TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

ORGANIZATIONAL MAINTENANCE

M977 SERIES 8 x 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
TRUCK, CARGO, WITH WINCH, M977	2320-01-097-0260
TRUCK, CARGO, WITH WINCH, M977A2	2320-01-493-3774
TRUCK, CARGO, WITH WINCH, M977A2R1	2320-01-493-3782
TRUCK, CARGO, WITHOUT WINCH, M977	2320-01-099-6426
TRUCK, CARGO, WITHOUT WINCH, M977A2	2320-01-493-3779
TRUCK, CARGO, WITHOUT WINCH, M977A2R1	2320-01-493-3785
TRUCK, TANK, FUEL, WITH WINCH, M978	2320-01-097-0249
TRUCK, TANK, FUEL, WITH WINCH, M978A2	2320-01-492-8216
TRUCK, TANK, FUEL, WITH WINCH, M978A2R1	2320-01-492-8226
TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320-01-100-7672
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2	2320-01-492-8215
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2R1	2320-01-492-8225
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
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TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
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TRUCK, CARGO, WITH WINCH, M985A2R1	2320-01-493-3787
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITHOUT WINCH, M985A2	2320-01-492-8201
TRUCK, CARGO, WITHOUT WINCH, M985A2R1	2320-01-493-3789
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HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1987

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH.

Carbon monoxide is without color or smell, but can cause death. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Brain damage or death can result from heavy exposure. Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal combustion engines. Carbon monoxide can become dangerously concentrated under conditions of no ventilation. Precautions must be followed to ensure crew safety when the personnel heater or engine of any vehicle is operated for any purpose.

1. DO NOT operate personnel heater or engine of vehicle in a closed place without proper ventilation.

2. DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes.

3. BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, IMMEDIATELY VENTILATE personnel compartments. If symptoms persist, remove affected crew to fresh air and keep warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give artificial respiration and get immediate medical attention. For artificial respiration, refer to FM 21-11.

4. BE AWARE that the gas particulate filter unit or the field protection mask for nuclear-biological-chemical protection WILL NOT offer safety from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

WARNING

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

WARNING

Never use the parking brake for normal braking or wheels will lock up causing severe skid. Skidding vehicle could result in serious injury or death.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.

WARNING

Remove rings, bracelets, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.

WARNING

The radiator is very hot and pressurized during vehicle operation. Let radiator cool before removing cap. Failure to do so can result in serious burns.

WARNING

The exhaust pipe and muffler can become very hot during vehicle operation. Be careful not to touch these parts with bare hands, or allow body to come in contact with pipe or muffler. Exhaust system parts can become hot enough to cause serious burns.

WARNING

Do not use trailer brakes as parking brake. Trailer brakes may not hold a loaded vehicle and trailer on a grade. A runaway vehicle may cause severe personal injury or death.

WARNING

Always use seatbelts when operating vehicle. Failure to use seatbelt can result in serious injury in case of accident.

WARNING

Avoid quick, jerking, winch operation. Keep other personnel well away from vehicles involved in winching operations. A snapped cable or shifting load can cause serious injury or death.

WARNING

Always wear heavy gloves when handling winch cables. Never let cable run through hands; frayed cables can cut. Never operate winch with less than five wraps of cable on winch drum.

WARNING

If operating crane under powerlines, do not allow vehicle to contact high-voltage connections. Death on contact can result. If possible, keep one hand away from equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING

When working inside the vehicle with power off, be sure to ground every capacitor likely to hold a dangerous voltage potential.

WARNING

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment.

WARNING

Be careful when working on or with electrical equipment. Do not be misled by the term “low voltage”. Voltages as low as 50 volts may cause death, For artificial respiration, refer to FM 21-11.

WARNING

Be careful not to short out battery terminals. Do not smoke or use open flame near batteries. Batteries may explode from a spark. Battery acid is harmful to skin and eyes.

