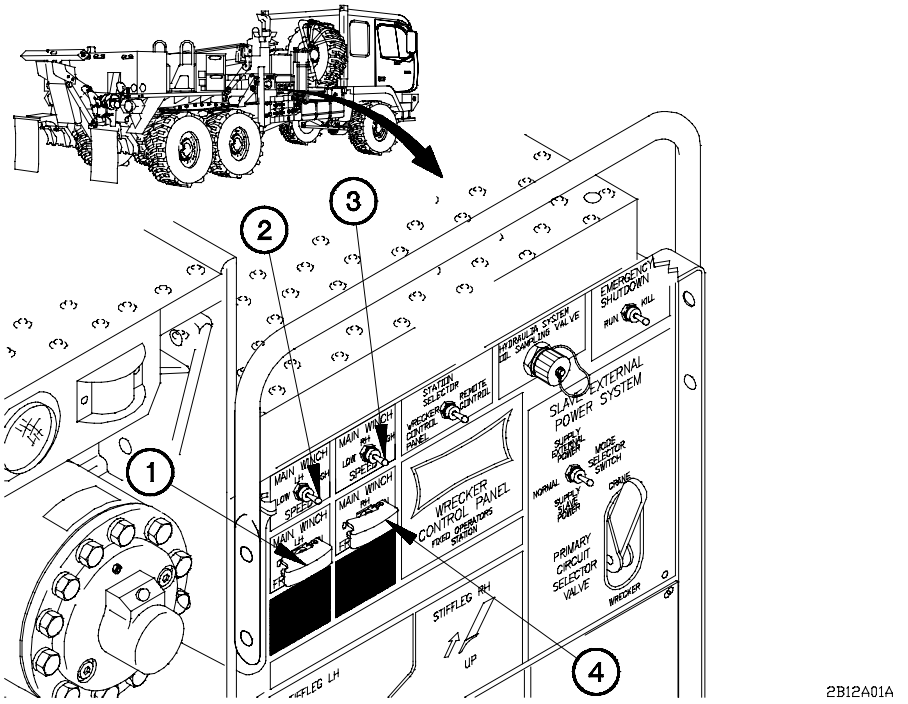


Figure 2-24. Wrecker Control Panel Fixed Operators Station

1. **MAIN WINCH LH FREE SPOOL Switch.** Two-position switch used to engage and disengage the left 30K winch clutch. When disengaged, winch drum spools freely and cable can be payed out. When engaged, winch operation is controlled by 30K winch control lever.

2. **MAIN WINCH LH SPEED Switch.** Two-position switch used to control the pay out/reel in speed of the left 30K winch.

3. **MAIN WINCH RH SPEED Switch.** Two-position switch used to control the pay out/reel in speed of the right 30K winch.

4. **MAIN WINCH RH FREE SPOOL Switch.** Two-position switch used to engage and disengage the right 30K winch clutch. When disengaged, winch drum spools freely and cable can be payed out. When engaged, winch operation is controlled by 30K winch control lever.

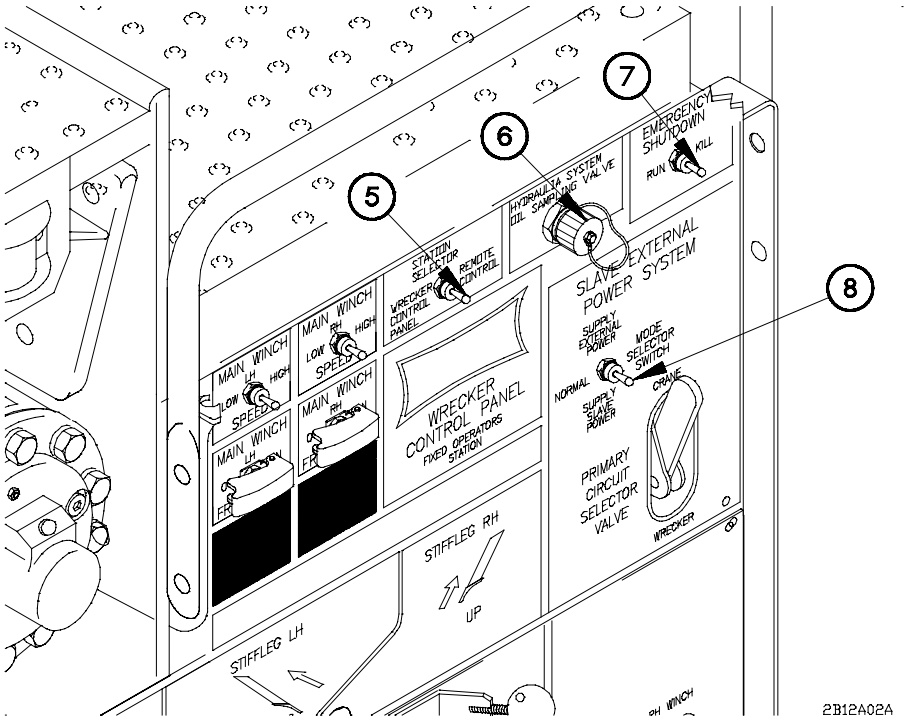


Figure 2-24. Wrecker Control Panel Fixed Operators Station (Cont)

5. **STATION SELECTOR Switch.** Two-position switch used to select desired station (WRECKER CONTROL PANEL or REMOTE CONTROL) for operating wrecker components.

6. **HYDRAULIC SYSTEM OIL SAMPLING VALVE.** Valve used to take oil samples for Army Oil Analysis Program (AOAP).

7. **EMERGENCY SHUTDOWN Switch.** Switch used to shut down engine in an emergency.

8. **MODE SELECTOR SWITCH.** Three position switch used to select the operating mode for wrecker hydraulic system. When switch is positioned to SUPPLY EXTERNAL POWER, oil will be delivered to supply ports at the left rear side of the wrecker to operate hydraulic power tools. When the switch is in the NORMAL position, the wrecker hydraulic system will supply power to hydraulic components on the wrecker. When the switch is positioned to SUPPLY SLAVE POWER, hydraulic power will be supplied through the pressure and return ports on the WRECKER CONTROL PANEL.

2-12. WRECKER CONTROLS AND INDICATORS (CONT)

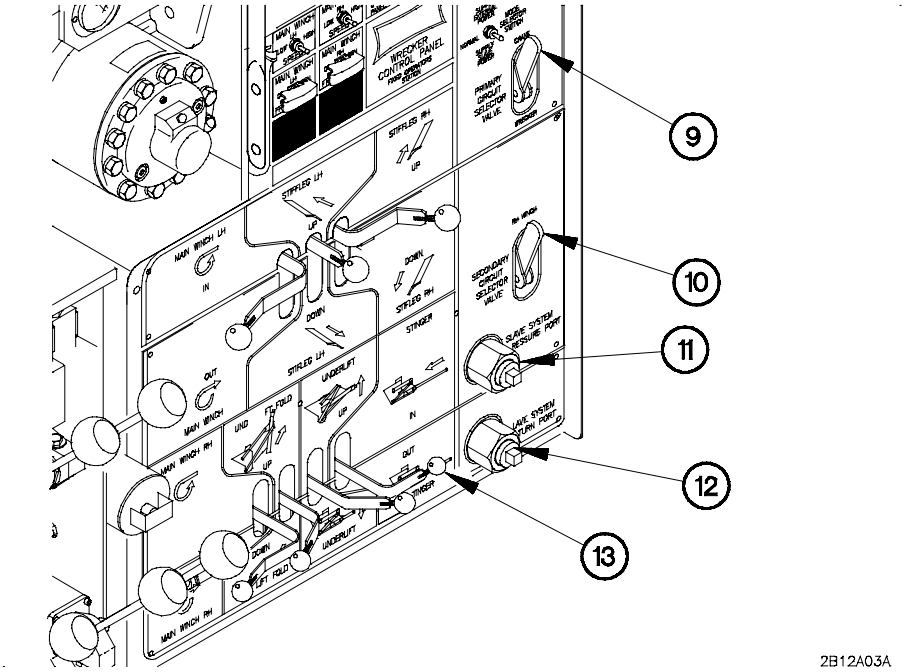


Figure 2-24. Wrecker Control Panel Fixed Operators Station (Cont)

9. **PRIMARY CIRCUIT SELECTOR VALVE Lever.** Lever is placed in the CRANE position to operate the MHC. In this position the underlift assembly and 30K winches will not operate. Lever is placed in the WRECKER position to operate underlift assembly and 30K winches. In this position the MHC will not operate.

10. **SECONDARY CIRCUIT SELECTOR VALVE Lever.** Used when PRIMARY CIRCUIT SELECTOR VALVE lever is in the WRECKER position. This lever controls which bank of hydraulic control levers on the WRECKER CONTROL PANEL will operate. When the lever is positioned to RH WINCH, the lower bank of hydraulic control levers will operate: MAIN WINCH RH, UNDERLIFT FOLD, UNDERLIFT, and STINGER. When the lever is positioned to LH WINCH, the upper bank of hydraulic control levers will operate: MAIN WINCH LH, STIFFLEG LH, and STIFFLEG RH.

11. **SLAVE SYSTEM PRESSURE PORT.** Hydraulic pressure port for supply hose connection when providing hydraulic power to another vehicle.

12. **SLAVE SYSTEM RETURN PORT.** Hydraulic return port for return hose connection when providing hydraulic power to another vehicle.

13. **STINGER Lever.** Extends and retracts the stinger.

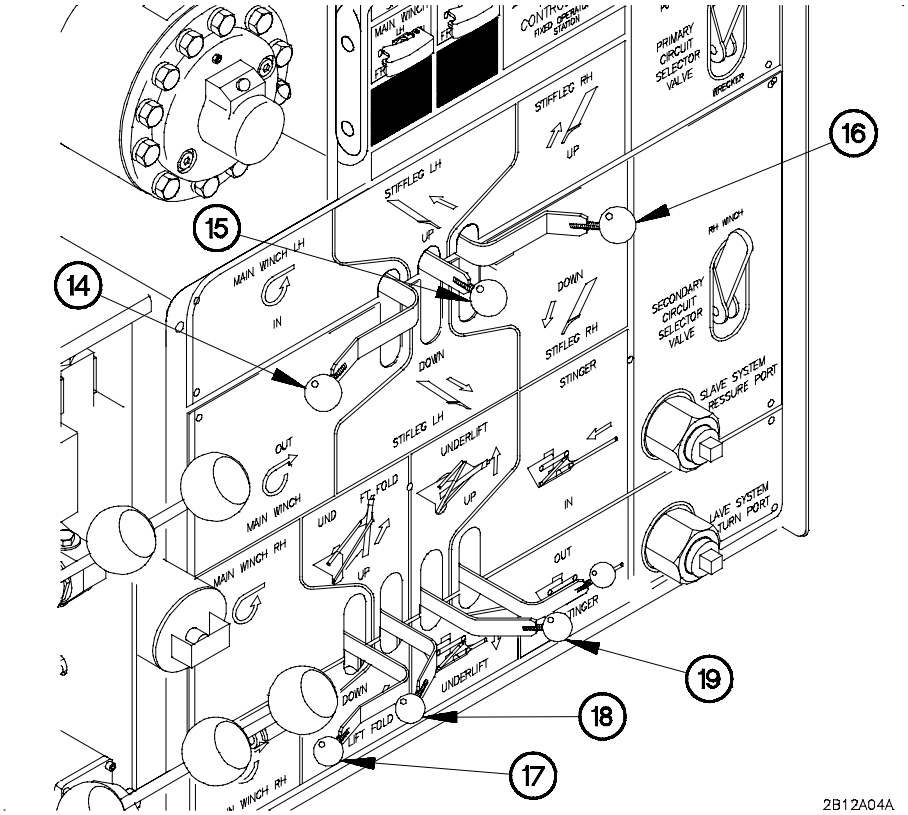


Figure 2-24. Wrecker Control Panel Fixed Operators Station (Cont)

14. MAIN WINCH LH Lever. Pays out and reels in left cable when MAIN WINCH LH FREE SPOOL switch is positioned to OFF.

15. STIFFLEG LH Lever. Raises and lowers left stiffleg.

16. STIFFLEG RH Lever. Raises and lowers right stiffleg.

17. MAIN WINCH RH Lever. Pays out and reels in right cable when MAIN WINCH RH FREE SPOOL switch is positioned to OFF.

18. UNDERLIFT FOLD Lever. Raises and lowers underlift assembly to the vertical and horizontal position. Underlift assembly is secured in each position with lock pin.

19. UNDERLIFT Lever. Raises and lowers underlift assembly when secured in the horizontal operating position.

2-12. WRECKER CONTROLS AND INDICATORS (CONT)

b. Wrecker REMOTE CONTROL. Figure 2-25 shows all controls on the Wrecker REMOTE CONTROL.

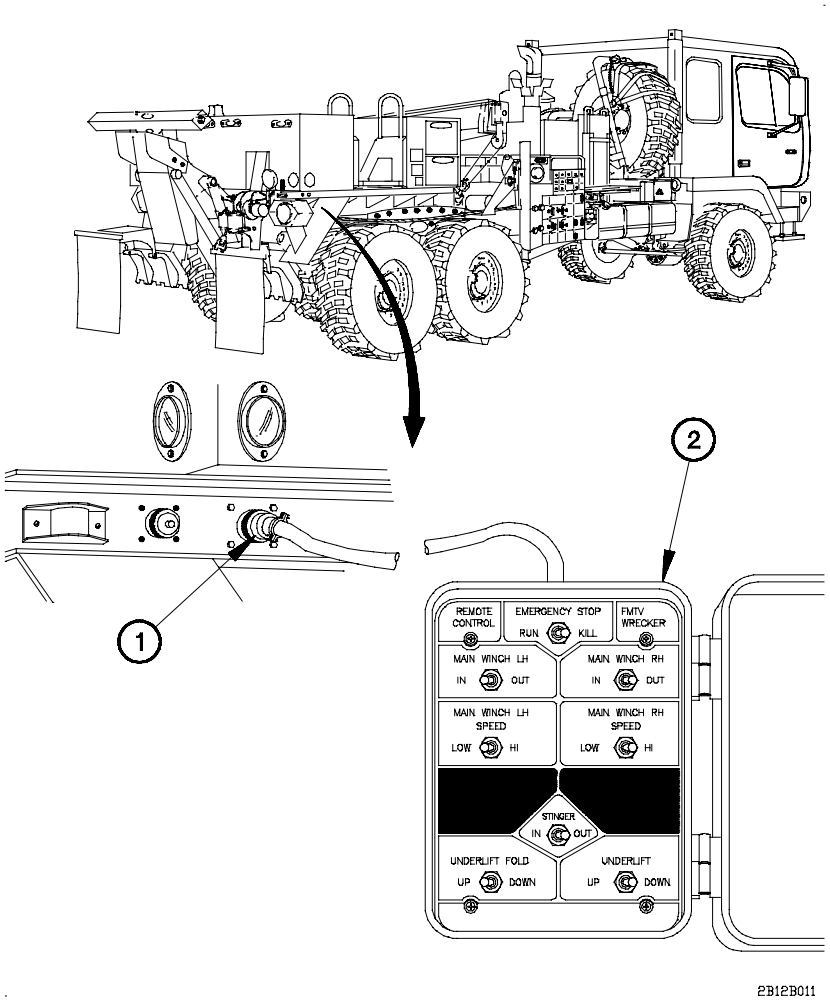


Figure 2-25. Wrecker REMOTE CONTROL

1. **Wrecker REMOTE CONTROL Receptacle.** Used to connect wrecker REMOTE CONTROL.

2. **Wrecker REMOTE CONTROL.** Used to operate underlift assembly and 30K winches when operator cannot keep underlift assembly and disabled vehicle in sight at all times during recovery operations.

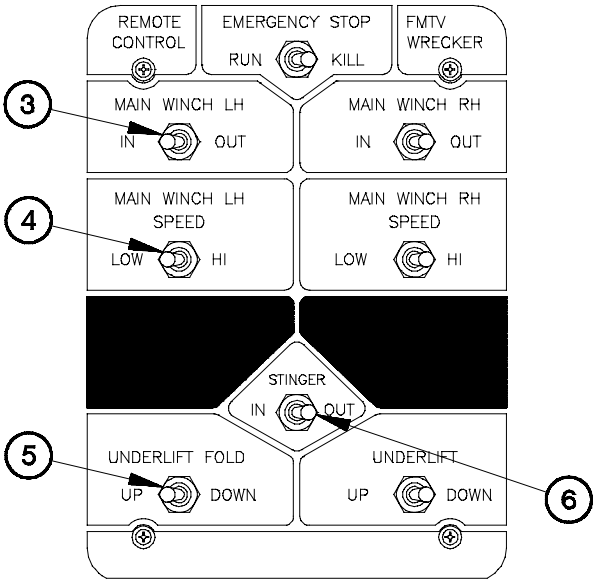


Figure 2-25. Wrecker REMOTE CONTROL (Cont)

3. **MAIN WINCH LH Switch.** Pays out and reels in left cable when MAIN WINCH LH FREE SPOOL switch is positioned to OFF and REMOET CONTROL switch is positioned to ON.

4. **MAIN WINCH LH SPEED Switch.** Two-position switch used to control the pay out/reel in speed of the left 30K winch when REMOTE CONTROL switch is positioned to ON.

5. **UNDERLIFT FOLD Switch.** Raises underlift assembly to the vertical position and lowers underlift assembly to the horizontal position when REMOTE CONTROL switch is positioned to ON. Underlift assembly is secured in each position with lock pin.

6. **STINGER Switch.** Extends and retracts the stinger when REMOTE CONTROL switch is positioned to ON.

2-12. WRECKER CONTROLS AND INDICATORS (CONT)

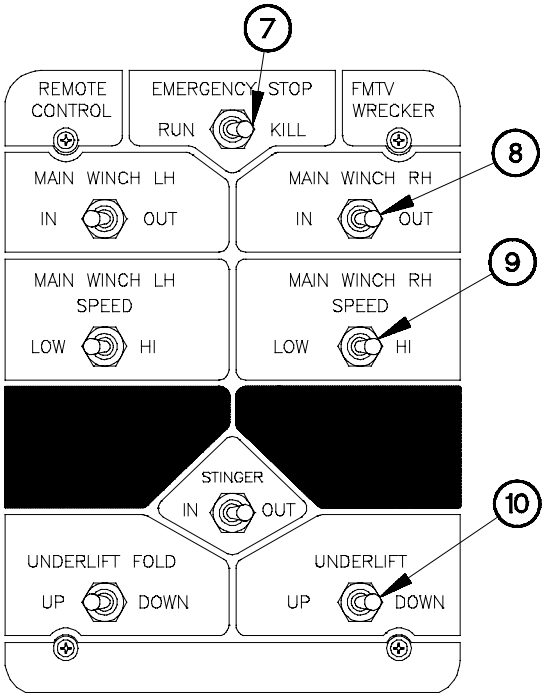


Figure 2-25. Wrecker REMOTE CONTROL (Cont)

7. **EMERGENCY STOP Switch.** Switch used to shut down engine in an emergency.

8. **MAIN WINCH RH Switch.** Pays out and reels in right cable when MAIN WINCH RH FREE SPOOL switch is positioned to OFF and REMOTE CONTROL switch is positioned to ON.

9. **MAIN WINCH RH SPEED Switch.** Two-position switch used to control the pay out/reel in speed of the right 30K winch when REMOTE CONTROL switch is positioned to ON.

10. **UNDERLIFT Switch.** Raises and lowers underlift assembly when it is secured in the horizontal operating position and REMOTE CONTROL switch is positioned to ON.

c. Wrecker MHC Controls. Figure 2-26 shows all the wrecker MHC controls.

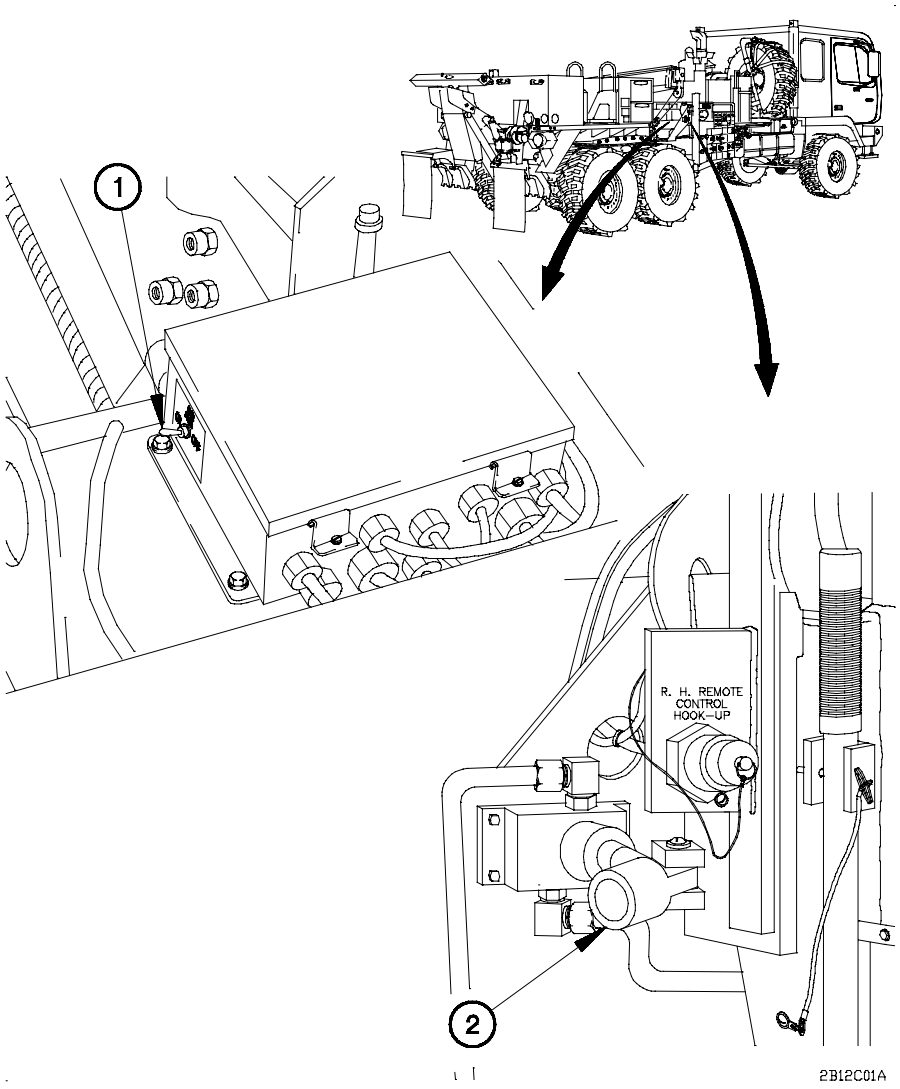


Figure 2-26. Wrecker Material Handling Crane (MHC) Controls

1. **POWER Switch.** Two-position switch controls power to the MHC.

2. **Manual Hydraulic Pump.** Used to manually stow the MHC in the event of a hydraulic pump failure.

2-12. WRECKER CONTROLS AND INDICATORS (CONT)

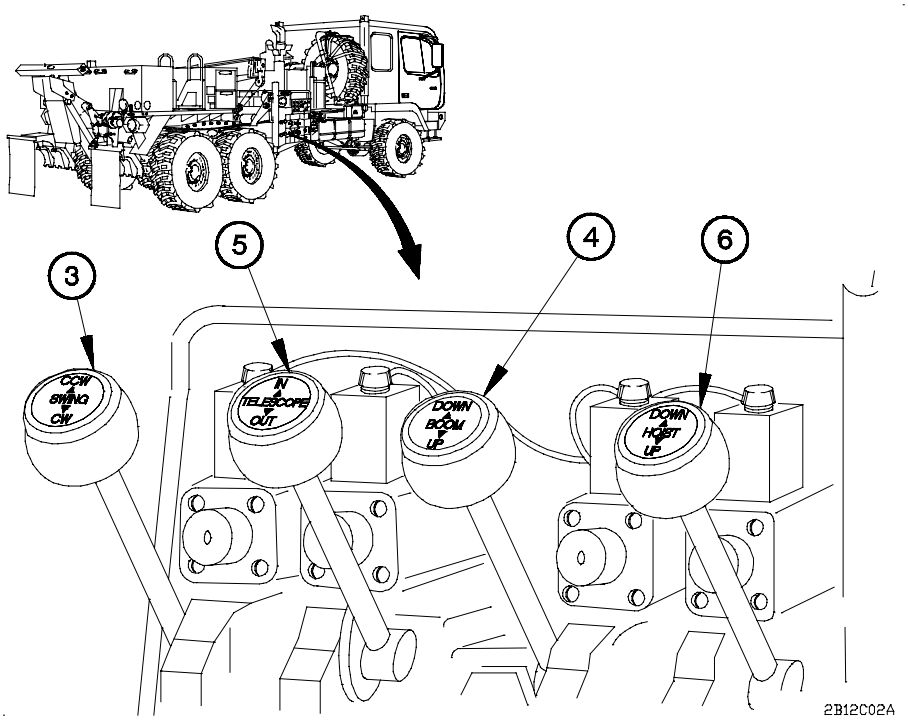


Figure 2-26. Wrecker Material Handling Crane (MHC) Controls (Cont)

3. **SWING Lever.** Swings the MHC boom to the right (CW) and to the left (CCW).
4. **BOOM Lever.** Raises and lowers the boom.
5. **TELESCOPE Lever.** Extends and retracts the boom.
6. **HOIST Lever.** Pays out and reels in cable.

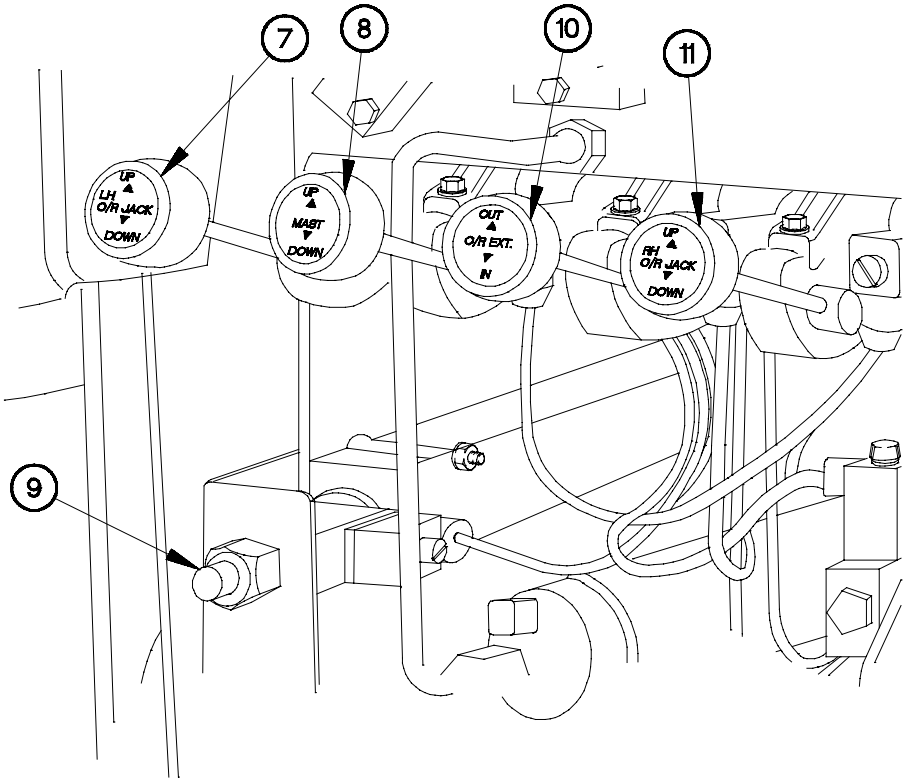


Figure 2-26. Wrecker Material Handling Crane (MHC) Controls (Cont)

7. **LH O/R (Left Hand Outrigger) JACK Lever.** Raises and lowers the left side outrigger.

8. **MAST Lever.** Raises and lowers the mast.

9. **MANUAL OVERRIDE Switch.** Pushbutton switch used to override the crane overload shutdown system in an emergency.

10. **O/R EXT (Outrigger Extension) Lever.** Controls the distance between the left and right outriggers.

11. **RH O/R (Right Hand Outrigger) JACK Lever.** Raises and lowers the right side outrigger.

2-12. WRECKER CONTROLS AND INDICATORS (CONT)

d. Wrecker MHC REMOTE CONTROL UNIT. Figure 2-27 shows controls on the wrecker MHC REMOTE CONTROL UNIT.

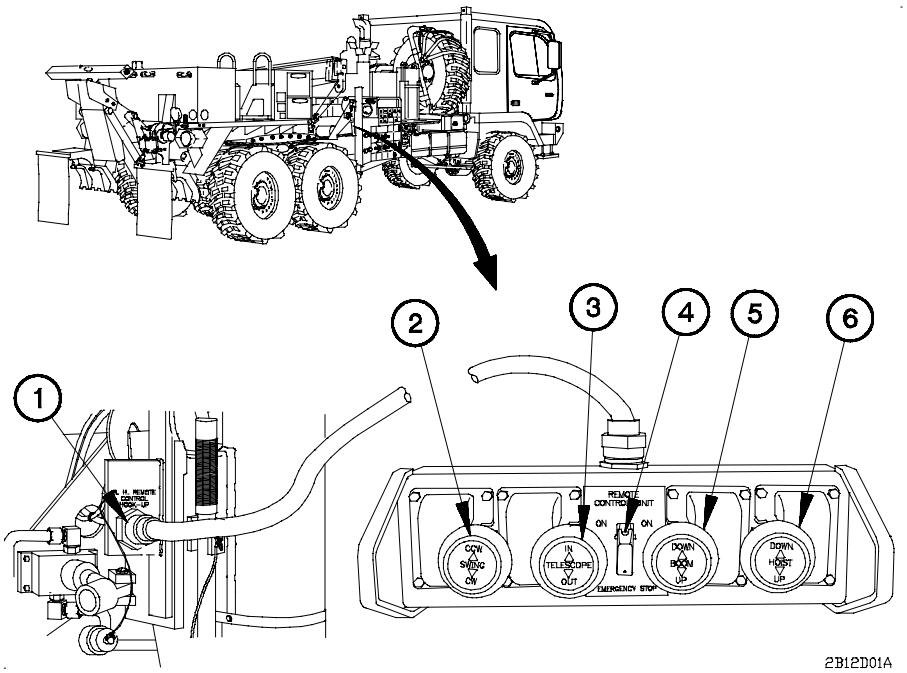


Figure 2-27. Wrecker Material Handling Crane (MHC) REMOTE CONTROL UNIT

1. **R.H. REMOTE CONTROL HOOK-UP Receptacle.** Used to connect wrecker MHC REMOTE CONTROL UNIT.

2. **SWING Lever.** Swings the MHC boom to the right (CW) and the left (CCW) when REMOTE CONTROL UNIT switch is positioned to ON.

3. **TELESCOPE Lever.** Extends and retracts the boom when REMOTE CONTROL UNIT switch is positioned to ON.

4. **REMOTE CONTROL UNIT Switch.** Two-position switch controls power to MHC REMOTE CONTROL UNIT. The POWER switch on the main MHC controls and the REMOTE CONTROL UNIT switch must be positioned to ON before the MHC REMOTE CONTROL UNIT will operate.

5. **BOOM Lever.** Raises and lowers the boom when REMOTE CONTROL UNIT switch is positioned to ON.

6. **HOIST Lever.** Pays out and reels in the hoist cable when REMOTE CONTROL UNIT switch is positioned to ON.

e. Other Wrecker and MHC Controls and Indicators. Figure 2-28 shows other wrecker and MHC controls and indicators.

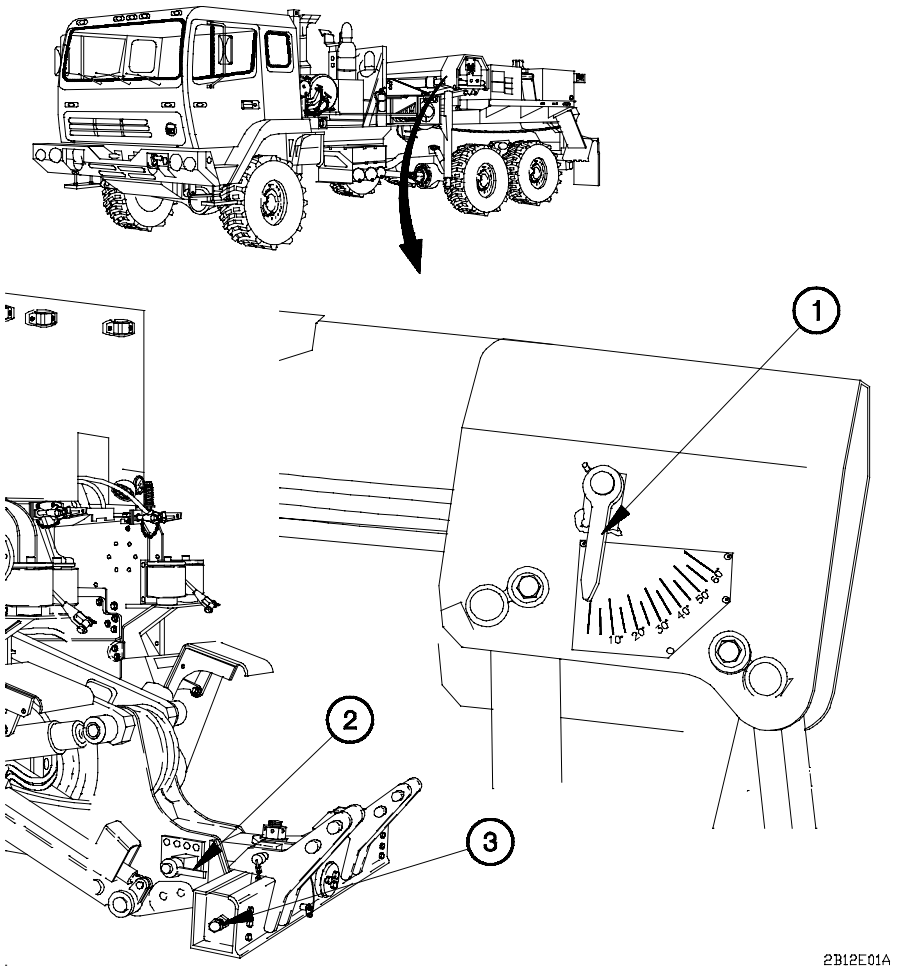


Figure 2-28. Other Wrecker and Material Handling Crane (MHC) Controls and Indicators

1. **Boom Angle Indicator.** Indicates the angle of the boom.

2. **Stinger Cam Lock.** Locks stinger in position after stinger has been extended or retracted.

3. **Lifting Bracket Control.** Controls position of lifting bracket on crossbar. Controls are located on each end of crossbar. Controls can be positioned separately.

2-12. WRECKER CONTROLS AND INDICATORS (CONT)

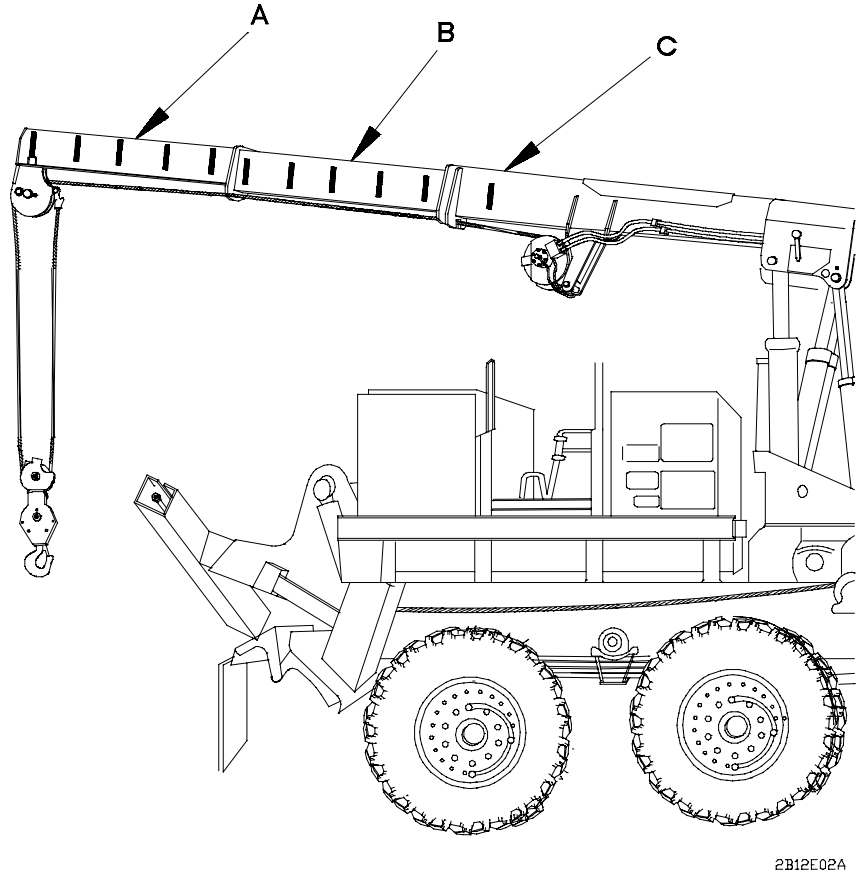


Figure 2-28. Other Wrecker and Material Handling Crane (MHC) Controls and Indicators (Cont)

NOTE

To determine the extended length of the boom, add the measurement at points A and B to C.

4. **Boom Extension Indicators.** Indicates the boom extension from minimum retraction to maximum extension.

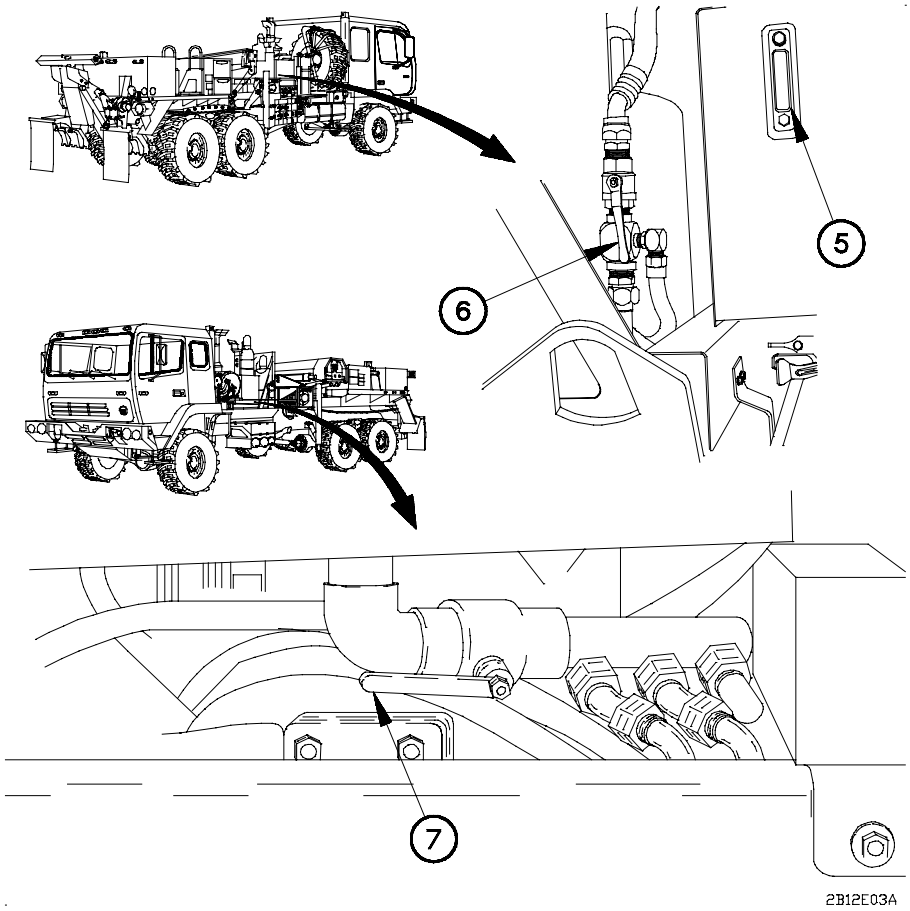


Figure 2-28. Other Wrecker and Material Handling Crane (MHC) Controls and Indicators (Cont)

5. **Oil Level Sight Glass.** Indicates oil level in hydraulic tank.

6. **Return Valve.** Shuts off return oil to the hydraulic tank.

7. **Shutoff Valve.** Controls flow of oil to the hydraulic pump.

2-13. SPECIAL PURPOSE KIT CONTROLS AND INDICATORS

a. Troop Transport Alarm Switch. Figure 2-29 shows the troop transport alarm switch.

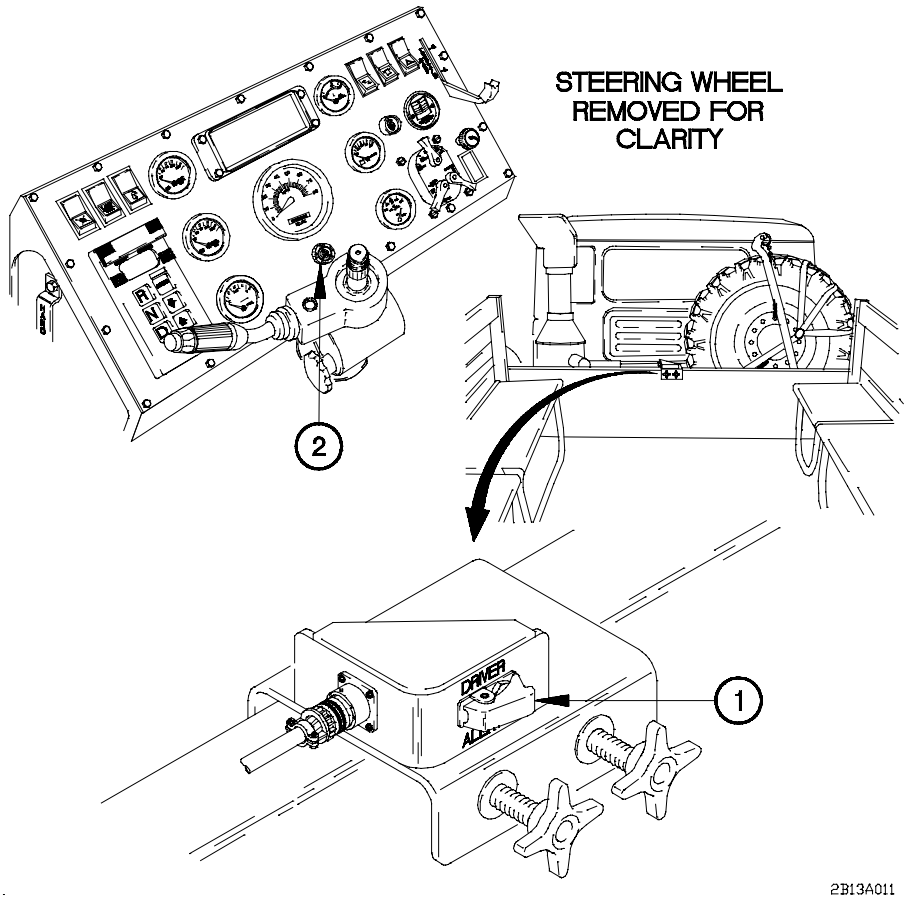


Figure 2-29. Troop Transport Alarm Switch

1. **Troop Transport Alarm Switch.** The troop transport alarm switch is part of the troopseat kit. The troop transport alarm switch is a momentary switch located in the cargo bed or dump body when the troopseat kit is installed. The troop transport alarm switch is used to alert the driver to stop the vehicle.

2. **Troop Transport Alarm.** The troop transport alarm is a dual tone audible alarm located in the cab. When activated by the troop transport alarm switch located in the cargo bed or dump body, the troop transport alarm alerts the driver to stop the vehicle.

b. Light Material Handling Crane (LMHC) (if equipped). Figure 2-30 shows LMHC controls and indicators.

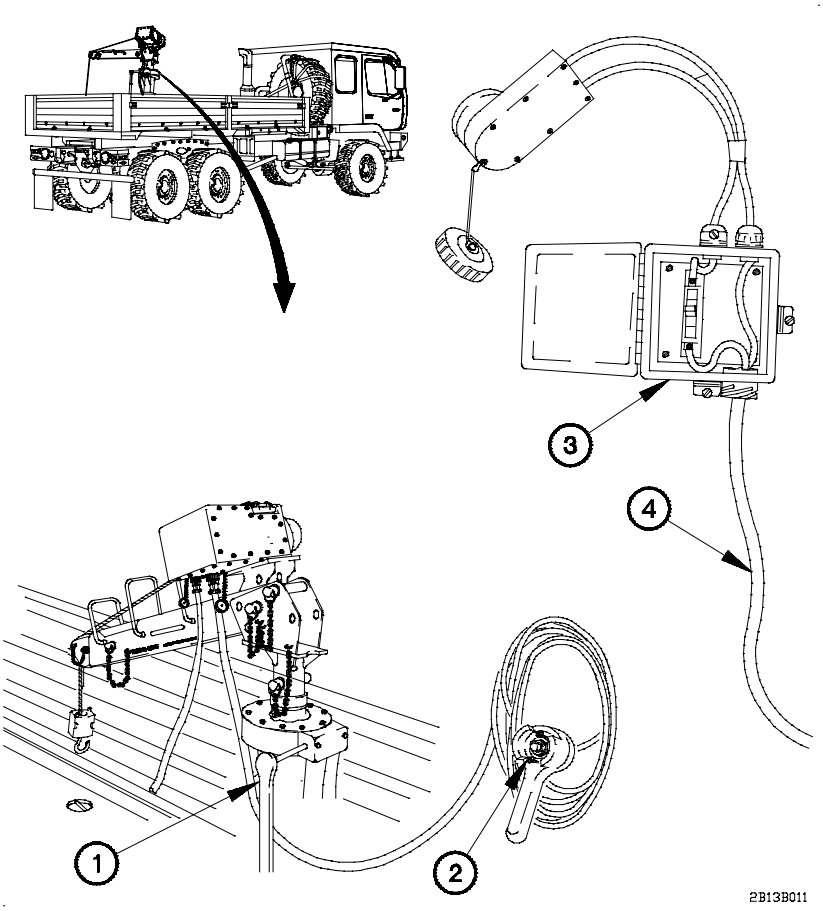


Figure 2-30. Light Material Handling Crane (LMHC)

1. **Swing Control.** Swings LMHC boom to right and left.
2. **Remote Hoist Control.** Remote control unit used to extend and retract hoist cable.
3. **Circuit Breaker Box.** Turns power on and off and protects LMHC from damage from overloads or electrical shorts.
4. **Power Cable.** Supplies power to circuit breaker box.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-14. PMCS INTRODUCTION

This section provides information to guide the vehicle Operator/Crew in performing required PMCS functions. Table 2-1. Preventive Maintenance Checks and Services lists and describes PMCS procedures applicable to all models of the vehicle and specifies maintenance intervals to ensure that the vehicle is ready to perform the intended mission. Tables 2-2 through 2-8 list and describe PMCS procedures applicable to specific models of the vehicle and specify maintenance intervals to ensure that the vehicle is ready to perform the intended mission.

2-15. PMCS PROCEDURES

a. General. Tables 2-1 through 2-8. Preventive Maintenance Checks and Services (Operator/Crew PMCS) are provided so you can keep your vehicle in good operating condition and ready for the primary mission.

b. Warnings and Cautions. Always observe the WARNINGS and CAUTIONS appearing in your PMCS table. WARNINGS and CAUTIONS appear before applicable procedures. You must observe these WARNINGS and CAUTIONS to prevent serious injury to yourself and others or prevent your vehicle from being damaged.

c. Explanation of Table Entries.

(1) Item Number Column. Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the Item Number for the Check/Service indicating a fault. Item Numbers also appear in the order that you must perform Checks and Services for the intervals listed.

(2) Interval Column. This column tells you when you must perform the procedure in the procedure column. BEFORE procedures must be performed before you operate or use the vehicle. DURING procedures must be performed during operation of the vehicle. AFTER procedures must be performed immediately after you have operated the vehicle. Weekly procedures must be performed every seven days. Monthly procedures must be performed approximately every 30 days.

(3) Location Item to Check/Service Column. This column provides the location and the Item(s) to be checked or serviced.

(4) Procedure Column. This column provides the procedure to check or to service the item(s) listed in the check/service column.

(5) Not Fully Mission Capable If: Column. This column tells you what faults will keep your vehicle from being capable of performing the primary mission. If you perform check and service procedures that show faults listed in this column, do not operate the vehicle. Follow standard operating procedures for maintaining the vehicle or reporting equipment failure.

d. Other Table Entries. Be sure to observe all special information and notes that appear in the table.

e. Shortened Intervals. Shorten intervals if operating the equipment under adverse conditions, including longer than usual operating hours. An asterisk will come before the Interval. A footnote will explain the asterisk and the reason for the shortened Interval.

f. Weekly Intervals. When a Check/Service procedure is required for both WEEKLY and BEFORE Intervals, you do not have to perform the procedure twice if the vehicle has been operated during the week.

g. Leakage Criteria. Leakage Criteria is included in the "Not Fully Mission Capable If:" Column.

2-16. GENERAL MAINTENANCE INSTRUCTIONS

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. 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. Failure to comply may result in injury to personnel.

a. Cleanliness. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use Dry Cleaning Solvent (Item 19, Appendix D) on metal surfaces where directed.

b. Bolts, Nuts, and Screws. Check bolts, nuts, and screws for obvious looseness, and missing, bent, or broken conditions. Look for chipped paint, bare metal, or rust around bolt heads. If any part seems loose, tighten it or notify Unit Maintenance.

c. Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If a bad weld is found, notify Unit Maintenance.

d. Electrical Wires and Connections. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and make sure wires are in good shape. If a bad wire or connector is found, notify Unit Maintenance.

2-16. GENERAL MAINTENANCE INSTRUCTIONS (CONT)

e. Hydraulic Lines and Fittings. Look for wear, damage, and leaks; make sure clamps and fittings are tight. Wet spots show leaks. A stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, notify Unit Maintenance.

f. Damage. Damage is defined as any condition that affects safety or would make the vehicle unserviceable for mission requirements.

2-17. FLUID LEAKAGE

It is necessary to know how fluid leakage affects the status of fuel, oil, coolant, and hydraulic systems. The following are definitions of the different types of leakage that can determine the status of the vehicle. Learn, then be familiar with them, and REMEMBER-WHEN IN DOUBT, NOTIFY UNIT MAINTENANCE!

CAUTION

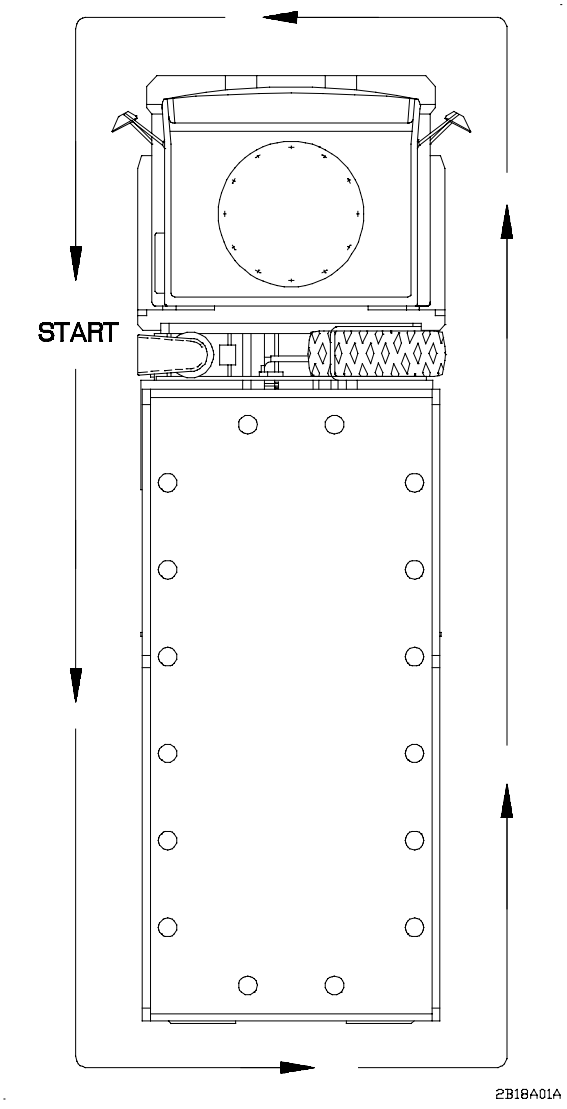
- Equipment operation is allowable with minor leakage (Class I or Class II). Fluid levels of items with Class I and Class II leaks must be checked often so proper levels can be kept. Consideration must be given to the fluid capacity in the item/system being checked/inspected. Failure to comply may result in damage to equipment.
- Class III leaks must be reported to Unit Maintenance. Failure to comply may result in damage to equipment.

Fluid leakage is classified and defined as follows:

CLASSIFICATION	IDENTIFICATION
Class I	Seepage of fluid (indicated by wetness or discoloration) not great enough to form drops.
Class II	Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being inspected.
Class III	Leakage of fluid great enough to cause drops to drip from item being checked.

2-18. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (ALL MODELS)

Refer to Table 2-1. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures on all models of the vehicle. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-1.



PMCS ROUTING DIAGRAM

Table 2-1. Preventive Maintenance Checks and Services (All Models)

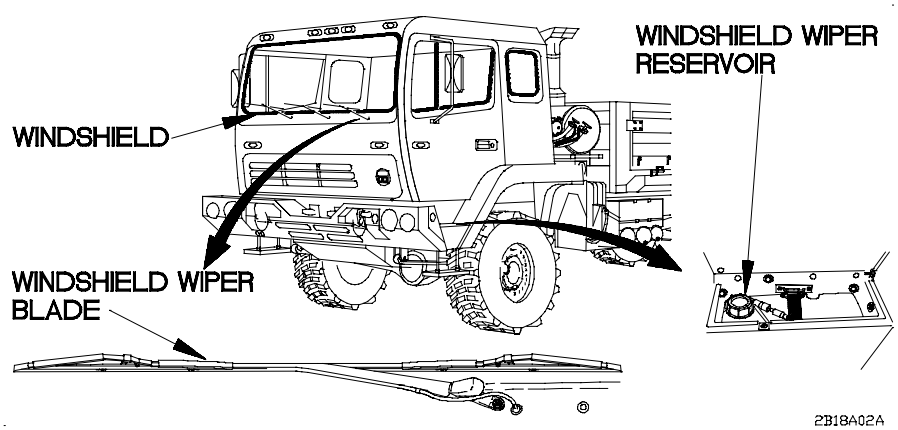
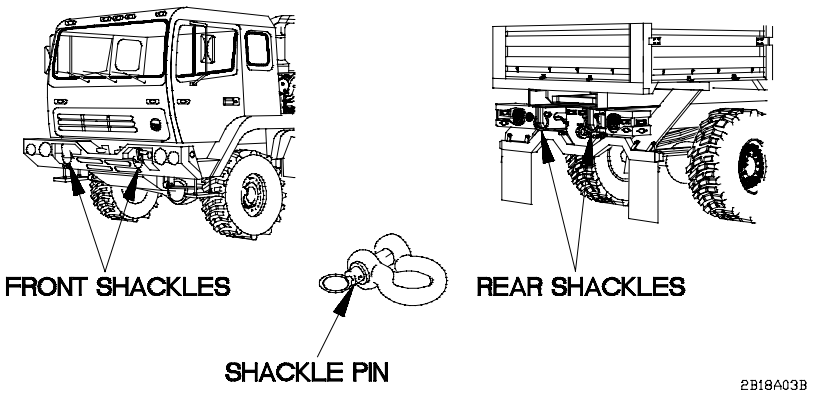
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
NOTE Operating the vehicle with damaged windshield may violate AR 385-55.				
1	Before	Windshield, Windshield Wipers, and Washer Reservoir	**a.** Check windshield for damage that would impair Operator's vision. **b.** Check for missing or damaged windshield wiper blade. Notify Unit Maintenance if windshield wiper blade is missing or unserviceable. **c.** Check windshield washer reservoir fluid level. Add windshield washer fluid as required (Appendix F).	**a.** Windshield is cracked sufficiently to impair Operator's vision.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



1.1	Before	Front and Rear Shackles	Check that shackle pins are not loose.	
2	Before	Exterior of Vehicle	Look under vehicle for signs of fluid leakage (fuel, oil, and coolant).	Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

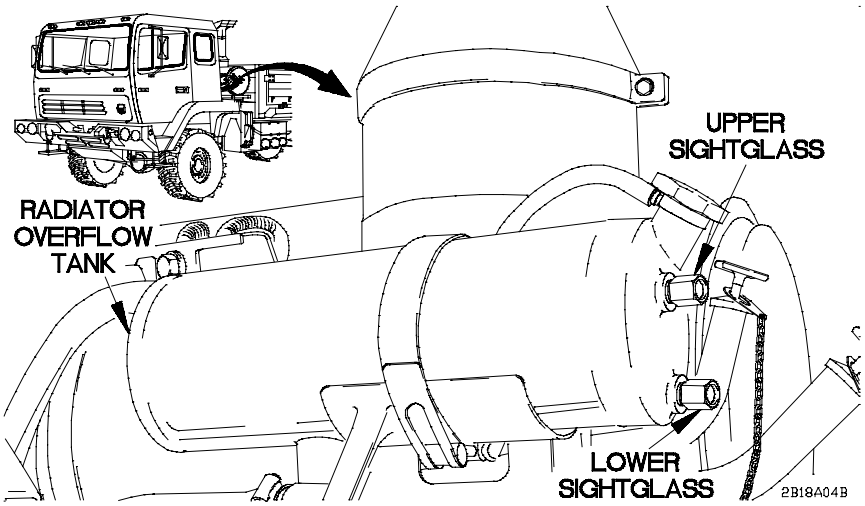
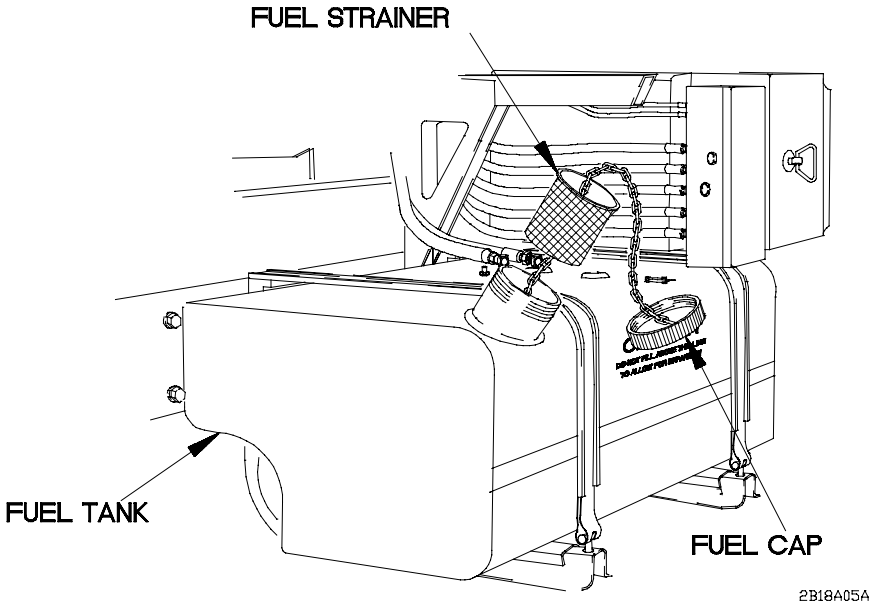
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING • **Extreme care should be taken when removing coolant fill cap if temperature gage reads above 180°F (82°C). Contact with steam or hot coolant under pressure may result in injury to personnel.** • **Pressure in coolant reservoir must be released before removing cap. Failure to comply may result in injury to personnel.**	
3	Before	Coolant	**a.** Check coolant level. Coolant level should be between upper sightglass and lower sightglass on radiator overflow tank with engine not running. Add coolant as required (Appendix F).	**a.** Coolant level below lower sightglass.
	Before	Coolant	**b.** Check for oil in coolant.	**b.** If engine oil is present, Notify Unit Maintenance.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



WARNING

Diesel fuel is flammable. Do not fill fuel tank with engine running, while smoking, or when near an open flame. Never overfill tank or spill fuel. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

4	Before	Fuel Tank	**a.** Remove fuel cap and fuel strainer. **b.** Check for presence of fuel in fuel tank. **c.** Install fuel strainer and fuel cap.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

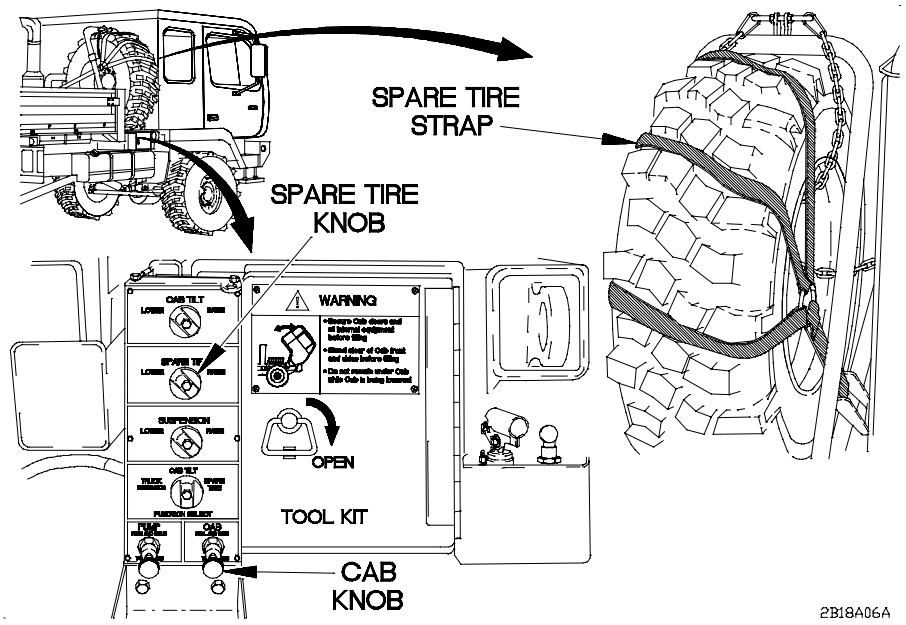
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
5	Before	Spare Tire Strap	**a.** Check that spare tire strap is tight. **b.** Check that spare tire strap is not torn, frayed, or damaged. **c.** Check that SPARE TIRE knob is in RAISE position. **d.** Check that CAB knob (Air Springs) is pushed in. If not, push knob in and turn to right.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

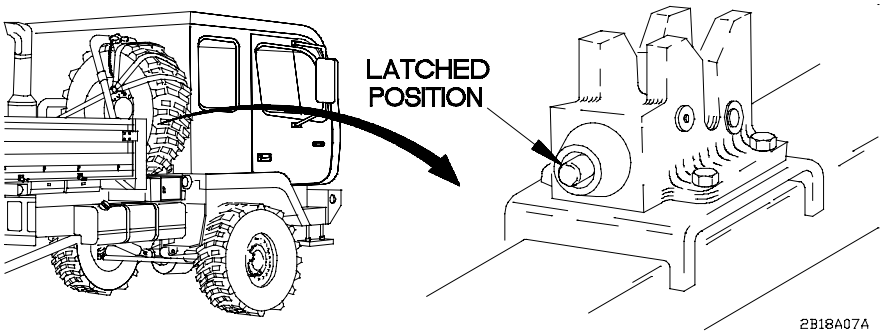
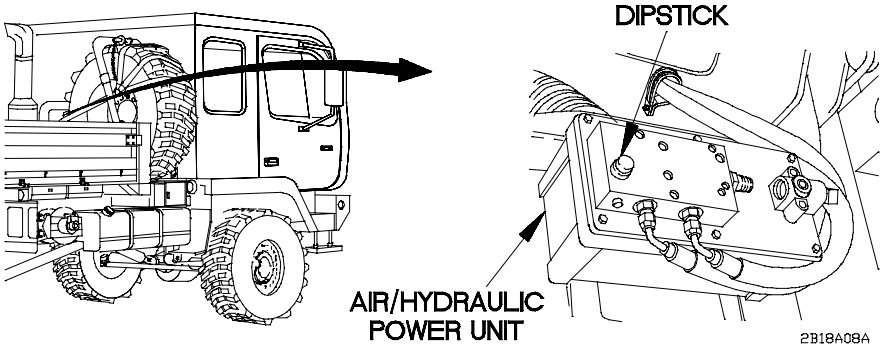
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
6	Before	Cab Hydraulic Latch	Check that cab hydraulic latch indicator button is in the latched position.	If cab will not securely latch.
				
7	Before	Air/Hydraulic Power Unit	Check oil level on dipstick. Add oil as required (Appendix F).	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

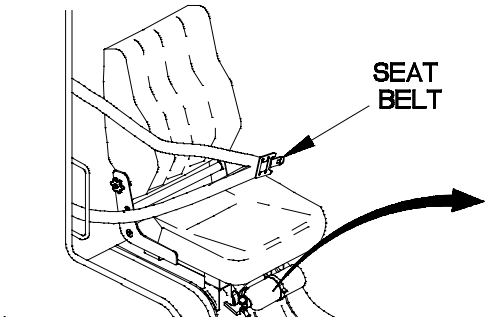
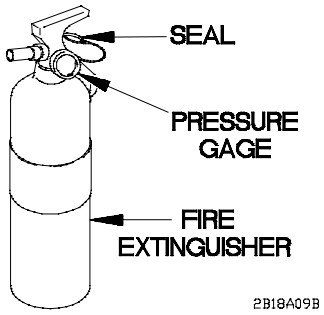
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
		 		
		NOTE • Operating the vehicle with inoperative seat belts may violate AR 385-55. • If vehicle mission requires three personnel, all three seat belts are required to be in good working condition.		
8	Before	Seat Belts	Check all three seat belts for security, damage, and proper operation (para 2-7).	Drivers seat belt and at least one other seat belt not in good working condition.
9	Before	Driver's Seat	Check operation of forward/backward adjustment control.	Forward/ backward adjustment is broken or missing.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
10	Before	Fire Extinguisher	**a.** Check for missing or damaged fire extinguisher. **b.** Check that fire extinguisher pressure is approximately 150 psi (1,034 kPa).	**a.** Fire extinguisher is damaged or missing. **b.** Fire extinguisher pressure gage needle is within discharge band. **c.** Seal is missing.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

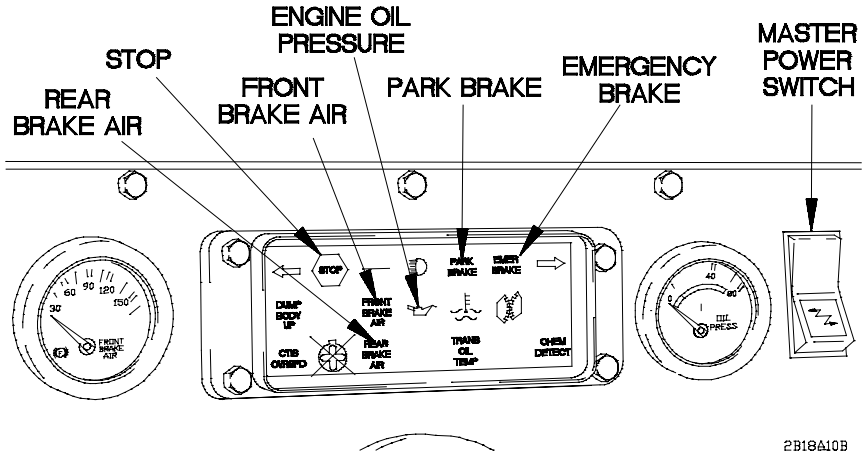
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE PARK BRAKE and EMERGENCY BRAKE indicators will not illuminate if SYSTEM PARK control is not pulled out. REAR BRAKE AIR and FRONT BRAKE AIR indicators will not illuminate if air system pressure exceeds 65 psi (448 kPa).	
11	Before	Lighted Indicator Display	**a.** Position master power switch to on. **b.** Check that the following indicator lights are illuminated: 1. STOP 2. PARK BRAKE 3. EMERGENCY BRAKE 4. REAR BRAKE AIR 5. FRONT BRAKE AIR 6. ENGINE OIL PRESSURE	**b.** Any of the listed indicator lights is not illuminated.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

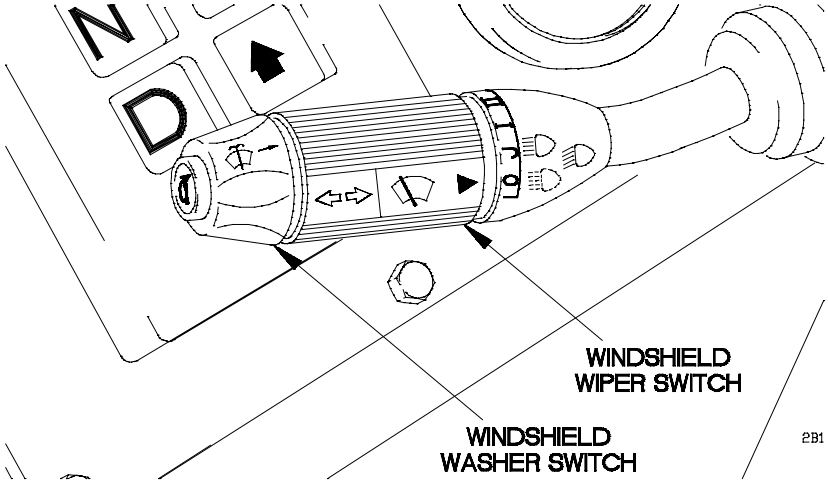
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
11.1	Before	Windshield, Windshield Wipers, and Washer Reservoir (Cont)	**d.** Check windshield washer switch for proper operation. Notify Unit Maintenance if windshield washer switch is inoperative. **e.** Check windshield wiper switch for proper operation. Notify Unit Maintenance if windshield wiper switch is inoperative.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

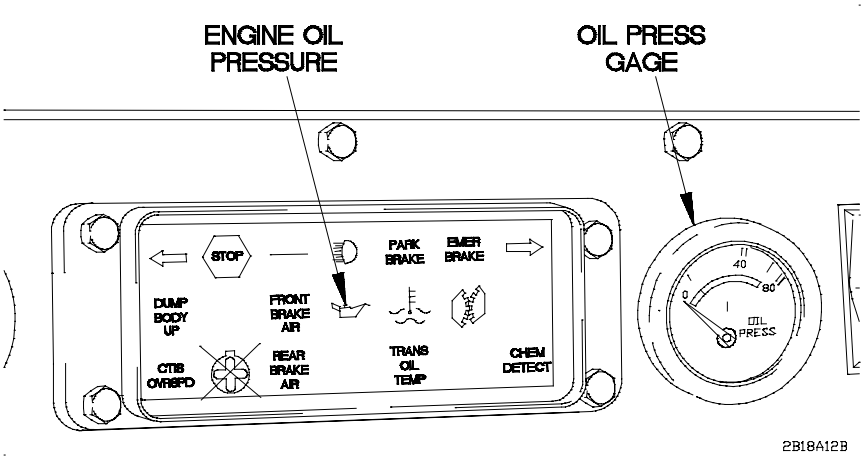
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			CAUTION If engine oil pressure indicator does not illuminate momentarily, or illuminates and stays on, vehicle is not fully mission capable. Failure to comply may result in damage to equipment.	
			NOTE If OIL PRESS gage reads in red zone (0-7 psi) (0-48 kPa) and engine oil pressure indicator is not illuminated, shut down engine, then restart engine. Indicator should illuminate momentarily to indicate proper function. If engine oil pressure indicator illuminates and then goes out, continue with the mission.	
12	Before	OIL PRESS Gage	**a.** Start engine (para 2-27a or b).	**a.** Gage indicates in red zone and engine oil pressure indicator is illuminated.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

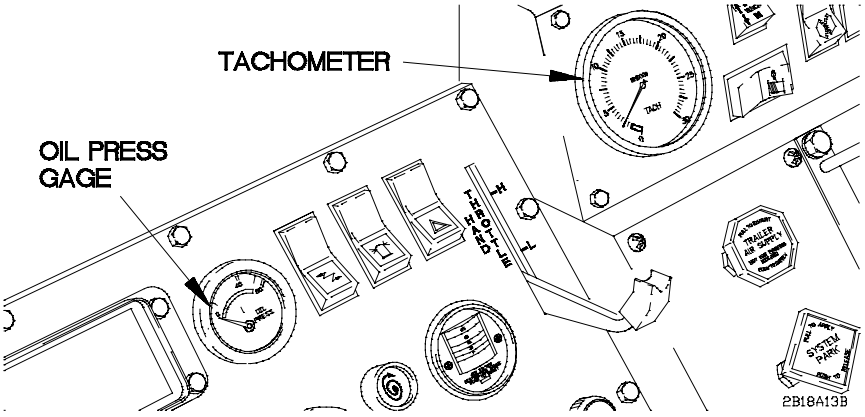
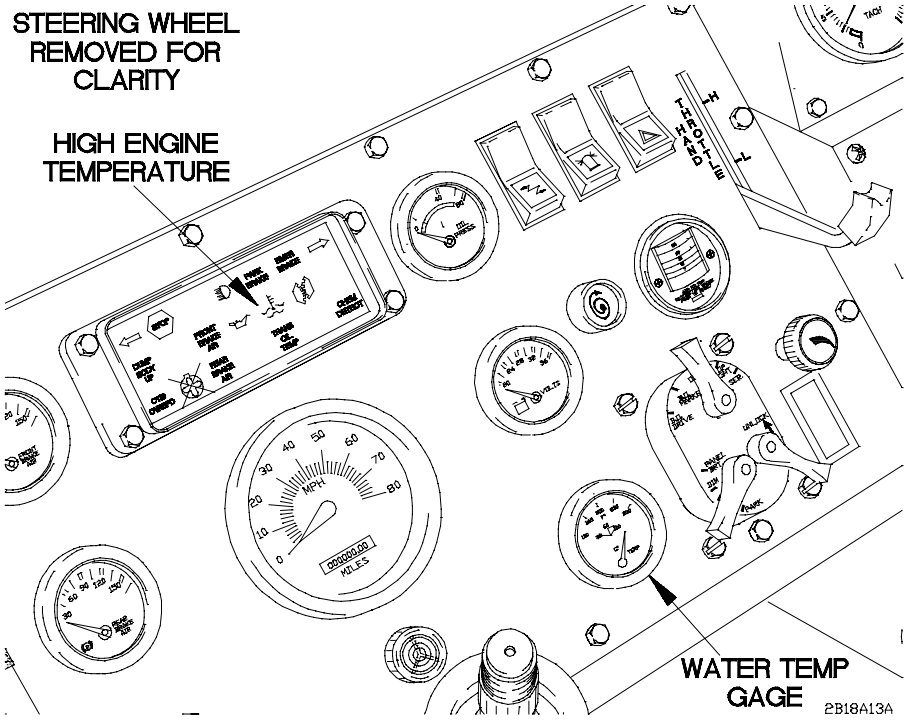
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE • Oil pressure will increase when engine speed increases and will decrease when engine speed decreases. • Engine oil pressure will be lower when engine is at maximum operating temperature (WATER TEMP gage reads 230°F) (110°C).	
12	Before	OIL PRESS Gage (Cont)	**b.** Check that engine OIL PRESS gage indicates between 15-80 psi (103-552 kPa).	**b.** Gage indicates less than 15 psi (103 kPa).
			NOTE Perform check (13) only if vehicle is equipped with tachometer.	
13	Before	Tachometer	Check that tachometer indicates between 750-850 rpm while engine is at idle. If tachometer indicates engine rpm outside of 750-850 rpm range, notify Unit Maintenance.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



NOTE

- At idle, WATER TEMP gage may not reach 160°F (71°C).
- If high engine temperature indicator is illuminated and WATER TEMP gage reads 160°-230°F (71°-110°C) and engine fan is NOT running continuously, continue with the mission.

14	Before	WATER TEMP Gage	Check that WATER TEMP gage indicates between 160°-230°F (71°-110°C).	WATER TEMP gage indicates in red zone and high engine temperature indicator is illuminated.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

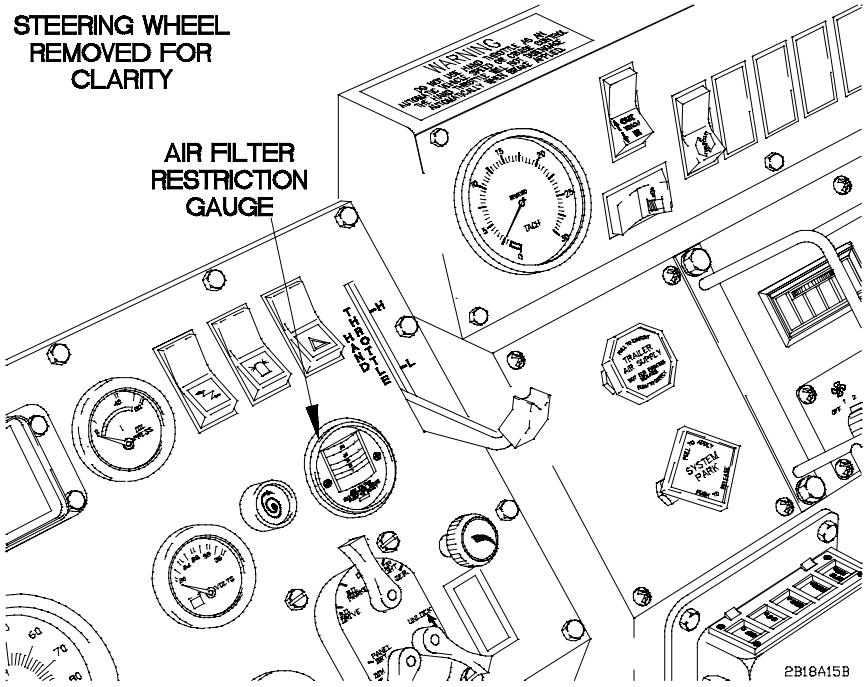
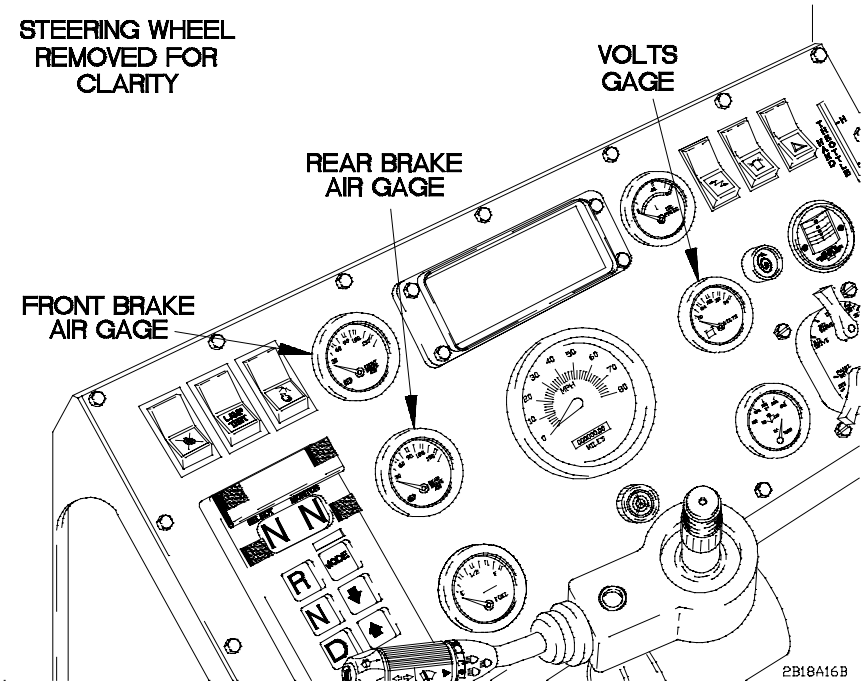
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
15	Before	AIR FILTER RESTRIC-TION GAUGE	Check AIR FILTER RESTRICTION GAUGE. Press reset button if gauge reads greater than 25 in. (in red area). If gauge still reads in red area after reset button is pressed, shut down engine and service air filter (para 3-9). Start engine (para 2-27a or b). Notify Unit Maintenance if gauge still reads in red area.	AIR FILTER RESTRICTION GAUGE reads greater than 25 in. (in red area).

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



16	Before	FRONT BRAKE AIR and REAR BRAKE AIR Gages	Check that FRONT BRAKE AIR and REAR BRAKE AIR gages read between 65-120 psi (448-827 kPa).	Either gage indicates less than 65 psi (448 kPa), FRONT BRAKE AIR or REAR BRAKE AIR indicators illuminate, or low air alarm sounds.
17	Before	VOLTS Gage	Check that VOLTS gage reads between 26 and 30 volts.	VOLTS gage indicates more than 30 volts or less than 26 volts.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

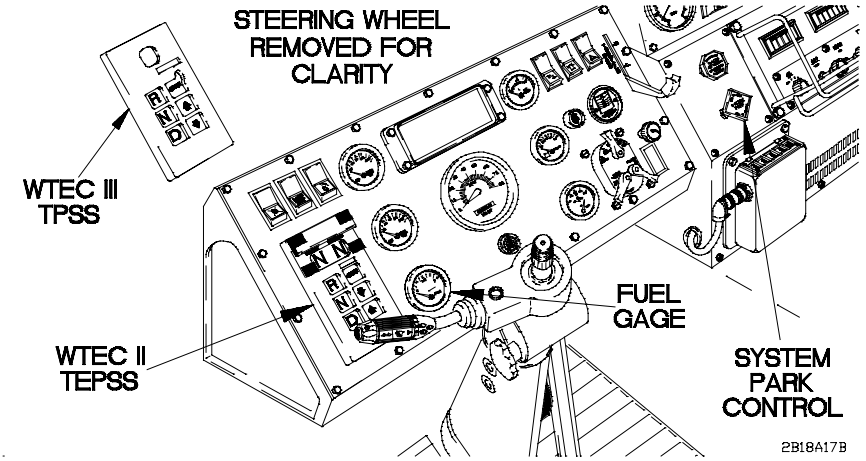
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
18	Before	FUEL Gage	Check FUEL gage for proper operation. Compare FUEL gage reading with observed level of fuel in fuel tank (from Item No 4).	
			CAUTION Check SYSTEM PARK control while vehicle is stopped. Failure to comply may result in damage to equipment.	
19	Before	SYSTEM PARK Control	**a.** Pull out SYSTEM PARK control. **b.** Set WTEC II TEPSS or WTEC III TPSS to any forward gear (para 2-27e) while engine is at idle (approximately 750 rpm). Vehicle should not move.	**b.** Vehicle moves with SYSTEM PARK control on.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

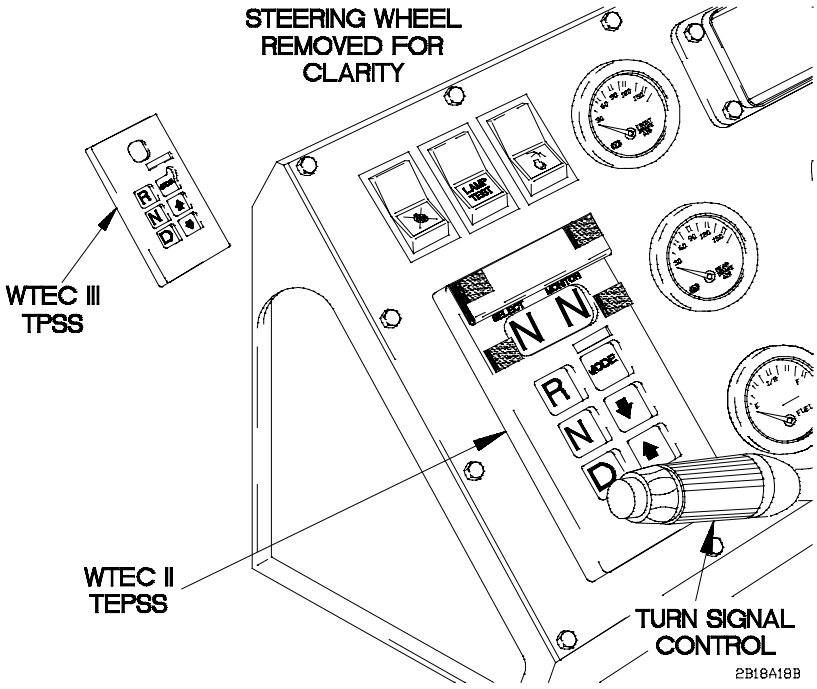
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
20	Before	WTEC II TEPSS or WTEC III TPSS	Check that WTEC II TEPSS or WTEC III TPSS operates properly in all gears (para 2-27e).	One gear range does not operate properly or LED display indicates service message which cannot be reset.
21	Before	Turn Signal Control	Check turn signal control and indicators for proper operation.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

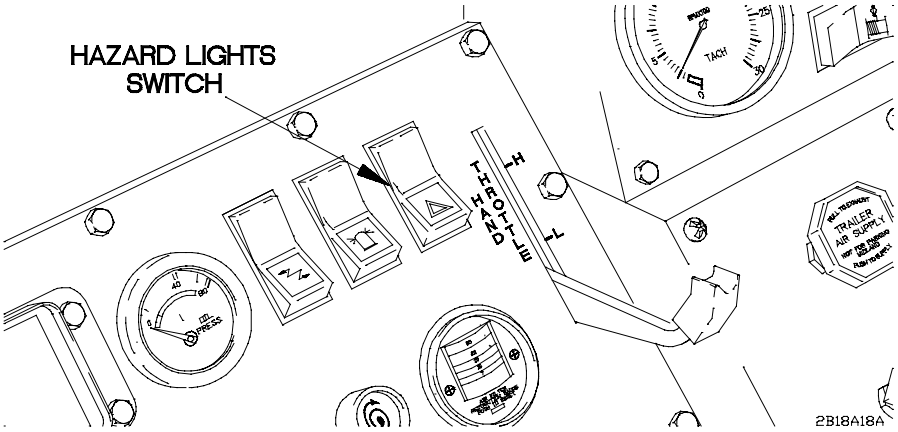
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Checking condition of hazard lights switch is a safety task that would not be performed in a tactical mission. See AR 385-55.	
22	Before	Hazard Lights Switch	Check hazard lights switch for proper operation.	
			CAUTION All gages must maintain normal readings as listed in BEFORE checks during vehicle operation. Operating the vehicle for an extended period of time with any of the gages reading outside of normal limits may result in damage to equipment.	
23	During	Controls and Indicators	Monitor all gages, warning lights, and warning buzzers during operation.	Warning lights or buzzers indicate a malfunction and immediate corrective action by the Operator will not correct the problem.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

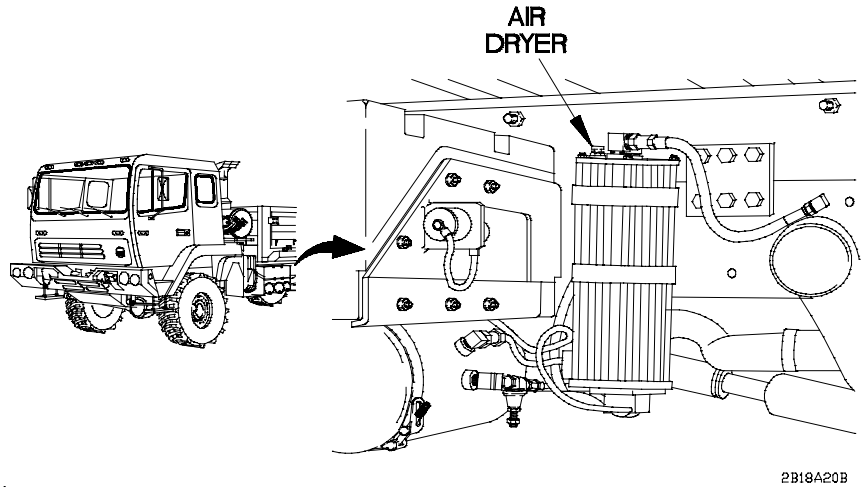
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
24	During	Engine Operation	Check for excessive exhaust smoke, unusual engine noise, rough running, or misfiring engine.	Any of these conditions are found.
25	During	CTIS	Check operation of CTIS (para 2-30).	
				
			NOTE Sound of air dryer discharging is normal.	
26	During	Air Dryer	Listen for air dryer discharge when system air pressure reaches approximately 120 psi (827 Kpa).	
27	During	Steering	Check for any unusual steering noise, binding, or difficulty in turning during operation.	Steering binds or is unresponsive.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

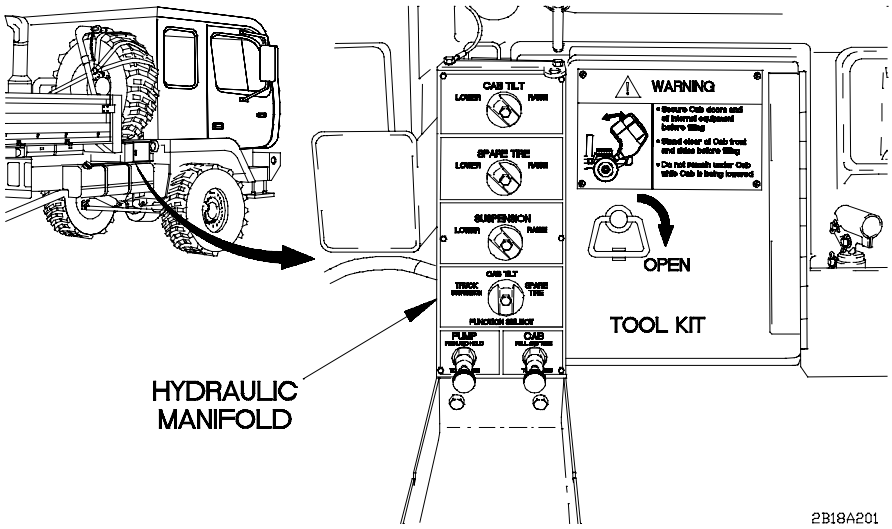
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
28	During	Service Brakes	**a.** Check to see if service brakes stop vehicle. **b.** Check if service brakes pull vehicle to one side when applied. **c.** Listen for unusual noises (chattering, grinding, groaning, or excessive squealing) during braking. Notify Unit Maintenance if unusual noises are present.	**a.** Service brakes do not stop vehicle. **b.** Vehicle pulls to one side when service brakes are applied.
					
29	After	Hydraulic Manifold	Inspect hydraulic manifold for leakage.	Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

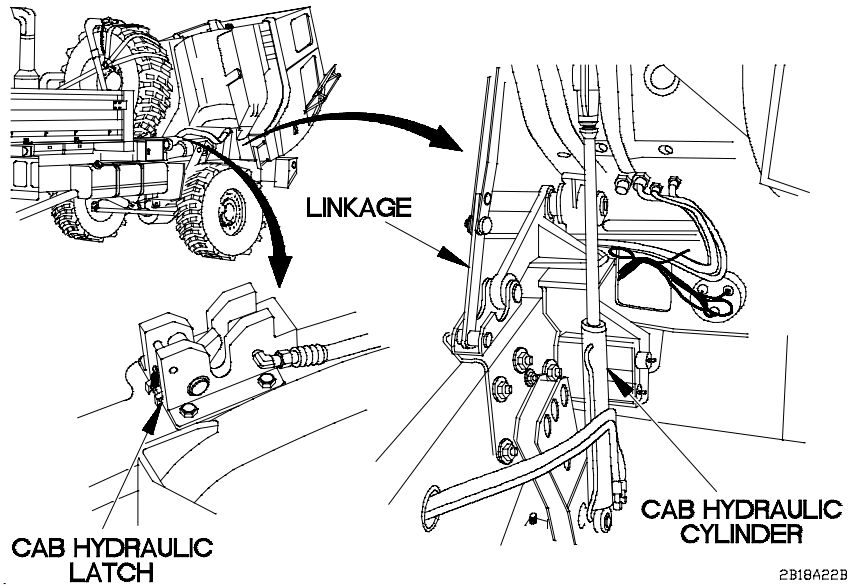
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
30	After	Cab Hydraulic Cylinder	**a.** Raise cab (para 2-28a). **b.** Check cab hydraulic cylinder for oil leaks or damage. **c.** Check linkage for damage and missing hardware.	**b.** Class III leak is evident or cab will not raise or lower. **c.** Linkage is damaged or missing hardware.
31	After	Cab Hydraulic Latch	Check cab hydraulic latch for damage and hoses for oil leaks.	Class III leak is evident and cab will not latch.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

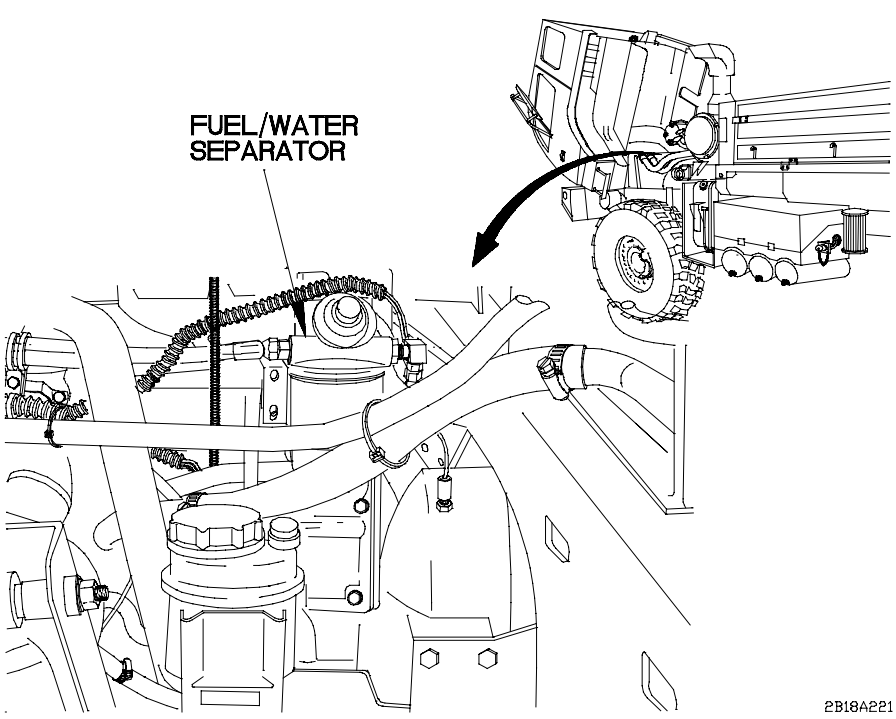
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Do not perform fuel/water separator checks, inspections, or draining while smoking, or when near fire or sparks. Fuel could ignite. Failure to comply may result in serious injury or death to personnel.**	
			NOTE Operating the vehicle with damaged fuel/water separator may violate AR 385-55.	
32	After	Fuel/Water Separator	**a.** Check fuel/water separator for leaks or damage.	**a.** Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

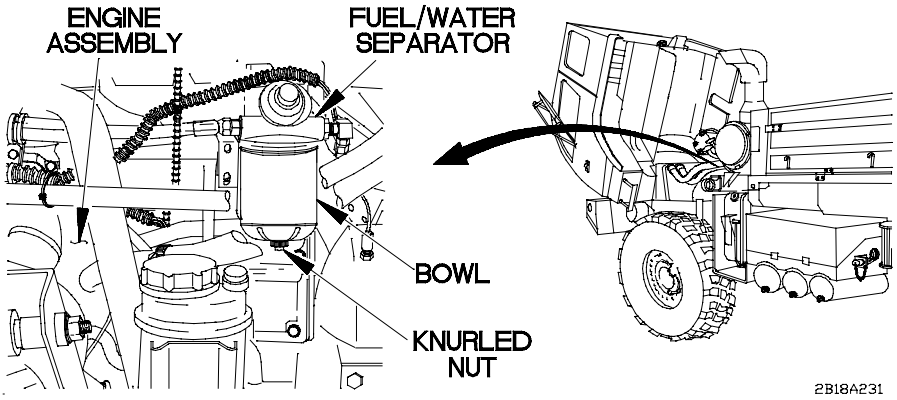
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Drain fuel into container.	
32	After	Fuel/Water Separator (Cont)	**b.** Check for presence of water in bowl of fuel/water separator. If there is water in bowl, perform the following steps: (1) Turn knurled nut to the left to open drain valve. (2) Keep draining until only pure fuel is coming out. (3) Close drain valve by turning knurled nut to the right.	
33	After	Engine Compart-ment	Visually inspect engine compartment for obvious damage that would impair operation.	Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

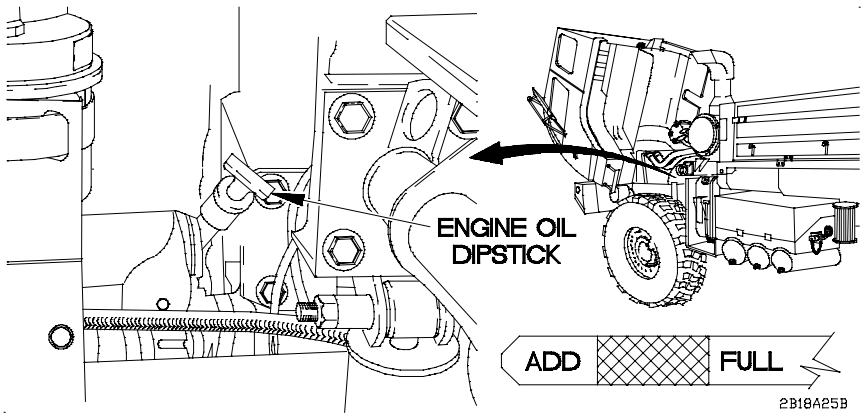
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Engine dipstick is located close to starter solenoid connectors which contain 24 vdc and high amperage. Use caution removing/installing engine dipstick to prevent shorting across starter solenoids when checking engine oil level. Failure to comply may result in serious injury or death to personnel or damage to equipment.**	
			CAUTION Do not overfill engine with oil. Failure to comply may result in damage to equipment.	
34	After	Engine Oil	**a.** Check engine oil dipstick for oil level. Level should be between ADD line and FULL line. **b.** Add oil as required (Appendix F). **c.** Lower cab (para 2-28b).	If engine oil is over FULL line, discolored, or milky, Notify Unit Maintenance.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

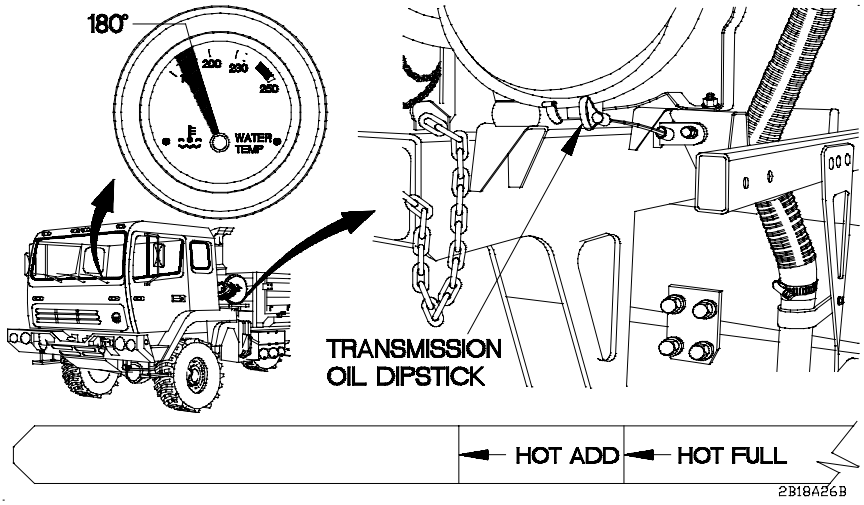
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Perform transmission oil check when engine is at normal operating temperature (160°F - 230°F (71°C - 110°C)).	
35	After	Trans-mission Oil	**a.** Start engine (para 2-27a or b). **b.** Check TRANSMISSION OIL DIPSTICK for transmission oil level. Level should be between HOT ADD line and HOT FULL line. **c.** Add oil as required (Appendix F). **d.** Shut down engine (para 2-27f).	If transmission oil is over HOT FULL line, discolored, or milky, Notify Unit Maintenance.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

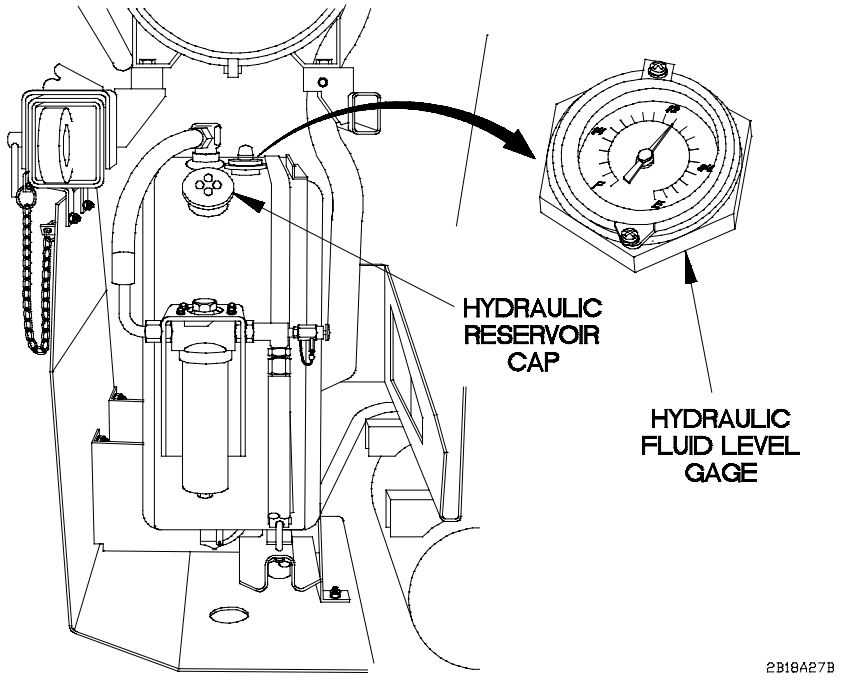
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE During a cold check, oil level gage should read two marks past 3/4 mark.	
36	After	Hydraulic Reservoir (If Equipped)	**a.** Check hydraulic fluid level (Appendix F).	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

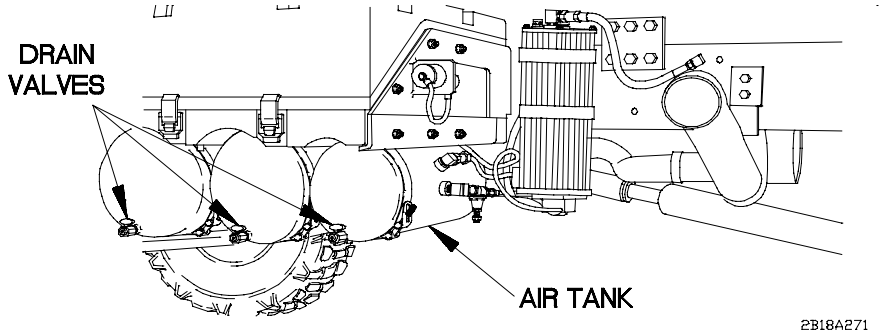
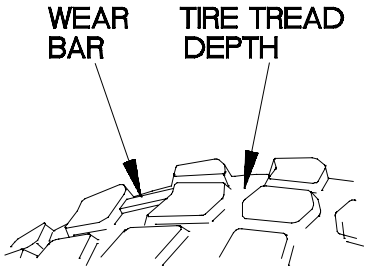
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
37	After	Air Tanks	**a.** With vehicle parked and engine shut down, listen for sound of air leaks around air tanks. **b.** Open air tank drain valves and drain moisture.	**a.** Air leak(s) heard around air tanks.
				
38	After	Tires	Check for missing or improperly inflated tires. Check tires for cuts, gouges, cracks, and unusual bulges. Remove any object that could penetrate tire(s).	Tire missing, deflated, or worn to wear bar.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

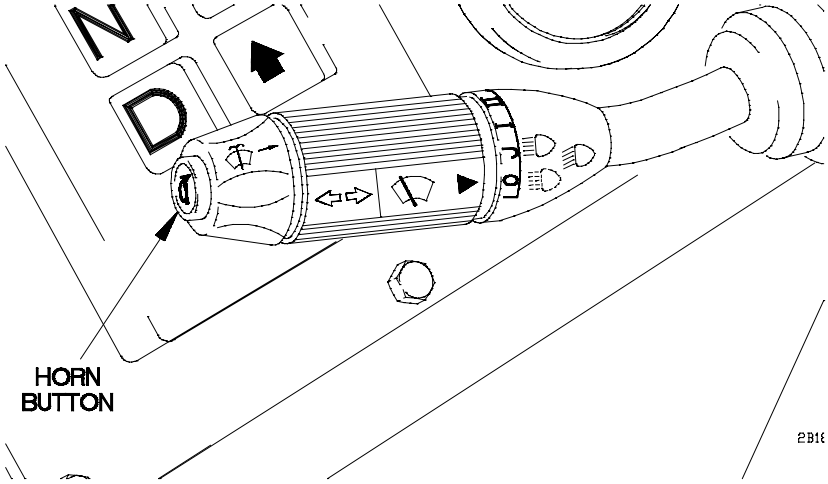
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Checking condition of horn is a safety task that would not be performed in a tactical mission. See AR 385-55.	
39	After	Horn Button	Check horn button for proper operation.	
			NOTE • Operating vehicle with damaged or inoperable headlights may violate AR 385-55. • Checking lights is a safety task that would not be performed in a tactical mission. See AR 385-55.	
40	After	Lights	Check headlights, turn signals, taillights, stoplights, marker lights, blackout drive, and blackout marker lights for damage and proper operation (para 2-27).	One or more headlights, turn signals, taillights, or stoplights are missing, damaged, or not operational.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

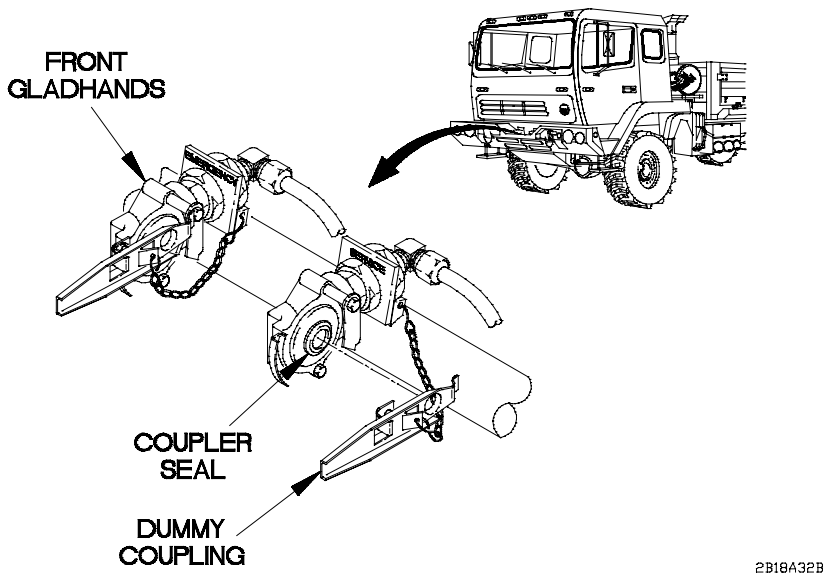
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			CAUTION Ensure all switches are placed in the OFF position. Batteries could discharge. Failure to comply may result in damage to equipment.	
41	After	Light Switches	Place all light switches in the off position (para 2-27).	
				
41.1	Weekly	Front Gladhands	a. Check front gladhands for damage and air leaks. b. Remove dummy couplings and check for obstructions. c. Inspect and lubricate coupler seals (Appendix F).	a. Air leaks are heard. b. Gladhands are obstructed. c. Coupler seals are faulty.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

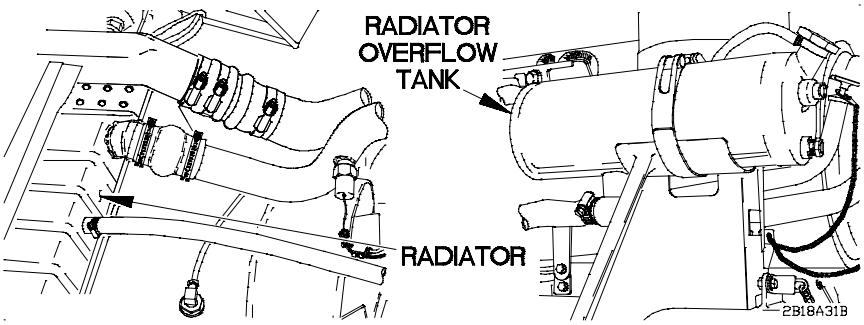
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
42	Weekly	Mounting/ Coupling Hardware and Hoses/ Tubes	Check bolts, nuts, clamps, hoses, lines, and tubes for looseness and missing, broken, or leaking conditions. Tighten loose bolts, nuts, and clamps. If bolts, nuts, clamps, hoses, or tubes are missing, broken, cannot be tightened, or damaged to the point of leaking, notify Unit Maintenance. The following should be checked: **a.** Coolant, including radiator overflow tank and radiator.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

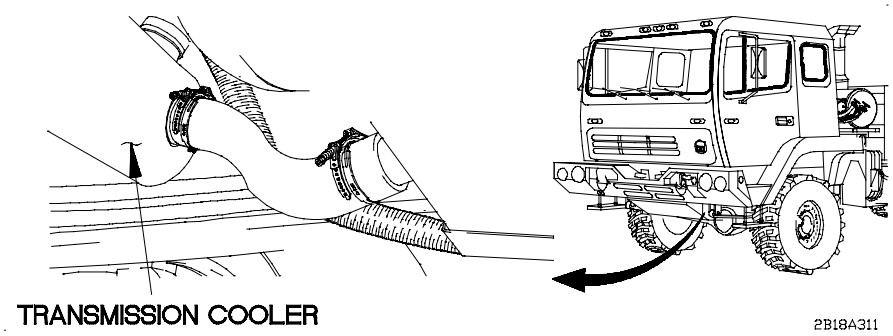
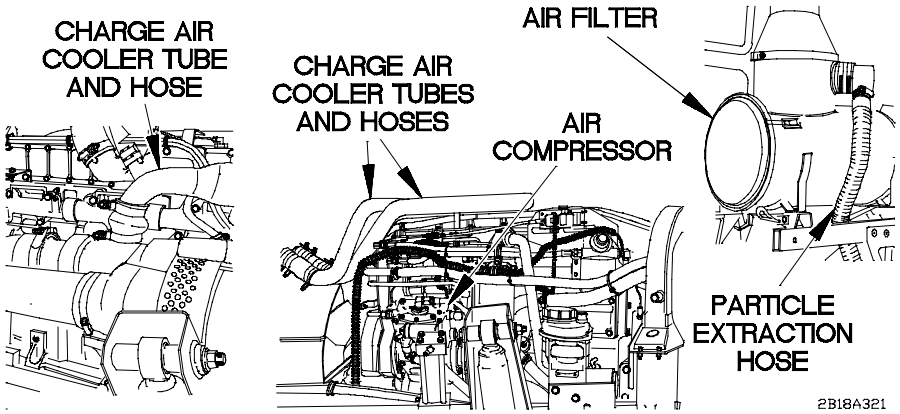
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
42	Weekly	Mounting/ Coupling Hardware and Hoses/ Tubes (Cont)	**b.** Transmission cooling system.	
				
			c. Air intake system, including air filter, particle extraction hose, charge air cooler tubes/hoses, and air compressor.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

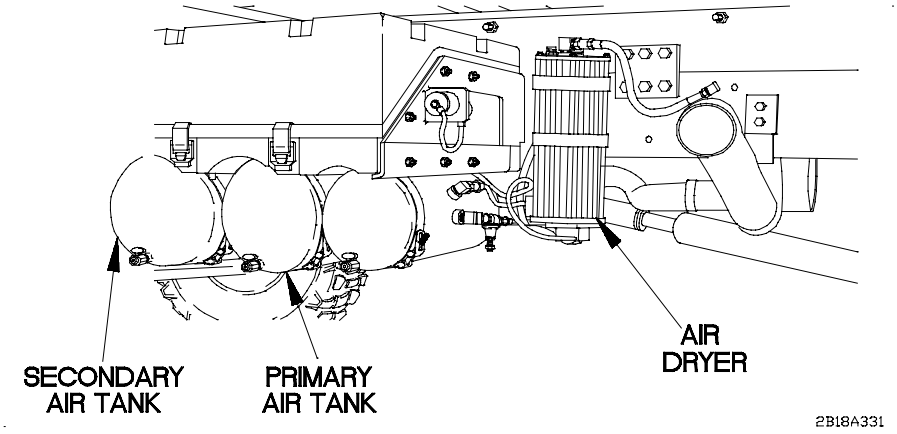
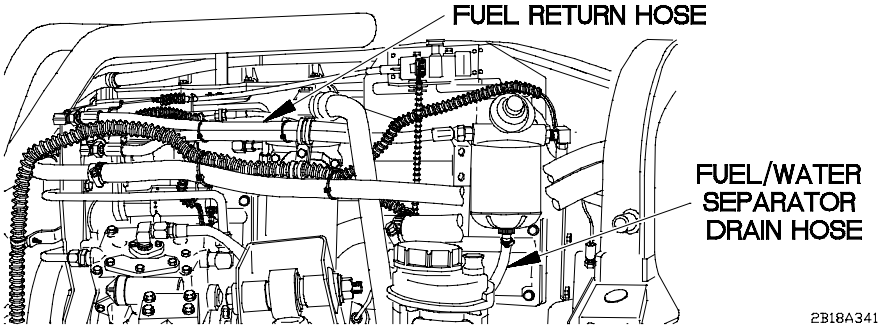
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
42	Weekly	Mounting/ Coupling Hardware and Hoses/ Tubes (Cont)	**d.** Air system, including air dryer and air tanks.	
				
			e. Fuel system, including fuel return hose and fuel/water separator drain hose.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

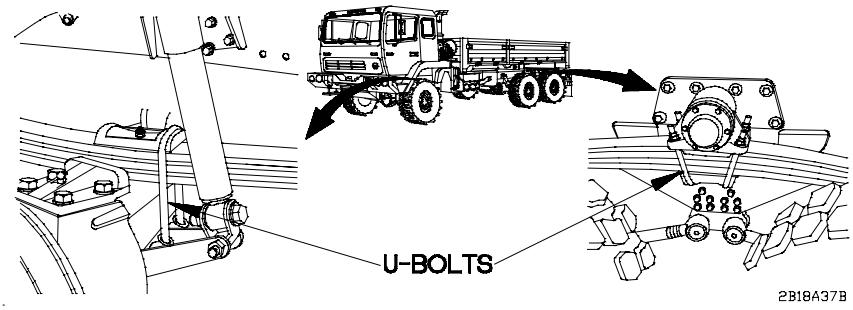
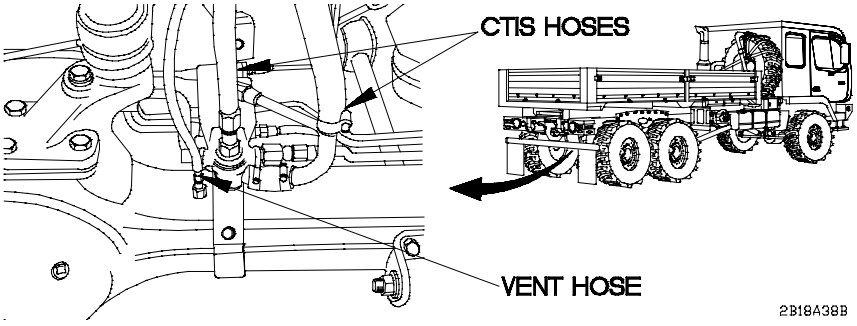
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
43	Weekly	Mounting/ Coupling Hardware and Hoses/ Tubes	Check nuts, bolts, clamps, hoses, and tubes for looseness and missing, broken, or leaking conditions. If damage is found, notify Unit Maintenance. The following should be checked: **a.** Suspension, including springs and U-bolts.	
				
			b. Axles, including vent hoses, CTIS hoses, and clamps.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

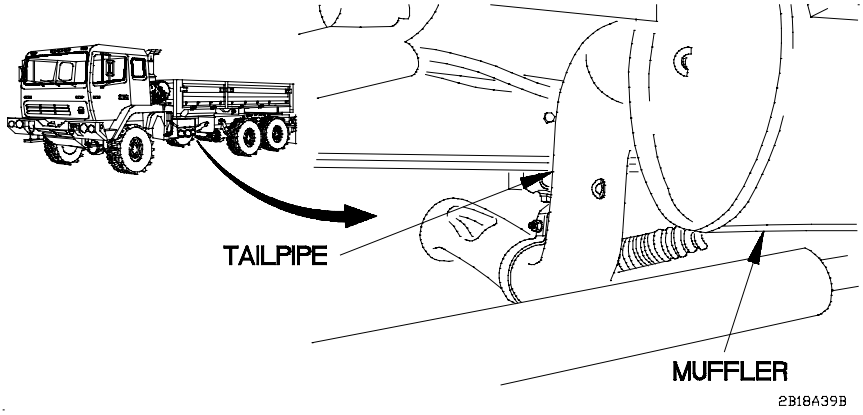
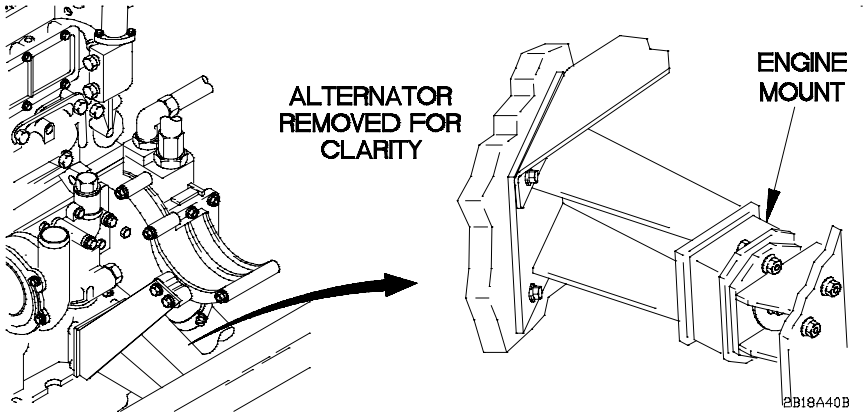
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
43	Weekly	Mounting/ Coupling Hardware and Hoses/ Tubes (Cont)	**c.** Exhaust system, including muffler and tailpipe.	
				
			d. Engine mounts (front).	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

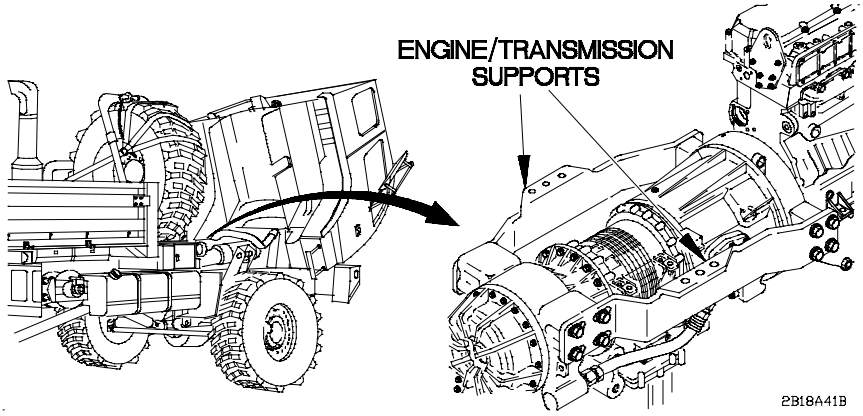
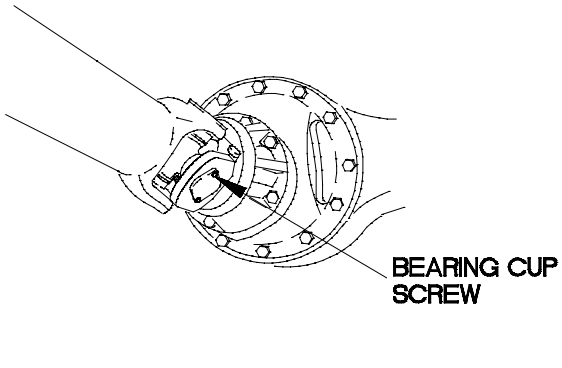
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
43	Weekly	Mounting/ Coupling Hardware and Hoses/ Tubes (Cont)	**e.** Engine/transmission supports (cradle mounts).	
				
			f. Drive shaft bearing cup screw.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			WARNING **Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.**	
44	Weekly	15K SRW Operation (If Equipped)	**a.** Check 15K SRW for proper operation in both directions (para 2-65).	
			b. Check cable for kinks, frays, and breaks. **c.** Check cable end for missing or damaged pin or cotter pin.	

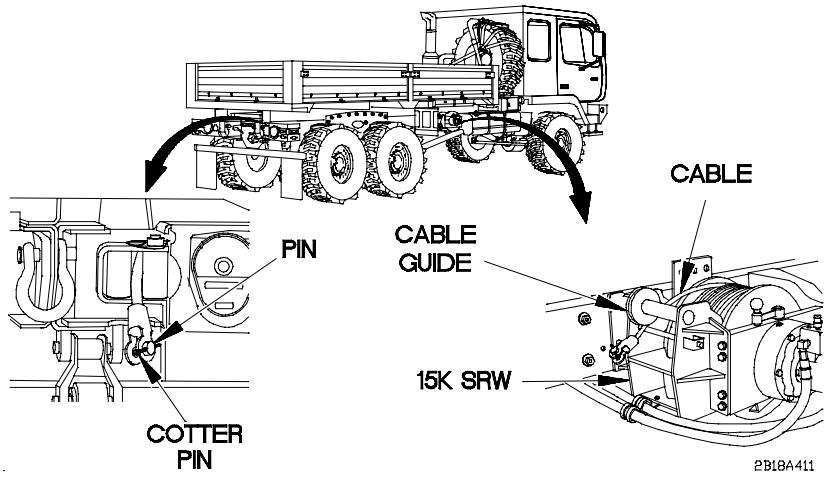


Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

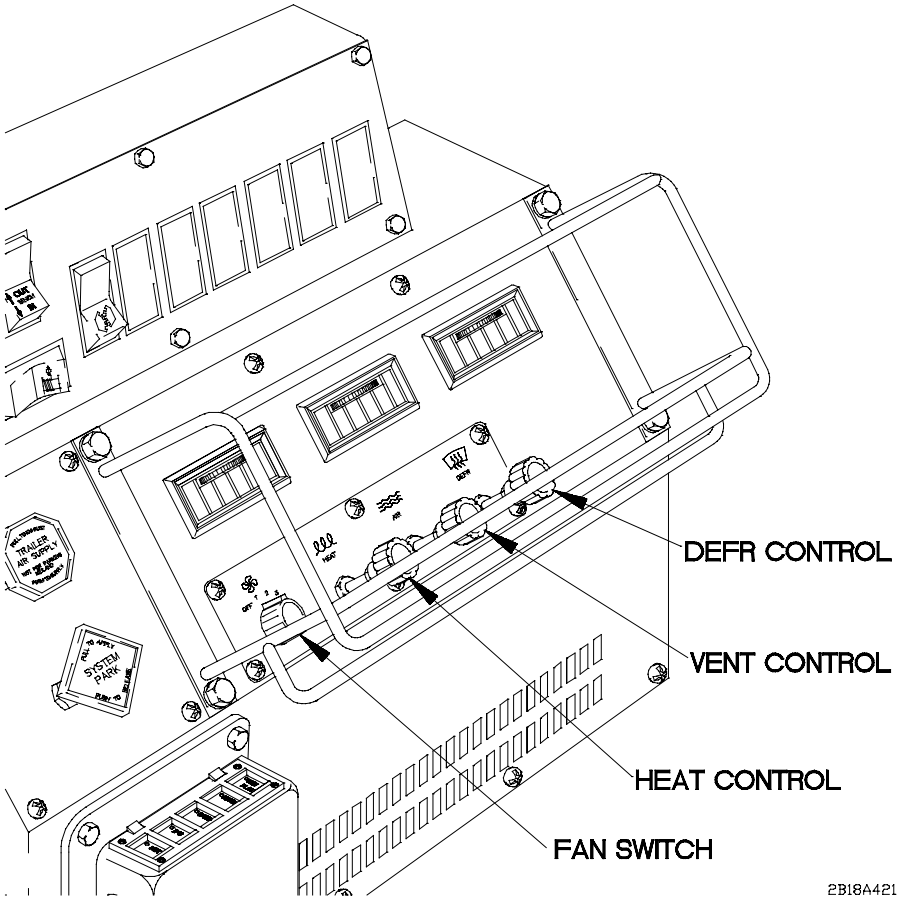
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
45	Weekly	Heater/ Defrost Controls	Check FAN switch, HEAT control, VENT control, and DEFR (defrost) control for proper operation (para 2-31).	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

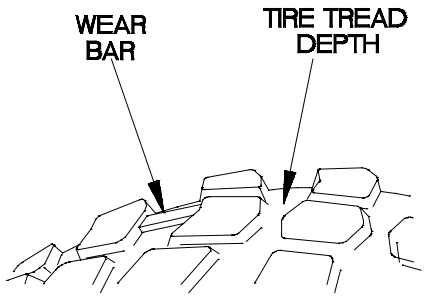
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 2B18A45B	
46	Weekly	Wheels and Tires	**a.** Check tire tread depth. Tread should not be worn beyond level of wear bar. **b.** Check wheel assembly for damage. If damaged, remove wheel and check wheel for cracked, broken, or bent surfaces.	**a.** Tire tread is worn even to height of tread bar (depth is 1/8 in. (3 mm) or less). Any cut, gouge, or crack that extends to cord body or any unusual bulges. **b.** Wheel is cracked, broken, or bent.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
46	Weekly	Wheels and Tires (Cont)	**c.** Check wheel studs and nuts for obvious looseness. Check for bent or broken studs and missing or loose nuts. Notify Unit Maintenance if any nuts are loose or missing or if any studs are broken or bent. **d.** Check tire pressures with tire gage for each CTIS setting. Notify Unit Maintenance if tire pressures are not within +/- 3 psi (21 kPa) of the values given below: **MODE** HWY 60 psi (414 kPa) X-C 37 psi (255 kPa) SAND 22 psi (152 kPa) EMER 16 psi (110 kPa) **for Models M1088/M1089:** HWY 81 psi (558 kPa) X-C 54 psi (372 kPa) SAND 32 psi (221 kPa) EMER 24 psi (165 kPa)	**c.** Two or more nuts or studs on same wheel are missing, loose, or broken.

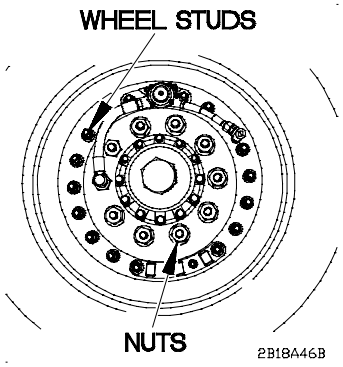


Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

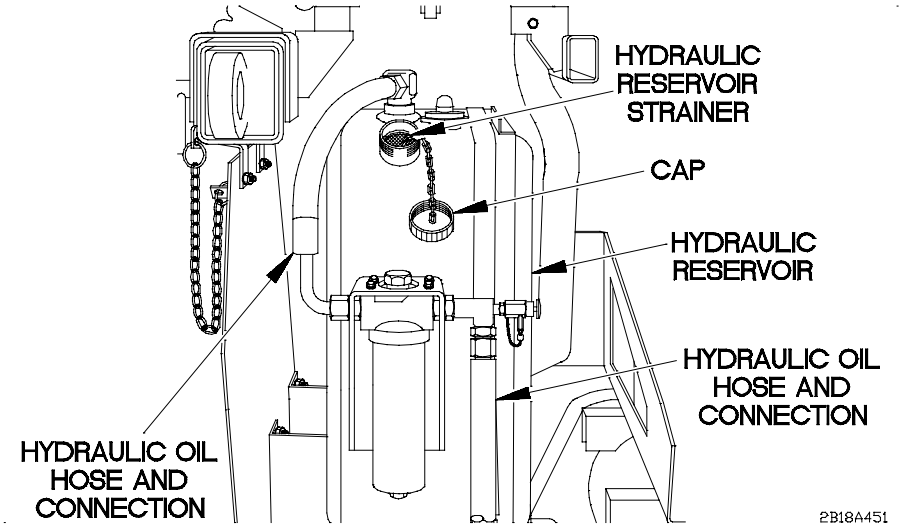
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
47	Weekly	Hydraulic Reservoir (If Equipped)	**a.** Check hydraulic reservoir, oil lines and connections for leaks and/or damage. **b.** Check for clogged, damaged, or missing hydraulic reservoir strainer. (1) Remove cap from hydraulic reservoir. (2) Wipe out inside of hydraulic reservoir strainer with clean rag. (3) Install cap on hydraulic reservoir.	**a.** Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

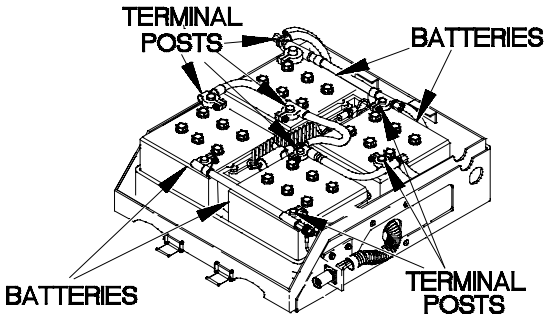
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING • **Lead-acid battery gases can explode. Do not smoke, have open flames, or make sparks around a battery, especially if caps are off. Battery may give off gas which can explode. Failure to comply may result in serious injury or death to personnel.** • **Remove rings, bracelets, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry may catch on equipment or may short across an electrical circuit or battery terminal. Failure to comply may result in serious injury or death to personnel.**	
			CAUTION When operating in outside temperatures above 90°F (32°C), battery fluid levels must be checked daily. Failure to comply may result in damage to equipment.	
48	Weekly	Batteries	**a.** Open battery cover (para 3-8a). **b.** Check for damaged casing, terminal posts, and security of mounting. Check that cable clamps are secure. Notify Unit Maintenance if defects are found.	**b.** One or more batteries are missing, unserviceable, or leaking. Battery cable clamps are loose.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

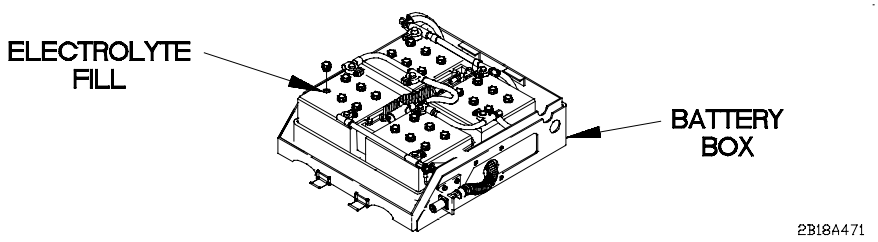
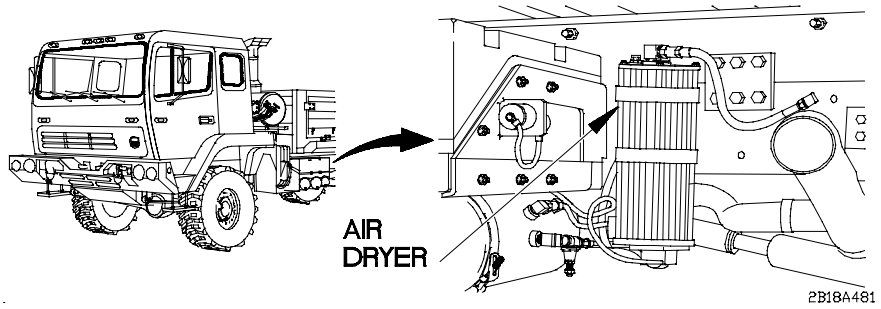
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
48	Weekly	Batteries (Cont)	**c.** Test battery fluid level (para 3-8b). If fluid level is low notify Unit Maintenance. If fluid is gassing (to boiling), notify Unit Maintenance. **d.** Check battery box for corrosion. Clean debris from battery box drain holes. **e.** Close battery cover (para 3-8c).	
				
49	Weekly	Air Dryer	Check air dryer for damage and loose mounting.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

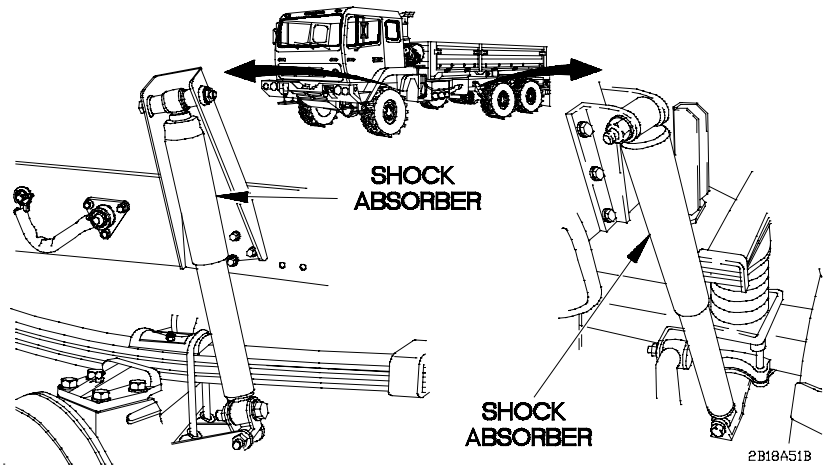
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
50	Weekly	Underneath Vehicle	**a.** Check underneath vehicle for obvious damage to leaf springs, engine, transmission, frame rails, and crossmembers.	**a.** Any loose or broken frame rails, cross-members, broken welds, or broken screws are found.
			b. Check air hoses and fittings underneath vehicle for obvious damage and leakage.	**b.** Any air leaks or damage to hoses or fittings are found.
			c. Check shock absorbers for leaks, missing or loose hardware and loose shock absorbers.	**c.** Any oil leaks greater than class 1, missing or loose hard-ware, or loose shock absorbers are found.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

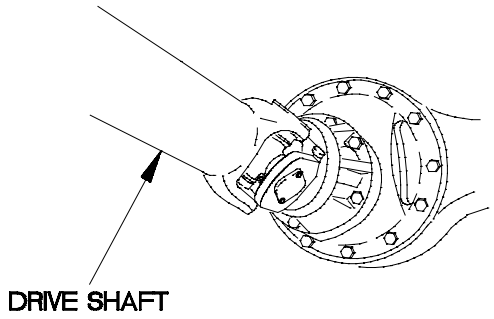
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
50	Weekly	Underneath Vehicle (Cont)	**d.** Check drive shafts for loose hardware. **e.** Inspect drive shaft for excessive play. If drive shaft has excessive play, Notify Unit Maintenance to perform hinging check.	**d.** Any loose hardware is found.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

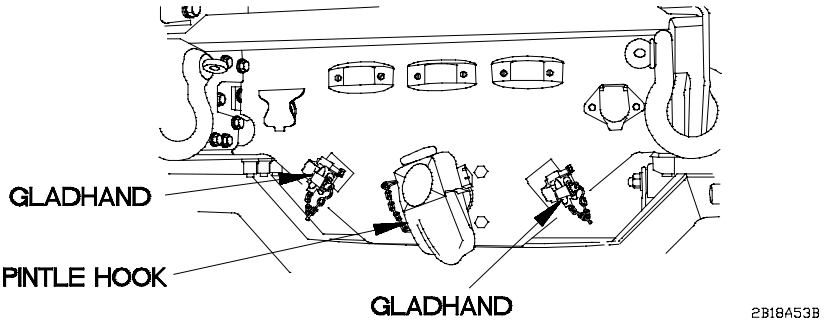
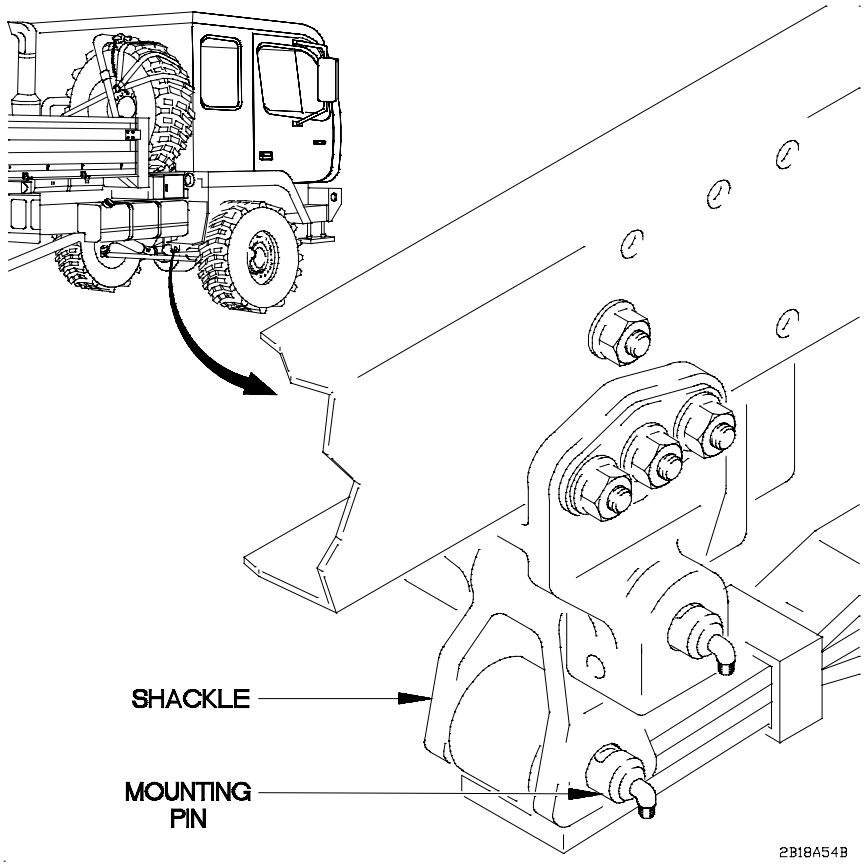
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
51	Weekly	Electrical Connectors	Check electrical connectors for damage.	
52	Weekly	Rear Gladhands	**a.** Check rear gladhands for damage and air leaks. **b.** Lubricate coupler seals (Appendix F).	**a.** Air leaks are heard.
53	Weekly	Reflectors	Check for missing or damaged reflectors.	
54	Weekly	Pintle Hook	Check pintle hook for looseness and/or damaged locking mechanism.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

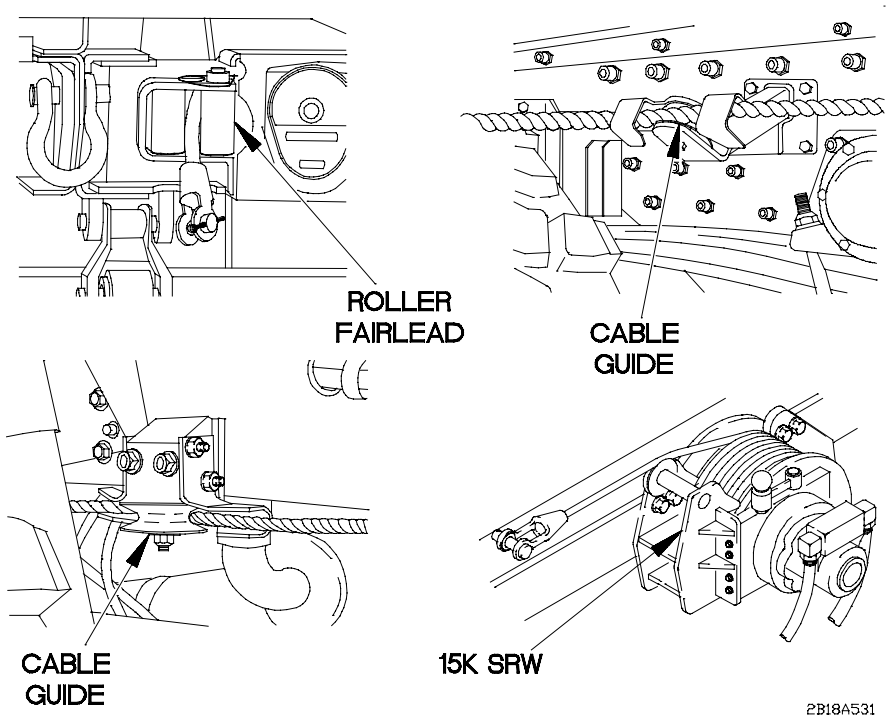
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



55	Weekly	Shackles	Check shackles for damage. Check mounting pin for damage.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

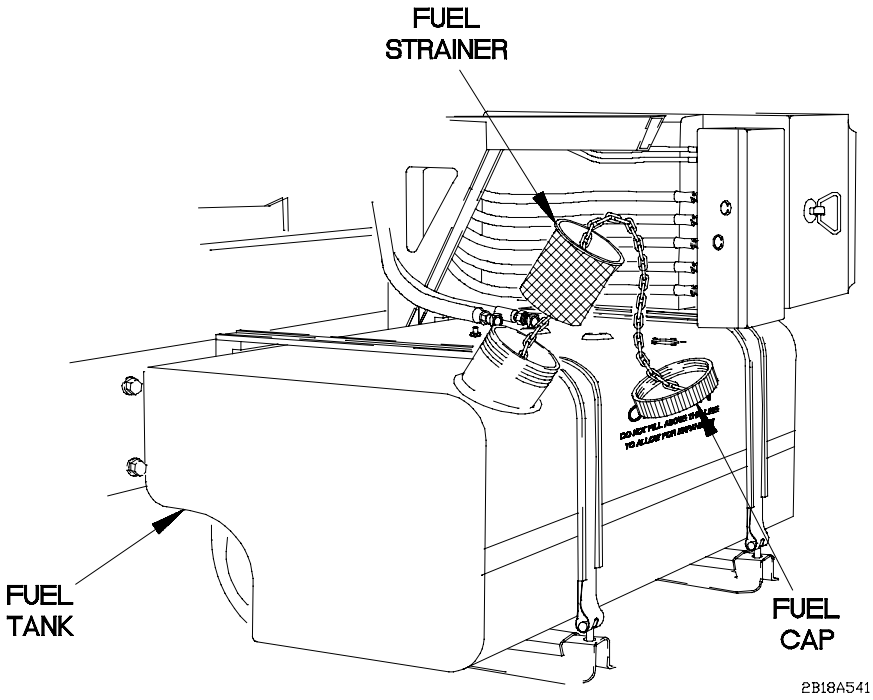
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



56	Weekly	15K SRW Rollers (If Equipped)	Check that 15K SRW cable guides and roller fairleads are mounted securely and rotate smoothly.	
57	Weekly	15K SRW (If Equipped)	Inspect 15K SRW for loose parts, oil leaks, and obvious external damage.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



WARNING

Diesel fuel is flammable. Do not fill fuel tank with engine running, while smoking, or when near an open flame. Never overfill tank or spill fuel. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

58	Weekly	Fuel Tank	**a.** Check fuel tank for clogged, damaged, or missing fuel strainer. **b.** Check that fuel cap is not loose or damaged.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

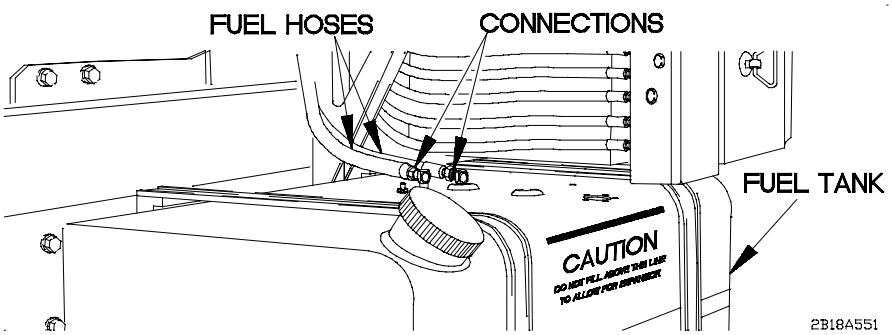
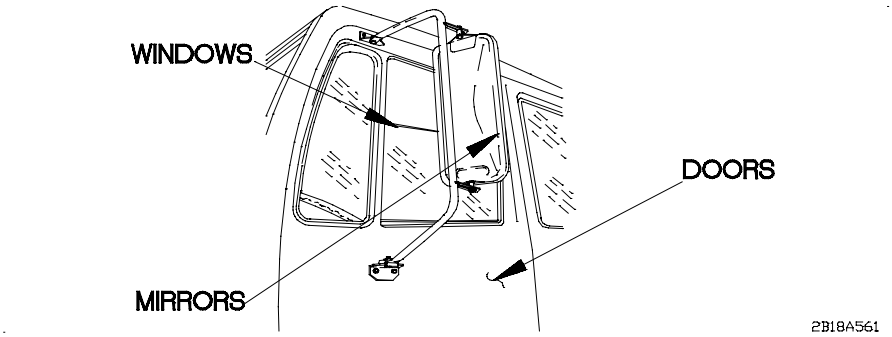
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
58	Weekly	Fuel Tank (Cont)	**c.** Check fuel tank, fuel hoses, and connections for leaks and damage.	**c.** Class III leak is evident.
				
59	Weekly	Door, Window, and Mirror	Check condition and operation of doors, windows, and mirrors.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

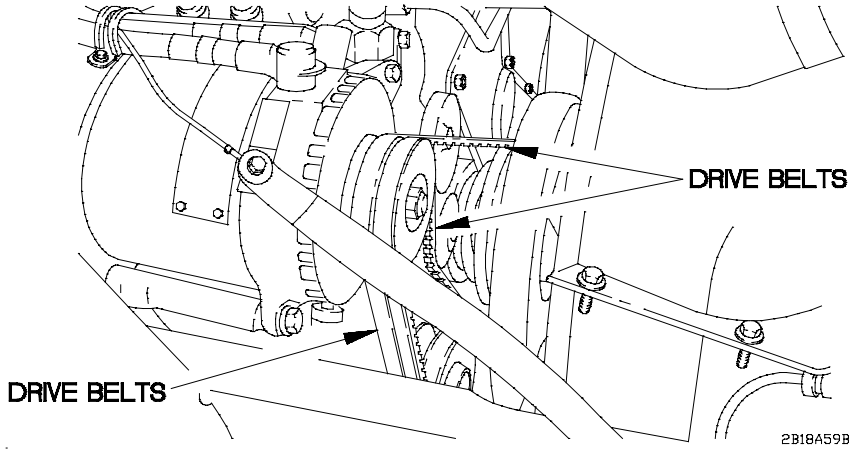
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING • **Ensure engine oil is cool before performing any maintenance. Failure to comply may result in injury to personnel.** • **Engine compartment and accessories may be extremely hot when engine is running or has been running recently. Use caution around engine when cab is raised. Failure to comply may result in injury to personnel.** • **Engine compartment contains a partially exposed fan blade. Use extreme caution around front of engine. Failure to comply may result in injury to personnel.**	
60	Weekly	Drive Belts, Fan, and Pulleys	**a.** Raise cab (para 2-28a). **b.** Check drive belts for cracking, fraying, and breaks.	**b.** Any of the following are present:

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

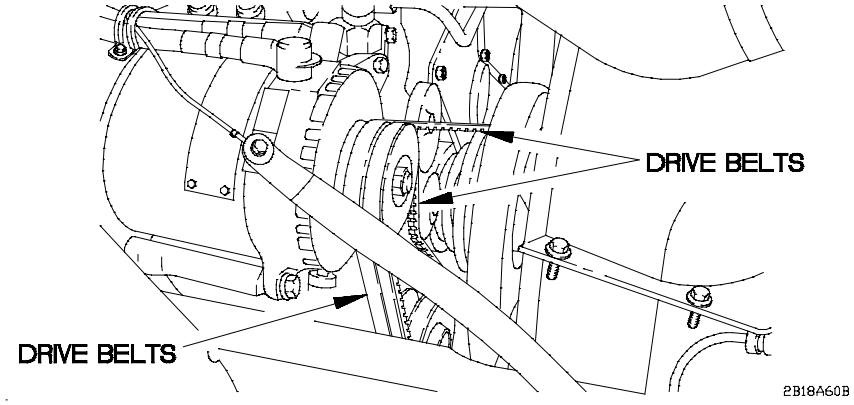
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
60	Weekly	Drive Belts, Fan, and Pulleys (Cont)		1. Any drive belt has more than one crack 1/8 in. (3 mm) in depth or 50 percent of belt thickness. 2. Any drive belt has frays more than 2 in. (51 mm) long.
			c. Check tightness of drive belts. Play should be about 1/2 in. (13 mm). Notify Unit Maintenance to tighten drive belts.	**c.** Any drive belt has excessive play.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

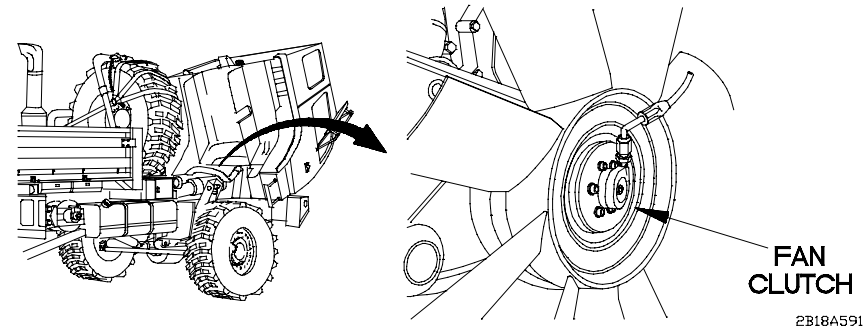
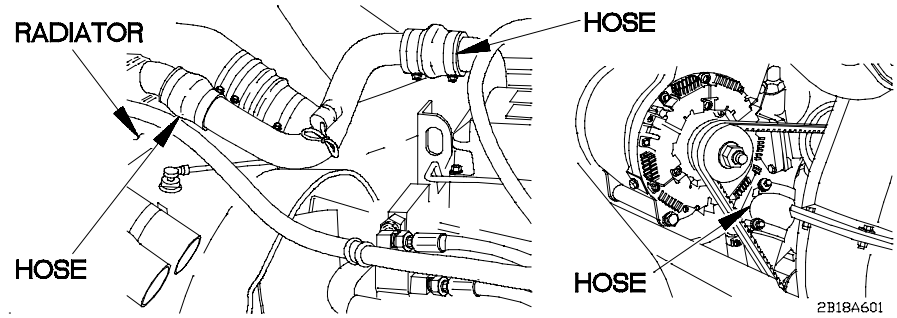
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
61	Weekly	Fan Clutch	Check fan clutch for missing or loose mounting hardware.	Missing or loose mounting hardware is found.
				
62	Weekly	Radiator Hoses	**a.** Check radiator hoses for cracks and excessive wear which may cause leakage. Check radiator hoses for loose hose clamps. **b.** Check radiator for leaks and damaged fins.	**a.** Class III leak is evident. **b.** Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

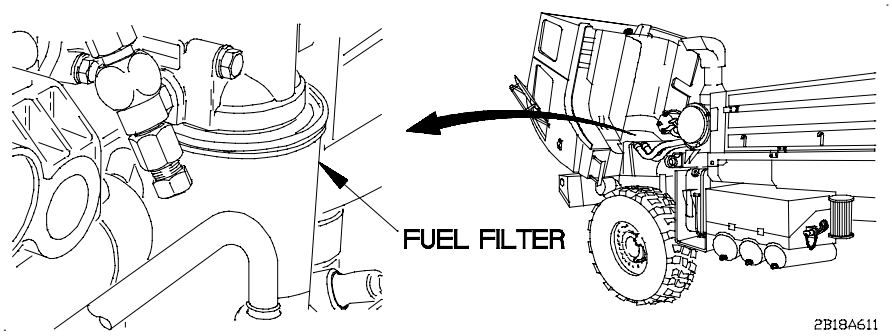
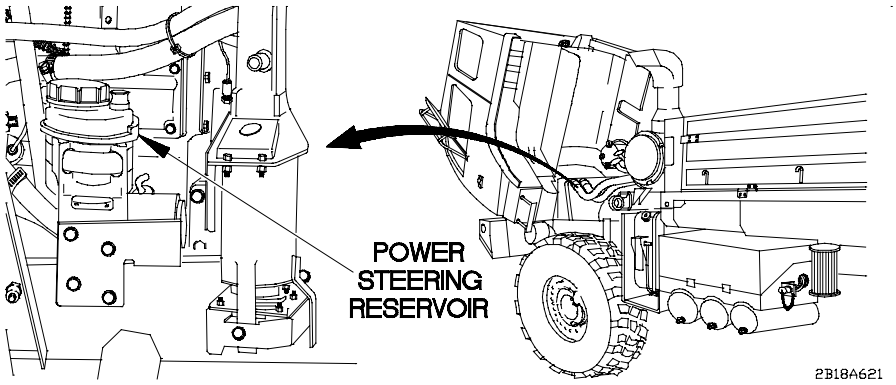
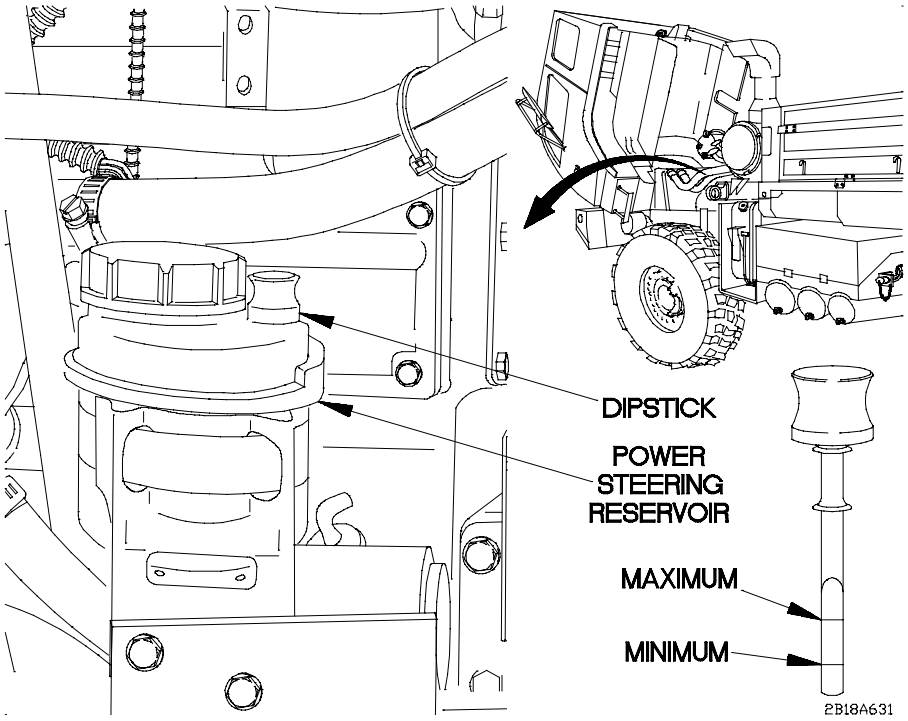
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
63	Weekly	Fuel Filter	Check fuel filter for leaks or damage.	Class III leak is evident.
				
			CAUTION Do not overfill power steering reservoir. Failure to comply may result in damage to equipment.	
64	Weekly	Power Steering Reservoir	**a.** Check power steering reservoir for leaks or obvious damage.	**a.** Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



64	Weekly	Power Steering Reservoir (Cont)	**b.** Check that power steering reservoir is filled to proper level. Oil level should be between maximum and minimum level as marked on dipstick. Add oil as required (Appendix F). If oil level is over full mark, notify Unit Maintenance.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

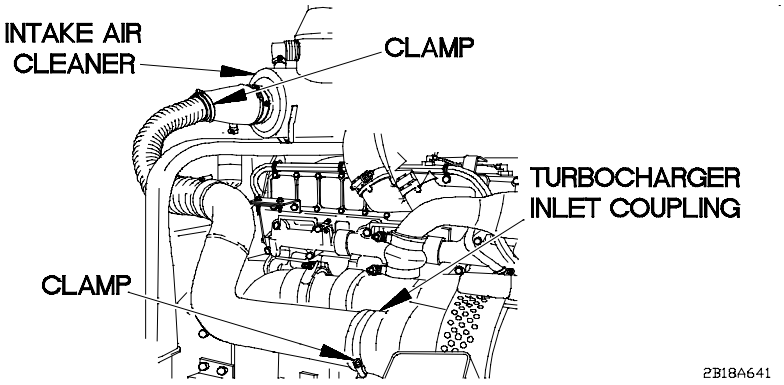
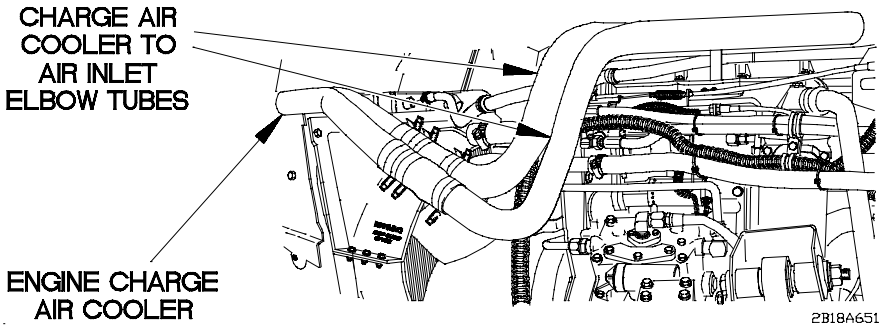
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
65	Weekly	Charge Air	**a.** Check for missing or loose clamps at: (1) Intake air filter. (2) Turbocharger inlet coupling.	**a.** Any clamp missing or unable to be tightened.
				