WARNING

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

WARNING

Starting fluid is toxic and flammable. Do not store in cab and do not breathe fumes. DO not puncture or burn containers. Dispose of container following manufacturer's recommendations on the container.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

WARNING

After Nuclear, Biological, or Chemical (NBC) exposure of vehicle, all air filters shall be handled with extreme caution. Unprotected personnel can experience injury or death if residual toxic agents or radioactive material are present. If vehicle is exposed to chemical or biological agents, servicing personnel shall wear protective mask, hood, protective overgarments, and chemical protective gloves and boots in accordance with TM 10-277. All contaminated air filters shall be placed in double-lined plastic bags and moved swiftly to a segregation area away from the worksite. The same procedure applies for radioactive dust contamination. The Company NBC team should measure the radiation prior to filter removal to determine the extent of safety procedures required per the NBC Annex to the unit Standard Operating Procedures (SOP). The segregation area in which the contaminated air filters are temporarily stored shall be marked with appropriate NBC placards. Final disposal of contaminated air filters shall be in accordance with local SOP. Decontamination operation shall be in accordance with TM 3-220 and local SOP.

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

WARNING

- Drycleaning solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for type I drycleaning solvent is 100°F (38°C) and for type II is 140°F (60°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

WARNING

Do not check tire pressure before referring to TM 9-2320-279-10 for proper tire pressure checking procedure. Personal injury or death could result.

WARNING

When inflating tires mounted on the vehicle, all personnel must remain out of trajectory of the side ring and lockring as shown by the areas indicated. Failure to follow proper procedures may result in serious injury or death to personnel.

WARNING

During pressure tests, ensure air pressure is drained to 0 psi (0 kPa) before taking off any components. If pressure is not released, plates or line could blow off and harm personnel. Do not drain air from tank with any part of body in air spray path. Skin embolisms and/or debris in eyes can occur from released pressure.

WARNING

Always completely deflate tire by removing valve core from valve stem before attempting demounting operation. After air has finished exhausting from valve stem, carefully run a piece of wire through valve stem to ensure it is not plugged and tire is completely deflated. Failure to comply may result in injury to personnel.

WARNING

High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.

WARNING

Stand clear of trajectory area during deflation or personal injury or death may result.

WARNING

Lockring is under tension. If lockring breaks loose it could cause injury to personnel. Keep hands and fingers away from lockring when removing.

WARNING

When lockring snaps into position it could pinch hands and fingers. Do not allow hands or fingers to get between lockring and lockring groove when installing lockring or injury to personnel may result.

WARNING

Raised notch on lockring must face away from wheel or lockring will not seat properly in lockring groove causing lockring to unseat possibly causing injury to personnel.

WARNING

Cracked, broken, bent or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated or damage or personal injury or death may result.

WARNING

No heat shall be applied to a multi-piece wheel or wheel component or damage or injury or death may result.

WARNING

Lockring must be fully seated in lockring groove around the entire circumference or lockring could unseat during tire inflation causing serious injury to personnel.

WARNING

If lockring ends touch, reposition or replace lockring, or injury or death to personnel may result. Destroy defective lockring so it cannot be reused.

WARNING

Failure to place wheel/tire assembly in safety cage prior to initial inflation could result in serious injury or death to personnel.

WARNING

When a wheel/tire is in a restraining device, do not rest or lean any part of body or equipment on or against the restraining device, or injury or death could result.

WARNING

While changing tires or while performing tire maintenance, stay out of the trajectory as shown by the area indicated. Failure to follow proper procedures may result in injury or death to personnel.

WARNING

Improperly seated lockrings and side rings may blow off at any time. Never attempt to seat a lockring or side ring during or after inflation. Failure to comply may result in serious injury or death.

WARNING

When inflating tires, always use an inflation hose with an in-line gage and a clip-on chuck. The gage and valve must be mounted a minimum of 10 feet (3.10 m) away from air chuck.

WARNING

All personnel must remain a minimum of 10 feet (3.10 m) away from tire and not in possible path of lockring or side ring. Failure to comply may result in serious injury or death.

WARNING

Do not inflate above 3 psi (21 kPa) or personal injury or death may result.

WARNING

Never inflate tires over 40 psi (276 kPa) to seat tire beads. If beads do not seat, deflate, demount, and check the tire/rim parts. Relubricate and remount tire. Serious injury or death could result if these procedures are not followed.

WARNING

If lockring ends touch, deflate wheel/tire assembly by removing valve core, then replace lockring, or serious injury or death to personnel may result. Destroy defective lockring so it cannot be reused.

WARNING

Never inflate the wheel/tire assembly unless all 16 outer wheel nuts have been properly torqued or personnel injury could result.

WARNING

Tire is heavy. Brace tire to ensure tire will not fall over on you or on others. Failure to comply could result in personnel injury.

WARNING

Failure to relieve tank pressure may result in sudden, unexpected loss of pressure. Failure to comply may result in personal injury or death.

WARNING

Ensure that configuration as noted during removal is the same configuration installed. Incorrect pressurization of fuel tank may result in serious injury or death to personnel.

WARNING

Never adjust relief valve so that personnel must stand on strongback (5) to operate latch (1). If there is any residual pressure in tank when relief valve is open, personnel may lose their balance and fall. Failure to comply may result in injury or death to personnel.

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LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: The portion of text affected by the updates is indicated by a vertical line in the outer margins of the page. Updates to illustrations are indicated by miniature pointing hands. Updates to wiring diagrams are indicated by shaded areas.

Dates of issue for original and updated pages/work packages are:

Original . . . 0 . . . . . April 1987
Change . . . 1 . . . . . 31 October 1988
Change . . . 2 . . . . . 15 December 1998
Change . . . 3 . . . . . 15 December 2000
Change . . . 4 . . . . . 15 February 2002
Change . . . 5 . . . . . 15 March 2003
Change . . . 6 . . . . . 15December2003

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NO. 6

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 December 2003

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

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TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320-01-100-7672
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2	2320-01-492-8215
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2R1	2320-01-492-8225
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983A2	2320-01-492-8223
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983A2R1	2320-01-492-8231
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
TRUCK, WRECKER-RECOVERY, M984A1	2320-01-195-7641
TRUCK, WRECKER-RECOVERY, M984A2	2320-01-492-8224
TRUCK, WRECKER-RECOVERY, M984A2R1	2320-01-492-8233
TRUCK, CARGO, WITH WINCH, M985	2320-01-097-0261
TRUCK, CARGO, WITH WINCH, M985A2	2320-01-492-8214
TRUCK, CARGO, WITH WINCH, M985A2R1	2320-01-493-3787
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITHOUT WINCH, M985A2	2320-01-492-8201
TRUCK, CARGO, WITHOUT WINCH, M985A2R1	2320-01-493-3789
TRUCK, CARGO, WITH WINCH, M985E1	2320-01-194-7032
TRUCK, CARGO, WITH WINCH, M985E1A2	2320-01-493-3790
TRUCK, CARGO, WITH WINCH, M985E1A2R1	2320-01-493-3792

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Remove Pages	Insert Pages
A thru D	A thru D
i and iv	i and iv
11-1 thru 11-12	11-1 thru 11-12
11-12.1 thru 11-12.6	11-12.1 thru 11-12.6
11-13 thru 11-16	11-13 thru 11-16
11-18.1 thru 11-18.5/(11-18.6 blank)	11-18.1 thru 11-18.5/(11-18.6 blank)
16-118.1 thru 16-118.4	16-118.1 thru 16-118.4
17-147 thru 17-152	17-147 thru 17-152
Cover	Cover

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

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

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

0322501

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CHANGE

NO. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 March, 2003

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

ORGANIZATIONAL MAINTENANCE

M977 SERIES, 8 X 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
TRUCK, CARGO, WITH WINCH, M977	2320-01-097-0260
TRUCK, CARGO, WITHOUT WINCH, M977	2320-01-099-6426
TRUCK, TANK, FUEL, WITH WINCH, M978	2320-01-097-0249
TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320-01-100-7672
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
TRUCK, WRECKER-RECOVERY, M984A1	2320-01-195-7641
TRUCK, CARGO, WITH WINCH, M985	2320-01-097-0261
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITH WINCH, M985E1	2320-01-194-7032
TRUCK, CARGO, WITHOUT WINCH, M985E1	2320-01-194-7031