			(3) Charge air cooler. (4) Charge air cooler to air inlet elbow tubes.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

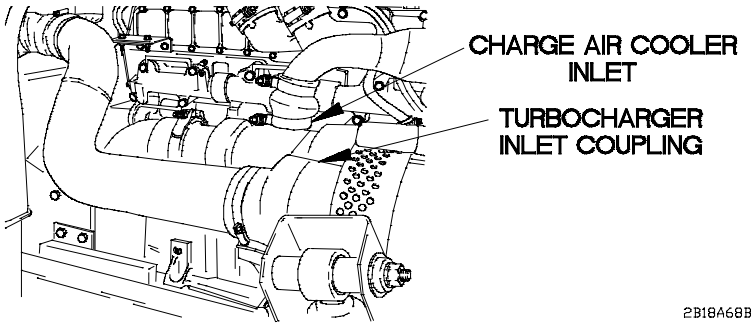
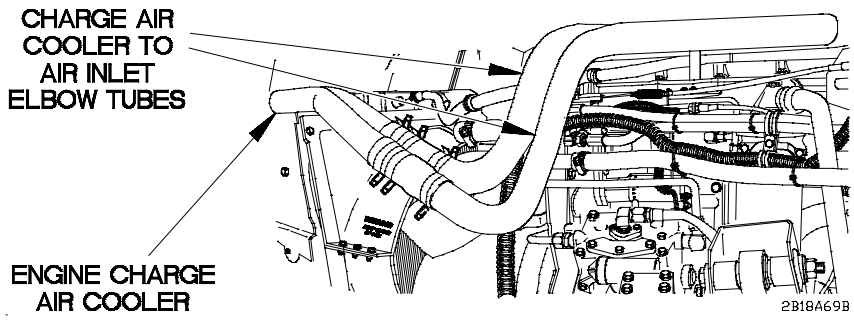
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
65	Weekly	Charge Air (Cont)	**b.** Check intake air hoses at: (1) Intake air filter. (2) Turbocharger inlet coupling.	**b.** Any hose with damage.
				
			(3) Charge air cooler. (4) Charge air cooler to air inlet elbow tubes.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

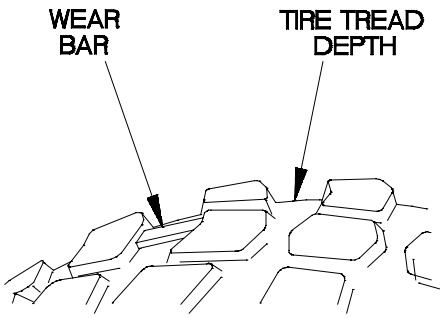
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
66	Monthly	Spare Tire	**a.** Check that spare tire lowers properly (para 3-5).	
			b. Check spare tire for cuts, gouges, and cracks. Remove any object that could penetrate tire.	**b.** Tire tread is worn even to height of tread bar (depth is 1/8 in. (3 mm) or less). Any cut, gouge, or crack that extends to cord body or any unusual bulges.
			c. Check that spare tire has not worn beyond wear bar. Replace spare tire (para 3-5) if tire has worn beyond wear bar.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

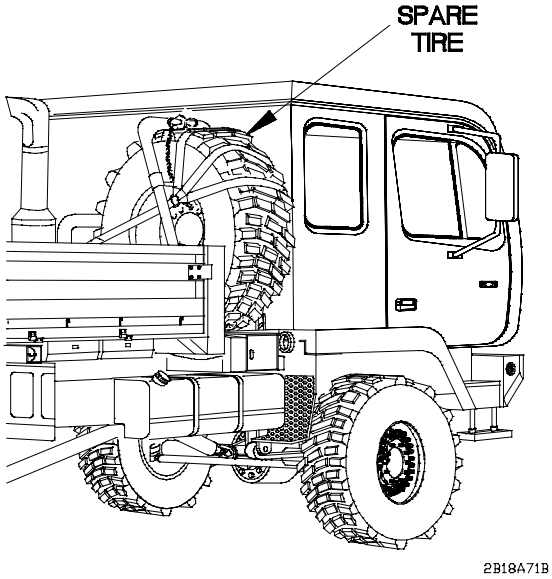
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
66	Monthly	Spare Tire (Cont)	**d.** Check spare tire for correct air pressure. Inflate tire to 60 psi (414 kPa) if air pressure is low. **e.** Secure spare tire retainer. Ensure spare tire retainer is securely stowed in up position.	**e.** Spare tire retainer fails to lock in its up position.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

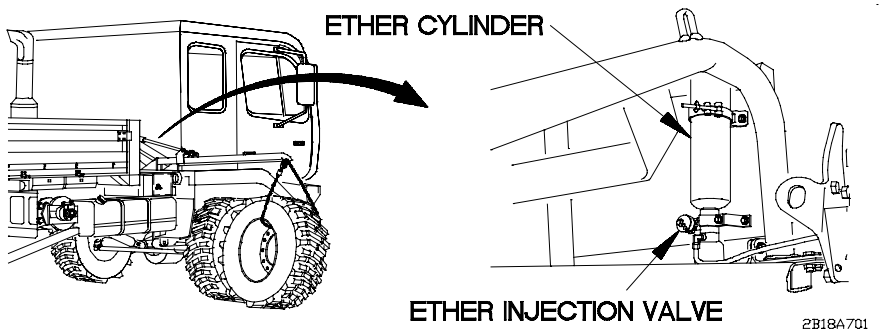
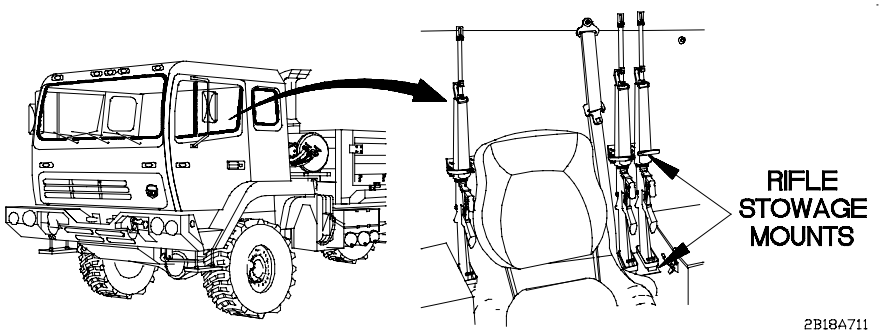
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
67	Monthly	Ether Starting Aid	Check ether cylinder for loose or damaged mounts and hardware. Check ether cylinder and injection valve for damage.	
				
68	Monthly	Rifle Stowage Mount	**a.** Check that rifle stowage top mount and lower mount bolts are not broken or missing.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

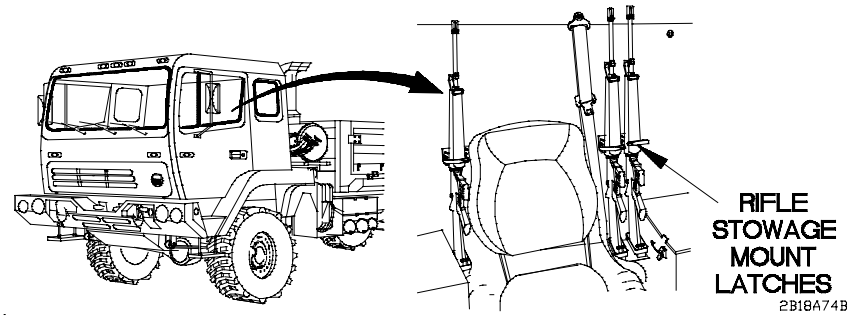
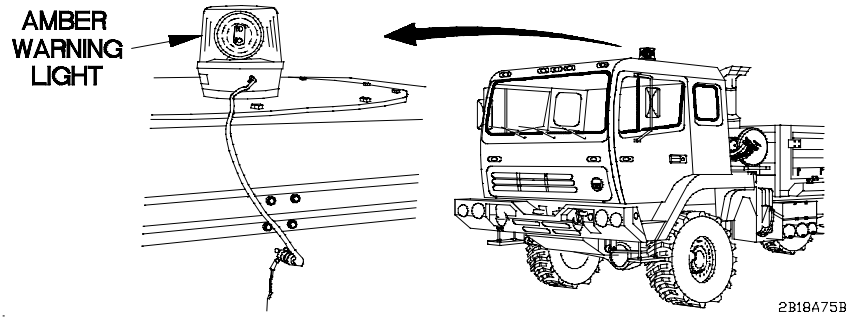
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
68	Monthly	Rifle Stowage Mount (Cont)	**b.** Check rifle stowage mount latches for excessive looseness or binding.	
				
			NOTE Checking amber warning light is a safety task that would not be performed in a tactical mission. See AR 385-55.	
69	Monthly	Amber Warning Light (If Equipped)	Check vehicle amber warning light for proper operation (para 2-27).	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

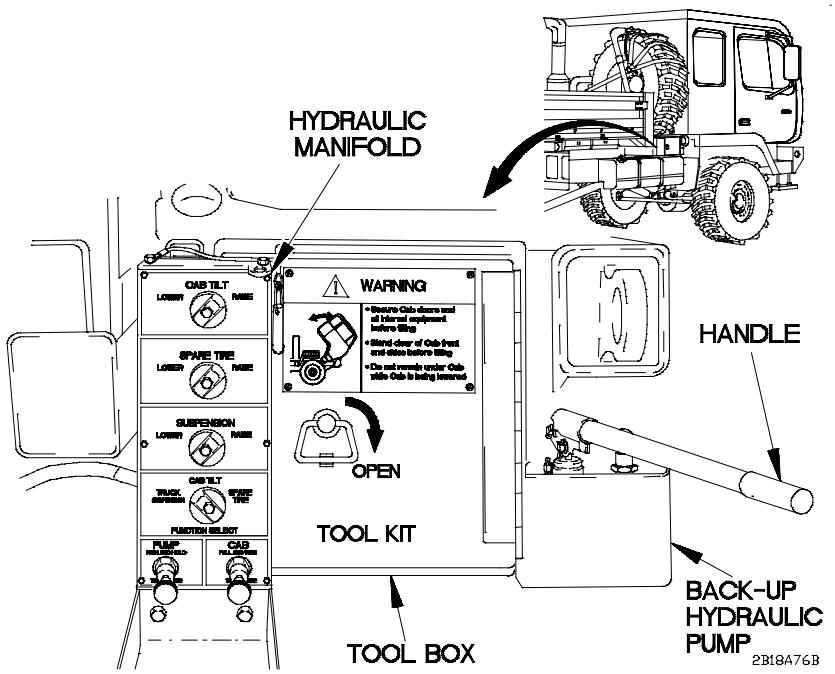
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
70	Monthly	Hydraulic Manifold	Inspect hydraulic manifold for leakage.	Class III leak is evident.
71	Monthly	Back-up Hydraulic Pump	**a.** Remove handle from tool box and install in back-up hydraulic pump. **b.** Pump back-up hydraulic pump 5-8 cycles (to lubricate seals).	
72	Monthly	Tool Box	Check inside tool box for water in bottom of tool box or other obvious damage. Clean inside tool box with wiping rag, as necessary.	

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

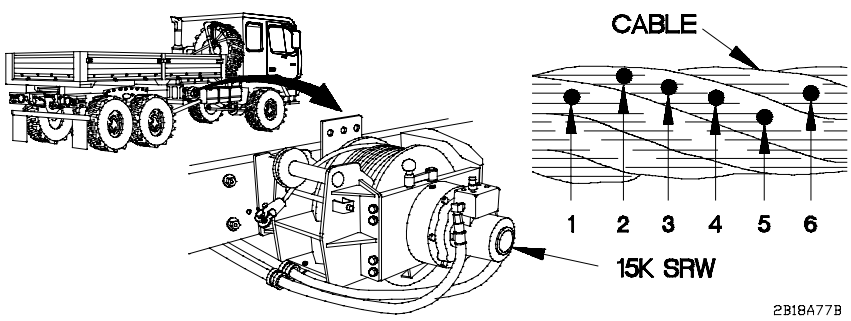
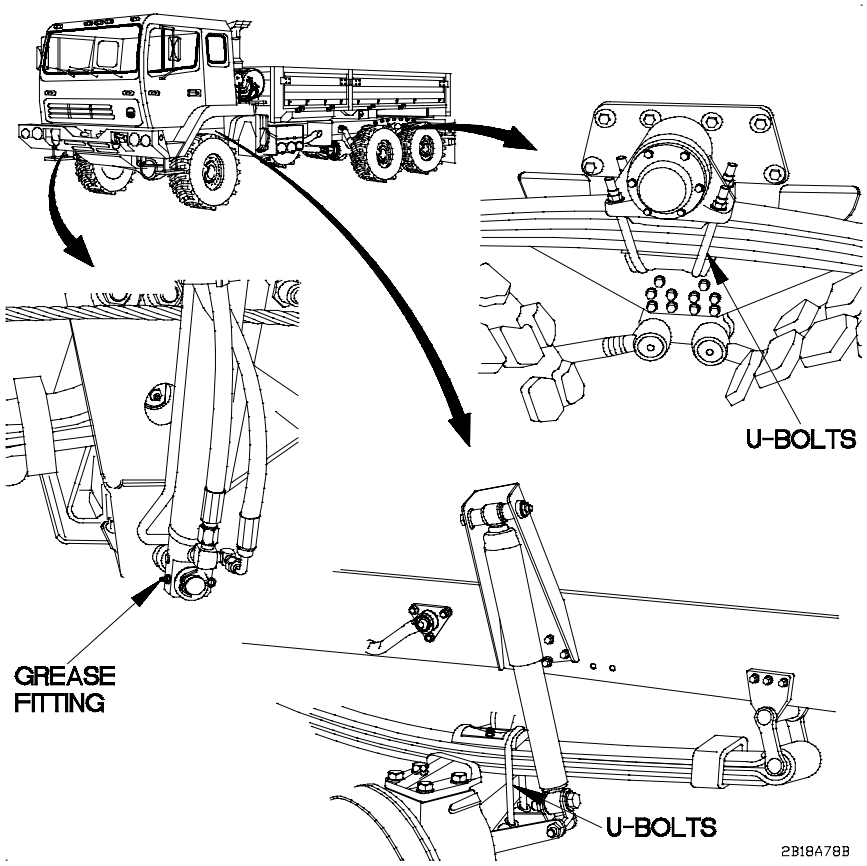
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.**	
73	Monthly	15K SRW Cable (If Equipped)	**a.** Pay out cable completely and inspect for kinks, sharp bends, abrasions, and broken wires (para 2-65). **b.** Kinking, crushing, or any other damage resulting in distortion of cable structure. **c.** Check security of winch mounting hard-ware.	**a.** Six randomly distributed broken wires in any 6 in. (152 mm) section of cable or three broken wires in one bundle (breaks 3, 4, 5) in a 6 in. (152 mm) section.

Table 2-1. Preventive Maintenance Checks and Services (All Models) (Cont)

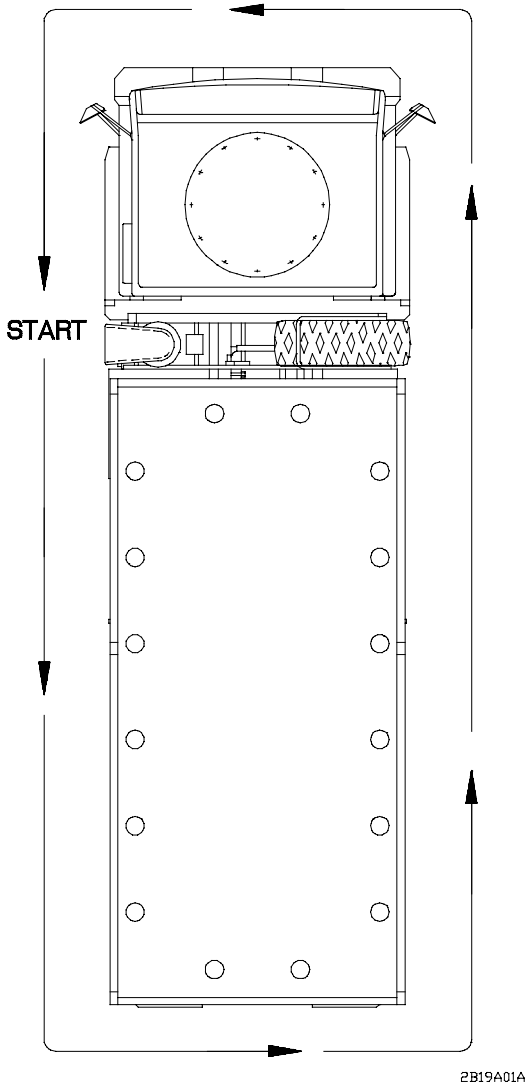
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



74	Monthly	Springs	After initial 1000 mi. (1609 km), notify Unit Maintenance to tighten U-bolts to 390-510 lb-ft (529-692 N·m).	
75	Monthly	Cab Lift Cylinder	Lubricate grease fitting (Appendix F)	

2-19. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1083, M1084, M1085, M1086, AND M1093)

Refer to Table 2-2. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures on vehicle models M1083, M1084, M1085, M1086, and M1093. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-2.



PMCS ROUTING DIAGRAM

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

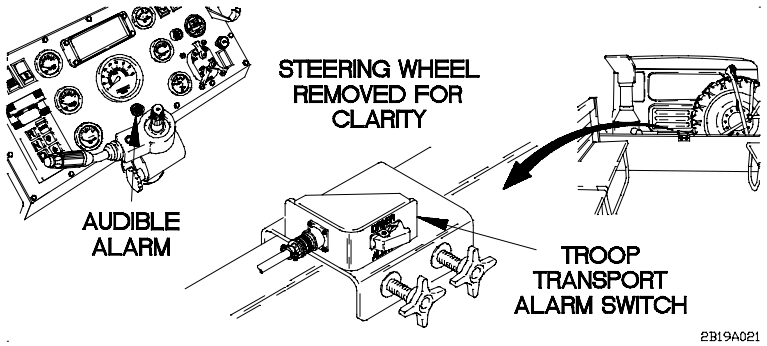
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
1	Before	Troop Transport Alarm Switch (If equipped)	**a.** Check that attachment nuts are tight. **b.** Position master power switch to on (para 2-27a or b). **c.** Position troop transport alarm switch to ON (para 2-13a). **d.** Verify that audible alarm sounds in cab. **e.** Position troop transport alarm switch to OFF (para 2-13a). **f.** Position master power switch to off (para 2-27f).	

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

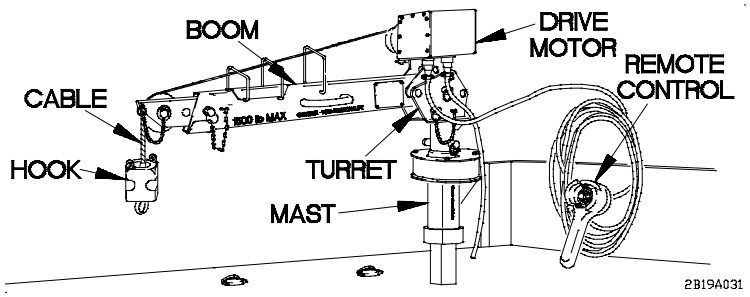
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Light Material Handling Crane (LMHC) is checked during operation when required as part of vehicle mission.	
2	During	LMHC (if equipped)	**a.** Check for loose, missing, or damaged drive motor mounting bolts. Tighten loose bolts. If bolts are missing, damaged, or can not be tightened, notify Unit Maintenance. **b.** Using LMHC remote control, check that LMHC cable pays out and reels in properly (para 2-29). **c.** Rotate LMHC to right and to left, checking for binding or any restriction to movement of all LMHC components (para 2-29).	

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			WARNING **Wire rope can become frayed or contain broken wires. Wear heavy leather-palmed work gloves when handling wire rope. Never let moving wire rope slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.**	
2	During	LMHC (if equipped) (Cont)	**d.** Check LMHC cable for kinks, frays, and breaks.	**d.** Evidence of kinks, frays, or breaks.
			NOTE LMHC is checked before vehicle operation when required as part of vehicle mission.	
3	Weekly	LMHC (if equipped)	**a.** Check boom assembly, turret, winch assembly, and mast assembly for damage or broken welds.	**a.** Boom assembly, turret, winch assembly, or mast assembly are damaged or broken welds are found.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
3	Weekly	LMHC (if equipped) (Cont)	**b.** Check LMHC power cord for damage or cracks in insulation.	**b.** Any damage or cracks in insulation which expose bare wire.
			c. Check that the following pins are present and not damaged. **(1)** Pin securing mast to cargo bed. **(2)** Pin securing boom in raised and lowered positions. **(3)** Pin securing boom in extended and retracted positions.	**c.** One or more pins are missing or damaged.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
4	Deleted			

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
4	Deleted			

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

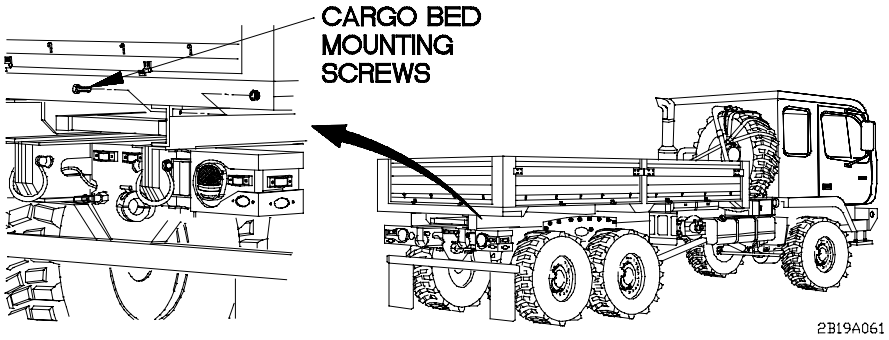
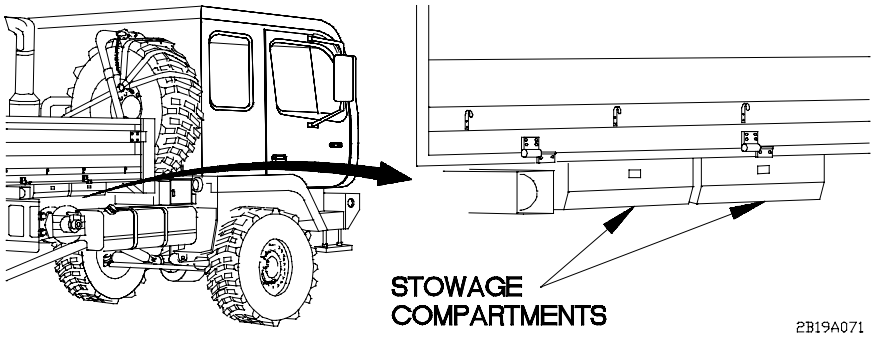
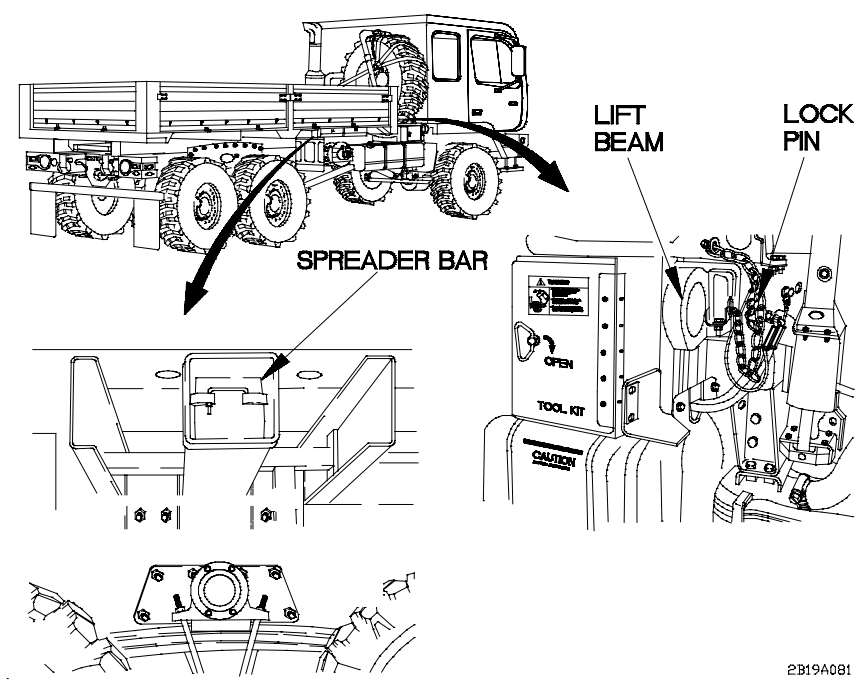
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
5	Weekly	Cargo Bed	**a.** Check that cargo bed mounting screws on both sides of vehicle are not broken or missing.	**a.** One or more cargo bed mounting screws are broken or missing.
				
			b. Check inside panel stowage compartments underneath cargo bed for obvious damage.	

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



5	Weekly	Cargo Bed (Cont)	**c.** Check lift beam on both sides of vehicle for damage. Check that lift beam lock pin is not missing or damaged. **d.** Check spreader bar on both sides for damage.	**c.** Lift beam is damaged or lock pin is missing or damaged, and lift beam is required for vehicle mission.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

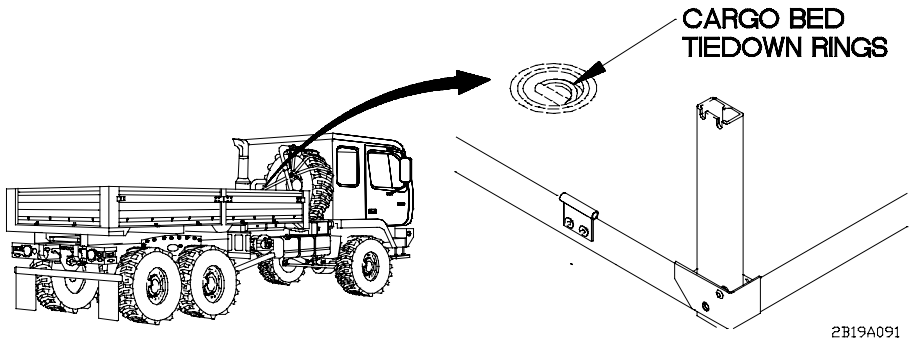
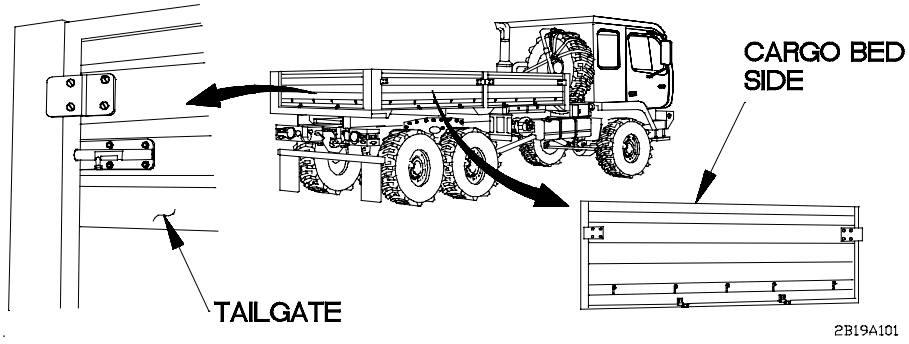
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
5	Weekly	Cargo Bed (Cont)	**e.** Check for missing or damaged cargo bed tiedown rings.	
				
6	Monthly	Cargo Bed Sides and Tailgate	**a.** Check that cargo bed sides and tailgate are not bent or damaged.	

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

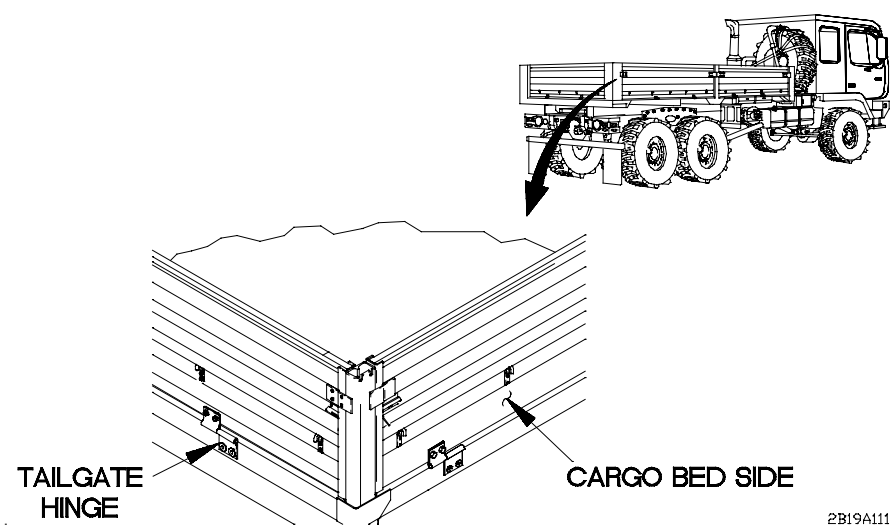
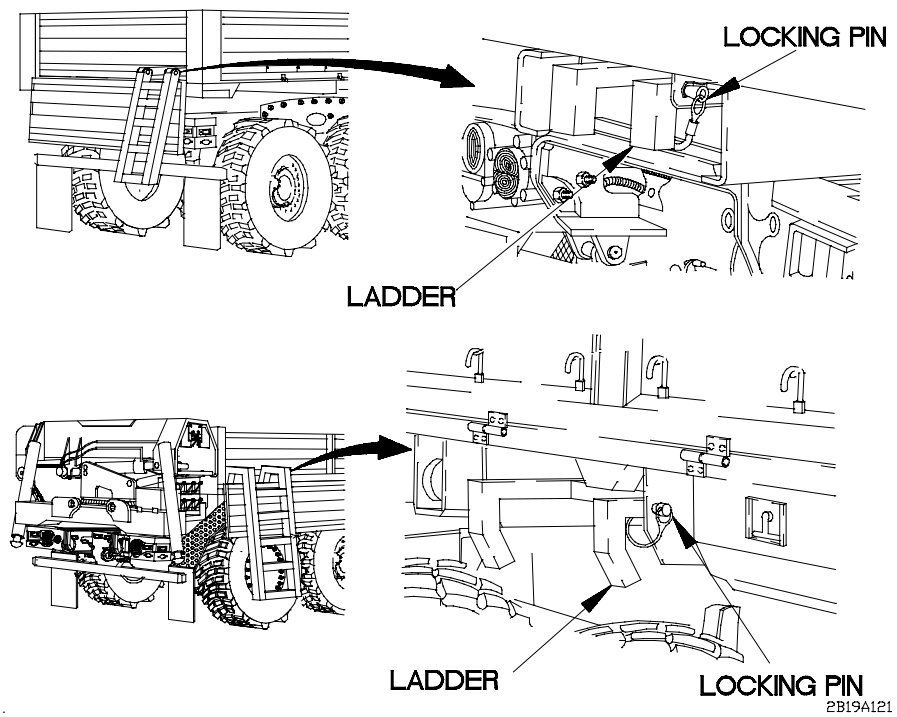
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
NOTE Hinges and latches on cargo bed sides and tailgate are the same.				
6	Monthly	Cargo Bed Sides and Tailgate (Cont)	**b.** Check cargo bed sides and tailgate hinges for damage and broken welds.	**b.** Cargo bed side or tailgate hinge is damaged or weld is broken.
			c. Check cargo bed sides and tailgate for missing or damaged latches. Ensure that latches securely lock cargo bed sides and tailgate in raised position.	**c.** Latch is missing, damaged, or does not securely lock cargo bed side or tailgate in raised position.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



7	Monthly	Ladder	**a.** Remove ladder from stowage compartment (para 2-32). **b.** Check ladder for cracked or broken welds. **c.** Stow ladder in stowage compartment (para 2-32).	

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

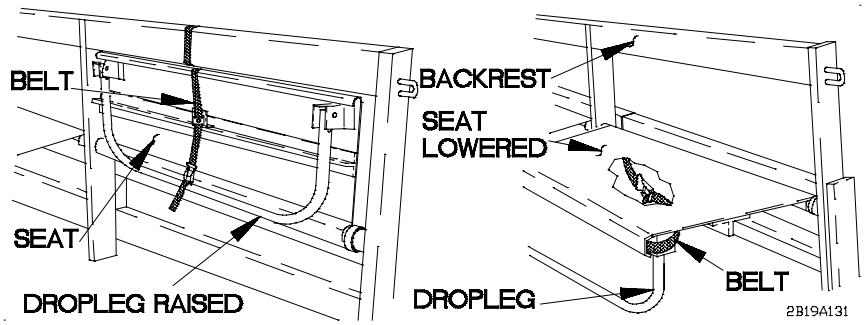
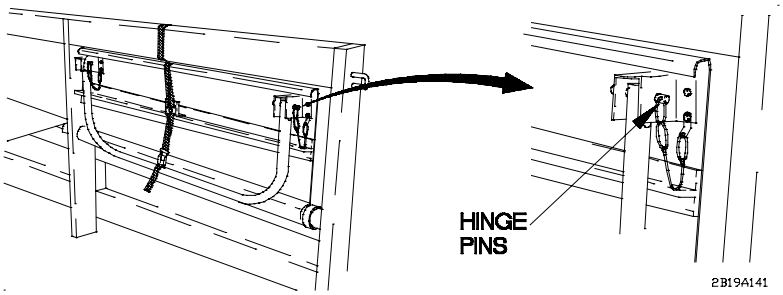
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Troopseats are checked before vehicle operation only as required to perform mission.	
8	Monthly	Troopseats (if equipped)	**a.** Check that troopseat drop legs are not bent or damaged.	**a.** Drop leg(s) is bent or damaged.
				
			b. Check that drop leg hinge pins are not missing or damaged.	**b.** One or more drop leg hinge pins are missing.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

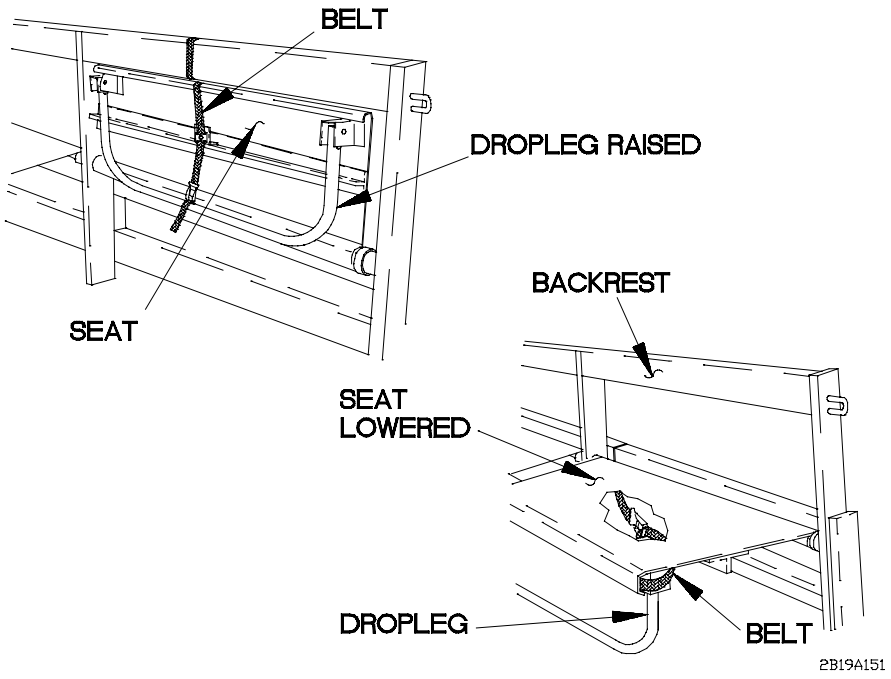
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
8	Monthly	Troopseats (if equipped) (Cont)	**c.** Check if seat assembly and/or backrest are damaged. **d.** Check that belts are not missing or damaged. **e.** Check that belt keeps seat assembly securely in raised and lowered positions.	**c.** Seat assembly and/or backrest are damaged.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

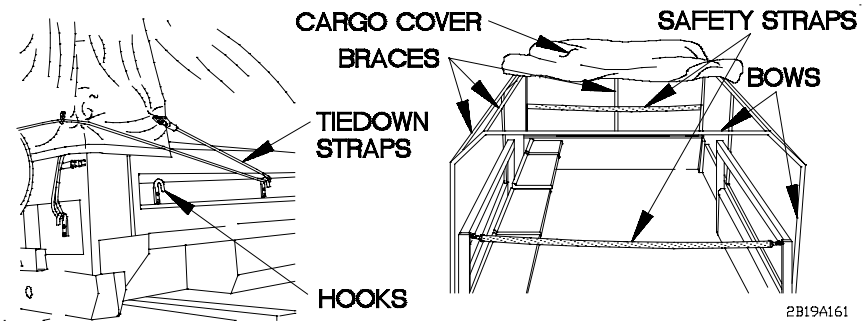
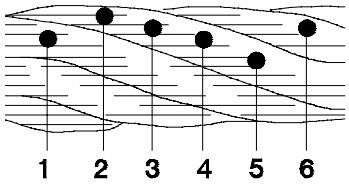
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Cargo cover is checked before vehicle operation only if required to perform vehicle mission.	
9	Monthly	Cargo Cover	**a.** Check for missing, damaged, or bent bows and braces. b. Check cargo cover for tears and ripped seams that would interfere with proper operation. **c.** Check that hooks used to secure cargo cover tiedown straps are secure and are not damaged. **d.** Check that safety straps are not missing or damaged.	**d.** Any straps are missing or damaged.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
10	Monthly	LMHC (if equipped)	**a.** Check LMHC for corrosion, cracks, and security mounting hardware.	**a.** LMHC is damaged or not securely mounted.



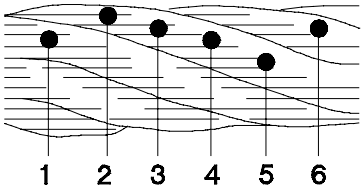
2B19A171

WARNING

Wire rope can become frayed or contain broken wires. Wear heavy leather-palmed work gloves when handling wire rope. Failure to comply may result in injury to personnel.

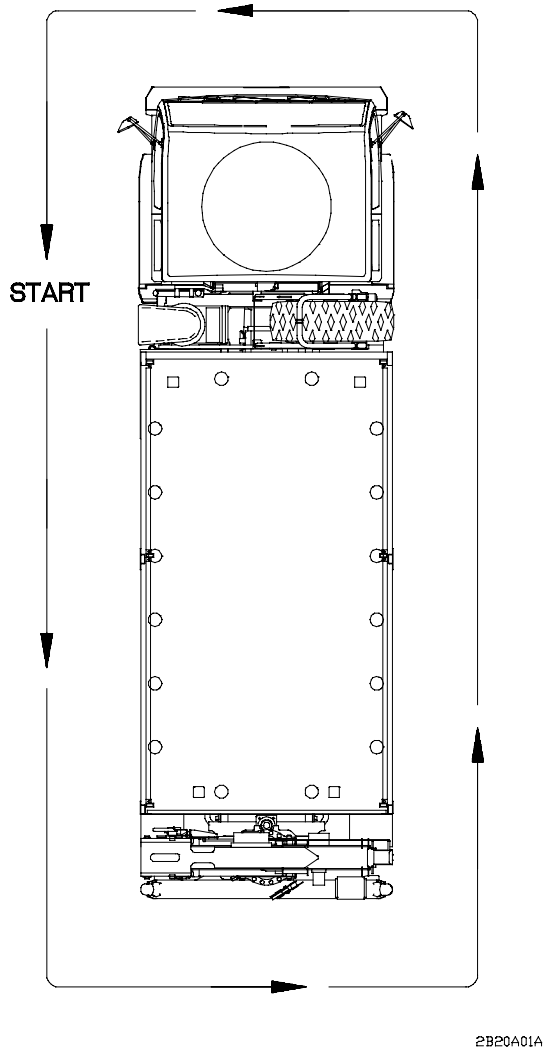
10	Monthly	LMHC (if equipped) (Cont)	**b.** Pay out cable completely and inspect for kinks, sharp bends, abrasions, and broken wires (para 2-29). **c.** Six randomly distributed broken wires in any 6 in. (15 cm) section of cable or three broken wires in on bundle (breaks 3,4,5) in a 6 in. (15 cm) section.	b. Cable is damaged or excessively worn.

Table 2-2. Preventive Maintenance Checks and Services (M1083, M1084, M1085, M1086, and M1093)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 2B19A181	
10	Monthly	LMHC (if equipped) (Cont)	**d.** Kinking, crushing, or any other damage resulting in distortion of the cable structure. **e.** Check security of electrical connectors on overload shutdown box. **f.** Inspect electrical cables for cracking, fraying, and chaffing.	**f.** Wiring is frayed, cracked, or excessively worn.

2-20. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1084 AND M1086)

Refer to Table 2-3. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures on vehicle models M1084 and M1086. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-3.



PMCS ROUTING DIAGRAM

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086)

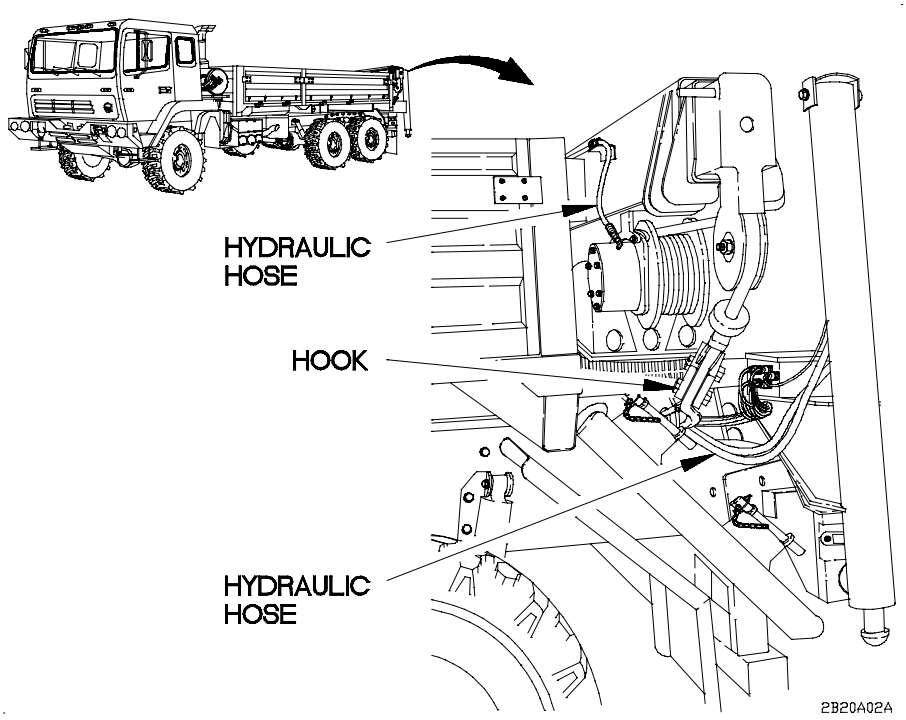
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Material Handling Crane (MHC) is checked before vehicle operation only if it will be operated as part of vehicle mission.	
1	Before	MHC	**a.** Check MHC for loose parts, oil leaks, damage to hydraulic hoses and tubes, and other obvious damage.	**a.** Class III leaks are evident.
			b. Check hook block for presence of safety latch and retaining pin.	**b.** Safety latch or retaining pin is missing or inoperable.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

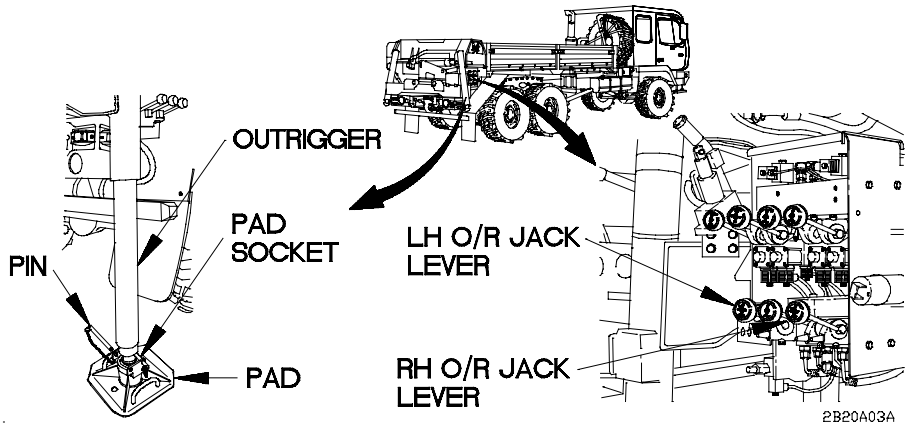
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Keep hands and feet clear of outriggers during operation. Failure to comply may result in injury to personnel.**	
			NOTE Position outrigger pads as required so that ends of outriggers lower to outrigger pad sockets.	
2	During	MHC Operation	**a.** Prepare MHC for use (para 2-37b). **b.** Set up outrigger pads (para 2-37c). **c.** Check that two pins are attached to each pad. **d.** Place LH and RH O/R JACK lever in down position until outrigger lowers to ground.	**c.** Pin(s) are damaged or missing. **d.** Outrigger cylinder will not lower completely to ground.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

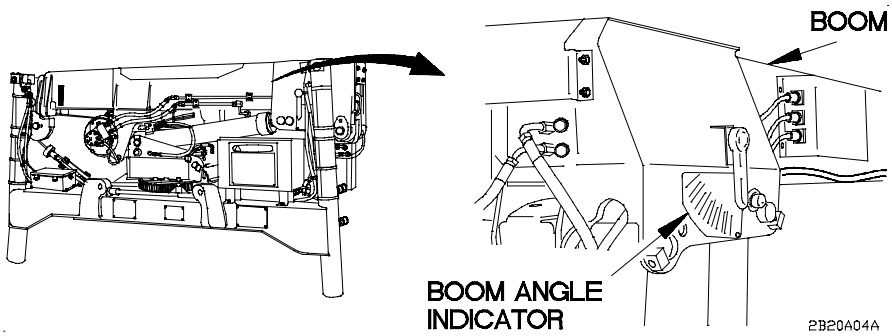
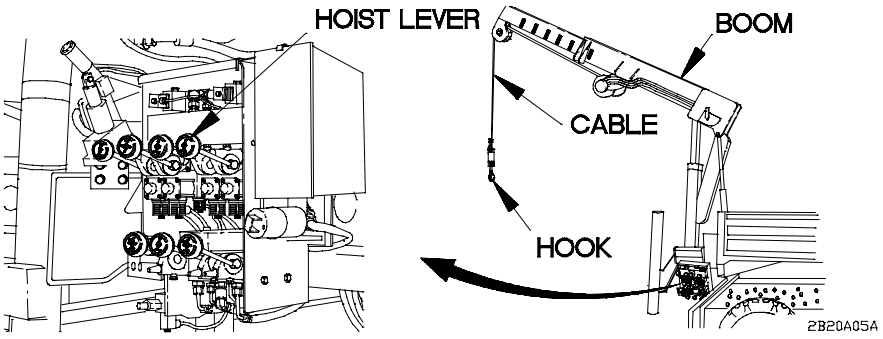
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
2	During	MHC Operation (Cont)	**e.** Check boom angle indicator for damage.	**e.** Boom angle indicator is damaged and does not give proper reading.
				
			f. Move HOIST control lever to DOWN position and pay out cable approximately 12 in. (31 cm). **g.** Disconnect load hook.	**f.** Cable drum will not pay out.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

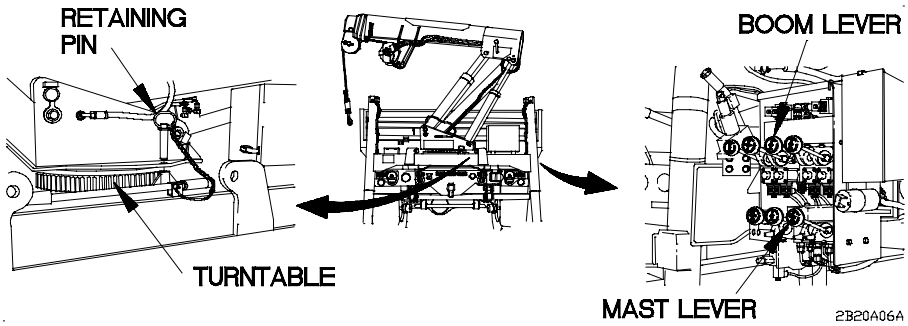
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING • **Do not operate Material Handling Crane (MHC) unless outriggers are set up and MHC is level from side to side. Failure to comply may result in serious injury or death to personnel.** • **Keep boom clear of all electrical lines and other obstacles while operating Material Handling Crane (MHC). Failure to comply may result in serious injury or death to personnel.**	
			NOTE MHC will not operate if vehicle is not level or outriggers are not extended to the ground.	
2	During	MHC Operation (Cont)	**h.** Raise boom and mast to operating position (para 2-37d). **i.** Check that turntable bearing retaining pin is not missing or damaged.	**h.** Lift and erection cylinders do not raise mast and boom completely before stopping.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

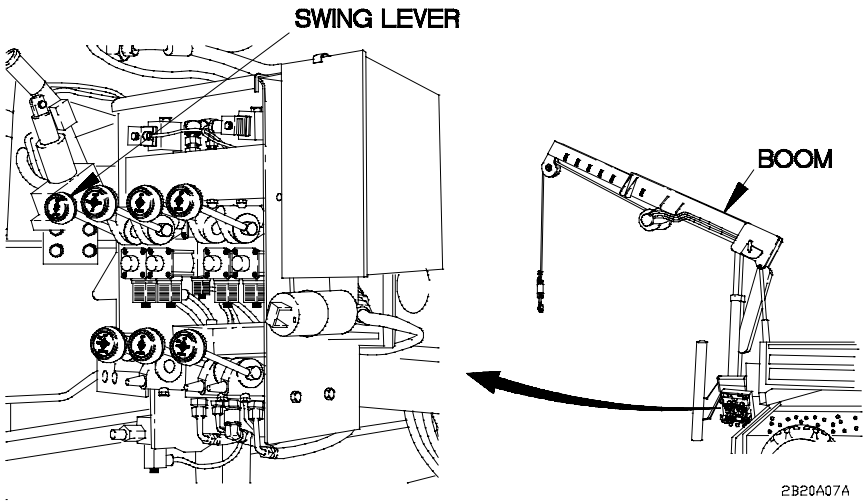
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Area must be clear of personnel before operating swing or telescoping boom. Boom must be rotated and telescoped slow enough so Operator has control of load. If Operator cannot see load during operation, operate Material Handling Crane (MHC) with REMOTE CONTROL UNIT. Failure to comply may result in serious injury or death to personnel.**	
2	During	MHC Operation (Cont)	**j.** Place SWING lever in CW position (para 2-37f) to move boom to right. **k.** Place SWING lever in CCW position (para 2-37f) to move boom to left.	**j.** Boom does not rotate to right. **k.** Boom does not rotate to left.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

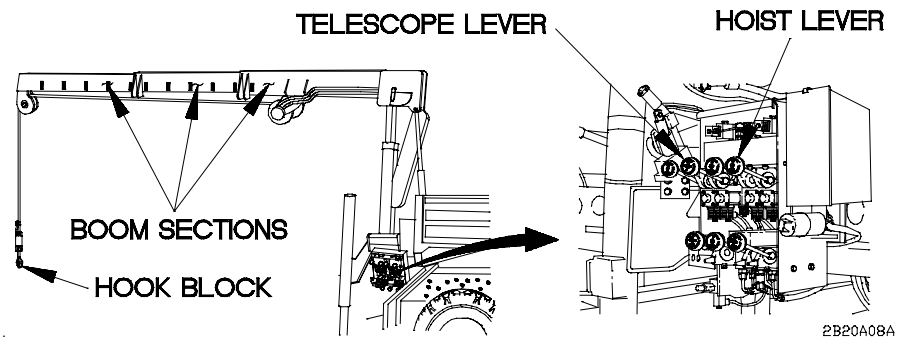
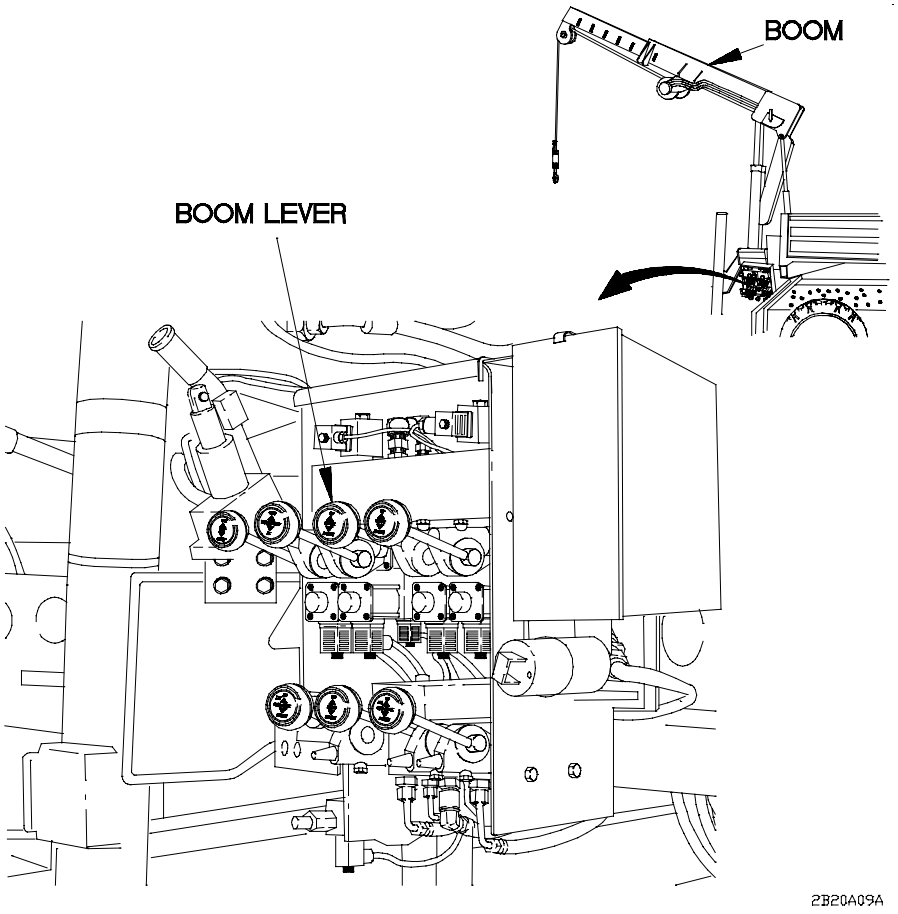
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			CAUTION Keep hook block at least 2 ft (0.6 m) from end of boom. If hook block hits end of boom, Material Handling Crane (MHC) will lose power for several seconds. Failure to comply may result in damage to equipment.	
2	During	MHC Operation (Cont)	**l.** Place TELESCOPE lever in OUT position and HOIST lever in DOWN position (para 2-37f) to extend boom. **m.** Check all three sections of boom extension for broken welds and other obvious damage. **n.** Place TELESCOPE lever to IN position and HOIST lever in UP position (para 2-37f) to retract boom.	**l.** Boom does not extend or cable does not pay out. **m.** Any broken welds or other obvious damage are found. **n.** Boom does not retract or cable does not pay in.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



2	During	MHC Operation (Cont)	**o.** Place BOOM lever in UP position (para 2-37f) to increase boom angle. **p.** Place BOOM lever in DOWN position (para 2-37f) to decrease boom angle.	**o.** Boom angle does not increase. **p.** Boom angle does not decrease.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

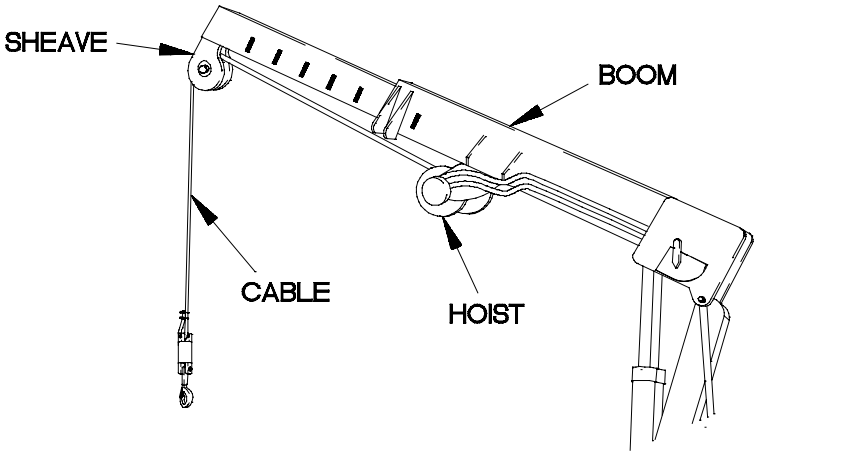
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.**	
2	During	MHC Operation (Cont)	**q.** Check that part of cable which is visible for kinks, frays, or breaks. **r.** Check that sheave at end of boom is mounted securely, turns smoothly, and is not damaged. **s.** Check that hoist is mounted securely and is not damaged.	**q.** Kinks, frays, or breaks in cable are found. **r.** Pulley is damaged, not mounted securely, or does not turn smoothly. **s.** Hoist is not mounted securely or is damaged.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

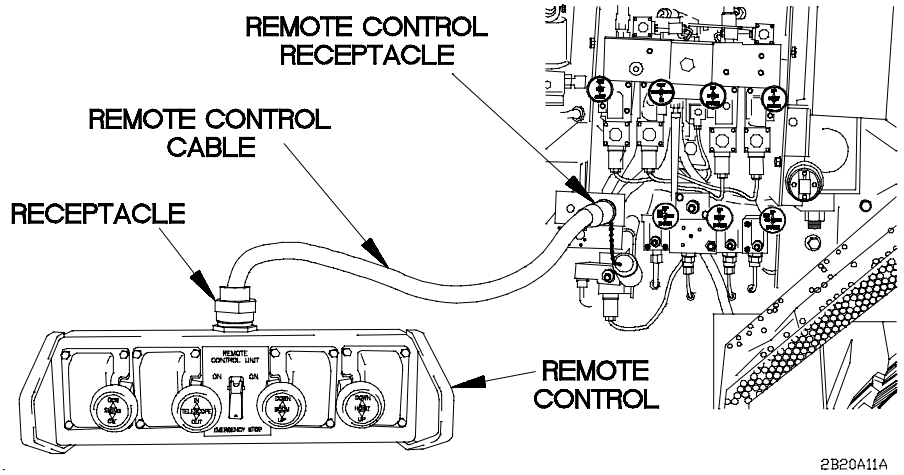
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
3	During	MHC Remote Controls	**a.** Check remote control cable for cracked insulation and damage to plugs on cable ends.	**a.** Insulation is cracked and bare wire is exposed or cable plugs are damaged.
			b. Check REMOTE CONTROL UNIT for broken controls or other obvious damage.	
			c. Check receptacle on REMOTE CONTROL UNIT for damaged or missing pins.	**c.** Damaged or missing pins are found.
			d. Check REMOTE CONTROL HOOK UP receptacle on MHC control panel for damaged or missing pins.	**d.** Damaged or missing pins are found.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

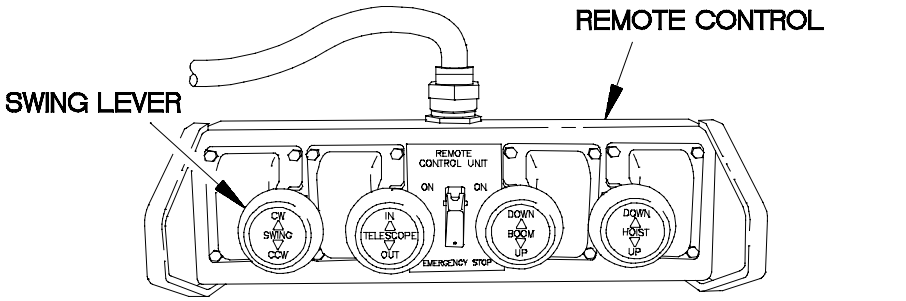
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 2B20A12A	
			WARNING • **Keep boom clear of all electrical lines and other obstacles while operating Material Handling Crane (MHC). Failure to comply may result in serious injury or death to personnel.** • **Area must be clear of personnel before rotating or telescoping boom. Boom must be rotated and telescoped slow enough so Operator has control of load. If Operator cannot see load during operation, operate Material Handling Crane (MHC) with REMOTE CONTROL UNIT. Failure to comply may result in serious injury or death to personnel.**	
3	During	MHC Remote Controls (Cont)	**e.** Connect REMOTE CONTROL UNIT (para 2-37e). **f.** Place SWING lever to CW position to move boom to right. **g.** Place SWING lever to CCW position to move boom to left.	**f.** Boom does not rotate to right. **g.** Boom does not rotate to left.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

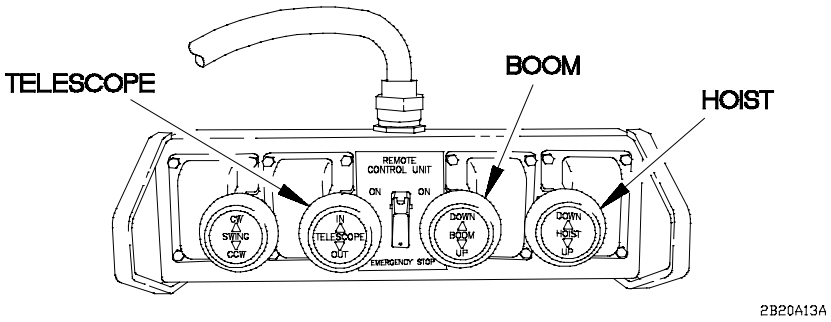
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 2B20A13A	
			CAUTION Keep hook block at least 2 ft (0.6 m) from end of boom. If hook block hits end of boom, Material Handling Crane (MHC) will lose power for several seconds. Failure to comply may result in damage to equipment.	
3	During	MHC Remote Controls (Cont)	**h.** Place TELESCOPE lever in OUT position and HOIST lever in DOWN position to extend boom.	**h.** Boom does not extend or cable does not pay out.
			i. Place TELESCOPE lever to IN position and HOIST lever in UP position to retract boom.	**i.** Boom does not retract or hoist does not reel in cable.
			j. Place BOOM lever in UP position to increase boom angle.	**j.** Boom angle does not increase.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

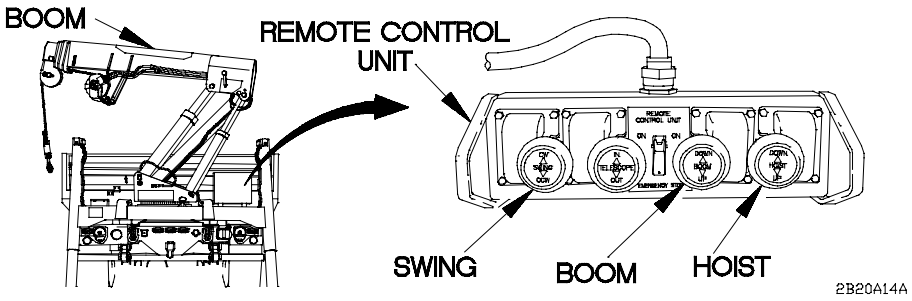
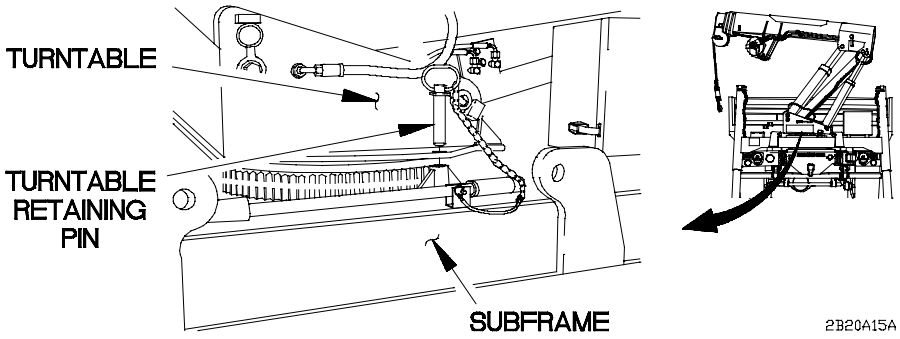
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
3	During	MHC Remote Controls (Cont)	**k.** Place BOOM lever in UP position to decrease boom angle. **l.** Place HOIST lever in DOWN position to pay out cable. **m.** Place HOIST lever in UP position to reel in cable.	**k.** Boom angle does not increase. **l.** Hoist does not pay out cable. **m.** Hoist does not reel in cable.
				
			n. Operate SWING lever to align holes in turntable bearing and install turntable bearing retaining pin.	

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

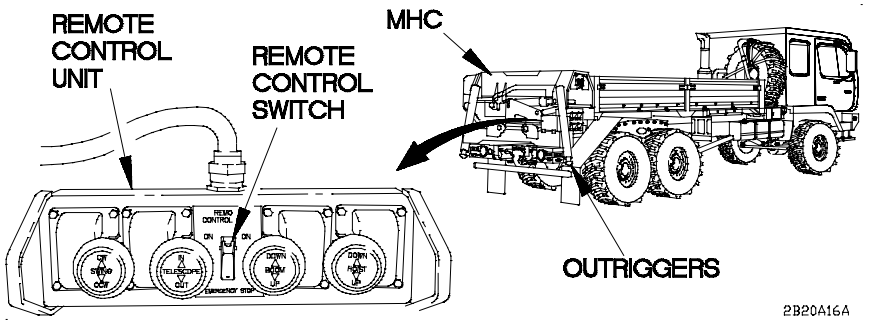
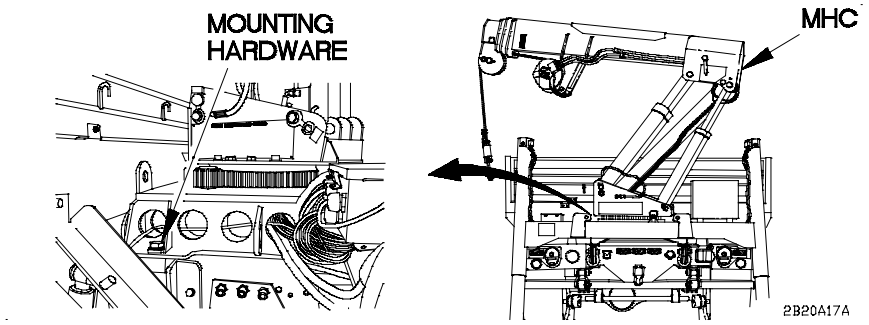
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
3	During	MHC Remote Controls (Cont)	**o.** Place REMOTE CONTROL UNIT in OFF position. **p.** Disconnect REMOTE CONTROL UNIT (para 2-37i), stow outriggers, and stow MHC (para 2-37j).	
				
4	Monthly	MHC	**a.** Check MHC for corrosion, cracks, and security of mounting hardware.	**a.** MHC is damaged or not securely mounted.

Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

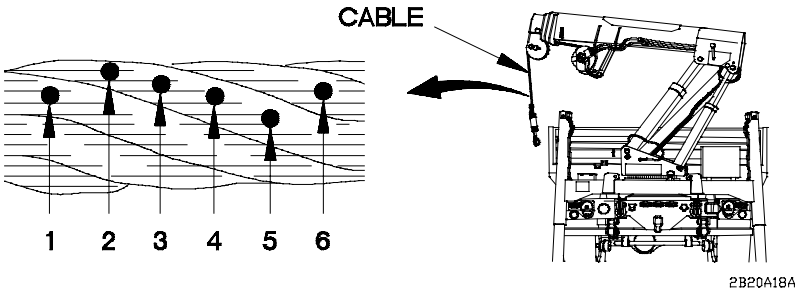
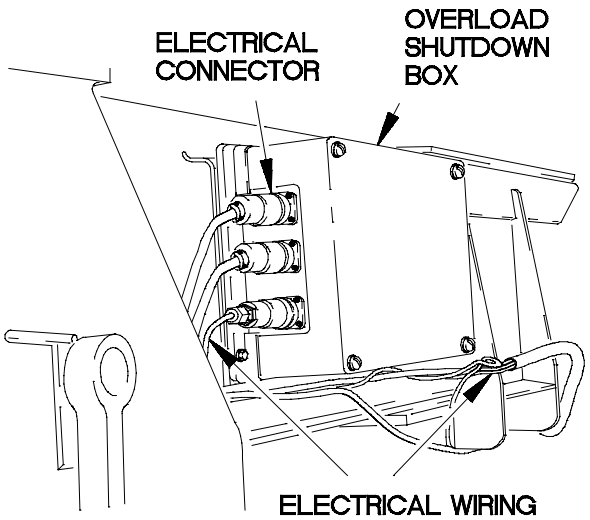
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.**	
4	Monthly	MHC (Cont)	**b.** Pay out cable completely and inspect for kinks, sharp bends, abrasions, and broken wires (para 2-37).	**b.** Six randomly distributed broken wires in any 6 in. (15 cm) section of cable or three broken wires in one bundle (breaks 3, 4, 5) in a 6 in. (15 cm) section.

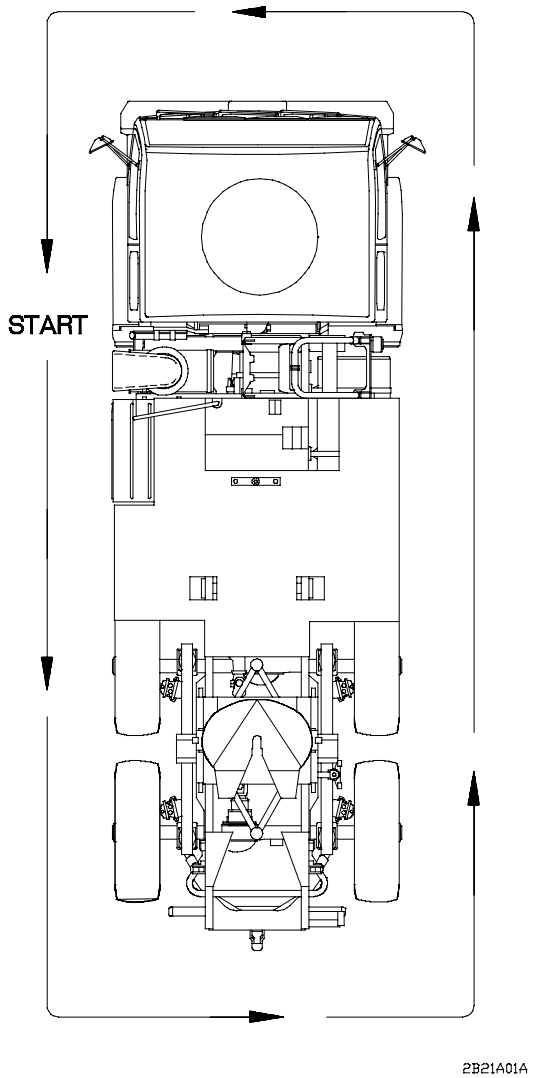
Table 2-3. Preventive Maintenance Checks and Services (M1084 and M1086) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
4	Monthly	MHC (Cont)	**c.** Kinking, crushing, or any other damage resulting in distortion of cable structure.	**c.** Cable is kinked or crushed.
			d. Inspect electrical cables for cracking, fraying, and chafing.	**d.** Electrical cables are frayed, cracked, or excessively worn.
			e. Check security of electrical connectors on overload shutdown box.	
			f. Inspect electrical wiring for cracking, fraying, and chafing.	**f.** Wiring is frayed, cracked, or extensively worn.



2-21. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1088)

Refer to Table 2-4. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures on vehicle model M1088. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-4.



PMCS ROUTING DIAGRAM

Table 2-4. Preventive Maintenance Checks and Services (M1088)

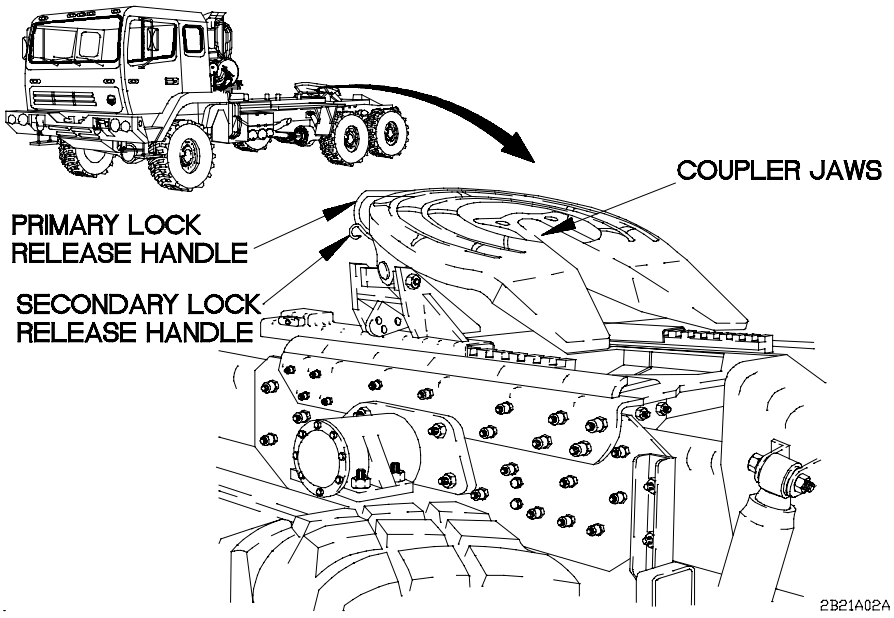
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
1	Before	Fifth Wheel without Semitrailer Coupled	**a.** Check coupler jaws, primary lock release handle, secondary lock release handle, linkage, and locking plunger for damage and proper operation. **b.** Check that coupler jaws lock open: (1) Pull out secondary lock release handle and hook in position. (2) Pull out primary lock release handle.	**a.** Coupler jaws are broken or primary and/ or secondary lock release handles will not operate properly. **b.** Coupler jaws fail to lock open.

Table 2-4. Preventive Maintenance Checks and Services (M1088) (Cont)

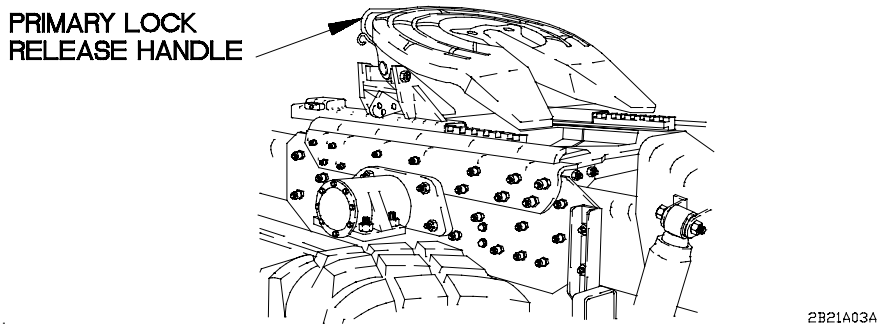
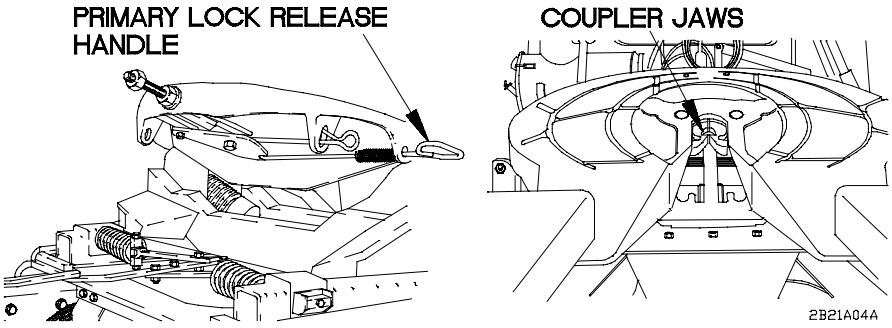
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
1	Before	Fifth Wheel without Semitrailer Coupled (Cont)	(3) Place primary lock release handle in locked position.	
				
			(4) Check that coupler jaws stay open with primary lock release handle in locked position.	

Table 2-4. Preventive Maintenance Checks and Services (M1088) (Cont)

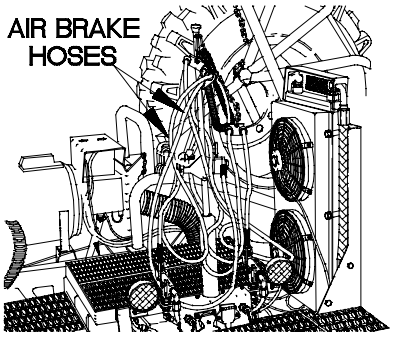
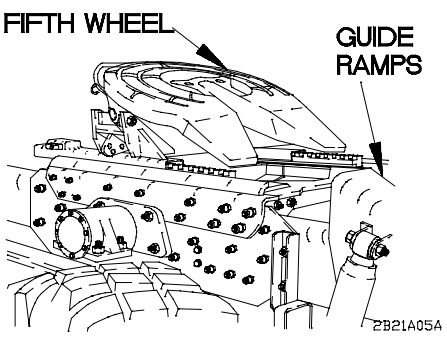
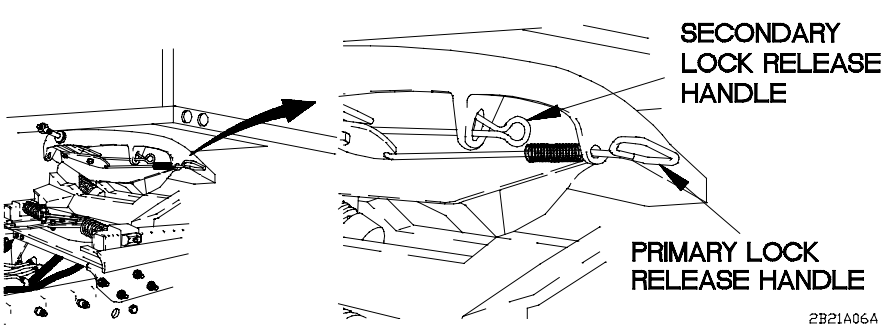
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 	
1	Before	Fifth Wheel without Semitrailer Coupled (Cont)	**c.** Check that top surface of fifth wheel and guide ramps are lubricated (Appendix F) **d.** Check that air brake hoses do not drag on work platform. Refer to para 2-39 for adjustment.	
				
2	Before	Fifth Wheel with Semitrailer Coupled	Check that primary lock release handle and secondary lock release handle are completely in.	

Table 2-4. Preventive Maintenance Checks and Services (M1088) (Cont)

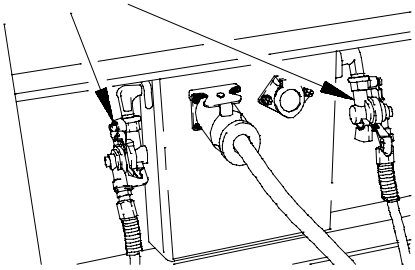
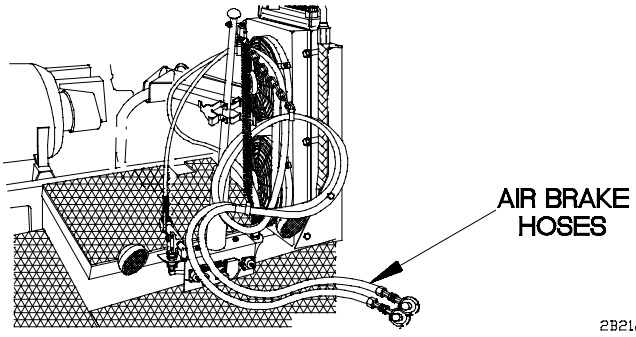
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
		AIR BRAKE HOSES AND GLADHANDS  2B21A07A		
3	Before	Semitrailer Air Brake Hoses with Semitrailer Coupled	**a.** Check that air brake hoses are securely connected to semitrailer. **b.** Check semitrailer air brake hoses and gladhands for leaks and other obvious damage.	**a.** Both air brake hoses cannot be connected to semitrailer. **b.** Semitrailer air brake hoses or gladhands are leaking or damaged.
		 2B21A08A		
			c. Check that semitrailer air brake hoses do not drag on work platform. Refer to para 2-39 for adjustment.	

Table 2-4. Preventive Maintenance Checks and Services (M1088) (Cont)

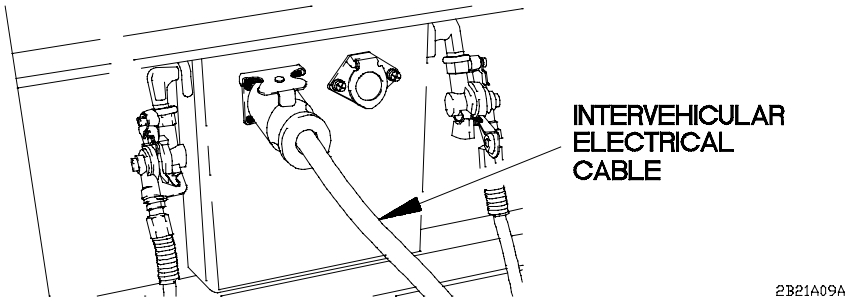
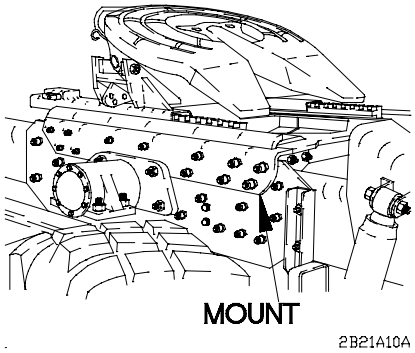
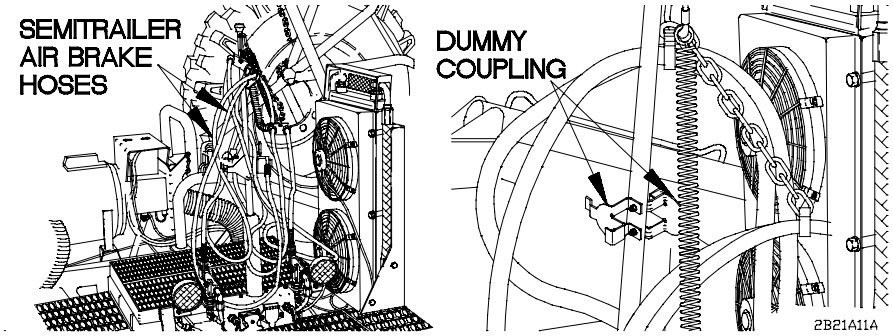
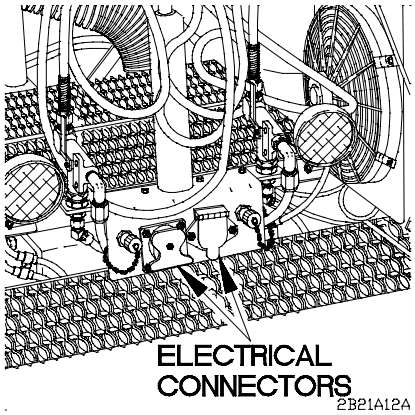
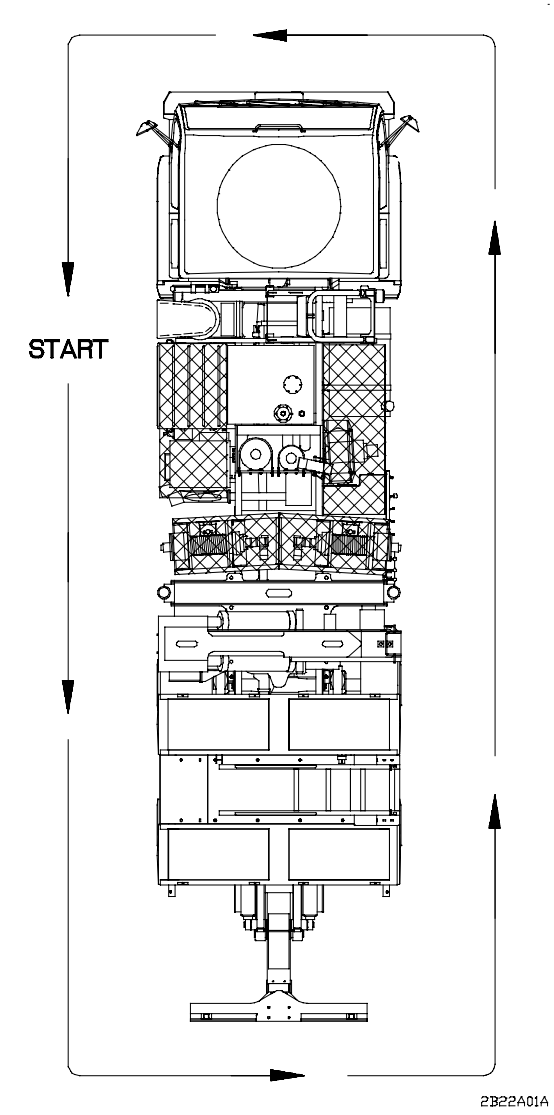
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
4	Before	Inter-vehicular Cable with Semitrailer Coupled	**a.** Check for secure attachment of intervehicular cable to semitrailer. **b.** Check intervehicular cable for cracked insulation or bare wires.	**a.** Intervehicular cable cannot be securely attached to semitrailer. **b.** Intervehicular cable has bare wires or cracked insulation.
				
5	Weekly	Fifth Wheel without Semitrailer Coupled	Check for loose mounting hardware at fifth wheel base.	Mounting hard-ware is loose.

Table 2-4. Preventive Maintenance Checks and Services (M1088) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
6	Weekly	Semitrailer Air Brake Hoses without Semitrailer Coupled	**a.** Check semitrailer air brake hoses and gladhands for leaks and other obvious damage. **b.** Remove dummy couplings from gladhands and check condition of seals.	**a.** Air leak is detected. **b.** Seals are damaged.
				
7	Weekly	Semitrailer Electrical Connectors	Check electrical connectors and seals for damage.	

2-22. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1089)

Refer to Table 2-5. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures on vehicle model M1089. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-5.



PMCS ROUTING DIAGRAM

Table 2-5. Preventive Maintenance Checks and Services (M1089)

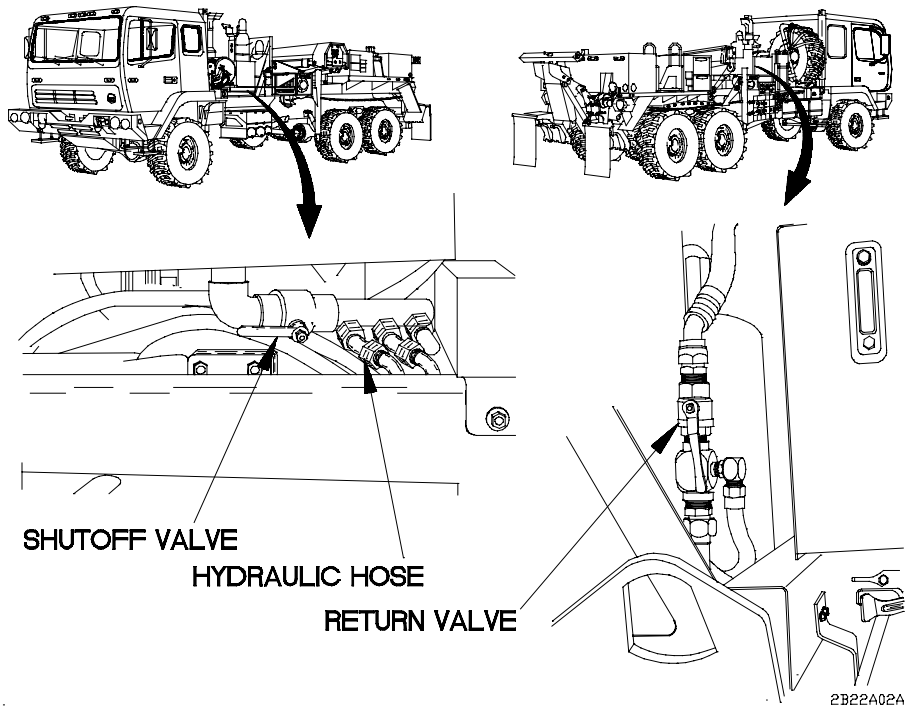
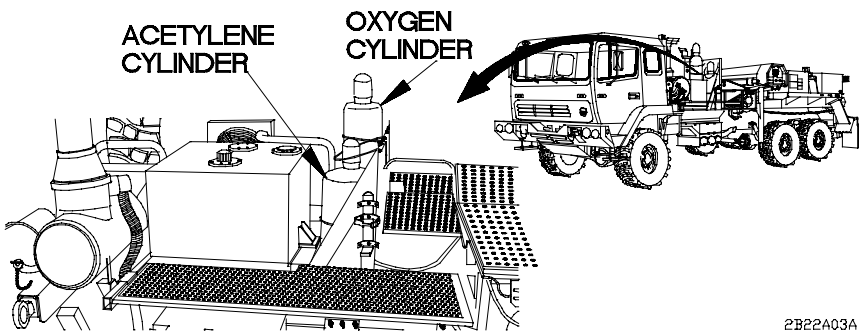
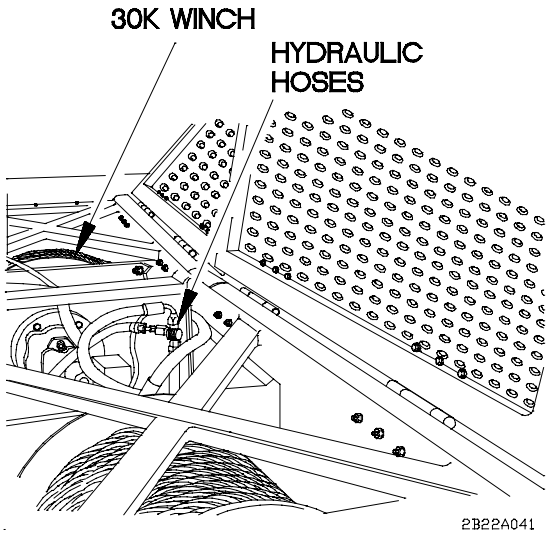
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			CAUTION Shutoff valve and return valve must be opened before Material Handling Crane (MHC), underlift assembly, stifflegs, or 30K winches are operated. Failure to comply may result in damage to equipment.	
1	Before	Shutoff and Return Valve	**a.** Check that shutoff and return valves are open. Open valves as required.	
			b. Check that hydraulic hoses are not damaged or leaking.	**b.** Class III leak is evident.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



2	Before	Oxygen and Acetylene Cylinders	Check that oxygen tank and acetylene cylinders are properly mounted and securely fastened.	



3	Before	Hydraulic Hoses and Fittings	Raise catwalk and check hydraulic hoses and fittings for leakage and damage.	Class III leak is evident.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

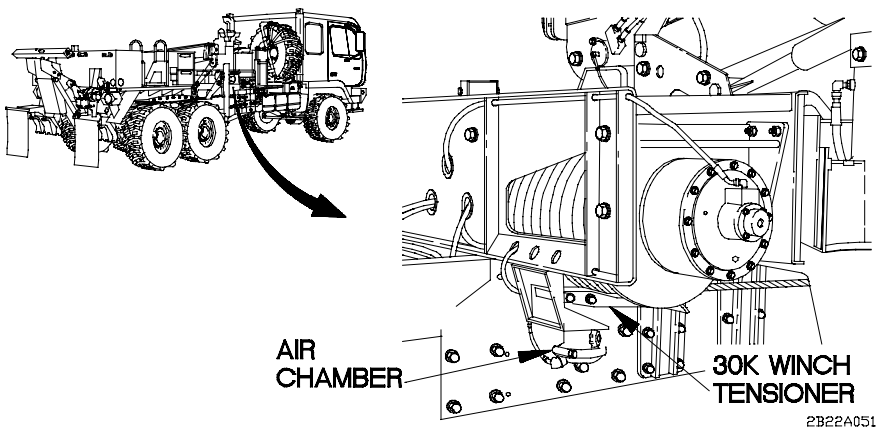
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE Both 30K winches are checked before vehicle operation only if they will be operated as part of vehicle mission.	
4	Before	30K Winches	**a.** Check hydraulic hoses on 30K winches for leakage and damage. **b.** Check 30K winch tensioner for obvious damage. **c.** Check 30K winch tensioner air chamber for obvious damage and for leaking air lines. **d.** Check 30K winch tensioner for proper operation. Check that tensioner moves freely.	**a.** Class III leak is evident. **c.** Air leak is evident.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

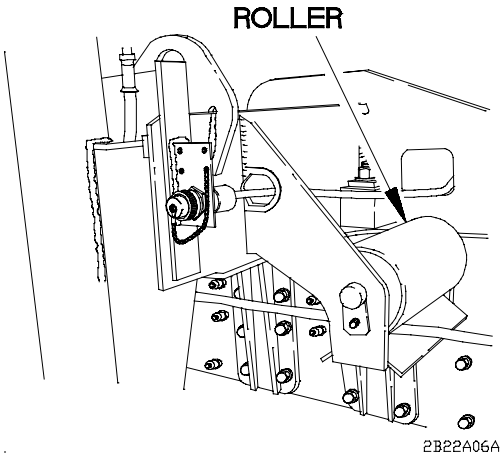
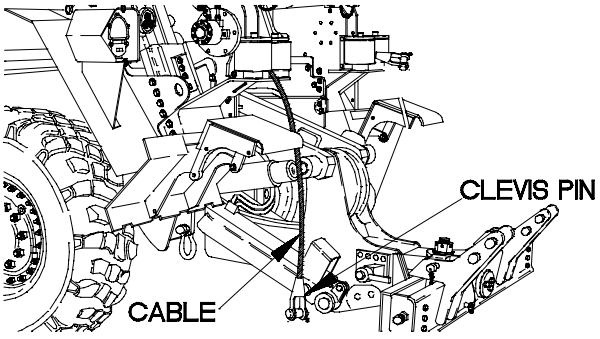
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
4	Before	30K Winches (Cont)	**e.** Check that rollers turn freely and are not damaged.	
				
			f. Check that cable clevis pin is not missing or damaged and is secure.	**f.** Clevis pin is missing or damaged and 30K winch is required for mission.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

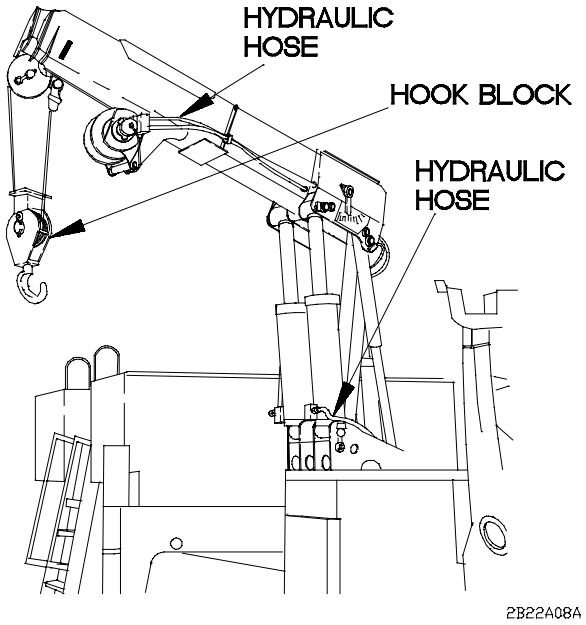
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE MHC is checked before vehicle operation only if it will be operated as part of vehicle mission.	
5	Before	MHC	**a.** Inspect MHC for loose parts, oil leaks, damage to hydraulic hoses and tubes, and other obvious damage.	**a.** Class III leak is evident or damaged hoses, tubes, or fittings are found.
			b. Check hook block for cracks and other obvious damage.	**b.** Hook block is damaged.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

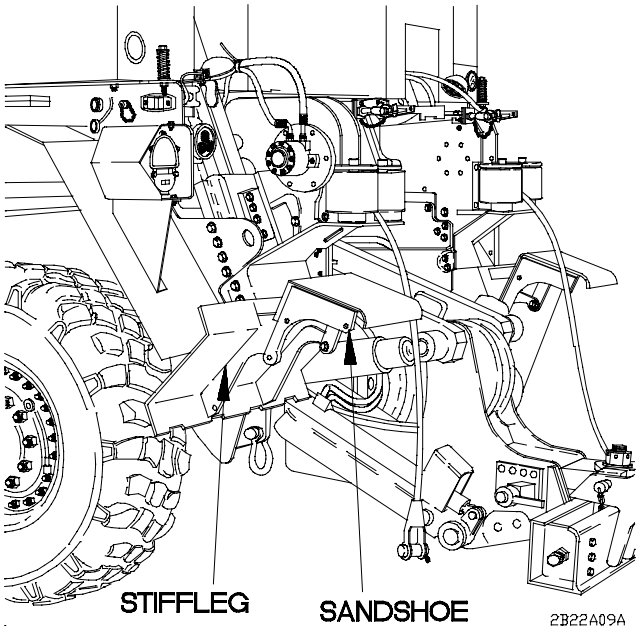
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE The underlift assembly is checked before vehicle operation only if it will be operated as part of vehicle mission.	
6	Before	Stifflegs	**a.** Check stifflegs for oil leaks and for obvious damage. **b.** Check sandshoes for damage. **c.** Check that two pins are installed in each sandshoe and that pins are not damaged.	**a.** Class III leak is evident or damaged hardware is found.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

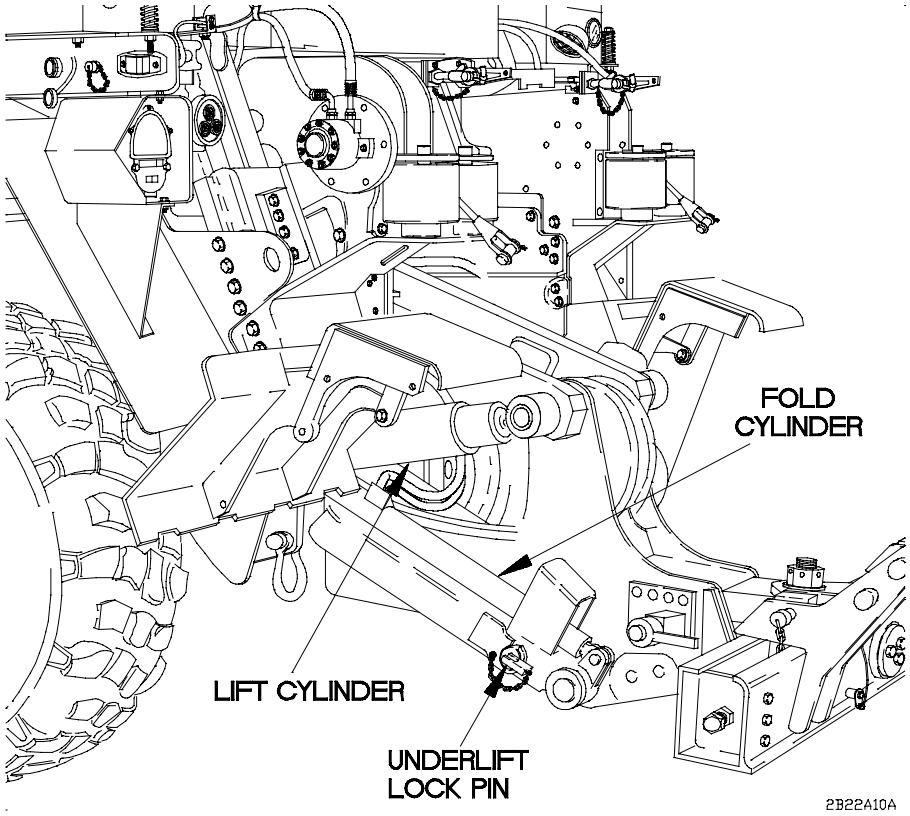
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE The underlift assembly is checked before vehicle operation only if it will be operated as part of vehicle mission.	
7	Before	Underlift Assembly	**a.** Check underlift fold and lift cylinders for leaks and obvious damage. **b.** Check that underlift lock pin is installed and is not damaged.	**a.** Class III leak is evident. **b.** Underlift lock pin is missing or damaged.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

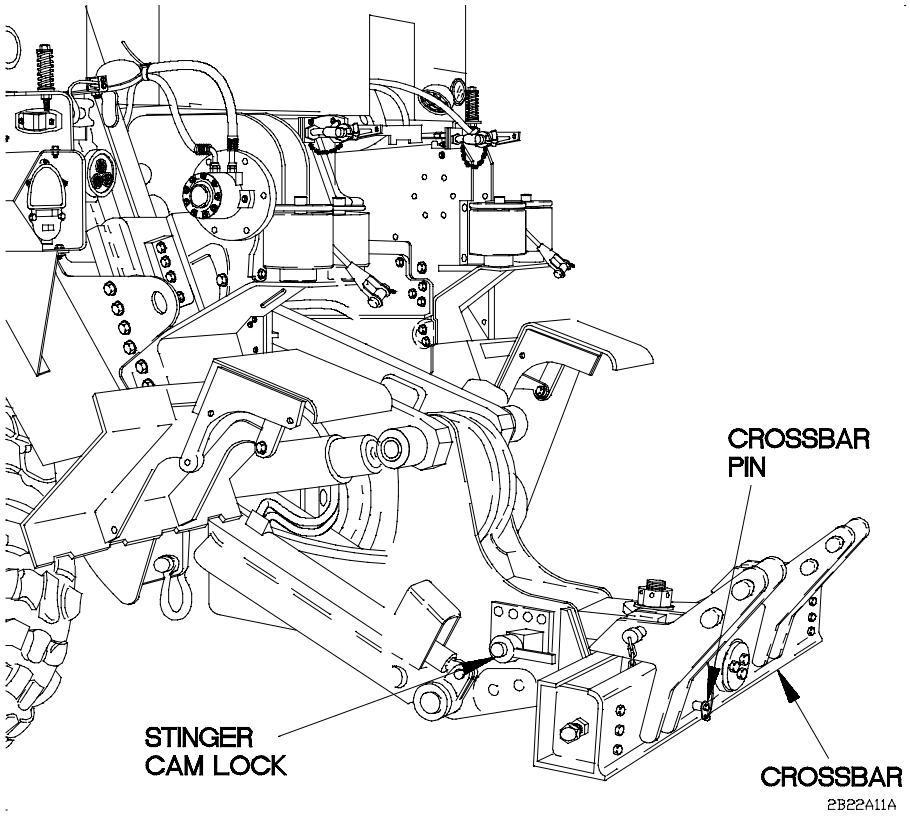
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE The underlift assembly is checked before vehicle operation only if it will be operated as part of vehicle mission.	
7	Before	Underlift Assembly (Cont)	**c.** Check that stinger cam lock is in locked position and is not damaged.	**c.** Stinger cam lock fails to lock stinger.
			d. Check that crossbar is not damaged.	**d.** Crossbar is damaged.
			e. Check that crossbar pin is installed.	**e.** Crossbar pin is missing.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

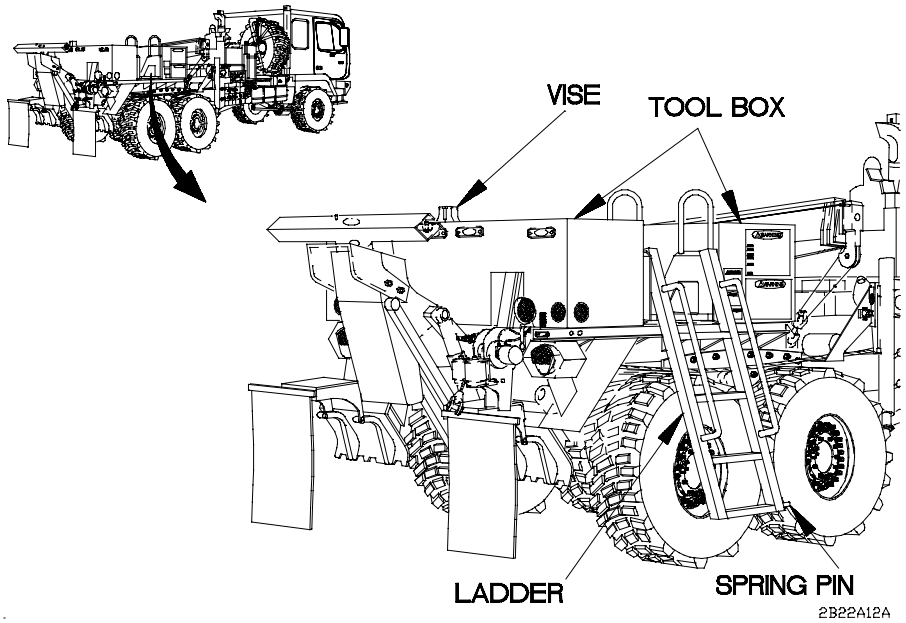
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
8	Before	Tool Boxes, Ladder, and Vise	**a.** Pull spring pin and lower ladder. **b.** Check ladder for damaged rungs and for broken welds. **c.** Check all tool boxes for damaged latches. **d.** Check that vise is mounted securely and is not damaged. **e.** Stow ladder. Check that spring pin locks ladder securely in stowed position.	**b.** Ladder is damaged to the point that it is unsafe.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

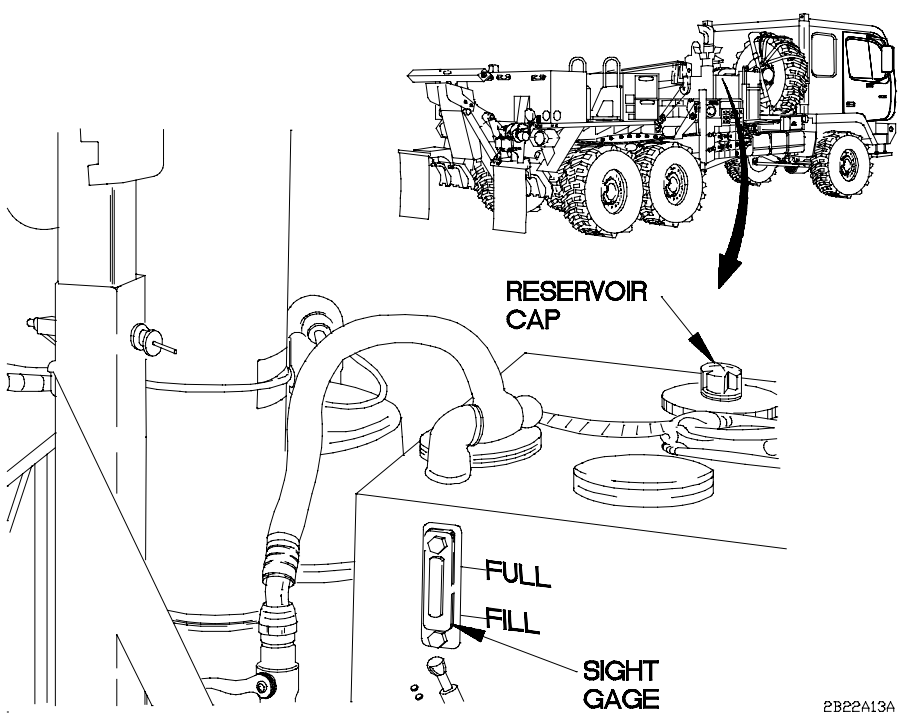
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			CAUTION Oil level must not be above FULL line or below FILL line on hydraulic tank. Failure to comply may result in damage to equipment.	
9	Before	Hydraulic Oil	**a.** Check hydraulic oil level at sight gage. **b.** Remove cap from hydraulic tank and fill hydraulic tank to proper level (Appendix F). **c.** Install cap on hydraulic tank.	**a.** Oil level above FULL line.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

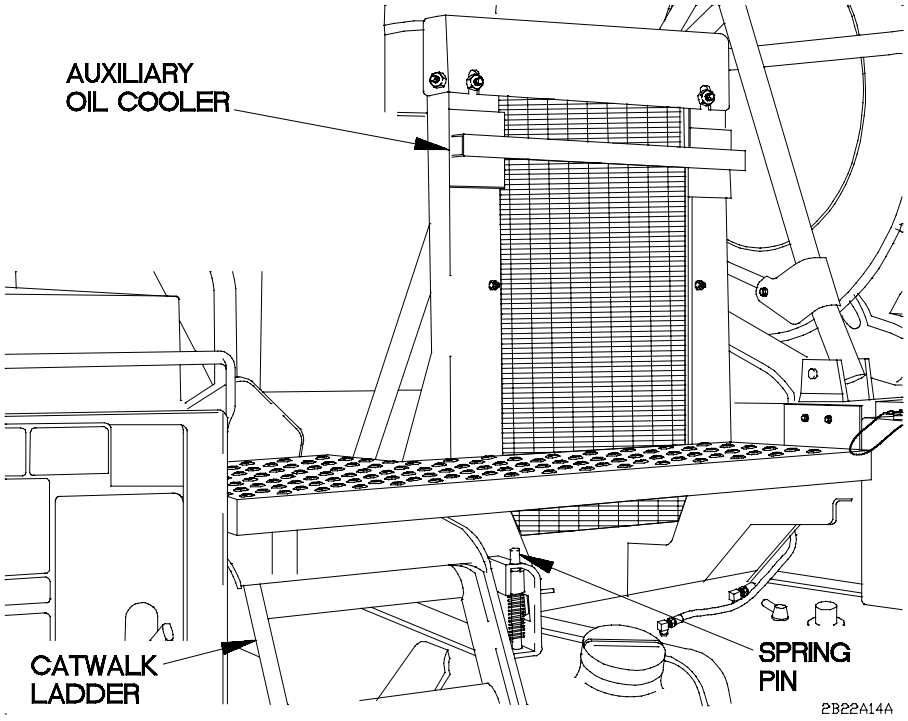
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
10	Before	Catwalk Ladder	**a.** Pull spring pin and lower ladder. **b.** Check ladder for damaged rungs and for broken welds. **c.** Stow ladder. Check that spring pin locks ladder securely in stowed position.	**b.** Ladder is damaged to the point that it is unsafe.
11	Before	Auxiliary Oil Cooler	Check auxiliary oil cooler for debris around coils.	

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
12	During	MHC Set-Up	**a.** Check that hydraulic system operates properly as follows. (1) Start engine (para 2-27a or b).	
			(2) Pull out SYSTEM PARK control. (3) Position PTO switch to ON. (4) Set engine speed to 1,250-1,450 rpm or place HAND THROTTLE lever to L.	(4) PTO does not engage.

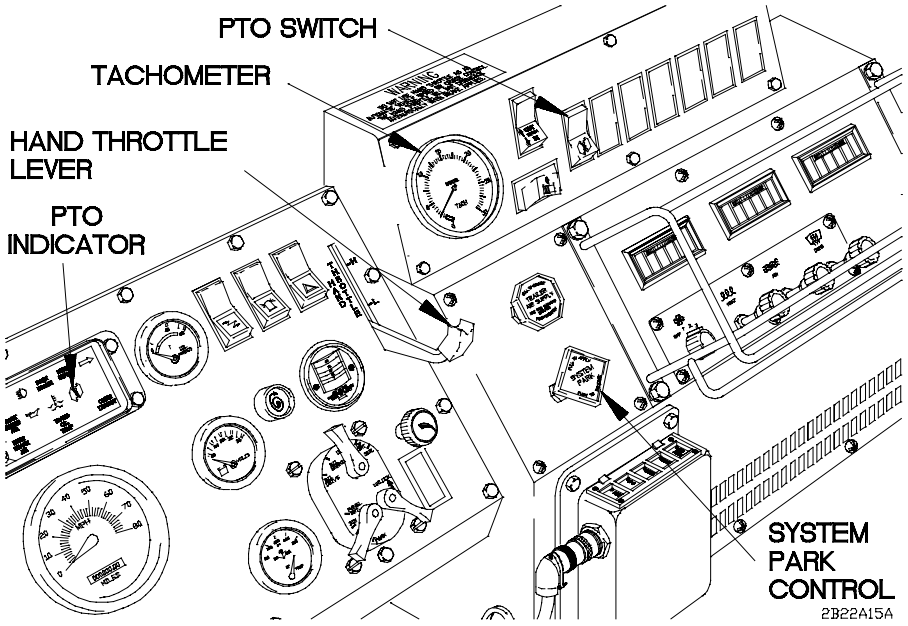


Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

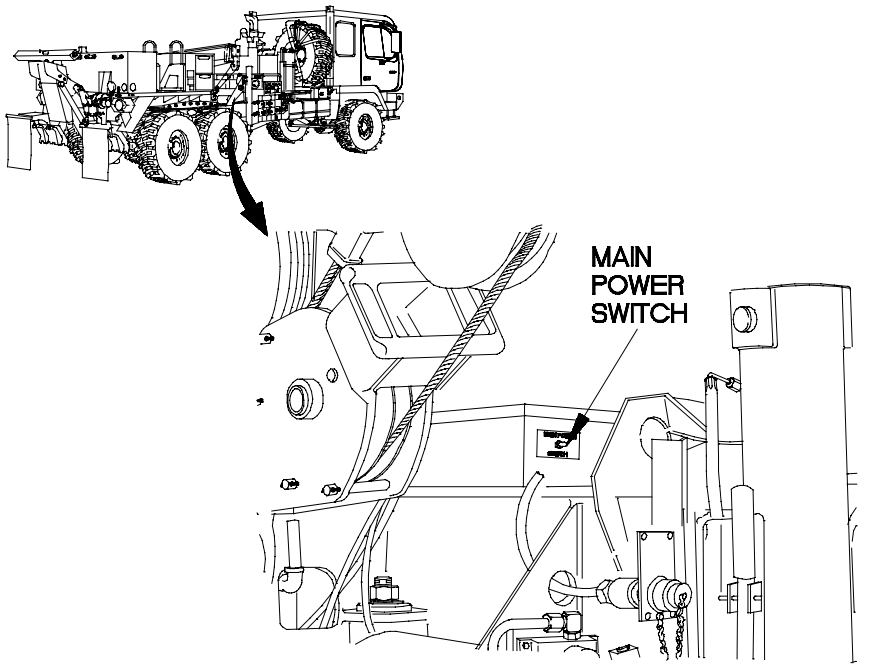
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 2B22A16A	
12	During	MHC Set-Up (Cont)	(5) Position MAIN POWER switch to ON.	

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			WARNING • **Do not operate Material Handling Crane (MHC) unless outriggers are set up and MHC is level from side to side. Failure to comply may result in serious injury or death to personnel.** • **Keep hands and feet clear of outriggers during operation. Failure to comply may result in injury to personnel.** **NOTE** • Operate MHC control levers using even pressure. Moving lever slightly will cause slow movement of MHC. Moving lever to full travel will cause faster movement of MHC. • Check MHC controls one at a time for proper operation, obvious damage, missing parts, binding, and looseness.	
13	During	MHC Operation	**a.** Set up outriggers (para 2-50c).	

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

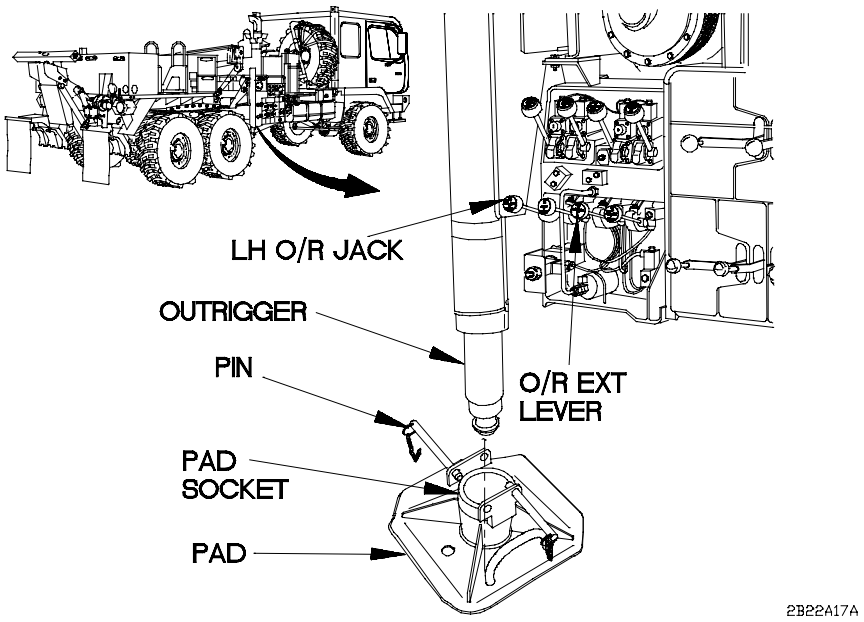
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
13	During	MHC Operation (Cont)	**b.** Check that two pins are attached to each pad. **c.** Move O/R EXT lever in OUT position until outriggers have fully extended. **d.** Move LH O/R JACK lever in DOWN position until end of outrigger lowers to outrigger pad socket. **e.** Install two pins in outrigger pad.	**b.** Pin(s) are damaged or missing. **c.** Outriggers will not extend. **d.** Outrigger cylinder will not come out or will not lower completely to outrigger pad.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

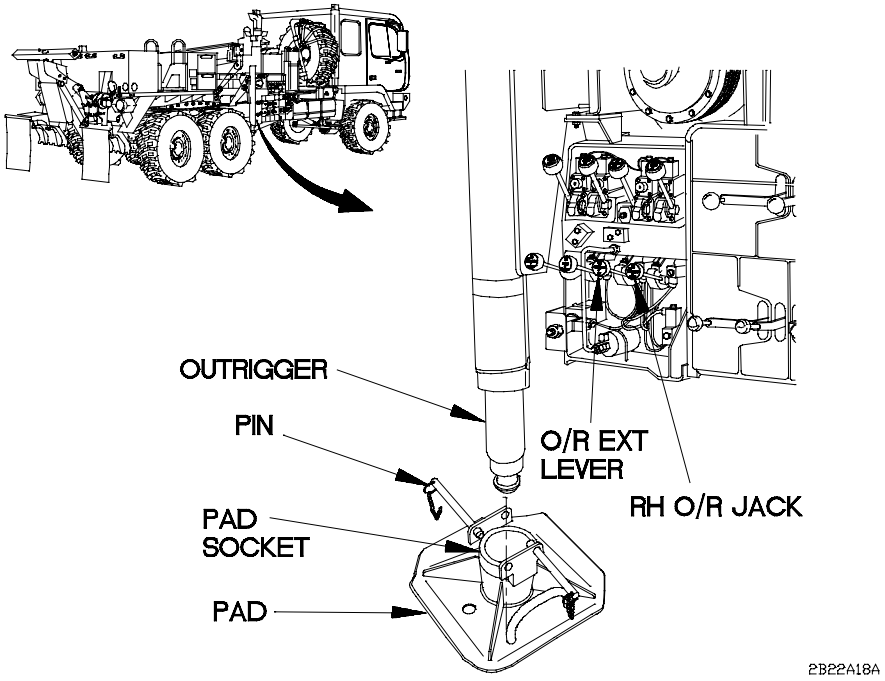
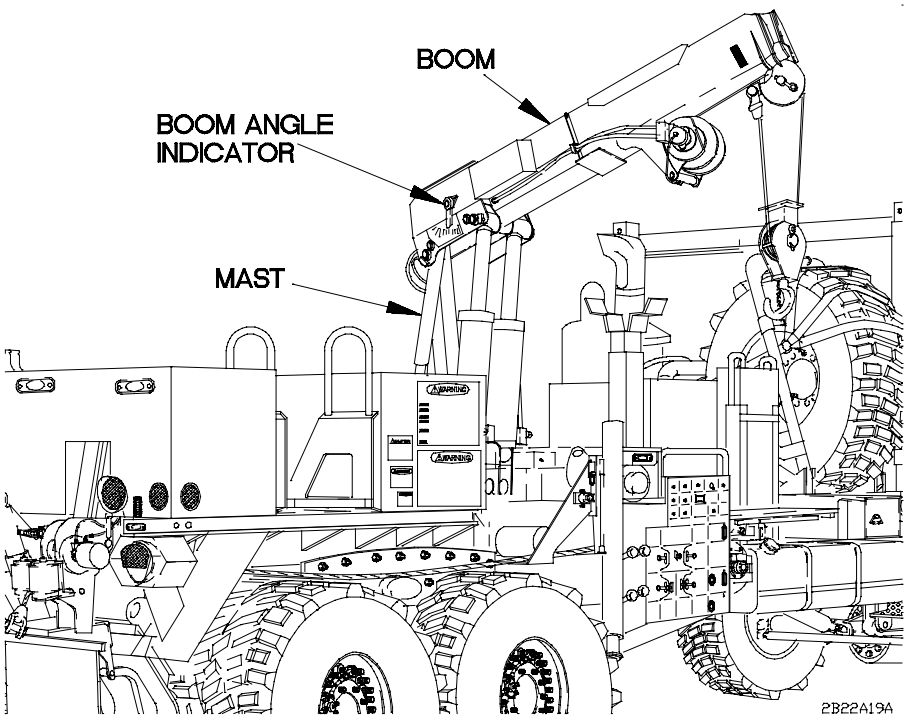
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			NOTE MHC can operate on up to 5-degree side slope.	
13	During	MHC Operation (Cont)	**f.** Move RH O/R JACK lever in DOWN position until end of outrigger lowers to outrigger pad socket.	**f.** Outrigger cylinder will not come out or will not lower completely to outrigger pad.
			g. Install two pins in outrigger pad.	
			h. Check that outriggers level vehicle from side to side.	**h.** Outriggers will not level vehicle from side to side.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



13	During	MHC Operation (Cont)	**i.** Check boom angle indicator for damage.	**i.** Boom angle indicator is damaged and does not give proper boom angle reading.
			j. Raise boom and mast to operating position (para 2-50d).	**j.** Cylinders do not raise boom and mast completely.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

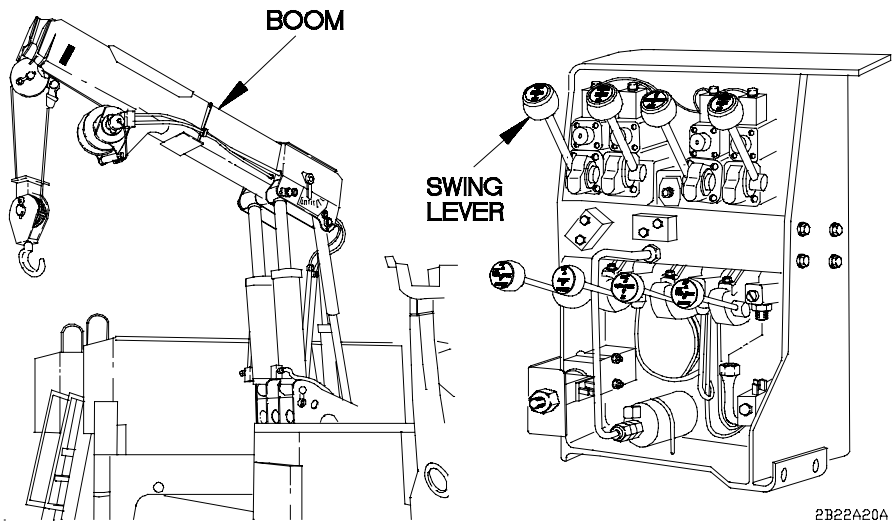
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING • **Keep boom clear of all electrical lines and other obstacles while operating Material Handling Crane (MHC). Failure to comply may result in serious injury or death to personnel.** • **Area must be clear of personnel before rotating or telescoping boom. Boom must be rotated and telescoped slow enough so Operator has control of load. If Operator cannot see load during operation, operate Material Handling Crane (MHC) with REMOTE CONTROL UNIT. Failure to comply may result in serious injury or death to personnel.**	
13	During	MHC Operation (Cont)	**k.** Move SWING lever in CW position (para 2-50f) to move boom to the right.	**k.** Boom does not move to the right.
			l. Move SWING lever in CCW position (para 2-50f) to move boom to the left.	**l.** Boom does not move to the left.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

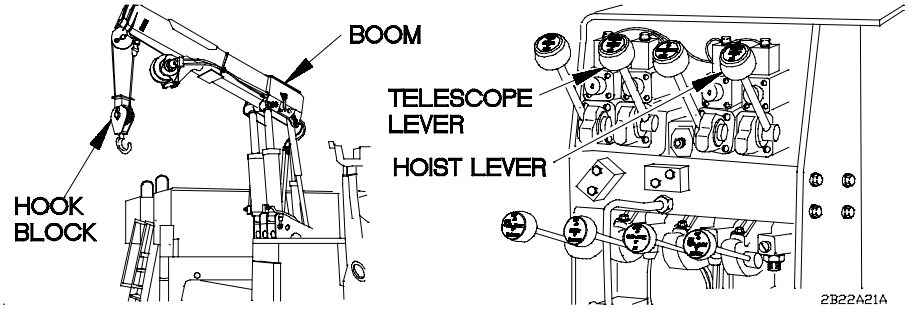
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			CAUTION Keep hook block at least 2 ft (0.61 m) from end of boom. If hook block hits end of boom, Material Handling Crane (MHC) will lose power for several seconds. Failure to comply may result in damage to equipment.	
13	During	MHC Operation (Cont)	**m.** Move TELESCOPE lever in OUT position and HOIST lever in DOWN position (para 2-50f) to extend boom.	**m.** Boom does not extend or hook block does not lower.
			n. Check all three stages of boom extension for broken welds and other obvious damage.	**n.** Any broken welds (or other obvious damage) are found.
			o. Move TELESCOPE lever to IN position and HOIST lever in UP position (para 2-50f) to retract boom.	**o.** Boom does not retract or hook block does not raise.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

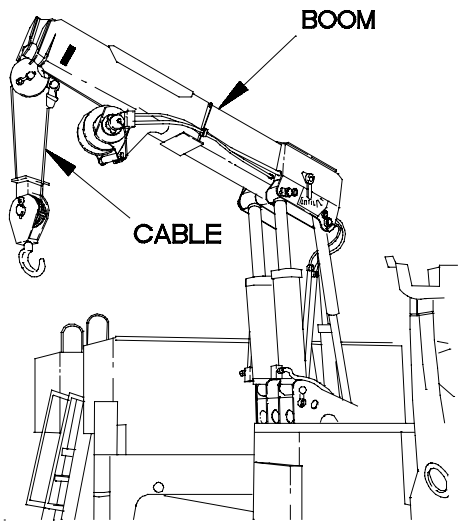
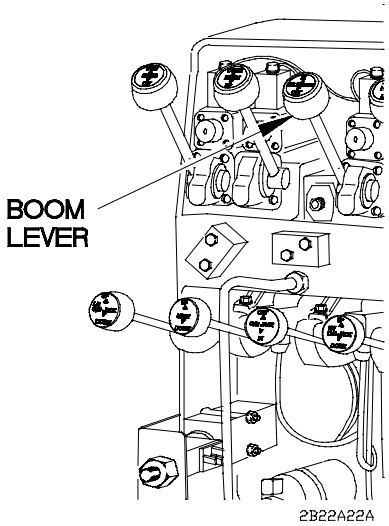
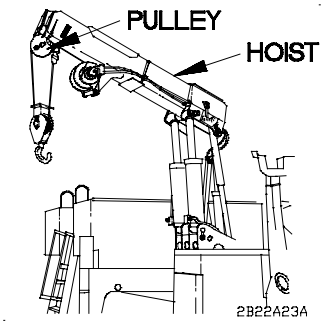
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 	
13	During	MHC Operation (Cont)	**p.** Move BOOM lever in UP position (para 2-50g) to increase angle. **q.** Move BOOM lever in DOWN position (para 2-50g) to decrease boom angle.	**p.** Boom angle does not increase. **q.** Boom angle does not decrease.
			WARNING **Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.**	
			r. Check that part of cable which is visible for kinks, frays, or breaks.	**r.** Kinks, frays, or breaks in cable are found.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
13	During	MHC Operation (Cont)	**s.** Check that pulley at end of boom is mounted securely, turns smoothly, and is not damaged.	**s.** Pulley is damaged, not mounted securely, or does not turn smoothly.
			t. Check that hoist is mounted securely and is not damaged.	**t.** Hoist is not mounted securely or is damaged.
			u. Move HOIST lever in UP position (para 2-50g) to reel in cable.	**u.** Hoist does not reel in cable.
14	During	MHC Remote Controls		
			a. Check remote control cable for cracked insulation and damage to plugs on cable ends.	**a.** Insulation is cracked and bare wire is exposed or cable plug is damaged.
			b. Check REMOTE CONTROL UNIT for broken controls or other obvious damage.	



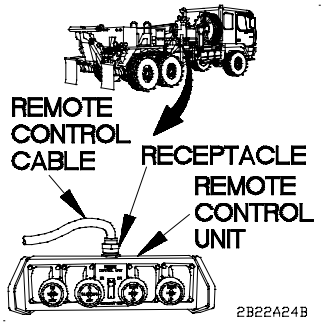


Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

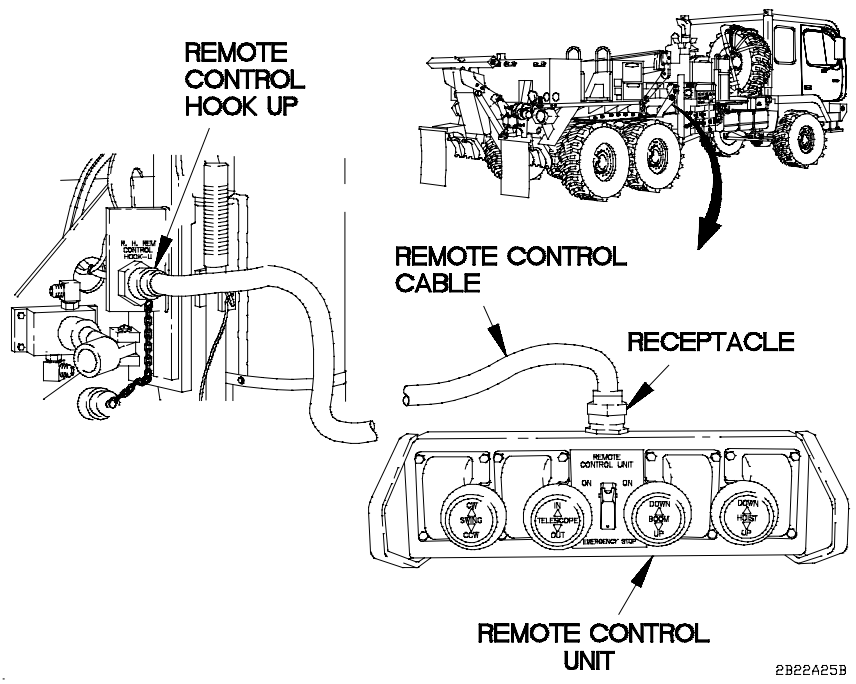
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
14	During	MHC Remote Controls (Cont)	**c.** Check receptacle on REMOTE CONTROL UNIT for damaged or missing pins. **d.** Check RH and LH REMOTE CONTROL HOOK UP receptacles for damaged or missing pins. **e.** Connect REMOTE CONTROL UNIT (para 2-50e).	**c.** Damaged or missing pins are found. **d.** Damaged or missing pins are found.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

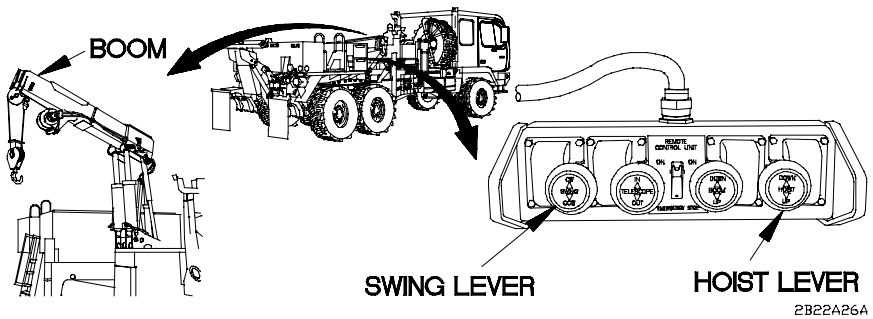
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING • **Keep boom clear of all electrical lines and other obstacles while operating Material Handling Crane (MHC). Failure to comply may result in serious injury or death to personnel.** • **Area must be clear of personnel before rotating or telescoping boom. Boom must be rotated and telescoped slow enough so Operator has control of load. If Operator cannot see load during operation, operate Material Handling Crane (MHC) with REMOTE CONTROL UNIT. Failure to comply may result in serious injury or death to personnel.**	
			CAUTION Keep hook block at least 2 ft (0.61 m) from end of boom. If hook block hits end of boom, MHC will lose power for several seconds. Failure to comply may result in damage to equipment.	
14	During	MHC Remote Controls (Cont)	**f.** Move SWING lever to CW position to move boom to right. **g.** Move SWING lever to CCW position to move boom to left.	**f.** Boom does not rotate to right. **g.** Boom does not rotate to left.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

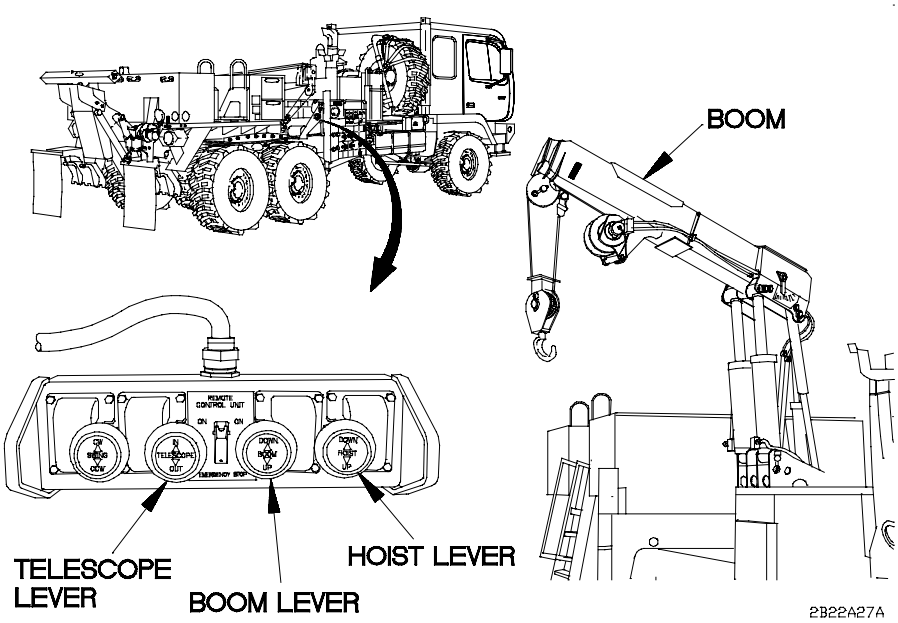
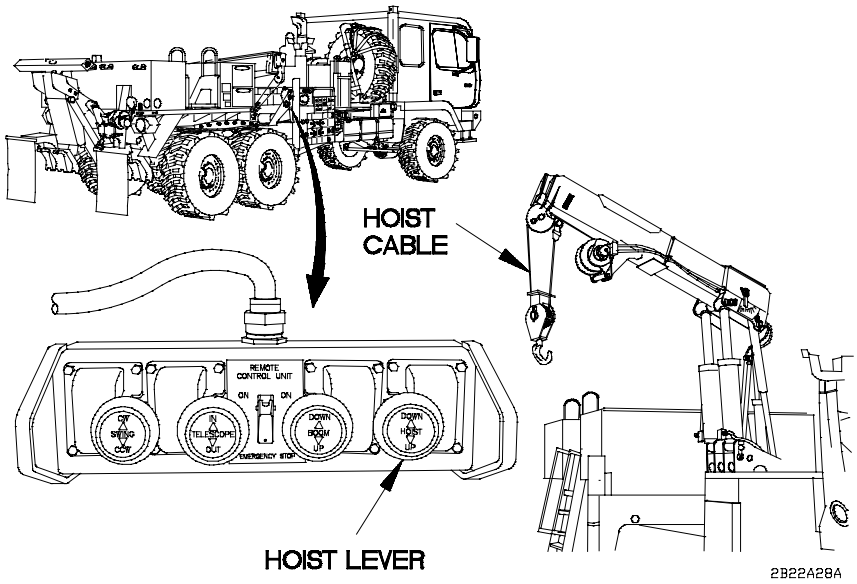
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
14	During	MHC Remote Controls (Cont)	**h.** Move TELESCOPE lever in OUT position and HOIST lever in DOWN position to extend boom. **i.** Move TELESCOPE lever to IN position and HOIST lever in UP position to retract boom. **j.** Move BOOM lever in UP position to increase boom angle. **k.** Move BOOM lever in DOWN position to decrease boom angle.	**h.** Boom does not extend or cable does not lower. **i.** Boom does not retract or hoist does not reel in cable. **j.** Boom angle does not increase. **k.** Boom angle does not decrease.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



14	During	MHC Remote Controls (Cont)	**l.** Move HOIST lever in DOWN position to pay out cable. **m.** Move HOIST lever in UP position to reel in cable. **n.** Disconnect REMOTE CONTROL UNIT (para 2-50i), stow outriggers, and shut down MHC (para 2-50j).	**l.** Hoist does not reel out cable. **m.** Hoist does not pay in cable.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

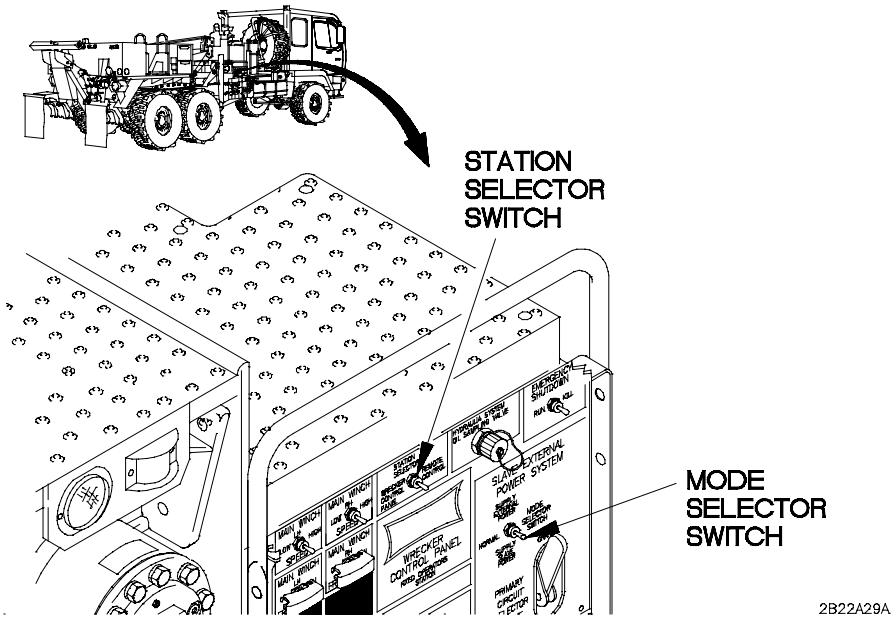
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
15	During	Stifflegs and 30K Winches	Check that 30K winches operate properly as follows. (1) Place STATION SELECTOR switch in WRECKER CONTROL PANEL position. (2) Place MODE SELECTOR SWITCH in NORMAL position.	

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

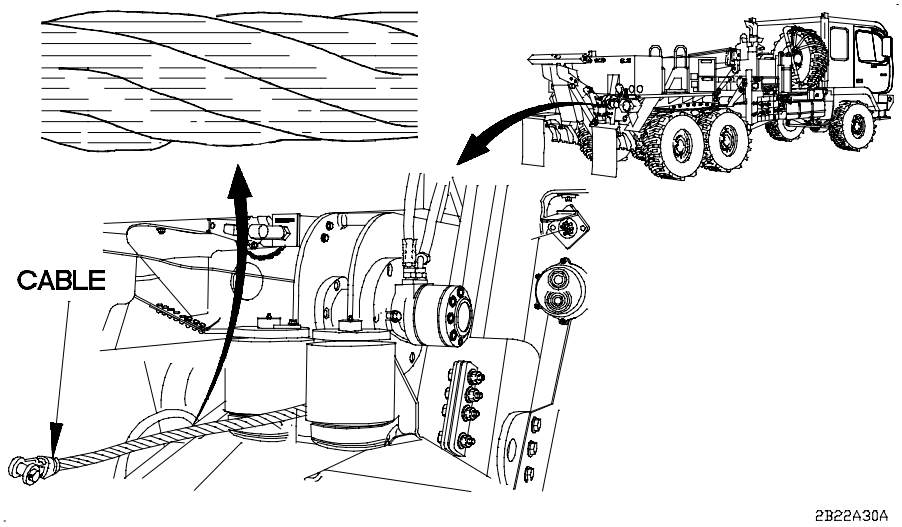
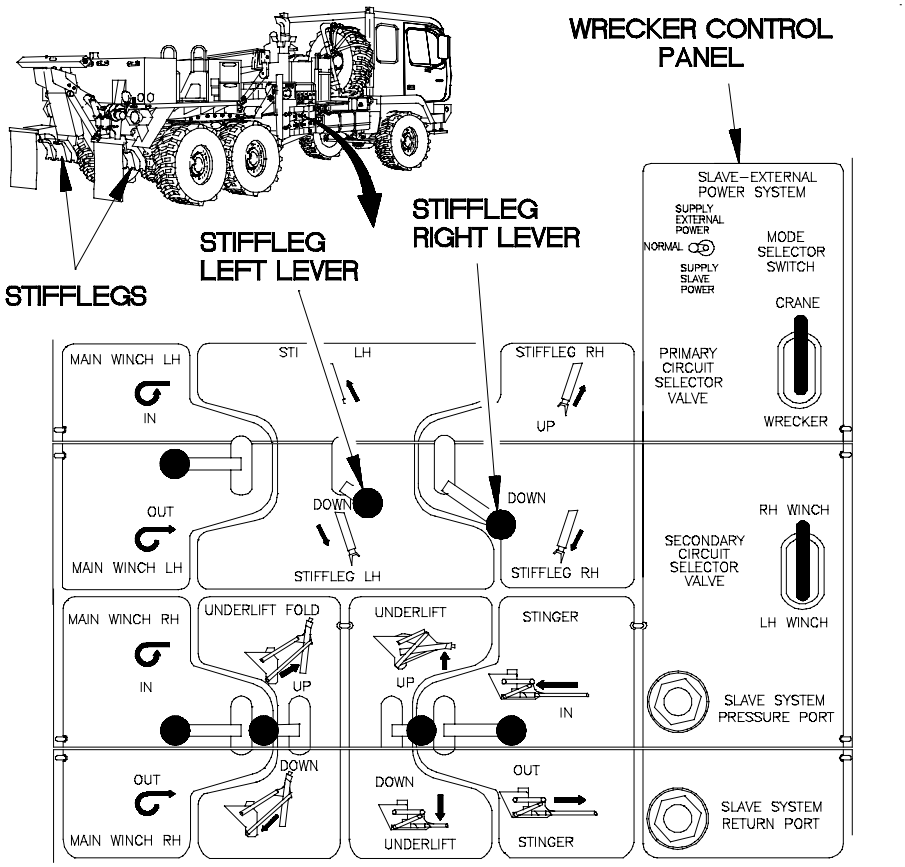
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING • **Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.** • **Keep hands clear of 30K winch during operation. Failure to comply may result in injury to personnel.**	
15	During	Stifflegs and 30K Winches (Cont)	(3) Pay out and reel in cable (para 2-42). Check that 30K winches operate properly in both directions.	
			(4) Check cable for kinks, frays, and breaks.	(4) Kinks, frays, or breaks are found.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

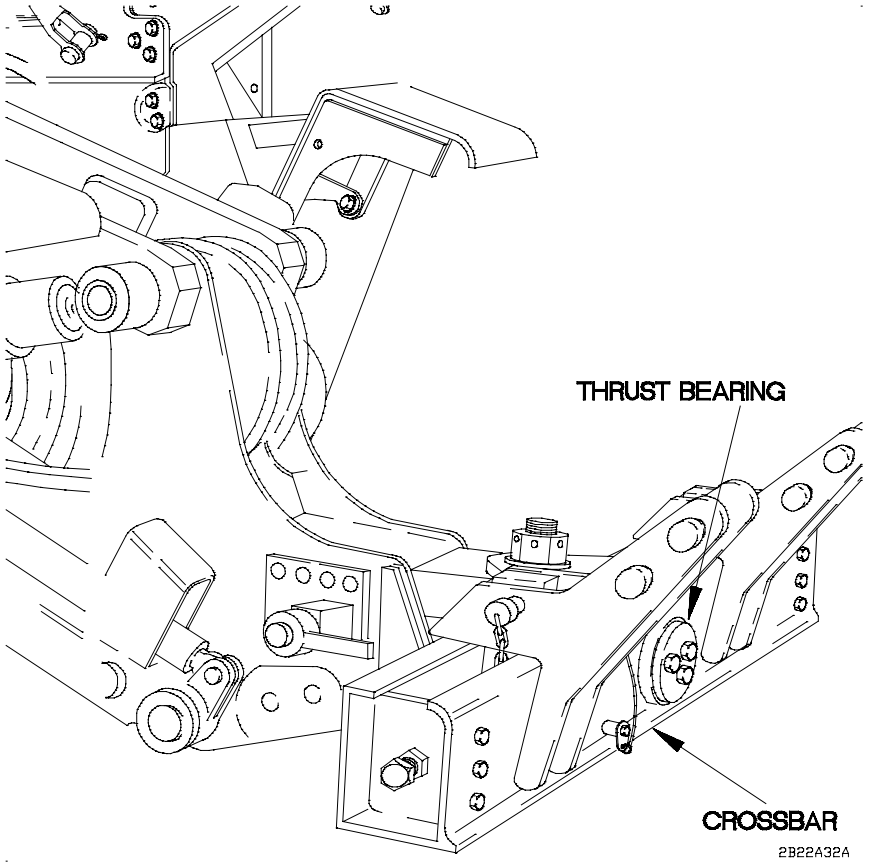
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



15	During	Stifflegs and 30K Winches (Cont)	(5) Check that stiff-legs lower when STIFFLEG LH and STIFFLEG RH levers are placed in DOWN position.	(5) Stifflegs do not lower.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

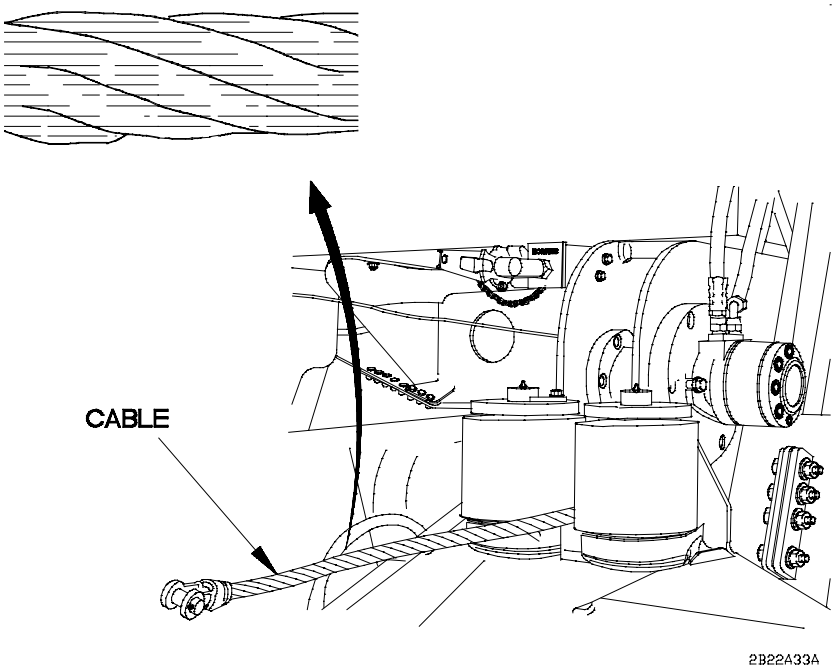
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



16	Monthly	Underlift Assembly Crossbar	Notify Unit Maintenance to inspect and lubricate crossbar thrust bearing at 1,000 miles (1609 km) of tow use.	

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.

17	Monthly	30K Winch Cable	**a.** Pay out cable completely and inspect for kinks, sharp bends, abrasions, and broken wires (para 2-42).	**a.** Cable is damaged or excessively worn.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

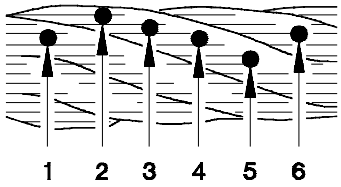
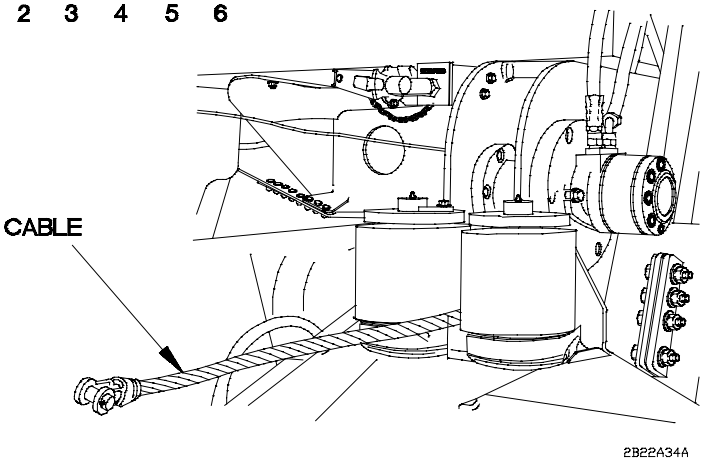
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				  2B22A34A
17	Monthly	30K Winch Cable (Cont)		**b.** Six randomly distributed broken wires in any 6 in. (15 cm) section of cable or three broken (breaks 3,4,5) in a 6 in. (15 cm) section. **c.** Kinking, crushing, or any other damage resulting in distortion of cable structure.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

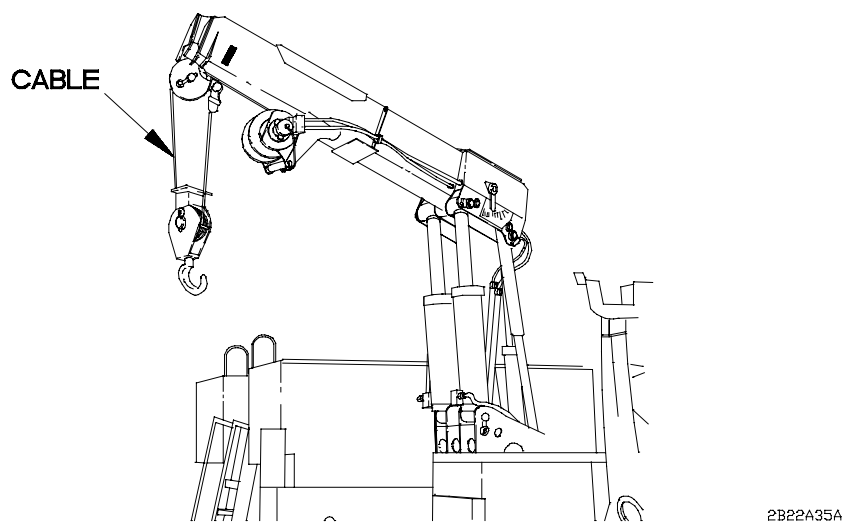
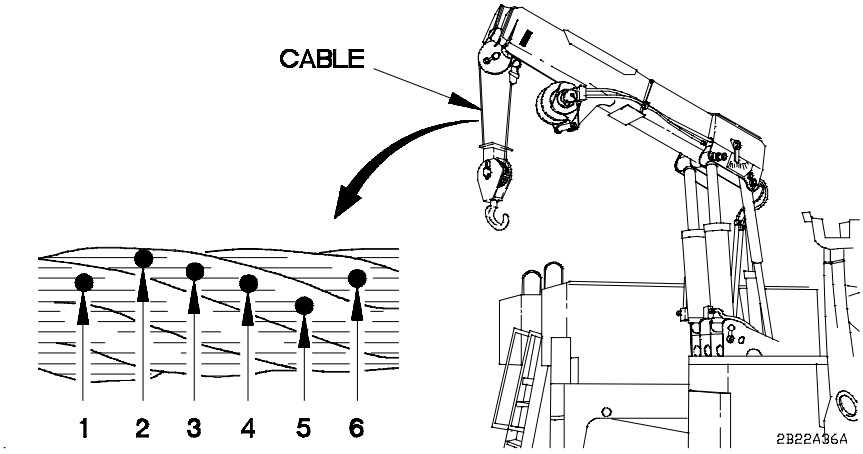
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
			WARNING **Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.**	
18	Monthly	MHC	**a.** Check MHC for corrosion, cracks, and security of mounting hardware. **b.** Pay out cable completely and inspect for kinks, sharp bends, abrasions, and broken wires (para 2-50).	**a.** MHC is damaged or not securely mounted. **b.** Cable is damaged or excessively worn.

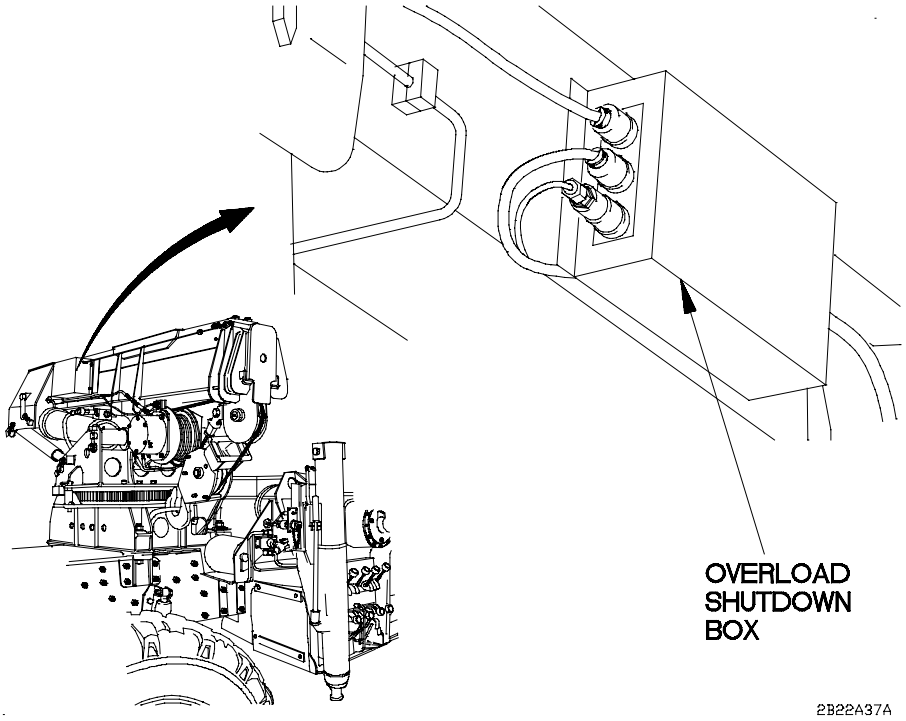
Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



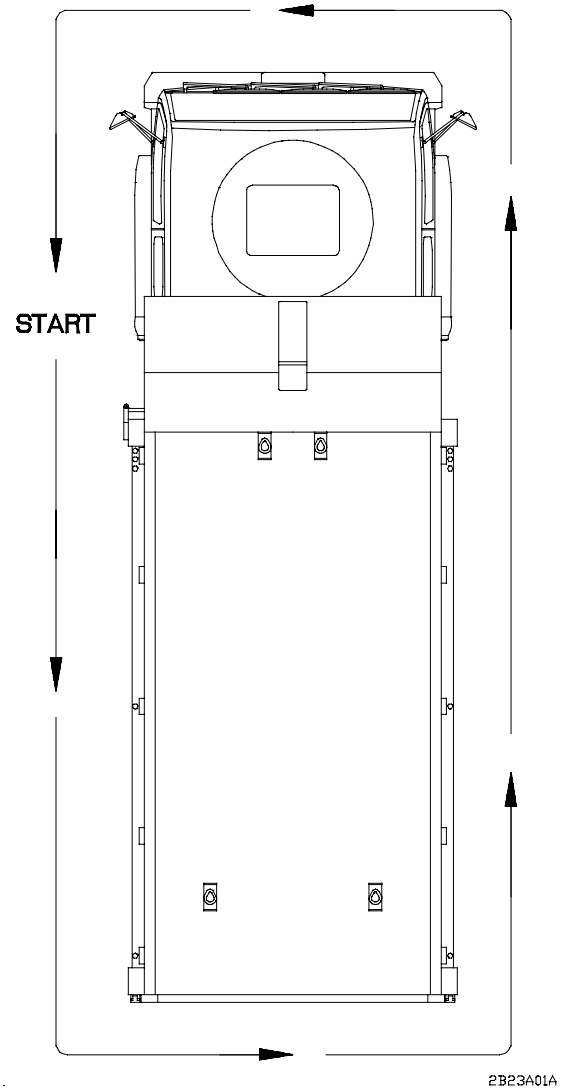
18	Monthly	MHC (Cont)		**c.** Six randomly distributed broken wires in any 6 in. (15 cm) section of cable or three broken wires in one bundle (breaks 3,4,5) in a 6 in. (15 cm) section. **d.** Kinking, crushing, or any other damage resulting in distortion of cable structure.

Table 2-5. Preventive Maintenance Checks and Services (M1089) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
18	Monthly	MHC (Cont)	**e.** Check security of electrical connectors on overload shut-down box. **f.** Inspect electrical wiring for cracking, fraying, and chafing.	 **f.** Wiring is frayed, cracked, or extensively worn.

2-23. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1090 AND M1094)

Refer to Table 2-6. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures on vehicle models M1090 and M1094. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-6.



PMCS ROUTING DIAGRAM

Table 2-6. Preventive Maintenance Checks and Services (M1090 and M1094)

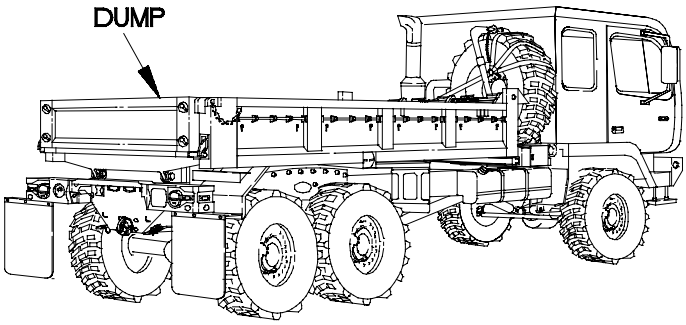
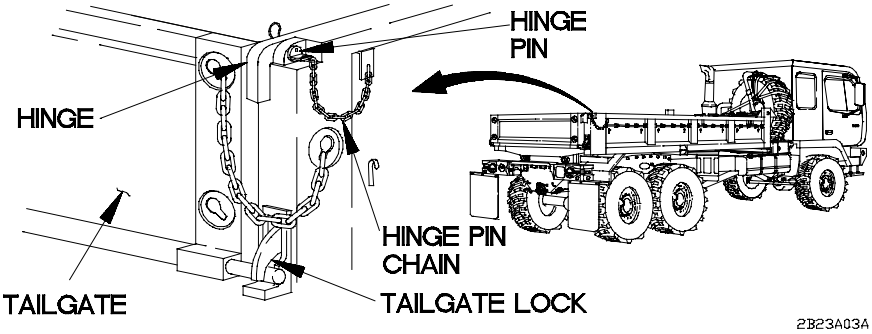
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 2B23A02A	
1	Before	Dump Body	Check dump body for obvious signs of damage.	
			 2B23A03A	
2	Before	Tailgate	**a.** Check hinges for damage. **b.** Check hinge pins or hinge pin chains for damage. **c.** Check that tailgate locks securely in closed position.	**a.** Hinge is damaged. **b.** Hinge pins or hinge pin chains are missing or broken. **c.** Tailgate does not lock in the closed position.