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Remove Pages	Insert Pages
A and B	A thru D
10-7 and 10-8	10-7 and 10-8
11-1 and 11-2	11-1 and 11-2
11-71 and 11-72	11-71 and 11-72
None	11-160.1 thru 11-160.17/(11-160.18 blank)
11-161 and 11-162	11-161 and 11-162

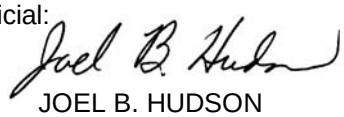
Remove Pages	Insert Pages
16-1 and 16-2	16-1 and 16-2
None	16-116.1 thru 16-116.4
16-117 and 16-118	16-117 and 16-118
None	16-118.1 thru 16-118.4
16-129 and 16-30	16-129 and 16-130
16-130.11 thru 16-130.14	16-130.11 thru 16-130.14

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

By Order of the Secretary of the Army:

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

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0221905

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CHANGE

NO. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 February 2002

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

ORGANIZATIONAL MAINTENANCE

M977 SERIES, 8 X 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
TRUCK, CARGO, WITH WINCH, M977	2320-01-097-0260
TRUCK, CARGO, WITHOUT WINCH, M977	2320-01-099-6426
TRUCK, TANK, FUEL, WITH WINCH, M978	2320-01-097-0249
TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320-01-100-7672
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
TRUCK, WRECKER-RECOVERY, M984E1	2320-01-195-7641
TRUCK, CARGO, WITH WINCH, M985	2320-01-097-0261
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITH WINCH, M985E1	2320-01-194-7032
TRUCK, CARGO, WITHOUT WINCH, M985E1	2320-01-194-7031

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Remove Pages	Insert Pages
e – f	e – f
i – ii	i – ii
11-11 – 11-12	11-11 – 11-12
11-12.3 – 11-12.4	11-12.3 – 11-12.4
11-15 – 11-16	11-15 – 11-16
11-18.3 – 11-18.4	11-18.3 – 11-18.4

Remove Pages	Insert Pages
11-19 – 11-20	11-19 – 11-20
11-41 – 11-46	11-41 – 11-46
11-109 – 11-116	11-109 – 11-116
11-119 – 11-120	11–119 – 11-120
11-123 – 11-126	11-123 – 11-126
none	11-126.1 – 11-126.3/(11-126.4 blank)
11-127 – 11-128	11-127 – 11-128
11-155 – 11-156	11-155 – 11-156
12-21 – 12-24	12-21 – 12-24
12-28.1/(12-28.2 blank)	12-28.1/(12-28.2 blank)
13-37 – 13-38	13-37 – 13-38
14-41 – 14-44	14-41 – 14-44
15-15 – 15-18	15-15 – 15-18
16-1 – 16-2	16-1 – 16-2
16-2.1/(16-2.2 blank)	16-2.1/(16-2.2 blank)
16-9 – 16-14	16-9 – 16-14
16-22.1 – 16-22.3/(16-22.4 blank)	
	16-22.1 – 16-22.3/(16-22.4 blank)
16-23 – 16-24	16-23 – 16-24
16-37 – 16-38	16-37 – 16-38
16-89 – 16-90	16-89 – 16-90
16-99 – 16-102	16-99 – 16-102
none	16-102.1/(16-102.2 blank)
16-113 – 16-118	16-113 – 16-118
16-123 – 16-128	16-123 – 16-128
16-130.3 – 16-130.4	16-130.3 – 16-130.4
16-130.7 – 16-130.10	16-130.7 – 16-130.10
16-131 – 16-134	16-131 – 16-134
16-151 – 16-154	16-151 – 16-154
16–169 – 16-170	16–169 – 16-170
16-191 – 16-194	16-191 – 16-194
16-198.3 – 16-198.8	16-198.3 – 16-198.8
16-198.8.1 – 16-198.8.2	16-198.8.1 – 16-198.8.2
16-198.9 – 16-198.10	16-198.9 – 16-198.10
17-71 – 17-74	17-71 – 17-74
17-83 – 17-88	17-83 – 17-88

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By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
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Official:

JOEL B. HUDSON
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0115507

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CHANGE

NO. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 December, 2000

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

ORGANIZATIONAL MAINTENANCE

M977 SERIES, 8 X 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
TRUCK, CARGO, WITH WINCH, M977	2320-01-097-0260
TRUCK, CARGO, WITHOUT WINCH, M977	2320-01-099-6426
TRUCK, TANK, FUEL, WITH WINCH, M978	2320-01-097-0249
TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320-01-100-7672
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
TRUCK, WRECKER-RECOVERY, M984E1	2320-01-195-7641
TRUCK, CARGO, WITH WINCH, M985	2320-01-097-0261
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITH WINCH, M985E1	2320-01-194-7032
TRUCK, CARGO, WITHOUT WINCH, M985E1	2320-01-194-7031

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4. Illustrations that are new or that have major revisions are indicated by a vertical bar adjacent to the illustration.

Remove Pages	Insert Pages
e/(f blank)	e thru f
iii/(iv blank)	iii/(iv blank)
11-12.1 thru 11-12.4	11-12.1 thru 11-12.4
12-1	12-1
12-13 and 12-14	12-13 and 12-14
12-23 and 12-24	12-23 and 12-24

Remove Pages	Insert Pages
12-27 and 12-28	12-27 and 12-28
none	12-28.1/(12-28.2 blank)
12-29 thru 12-32	12-29 thru 12-32
none	12-32.1 thru 12-32.11/(12-32.12 blank)
13-13 thru 13-18	13-13 thru 13-18
16-198.1 thru 16-198.4	16-198.1 thru 16-198.4
Index 17/(Index 18 blank)	Index 17/(Index 18 blank)

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

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
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Secretary of the Army
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CHANGE

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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C., *15 December 1998*

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

ORGANIZATIONAL MAINTENANCE

M977 SERIES, 8 X 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
TRUCK, CARGO, WITH WINCH, M977	2320-01-097-0260
TRUCK, CARGO, WITHOUT WINCH, M977	2320-01-099-6426
TRUCK, TANK, FUEL, WITH WINCH, M978	2320-01-097-0249
TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320-01-100-7672
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
TRUCK, WRECKER-RECOVERY, M984E1	2320-01-195-7641
TRUCK, CARGO, WITH WINCH, M985	2320-01-097-0261
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITH WINCH, M985E1	2320-01-194-7032
TRUCK, CARGO, WITHOUT WINCH, M985E1	2320-01-194-7031

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Remove Pages	Insert Pages
c/(d blank)	c thru e/(f blank)
i thru iii/(iv blank)	i thru iii/(iv blank)
8-11 and 8-12	8-11 and 8-12
8-15 and 8-16	8-15 and 8-16