Table 2-6. Preventive Maintenance Checks and Services (M1090 and M1094) (Cont)

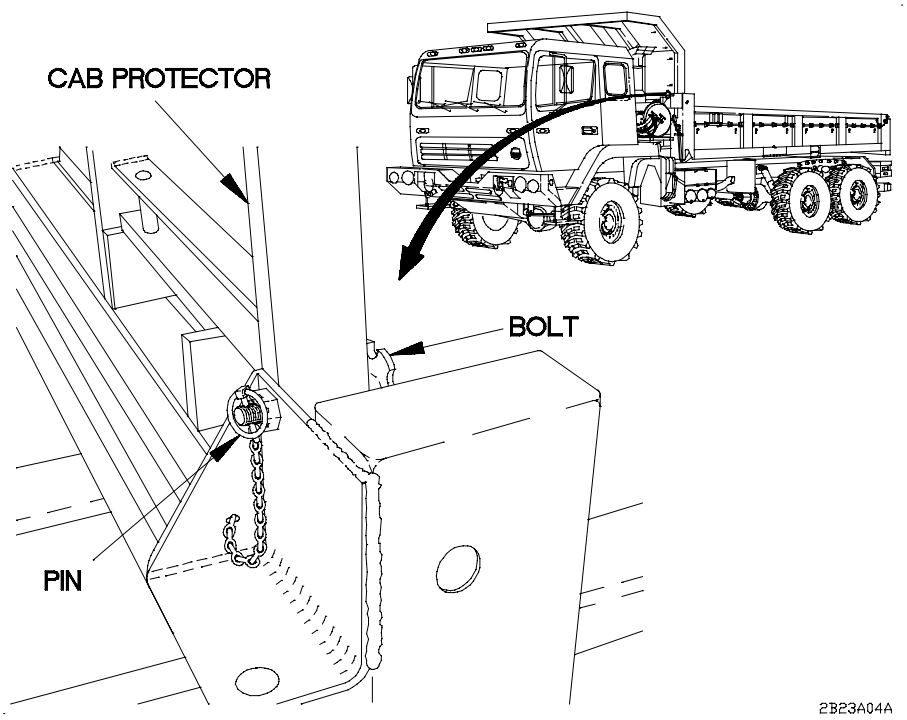
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
3	Before	Cab Protector	**a.** Raise cab protector (para 2-38b). **b.** Ensure two pins and two bolts are present and securely lock cab protector in raised position. **c.** Check cab protector for obvious signs of damage. **d.** Lower cab protector (para 2-38c) if not required for mission.	**b.** One or more pin(s) or bolt(s) are missing.

Table 2-6. Preventive Maintenance Checks and Services (M1090 and M1094) (Cont)

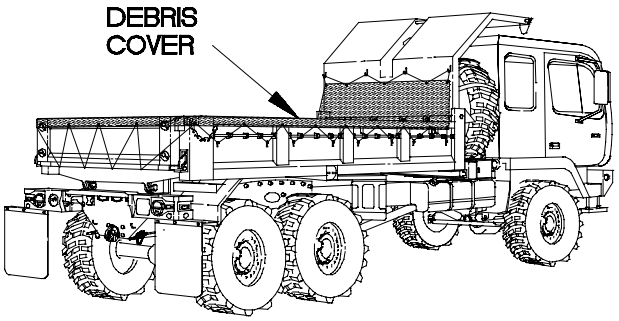
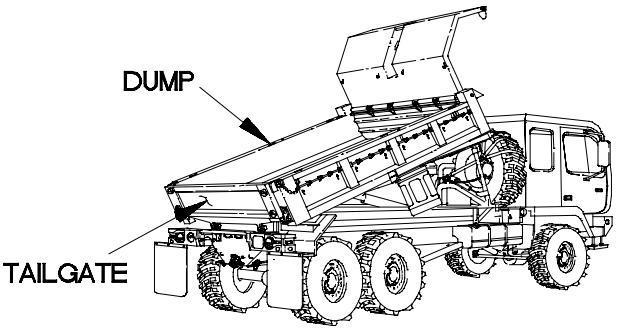
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
			 2B23A05A	
4	Before	Debris Cover	Check debris cover for tears and ripped seams that would interfere with proper operation.	
			 2B23A06A	
5	During	Dump Body and Tailgate Operation	**a.** Raise dump body (para 2-38g). **b.** Release tailgate (para 2-38j). **c.** Lower dump body (para 2-38h).	**a.** Dump body does not raise. **b.** Tailgate does not release. **c.** Dump body does not lower.

Table 2-6. Preventive Maintenance Checks and Services (M1090 and M1094) (Cont)

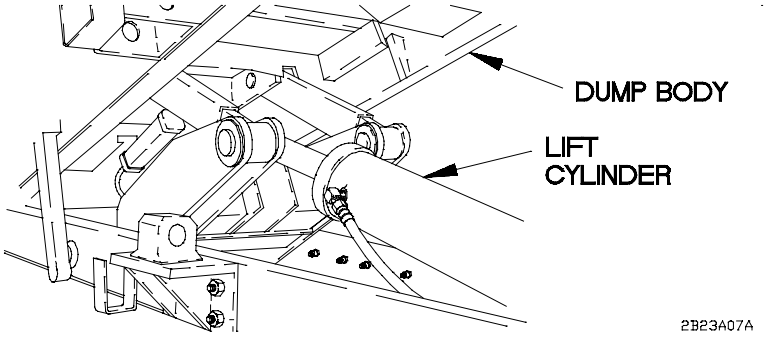
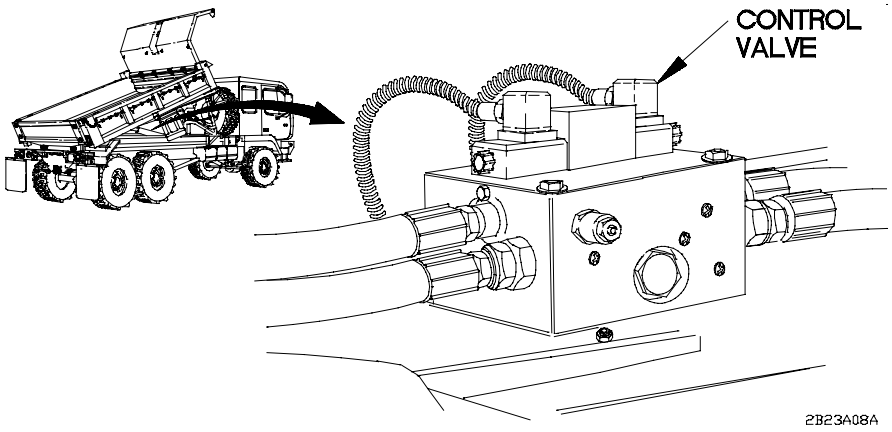
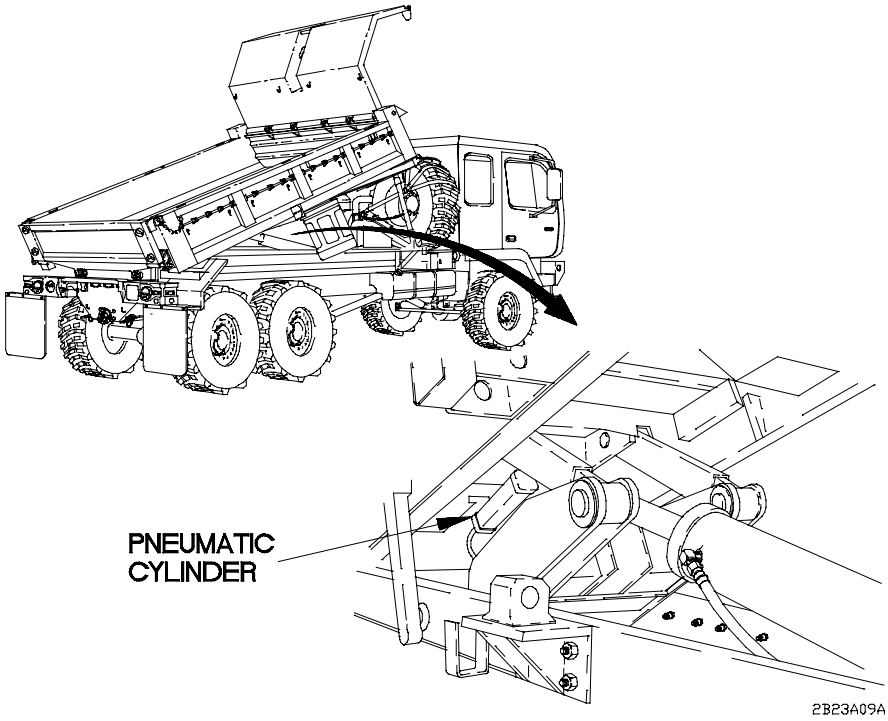
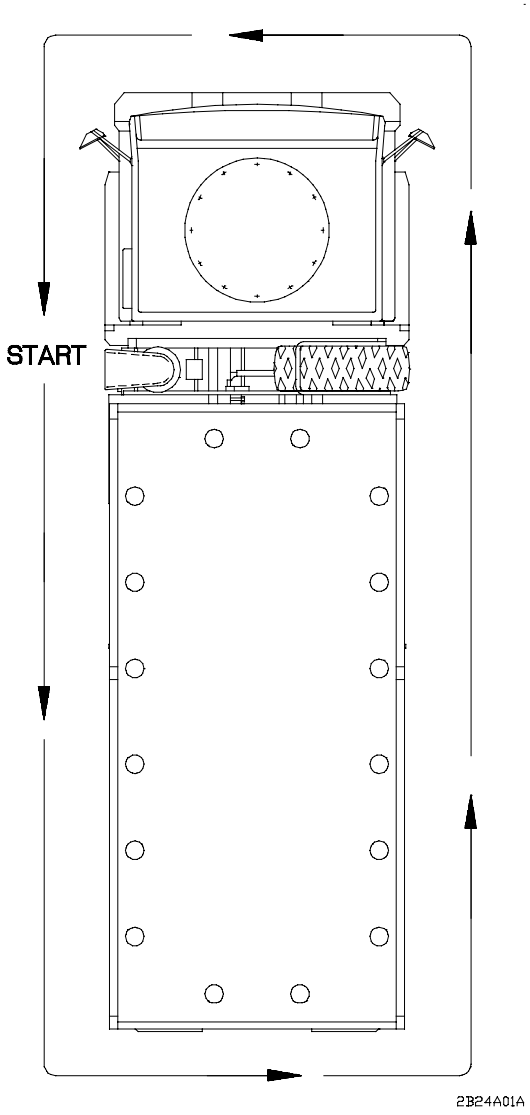
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
6	Weekly	Dump Body Lift Cylinder	**a.** Raise dump body (para 2-38g). **b.** Check lift cylinder for obvious damage and leaks.	**b.** Class III leak is evident or lift cylinder is damaged.
				
7	Weekly	Control Valve	**a.** Check control valve for obvious damage.	**a.** Control valve is damaged.

Table 2-6. Preventive Maintenance Checks and Services (M1090 and M1094) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
8	Weekly	Tailgate Pneumatic Cylinder	**a.** Check pneumatic cylinder for obvious damage. **b.** Lower Dump Body (para 2-38h).	**a.** Pneumatic cylinder is damaged.

2-24. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1093)

Refer to Table 2-7. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures which are air drop specific on vehicle model M1093. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-7.



PMCS ROUTING DIAGRAM

Table 2-7. Preventive Maintenance Checks and Services (M1093)

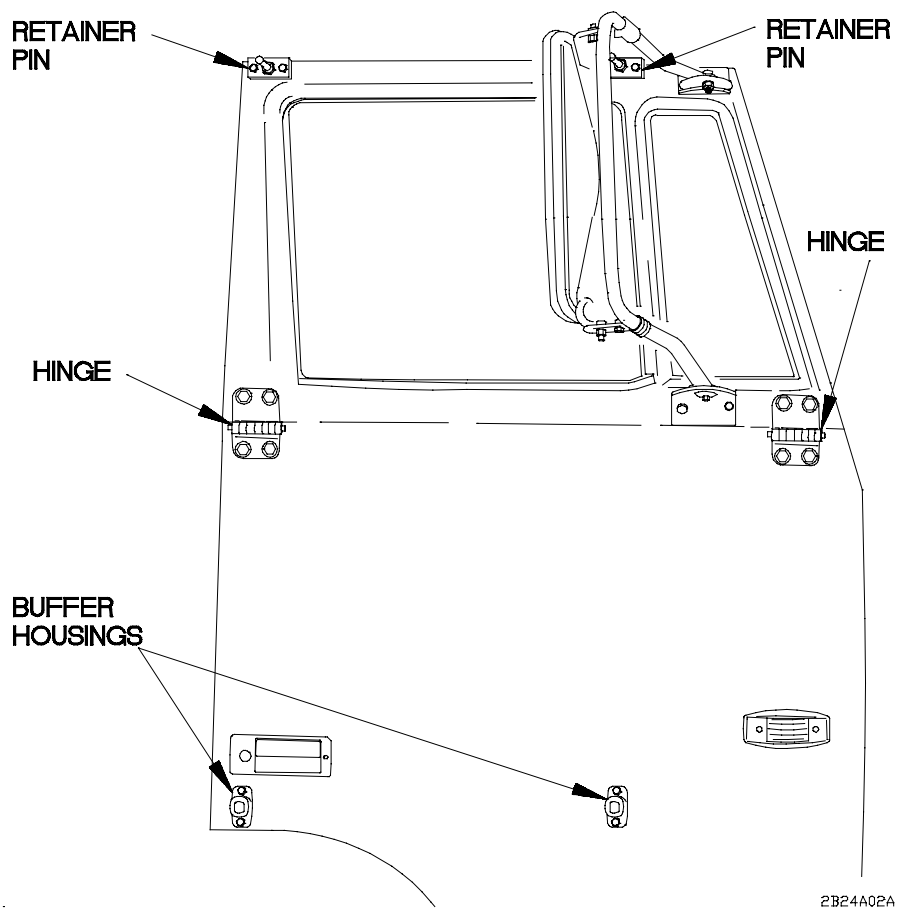
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
1	Weekly	Hinges	Check that hinges are secure and not damaged.	
2	Weekly	Retainer Pins and Buffer Housings	Check that retainer pins and buffer housings are secure and not damaged.	

Table 2-7. Preventive Maintenance Checks and Services (M1093) (Cont)

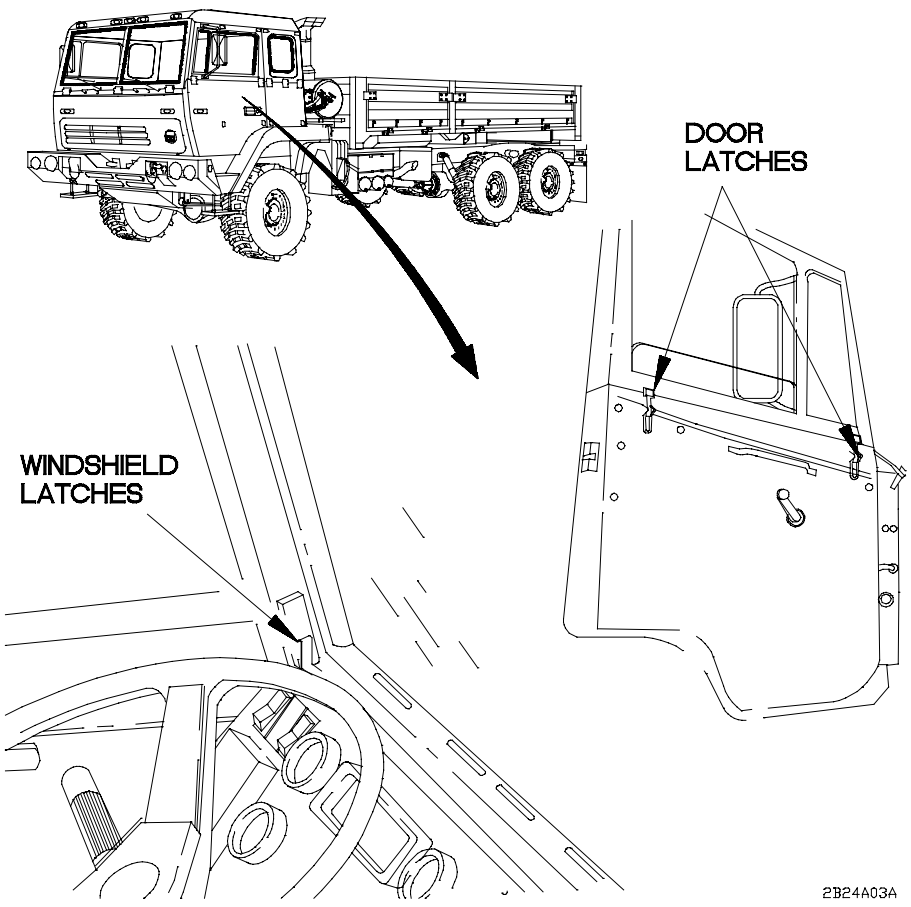
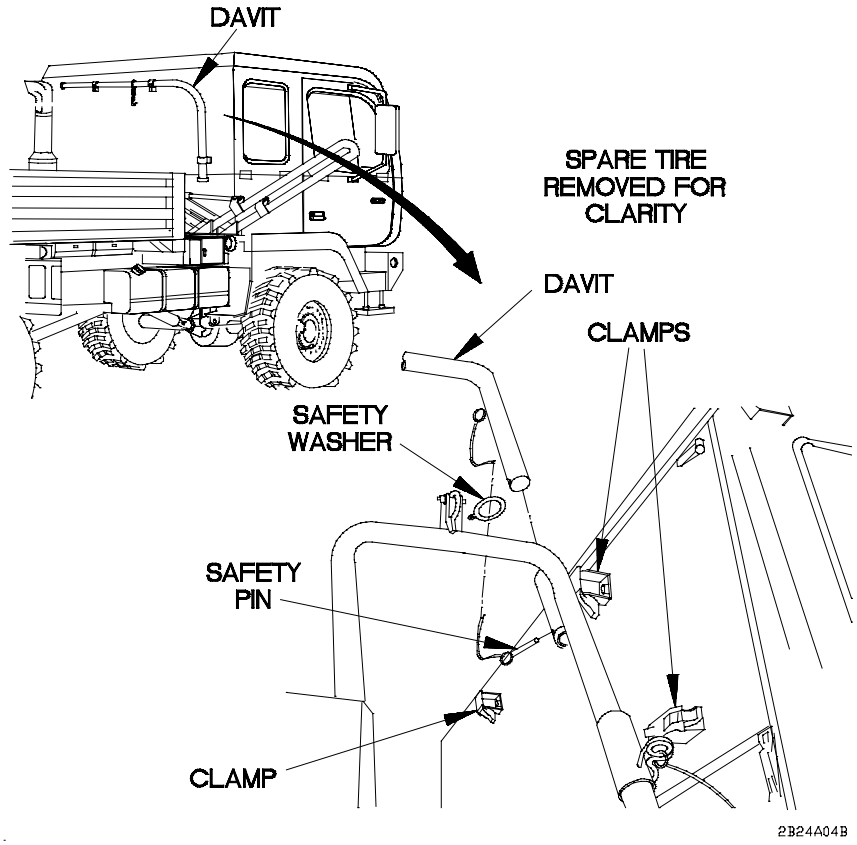
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
3	Weekly	Latches	**a.** Check that door latches are secure and not damaged. **b.** Check that windshield latches are secure and not damaged.	

Table 2-7. Preventive Maintenance Checks and Services (M1093) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



4	Weekly	Davit	**a.** Check davit for damage.	**a.** Davit boom is damaged or missing.
			b. Check that three clamps lock davit in the stowed position.	**b.** Any clamp is damaged or missing.
			c. Check that davit safety washer and safety pin are present.	**c.** Davit safety washer or pin is missing.

Table 2-7. Preventive Maintenance Checks and Services (M1093) (Cont)

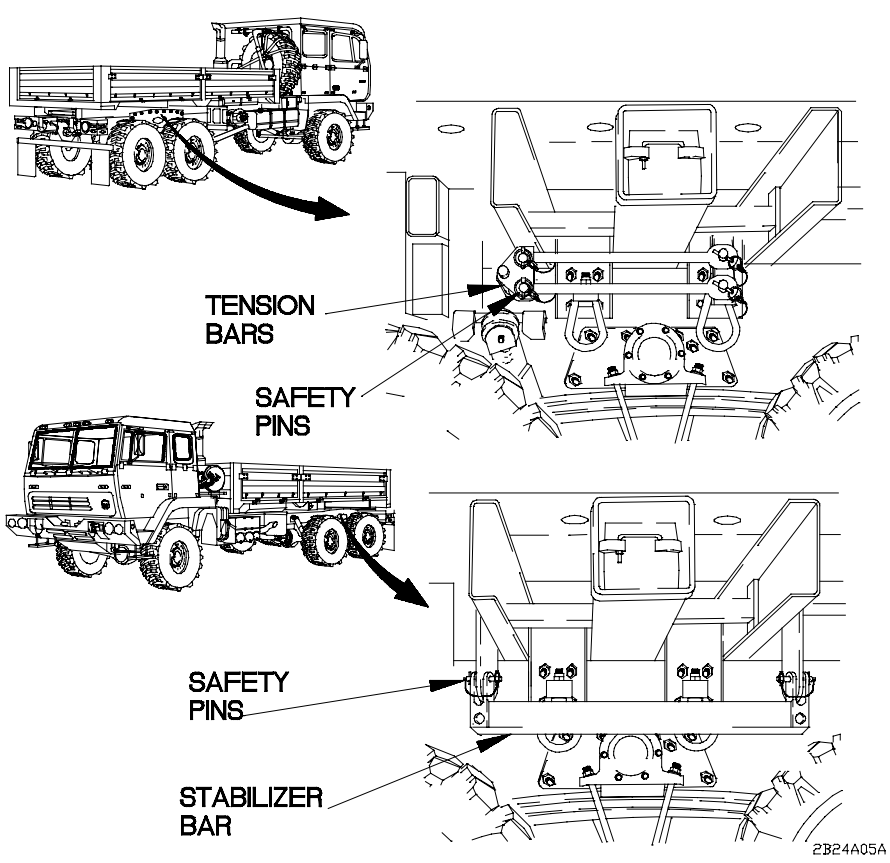
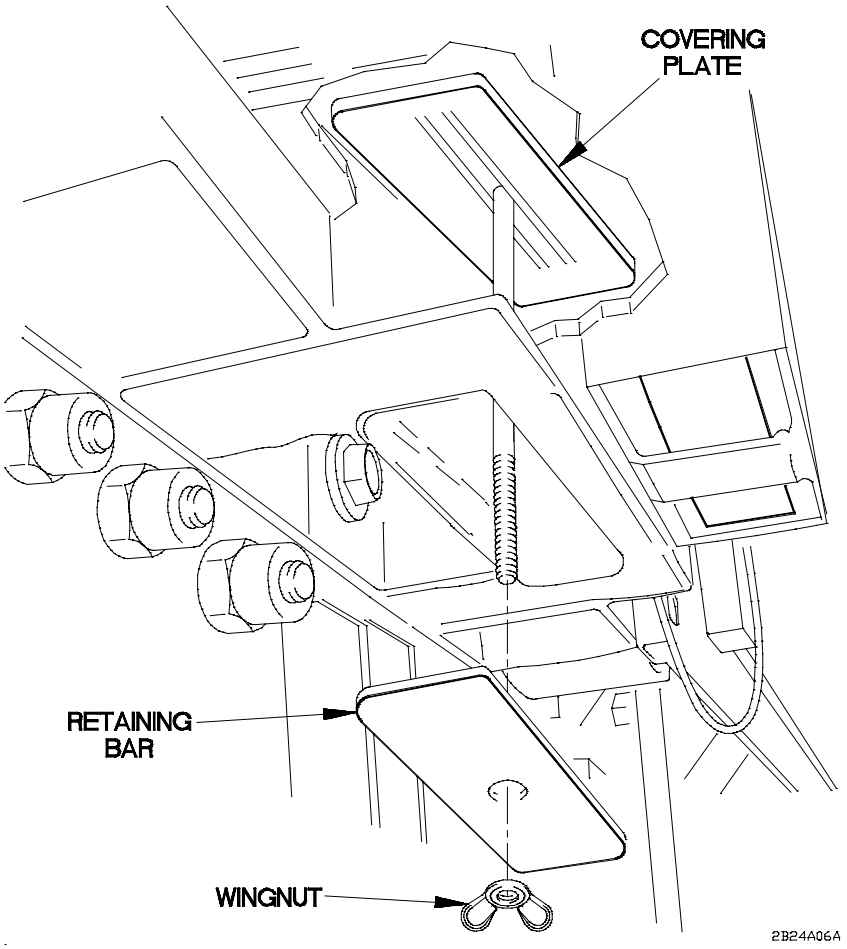
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
5	Weekly	Rear Extraction Assembly	**a.** Check that stabilizer bar and two safety pins are present. **b.** Check that two tension bars and three safety pins are present.	

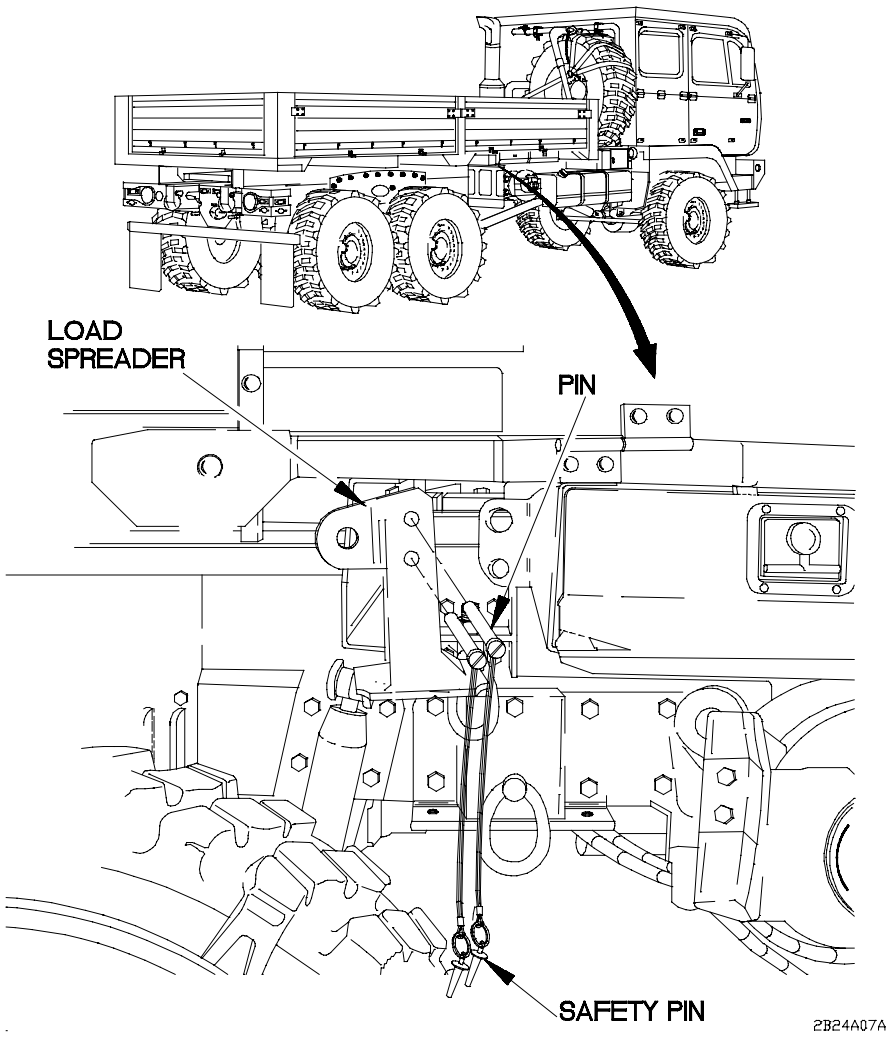
Table 2-7. Preventive Maintenance Checks and Services (M1093) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



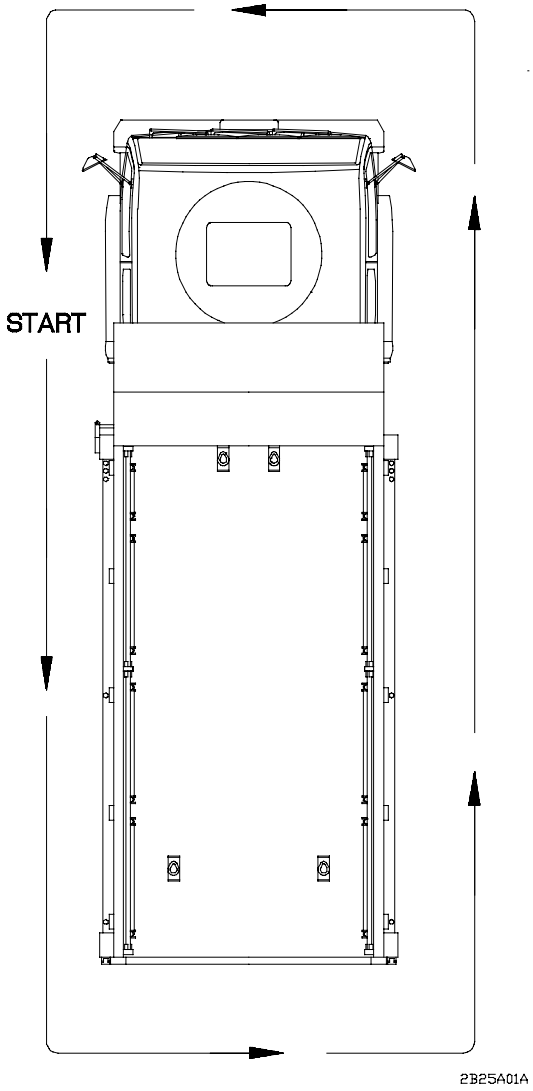
6	Weekly	Slide Assembly	Check that wingnut, retaining bar, and covering plate are present.	

Table 2-7. Preventive Maintenance Checks and Services (M1093) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
7	Weekly	Load Spreader	Check that two load spreaders, four pins, and safety pins are present.	

2-25. PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE (M1094)

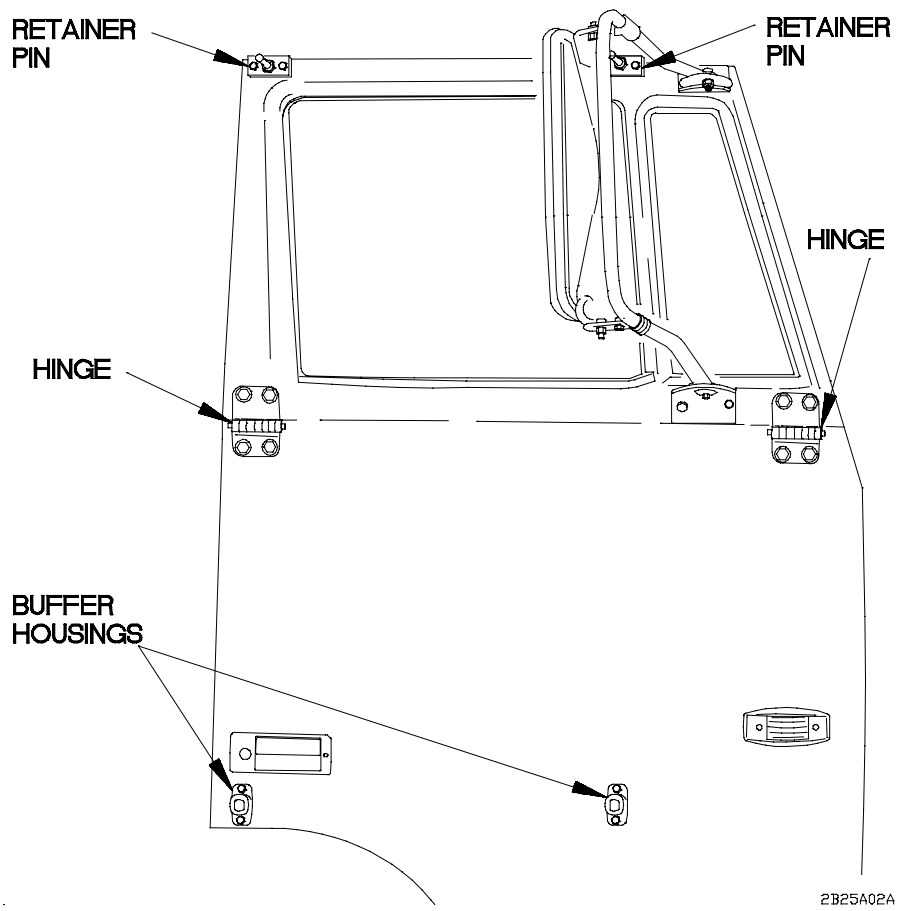
Refer to Table 2-8. Preventive Maintenance Checks and Services (PMCS) for Operator/ Crew procedures which are air drop specific on vehicle model M1094. The PMCS routing diagram is shown below. It shows the vehicle PMCS routing track which matches the sequence of PMCS given in Table 2-8.



PMCS ROUTING DIAGRAM

Table 2-8. Preventive Maintenance Checks and Services (M1094)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



1	Weekly	Hinges	Check that hinges are secure and not damaged.	
2	Weekly	Retainer Pins and Buffer Housings	Check that retainer pins and buffer housings are secure and not damaged.	

Table 2-8. Preventive Maintenance Checks and Services (M1094) (Cont)

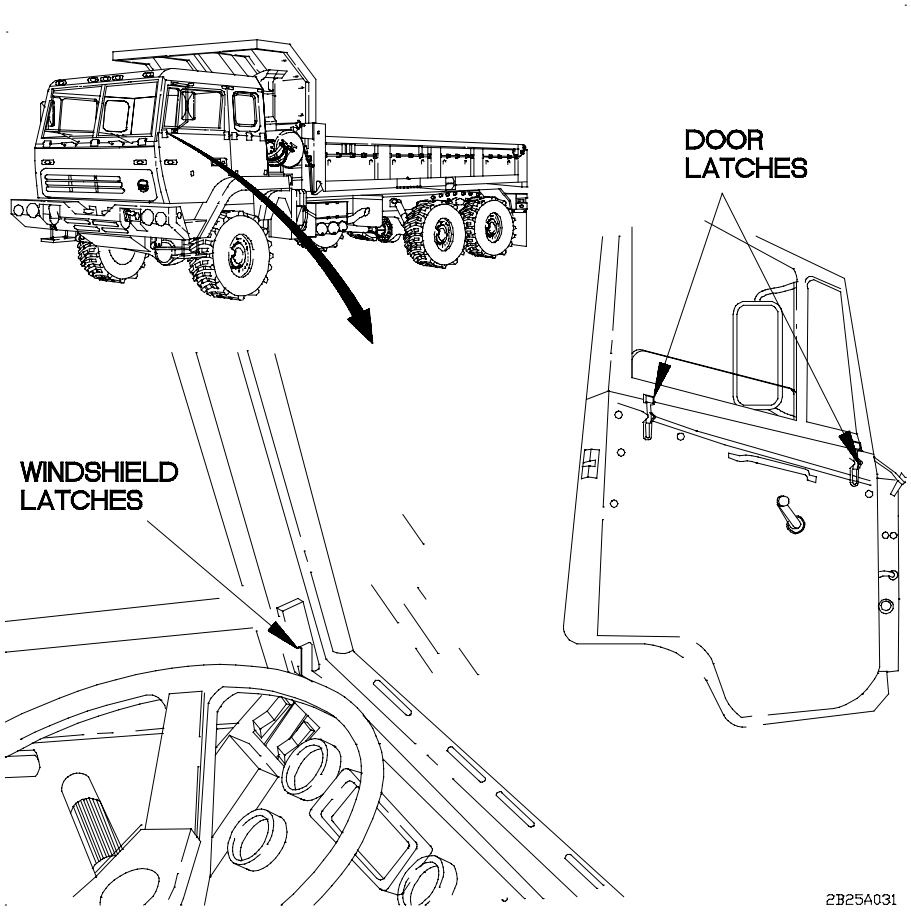
Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
3	Weekly	Latches	**a.** Check that door latches are secure and not damaged. **b.** Check that windshield latches are secure and not damaged.	

Table 2-8. Preventive Maintenance Checks and Services (M1094) (Cont)

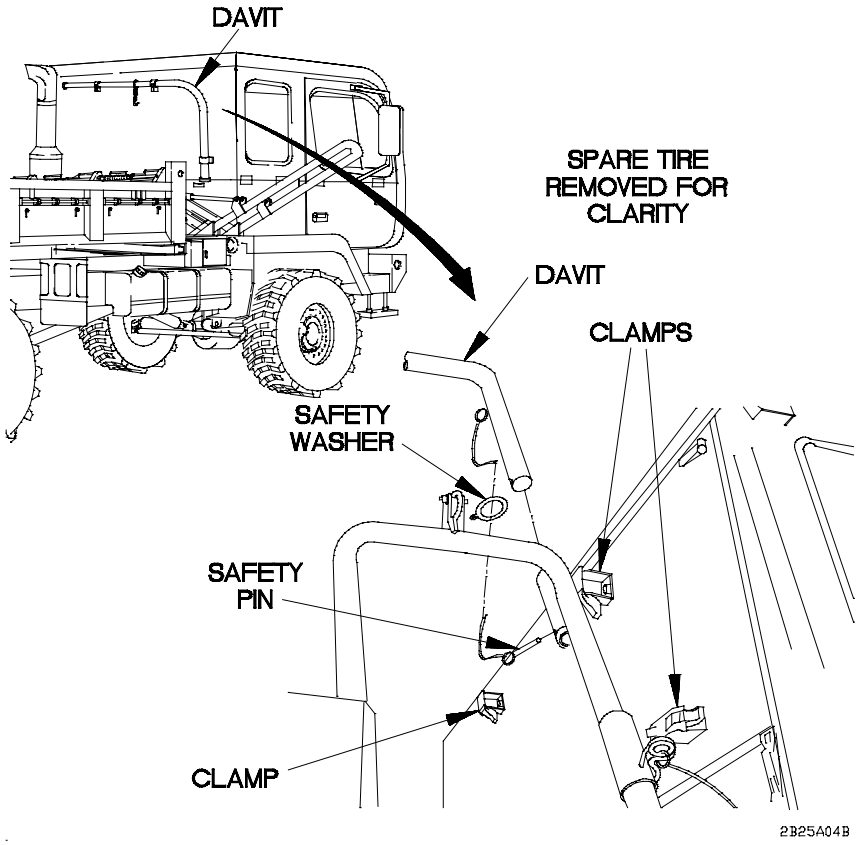
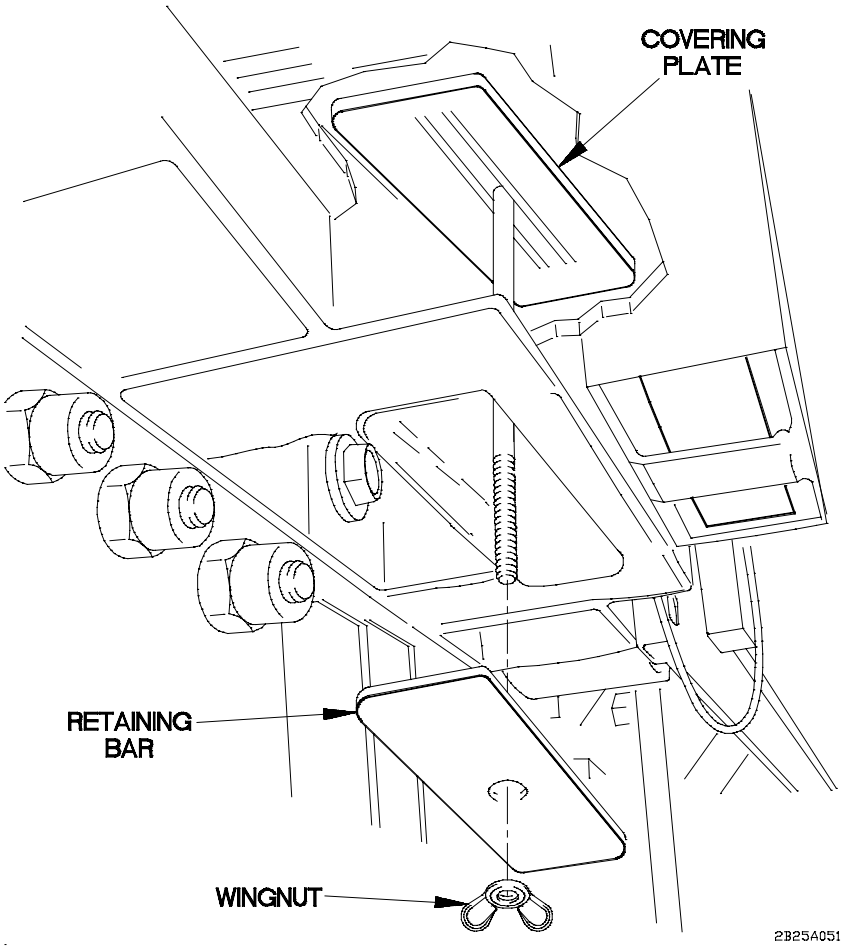
Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
4	Weekly	Davit	**a.** Check davit for damage. **b.** Check that three clamps lock davit in the stowed position. **c.** Check that davit safety washer and safety pin are present.	**a.** Davit boom is damaged or missing **b.** Any clamp is damaged or missing. **c.** Davit safety washer or pin is missing

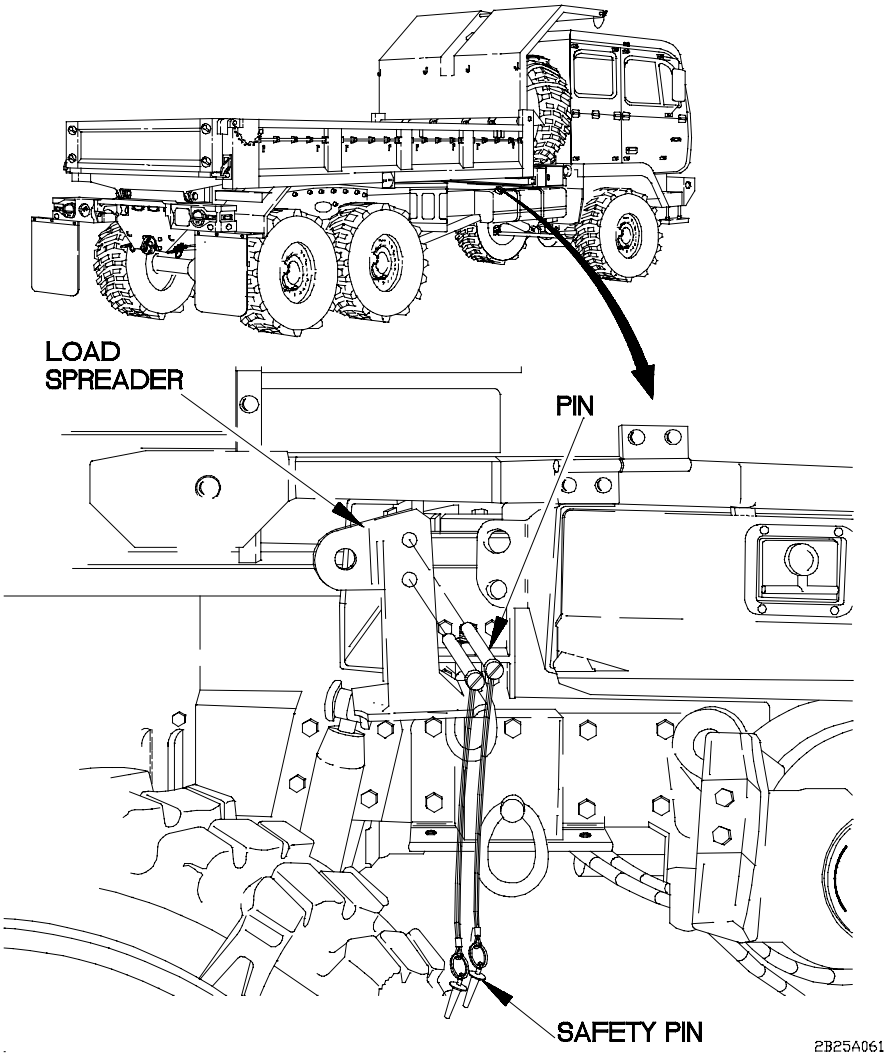
Table 2-8. Preventive Maintenance Checks and Services (M1094) (Cont)

Item No.	Interval	Location: Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:



5	Weekly	Slide Assembly	Check that wingnut, retaining bar, and covering plate are present.	

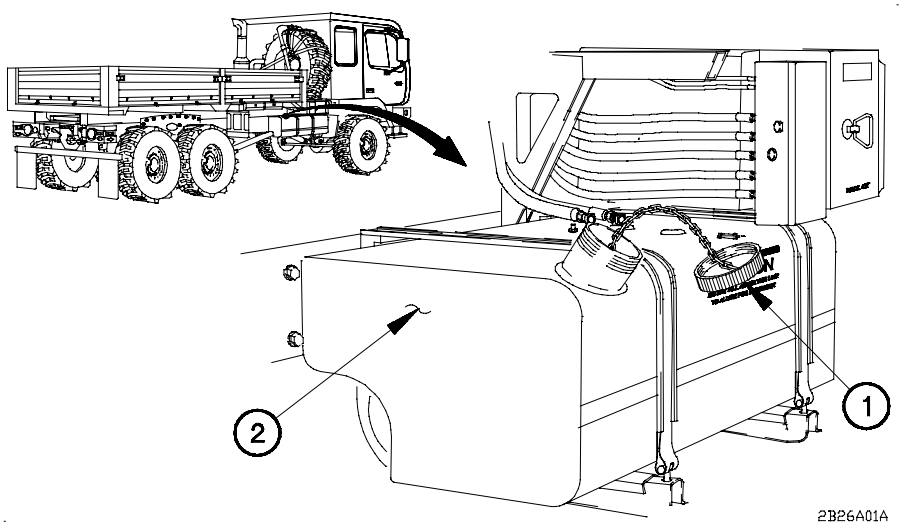
Table 2-8. Preventive Maintenance Checks and Services (M1094) (Cont)

Item No.	Interval	Location Item to Check/ Service	Crewmember Procedure	Not Fully Mission Capable If:
				
6	Weekly	Load Spreader	Check that two load spreaders, four pins, and safety pins are present.	

Section III. OPERATION UNDER USUAL CONDITIONS

2-26. PREPARATION FOR USE

a. Fueling Vehicle.



(1) Remove fuel cap (1) from fuel tank (2).

WARNING

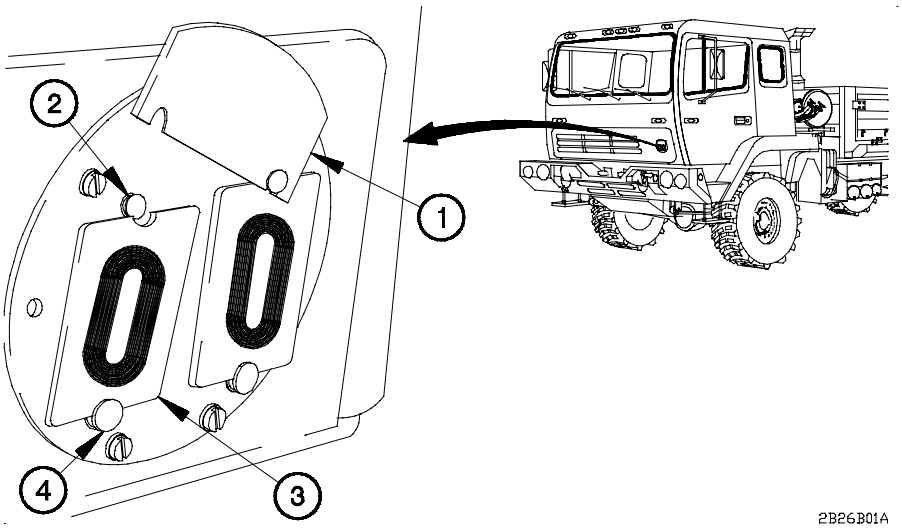
Diesel fuel is flammable. Do not fill fuel tank with engine running, while smoking, or when near an open flame. Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

(2) Fill fuel tank (2) with fuel.

(3) Install fuel cap (1) on fuel tank (2).

2-26. PREPARATION FOR USE (CONT)

b. Changing Bridge Classification Numbers.



(1) Press in bottom of lockplate (1).

(2) Push lockplate (1) up and off one top lockpin (2).

(3) Remove number plate (3) from top and bottom lockpins (2 and 4).

(4) Place correct number on top of number plates (3).

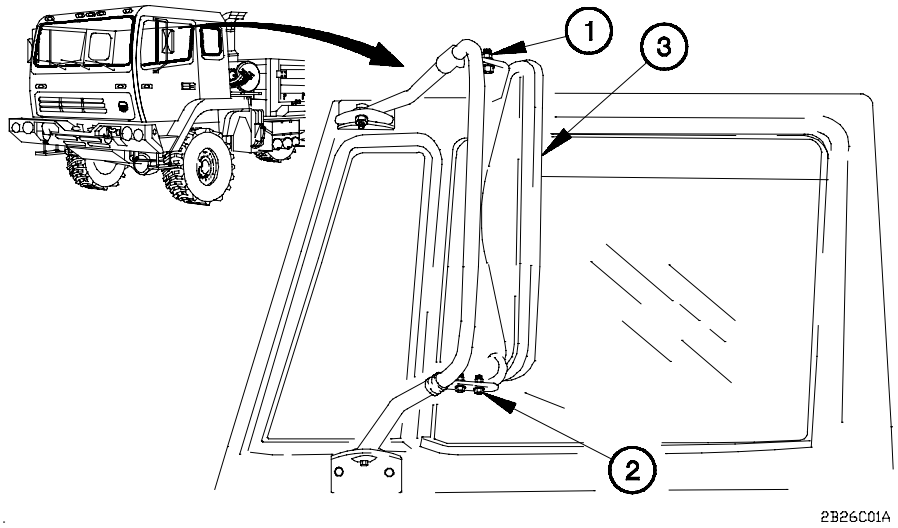
(5) Install number plate (3) on top and bottom lockpins (2 and 4).

(6) Perform steps (1) through (5) for remaining number plates.

(7) Press in on bottom of lockplate (1).

(8) Slide lockplate (1) on two top lockpins (2).

c. Adjusting Mirrors.



CAUTION

Do not attempt to move mirror support. Only mirror is adjustable. Failure to comply may result in damage to equipment.

NOTE

Left and right mirrors are adjusted the same way. Left mirror shown.

(1) Loosen nuts (1 and 2) on mirror (3).

(2) Adjust mirror (3) to desired position.

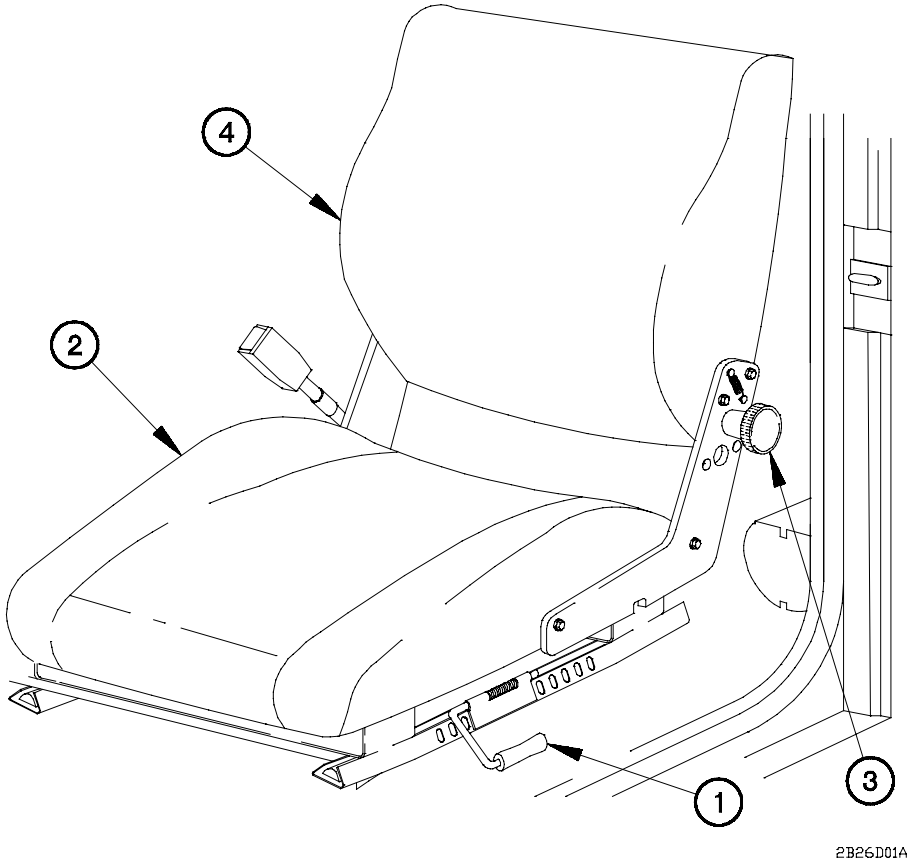
NOTE

Notify Unit Maintenance that nuts need to be tightened to 53-71 lb-in. (6-8 N·m).

(3) Tighten nuts (1 and 2).

2-26. PREPARATION FOR USE (CONT)

d. Adjusting Driver's Seat.



(1) Driver's Seat Adjustment.

(a) Pull lever (1) outward (towards door) and slide seat (2) forward or backward.

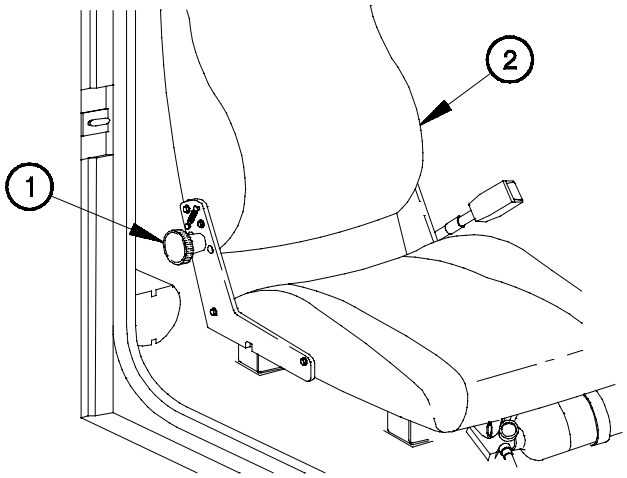
(b) Release lever (1) to lock seat (2) in place.

(2) Driver's Seat Fold Down.

(a) Turn knob (3) to release latch on seat back (4).

(b) Fold seat back (4) forward and release knob (3).

e. Adjusting Right Passenger Seat.

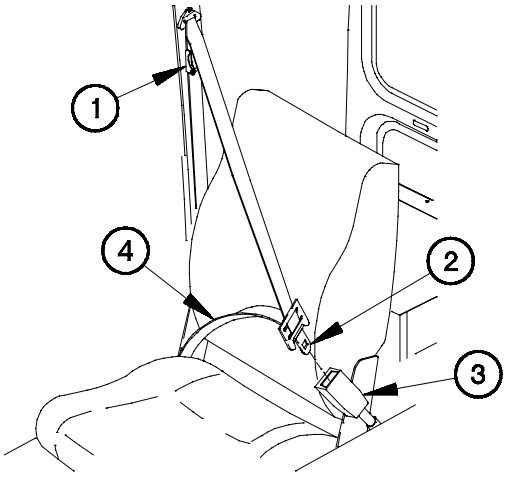


Passenger Seat Fold Down.

(a) Turn knob (1) to release latch on seat back (2).

(b) Fold seat back (2) forward and release knob (1).

f. Operating Seat Belt.

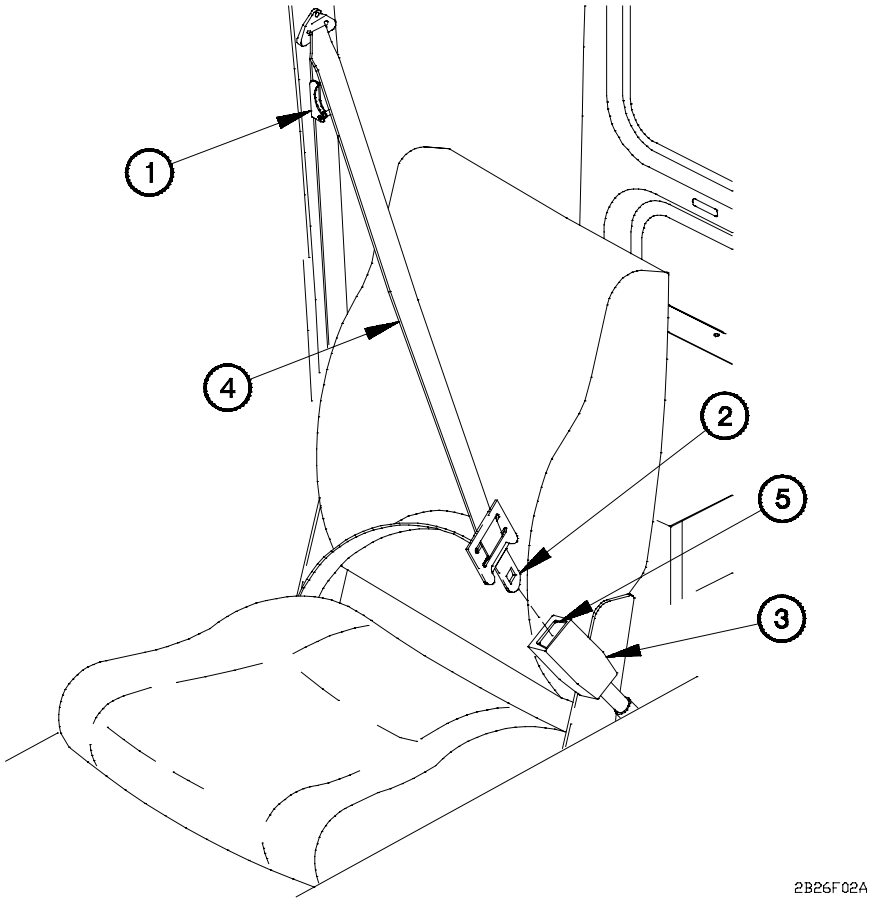


(1) Unlock comfort latch (1).

(2) Insert seat belt flat metal end (2) in buckle (3) until click is heard.

(3) Position seat belt (4) as low as possible across hips.

2-26. PREPARATION FOR USE (CONT)



WARNING

Do not pull seat belt more than 1 in. (25 mm) away from shoulder. Seat belt will not be effective if accident occurs. Failure to comply may result in serious injury or death to personnel.

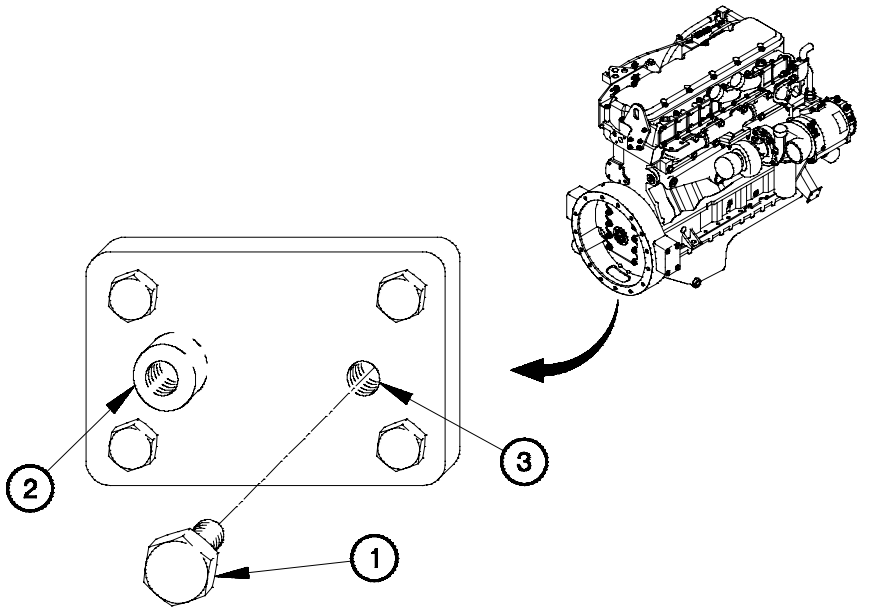
(4) Adjust seat belt (4) away from shoulder and lock comfort latch (1).

(5) Push button (5) on buckle (3) and pull out seat belt flat metal end (2) to release seat belt (4).

g. Installing Flywheel Housing Vent Plug.

CAUTION

If vehicle will be operating in water 30 in. (762 mm) or of unknown depth, flywheel housing vent plug must be installed. Failure to comply may result in damage to equipment.

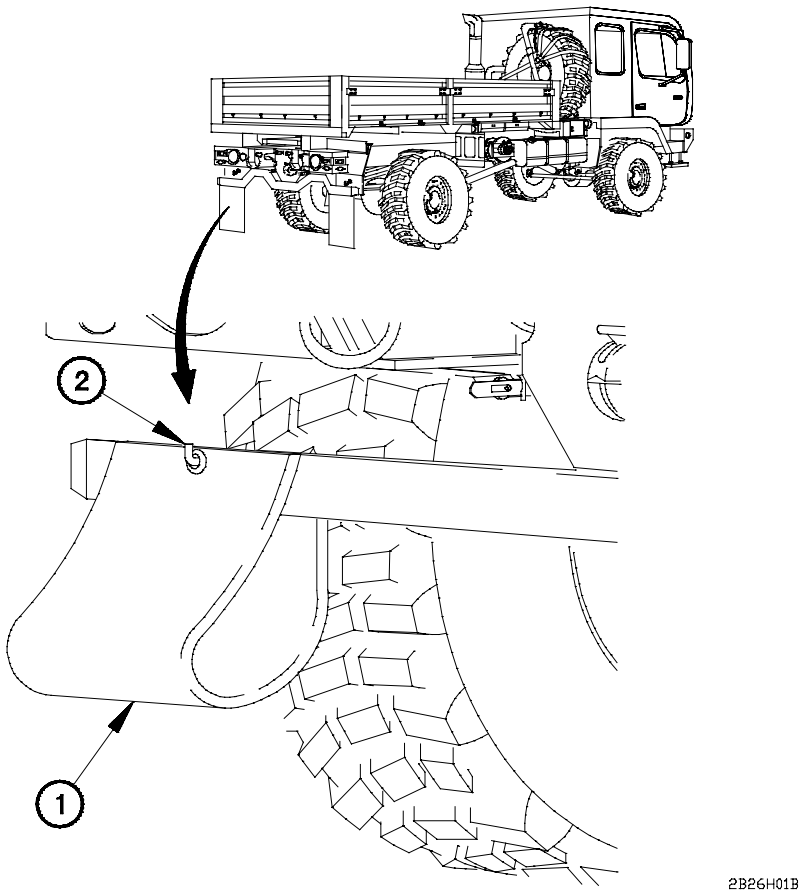


2B26G01B

(1) Remove flywheel housing vent plug (1) from stowage mount (2).

(2) Install flywheel housing vent plug (1) in flywheel vent hole (3).

h. Operation in Off-Road Condition.



CAUTION

Before driving off-road, raise and hook rear mudflaps. Failure to comply may result in damage to equipment.

Attach mudflaps (1) to hook (2) (except M1089).

2-27. VEHICLE OPERATION

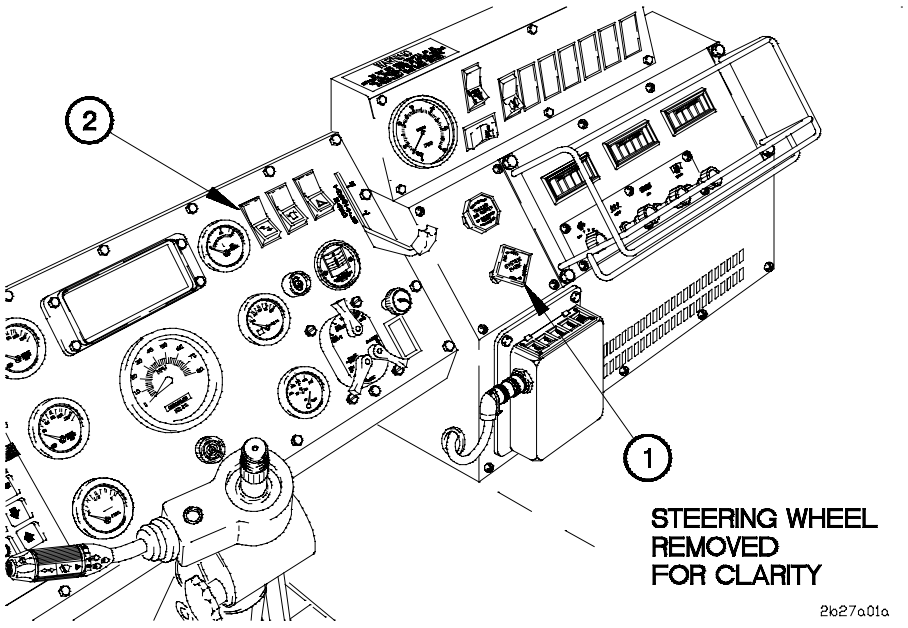
a. Cold Engine Start.

CAUTION

Cold weather radiator cover will be installed, if temperatures are consistently below 40° F (4° C). It should be removed if temperatures are above 40° F (4° C), it must be removed if temperatures reach 70°F (21° C). Failure to comply may result in damage to equipment.

NOTE

If cold weather radiator cover has not been installed or needs to be removed notify Unit Maintenance.

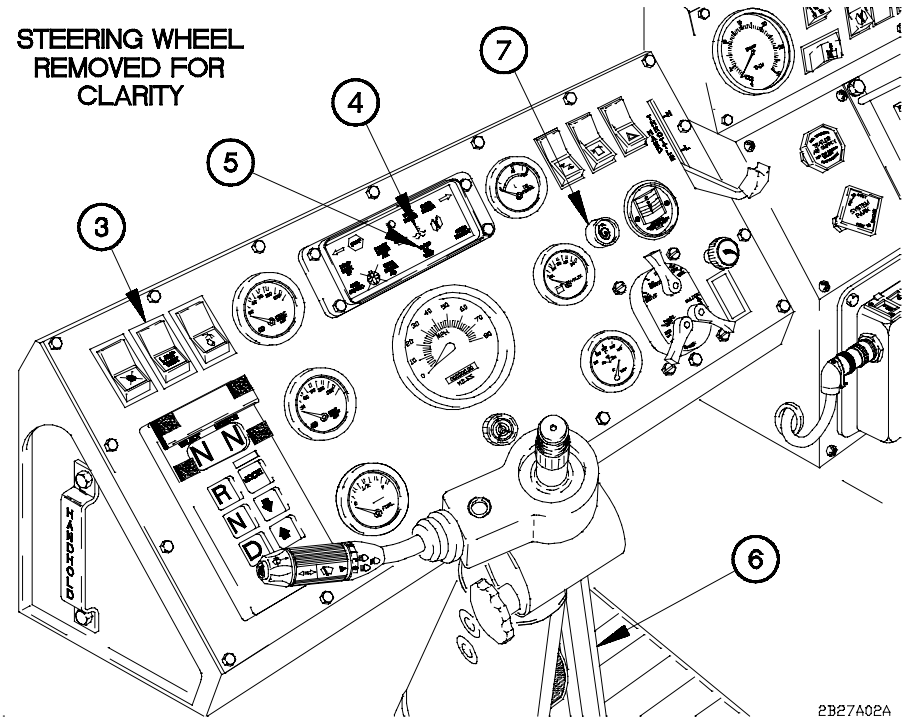


NOTE

If outside temperature is expected to remain below 40°F (4°C), notify Unit Maintenance to install the cold weather radiator cover.

(1) Pull out SYSTEM PARK control (1).

(2) Position master power switch (2) to on.



NOTE

Vehicle serial number 0002 through 0017, 0019 through 0025, 0027 through 0031, 0033 through 0038, 0040 and 0041, 0043 through 0053, 0055 through 0089, 0091 through 0254, 0256 through 0258, 0260 and 0261, 0263 through 2400, and 2402 through 3091 are not equipped with Lamp Test Switch.

(3) Press LAMP TEST switch (3) to verify that high engine temperature (4) and TRANS OIL TEMP (5) indicators illuminate.

(4) Press down accelerator pedal (6) fully, then release it.

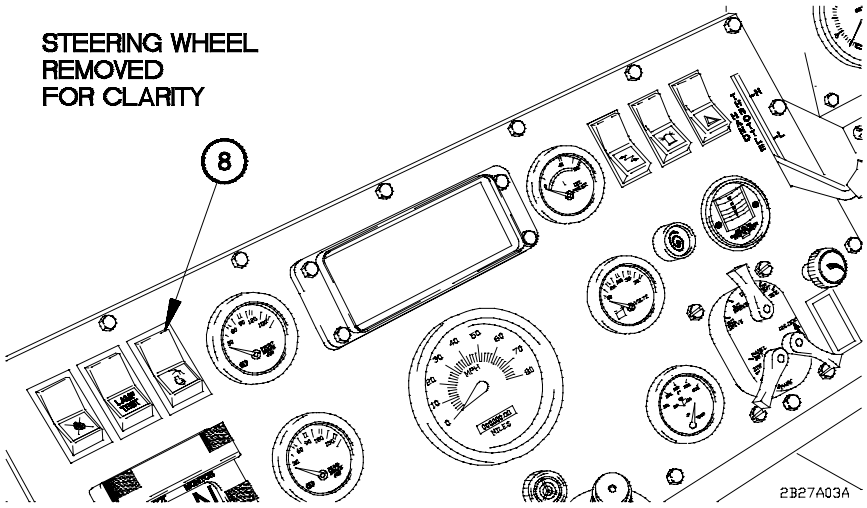
(5) Press down and hold accelerator pedal (6) at approximately 1/3 of travel.

CAUTION

Do not engage starter pushbutton for more than 30 seconds. If engine fails to start within this period, release starter pushbutton and wait two minutes before attempting to start engine again. Failure to comply may result in damage to equipment.

(6) Press and hold starter pushbutton (7).

2-27. VEHICLE OPERATION (CONT)



CAUTION

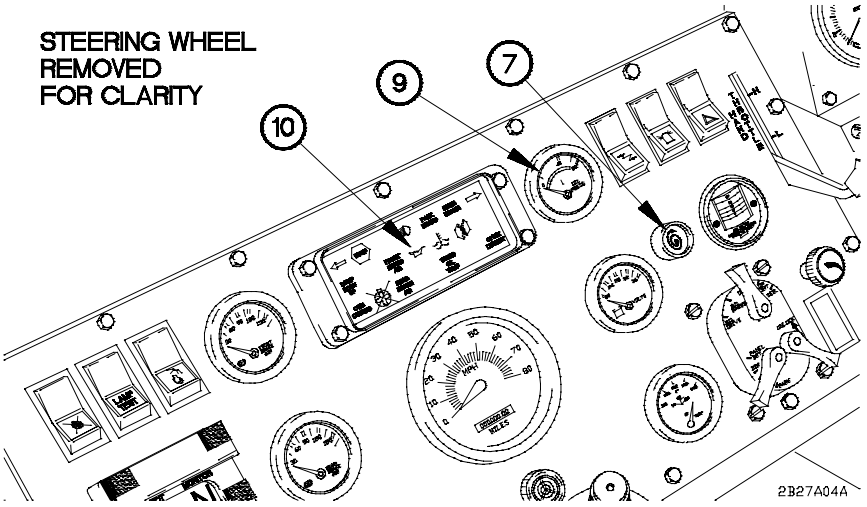
- Do not press ether start switch unless engine is cranking. Failure to comply may result in damage to engine.
- Do not use ether after the engine has reached idle speed (750 rpm) and is no longer in danger of stalling. Failure to comply may result in damage to engine.

NOTE

- Continue to inject ether if engine has started but will not run without ether.
- If outside air temperature is 32°F to -25°F (0°C to -32°C) perform steps (6) and (7).

(7) Press and hold ether start switch (8) for approximately three seconds and release for two seconds.

(8) Repeat step (7) until engine has started, engine speed has increased over cranking speed, and engine maintains speed.



(9) Release starter pushbutton (7) when engine starts or after 30 seconds.

CAUTION

- STOP indicator illuminates (red) to warn Operator when a potential engine failure (e.g., low oil pressure, low coolant, coolant overheating, etc.) has occurred. Shut down engine immediately (para 2-27f) and perform Engine Troubleshooting (para 3-3). Failure to comply may result in damage to equipment.

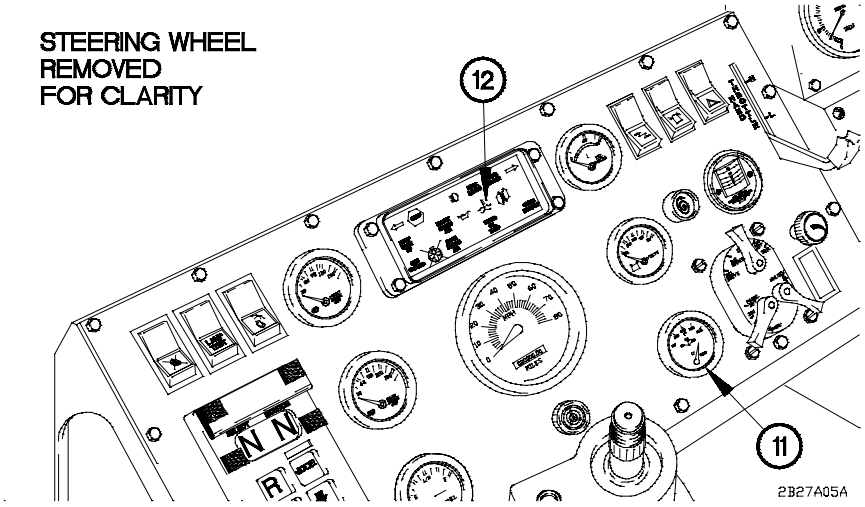
- If OIL PRESS gage does not show engine oil pressure of 15-80 psi (103-552 kPa) within 10-15 seconds after starting engine, shut down engine immediately (para 2-27f) and perform Engine Troubleshooting (para 3-3). Failure to comply may result in damage to equipment.

NOTE

Oil pressure will increase when engine speed increases and will decrease when engine speed decreases.

(10) Check that OIL PRESS gage (9) reads between 15-80 psi (103-552 kPa). If OIL PRESS gage reads in red zone and engine oil pressure indicator (10) is illuminated, shut down engine (para 2-27f) and perform Engine Troubleshooting (para 3-3).

2-27. VEHICLE OPERATION (CONT)



NOTE

- Water Temperature must be a minimum of 100°F (38°C) in order to drive vehicle. Engine will warm up to normal operating temperature of 165°F (74°C) more quickly if engine is under a load condition such as driving.

- Vehicle performance, including heater/defroster, will be reduced when engine operating temperature is between 100°F to 165°F (38°C to 74°C). Avoid conditions requiring maximum performance until engine reaches 165°F (74°C).

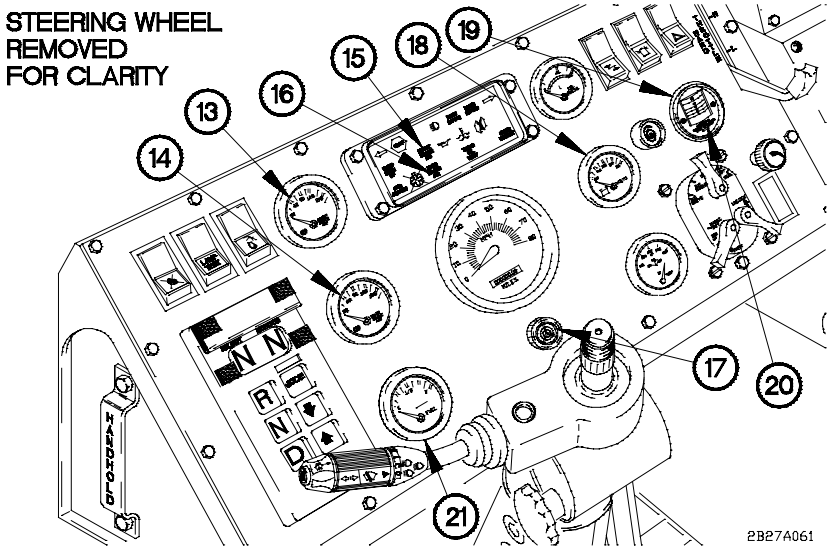
(11) Operate engine at idle (750 rpm) to warm-up engine until WATER TEMP gage (11) reaches a minimum of 100°F (38°C) to begin driving or normal operating temperature of 165°F (74°C).

NOTE

Perform step (12) in outside temperatures of 32°F to -25°F (0°C to -32°C), if extreme or unusual conditions exist such as heavy windshield frost or when it is difficult to achieve normal operating temperature of 165°F (74°C).

(12) Perform Rapid Engine Warm-Up (para 2-70).

(13) Check that WATER TEMP gage (11) reads between 100°F to 230°F (38°C to 110°C). If WATER TEMP gage reads in the red zone or high engine temperature indicator (12) is illuminated, shut down engine (para 2-27f) and perform Engine Troubleshooting (para 3-3).



NOTE

- If FRONT BRAKE AIR and REAR BRAKE AIR pressure gages do not read between 65-120 psi (448-827 kPa) after engine warm-up, shut down engine (para 2-27f) and perform Air System Troubleshooting (para 3-3).

- FRONT BRAKE AIR and REAR BRAKE AIR indicators will illuminate (red) and audible alarm will sound until air pressure is approximately 65 psi.

(14) Check that FRONT BRAKE AIR pressure gage (13) and REAR BRAKE AIR pressure gage (14) read between 65-120 psi (448-827 kPa). FRONT BRAKE AIR indicator (15) and REAR BRAKE AIR indicator (16) illuminate (red) and audible alarm (17) will sound until both gages reach approximately 65 psi (448 kPa).

(15) Check that VOLTS gage (18) reads between 26 and 30 volts.

(16) Check that AIR FILTER RESTRICTION GAUGE (19) reads below 25 in.

(a) Press reset button (20) if AIR FILTER RESTRICTION GAUGE (19) reads greater than 25 in. (in red area).

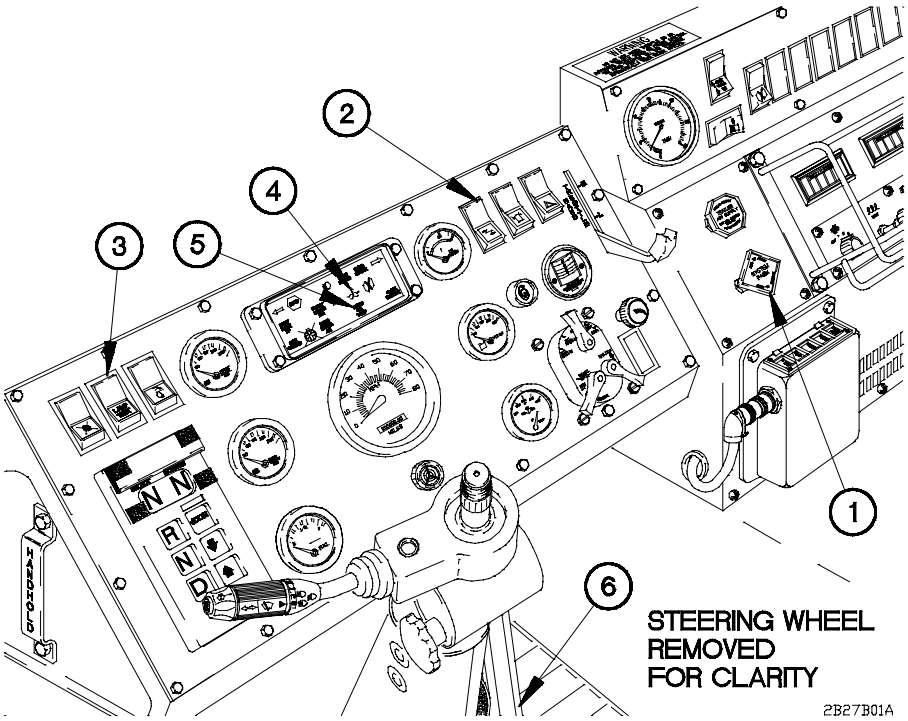
(b) Shut down engine (para 2-27f) and service air filter (para 3-9) if AIR FILTER RESTRICTION GUAGE still reads greater than 25 in. (in red area).

(17) Check that FUEL gage (21) shows sufficient fuel to accomplish mission.

(18) Select desired transmission gear (para 2-27e).

2-27. VEHICLE OPERATION (CONT)

b. Warm Engine Start.



(1) Pull out SYSTEM PARK control (1).

(2) Position master power switch (2) to on.

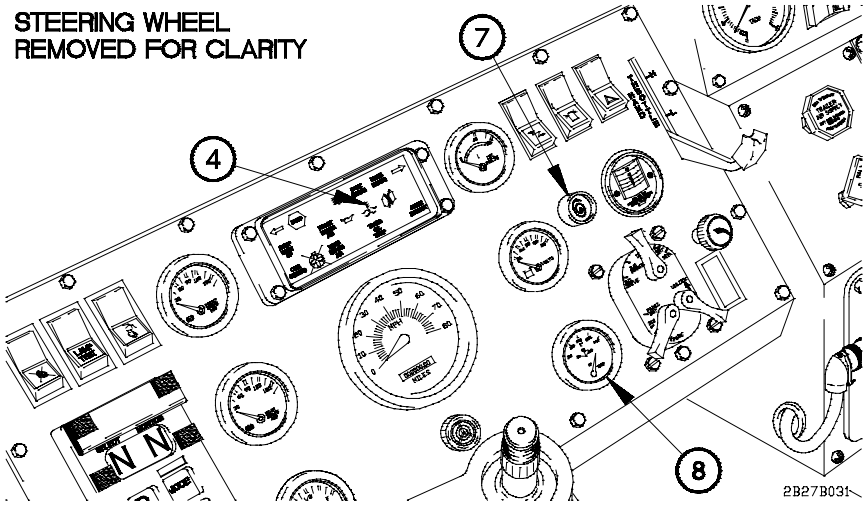
NOTE

Vehicle serial numbers 0002 through 0017, 0019 through 0025, 0027 through 0031, 0033 through 0038, 0040 and 0041, 0043 through 0053, 0055 through 0089, 0091 through 0254, 0256 through 0258, 0260 and 0261, 0263 through 2400, and 2402 through 3091 are not equipped with LAMP TEST Switch.

(3) Press LAMP TEST switch (3) to verify that high engine temperature (4) and TRANS OIL TEMP (5) indicators illuminate.

(4) Press down accelerator pedal (6) fully, then release it.

(5) Press down and hold accelerator pedal (6) at approximately 1/3 of travel.



CAUTION

Do not engage starter pushbutton for more than 30 seconds. If engine fail s to start within this period, release starter pushbutton and wait two minut es before attempting to start engine. Failure to comply may result in dam age to equipment.

(6) Press and hold starter pushbutton (7).

(7) Release starter pushbutton (7) when engine starts.

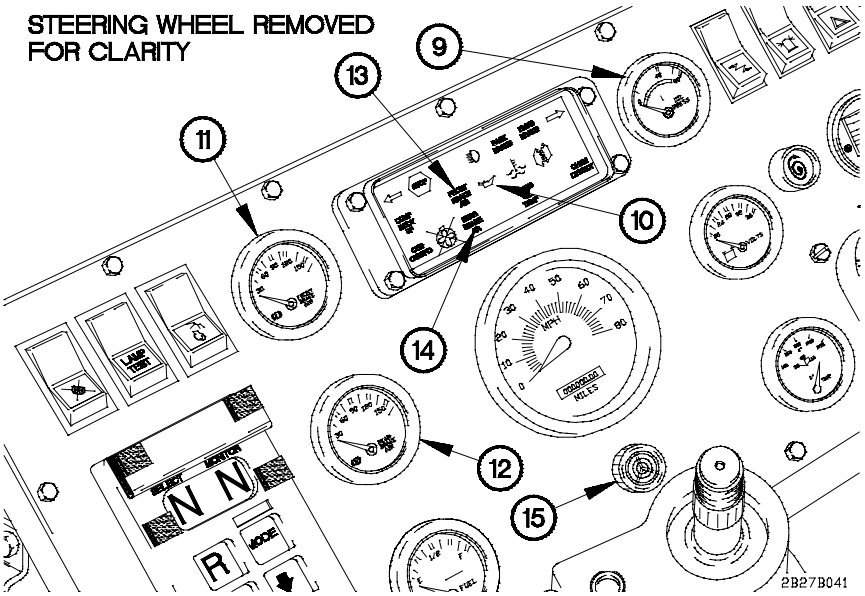
CAUTION

- STOP indicator illuminates (red) to warn Operator when a potential engine failure (e.g., low oil pressure, low coolant, coolant over-heating, etc.) has occurred. Shut down engine immediately (para 2-27f) and perform Engine Troubleshooting (para 3-3). Failure to comply may result in damage to equipment.

- If OIL PRESS gage does not show engine oil pressure of 15-80 psi (103-552 kPa) within 10-15 seconds after starting engine, shut down engine immediately (para 2-27f) and perform Engine Troubleshooting (para 3-3). Failure to comply may result in damage to equipment.

(8) Check that WATER TEMP gage (8) reads between 100° F to 230° F (38°C to 110° C). If WATER TEMP gage reads in red zone and high engine temperature indicator (4) is illuminated, shut down engine (para 2-27f) and perform Engine Troubleshooting (para 3-3).

2-27. VEHICLE OPERATION (CONT)



NOTE

Oil pressure will increase when engine speed increases and will decrease when engine speed decreases.

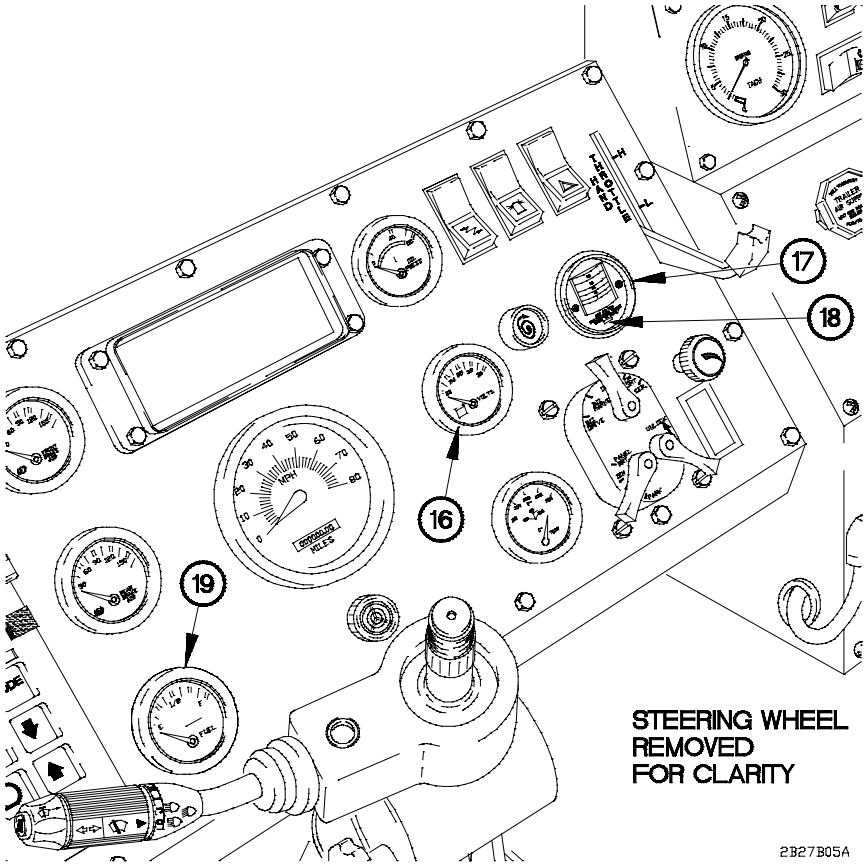
(9) Check that OIL PRESS gage (9) reads between 15-80 psi (103 -552 kPa). If OIL PRESS gage reads in red zone and engine oil pressure indicator (10) is illuminated, shut down engine (para 2-27f) and perform Engine Troubleshooting (para 3-3).

NOTE

- If FRONT BRAKE AIR and REAR BRAKE AIR pressure gages do not read between 65-120 psi (448-827 kPa) after engine warm-up, shut down engine (para 2-27f) and perform Air System Troubleshooting (para 3-3).

- FRONT BRAKE AIR and REAR BRAKE AIR indicators will illuminate (red) and audible alarm will sound until air pressure is approximately 65 psi (448 kPa).

(10) Check that FRONT BRAKE AIR pressure gage (11) and REAR BRAKE AIR pressure gage (12) read between 65-120 psi (448-827 kPa). FRONT BRAKE AIR indicator (13) and REAR BRAKE AIR indicator (14) illuminate (red) and audible alarm (15) will sound until both gages reach approximately 65 psi (448 kPa).



(11) Check that VOLTS gage (16) reads between 26 and 30 volts.

(12) Check that AIR FILTER RESTRICTION GAUGE (17) reads below 25 in.

(a) Press reset button (18) if AIR FILTER RESTRICTION GAUGE (17) reads greater than 25 in. (in red area).

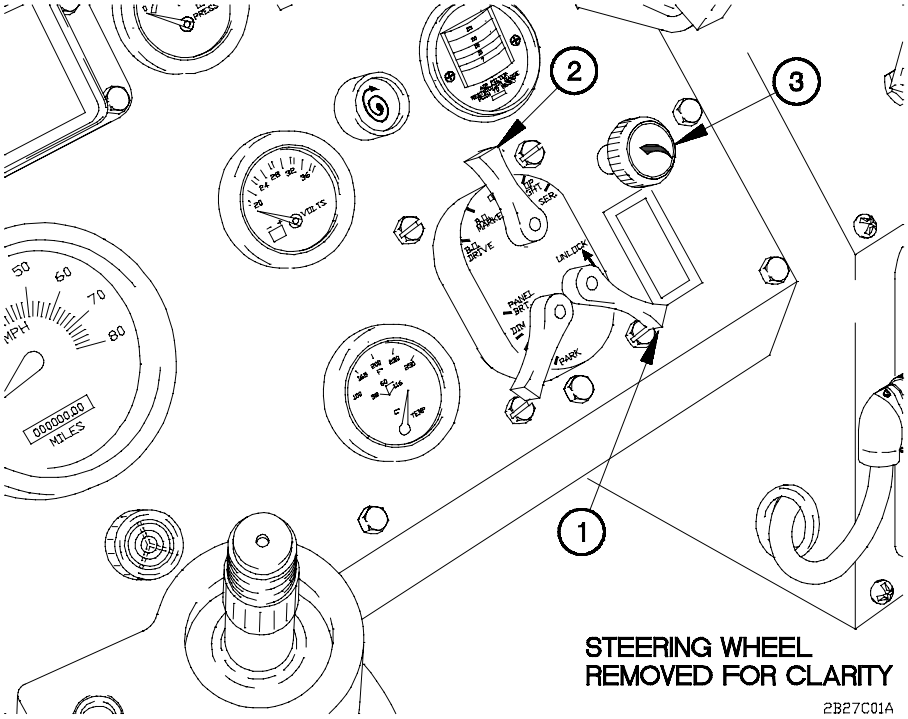
(b) Shut down engine (para 2-27f) and service air filter (para 3-9) if AIR FILTER ■ RESTRICTION GAUGE still reads greater than 25 in. (in red area).

(13) Check that FUEL gage (19) shows sufficient fuel for mission requirements.

(14) Select desired transmission gear (para 2-27e).

2-27. VEHICLE OPERATION (CONT)

c. Operating Vehicle Lights.



(1) Operate Main Instrument Panel Lights.

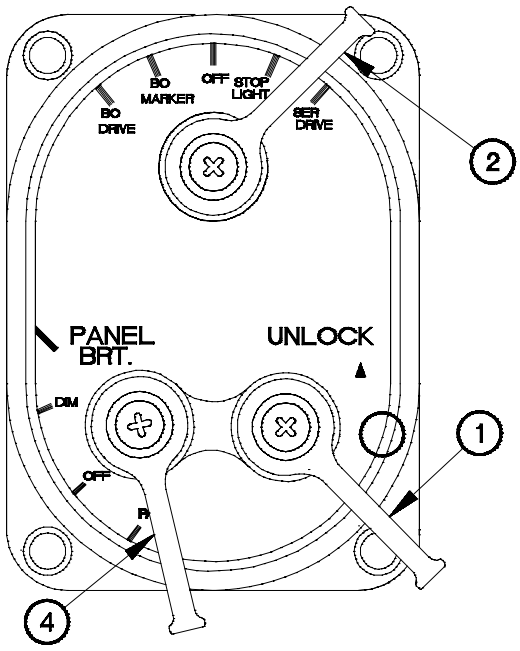
(a) Lift up and hold UNLOCK lever (1).

(b) Set main selector lever (2) to any position except OFF.

(c) Release UNLOCK lever (1).

(d) Turn dimmer switch (3) left to increase brightness or right to decrease brightness.

(e) Set main selector lever (2) to OFF.



(2) Operate Parking Lights.

(a) Lift up and hold UNLOCK lever (1).

(b) Set main selector lever (2) to SER DRIVE.

(c) Set auxiliary lever (4) to PARK.

(d) Release UNLOCK lever (1).

(e) Set auxiliary lever (4) to OFF to shut off only parking lights.

(f) Set main selector lever (2) to OFF. All vehicle lights will go off.

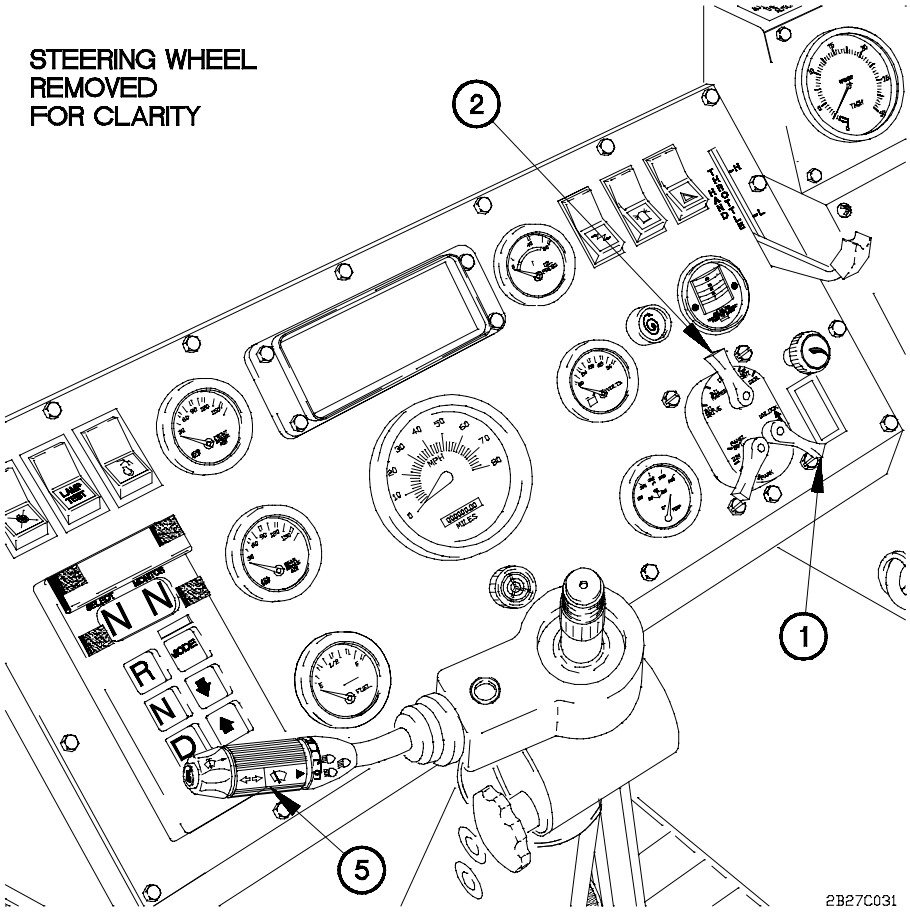
(3) Operate Service Drive and Back-Up Lights. ■

(a) Lift up and hold UNLOCK lever (1).

(b) Set main selector lever (2) to SER DRIVE.

(c) Release UNLOCK lever (1).

2-27. VEHICLE OPERATION (CONT)



(3) Operate Service Drive Lights (Cont)

(d) Pull headlight dimmer control (5) to operate headlights at high beam or low beam.

(e) Set main selector lever (2) to OFF.

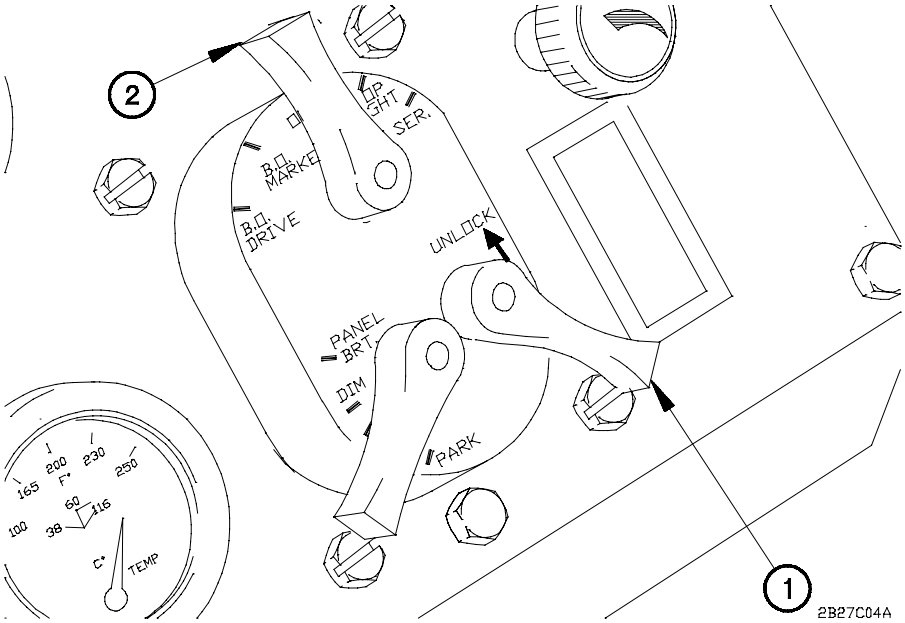
(4) Operate Stoplights.

(a) Lift up and hold UNLOCK lever (1).

(b) Set main selector lever (2) to STOP LIGHT.

(c) Release UNLOCK lever (1).

(d) Set main selector lever (2) to OFF.



WARNING

Vehicle speed should be reduced to 5-10 mph (8-16 km/h) during blackout conditions. Failure to comply may result in serious injury or death to personnel.

(5) Operate Blackout Drive Lights.

(a) Lift up and hold UNLOCK lever (1).

(b) Set main selector lever (2) to BO DRIVE.

(c) Release UNLOCK lever (1).

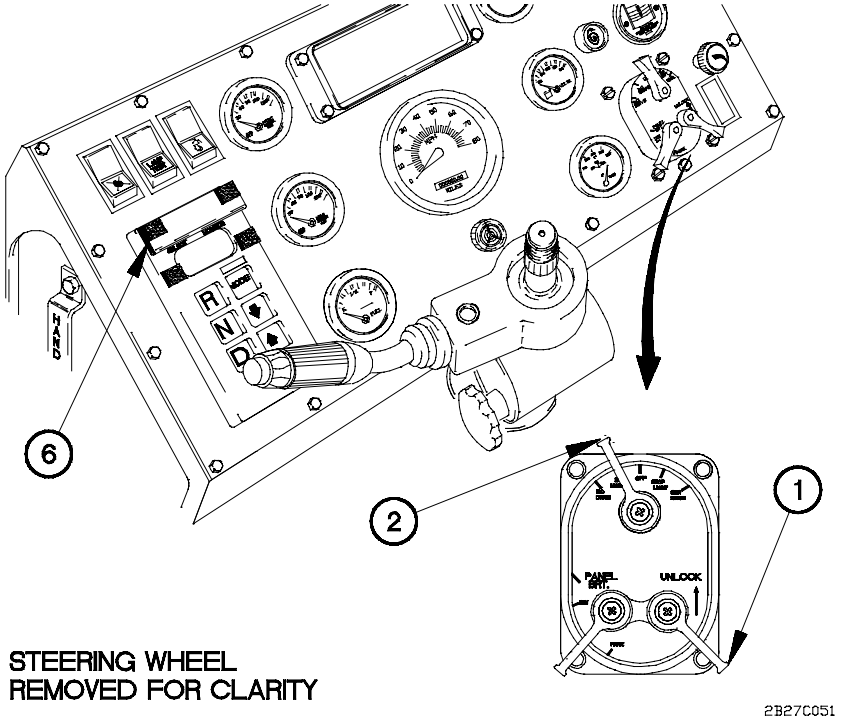
(d) Set main selector lever (2) to OFF.

(6) Operate Blackout Marker Lights.

(a) Set main selector lever (2) to BO MARKER.

(b) Set main selector lever (2) to OFF.

2-27. VEHICLE OPERATION (CONT)



NOTE

Perform step (7) only on vehicles equipped with WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS).

(7) Operate WTEC II TEPSS Blackout Filter cover.

(a) Lift WTEC II TEPSS blackout filter cover (6) from upper velcro.

(b) Lower WTEC II TEPSS blackout filter cover (6) and attach to lower velcro.

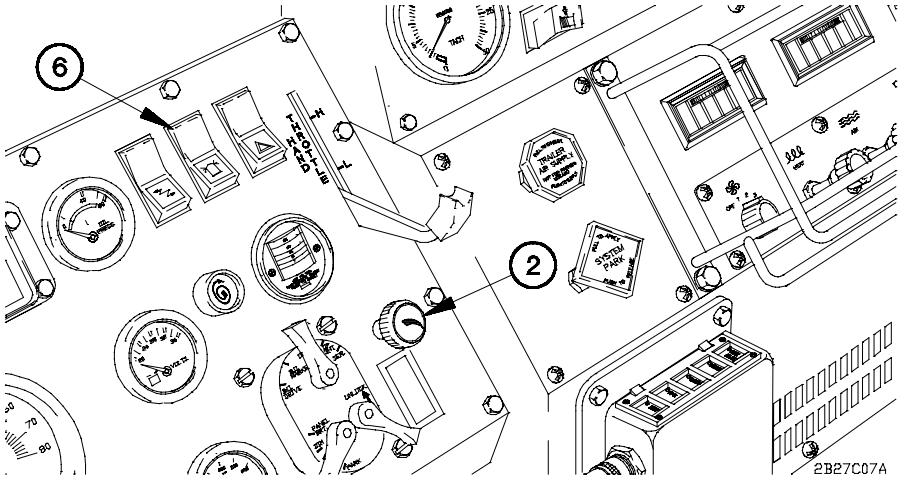
(8) Operate Amber Warning Light.

(a) Install amber warning light (para 2-74).

(b) Lift up and hold UNLOCK lever (1).

(c) Set main selector lever (2) to SER DRIVE or STOP LIGHT.

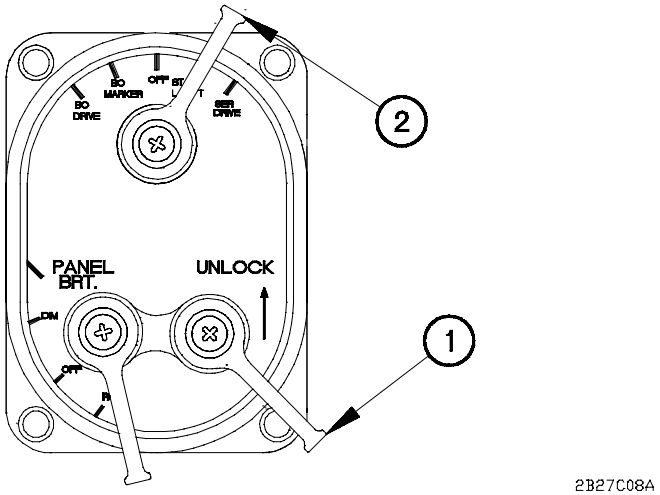
(d) Release UNLOCK lever (1).



(e) Position amber warning light switch (7) to on.

(f) Position amber warning light switch (7) to off.

(g) Set main selector lever (2) to OFF.



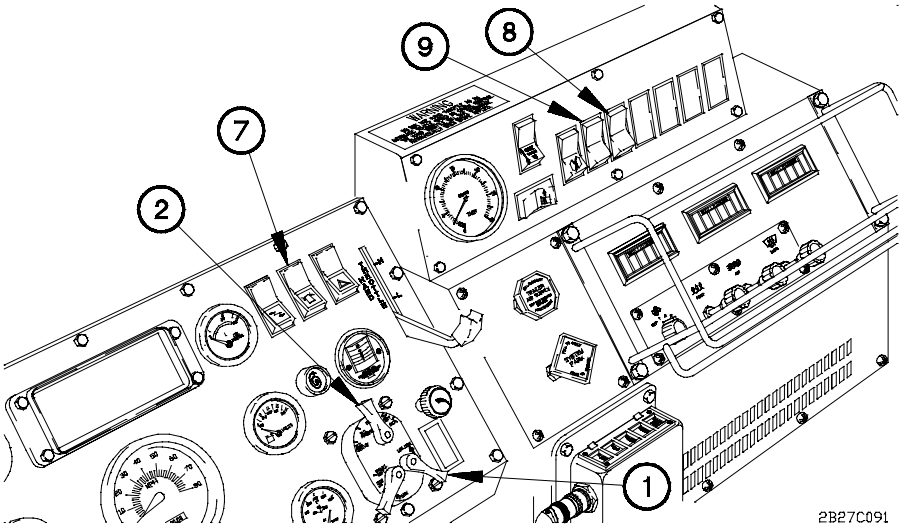
(9) Operate Work Lights.

(a) Lift up and hold UNLOCK lever (1).

(b) Set main selector lever (2) to any position except OFF.

(c) Release UNLOCK lever (1).

2-27. VEHICLE OPERATION (CONT)



(8) Operate Amber Warning Light (Cont).

(e) Position amber warning light switch (7) to on.

(f) Position amber warning light switch (7) to off.

(g) Set main selector lever (2) to OFF.

(9) Operate Work Lights.

(a) Lift up and hold UNLOCK lever (1).

(b) Set main selector lever (2) to any position except OFF.

(c) Release UNLOCK lever (1).

NOTE

Perform step (d) only if main selector lever is positioned to BO DRIVE or BO MARKER.

(d) Position BLACKOUT OVERRIDE switch (8) to on.

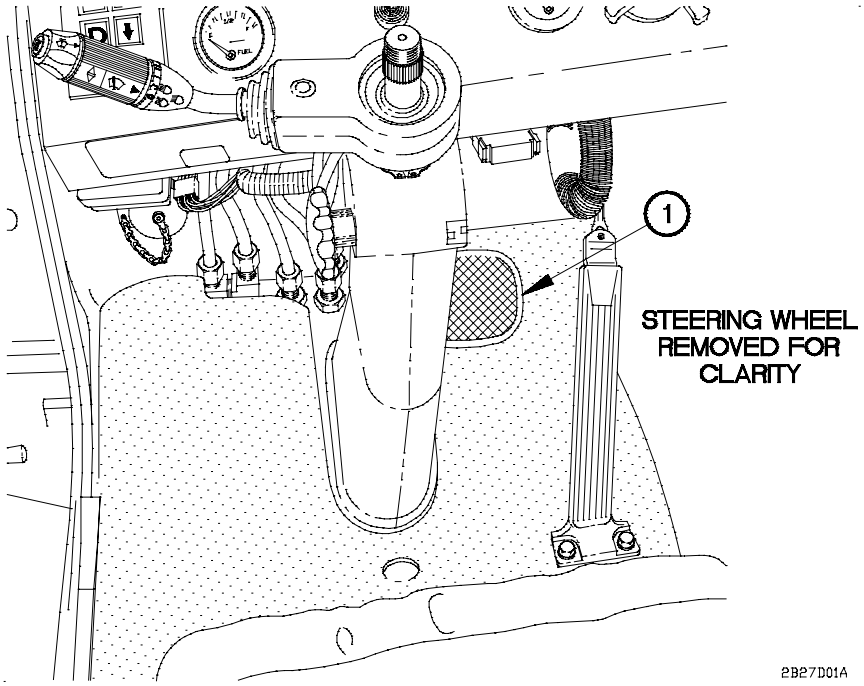
(e) Position work lights switch (9) to on.

(f) Position work lights switch (9) to off.

(g) Position BLACKOUT OVERRIDE switch (8) to off.

(h) Set main selector lever (2) to OFF.

d. Operate Service Brakes.



WARNING

- **Operating in water or mud causes brake linings to get wet and can impair vehicle braking. Dry brakes by driving vehicle about 500 ft (153 m) while applying service brakes often. If adequate braking is not restored by drying brakes, notify Unit Maintenance. Failure to comply may result in injury to personnel or damage to equipment.**

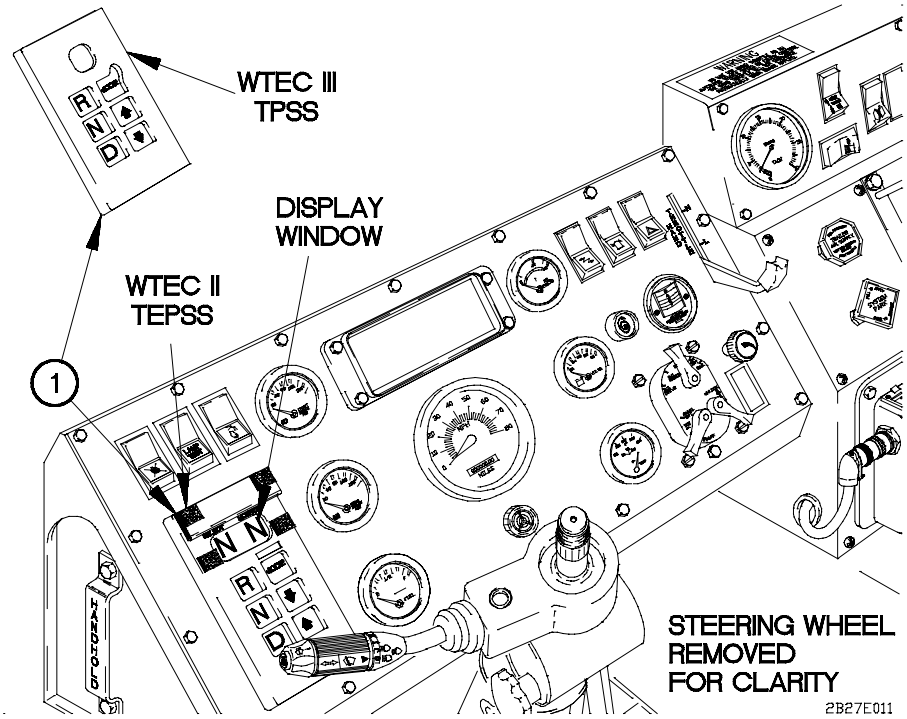
- **Do not press brake pedal hard three or four times in a row. Air supply will be used up and service brakes will not work until air pressure builds up again. Do not operate vehicle until FRONT and REAR BRAKE AIR pressure reaches at least 100 psi (690 kPa). Failure to comply may result in serious injury or death to personnel or damage to equipment.**

Push down and hold brake pedal (1) to slow or stop vehicle.

e. Selecting Transmission Operating Range.

(1) Start engine (para 2-27a or b).

2-27. VEHICLE OPERATION (CONT)



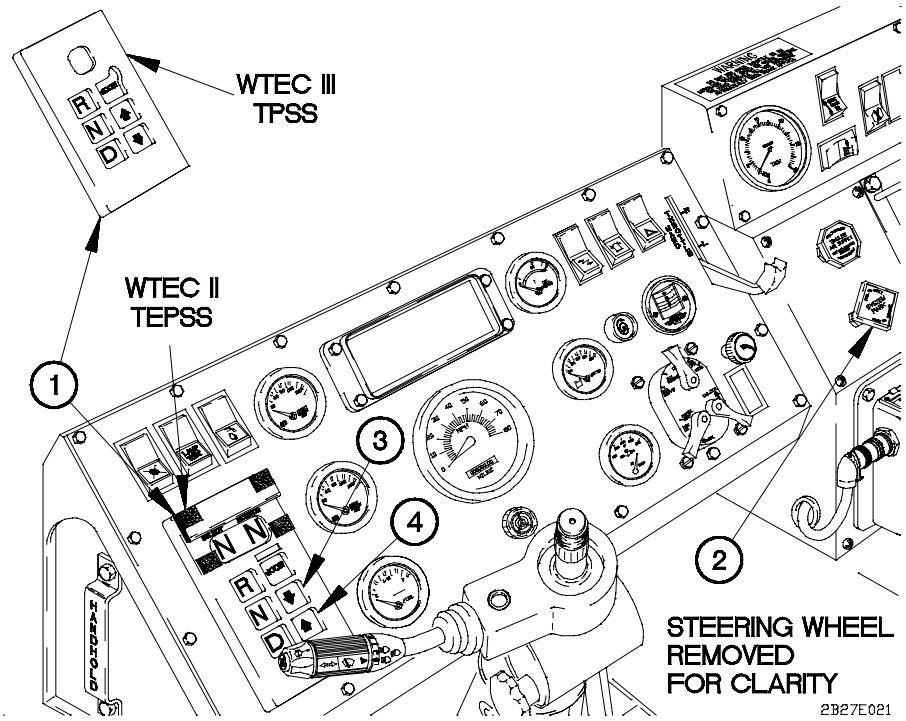
CAUTION

- Engine rpm must be at idle (750 rpm) prior to selecting any forward or reverse gear. Failure to comply may result in damage to equipment.
- Do not allow vehicle to coast in N (Neutral). Failure to comply may result in damage to equipment.

NOTE

When transmission is operating normally, left side of display window will indicate selected gear and right side of display window will indicate current operating gear.

(2) Select desired travel direction (D for Drive or R for Reverse) on WTEC II TEPSS (1) or WTEC III TPSS (1).



WARNING

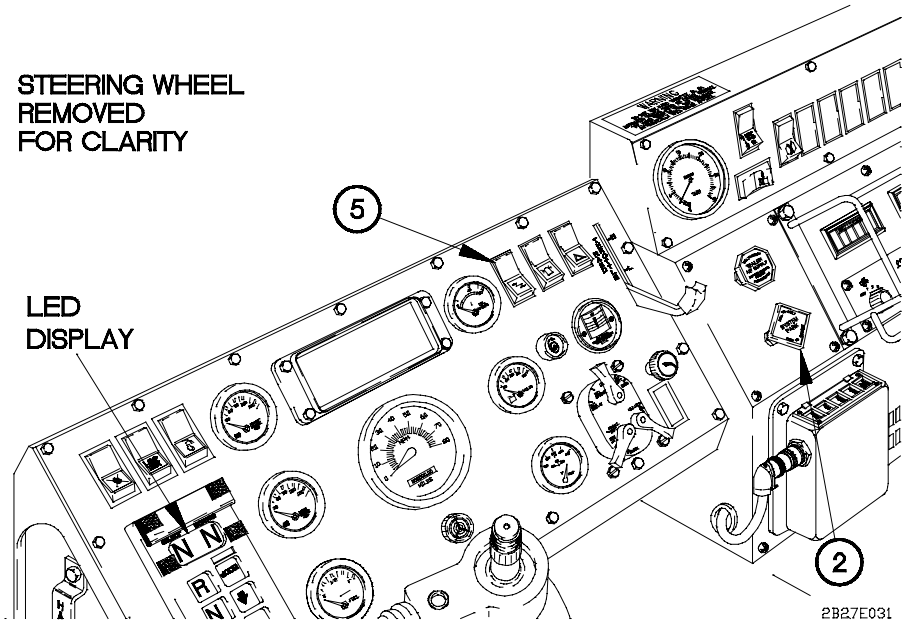
Transmission incorporates a hold feature to prohibit upshifting above selected gear during normal driving. However, during downhill operation, transmission may upshift above selected gear. On downgrades, vehicle speed may need to be restricted by using service brakes. Failure to comply may result in serious injury or death to personnel or damage to equipment.

(a) Press down arrow button (3) on WTEC II TEPSS (1) or WTEC III TPSS (1) to shift transmission to lower gear.

(b) Press up arrow button (4) on WTEC II TEPSS (1) or WTEC III TPSS (1) to shift transmission to higher gear.

(3) Push in SYSTEM PARK control (2).

2-27. VEHICLE OPERATION (CONT)



CAUTION

If illumination of last selected gear (in left side of LED display) goes out, WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) or WTEC III Transmission Shift Selector (TPSS) has detected a problem that needs correcting. Do not attempt to shift transmission to N (Neutral) or any other gear. Operate vehicle at reduced speed to a safe parking location. Failure to comply may result in damage to equipment.

NOTE

Perform steps (4) through (7) if left side of LED display is not showing a selected gear.

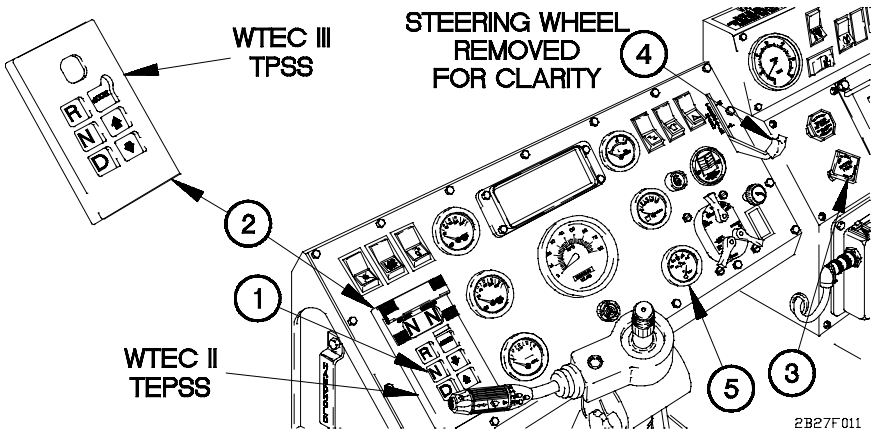
(4) Stop vehicle (para 2-27d).

(5) Position master power switch (5) to off.

(6) Pull out SYSTEM PARK control (2).

(7) Notify Unit Maintenance.

f. Shut Down Engine.



(1) Stop vehicle (para 2-27d).

(2) Press N (Neutral) button (1) on WTEC II TEPSS (2) or WTEC III TPSS (2).

(3) Pull out SYSTEM PARK control (3).

CAUTION

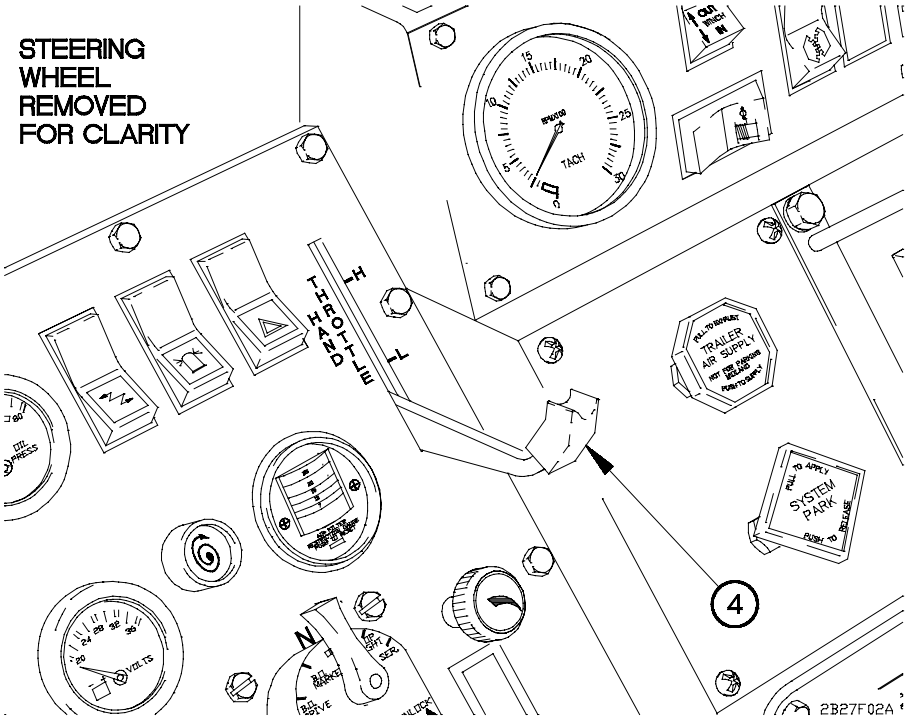
- Engine temperature must be maintained at a minimum of 165°F (74°C) for final 15 minutes prior to engine shutdown. Failure to comply may result in damage to engine.
- When outside temperatures are below 32°F (0°C) do not continuously operate engine above 1,250 to 1,450 rpm or HAND THROTTLE lever above L. Failure to comply may result in damage to equipment.

NOTE

- Steps (4) through (6) are only necessary to meet 165°F (74°C) requirements.
- Perform step (4) if it is necessary to increase WATER TEMP to 165°F (74°C) and it can be accomplished using accelerator pedal or HAND THROTTLE lever, within approximately 20 minutes.
- In the event of a tachometer failure a HAND THROTTLE lever positioned to L is approximately 1,250 to 1,450 rpm.

(4) Set engine speed to 1,250 to 1,450 rpm or place HAND THROTTLE lever (4) to L until WATER TEMP gage (5) reaches and maintains 165°F (74°C) for 15 minutes.

2-27. VEHICLE OPERATION (CONT)



(5) Set engine to idle (750 rpm) or place HAND THROTTLE lever (4) to full down position.

NOTE

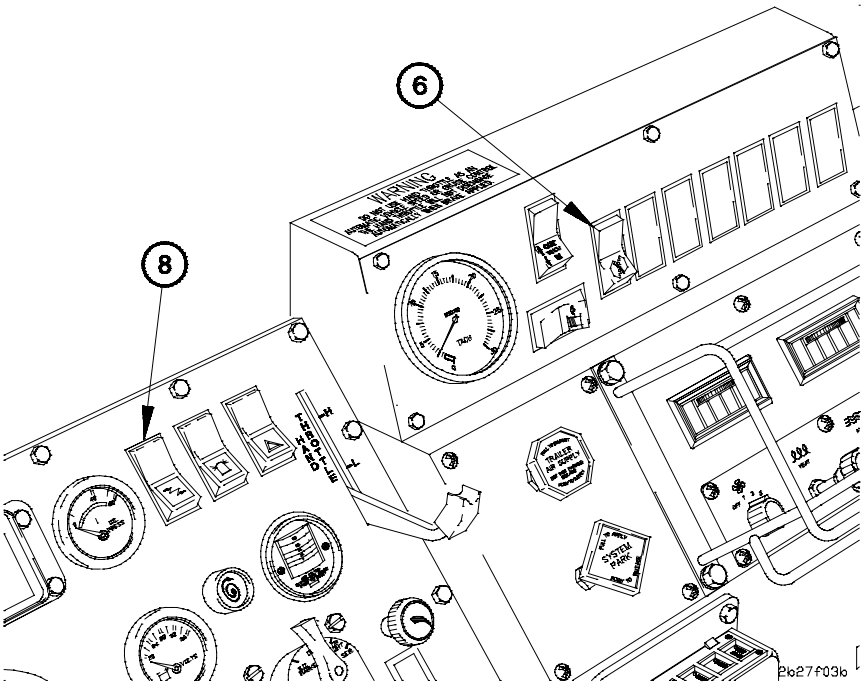
Perform step (6) only when it is difficult to achieve normal operating temperature of 165°F (74°C) due to extreme low outside temperatures.

(6) Perform Rapid Engine Warm-Up (para 2-70) to reach and maintain 165°F (74°C) for 15 minutes.

CAUTION

A coast down time of one to three minutes is required for turbocharger before engine can be shut down. Failure to comply may result in damage to equipment.

(7) Run engine at idle (750 rpm) for one to three minutes.



NOTE

Perform step (8) if vehicle is equipped with PTO.

(8) Position PTO switch (6) to off (if PTO is engaged).

(9) Turn off lights and electrical accessories (para 2-27c).

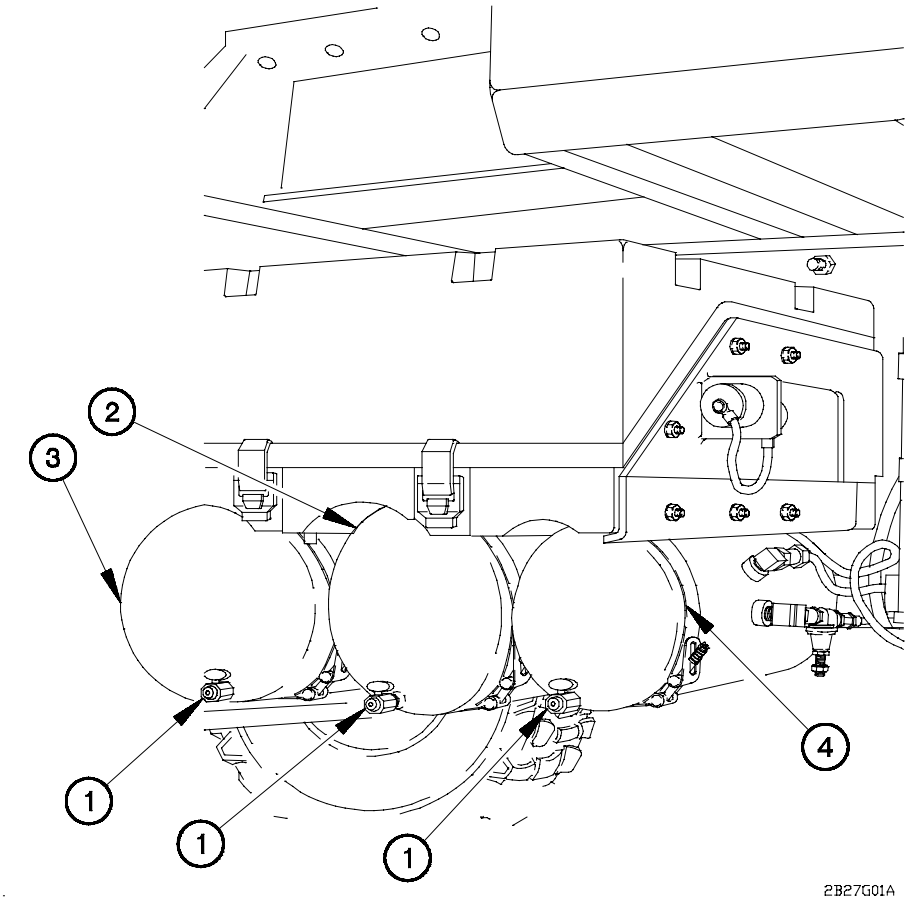
(10) Deleted.

(11) Position master power switch (8) to off.

(12) Chock wheels (para 2-27h).

2-27. VEHICLE OPERATION (CONT)

g. Draining Air Tanks.



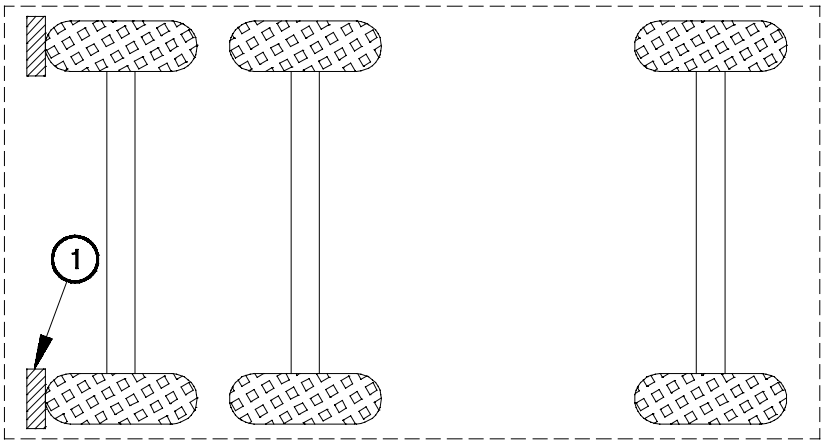
NOTE

When vehicle will not be operated for 12 hours or more or when operating in temperatures below 50°F (10°C), air tanks should be drained.

(1) Open drain valves (1) on primary air tank (2), secondary air tank (3), and wet tank (4) until air cannot be heard escaping.

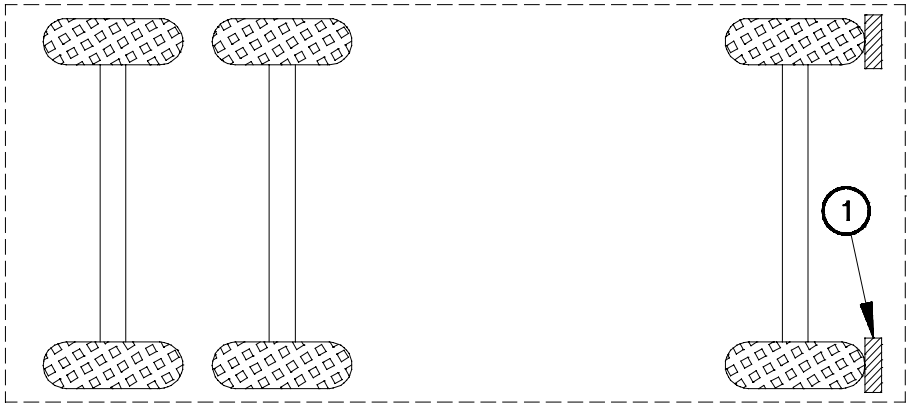
(2) Close drain valves (1) on primary air tank (2), secondary air tank (3), and wet tank (4).

h. Parking Vehicle.



2B27H011

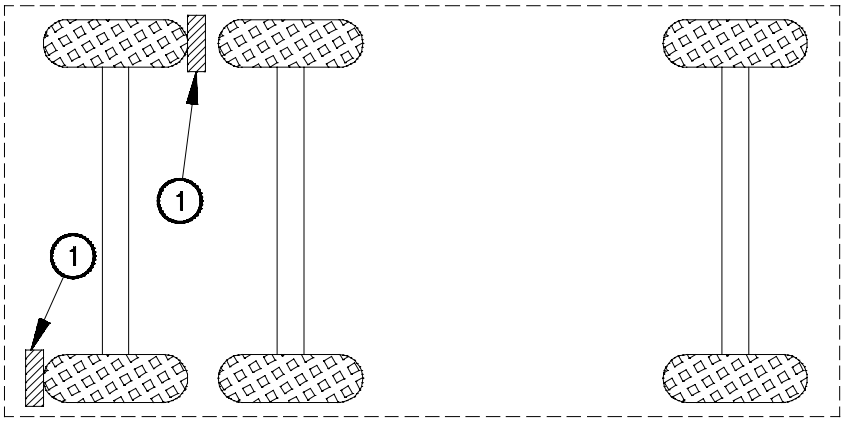
(1) Install wheel chocks (1) in back of rear wheels when parked facing uphill.



2B27H021

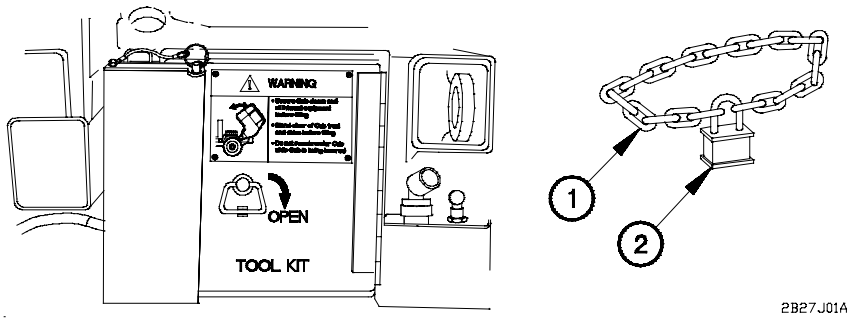
(2) Install wheel chocks (1) in front of front wheels when parked facing downhill.

2-27. VEHICLE OPERATION (CONT)



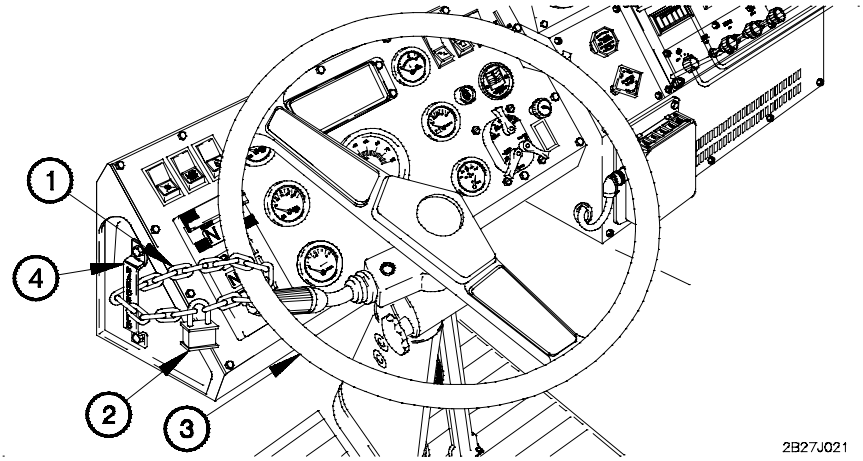
(3) Install wheel chocks (1) in front of one rear wheel and the second wheel chock in back of the opposite wheel when parked on level ground.

j. Securing Vehicle.



(1) Install Chain.

(a) Remove chain (1) and padlock (2) from tool box.



NOTE

Turn steering wheel either full right or full left before installing chain.

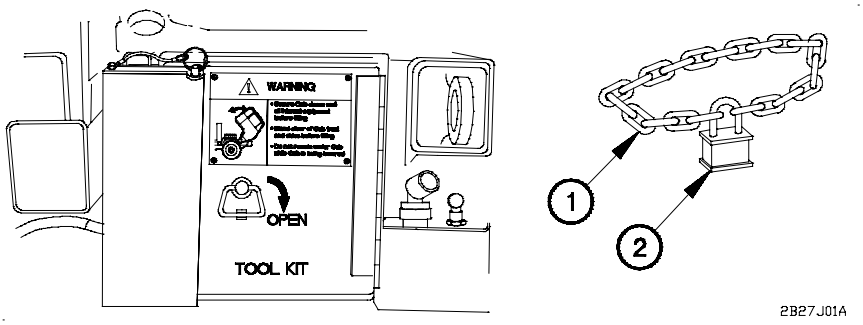
(b) Wrap chain (1) around steering wheel (3) and cab handhold (4).

(c) Connect padlock (2) to chain (1) and lock padlock.

(2) Remove Chain.

(a) Unlock and remove padlock (2) from chain (1).

(b) Remove chain (1) from steering wheel (3) and cab handhold (4).



(c) Place chain (1) and padlock (2) in tool box.

2-28. RAISING/LOWERING CAB

a. Raising Cab.

WARNING

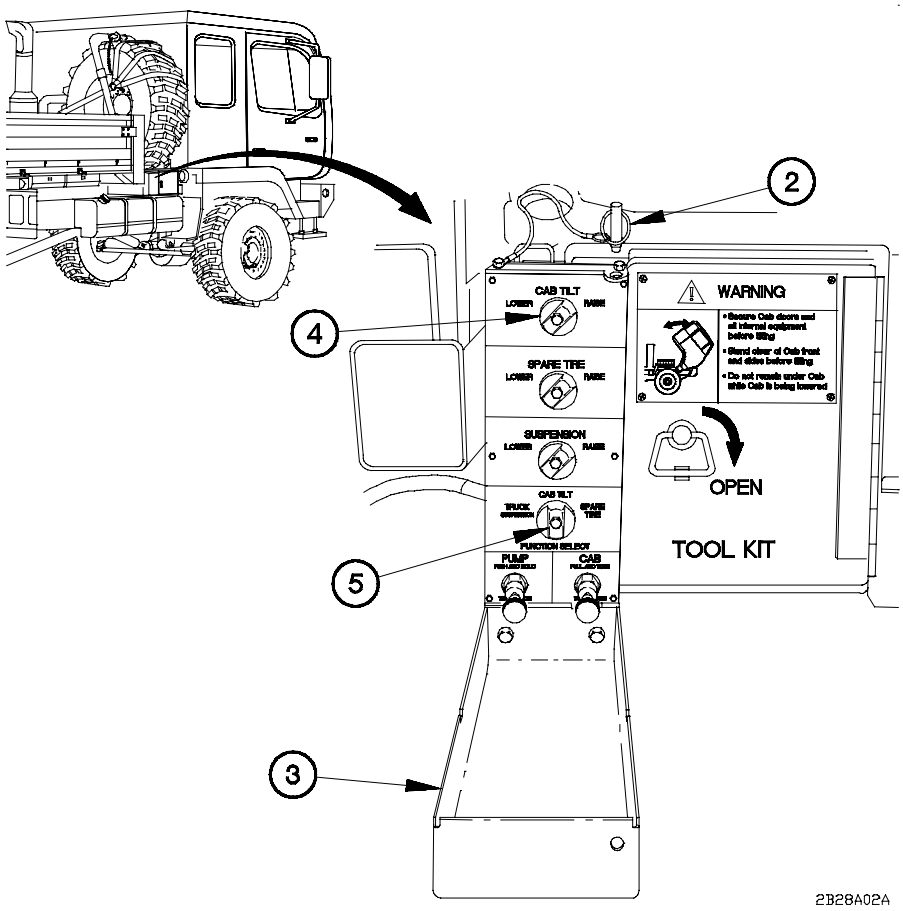
- **Engine compartment and accessories may be extremely hot when engine is running or has been running recently. Use caution around engine when cab is raised. Failure to comply may result in injury to personnel.**
- **Engine compartment contains a partially exposed fan blade. Use extreme caution around front of engine. Failure to comply may result in injury to personnel.**

NOTE

- Cab will not raise unless SYSTEM PARK is pulled out.
- Perform step (1) on M1089.

(1) Raise amber warning light masts to mid-position (para 2-74).

(2) Deleted.



(3) Remove pin (2) from hydraulic manifold cover (3).

NOTE

If air tanks are fully charged, cab may be raised and lowered twice without starting engine.

(4) Turn CAB TILT knob (4) to the RAISE position.

(5) Turn FUNCTION SELECT knob (5) to the CAB TILT position.

2-28. RAISING/LOWERING CAB (CONT)

WARNING

- **Never raise cab while occupied or parked uphill on a steep grade. Failure to comply may result in serious injury or death to personnel.**
- **Ensure both doors are securely closed before cab is raised/lowered. Do not allow personnel near cab when cab is being raised/lowered. Cab doors could open. Failure to comply may result in serious injury or death to personnel or damage to equipment.**

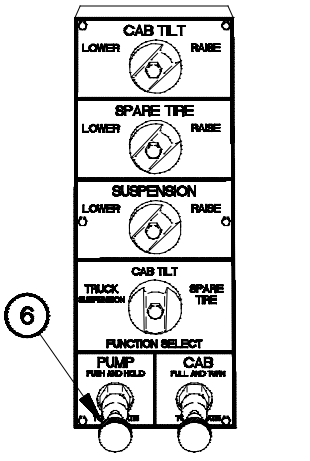
CAUTION

- Remove all loose objects from cab before raising cab. Failure to comply may result in damage to equipment.
- Cab height when raised is higher than normal. Ensure area above and in front of cab is adequate before raising cab. Failure to comply may result in damage to equipment.
- Ensure cab top is secure on air drop models before raising cab. Failure to comply may result in damage to equipment.
- Ensure adequate clearance is available on M1089 with amber warning lights extended to mid-position. Overall height is extended approximately 40 in. (102 cm). Failure to comply may result in damage to equipment.

NOTE

Use back-up hydraulic pump (para 2-52) if pressing PUMP knob does not accomplish step (5).

(6) Press and hold PUMP knob (6) until cab is fully raised.

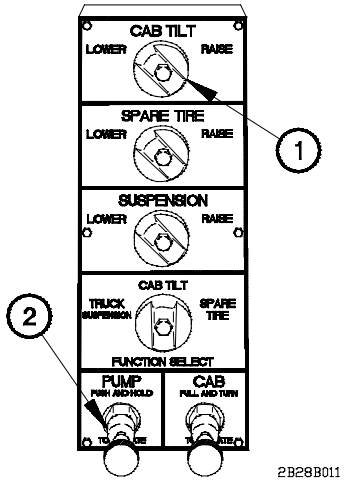


2B28A031

b. Lowering Cab.

WARNING

Do not allow personnel near cab while cab is being lowered. Cab doors could open. Failure to comply may result in serious injury or death to personnel.

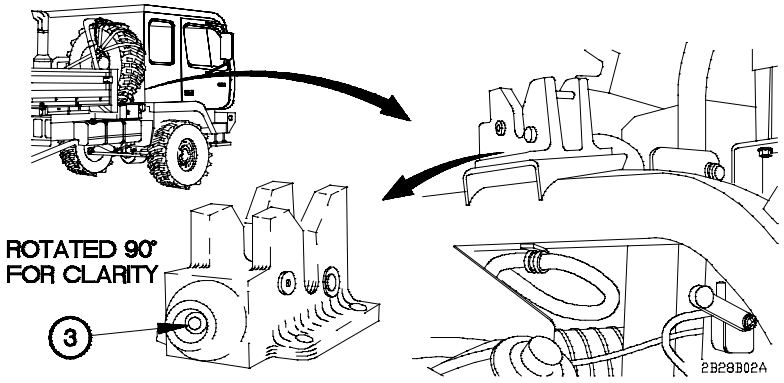


(1) Turn CAB TILT knob (1) to the LOWER position.

NOTE

Use back-up hydraulic pump (para 2-52) if pressing PUMP knob does not accomplish step (2).

(2) Press and hold PUMP knob (2) until cab is fully lowered.



WARNING

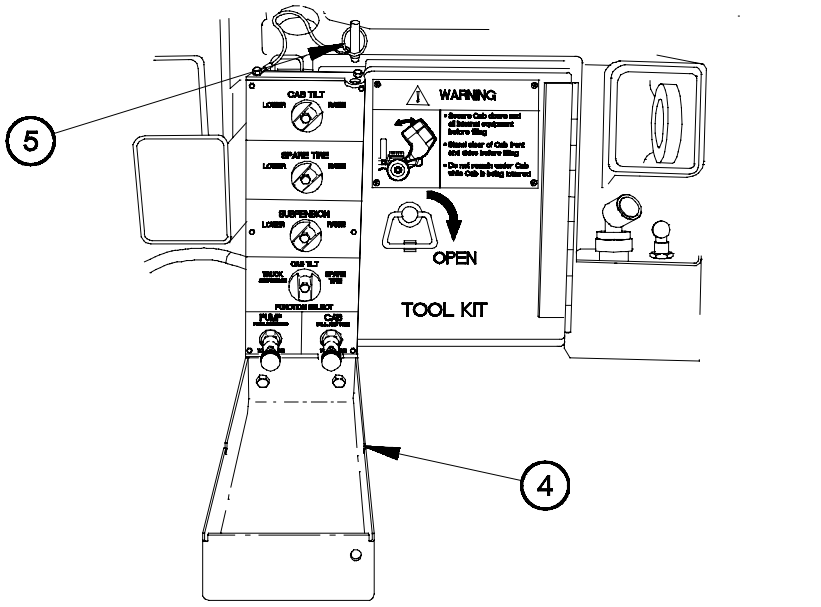
Cab hydraulic latch must be locked before driving vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

Button on right side end of cab hydraulic latch shows status of latch. Button in shows cab is latched; button out shows cab is not latched.

(3) Check button (3) position to confirm cab is latched.

2-28. RAISING/LOWERING CAB (CONT)



2B28B031

(4) Close hydraulic manifold cover (4).

(5) Install pin (5) in hydraulic manifold cover (4).

NOTE

Perform step (6) on M1089.

(6) Lower amber warning light masts (para 2-74).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION

a. Determine Required Light Material Handling Crane (LMHC) Settings.

(1) Determine the weight of load.

(2) Determine the radius from centerline of LMHC rotation to position of load.

(3) To determine boom angle and length required for load being lifted see Table 2-9.

Example:

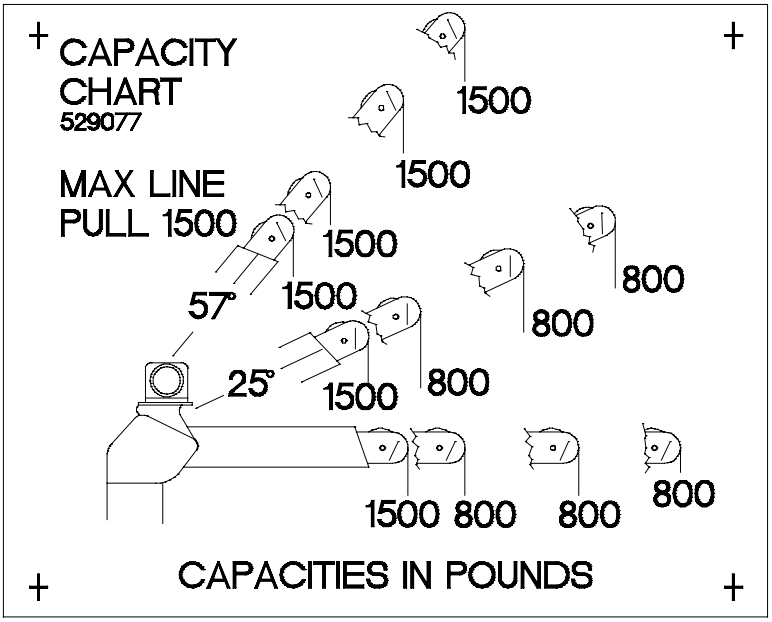
Load to be lifted from ground is at a radius of 48 inches (122 cm) from LMHC centerline of rotation and must be placed on cargo bed.

Step 1. Determine the load

Load	=	1,200 pounds (545 kgs)
Sling	=	10 pounds (4.5 kgs)
Total Load	=	1,210 pounds (549 kgs)

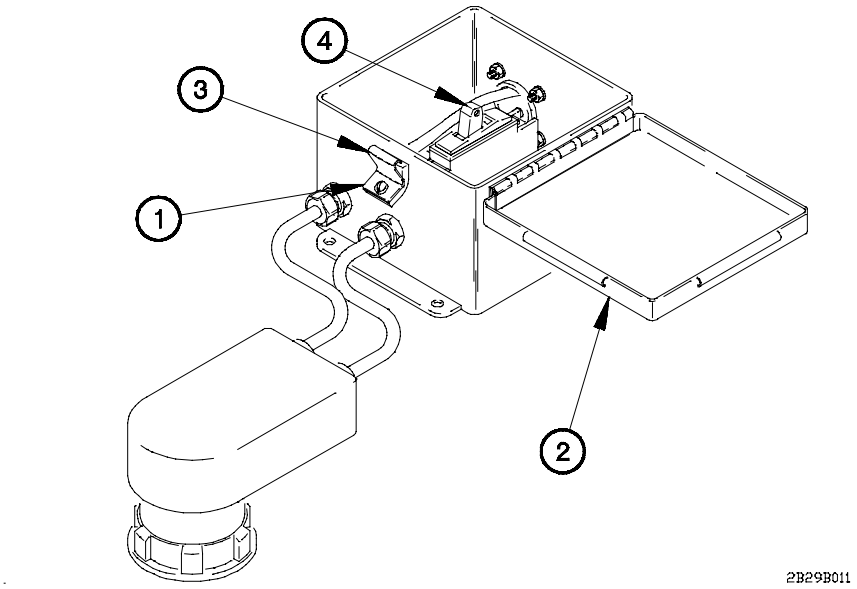
Step 2. Refer to Capacity Chart in Table 2-9 to see that load does not exceed ratings.

Table 2-9. Capacity Chart for Light Material Handling Crane (LMHC)



2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)

b. Reset Circuit Breaker.



NOTE

Circuit breaker located inside circuit breaker box will occasionally trip due to sudden high amperage inputs. If circuit breaker trips more than four times during a mission, notify Unit Maintenance.

(1) Loosen, but do not remove, three screws (1) securing box cover (2).

(2) Rotate three clamps (3) and open box cover (2).

CAUTION

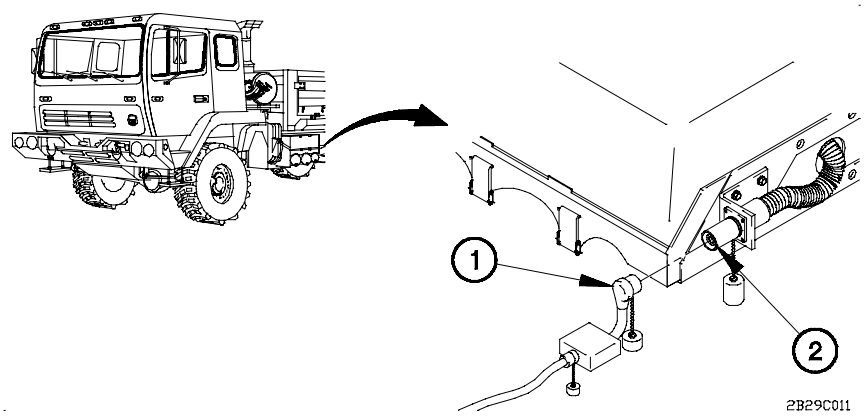
Use care when positioning circuit breaker switch so as not to upset mounting lugs. Failure to comply may result in damage to equipment.

(3) Position circuit breaker switch (4) to ON.

(4) Close box cover (2) and rotate three clamps (3) back to original position.

(5) Tighten three screws (1).

c. Changing LMHC Location.



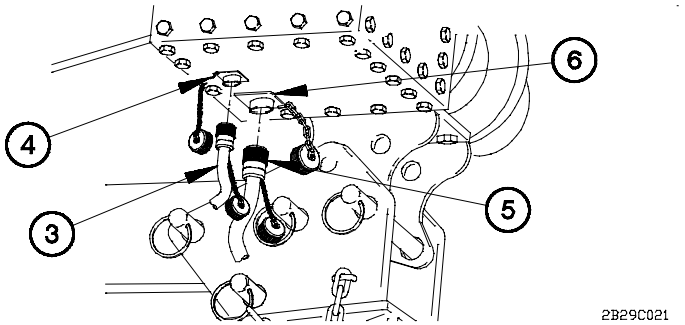
WARNING

Ensure that engine is not running before disconnecting circuit breaker box NATO connector from vehicle NATO connector. Failure to comply may result in injury to personnel.

CAUTION

Ensure that power cable does not come in contact with exhaust pipe. Failure to comply may result in damage to equipment.

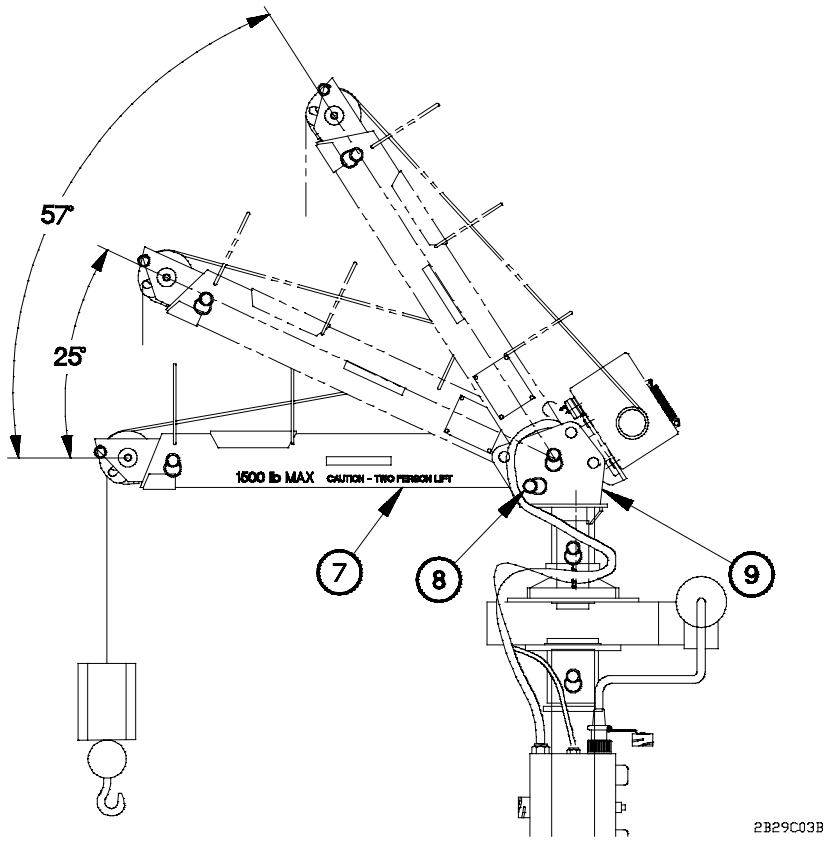
(1) Disconnect circuit breaker box NATO connector (1) from vehicle NATO connector (2).



(2) Disconnect power cable connector (5) from winch power cable connector (6).

(3) Disconnect remote control connector (3) from winch remote control connector (4).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



NOTE

- Perform steps (4) through (8) if boom was in 25-degree or 57-degree position.
- Steps (4) through (8) require the aid of an assistant.

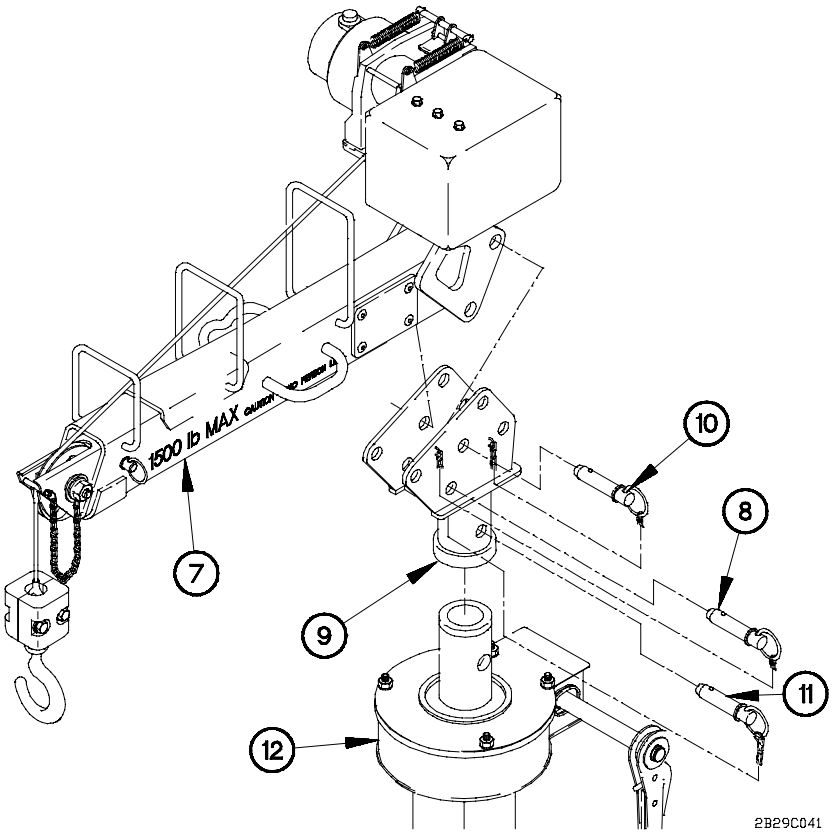
(4) Support end of boom (7).

(5) Remove quick release pin (8) from turret (9).

(6) Lower boom (7) to 0-degrees.

(7) Align holes in turret (9) and boom (7).

(8) Install quick release pin (8) in turret (9).



(9) Remove quick release pins (8 and 10) from turret (9).

WARNING

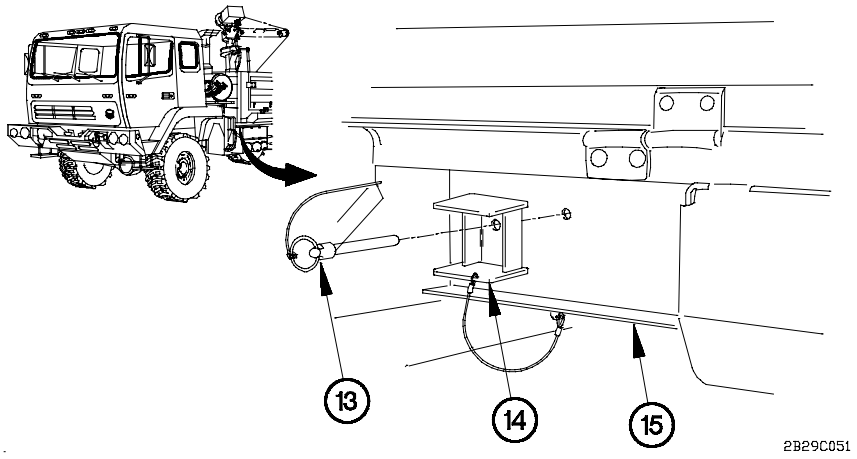
Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kgs). An assistant is required to remove LMHC boom and winch. Failure to comply may result in injury to personnel.

(10) Remove boom (7) from turret (9).

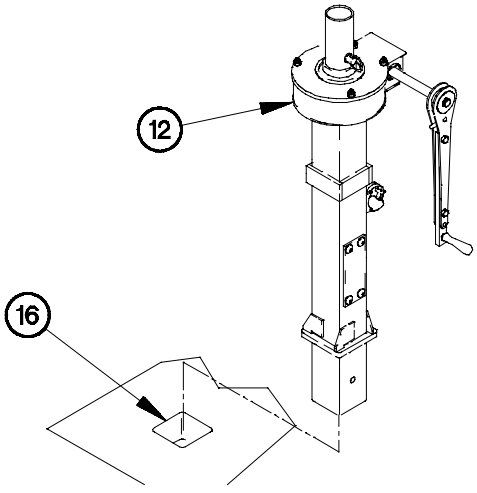
(11) Remove quick release pin (11) from turret (9).