Remove Pages	Insert Pages
9-1 and 9-2	9-1 and 9-2
9-5 thru 9-10	9-5 thru 9-10
9-19 thru 9-22	9-19 thru 9-22
none	9-24.1/(9-24.2 blank)
9-25 thru 9-28	9-25 thru 9-28
10-3 thru 10-8	10-3 thru 10-8
11-1 thru 11-12	11-1 thru 11-12
none	11-12.1 thru 11-12.5/(11-12.6 blank)
11-17 and 11-18	11-17 and 11-18
none	11-18.1 thru 11-18.5/(11-18.6 blank)
11-19 and 11-20	11-19 and 11-20
none	11-20.1/(11-20.2 blank)
11-21 thru 11-30	11-21 thru 11-30
none	11-30.1 thru 11-30.3/(11-30.4 blank)
11-31 and 11-32	11-31 and 11-32
11-33 and 1-34	11-33/(11-34 blank)
11-35 and 11-36	11-35 and 11-36
11-39 thru 11-52	11-39 thru 11-52
11-57 thru 11-64	11-57 thru 11-64
11-67 thru 11-72	11-67 thru 11-72
11-75 thru 11-80	11-75 thru 11-80
11-91 and 11-92	11-91 and 11-92
none	11-91.1/(11-92.2 blank)
11-93 and 11-94	11-93 and 11-94
11-97 thru 11-146	11-97 thru 11-146
11-149 thru 11-158	11-149 thru 11-158
11-163 thru 11-166	11-163 thru 11-166
11-173 thru 1-176	11-173 thru 1-176
11-181 and 1-182	11-181 and 1-182
11-185 and 11-186	11-185 and 11-186
12-1 thru 12-10	12-1 thru 12-10
12-13 and 12-14	12-13 and 12-14
12-23/(12-24 blank)	12-23 thru 12-32
13-1 and 13-2	13-1 and 13-2
none	13-2.1/(13-2.2 blank)
13-5 and 13-6	13-5 and 13-6
13-9 thru 13-12	13-9 thru 13-12
13-15 and 13-16	13-15 and 13-16
none	13-16.1 thru 13-16.3/(13-16.4 blank)
13-17 thru 13-20	13-17 thru 13-20
13-23 and 13-24	13-23 and 13-24
13-27 and 13-28	13-27 and 13-28
13-35 thru 13-42	13-35 thru 13-42
13-45 and 13-46	13-45 and 13-46
13-49 thru 13-60	13-49 thru 13-60
14-1 and 14-2	14-1 and 14-2
14-13 and 14-14	14-13 and 14-14

Remove Pages	Insert Pages
none	14-28.1 thru 14-28.8
14-29 and 14-30	14-29 and 14-30
14-33 thru 14-40	14-33 thru 14-40
14-49/(14-50 blank)	14-49/(14-50 blank)
15-3 and 15-4	15-3 and 15-4
15-15 thru 15-18	15-15 thru 15-18
16-1 and 16-2	16-1 and 16-2
none	(16-2.1 blank)/16-2.2
16-5 thru 16-14	16-5 thru 16-14
16-19 and 16-20	16-19 and 16-20
16-23 and 16-24	16-23 and 16-24
16-47 thru 16-50	16-47 thru 16-50
none	16-50.1 and 16-50.2
16-51 and 16-52	16-51 and 16-52
16-55 and 16-56	16-55 and 16-56
16-79 thru 16-86	16-79 thru 16-86
16-89 and 16-90	16-89 and 16-90
16-98.1	16-98.1 and 16-98.2
16-99 and 16-100	16-99 and 16-100
16-129 and 16-130	16-129 and 16-130
none	16-130.1 thru 16-130.10
16-131 thru 16-140	16-131 thru 16-140
none	16-140.1 thru 16-140.3/(16-140.4 blank)
16-141 and 16-142	16-141 and 16-142
16-145 and 16-146	16-145 and 16-146
none	16-146.1 thru 16-146.4
16-147 thru 16-152	16-147 thru 16-152
16-155 and 156	16-155 and 16-156
none	16-156.1 and 16-156.2
16-157 and 16-158	16-157 and 16-158
16-165 thru 16-170	16-165 thru 16-170
16-173 and 16-174	16-173 and 16-174
16-189 and 16-190	16-189 and 16-190
none	16-190.1/(16-190.2 blank)
16-191 thru 16-194	16-191 thru 16-194
none	(16-194.1 blank)/16-194.2
16-195 thru 16-198	16-195 thru 16-198
none	16-198.1 thru 16-198.10
16-199 thru 16-206	16-199 thru 16-206
none	16-206.1 and 16-206.2
none	16-208.1 thru 16-208.6
16-209 and 16-210	16-209 and 16-210
none	16-210.1 and 16-210.2
16-211 thru 16-214	16-211 thru 16-214
none	16-214.1/(16-214.2 blank)
16-225 and 16-226	16-225 and 16-226
16-237 thru 16-239	16-237 thru 16-242