(12) Remove turret (9) from mast (12).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



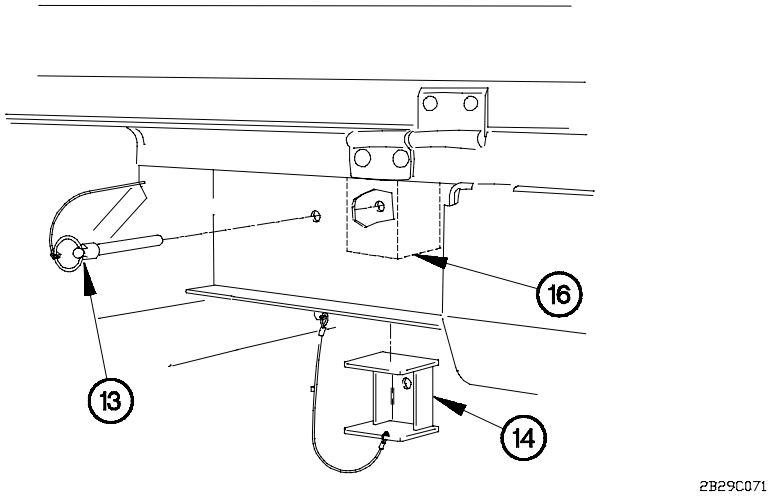
(13) Remove quick release pin (13) and plug (14) from cargo bed (15).



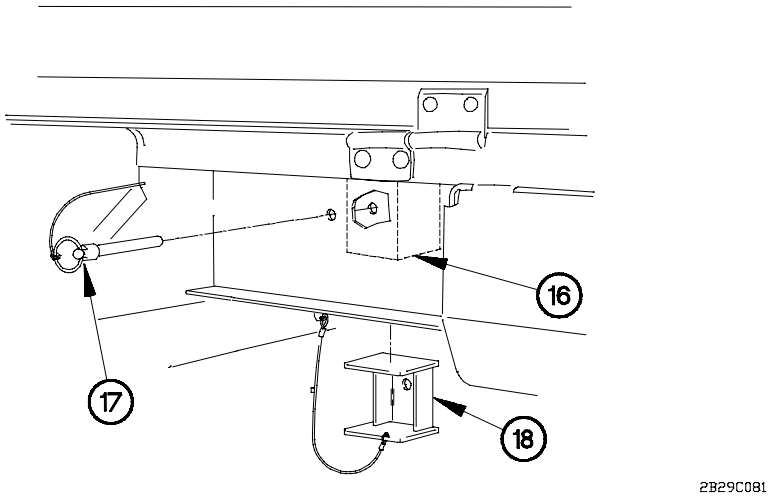
WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). An assistant is required to remove mast from cargo bed pocket. Failure to comply may result in injury to personnel.

(14) Remove mast (12) from cargo bed pocket (16).

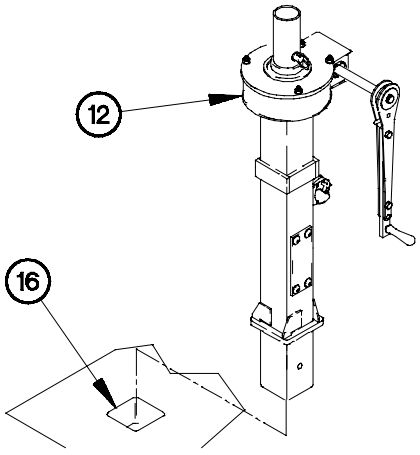


(15) Install plug (14) in cargo bed pocket (16) with quick release pin (13).



(16) Remove quick release pin (17) and plug (18) from desired cargo bed pocket (16).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



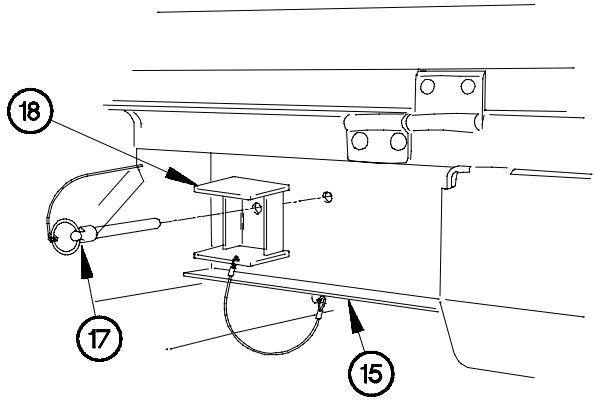
WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). An assistant is required to install mast in cargo bed pocket. Failure to comply may result in injury to personnel.

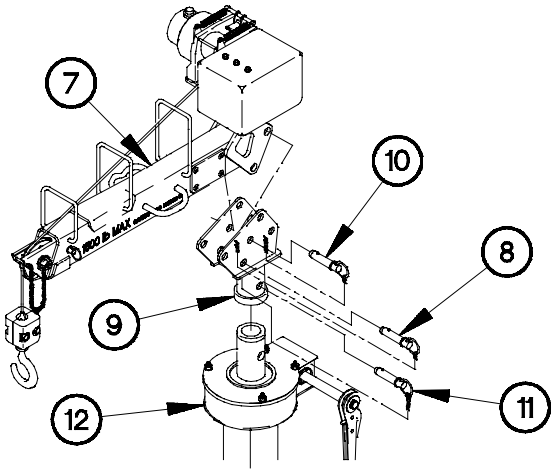
NOTE

Position mast in cargo bed pocket so handle does not extend over front or rear edge of cargo bed.

(17) Install mast (12) in cargo bed pocket (16).



(18) Install plug (18) on cargo bed (15) with quick release pin (17).



2B29C111

(19) Position turret (9) on mast (12).

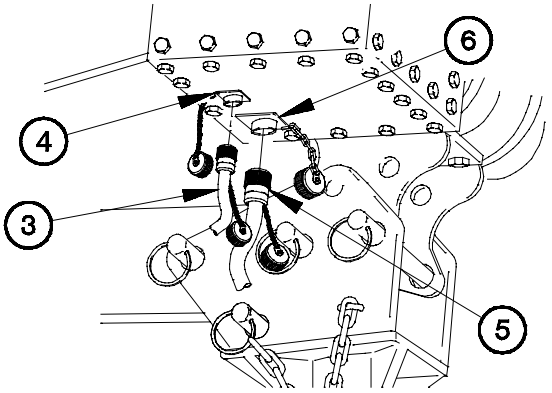
(20) Install quick release pin (11) in turret (9).

WARNING

Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kg). An assistant is required to install boom and winch. Failure to comply may result in injury to personnel.

(21) Position boom (7) on turret (9).

(22) Install quick release pins (8) and (10) in turret (9).

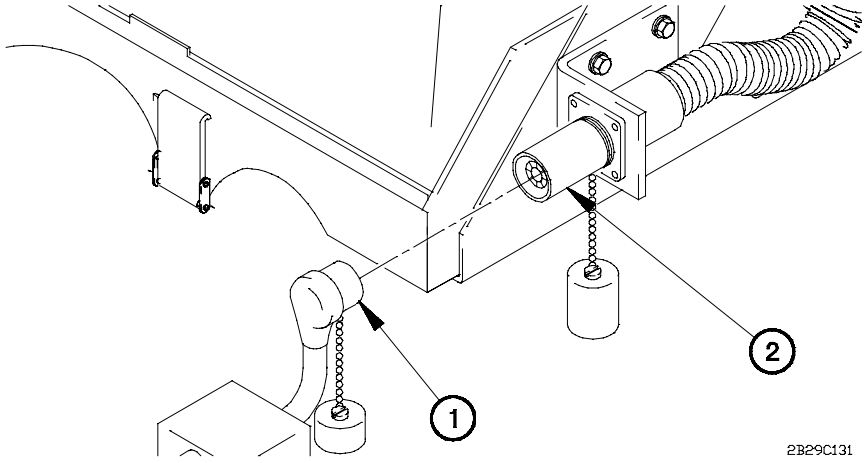


2B29C121

(23) Connect remote control connector (3) on winch remote control connector (4).

(24) Connect power cable connector (5) on winch power cable connector (6).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



WARNING

Ensure that engine is not running before disconnecting circuit breaker box NATO connector from vehicle NATO connector. Failure to comply may result in injury to personnel.

CAUTION

Ensure that power cable does not come in contact with exhaust pipe. Failure to comply may result in damage to equipment.

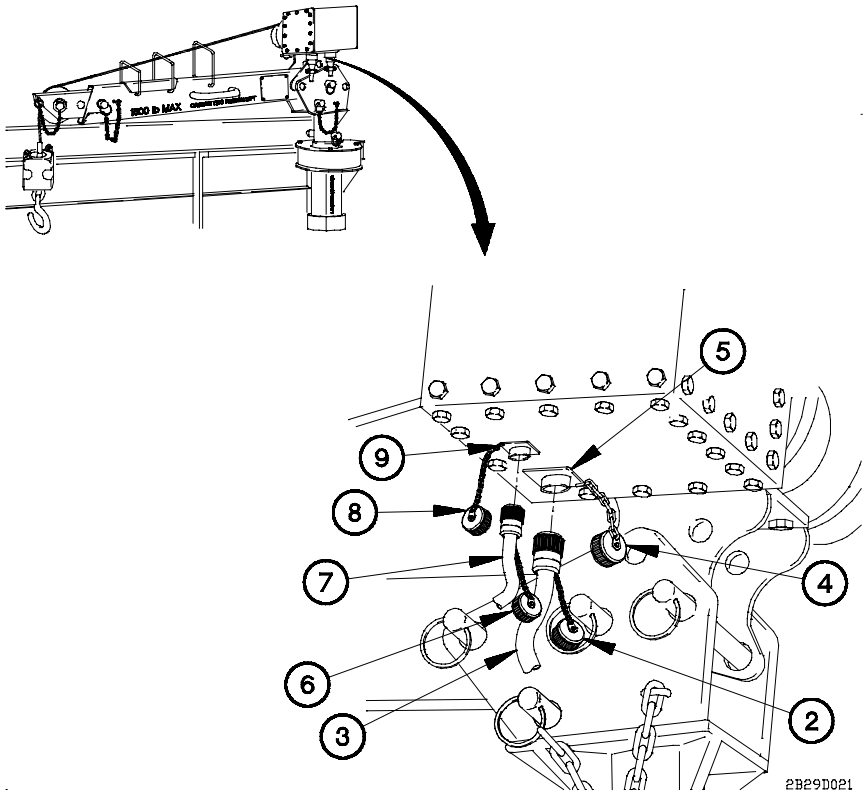
(25) Connect circuit breaker box NATO connector (1) to vehicle NATO connector (2).

d. Prepare LMHC for Use.

WARNING

- **Cargo bed is approximately 5 ft (600 mm) above ground level. Use care during any Light Material Handling Crane (LMHC) operation. Failure to comply may result in serious injury or death to personnel.**
- **Ensure that wheels are chocked prior to setting up Light Material Handling Crane (LMHC). Failure to comply may result in injury to personnel.**

(1) Chock wheels (para 2-27h).



WARNING

Power cable must be connected to Light Material Handling Crane (LMHC) before being connected to circuit breaker box. Failure to comply may result in injury or death to personnel.

(2) Remove dust cap (2) from power cable connector (3).

(3) Remove dust cap (4) from winch power cable connector (5).

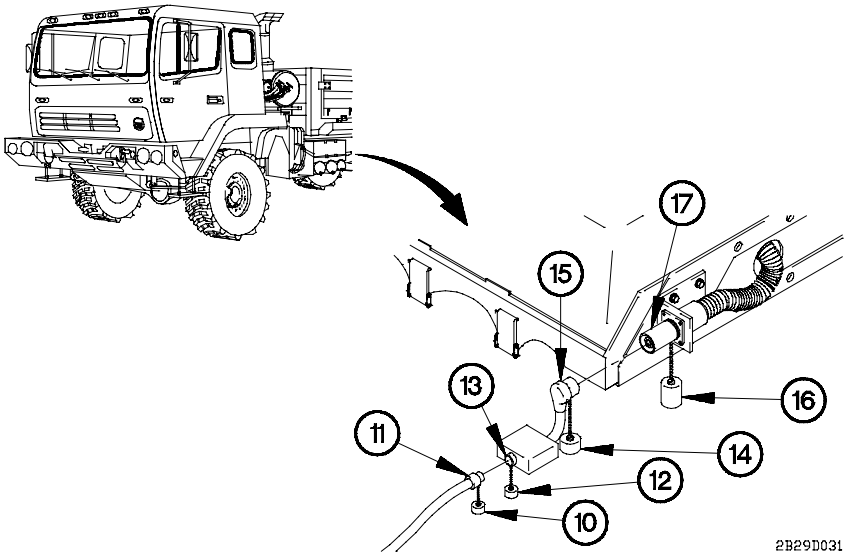
(4) Connect power cable connector (3) to winch power cable connector (5).

(5) Remove dust cap (6) from remote control connector (7).

(6) Remove dust cap (8) from winch remote control connector (9).

(7) Connect remote control connector (7) to winch remote control connector (9).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



WARNING

Ensure that engine is shut down before connecting power cable at vehicle NATO connector. Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure that power cable does not come in contact with hot exhaust pipe. Failure to comply may result in damage to equipment.

(8) Remove dust cap (10) from power cable connector (11).

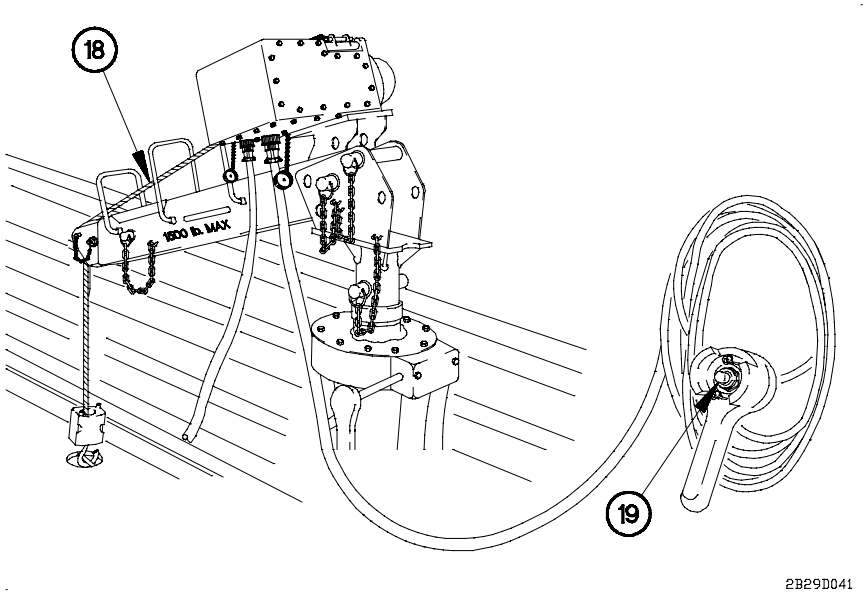
(9) Remove dust cap (12) from circuit breaker box connector (13).

(10) Connect power cable connector (11) to circuit breaker box connector (13).

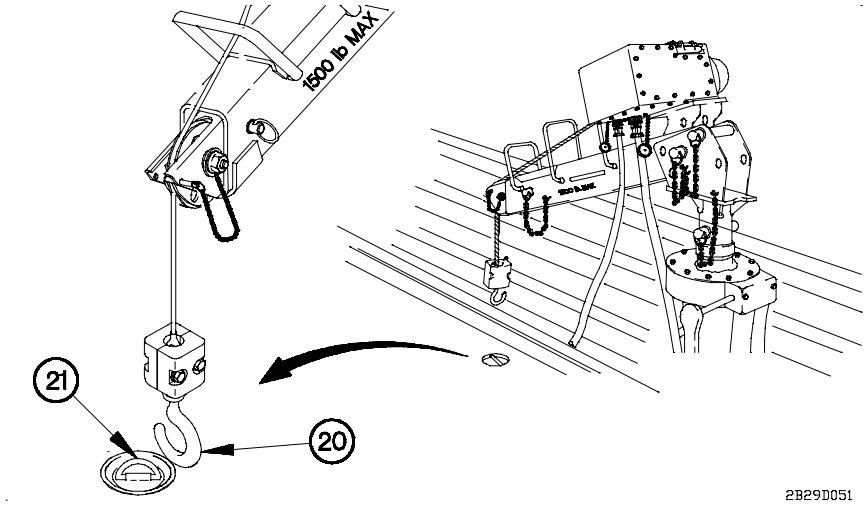
(11) Remove dust cap (14) from circuit breaker box NATO connector (15).

(12) Remove dust cap (16) from vehicle NATO connector (17).

(13) Connect circuit breaker box NATO connector (15) to vehicle NATO connector (17).



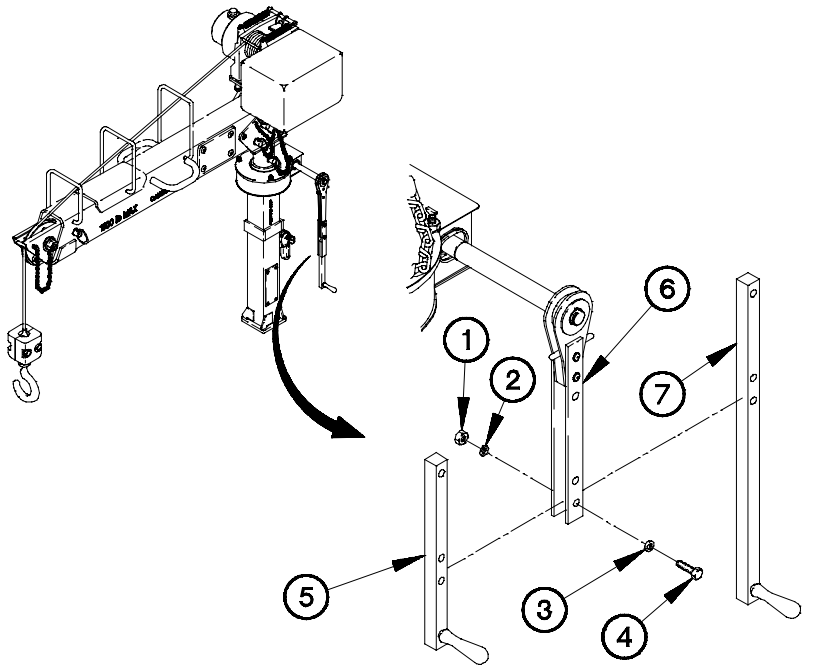
(14) To lower cable (18) place hoist control switch (19) in up position.



(15) Disconnect hook (20) from cargo bed tie-down ring (21).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)

e. Installing Long Handle (if required).



2B29E011

NOTE

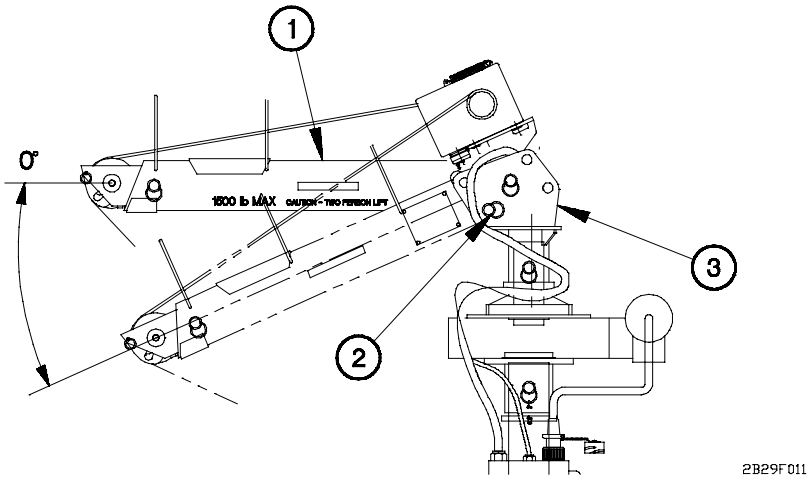
The long handle may be installed and used to rotate LMHC. To remove short handle and install long handle perform steps (1) and (2).

(1) Remove two nuts (1), lockwashers (2), washers (3), screws (4) and short handle (5) from ratchet (6).

(2) Install long handle (7) in ratchet (6) with two washers (3), screws (4), lockwashers (2) and nuts (1).

(3) Notify Unit Maintenance to replace lockwashers.

f. Raise Boom.



WARNING

Determine required Light Material Handling Crane (LMHC) settings prior to raising boom. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Steps (1) through (8) require the aid of an assistant.

(1) Support end of boom (1).

NOTE

Perform steps (2) through (5) to raise the boom to the O-degree position.

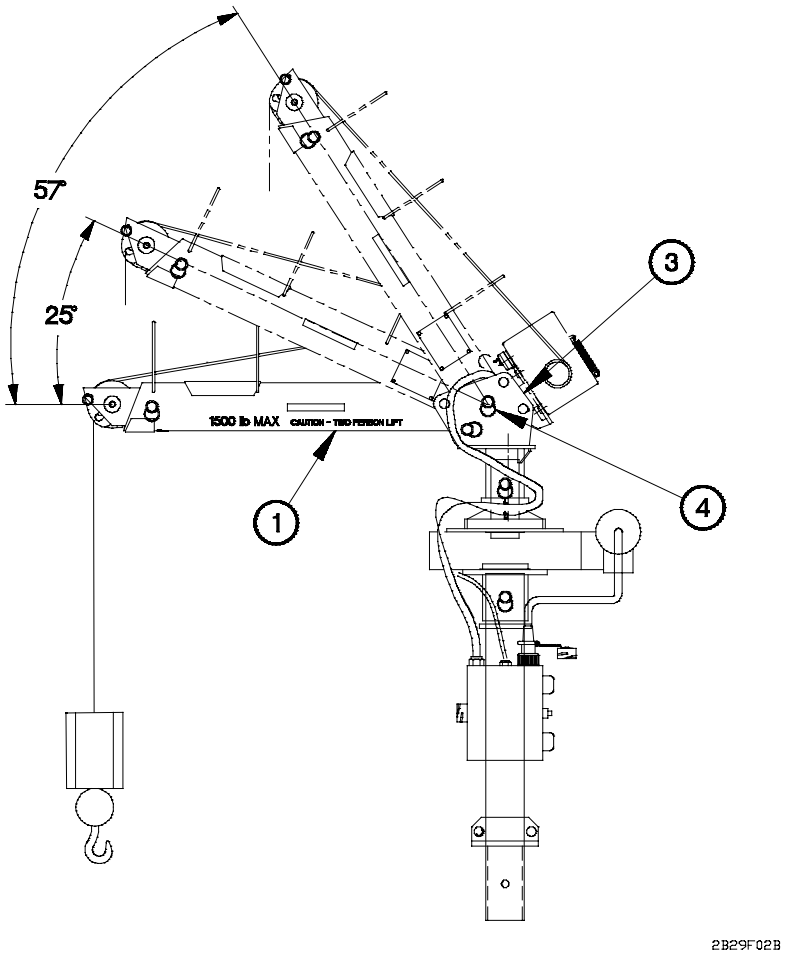
(2) Remove quick release pin (2) from turret (3).

(3) Raise boom (1) to O-degree position.

(4) Align holes in turret (3) and boom (1).

(5) Install quick release pin (2) in turret (3).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



NOTE

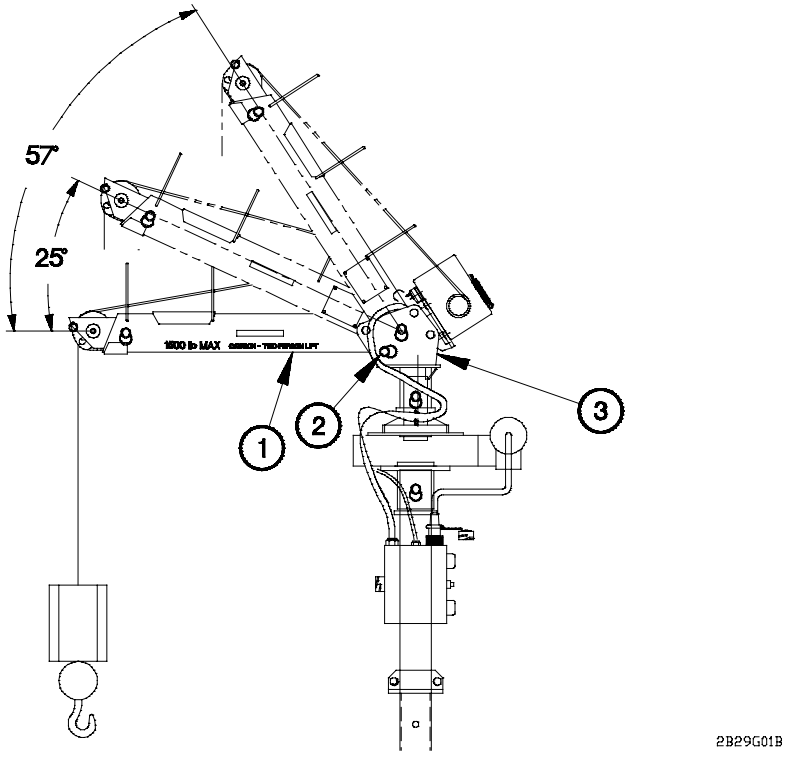
Perform steps (6) through (8) to raise boom to 25-degree or 57-degree position.

(6) Remove quick release pin (4) from turret (3).

(7) Raise boom (1) to desired position.

(8) Install quick release pin (4) in turret (3).

g. Telescope Boom.



NOTE

- Steps (1) through (5) require the aid of an assistant.
- Perform steps (1) through (5) if boom was in 25-degree or 57-degree position.

(1) Support end of boom (1).

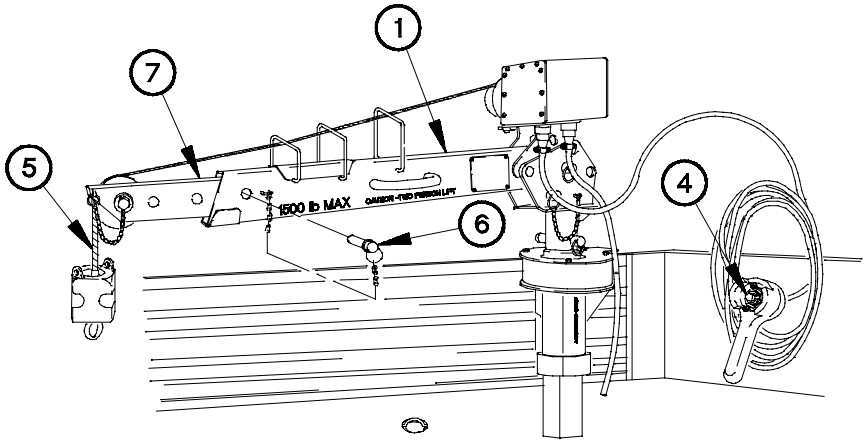
(2) Remove quick release pin (2) from turret (3).

(3) Lower boom (1) to 0-degrees.

(4) Align holes in turret (3) and boom (1).

(5) Install quick release pin (2) in turret (3).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



2B29G021

CAUTION

Cable must be lowered to extend boom. Failure to comply may result in damage to equipment.

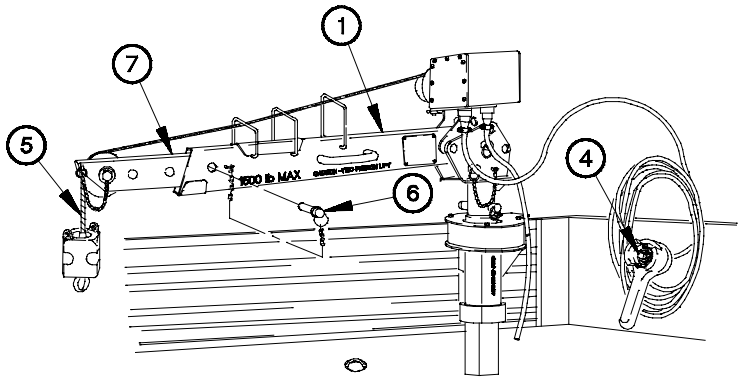
(6) Place hoist control switch (4) in up position to pay out cable (5).

(7) Remove quick release pin (6) from boom (1).

WARNING

Determine required Light Material Handling Crane (LMHC) settings prior to telescoping boom. Failure to comply may result in injury to personnel or damage to equipment.

(8) Set boom extension (7) to desired position.

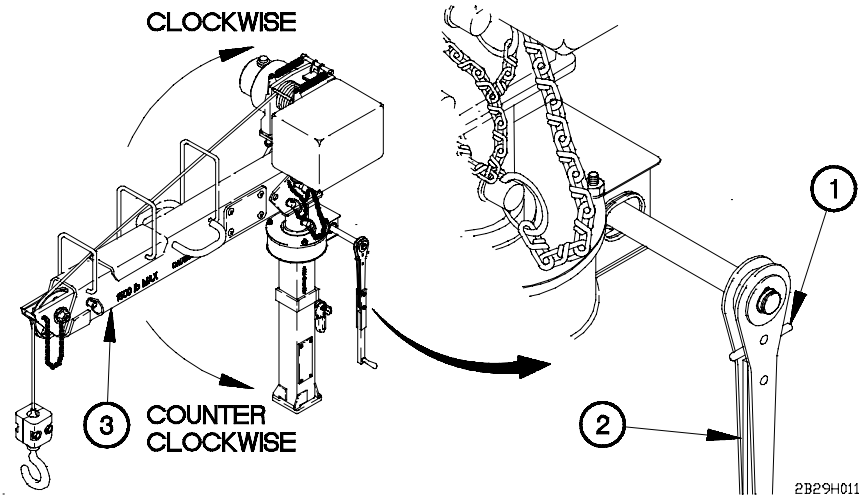


2B29G021

(9) Align holes in boom extension (7) and boom (1).

(10) Install quick release pin (6) in boom (1).

h. Swing Boom.



2B29H011

(1) Press ratchet lever (1) counterclockwise.

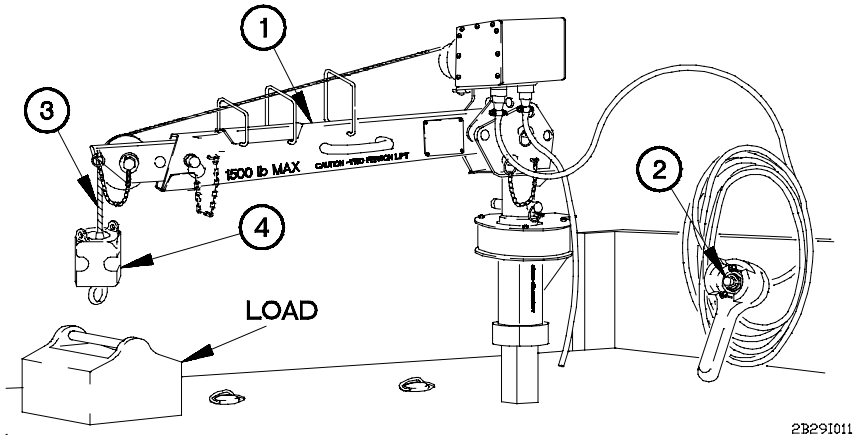
(2) Crank handle (2) to swing boom (3) counterclockwise.

(3) Press ratchet lever (1) clockwise.

(4) Crank handle (2) to swing boom (3) clockwise.

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)

i. Raise and Lower Load.



CAUTION

- Do not lift load over maximum load rating for Light Material Handling Crane (LMHC). Failure to comply may result in damage to equipment.
- Use only a straight pull when lifting load. Failure to comply may result in damage to equipment.
- After performing eight cycles with Light Material Handling Crane (LMHC), allow 30 minutes to cool down. A cycle is defined as the pickup, moving, and placing of a load. A cycle may be from cargo bed of vehicle to ground or ground to cargo bed of vehicle. Failure to comply may result in damage to equipment.

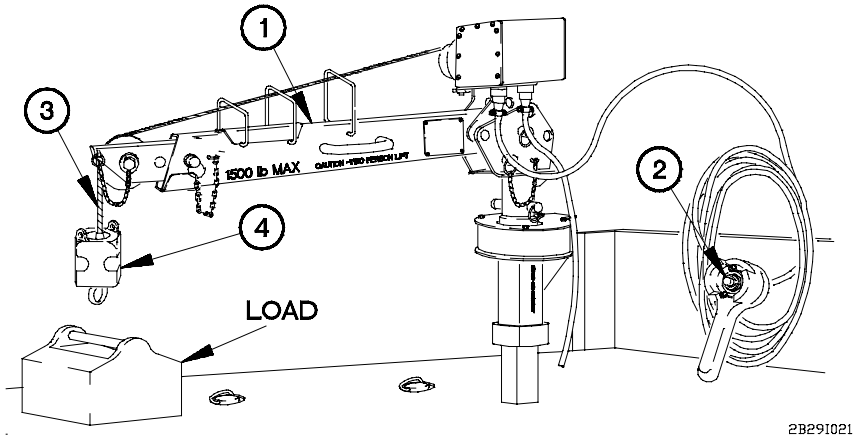
NOTE

Steps (1) through (7) require the aid of an assistant.

(1) Adjust boom (1) until end of boom is over load (para 2-29g).

(2) Place hoist control switch (2) in up position to pay out cable (3).

(3) Connect hook (4) to load.



WARNING

Ensure there are at least two wraps of cable on hoist drum at all times. Cable could come off hoist drum while load is being lifted. Failure to comply may result in injury to personnel or damage to equipment.

CAUTION

- If circuit breaker trips while Light Material Handling Crane (LMHC) is operating, allow 30 minutes to cool down. If load is suspended, reset circuit breaker and lower load. If circuit breaker trips again, notify Unit Maintenance. Failure to comply may result in damage to equipment.
- Do not jerk hoist control switch causing load to bounce. Failure to comply may result in damage to equipment.

(4) Place hoist control switch (2) in down position to reel in cable (3) and lift load.

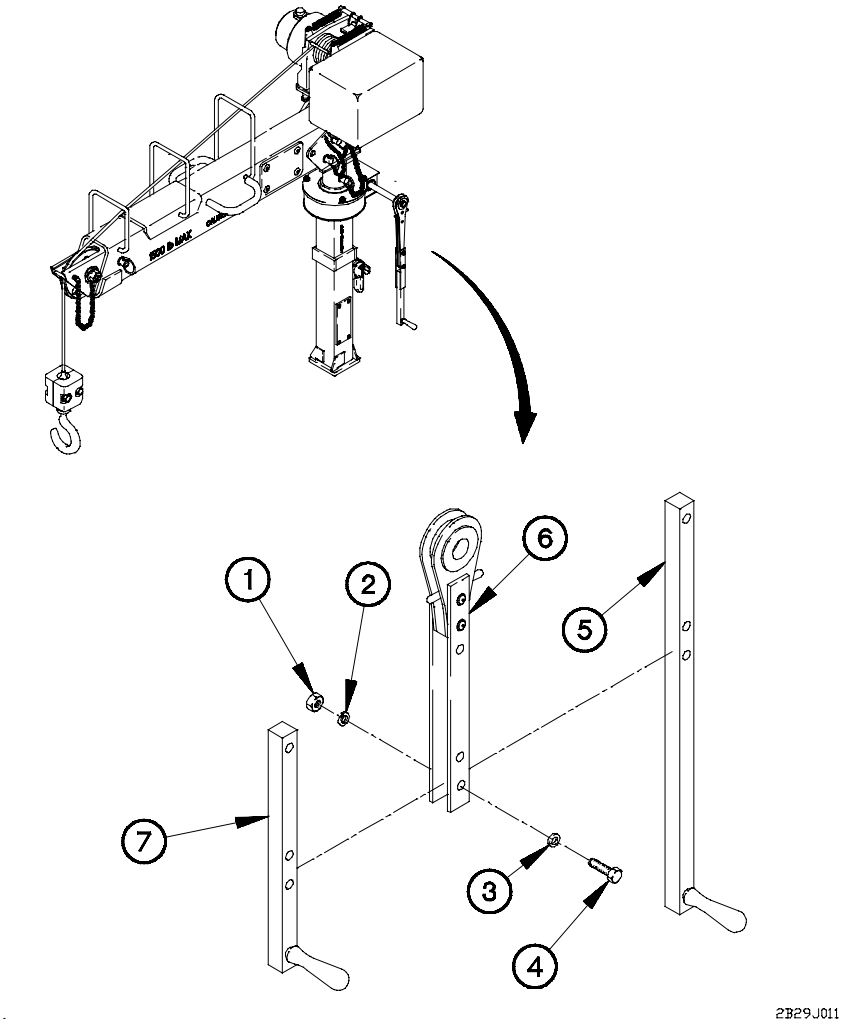
(5) Swing boom (1) to place load in desired location (para 2-29h).

(6) Place hoist control switch (2) in up position to lower load.

(7) Remove hook (4) from load.

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)

j. Installing Short Handle (if required).

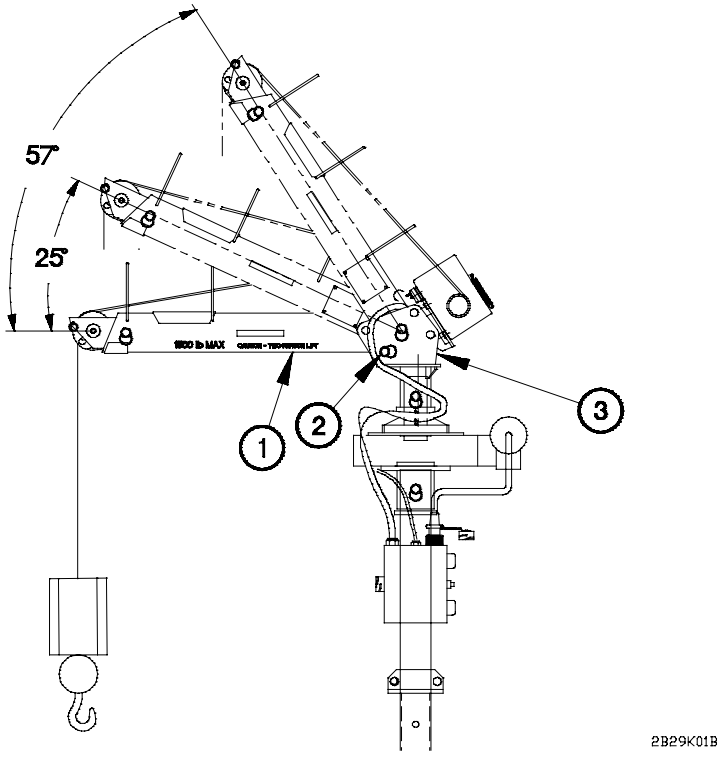


(1) Remove two nuts (1), lockwashers (2), washers (3), screws (4) and long handle (5) from ratchet (6).

(2) Install short handle (7) in ratchet (6) with two washers (3), screws (4), lockwashers (2) and nuts (1).

(3) Notify Unit Maintenance to replace lockwashers.

k. Stow LMHC.



NOTE

- Steps (1) through (13) require the aid of an assistant.
- Perform steps (1) through (5) if boom was in 25-degree or 57-degree position.

(1) Support end of boom (1).

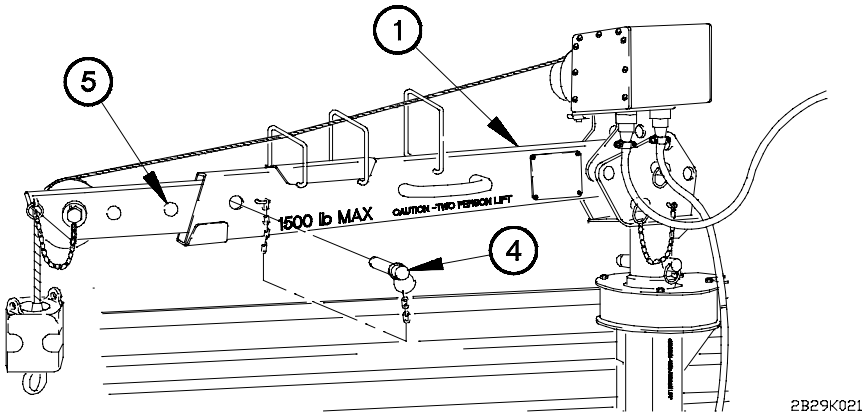
(2) Remove quick release pin (2) from turret (3).

(3) Lower boom (1) to 0-degrees.

(4) Align holes in turret (3) and boom (1).

(5) Install quick release pin (2) in turret (3).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



NOTE

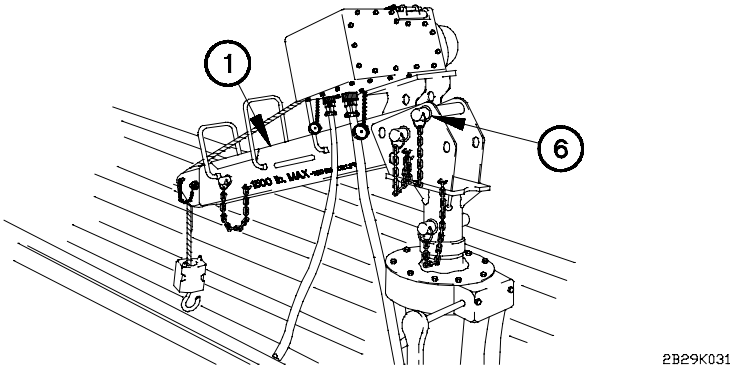
Perform steps (6) through (9) if boom was extended.

(6) Remove quick release pin (4) from boom (1).

(7) Push in end of boom extension (5) so that boom (1) is fully retracted.

(8) Align holes (5) in boom (1).

(9) Install quick release pin (4) in boom (1).

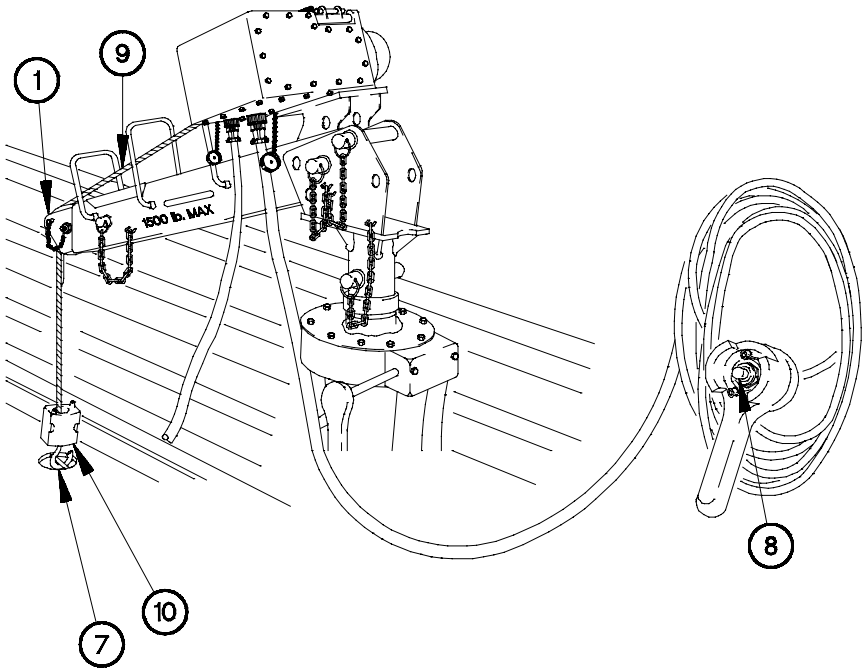


(10) Support end of boom (1).

(11) Remove quick release pin (6).

(12) Lower boom (1) to stowed position.

(13) Install quick release pin (6) in one of unused holes.



(14) Adjust boom (1) so that end of boom is in line with cargo bed tiedown ring (7).

(15) Place hoist control switch (8) in up position to pay out cable (9).

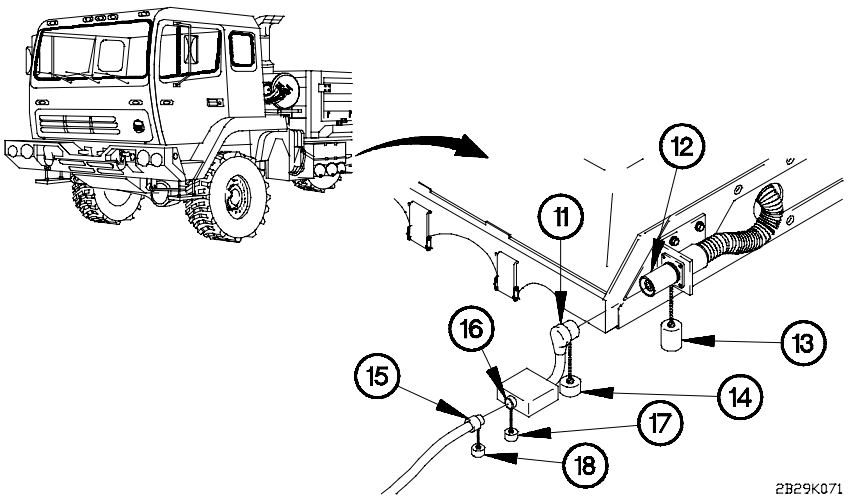
CAUTION

- Do not overtighten cable. Failure to comply may result in damage to equipment.
- Tension must be maintained on cable to prevent unraveling from spool. Failure to comply may result in damage to equipment.

(16) Connect hook (10) to cargo bed tiedown ring (7).

(17) Place hoist control switch (8) in down position to remove slack from cable (9).

2-29. LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION (CONT)



WARNING

Ensure that engine is not running before disconnecting circuit breaker box NATO connector at vehicle NATO connector. Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure that power cable does not come in contact with exhaust pipe. Failure to comply may result in damage to equipment.

(18) Disconnect circuit breaker box NATO connector (11) from vehicle NATO connector (12).

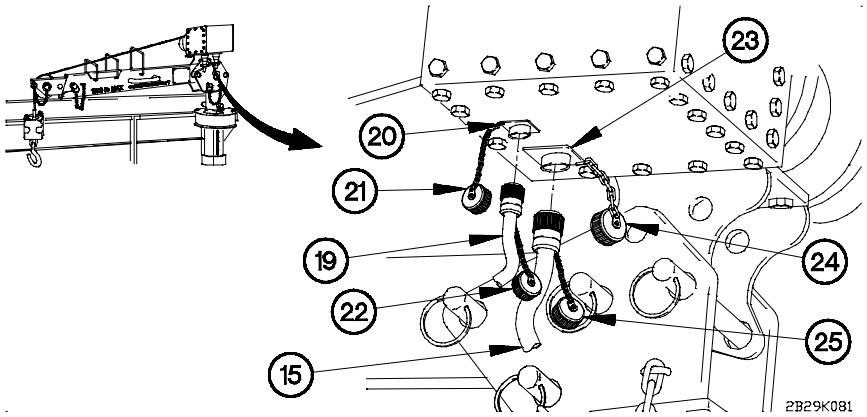
(19) Install dust cap (13) on vehicle NATO connector (12).

(20) Install dust cap (14) on circuit breaker box NATO connector (11).

(21) Disconnect power cable connector (15) from circuit breaker box NATO connector (16).

(22) Install dust cap (17) on circuit breaker box NATO connector (16).

(23) Install dust cap (18) on power cable connector (15).



(24) Disconnect remote control connector (19) from winch remote control connector (20).

(25) Install dust cap (21) on winch remote control connector (20).

(26) Install dust cap (22) on remote control connector (19).

(27) Disconnect power cable connector (15) from winch power cable connector (23).

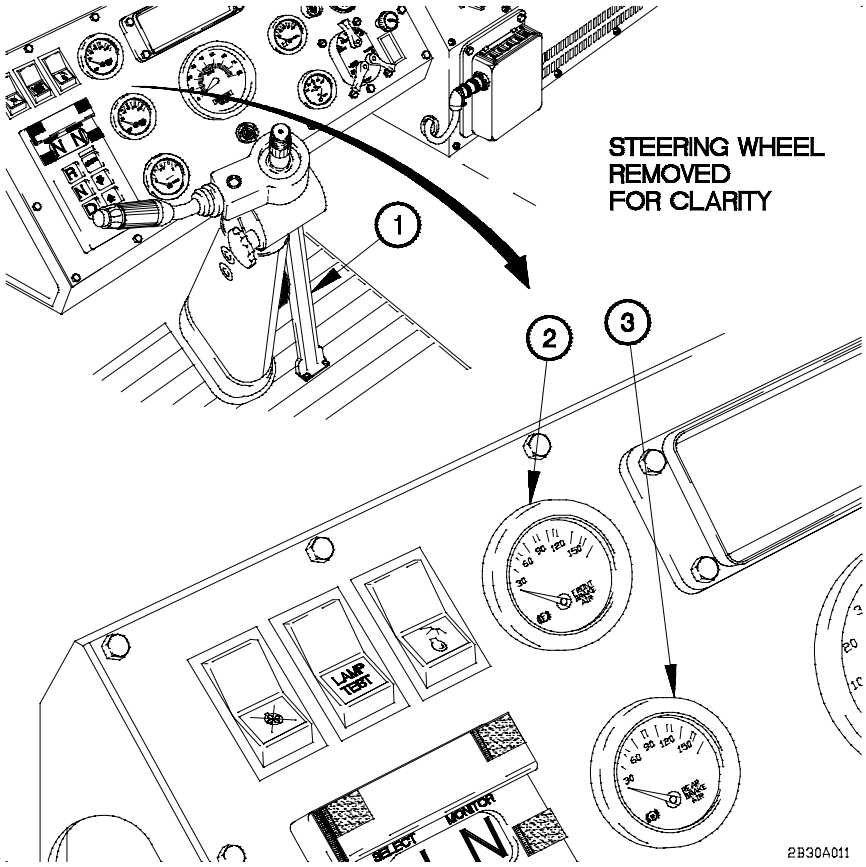
(28) Install dust cap (24) on winch power cable connector (23).

(29) Install dust cap (25) on power cable connector (15).

(30) Remove wheel chocks (para 2-27h).

2-30. CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION

a. Normal CTIS Operation.

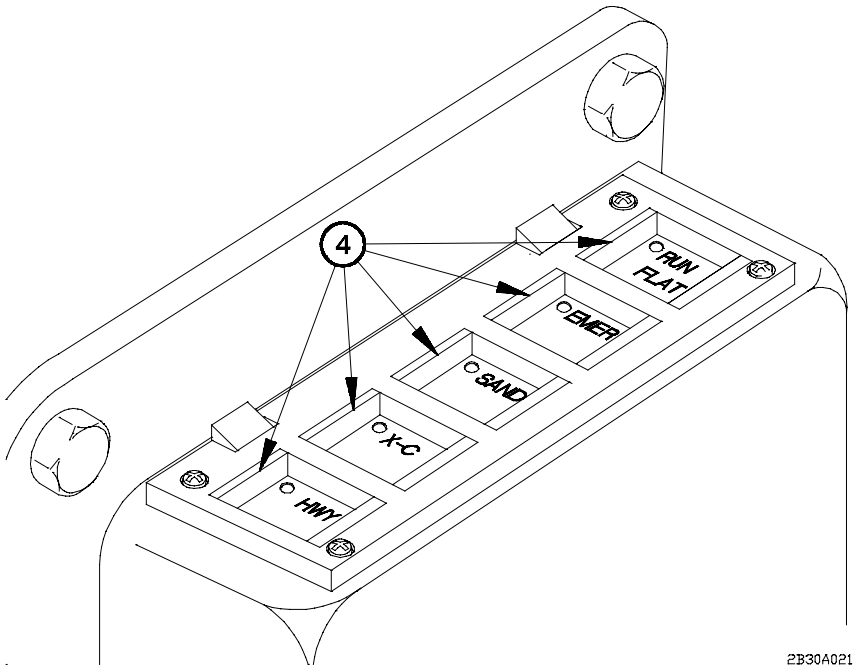


(1) Start engine (para 2-27a or b).

NOTE

- If vehicle is stopped when CTIS mode is changed, it may be necessary to increase engine speed to provide adequate air supply to tires.
- CTIS will automatically shut off when air system pressure drops below 74 psi (510 kPa), or when CTIS malfunction occurs.

(2) Slowly press down on accelerator pedal (1) if FRONT BRAKE AIR pressure gage (2) and REAR BRAKE AIR pressure gage (3) read less than 100 psi (690 kPa).



NOTE

Mode light on CTIS ECU will flash when tire pressure is changing to air pressure setting for that mode. Mode light will illuminate steady when tire reaches air pressure setting for that mode.

(3) Press appropriate CTIS mode button (4) for vehicle speed and terrain conditions. Refer to **Table 2-10 or Table 2-11, CTIS Tire Pressures and Restrictions**.

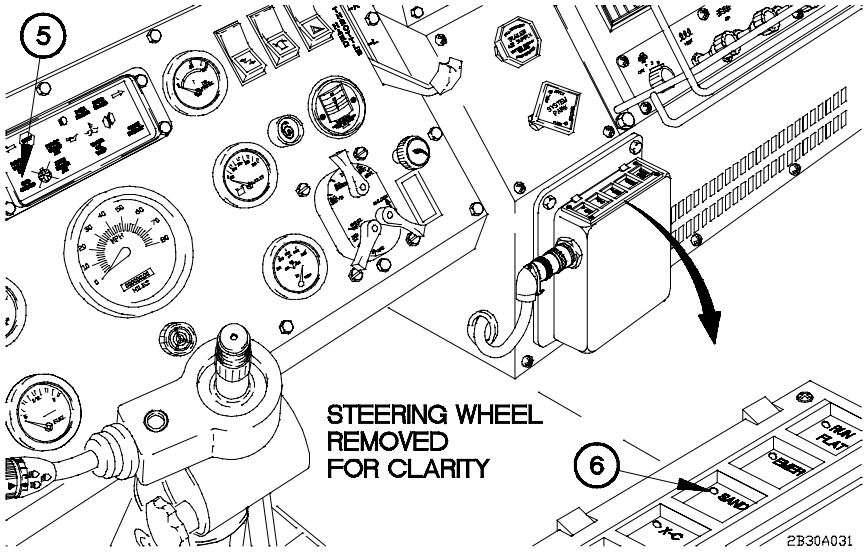
Table 2-10. Central Tire Inflation System (CTIS) Tire Pressures and Restrictions for M1083, M1084, M1085, M1086, M1090, M1093, and M1094 Models

Operating Mode	Maximum Speed	Time Restriction	Tire Pressure
Highway	55 mph (88 km/h)	NONE	60 psi (414 kPa)
Cross-Country	40 mph (64 km/h)	NONE	37 psi (255 kPa)
Sand	12 mph (19 km/h)	NONE	22 psi (152 kPa)
Emergency	5 mph (8 km/h)	10 MINUTES	16 psi (110 kPa)

2-30. CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION (CONT)

Table 2-11. Central Tire Inflation System (CTIS) Tire Pressures and Restrictions for M1088 and M1089 Models

Operating Mode	Maximum Speed	Time Restriction	Tire Pressure
Highway	55 mph (88 km/h) (M1088) 40 mph (64 km/h) (M1089)	NONE	81 psi (558 kPa)
Cross-Country	40 mph (64 km/h)	NONE	54 psi (372 kPa)
Sand	12 mph (19 km/h)	NONE	32 psi (221 kPa)
Emergency	5 mph (8 km/h)	10 MINUTES	24 psi (165 kPa)

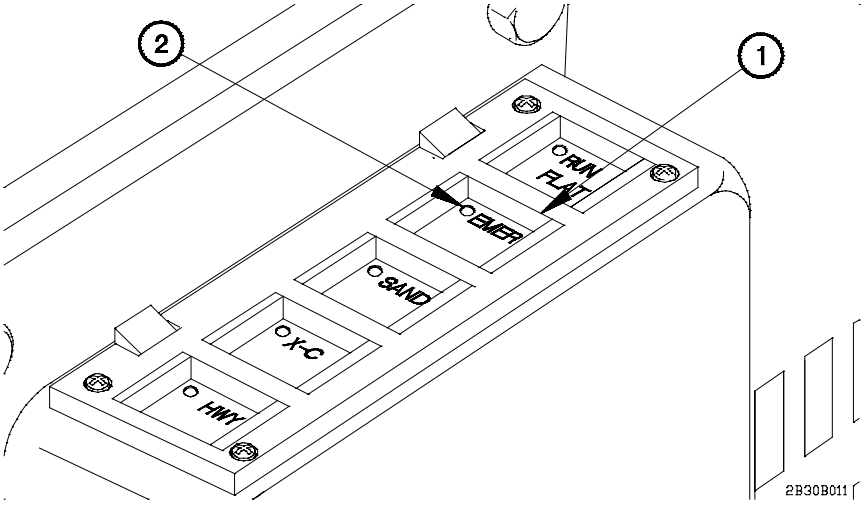


NOTE

If average speed of vehicle exceeds limit of selected CTIS mode for one minute, CTIS OVRSPD indicator will flash. If average speed of vehicle exceeds limit of selected CTIS mode for two minutes, CTIS will automatically inflate tires to pressure setting of next higher mode.

(4) If CTIS OVRSPD indicator (5) flashes, reduce vehicle speed until CTIS OVRSPD indicator goes out. Check that CTIS mode light (6) illuminates steady. Steady

b. Operate in Emergency (EMER) Mode.



CAUTION

- Do not exceed 5 mph (8 km/h) when Central Tire Inflation System (CTIS) is operating in EMER mode. Operating vehicle in EMER mode is limited to ten minutes. Failure to comply may result in damage to equipment.
- Continued operation in EMER mode will result in eventual reduction in tire life. Failure to comply may result in damage to equipment.

NOTE

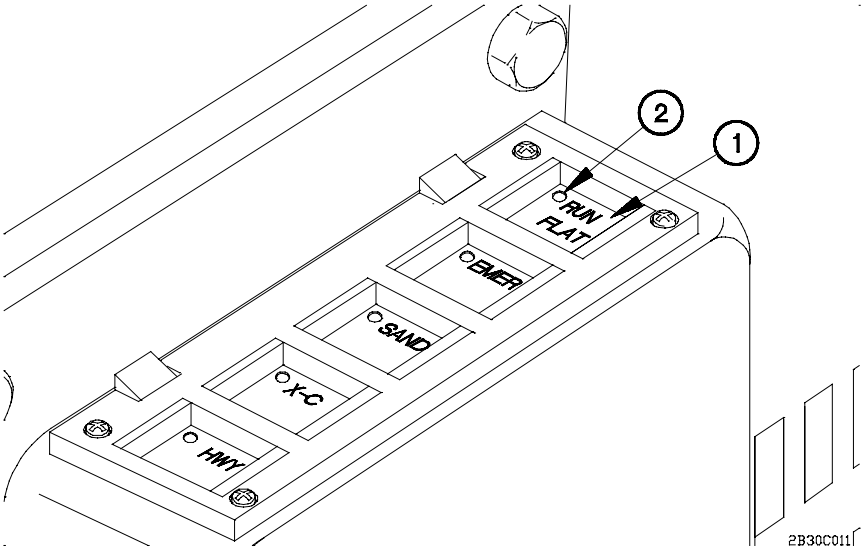
- CTIS OVRSPD indicator will flash when in EMER mode, regardless of speed.
- CTIS is operated in EMER mode when a lower tire pressure 16 psi (110 kPa) is needed to free vehicle from a stuck condition or to travel a short distance over terrain that is known to require tire pressure less than 25 psi (172 kPa). Time at this pressure is limited to ten minutes after which time inflation to SAND will begin. If Operator still requires EMER mode, then EMER mode button must be pressed again.

(1) Press EMER mode button (1). EMER mode light (2) will illuminate while CTIS is operating in EMER mode.

(2) If operating CTIS in EMER mode is no longer required, press EMER mode button (1) again. EMER mode light (2) will go out.

2-30. CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION (CONT)

c. Operate in Run Flat Mode.



CAUTION

Central Tire Inflation System (CTIS) operation in RUN FLAT mode is limited to ten minutes. To continue operating CTIS in RUN FLAT mode after ten minutes, RUN FLAT mode button must be pressed again or CTIS will shut down completely. Failure to comply may result in damage to equipment.

NOTE

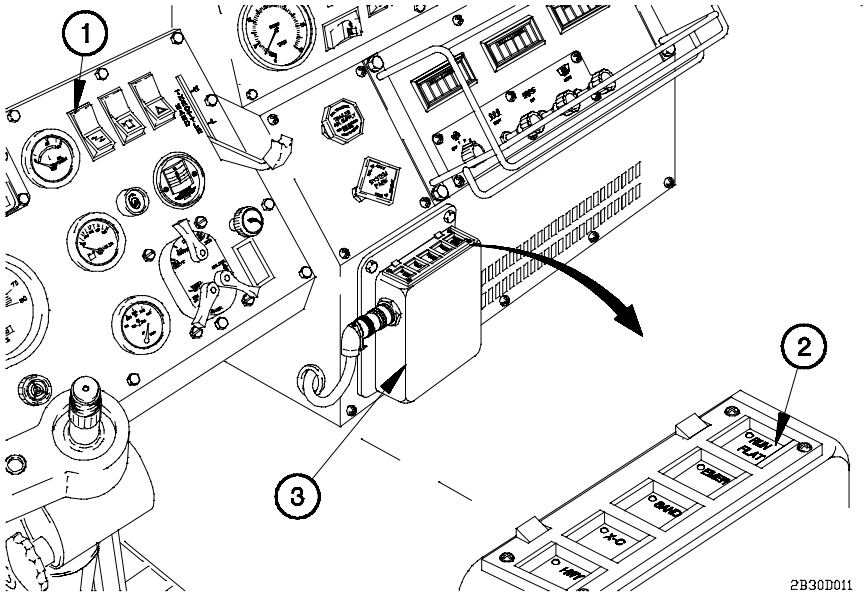
CTIS is operated in RUN FLAT mode when tire(s) have been punctured. RUN FLAT mode causes CTIS to check tire pressure every 15 seconds (normal interval is every 15 minutes). If low air pressure is sensed, CTIS will supply air in wet tank to leaking tire(s) every 15 seconds.

(1) Press RUN FLAT mode button (1). RUN FLAT mode light (2) will illuminate when CTIS is operating in RUN FLAT mode.

(2) If operating CTIS in RUN FLAT mode is no longer required, press RUN FLAT mode button (1) again. RUN FLAT mode light (2) will go out.

(3) Change leaking tire(s) (para 3-5) as soon as possible.

d. Reset CTIS.



NOTE

- If all five CTIS ECU mode lights flash, perform steps (1) through (4).
- If temperatures are below -15°F (-26°C) and the CTIS does not return to normal operation after completing the CTIS reset procedure, perform steps in para 2-78b.
- If all five CTIS ECU mode lights continue to flash, notify Unit Maintenance.

(1) Position master power switch (1) to off.

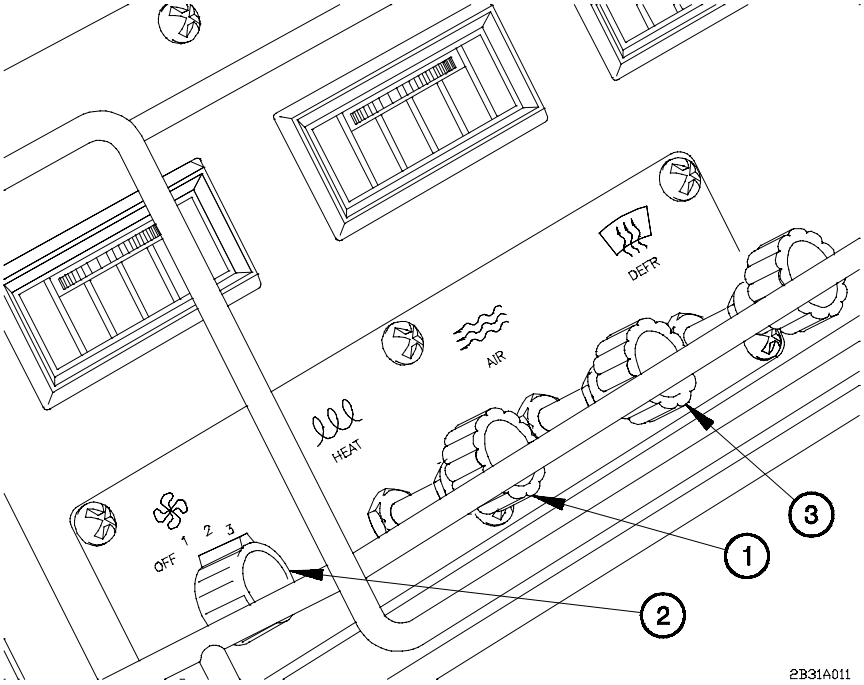
(2) Position master power switch (1) to on.

(3) Press RUN FLAT mode button (2) on CTIS ECU (3).

(4) Start engine (para 2-27a or b).

2-31. HEATER/DEFROST OPERATION

a. Operate Cab Heat.



NOTE

Heat output increases as HEAT control is pulled farther out.

(1) Pull HEAT control (1) to desired setting.

(2) Position FAN switch (2) to desired speed.

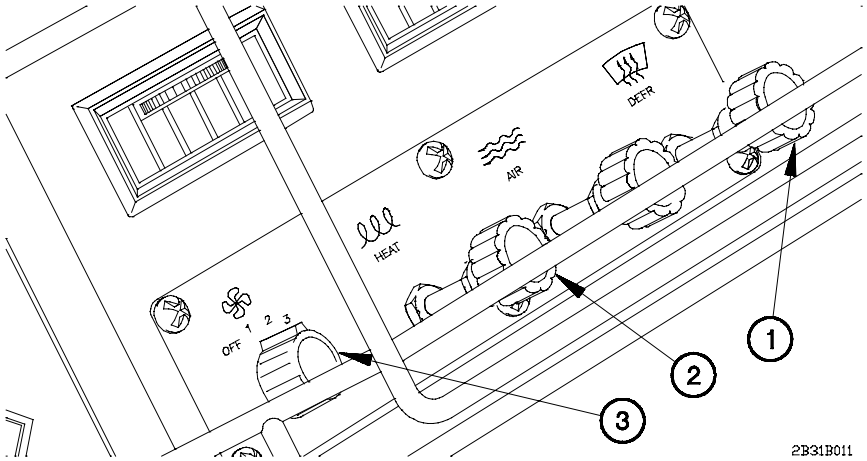
(3) Pull AIR control (3) to allow outside air to enter cab for ventilation.

(4) Push in AIR control (3) to stop flow of outside air.

(5) Push in HEAT control (1) to turn off heat.

(6) Position FAN switch (2) to OFF to turn off fan.

b. Operate Windshield Defrost.



NOTE

The amount of air directed to cab windshield increases as DEFR control is pulled farther out.

(1) Pull DEFR control (1) outward to desired position.

NOTE

Temperature of air output directed to windshield increases as HEAT control is pulled farther out.

(2) Pull HEAT control (2) to desired position.

(3) Position FAN switch (3) to desired speed.

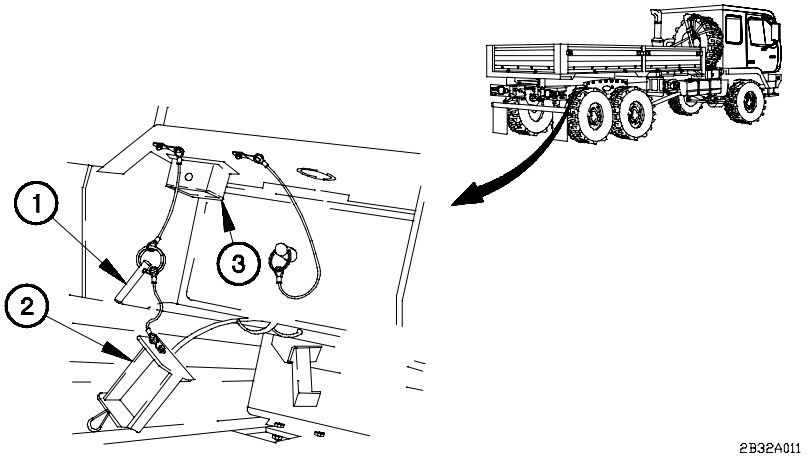
(4) Push in HEAT control (2) to turn heat off.

(5) Position FAN switch (3) to OFF to turn fan off.

(6) Push in DEFR control (1) to stop directing air on windshield.

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION

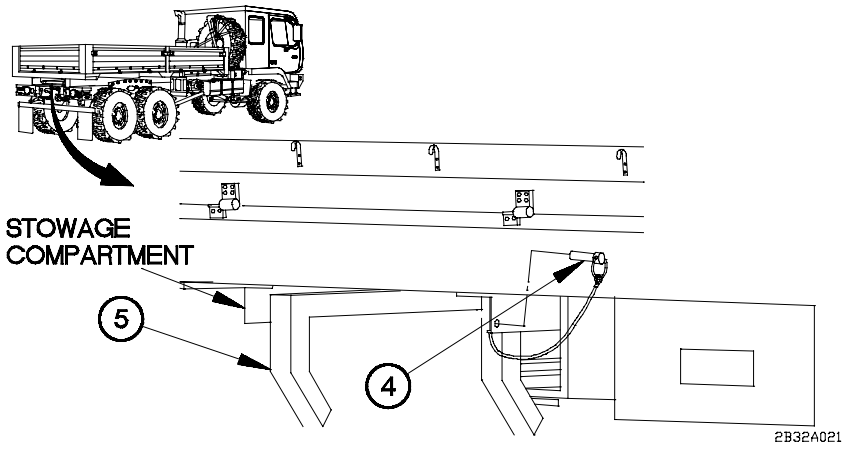
a. Lower Ladder (M1083/M1085 and M1093).



CAUTION

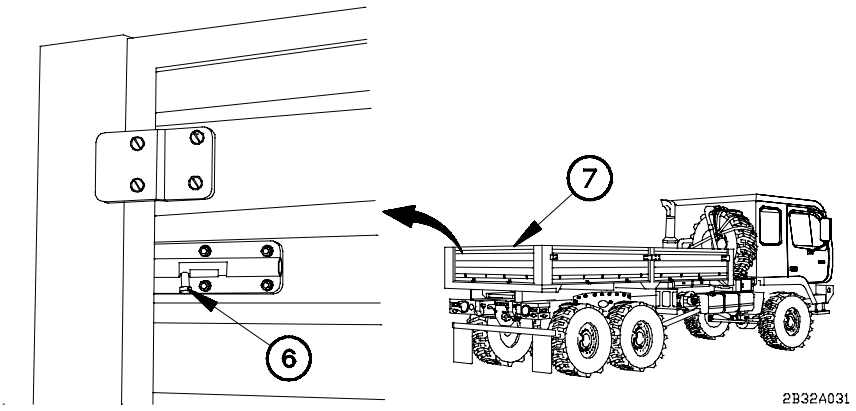
Do not use gladhands as a step to access cargo bed. Failure to comply may result in damage to equipment.

(1) Remove two pins (1) and ladder plugs (2) from ladder mounting holes (3).

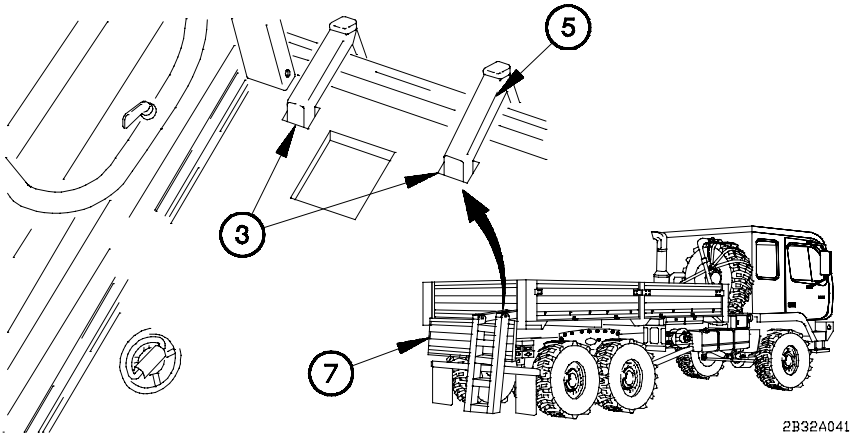


(2) Remove ladder locking pin (4) from ladder (5).

(3) Remove ladder (5) from ladder stowage compartment.



(4) Unlatch two latches (6) from tailgate (7).

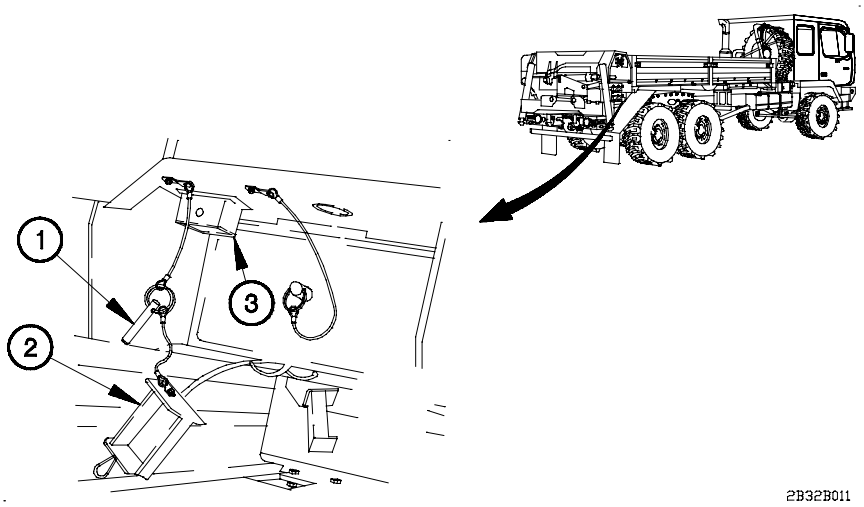


(5) Lower tailgate (7).

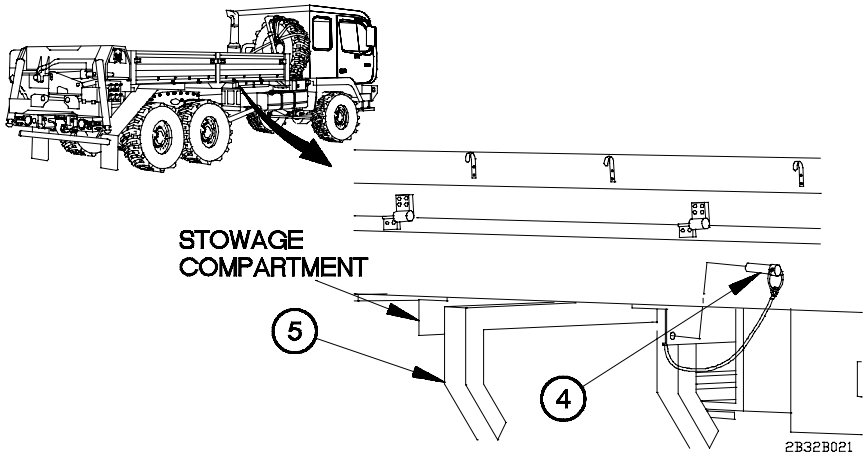
(6) Mount ladder (5) in two ladder mounting holes (3).

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)

b. Lower Ladder (M1084/M1086).

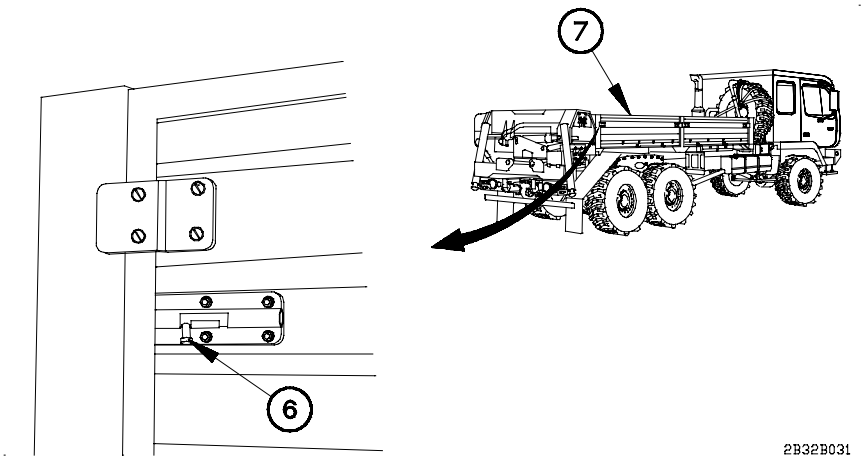


(1) Remove two pins (1) and ladder plugs (2) from ladder mounting holes (3).

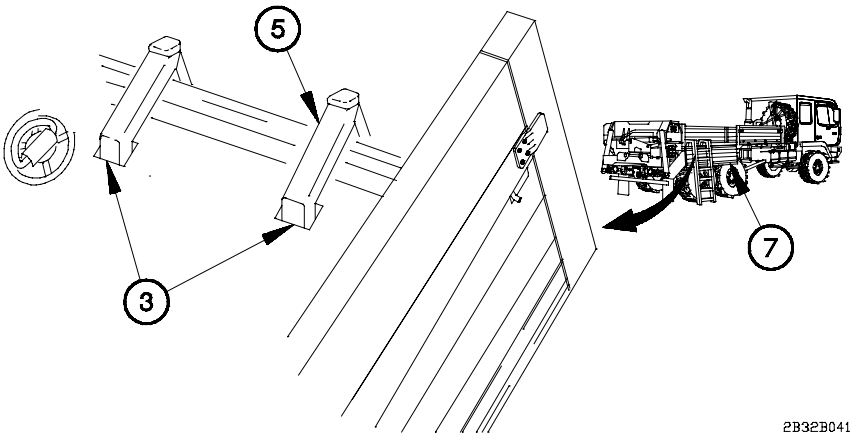


(2) Remove ladder locking pin (4) from ladder (5).

(3) Remove ladder (5) from ladder stowage compartment.



(4) Unlatch two latches (6) from right side rear panel (7).

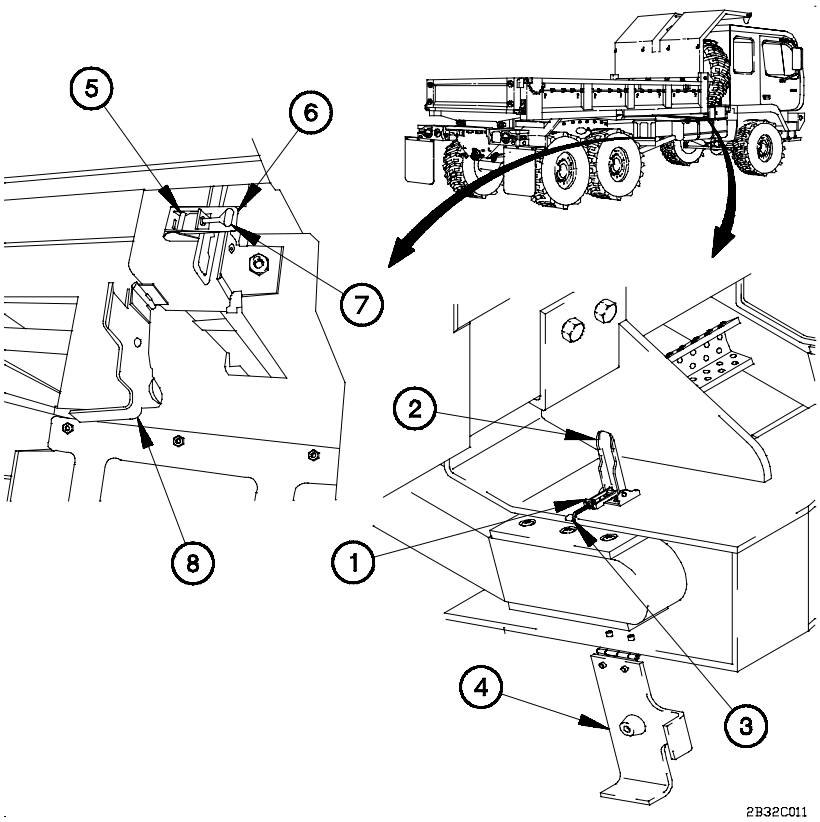


(5) Lower right side rear panel (7).

(6) Mount ladder (5) in two ladder mounting holes (3).

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)

c. Lower Ladder (M1090/M1094).

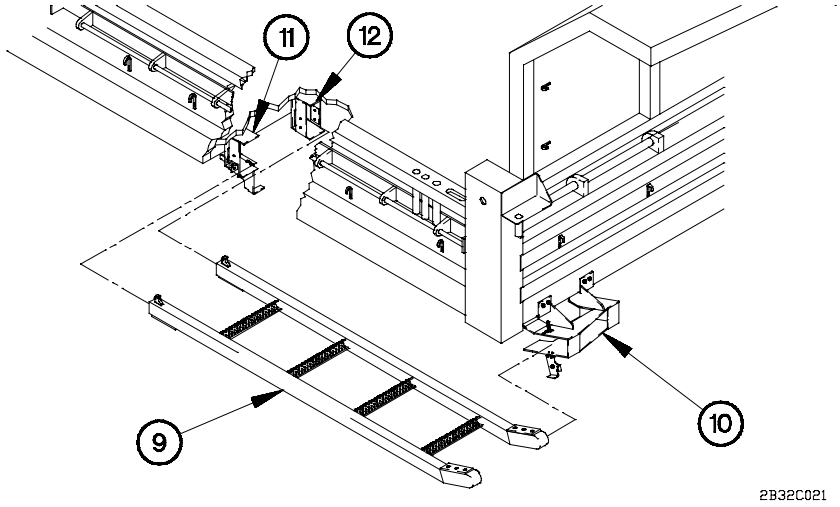


(1) Release spring catch (1) and lift latch lever (2).

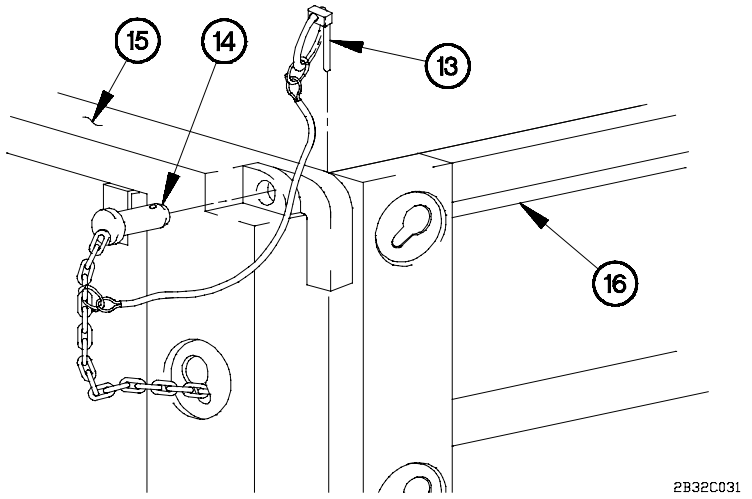
(2) Release latch hook (3) from front ladder bracket door (4).

(3) Release spring catch (5) and lift latch lever (6).

(4) Release latch hook (7) from rear ladder bracket door (8).



(5) Remove ladder (9) from front ladder bracket (10) and rear ladder brackets (11 and 12).



WARNING

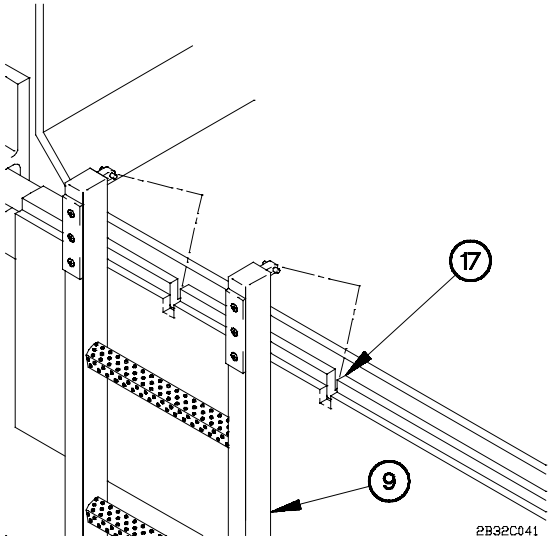
Do not press dump TAILGATE RELEASE switch while tailgate is not connected at the top. Tailgate will fall from dump body. Failure to comply may result in injury to personnel or damage to equipment.

(6) Remove two retaining pins (13) from pins (14).

(7) Remove two pins (14) from dump body (15).

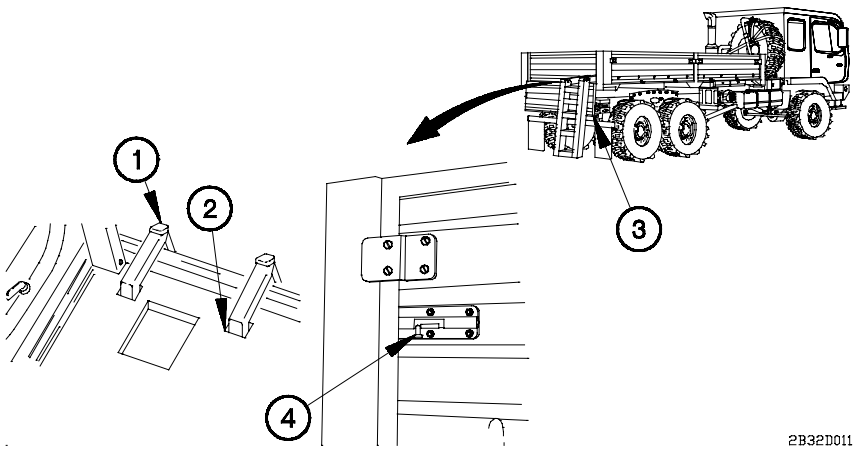
(8) Lower tailgate (16).

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)



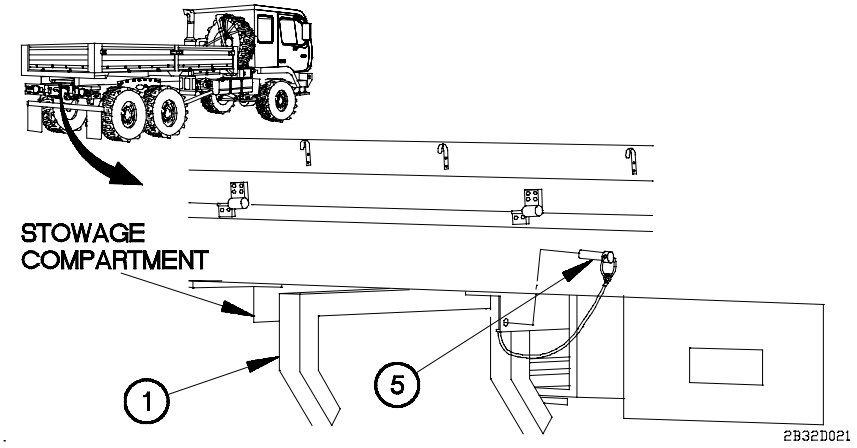
(9) Mount ladder (9) in two ladder mounting slots (17).

d. Stow Ladder (M1083/M1085 and M1093).



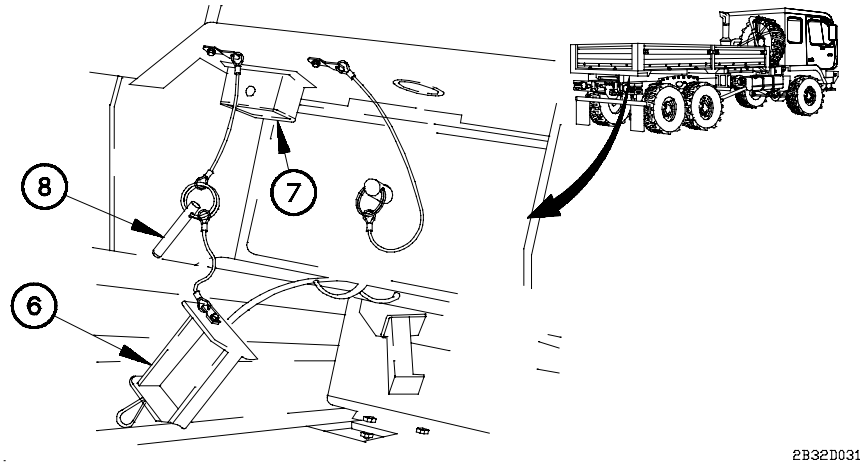
(1) Remove ladder (1) from two ladder mounting holes (2).

(2) Raise tailgate (3) and fasten two latches (4).



(3) Install ladder (1) in ladder stowage compartment.

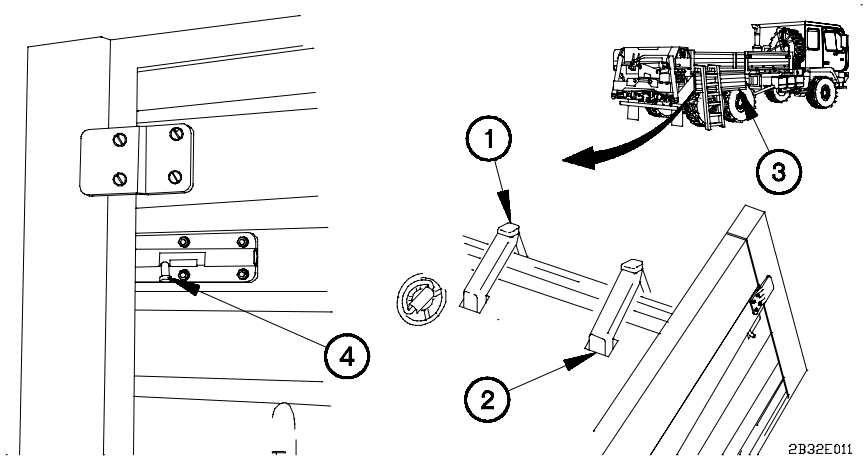
(4) Install locking pin (5) in ladder (1).



(5) Install two ladder plugs (6) in ladder mounting holes (7) with two pins (8).

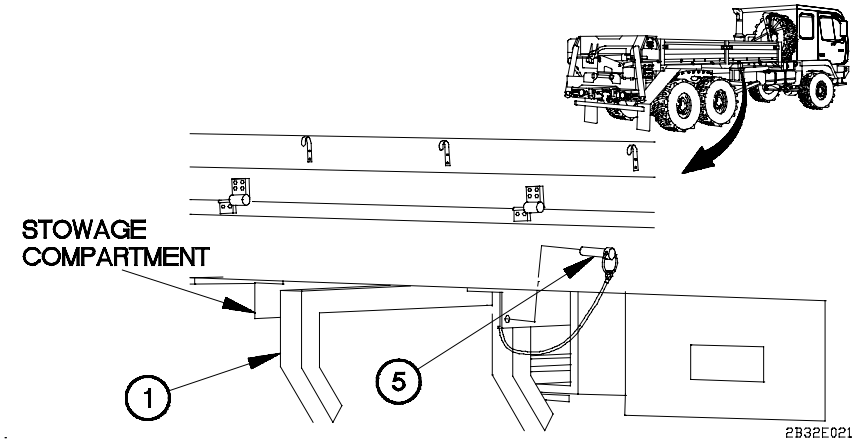
2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)

e. Stow Ladder (M1084/M1086).



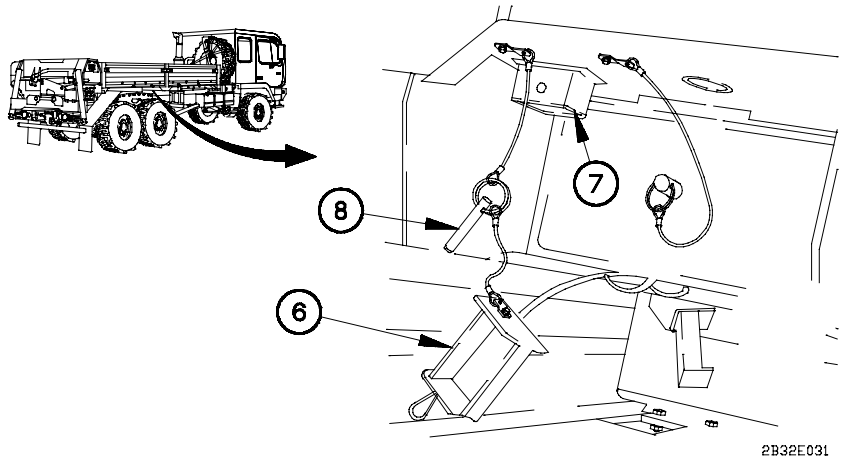
(1) Remove ladder (1) from two ladder mounting holes (2).

(2) Raise right side panel (3) and fasten two latches (4).



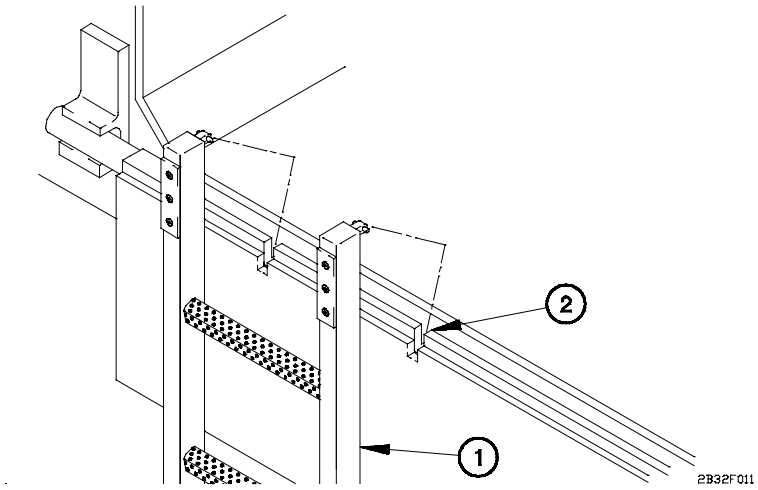
(3) Install ladder (1) in ladder stowage compartment.

(4) Install locking pin (5) in ladder (1).



(5) Install two ladder plugs (6) in ladder mounting holes (7) with two pins (8).

f. Stow Ladder (M1090/M1094).

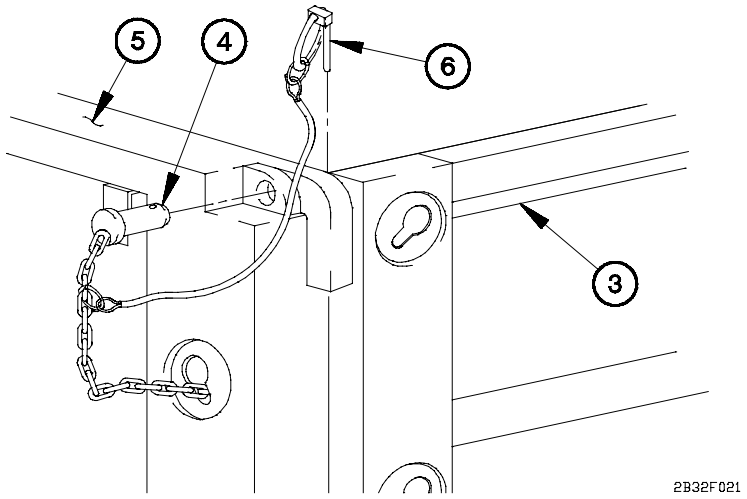


WARNING

Do not press dump TAILGATE RELEASE switch while tailgate is not connected at the top. Tailgate will fall from dump body. Failure to comply may result in injury to personnel or damage to equipment.

(1) Remove ladder (1) from mounting slots (2).

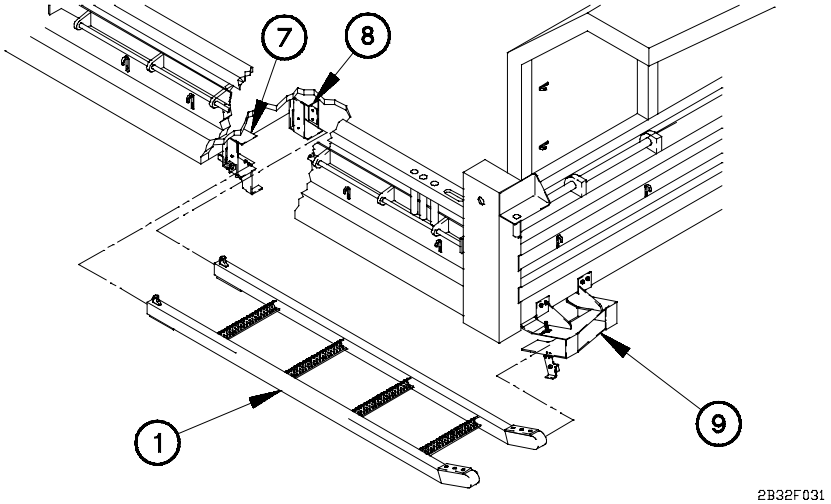
2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)



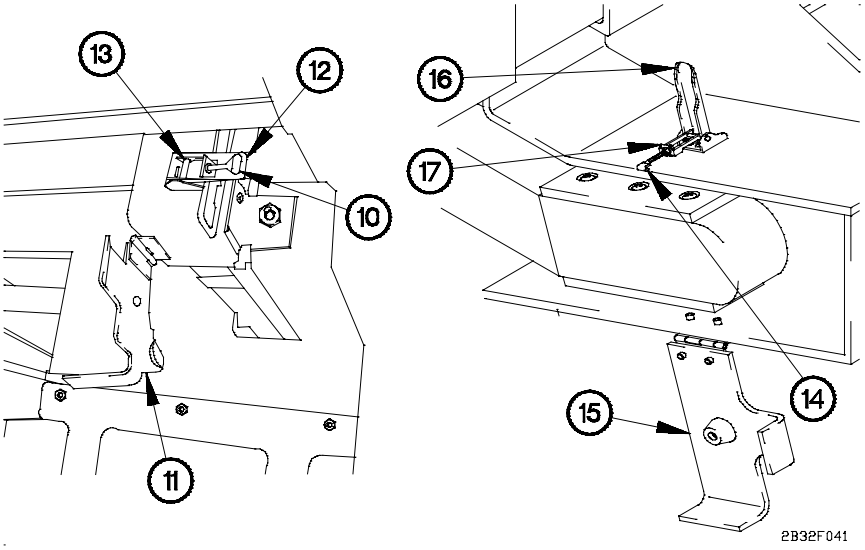
(2) Raise tailgate (3).

(3) Install two pins (4) in dump body (5).

(4) Install two retaining pins (6) in pins (4).



(5) Position ladder (1) in rear ladder brackets (7 and 8) and front ladder bracket (9).



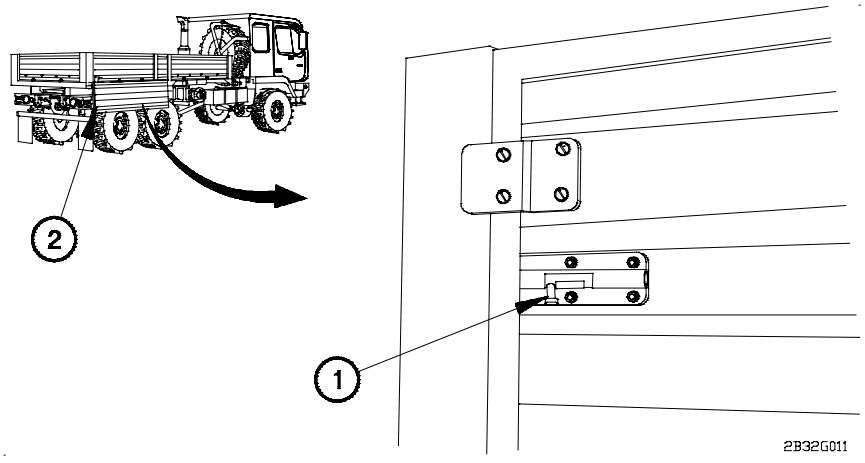
(6) Fasten latch hook (10) on rear ladder bracket door (11).

(7) Push down on latch lever (12) until spring catch (13) is engaged.

(8) Fasten latch hook (14) on front ladder bracket door (15).

(9) Push down on latch lever (16) until spring catch (17) is engaged.

g. Lower Cargo Bed Side Panel.

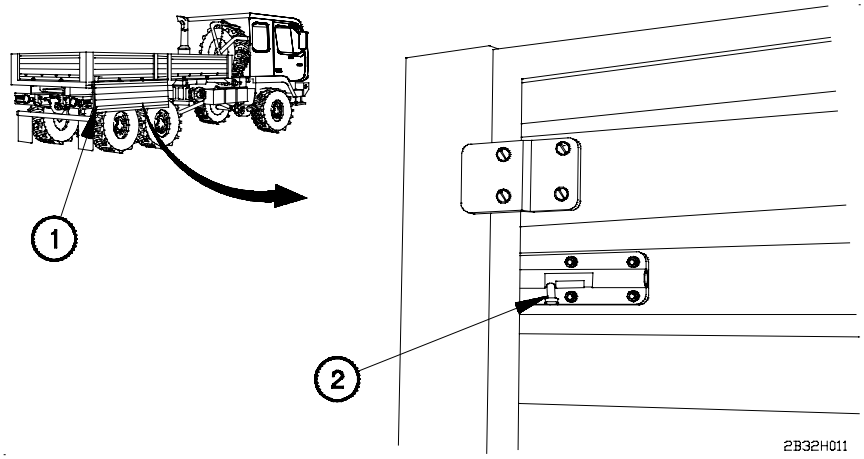


(1) Unlock two latches (1) and lower cargo bed side panel (2).

(2) Repeat step (1) for remaining cargo bed side panels (2) as required.

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)

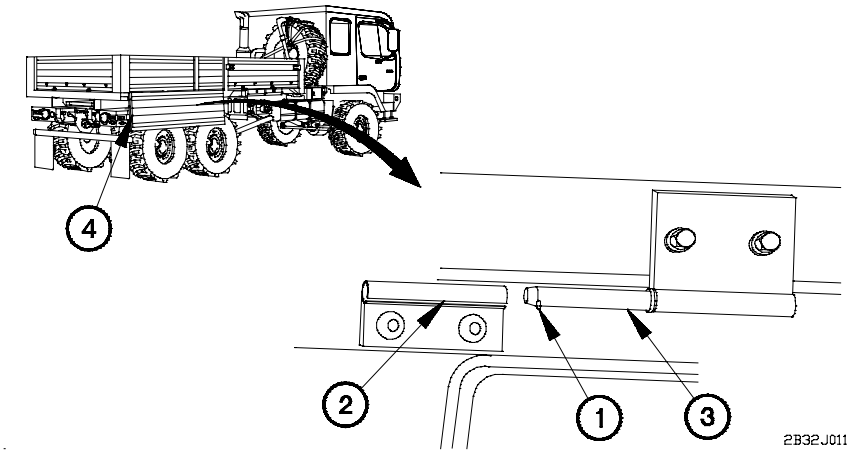
h. Raise Cargo Bed Side Panel.



(1) Raise cargo bed side panel (1) and latch two latches (2).

(2) Repeat step (1) for remaining cargo bed side panels (1) as required.

j. Remove Cargo Bed Side Panel.

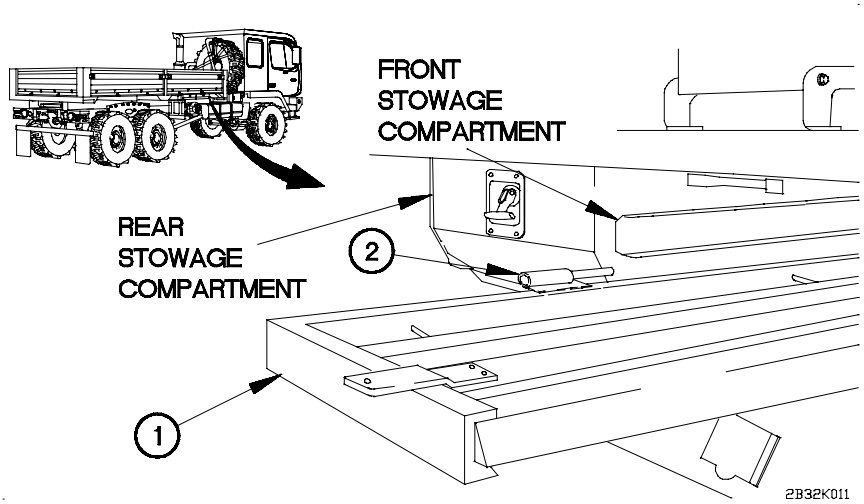


(1) Lower cargo bed side panel (para 2-32c).

(2) Align pin (1) with slot in lower hinge half (2).

(3) Slide hinge shaft (3) out of lower hinge half (2) and remove cargo bed side panel (4) from vehicle.

k. Stow Cargo Bed Side Panels (M1083/M1084 and M1093).



(1) Stow cargo bed side panel (1) in cargo bed stowage compartment with hinges (2) facing up. Refer to **Table 2-12. Cargo Bed Side Panel Stowage Information**.

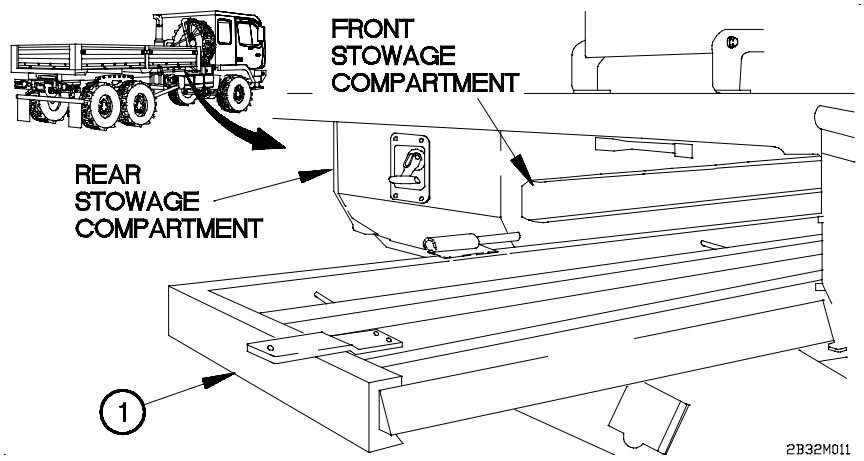
(2) Repeat step (1) as required for remaining sides.

Table 2-12. Cargo Bed Side Panel Stowage Information

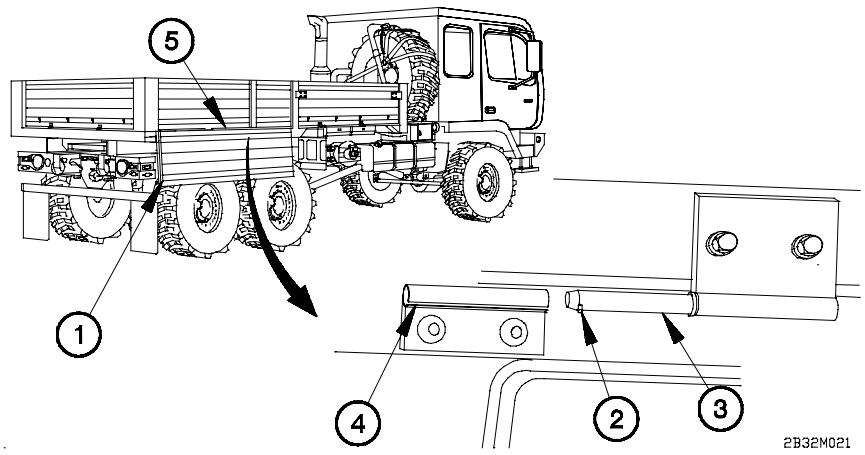
Cargo Bed Side Panel Stowed	Stowage Compartment Used	Position of Cargo Bed Side	Shelf Used to Stow Cargo Bed Side
1st side stowed	Front	Hinges on left side of panel	Bottom shelf
2nd side stowed	Front	Hinges on right side of panel	Middle shelf
3rd side stowed	Front	Hinges on right side of panel	Top shelf
4th side stowed	Rear	Hinges on left side of panel	Top shelf
Tailgate stowed	Rear	Hinges on left side of panel	Middle shelf

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)

m. Install Cargo Bed Side Panels (M1083/M1084 and M1093).



(1) Remove cargo bed side panel (1) from cargo bed stowage compartment.



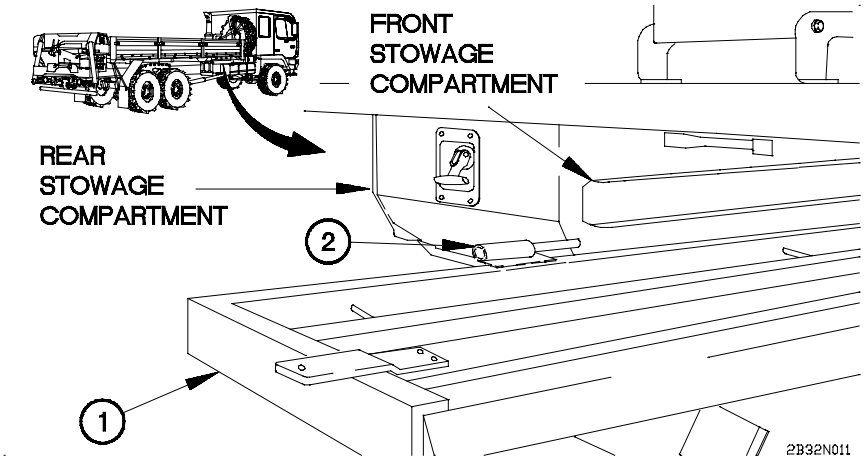
(2) Align pin (2) on hinge shaft (3) with slot in lower hinge half (4).

(3) Install cargo bed side panel (1) on cargo bed (5) by sliding hinge shaft (3) into lower hinge half (4).

(4) Raise cargo bed side panel (para 2-32d).

(5) Repeat steps (1) through (4) for remaining cargo bed side panels (1) as required.

n. Stow Cargo Bed Side Panels (M1085/M1086).



(1) Stow cargo bed side panel (1) in cargo bed stowage compartment with hinges (2) facing up. Refer to **Table 2-13. Cargo Bed Side Panel Stowage Information**.

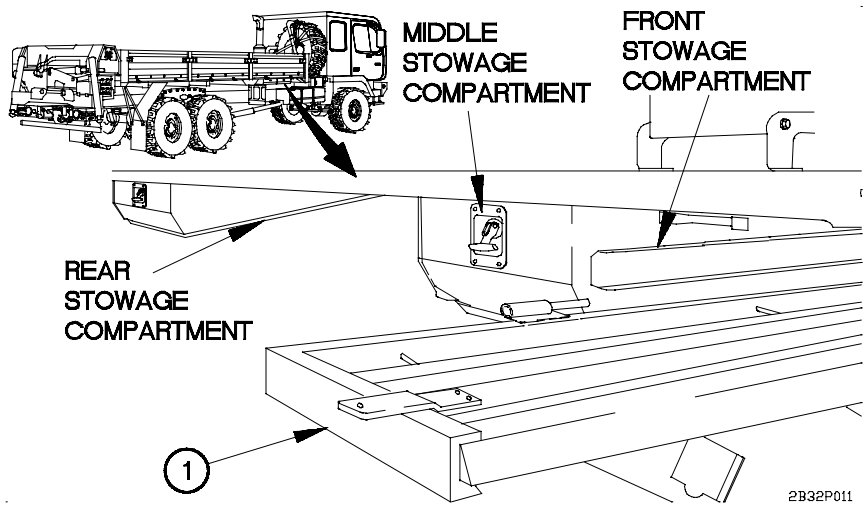
(2) Repeat step (1) as required for remaining sides.

Table 2-13. Cargo Bed Side Panel Stowage Information

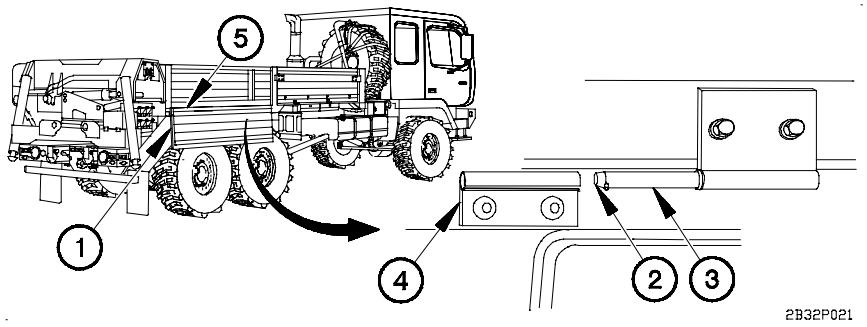
Cargo Bed Side Panel Stowed	Stowage Compartment Used	Position of Cargo Bed Side	Shelf Used to Stow Cargo Bed Side
1st side stowed	Front	Hinges on left side of panel	Bottom shelf
2nd side stowed	Front	Hinges on right side of panel	Middle shelf
3rd side stowed	Front	Hinges on right side of panel	Top shelf
4th side stowed	Middle	Hinges on left side of panel	Top shelf
Tailgate stowed	Middle	Hinges on left side of panel	Middle shelf
Cargo Bed Side Panel Stowed	Stowage Compartment Used	Position of Cargo Bed Side	Shelf Used to Stow Cargo Bed Side
5th side stowed, M1085/M1086	Rear	Hinges on left side of panel	Top shelf
6th side stowed, M1085/M1086	Rear	Hinges on right side of panel	Bottom shelf

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)

p. Install Cargo Bed Side Panels (M1085/M1086).



(1) Remove cargo bed side panel (1) from cargo bed stowage compartment.



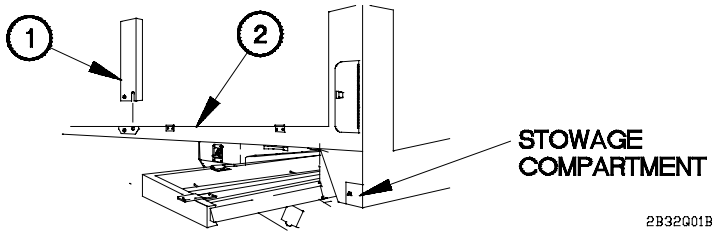
(2) Align pin (2) on hinge shaft (3) with slot in lower hinge half (4).

(3) Install cargo bed side panel (1) on cargo bed (5) by sliding hinge shaft (3) into lower hinge half (4).

(4) Raise cargo bed side panel (para 2-32d).

(5) Repeat steps (1) through (4) for remaining cargo bed side panels (1).

q. Cargo Bed Stake Removal.



NOTE

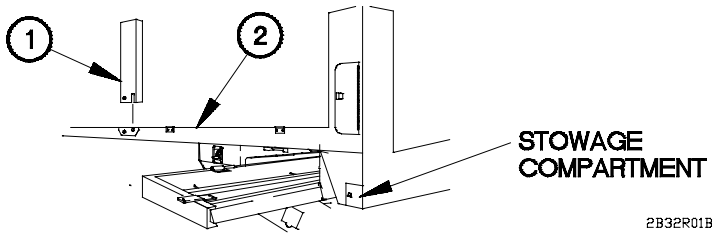
Perform steps (1) through (3) on vehicles serial number 0001 through 7411.

(1) Remove cargo bed stake (1) from cargo bed (2).

(2) Place cargo bed stake (1) in stowage compartment.

(3) Perform steps (1) and (2) on remaining cargo bed stakes.

r. Cargo Bed Stake Installation.



NOTE

Perform steps (1) through (3) on vehicle serial number 0001 through 7411.

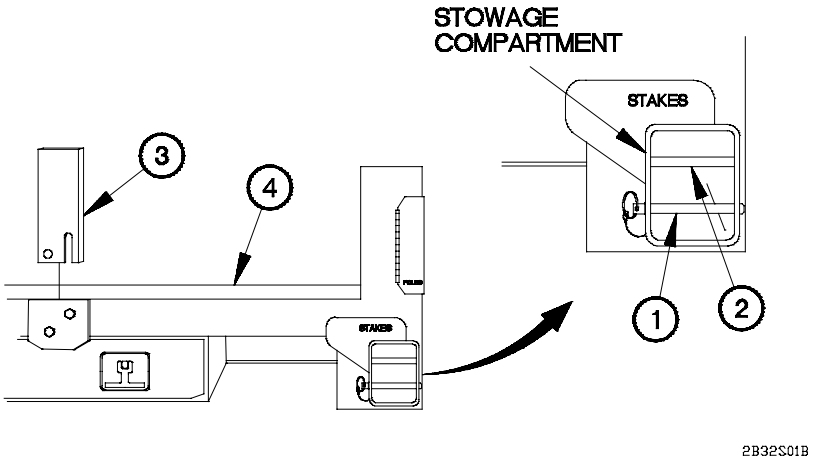
(1) Remove cargo bed stake (1) from stowage compartment.

(2) Install cargo bed stake (1) in cargo bed (2).

(3) Perform steps (1) and (2) on remaining cargo bed stakes.

2-32. LADDERS, SIDE PANELS, AND STAKES OPERATION (CONT)

s. Cargo Bed Stake Removal.



NOTE

Perform steps (1) through (5) on vehicle serial number 7412 and higher.

(1) Remove detent pins (1 and 2) from stowage compartment.

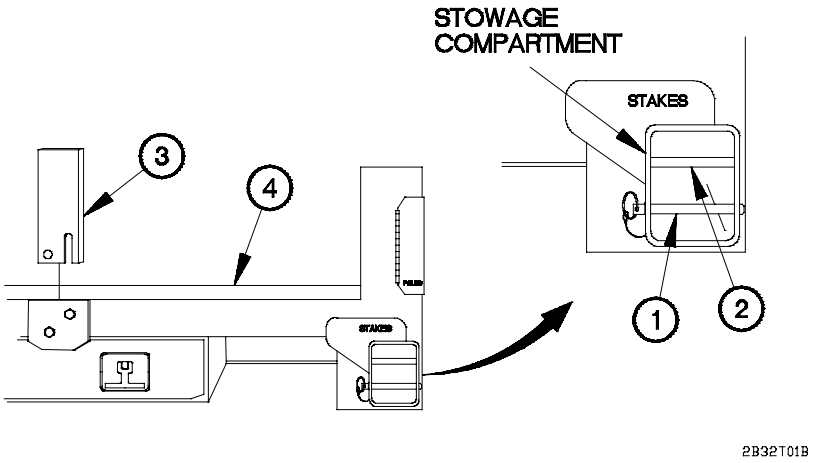
(2) Remove cargo bed stake (3) from cargo bed (4).

(3) Place cargo bed stake (3) in stowage compartment.

(4) Perform steps (2) and (3) on remaining cargo bed stakes.

(5) Install detent pins (1 and 2) in stowage compartment.

t. Cargo Bed Stake Installation.



NOTE

Perform steps (1) through (5) on vehicle serial number 7412 and higher.

(1) Remove detent pins (1 and 2) from stowage compartment.

(2) Remove cargo bed stake (3) from stowage compartment.

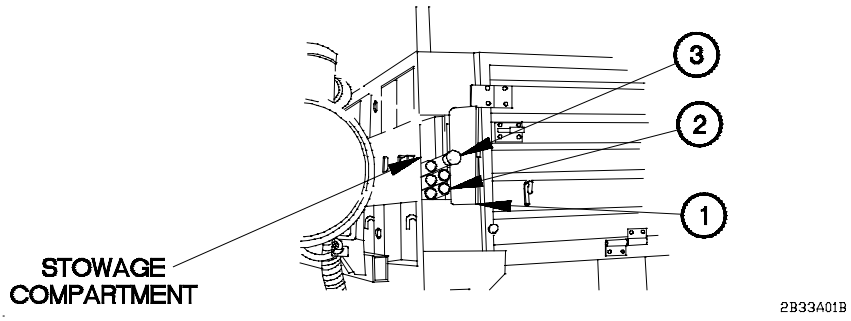
(3) Install cargo bed stake (3) in cargo bed (4).

(4) Perform steps (2) and (3) on remaining cargo bed stakes.

(5) Install detent pins (1 and 2) in stowage compartment.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL

a. M1083/M1093 Soft Top Kit (Steel Bows) Installation.



(1) Lower ladder (para 2-32a).

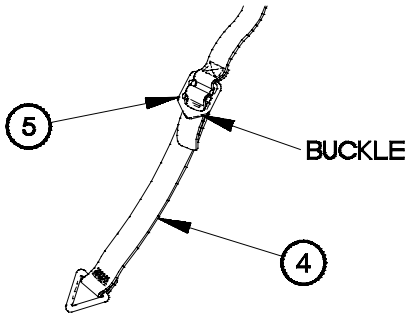
(2) Open stowage compartment door (1).

NOTE

Soft top kit is equipped with a total of 10 tubes. Five front tubes are longer than rear tubes.

(3) Stow five front tubes (2) and steel pole (3) in stowage compartment.

(4) Close stowage compartment door (1).



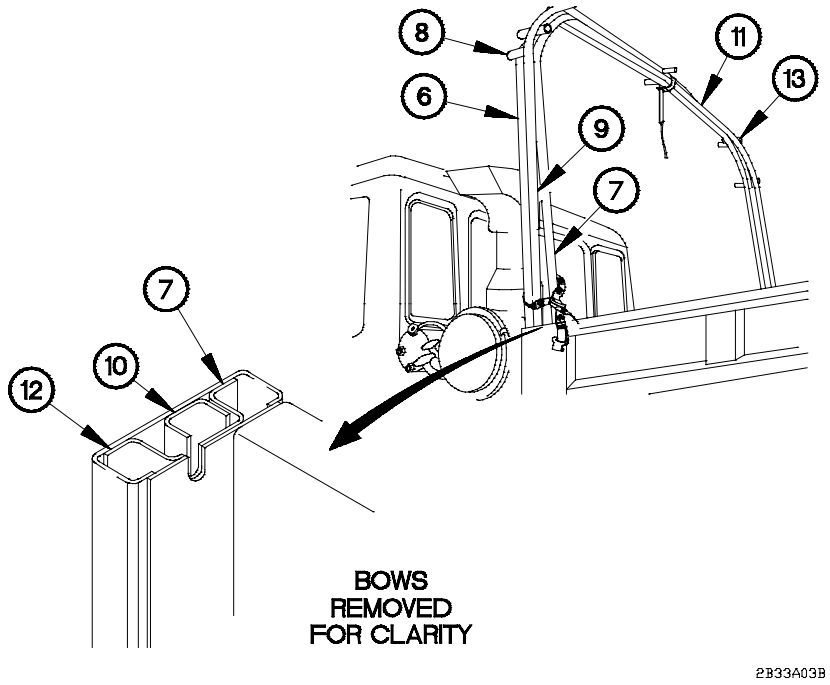
NOTE

Front, center, and rear bows have two bow straps and tiedown straps. All tiedown straps are installed on bow straps the same way. One tiedown strap shown.

(5) Install tiedown strap (4) through buckle of bow strap (5).

(6) Perform step (5) on remaining tiedown straps.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



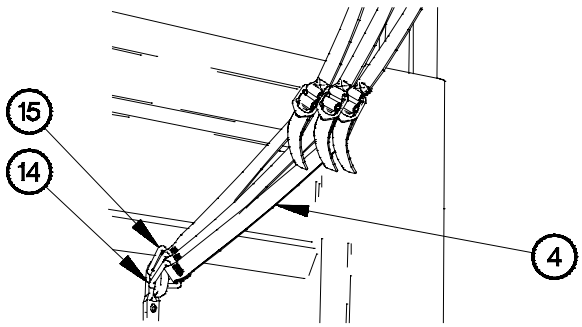
NOTE

Steps (7) through (9) require the aid of an assistant.

(7) Position front bow (6) in front cargo bed pockets (7) with front bow brackets (8) toward front of vehicle.

(8) Position center bow (9) in middle cargo bed pockets (10).

(9) Position rear bow (11) in rear cargo bed pockets (12) with rear bow brackets (13) toward rear of vehicle.



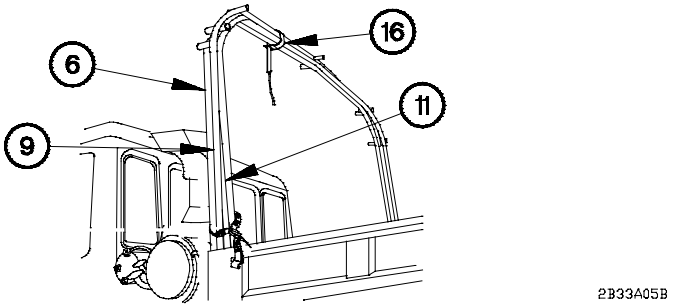
NOTE

Left and right sides of front, center, and rear bows are secured the same way. Right side shown.

(10) Position three tiedown straps (4) on J-hook (14) with three tri-rings (15).

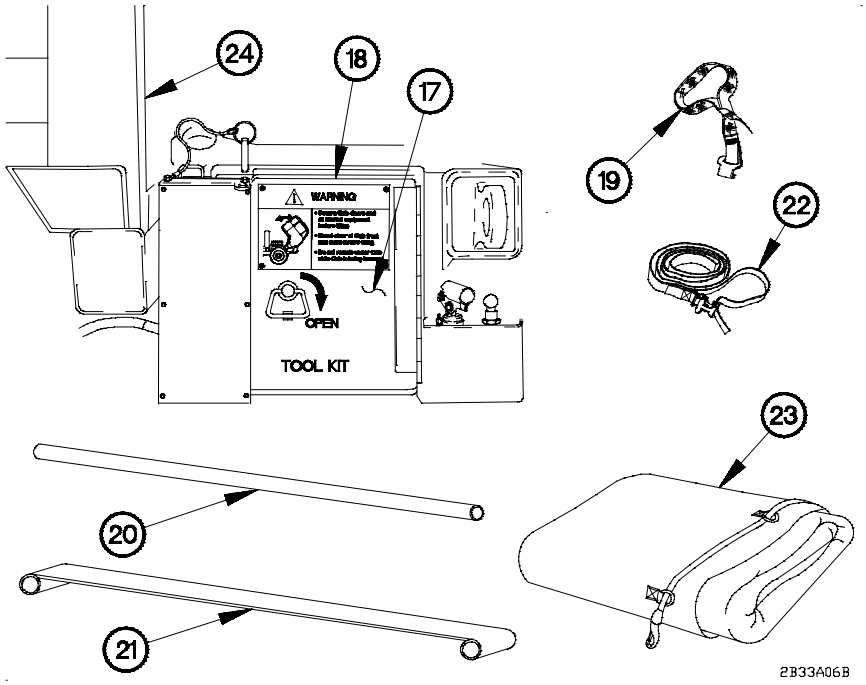
(11) Tighten three tiedown straps (4).

(12) Perform steps (10) and (11) on left side.



(13) Install stowage strap (16) on front bow (6), center bow (9), and rear bow (11).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(14) Open door (17) on tool box (18).

(15) Stow three cargo cover tiedowns (19) in tool box (18).

(16) Close door (17) on tool box (18).

WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

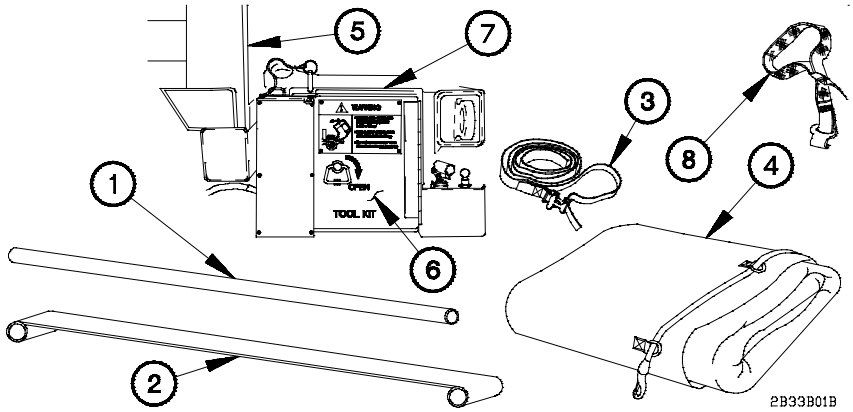
NOTE

Step (17) requires the aid of an assistant.

(17) Stow five rear tubes (20), four braces (21), two strap supports (22), and cargo cover (23) in cargo bed (24).

(18) Stow ladder (para 2-32b).

b. M1083/M1093 Soft Top Kit (Steel Bows) Removal.



WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (1) requires the aid of an assistant.

(1) Lower ladder (para 2-32a).

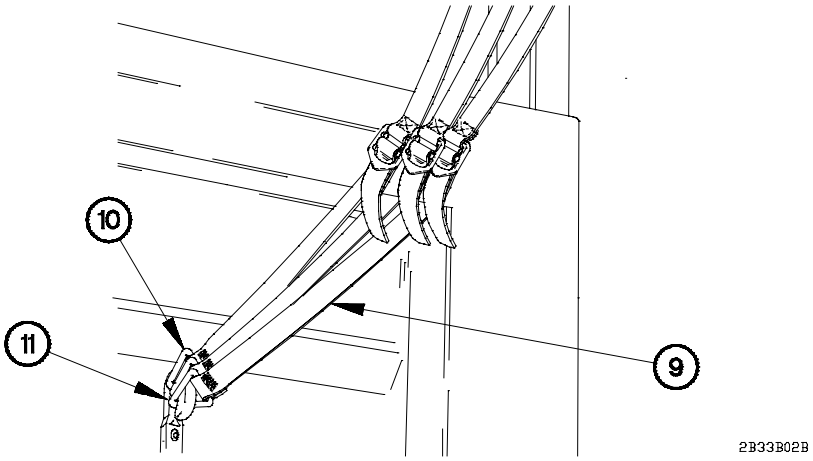
(2) Remove five rear tubes (1), four braces (2), two strap supports (3), and cargo cover (4) from cargo bed (5).

(3) Open door (6) on tool box (7).

(4) Remove three cargo cover tiedowns (8) from tool box (7).

(5) Close door (6) on tool box (7).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



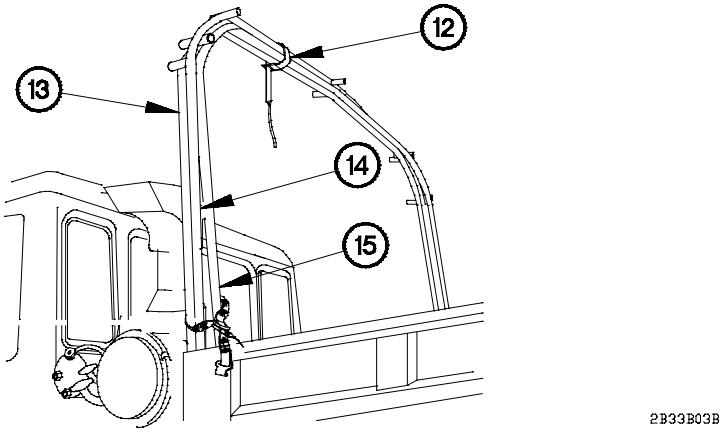
NOTE

Left and right sides of front, center, and rear bows are unsecured the same way. Right side shown.

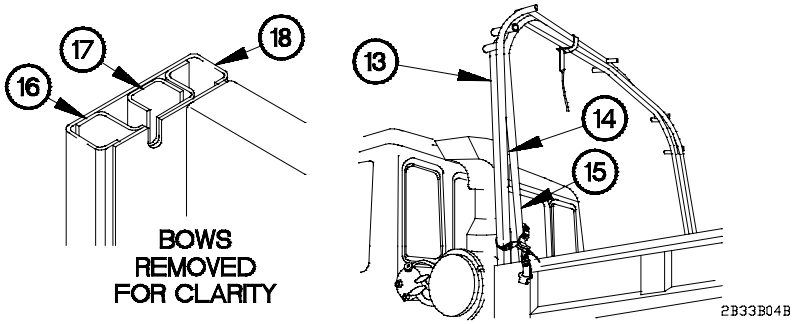
(6) Loosen three tiedown straps (9).

(7) Remove three tri-rings (10) on tiedown straps (9) from J-hook (11).

(8) Perform steps (6) and (7) on left side tiedown straps.



(9) Remove stowage strap (12) from front bow (13), center bow (14), and rear bow (15).



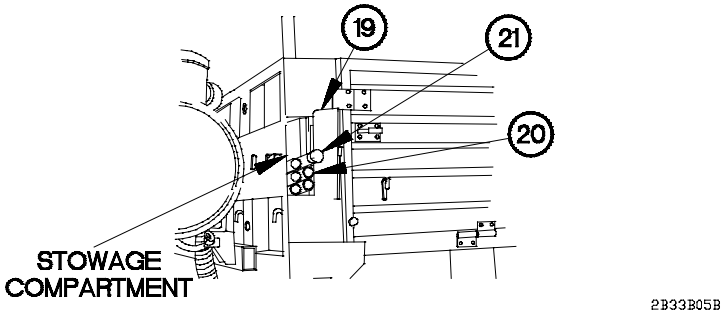
NOTE

Steps (10) through (12) require the aid of an assistant.

(10) Remove rear bow (15) from rear cargo bed pockets (16).

(11) Remove center bow (14) from center cargo bed pockets (17).

(12) Remove front bow (13) from front cargo bed pockets (18).



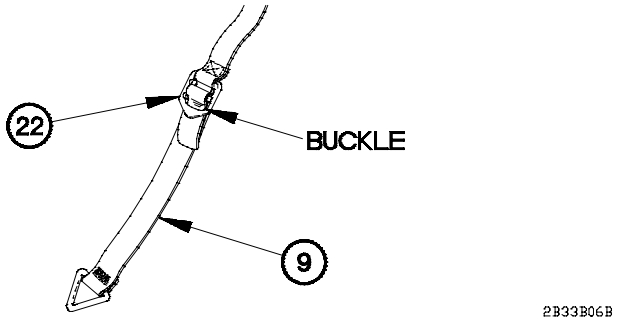
(13) Open stowage compartment door (19).

(14) Remove five front tubes (20) and steel pole (21) from stowage compartment.

(15) Close stowage compartment door (19).

(16) Stow ladder (para 2-32b).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



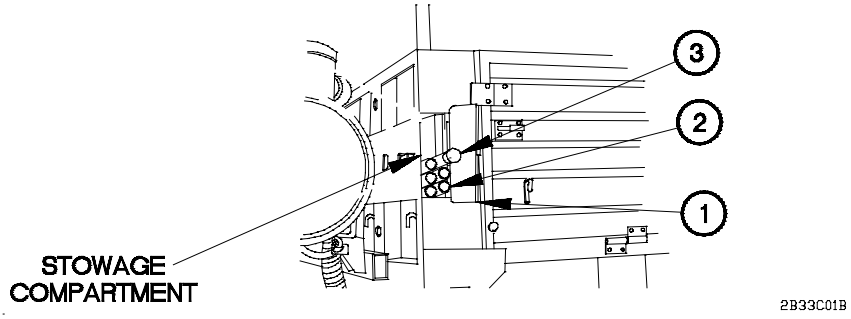
NOTE

Front, center, and rear bows have two bow straps and tiedown straps. All tiedown straps are removed from bow straps the same way. One shown.

(17) Remove tiedown strap (9) from buckle on bow strap (22).

(18) Perform step (17) on remaining tiedown straps.

c. M1085 Soft Top Kit (Steel Bows) Installation.



(1) Lower ladder (para 2-32a).

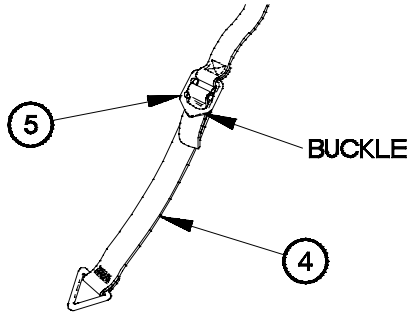
(2) Open stowage compartment door (1).

NOTE

Soft top kit is equipped with a total of 15 tubes. Five rear tubes are the longest, followed by the front and then rear tubes.

(3) Stow five front tubes (2) and steel pole (3) in stowage compartment.

(4) Close stowage compartment door (1).

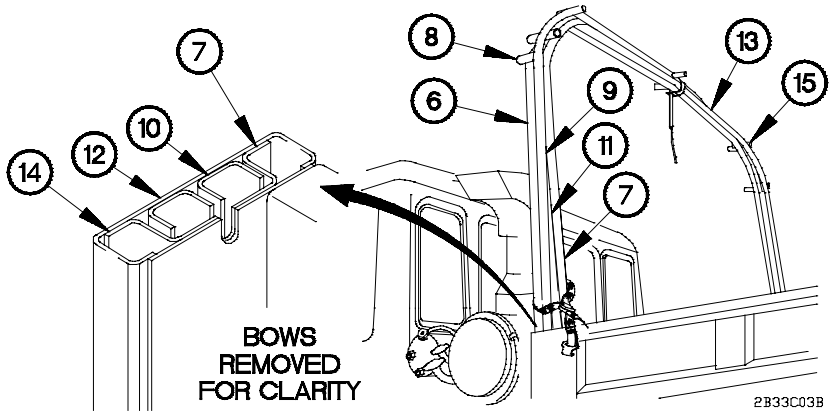


NOTE

Front, front center, rear center, and rear bows have two bow straps and tiedown straps. All tiedown straps are installed on bow straps the same way. One tiedown strap shown.

(5) Install tiedown strap (4) through buckle of bow strap (5).

(6) Perform step (5) on remaining tiedown straps.



NOTE

Steps (7) through (10) require the aid of an assistant.

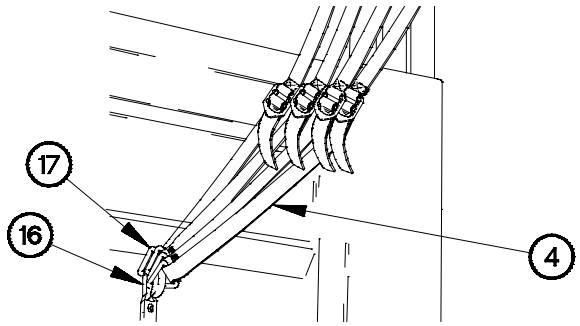
(7) Position front bow (6) in front cargo bed pockets (7) with front bow brackets (8) toward front of vehicle.

(8) Position front center bow (9) in front center cargo bed pockets (10).

(9) Position rear center bow (11) in rear center cargo bed pockets (12).

(10) Position rear bow (13) in rear cargo bed pockets (14) with rear bow brackets (15) toward rear of vehicle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



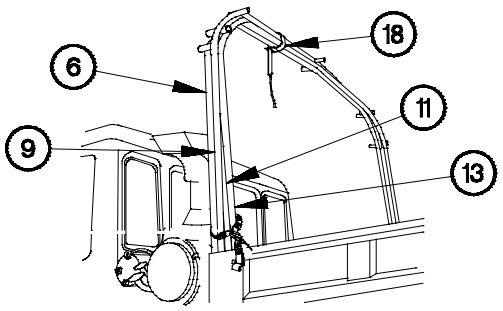
NOTE

Left and right sides of front, center, and rear bows are secured the same way. Right side shown.

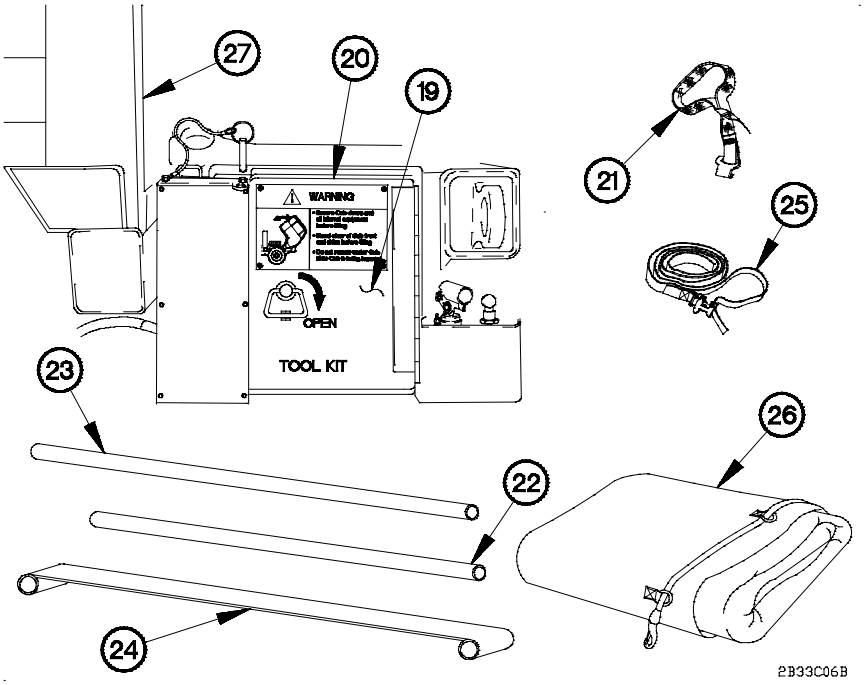
(11) Position four tiedown straps (4) on J-hook (16) with four tri-rings (17).

(12) Tighten four tiedown straps (4).

(13) Perform steps (11) and (12) on left side.



(14) Install stowage strap (18) on front bow (6), front center bow (9), rear center bow (11) and rear bow (13).



(15) Open door (19) on tool box (20).

(16) Stow three cargo cover tiedowns (21) in tool box (20).

(17) Close door (19) on tool box (20).

WARNING

Long Wheel Base (LWB) cargo cover weighs approximately 80 lbs (36 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

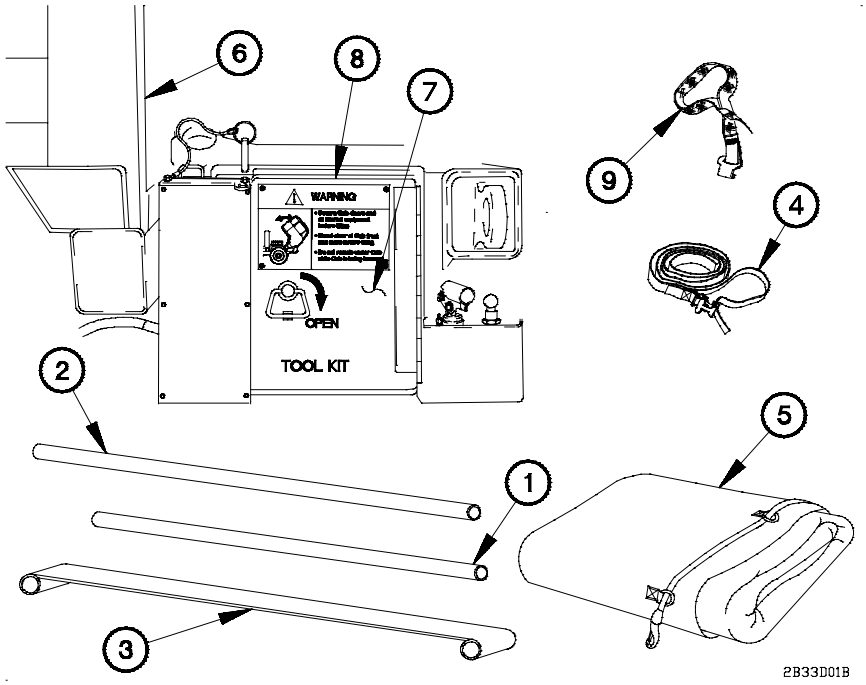
Step (18) requires the aid of an assistant.

(18) Stow five center tubes (22), rear tubes (23), six braces (24), two strap supports (25), and cargo cover (26) in cargo bed (27).

(19) Stow ladder (para 2-32b).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

d. M1085 Soft Top Kit (Steel Bows) Removal.



WARNING

Long Wheel Base (LWB) cargo cover weighs approximately 80 lbs (36 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (1) requires the aid of an assistant.

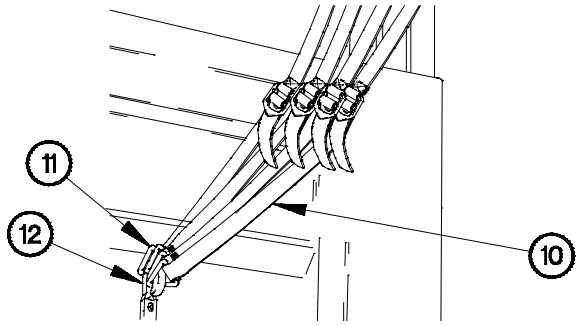
(1) Lower ladder (para 2-32a).

(2) Remove five center tubes (1), rear tubes (2), six braces (3), two strap supports (4), and cargo cover (5) from cargo bed (6).

(3) Open door (7) on tool box (8).

(4) Remove three cargo cover tiedowns (9) from tool box (8).

(5) Close door (7) on tool box (8).



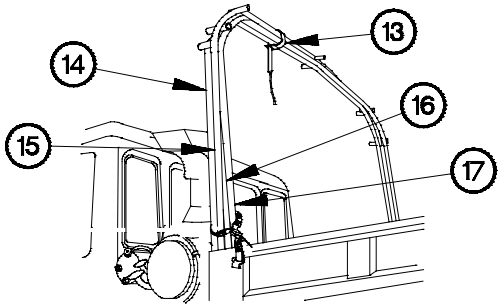
NOTE

Left and right sides of front, front center, rear center, and rear bows ar e unsecured the same way. Right side shown.

(6) Loosen four tiedown straps (10).

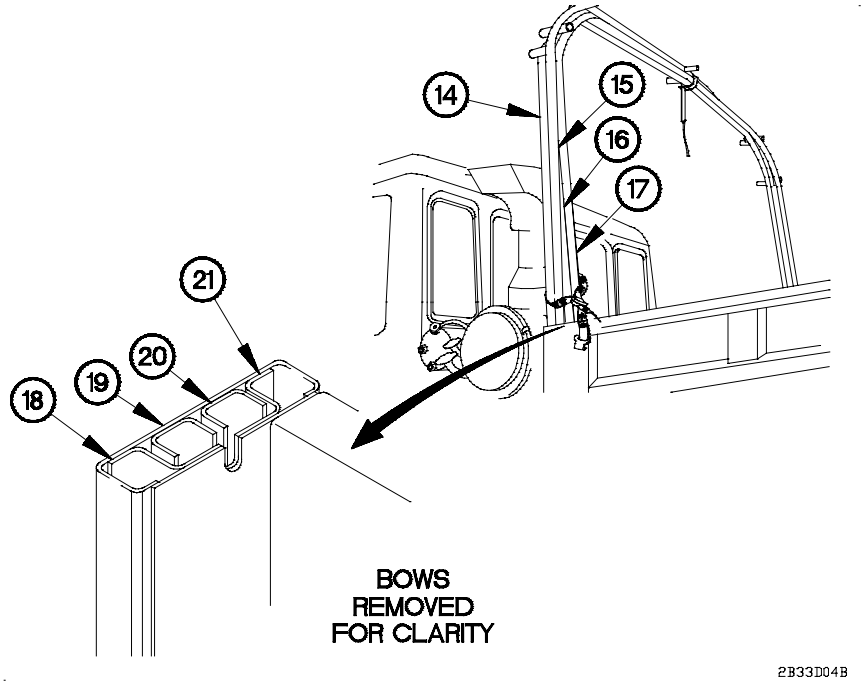
(7) Remove four tri-rings (11) on tiedown straps (10) from J-hook (12).

(8) Perform steps (7) and (8) on left side tiedown straps.



(9) Remove stowage strap (13) from front bow (14), front center bow (15), rear center bow (16), and rear bow (17).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



NOTE

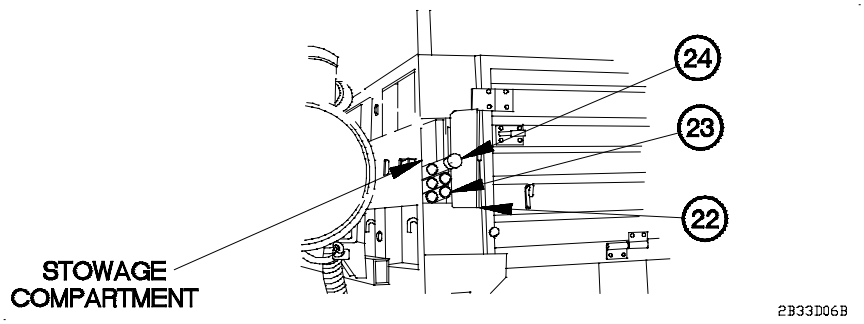
Steps (10) through (13) require the aid of an assistant.

(10) Remove rear bow (17) from rear cargo bed pockets (18).

(11) Remove rear center bow (16) from rear center cargo bed pockets (19).

(12) Remove front center bow (15) from front center cargo bed pockets (20).

(13) Remove front bow (14) from front cargo bed pockets (21).

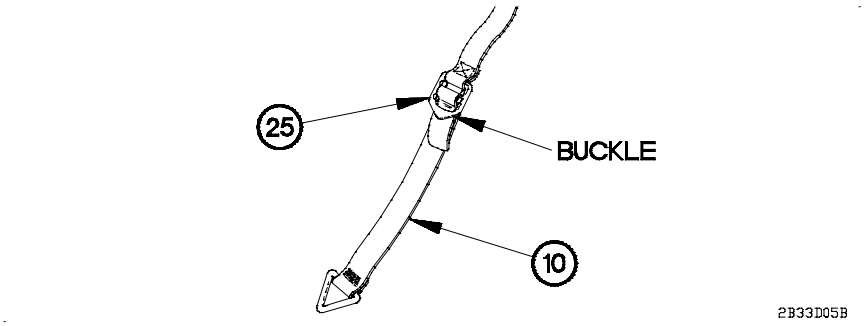


(14) Open stowage compartment door (22).

(15) Remove five front tubes (23) and steel pole (24) from stowage compartment.

(16) Close stowage compartment door (22).

(17) Stow ladder (para 2-32b).



NOTE

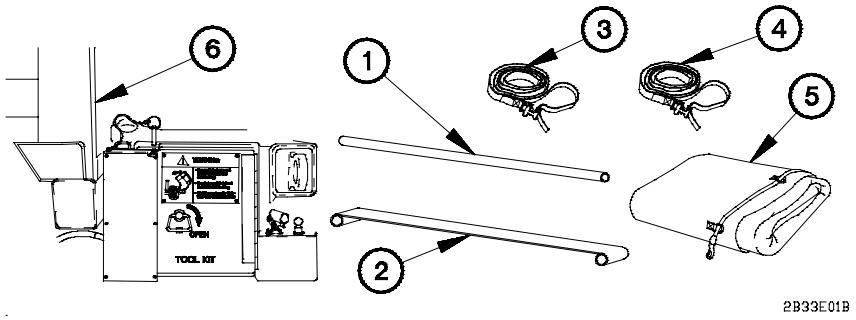
Front, front center, rear center, and rear bows have two bow straps and tiedown straps. All tiedown straps are removed from bow straps the same way. One shown.

(18) Remove tiedown strap (10) from buckle on bow strap (25).

(19) Perform step (18) on remaining tiedown straps.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

e. M1083/M1093 Soft Top (Steel Bows) Installation.



(1) Lower ladder (para 2-32a).

(2) Lower spare tire (para 3-5).

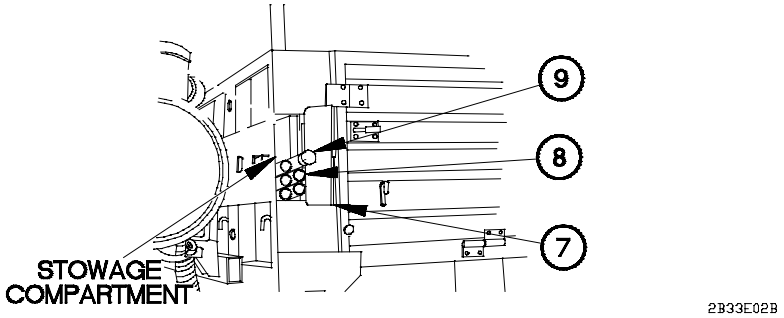
WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (3) requires the aid of an assistant.

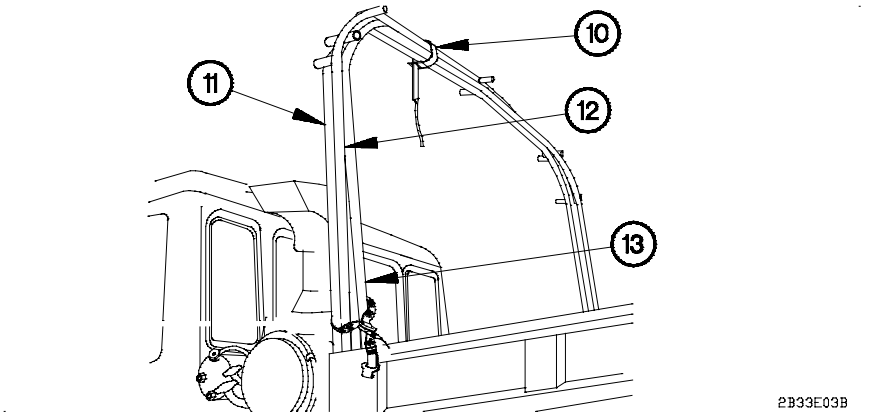
(3) Remove five rear tubes (1), four braces (2), left strap support (3), right strap support (4), and cargo cover (5) from cargo bed (6).



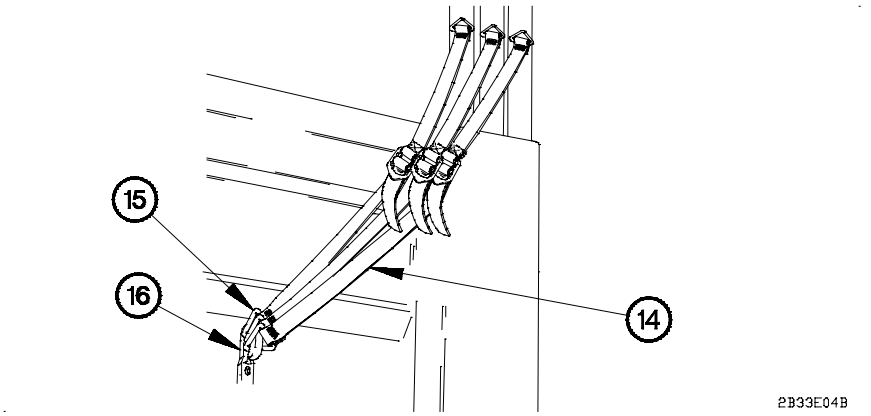
(4) Open stowage compartment door (7).

(5) Remove five front tubes (8) and steel pole (9) from stowage compartment.

(6) Close stowage compartment door (7).



(7) Remove stowage strap (10) from front bow (11), center bow (12), and rear bow (13).



NOTE

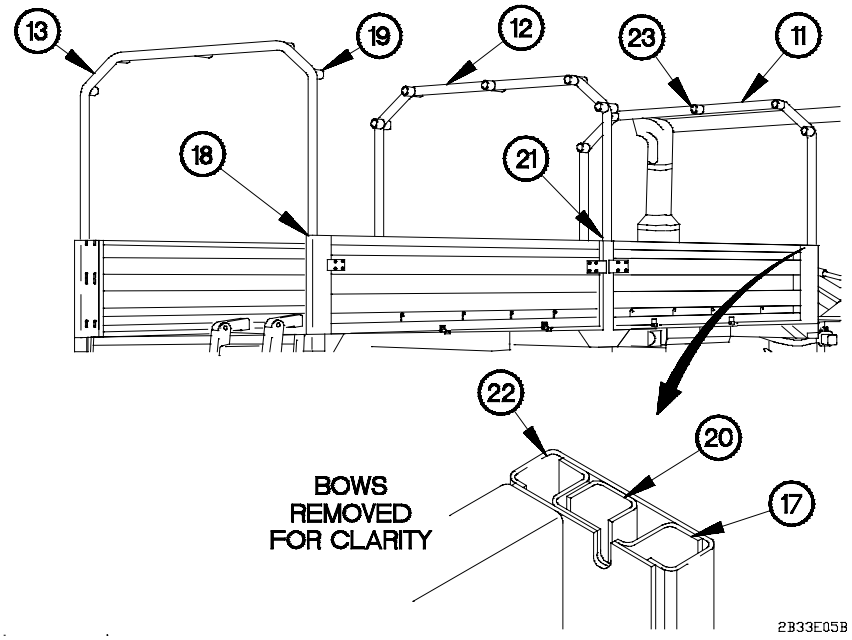
Left and right sides of front, center, and rear bows are released the same way. Right side shown.

(8) Loosen three tiedown straps (14).

(9) Remove three tri-rings (15) on tiedown straps (14) from J-hook (16).

(10) Perform steps (8) and (9) on left side.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



NOTE

Steps (11) through (16) require the aid of an assistant.

(11) Remove rear bow (13) from rear cargo bed pockets (17).

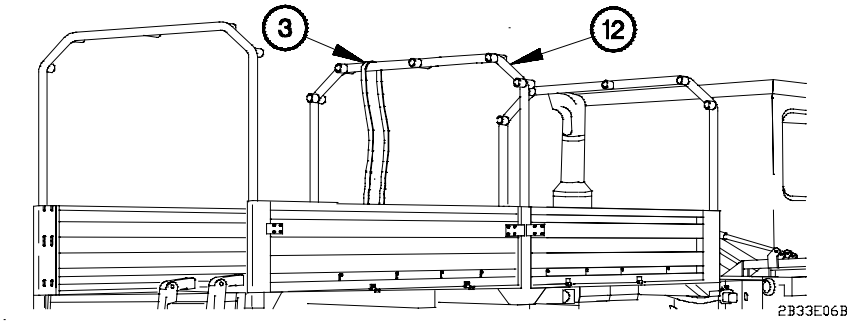
(12) Position rear bow (13) in rear pockets of rear cargo bed stakes (18) with rear bow brackets (19) towards front of vehicle.

(13) Remove center bow (12) from center cargo bed pockets (20).

(14) Position center bow (12) in rear pockets of center cargo bed stakes (21).

(15) Remove front bow (11) from front cargo bed pockets (22).

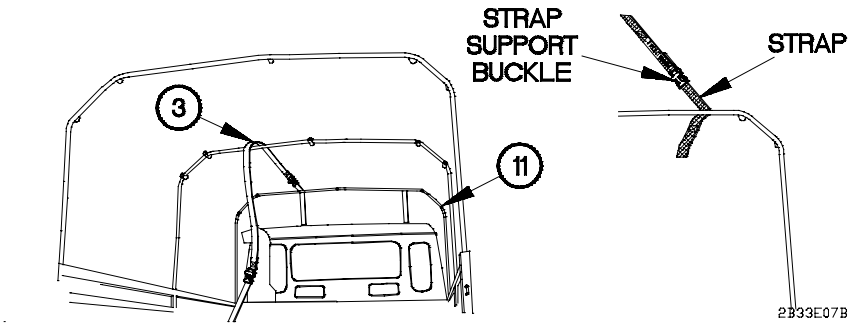
(16) Position front bow (11) in front cargo bed pockets (22) with front bow brackets (23) toward rear of vehicle.



NOTE

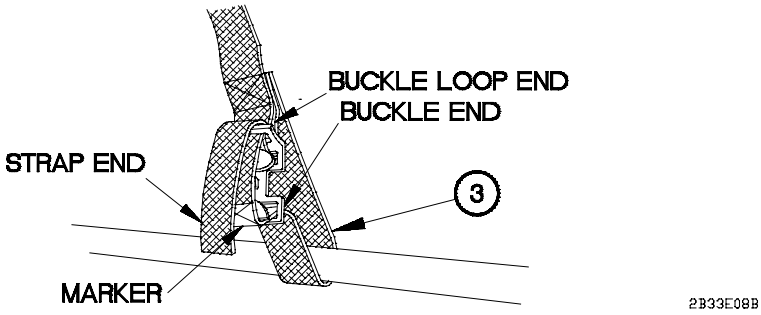
- Strap support is marked with FRONT and an arrow to indicate front bottom of strap support.
- Strap supports are to be centered between center bow brackets and left and right inside of bow brackets.
- Left and right strap supports are installed the same way. Left strap support shown.

(17) Position left strap support (3) over center bow (12).



(18) Position left strap support (3) around front bow (11) and through strap support buckle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

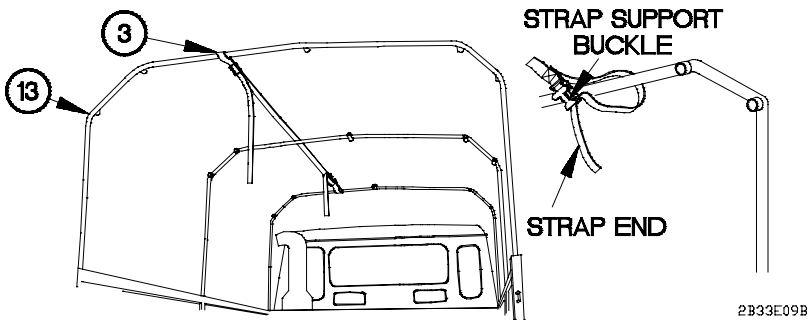


(19) Tighten left strap support (3) until marker is through the buckle end.

CAUTION

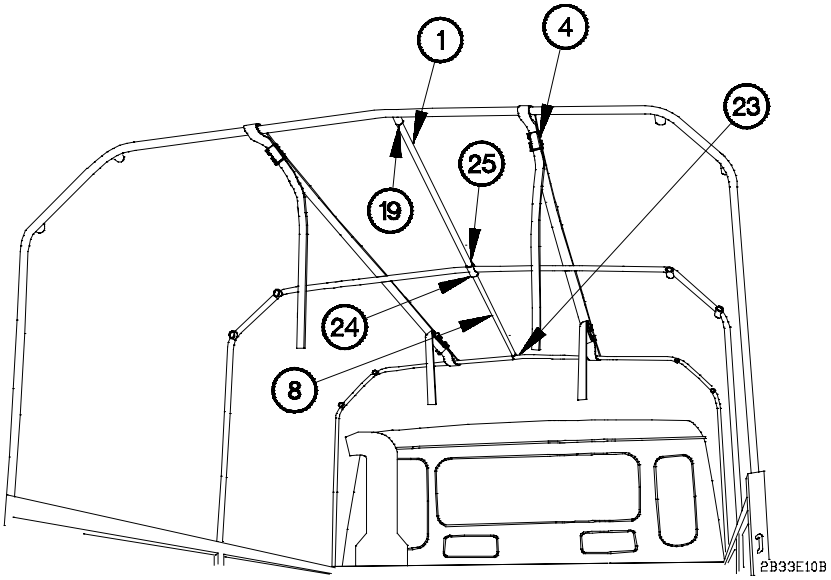
Strap end must be installed in the buckle loop end after strap is tightened. Failure to comply may result in damage to equipment.

(20) Install strap end through buckle loop end on left strap support (3).



(21) Position left strap support (3) around rear bow (13) and through strap support buckle.

(22) Perform steps (17) through (21) on right strap support.



NOTE

Steps (23) through (25) require the aid of an assistant.

(23) Install front tube (8) in front bow bracket (23) and center bow bracket (24).

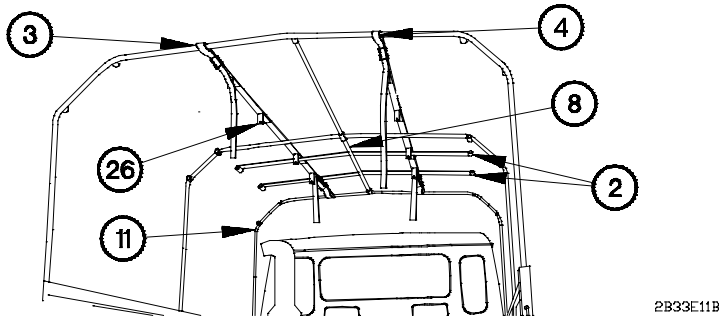
(24) Install rear tube (1) in center bow bracket (25) and rear bow bracket (19).

CAUTION

Strap supports must be aligned straight between front bow and rear bow. Failure to comply may result in damage to equipment.

(25) Tighten right rear strap support (4).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

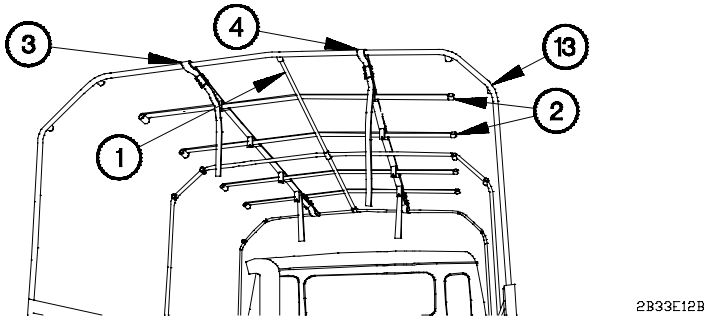


NOTE

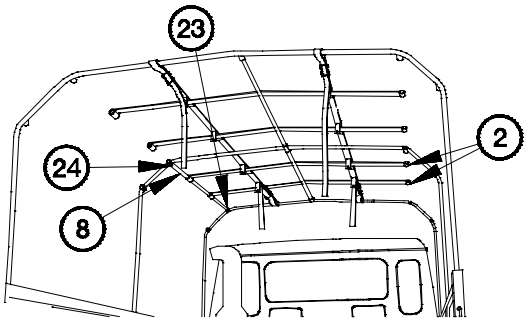
Left and right strap supports have six flaps. From front to rear of vehicle, perform step (26) on first, second, third, and fifth straps on each strap support.

(26) Open four flaps (26) on left strap support (3) and right strap support (4).

(27) Position two braces (2) over front tube (8) and under left strap support (3) and right strap support (4) with approximately two feet (0.6 m) between front bow (11) and each brace (2).



(28) Position two braces (2) over rear tube (1) and under left strap support (3) and right strap support (4) with approximately two feet (0.6 m) between rear bow (13) and each brace (2).

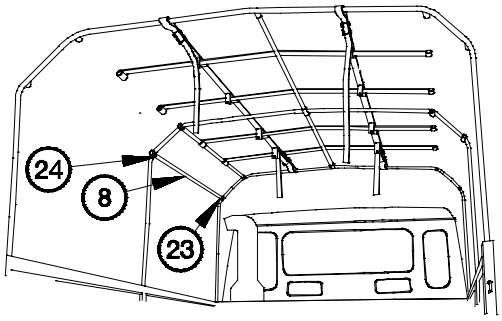


NOTE

- Left and right tubes are installed the same way. Left side tubes shown.
- Steps (29) through (36) require the aid of an assistant.

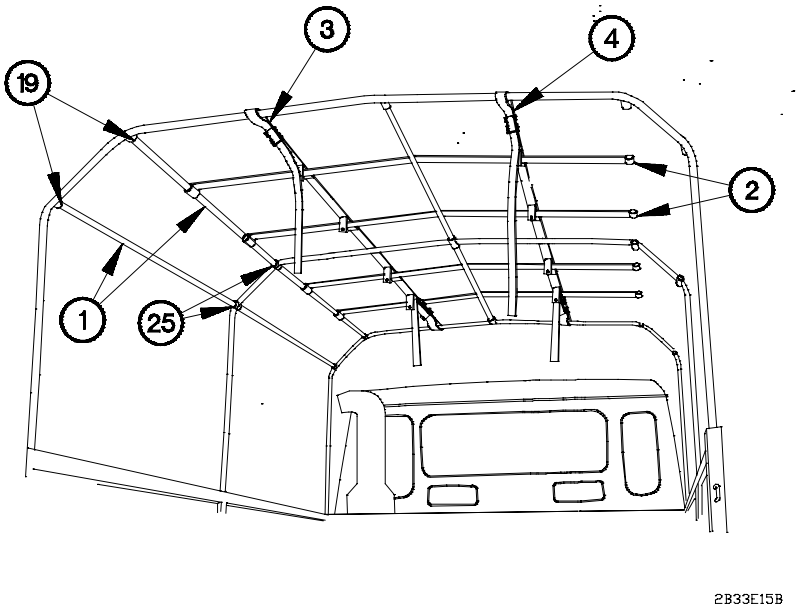
(29) Position front tube (8) through two braces (2).

(30) Install front tube (8) in front bow bracket (23) and center bow bracket (24).



(31) Install front tube (8) in front bow bracket (23) and center bow bracket (24).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(32) Install rear tube (1) in rear bow bracket (19) and center bow bracket (25).

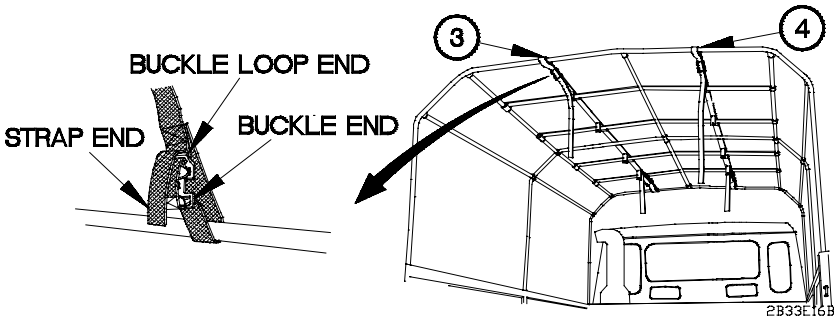
(33) Position rear tube (1) through two braces (2).

(34) Install rear tube (1) in rear bow bracket (19) and center bow bracket (25).

(35) Tighten left rear strap support (3).

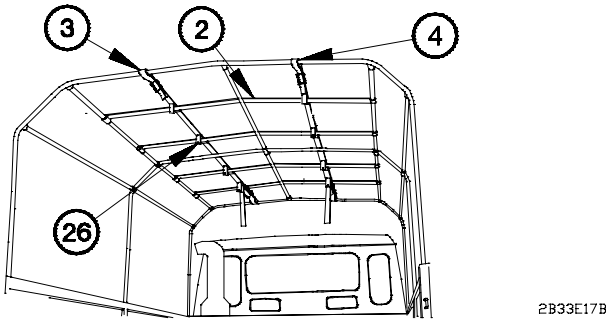
(36) Loosen right rear strap support (4).

(37) Perform steps (29) through (34) on right side tubes.



(38) Tighten right rear strap support (4).

(39) Install two strap ends through buckle loop ends on left strap support (3) and right strap support (4).

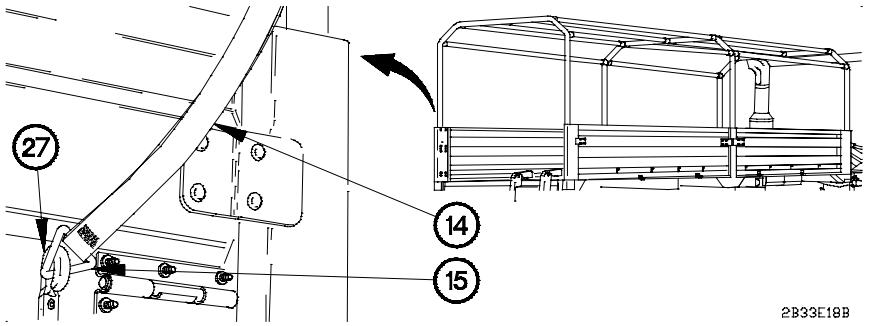


NOTE

Adjust braces as needed to snap and attach flaps over braces.

(40) Close four flaps (26) over four braces (2) on left strap support (3) and right strap support (4).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



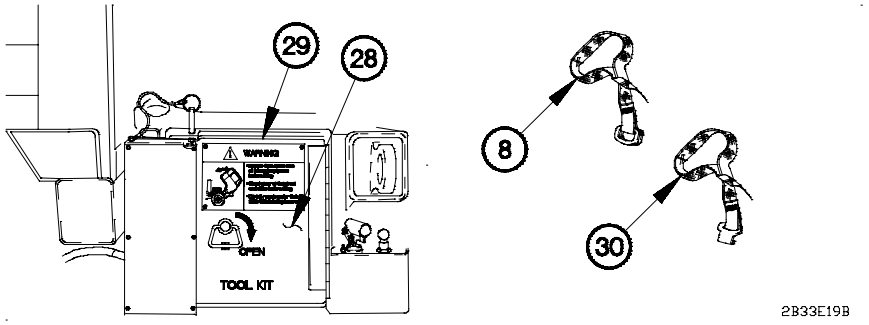
NOTE

Left and right sides of front, center, and rear bows are secured the same way. Rear bow left side shown.

(41) Position tiedown strap (14) on J-hook (27) with tri-ring (15).

(42) Tighten tiedown strap (14).

(43) Perform steps (41) and (42) on remaining tiedown straps.

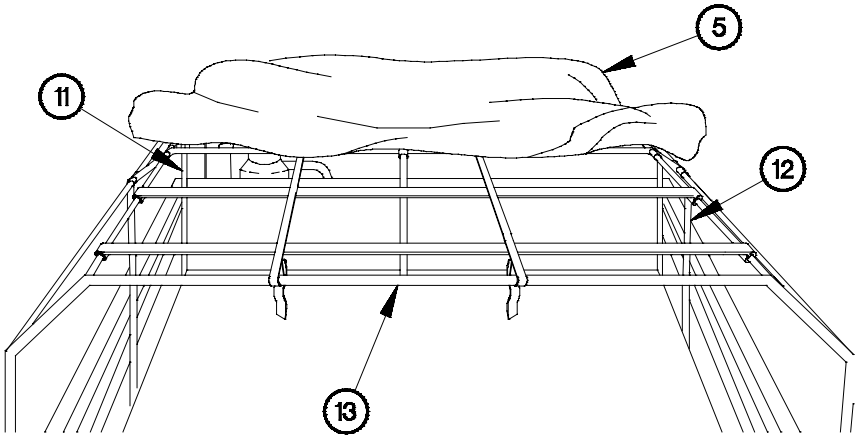


(44) Open door (28) on tool box (29).

(45) Remove three cargo cover tiedowns (30) from tool box (29).

(46) Stow stowage strap (8) in tool box (29).

(47) Close door (28) on tool box (29).



2B33E20B

WARNING

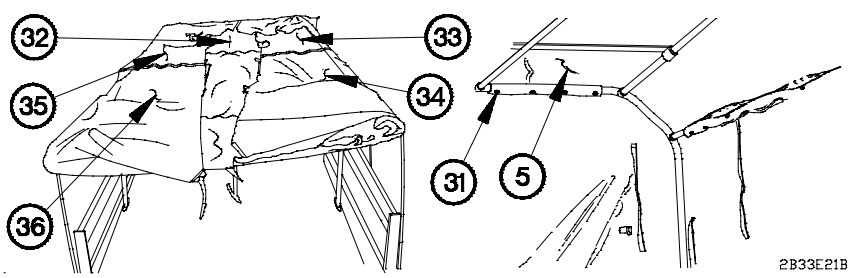
Cargo cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

- Steps (48) through (71) require the aid of an assistant.
- Cargo cover is marked with FRONT on the front flap.

(48) Position cargo cover (5) on front bow (11), center bow (12), and rear bow (13).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

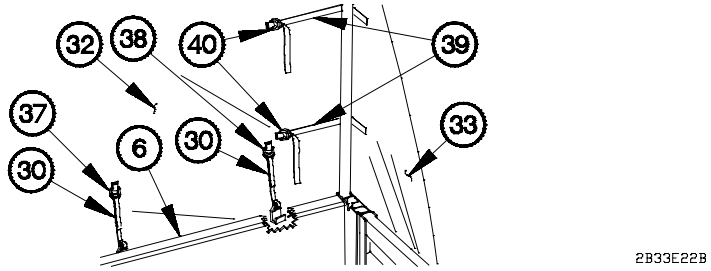


NOTE

Use snap extensions as required.

(49) Fasten snaps (31) on front, rear, sides, and center of cargo cover (5).

(50) Unfold front flap (32), right side front flap (33), right side rear flap (34), left side front flap (35), and left side rear flap (36).



NOTE

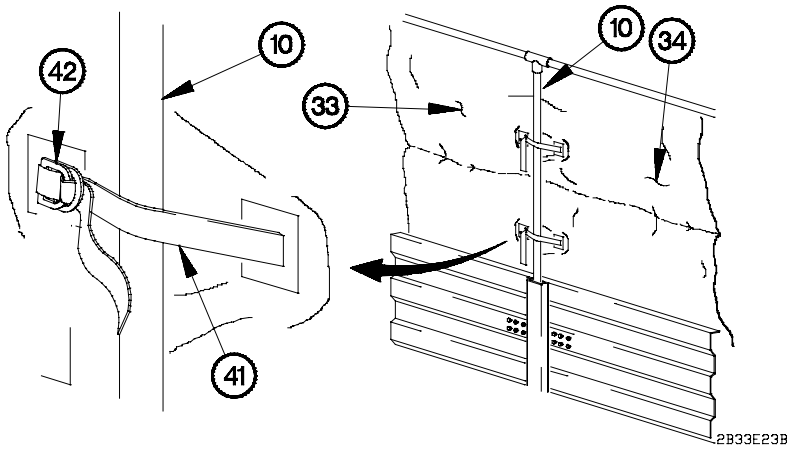
Cargo covers are equipped with either D-rings or buckles and D-rings. Cargo cover with D-rings shown.

(51) Install cargo cover tiedown (30) in center D-ring (37) on front flap (32) with hook end of strap in outside lip of cargo bed (6).

(52) Install cargo cover tiedown (30) in right side D-ring (38) on front flap (32) with hook end of strap in outside lip of cargo bed (6).

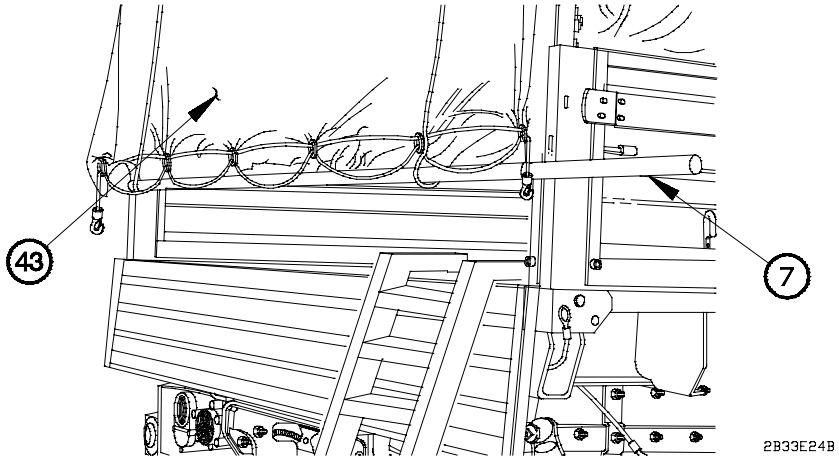
(53) Install two straps (39) on right side front flap (33) in two D-rings (40) on front flap (32).

(54) Perform steps (52) and (53) on left side front flap.



(55) Install two straps (41) from right side rear flap (34) on inside of center bow (10) in two D-rings (42) on right side front flap (33).

(56) Perform step (55) on left side of vehicle.

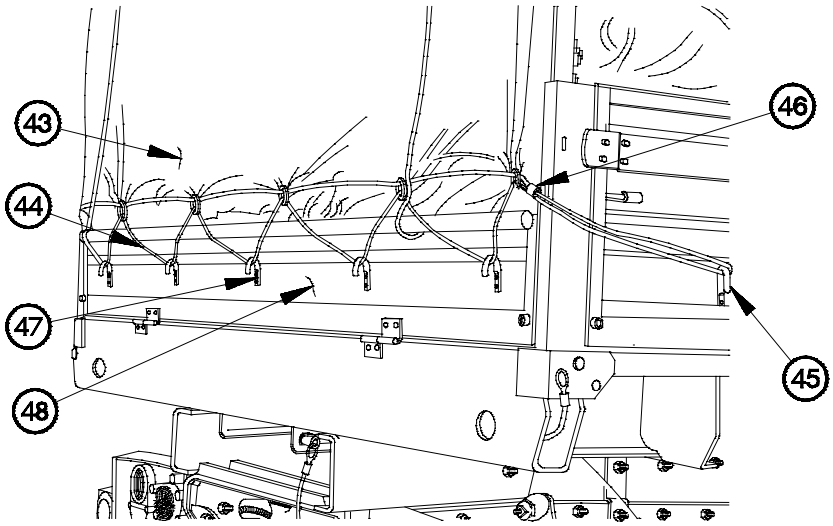


(57) Unfold rear flap (43).

(58) Position steel pole (7) in lower portion of rear flap (43).

(59) Stow ladder (para 2-32b).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



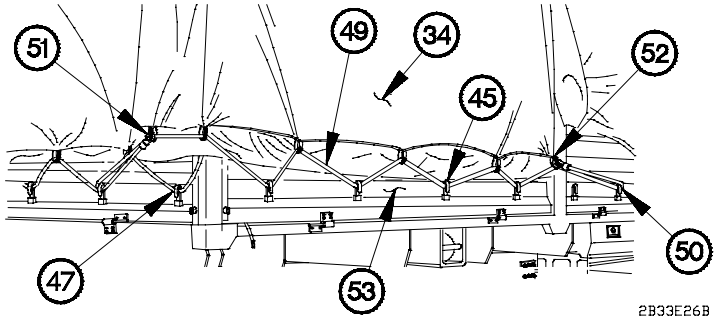
NOTE

- Cargo cover flaps are equipped with either D-rings or loops and D-rings. Cargo cover flaps with D-rings shown.
- D-rings are attach to lower part of flaps with shock cord placed through D-rings. Shock cord is attached to J-hooks on cargo bed to hold flap down.

(60) Position shock cord (44) on right side of rear flap (43) on J-hook (45) and D-ring (46).

(61) Perform step (60) on left side of vehicle.

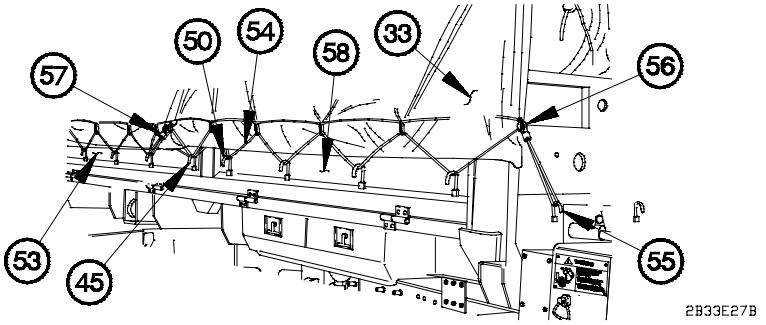
(62) Install shock cord (44) on five J-hooks (47) on tailgate (48).



(63) Position shock cord (49) on right side rear flap (34) on J-hooks (47 and 50) and D-rings (51 and 52).

(64) Install shock cord (49) on four J-hooks (45) on right rear side panel (53).

(65) Perform steps (63) and (64) on left side of vehicle.



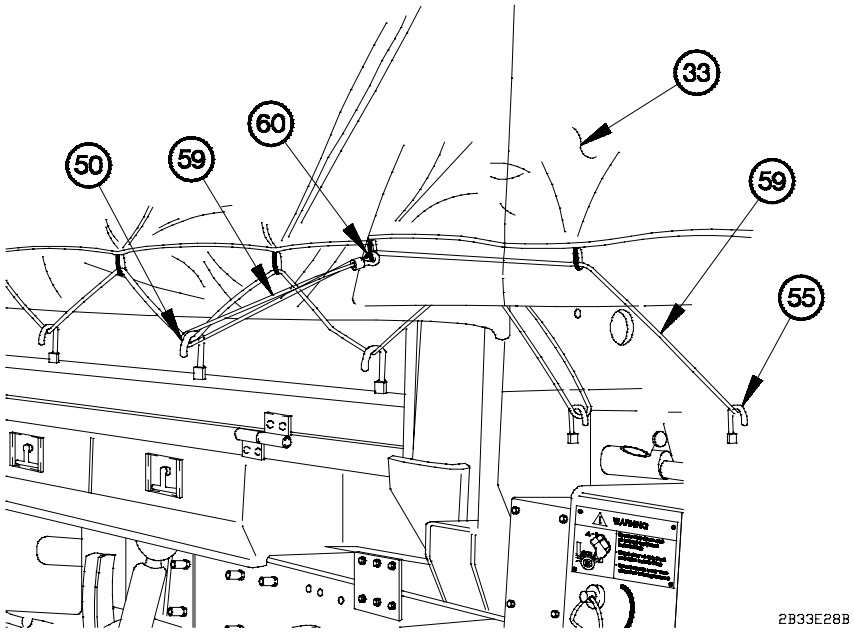
(66) Position shock cord (54) on right side front flap (33) on J-hook (55) and D-ring (56).

(67) Position shock cord (54) on right side front flap (33) on J-hook (45) and D-ring (57).

(68) Install shock cord (54) on four J-hooks (50) on right front side panel (58) and J-hook (45) on right rear side panel (53).

(69) Perform steps (66) through (68) on left side of vehicle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



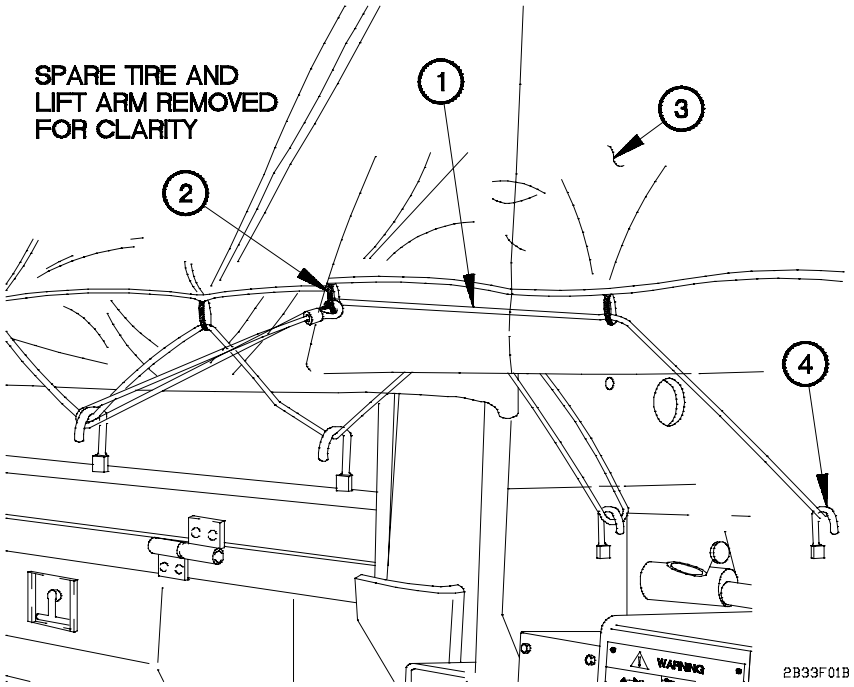
(70) Install shock cord (59) on right side of front flap (33) on J-hook (55).

(71) Install shock cord (59) on right side of front flap (33) on J-hook (50) and D-ring (60).

(72) Perform steps (70) and (71) on left side of vehicle.

(73) Raise spare tire (para 3-5).

f. M1083/M1093 Soft Top (Steel Bows) Removal.



(1) Lower spare tire (para 3-5).

NOTE

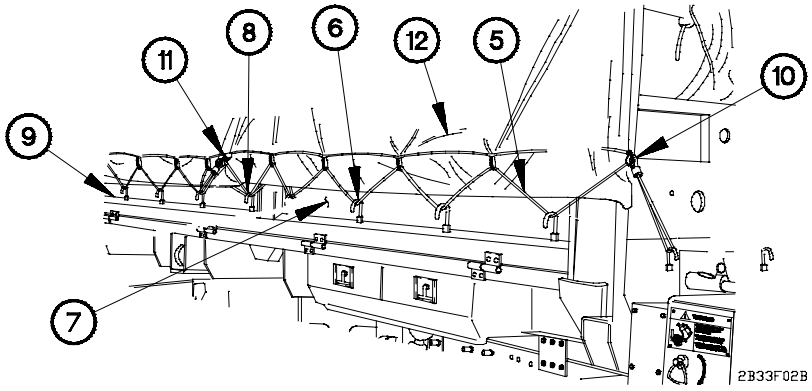
- Cargo cover flaps are equipped with either D-rings or loops and D-rings. Cargo cover flaps with D-rings shown.
- Steps (2) through (28) require the aid of an assistant.

(2) Remove shock cord (1) from D-ring (2) on right side of front flap (3).

(3) Remove shock cord (1) from J-hook (4).

(4) Perform steps (2) and (3) on left side of front flap.

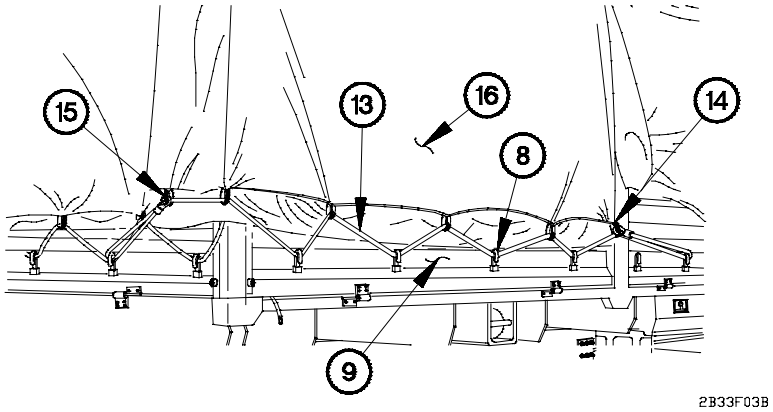
2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(5) Remove shock cord (5) from four J-hooks (6) on right front side panel (7) and J-hook (8) on right rear side panel (9).

(6) Remove shock cord (5) from D-rings (10 and 11) on right side front flap (12).

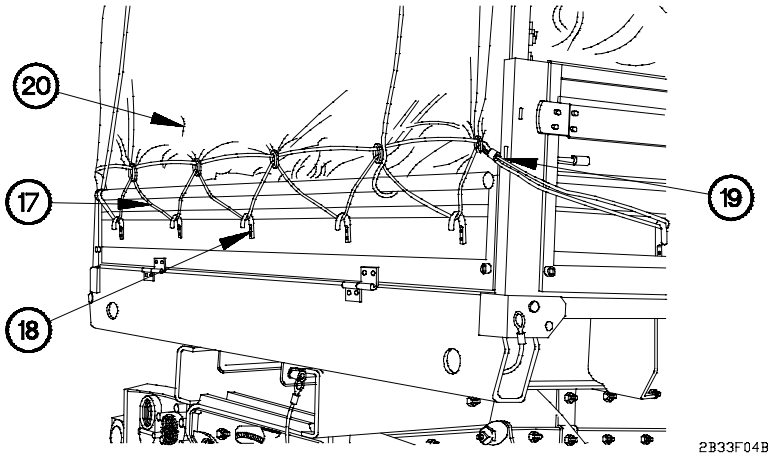
(7) Perform steps (5) and (6) on left side front flap.



(8) Remove shock cord (13) from four J-hooks (8) on right rear side panel (9).

(9) Remove shock cord (13) from D-rings (14 and 15) on right side rear flap (16).

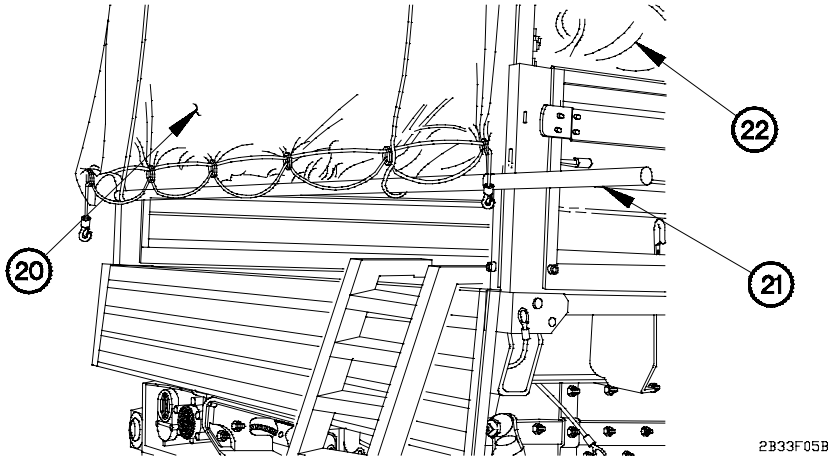
(10) Perform steps (8) and (9) on left side rear flap.



(11) Remove shock cord (17) from five J-hooks (18).

(12) Remove shock cord (17) from D-ring (19) on rear flap (20).

(13) Perform step (12) on left side of vehicle.

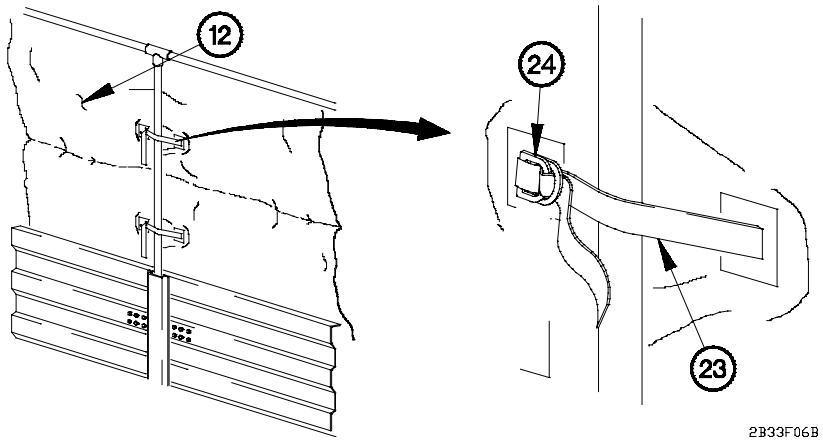


(14) Lower ladder (para 2-32a).

(15) Remove steel pole (21) from rear flap (20).

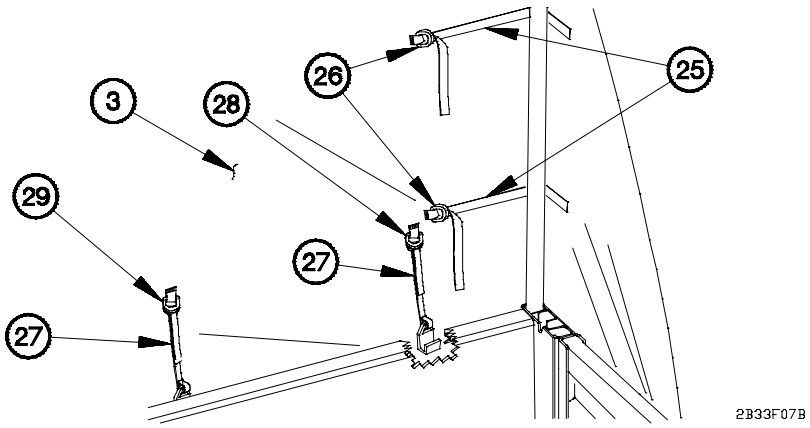
(16) Fold rear flap (20) on top of cargo cover (22).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(17) Remove two straps (23) from D-rings (24) on center right side front side flap (12).

(18) Perform step (17) on left side of vehicle.

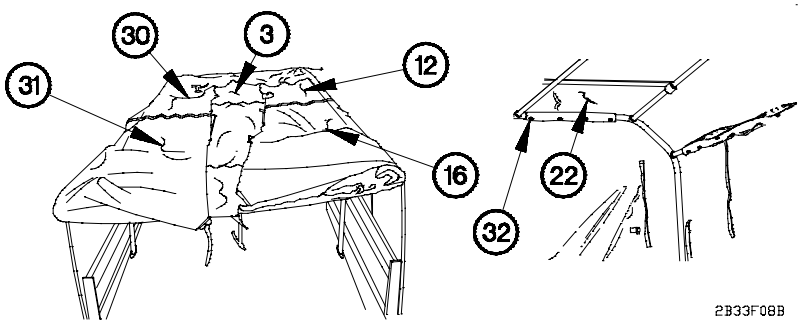


(19) Remove two straps (25) from D-rings (26) on right side of front flap (3).

(20) Remove cargo cover tiedown (27) from right side D-ring (28) on front flap (3).

(21) Perform steps (19) and (20) on left side of front flap.

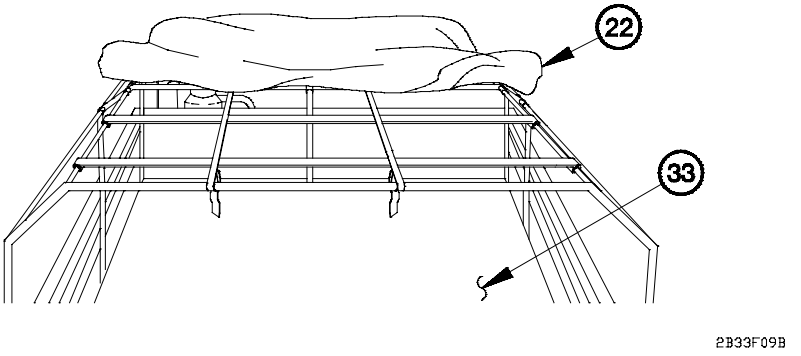
(22) Remove cargo cover tiedown (27) from center D-ring (29) on front flap (3).



(23) Fold front flap (3), right side front flap (12), right side rear flap (16), left side front flap (30), and left side rear flap (31) on top of cargo cover (22).

(24) Unfasten snaps (32) on front, rear, sides, and center of cargo cover (22).

(25) Fold cargo cover (22) to front of vehicle.



(26) Fold right side of cargo cover (22) toward center of cargo bed (33).

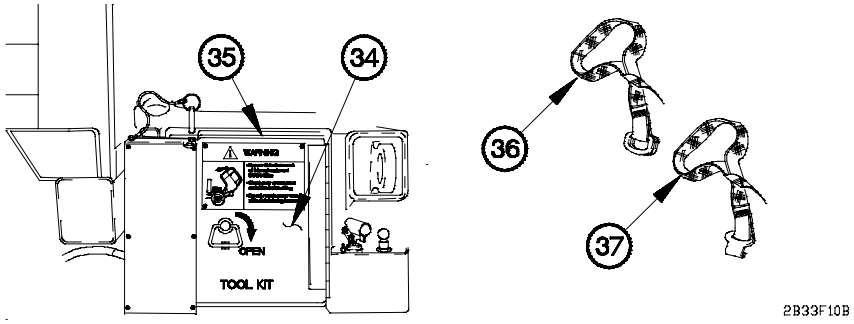
(27) Fold left side of cargo cover (22) toward center of cargo bed (33).

WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

(28) Remove cargo cover (22) from vehicle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

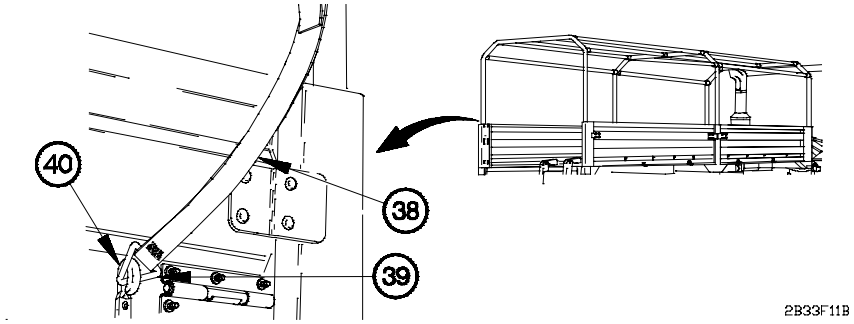


(29) Open door (34) on tool box (35).

(30) Remove stowage strap (36) from tool box (35).

(31) Stow three cargo cover tiedowns (37) in tool box (35).

(32) Close door (34) on tool box (35).



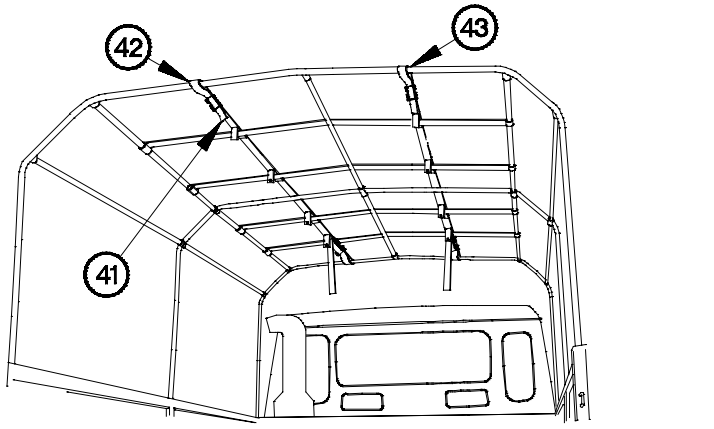
NOTE

Left and right sides of front, center, and rear bows are unsecured the same way. Rear bow left side shown.

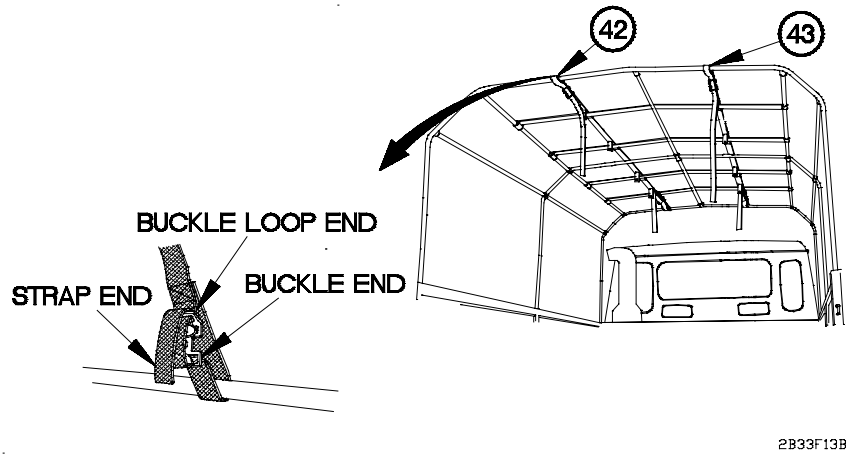
(33) Loosen tiedown strap (38).

(34) Remove tri-ring (39) on tiedown strap (38) from J-hook (40).

(35) Perform steps (33) and (34) on remaining tiedown straps.



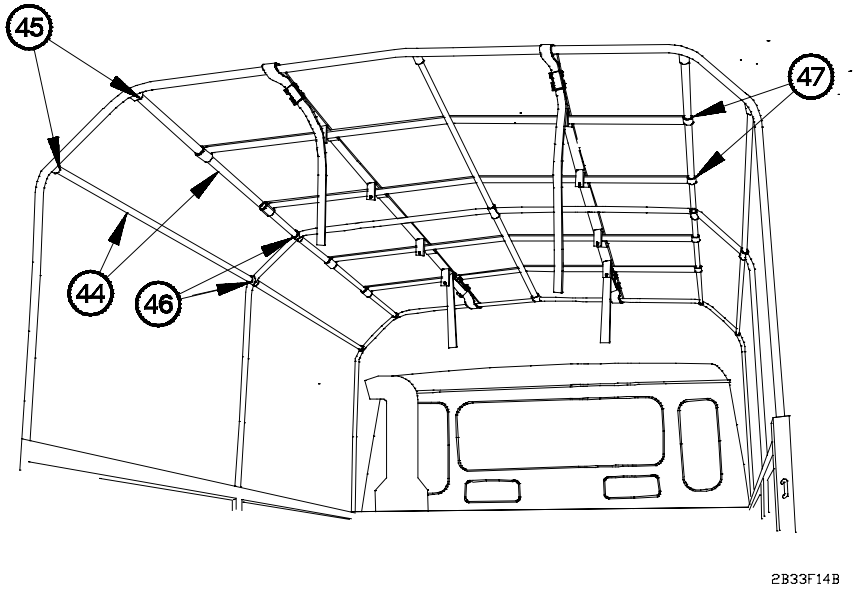
(36) Open four flaps (41) on left strap support (42) and right strap support (43).



(37) Remove two rear strap ends from buckle loop ends on left strap support (42) and right strap support (43).

(38) Loosen left rear strap support (42).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



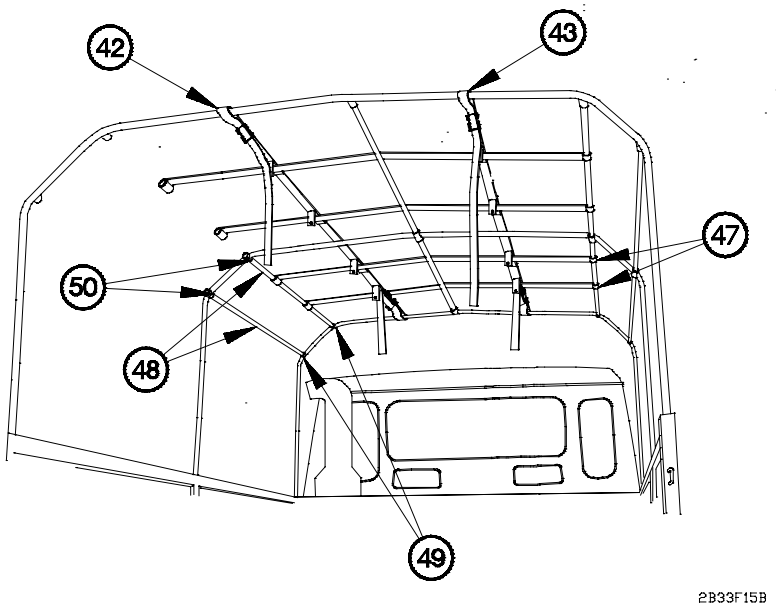
NOTE

- Left and right tubes are removed the same way. Left side tubes shown.
- Steps (39) through (46) require the aid of an assistant.

(39) Remove rear tube (44) from rear bow bracket (45) and center bow bracket (46).

(40) Remove rear tube (44) from center bow bracket (46) and rear bow bracket (45).

(41) Remove two rear tubes (44) from braces (47).



(42) Remove front tube (48) from front bow bracket (49) and center bow bracket (50)

(43) Remove front tube (48) from front bow bracket (49) and center bow bracket (50).

(44) Remove two front tubes (48) from braces (47).

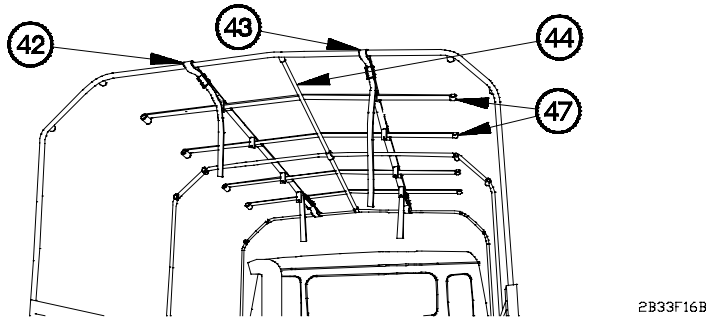
(45) Tighten left rear strap support (42).

(46) Loosen right rear strap support (43).

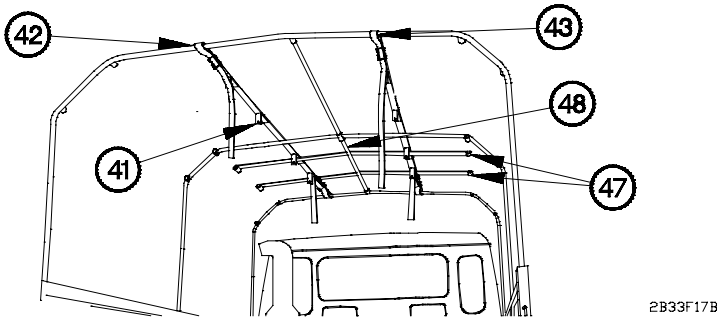
(47) Perform steps (39) through (44) on right side tubes.

(48) Tighten right rear strap support (43).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

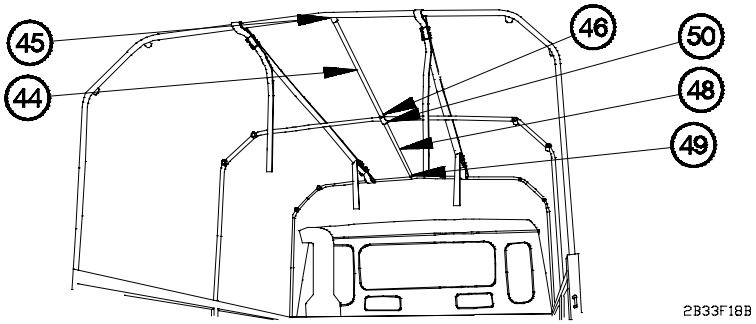


(49) Remove two braces (47) from rear tube (44), left strap support (42), and right strap support (43).



(50) Remove two braces (47) from front tube (48), left strap support (42), and right strap support (43).

(51) Close four flaps (41) on left strap support (42) and right strap support (43).

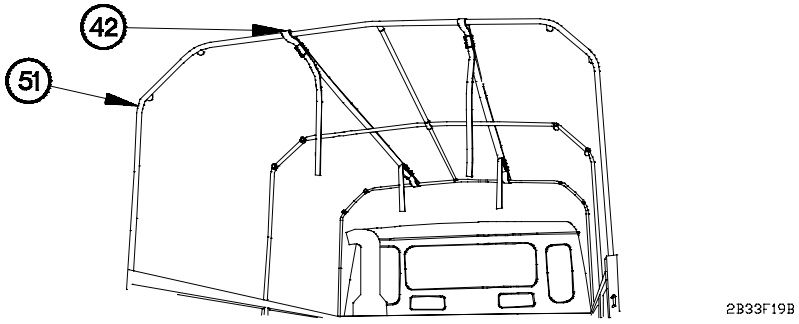


NOTE

Steps (52) and (53) require the aid of an assistant.

(52) Remove rear tube (44) from center bow bracket (46) and rear bow bracket (45).

(53) Remove front tube (48) from front bow bracket (49) and center bow bracket (50).

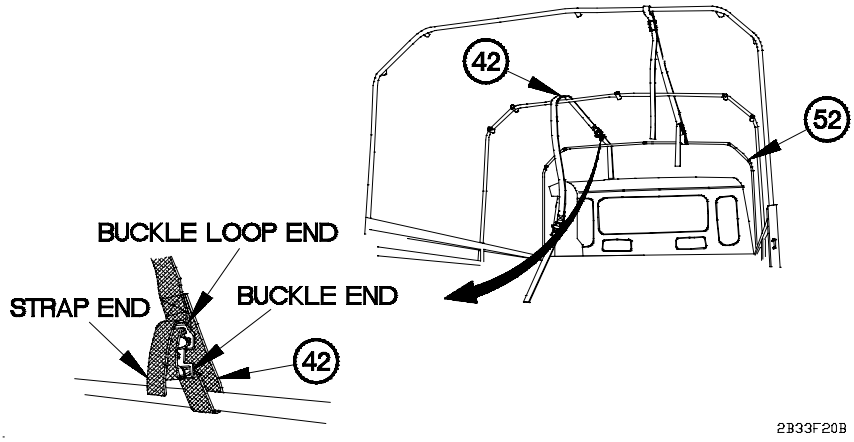


NOTE

Left and right strap supports are removed the same way. Left strap support shown.

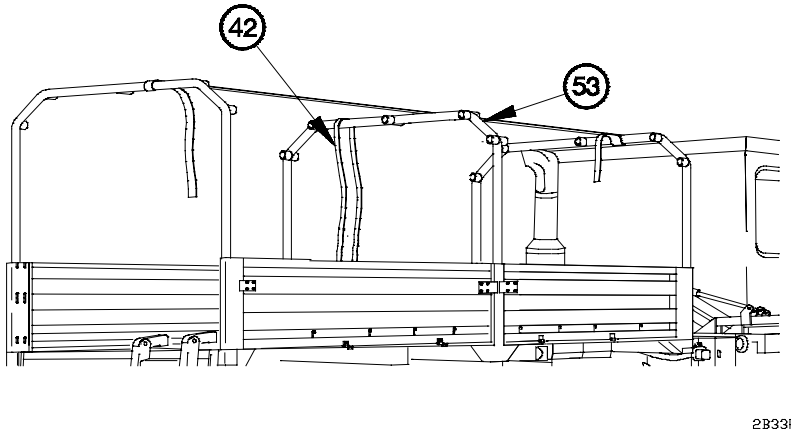
(54) Remove left strap support (42) from rear bow (51).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



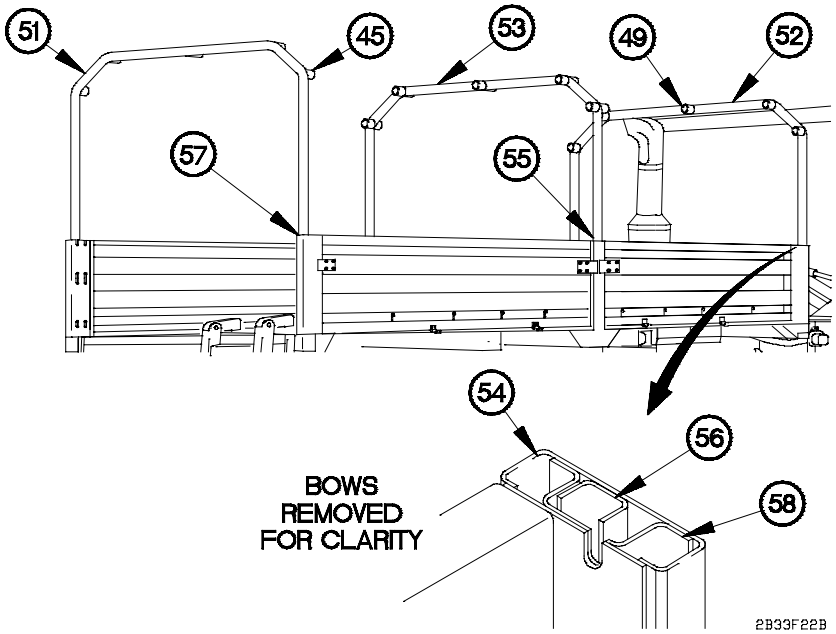
(55) Remove front strap end from buckle loop end on left strap support (42).

(56) Remove left strap support from front bow (52).



(57) Remove left strap support (42) from center bow (53).

(58) Perform steps (54) through (57) on right strap support.



NOTE

Steps (59) through (64) require the aid of an assistant.

(59) Remove front bow (52) from front cargo bed pockets (54).

(60) Position front bow (52) in front cargo bed pockets (54) with front bow brackets (49) towards front of vehicle.

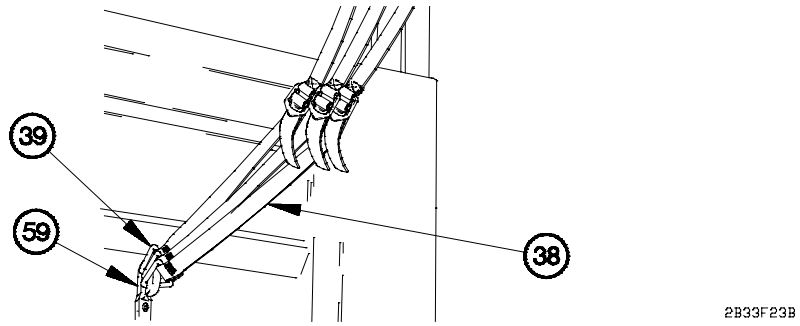
(61) Remove center bow (53) from rear pockets of center cargo bed stakes (55).

(62) Position center bow (53) in center cargo bed pockets (56).

(63) Remove rear bow (51) from rear pockets of rear cargo bed stakes (57).

(64) Position rear bow (51) in rear cargo bed pockets (58) with rear bow brackets (45) towards rear of vehicle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



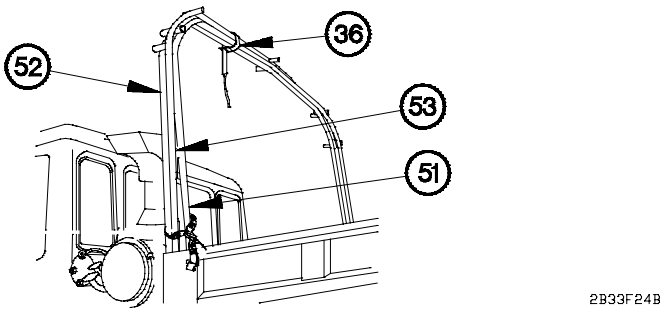
NOTE

Left and right sides of front, center, and rear bows are secured the same way. Right side shown.

(65) Position three tiedown straps (38) on J-hook (59) with three tri-rings (39).

(66) Tighten three tiedown straps (38).

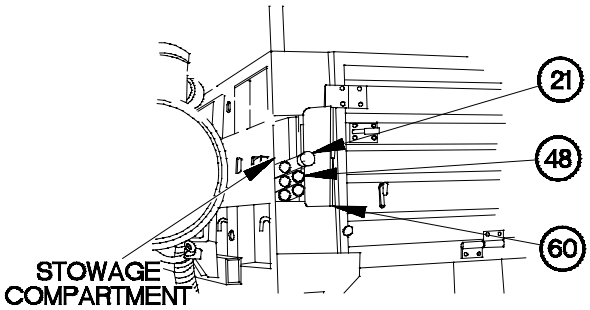
(67) Perform steps (65) and (66) on left side.



NOTE

Stowage strap should be positioned between center bow brackets and left inside bow brackets.

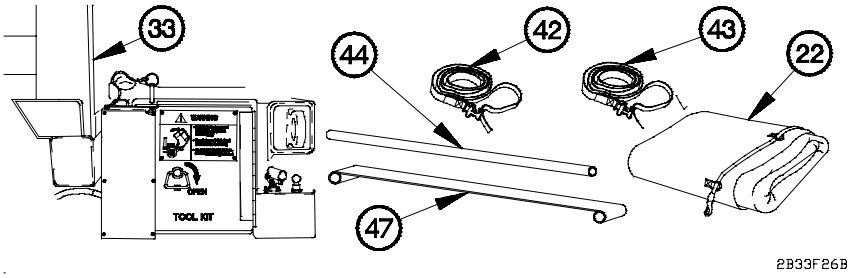
(68) Install stowage strap (36) on front bow (52), center bow (53), and rear bow (51).



(69) Open stowage compartment door (60).

(70) Stow five front tubes (48) and steel pole (21) in stowage compartment.

(71) Close stowage compartment door (60).



WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (72) requires the aid of an assistant.

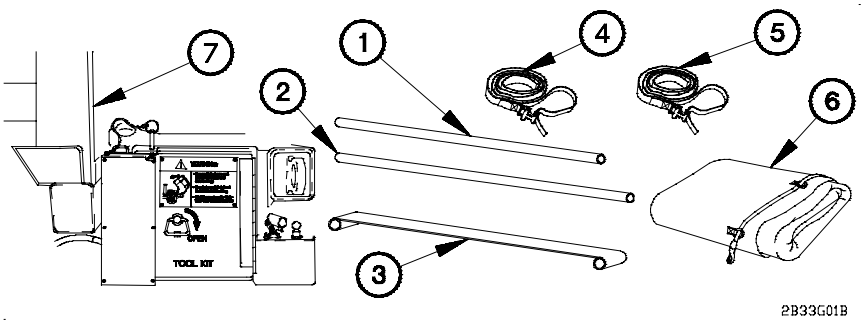
(72) Stow five rear tubes (44), four braces (47), left strap support (42), right strap support (43), and cargo cover (22) in cargo bed (33).

(73) Raise spare tire (para 3-5).

(74) Stow ladder (para 2-32b).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

g. M1085 Soft Top (Steel Bows) Installation.



(1) Lower ladder (para 2-32a).

(2) Lower spare tire (para 3-5).

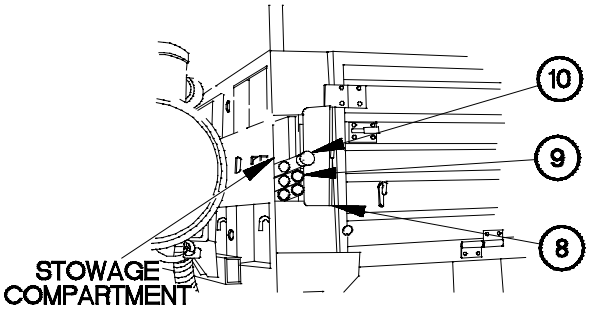
WARNING

Long Wheel Base (LWB) cargo cover weighs approximately 80 lbs (36 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (3) requires the aid of an assistant.

(3) Remove five center tubes (1), rear tubes (2), six braces (3), left strap support (4), right strap support (5), and cargo cover (6) from cargo bed (7).

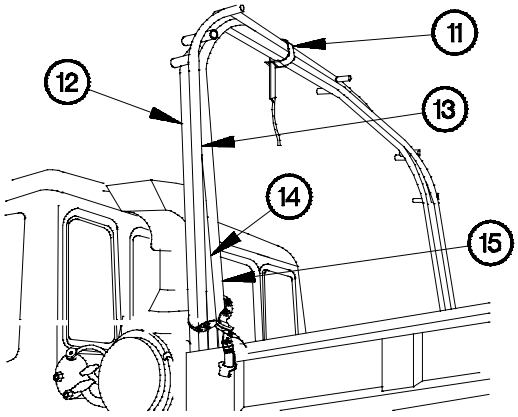


2B33G02B

(4) Open stowage compartment door (8).

(5) Remove five front tubes (9) and steel pole (10) from stowage compartment.

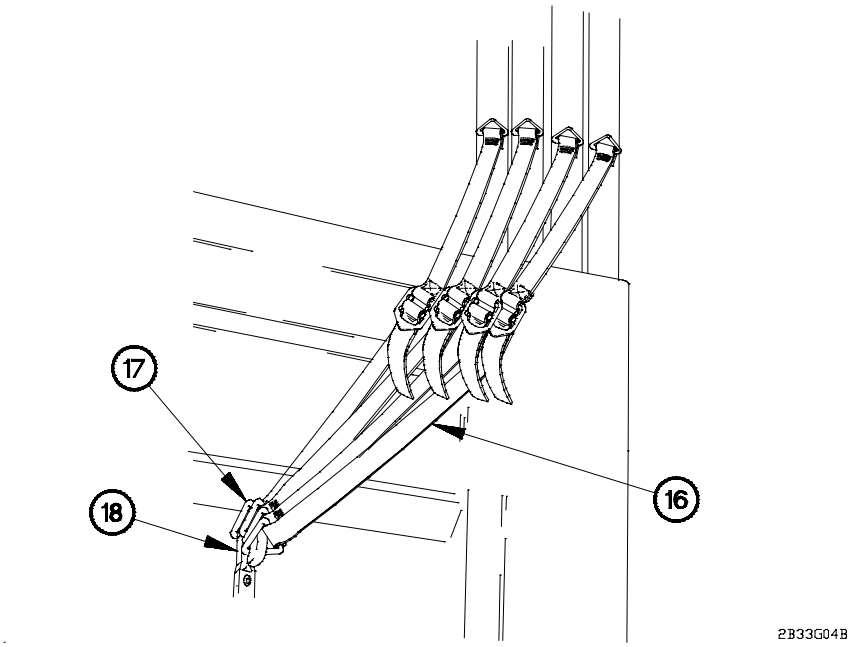
(6) Close stowage compartment door (8).



2B33G03B

(7) Remove stowage strap (11) from front bow (12), front center bow (13), rear center bow (14), and rear bow (15).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



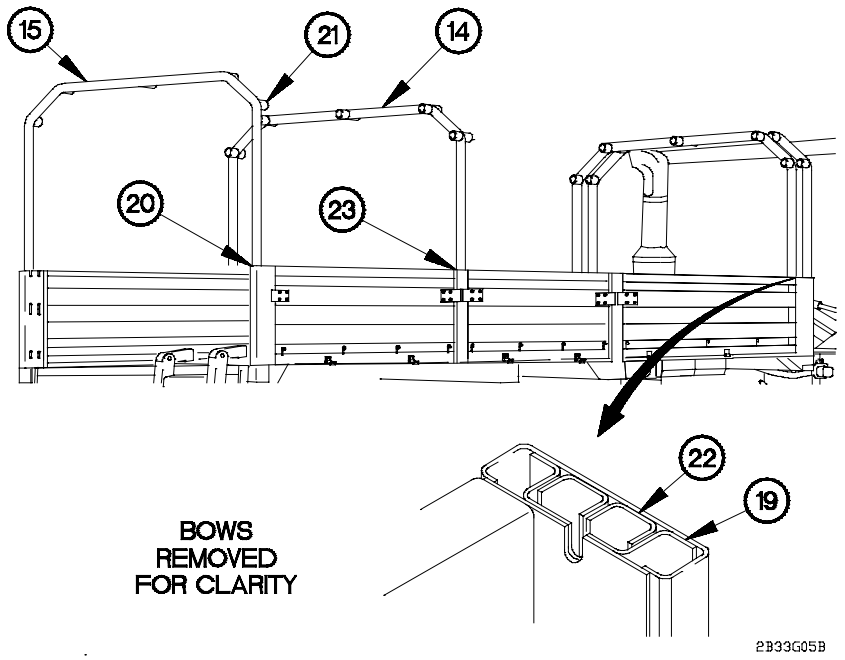
NOTE

Left and right sides of front, center, and rear bows are released the same way. Right side shown.

(8) Loosen four tiedown straps (16).

(9) Remove four tri-rings (17) on tiedown straps (16) from J-hook (18).

(10) Perform steps (8) and (9) on left side.



NOTE

Steps (11) through (18) require the aid of an assistant.

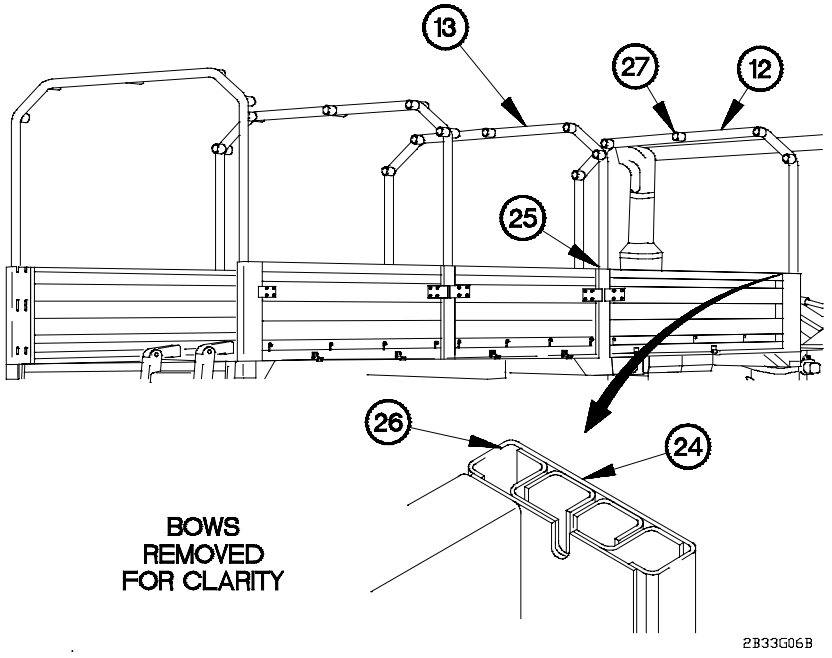
(11) Remove rear bow (15) from rear cargo bed pockets (19).

(12) Position rear bow (15) in rear pockets of rear cargo bed stakes (20) with rear bow brackets (21) towards front of vehicle.

(13) Remove rear center bow (14) from rear center cargo bed pockets (22).

(14) Position rear center bow (14) in front pockets of rear center cargo bed stakes (23).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

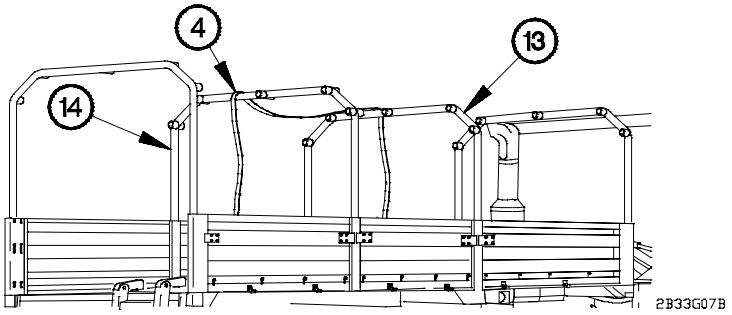


(15) Remove front center bow (13) from front center cargo bed pockets (24).

(16) Position front center bow (13) in front pockets of front center cargo bed stakes (25).

(17) Remove front bow (12) from front cargo bed pockets (26).

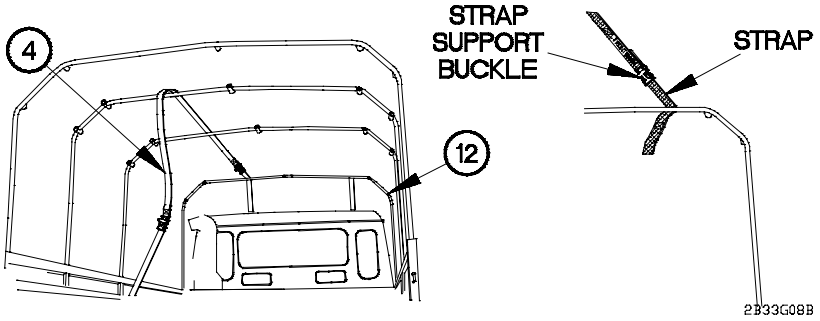
(18) Position front bow (12) in front cargo bed pockets (26) with front bow brackets (27) toward rear of vehicle.



NOTE

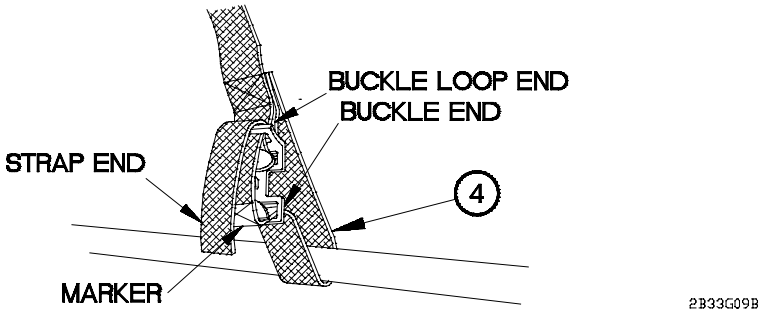
- Strap support is marked with FRONT and an arrow to indicate front bottom of strap support.
- Strap supports are to be centered between front and rear center bow brackets and left and right inside of bow brackets.
- Left and right strap supports are installed the same way. Left strap support shown.

(19) Position left strap support (4) over front center bow (13) and rear center bracket (14).



(20) Position left strap support (4) around front bow (12) and through strap support buckle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

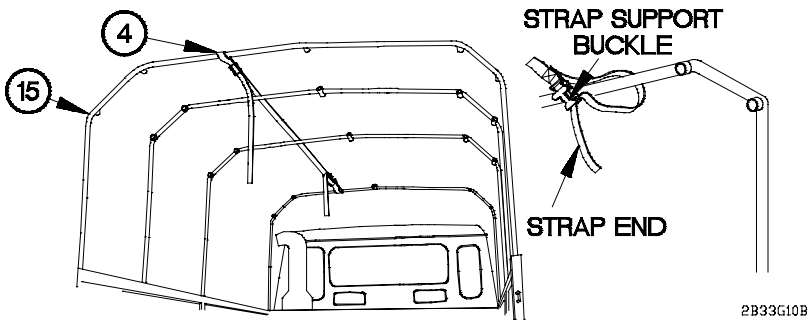


(21) Tighten left strap support (4) until marker is through the buckle end.

CAUTION

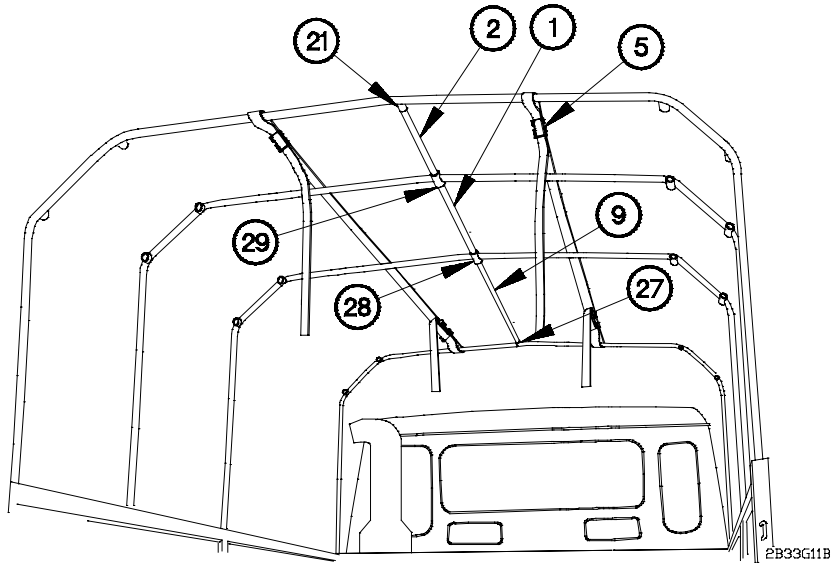
Strap end must be installed in the buckle loop end after strap is tightened. Failure to comply may result in damage to equipment.

(22) Install strap end through buckle loop end on left strap support (4).



(23) Position left strap support (4) around rear bow (15) and through strap support buckle.

(24) Perform steps (19) through (23) on right strap support.



NOTE

Steps (25) through (28) require the aid of an assistant.

(25) Install front tube (9) in front bow bracket (27) and front center bow bracket (28).

(26) Install center tube (1) in front center bow bracket (28) and rear center bow bracket (29).

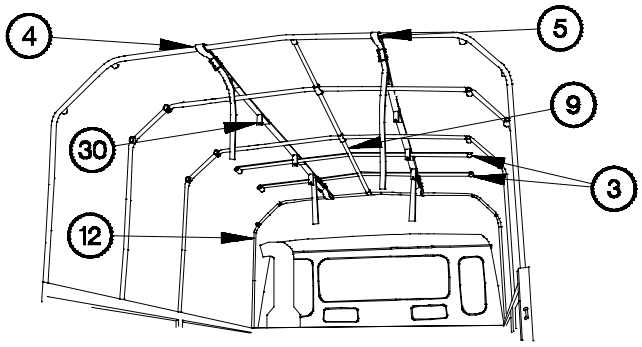
(27) Install rear tube (2) in rear center bow bracket (29) and rear bow bracket (21).

CAUTION

Strap supports must be aligned straight between front bow and rear bow. Failure to comply may result in damage to equipment.

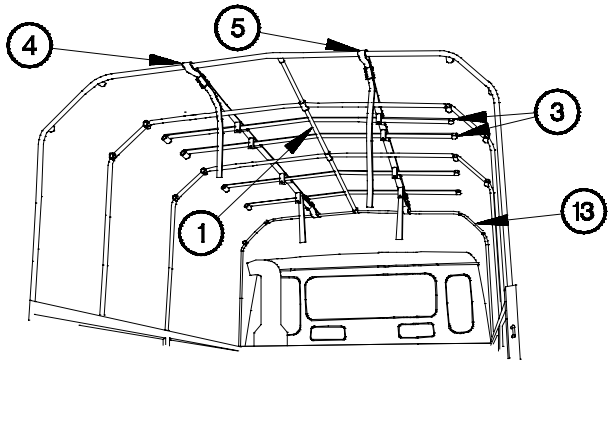
(28) Tighten right rear strap support (5).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

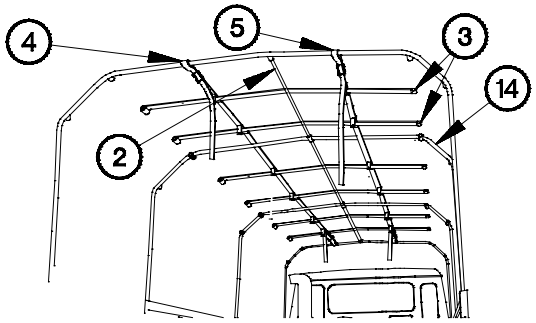


(29) Open six flaps (30) on left strap support (4) and right strap support (5).

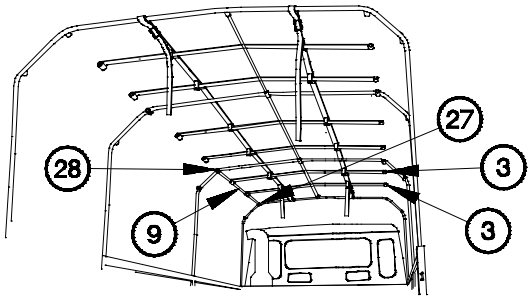
(30) Position two braces (3) over front tube (9) and under left strap support (4) and right strap support (5) with approximately two feet (0.6 m) between front bow (12) and each brace (3).



(31) Position two braces (3) over center tube (1) and under left strap support (4) and right strap support (5) with approximately two feet (0.6 m) between front center bow (13) and each brace (3).



(32) Position two braces (3) over rear tube (2) and under left strap support (4) and right strap support (5) with approximately two feet (0.6 m) between rear center bow (14) and each brace (3).



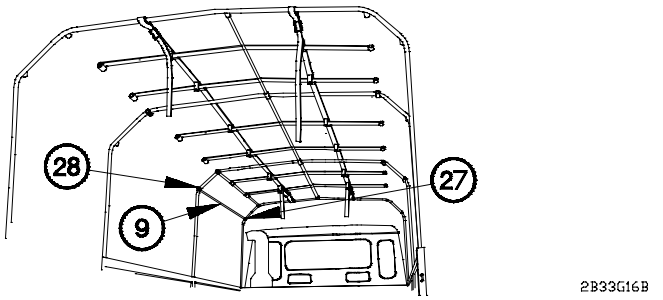
NOTE

- Left and right tubes are installed the same way. Left side tubes shown.
- Steps (33) through (38) require the aid of an assistant.

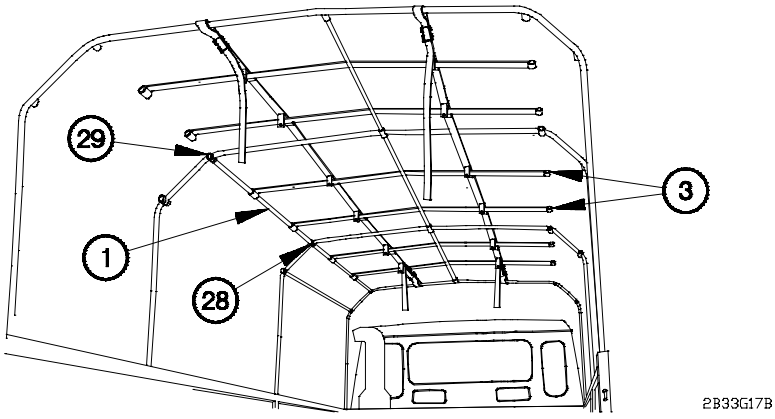
(33) Position front tube (9) through two braces (3).

(34) Install front tube (9) in front bow bracket (27) and front center bow bracket (28).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

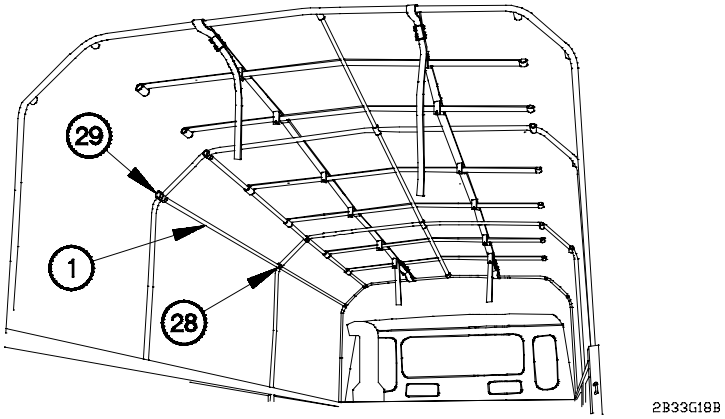


(35) Install front tube (9) in front bow bracket (27) and front center bow bracket (28).

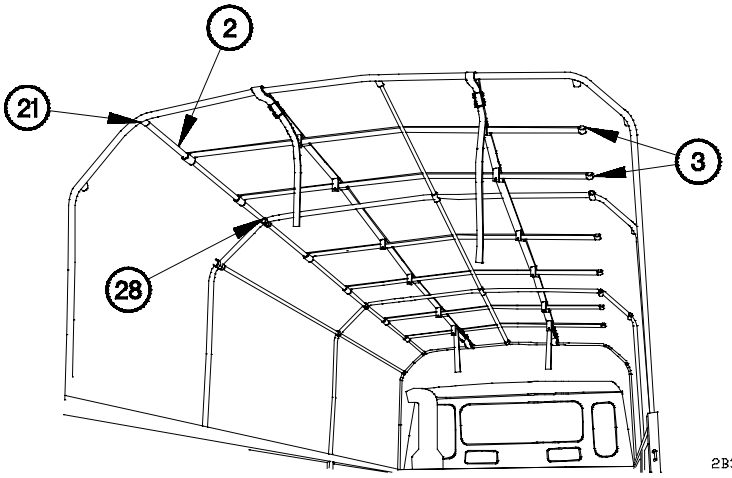


(36) Position center tube (1) through two braces (3).

(37) Install center tube (1) in front center bow bracket (28) and rear center bow bracket (29).



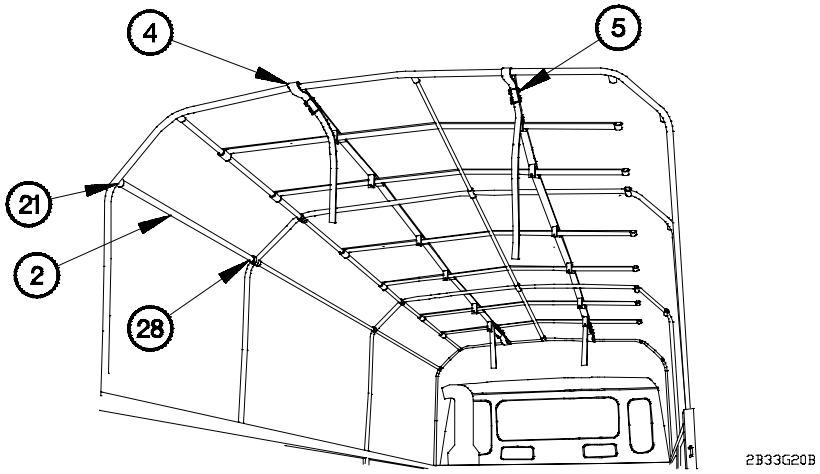
(38) Install center tube (1) in front center bow bracket (28) and rear center bow bracket (29).



(39) Position rear tube (2) through two braces (3).

(40) Install rear tube (2) in rear center bow bracket (28) and rear bow bracket (21).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

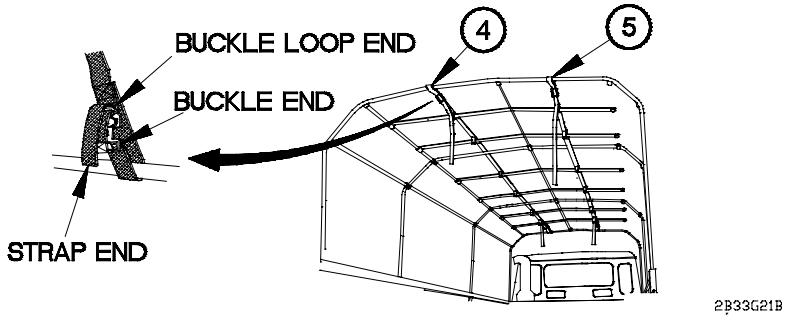


(41) Install rear tube (2) in rear center bow bracket (28) and rear bow bracket (21).

(42) Tighten left rear strap support (4).

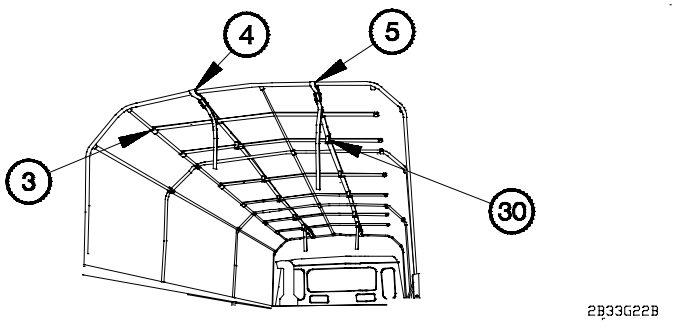
(43) Loosen right rear strap support (5).

(44) Perform steps (33) through (43) on right side tubes.



(45) Tighten right rear strap support (5).

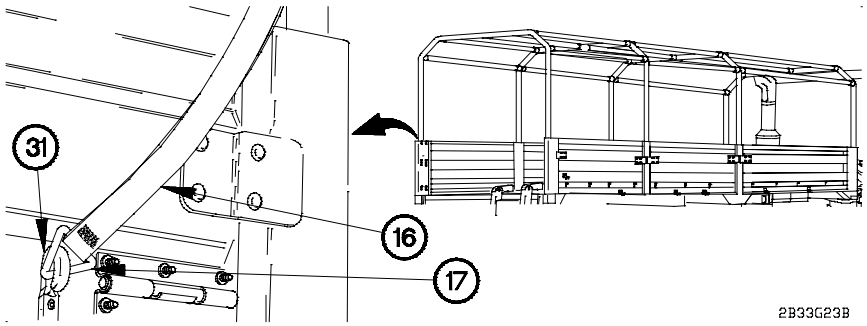
(46) Install two strap ends through buckle loop ends on left strap support (4) and right strap support (5).



NOTE

Adjust braces as needed to snap and attach flaps over braces.

(47) Close six flaps (30) over braces (3) on left strap support (4) and right strap support (5).



NOTE

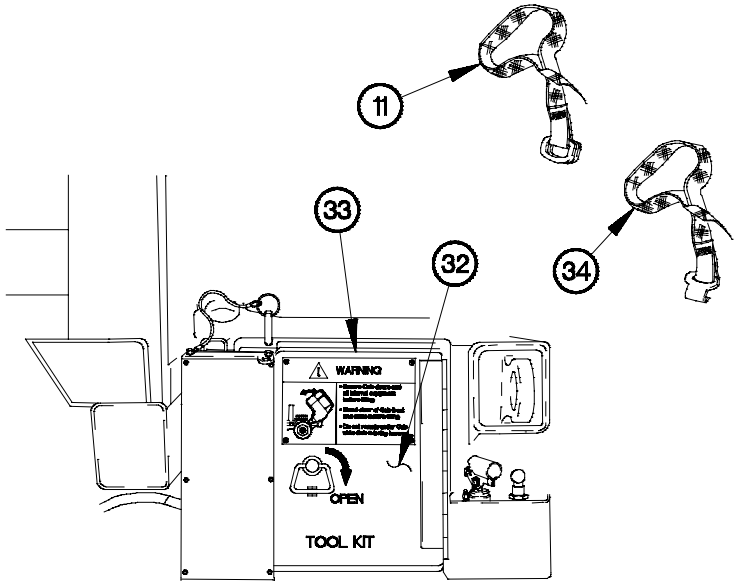
Left and right sides of front, front center, and rear center, rear bows are secured the same way. Rear bow left side shown.

(48) Position tiedown strap (16) on J-hook (31) with tri-ring (17).

(49) Tighten tiedown strap (16).

(50) Perform steps (48) and (49) on remaining tiedown straps.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

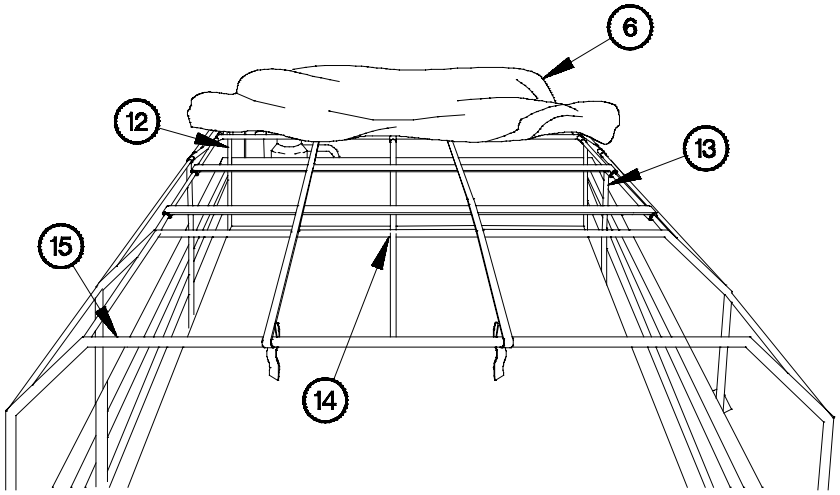


(51) Open door (32) on tool box (33).

(52) Remove three cargo cover tiedowns (34) from tool box (33).

(53) Stow stowage strap (11) in tool box (33).

(54) Close door (32) on tool box (33).



2B33G25B

WARNING

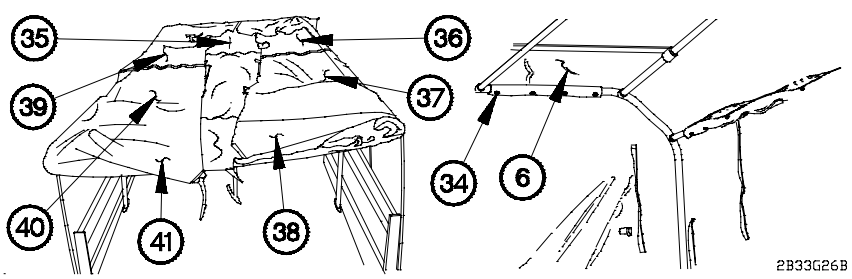
Long Wheel Base (LWB) cargo cover weighs approximately 80 lbs (36 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

- Steps (55) through (57) require the aid of an assistant.
- Cargo cover is marked with FRONT on the front flap.

(55) Position cargo cover (6) on front bow (12), front center bow (13), rear center bow (14), and rear bow (15).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

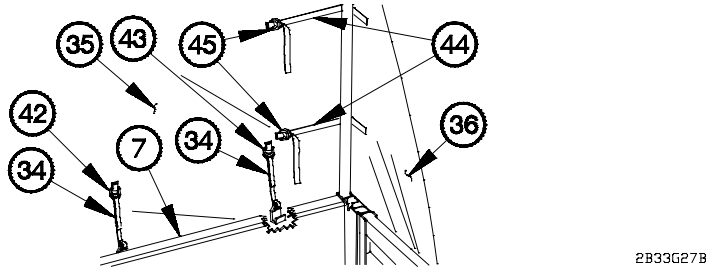


NOTE

Use snap extensions as required.

(56) Fasten snaps (34) on front, rear, sides, and center of cargo cover (6).

(57) Unfold front flap (35), right side front flap (36), right side center flap (37), right side rear flap (38), left side front flap (39), left side center flap (40), and left side rear flap (41).



NOTE

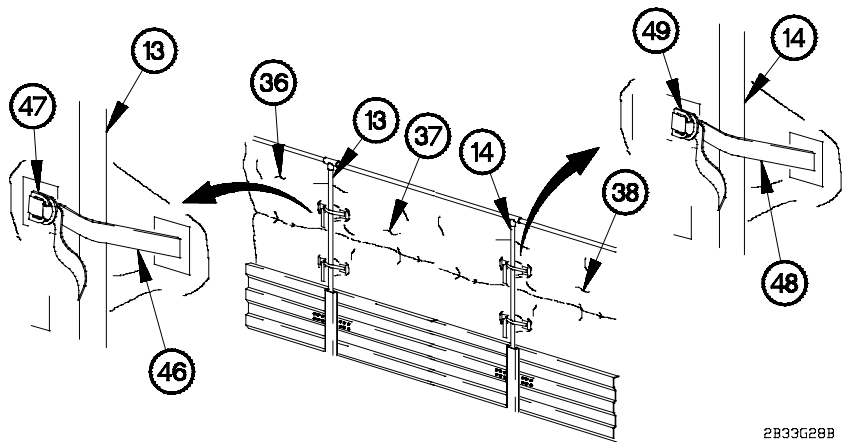
Cargo covers are equipped with either D-rings or buckles and D-rings. Cargo cover with D-rings shown.

(58) Install cargo cover tiedown (34) in center D-ring (42) on front flap (35) with hook end of strap in outside lip of cargo bed (7).

(59) Install cargo cover tiedown (34) in right side D-ring (43) on front flap (35) with hook end of strap in outside lip of cargo bed (7).

(60) Install two straps (44) on right side front flap (36) in two D-rings (45) on front flap (35).

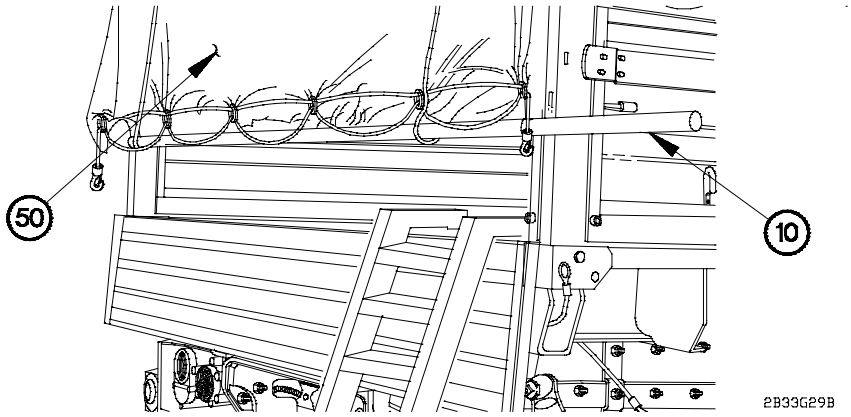
(61) Perform steps (59) and (60) on left side front flap.



(62) Install two straps (46) from right side center flap (37) on inside of front center bow (13) in two D-rings (47) on right side front flap (36).

(63) Install two straps (48) from right side rear flap (38) on inside of rear center bow (14) in two D-rings (49) on right side center flap (37).

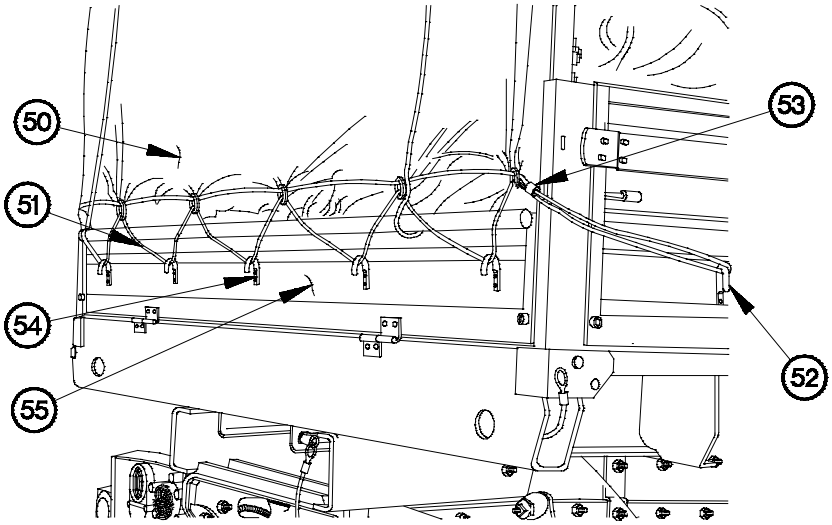
(64) Perform steps (62) and (63) on left side of vehicle.



(65) Unfold rear flap (50).

(66) Position steel pole (10) in lower portion of rear flap (50).

(67) Stow ladder (para 2-32b).



NOTE

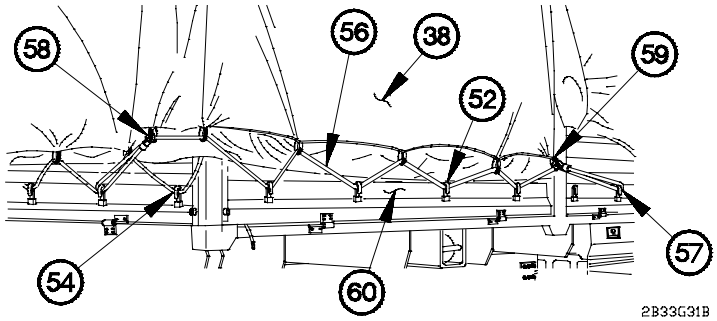
- Cargo cover flaps are equipped with either D-rings or loops and D-rings. Cargo cover flaps with D-rings shown.
- D-rings are attach to lower part of flaps with shock cord placed through D-rings. Shock cord is attached to J-hooks on cargo bed to hold flap down.

(68) Position shock cord (51) on right side of rear flap (50) on J-hook (52) and D-ring (53).

(69) Perform step (68) on left side of vehicle.

(70) Install shock cord (51) on five J-hooks (54) on tailgate (55).

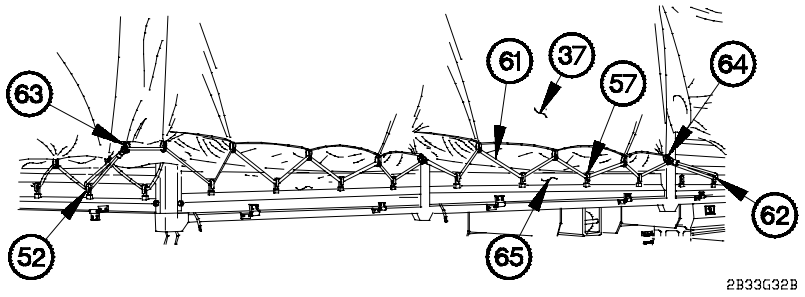
2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(71) Position shock cord (56) on right side rear flap (38) on J-hooks (54 and 57) and D-rings (58 and 59).

(72) Install shock cord (56) on four J-hooks (52) on right rear side panel (60).

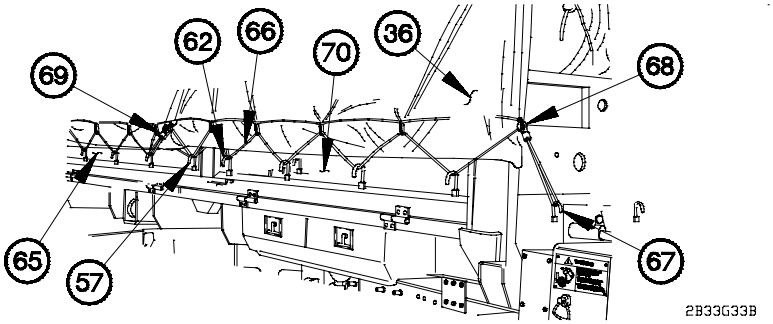
(73) Perform steps (71) and (72) on left side of vehicle.



(74) Position shock cord (61) on right side center flap (37) on J-hooks (52 and 62) and D-rings (63 and 64).

(75) Install shock cord (61) on four J-hooks (57) on right center side panel (65).

(76) Perform steps (74) and (75) on left side of vehicle.

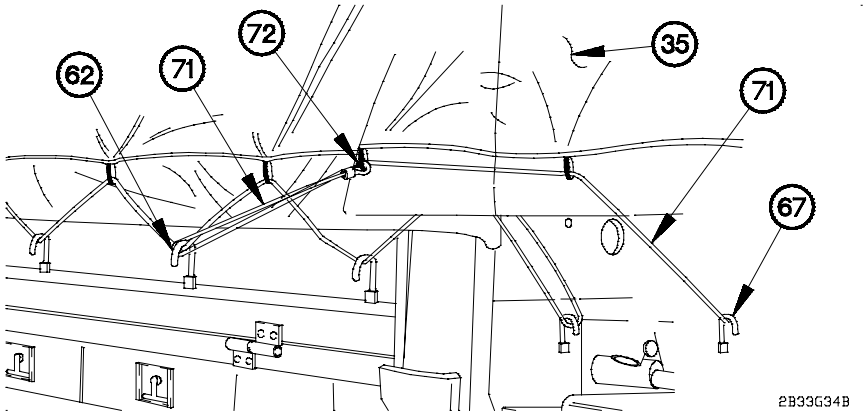


(77) Position shock cord (66) on right side front flap (36) on J-hook (67) and D-ring (68).

(78) Position shock cord (66) on right side front flap (36) on J-hook (57) and D-ring (69).

(79) Install shock cord (66) on four J-hooks (62) on right front side panel (70) and J-hook (57) on right center side panel (65).

(80) Perform steps (77) through (79) on left side of vehicle.



(81) Install shock cord (71) on right side of front flap (35) on J-hook (67).

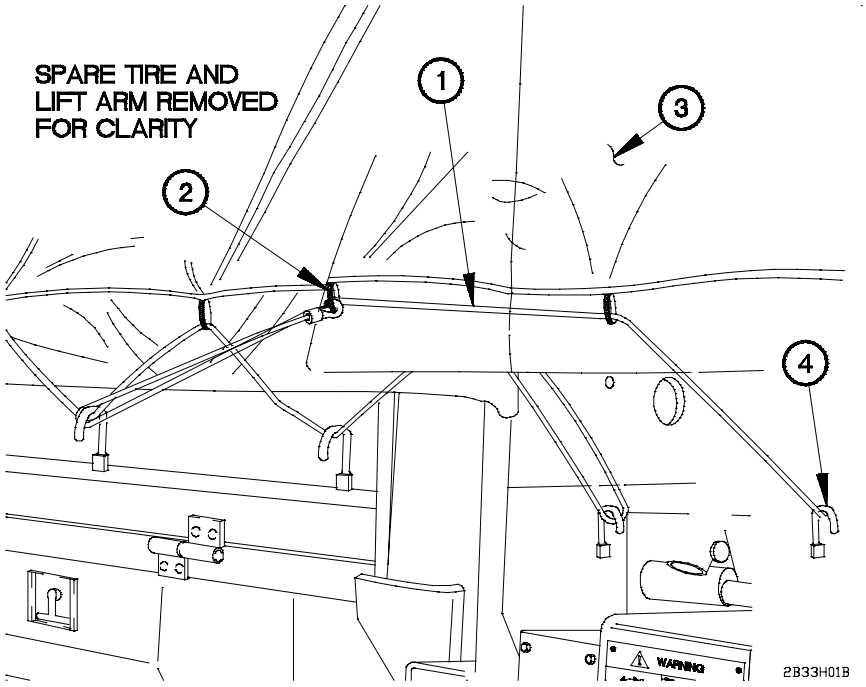
(82) Install shock cord (71) on right side of front flap (35) on J-hook (62) and D-ring (72).

(83) Perform steps (81) and (82) on left side of vehicle.

(84) Raise spare tire (para 3-5).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

h. M1085 Soft Top (Steel Bows) Removal.



(1) Lower spare tire (para 3-5).

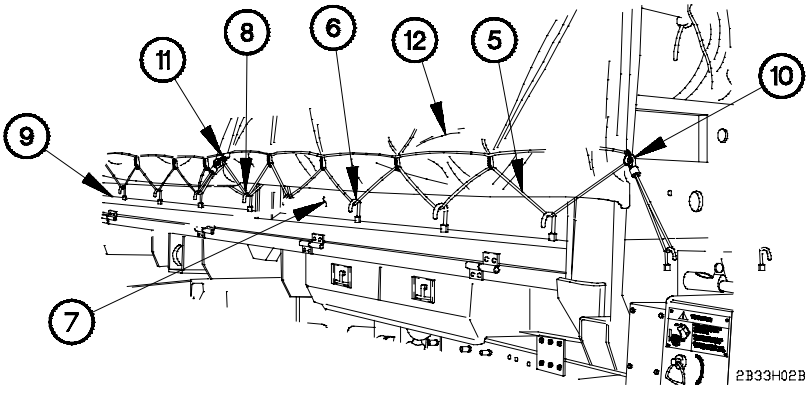
NOTE

- Cargo cover flaps are equipped with either D-rings or loops and D-rings. Cargo cover flaps with D-rings shown.
- Steps (2) through (32) require the aid of an assistant.

(2) Remove shock cord (1) from D-ring (2) on right side of front flap (3).

(3) Remove shock cord (1) from J-hook (4).

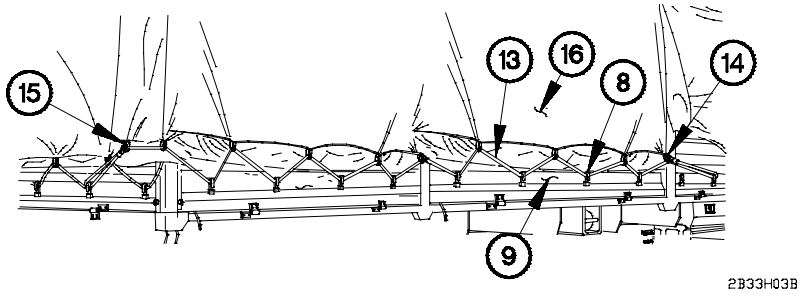
(4) Perform steps (2) and (3) on left side of front flap.



(5) Remove shock cord (5) from four J-hooks (6) on right front side panel (7) and J-hook (8) on right center side panel (9).

(6) Remove shock cord (5) from D-rings (10 and 11) on right side front flap (12).

(7) Perform steps (5) and (6) on left side front flap.

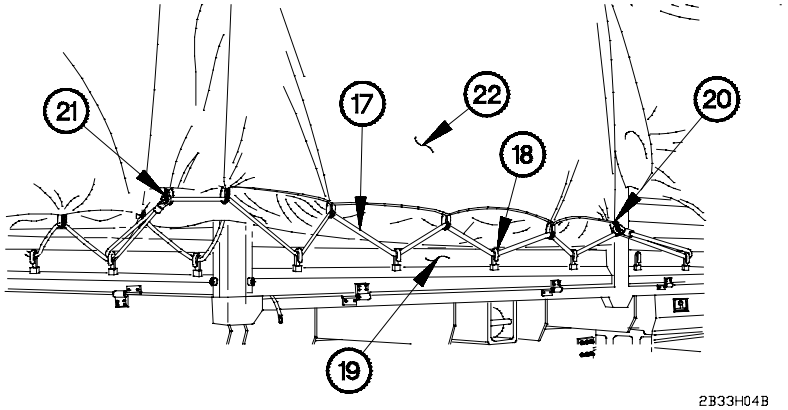


(8) Remove shock cord (13) from four J-hooks (8) on right center side panel (9).

(9) Remove shock cord (13) from D-rings (14 and 15) on right side center flap (16).

(10) Perform steps (8) and (9) on left side center flap.

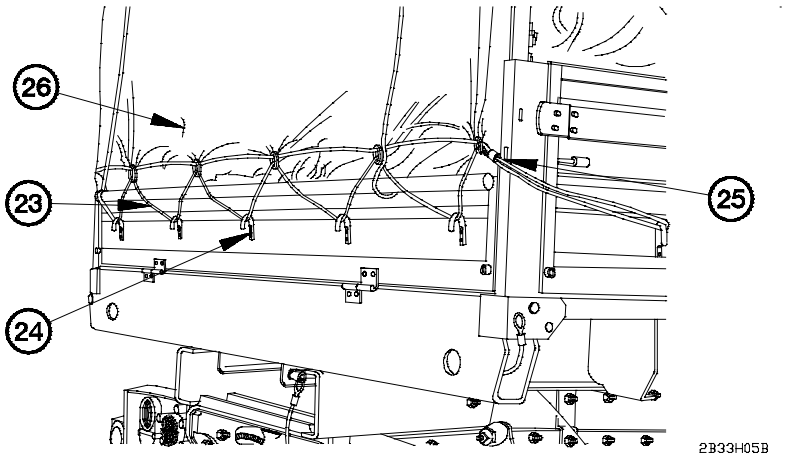
2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(11) Remove shock cord (17) from four J-hooks (18) on right rear side panel (19).

(12) Remove shock cord (17) from D-rings (20 and 21) on right side rear flap (22).

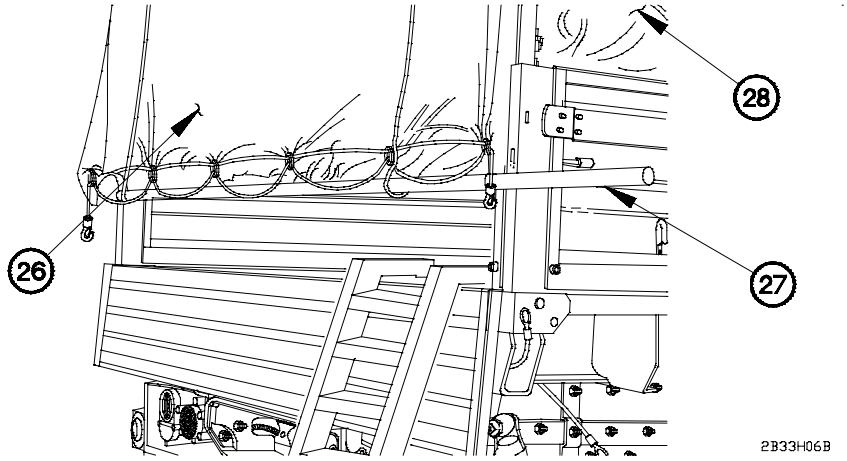
(13) Perform steps (11) and (12) on left side rear flap.



(14) Remove shock cord (23) from five J-hooks (24).

(15) Remove shock cord (23) from D-ring (25) on rear flap (26).

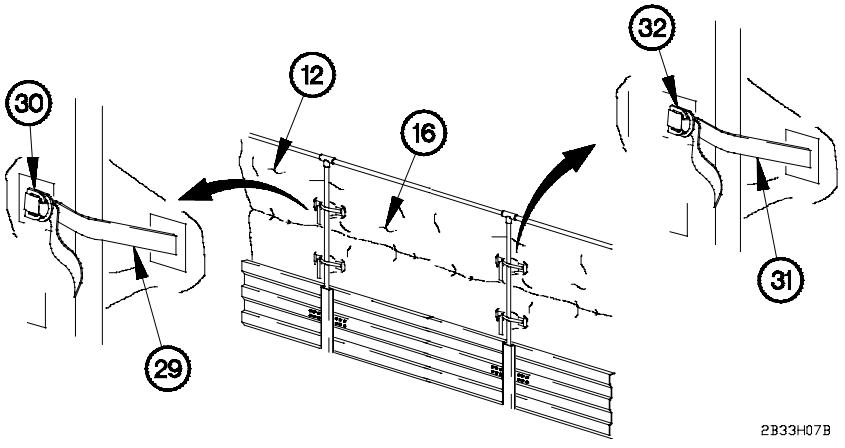
(16) Perform step (15) on left side of vehicle.



(17) Lower ladder (para 2-32a).

(18) Remove steel pole (27) from rear flap (26).

(19) Fold rear flap (26) on top of cargo cover (28).

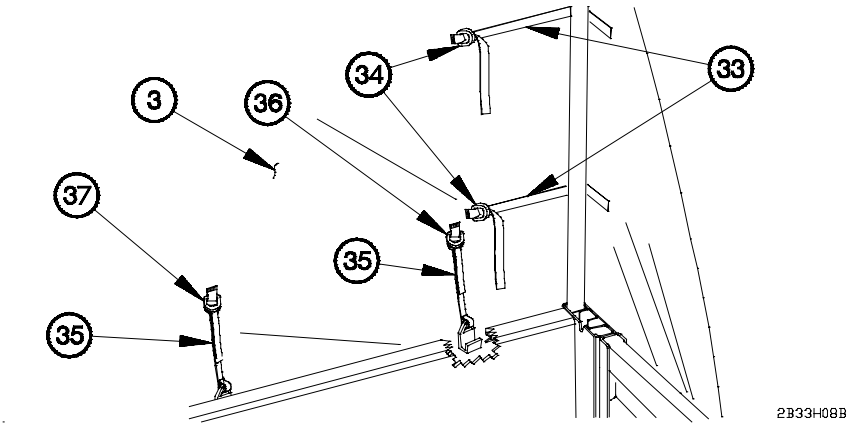


(20) Remove two straps (29) from D-rings (30) on right side front flap (12).

(21) Remove two straps (31) from D-rings (32) on right side center flap (16).

(22) Perform steps (20) and (21) on left side of vehicle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

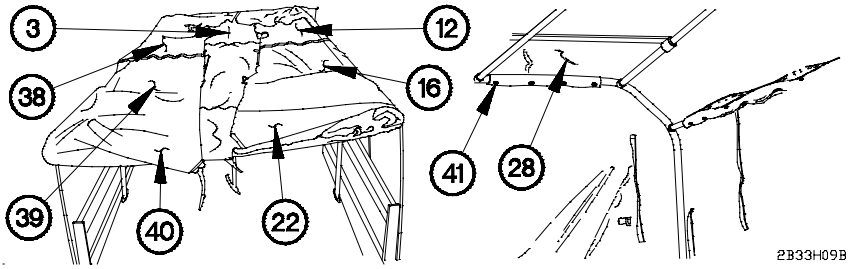


(23) Remove two straps (33) from D-rings (34) on right side of front flap (3).

(24) Remove cargo cover tiedown (35) from right side D-ring (36) on front flap (3).

(25) Perform steps (23) and (24) on left side of front flap.

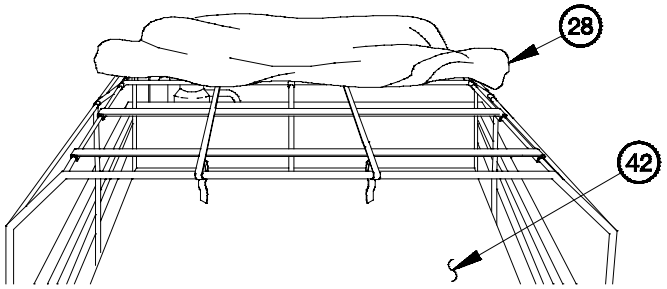
(26) Remove cargo cover tiedown (35) from center D-ring (37) on front flap (3).



(27) Fold front flap (3), right side front flap (12), right side center flap (16), right side rear flap (22), left side front flap (38), left side center flap (39), and left side rear flap (40) on top of cargo cover (28).

(28) Unfasten snaps (41) on front, rear, sides, and center of cargo cover (28).

(29) Fold cargo cover (28) to front of vehicle.



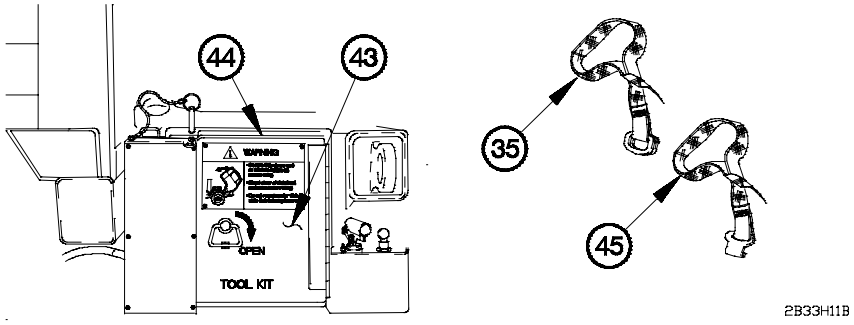
(30) Fold right side of cargo cover (28) toward center of cargo bed (42).

(31) Fold left side of cargo cover (28) toward center of cargo bed (42).

WARNING

Long Wheel Base (LWB) cargo cover weighs approximately 80 lbs (36 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

(32) Remove cargo cover (28) from vehicle.



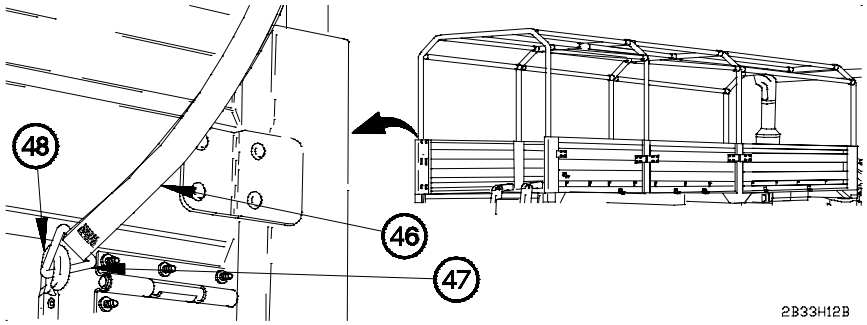
(33) Open door (43) on tool box (44).

(34) Remove stowage strap (45) from tool box (44).

(35) Stow three cargo cover tiedowns (35) in tool box (44).

(36) Close door (43) on tool box (44).

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



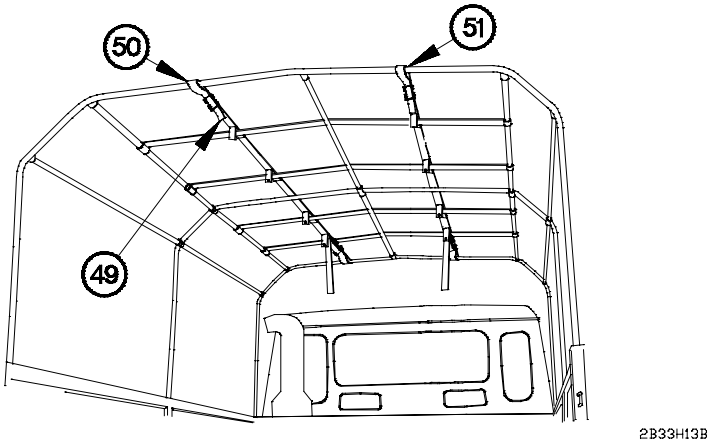
NOTE

Left and right sides of front, front center, rear center, and rear bows are unsecured the same way. Rear bow left side shown.

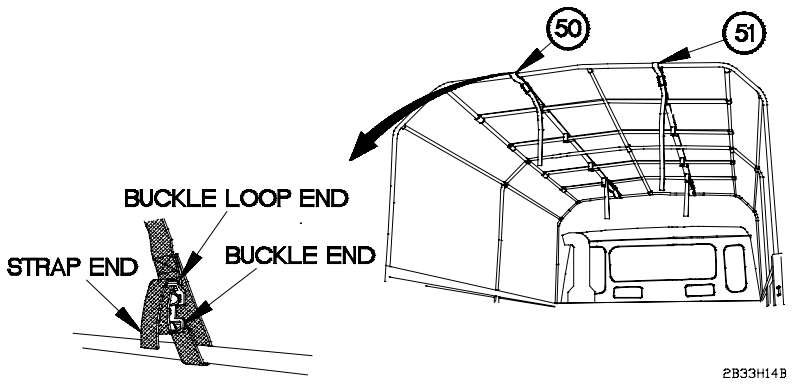
(37) Loosen tiedown strap (46).

(38) Remove tri-ring (47) on tiedown strap (46) from J-hook (48).

(39) Perform steps (37) and (38) on remaining tiedown straps.

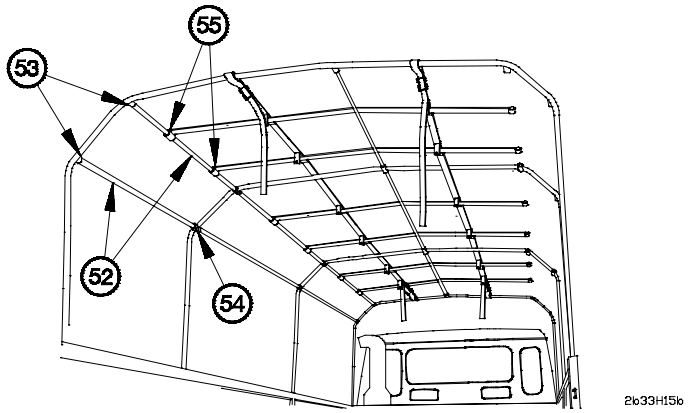


(40) Open six flaps (49) on left strap support (50) and right strap support (51).



(41) Remove two rear strap ends from buckle loop ends on left strap support (50) and right strap support (51).

(42) Loosen left rear strap support (50).



NOTE

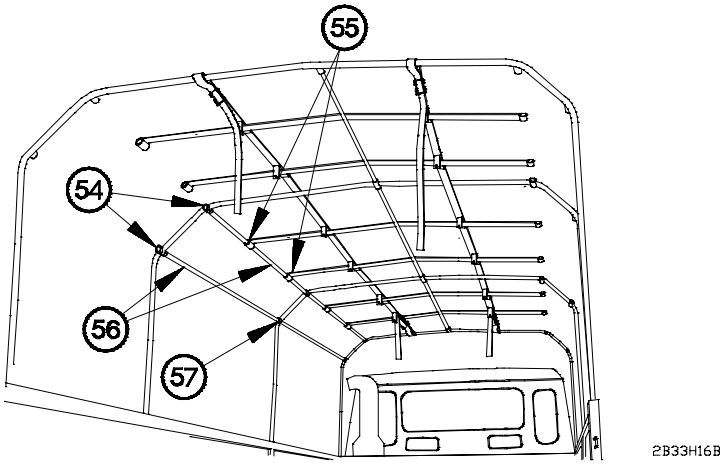
- Left and right tubes are removed the same way. Left side tubes shown.
- Steps (43) through (53) require the aid of an assistant.

(43) Remove rear tube (52) from rear bow bracket (53) and rear center bow bracket (54).

(44) Remove rear tube (52) from rear bow bracket (53) and rear center bow bracket (54).

(45) Remove rear tube (52) from two braces (55).

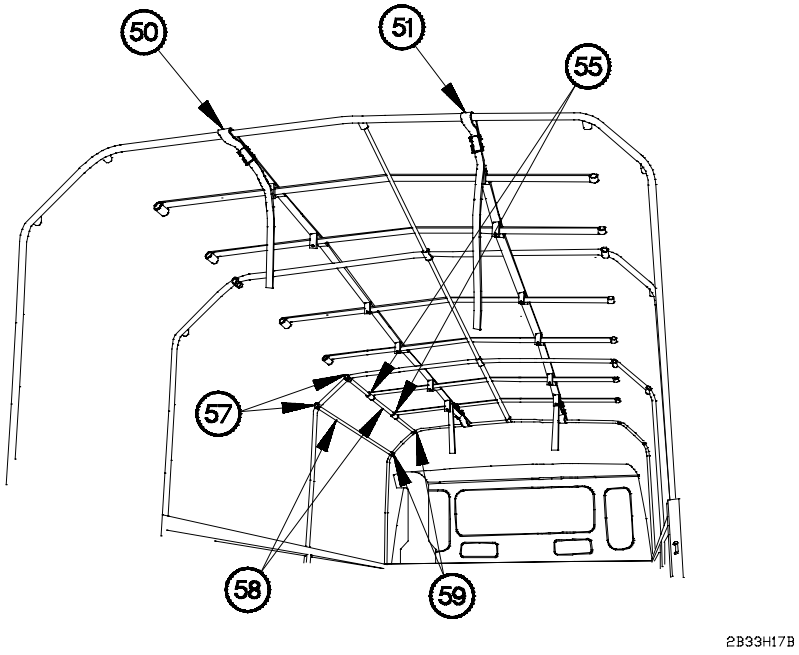
2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(46) Remove center tube (56) from rear center bow bracket (54) and front center bow bracket (57).

(47) Remove center tube (56) from rear center bow bracket (54) and front center bow bracket (57).

(48) Remove center tube (56) from two braces (55).



(49) Remove front tube (58) from front bow bracket (59) and front center bow bracket (57).

(50) Remove front tube (58) from front bow bracket (59) and front center bow bracket (57).

(51) Remove front tube (58) from two braces (55).

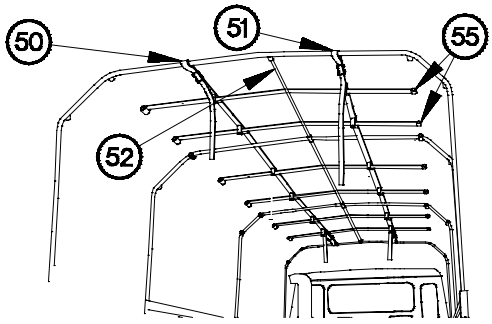
(52) Tighten left rear strap support (50).

(53) Loosen right rear strap support (51).

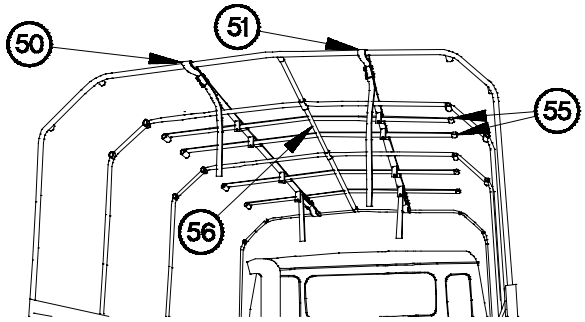
(54) Perform steps (43) through (53) on right side tubes.

(55) Tighten right rear strap support (51).

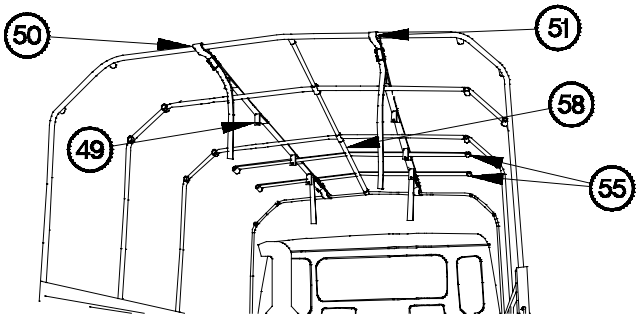
2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



(56) Remove two braces (55) from rear tube (52), left strap support (50), and right strap support (51).

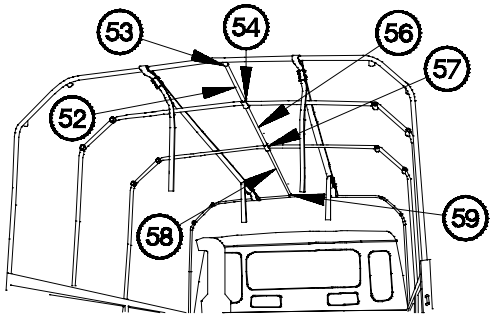


(57) Remove two braces (55) from center tube (56), left strap support (50), and right strap support (51).



(58) Remove two braces (55) from front tube (58), left strap support (50), and right strap support (51).

(59) Close six flaps (49) on left strap support (50) and right strap support (51).



NOTE

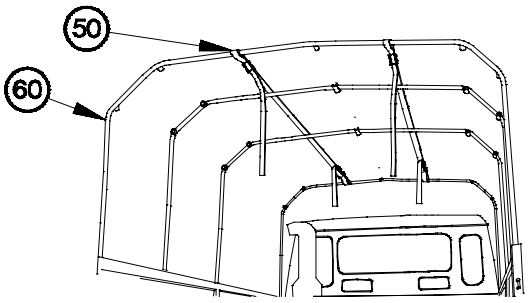
Steps (60) through (62) require the aid of an assistant.

(60) Remove rear tube (52) from rear bow bracket (53) and rear center bow bracket (54).

(61) Remove center tube (56) from rear center bow bracket (54) and front center bow bracket (57).

(62) Remove front tube (58) from front center bow bracket (57) and front bow bracket (59).

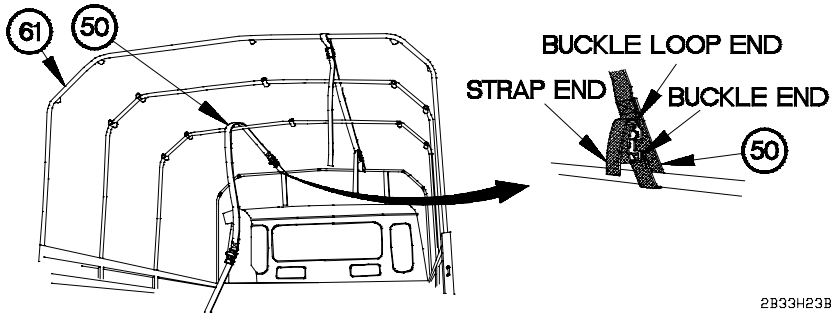
2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



NOTE

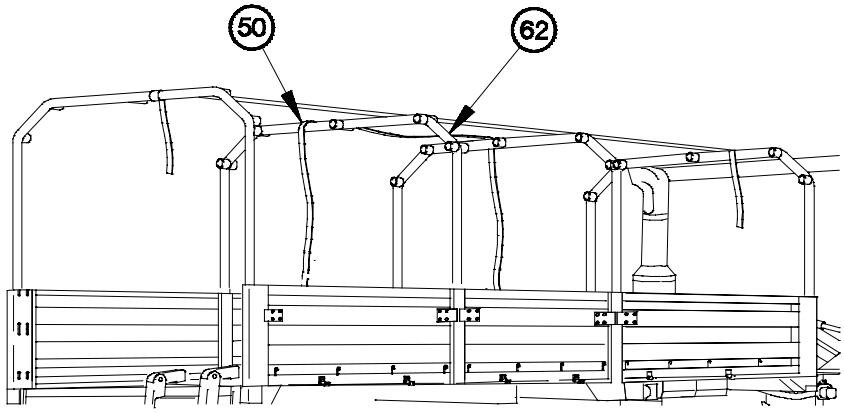
Left and right strap supports are removed the same way. Left strap support shown.

(63) Remove left strap support (50) from rear bow (60).



(64) Remove front strap end from buckle loop end on left strap support (50).

(65) Remove left strap support from front bow (61).

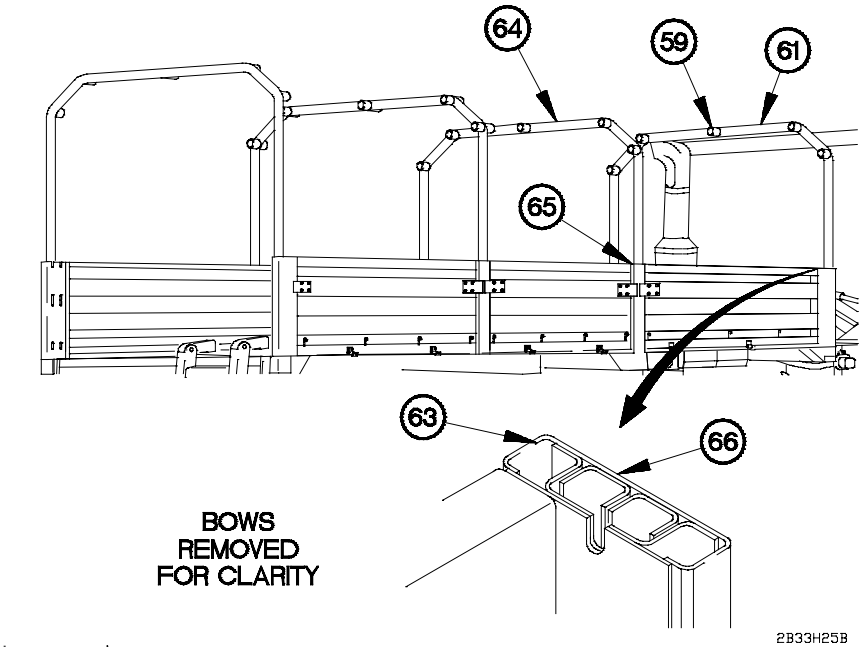


2B33H24B

(66) Remove left strap support (50) from rear center bow (62).

(67) Perform steps (63) through (66) on right strap support.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



NOTE

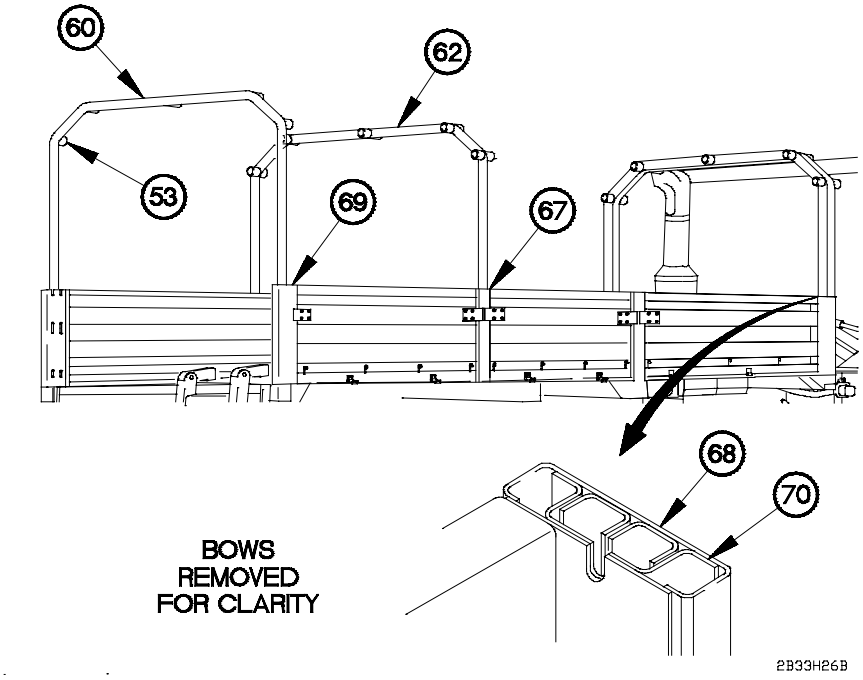
Steps (68) through (75) require the aid of an assistant.

(68) Remove front bow (61) from front cargo bed pockets (63).

(69) Position front bow (61) in front cargo bed pockets (63) with front bow brackets (59) towards front of vehicle.

(70) Remove front center bow (64) from front pockets of front center cargo bed stakes (65).

(71) Position front center bow (64) in front center cargo bed pockets (66).



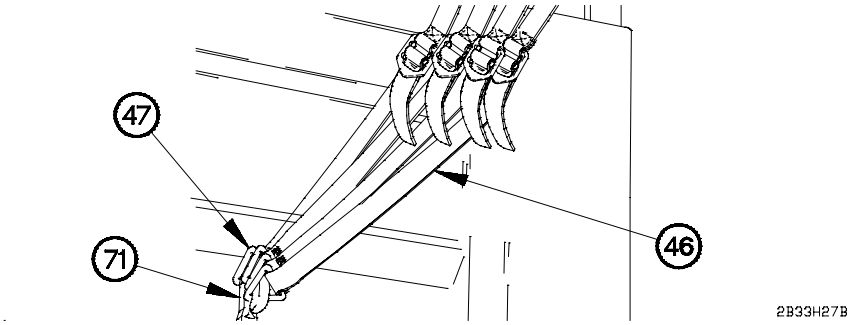
(72) Remove rear center bow (62) from front pockets of rear center cargo bed stakes (67).

(73) Position rear center bow (62) in rear center cargo bed pockets (68).

(74) Remove rear bow (60) from rear pockets of rear cargo bed stakes (69).

(75) Position rear bow (60) in rear cargo bed pockets (70) with rear bow brackets (53) towards rear of vehicle.

2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)



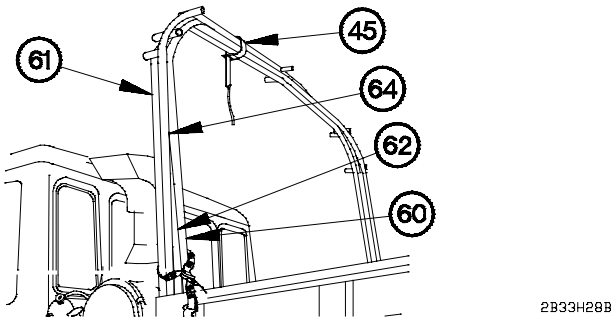
NOTE

Left and right sides of front, front center, rear center, and rear bows are secured the same way. Right side shown.

(76) Position four tiedown straps (46) on J-hook (71) with four tri-rings (47).

(77) Tighten four tiedown straps (46).

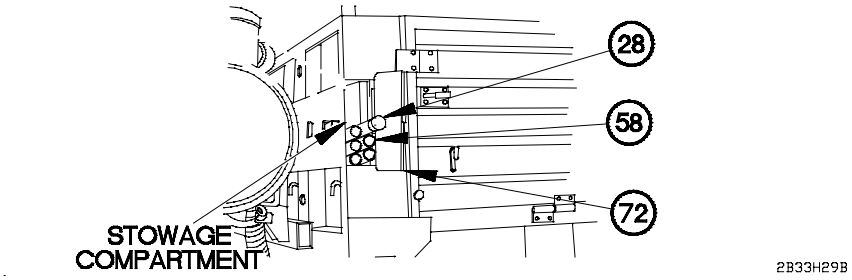
(78) Perform steps (76) and (77) on left side.



NOTE

Stowage strap should be positioned between center bow brackets and left inside bow brackets.

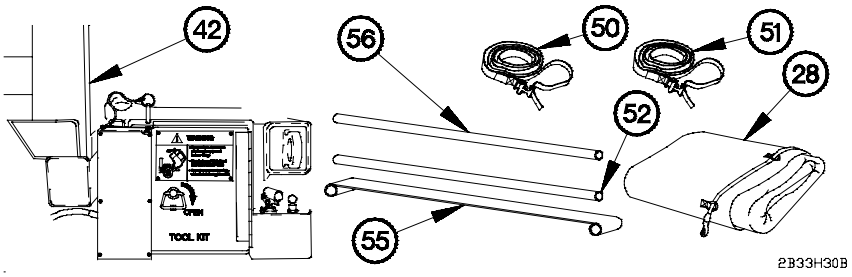
(79) Install stowage strap (45) on front bow (61), front center bow (64), rear center bow (62), and rear bow (60).



(80) Open stowage compartment door (72).

(81) Stow five front tubes (58) and steel pole (28) in stowage compartment.

(82) Close stowage compartment door (72).



WARNING

Long Wheel Base (LWB) cargo cover weighs approximately 80 lbs (36 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (83) requires the aid of an assistant.

(83) Stow five rear tubes (52), center tubes (56), six braces (55), left strap support (50), right strap support (51), and cargo cover (28) in cargo bed (42).

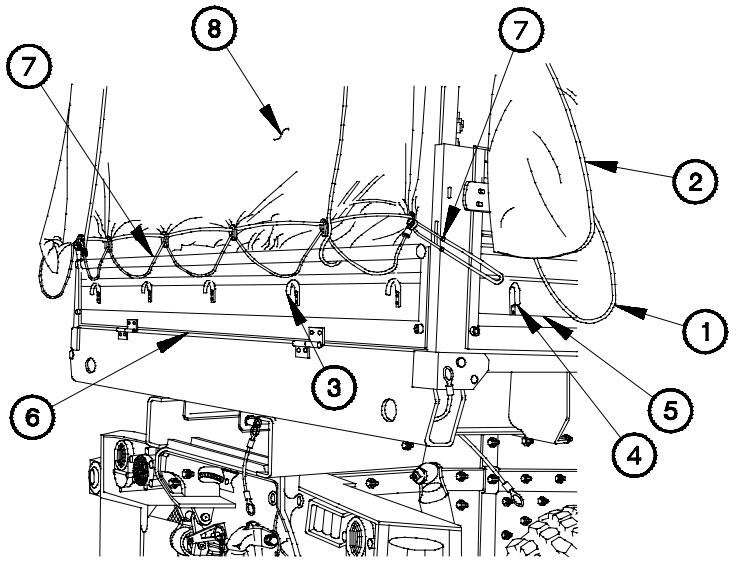
2-33. CARGO COVER KIT INSTALLATION/REMOVAL (CONT)

(84) Raise spare tire (para 3-5).

(85) Stow ladder (para 2-32b).

2-34. CARGO COVER FLAP OPERATION

a. Raising Rear Flap.



2B34A011

NOTE

Left and right side rear flaps are disconnected the same way. Right side rear flap shown.

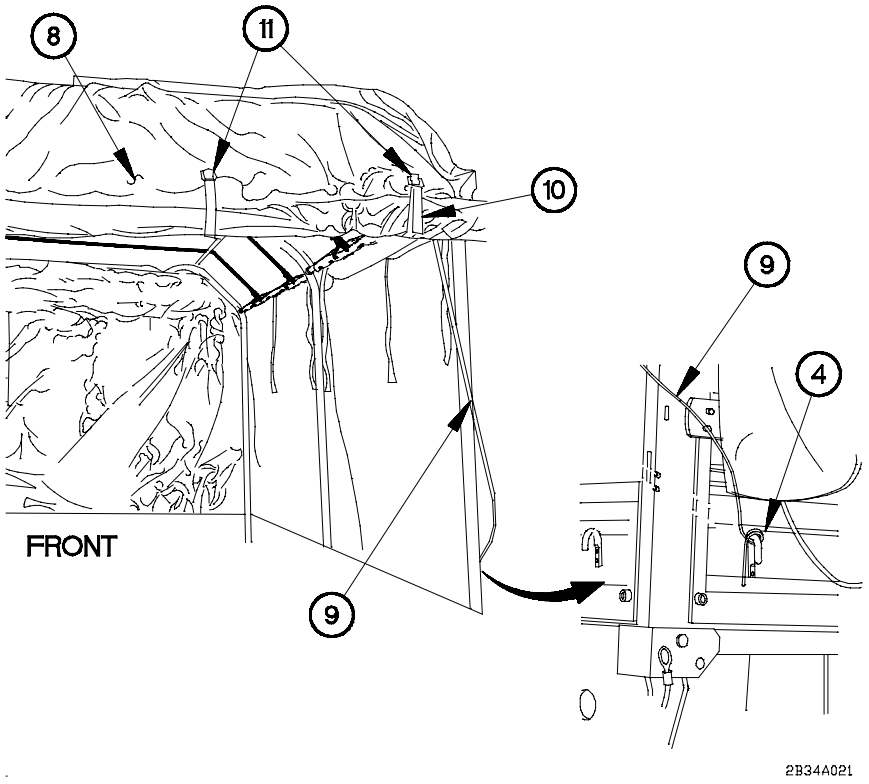
(1) Remove shock cord (1) on right side rear flap (2) from J-hooks (3 and 4) on right side rear panel (5) and tailgate (6).

(2) Remove shock cord (7) on right side of rear flap (8) from J-hook (4) on right side rear panel (5).

(3) Perform steps (1 and 2) on left side of rear flap.

(4) Remove shock cord (7) from five J-hooks (3) on tailgate (6).

(5) Lower ladder (para 2-32a).



NOTE

Steps (6) through (9) are performed from inside cargo bed.

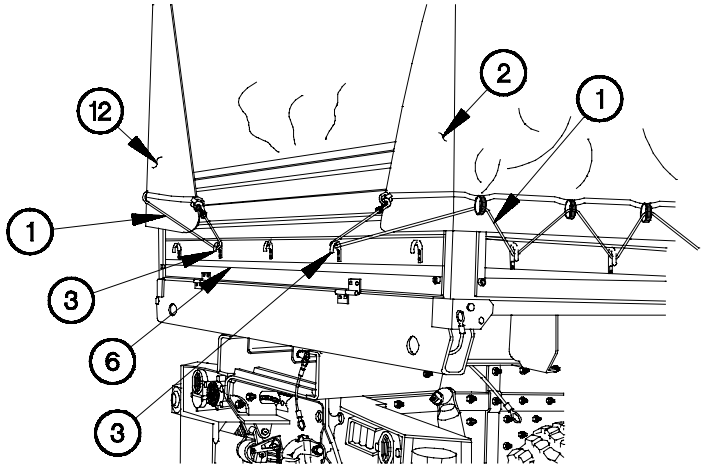
(6) Pull draw string (9) to raise rear flap (8).

(7) Tie draw string (9) to J-hook (4).

(8) Install five straps (10) around rear flap (8) to five D-rings (11).

(9) Stow ladder (para 2-32c).

2-34. CARGO COVER FLAP OPERATION (CONT)



2B34A031

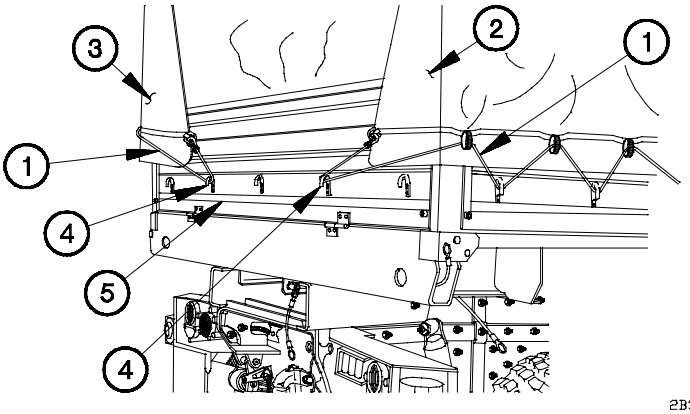
(10) Pull right side rear flap (2) over tailgate (6).

(11) Position shock cord (1) on J-hook (3).

(12) Pull left side rear flap (12) over tailgate (6).

(13) Position shock cord (1) on J-hook (3).

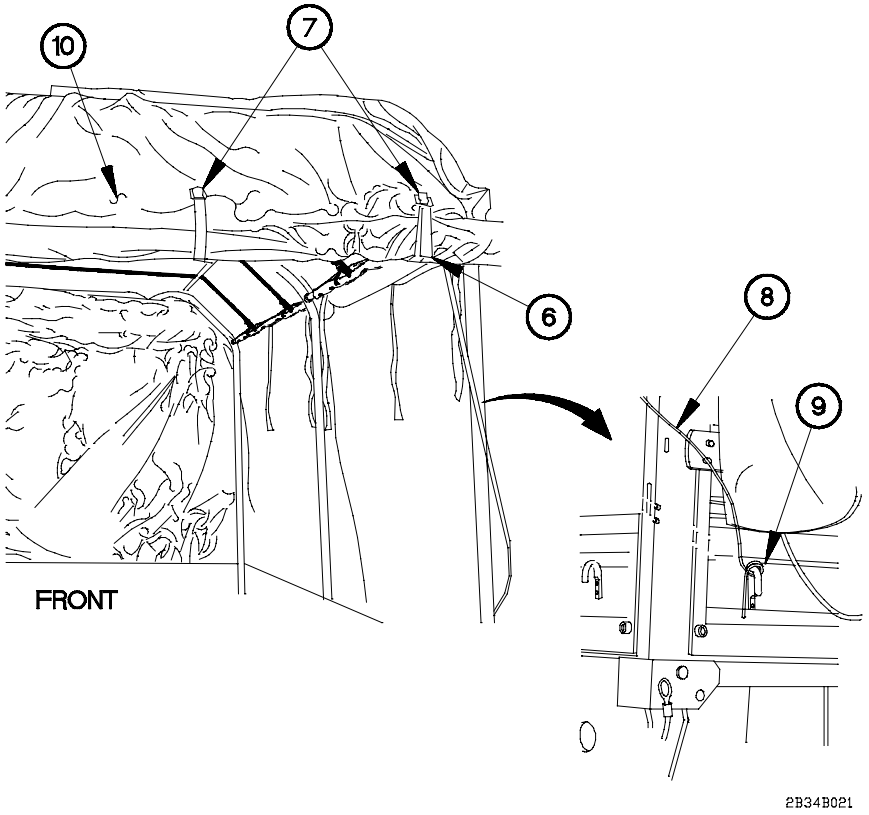
b. Lowering Rear Flap.



2B34B011

(1) Remove two shock cords (1) on right and left side rear flaps (2 and 3) from two J-hooks (4) on tailgate (5).

(2) Lower ladder (para 2-32a).



NOTE

Steps (3) through (5) are performed inside cargo bed.

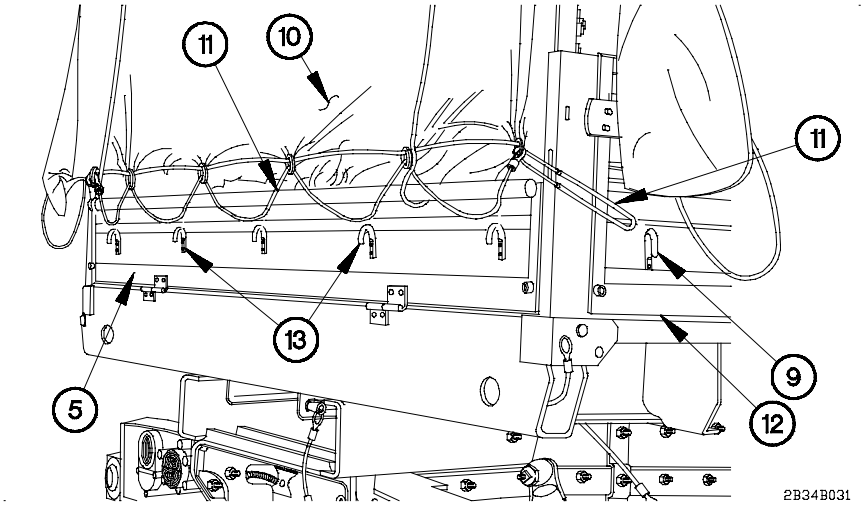
(3) Disconnect five straps (6) from D-rings (7).

(4) Remove draw string (8) from J-hook (9).

(5) Lower rear flap (10) with draw string (8).

(6) Stow ladder (para 2-32c).

2-34. CARGO COVER FLAP OPERATION (CONT)

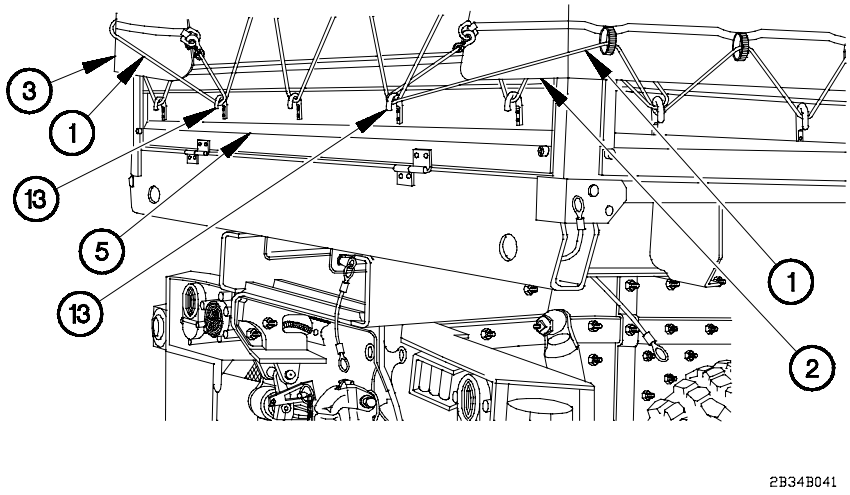


NOTE

Right and left side rear flaps are installed the same way. Right side shown.

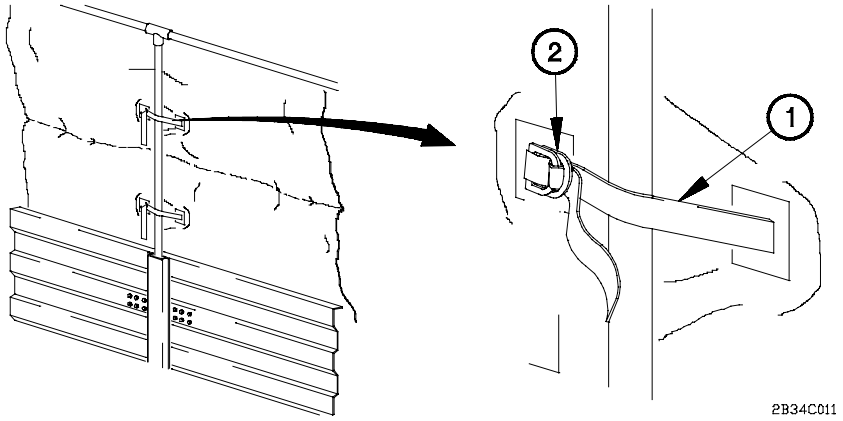
(7) Install shock cord (11) on rear flap (10) to J-hook (9) on right and left side rear panels (12).

(8) Install shock cord (11) on five J-hooks (13) on tailgate (5).



(9) Install shock cord (1) from right and left side rear flaps (2 and 3) on two J-hooks (13) on tailgate (5).

c. Raising Side Flaps.

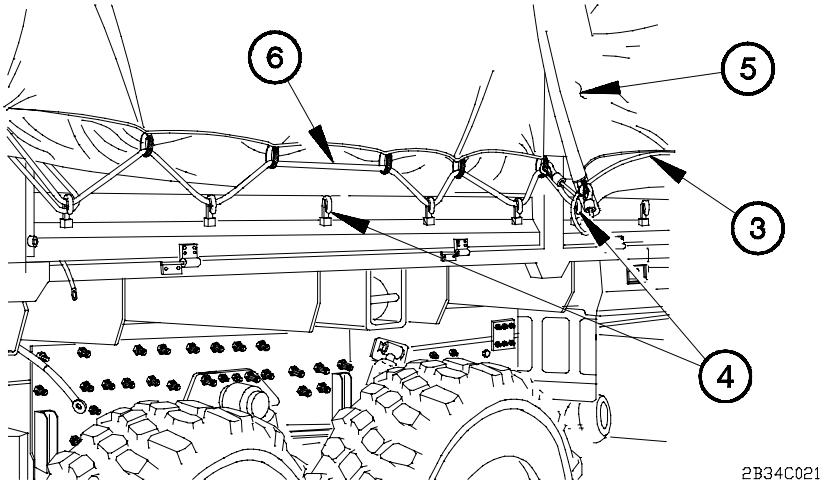


(1) Raise rear flap (para 2-34a).

NOTE

All side flaps are raised the same way. Right side rear flap shown.

(2) Disconnect two straps (1) from D-rings (2).



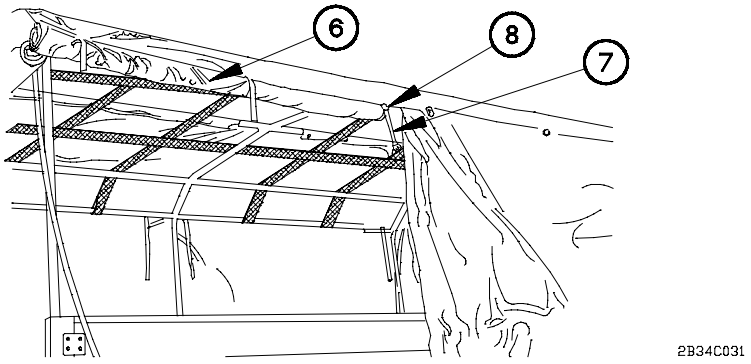
NOTE

Steps (3) through (7) require the aid of two assistants.

(3) Remove shock cord (3) from two J-hooks (4) on right side front flap (5).

(4) Remove shock cord (6) from six J-hooks (4).

2-34. CARGO COVER FLAP OPERATION (CONT)



NOTE

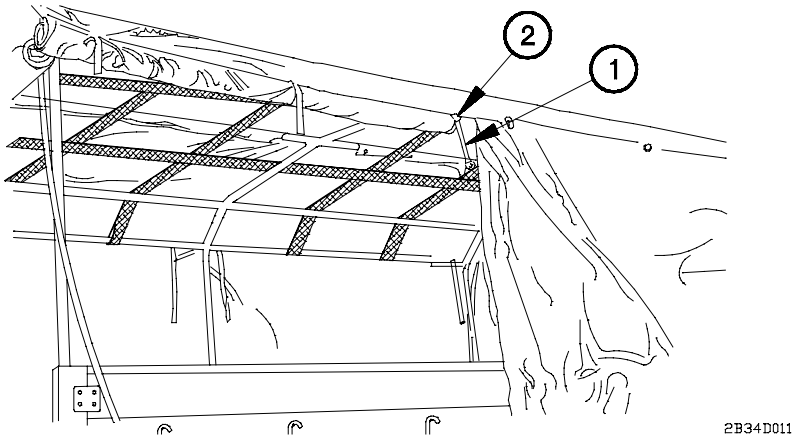
Steps (5) through (7) are performed from inside cargo bed.

(5) Roll up right side rear flap (6).

(6) Wrap three straps (7) around right side rear flap (6).

(7) Install three straps (7) through D-rings (8).

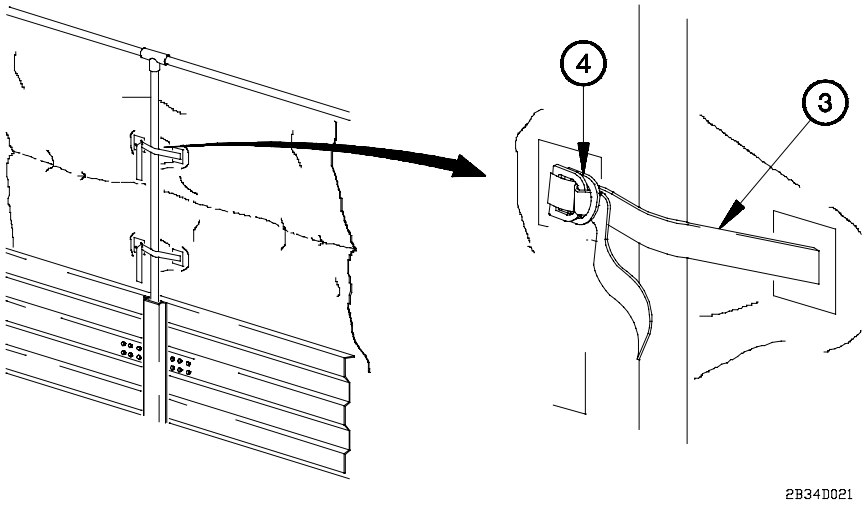
d. Lowering Side Flaps.



NOTE

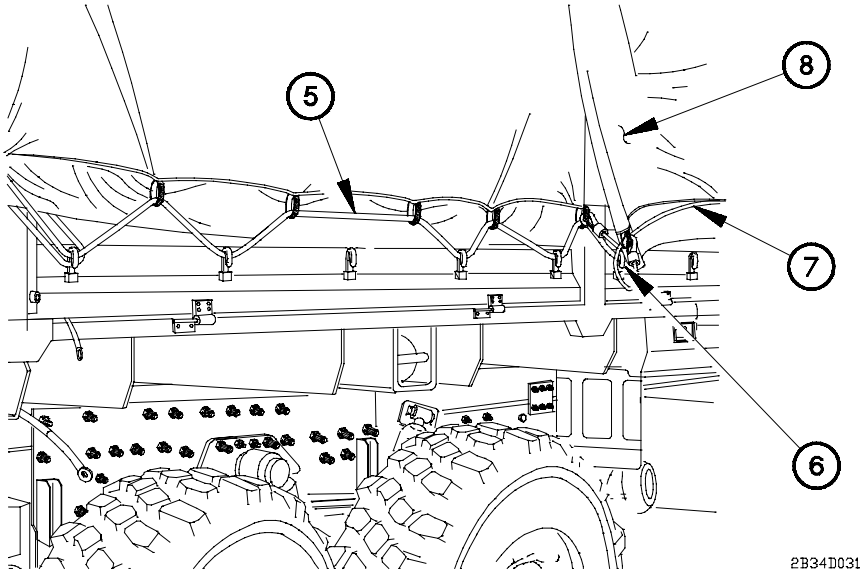
- All side flaps are lowered the same way. Right side rear flap shown.
- Step (1) is performed from inside of cargo bed.

(1) Remove three straps (1) from D-rings (2).



(2) Connect two straps (3) to D-rings (4).

(3) Stow ladder (para 2-32c).



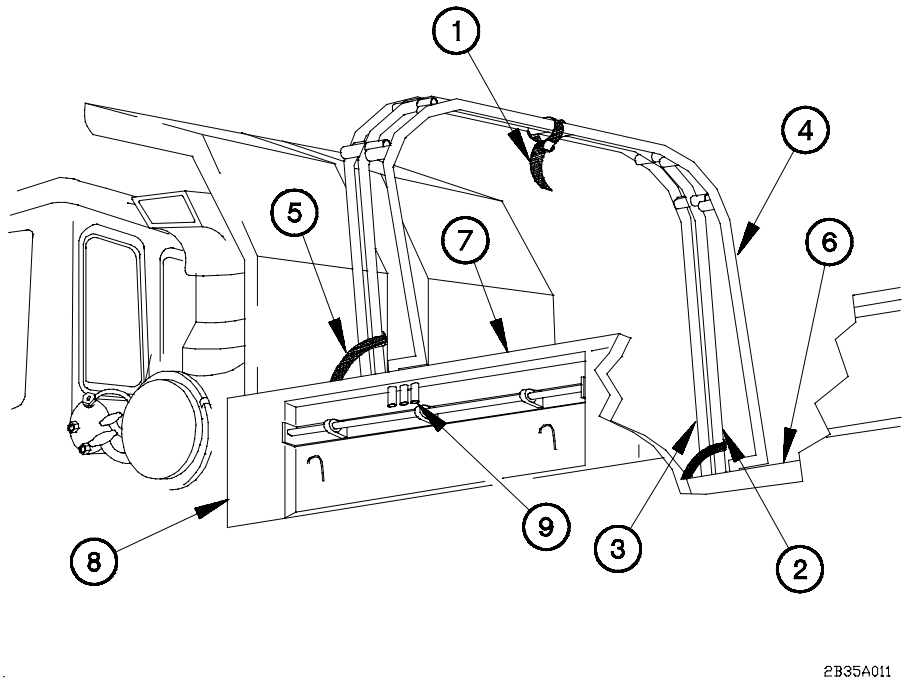
(4) Install shock cord (5) on six J-hooks (6).

(5) Install shock cord (7) on two J-hooks (6) on right side front flap (8).

(6) Lower rear flap (para 2-33b).

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL

a. Installation.



NOTE

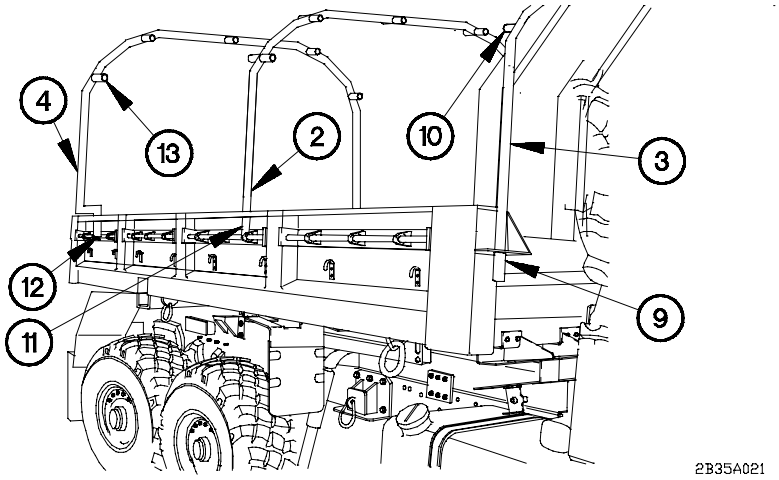
- Rear bow has strap at each end while center bow has single strap in the center.
- Steps (1) through (39) require the aid of an assistant.

(1) Raise cab protector (para 2-38b).

(2) Remove strap (1) holding center bow (2), front bow (3), and rear bow (4) together.

(3) Remove bow straps (5) securing bows (2, 3, and 4) to right front side panel (6) and left front side panel (7) of dump body (8).

(4) Remove bows (2, 3, and 4) from front dump body pocket (9).



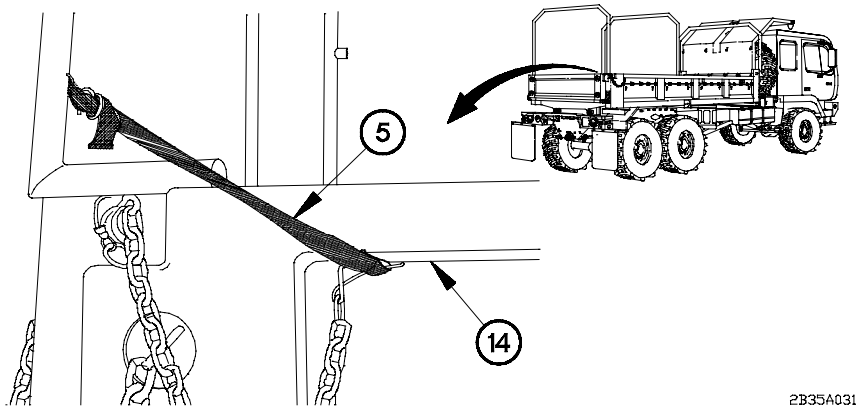
NOTE

Place front bow in forwardmost hole.

(5) Position front bow (3) in front dump body pocket (9) with brackets (10) facing to the rear.

(6) Position center bow (2) in center dump body pocket (11).

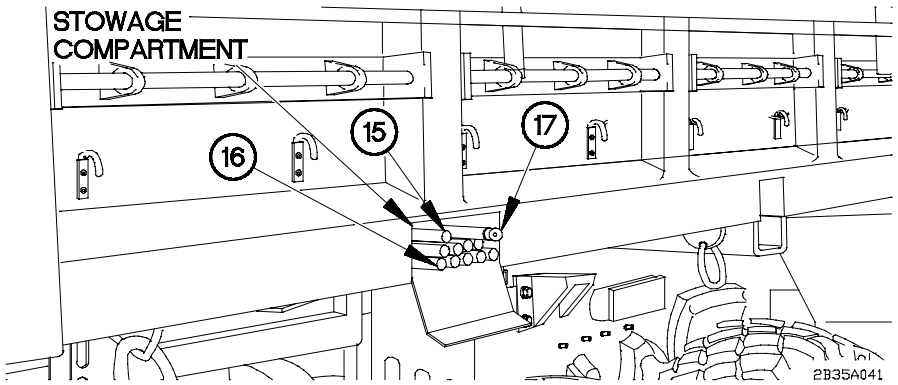
(7) Position rear bow (4) in rear dump body pocket (12) with brackets (13) facing to the front.



(8) Connect rear bow strap (5) to outside lip of right rear panel (14) and pull tight.

(9) Perform step (8) on left side.

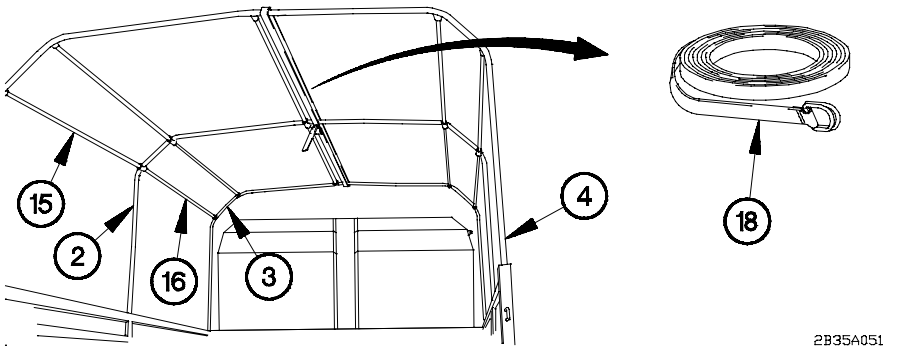
2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)



NOTE

Ten aluminum braces and one steel pole are located in pole stowage compartment. Braces go between front and middle bows. Steel pole is used in rear flap for weight.

(10) Remove five rear braces (15), five front braces (16), and one steel pole (17) from stowage compartment.



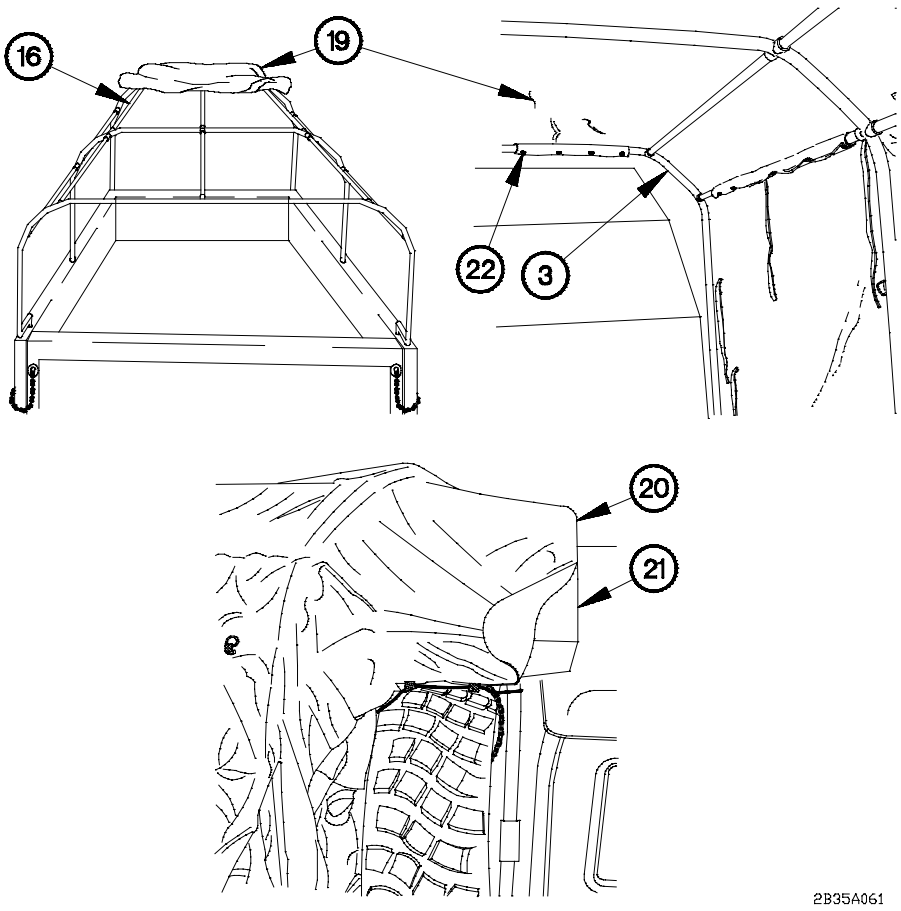
NOTE

Tighten strap only enough for installation of braces.

(11) Position strap (18) around front bow (3) and rear bow (4) and then tighten strap.

(12) Install five rear braces (15) between center bow (2) and rear bow (4).

(13) Install five front braces (16) between center bow (2) and front bow (3) and then tighten strap (18).



WARNING

Dump cover weighs approximately 60 lbs (27 kgs). An assistant is required to lift dump cover. Failure to comply may result in injury to personnel or damage to equipment.

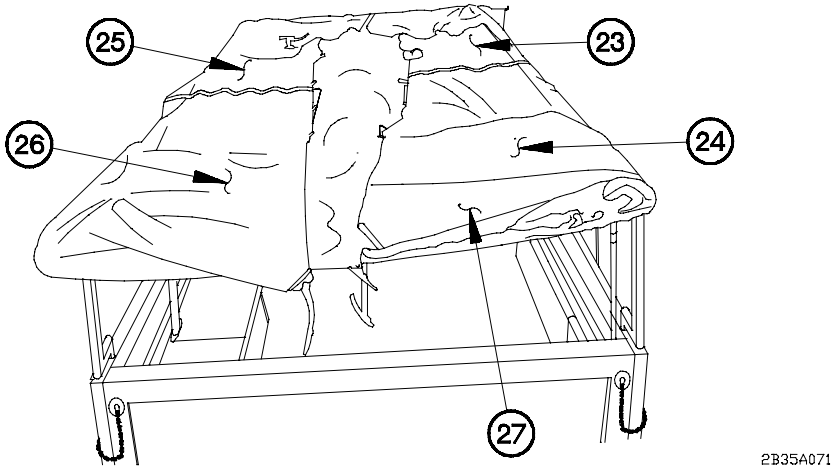
(14) Position folded dump cover (19) on top of front braces (16).

(15) Position front flap (20) over cab protector (21).

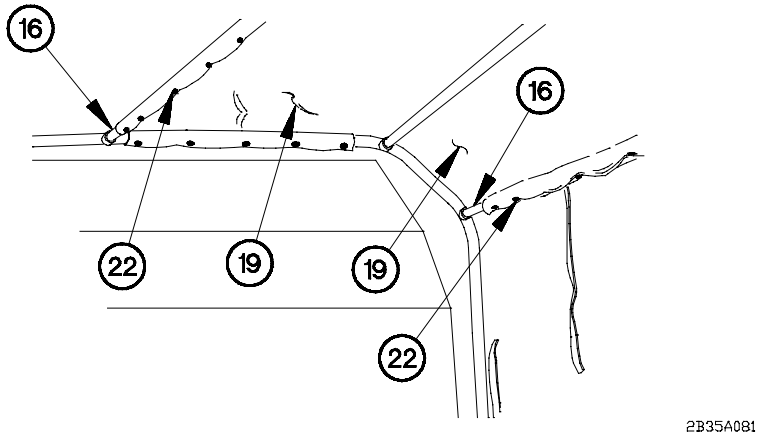
(16) Fasten snaps (22) on dump cover (19) to left and right side of front bow (3).

(17) Unfold dump cover (19) toward rear of vehicle.

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)



(18) Unfold right side front flap (23), right side rear flap (24), left side front flap (25), left side rear flap (26), and rear flap (27).

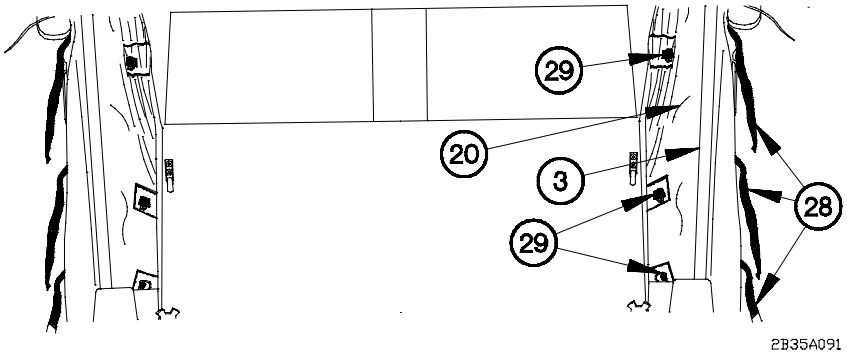


(19) Fasten snaps (22) on top of dump cover (19) to top center front brace (16).

(20) Fasten snaps (22) on left side of dump cover (19) to left front brace (16).

(21) Perform step (20) on right side of dump cover (19).

(22) Perform steps (19) through (21) on rear of dump cover.

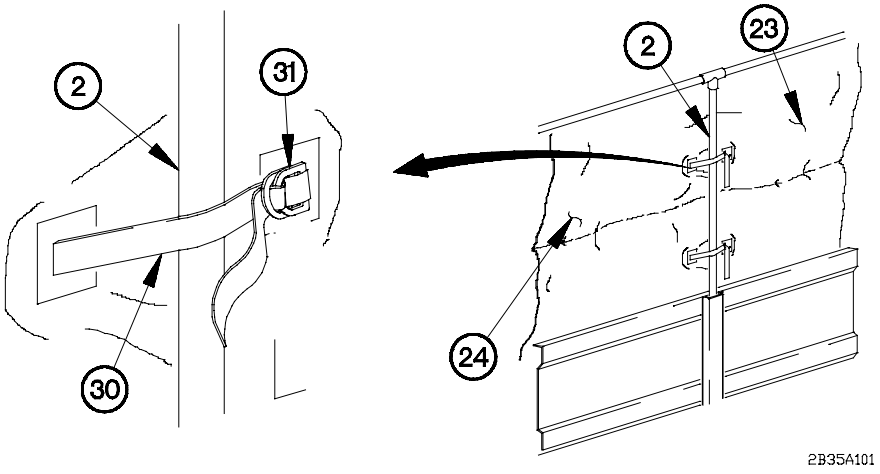


NOTE

Straps located on front inside corner of right and left side flap connect to D-ring on front flap.

(23) Position three straps (28) behind front bow (3) to D-rings (29) on front flap (20), then pull tight.

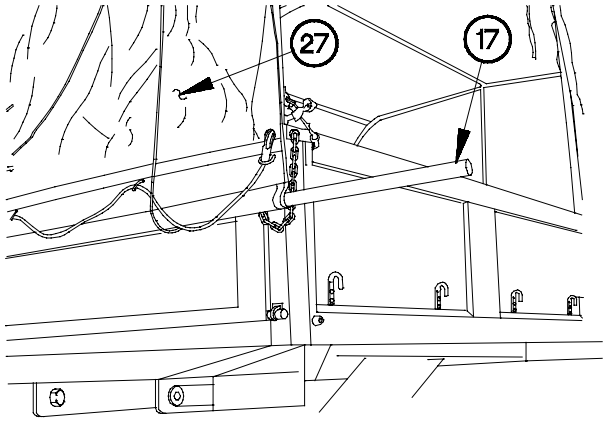
(24) Perform step (23) on left side.



(25) Position straps (30) from left side rear flap (24) behind center bow (2) and through D-rings (31) on left side front flap (23), then pull tight.

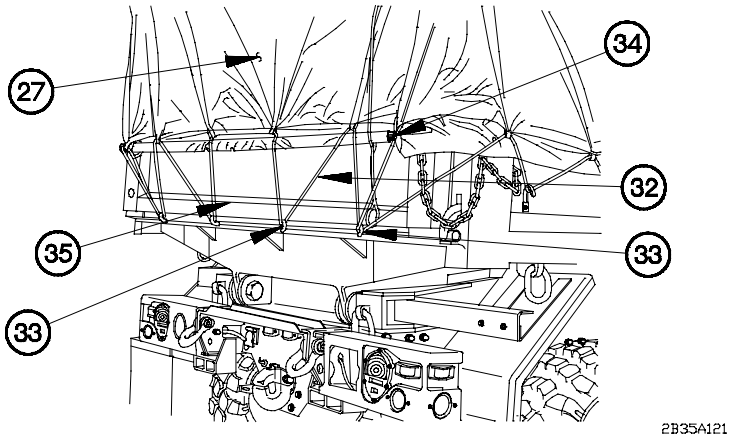
(26) Perform step (25) on right side.

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)



2B35A111

(27) Position steel pole (17) in lower portion of rear flap (27).



2B35A121

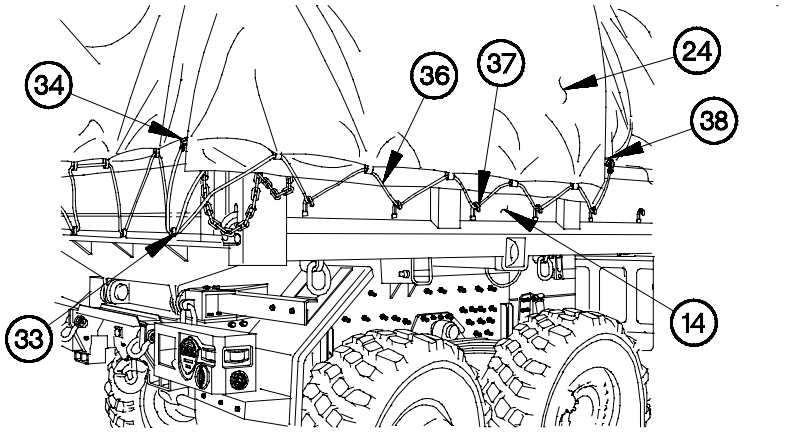
NOTE

D-rings are attached to lower part of flaps with shock cord placed through D-rings. Shock cord is attached to J-hooks on dump body to hold flap down. The attachment sequence is rear flap, rear right flap, rear left flap, front right flap, front left flap, and front flap.

(28) Position shock cord (32) on right side of rear flap (27), around J-hooks (33) and D-ring (34).

(29) Perform step (28) on left side of rear flap.

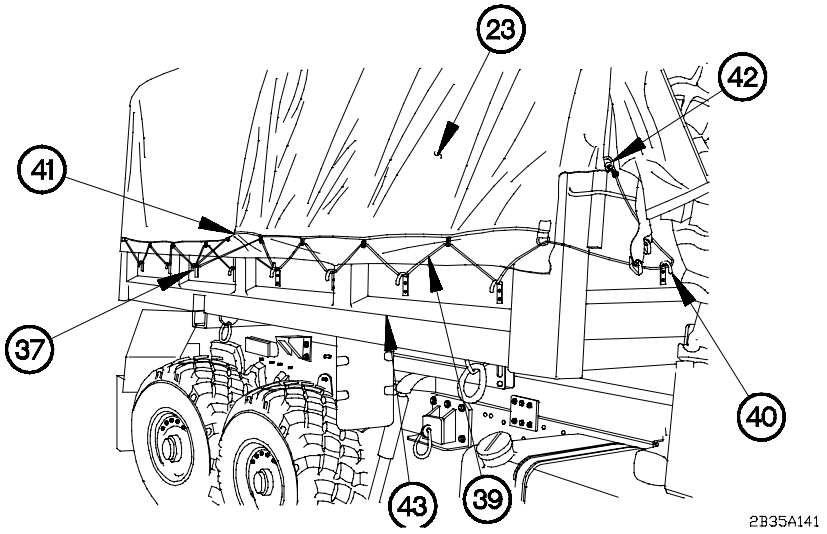
(30) Hook shock cord (32) to J-hooks (33) on tailgate (35).



(31) Position shock cord (36) on right side rear flap (24) around J-hooks (33 and 37) and D-rings (34 and 38).

(32) Hook shock cord (36) to J-hooks (37) on rear panel (14).

(33) Perform steps (31) and (32) on left side rear flap.

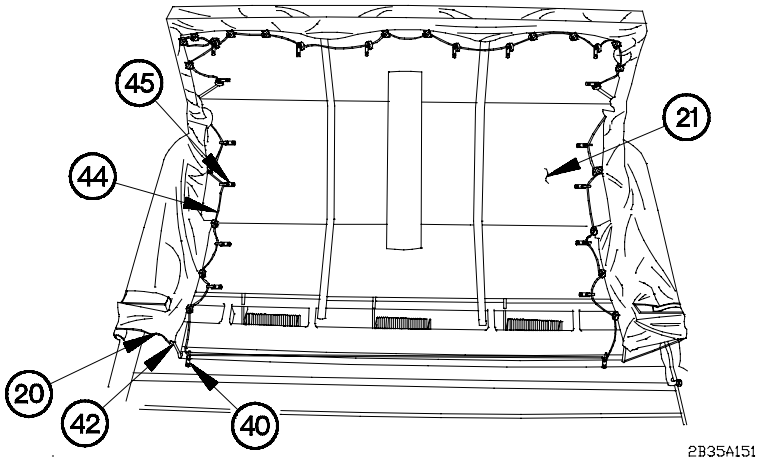


(34) Position shock cord (39) on right side front flap (23) around J-hooks (37 and 40) and D-rings (41 and 42).

(35) Hook shock cord (39) to J-hooks (37) on front side panel (43).

(36) Perform steps (34) and (35) on left side front flap.

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)

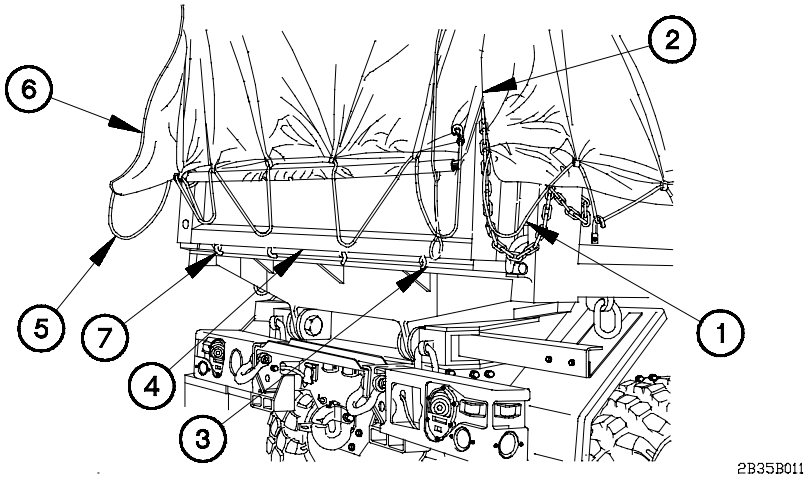


(37) Position shock cord (44) on right side of front flap (20) around J-hooks (40) and D-ring (42).

(38) Perform step (37) on left side of front flap.

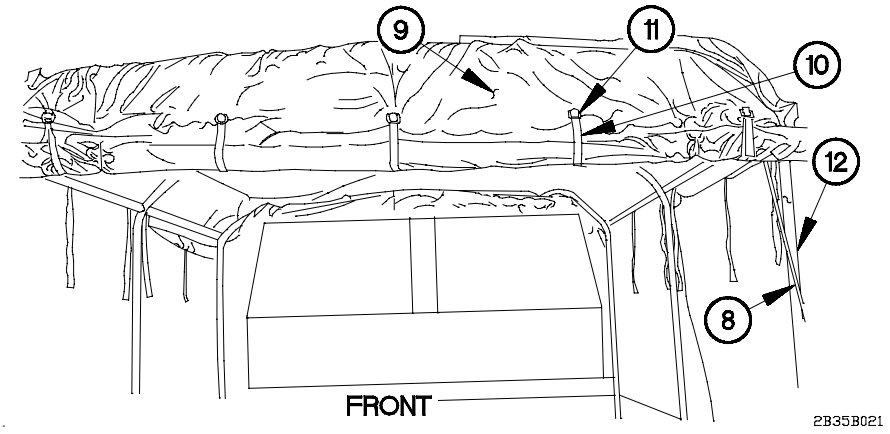
(39) Hook shock cord (44) to J-hooks (45) on cab protector (21).

b. Raising Rear Flap.



(1) Remove shock cord (1) on right rear flap (2) from J-hooks (3) on tailgate (4).

(2) Remove shock cord (5) on left rear flap (6) from J-hooks (7) on tailgate (4).



NOTE

Steps (3) through (8) are performed from inside dump body.

(3) Pull draw string (8) to raise rear flap (9).

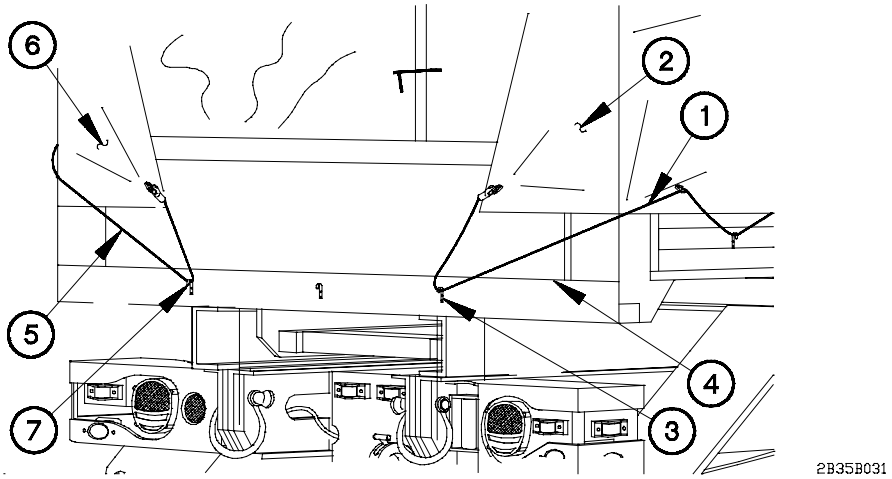
(4) Wrap strap (10) around rear flap (9).

(5) Position strap (10) through D-rings (11).

(6) Adjust strap (10) as required.

(7) Repeat steps (4) through (6) for remaining four straps.

(8) Tie draw string (8) to rear bow (12).

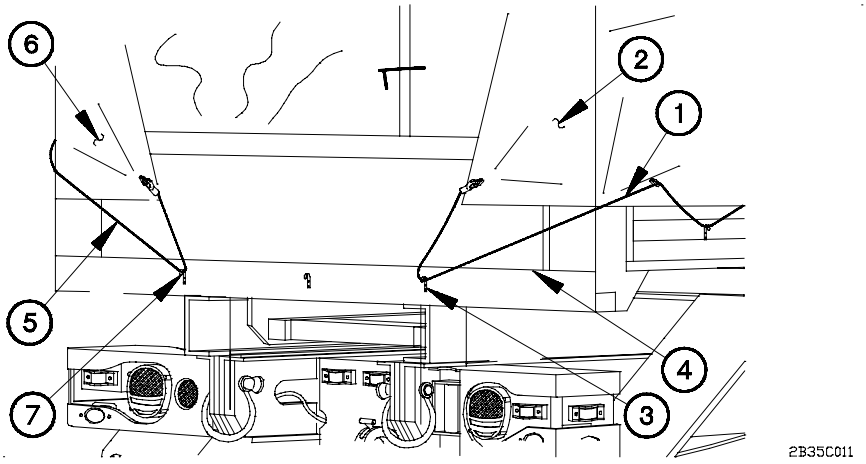


(9) Pull left rear flap (6) over tailgate (4) and install shock cord (5) on J-hooks (7).

(10) Pull right rear flap (2) over tailgate (4) and install shock cord (1) on J-hooks (3).

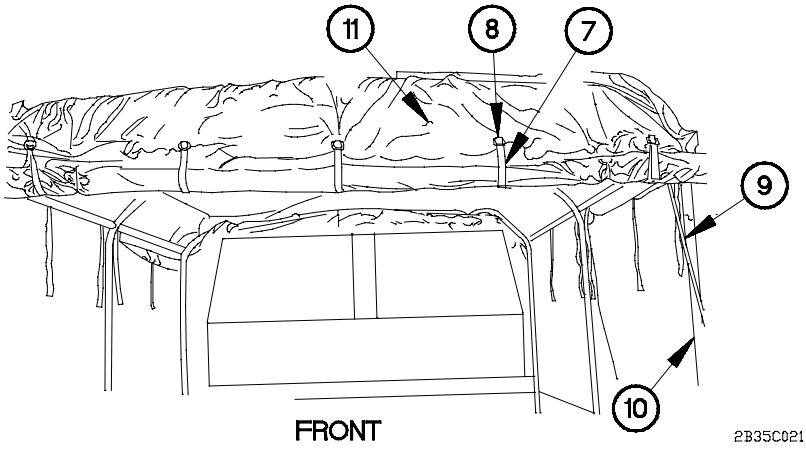
2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)

c. Lowering Rear Flap.



(1) Remove shock cord (1) on right rear flap (2) from J-hooks (3) on tailgate (4).

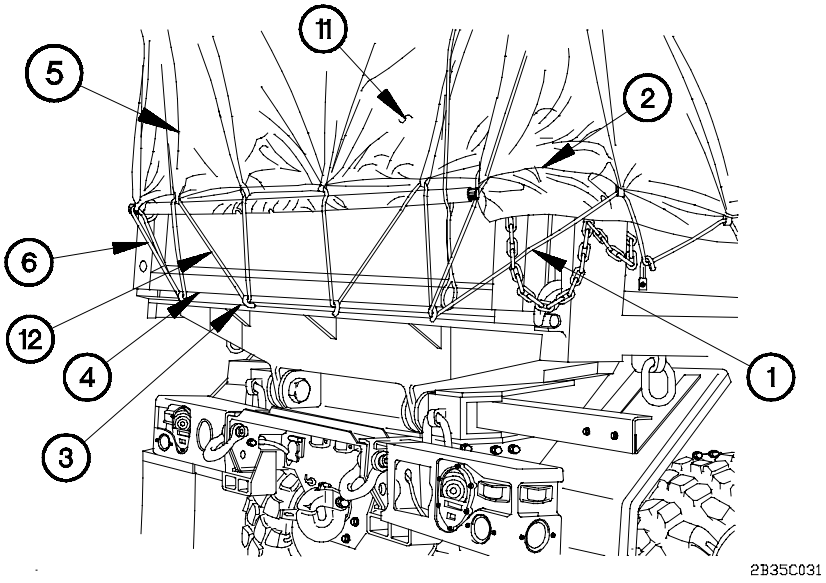
(2) Remove shock cord (5) on left rear flap (6) from J-hooks (3) on tailgate (4).



(3) Disconnect five straps (7) from five sets of D-rings (8).

(4) Loosen draw string (9) from rear bow (10).

(5) Lower rear flap (11) with draw string (9).

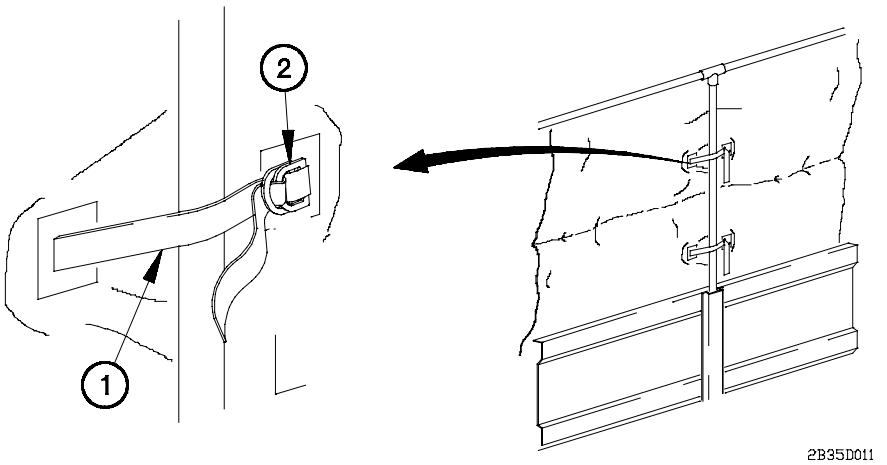


(6) Install shock cord (12) on rear flap (11) around J-hooks (3) on tailgate (4).

(7) Install shock cord (6) from left rear flap (5) around J-hooks (3) on tailgate (4).

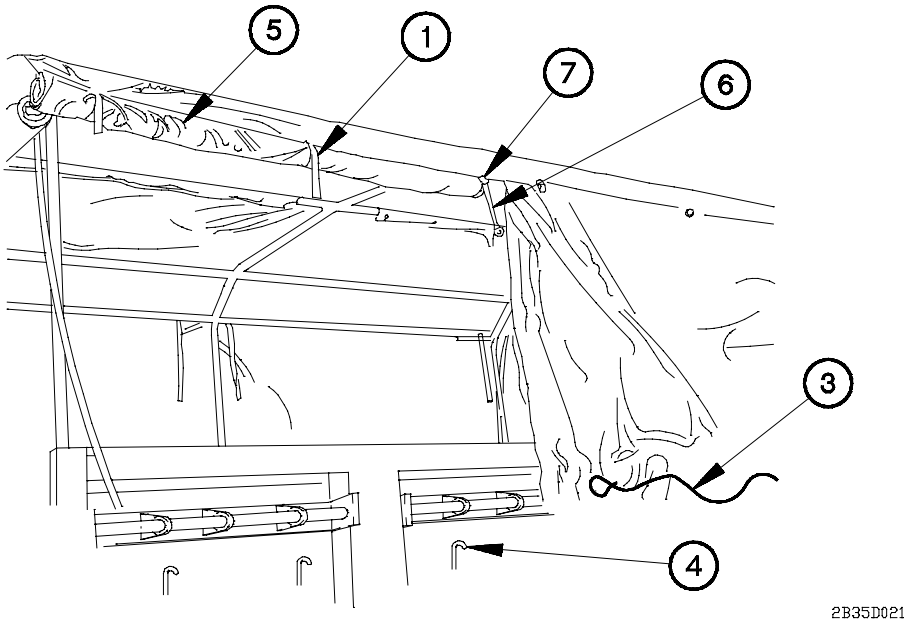
(8) Install shock cord (1) from right rear flap (2) on J-hooks (3) on tailgate (4).

d. Raising Side Flaps.



(1) Disconnect straps (1) from D-rings (2).

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)



NOTE

- Right and left side flaps are raised and lowered the same way.
- There are six straps and six sets of D-rings attached to cover for holding side flaps in open position.

(2) Remove shock cord (3) from J-hooks (4).

NOTE

Steps (3) through (6) are performed from inside dump body.

(3) Roll up side flaps (5).

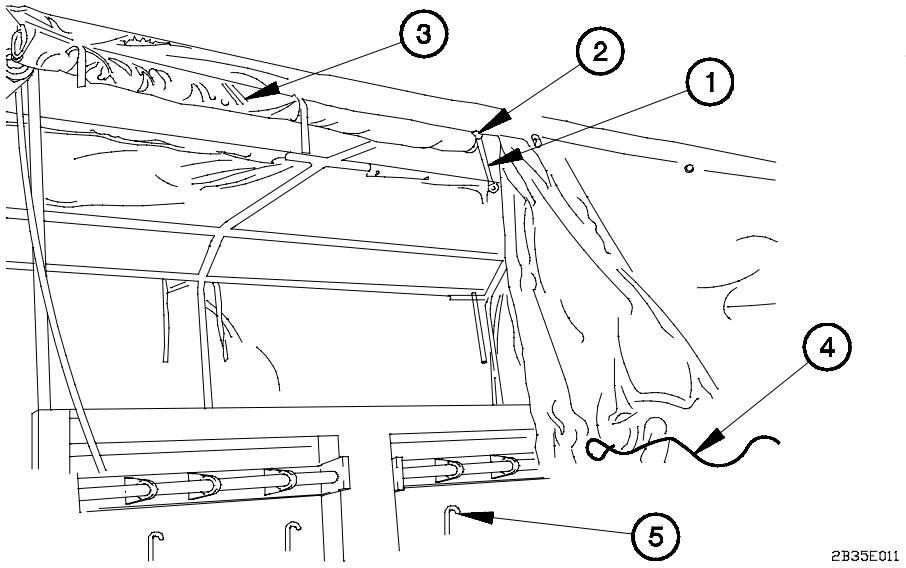
(4) Wrap strap (1) around side flaps (5).

(5) Install strap (6) through D-ring (7).

(6) Adjust length of strap (1) as required.

(7) Perform steps (4) through (6) on remaining five straps.

e. Lowering Side Flaps.



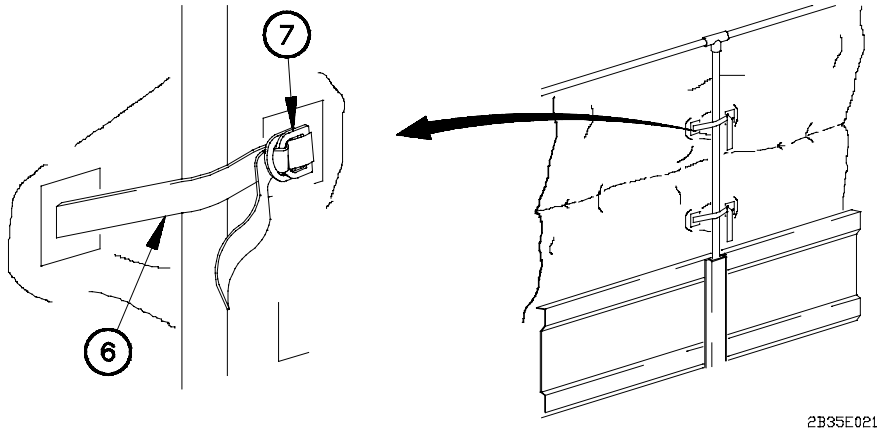
NOTE

Step (1) is performed from inside of dump body.

(1) Disconnect straps (1) from D-rings (2) on side flaps (3).

(2) Lower side flaps (3).

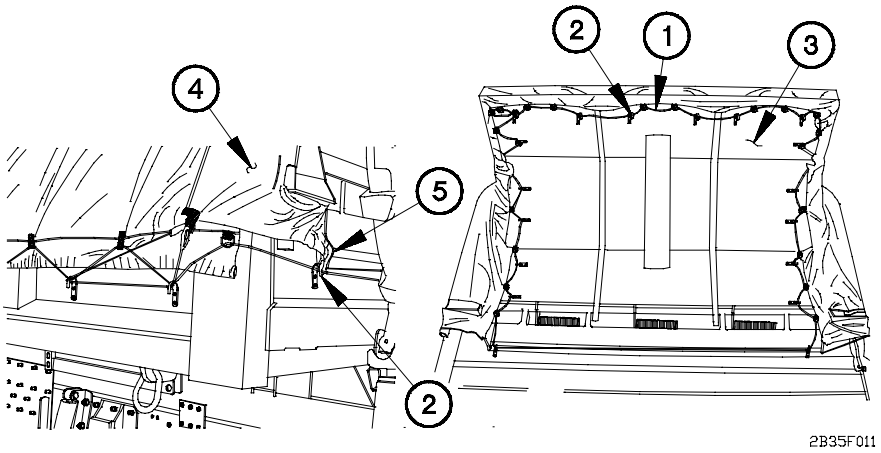
(3) Attach shock cord (4) to J-hooks (5).



(4) Connect straps (6) to D-rings (7).

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)

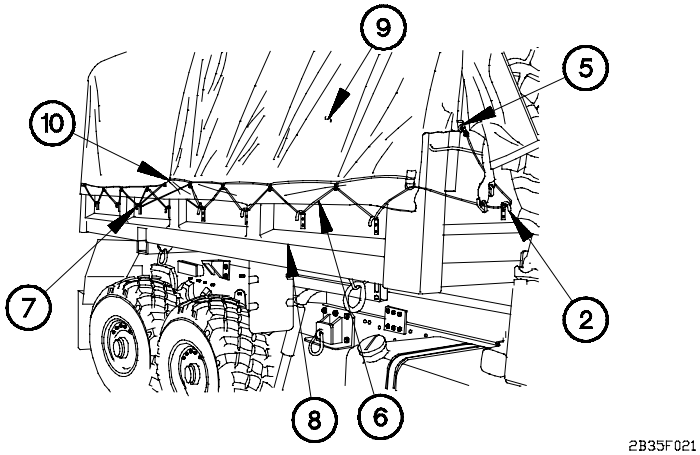
f. Removal.



(1) Unhook shock cord (1) from J-hooks (2) on cab protector (3).

(2) Remove shock cord (1) on right side of front flap (4) from D-ring (5) and J-hooks (2).

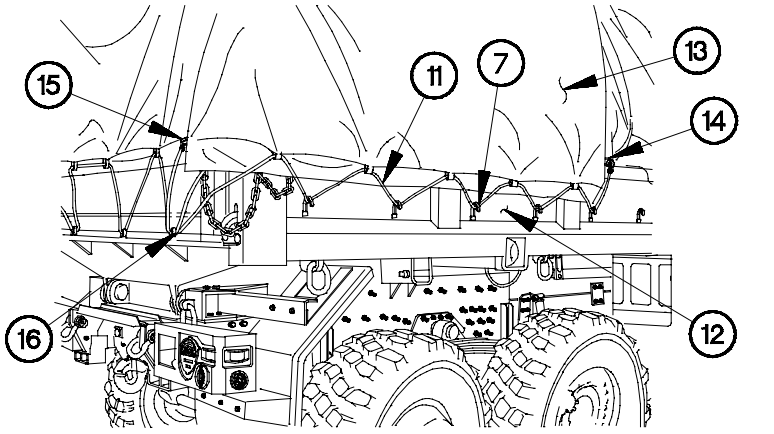
(3) Perform steps (1) and (2) on left side of front flap.



(4) Unhook shock cord (6) from J-hooks (7) on front side panel (8).

(5) Remove shock cord (6) on right side front flap (9) from D-rings (5 and 10) and J-hooks (2 and 7).

(6) Perform steps (4) and (5) on left side front flap.

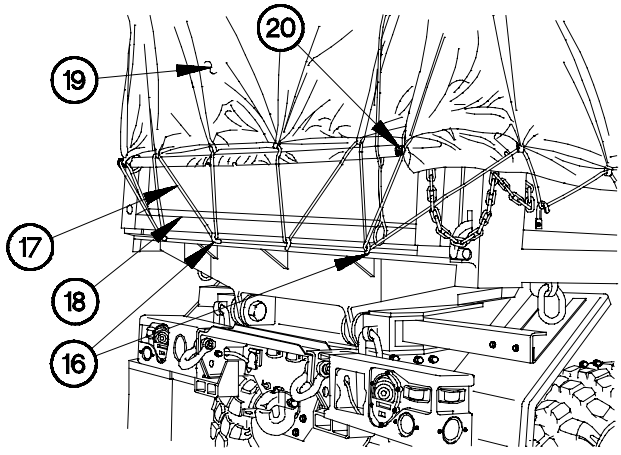


2B35F031

(7) Unhook shock cord (11) from J-hooks (7) on rear side panel (12).

(8) Remove shock cord (11) on right side rear flap (13) from D-rings (14 and 15) and J-hooks (7 and 16).

(9) Perform steps (7) and (8) on left side rear flap.



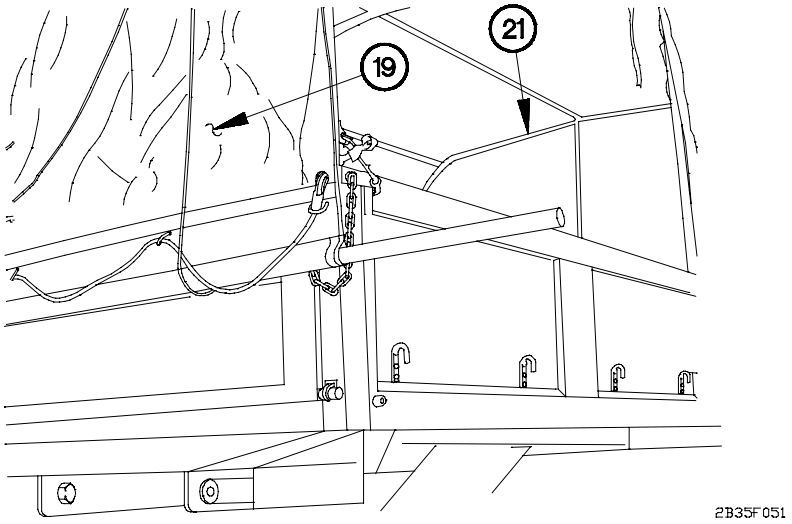
2B35F041

(10) Unhook shock cord (17) from J-hooks (16) on tailgate (18).

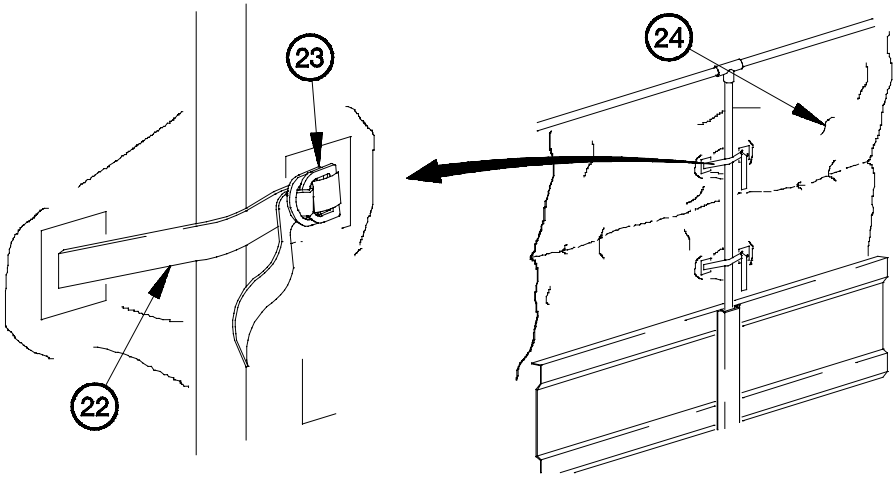
(11) Remove shock cord (17) on right side of rear flap (19) from D-ring (20) and J-hooks (16).

(12) Perform step (11) on left side of rear flap.

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)

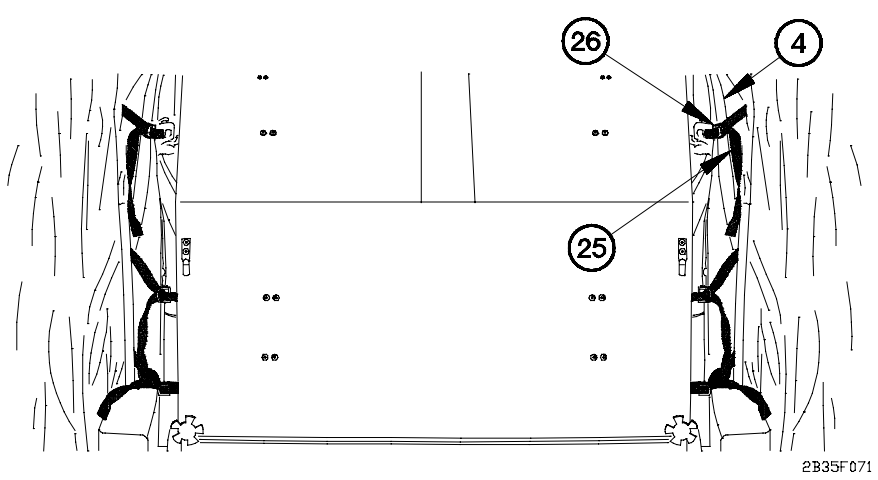


(13) Remove steel pole (21) from rear flap (19).



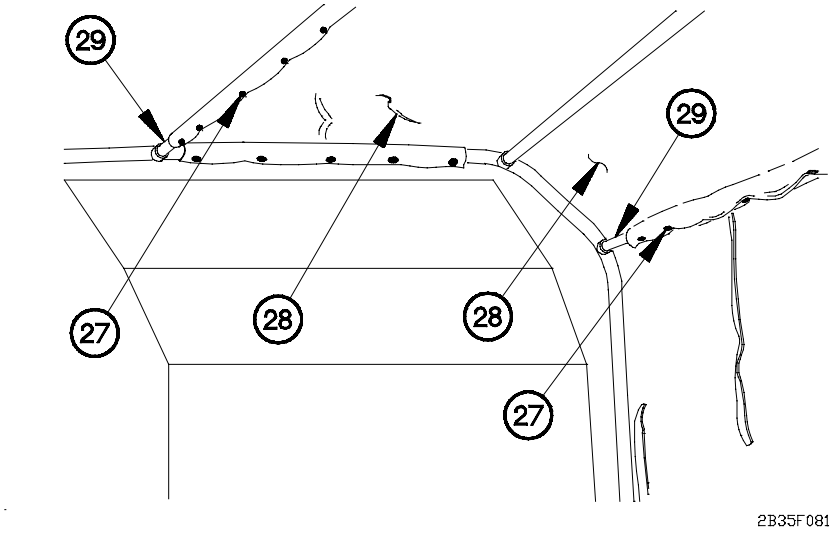
(14) Remove straps (22) from D-rings (23) on left side front flap (24).

(15) Perform step (14) on right side.



(16) Disconnect three straps (25) from D-rings (26) on front flap (4).

(17) Perform step (16) on left side of front flap.



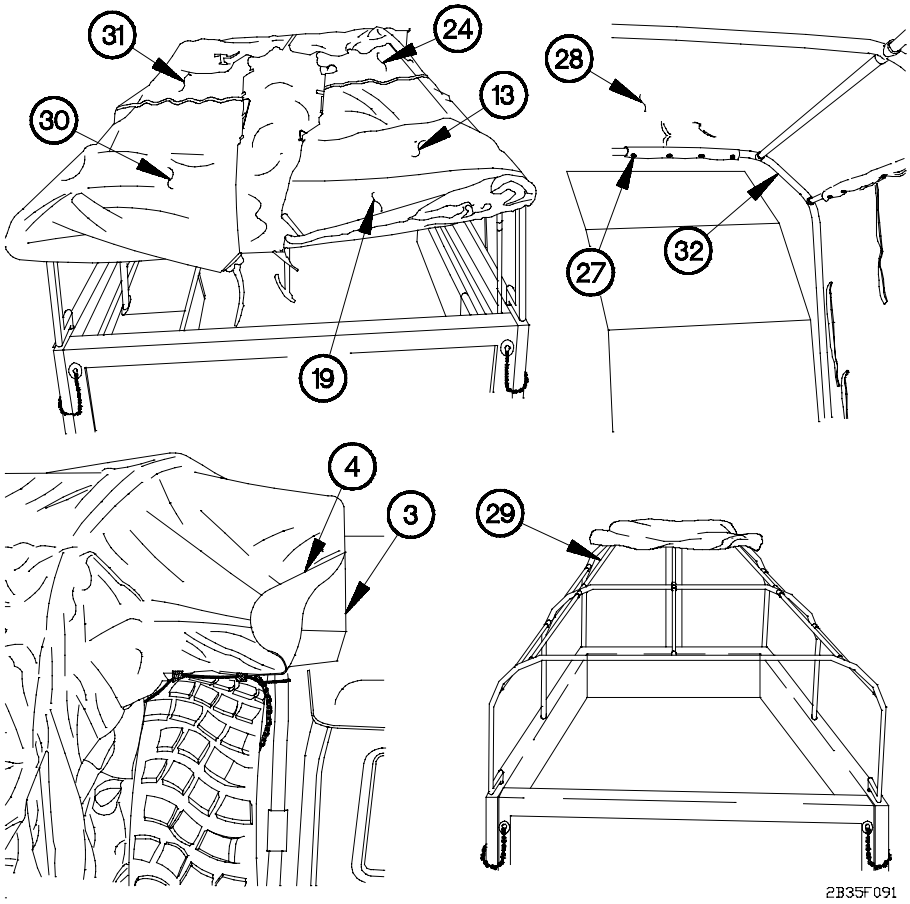
(18) Undo snaps (27) on right side of dump cover (28) from front brace (29).

(19) Perform step (18) on left side of dump cover.

(20) Undo snaps (27) on dump cover (28) and top center brace (29).

(21) Perform steps (18) through (20) on rear of dump cover.

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)



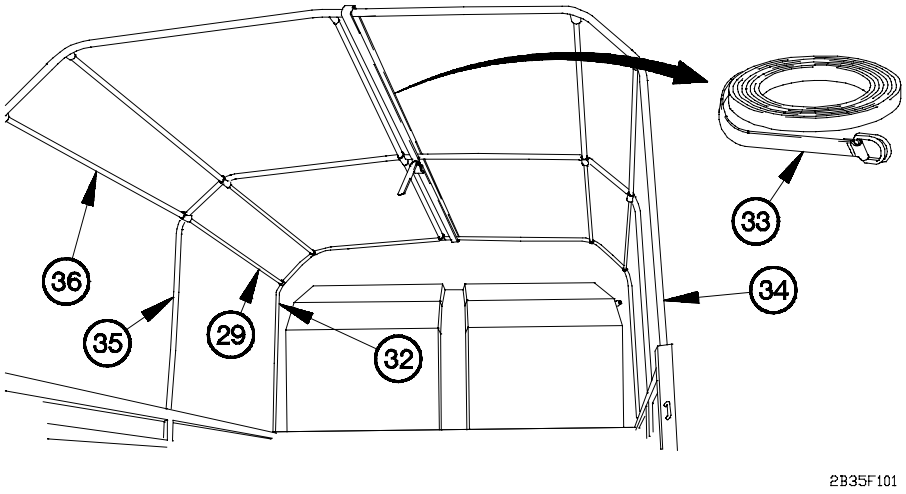
(22) Fold rear flap (19), left side rear flap (30), left side front flap (31), right side rear flap (13), and right side front flap (24).

(23) Fold rear of dump cover (28) toward front of vehicle.

(24) Undo snaps (27) on dump cover (28) on left and right side of front bow (32).

(25) Remove front flap (4) from cab protector (3).

(26) Remove dump cover (28) from top of braces (29).

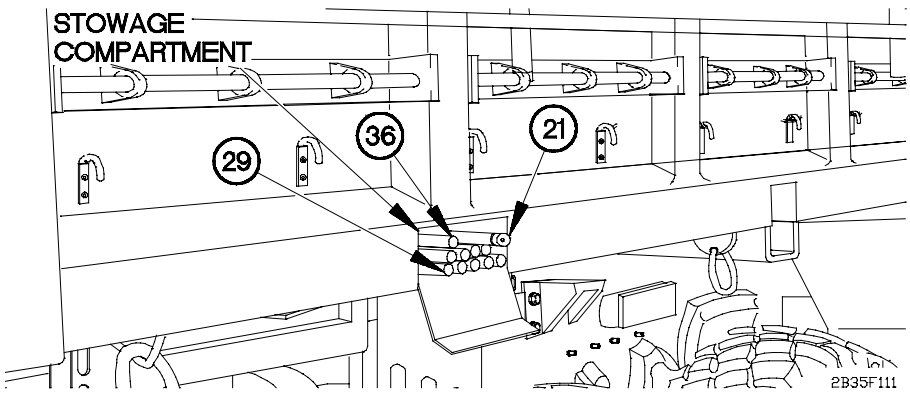


(27) Loosen strap (33) from around front bow (32) and rear bow (34).

(28) Remove five front braces (29) from center bow (35) and front bow (32).

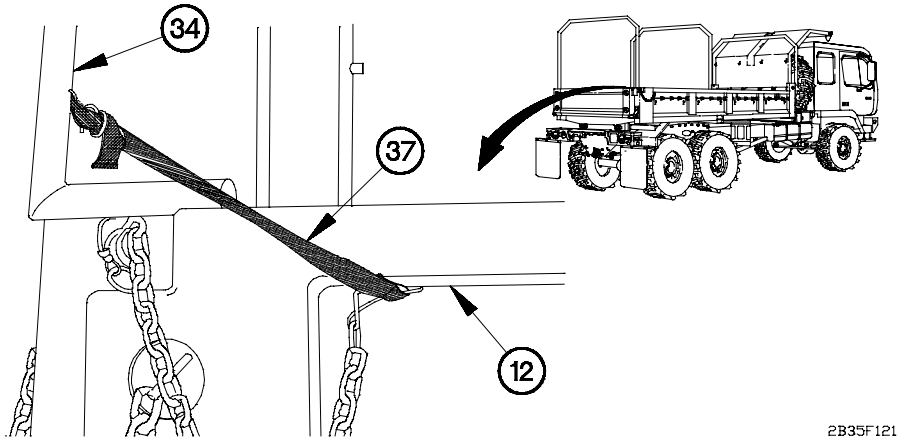
(29) Remove five rear braces (36) from center bow (35) and rear bow (34).

(30) Remove strap (33) from front bow (32) and rear bow (34).

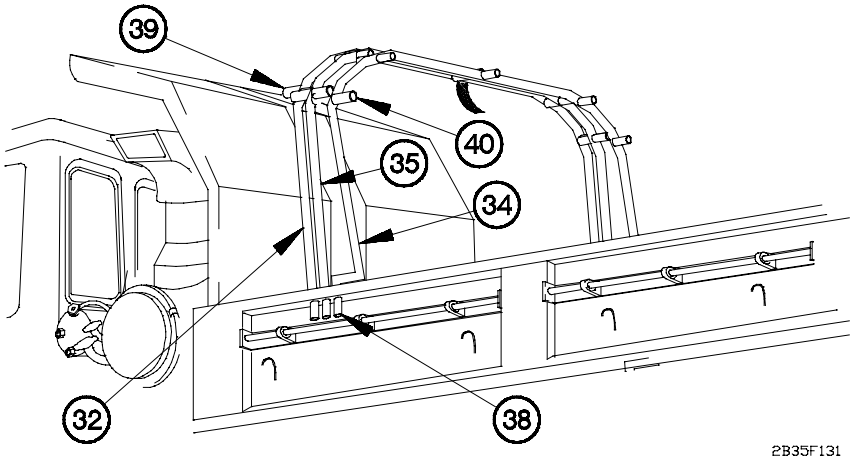


(31) Stow braces (29 and 36) and steel pole (21) in stowage compartment.

2-35. M1090/M1094 DUMP COVER KIT INSTALLATION/ REMOVAL (CONT)



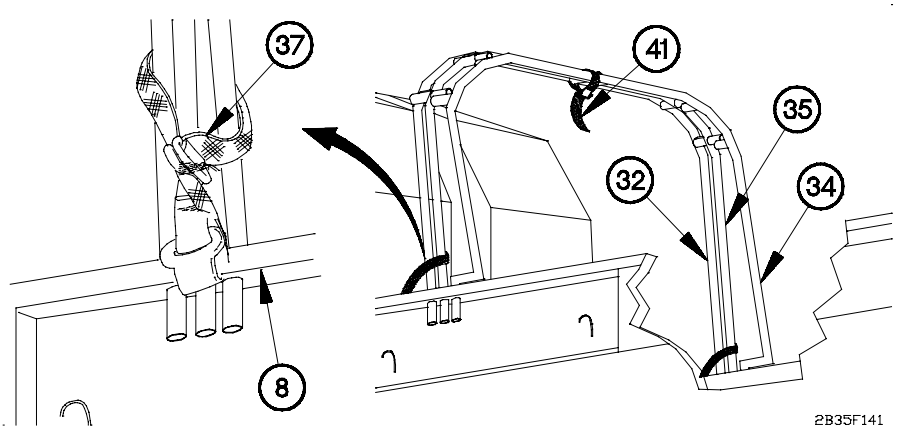
(32) Remove bow straps (37) from rear panels (12) on rear bow (34).



(33) Stow front bow (32) in dump body front pockets (38) with bracket (39) facing to the front.

(34) Stow center bow (35) in dump body front pockets (38) with brackets (39) resting on top of front bow (32).

(35) Stow rear bow (34) in dump body front pockets (38) with brackets (40) facing to the rear and under brackets (39) of center bow (35).

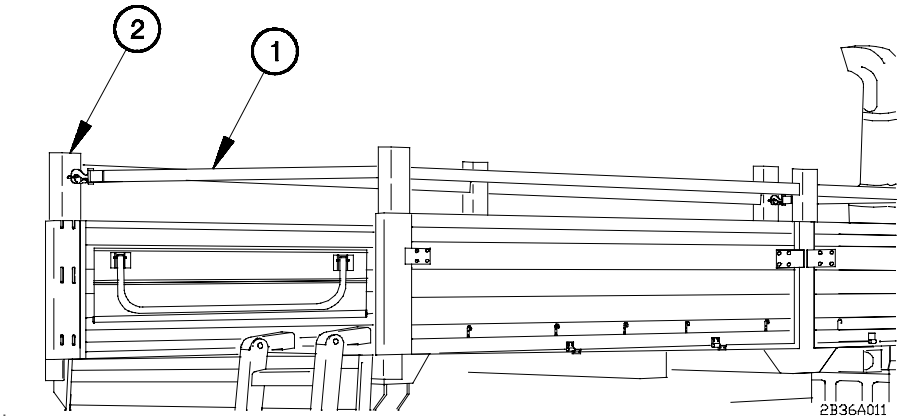


(36) Strap bows (32, 35, and 34) together with strap (41).

(37) Connect hook end of straps (37) to lip on front side panel (8) and pull tight.

2-36. TROOPSEAT KIT LOWERING/RAISING

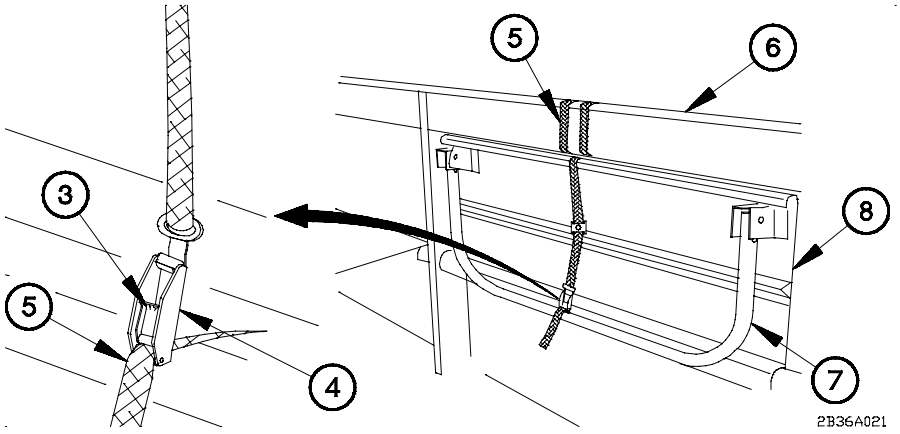
a. Lowering Troopseats.



(1) Lower ladder (para 2-32a).

(2) Disconnect end of safety strap (1) from left rear seat post (2).

2-36. TROOPSEAT KIT LOWERING/RAISING (CONT)



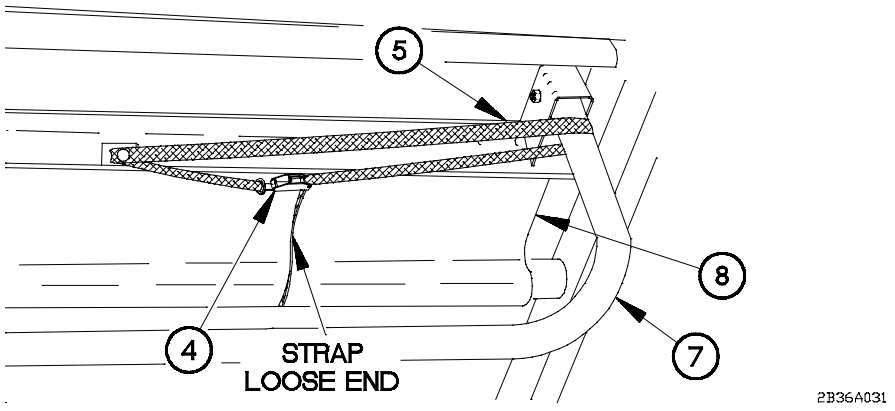
(3) Push release tab (3) on buckle (4).

(4) Pull out on buckle (4) to loosen strap (5).

(5) Unhook strap (5) from buckle (4).

(6) Unwrap strap (5) from backrest (6).

(7) Unfold leg (7) from seat panel (8).

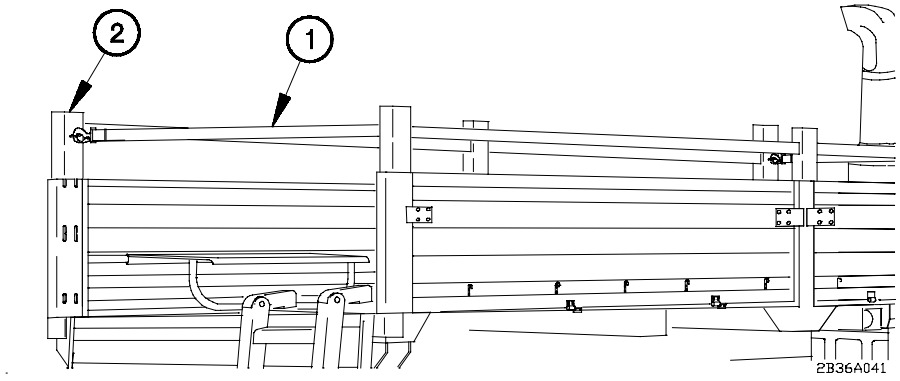


(8) Lower seat panel (8) until leg (7) contacts floor of cargo bed.

(9) Wrap long end of strap (5) around leg (7).

(10) Hook strap (5) to buckle (4).

(11) Tighten strap (5) by pulling on strap loose end.



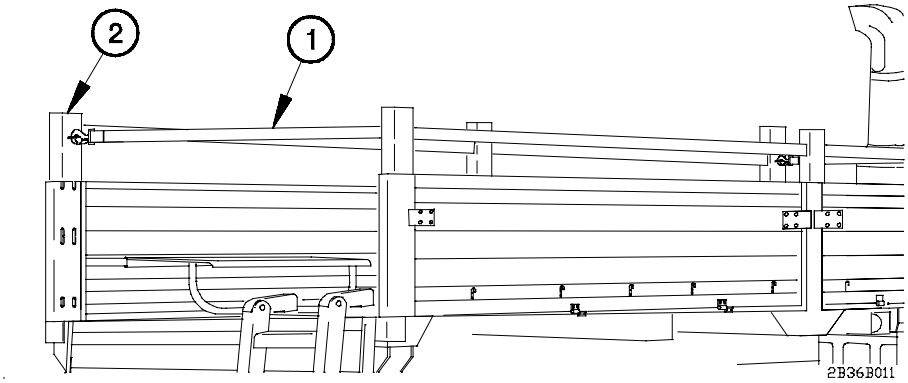
WARNING

Ensure safety strap is fastened across back and front of vehicle before transporting troops. Failure to comply may result in serious injury or death to personnel.

(12) Connect safety strap (1) to left rear seat post (2).

(13) Raise ladder (para 3-32b).

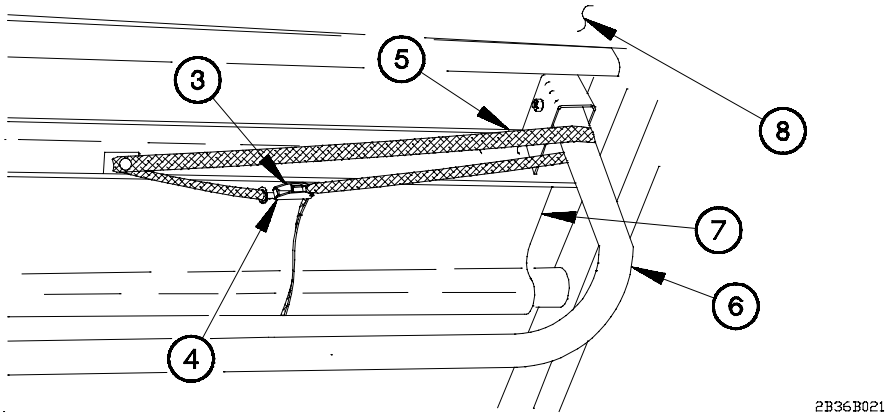
b. Raising Troopseats.



(1) Lower ladder (para 2-32a).

(2) Disconnect end of safety strap (1) from left rear seat post (2).

2-36. TROOPSEAT KIT LOWERING/RAISING (CONT)



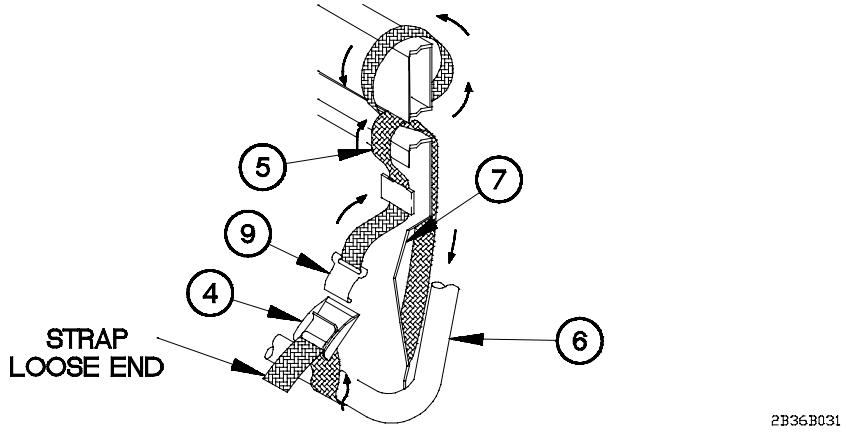
CAUTION

Troopseats must be stowed in the raised position when not in use. Failure to comply may result in damage to equipment.

(3) Push release tab (3) on buckle (4).

(4) Unhook strap (5) from leg (6).

(5) Raise seat panel (7) up until edge of seat panel is under backrest (8).

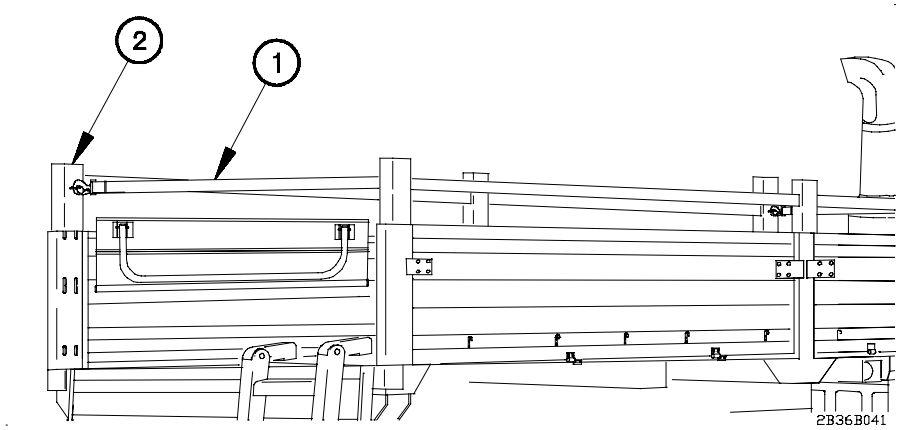


(6) Fold leg (6) down to seat panel (7).

(7) Position hook (9) of strap (5) down.

(8) Wrap strap (5), as shown, to connect to buckle (4).

(9) Tighten strap (5) by pulling on strap loose end.

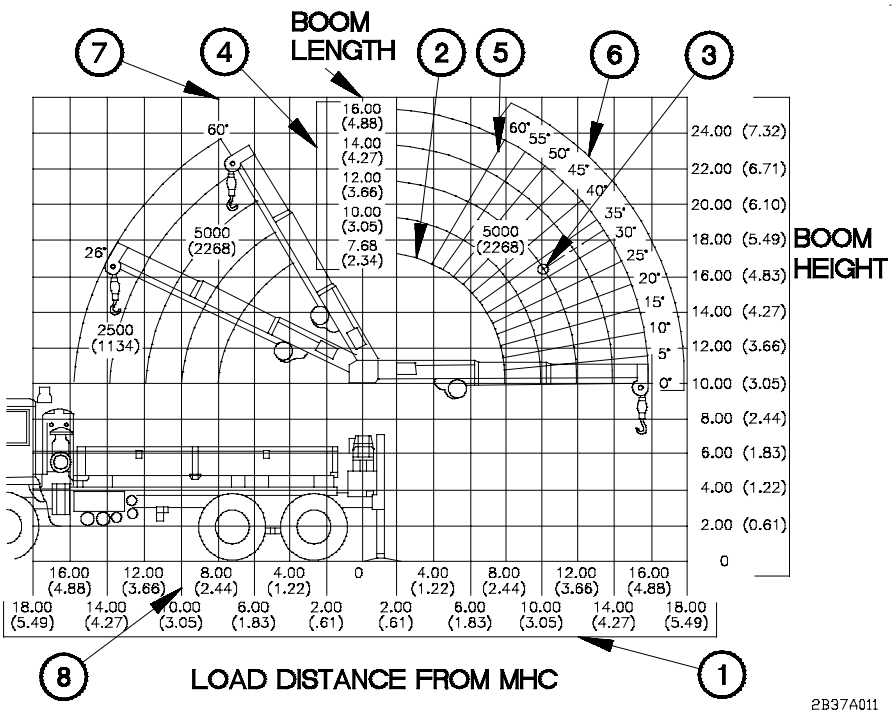


(10) Connect safety strap (1) to left rear seat post (2).

(11) Raise ladder (para 3-32b).

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION

a. Determine Required MHC Settings from Range Diagram.



(1) Determine distance load is from MHC and locate dimension along bottom horizontal line (1). (Example: Load is 10 ft (3.1 m) from MHC.)

(2) Follow line vertically up graph until it intersects with boom length arc (2). Mark intersection point (3).

(3) Follow line along arc and make note of boom length (4). (Example: If load distance is 10 ft (3.1 m) from MHC, boom length is 12 ft (3.7 m).)

(4) Return to intersection point (3). Follow diagonal line (5) to determine boom angle setting (6). (Example: Boom angle setting is 33 degrees from intersection point.)

(5) Return to intersection point (3). Follow horizontal line (7) to determine boom height (8). (Example: Boom height is 16 ft (4.8 m) from intersection point.)

(6) Locate distance load is from MHC in Table 2-14.

(7) Locate boom angle that was determined in step (4). Follow horizontally across table to verify height of boom and to determine maximum load. (Example: Boom height is 16 ft (4.8 m) and maximum MHC load is 3,500 lbs (1,589 kgs).)

Table 2-14. M1084/M1086 Material Handling Crane (MHC) Range Diagram Summary

DISTANCE LOAD IS FROM MHC	BOOM ANGLE	HEIGHT OF BOOM	MAXIMUM LOAD
16 ft (4.9 m)	0 degrees	10 ft (3.0 m)	2,200 lbs (999 kgs)
15 ft (4.6 m)	15 degrees	14 ft (4.3 m)	2,200 lbs (999 kgs)
14 ft (4.3 m)	25 degrees	16.5 ft (5.0 m)	2,500 lbs (1,135 kgs)
13 ft (4.0 m)	35 degrees 20 degrees	19 ft (5.8 m) 14.5 ft (4.4 m)	2,700 lbs (1,226 kgs) 2,700 lbs (1,226 kgs)
12 ft (3.7 m)	38 degrees 27 degrees	19.5 ft (5.9 m) 16 ft (4.9 m)	2,900 lbs (1,317 kgs) 2,900 lbs (1,317 kgs)
11 ft (3.4 m)	44 degrees 35 degrees 15 degrees	21 ft (6.4 m) 17.5 ft (5.3 m) 13 ft (4.0 m)	3,200 lbs (1,453 kgs) 3,200 lbs (1,453 kgs) 3,200 lbs (1,453 kgs)
10 ft (3.0 m)	50 degrees 42 degrees 29 degrees	22 ft (6.7 m) 19 ft (5.8 m) 15.5 ft (4.7 m)	3,500 lbs (1,589 kgs) 3,500 lbs (1,589 kgs) 3,500 lbs (1,589 kgs)
9 ft (2.7 m)	55 degrees 48 degrees 37 degrees 20 degrees	23 ft (7.0 m) 20 ft (6.1 m) 17 ft (5.2 m) 13 ft (4.0 m)	3,900 lbs (1,771 kgs) 3,900 lbs (1,771 kgs) 3,900 lbs (1,771 kgs) 3,900 lbs (1,771 kgs)
8 ft (2.4 m)	57 degrees 53 degrees 45 degrees 33 degrees	23.5 ft (7.2 m) 21 ft (6.4 m) 18 ft (5.5 m) 15 ft (4.6 m)	3,900 lbs (1,771 kgs) 4,370 lbs (1,984 kgs) 4,370 lbs (1,984 kgs) 4,370 lbs (1,984 kgs)
7 ft (2.1 m)	57 degrees 41 degrees 10 degrees	21 ft (6.4 m) 16 ft (4.9 m) 11 ft (3.4 m)	5,000 lbs (2,270 kgs) 5,000 lbs (2,270 kgs) 5,000 lbs (2,270 kgs)
6 ft (1.8 m)	58 degrees 50 degrees 33 degrees	20 ft (6.1 m) 17.5 ft (5.3 m) 14 ft (4.3 m)	5,000 lbs (2,270 kgs) 5,000 lbs (2,270 kgs) 5,000 lbs (2,270 kgs)
5 ft (1.5 m)	57 degrees 45 degrees	18 ft (5.5 m) 15 ft (4.6 m)	5,000 lbs (2,270 kgs) 5,000 lbs (2,270 kgs)
4 ft (1.2 m)	55 degrees	16 ft (4.9 m)	5,000 lbs (2,270 kgs)

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)

b. Prepare MHC for Use.

WARNING

- **Operator must keep load in sight at all times while operating Material Handling Crane (MHC). Load may unexpectedly shift. Failure to comply may result in serious injury or death to personnel.**
- **Do not operate Material Handling Crane (MHC) and 15K Self-Recovery Winch (SRW) at the same time. Failure to comply may result in serious injury or death to personnel.**
- **Wheels must always be chocked before operating Material Handling Crane (MHC). Vehicle may move or load may shift. Failure to comply may result in serious injury to personnel or damage to equipment.**
- **Goggles must be worn while operating Material Handling Crane (MHC) controls. Blowing dust and debris may become airborne while engine is running. Failure to comply may result in injury to personnel.**

NOTE

MHC will not operate unless outriggers are lowered.

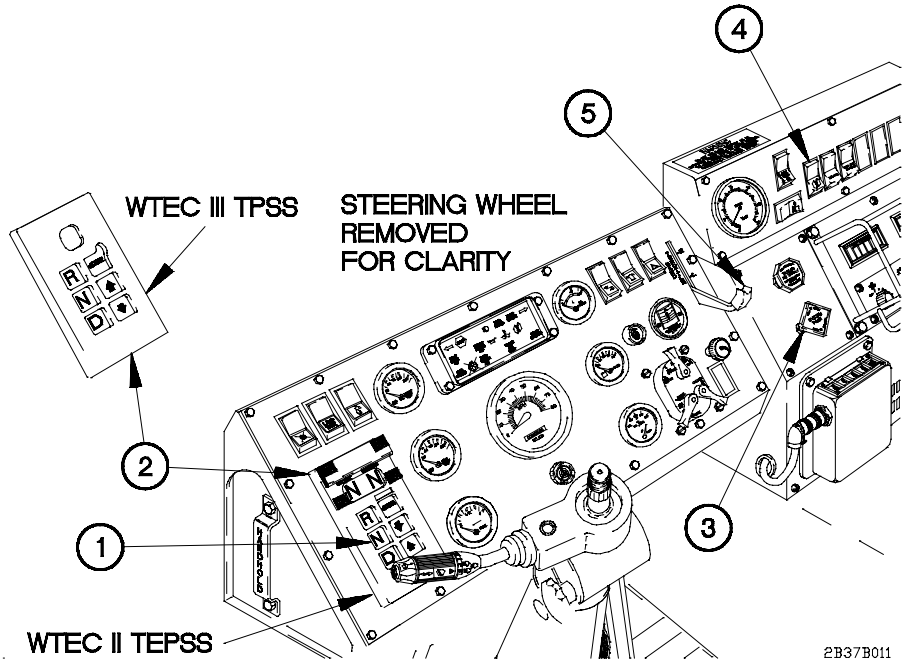
(1) Start engine (para 2-27a or b).

NOTE

MHC can operate on a side slope of up to 5 degrees.

(2) Position vehicle on level ground so all loading and unloading can be done from one position.

(3) Chock wheels (para 2-27h).



(4) Press N (Neutral) button (1) on WTEC II TEPSS (2) or WTEC III TPSS (2).

(5) Pull out SYSTEM PARK control (3).

(6) Position PTO switch (4) to on.

CAUTION

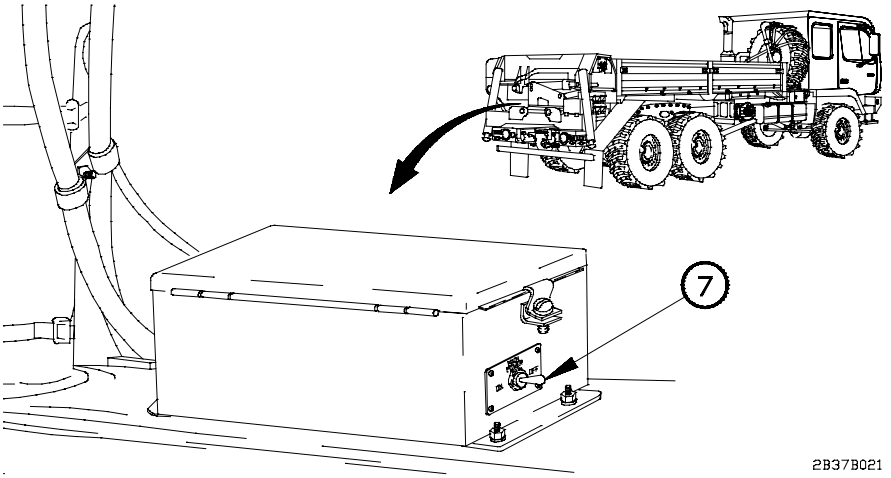
Keep tachometer within 1,250-1,450 rpm when Power Take-Off (PTO) is engaged. Failure to comply may result in damage to equipment.

NOTE

In the event of a tachometer failure a HAND THROTTLE lever positioned to L is approximately 1,250-1,450 rpm.

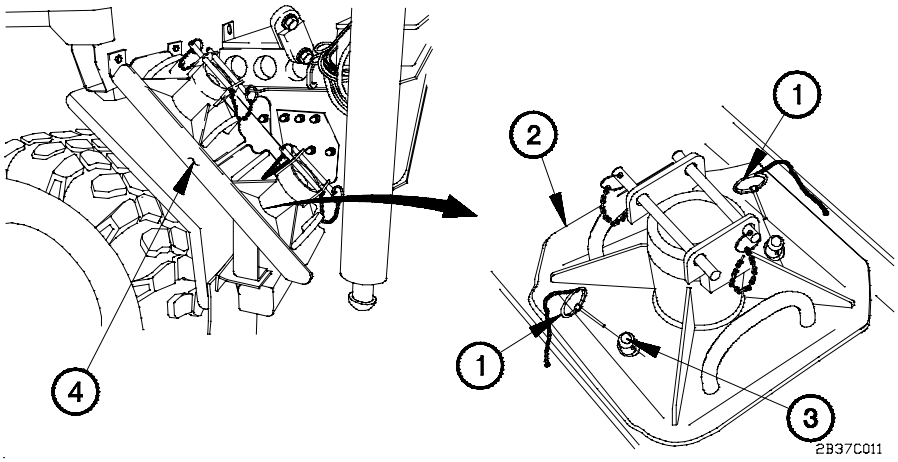
(7) Set engine speed to 1,250 to 1,450 rpm or place HAND THROTTLE lever (5) to L.

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



(8) Position POWER ON/OFF switch (7) to ON.

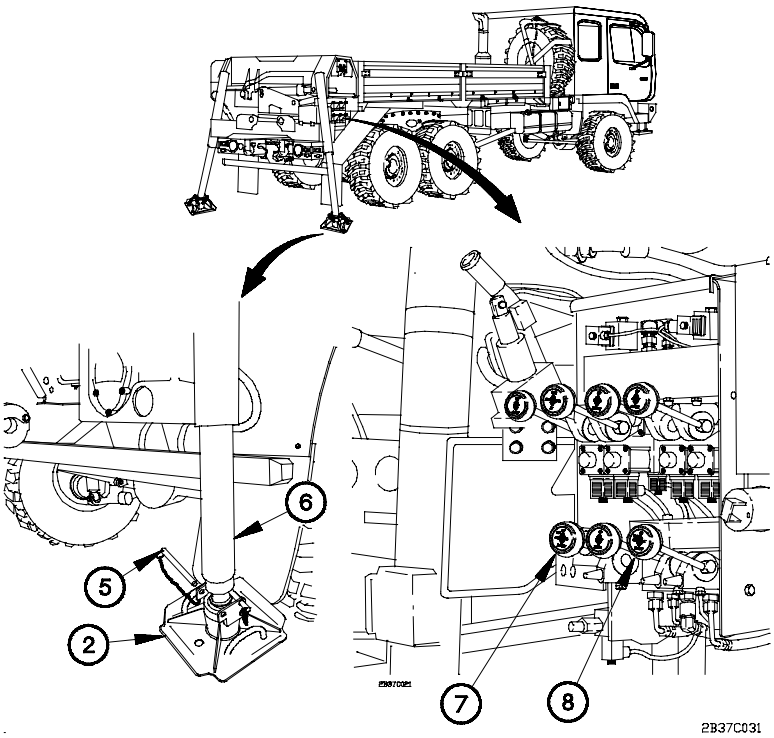
c. Set Up Outriggers.



NOTE

Both outrigger pads are removed the same way. Left side shown.

(1) Remove two pins (1) and outrigger pad (2) from studs (3) on stowage bracket (4).



NOTE

Both outrigger pads are installed on outriggers the same way. Right side shown.

(2) Remove pin (5) from outrigger pad (2).

(3) Clean all dirt and debris from outrigger pad (2) and from end of outrigger (6).

(4) Place outrigger pad (2) on bottom of outrigger (6).

(5) Install pin (5) in outrigger pad (2).

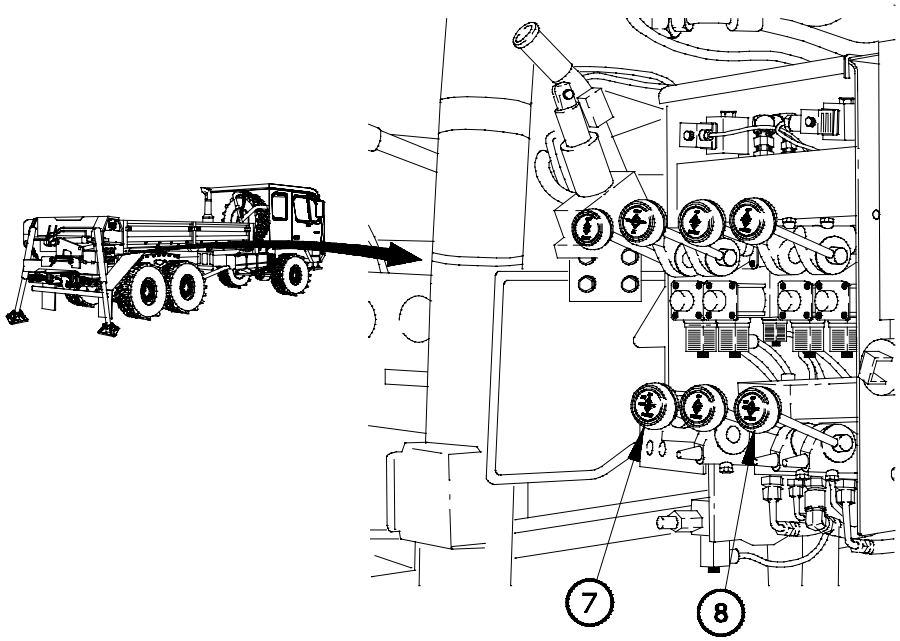
WARNING

Keep hands and feet clear of outriggers during operation. Failure to comply may result in injury to personnel.

(6) Position LH O/R JACK lever (7) to DOWN until outrigger pad (2) is on ground.

(7) Position RH O/R JACK lever (8) to DOWN until outrigger pad (2) is on ground.

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



WARNING

- **Do not raise vehicle tires off ground with outriggers. Vehicle may roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.**

- **Outriggers must be positioned so that Material Handling Crane (MHC) is level from side to side. Use of MHC when vehicle is not level can cause vehicle to roll over. Failure to comply may result in serious injury or death to personnel.**

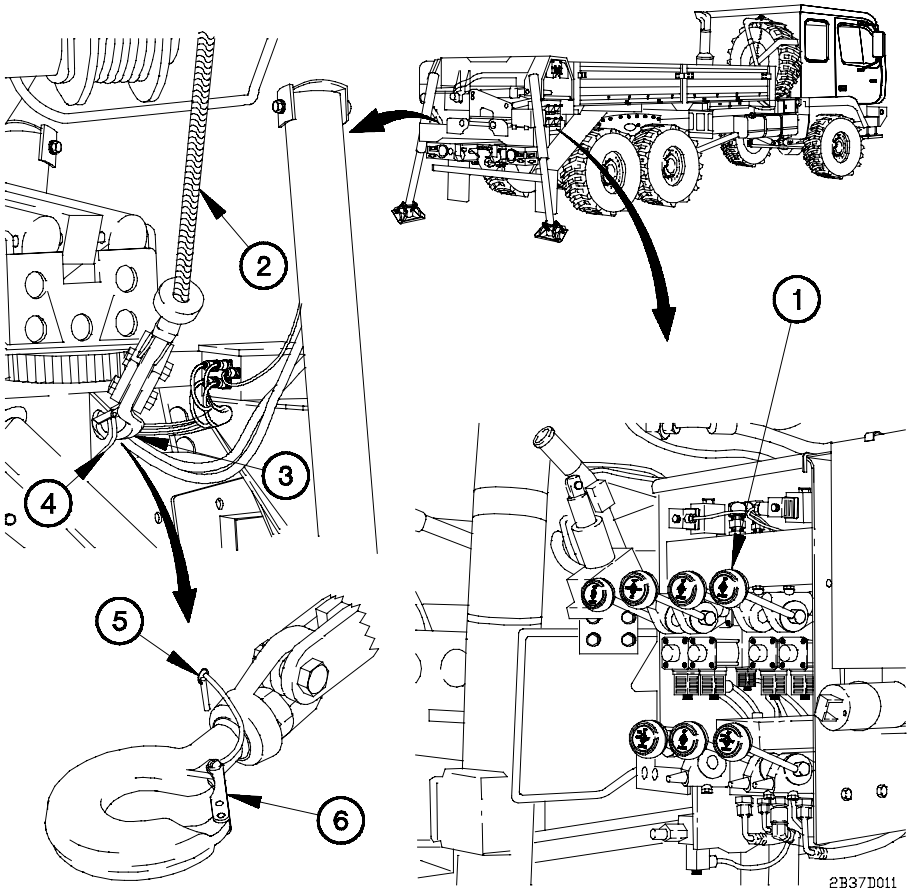
NOTE

- Operate LH O/R JACK lever and RH O/R JACK lever at the same time.

- Outriggers should be lowered just enough so that all tires have firm contact with ground but do not bulge from weight. Left outrigger or right outrigger may need to be lowered slightly more than the other to level MHC from side to side.

(8) Position LH O/R JACK lever (7) and RH O/R JACK lever (8) to DOWN until vehicle weight is off rear tires.

d. Raise Boom to Operating Position.



CAUTION

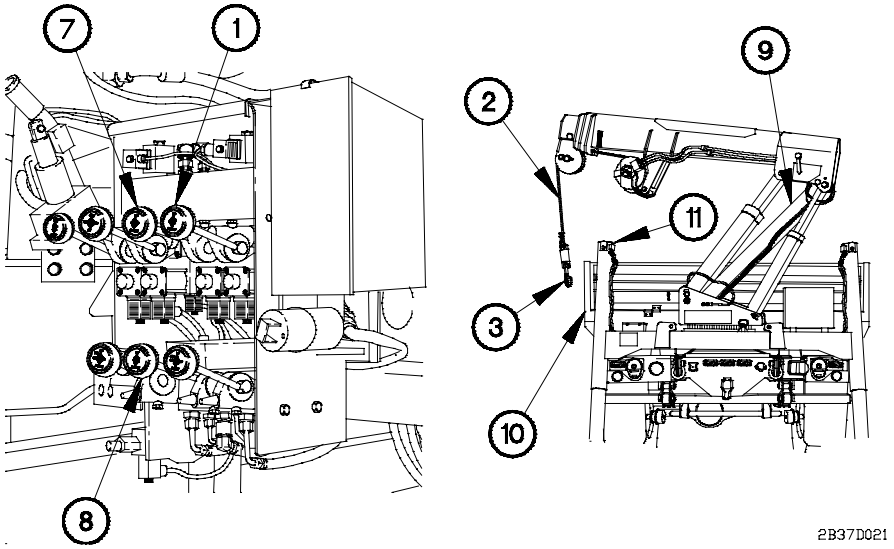
When disconnecting hook assembly from stowage ring, do not allow excessive slack to build-up when paying out cable. Cable may get tangled on drum. Failure to comply may result in damage to equipment.

(1) Position HOIST lever (1) to DOWN until there is enough slack in cable (2) to disconnect hook assembly (3) from stowage ring (4).

(2) Remove safety pin (5) from hook assembly latch (6).

(3) Disconnect hook assembly (3) from stowage ring (4).

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



WARNING

Keep boom clear of all electrical lines and other obstacles while operating Material Handling Crane (MHC). Failure to comply may result in serious injury or death to personnel.

CAUTION

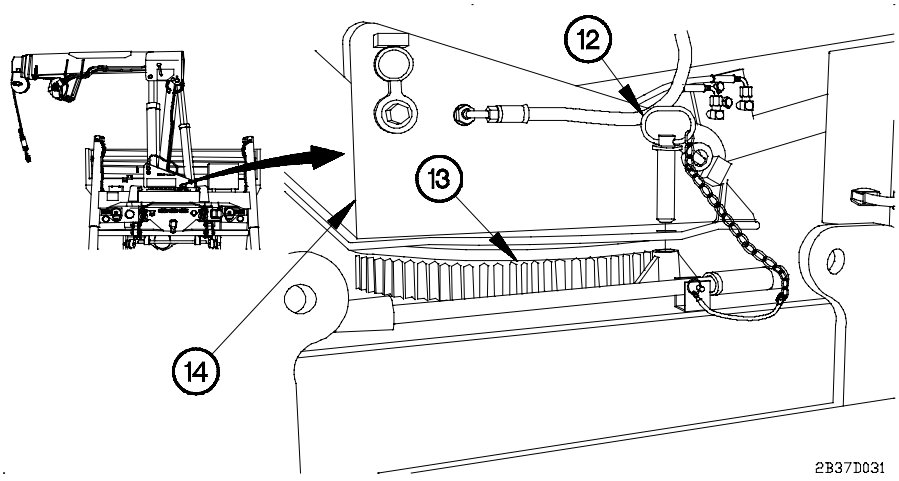
- Never telescope boom or lift load unless mast is fully raised. Failure to comply may result in damage to equipment.
- Retract cable as required so that hook assembly does not contact cargo bed sides or outrigger while raising mast. Failure to comply may result in damage to equipment.

NOTE

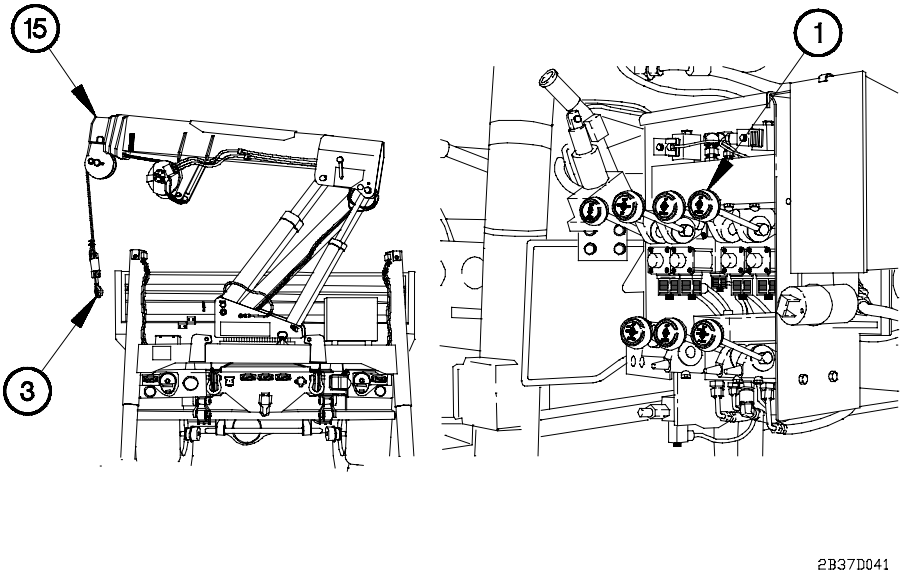
BOOM lever and MAST lever are operated at the same time to maintain boom at approximately a 45-degree angle.

(4) Position BOOM lever (7) and MAST lever (8) to UP until mast (9) is fully raised.

(5) Position HOIST lever (1) to UP to reel in cable (2) so that hook assembly (3) clears cargo bed sides (10) and outrigger (11) as mast (9) is being raised.



(6) Remove pin (12) from turntable bearing (13) to allow turntable (14) to rotate.

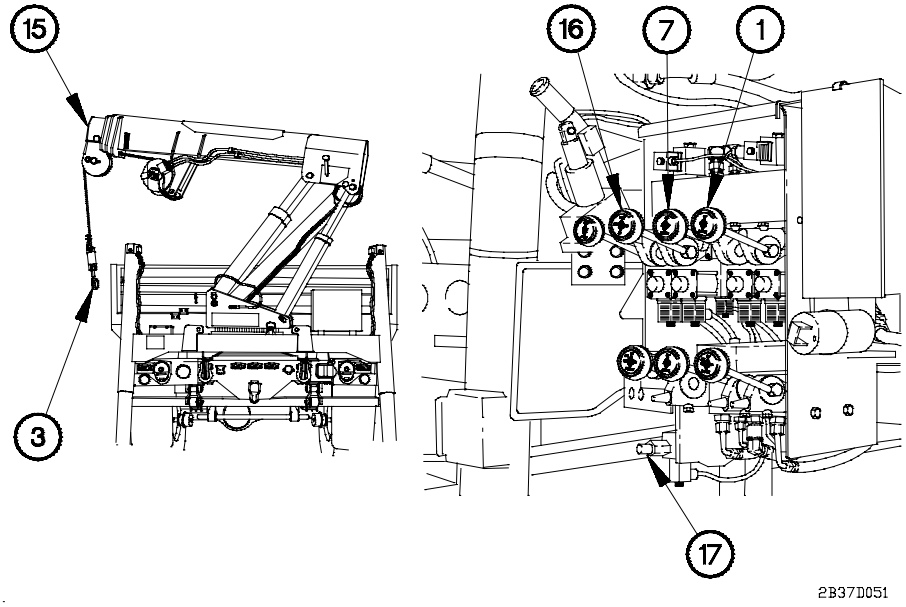


(7) To pre-operational check MHC Overload Shutdown System perform the following:

(a) Position HOIST lever (1) to UP until hook assembly (3) is against boom nose (15).

(b) Continue to hold HOIST lever (1) in UP position until hydraulic system is heard to by-pass.

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



NOTE

There should be no movement of MHC during this check. If there is movement in MHC, notify Unit Maintenance.

(c) Continue holding HOIST lever (1) in UP position while positioning TELESCOPE lever (16) to OUT and BOOM lever (7) first to UP and then to DOWN.

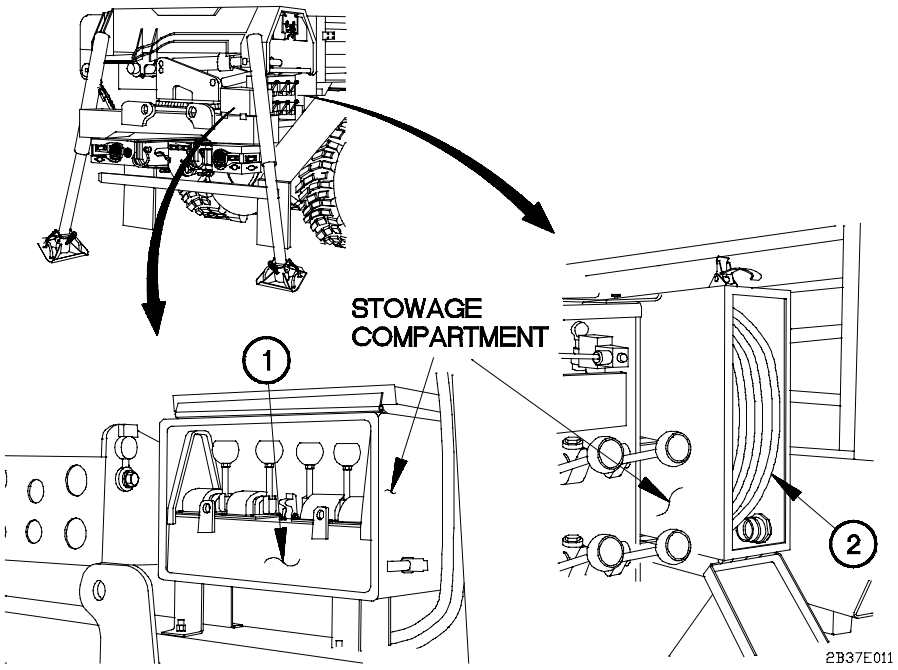
NOTE

Approximately six seconds should elapse before overload shutdown system resets and boom responds to down movement. If no movement occurs, notify Unit Maintenance.

(d) While holding BOOM lever (7) in the DOWN position, pay out hook assembly (3) so no contact is made with boom nose (15).

(e) Press MANUAL OVERRIDE switch (17) to reset.

e. Connect REMOTE CONTROL UNIT.



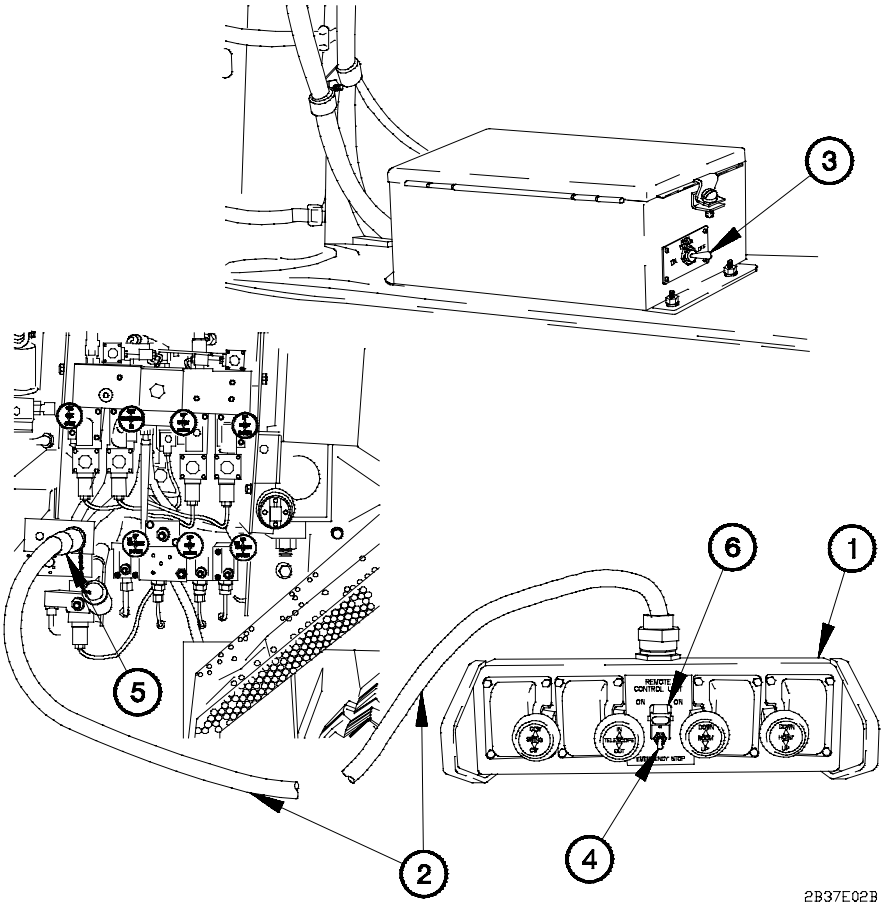
WARNING

Material Handling Crane (MHC) must be operated with REMOTE CONTROL UNIT if Operator is not able to keep load in sight at all times during operation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

(1) Remove REMOTE CONTROL UNIT (1) from stowage compartment.

(2) Remove cable (2) from stowage compartment.

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



(3) Position MAIN POWER switch (3) to OFF.

(4) Position toggle switch (4) to OFF.

(5) Connect cable (2) to REMOTE CONTROL UNIT (1).

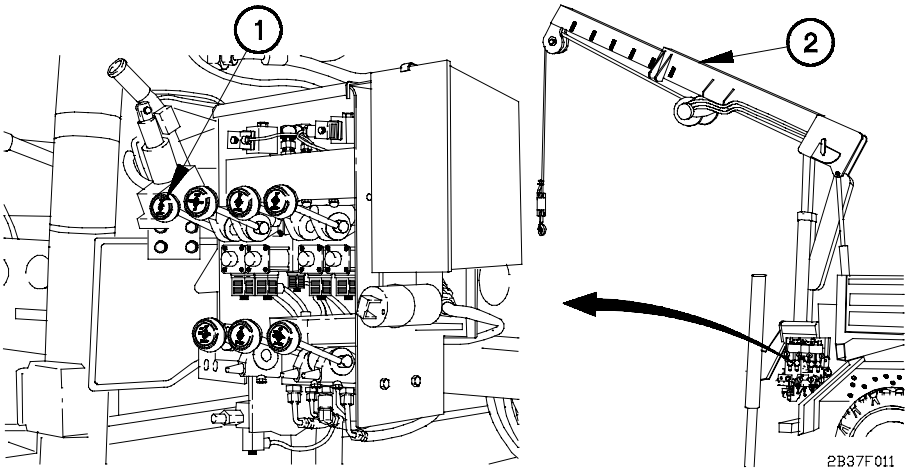
(6) Connect other end of cable (2) to REMOTE CONTROL HOOK UP receptacle (5).

(7) Position MAIN POWER switch (3) to ON.

(8) Lift guard (6) on toggle switch (4).

(9) Position toggle switch (4) to ON.

f. Rotate and Telescope Boom.



WARNING

- **Keep boom clear of all electrical lines and other obstacles while operating Material Handling Crane (MHC). Failure to comply may result in serious injury or death to personnel.**

- **Area must be clear of personnel before operating swing or telescoping boom. Boom must be rotated and telescoped slow enough so Operator has control of load. If Operator cannot see load during operation, operate Material Handling Crane (MHC) with REMOTE CONTROL UNIT. Failure to comply may result in serious injury or death to personnel.**

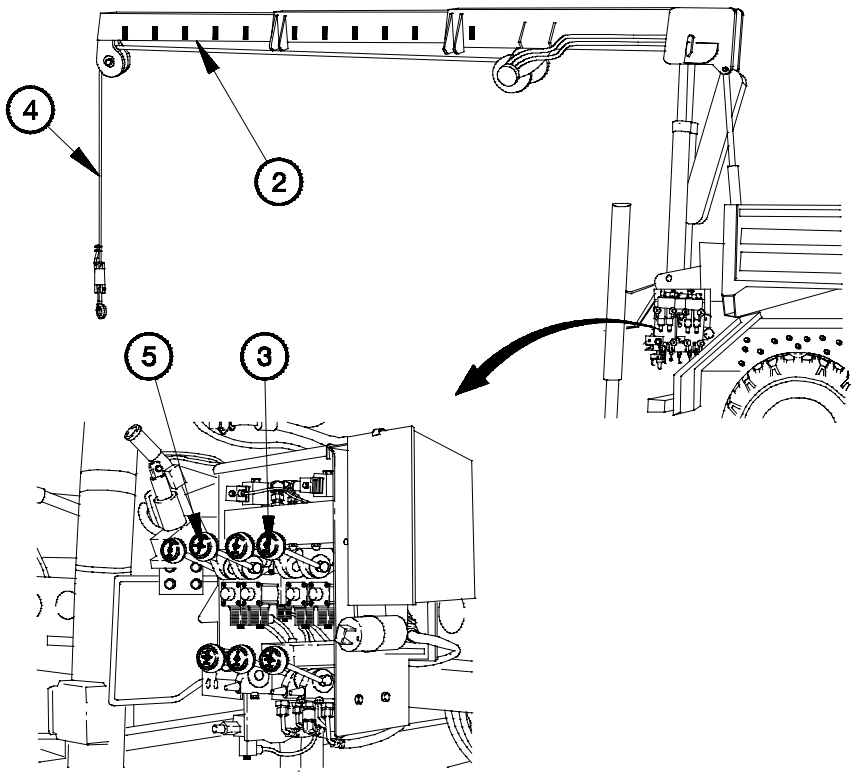
NOTE

- Operate MHC control levers using even pressure. Moving lever slightly will cause slow movement of MHC. Moving lever to full travel will cause faster movement of MHC.

(1) Position SWING lever (1) to CW to move boom (2) to the right.

(2) Position SWING lever (1) to CCW to move boom (2) to the left.

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



CAUTION

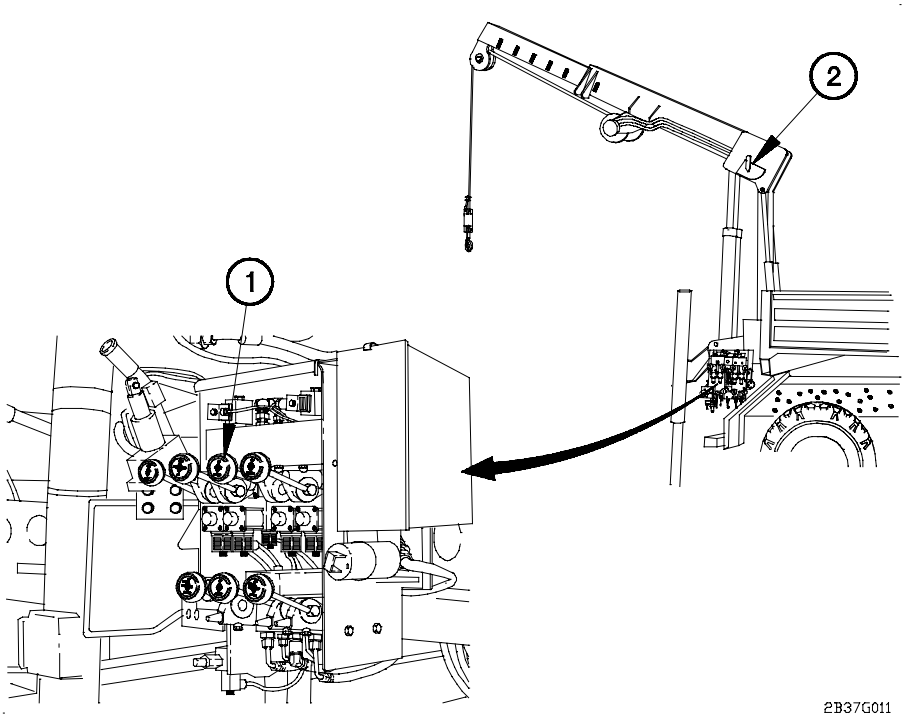
Keep hook assembly at least 2 ft (0.6 m) from end of boom. If hook assembly hits end of boom, Material Handling Crane (MHC) will lose power for several seconds. Failure to comply may result in damage to equipment.

NOTE

Operate HOIST lever and TELESCOPE lever at the same time.

(3) Position HOIST lever (3) to DOWN to pay out cable (4) and TELESCOPE lever (5) to OUT to extend boom (2).

g. Raise and Lower Load.



WARNING

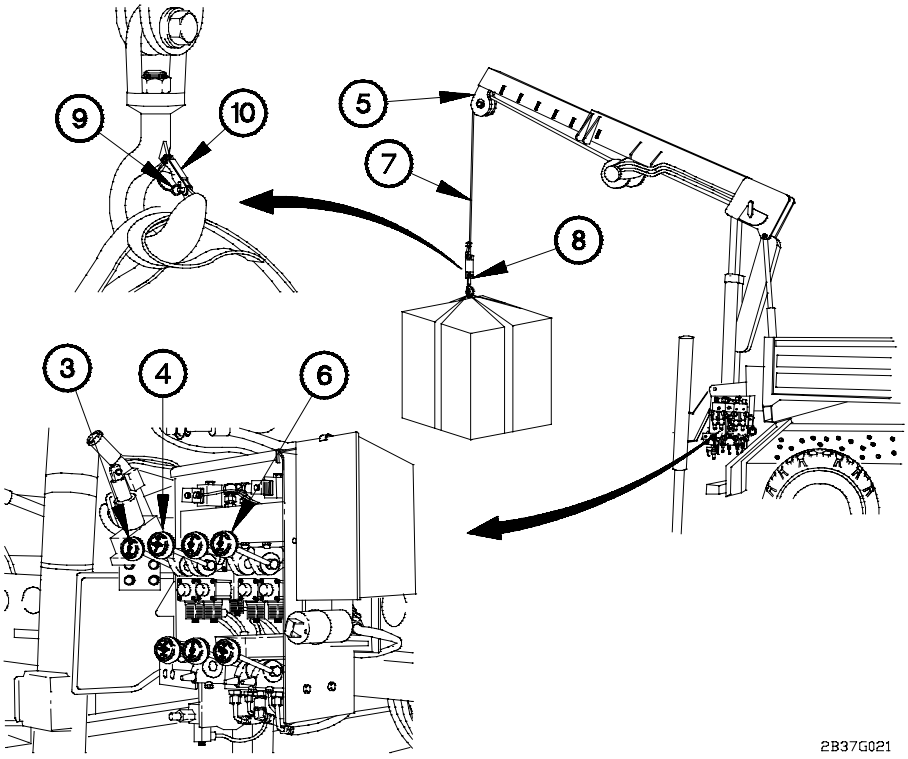
- **Area must be clear of personnel before operating swing or telescoping boom. Boom must be rotated and telescoped slowly enough so Operator has control of load. If Operator cannot see load during operation, operate Material Handling Crane (MHC) with REMOTE CONTROL UNIT. Failure to comply may result in serious injury or death to personnel or damage to equipment.**

- **Attach guide lines to load to keep control of load at all times. Failure to comply may result in serious injury or death to personnel or damage to equipment.**

(1) Refer to range diagram (para 2-37a) or to Table 2-14 to determine correct boom angle.

(2) Position BOOM lever (1) to UP until boom angle indicator (2) shows correct reading.

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



(3) Operate SWING lever (3) and TELESCOPE lever (4) to center end of boom (5) directly over load.

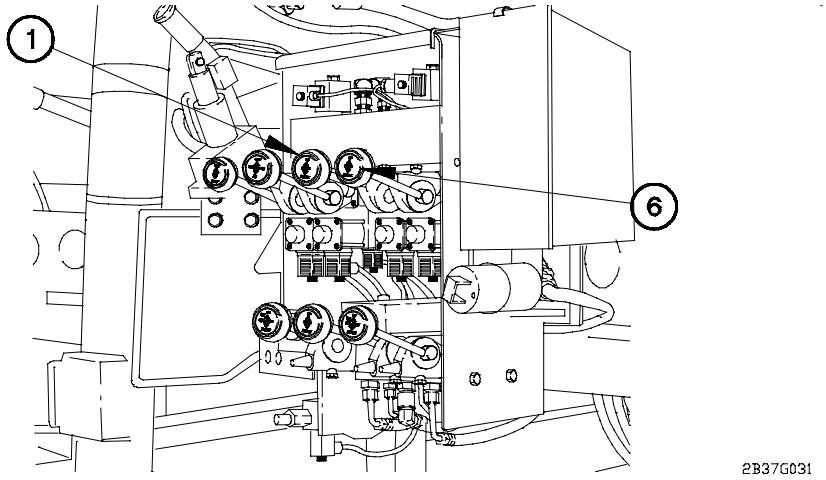
CAUTION

- Ensure boom and load are clear of vehicle sides when loading and unloading cargo. Failure to comply may result in damage to equipment.
- Use only a straight pull when lifting load. Failure to comply may result in damage to equipment.

(4) Operate HOIST lever (6) to pay out or reel in cable (7) and to connect hook assembly (8) to load.

(5) Connect hook assembly (8) to load.

(6) Install safety pin (9) in hook assembly latch (10).



WARNING

Ensure there are at least five wraps of cable on hoist drum at all times. Failure to comply may result in serious injury or death to personnel or damage to equipment.

CAUTION

- Do not lift load heavier than maximum rating for Material Handling Crane (MHC) (5,000 lb (2,268 kgs)). Failure to comply may result in damage to equipment.
- Do not allow excessive slack to build-up when paying out cable. Cable may get tangled on drum. Failure to comply may result in damage to equipment.
- Do not jerk HOIST lever. Load may bounce and cause load to separate from hook assembly. Failure to comply may result in damage to equipment.

(7) Position HOIST lever (6) to UP to lift load.

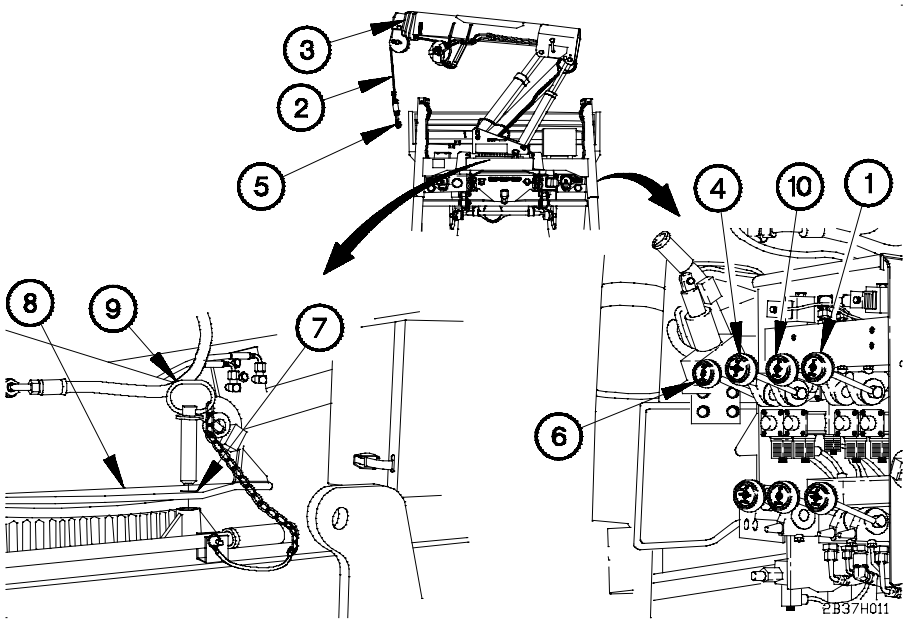
(8) Position BOOM lever (1) to UP to lift load higher as required.

(9) Position HOIST lever (6) to DOWN to lower load.

(10) Position BOOM lever (1) to DOWN to lower load further as required.

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)

h. Stow MHC.



NOTE

HOIST lever and TELESCOPE lever are operated at the same time.

(1) Position HOIST lever (1) to UP to reel in cable (2) until approximately 2 ft (0.6 m) of cable hangs from boom (3).

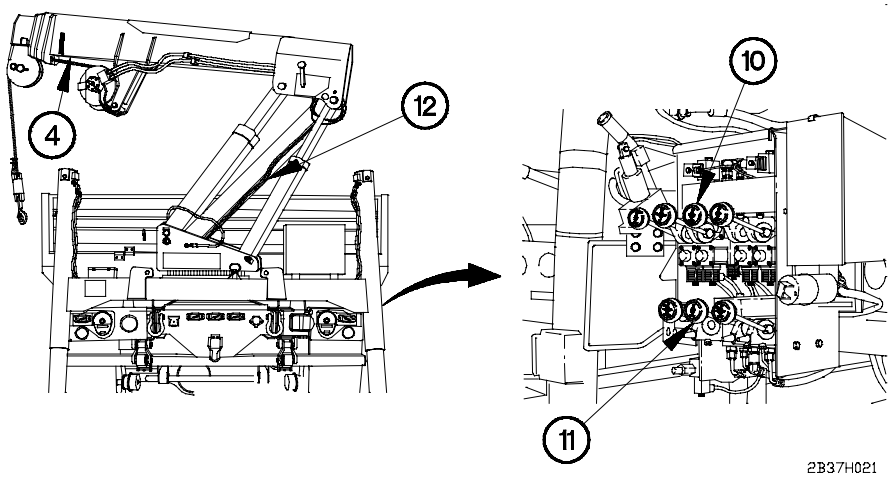
(2) Position TELESCOPE lever (4) to IN to retract boom (3) so that cable (2) and hook assembly (5) are on Operator's side of vehicle.

(3) Operate SWING lever (6) to align lock pin holes (7) in turntable bearing (8).

(4) Install pin (9) in turntable bearing (8).

(5) Operate BOOM lever (10) so that boom angle is approximately 45 degrees.

(6) Position TELESCOPE lever (4) to IN to retract boom (3) completely.

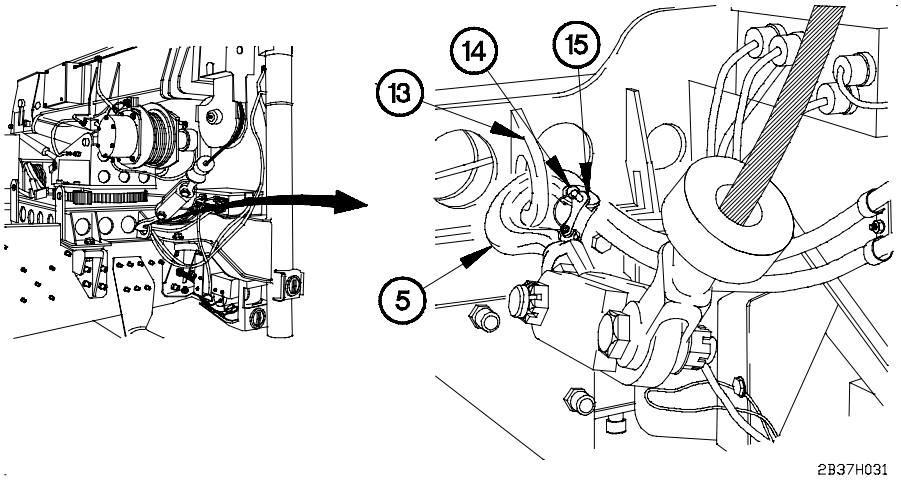


NOTE

BOOM lever and MAST lever are operated at the same time to maintain boom at approximately a 45-degree angle.

(7) Position BOOM lever (10) and MAST lever (11) to DOWN until mast (12) is fully lowered.

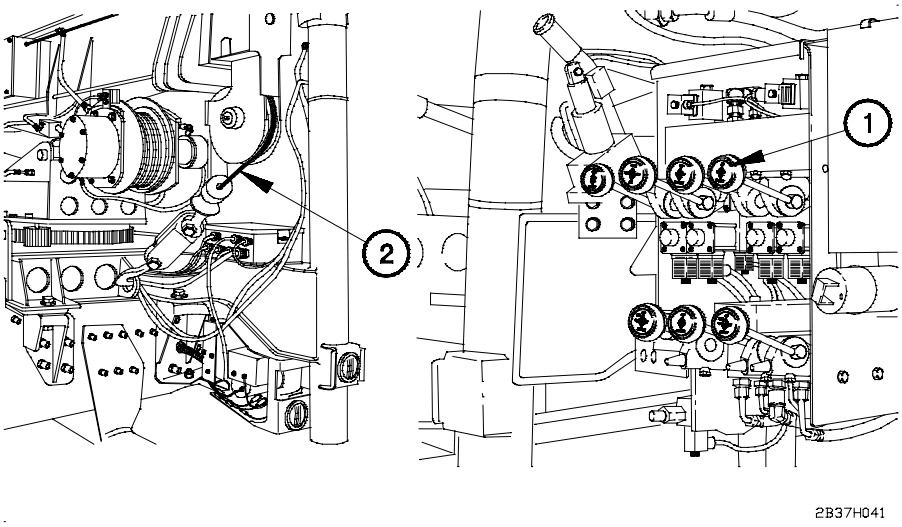
(8) Position BOOM lever (10) to DOWN until boom (4) is fully lowered.



(9) Connect hook assembly (5) to stowage ring (13).

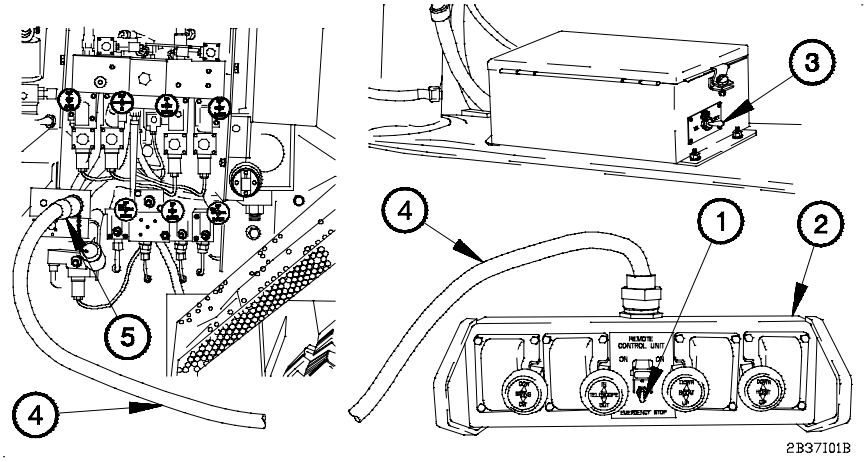
(10) Install safety pin (14) in hook assembly latch (15).

2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



(11) Position HOIST lever (1) to UP to remove all slack from cable (2).

i. Disconnect REMOTE CONTROL UNIT.

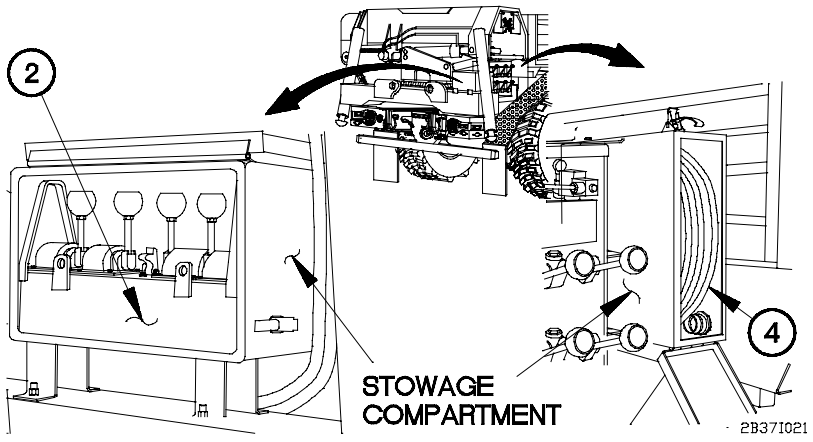


(1) Position toggle switch (1) to OFF.

(2) Position MAIN POWER switch (3) to OFF.

(3) Disconnect cable (4) from REMOTE CONTROL HOOK UP receptacle (5).

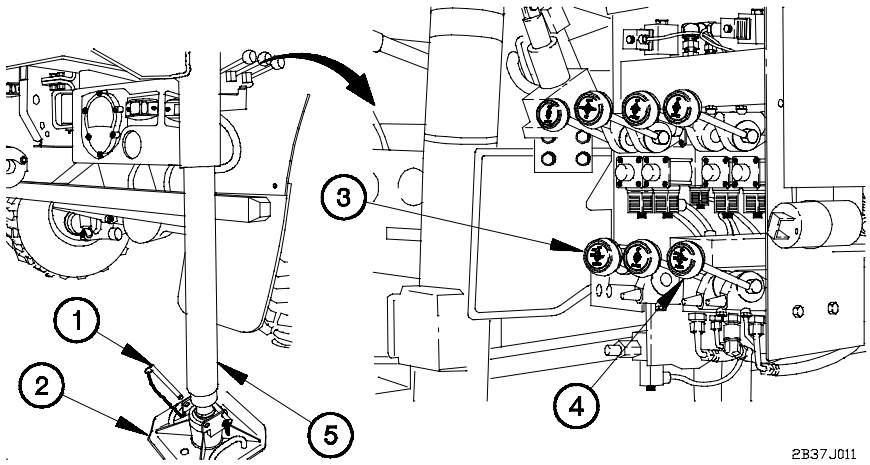
(4) Disconnect cable (4) from REMOTE CONTROL UNIT (2).



(5) Stow cable (4) in stowage compartment.

(6) Stow REMOTE CONTROL UNIT (2) in stowage compartment.

j. Stow Outriggers and Shut Down MHC.



(1) Remove pin (1) from each outrigger pad (2).

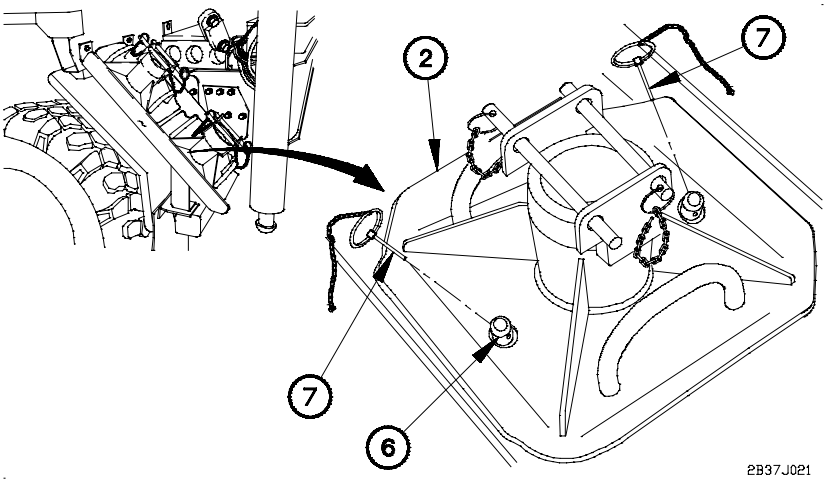
NOTE

Operate LH O/R JACK lever and RH O/R JACK lever at the same time.

(2) Position LH O/R JACK lever (3) and RH O/R JACK lever (4) to UP until outriggers (5) are fully retracted.

(3) Install pin (1) in each outrigger pad (2).

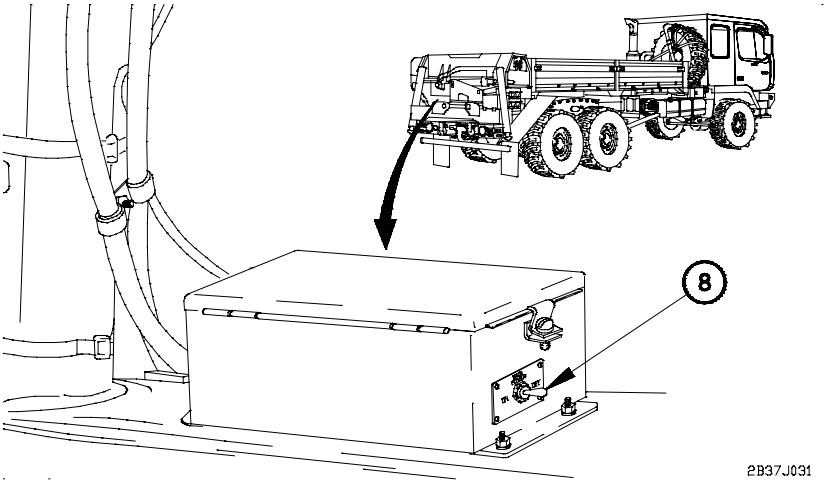
2-37. M1084/M1086 MATERIAL HANDLING CRANE (MHC) OPERATION (CONT)



NOTE

Both outrigger pads are installed on stowage bracket the same way.

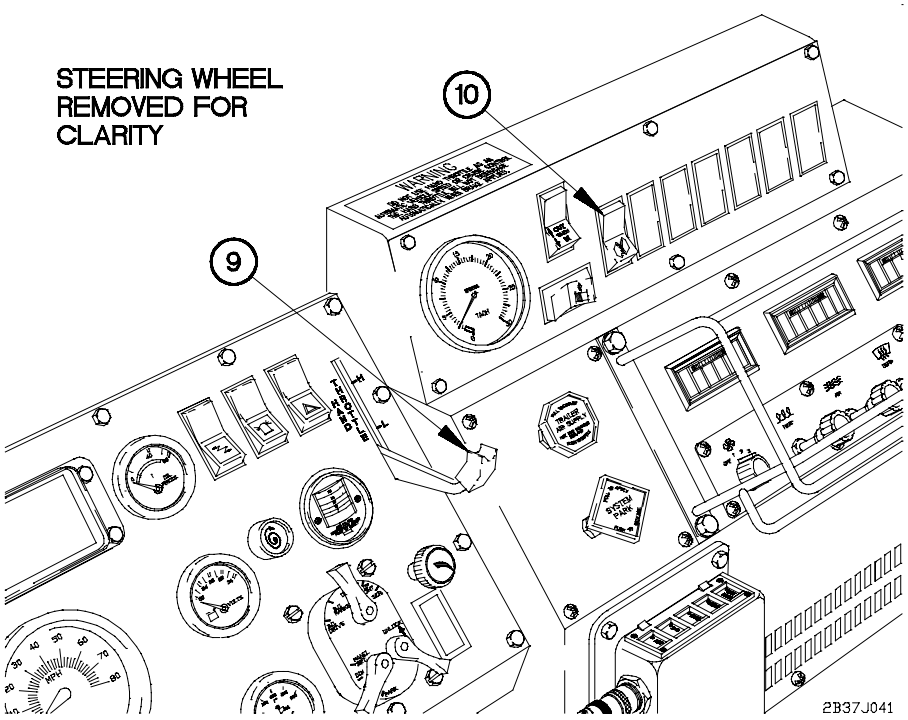
(4) Install outrigger pad (2) on stowage bracket studs (6) with two pins (7).



CAUTION

POWER ON/OFF switch must be positioned to OFF when Material Handling Crane (MHC) is not in use. Failure to comply may result in damage to equipment.

(5) Position POWER ON/OFF switch (8) to OFF.



(6) Set engine speed to idle (750 rpm) or place HAND THROTTLE lever (9) to full down position.

(7) Position PTO switch (10) to off.

(8) Shut down engine (para 2-27f).

2-38. DUMP TRUCK OPERATION

a. General.

Payload capacity for M1090/M1094 dump trucks is 10,000 lbs (4,540 kgs). Table 2-15 provides a weight chart for typical materials. Shaded values indicate loads that are more than rated payload capacity of M1090/M1094 dump trucks.

2-38. DUMP TRUCK OPERATION (CONT)

WARNING

Do not exceed rated payload of vehicle. Failure to comply may result in injury to personnel or damage to equipment.

Table 2-15. Material Weight by Volume

MATERIAL	WEIGHT OF MATERIAL (lbs)		CAPACITY		MAXIMUM FUNCTIONAL LOAD (cu-yd) THAT DOES NOT OVERLOAD TRUCK
			Level Full (5.19 cu-yd or 140.17 cu-ft)	Heaping Full (7.78 cu-yd or 210.12 cu-ft)	
	Per cu-ft	Per cu-yd (kgs per cu-M)	Loaded Weight lbs (kgs)	Loaded Weight lbs (kgs)	
Ashes	43	1,161 (689)	6,026 (2,734)	9,033 (4,098)	
Cinders	46	1,242 (737)	6,446 (2,924)	9,663 (4,384)	
Clay, dry loose	77	2,079 (1,234)	10,790 (4,895)	16,175 (7,338)	4.5
Clay, wet	110	2,970 (1,762)	15,414 (6,993)	23,107 (10,489)	3.0
Clay and gravel	110	2.970 (1,762)	15,414 (6,993)	23,107 (10,489)	3.0
Coal, anthracite (hard)	54	1,458 (865)	7,567 (3,433)	11,343 (5,148)	6.5
Coal, bituminous (soft)	81	2,187 (1,298)	11,351 (5,149)	17,015 (7,719)	4.5
Coke	28	756 (449)	3,924 (1,780)	5,882 (2,668)	
Concrete	138	3,726 (2,211)	19,338 (8,773)	28,988 (13,151)	2.5

Table 2-15. Material Weight by Volume (Cont)

MATERIAL	WEIGHT OF MATERIAL (lbs)		CAPACITY		MAXIMUM FUNCTIONAL LOAD (cu-yd) THAT DOES NOT OVERLOAD TRUCK
			Level Full (5.19 cu-yd or 140.17 cu-ft)	Heaping Full (7.78 cu-yd or 210.12 cu-ft)	
	Per cu-ft	Per cu-yd (kgs per cu-M)	Loaded Weight lbs (kgs)	Loaded Weight lbs (kgs)	
Concrete mix, wet	124	3,348 (1,986)	17,375 (7,883)	26,047 (11,817)	3.0
Earth, dry loose	75	2,025 (1,202)	10,510 (4,768)	15,755 (7,147)	4.5
Earth, moist packed	95	2,565 (1,522)	13,312 (6,039)	19,956 (9,053)	3.5
Earth and gravel, dry loose	100	2,700 (1,602)	14,013 (6,357)	21,006 (9,530)	3.5
Garbage, dry	37	999 (593)	5,185 (2,352)	7,772 (3,526)	
Garbage, wet	47	1,269 (753)	6,586 (2,988)	9,873 (4,479)	
Gravel	110	2,970 (1,762)	15,414 (6,993)	23,107 (10,483)	3.0
Gravel and sand, dry loose	95	2,565 (1,522)	13,312 (6,039)	19,956 (9,053)	3.5
Gravel and sand, wet	120	3,240 (1,922)	16,816 (7,629)	25,207 (11,436)	3.0
Limestone, crushed	100	2,700 (1,602)	14,013 (6,357)	21,006 (9,530)	3.5
Mud, wet	120	3,240 (1,922)	16,816 (7,828)	25,207 (11,436)	3.0
Rock and stone, crushed	95	2,565 (1,522)	13,312 (6,039)	19,958 (9,053)	3.5

2-38. DUMP TRUCK OPERATION (CONT)

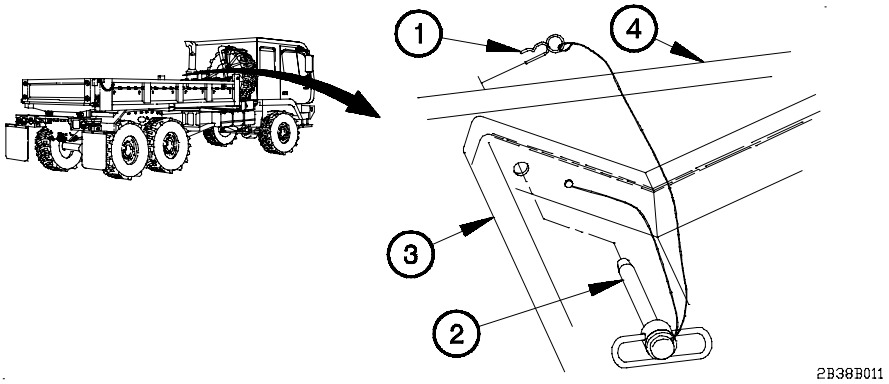
Table 2-15. Material Weight by Volume (Cont)

MATERIAL	WEIGHT OF MATERIAL (lbs)		CAPACITY		MAXIMUM FUNCTIONAL LOAD (cu-yd) THAT DOES NOT OVERLOAD TRUCK
			Level Full (5.19 cu-yd or 140.17 cu-ft)	Heaping Full (7.78 cu-yd or 210.12 cu-ft)	
	Per cu-ft	Per cu-yd (kgs per cu-M)	Loaded Weight lbs (kgs)	Loaded Weight lbs (kgs)	
Salt, fine	50	1,350 (801)	7,007 (3,179)	10,503 (4,785)	7.0
Sand, dry loose	98	2,646 (1,570)	13,733 (6,230)	20,586 (9,339)	3.5
Sand, dry packed	110	2,970 (1,762)	15,414 (6,993)	23,107 (10,483)	3.0
Sand, moist loose	120	3,240 (1,922)	16,816 (7,629)	25,207 (11,436)	3.0
Slag, crushed	75	2,025 (1,202)	10,510 (4,768)	15,755 (7,147)	4.5
Snow, moist packed	50	1,350 (801)	7,007 (3,179)	10,503 (4,765)	7.0
Stone, crushed	100	2,700 (1,602)	14,013 (6,357)	21,008 (9,530)	3.5
Stone, loose	95	2,565 (1,522)	13,312 (6,039)	19,956 (9,053)	3.5

Loaded weight exceeds rated payload

Maximum Functional Load = Maximum load rounded to the nearest half cubic yard for ease in measurement.

b. Raising Cab Protector.



WARNING

Cab protector is spring loaded and weighs approximately 180 lbs (82 kgs). Hold cab protector down before removing pins. Slowly allow cab protector to raise to upright position after pins are removed. Failure to comply may result in injury to personnel.

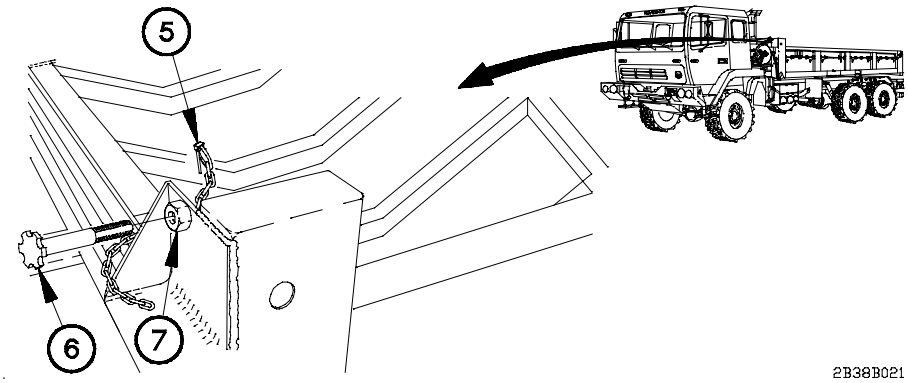
NOTE

This task applies to both sides of cab protector. Left side shown.

(1) Remove lynch pin (1) from hitch pin (2).

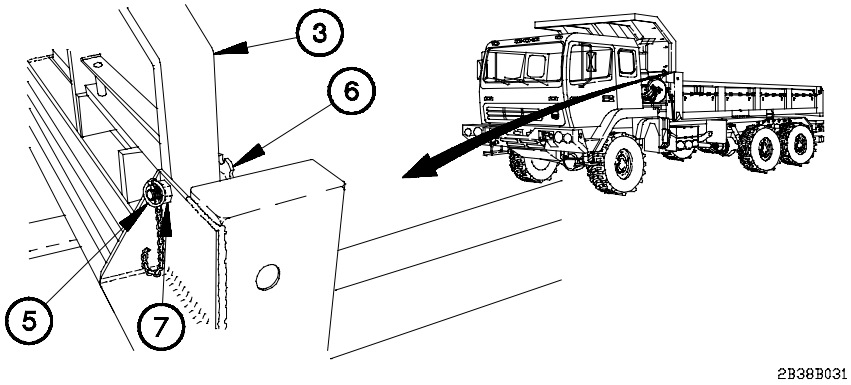
(2) Remove hitch pin (2) from cab protector (3) and dump body (4).

(3) Install hitch pin (2) and lynch pin (1) in cab protector (3).



(4) Remove lynch pin (5) and turn bolt (6) from nut (7).

2-38. DUMP TRUCK OPERATION (CONT)



NOTE

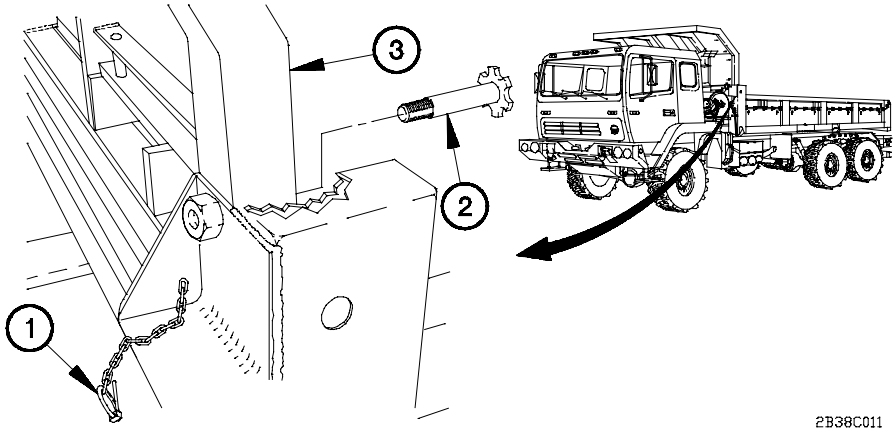
Step (5) requires the aid of an assistant.

(5) Raise cab protector (3).

(6) Install turn bolt (6) through cab protector (3) and nut (7).

(7) Install lynch pin (5) in turn bolt (6).

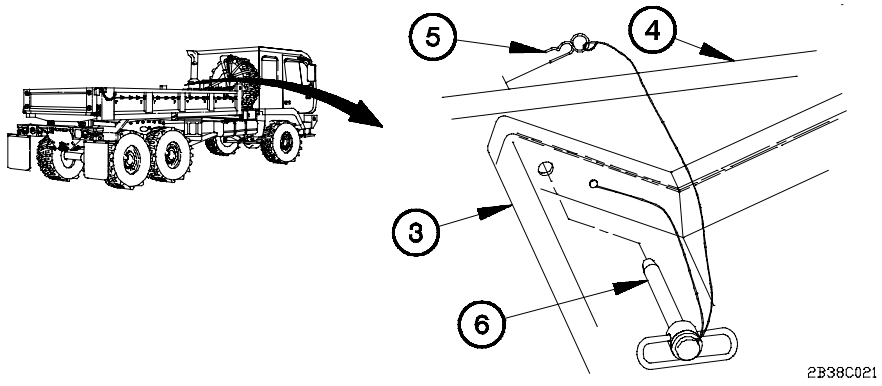
c. Lowering Cab Protector.



NOTE

This task applies to both sides of cab protector. Left side shown.

(1) Remove lynch pin (1) and turn bolt (2) from cab protector (3).



WARNING

Cab protector is spring loaded and weighs approximately 180 lbs (82 kgs). Keep pressure on cab protector when lowering and when installing pins. Failure to comply may result in injury to personnel.

NOTE

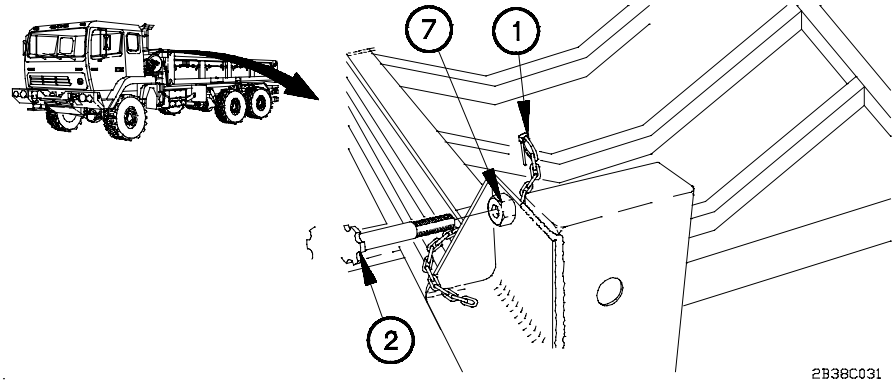
Step (2) requires the aid of an assistant.

(2) Lower cab protector (3) into dump bed (4).

(3) Remove lynch pin (5) and hitch pin (6) from cab protector (3).

(4) Install hitch pin (6) through cab protector (3) and dump body (4).

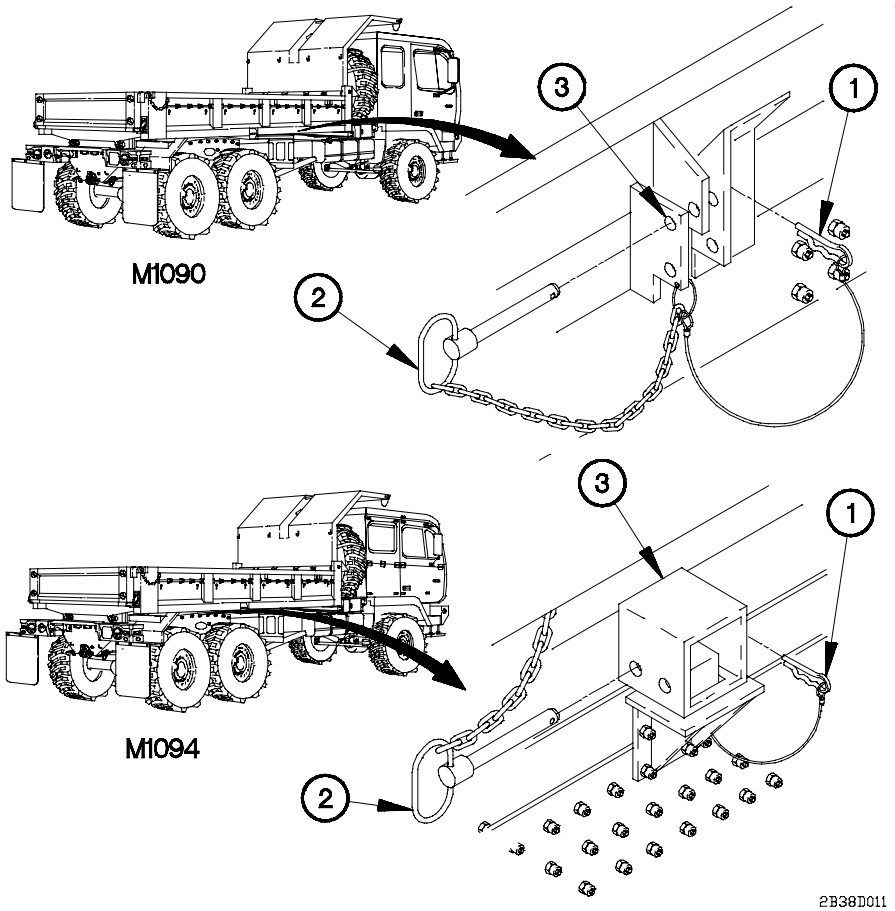
(5) Install lynch pin (5) in hitch pin (6).



(6) Install turn bolt (2) and lynch pin (1) in nut (7).

2-38. DUMP TRUCK OPERATION (CONT)

d. Preparing Dump Body for Operation.

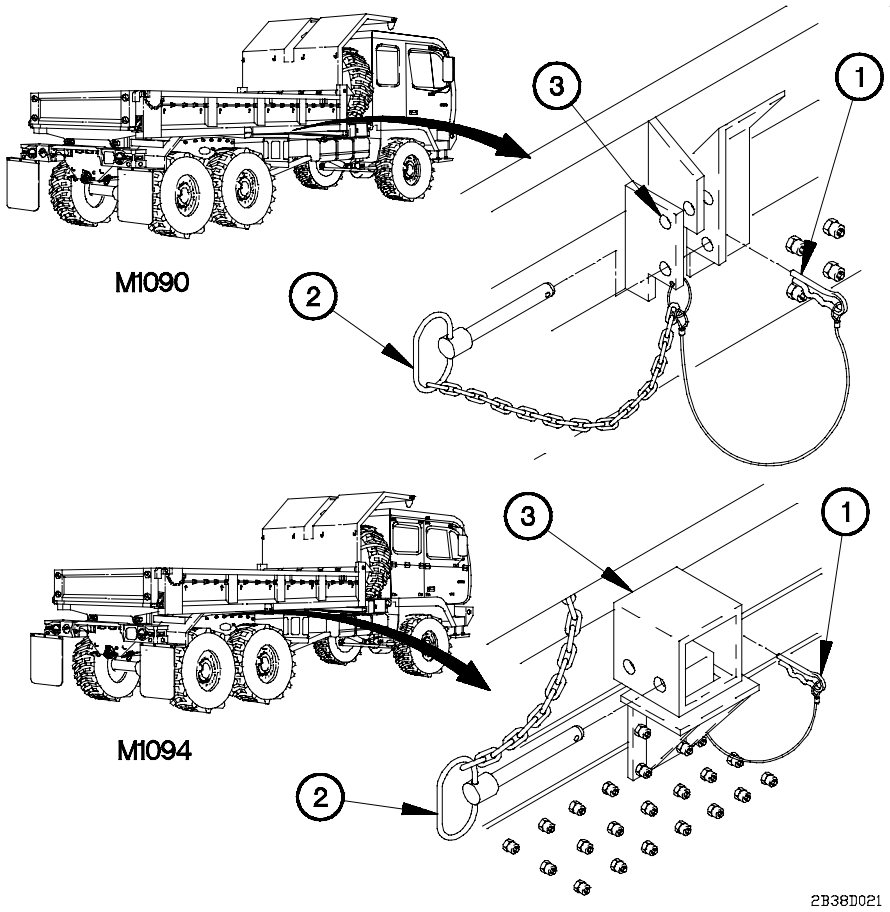


NOTE

M1090 and M1094 lock pins are removed the same way. Both are shown.

(1) Remove clevis pin (1) from lock pin (2).

(2) Remove lock pin (2) from suspension bracket (3).



NOTE

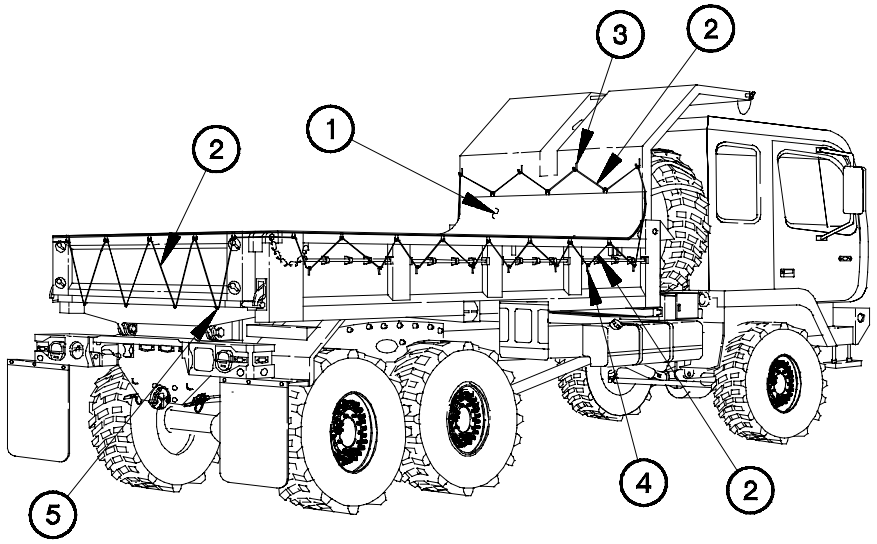
- M1090 and M1094 lock pins are installed the same way. Both are shown.
- M1090 is unlocked when lock pin is installed in lower hole of suspension bracket.
- M1094 is unlocked when lock pin is installed in inner hole of suspension bracket.

(3) Install lock pin (2) in suspension bracket (3).

(4) Install clevis pin (1) in lock pin (2).

2-38. DUMP TRUCK OPERATION (CONT)

e. Debris Cover Installation.



2B38E011

CAUTION

Debris cover must be removed before offloading payload. Failure to comply may result in damage to equipment.

(1) Unfold debris cover (1) evenly over cargo.

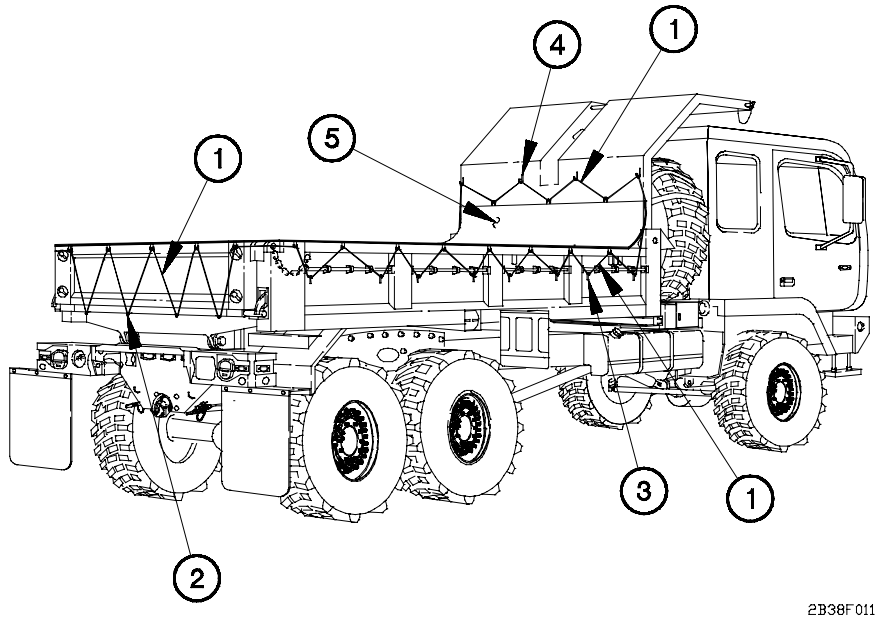
(2) Attach shock cord (2) to cab protector J-hooks (3).

(3) Attach shock cord (2) to dump body J-hooks (4).

(4) Repeat step (3) on opposite side of dump body.

(5) Pull rear of debris cover (1) tight and attach shock cord (2) to tailgate J-hooks (5).

f. Debris Cover Removal.



(1) Remove shock cord (1) from tailgate J-hooks (2).

(2) Remove shock cord (1) from dump body J-hooks (3).

(3) Repeat step (2) on opposite side of dump body.

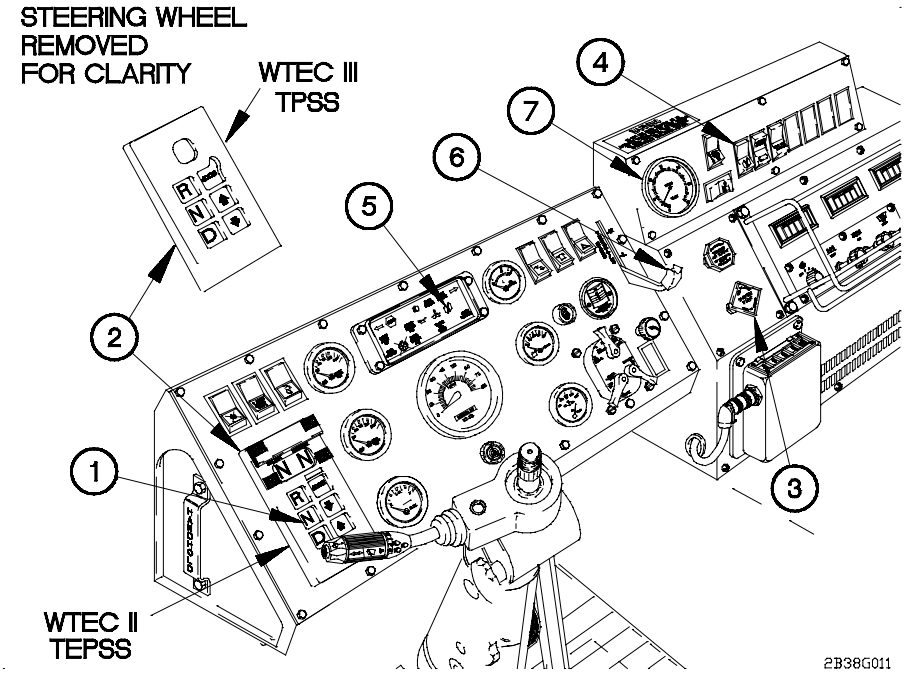
(4) Remove shock cord (1) from cab protector J-hooks (4).

(5) Fold debris cover (5).

(6) Stow debris cover (5).

2-38. DUMP TRUCK OPERATION (CONT)

g. Raising Dump Body.



(1) Start engine (para 2-27a or b).

(2) Press N (Neutral) button (1) on WTEC II TEPSS (2) or WTEC III TPSS (2).

(3) Pull out SYSTEM PARK control (3).

(4) Position PTO switch (4) to on.

(5) Check that PTO on indicator (5) illuminates.

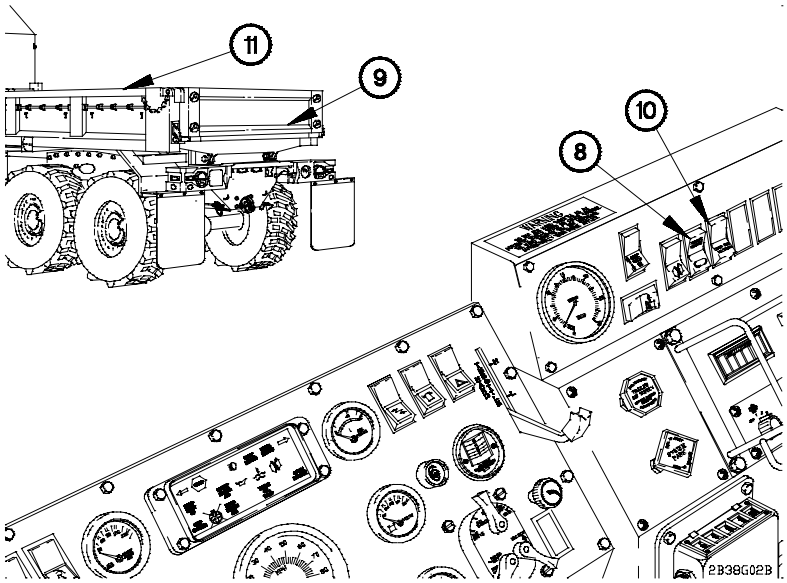
CAUTION

Keep tachometer within 1,250-1,450 rpm when PTO is engaged. Failure to comply may result in damage to equipment.

NOTE

In the event of a tachometer failure, a HAND THROTTLE lever positioned to L is approximately 1,250-1,450 rpm.

(6) Set engine speed by increasing HAND THROTTLE lever (6) until tachometer (7) reads 1,250-1,450 rpm.



WARNING

Ensure no one is behind tailgate before dump body is raised. Failure to comply may result in serious injury or death to personnel.

CAUTION

Switch lock must be pushed up to unlock TAILGATE RELEASE switch. Failure to comply may result in damage to equipment.

NOTE

- Perform step (7) if opening tailgate without a load or partial load.
- Perform step (8) if opening tailgate with full load.
- If Tailgate does not release when TAILGATE RELEASE switch is operated, refer to Dump Truck Manual Release (para 2-67f).

(7) Press and hold TAILGATE RELEASE switch (8) to open tailgate (9).

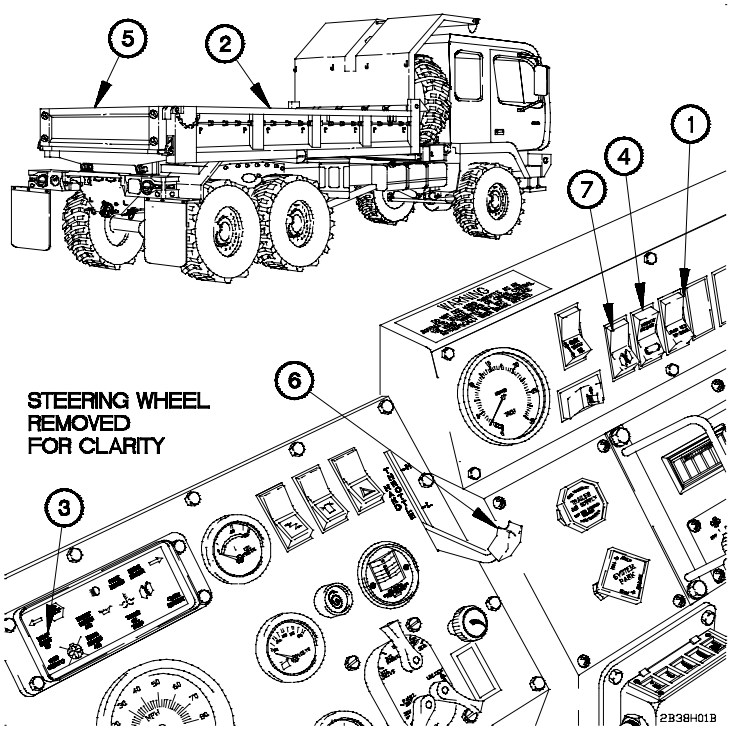
(8) Press and release TAILGATE RELEASE switch (8) to open tailgate (9).

(9) Press and hold DUMP BED UP/DOWN switch (10) in UP position.

(10) Release DUMP BODY UP/DOWN switch (10) when dump body (11) is in required position.

2-38. DUMP TRUCK OPERATION (CONT)

h. Lower Dump Bed.



(1) Press and hold DUMP BED UP/DOWN switch (1) in DOWN position.

(2) Release DUMP BODY UP/DOWN switch (1) when dump body (2) is completely lowered.

(3) Check that DUMP BODY UP indicator (3) is not illuminated.

CAUTION

Switch lock must be pushed up to unlock TAILGATE RELEASE switch. Failure to comply may result in damage to equipment.

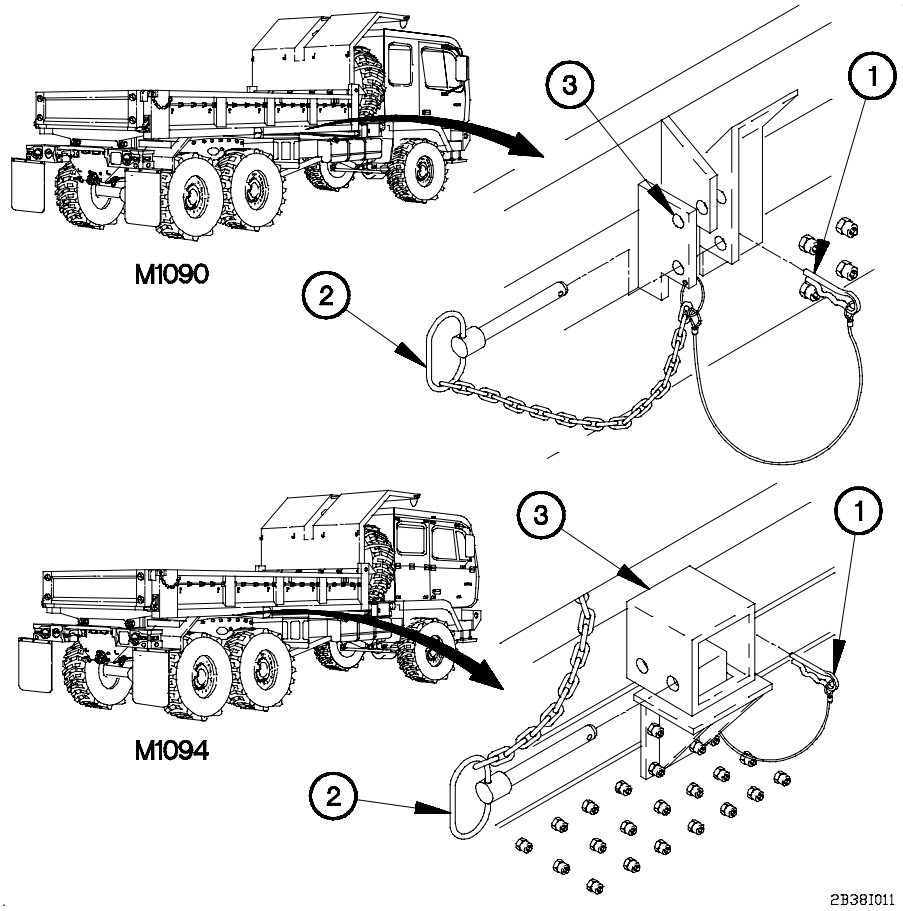
(4) Press and release TAILGATE RELEASE switch (4) to lock tailgate (5).

(5) Set engine speed to idle (750 rpm) by decreasing HAND THROTTLE lever (6) to full down position.

(6) Position PTO switch (7) to off.

(7) Shut down engine (para 2-27f).

i. Prepare Dump Truck for Movement.



CAUTION

Dump body must be locked down before vehicle is moved. Failure to comply may result in damage to equipment.

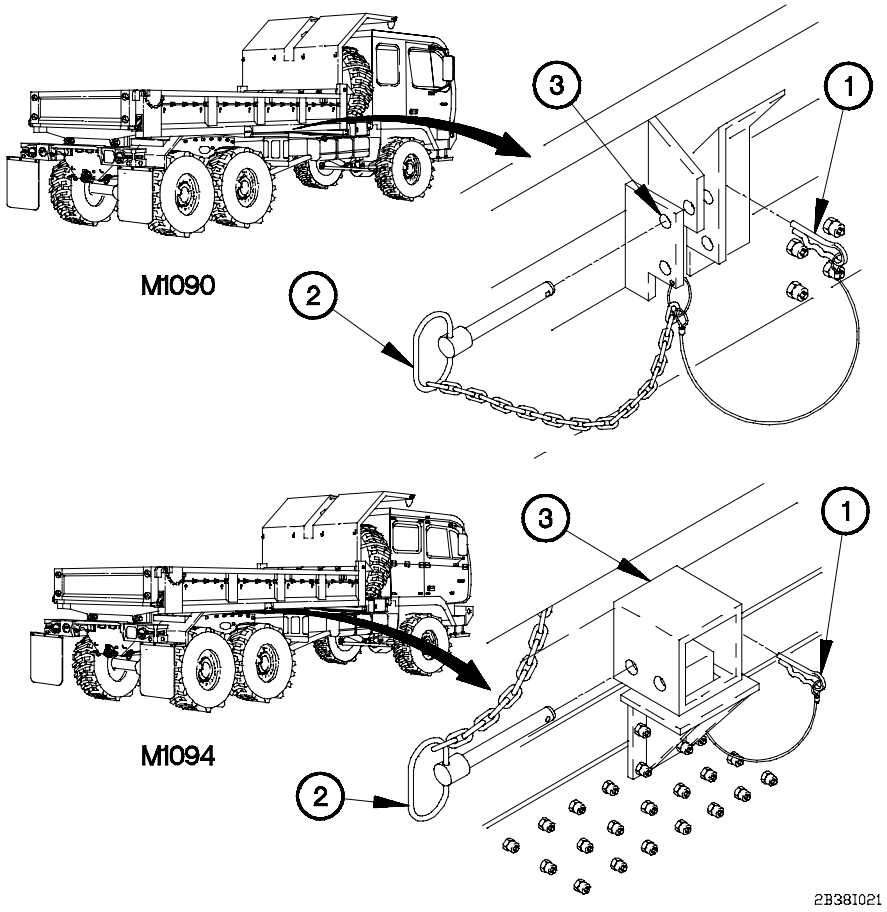
NOTE

M1090 and M1094 lock pins are removed the same way. Both are shown.

(1) Remove clevis pin (1) from lock pin (2) in suspension bracket (3).

(2) Remove lock pin (2) from suspension bracket (3).

2-38. DUMP TRUCK OPERATION (CONT)



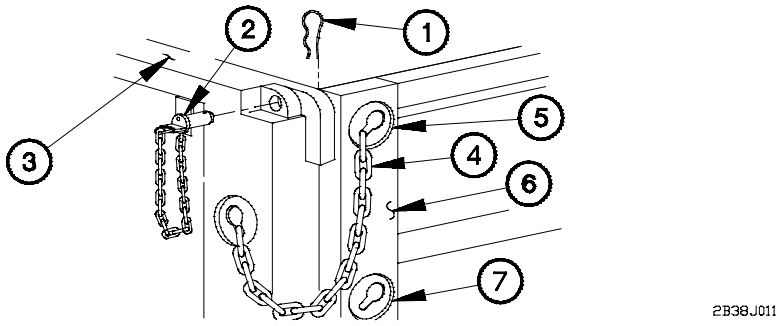
NOTE

- M1090 and M1094 lock pins are installed the same way. Both are shown.
- M1090 is locked when lock pin is installed in top hole of suspension bracket.
- M1094 is locked when lock pin is installed in outer hole of suspension bracket.

(3) Install lock pin (2) in suspension bracket (3).

(4) Install clevis pin (1) in lock pin (2).

j. Lowering and Raising Tailgate.



WARNING

Do not press dump TAILGATE RELEASE switch while tailgate is not connected at the top. Tailgate will fall from dump body. Failure to comply may result in injury to personnel or damage to equipment.

CAUTION

- Material is normally dumped from bottom of tailgate. Where mission requirements call for dumping over tailgate, or when cargo is loaded on dump body, tailgate may be opened from the top. When dumping over tailgate, tailgate must be positioned at a 45-degree angle or 90-degree angle. Failure to comply may result in damage to equipment.
- Lowering the tailgate all the way down may cause damage to equipment.

NOTE

- Two holes are provided on tailgate for pin and chain. The upper hole allows tailgate to be lowered to a 45-degree angle and the lower hole provides a 90-degree angle. If tailgate hangs completely down, place pins in holes on side of dump body.
- Both sides of tailgate are lowered/raised the same. Left side shown.

(1) Remove clevis pin (1) and pin (2) from top of dump body (3).

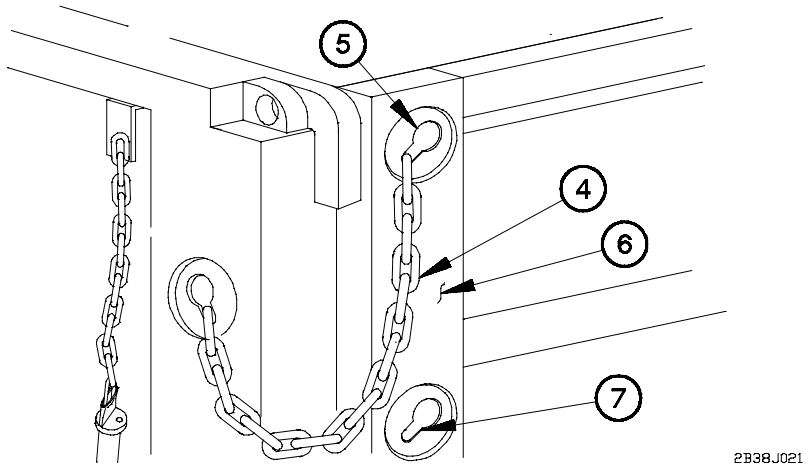
(2) To lower tailgate to 90-degree angle, perform steps (a) through (c).

(a) Remove chain (4) from hole (5) on tailgate (6).

(b) Install chain (4) in hole (7) on tailgate (6).

(c) Lower tailgate (6).

2-38. DUMP TRUCK OPERATION (CONT)

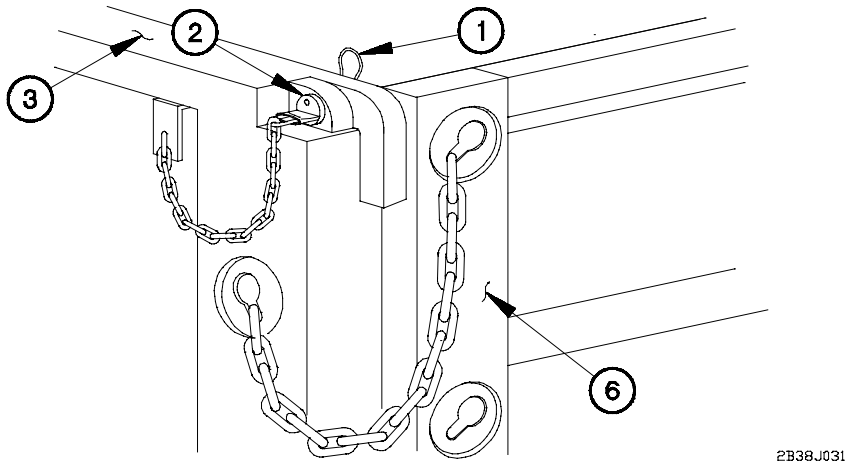


(3) To raise tailgate to 45-degree angle, perform steps (a) through (c).

(a) Remove chain (4) from hole (7) on tailgate (6).

(b) Install chain (4) in hole (5) on tailgate (6).

(c) Raise tailgate (6).

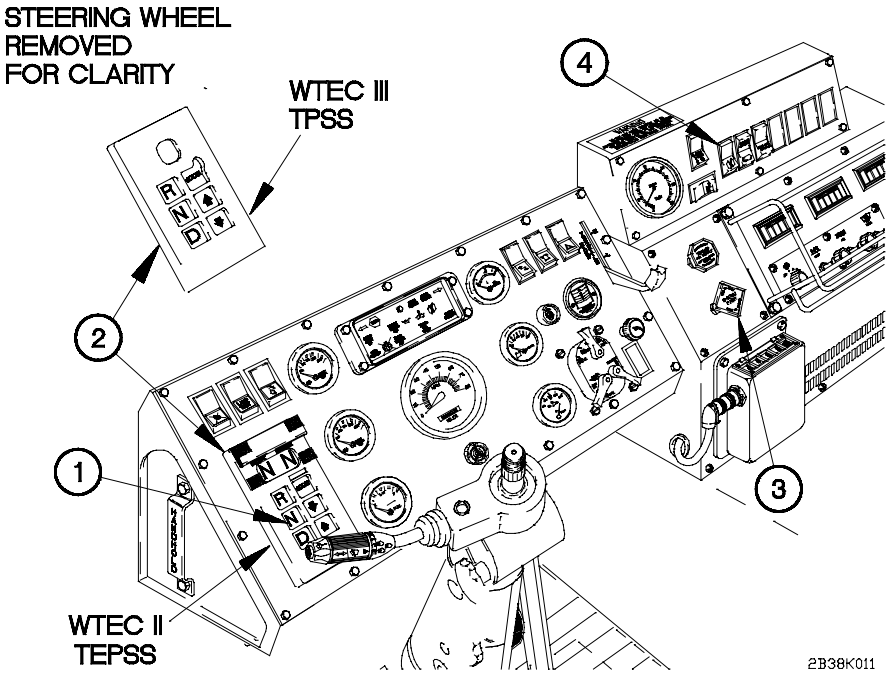


(4) To close tailgate, perform steps (a) and (b).

(a) Manually close tailgate (6).

(b) Install pin (2) and clevis pin (1) to top of dump body (3).

k. Raising Dump Body to Maintenance Position.



WARNING

Dump body must be supported by maintenance legs at any time that maintenance is performed with dump body up. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

The recommended parking configuration is with dump body full down.

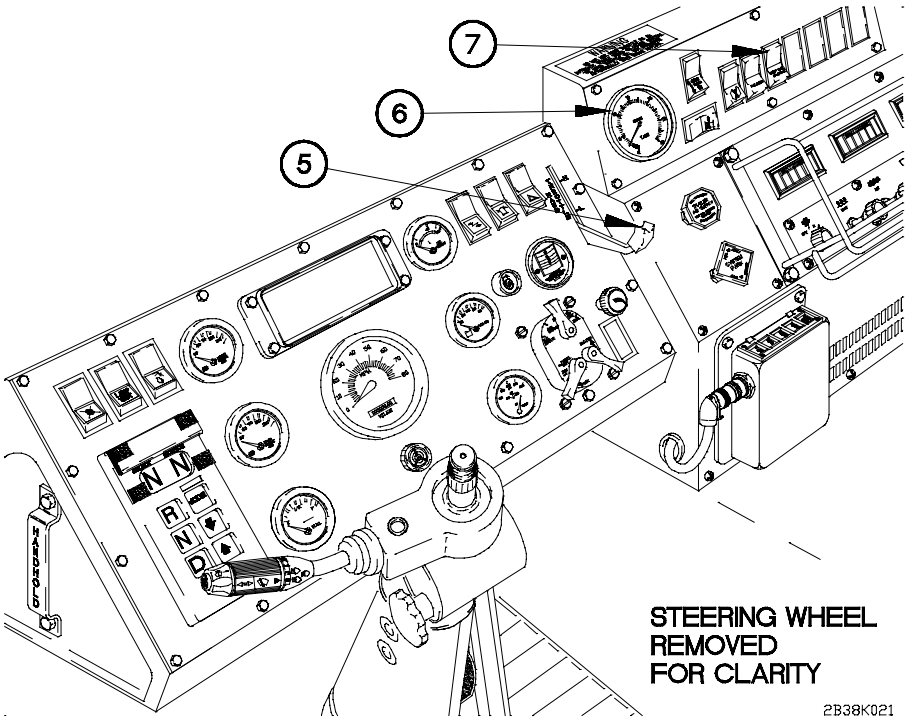
(1) Start engine (para 2-27a or b).

(2) Press N (Neutral) button (1) on WTEC II TEPSS (2) or WTEC III TPSS (2).

(3) Pull out SYSTEM PARK control (3).

(4) Position PTO switch (4) to on.

2-38. DUMP TRUCK OPERATION (CONT)



CAUTION

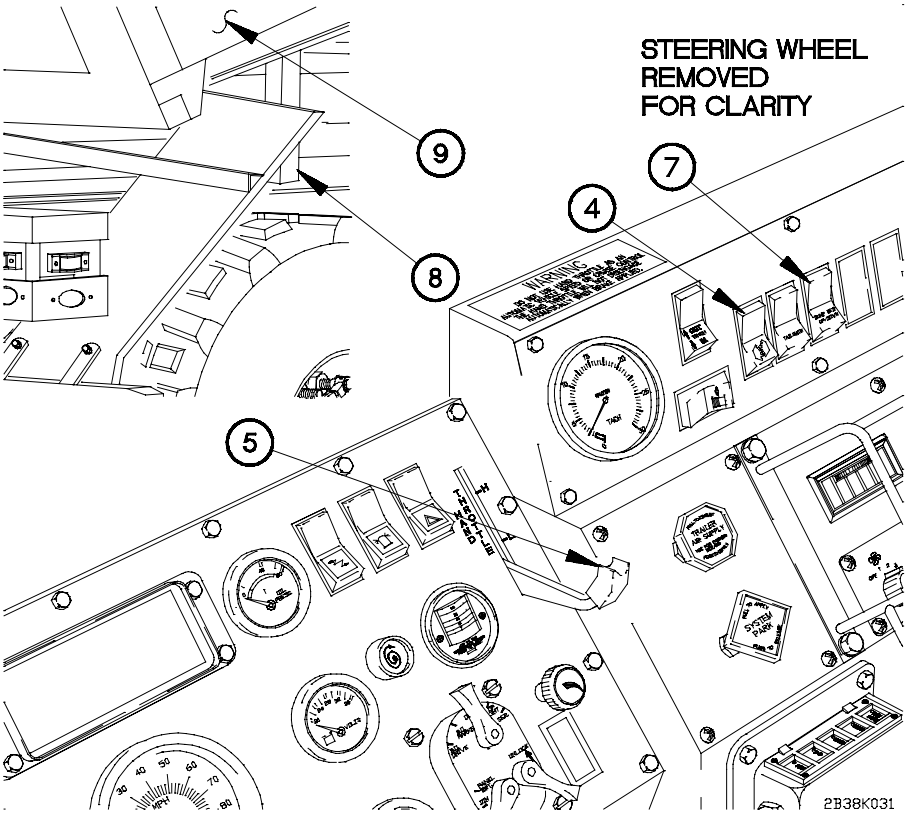
Keep tachometer within 1,250-1,450 rpm when PTO is engaged. Failure to comply may result in damage to equipment.

NOTE

In the event of a tachometer failure a HAND THROTTLE lever positioned to L is approximately 1,250-1,450 rpm.

(5) Set engine speed by increasing HAND THROTTLE lever (5) until tachometer (6) reads 1,250-1,450 rpm.

(6) Press and hold DUMP BED UP/DOWN switch (7) in UP position until dump body is completely raised.



NOTE

Step (7) requires the aid of an assistant.

(7) Raise maintenance legs (8) to upright position.

(8) Press and hold DUMP BED UP/DOWN switch (7) in DOWN position until maintenance legs (8) support dump body (9).

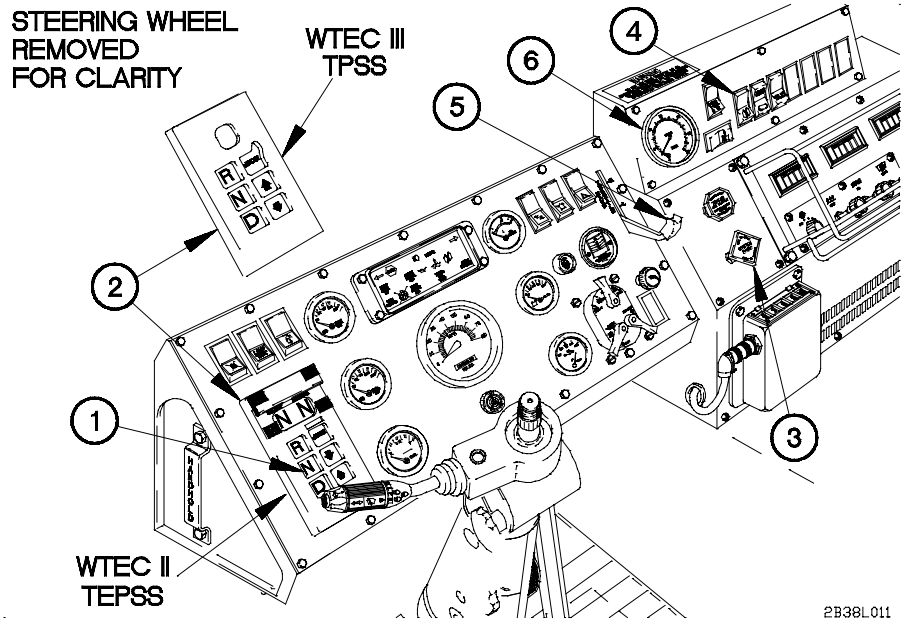
(9) Set engine speed to idle (750 rpm) by decreasing HAND THROTTLE lever (5) to full down position.

(10) Position PTO switch (4) to off.

(11) Shut down engine (para 2-27f).

2-38. DUMP TRUCK OPERATION (CONT)

l. Lowering Dump Body After Maintenance.



(1) Start engine (para 2-27a or b).

(2) Press N (Neutral) button (1) on WTEC II TEPSS (2) or WTEC III TPSS (2).

(3) Pull out SYSTEM PARK control (3).

(4) Position PTO switch (4) to on.

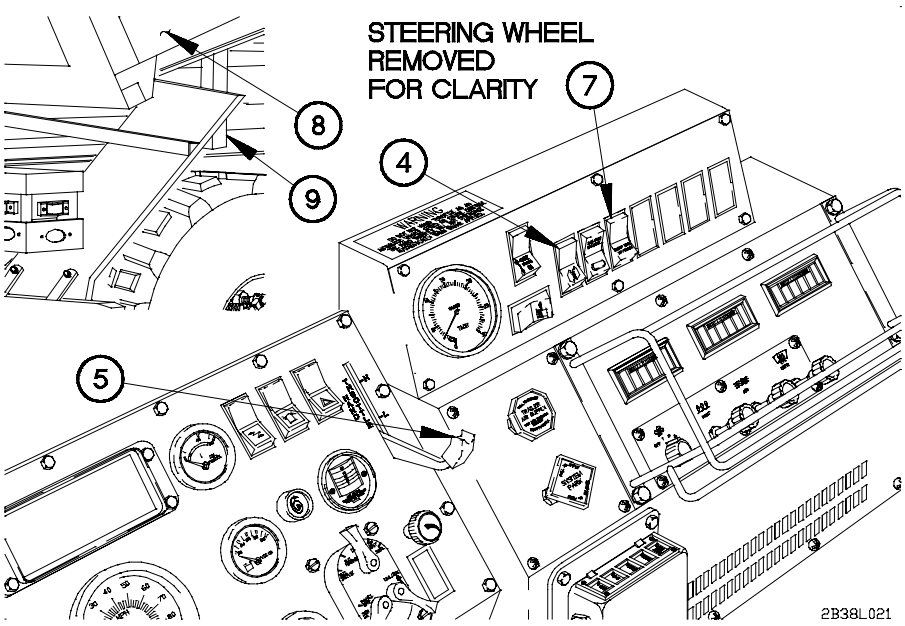
CAUTION

Keep tachometer within 1,250-1,450 rpm when PTO is engaged. Failure to comply may result in damage to engine.

NOTE

In the event of a tachometer failure a HAND THROTTLE lever positioned to L is approximately 1,250-1,450 rpm.

(5) Set engine speed by increasing HAND THROTTLE lever (5) until tachometer (6) reads 1,250-1,450 rpm.



(6) Press and hold DUMP BED UP/DOWN switch (7) in UP position until dump body (8) clears maintenance legs (9).

WARNING

Assistant must stand clear when dump body is being lowered. Failure to comply may result in injury to personnel.

NOTE

Step (7) requires the aid of an assistant.

(7) Lower maintenance legs (9) to stowed position.

(8) Press and hold DUMP BED UP/DOWN switch (7) in DOWN position until dump body (8) is completely lowered.

(9) Set engine speed to idle (750 rpm) by decreasing HAND THROTTLE lever (5) to full down position.

(10) Position PTO switch (4) to off.

(11) Shut down engine (para 2-27f).

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING

a. Coupling M1088 Tractor to Trailer.

CAUTION

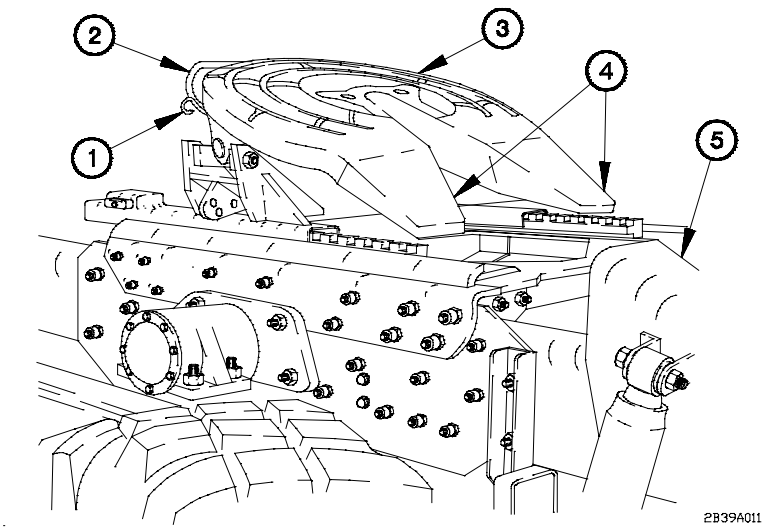
Sliding fifth wheel must be in the front position before coupling M1088 Tractor to any trailer. Failure to comply may result in damage to equipment.

NOTE

The M1088 Tractor is capable of pulling the following trailers:

- M127A2C, M128A2C, M129A2C
- M172, M172A1
- M373A2, M373A2C
- M871, M871A1, M871A2
- M967, M967A1, M969, M969A1, M970, M970A1
- MILVAN
- M270A1
- *M146 (Modified IAW TB 43-0001-39-2, 1 Apr '87)

* Limited to highway operations only.



(1) Pull secondary lock release handle (1) completely out and hook in out position.

(2) Pull out primary lock release handle (2).

(3) Push down on fifth wheel (3) so that tail ramps (4) are below top surface of guide ramps (5).

WARNING

Trailer wheels must be chocked before coupling/uncoupling with fifth wheel. Trailer wheels may roll if they are not chocked. Failure to comply may result in serious injury or death to personnel or damage to equipment.

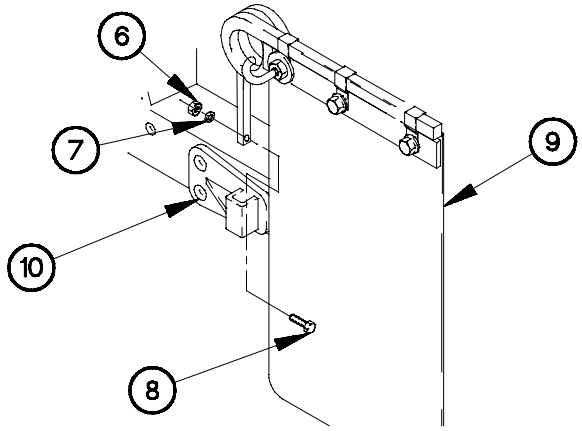
CAUTION

- Fifth wheel, ramps, and trailer kingpin must be coated with grease. Failure to comply may result in damage to equipment.
- Trailer landing gear must not be set too low or too high. If trailer landing gear is set too low, tractor guide ramps will damage front of trailer when tractor is backed up. If trailer landing gear is set too high, trailer kingpin may overrun fifth wheel. Failure to comply may result in damage to equipment.

NOTE

M146 landing leg feet must be removed.

(4) Prepare trailer for coupling (refer to Operator's Manual for specific trailer).

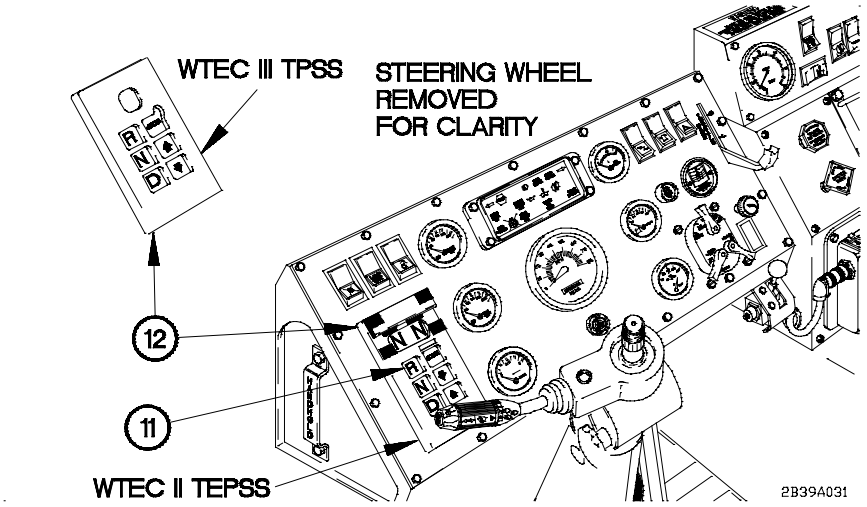


NOTE

Left and right mudflaps are removed the same way. Right side shown.

(5) Remove self-locking nut (6), washer (7), screw (8), and mudflap (9) from mounting bracket (10).

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



(6) Start engine (para 2-27a or b).

(7) Adjust side mirrors for best visibility (para 2-26c).

(8) Press R (Reverse) button (11) on WTEC II TEPSS (12) or WTEC III TPSS (12).

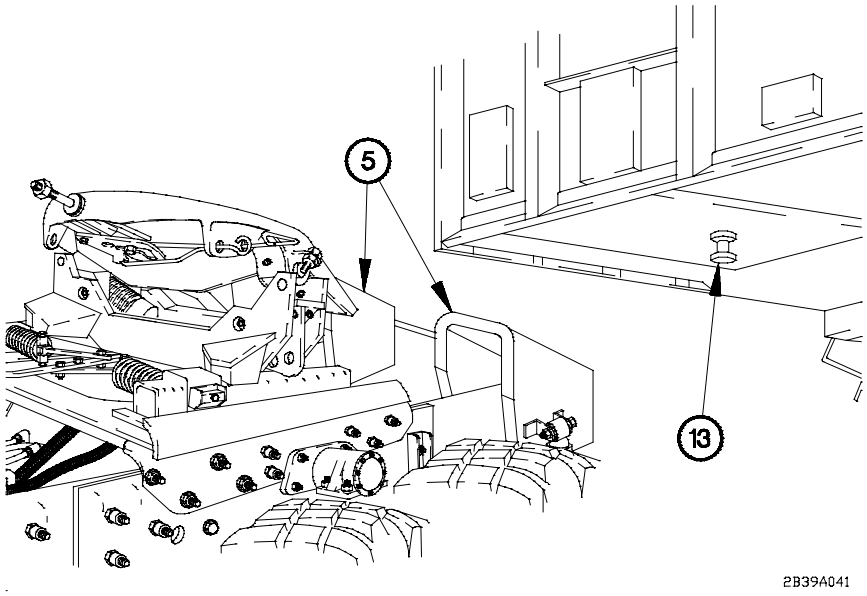
WARNING

Position of assistant must be known at all times. Do not allow anyone to stand between tractor and trailer, behind trailer, or under trailer neck during coupling of tractor to trailer. Failure to comply may result in serious injury or death to personnel.

NOTE

Steps (9) through (11) require the aid of a ground guide.

(9) Back up slowly and pay close attention to signals of ground guide.



CAUTION

M1088 tractor and trailer coupling must be accomplished with M1088 tractor and trailer in a straight line. Failure to comply may result in damage to equipment.

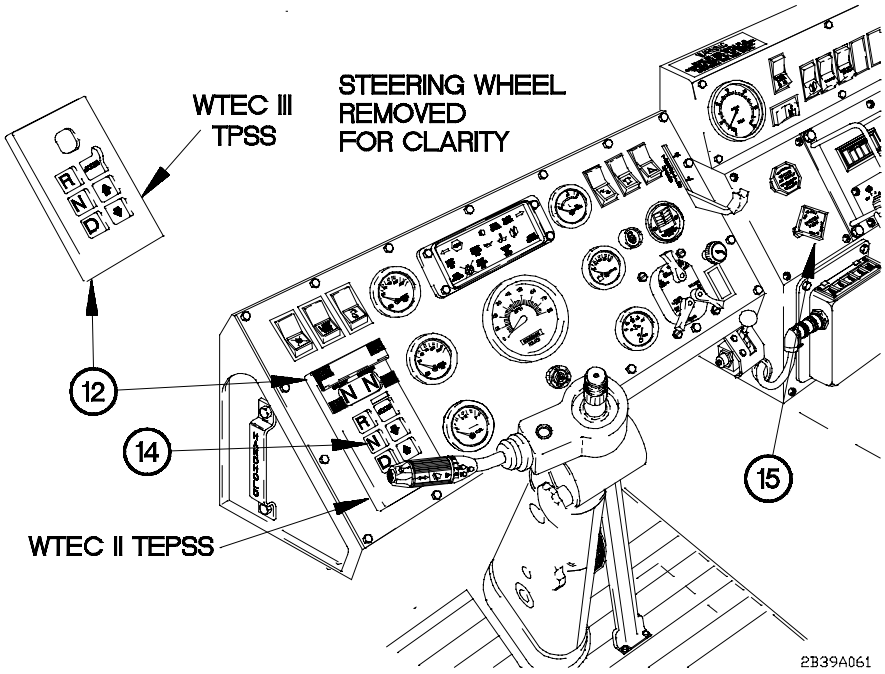
NOTE

Guide ramps should be approximately 4-6 in. (10-15 cm) below front of trailer.

(10) Position tractor with trailer kingpin (13) centered between tractor guide ramps (5).

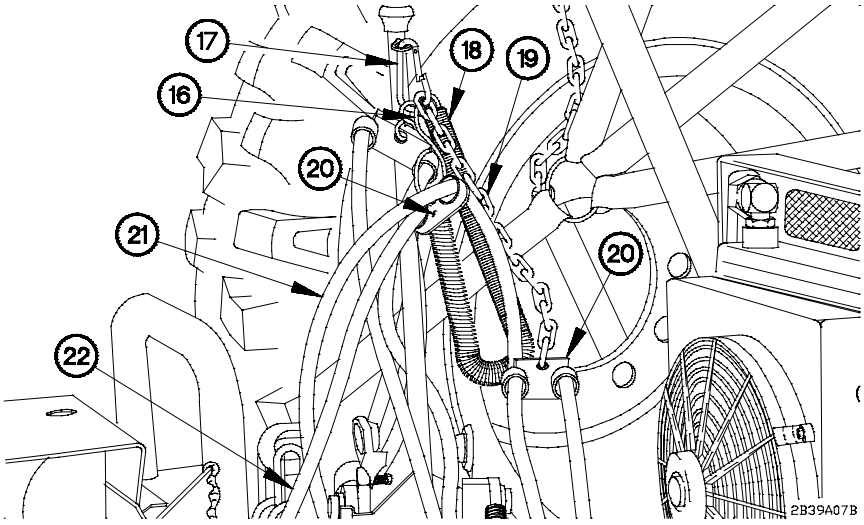
(11) Back tractor until guide ramps (5) are approximately 1 ft (0.3 m) from front of trailer.

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



(12) Press N (Neutral) button (14) on WTEC II TEPSS (12) or WTEC III TPSS (12).

(13) Pull out SYSTEM PARK control (15).



CAUTION

Hose clamp hook must be disconnected from snap ring before connecting to trailer. Failure to comply may result in damage to equipment.

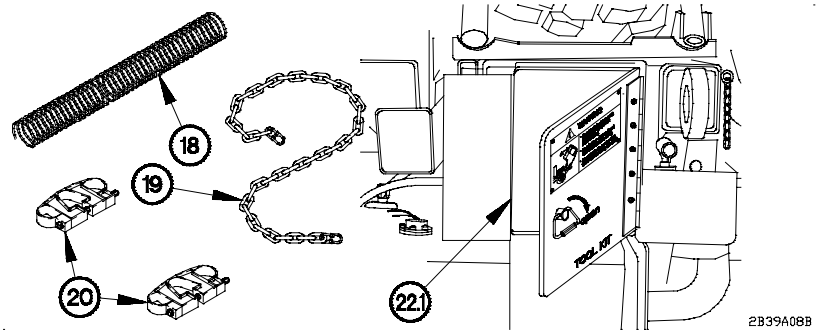
(14) Disconnect hose clamp hook (16) from snap ring (17).

NOTE

If cables need to extend beyond normal length, perform steps (15) through (17).

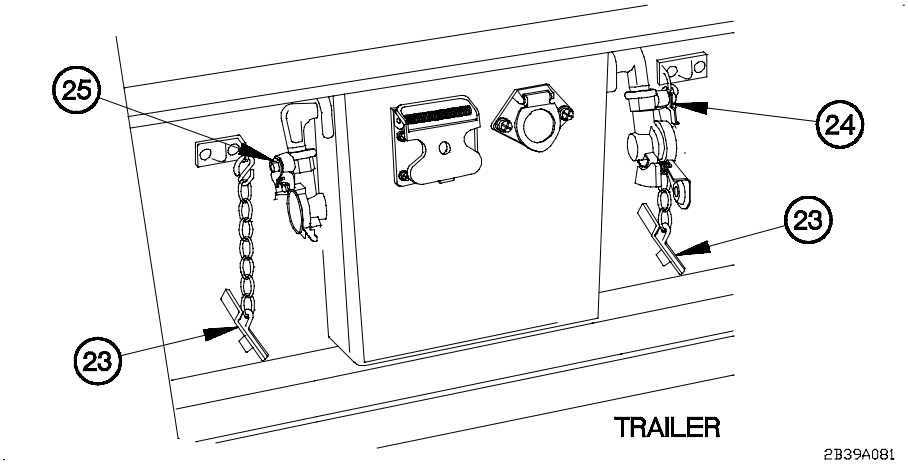
(15) Unhook spring (18) and chain (19) from snap ring (17).

(16) Remove two clamps (20) from air brake hoses (21 and 22).

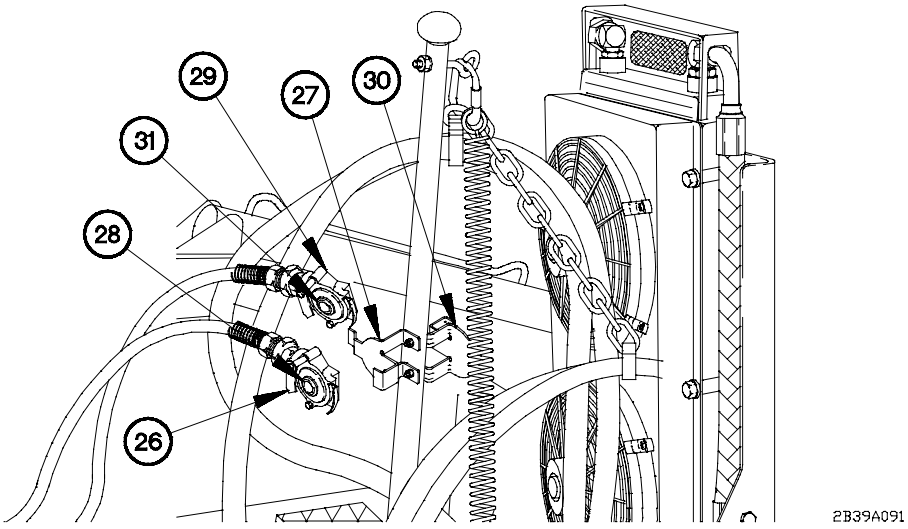


(17) Place spring (18), chain (19), and clamps (20) in tool box (22.1).

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



(18) Disconnect two dummy couplings (23) from SERVICE gladhand (24) and EMERGENCY gladhand (25) on trailer.

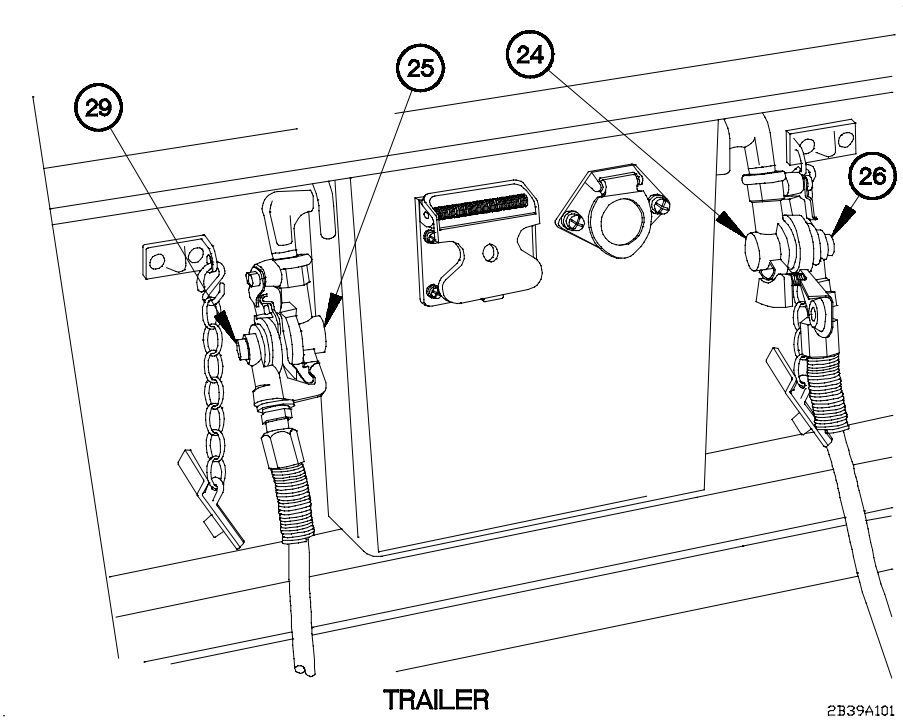


(19) Disconnect service gladhand (26) from dummy coupling (27) on M1088 Tractor.

(20) Check coupler seal (28) on service gladhand (26) for serviceability.

(21) Disconnect emergency gladhand (29) from dummy coupling (30) on M1088 Tractor.

(22) Check coupler seal (31) on emergency gladhand (29) for serviceability.



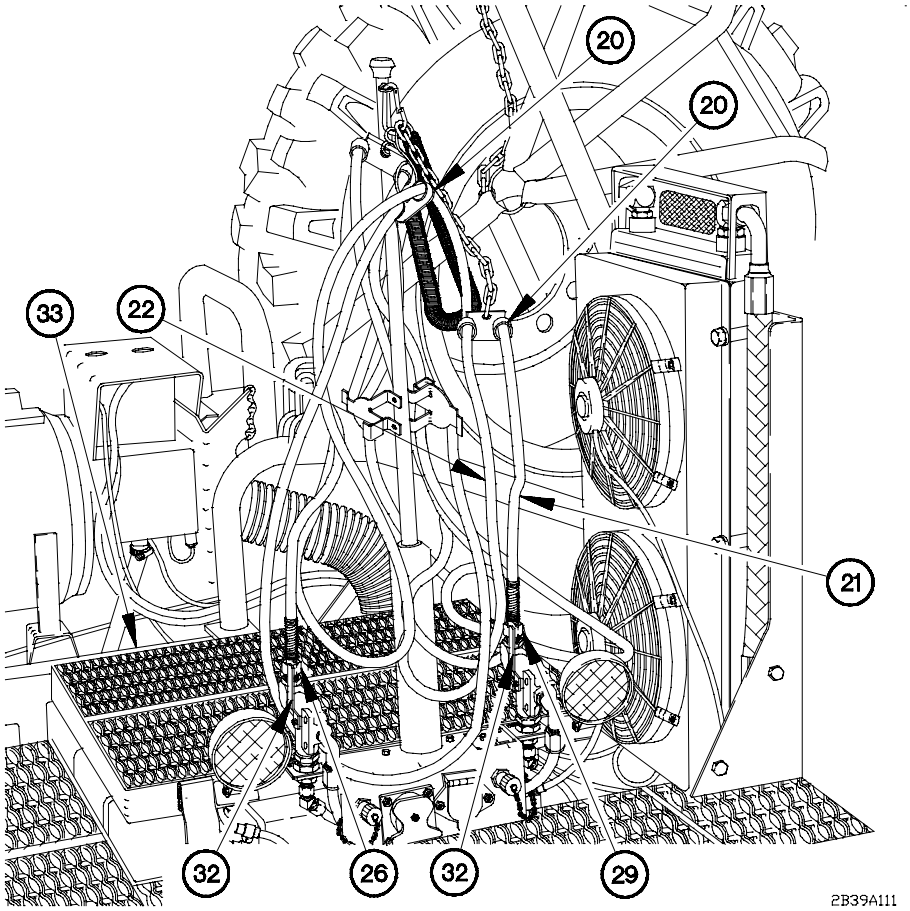
WARNING

Ensure that service and emergency gladhand connections do not leak. Failure to comply may result in serious injury or death to personnel or damage to equipment.

(23) Connect service gladhand (26) to SERVICE gladhand (24) on trailer.

(24) Connect emergency gladhand (29) to EMERGENCY gladhand (25) on trailer.

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



NOTE

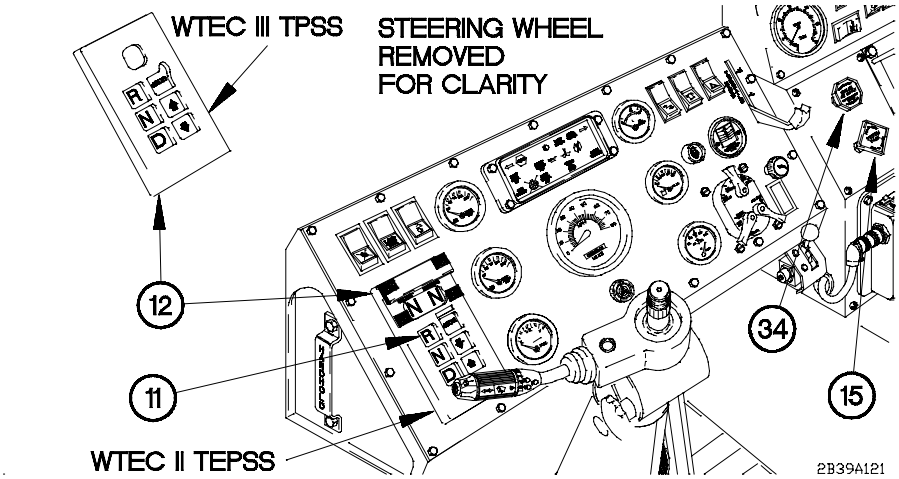
Step (25) applies to vehicle serial numbers 2360 and higher.

(25) Position two gladhand selector valves (32) for service gladhand (26) and emergency gladhand (29) to TRAILER GLADHAND (up).

NOTE

Perform step (26) if clamps were not removed in steps (15) through (17) and if air brake hoses are rubbing on work platform.

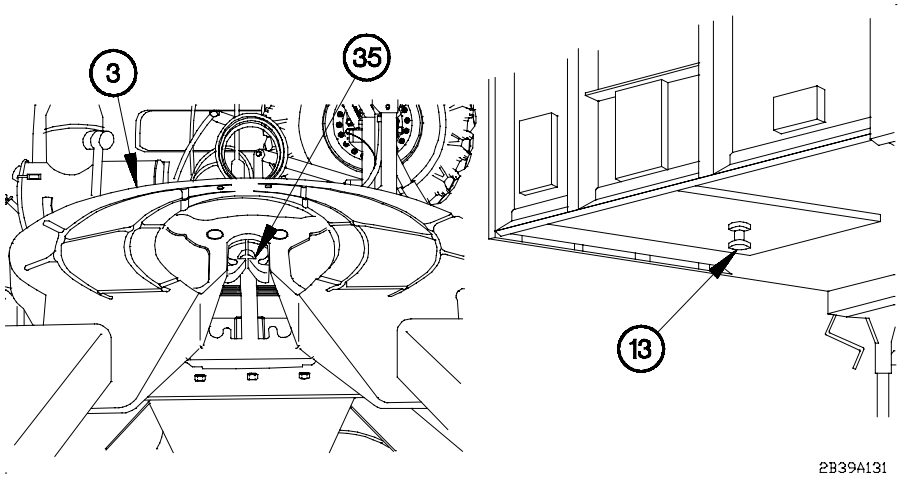
(26) Adjust two clamps (20) as required to prevent air brake hoses (21 and 22) from rubbing on platform (33).



(27) Push in TRAILER AIR SUPPLY control (34).

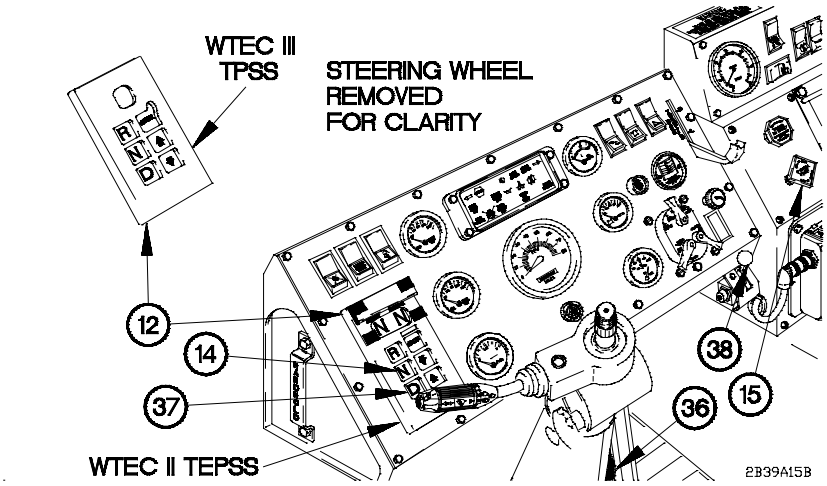
(28) Press R (Reverse) button (11) on WTEC II TEPSS (12) or WTEC III TPSS (12).

(29) Push in SYSTEM PARK control (15).



(30) Back M1088 Tractor slowly until jaws (35) of fifth wheel (3) lock around trailer kingpin (13).

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



(31) Press brake pedal (36) and stop M1088 Tractor.

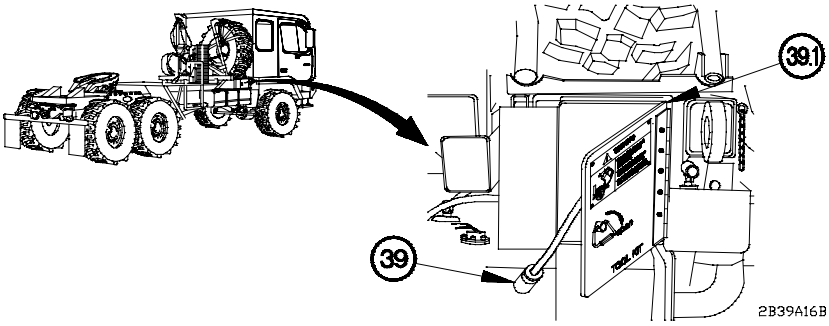
(32) Press D (Drive) button (37) on WTEC II TEPSS (12) or WTEC III TPSS (12).

(33) Push down on trailer handbrake (38) and attempt to move M1088 Tractor forward slightly to check that trailer is securely coupled.

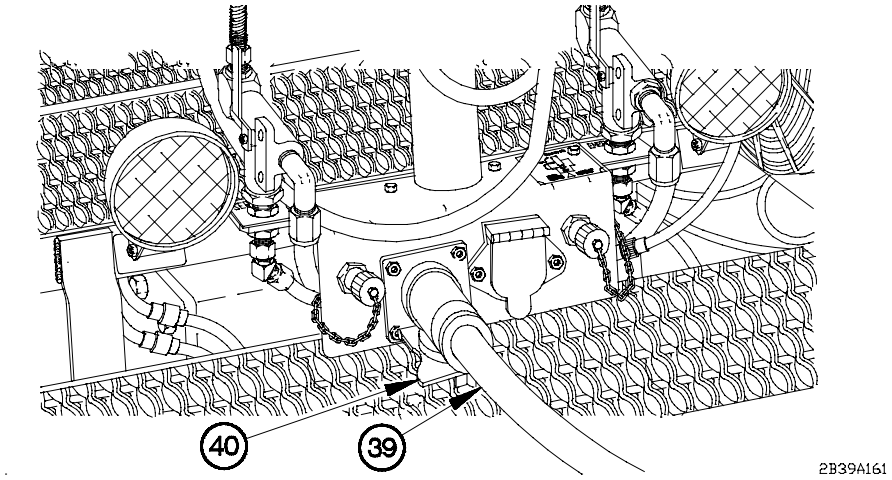
(34) If coupling is not secure, use D (drive) and R (reverse) gears alternately to rock M1088 Tractor back and forth until fifth wheel locks.

(35) Press N (Neutral) button (14) on WTEC II TEPSS (12) or WTEC III TPSS (12).

(36) Pull out SYSTEM PARK control (15).



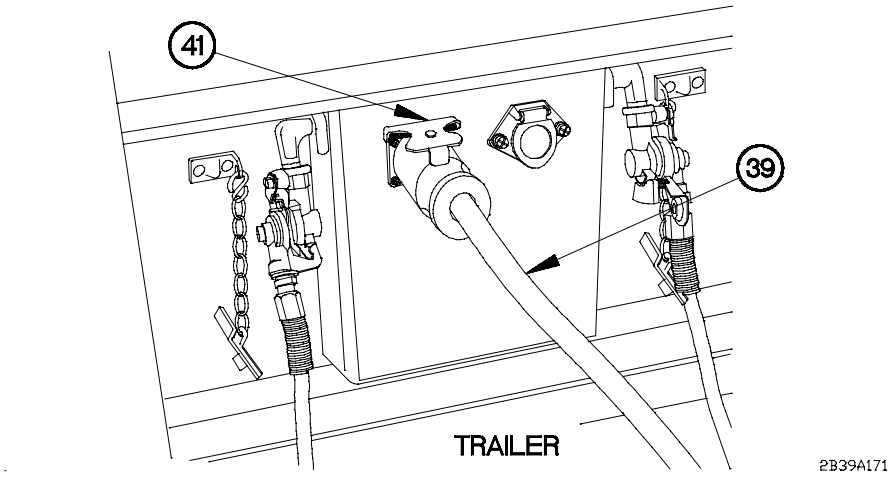
(37) Remove intervehicular cable (39) from tool box (39.1).



NOTE

There are two receptacles on M1088 Tractor: a 24-vdc/12-pin receptacle and a 12-Vdc/7-pin receptacle. Receptacle used will depend on model of trailer.

(38) Connect intervehicular cable (39) to receptacle (40) on M1088 Tractor.

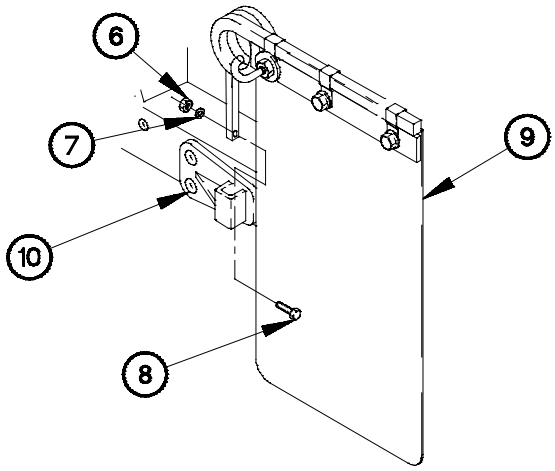


(39) Connect intervehicular cable (39) to receptacle (41) on trailer.

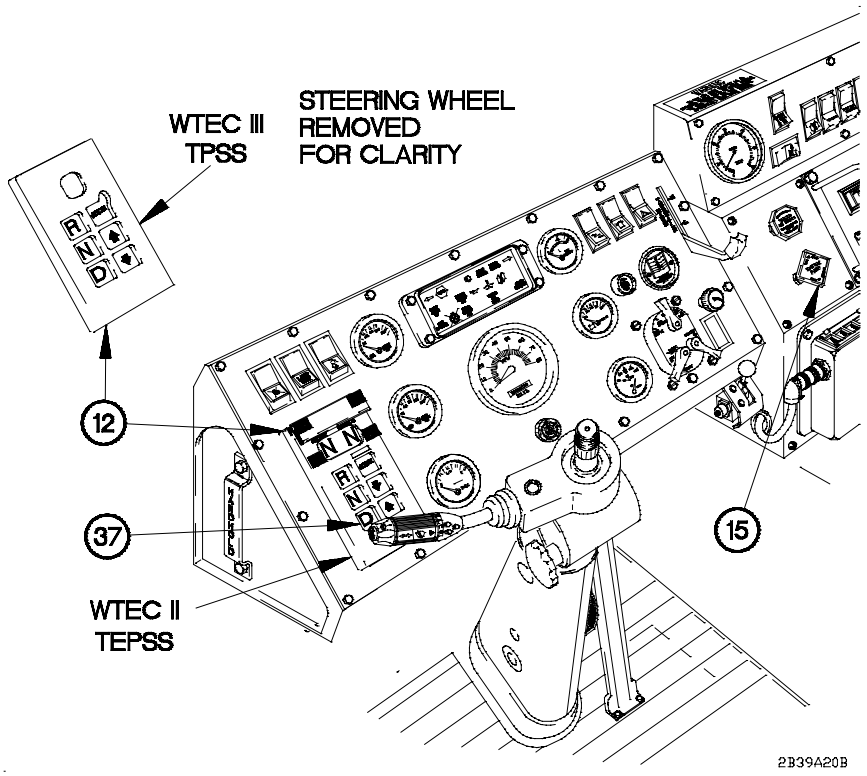
2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)

NOTE

- Install tractor mudflaps if there is adequate clearance between the tractor and trailer for full radius turns.
- If interference is possible, stow mudflaps in tractor for future use.
- If mudflaps are to be installed, perform step (40).
- Left and right mudflaps are installed the same way. Right side shown.



(40) Install mudflap (9) on mounting bracket (10) with screw (8), washer (7), and self-locking nut (6).



(41) Prepare trailer for transport (refer to Operator's manual for trailer).

(42) Push in SYSTEM PARK control (15).

NOTE

If FRONT BRAKE AIR and REAR BRAKE AIR pressure gages do not read 65 psi (448 kPa) or more, trailer spring brakes will not release. ■

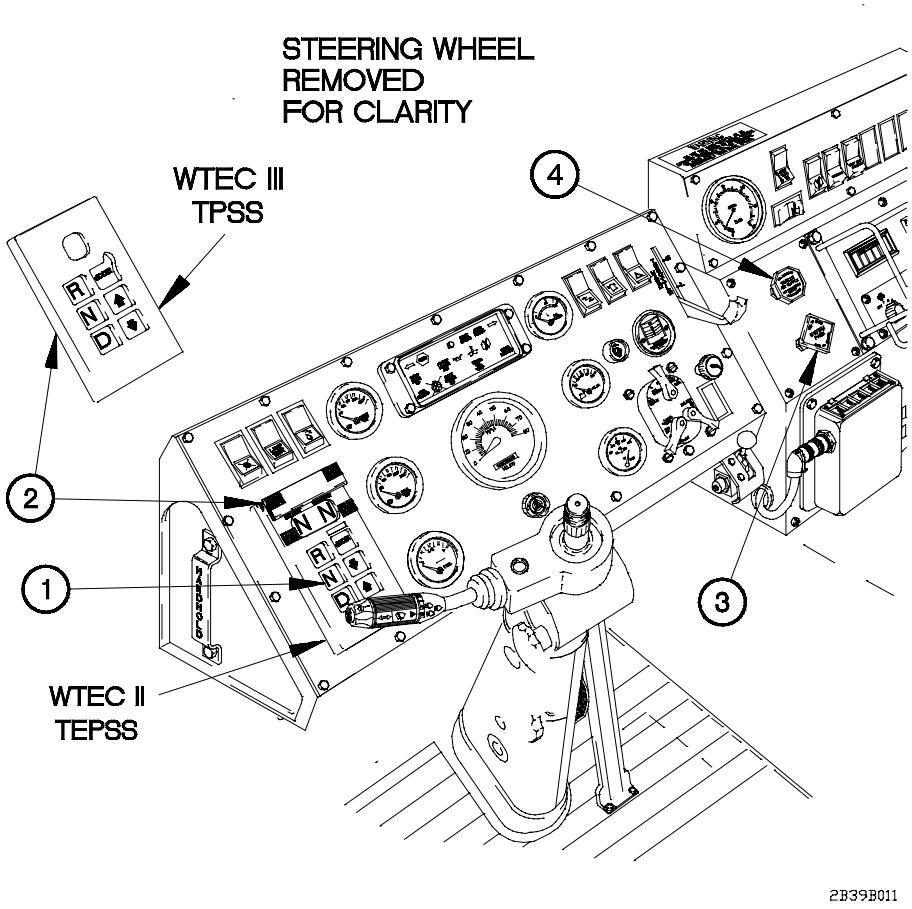
(43) Press D (Drive) button (37) on WTEC II TEPSS (12) or WTEC III TPSS (12).

(44) Check trailer brakes for proper operation (refer to Operator's Manual for trailer).

(45) Drive M1088 tractor forward (para 2-27e).

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)

b. Uncoupling M1088 Tractor from Trailer.

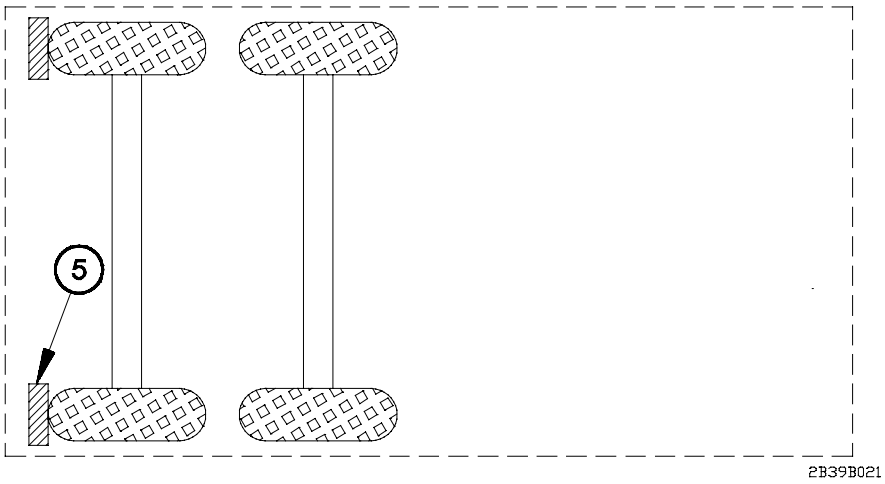


(1) Park M1088 tractor (para 2-40c).

(2) Press N (Neutral) button (1) on WTEC II TEPSS (2) or WTEC III TPSS (2).

(3) Pull out SYSTEM PARK control (3).

(4) Pull out TRAILER AIR SUPPLY control (4).

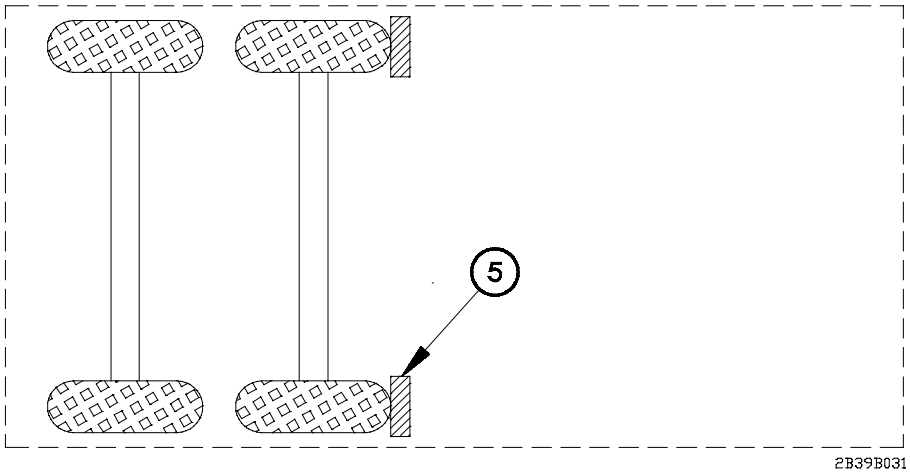


WARNING

Trailer wheels must be chocked before coupling/uncoupling from fifth wheel. Trailer wheels may roll if they are not chocked. Failure to comply may result in serious injury or death to personnel or damage to equipment.

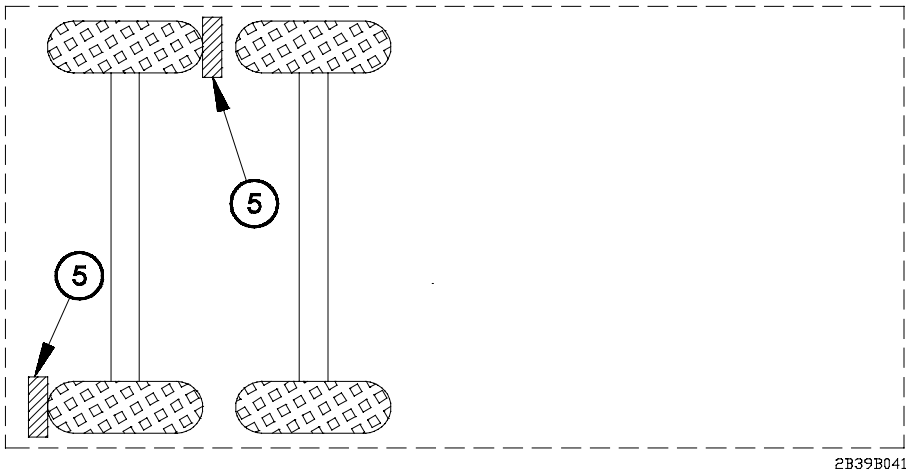
(5) Install wheel chocks (5) on trailer wheels as follows:

(a) Place wheel chocks (5) in back of both rear trailer wheels when parked uphill.



(b) Place wheel chocks (5) in front of both front trailer wheels when parked downhill.

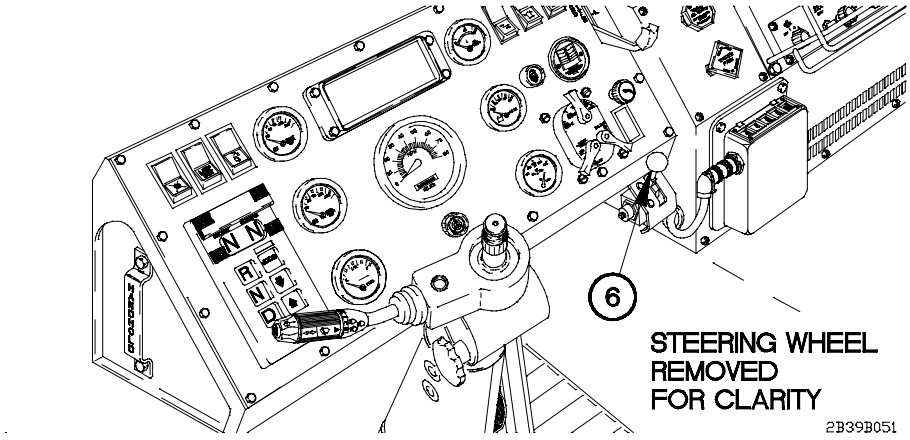
2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



(c) Place one wheel chock (5) in front of one trailer wheel and the other wheel chock in back of the opposite trailer wheel when parked on level ground.

(6) Prepare trailer for uncoupling (refer to Operator's Manual for trailer).

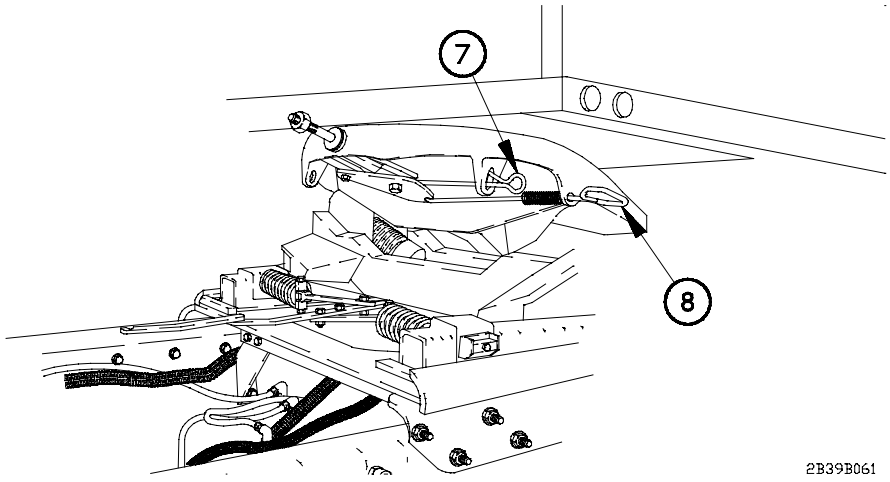
(7) Lower trailer landing gear (refer to Operator's Manual for trailer).



NOTE

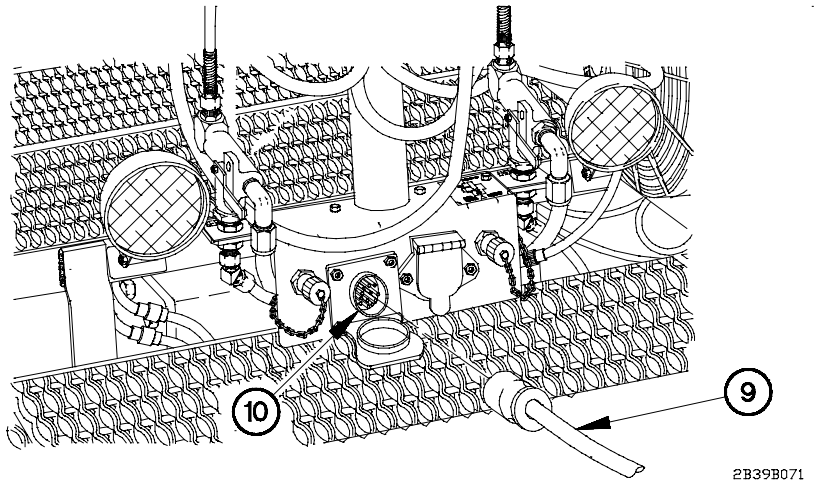
Perform step (8) if lock release handles cannot be moved.

(8) Apply trailer brakes using trailer handbrake control (6) and move M1088 Tractor backward slightly to relieve pressure on fifth wheel coupler jaws.



(9) Pull secondary lock release handle (7) out and hook in out position.

(10) Pull primary lock release handle (8) out completely.

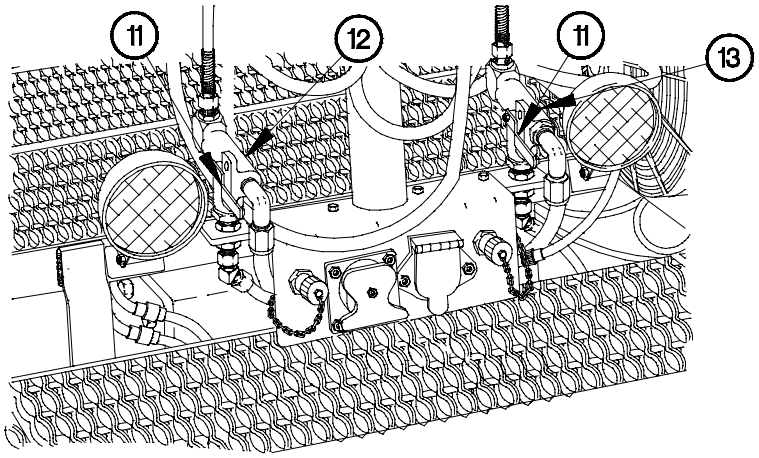


CAUTION

After disconnecting intervehicular cable, close the receptacle cover. Failure to comply may cause damage to equipment.

(11) Disconnect intervehicular cable (9) from receptacle (10) on M1088 Tractor.

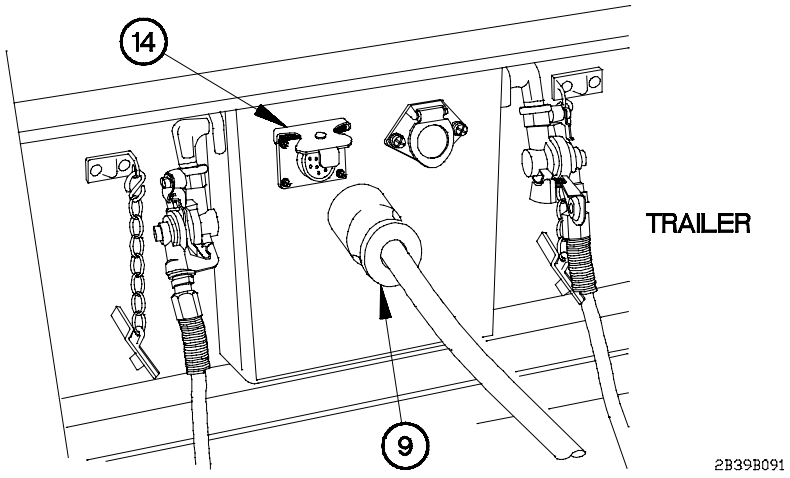
2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



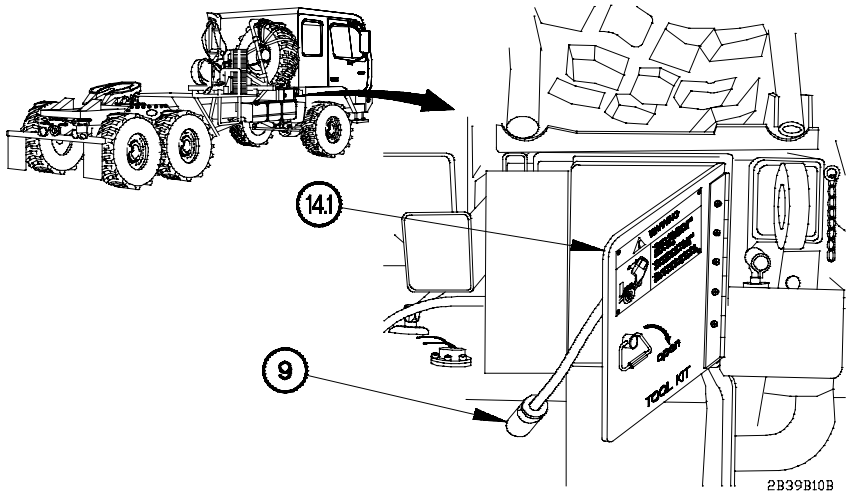
NOTE

Step (12) applies to serial number vehicles 2360 and higher serial numbers.

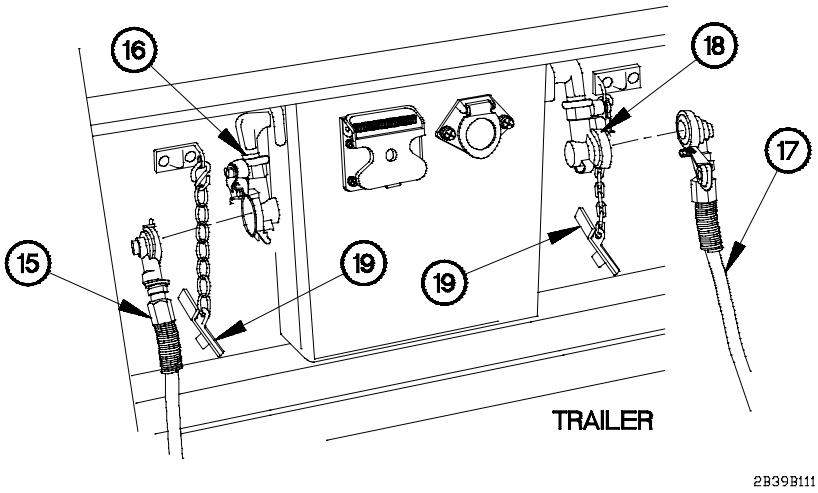
(12) Position gladhand selector valves (11) for service gladhand (12) and emergency gladhand (13) to REAR GLADHAND (down).



(13) Disconnect intervehicular cable (9) from receptacle (14) on trailer.



(14) Stow intervehicular cable (9) in tool box (14.1).

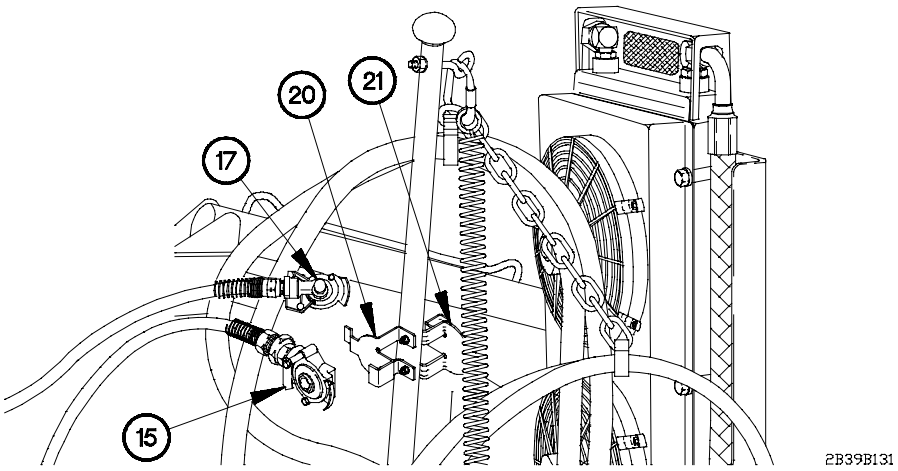


(15) Disconnect emergency gladhand (15) from EMERGENCY gladhand (16) on trailer.

(16) Disconnect service gladhand (17) from SERVICE gladhand (18) on trailer.

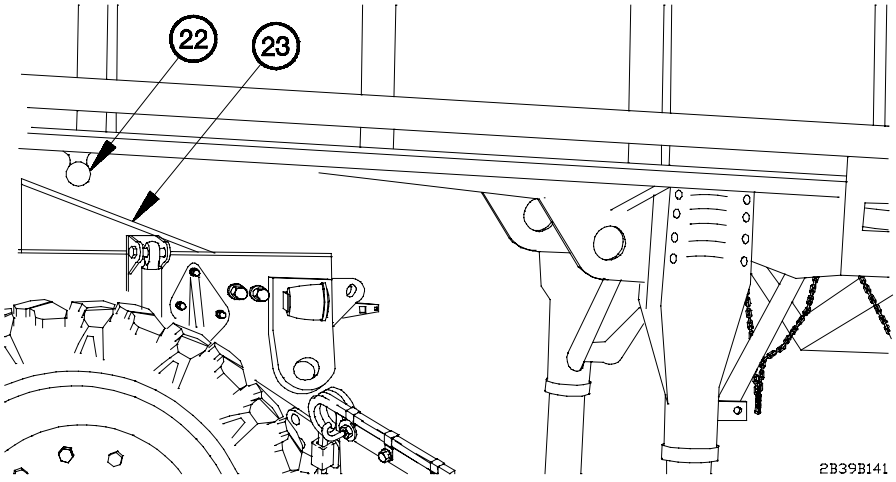
(17) Install two dummy couplings (19) on EMERGENCY gladhand (16) and SERVICE gladhand (18) on trailer.

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)



(18) Connect service gladhand (17) to dummy coupling (20) on M1088 Tractor.

(19) Connect emergency gladhand (15) to dummy coupling (21) on M1088 Tractor.

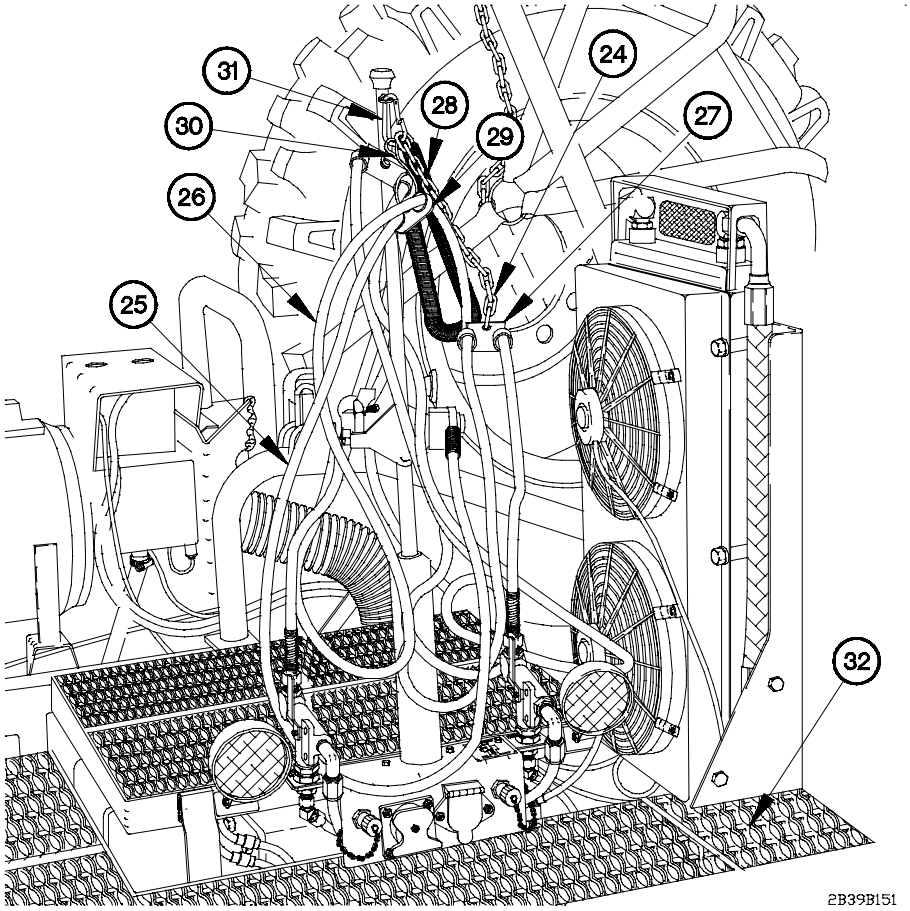


(20) Drive M1088 Tractor forward approximately 4 ft (1.2 m) and stop.

(21) Check clearance between trailer kingpin (22) and rear frame crossmember (23) of M1088 Tractor.

(22) Adjust trailer height as required for trailer kingpin (22) to clear rear frame crossmember (23).

(23) Drive M1088 Tractor forward until clear of trailer.



NOTE

Perform steps (24) through (27) only if clamps were removed for cable extension.

(24) Connect chain (24) to air brake hoses (25 and 26) with clamp (27).

(25) Connect spring (28) to air brake hoses (25 and 26) with clamp (29).

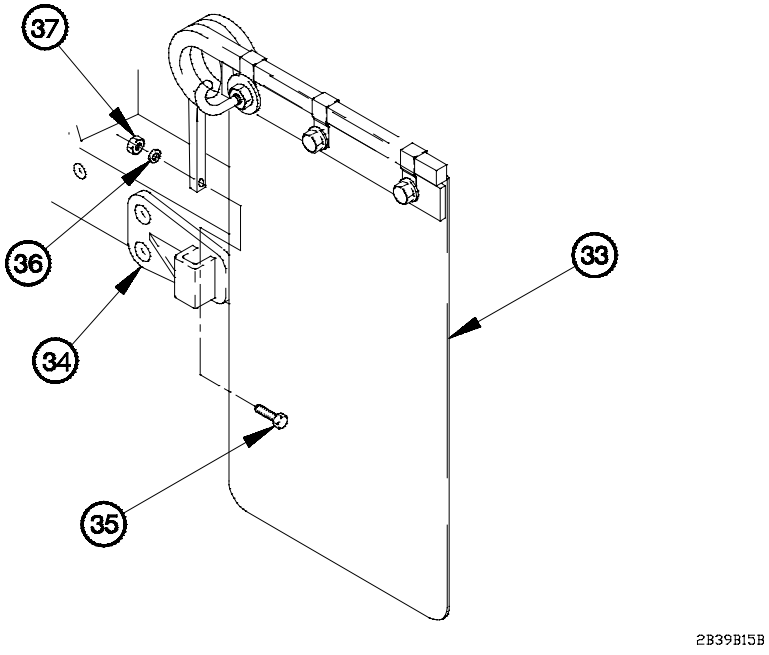
(26) Connect clamp hook (30) to snap ring (31).

(27) Adjust two clamps (27 and 29) as required to prevent air brake hoses (25 and 26) from rubbing on platform (32).

2-39. M1088 TRACTOR AND TRAILER COUPLING/UNCOUPLING (CONT)

NOTE

- Perform step (28) if mudflaps were removed and not reinstalled during coupling operations.
- Left and right mudflaps are installed the same way. Right side shown.



(28) Install mudflap (33) on mounting bracket (34) with screw (35), washer (36), and self-locking nut (37).

2-40. M1088 TRACTOR WITH TRAILER OPERATION

a. Moving Tractor With Trailer Forward.

CAUTION

Do not exceed the 22% (12.4°) grade limitations while operating M1088 Tractor. Failure to comply may result in damage to equipment.

NOTE

Additional information on tractor operations may be obtained from STP 55-88M12-SM.

(1) Tire Pressure. Tire pressure for the M1088 Tractor is determined by trailer payload, vehicle speed, and the type of terrain to be crossed. Refer to **Table 2-16. M1088 Speed and Tire Pressure on Highways, Table 2-17. M1088 Speed and Tire Pressure on Gravel/Dirt, Table 2-18. M1088 Speed and Tire Pressure for Cross Country, or Table 2-19. M1088 Speed and Tire Pressure in Sand/Mud/Snow** for correct tire pressure.

(2) Towing. When towing trailer, overall length of M1088 Tractor must be kept in mind when passing other vehicles. During trailer towing operations, acceleration rate is reduced and stopping distance increased.

(3) Turning. When turning corners, trailer wheels will track inside the turning radius of M1088 Tractor. To make right or left turn at intersection, drive approximately halfway into intersection and then turn sharply in desired direction. This will prevent trailer from running over curb or from going in lane of oncoming traffic.

Table 2-16. M1088 Speed and Tire Pressure on Highways

TRAILER MODEL	PAYLOAD TONS (METRIC TONS)	SPEED (MPH) (KM/H)	TRAILER TIRE PRESSURE (PSI) (KPA)
M127A2C	12.0 (11)	50 (80)	60 (414)
M128A2C	12.0 (11)	50 (80)	60 (414)
M129A2C	12.0 (11)	50 (80)	60 (414)
M172	15.0 (14)	30 (48)	85 (856) (see Note 1)
M172A1	25.0 (23)	30 (48)	100 (690) (see Note 2)
M373A2	8.0 (7)	50 (80)	50 (345)
M373A2C	6.0 (5)	50 (80)	50 (345)

2-40. M1088 TRACTOR WITH TRAILER OPERATION (CONT)

Table 2-16. M1088 Speed and Tire Pressure on Highways (Cont)

TRAILER MODEL	PAYLOAD TONS (METRIC TONS)	SPEED (MPH) (KM/H)	TRAILER TIRE PRESSURE (PSI) (KPA)
M871	22.5 (20)	55 (88)	75 (538)
M871A1	22.5 (20)	55 (88)	75 (538)
M871A2	22.5 (20)	55 (88)	75 (538)
M967	17.0 (15)	55 (88)	60 (414)
M967A1	17.0 (15)	55 (88)	60 (414)
M969	17.0 (15)	55 (88)	60 (414)
M969A1	17.0 (15)	55 (88)	60 (414)
M970	17.0 (15)	55 (88)	60 (414)
M970A1	17.0 (15)	55 (88)	60 (414)
MILVAN	22.1 (19)	50 (88)	75 (517) (see Note 3)
M270A1	20.0 (19)	45 (72)	75 (517)
M146	8.0 (7)	50 (80)	50 (345)

NOTES: 1. Pressure is for bias tires. For radial tires the pressure is 80 psi.

2. Pressure is for bias tires. For radial tires the pressure is 90 psi.

3. Pressure is for 12-ply tire. For 14-ply tire use 90 psi.

Table 2-17. M1088 Speed and Tire Pressure on Gravel/Dirt

TRAILER MODEL	PAYLOAD TONS (METRIC TONS)	SPEED (MPH) (KM/H)	TRAILER TIRE PRESSURE (PSI) (KPA)
M127A2C	12.0 (11)	20 (32)	60 (414)
M128A2C	12.0 (11)	20 (32)	60 (414)
M129A2C	12.0 (11)	20 (32)	60 (414)

Table 2-17. M1088 Speed and Tire Pressure on Gravel/Dirt (Cont)

TRAILER MODEL	PAYLOAD TONS (METRIC TONS)	SPEED (MPH) (KM/H)	TRAILER TIRE PRESSURE (PSI) (KPA)
M172	15.0 (14)	30 (48)	85 (586) (see Note 1)
M172A1	15.0 (14)	30 (48)	100 (690) (see Note 2)
M373A2	6.0 (5)	30 (48)	50 (345)
M373A2C	6.0 (5)	30 (48)	50 (345)
M871	22.5 (20)	20 (32)	75 (538)
M871A1	22.5 (20)	20 (32)	75 (538)
M871A2	22.5 (20)	20 (32)	75 (538)
M967	17.0 (15)	20 (32)	60 (414)
M967A1	17.0 (15)	20 (32)	60 (414)
M969	17.0 (15)	20 (32)	60 (414)
M969A1	17.0 (15)	20 (32)	60 (414)
M970	12.9 (12)	20 (32)	60 (414)
M970A1	12.9 (12)	20 (32)	60 (414)
MILVAN	15.5 (14)	see Note 3	see Note 3
M270A1	12.0 (11)	20 (32)	75 (517)
M146	6.0 (5)	20 (32)	50 (345)

NOTES:
1. Pressure is for bias tires. For radial tires the pressure is 80 psi.
2. Pressure is for bias tires. For radial tires the pressure is 90 psi.
3. Trailer is designed for use on improved roads only. If off-road use is necessary follow guidance in FM 90-3, FM 21-305, and TB 43-0239.

2-40. M1088 TRACTOR WITH TRAILER OPERATION (CONT)

Table 2-18. M1088 Speed and Tire Pressure for Cross Country

TRAILER MODEL	PAYLOAD TONS (METRIC TONS)	SPEED (MPH) (KM/H)	TRAILER TIRE PRESSURE (PSI) (KPA)
M127A2C	12.0 (11)	20 (32)	40 (276)
M128A2C	12.0 (11)	20 (32)	40 (276)
M129A2C	12.0 (11)	20 (32)	40 (276)
M172	15.0 (14)	10 (16)	45 (310)
M172A1	15.0 (14)	10 (16)	60 (414)
M373A2	6.0 (5)	20 (32)	30 (207)
M373A2C	6.0 (5)	20 (32)	30 (207)
M871	22.5 (20)	10 (16)	35 (241)
M871A1	22.5 (20)	10 (16)	35 (241)
M871A2	22.5 (20)	10 (16)	40 (276)
M967	17.0 (15)	10 (16)	40 (276)
M967A1	17.0 (15)	10 (16)	40 (276)
M969	17.0 (15)	10 (16)	40 (276)
M969A1	17.0 (15)	10 (16)	40 (276)
M970	12.9 (12)	10 (16)	40 (276)
M970A1	12.9 (12)	10 (16)	40 (276)
MILVAN	15.5 (14)	see Note 1	see Note 1
M270A1	12.0 (11)	10 (16)	40 (276)
M146	6.0 (5)	30 (48)	35 (241)

NOTES: 1. Trailer is designed for use on improved roads only. If off-road use is necessary follow guidance in FM 90-3, FM 21-305, and TB 43-0239.

Table 2-19. M1088 Speed and Tire Pressure in Sand/Mud/Snow

TRAILER MODEL	PAYLOAD TONS (METRIC TONS)	SPEED (MPH) (KM/H)	TRAILER TIRE PRESSURE (PSI) (KPA)
M127A2C	12.0 (11)	10 (16)	40 (276)
M128A2C	12.0 (11)	10 (16)	40 (276)
M129A2C	12.0 (11)	10 (16)	40 (276)
M172	15.0 (14)	10 (16)	35 (241)
M172A1	15.0 (14)	10 (16)	45 (310)
M373A2	6.0 (5)	15 (24)	20 (138)
M1373A2C	6.0 (5)	15 (24)	20 (138)
M871	22.5 (20)	10 (16)	35 (241)
M871A1	22.5 (20)	10 (16)	35 (241)
M871A2	22.5 (20)	10 (16)	40 (276)
M967	17.0 (15)	10 (16)	40 (276)
M967A1	17.0 (15)	10 (16)	40 (276)
M969	17.0 (15)	10 (16)	40 (276)
M969A1	17.0 (15)	10 (16)	40 (276)
M970	12.9 (12)	10 (16)	40 (276)
M970A1	12.9 (12)	10 (16)	40 (276)
MILVAN	15.5 (14)	see Note 1	see Note 1
M270A1	12.0 (11)	10 (16)	40 (276)
M146	6.0 (5)	10 (16)	15 (103)

NOTES: 1. Trailer is designed for use on improved roads only. If off-road use is necessary follow guidance in FM 90-3, FM 21-305, and TB 43-0239.

2-40. M1088 TRACTOR WITH TRAILER OPERATION (CONT)

b. Backing Tractor With Trailer.

(1) Adjust side mirrors for best visibility (para 2-26c).

WARNING

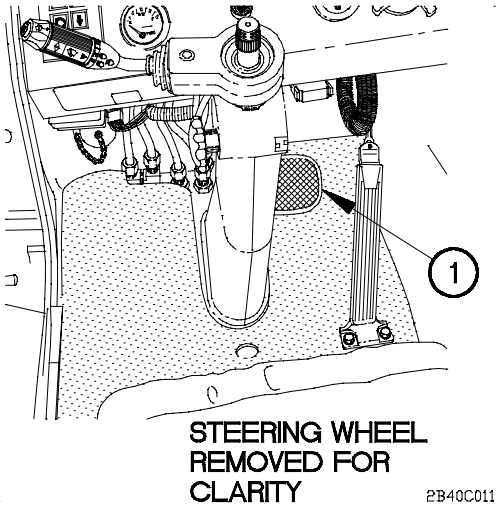
Position of assistant must be known at all times. Do not allow anyone to stand between tractor and trailer, behind trailer, or under trailer neck during coupling of tractor to trailer. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

Use the aid of an assistant as a ground guide when backing M1088 Tractor.

(2) Back up slowly and pay close attention to signals of ground guide.

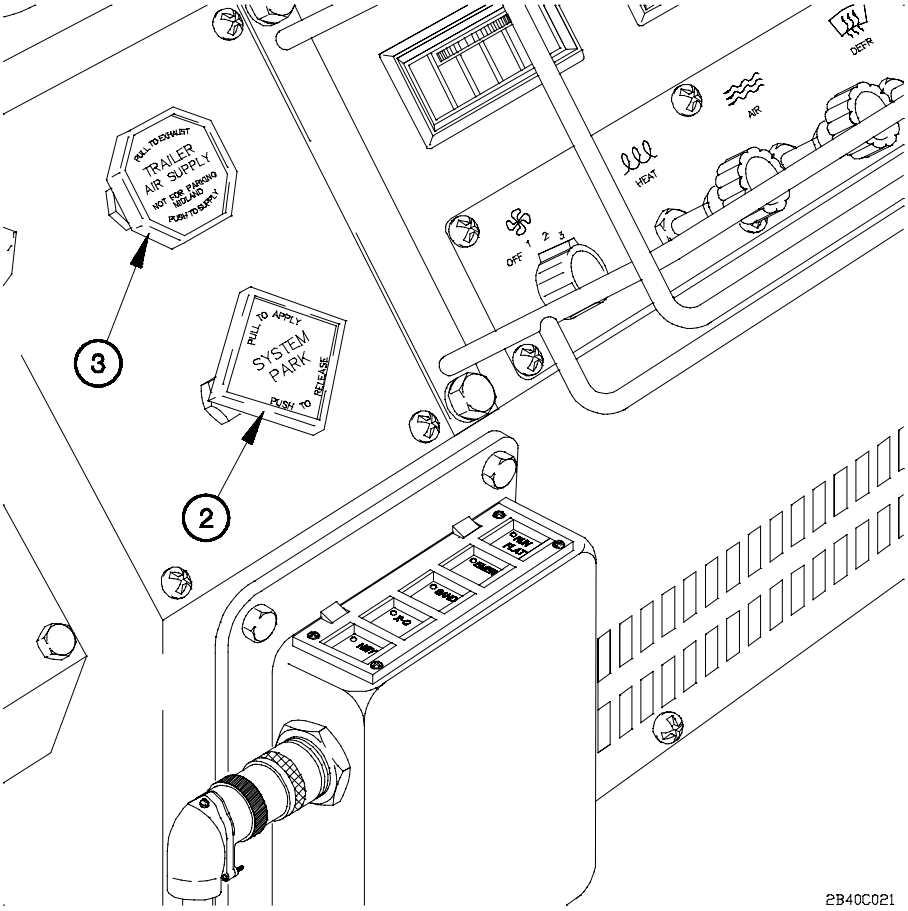
c. Braking, Stopping, and Parking Tractor With Trailer.



NOTE

During normal operation, brakes of M1088 Tractor and attached trailer are both applied when brake pedal is pressed.

(1) Press brake pedal (1) gradually and smoothly, keeping in mind that braking and stopping distance increases when trailer is connected.



(2) Pull out SYSTEM PARK control (2).

(3) Pull out TRAILER AIR SUPPLY control (3).

(4) Shut down engine (para 2-27f).

(5) Chock wheels (para 2-27h).

APPENDIX A
REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals, and other publications referenced in this manual. Those publications that should be consulted for additional information about vehicle operations are also listed.

A-2. PUBLICATIONS INDEX

The following index should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

Consolidated Index of Army Publications and Blank Forms . . . . . DA Pam 25-30

A-3. FORMS

The following forms pertain to this manual. See DA Pam 25-30 for index of blank forms. See DA Pam 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to this material.

Recommended Changes to DA Publications and Blank Forms . . . . . DA Form 2028-2
Product Quality Deficiency Report . . . . . SF 368

A-4. OTHER PUBLICATIONS

The following publications contain information pertinent to the MTV and associated equipment.

a. Safety.

First Aid for Soldiers . . . . . FM 21-11
Security of Tactical Wheeled Vehicles . . . . . TB 9-2300-422-20

b. MTV.

Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL), for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicles (MTV) . . . . . TM 9-2320-366-10-HR

Warranty Program for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TB 9-2300-366-15

A-4. OTHER PUBLICATIONS (CONT)

c. General Vehicle Operation.

Vehicle Recovery Operations . . . . . FM 20-22
Manual for the Wheeled Vehicle Driver . . . . . FM 21-305
Army Motor Transport Units and Operations . . . . . FM 55-30
Safety Prevention of Motor Vehicle Accidents . . . . . AR 385-557

d. General Maintenance and Repair.

Rigging . . . . . TM 5-575
Use and Care of Hand Tools and Measuring Tools . . . . . TM 9-243
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals . . . . . TM 9-247
Operator's, Unit, Direct Support, and Intermediate General Support Maintenance Manual for Lead-Acid Storage Batteries . . . . . TM 9-6140-200-14
Operator's and Organizational Maintenance Manual for Radio Sets . . . . . TM 11-5820-498-12
Operator's Manual, Radio Set, AN/VRC-46 . . . . . TM 11-5820-401-10-1
Operator's Manual, Radio Set, AN/VRC-90A . . . . . TM 11-5820-890-10-1
Cooling Systems: Tactical Vehicles . . . . . TM 750-254
Army Oil Analysis Program . . . . . TB 43-0211

e. Cold Weather Operation.

Operation and Maintenance of Ordnance Materiel in Cold Weather (0 to -65 ^{o}F) . . . . . FM 9-207
Basic Cold Weather Manual . . . . . FM 31-70
Northern Operations . . . . . FM 31-71

f. Operation on Unusual Terrain.

Desert Operations (How to Fight) . . . . . FM 90-3 (HTF)
Jungle Operations (How to Fight) . . . . . FM 90-5 (HTF)
Mountain Operations . . . . . FM 90-6

g. Decontamination.

Decontamination Operations Facilities & Equipment . . . . . TB 700-4
NBC Protection . . . . . FM 3-4
NBC Decontamination . . . . . FM 3-5

h. Maintenance of Special Purpose Kits.

Operator and Organizational Maintenance Manual for Chemical Alarm . . . . . TM 3-6665-225-12
Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Decontaminating Apparatus: M13 . . . . . TM 3-4230-214-12&P
Operator, Organizational, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools List for Various Machine Gun Mounts . . . . . TM 9-1005-245-14

j. General.

Principles of Automotive Vehicles . . . . . TM 9-8000
Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (US Army Tank-Automotive Command) . . . . . TM 750-244-6
Soldier's Manual MOS 88M Motor Transport Operator, Skill Levels 1/2 . . . . . STP 55-88-M12-SM
Operator's Manual (M998 Series) . . . . . TM 9-2320-280-10
Operator's Manual (M1008 Series) . . . . . TM 9-2320-289-10
Operator's Manual (M35 Series) . . . . . TM 9-2320-361-10
Operator's Manual (M939 Series) . . . . . TM 9-2320-272-10
Route Reconnaissance and Classification . . . . . FM 5-36

k. Land, Sea, and Air Shipment.

Airdrop of Supplies and Equipment: Rigging 5-Ton Trucks . . . . . FM 10-526
Marine Terminal Lifting Guidance . . . . . MTMCTEA Pam 56-1
Multi-service Helicopter External Air Transport: Basic Operations and Equipment . . . . . FM 55-450-3
Multi-service Helicopter External Air Transport: Dual-Point Load Rigging Procedures . . . . . FM 55-450-5
Multi-service Helicopter External Air Transport: Single-Point Load Rigging Procedures . . . . . FM 55-450-4
Standard Characteristics (Dimensions, Weight, and Cube) for Transportability of Military Vehicles and Other Outsize/Overweight Equipment (in TOE Line Sequence) . . . . . TB 55-46-1
Tiedown Handbook for Rail Movements . . . . . MTMCTEA Pam 55-19
Tiedown Handbook for Truck Movements . . . . . MTMCTEA Ref 92-55-20

APPENDIX B
COMPONENTS OF END ITEM (COEI)
AND
BASIC ISSUE ITEMS (BII) LISTS

Section I. INTRODUCTION

B-1. SCOPE

This appendix lists components of the end item and basic issue items for the MTV to help you inventory the items for safe and efficient operation of the equipment.

B-2. GENERAL

The Components of End Item (COEI) and Basic Issue Items (BII) lists are divided into the following sections:

a. Section II, Components of End Item. This listing is for information purposes only, and is not authority to requisition replacements. These items are part of the MTV, but they are not to be removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to help you find and identify the items.

b. Section III, Basic Issue Items. These essential items are required to place the MTV in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the MTV during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

B-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. Column (1), Illus Number. Gives you the number of the item illustrated.

b. Column (2), National Stock Number. Identifies the stock number of the item to be used for requisitioning purposes.

c. Column (3), Description and Usable On Code. Identifies the Federal item name (in capital letters) followed by a minimum description when needed. The last line below the description is the Commercial and Government Entity Code (CAGEC) (in parentheses) and the part number.

B-3. EXPLANATION OF COLUMNS (CONT)

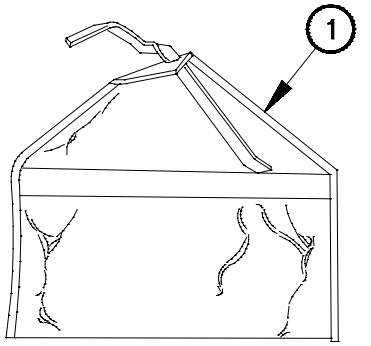
If the item you need is not the same for different models of the equipment, a Usable On Code will appear on the right side of the description column on the same line as the part number. These codes are identified below:

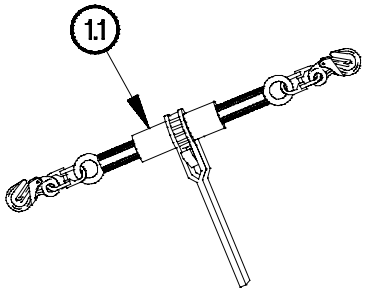
CODE	USED ON
MAB	M1083
MWB	M1083 w/15K Self-Recovery Winch
MAE	M1084
MAL	M1085
MWL	M1085 w/15K Self-Recovery Winch
MAM	M1086
MAF	M1088
MWF	M1088 w/15K Self-Recovery Winch
MAG	M1089
MAH	M1090
MWH	M1090 w/15K Self-Recovery Winch
MAA	M1092
MAC	M1093
MWC	M1093 w/15K Self-Recovery Winch
MAJ	M1094
MWJ	M1094 w/15K Self-Recovery Winch
MAK	M1096

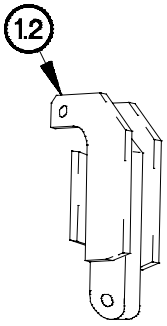
d. Column (4), U/I (Unit of Issue). Indicates how the item is issued for the National Stock Number shown in column two.

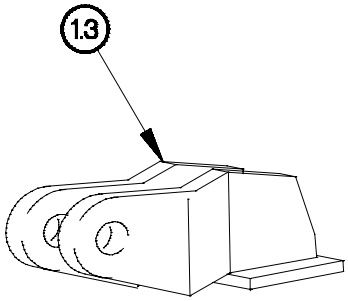
e. Column (5), Qty Reqd. Indicates the quantity required.

Section II. COMPONENTS OF END ITEM



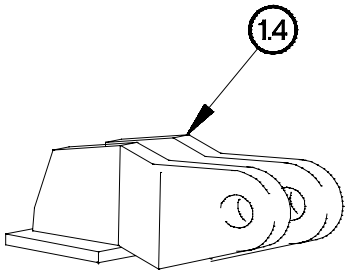




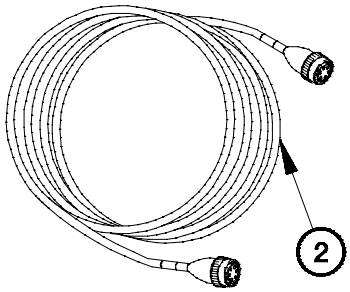


(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
1	8105-01-387-2009	BAG, TOOL, TORCH (19207) 12412587	MAG	EA	1
1.1	3990-01-479-0538	BINDER, LOAD (19207) 12421708	MAG	EA	2
1.2	5340-01-475-2194	BRACKET, MOUNTING (19207) 12421701	MAG	EA	2
1.3	5340-01-475-2286	BRACKET, MOUNTING (19207) 12421704-001	MAG	EA	1

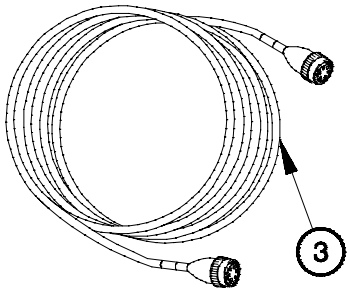
Section II. COMPONENTS OF END ITEM (CONT)



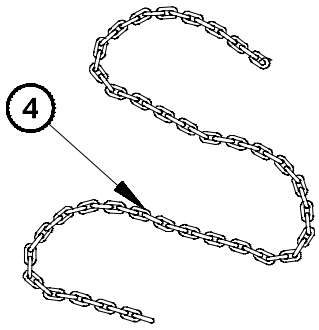
2apbaa05b



2APBA021



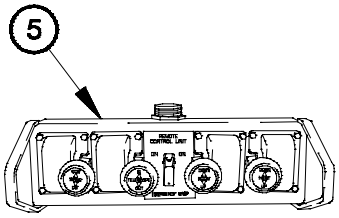
2APBA031



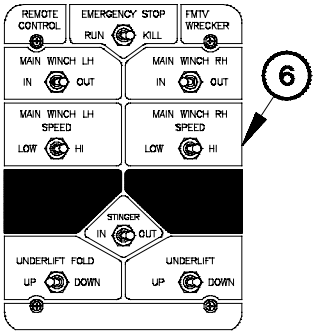
2APBA041

(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
1.4	5340-01-475-2300	BRACKET, MOUNTING (19207) 12421704-002	MAG	EA	1
2	6150-01-387-6357	CABLE ASSEMBLY, ELECTRICAL (12361) 2-195-6-00653	MAE, MAM	EA	1
3	6150-01-371-3924	CABLE ASSEMBLY, ELECTRICAL (12361) 2-195-6-00652	MAG	EA	1
4	4010-01-388-9420	CHAIN, WELD (19207) 12415955	MAH,MAJ, MWH, MWJ	EA	2

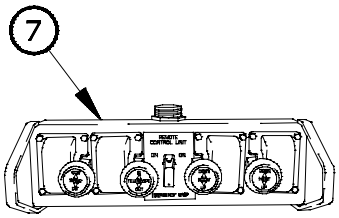
Section II. COMPONENTS OF END ITEM (CONT)



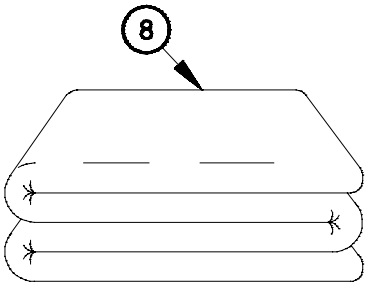
2apba061



2apba071



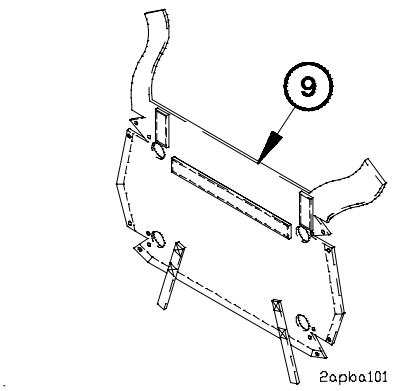
2apba081

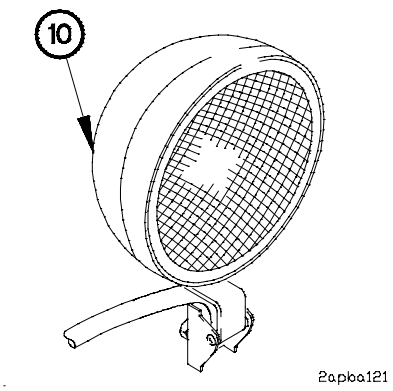


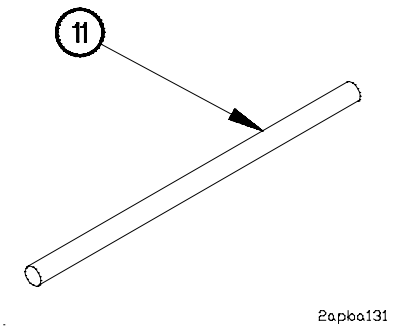
2apba091

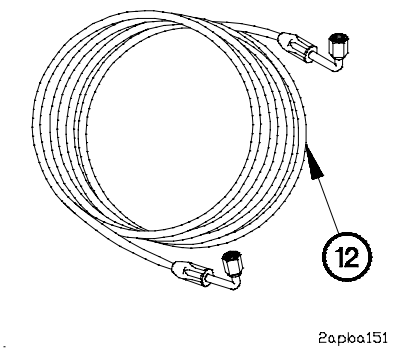
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
5	6110-01-371-3907	CONTROL, REMOTE SWITCHING (12361) 2-195-6-00668	MAE,MAM	EA	1
6	6110-01-373-2800	CONTROL, REMOTE SWITCHING (19207) 12412306	MAG	EA	1
7	6110-01-428-6142	CONTROL, REMOTE SWITCHING (12361) 2-195-6-00667	MAG	EA	1
8	2590-01-391-9944	COVER, VEHICULAR (0FW39) 12415785	MAH, MAJ, MWH,MWJ	EA	1

Section II. COMPONENTS OF END ITEM (CONT)



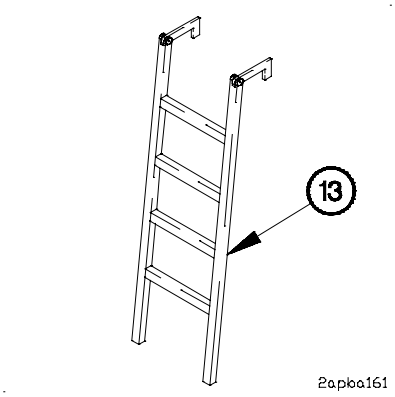


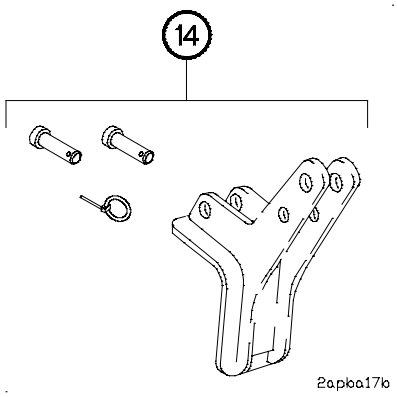




(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
9	2540-01-453-6945	COVER, RADIATOR, COLD WEATHER (0FW39) 12421395		EA	1
10	6220-01-390-7341	FLOODLIGHT, ELECTRICAL (0FW39) 12378828	MAE,MAF, MAG,MAM, MWF	EA	2
11	4320-01-351-8600	HANDLE, HYDRAULIC PUMP (95745) CP13-23	MAE, MAG,MAM	EA	1
12	4720-01-435-1664	HOSE ASSEMBLY (01276) 1C04488KKK2400A	MAG	EA	1

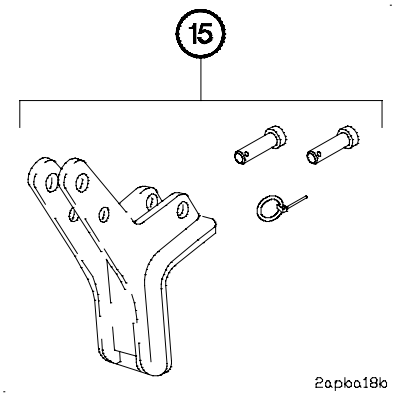
Section II. COMPONENTS OF END ITEM (CONT)

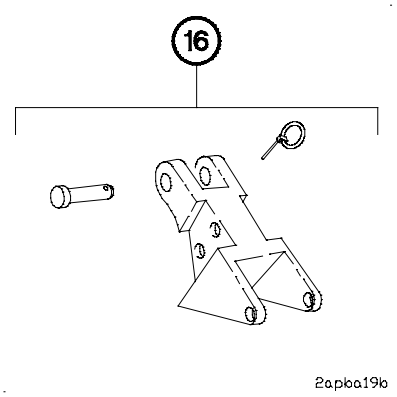




(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
13	2540-01-394-9681	LADDER, BOARDING (19207) 12418950	MAB,MAC, MAE,MAL, MAM,MWB, MWC,MWL	EA	1
14	5340-01-372-0948	LIFT TOOL, RH (65459) 9-807-010052	MAG	EA	1
	5315-01-434-7266	PIN, LYNCH (65459) 9-557-010457-01		EA	2
	5315-01-371-9471	PIN, LIFT (65459) 9-557-010443		EA	1
	5315-01-371-9470	PIN, LIFT (65459) 9-557-010442		EA	1

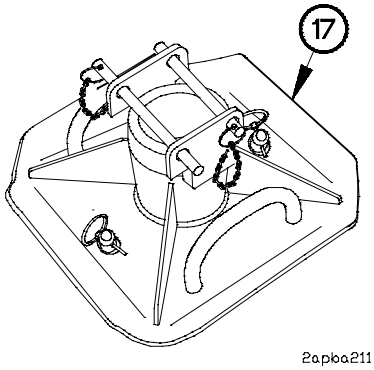
Section II. COMPONENTS OF END ITEM (CONT)



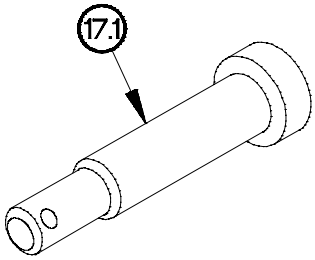


(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
15	4910-01-434-6818	LIFT TOOL, LH (65459) 9-807-010050	MAG	EA	1
	5315-01-434-7266	PIN, LYNCH (65459) 9-557-010457-01		EA	2
	5315-01-371-9471	PIN, LIFT (65459) 9-557-010443		EA	1
	5315-01-371-9470	PIN, LIFT (65459) 9-557-010442		EA	1
16	4910-01-434-6814	LIFT TOOL, TOP BUMPER (65459) 9-807-010048	MAG	EA	2
		PIN, LIFT (65459) 9-557-010443		EA	1
		PIN, LIFT (65459) 9-557-010457-01		EA	1

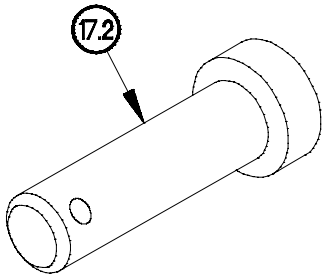
Section II. COMPONENTS OF END ITEM (CONT)



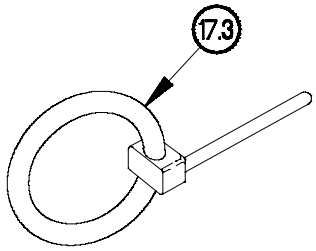
2apbaa211



2apbaa40b



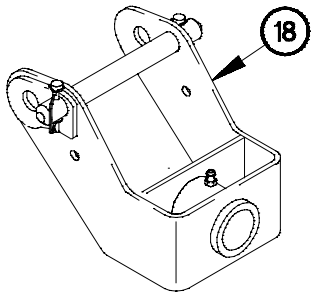
2apbaa41b



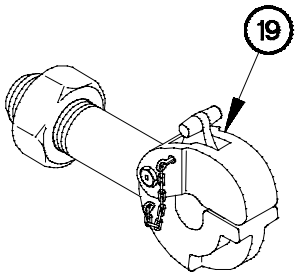
2apbaa42b

(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
17	2590-01-428-6158	PAD, OUTRIGGER (12361) 2-195-1-00632	MAE, MAM, MAG	EA	2
17.1	5315-01-475-9921	PIN, SHOULDERED, HEADED (19207) 12421702	MAG	EA	2
17.2	5315-01-476-0116	PIN, STRAIGHT, HEADED (19207) 12421703	MAG	EA	2
17.3	5315-01-475-9965	PIN, STRAIGHT, HEADED (96652) 63-01	MAG	EA	4

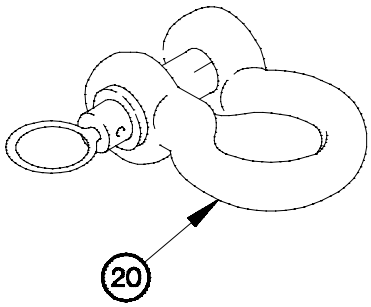
Section II. COMPONENTS OF END ITEM (CONT)



2apbaa22b



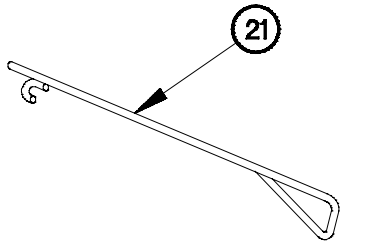
2apbaa23b



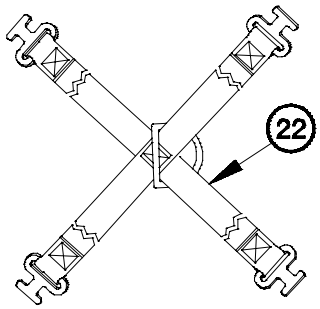
2apbaa26b

(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
18	2540-01-372-5098	PINTLE ASSEMBLY, TOWING (65459) 9-040-010057	MAG	EA	1
19	2540-00-047-3926	PINTLE ASSEMBLY, TOWING (96906) MS51117-1	MAG	EA	1
20	4030-01-391-9599	SHACKLE (75535) 5550379	MAG	EA	4

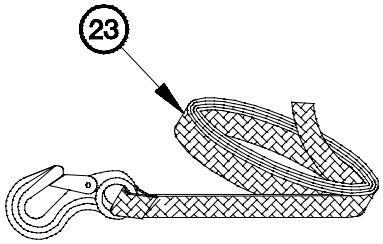
Section II. COMPONENTS OF END ITEM (CONT)



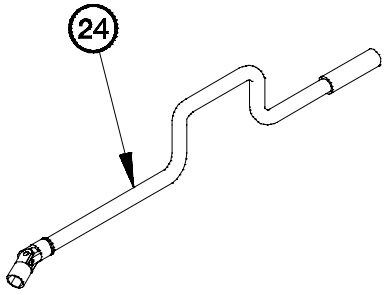
2aploa27lb



2aploa28lb



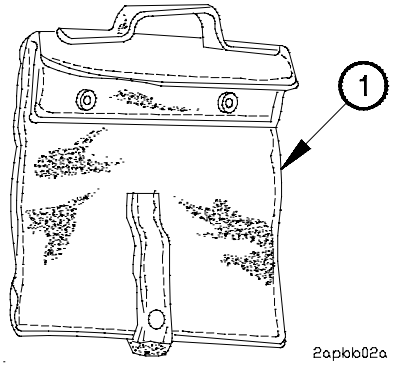
2aploa29lb

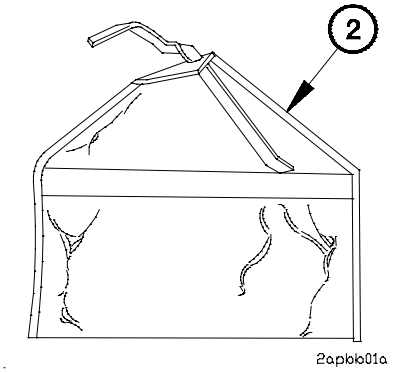


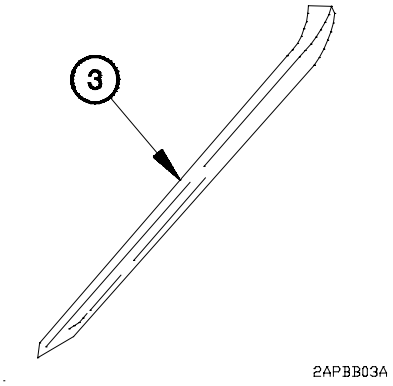
2aploa34lb

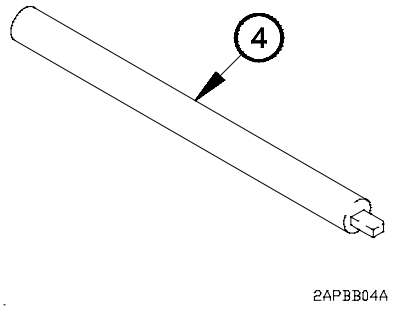
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
21	5340-01-328-4444	RELEASE TOOL (74410) XA-0756	MAF, MWF	EA	1
22	3940-01-469-9939	SLING SET, MULTIPLE LEG (98313) FDC-8514-2	MAC,MAJ, MWC,MWJ	EA	1
23	5340-01-433-4157	STRAP, WEBBING (0FW39) 12421187	MAC,MAJ, MWC,MWJ	EA	1
24		WRENCH ASSEMBLY SPEED HANDLE, W/UNIVERSAL SOCKET (0FW39) TV950065	MAC, MAJ, MWC, MWJ	EA	1

Section III. BASIC ISSUE ITEMS



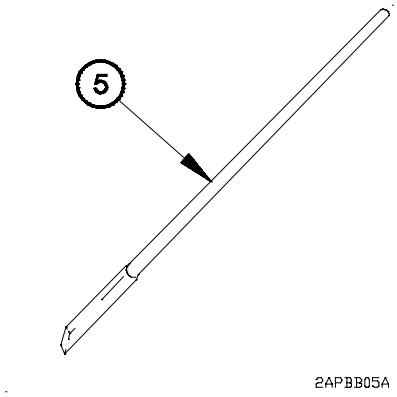


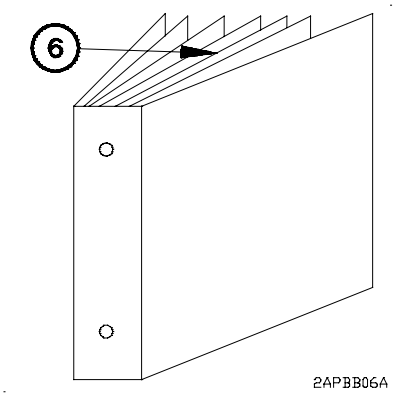


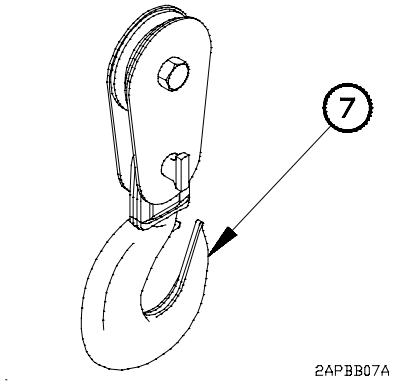


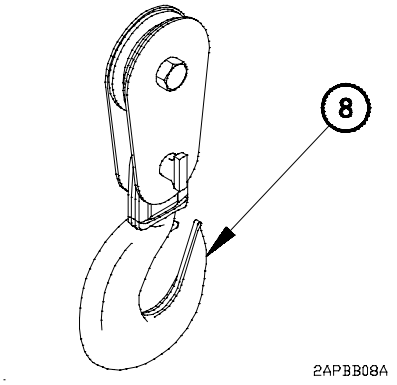
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
1	2540-00-670-2459	BAG ASSEMBLY, PAMPHLET (19207) 11676920		EA	1
2	5140-00-772-4142	BAG, TOOL (19207) 7724142		EA	1
3	5120-00-224-1372	BAR, PINCH (20728) G20-1372	MAG	EA	1
4	5120-00-243-2419	BAR, SOCKET WRENCH HANDLE (19207) 6196147		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



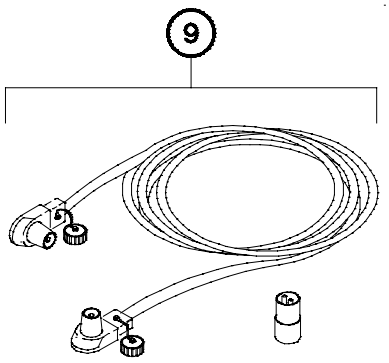




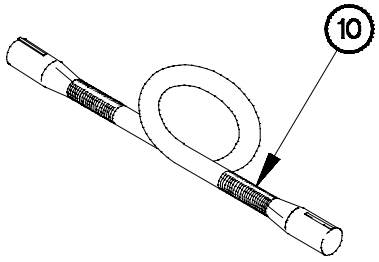


(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
5	5120-00-293-0665	BAR, WRECKING (57068) 55-130	MAG	EA	1
6	7510-00-889-3494	BINDER, LOOSE-LEAF (19207) 11677003		EA	1
7	3940-01-391-1848	BLOCK, TACKLE (19207) 12378672-002	MAG	EA	2
8	3940-01-447-4095	BLOCK, TACKLE (75535) M8011971	MAG,MWB, MWC,MWF, MWH,MWJ, MWL	EA	1

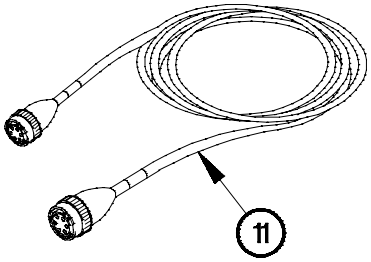
Section III. BASIC ISSUE ITEMS (CONT)



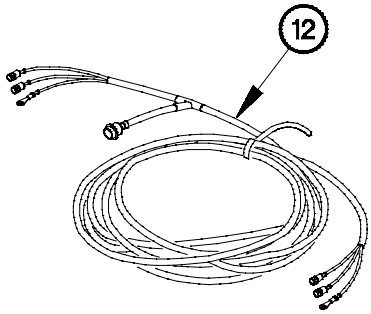
2APBB09B



2APBB10A



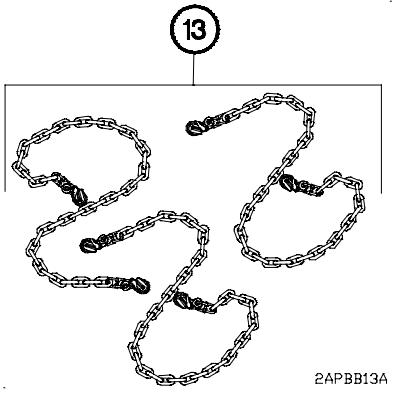
2APBB11A

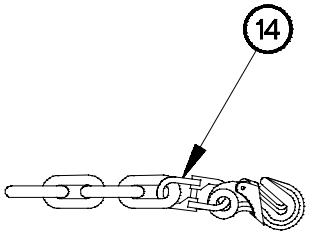


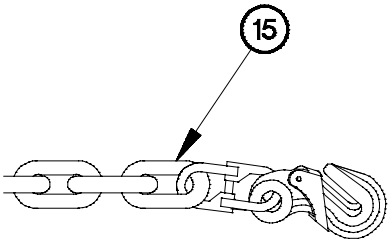
2APBB12A

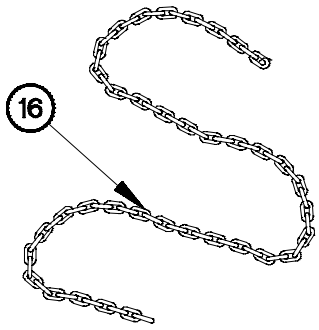
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
9	2590-00-148-7961	CABLE KIT, SPECIAL PURPOSE (56161) 10502786	MAG	EA	1
	5935-00-322-8959	ADAPTER (19207) 11677570	MAG	EA	2
10	6150-01-390-7346	CABLE ASSEMBLY (0XY75) YES-8035	MAG	EA	1
11	6150-00-772-8814	CABLE ASSEMBLY (19207) 7728814	MAF,MWF	EA	1
12	6150-01-390-7345	CABLE KIT (19207) 12420757	MAG	EA	1

Section III. BASIC ISSUE ITEMS (CONT)



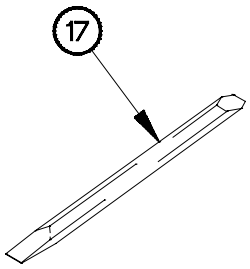




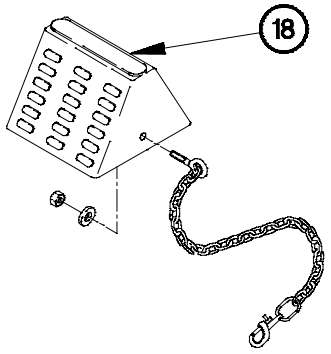


(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
13	4010-00-443-4845	CHAIN ASSEMBLY, SINGLE LEG (19207) 10944642-2	MAG	EA	3
14	4010-01-434-7397	CHAIN W/HOOK, 8FT. (13743) S950420	MAG	EA	1
15	4010-01-455-5630	CHAIN, HEAVY RECOVERY (19207) 12421485	MAG	EA	2
16		CHAIN, WELDED (0FW39) 12418052		EA	1

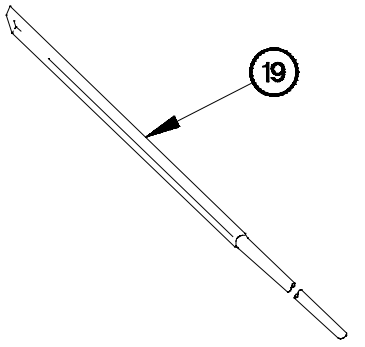
Section III. BASIC ISSUE ITEMS (CONT)



2APBB171



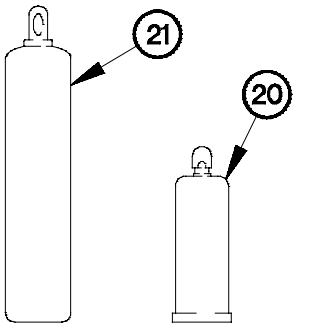
2APBB18B



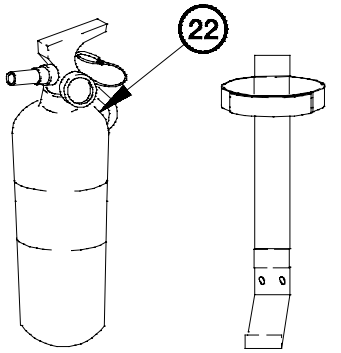
2APBB19B

(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
17	5110-00-221-1075	CHISEL, BLACKSMITH (80204) B209.1	MAG	EA	1
18	2540-00-678-3469	CHOCK, WHEEL (58536) A-A-52475-1		EA	2
	5306-00-108-0943	BOLT (96906) MS35751-65		EA	1
	5310-00-087-7493	WASHER (96906) MS27183-13		EA	1
	5310-00-880-7744	NUT (96906) MS51967-5		EA	1
	5340-01-243-9656	SNAP HOOK (81349) M43770/6-MIXEE1		EA	1
19	5120-00-224-1390	CROWBAR (18876) 9150189	MAG	EA	1

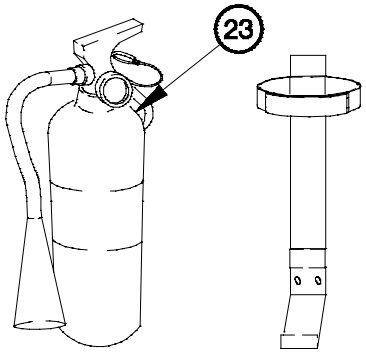
Section III. BASIC ISSUE ITEMS (CONT)



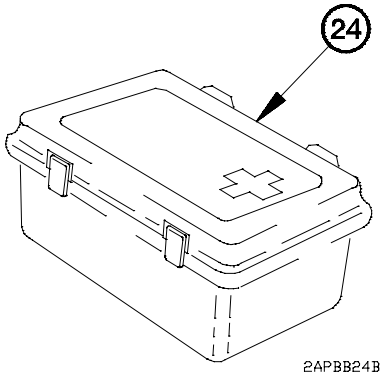
2apbb21b



2APBB22B



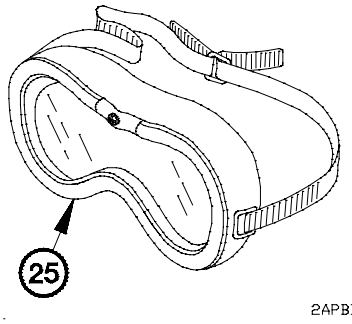
2APBB23B

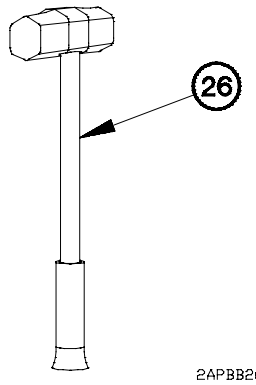


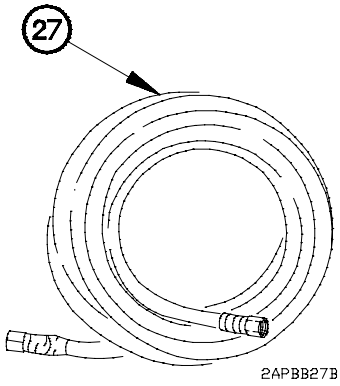
2APBB24B

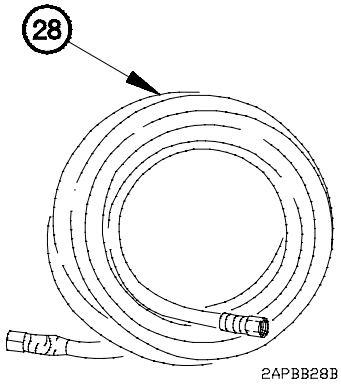
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
20	8120-00-268-3360	CYLINDER, COMPRESSED (81349) MIL-C-3701	MAG	EA	1
21	8120-00-357-7992	CYLINDER, COMPRESSED (81348) C901/1-15	MAG	EA	1
22	4210-01-149-1356	EXTINGUISHER, FIRE (19207) 12255633-1		EA	1
23	4210-00-775-0127	EXTINGUISHER, FIRE (34623) MA93-20000	MAG	EA	2
24	6545-00-922-1200	FIRST AID KIT (64616) SCC-6545-IL VOL2	MAG	EA	1

Section III. BASIC ISSUE ITEMS (CONT)



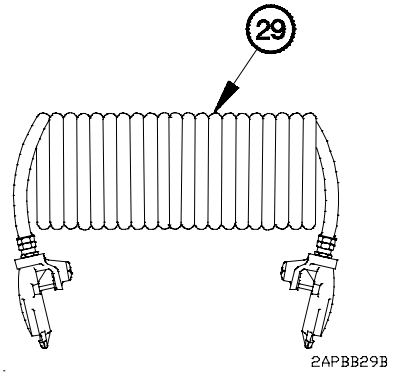


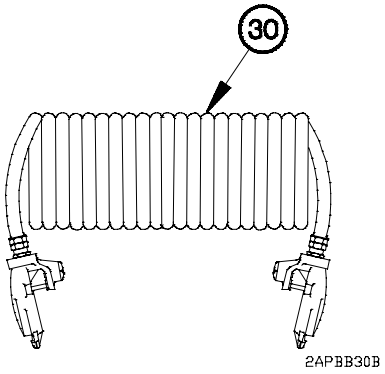


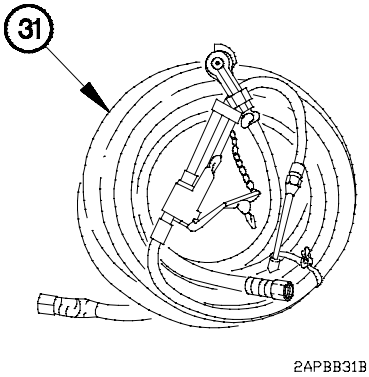


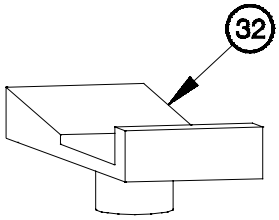
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
25	4240-00-052-3776	GOGGLES, INDUSTRIAL (80204) ANSI Z87.1	MAE, MAG, MAM	EA	1
26	5120-00-900-6098	HAMMER, HAND (58536) A-A-1293	MAG	EA	1
27	4720-00-356-8571	HOSE ASSEMBLY, NONMETALLIC (13669) 21-1108	MAG	EA	1
28	4720-00-356-8572	HOSE ASSEMBLY, NONMETALLIC (81348) ZZ-H-461	MAG	EA	1

Section III. BASIC ISSUE ITEMS (CONT)



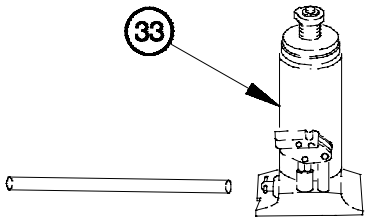




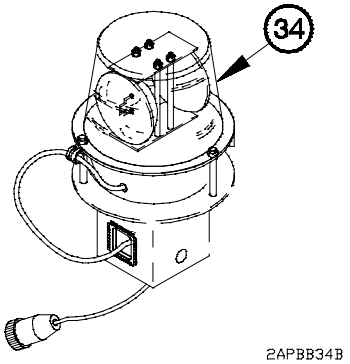


(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
29	4720-01-391-8290	HOSE ASSEMBLY, NONMETALLIC (0FW39) 12419936-001	MAG	EA	1
30	4720-01-391-8291	HOSE ASSEMBLY, NONMETALLIC (0FW39) 12419936-002	MAG	EA	1
31	4910-01-038-2820	INFLATOR-GAGE, TIRE W/HOSE (19207) 11677140-5		EA	1
32		JACK, ADAPTER (0FW39) (12422562)		EA	1

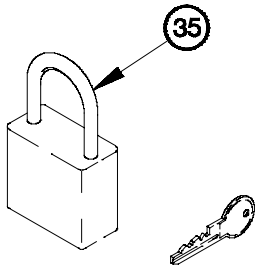
Section III. BASIC ISSUE ITEMS (CONT)



2APBB33B



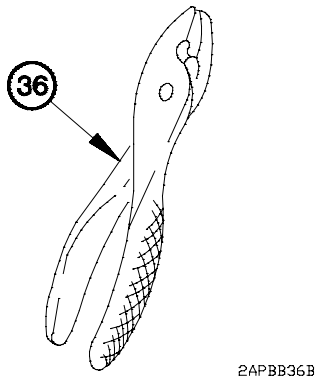
2APBB34B

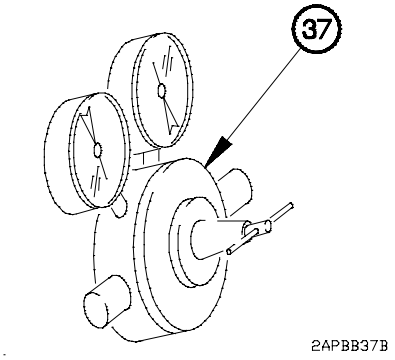


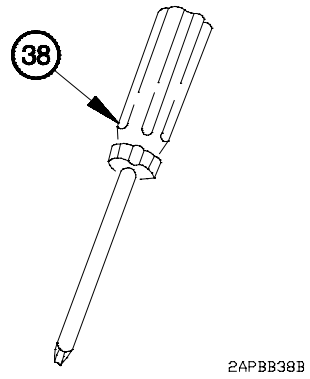
2APBB35B

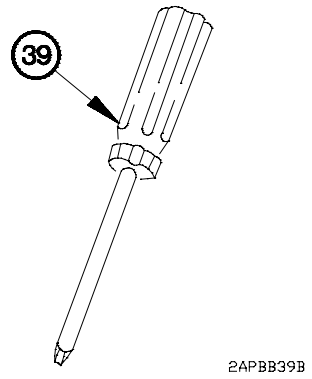
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
33	5120-01-374-0532	JACK, HYDRAULIC, HAND OPERATED (0E3L5) D-51013		EA	1
34	6220-01-433-5828	LIGHT, AMBER WARNING, WRECKER (0FW39) 12421444	MAG	EA	2
35	5340-01-468-5390	PADLOCK SET (22107) 5200GLKAZ	MAA,MAB, MAC,MAF, MAH,MAJ, MAK,MAL,MWB, MWC,MWF,MWH,MWJ	EA	1
	5340-01-408-8452	PADLOCK SET (22107) 5200GLKA10	MAG	EA	1
	5340-01-437-0625	PADLOCK SET (22107) 5200GLKA6	MAE,MAM	EA	1

Section III. BASIC ISSUE ITEMS (CONT)



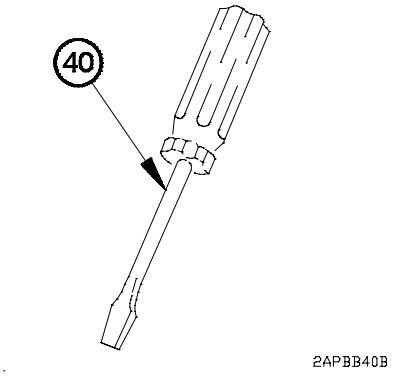


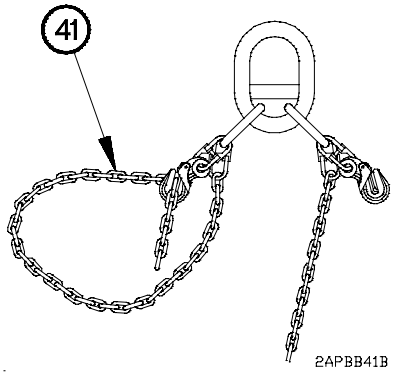


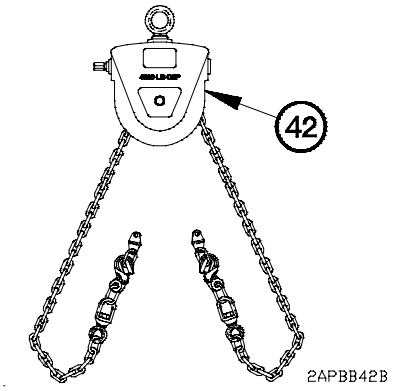


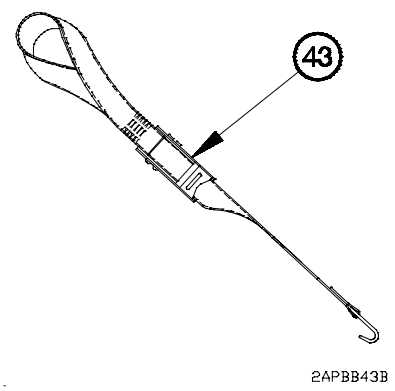
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
36	5120-00-223-7397	PLIERS, SLIP JOINT, 8 IN. (56161) 10510983		EA	1
37	4820-00-551-1094	VALVE, REGULATING, FLUID PRESSURE (58536) AA5540-1	MAG	EA	1
38	5120-00-234-8912	SCREWDRIVER, CROSSTIP (19207) 11655777-9		EA	1
39	5120-00-234-8913	SCREWDRIVER, CROSSTIP (19207) 11655777-12		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



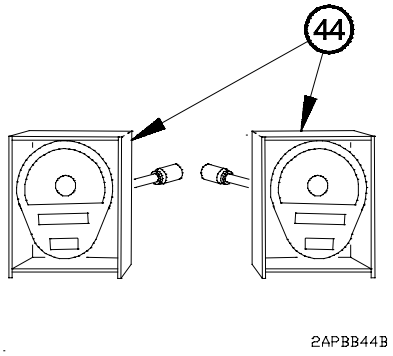


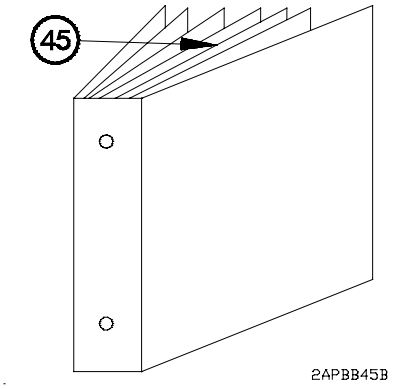


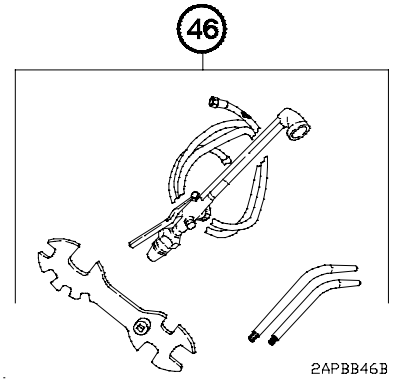


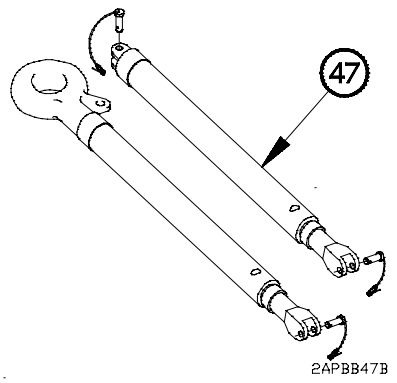
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
40	5120-00-237-6985	SCREWDRIVER, FLATTIP (56161) 10510988		EA	1
41	3940-01-209-6008	SLING AND WIRE ROPE ASSEMBLY (45152) 1385750	MAG	EA	1
42	4910-01-243-5556	SLING, ENGINE & TRANSMISSION (59678) DFP-188	MAG	EA	1
43		STRAP, RETAINING (31272) 8-1-00	MAG	EA	1

Section III. BASIC ISSUE ITEMS (CONT)



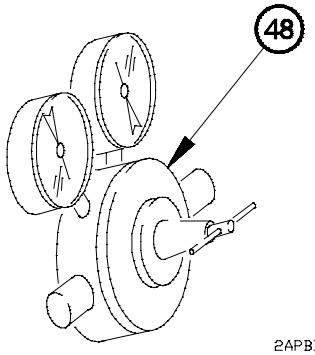


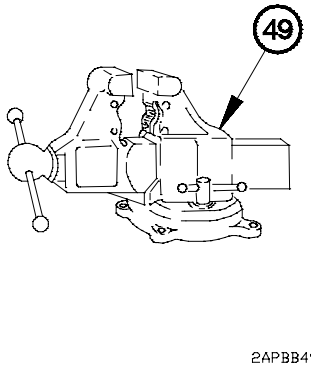


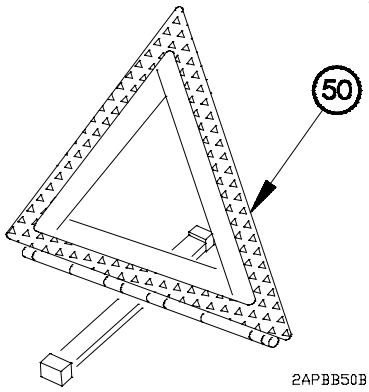


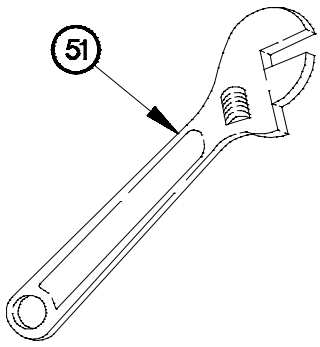
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
44	6220-01-420-5986	TAILLIGHT ASSEMBLY (19207) 12420353	MAG	EA	2
45		TECHNICAL MANUAL, OPERATOR'S INSTRUCTIONS, M1083 SERIES, 5-TON		EA	1
46	3433-00-294-6743	TORCH SET, CUTTING AND WELDING (81349) MIL-T-13880	MAG	EA	1
47	4910-01-365-9304	TOWBAR, MOTOR VEHICLE (59678) 7551383	MAG	EA	1

Section III. BASIC ISSUE ITEMS (CONT)



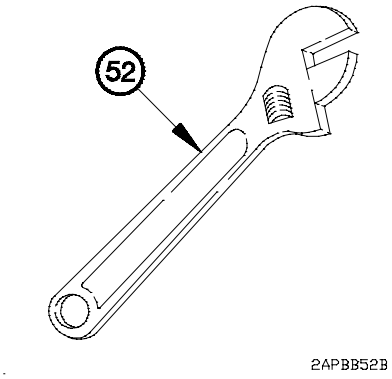


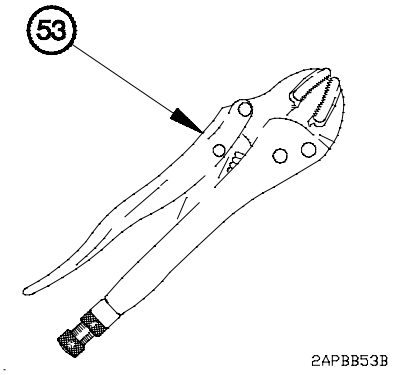


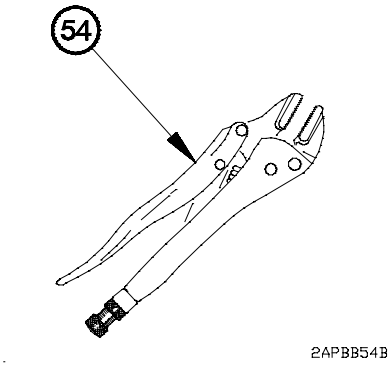


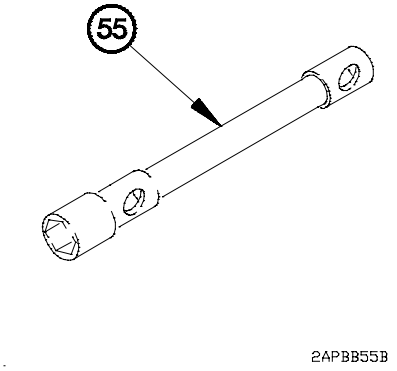
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
48	4820-00-641-3519	VALVE, REGULATING (58536) A-A-55540	MAG	EA	1
49	5120-00-243-9072	VISE, BENCH AND PIPE (81348) GGG-V-410	MAG	EA	1
50	9905-00-148-9546	WARNING DEVICE KIT (19207) 11669000		SE	1
51	5120-00-264-3796	WRENCH, ADJUSTABLE, 12 IN. (19207) 11655778-5		EA	1

Section III. BASIC ISSUE ITEMS (CONT)









(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/I	(5) Qty Reqd
52	5120-00-240-5328	WRENCH, ADJUSTABLE, 8 IN. (19207) 11655778-3		EA	1
53	5120-00-277-4244	WRENCH, PLIER (77243) 10R	MAG	EA	1
54	5120-00-494-1911	WRENCH, PLIER (80244) GGG-W-00649 TY1CL2STB	MAG	EA	1
55	5120-00-316-9217	WRENCH, SOCKET (19207) 11677000-3		EA	1

APPENDIX C
ADDITIONAL AUTHORIZATION LIST (AAL)

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists additional items you are authorized for support of the vehicle.

C-2. GENERAL

This list identifies items that do not have to accompany the vehicle and that do not have to be turned in with it. These items are all authorized to you by Common Tables of Allowance (CTA), Modification Table of Organization and Equipment (MTOE), Tables of Distribution and Allowances (TDA), or Joint Table of Allowance (JTA).

C-3. EXPLANATION OF LISTING

National Stock Numbers, description, and quantities are provided to help you identify and request the additional items you require to support this equipment. If the item required differs for different models of this equipment, see the "Usable On Code" column for the applicable model or models. Codes used are:

USABLE ON CODE	MODEL
MAB	M1083
MWB	M1083 w/15k Self-Recovery Winch
MAE	M1084
MAL	M1085
MWL	M1085 w/15k Self-Recovery Winch
MAM	M1086
MAF	M1088
MWF	M1088 w/15k Self-Recovery Winch
MAG	M1089
MAH	M1090
MWH	M1090 w/15k Self-Recovery Winch
MAA	M1092
MAC	M1093
MWC	M1093 w/15K Self-Recovery Winch
MAJ	M1094
MWJ	M1094 w/15k Self-Recovery Winch
MAK	M1096

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) Description CAGEC & Part Number	Usable On Code	(3) U/M	(4) Qty Auth
4010-01-470-2864	ADAPTER KIT, LADDER, S280 SHELTER (19207) 57K1950	MAB,MAC, MAL,MWB, MWC,MWL	KT	1
6665-00-859-2215	ALARM UNIT, CHEMICAL AGENT AUTOMATIC ALARM (81361) D5-15-4826		EA	1
5110-00-293-2336	AX, SINGLE BIT (19207) 6150925		EA	1
4010-00-473-6166	CHAIN, 16 FT (19207) 7077063		EA	1
2540-00-933-9033	CHAIN ASSEMBLY, TIRE (58536) A52507-2271		PR	2
5120-01-416-8568	COMBINATION TOOL, HAND (0T9K4) 595		EA	1
6665-00-859-2201	DETECTOR UNIT, CHEMICAL AGENT AUTOMATIC ALARM (81361) D5-15-4400		EA	1
8415-00-634-4658	GLOVES, LEATHER (90142) 37G2940		EA	1
5120-00-288-6574	HANDLE, MATTOCK-PICK (19207) 11677021		EA	1
2540-01-386-2952	KIT, COVER, SOFT TOP, GREEN CAMO (19207) 57K1899	MAB,MAC, MWB,MWC	KT	1
2540-01-436-9658	KIT, COVER, SOFT TOP, TAN (19207) 57K1926	MAB,MAC, MWB,MWC	KT	1
2540-01-387-5734	KIT, COVER, SOFT TOP, GREEN CAMO (19207) 57K1900	MAL,MWL	KT	1
2540-01-436-8898	KIT, COVER, SOFT TOP, TAN (19207) 57K1935	MAL,MWL	KT	1
2540-01-420-5985	KIT, COVER, SOFT TOP, GREEN CAMO (19207) 57K1901	MAH,MAJ, MWH,MWJ	KT	1
2540-01-436-9659	KIT, COVER, SOFT TOP, TAN (19207) 57K1942	MAH,MAJ, MWH,MWJ	KT	1

Section II. ADDITIONAL AUTHORIZATION LIST (CONT)

(1) National Stock Number	(2) Description CAGEC & Part Number	Usable On Code	(3) U/M	(4) Qty Auth
	KIT, CRANE ADAPTER (19207) 57K4206	MAC,MAJ, MWC,MWJ	EA	1
3990-01-444-1013	KIT, TIE DOWN, S280 SHELTER (19207) 57K1949	MAB,MAC, MWB,MWC	KT	1
3990-01-463-9191	KIT, TIE DOWN, S280 SHELTER (19207) 57K1970	MAL,MWL	KT	1
3990-01-444-0356	KIT, TIE DOWN, TANK AND PUMP UNIT (19207) 57K1954	MAB,MAC, MWB,MWC	KT	1
3990-01-444-0355	KIT, TIE DOWN, TANK AND PUMP UNIT (19207) 57K1955	MAL,MWL	KT	1
3990-01-443-8916	KIT, TIE DOWN, 500 GALLON DRUM (19207) 57K1956	MAB,MAC, MWB,MWC	KT	1
3990-01-444-0357	KIT, TIE DOWN, 500 GALLON DRUM (19207) 57K1957	MAL,MWL	KT	1
2540-01-380-4913	KIT, TROOP SEAT (19207) 57K1894	MAB,MAC, MWB,MWC	KT	1
2540-01-381-5906	KIT, TROOP SEAT (19207) 57K1896	MAL,MWL	KT	1
2540-01-386-2962	KIT, TROOP SEAT (19207) 57K1897	MAH,MAJ, MWH,MWJ	KT	1
3810-01-368-7723	LIGHT MATERIAL HANDLING CRANE KIT (12361) 1-195-0-00516	MAB,MAC, MAL,MWB, MWC,MWL	KT	1
1005-01-381-5431	MACHINE GUN RING MOUNT KIT (19207) 57K1224		KT	1
5120-00-243-2395	MATTOCK (19207) 11677022		EA	1

Section II. ADDITIONAL AUTHORIZATION LIST (CONT)

(1) National Stock Number	(2) Description CAGEC & Part Number	Usable On Code	(3) U/M	(4) Qty Auth
6115-01-432-2684	PARTS KIT, ELECTRICAL GENERATOR, 200 AMP (19207) 57K1912	MAA,MAB, MAE,MAF, MAG,MAH, MAK,MAL, MAM,MWB, MWF,MWH, MWL	KT	1
6115-01-431-5092	PARTS KIT, ELECTRICAL GENERATOR, 200 AMP (19207) 57K1918	MAC,MAJ, MWC,MWJ	KT	1
6220-01-423-2337	ROTATING WARNING LIGHT KIT (0FW39) 57K1220		KT	1
5120-00-293-3336	SHOVEL, HAND (19207) 11655784		EA	1

APPENDIX D
EXPENDABLE AND DURABLE ITEMS LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists all expendable and durable items that you will need to operate and maintain the MTV. This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970 Expendable /Durable Items (except medical, class V, repair parts, and heraldic items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

D-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 instructions to identify the item (e.g. "Use cleaning compound, item 5, Appendix D.").

b. Column (2). Level. This column identifies the lowest level of maintenance that requires the item.

c. Column (3). National Stock Number. This is the national stock number assigned to the item which you can use to requisition it.

d. Column (4). Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number. This provides the other information you need to identify the item.

e. Column (5). Unit of Measure. This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Section II. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
1	C	6850-00-174-1806	Antifreeze, (MIL-A-11755)(81349) 55 gal drum	dr
2	C	6850-00-181-7940	Antifreeze, Permanent (MIL-A-46153)(81349) 55 gal drum	dr

Section II. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
	C	6850-00-926-2275	Cleaning Compound, Windshield (O-C-1901) (81349) 1 pint	pt
3	C	9150-00-664-0047	Damping Fluid (VV-D-1078) (81348) 1 lb can	lb
	C	8415-00-641-4601	Gloves, Rubber (ZZ-G-381) (81348) 1 pr	pr
	C	4240-00-052-3776	Goggles, Industrial (A-A-1110) (58536) 1 pr	pr
4	C		Grease, Automotive and Artillery (GAA) (MIL-G-10924) (81349) 2-1/4 oz tube	
		9150-01-197-7688	14 oz cartridge	tu
		9150-01-197-7693	35 lb can	ca
		9150-01-197-7692		cn
5	C		Hydraulic Fluid, Petroleum Base (MIL-H-5606) (81349)	
		9150-00-252-6383	1 qt can	qt
		9150-00-223-4134	1 gal can	gal
		9150-00-082-7524	10 gal drum	dr
		9150-00-265-9408	55 gal drum	dr
7	C		Oil, Fuel, Diesel, DF-1, Winter (VV-F-800) (91348)	
		9140-00-286-5286	Bulk	gal
		9140-00-286-5288	55 gal drum, 16 gage	dr
		9140-00-286-5289	55 gal drum, 18 gage	dr
8	C		Oil, Fuel, Diesel, DF-2, Regular VV-F-800) (81348)	
		9140-00-286-5294	Bulk	gal
		9140-00-286-5296	55 gal drum, 16 gage	dr
		9140-00-286-5297	55 gal drum, 18 gage	dr
9	C	9150-01-035-5390	Oil, Lubricating Gear, GO 75W (MIL-L-2105C)	
		9150-01-035-5391	1 qt can	qt
			5 gal drum	gal

Section II. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
10	C		Oil, Lubricating, Gear, GO 80W-90 (MIL-L-2105C)	
		9150-01-035-5392	1 qt can	qt
		9150-01-035-5393	5 gal can	cn
		9150-01-035-5394	55 gal drum	dr
11	C		Oil, Lubricating, OE/HDO 10 (MIL-L-2104)	
		9150-00-183-7807	bulk	gal
		9150-00-186-6668	5 gal can	cn
		9150-00-191-2772	55 gal drum, 16 gage	dr
12	C		Oil, Lubricating, OE/HDO 10W (MIL-L-2104)	
		9150-00-189-6727	1 qt can	qt
13	C		Oil, Lubricating, OE/HDO 15W-40 (MIL-M-2104)	
		9150-01-152-4117	1 qt can	qt
		9150-01-152-4118	5 gal can	cn
		9150-01-152-4119	55 gal drum	dr
14	C		Oil, Lubricating, OE/HDO 30 (SAE 30) (MIL-L-2104)	
		9150-00-183-7808	bulk	gal
		9150-00-186-6681	1 qt can	qt
		9150-00-188-9858	5 gal can	cn
		9150-00-189-6729	55 gal drum, 18 gage	dr
15	C		Oil, Lubricating, OE/HDO 40 (MIL-L-2104)	
		9150-00-405-2987	bulk	gal
		9150-00-189-6730	1 qt can	qt
		9150-00-188-9862	5 gal can	cn
16	C		Oil, Lubricating, OE/HD (MIL-L-46167), Arctic	
		9150-00-402-4478	1 qt can	qt
		9150-00-402-2372	5 gal can	cn
		9150-00-491-7197	55 gal drum	dr
17	C	7920-00-205-1711	Rag, Wiping, Cotton and Cotton-Synthetic	lb

Section II. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
18	C	7930-00-634-3935	Soap, Laundry (54748) 539-200LBCHIPS 200 lb drum	dr
19	C		Solvent, Dry Cleaning SD (P-D-680)	
		6850-00-281-1985	1 gal can	gal
		6850-00-664-5685	1 qt can	qt

APPENDIX E
STOWAGE LOCATION/DECAL/STENCIL GUIDE

Section I. INTRODUCTION

E-1. SCOPE

This appendix shows the location for stowage of equipment and material required to be carried on M1083 series vehicles and locations of decals, and stencils that are required to be in place on the vehicle.

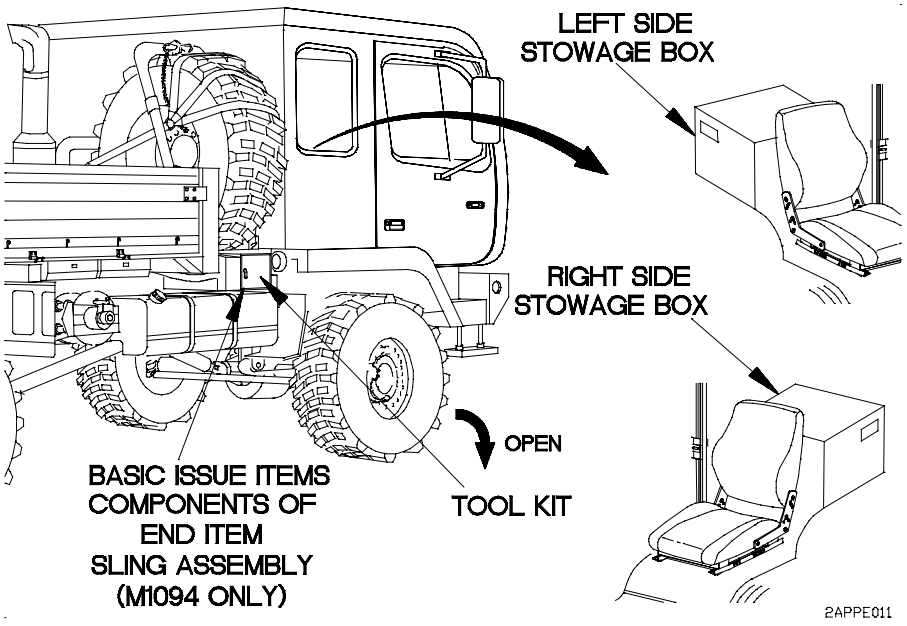
Section II. STOWAGE LOCATION/DECAL/STENCIL GUIDE

E-2. GENERAL

The equipment stowage locator is designed to help inventory items required for safe and efficient operation. The equipment locator is representative of BII and applicable AAL stowage on all M1083 series vehicles.

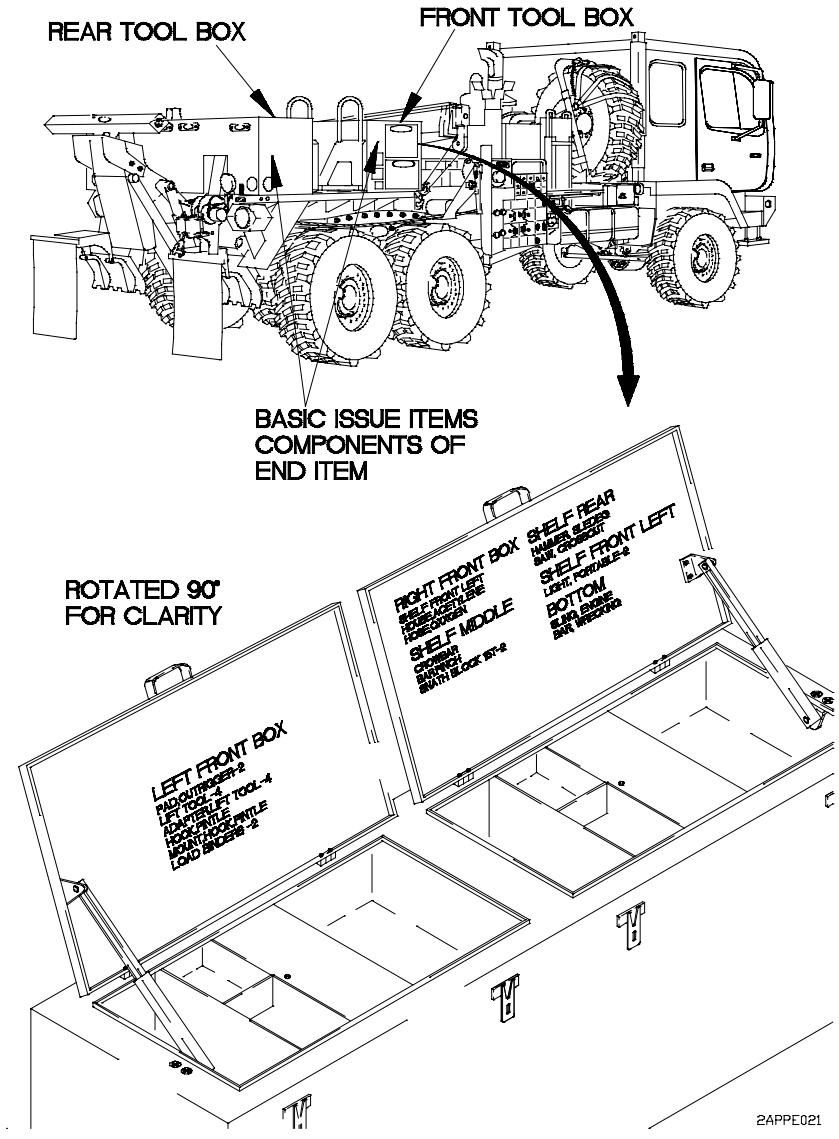
E-3. STOWAGE LOCATION/DECAL/STENCIL GUIDE

a. Stowage Locations, All Vehicles.

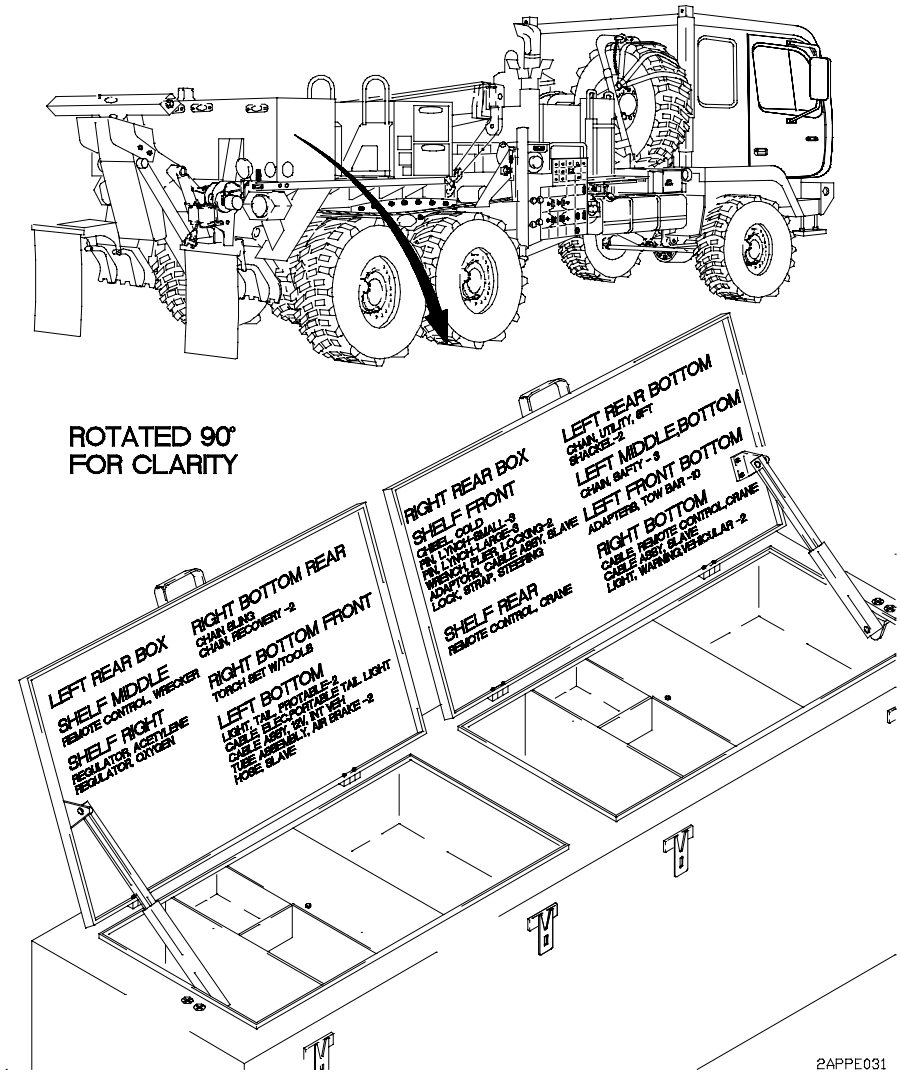


E-3. STOWAGE LOCATION/DECAL/STENCIL GUIDE (CONT)

b. Stowage Location, M1089.

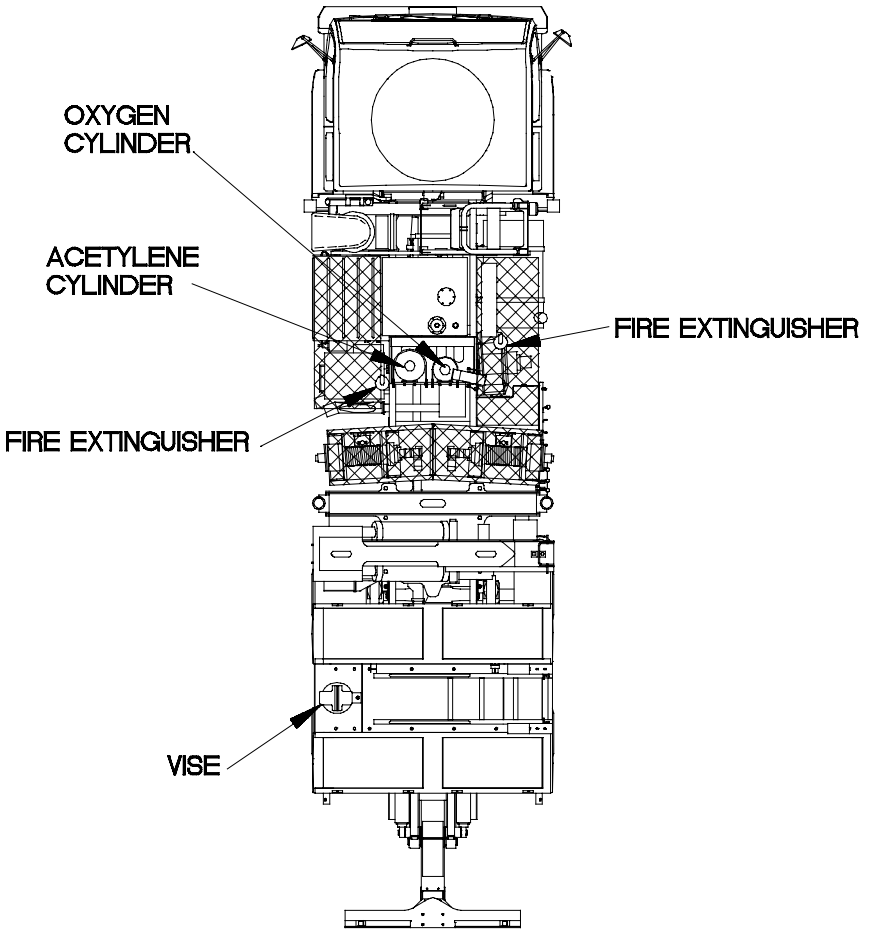


b. Stowage Location, M1089 (Cont).

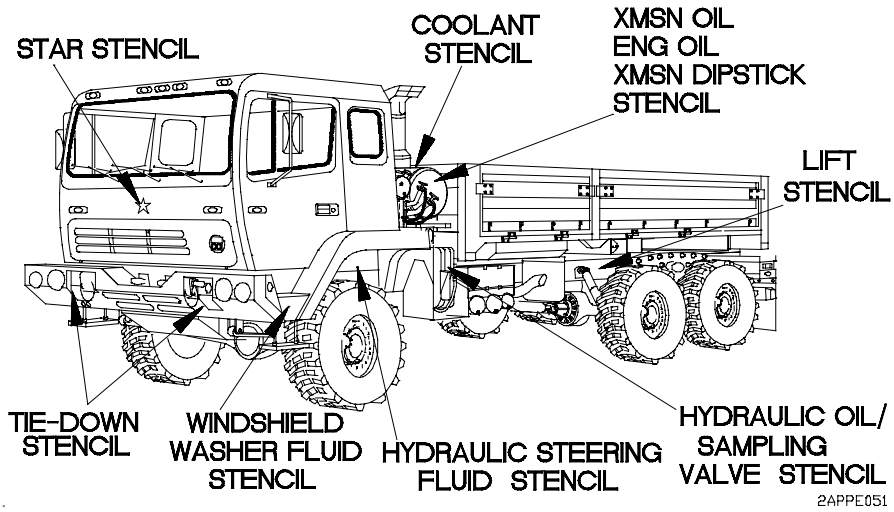


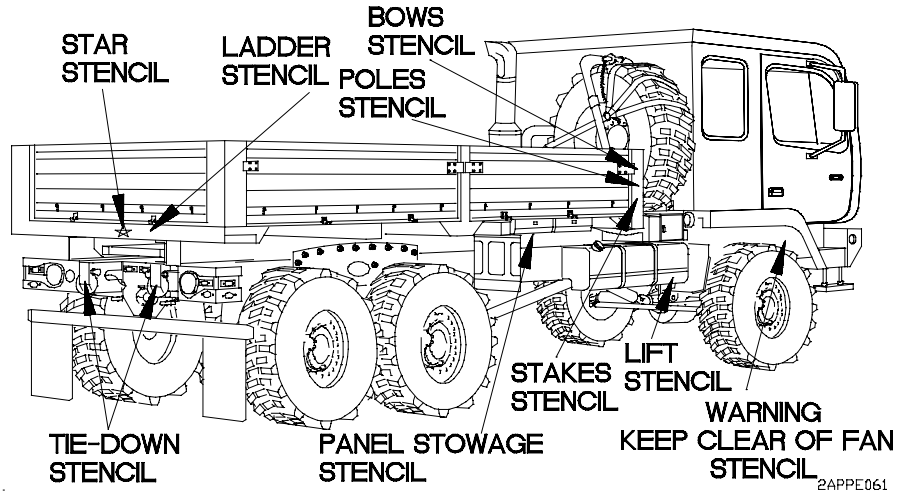
E-3. STOWAGE LOCATION/DECAL/STENCIL GUIDE (CONT)

b. Stowage Location, M1089 (Cont).



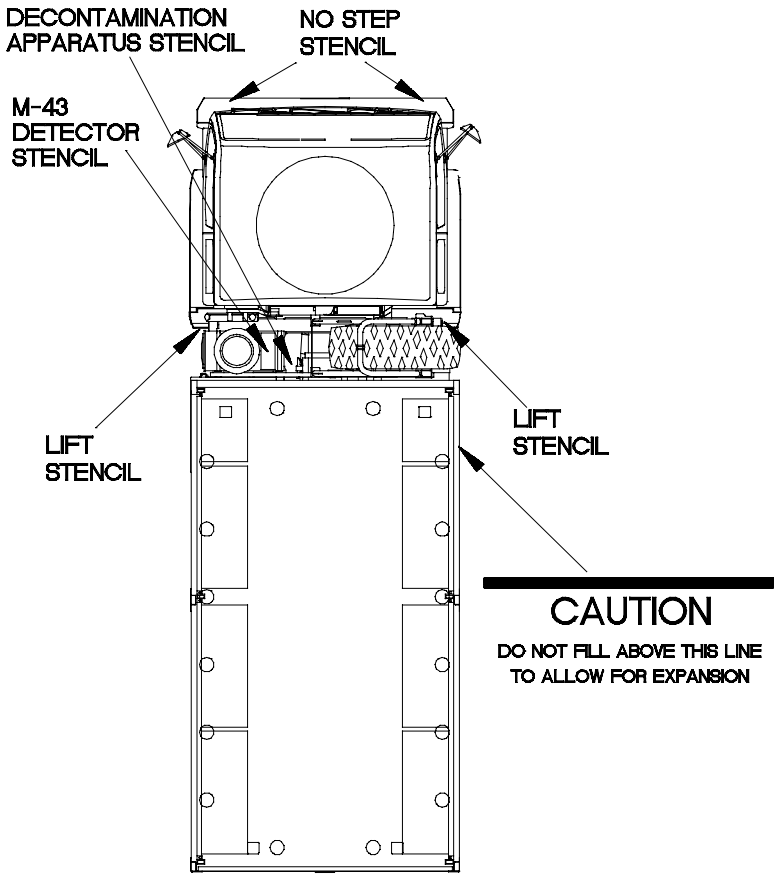
c. Decals/Stencils, All Vehicles.



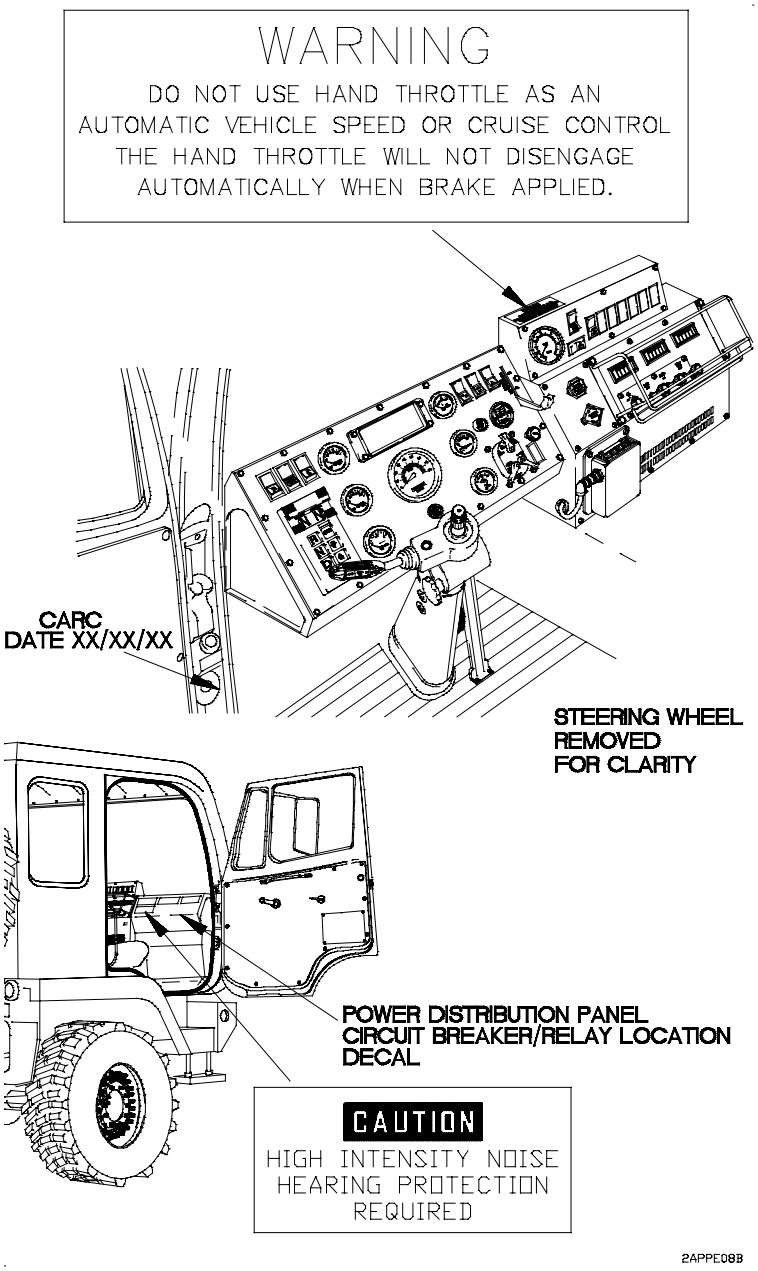


E-4. STOWAGE LOCATION/DECAL/STENCIL GUIDE (CONT)

c. Decals/Stencils, All Vehicles (Cont).

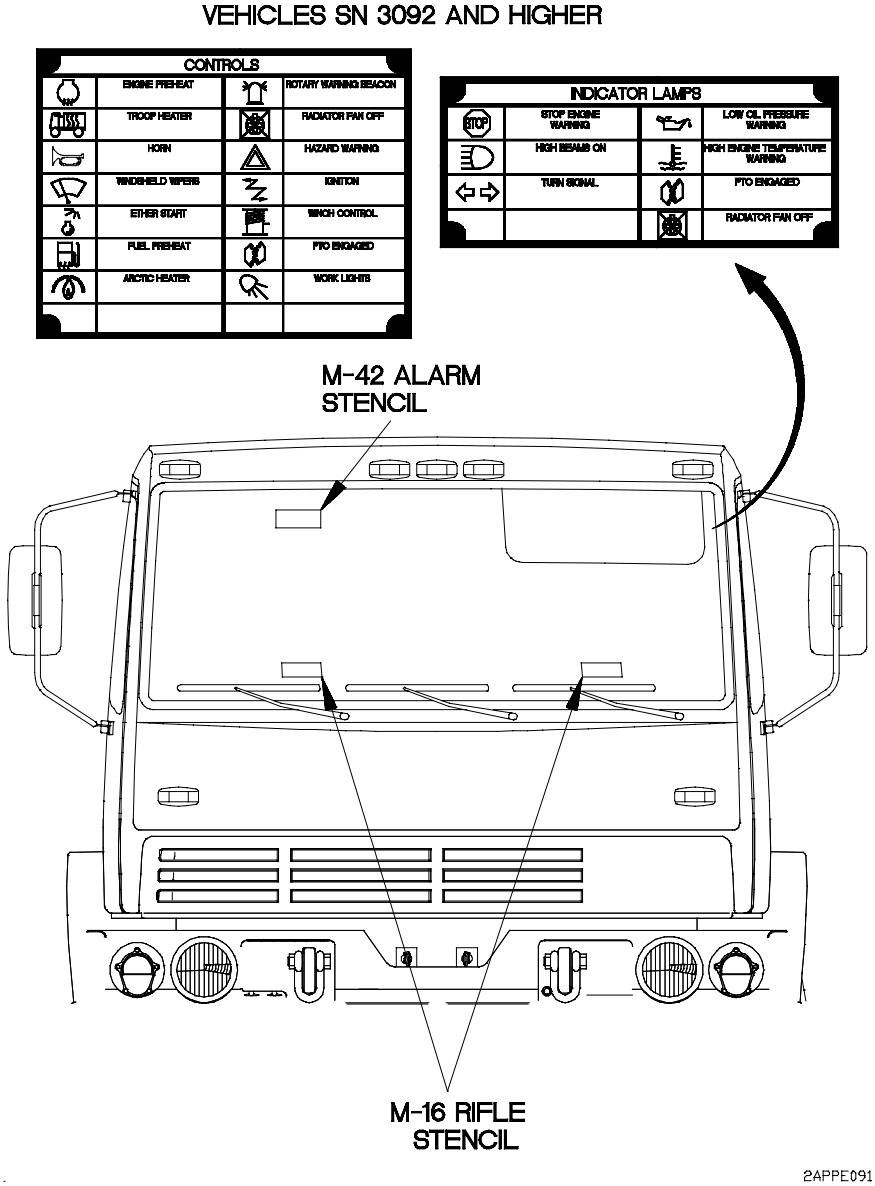


c. Decals/Stencils, All Vehicles (Cont).

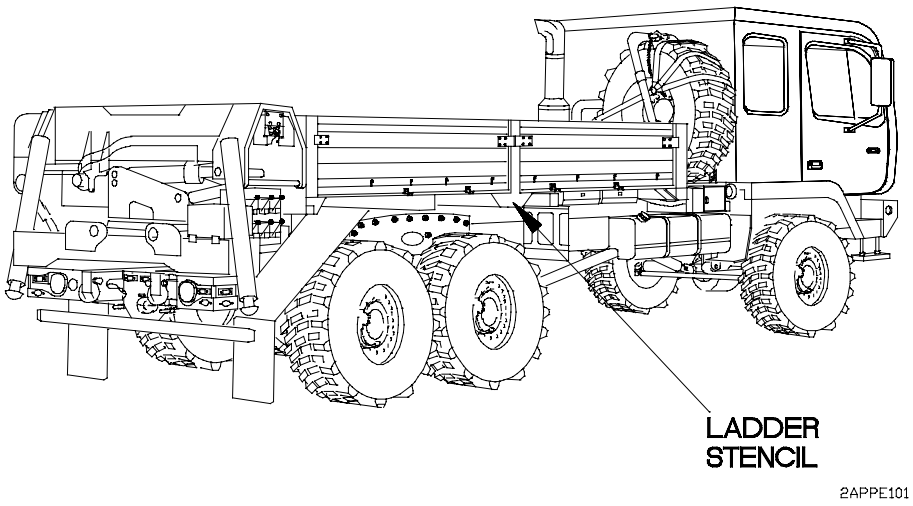


E-4. STOWAGE LOCATION/DECAL/STENCIL GUIDE (CONT)

c. Decals/Stencils, All Vehicles (Cont).

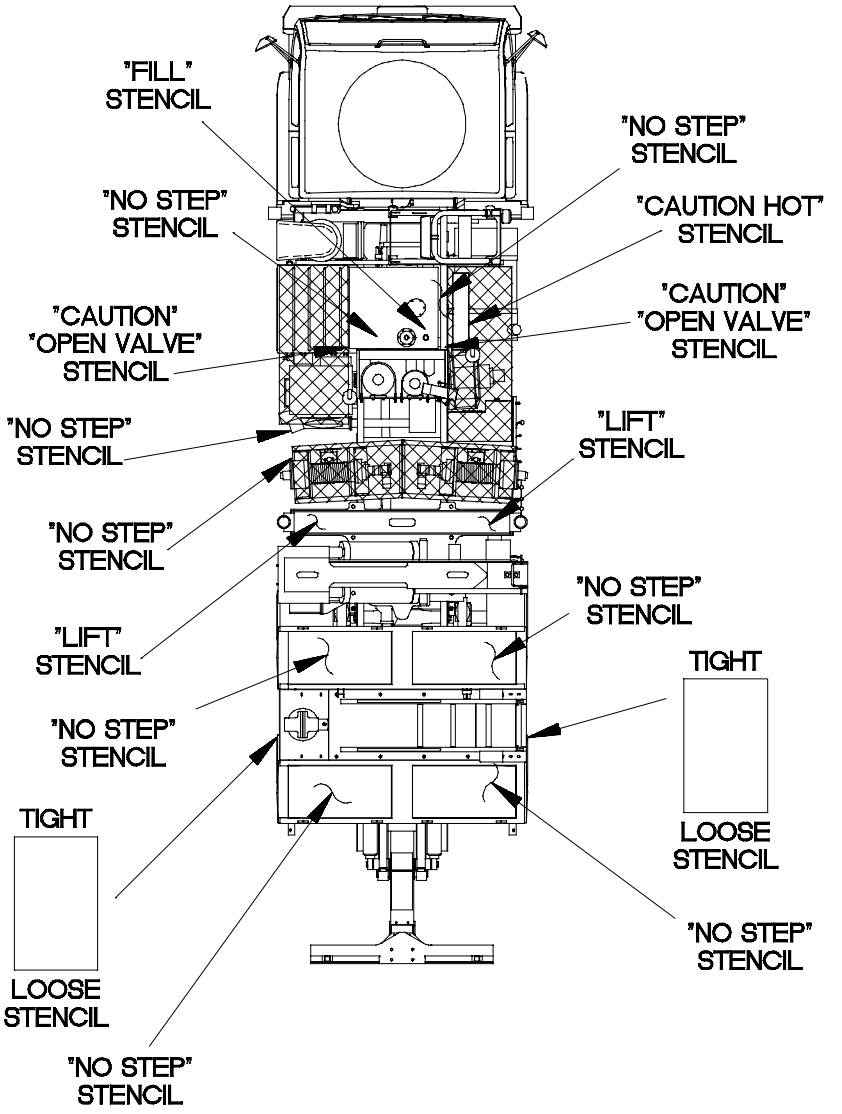


d. Stencils, M1084/M1086.



E-4. STOWAGE LOCATION/DECAL/STENCIL GUIDE (CONT)

e. Stencils, M1089.



APPENDIX F
LUBRICATION ORDER

Section I. INTRODUCTION

F-1. GENERAL

This appendix gives lubrication requirements for the vehicle which are the responsibility of the Operator/Crew.

a. Adherence. Intervals (on-condition or hard time) and the related man-hour times are based on normal operation. The man-hour time specified is the time needed to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals shall be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hard time interval if lubricants are contaminated or if operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The calendar interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hard time intervals will be applied in the event AOAP laboratory support is not available. Hard time intervals must be applied during the warranty period.

Intervals shown in this appendix are based on mileage/calendar times. The lubrication for the vehicle is to be performed at whichever interval occurs first.

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using Dry Cleaning Solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.**

- **If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush with cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in serious injury or death to personnel.**

b. Cleaning Fittings Before Lubrication. Clean parts with Dry Cleaning Solvent (SD P-D-680) or equivalent. Dry before lubricating. Dashed arrows indicate lubrication on both sides of the equipment.

F-1. GENERAL (CONT)

c. Lubrication After Fording. If a fording operation occurs, lubricate all fittings below fording depth and check submerged gear boxes for presence of water.

d. Lubrication After High-Pressure Washing. After a thorough washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

e. Lubrication Local Views. A reference to the appropriate localized view is given after most lubrication entries. Lubrication local views begin on page F-10.

F-2. CORROSION CONTROL

Refer to para 1-3 for appropriate corrosion control procedures.

F-3. AOAP SAMPLING INTERVAL

Engine/transmission oil must be sampled every 90 days as prescribed by DA Pam 738-750. Hydraulic fluids must be sampled annually as prescribed by DA Pam 738-750.

F-4. HARD TIME LUBRICATION INTERVALS

For equipment under manufacturer's warranty, hard time oil service intervals shall be followed. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions (e.g. longer than usual operating hours, extended idling periods, extreme dust, etc.).

F-5. LUBRICATION KEY

LUBRICANTS	
Specification	**Type**
MIL-L-2104 (OE/HDO)	Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service
MIL-H-5606 (OHA)	Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance
MIL-G-10924 (GAA)	Grease, Automotive and Artillery
V-V-D-1078	Damping Fluid

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Engine crankcase	25 qt (24 L)	OE/HDO-15/40	OE/HDO-15/40	OEA
Transmission (total system) (all models except M1088 and M1089)	49.3 qt (46.7 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change) (all models except M1088 and M1089)	36.8 qt (34.7 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (total system) (M1088 and M1089)	58.6 qt (55.5 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change) (M1088 and M1089)	31.8 qt (30.0 L)	OE/HDO-15/40	OE/HDO-10	OEA
Steering system	5 qt (4.8 L)	OE/HDO-10	OE/HDO-10	OEA
Hydraulic tank (M1089)	74 gal (280 L)	OE/HDO-10	OE/HDO-10	OEA
Hydraulic reservoir (Except M1089)	27 GAL (102.2 l)	OE/HDO-10	OE/HDO-10	OEA
LMHC boom sheave	As required	GAA	GAA	GAA
Oil can points	As required	OE/HDO-10	OE/HDO-10	OEA
Front lifting beam	As required	GAA	GAA	GAA
Spreader bars	As required	GAA	GAA	GAA
Air/hydraulic power unit	3 qt (2.8 L)	OHA	OHA	OHA
LMHC cable	As required	OE/HDO-10	OE/HDO-10	OEA
Fifth wheel slide path	As required	GAA	GAA	GAA
Fifth wheel	As required	GAA	GAA	GAA
Crossbar screws	As required	GAA	GAA	GAA
Towing Pintle Assembly	As required	GAA	GAA	GAA
Gladhand Coupler Seals	As Required	VV-D-1078	VV-D-1078	VV-D-1078
30 Ton snatch block	As required	GAA	GAA	GAA

F-5. LUBRICATION KEY (CONT)

COOLANT	
Specification	**Type**
MIL-A-46153	Antifreeze, Ethylene Glycol, Inhibited, Heavy Duty, Single Package

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Cooling system (engine only)	14 qt (13 L)	MIL-A-46153	MIL-A-46153	N/A
Cooling system (total system)	50.3 qt (47.6 L)	MIL-A-46153	MIL-A-46153	N/A
Cooling system (total system) (M1088, M1089)	52.8 qt (49.9 L)	MIL-A-46153	MIL-A-46153	N/A

CLEANING AGENT	
Specification	**Type**
P-D-680	Dry Cleaning Solvent, SD-II
O-C-1901	Cleaning Compound, Windshield

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +15°F (Above -9°C)	+15°F to -15°F (-9°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
All metal parts as required	N/A	P-D-680 (all temperatures)		
Windshield Washer Reservoir	7.5 qt (7.1 L)	2/3 water to 1/3 O-C-1901	1/2 water to 1/2 O-C-1901	1/3 water to 2/3 O-C-1901

F-6. LUBRICATION INTERVALS

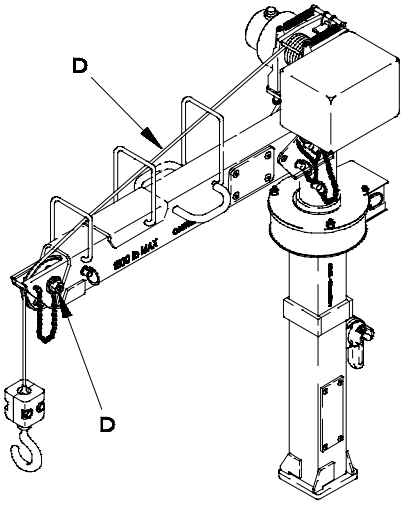
INTERVALS

D . . . . . Daily
W . . . . . Weekly
M . . . . . Monthly

VEHICLES	TOTAL MAN HOURS FOR EACH INTERVAL		
	D	W	M
TRUCK, CARGO, MTV, M1083	0.3	N/A	0.2
TRUCK, CARGO, MTV, W/MHC, M1084	0.3	N/A	0.3
TRUCK, CARGO, MTV, LWB, M1085	0.3	N/A	0.2
TRUCK, CARGO, MTV, LWB, W/MHC, M1086	0.3	N/A	0.3
TRUCK, TRACTOR, MTV, M1088	0.3	0.3	0.4
TRUCK, WRECKER, MTV, M1089	0.3	0.3	0.4
TRUCK, DUMP, MTV, M1090	0.3	N/A	0.4
TRUCK, CHASSIS, MTV, M1092	0.3	N/A	0.2
TRUCK, CARGO, MTV, AIR DROP, M1093	0.3	N/A	0.2
TRUCK, DUMP, MTV, AIR DROP, M1094	0.3	N/A	0.4
TRUCK, CHASSIS, MTV, LWB, M1096	0.3	N/A	0.2

F-7. LUBRICATION LOCATOR VIEWS

LUBRICANT	INTERVAL
Cable Lubricate cable after use with **OE/HDO**	
Boom Sheave Lubricate boom sheave after use with **GAA**.	



2APPF011

LIGHT MATERIAL HANDLING CRANE (LMHC)

LUBRICANT **INTERVAL**

Cab Lift Cylinder
Lubricate.
(See note 13 and view R)

Power Steering Reservoir
Check oil level at dipstick.
(See note 9 and view A)
OE/HDO

Engine Crankcase
Check oil level at dipstick.
(See note 1 and view A)
OE/HDO

Cooling System
Check coolant level.
(See note 4 and view D)

Transmission/Transfer Case
Check oil level at dipstick.
(See note 2 and view B)
OE/HDO

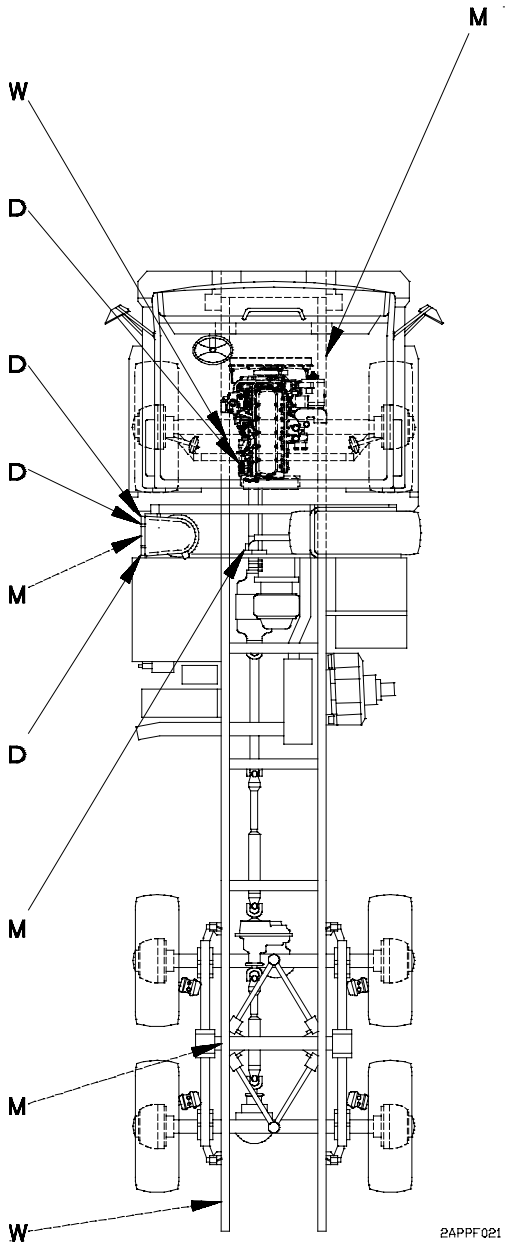
Front Lifting Beam
Lubricate left and right sides
(See note 11 and view N)
GAA

Hydraulic Reservoir
Check hydraulic oil level at
hydraulic oil level gage.
(See note 3 and view C)
OE/HDO

Air/Hydraulic Power Unit
Check hydraulic oil level at
dipstick.
(See note 8 and view H)
OHA

Spreader Bars
Lubricate left and right sides.
(See note 12 and view P)
GAA

Gladhand Coupler Seal
Lubricate seal (front and rear).
(See note 10 and view J)

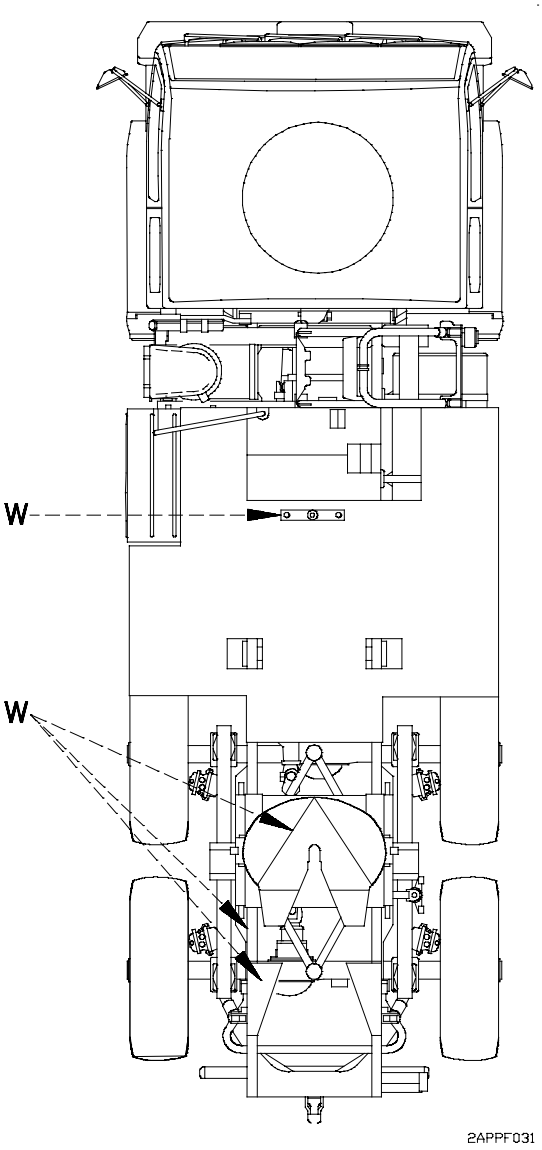


F-7. LUBRICATION LOCATOR VIEWS (CONT)

LUBRICANT **INTERVAL**

Gladhand Coupler Seal
Lubricate seal weekly.
(See note 10 and view K)

Fifth Wheel
Coat fifth wheel ramps, slide path and top plate with GAA. Lubricate grease fittings with GAA.
(See note 5 and views E, G, and M)



M1088 TRACTOR

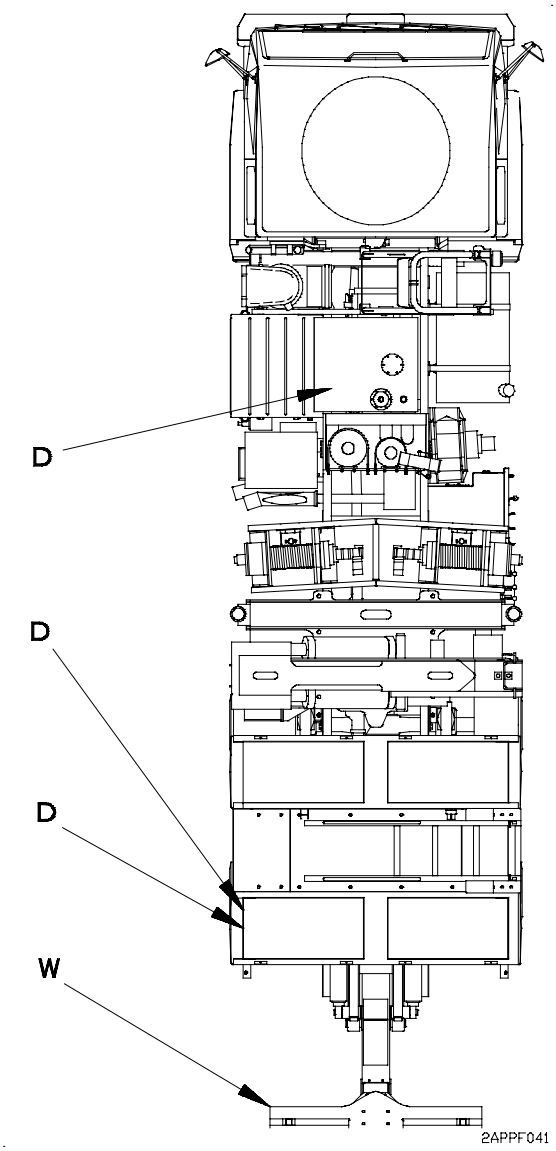
LUBRICANT **INTERVAL**

Hydraulic Tank
Check hydraulic oil level at hydraulic oil view gage and thermometer. (See note 6 and view F)
OE/HDO

Towing Pintle Assembly
Lubricate Towing Pintle Assembly after use with GAA (See view Q)

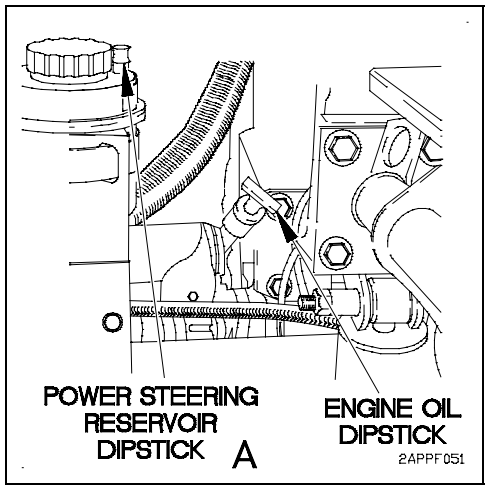
30 Ton Snatch Block
Lubricate snatch block after use with GAA
(See view L)

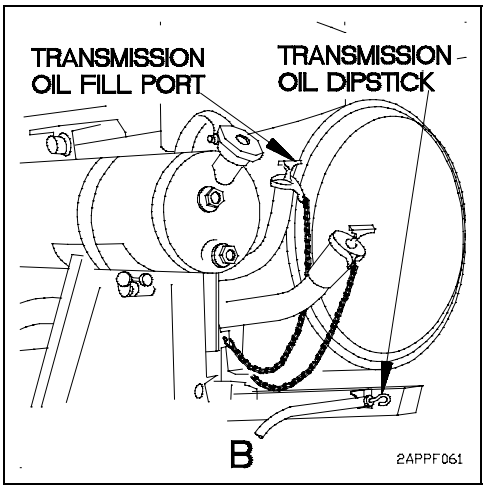
Crossbar Screws
Lubricate threads liberally every week with GAA.

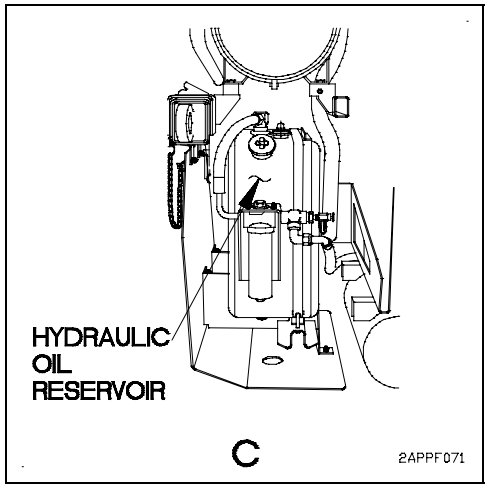


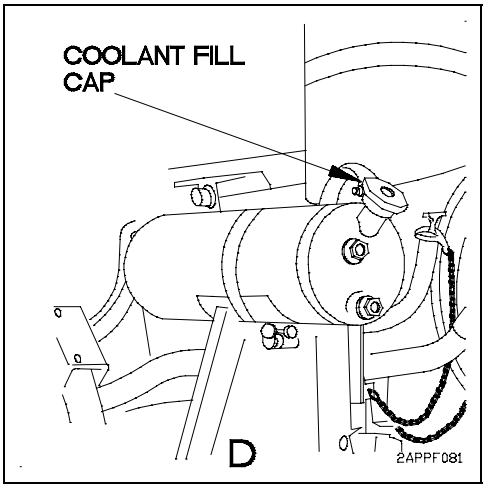
M1089 WRECKER

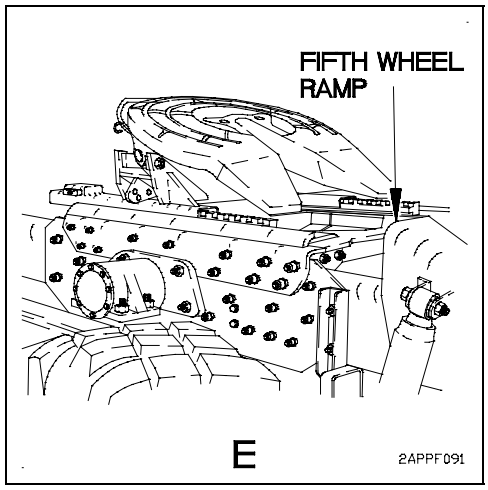
F-8. LUBRICATION LOCAL VIEWS

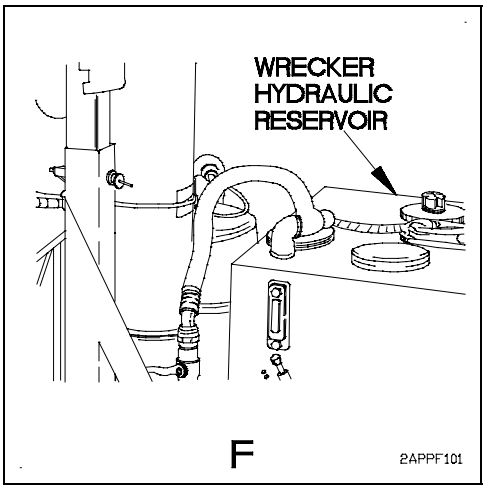


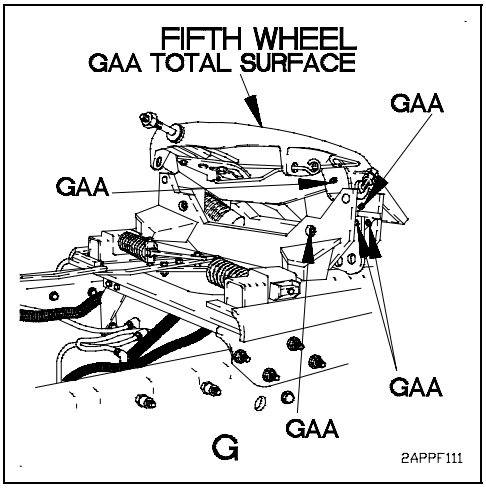


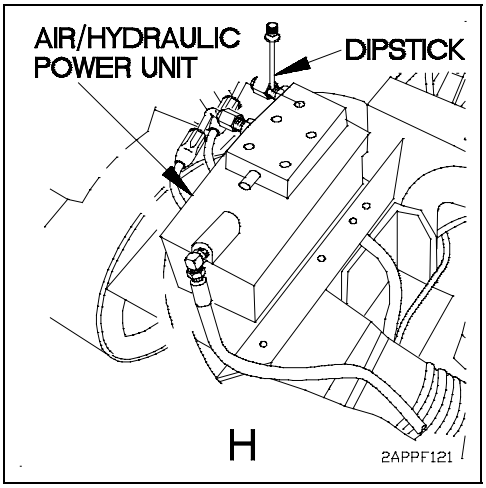


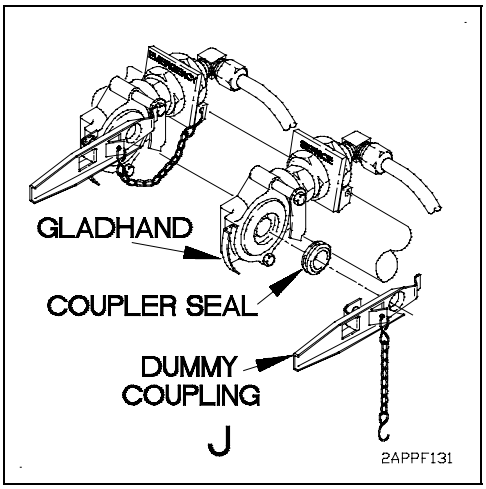


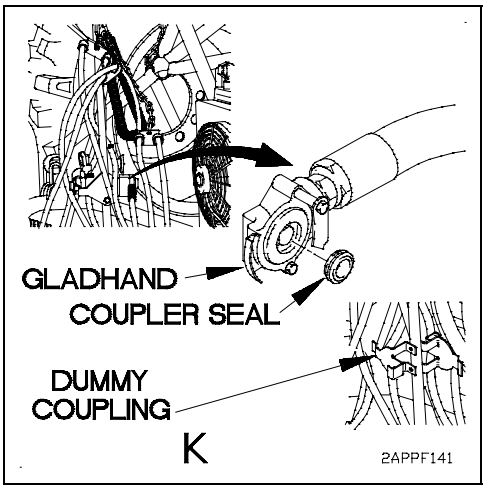


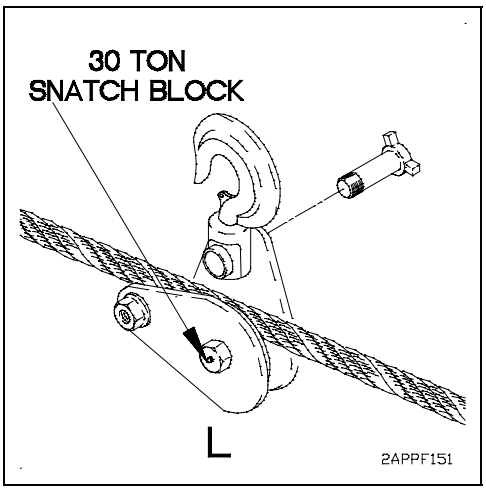


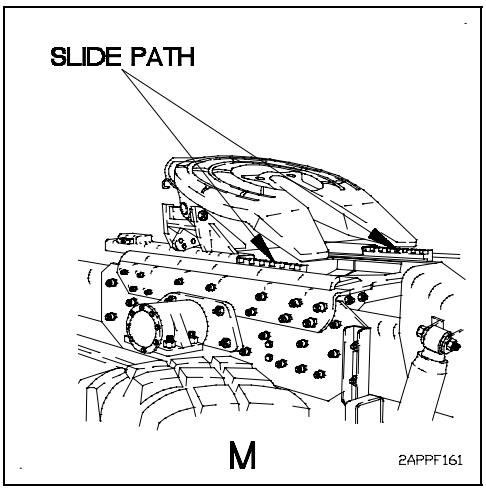

FIFTH WHEEL
GAA TOTAL SURFACE
GAA
GAA
GAA
GAA
G
2APPF111


AIR/HYDRAULIC
POWER UNIT
DIPSTICK
H
2APPF121

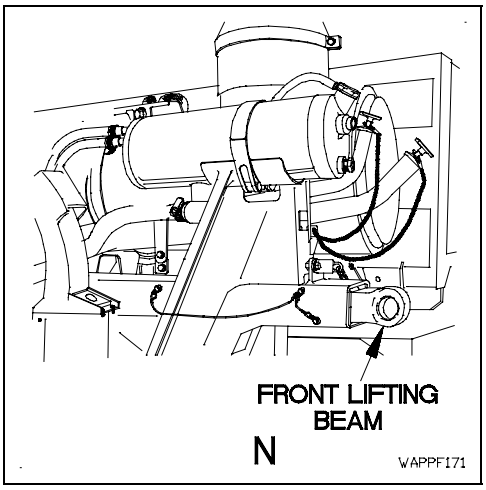

GLADHAND
COUPLER SEAL
DUMMY
COUPLING
J
2APPF131

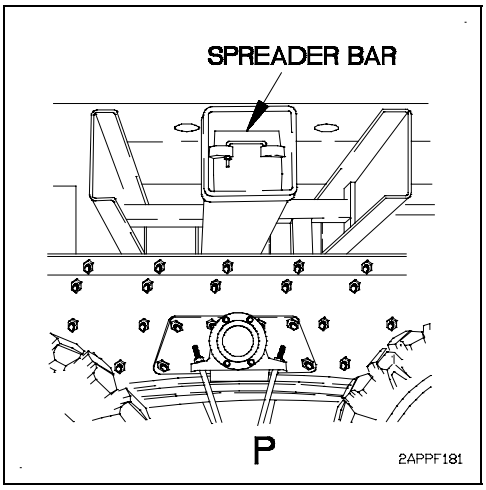

GLADHAND
COUPLER SEAL
DUMMY
COUPLING
K
2APPF141

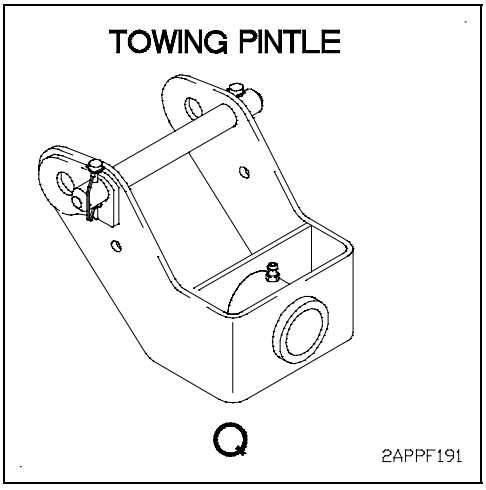

30 TON
SNATCH BLOCK
L
2APPF151

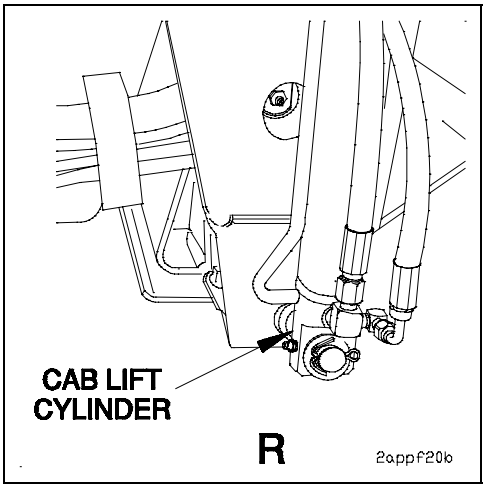

SLIDE PATH
M
2APPF161

F-8. LUBRICATION LOCAL VIEWS (CONT)









F-9. LUBRICATION NOTES

WARNING

Engine dipstick is located close to starter solenoid connectors which contain 24 vdc and high amperage. Use caution removing/installing engine dipstick to prevent shorting across starter solenoids when checking engine oil level. Failure to comply may result in serious injury or death to personnel or damage to equipment.

1. Check engine oil level daily. Oil is full when level is within crosshatch marks on the dipstick. Do not overfill. Fill crankcase with OE/HDO specified for the ambient temperature.

2. Check transmission/transfer case oil level daily with vehicle parked on level surface and transmission range selector in Neutral (N). Safe operating oil level is when the transmission\transfer case fluid level is halfway between the "HOT ADD" line and "HOT FULL" line on the dipstick. With the engine at idle (500-800 rpm) for one minute and engine coolant temperature at normal operating range (165-180°F (74-82°C)), check transmission/transfer case oil level. If the level is below the "HOT ADD" line, add one (1) quart of oil and check oil level. Repeat this procedure until oil level is halfway between the "HOT ADD" line and "HOT FULL" line. If the level is above the "HOT FULL" line, drain one (1) quart of oil from the transmission and check oil level. Repeat this procedure until oil level is halfway between the "HOT FULL" line and "HOT ADD" line. Use OE/HDO oil specified for the ambient temperature.

3. Check hydraulic fluid level daily. Remove hydraulic fluid reservoir cap to visually inspect hydraulic fluid level. TANK IS CONSIDERED FULL WHEN FLUID LEVEL IN TANK IS VISIBLE AT FILL PORT and fluid level gage reads F (full). Fill hydraulic fluid reservoir with OE/HDO specified for the ambient temperature.

4. Check coolant level daily. Surge tank level is acceptable when coolant is visible in lower sight glass. If coolant is not visible in lower sight glass, fill surge tank until coolant is visible half way in upper sight glass. Fill surge tank with MIL-A-46153 or MIL-A-11755 coolant.

5. Apply a thin coat of GAA to fifth wheel ramps and top plate weekly. Lubricate grease fittings (using a low pressure lubrication gun) every week with GAA.

6. Check hydraulic oil level daily. Oil level should be no more than 0.75 in. (1.9 cm) below black line on hydraulic oil view gage. Fill hydraulic oil reservoir with OE/HDO specified for the ambient temperature.

7. Lubricate all oil can points every 1,000 mi. (1,600 km) or once a month (whichever comes first). Lubricate with OE/HDO specified for ambient temperature. The operator/crew is responsible for lubricating the following points.

   a. Oil can Points-All MTV Models.

      (1) Door latches and hinges
      (2) Cab latches (M1093 and M1094 only)
      (3) Battery box cover latches

   b. Oil can Points-MTV Cargo Trucks.

      (1) Tailgate hinge pins
      (2) Intermediate hinge pins
      (3) Side hinge pins
      (4) Cargo bed tiedown rings

F-9. LUBRICATION NOTES (CONT)

c. Oil can Points-MTV Cargo Trucks with Material Handling Crane (MHC).

(1) MHC control lever pivot points on manual controls
(2) MHC hand pump handle mounting/hinge pins
(3) MHC turntable locking pin
(4) MHC cable hook swivel points

d. Oil can Points-Dump Truck.

(1) Cab protector locking pins and hinge pins
(2) Tailgate release handle linkage
(3) Tailgate post hinge assemblies
(4) Storage boxes latches and hinges
(5) Dump body tiedown rings

e. Oil can Points-Tractor (Fifth Wheel).

(1) Plunger lock latch
(2) Coupler jaw linkage

f. Oil can Points-Wrecker.

(1) Storage boxes latches and hinges
(2) MHC control lever pivot points on manual controls
(3) MHC cable tie off point pin on hook block
(4) Crossbar thrust bearing
(5) Upper sheave of pay-out assemblies
(6) Fairleads

g. Oil can Points-Cargo and Dump Truck (Air Drop).

Spare tire retainer davit collar

WARNING

Hydraulic fluid (MIL-H-5606A) is TOXIC. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic fluid should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in serious injury to personnel.

8. Check air/hydraulic power unit fluid level monthly. Fluid level should be between LOW level mark and FULL level mark on dipstick. Fluid level checks can be performed with the cab raised or lowered. Fluid level checks should be performed with the cab lowered, if possible. Remove dipstick from air/hydraulic power unit, wipe dipstick clean and insert in air/hydraulic power unit (Do Not thread dipstick in air/hydraulic power unit) remove dipstick and read fluid level. Install dipstick in air/hydraulic power unit.

9. Check power steering oil level weekly. Fill reservoir with OE/HDO specified for the ambient temperature. Reservoir is full when oil is between the two marks on the dipstick. Do not overfill. Remove dipstick, wipe clean and install dipstick fully into reservoir. Remove dipstick and read oil level.

10. Lubricate front and rear gladhand and tractor air brake hose gladhand coupler seals weekly with VV-D-1078 Damping Fluid.

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using Dry Cleaning Solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.**

- **If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush with cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in serious injury or death to personnel.**

11. Lubricate front lifting beams monthly. Remove two retaining pins from front lifting beam. Pull front lifting beam out as far as it will go. Clean with dry cleaning solvent. Lubricate top, bottom, and sides of lifting beam with GAA. Push front lifting beam back in to housing. Install two retaining pins in front lifting beam.

F-9. LUBRICATION NOTES (CONT)

12. Lubricate spreader bars monthly. Remove hitch pin and retaining pin from spreader bar. Pull spreader bar out as far as it will go. Clean with dry cleaning solvent. Lubricate top, bottom, and sides of spreader bar with GAA. Push spreader bar back in to housing. Install retaining pin and hitch pin in spreader bar.

13. Lubricate cab lift cylinder monthly with GAA.

SUBJECT INDEX

A

Subject	Para
Abbreviations	
List of Abbreviations	1-8
Accelerator Pedal Sticks	3-3
Adjusting	
Driver's Seat	2-26
Mirrors	2-26
Right Passenger Seat	2-26
Air	
Cab Leveling Air Springs Do Not Work Properly	3-3
Draining Air Tanks	2-27
Dryer Does Not Operate (All Models Except M1090/M1094)	3-3
Dryer Purges Continually	3-3
Engine Air Intake System	1-15
Front Brake Air Indicator Does Not Operate	3-3
FRONT BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate	3-3
Large Quantity of Moisture Expelled From Air Reservoirs	3-3
M1088 Tractor Preparation for Air or Ship Transport	2-80
System	1-23
M1090/M1094 Air Dryer Does Not Operate	3-3
M1093 Air Drop Preparation	3-10
M1093 Air Drop Recovery Operations	3-11
M1094 Air Drop Preparation	3-12
M1094 Air Drop Recovery Operations	3-13
No Air Pressure or Low Air Pressure Present at Rear Gladhands	3-3
Noisy Air Compressor Operation	3-3
Preparation for Internal Air Transport	2-69
Rear Brake Air Indicator Does Not Operate	3-3
REAR BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate	3-3
Servicing Air Filter (Emergency Procedure)	3-9
System Loses Pressure During Operation/Slow Air Pressure Buildup	3-3
System Pressure Builds Up More Than 120 psi (827 kPa) (Compressor Fails To Unload)	3-3
Alarm	
Single Tone Audible Alarm Does Not Operate	3-3
Dual Tone Audible Alarm Does Not Operate	3-3
Chemical Alarm Does Not Operate	3-3
Troop Transport Alarm Does Not Operate	3-3
Alignment	
Tires Continue To Wear After Front End Alignment and/or Vehicle Drives Sideways Down Road	3-3

SUBJECT INDEX (CONT)

A (Cont)

Subject Para

All
Windshield Wiper Speeds Do Not Operate . . . 3-3
Wrecker Functions Do Not Operate From Wrecker Control Panel . . . 3-3
Wrecker Functions Do Not Operate From Wrecker Control Panel and Wrecker REMOTE CONTROL . . . 3-3
Wrecker Functions Do Not Operate From Wrecker REMOTE CONTROL. . . . 3-3
Amber
Warning Light Does Not Illuminate (All Models Except M1089) . . . 3-3
Warning Light Kit Installation/Removal . . . 2-74
M1089 Amber Warning Light Does Not Illuminate . . . 3-3
Army
Destruction of Army Materiel to Prevent Enemy Use . . . 1-4
Auxiliary
Equipment Operation . . . 2-51
Panel Controls and Indicators . . . 2-2
Panel Does Not Illuminate . . . 3-3
Panel Switch Does Not Illuminate . . . 3-3
Panel, Personnel Heater, and Instrument Panel Do Not Illuminate . . . 3-3
M1088/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate . . . 3-3
Transmission Auxiliary Oil Cooler Fan Does Not Operate (All Models Except M1088/M1089) . . . 3-3
Axle Differential(s) Noisy . . . 3-3

B

Back-up
Hydraulic Pump Operation . . . 2-52
Batteries
Opening Battery Box/Testing Batteries . . . 3-8
Battery Tester Does Not Operate . . . 3-3
Beam
One Or Both Headlights (High and Low Beam) Do Not Illuminate . . . 3-3
Beams
High Beams on Indicator Does Not Illuminate . . . 3-3
One Or Both Headlight High Beams Do Not Illuminate . . . 3-3
One Or Both Headlight Low Beams Do Not Illuminate . . . 3-3
Belt
Operating Seat Belt . . . 2-26

B (Cont)

Subject	Para
Blackout	
Drive Light Does Not Illuminate	3-3
M1088/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On	3-3
Marker Lights Do Not Illuminate	3-3
One or Both Blackout Stoplights Do Not Illuminate	3-3
One Or Both Front Blackout Marker Lights Do Not Illuminate	3-3
One Or Both Rear Blackout Marker Lights Do Not Illuminate	3-3
Stoplights and Blackout Stoplights Do Not Illuminate	3-3
Trailer Blackout Marker Lights Do Not Illuminate	3-3
Trailer Blackout Stoplights Do Not Illuminate	3-3
Blue Exhaust Smoke from Engine	3-3
Body	
Dump Body Controls	2-10
Dump Body Does Not Lower	3-3
Dump Body Does Not Raise	3-3
Dump Body Does Not Raise or Lower	3-3
Boom	
M1084/M1086 Material Handling Crane (MHC) Boom Does Not Lift Up or Down or Hold Under Load	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From Remote Control Unit	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Does Not Operate From Remote Control Unit	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate	3-3
M1089 Material Handling Crane (MHC) Boom Does Not Lift Up or Down	3-3
M1089 Material Handling Crane (MHC) Boom Down Does Not Operate From Remote Control Unit	3-3
M1089 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Boom Swing Drive Assembly Does Not Work	3-3
M1089 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3

SUBJECT INDEX (CONT)

B (Cont)

Subject	Para
Brake	
Front Brake Air Indicator Does Not Operate	3-3
FRONT BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate	3-3
Parking Brake Indicator and/or Emergency Brake Indicator Does Not Operate	3-3
Parking Brake(s) Will Not Release	3-3
Rear Brake Air Indicator Does Not Operate	3-3
REAR BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate	3-3
System	1-19
Brakes	
Front Brakes Do Not Apply	3-3
Front Brakes Overheat	3-3
Operate Service Brakes	2-27
Parking Brakes Do Not Apply	3-3
Rear Brakes Overheat	3-3
Stoplights Do Not Illuminate When M1088 Trailer Brakes Are Applied	3-3
Vehicle Brakes Unevenly, Brakes Pull To One Side or Grab	3-3
Braking	
Excessive Braking Distance	3-3

C

Cab	
Does Not Raise or Lower Properly	3-3
Exhaust Fumes in Cab	3-3
Leveling Air Springs Do Not Work Properly	3-3
One or More Cab Top Marker Lights Do Not Illuminate	3-3
Raising/Lowering Cab	2-28
Tilt, Spare Tire Retainer, and Suspension Compression Do Not Work	3-3
Cable	
Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Cargo	
Cover Flap Operation	2-33
Cover Kit Installation/Removal	2-32
Ladders and Cargo Bed Sides Operation	2-31
Center Console Controls and Indicators	2-3
Central Tire Inflation System (CTIS)	
Central Tire Inflation System (CTIS) Operation	2-29
Does Not Deflate Tires	3-3

C (Cont)

Subject	Para
Central Tire Inflation System (CTIS) (Cont)	
Does Not Inflate Tires	3-3
Does Not Operate	3-3
ECU Lights Illuminate But CTIS Fails To Inflate or Deflate	3-3
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Four Central Tire Inflation System (CTIS) ECU Indicator Overspeed Indicator Does Not Operate	3-3
Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing	3-3
Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU	3-3
Chains	
Tire Chains Installation/Removal	2-76
Changing	
Bridge Classification Numbers	2-26
Tire	3-5
Chemical	
Alarm Does Not Operate	3-3
Detector Does Not Operate	3-3
Detector Indicator Does Not Operate	3-3
Circuits	
Engine Does Not Crank	3-3
Engine Does Not Crank/24 VDC Circuits Do Not Operate	3-3
Classification	
Changing Bridge Classification Numbers	2-26
Cleaning Vehicle	3-7
Clearance	
Intervehicle Clearance Lights Do Not Operate	3-3
Cold	
Engine Start	2-27
Vehicle Operation in Cold Environment, 32°F to -25° (0°C to -32°C).	2-78
Column	
Steering Column Controls	2-4
Composite	
One or Both Composite Taillights Do Not Illuminate	3-3
Compressor	
Air System Pressure Builds Up More Than 120 psi (827 kPa) (Compressor Fails To Unload)	3-3
Noisy Air Compressor Operation	3-3
Condensation	
Excessive Condensation in Fuel	3-3

SUBJECT INDEX (CONT)

C (Cont)

Subject	Para
Connection	
M1008 Series Towing Connection/Disconnection	2-46
M1078 and M1083 Series Towing Connection/Disconnection	2-49
M35 Series Towing Connection/Disconnection	2-47
M939/M939A1 and M809 Series Towing Connection/Disconnection	2-48
M998 Series Towing Connection/Disconnection	2-45
Towbar Connection/Disconnection	2-61
Console	
Center Console Controls and Indicators	2-3
Control	
All Wrecker Functions Do Not Operate From Wrecker Control Panel	3-3
All Wrecker Functions Do Not Operate From Wrecker Control Panel and Wrecker REMOTE CONTROL	3-3
All Wrecker Functions Do Not Operate From Wrecker REMOTE CONTROL	3-3
M1084/M1086 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel	3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel	3-3
One Wrecker Function Does Not Operate From Wrecker REMOTE CONTROL	3-3
Personnel Heater Control Illumination Does Not Operate	3-3
Controls	
Auxiliary Panel Controls and Indicators	2-2
Center Console Controls and Indicators	2-3
Door-Mounted Controls	2-6
Dump Body Controls	2-10
Exterior Controls and Indicators	2-8
Floor-Mounted Controls	2-5
Instrument Panel Controls and Indicators	2-1
M1084/M1086 Material Handling Crane (MHC) Controls and Indicators	2-9
Seat Controls	2-7
Special Purpose Kit Controls and Indicators	2-13
Steering Column Controls	2-4
Tractor Controls	2-11
Wrecker Controls and Indicators	2-12
Coolant	
In Engine Lubrication Oil	3-3
Loss of Coolant	3-3

C (Cont)

Subject	Para
Cooler	
M1088/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate	3-3
Transmission Auxiliary Oil Cooler Fan Does Not Operate (All Models Except M1088/M1089)	3-3
Cooling	
Oil In Cooling System	3-3
System	1-17
Corrosion Prevention and Control (CPC)	1-3
Coupling	
Fifth Wheel Does Not Lock When Coupling Trailer to Tractor	3-3
M1088 Tractor and Trailer Coupling/Uncoupling	2-39
Cover	
Cargo Cover Flap Operation	2-34
Cargo Cover Kit Installation/Removal	2-33
M1090/M1094 Dump Cover Kit Installation/Removal	2-35
Power Distribution Panel (PDP) Cover Removal/Installation	3-17
Crane	
Light Material Handling Crane (LMHC) Does Not Operate	3-3
Light Material Handling Crane (LMHC) Hoist IN Does Not Operate	3-3
Light Material Handling Crane (LMHC) Hoist OUT Does Not Operate	3-3
Light Material Handling Crane (LMHC) Operation	2-29
M1084/M1086 Material Handling Crane (MHC)	1-21
M1084/M1086 Material Handling Crane (MHC) Boom Does Not Lift Up or Down or Hold Under Load	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Controls and Indicators	2-9
M1084/M1086 Material Handling Crane (MHC) Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3

SUBJECT INDEX (CONT)

C (Cont)

Subject	Para
Crane (Cont)	
M1084/M1086 Material Handling Crane (MHC) Hoist Up Does Not Operate From Remote Station	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Hydraulic Functions Operate Slowly	3-3
M1084/M1086 Material Handling Crane (MHC) Left or Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Mast Does Not Erect	3-3
M1084/M1086 Material Handling Crane (MHC) Operation	2-37
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
M1084/M1086 Material Handling Crane (MHC) Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Swing Drive Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC), 30K Winches, and Underlift Assembly	1-22
M1089 Material Handling Crane (MHC) Boom Does Not Lift Up or Down	3-3
M1089 Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
M1089 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3

C (Cont)

Subject	Para
Crane (Cont)	
M1089 Material Handling Crane (MHC) Boom Swing Drive Assembly Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Hoist Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Left or Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Mast Does Not Erect or Stow	3-3
M1089 Material Handling Crane (MHC) Outrigger Extension Cylinder Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
M1089 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
Wrecker Material Handling Crane (MHC) Operation	2-50
Cross-Reference	
Nomenclature Cross-Reference List	1-7

SUBJECT INDEX (CONT)

C (Cont)

Subject Para

CTIS
Central Tire Inflation System (CTIS) Operation 2-29
Does Not Deflate Tires 3-3
Does Not Inflate Tires 3-3
Does Not Operate 3-3
ECU Lights Illuminate But Central Tire Inflation System (CTIS) Fails To Inflate or Deflate 3-3
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing 3-3
Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing 3-3
Overspeed Indicator Does Not Operate 3-3
Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing 3-3
Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU 3-3
Cylinder
M1089 Fold Cylinder Does Not Operate 3-3
M1089 Material Handling Crane (MHC) Outrigger Extension Cylinder Does Not Operate 3-3
M1089 Underlift Telescopic Lift Cylinder(s) Does Not Operate 3-3
Cylinders
M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate 3-3

D

Data and Instruction Plates 2-53
Deep
Engine Fan Does Not Turn Off Using Radiator Fan Off Switch 3-3
Defrost
Heater/Defrost Operation 2-31
Description
Location and Description of Major Components 1-11
Desert
Operation in Desert Environment 2-58
Destruction of Army Materiel to Prevent Enemy Use 1-4
Detector
Chemical Detector Does Not Operate 3-3
Chemical Detector Indicator Does Not Operate 3-3
Differences Between Models 1-12

D (Cont)

Subject	Para
Differential	
Axle Differential(s) Noisy	3-3
Lock Solenoid Does Not Operate	3-3
Disabled	
Towing Disabled Vehicle	2-61
Disconnection	
M1008 Series Towing Connection/Disconnection	2-44
M1078 and M1083 Series Towing Connection/Disconnection	2-48
M35 Series Towing Connection/Disconnection	2-46
M939/M939A1 and M809 Series Towing Connection/Disconnection	2-47
M998 Series Towing Connection/Disconnection	2-44
Towbar Connection/Disconnection	2-60
Disconnecting	
Fifth Wheel Does Not Unlock When Disconnecting Trailer From Tractor	3-3
Door	
LH Door and/or LH Front Marker Lights Do Not Illuminate	3-3
-Mounted Controls	2-6
RH Door and/or RH Front Marker Lights Do Not Illuminate	3-3
Draining Air Tanks	2-27
Drive	
Blackout Drive Light Does Not Illuminate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing Drive Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Boom Swing Drive Assembly Does Not Operate	3-3
Driver's	
Adjusting Driver's Seat	2-26
Drum	
Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Dryer	
Air Dryer Does Not Operate M1090/M1094	3-3
Dual Tone Audible Alarm Does Not Operate	3-3
Dump	
Body Does Not Lower	3-3
Body Does Not Raise	3-3
Body Does Not Raise or Lower	3-3
M1090/M1094 Dump Cover Kit Installation/Removal	2-35
Truck Operation	2-38
Up Indicator Does Not Operate	3-3
Dust	
Operation in Extreme Dust	2-55

SUBJECT INDEX (CONT)

E

Subject	Para
ECU	
Central Tire Inflation System (CTIS) ECU Lights Illuminate But CTIS Fails To Inflate or Deflate	3-3
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Illumination Does Not Dim	3-3
Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU	3-3
Electrical	
System	1-18
System Does Not Maintain a Charge	3-3
Emergency	
Highway Emergency Marker Kit Setup	2-60
Parking Brake Indicator and/or Emergency Brake Indicator Does Not Illuminate	3-3
Procedures	2-67
Servicing Air Filter (Emergency Procedure)	3-9
Engine	
Air Intake System	1-15
Cold Engine Start	2-27
Coolant in Engine Lubrication Oil	3-3
Cranks But Does Not Start	3-3
Cranks But Does Not Start or Engine Stalls After Starting	3-3
Does Not Crank	3-3
Does Not Crank/24 VDC Circuits Do Not Operate	3-3
Excessive Engine Oil Consumption	3-3
Exhaust System Unusually Noisy or Vibrates Excessively During Engine Operation	3-3
Fan Does Not Turn Off Using Radiator Fan Off Switch	3-3
Fan Runs Constantly	3-3
High Engine Temperature Indicator Does Not Operate	3-3
Low Engine Oil Pressure	3-3
Oil Pressure Gage Does Not Operate or is Inaccurate	3-3
Oil Pressure Indicator Does Not Illuminate	3-3
Overheats	3-3
Overspeeds On Start	3-3

E (Cont)

Subject	Para
Engine (Cont)	
Rapid Engine Warm-Up	2-70
Shut Down Engine	2-27
Speed is Not Stable	3-3
Stalls at Low RPM	3-3
Starts But Misfires, Runs Rough, or Lacks Power	3-3
Too Much Vibration In Engine	3-3
Warm Engine Start	2-27
Environment	
Operation in Desert Environment	2-58
Vehicle Operation in Cold Environment, 32°F to -25°F (0°C to -32°C)	2-78
Equipment	
Auxiliary Equipment Operation	2-51
Characteristics, Capabilities, and Features	1-10
Data	1-13
Reporting Equipment Improvement Recommendations (EIR)	1-5
Ether	
Start Does Not Operate	3-3
Starting Aid Does Not Operate	3-3
Excessive	
Black or Gray Exhaust Smoke	3-3
Braking Distance	3-3
Condensation in Fuel	3-3
Engine Oil Consumption	3-3
Movement of Trailer King Pin in Fifth Wheel	3-3
Play When Turning Steering Wheel	3-3
Exhaust	
Blue Exhaust Smoke	3-3
Excessive Black or Gray Exhaust Smoke	3-3
Fumes in Cab	3-3
System Unusually Noisy or Vibrates Excessively During Engine Operation	3-3
White Exhaust Smoke	3-3
Exterior Controls and Indicators	2-8
External	
M1089 External Hydraulic Power Operation	2-73
No Service or External Hydraulic Power From M1089	3-3
Extreme	
Operation in Extreme Dust	2-54
Operation in Extreme Heat	2-53

SUBJECT INDEX (CONT)

F

Subject	Para
Fan	
Engine Fan Does Not Turn Off Using Radiator Fan Off Switch	3-3
Engine Fan Runs Constantly	3-3
M1088/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate	3-3
Off Indicator Does Not Operate	3-3
Personnel Heater Fan Does Not Operate	3-3
Transmission Auxiliary Oil Cooler Fan Does Not Operate (All Models Except M1088/M1089)	3-3
Fifth	
Excessive Movement of Trailer King Pin in Fifth Wheel	3-3
Wheel Does Not Lock When Coupling Trailer to Tractor	3-3
Wheel Does Not Unlock When Disconnecting Trailer From Tractor	3-3
Wheel Sliding Mechanism Does Not Operate	3-3
Filter	
Servicing Air Filter (Emergency Procedure)	3-9
Fire Extinguisher Operation	2-59
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Flap	
Cargo Cover Flap Operation	2-34
Flat	
Wrecker Flat Towing	2-43
Floor-Mounted Controls	2-5
Fluid Leakage	2-17
Fold	
M1089 Fold Cylinder Does Not Operate	3-3
M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate	3-3
Forest	
Operation in Forest or on Rocky Terrain	2-56
Forms	
Maintenance Forms and Procedures	1-2
Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Freespool	
30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel	3-3
Wrecker Left or Right 30K Winch Freespool Does Not Operate	3-3

F (Cont)

Subject — Para

Front
And Rear Hazard Lights Do Not Illuminate . . . 3-3
And Rear Turn Signals Do Not Illuminate . . . 3-3
Brake Air Indicator Does Not Illuminate . . . 3-3
BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate . . . 3-3
Brakes Do Not Apply . . . 3-3
Front Brakes Overheat . . . 3-3
Left or Right Front Turn Signal Does Not Illuminate . . . 3-3
LH Door and/or LH Front Marker Lights Do Not Illuminate . . . 3-3
One or Both Front Blackout Marker Lights Do Not Illuminate . . . 3-3
RH Door and/or RH Front Marker Lights Do Not Illuminate . . . 3-3
Tires Continue To Wear After Front End Alignment and/or Vehicle Drives Sideways Down Road . . . 3-3
Fuel
Consumption too High . . . 3-3
Excessive Condensation in Fuel . . . 3-3
Gage Does Not Operate or is Inaccurate . . . 3-3
System . . . 1-16
Fueling Vehicle . . . 2-26
Fumes
Exhaust Fumes in Cab . . . 3-3
Function
30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel . . . 3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel . . . 3-3
One Wrecker Function Does Not Operate From Wrecker REMOTE CONTROL . . . 3-3
Functions
All Wrecker Functions Do Not Operate From Wrecker Control Panel . . . 3-3
All Wrecker Functions Do Not Operate From Wrecker Control Panel and Wrecker REMOTE CONTROL . . . 3-3
All Wrecker Functions Do Not Operate From Wrecker REMOTE CONTROL . . . 3-3
M1084/M1086 Material Handling Crane (MHC) Hydraulic Functions Operate Slowly . . . 3-3

G

Gage
Engine Oil Pressure Gage Does Not Operate or is Inaccurate . . . 3-3
FRONT BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate . . . 3-3
FUEL Gage Does Not Operate or is Inaccurate . . . 3-3

SUBJECT INDEX (CONT)

G (Cont)

Subject — Para

Gage (Cont)
- Instrument Panel Gage Does Not Illuminate . . . 3-3
- REAR BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate . . . 3-3
- VOLTS Gage Does Not Operate or is Inaccurate . . . 3-3
- WATER TEMP Gage Does Not Operate or is Inaccurate . . . 3-3

General Maintenance Instructions . . . 2-16

Gladhand
- M1088 Rear Gladhand(s) Leaks or Does Not Operate . . . 3-3

Gladhands
- No Air Pressure or Low Air Pressure Present at Rear Gladhands . . . 3-3

Glossary . . . 1-9

Gun
- Preparation for Machine Gun Operation . . . 2-71

H

Hand
- M1084/M1086 Material Handling Crane (MHC) Hand Pump Does Not Operate . . . 3-3
- M1089 Material Handling Crane (MHC) Hand Pump Does Not Work . . . 3-3

Hard to Steer . . . 3-3

Hazard
- Rear Hazard Lights Do Not Operate . . . 3-3

Hazards
- Front and Rear Hazard Lights Do Not Operate . . . 3-3

Headlight
- One Or Both Headlight High Beams Do Not Illuminate . . . 3-3
- One Or Both Headlight Low Beams Do Not Illuminate . . . 3-3

Headlights
- One Or Both Headlights (High and Low Beam) Do Not Illuminate . . . 3-3

Heat
- Operation in Extreme Heat . . . 2-54

Heater
- Auxiliary Panel, Personnel Heater, and Instrument Panel Do Not Illuminate . . . 3-3
- /Defrost Operation . . . 2-31
- Personnel Heater Control Illumination Does Not Operate . . . 3-3
- Personnel Heater Fan Does Not Operate . . . 3-3

High
- Beams on Indicator Does Not Operate . . . 3-3
- Engine Temperature Indicator Does Not Operate . . . 3-3
- One Or Both Headlight High Beams Do Not Illuminate . . . 3-3

H (Cont)

Subject Para

Highway Emergency Marker Kit Setup 2-59
Hill
  Starting on Hill Operation 2-75
Hoist
  M1084/M1086 Material Handling Crane (MHC) Hoist Does Not Operate 3-3
  M1084/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT 3-3
  M1084/M1086 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT 3-3
  M1084/M1086 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate 3-3
  M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate 3-3
  M1089 Material Handling Crane (MHC) Hoist Does Not Operate 3-3
  M1089 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT 3-3
  M1089 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT 3-3
  M1089 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate 3-3
Horn Does Not Operate 3-3
Hydraulic
  Back-up Hydraulic Pump Operation 2-51
  Loss of Hydraulic Pressure (Single Stage Pump) 3-3
  Loss of Hydraulic Pressure (Three Stage Pump) 3-3
  M1084/M1086 Material Handling Crane (MHC) Hydraulic Functions Operate Slowly 3-3
  M1089 External Hydraulic Power Operation 2-73
  M1089 Pay-Out Hydraulic Motor Assembly Does Not Operate 3-3
  No Service or External Hydraulic Power From M1089 3-3
  System Operation (M1089 to M1089) 2-72

I

Illuminate
 Auxiliary Panel Does Not Illuminate 3-3
 Auxiliary Panel Switch Does Not Illuminate 3-3
 Auxiliary Panel, Personnel Heater, and Instrument Panel Do Not Illuminate 3-3
  Backup Light Does Not Illuminate 3-3
  Blackout Drive Light Does Not Illuminate 3-3
  Blackout Marker Lights Do Not Illuminate 3-3

SUBJECT INDEX (CONT)

I (Cont)

Subject — Para

Illuminate (Cont)
- DUMP BODY UP Indicator Does Not Illuminate . . . 3-3
- Engine Oil Pressure Indicator Does Not Illuminate . . . 3-3
- Fan Off Indicator Does Not Illuminate . . . 3-3
- Front and Rear Hazard Lights Do Not Illuminate . . . 3-3
- Front and Rear Turn Signals Do Not Illuminate . . . 3-3
- Front Brake Indicator Does Not Illuminate . . . 3-3
- High Beam on Indicator Does Not Illuminate . . . 3-3
- High Engine Temperature Indicator Does Not Illuminate . . . 3-3
- Instrument Panel Gage Does Not Illuminate . . . 3-3
- Instrument Panel Switch Does Not Illuminate . . . 3-3
- Intervehicle Clearance Lights Do Not Illuminate . . . 3-3
- Intervehicle Left Turn Signal Does Not Illuminate . . . 3-3
- Intervehicle Right Turn Signal Does Not Illuminate . . . 3-3
- Intervehicle Stop Lights Do Not Illuminate . . . 3-3
- Intervehicle Taillights Do Not Illuminate . . . 3-3
- Lamp Test Switch Does Not Illuminate . . . 3-3
- Left or Right Front Turn Signal Does Not Illuminate . . . 3-3
- Left Turn Signal Indicator Does Not Illuminate . . . 3-3
- LH Door and/or LH Front Marker Lights Do Not Illuminate . . . 3-3
- M1084/M1086 Worklights Do Not Illuminate . . . 3-3
- M1088/M1089 (LH) Worklight Does Not Illuminate . . . 3-3
- M1088/M1089 (RH) Worklight Does Not Illuminate . . . 3-3
- M1088/M1089 Worklights Do Not Illuminate . . . 3-3
- M1088/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On . . . 3-3
- M1089 Amber Warning Light Does Not Illuminate . . . 3-3
- One or Both Blackout Stoplights Do Not Illuminate . . . 3-3
- One or Both Composite Taillights Do Not Illuminate . . . 3-3
- One or Both Front Blackout Marker Lights Do Not Illuminate . . . 3-3
- One Or Both Headlight High Beams Do Not Illuminate . . . 3-3
- One Or Both Headlight Low Beams Do Not Illuminate . . . 3-3
- One Or Both Headlights (High and Low Beam) Do Not Illuminate . . . 3-3
- One Or Both Rear Blackout Marker Lights Do Not Illuminate . . . 3-3
- One or More Cab Top Marker Lights Do Not Illuminate . . . 3-3
- Parking Brake Indicator and/or Emergency Brake Indicator Does Not Illuminate . . . 3-3
- Parking Lights Do Not Illuminate . . . 3-3
- Power Take-Off (PTO) Indicator Does Not Illuminate . . . 3-3
- Rear Brake Air Indicator Does Not Illuminate . . . 3-3

I (Cont)

Subject	Para
Illuminate (Cont)	
Rear Hazard Lights Do Not Illuminate	3-3
RH Door and/or RH Front Marker Lights Do Not Illuminate	3-3
Right Turn Signal Indicator Does Not Illuminate	3-3
Side and/or Rear Marker Lights Do Not Illuminate	3-3
Stoplights and Blackout Stoplights Do Not Illuminate	3-3
Tachometer Does Not Illuminate	3-3
Trailer Blackout Marker Lights Do Not Illuminate	3-3
Trailer Blackout Stoplights Do Not Illuminate	3-3
Trailer Left Stop/Turn Light Does Not Illuminate	3-3
Trailer Marker/Taillights Do Not Illuminate	3-3
Trailer Right Stop/Turn Light Does Not Illuminate	3-3
Transmission Temperature Indicator Does Not Illuminate	3-3
Turn Signal Indicators and High Beams on Indicator Do Not Illuminate	3-3
Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU	3-3
Amber Warning Light Does Not Illuminate (All Models Except M1089)	3-3
Illumination	
WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Illumination Does Not Dim	3-3
Personnel Heater Control Illumination Does Not Operate	3-3
Indicator	
Chemical Detector Indicator Does Not Illuminate	3-3
Central Tire Inflation System (CTIS) Overspeed Indicator Does Not Illuminate	3-3
Dump Up Indicator Does Not Illuminate	3-3
Engine Oil Pressure Indicator Does Not Illuminate	3-3
Fan Off Indicator Does Not Illuminate	3-3
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Front Brake Air Indicator Does Not Illuminate	3-3
High Beams on Indicator Does Not Illuminate	3-3
High Engine Temperature Indicator Does Not Illuminate	3-3
Left Turn Signal Indicator Does Not Illuminate	3-3
Master Stop Indicator Does Not Illuminate	3-3
Parking Brake Indicator and/or Emergency Brake Indicator Does Not Illuminate	3-3
PTO Indicator Does Not Illuminate	3-3
Rear Brake Air Indicator Does Not Illuminate	3-3

SUBJECT INDEX (CONT)

I (Cont)

Subject	Para
Indicator (Cont)	
Right Turn Signal Indicator Does Not Illuminate	3-3
Transmission Temperature Indicator Does Not Illuminate	3-3
Turn Signal Indicators and High Beams On Indicator Do Not Illuminate	3-3
Indicators	
Auxiliary Panel Controls and Indicators	2-2
Center Console Controls and Indicators	2-3
Central Tire Inflation System (CTIS) Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing	3-3
Exterior Controls and Indicators	2-8
Instrument Panel Controls and Indicators	2-1
M1084/M1086 Material Handling Crane (MHC) Controls and Indicators	2-9
Special Purpose Kit Controls and Indicators	2-13
Wrecker Controls and Indicators	2-12
Information	
Warranty Information	1-6
Inhibit	
Start Inhibit Pushbutton Switch Does Not Operate	3-3
Instrument	
Auxiliary Panel Controls and Indicators	2-2
Auxiliary Panel Does Not Illuminate	3-3
Auxiliary Panel Switch Does Not Illuminate	3-3
Auxiliary Panel, Personnel Heater, and Instrument Panel Do Not Illuminate	3-3
Panel Controls and Indicators	2-1
Panel Gage Does Not Illuminate	3-3
Panel Switch Does Not Illuminate	3-3
Intake	
Engine Air Intake System	1-15
Intervehicle	
Clearance Lights Do Not Illuminate	3-3
Left Turn Signal Does Not Illuminate	3-3
Right Turn Signal Does Not Illuminate	3-3
Stoplights Do Not Illuminate	3-3
Taillights Do Not Illuminate	3-3
Introduction	
Maintenance Introduction	3-4
PMCS Introduction	2-14
Troubleshooting Introduction	3-2

J

Subject Para

Joints
Propeller Shafts or Universal Joints Unusually Noisy When Operating 3-3

K

King
Excessive Movement of Trailer King Pin in Fifth Wheel 3-3
Kit
Cargo Cover Kit Installation/Removal 2-32
Highway Emergency Marker Kit Setup 2-59
M1083/M1084/M1093 Troopseat Kit Installation/Removal 3-14
M1085 Troopseat Kit Installation/Removal 3-15
M1090/M1094 Dump Cover Kit Installation/Removal 2-34
M1090/M1094 Troopseat Kit Installation/Removal 3-16
Special Purpose Kit Controls and Indicators 2-13
Troopseat Kit Lowering/Raising 2-35
Amber Warning Light Kit Installation/Removal 2-74

L

Leans to One Side or Rear of Vehicle Sags 3-3
Ladders and Cargo Bed Sides Operation 2-32
Lamp Test Switch Does Not Illuminate 3-3
Large Quantity of Moisture Expelled From Air Reservoirs 3-3
Leaks
M1088 Rear Gladhand(s) Leaks or Does Not Operate 3-3
Leakage
Fluid Leakage 2-17
Left
M1084/M1086 Material Handling Crane (MHC) Left Outrigger (Jack)
Drifts or Does Not Operate 3-3
M1089 Left 30K Winch Does Not Operate 3-3
M1089 Left Stiffleg Drifts or Does Not Operate 3-3
M1089 Material Handling Crane (MHC) Left or Right Outrigger (Jack)
Drifts or Does Not Work 3-3
M1089 Stifflegs/Left 30K Winch/15K Self-Recovery Winch (SRW) Do
Not Operate 3-3
30K Winch Left or Right Freespool Function Does Not Operate
From Wrecker Control Panel 3-3
30K Winch Left or Right Speed Function Does Not Operate
From Wrecker Control Panel 3-3
Or Right Front Turn Signal Does Not Operate 3-3
Trailer Left Stop/Turn Light Does Not Illuminate 3-3
Turn Signal Indicator Does Not Illuminate 3-3

SUBJECT INDEX (CONT)

L (Cont)

Subject	Para
Left (Cont)	
Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Wrecker Left or Right 30K Winch Freespool Does Not Operate	3-3
LH	
Door and/or LH Front Marker Lights Do Not Illuminate	3-3
M1088/M1089 (LH) Worklight Does Not Illuminate	3-3
Lift	
M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate	3-3
Light	
Backup Light Does Not Illuminate	3-3
Blackout Drive Light Does Not Illuminate	3-3
Light Material Handling Crane (LMHC) Operation	2-29
M1089 Amber Warning Light Does Not Illuminate	3-3
No Overspeed Warning Light and/or Overspeed Pressure Change	3-3
Trailer Left Stop/Turn Light Does Not Illuminate	3-3
Trailer Right Stop/Turn Light Does Not Illuminate	3-3
Amber Warning Light Kit Installation/Removal	2-74
Light Material Handling Crane (LMHC)	
Light Material Handling Crane (LMHC) Does Not Operate	3-3
Light Material Handling Crane (LMHC) Hoist IN Does Not Operate	3-3
Light Material Handling Crane (LMHC) Hoist OUT Does Not Operate	3-3
Light Material Handling Crane (LMHC) Operation	2-242
Lights	
Blackout Marker Lights Do Not Illuminate	3-3
Central Tire Inflation System (CTIS) ECU Lights Illuminate But CTIS Fails To Inflate or Deflate	3-3
Central Tire Inflation System (CTIS) Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing	3-3
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	3-3
Front and Rear Hazard Lights Do Not Operate	3-3
Intervehicle Clearance Lights Do Not Operate	3-3
LH Door and/or LH Front Marker Lights Do Not Illuminate	3-3
One or Both Front Blackout Marker Lights Do Not Illuminate	3-3
One Or Both Rear Blackout Marker Lights Do Not Illuminate	3-3
One or More Cab Top Marker Lights Do Not Illuminate	3-3

L (Cont)

Subject	Para
Lights (Cont)	
Operating Vehicle Lights	2-27
Parking Lights Do Not Illuminate	3-3
Rear Hazard Lights Do Not Illuminate	3-3
RH Door and/or RH Front Marker Lights Do Not Illuminate	3-3
Side and/or Rear Marker Lights Do Not Illuminate	3-3
Trailer Blackout Marker Lights Do Not Illuminate	3-3
Two Steady Mode Lights Illuminate On Central Tire Inflation	
List of Abbreviations	1-8
Location and Description of Major Components	1-11
Lockout	
M1084/M1086 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
Loss	
Of Coolant	3-3
Of Hydraulic Pressure (Single Stage Pump)	3-3
Of Hydraulic Pressure (Three Stage Pump)	3-3
Low	
No Air Pressure or Low Air Pressure Present at Rear Gladhands	3-3
Engine Oil Pressure	3-3
Lower	
Cab Does Not Raise or Lower Properly	3-3
Dump Body Does Not Lower	3-3
Spare Tire Does Not Raise or Lower Properly	3-3
Lowering	
Troopseat Kit Lowering/Raising	2-35
Lubrication	
Coolant in Engine Lubrication Oil	3-3
Lubrication	3-1

SUBJECT INDEX (CONT)

M

Subject	Para
M1008 Series Towing Connection/Disconnection	2-46
M1078 and M1083 Series Towing Connection/Disconnection	2-49
M1083	
M1078 and M1083 Series Towing Connection/Disconnection	2-49
/M1084/M1093 Troopseat Kit Installation/Removal	3-14
Preventive Maintenance Checks and Services Table (M1083, M1084, M1085, M1086, and M1093)	2-19
M1084	
M1083/M1084/M1093 Troopseat Kit Installation/Removal	3-14
/M1086 Material Handling Crane (MHC)	1-21
/M1086 Material Handling Crane (MHC) Boom Does Not Lift Up or Down or Hold Under Load	3-3
/M1086 Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
/M1086 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
/M1086 Material Handling Crane (MHC) Does Not Operate	3-3
/M1086 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Controls and Indicators	2-9
/M1086 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
/M1086 Material Handling Crane (MHC) Hoist Does Not Operate	3-3
/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
/M1086 Material Handling Crane (MHC) Hydraulic Functions Operate Slowly	3-3
/M1086 Material Handling Crane (MHC) Left Outrigger (Jack) Drifts or Does Not Operate	3-3
/M1086 Material Handling Crane (MHC) Mast Does Not Erect	3-3

M (Cont)

Subject	Para
M1084	
/M1086 Material Handling Crane (MHC) Overload Shutdown System (Stays Activated	3-3
/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
/M1086 Material Handling Crane (MHC) Right Outrigger (Jack) Drifts or Does Not Operate	3-3
/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Swing Drive Does Not Operate	3-3
/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate	3-3
/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3
/M1086 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
/M1086 Worklights Do Not Illuminate	3-3
Material Handling Crane (MHC) Operation (M1084/M1086)	2-37
Preventive Maintenance Checks and Services Table (M1083, M1084, M1085, M1086, and M1093)	2-19
Preventive Maintenance Checks and Services Table (M1084 and M1086)	2-20
M1085	
Troopseat Kit Installation/Removal	3-15
Preventive Maintenance Checks and Services Table (M1083, M1084, M1085, M1086, and M1093)	2-19
M1086	
M1084/M1086 Material Handling Crane (MHC)	1-21
M1084/M1086 Material Handling Crane (MHC) Boom Does Not Lift Up or Down or Hold Under Load	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3

SUBJECT INDEX (CONT)

M (Cont)

Subject Para

M1086 (Cont)
M1084/M1086 Material Handling Crane (MHC) Does Not Operate 3-3
M1084/M1086 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT 3-3
M1084/M1086 Material Handling Crane (MHC) Controls and Indicators 2-9
M1084/M1086 Material Handling Crane (MHC) Hand Pump Does Not Operate 3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Does Not Operate 3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT 3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT 3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate 3-3
M1084/M1086 Material Handling Crane (MHC) Hydraulic Functions Operate Slowly 3-3
M1084/M1086 Material Handling Crane (MHC) Left Outrigger (Jack) Drifts or Does Not Operate 3-3
M1084/M1086 Material Handling Crane (MHC) Mast Does Not Erect 3-3
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Stays Activated 3-3
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate 3-3
M1084/M1086 Material Handling Crane (MHC) Right Outrigger (Jack) Drifts or Does Not Operate 3-3
M1086 (Cont)
M1084/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT 3-3
M1084/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT 3-3
M1084/M1086 Material Handling Crane (MHC) Swing Drive Does Not Operate 3-3
M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate 3-3
M1084/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT 3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT 3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate 3-3

M (Cont)

Subject	Para
M1086 (Cont)	
M1084/M1086 Worklights Do Not Illuminate	3-3
M1084/M1086 Material Handling Crane (MHC) Operation	2-37
Preventive Maintenance Checks and Services Table (M1083, M1084, M1085, M1086, and M1093)	2-19
Preventive Maintenance Checks and Services Table (M1084 and M1086)	2-20
M1088	
/M1089 (LH) Worklight Does Not Illuminate	3-3
/M1089 (RH) Worklight Does Not Illuminate	3-3
/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate	3-3
/M1089 Worklights Do Not Illuminate	3-3
/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On	3-3
Preventive Maintenance Checks and Services Table (M1088)	2-21
Rear Gladhand(s) Leaks or Does Not Operate	3-3
Stoplights Do Not Illuminate When M1088 Trailer Brakes Are Applied	3-3
Tractor and Trailer Coupling/Uncoupling	2-38
Tractor with Trailer Operation	2-39
Tractor Preparation for Air or Ship Transport	2-80
M1089	
External Hydraulic Power Operation	2-73
Fold Cylinder Does Not Operate	3-3
Hydraulic System Operation (M1089 to M1089)	2-72
Left 30K Winch Does Not Operate	3-3
Left Stiffleg Drifts or Does Not Work	3-3
M1088/M1089 (LH) Worklight Does Not Illuminate	3-3
M1088/M1089 (RH) Worklight Does Not Illuminate	3-3
M1088/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate	3-3
M1088/M1089 Worklights Do Not Illuminate	3-3
M1088/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On	3-3
Material Handling Crane (MHC) Boom Does Not Lift Up or Down	3-3
Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
Material Handling Crane (MHC) Boom Swing Drive Assembly Does Not Operate	3-3
Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
Material Handling Crane (MHC) Does Not Operate	3-3
Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL	

SUBJECT INDEX (CONT)

M (Cont)

Subject	Para
M1089 (Cont)	
UNIT	3-3
Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
Material Handling Crane (MHC) Hoist Does Not Operate	3-3
Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
Material Handling Crane (MHC) Left or Right Outrigger (Jack) Drifts or Does Not Operate	3-3
Material Handling Crane (MHC), 30K Winches, and Underlift Assembly	1-22
Material Handling Crane (MHC) Mast Does Not Erect or Stow	3-3
Material Handling Crane (MHC) Outrigger Extension Cylinder Does Not Operate	3-3
Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3
Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
No Service or External Hydraulic Power From M1089	3-3
Pay-Out Hydraulic Motor Assembly Does Not Operate	3-3
Preventive Maintenance Checks and Services Table (M1089)	2-22
Right 30K Winch Does Not Operate	3-3
Right Stiffleg Drifts Or Does Not Work	3-3
Stiffleg(s) Does Not Operate Or Operates Slowly	3-3
Stifflegs/Left 30K Winch/15K Self-Recovery Winch (SRW) Do Not Operate	3-3
Stinger Does Not Operate	3-3

M (Cont)

Subject Para

M1089 (Cont)
Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate . . . 3-3
Stifflegs Operation (M1089) . . . 2-41
Underlift Assembly Operation . . . 2-44
Underlift Telescopic Lift Cylinder(s) Does Not Operate . . . 3-3
Amber Warning Light Does Not Illuminate . . . 3-3
M1090
/M1094 Air Dryer Does Not Operate . . . 3-3
/M1094 Dump Cover Kit Installation/Removal . . . 2-35
/M1094 Tailgate Release Does Not Operate . . . 3-3
/M1094 Troopseat Kit Installation/Removal . . . 3-16
Preventive Maintenance Checks and Services Table (M1090 and M1094) . . . 2-23
M1093
Air Drop Preparation . . . 3-10
Air Drop Recovery Operations . . . 3-11
M1083/M1084/M1093 Troopseat Kit Installation/Removal . . . 3-14
Preventive Maintenance Checks and Services Table (M1083, M1084, M1085, M1086, and M1093) . . . 2-19
Preventive Maintenance Checks and Services Table (M1093) . . . 2-24
M1094
Air Drop Preparation . . . 3-12
Air Drop Recovery Operations . . . 3-13
M1090/M1094 Air Dryer Does Not Operate . . . 3-3
M1090/M1094 Dump Cover Kit Installation/Removal . . . 2-34
M1090/M1094 Tailgate Release Does Not Operate . . . 3-3
M1090/M1094 Troopseat Kit Installation/Removal . . . 3-16
Preventive Maintenance Checks and Services Table (M1090 and M1094) . . . 2-23
Preventive Maintenance Checks and Services Table (M1094) . . . 2-25
M35 Series Towing Connection/Disconnection . . . 2-47
M939/M939A1 and M809 Series Towing Connection/Disconnection . . . 2-48
M809
M939/M939A1 and M809 Series Towing Connection/Disconnection . . . 2-48
M998 Series Towing Connection/Disconnection . . . 2-45
Machine
Preparation for Machine Gun Operation . . . 2-71
Maintenance
Forms and Procedures . . . 1-2
General Maintenance Instructions . . . 2-16
Introduction . . . 3-4
Preventive Maintenance Checks and Services Table (All Models) . . . 2-18

SUBJECT INDEX (CONT)

M (Cont)

Subject — Para

Maintenance (Cont)
- Preventive Maintenance Checks and Services Table (M1083, M1084, M1085, M1086, and M1093) . . . 2-19
- Preventive Maintenance Checks and Services Table (M1084 and M1086) . . . 2-20
- Preventive Maintenance Checks and Services Table (M1088) . . . 2-21
- Preventive Maintenance Checks and Services Table (M1089) . . . 2-22
- Preventive Maintenance Checks and Services Table (M1090 and M1094) . . . 2-23
- Preventive Maintenance Checks and Services Table (M1093) . . . 2-24
- Preventive Maintenance Checks and Services Table (M1094) . . . 2-25

Marker
- Blackout Marker Lights Do Not Illuminate . . . 3-3
- LH Door and/or LH Front Marker Lights Do Not Illuminate . . . 3-3
- Highway Emergency Marker Kit Setup . . . 2-60
- One or Both Front Blackout Marker Lights Do Not Illuminate . . . 3-3
- One Or Both Rear Blackout Marker Lights Do Not Illuminate . . . 3-3
- One or More Cab Top Marker Lights Do Not Illuminate . . . 3-3
- RH Door and/or RH Front Marker Lights Do Not Illuminate . . . 3-3
- Side and/or Rear Marker Lights Do Not Illuminate . . . 3-3
- Trailer Blackout Marker Lights Do Not Illuminate . . . 3-3
- Trailer Marker/Taillights Do Not Illuminate . . . 3-3

Mast
- M1084/M1086 Material Handling Crane (MHC) Mast Does Not Erect . . . 3-3
- M1089 Material Handling Crane (MHC) Mast Does Not Erect or Stow . . . 3-3

Master Stop Indicator Does Not Illuminate . . . 3-3

Material
- Light Material Handling Crane (LMHC) Operation . . . 2-29
- M1084/M1086 Handling Crane (MHC) Operation . . . 2-36
- M1084/M1086 Material Handling Crane (MHC) . . . 1-21
- M1084/M1086 Material Handling Crane (MHC) Boom Does Not Lift Up or Down or Hold Under Load . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Boom Does Not Telescope In or Out . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate . . . 3-3

M (Cont)

Subject	Para
Material (Cont)	
M1084/M1086 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Controls and Indicators	2-9
M1084/M1086 Material Handling Crane (MHC) Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Hydraulic Functions Operate Slowly	3-3
M1084/M1086 Material Handling Crane (MHC) Left Outrigger (Jack) Drifts or Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Mast Does Not Erect	3-3
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
M1084/M1086 Material Handling Crane (MHC) Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Swing Drive Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3

SUBJECT INDEX (CONT)

M (Cont)

Subject	Para
Material (Cont)	
M1084/M1086 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Boom Does Not Lift Up or Down	3-3
M1089 Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
M1089 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Boom Swing Drive Assembly Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Hoist Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Left or Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1089 Material Handling Crane (MHC), 30K Winches, and Underlift Assembly	1-22
M1089 Material Handling Crane (MHC) Mast Does Not Erect or Stow	3-3
M1089 Material Handling Crane (MHC) Outrigger Extension Cylinder Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3

M (Cont)

Subject — Para

Material (Cont)
- M1089 Material Handling Crane (MHC) Overload Shutdown System Stays Activated . . . 3-3
- M1089 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT . . . 3-3
- M1089 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT . . . 3-3
- M1089 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT . . . 3-3
- M1089 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT . . . 3-3
- M1089 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate . . . 3-3
- Wrecker Material Handling Crane (MHC) Operation . . . 2-50

Mirrors
- Adjusting Mirrors . . . 2-26

Mode
- Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU . . . 3-3

Motor
- M1089 Pay-Out Hydraulic Motor Assembly Does Not Operate . . . 3-3

Mud
- Operation in Sand or Mud . . . 2-57

N

No
- Air Pressure or Low Air Pressure Present at Rear Gladhands . . . 3-3
- Overspeed Warning Light and/or Overspeed Pressure Change . . . 3-3
- Response When Turning Steering Wheel . . . 3-3
- Service or External Hydraulic Power From M1089 . . . 3-3

Noisy Air Compressor Operation . . . 3-3

Nomenclature Cross-Reference List . . . 1-7

O

Off-Road
- Operation In Off-Road Condition . . . 2-26

Oil
- Coolant in Engine Lubrication Oil . . . 3-3

SUBJECT INDEX (CONT)

O (Cont)

Subject — Para

Oil (Cont)
- Engine Oil Pressure Gage Does Not Operate or is Inaccurate . . . 3-3
- Engine Oil Pressure Indicator Does Not Operate . . . 3-3
- Excessive Engine Oil Consumption . . . 3-3
- In Cooling System . . . 3-3
- Low Engine Oil Pressure . . . 3-3
- Transmission Auxiliary Oil Cooler Fan Does Not Operate (All Models Except M1088/M1089) . . . 3-3

One
- Or Both Blackout Stoplights Do Not Illuminate . . . 3-3
- Or Both Composite Taillights Do Not Illuminate . . . 3-3
- Or Both Front Blackout Marker Lights Do Not Illuminate . . . 3-3
- Or Both Headlight High Beams Do Not Illuminate . . . 3-3
- Or Both Headlight Low Beams Do Not Illuminate . . . 3-3
- Or Both Headlights (High and Low Beam) Do Not Illuminate . . . 3-3
- Or Both Rear Blackout Marker Lights Do Not Illuminate . . . 3-3
- Or Both Stoplights Do Not Illuminate . . . 3-3
- Or More Cab Top Marker Lights Do Not Illuminate . . . 3-3
- Wrecker Function Does Not Operate From Wrecker REMOTE CONTROL . . . 3-3
- Wrecker Function Does Not Operate From Wrecker REMOTE CONTROL . . . 3-3

Opening Battery Box/Testing Batteries . . . 3-8

Operate
- Air Dryer Does Not Operate (All Models Except M1090/M1094) . . . 3-3
- All Windshield Wiper Speeds Do Not Operate . . . 3-3
- All Wrecker Functions Do Not Operate From Wrecker Control Panel . . . 3-3
- All Wrecker Functions Do Not Operate From Wrecker Control Panel and Wrecker REMOTE CONTROL . . . 3-3
- Audible Alarm Does Not Operate (All Models except M1083/M1090 M1093/M1094) . . . 3-3
  - Dual Tone Audible Alarm Does Not Operate (Models M1083/M1090/ M1093/M1094) . . . 3-3
  - Single Tone Audible Alarm Does Not Operate (Models M1083/M1090/ M1093/M1094) . . . 3-3
- Battery Tester Does Not Operate . . . 3-3
- Cab Leveling Air Springs Do Not Operate Properly . . . 3-3
- Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate . . . 3-3
- Chemical Alarm Does Not Operate . . . 3-3
- Chemical Detector Indicator Does Not Operate . . . 3-3
- Central Tire Inflation System (CTIS) Does Not Operate . . . 3-3

O (Cont)

Subject	Para
Operate (Cont)	
Differential Lock Solenoid Does Not Operate	3-3
Engine Does Not Crank	3-3
Engine Does Not Crank/24 VDC Circuits Do Not Operate	3-3
Engine Oil Pressure Gage Does Not Operate or is Inaccurate	3-3
Ether Start Does Not Operate	3-3
Ether Starting Aid Does Not Operate	3-3
Fifth Wheel Sliding Mechanism Does Not Operate	3-3
FRONT BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate	3-3
FUEL Gage Does Not Operate or is Inaccurate	3-3
Horn Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From Remote Station	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Does Not Operate From Remote Station	3-3
M1084/M1086 Material Handling Crane (MHC) Hydraulic Functions Operate Slowly	3-3
M1084/M1086 Material Handling Crane (MHC) Left Outrigger (Jack) Drifts or Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From Remote Station	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From Remote Station	3-3
M1084/M1086 Material Handling Crane (MHC) Swing Drive Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From Remote Station	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From Remote Station	3-3
M1088 Rear Gladhand(s) Leaks or Does Not Operate	3-3

SUBJECT INDEX (CONT)

O (Cont)

Subject — Para

Operate (Cont)
- M1088/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate 3-3
- M1089 Fold Cylinder Does Not Operate 3-3
- M1089 Left 30K Winch Does Not Operate 3-3
- M1089 Left Stiffleg Drifts or Does Not Operate 3-3
- M1089 Material Handling Crane (MHC) Boom Down Does Not Operate From Remote Station 3-3
- M1089 Material Handling Crane (MHC) Boom Swing Drive Assembly Does Not Operate 3-3
- M1089 Material Handling Crane (MHC) Boom Up Does Not Operate From Remote Station 3-3
- M1089 Material Handling Crane (MHC) Does Not Operate 3-3
- M1089 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT 3-3
- M1089 Material Handling Crane (MHC) Hand Pump Does Not Operate 3-3
- M1089 Material Handling Crane (MHC) Hoist Does Not Operate 3-3
- M1089 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT 3-3
- M1089 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT 3-3
- M1089 Material Handling Crane (MHC) Left or Right Outrigger (Jack) Drifts or Does Not Operate 3-3
- M1089 Material Handling Crane (MHC) Outrigger Extension Cycle Does Not Operate 3-3
- M1089 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT 3-3
- M1089 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT 3-3
- M1089 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT 3-3
- M1089 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT 3-3
- M1089 Pay-Out Hydraulic Motor Assembly Does Not Operate 3-3
- M1089 Right 30K Winch Does Not Operate 3-3
- M1089 Right Stiffleg Drifts or Does Not Operate 3-3
- M1089 Stiffleg(s) Does Not Operate Or Operates Slowly 3-3
- M1089 Stifflegs/Left 30K Winch/15K Self-Recovery Winch (SRW) Do Not Operate 3-3
- M1089 Stinger Does Not Operate 3-3

O (Cont)

Subject	Para
Operate (Cont)	
M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate	3-3
M1089 Underlift Telescopic Lift Cylinder(s) Does Not Operate	3-3
M1090/M1094 Air Dryer Does Not Operate	3-3
M1090/M1094 Tailgate Release Does Not Operate	3-3
15K Self-Recovery Winch (SRW) Does Not Operate	3-3
30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel	3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel	3-3
One Wrecker Function Does Not Operate From Wrecker Remote Control	3-3
Personnel Heater Control Illumination Does Not Operate	3-3
Personnel Heater Fan Does Not Operate	3-3
PTO Does Not Operate	3-3
Radio Does Not Operate	3-3
REAR BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate	3-3
Service Brakes	2-27
Speedometer Does Not Operate or is Inaccurate	3-3
Start Inhibit Pushbutton Switch Does Not Operate	3-3
Steering Hard or Does Not Operate	3-3
Tachometer Does Not Operate or is Inaccurate	3-3
Transmission Auxiliary Oil Cooler Fan Does Not Operate (All Models Except M1088/M1089)	3-3
VOLTS Gage Does Not Operate or is Inaccurate	3-3
WATER TEMP Gage Does Not Operate or is Inaccurate	3-3
Windshield Washer Does Not Operate	3-3
Windshield Wiper Does Not Operate On High Speed	3-3
Windshield Wiper Does Not Operate On Intermittent Speed	3-3
Windshield Wiper Does Not Operate On Low Speed	3-3
Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Wrecker Left or Right 30K Winch Freespool Does Not Operate	3-3
Operating	
Propeller Shafts or Universal Joints Unusually Noisy When Operating	3-3
Seat Belt	2-26
Selecting Transmission Operating Range	2-27
Transmission Unusually Noisy When Operating	3-3
Vehicle Lights	2-27
Operation	
Air System Loses Pressure During Operation/Slow Air Pressure Buildup	3-3

SUBJECT INDEX (CONT)

O (Cont)

Subject	Para
Operation (Cont)	
Auxiliary Equipment Operation	2-51
Back-up Hydraulic Pump Operation	2-52
Cargo Cover Flap Operation	2-34
Central Tire Inflation System (CTIS) Operation	2-30
Dump Truck Operation	2-38
Exhaust System Unusually Noisy or Vibrates Excessively During Engine Operation	3-3
Fire Extinguisher Operation	2-59
Heater/Defrost Operation	2-10
Hydraulic System Operation (M1089 to M1089)	2-72
In Desert Environment	2-58
In Extreme Dust	2-55
In Extreme Heat	2-54
In Forest or on Rocky Terrain	2-56
In Off-Road Condition	2-26
In Sand or Mud	2-57
Ladders and Cargo Bed Sides Operation	2-32
Light Material Handling Crane (LMHC) Operation	2-29
M1088 Tractor Operation	2-40
M1089 External Hydraulic Power Operation	2-73
M1089 Underlift Assembly Operation	2-44
30K Winch Operation	2-42
M1084/M1086 Material Handling Crane (MHC) Operation	2-37
Noisy Air Compressor Operation	3-3
Preparation for Machine Gun Operation	2-71
15K Self-Recovery Winch (SRW) Operation	2-65
Starting on Hill Operation	2-75
Stifflegs Operation (M1089)	2-41
Vehicle Operation	2-27
Vehicle Operation in Cold Environment, 32°F to -25°F (0°C to -32°C)	
Wrecker Material Handling Crane (MHC) Operation	2-50
Operations	
M1093 Air Drop Recovery Operations	3-11
M1094 Air Drop Recovery Operations	3-13
Outrigger	
M1084/M1086 Material Handling Crane (MHC) Left Outrigger (Jack) Drifts or Does Not Operate	3-3

O (Cont)

Subject	Para
Outrigger (Cont)	
M1084/M1086 Material Handling Crane (MHC) Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Left or Right Outrigger (Jack) Drifts or Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Outrigger Extension Cylinder Does Not Operate	3-3
Overheat	
Front Brakes Overheat	3-3
Rear Brakes Overheat	3-3
Overheats	
Engine Overheats	3-3
Overload	
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
Override	
M1088/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On	3-3
Overspeed	
Central Tire Inflation System (CTIS) Overspeed Indicator Does Not Operate	3-3
Engine Overspeeds On Start	3-3
No Overspeed Warning Light and/or Overspeed Pressure Change	3-3

P

Panel	
All Wrecker Functions Do Not Operate From Wrecker Control Panel	3-3
All Wrecker Functions Do Not Operate From Wrecker Control Panel and Wrecker REMOTE CONTROL	3-3
Auxiliary Panel Controls and Indicators	2-2
Auxiliary Panel Does Not Illuminate	3-3
Auxiliary Panel Switch Does Not Illuminate	3-3
Auxiliary Panel, Personnel Heater, and Instrument Panel Do Not Illuminate	3-3
Instrument Panel Controls and Indicators	2-1
Instrument Panel Gage Does Not Illuminate	3-3

SUBJECT INDEX (CONT)

P (Cont)

Subject	Para
Panel (Cont)	
Instrument Panel Switch Does Not Illuminate	3-3
30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel	3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel	3-3
Power Distribution Panel (PDP) Cover Removal/Installation	3-17
Parking	
Brake Indicator and/or Emergency Brake Indicator Does Not Illuminate	3-3
Brake(s) Will Not Release	3-3
Brakes Do Not Apply	3-3
Parking Lights Do Not Illuminate	3-3
Vehicle	2-27
Passenger	
Adjusting Right Passenger Seat	2-26
Pay-Out	
M1089 Pay-Out Hydraulic Motor Assembly Does Not Operate	3-3
15K Self-Recovery Winch (SRW) Does Not Pay Out	3-3
15K Self-Recovery Winch (SRW) Does Not Reel In or Pay Out	3-3
Pedal	
Accelerator Pedal Sticks	3-3
Personnel	
Heater Control Illumination Does Not Operate	3-3
Heater Fan Does Not Operate	3-3
Plates	
Data and Instruction Plates	2-53
PMCS	
Introduction	2-14
Procedures	2-15
Power	
Distribution Panel (PDP) Cover Removal/Installation	3-17
No Service or External Hydraulic Power From M1089	3-3
Powertrain	1-14
Preparation	
for Air Drop	2-69
for Machine Gun Operation	2-71
for Shipment	2-68
for Use	2-26
Preventive	
Maintenance Checks and Services Table (All Models)	2-18

P (Cont)

Subject	Para
Preventive (Cont)	
Maintenance Checks and Services Table (M1083, M1084, M1085, M1086, and M1093)	2-19
Maintenance Checks and Services Table (M1084 and M1086)	2-20
Maintenance Checks and Services Table (M1088)	2-21
Preventive (Cont)	
Maintenance Checks and Services Table (M1089)	2-22
Maintenance Checks and Services Table (M1090 and M1094)	2-23
Maintenance Checks and Services Table (M1093)	2-24
Maintenance Checks and Services Table (M1094)	2-25
Procedures	
Emergency Procedures	2-67
Maintenance Forms and Procedures	1-2
PMCS Procedures	2-15
Servicing Air Filter (Emergency Procedure)	3-9
Troubleshooting Procedures	3-3
Propeller Shafts or Universal Joints Unusually Noisy When Operating	3-3
PTO	
Does Not Engage	3-3
Does Not Operate	3-3
Indicator Does Not Illuminate	3-3
Pump	
Back-up Hydraulic Pump Operation	2-52
Loss of Hydraulic Pressure (Single Stage Pump)	3-3
Loss of Hydraulic Pressure (Three Stage Pump)	3-3
M1084/M1086 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Hand Pump Does Not Operate	3-3
Pushbutton	
Start Inhibit Pushbutton Switch Does Not Operate	3-3
WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Emits Eight Seconds of Beeps and/or Transmission Does Not Shift Gears	3-3
WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays "--" and/or Transmission Does Not Shift Gears	3-3

R

Radio Does Not Operate	3-3
Raise	
Cab Does Not Raise or Lower Properly	3-3
Dump Body Does Not Raise	3-3
Dump Body Does Not Raise or Lower	3-3
Spare Tire Does Not Raise or Lower Properly	3-3

SUBJECT INDEX (CONT)

R (Cont)

Subject	Para
Raising	
/Lowering Cab	2-28
Troopseat Kit Lowering/Raising	2-36
Rapid Engine Warm-Up	2-70
Rear	
Brake Air Indicator Does Not Illuminate	3-3
BRAKE AIR Pressure Gage Does Not Operate or is Inaccurate	3-3
Brakes Do Not Apply	3-3
Brakes Overheat	3-3
Front and Rear Hazard Lights Do Not Illuminate	3-3
Front And Rear Turn Signals Do Not Illuminate	3-3
Hazard Lights Do Not Illuminate	3-3
Leans to One Side or Rear of Vehicle Sags	3-3
M1088 Rear Gladhand(s) Leaks or Does Not Operate	3-3
No Air Pressure or Low Air Pressure Present at Rear Gladhands	3-3
One Or Both Rear Blackout Marker Lights Do Not Illuminate	3-3
Side and/or Rear Marker Lights Do Not Illuminate	3-3
Recovery	
M1093 Air Drop Recovery Operations	3-11
M1094 Air Drop Recovery Operations	3-13
Reel	
15K Self-Recovery Winch (SRW) Does Not Reel In	3-3
15K Self-Recovery Winch (SRW) Does Not Reel In or Pay Out	3-3
Remote	
All Wrecker Functions Do Not Operate From Wrecker Control Panel and Wrecker REMOTE CONTROL	3-3
All Wrecker Functions Do Not Operate From Wrecker REMOTE CONTROL	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3

R (Cont)

Subject	Para
Remote (Cont)	
M1084/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Boom Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Boom Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hoist Down Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Hoist Up Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3
One Wrecker Function Does Not Operate From Wrecker REMOTE CONTROL	3-3
Reporting Equipment Improvement Recommendations (EIR)	1-5
Reservoirs	
Large Quantity of Moisture Expelled From Air Reservoirs	3-3
Retainer	
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate	3-3
RH Door and/or RH Front Marker Lights Do Not Illuminate	3-3
Right	
Adjusting Right Passenger Seat	2-26
Trailer Right Stop/Turn Light Does Not Illuminate	3-3
Turn Signal Indicator Does Not Illuminate	3-3
Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Wrecker Left or Right 30K Winch Freespool Does Not Operate	3-3
Rocky	
Operation in Forest or on Rocky Terrain	2-56

SUBJECT INDEX (CONT)

S

Subject	Para
Sags	
Leans to One Side or Rear of Vehicle Sags	3-3
Sand	
Operation in Sand or Mud	2-57
Scope	1-1
Seat	
Adjusting Driver's Seat	2-26
Adjusting Right Passenger Seat	2-26
Controls	2-7
Operating Seat Belt	2-26
Securing Vehicle	2-27
Selecting Transmission Operating Range	2-27
Self-Recovery (15K)	
M1089 Stifflegs/Left 30K Winch/15K Self-Recovery Winch (SRW) Do Not Operate	3-3
Winch (SRW)	1-20
Winch (SRW) Does Not Pay Out	3-3
Winch (SRW) Does Not Reel In	3-3
Winch (SRW) Does Not Reel In or Pay Out	3-3
Winch (SRW) Operation	2-65
Winch (SRW) Does Not Operate	3-3
Servicing	
Air Filter (Emergency Procedure)	3-9
Tires	3-6
Shafts	
Propeller Shafts or Universal Joints Unusually Noisy When Operating	3-3
Ship	
M1088 Tractor Preparation for Air or Ship Transport	2-80
Shipment	
Preparation for Shipment	2-68
Shut Down Engine	2-27
Shutdown	
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	3-3
M1089 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	3-3
Side and/or Rear Marker Lights Do Not Illuminate	3-3

S (Cont)

Subject — Para

Sides
Ladders and Cargo Bed Sides Operation 2-31
Signal
Intervehicle Left Turn Signal Does Not Illuminate 3-3
Intervehicle Right Turn Signal Does Not Illuminate 3-3
Left or Right Front Turn Signal Does Not Illuminate 3-3
Left Turn Signal Indicator Does Not Illuminate 3-3
Right Turn Signal Indicator Does Not Illuminate 3-3
Turn Signal Indicators and High Beams On Indicator Do Not Illuminate 3-3
Signals
Front And Rear Turn Signals Do Not Illuminate 3-3
Single
Loss of Hydraulic Pressure (Single Stage Pump) 3-3
Tone Audible Alarm Does Not Operate (All Models except M1083/ M1090/M1093/M1094) 3-3
Sliding
Fifth Wheel Sliding Mechanism Does Not Operate 3-3
Snatch Block Installation/Removal 2-77
Solenoid
Differential Lock Solenoid Does Not Operate 3-3
Spare
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate 3-3
Tire Does Not Raise or Lower Properly 3-3
Special Purpose Kit Controls and Indicators 2-13
Speed
Engine Speed is Not Stable 3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel 3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel 3-3
Windshield Wiper Does Not Operate On High Speed 3-3
Windshield Wiper Does Not Operate On Intermittent Speed 3-3
Windshield Wiper Does Not Operate On Low Speed 3-3
Speedometer Does Not Operate or is Inaccurate 3-3
Springs
Cab Leveling Air Springs Do Not Operate Properly 3-3
Stage
Loss of Hydraulic Pressure (Single Stage Pump) 3-3
Loss of Hydraulic Pressure (Three Stage Pump) 3-3
Stalls
Engine Stalls at Low RPM 3-3

SUBJECT INDEX (CONT)

S (Cont)

Subject	Para
Start	
Engine Cranks But Does Not Start	3-3
Engine Cranks But Does Not Start	3-3
Engine Cranks But Does Not Start or Engine Stalls After Starting	3-3
Engine Overspeeds On Start	3-3
Ether Start Does Not Operate	3-3
Inhibit Pushbutton Switch Does Not Operate	3-3
Warm Engine Start	2-27
Starts	
Engine Starts But Misfires, Runs Rough, or Lacks Power	3-3
Starting	
Engine Cranks But Does Not Start or Engine Stalls After Starting	3-3
Ether Starting Aid Does Not Operate	3-3
On Hill Operation	2-75
Steer	
Hard to Steer	3-3
Steering	
Column Controls	2-4
Excessive Play When Turning Steering Wheel	3-3
Hard or Does Not Operate	3-3
No Response When Turning Steering Wheel	3-3
Stiffleg	
M1089 Left Stiffleg Drifts or Does Not Operate	3-3
M1089 Right Stiffleg Drifts Or Does Not Operate	3-3
M1089 Stiffleg(s) Does Not Operate Or Operates Slowly	3-3
Stifflegs	
M1089 Stifflegs/Left 30K Winch/15K Self-Recovery Winch (SRW) Do Not Operate	3-3
Operation (M1089)	2-41
Stinger	
M1089 Stinger Does Not Operate	3-3
M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate	3-3
Stop	
Master Stop Indicator Does Not Illuminate	3-3
Trailer Left Stop/Turn Light Does Not Illuminate	3-3
Trailer Right Stop/Turn Light Does Not Illuminate	3-3
Stoplights	
And Blackout Stoplights Do Not Illuminate	3-3
Do Not Illuminate When M1088 Trailer Brakes Are Applied	3-3

S (Cont)

Subject	Para
Stoplights (Cont)	
Intervehicle Stoplights Do Not Illuminate	3-3
One or Both Blackout Stoplights Do Not Illuminate	3-3
One Or Both Stoplights Do Not Illuminate	3-3
Trailer Blackout Stoplights Do Not Illuminate	3-3
Suspension	
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate	3-3
Does Not Compress or Return To Normal Properly	3-3
Swing	
M1084/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1084/M1086 Material Handling Crane (MHC) Swing Drive Does Not Operate	3-3
M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate	3-3
M1089 Material Handling Crane (MHC) Boom Swing Drive Assembly Does Not Operate	3-3
M1089 Material Handling Crane (MHC) Swing CCW Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Swing CW Does Not Operate From REMOTE CONTROL UNIT	3-3
Switch	
Auxiliary Panel Switch Does Not Illuminate	3-3
Engine Fan Does Not Turn Off Using Radiator Fan Off Switch	3-3
Instrument Panel Switch Does Not Illuminate	3-3
Lamp Test Switch Does Not Illuminate	3-3
M1088/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On	3-3
Start Inhibit Pushbutton Switch Does Not Operate	3-3
System	
Air System	1-23
Air System Loses Pressure During Operation/Slow Air Pressure Buildup	3-3
Air System Pressure Builds Up More Than 120 psi (827 Kpa) (Compressor Fails To Unload)	3-3
Brake System	1-19
Central Tire Inflation System (CTIS) Operation	2-29
Cooling System	1-17
Electrical System	1-18
Electrical System Does Not Maintain a Charge	3-3

SUBJECT INDEX (CONT)

S (Cont)

Subject — Para

System (Cont)
- Engine Air Intake System . . . 1-15
- Exhaust System Unusually Noisy or Vibrates Excessively During Engine Operation . . . 3-3
- Fuel System . . . 1-16
- Hydraulic System Operation (M1089 to M1089) . . . 2-72
- M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Stays Activated . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate . . . 3-3
- M1089 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate . . . 3-3
- M1089 Material Handling Crane (MHC) Overload Shutdown System Stays Activated . . . 3-3
- Oil In Cooling System . . . 3-3

T

Tachometer
- Does Not Illuminate . . . 3-3
- Does Not Operate or is Inaccurate . . . 3-3

Tailgate
- M1090/M1094 Tailgate Release Does Not Operate . . . 3-3

Taillights
- Intervehicle Taillights Do Not Illuminate . . . 3-3
- One or Both Composite Taillights Do Not Illuminate . . . 3-3
- Trailer Marker/Taillights Do Not Illuminate . . . 3-3

Tanks
- Draining Air Tanks . . . 2-27

Telescope
- M1084/M1086 Material Handling Crane (MHC) Boom Does Not Telescope In or Out . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Swing, Telescope, Boom, and Hoist Do Not Operate . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT . . . 3-3
- M1084/M1086 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate . . . 3-3

T (Cont)

Subject	Para
Telescope (Cont)	
M1089 Material Handling Crane (MHC) Boom Does Not Telescope In or Out	3-3
M1089 Material Handling Crane (MHC) Telescope In Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Telescope Out Does Not Operate From REMOTE CONTROL UNIT	3-3
M1089 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	3-3
M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate	3-3
M1089 Underlift Telescopic Lift Cylinder(s) Does Not Operate	3-3
Temperature	
High Engine Temperature Indicator Does Not Illuminate	3-3
Transmission Temperature Indicator Does Not Illuminate	3-3
Tensioner	
Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Test	
Lamp Test Switch Does Not Illuminate	3-3
Testing	
Opening Battery Box/Testing Batteries	3-8
Three	
Loss of Hydraulic Pressure (Three Stage Pump)	3-3
Tire	
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate	3-3
Central Tire Inflation System (CTIS) Operation	2-29
Chains Installation/Removal	2-76
Changing Tire	3-5
Spare Tire Does Not Raise or Lower Properly	3-3
Tires	
Continue To Wear After Front End Alignment and/or Vehicle Drives Sideways Down Road	3-3
Central Tire Inflation System (CTIS) Does Not Deflate Tires	3-3
Central Tire Inflation System (CTIS) Does Not Inflate Tires	3-3
Servicing Tires	3-6
Wear Unevenly or Excessively	3-3
Too Much Vibration In Engine	3-3
Towbar Connection/Disconnection	2-61
Towing	
Disabled Vehicle	2-62
M1008 Series Towing Connection/Disconnection	2-46

SUBJECT INDEX (CONT)

T (Cont)

Subject	Para
Towing (Cont)	
M1078 and M1083 Series Towing Connection/Disconnection	2-49
M35 Series Towing Connection/Disconnection	2-47
M939/M939A1 and M809 Series Towing Connection/Disconnection	2-48
M998 Series Towing Connection/Disconnection	2-45
Wrecker Flat Towing	2-43
Tractor	
Controls	2-11
Fifth Wheel Does Not Lock When Coupling Trailer to Tractor	3-3
Fifth Wheel Does Not Unlock When Disconnecting Trailer From Tractor	3-3
M1088 Tractor and Trailer Coupling/Uncoupling	2-39
M1088 Tractor Operation	2-40
M1088 Tractor Preparation for Air or Ship Transport	2-80
Trailer	
Blackout Marker Lights Do Not Illuminate	3-3
Blackout Stoplights Do Not Illuminate	3-3
Excessive Movement of Trailer King Pin in Fifth Wheel	3-3
Fifth Wheel Does Not Lock When Coupling Trailer to Tractor	3-3
Fifth Wheel Does Not Unlock When Disconnecting Trailer From Tractor	3-3
Left Stop/Turn Light Does Not Illuminate	3-3
M1088 Tractor and Trailer Coupling/Uncoupling	2-39
Marker/Taillights Do Not Illuminate	3-3
Right Stop/Turn Light Does Not Illuminate	3-3
Stoplights Do Not Illuminate When M1088 Trailer Brakes Are Applied	3-3
Transmission	
Auxiliary Oil Cooler Fan Does Not Operate (All Models Except M1088/M1089)	3-3
M1088/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate	3-3
WTEC II Transmission Pushbutton Shift Selector (TEPSS) Emits Eight Seconds of Beeps and/or Transmission Does Not Shift Gears	3-3
WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays "--" and/or Transmission Does Not Shift	3-3
Selecting Transmission Operating Range	2-27
Temperature Indicator Does Not Operate	3-3
Unusually Noisy When Operating	3-3
Transport	
M1088 Tractor Preparation for Air or Ship Transport	2-80
Troop Transport Alarm Does Not Operate	3-3
Troopseat	
Kit Lowering/Raising	2-35
M1083/M1084/M1093 Troopseat Kit Installation/Removal	3-14

T (Cont)

Subject — Para

Troopseat (Cont)
M1085 Troopseat Kit Installation/Removal . . . 3-15
M1090/M1094 Troopseat Kit Installation/Removal . . . 3-16
Troubleshooting
Introduction . . . 3-2
Procedures . . . 3-3
Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU . . . 3-3
Turn
Front And Rear Turn Signals Do Not Illuminate . . . 3-3
Intervehicle Left Turn Signal Does Not Illuminate . . . 3-3
Intervehicle Right Turn Signal Does Not Illuminate . . . 3-3
Left or Right Front Turn Signal Does Not Illuminate . . . 3-3
Left Turn Signal Indicator Does Not Illuminate . . . 3-3
Signal Indicators and High Beams On Indicator Do Not Illuminate . . . 3-3

U

Uncoupling
M1088 Tractor and Trailer Coupling/Uncoupling . . . 2-39
Underlift
M1089 Material Handling Crane (MHC), 30K Winches, and Underlift Assembly . . . 1-22
M1089 Underlift Assembly Operation . . . 2-44
M1089 Underlift Telescopic Lift Cylinder(s) Does Not Operate . . . 3-3
Universal
Propeller Shafts or Universal Joints Unusually Noisy When Operating . . . 3-3

V

Vehicle
Operation . . . 2-27
Operation in Cold Environment, 32°F to -25°F (0°C to -32°C) . . . 2-78
Brakes Unevenly, Brakes Pull To One Side or Grab . . . 3-3
VOLTS Gage Does Not Operate or is Inaccurate . . . 3-3

W

Wanders Pulls To One Side, or Shimmies . . . 3-3
Warm Engine Start . . . 2-27
No Overspeed Warning Light and/or Overspeed Pressure Change . . . 3-3
Warranty Information . . . 1-6

SUBJECT INDEX (CONT)

W (Cont)

Subject	Para
Washer	
Windshield Washer Does Not Operate	3-3
Water	
Engine Fan Does Not Turn Off Using Deep Radiator Fan Off	3-3
Temperature Gage Does Not Operate or is Inaccurate	3-3
Wheel	
Excessive Movement of Trailer King Pin in Fifth Wheel	3-3
Excessive Play When Turning Steering Wheel	3-3
Fifth Wheel Does Not Lock When Coupling Trailer to Tractor	3-3
Fifth Wheel Does Not Unlock When Disconnecting Trailer From Tractor	3-3
Fifth Wheel Sliding Mechanism Does Not Operate	3-3
No Response When Turning Steering Wheel	3-3
Wobbles or Shimmies	3-3
White Exhaust Smoke	3-3
Winch	
15K Self-Recovery Winch (SRW)	1-20
15K Self-Recovery Winch (SRW) Does Not Pay Out	3-3
15K Self-Recovery Winch (SRW) Does Not Reel In	3-3
15K Self-Recovery Winch (SRW) Does Not Reel In or Pay Out	3-3
15K Self-Recovery Winch (SRW) Operation	2-65
15K Self-Recovery Winch (SRW) Does Not Operate	3-3
30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel	3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel	3-3
30K Winch Operation	2-42
M1089 Left 30K Winch Does Not Operate	3-3
M1089 Right 30K Winch Does Not Operate	3-3
M1089 Stifflegs/Left 30K Winch/15K Self-Recovery Winch (SRW) Do Not Operate	3-3
M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate	3-3
Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Wrecker Left or Right 30K Winch Freespool Does Not Operate	3-3
Winches	
M1089 Material Handling Crane (MHC), 30K Winches, and Underlift Assembly	1-22
Windshield	
All Windshield Wiper Speeds Do Not Operate	3-3

W (Cont)

Subject	Para
Windshield (Cont)	
Washer Does Not Operate	3-3
Wiper Does Not Operate On High Speed	3-3
Wiper Does Not Operate On Intermittent Speed	3-3
Wiper Does Not Operate On Low Speed	3-3
Wiper	
All Windshield Wiper Speeds Do Not Operate	3-3
Windshield Wiper Does Not Operate On High Speed	3-3
Windshield Wiper Does Not Operate On Intermittent Speed	3-3
Windshield Wiper Does Not Operate On Low Speed	3-3
Worklight	
M1088/M1089 (LH) Worklight Does Not Illuminate	3-3
M1088/M1089 (RH) Worklight Does Not Illuminate	3-3
Worklights	
M1084/M1086 Worklights Do Not Illuminate	3-3
M1088/M1089 Worklights Do Not Illuminate	3-3
M1088/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On	3-3
Wrecker	
All Wrecker Functions Do Not Operate From Wrecker Control Panel	3-3
All Wrecker Functions Do Not Operate From Wrecker Control Panel and Wrecker REMOTE CONTROL	3-3
All Wrecker Functions Do Not Operate From Wrecker REMOTE CONTROL	3-3
Controls and Indicators	2-12
Flat Towing	2-43
Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	3-3
Left or Right 30K Winch Freespool Does Not Operate	3-3
30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel	3-3
30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel	3-3
Material Handling Crane (MHC) Operation	2-50
One Wrecker Function Does Not Operate From Wrecker REMOTE CONTROL	3-3

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United Stales Army
Chief of Staff

JOEL B. HUDSON
Administrative Assistant to the
Secretary *of* **the Army**
05117

DISTRIBUTION: To be distributed in accordance with the initial distribution number (IDN) 380938, requirements for TM 9-2320-366-10-1.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

TEAR ALONG PERFORATED LINE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

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

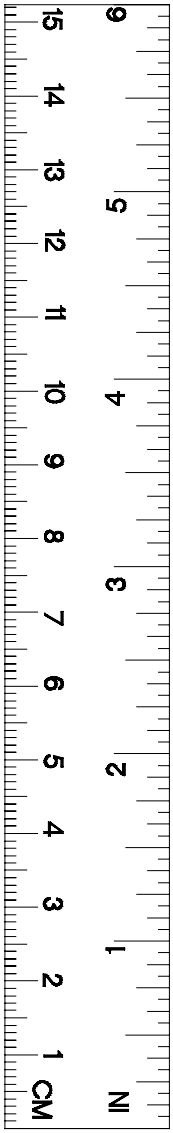
CUBIC MEASURE
1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

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
Inches	Millimeters	25.4
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	29.57
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.35
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 Hour	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Millimeters	Inches	0.0394
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



APPG01--

Change 1

PIN: 076880-001