Remove Pages	Insert Pages
17-1 and 17-2	17-1 and 17-2
17-25 thru 17-28	17-25 thru 17-28
none	17-88.1 thru 17-88.3/(17-88.4 blank)
none	17-130.1 thru 17-130.3/(17-130.4 blank)
17-131 thru 17-134	17-131 thru 17-134
17-137 and 17-138	17-137 and 17-138
none	17-138.1/(17-138.2 blank)
17-139 thru 17-142	17-139 thru 17-142
17-145 and 17-146	17-145 and 17-146
none	17-146.1/(17-146.2 blank)
17-147 and 17-148	17-147 and 17-148
Index 3 and Index 4	Index 3 and Index 4
none	Index 4.1/(Index 4.2 blank)
Index 17/(Index 18 blank)	Index 17/(Index 18 blank)
DA 2028 sample F & B	DA 2028 sample F & B
DA 2028 F & B	DA 2028 F & B
DA 2028 F & B	DA 2028 F & B
DA 2028 F & B	DA 2028 F & B
Cover	Cover

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

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
05839

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CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 31 October 1988

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

ORGANIZATIONAL MAINTENANCE

M977 SERIES, 8 x 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
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TRUCK, CARGO, WITHOUT WINCH, M977	2320-01-099-6426
TRUCK, TANK, FUEL. WITH WINCH, M978	2320-01-097-0249
TRUCK, TANK, FUEL WITHOUT WINCH, M978	2320-01-100-7672
TRUCK. TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
TRUCK, WRECKER-RECOVERY, M984E1	2320-01-195-7641
TRUCK, CARGO, WITH WINCH, M985	2320-01-097-0261
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITH WINCH, M985E1	2320-01-194-7032
TRUCK, CARGO, WITHOUT WINCH, M965E1	2320-01-194-7031

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4. Illustrations that are new or that have major revisions are indicated by a vertical bar adjacent to the illustration identification number.

Remove Pages	Insert Pages
12-1 and 12-2	12-1 and 12-2
12-7 and 12-8	12-7 and 12-8
13-59 and 13-60	13-59 and 13-60
16-1 and 16-2	16-1 and 16-2
17-1 and 17-2	17-1 and 17-2
17-57 thru 17-60	17-57 thru 17-60.1/(17-60.2 blank)
	17-161 thru 17-166

Remove Pages	Insert Pages
Index 1 and Index 2	Index 1 and Index 2
Index 11 and Index 12	Index 11 and Index 12
Index 15 and Index 16	Index 15 and Index 16

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By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN II
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-38-R, Unit maintenance requirements for Truck, Cargo, 10-Ton, 8X8, Heavy Expanded Mobility Tactical Truck, HEMTT, M977, M978, M983, M984, M985.

TECHNICAL MANUAL

No. 9-2320-279-20-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *7 April 1987*

MAINTENANCE INSTRUCTIONS

ORGANIZATIONAL

M977 SERIES, 8 X 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
TRUCK, CARGO, WITH WINCH, M977	2320-01-097-0260
TRUCK, CARGO, WITH WINCH, M977A2	2320-01-493-3774
TRUCK, CARGO, WITH WINCH, M977A2R1	2320-01-493-3782
TRUCK, CARGO, WITHOUT WINCH, M977	2320-01-099-6426
TRUCK, CARGO, WITHOUT WINCH, M977A2	2320-01-493-3779
TRUCK, CARGO, WITHOUT WINCH, M977A2R1	2320-01-493-3785
TRUCK, TANK, FUEL, WITH WINCH, M978	2320-01-097-0249
TRUCK, TANK, FUEL, WITH WINCH, M978A2	2320-01-492-8216
TRUCK, TANK, FUEL, WITH WINCH, M978A2R1	2320-01-492-8226
TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320-01-100-7672
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2	2320-01-492-8215
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2R1	2320-01-492-8225
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320-01-097-0247
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983A2	2320-01-492-8223
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983A2R1	2320-01-492-8231
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320-01-099-6421
TRUCK, WRECKER-RECOVERY, M984	2320-01-097-0248
TRUCK, WRECKER-RECOVERY, M984A1	2320-01-195-7641
TRUCK, WRECKER-RECOVERY, M984A2	2320-01-492-8224
TRUCK, WRECKER-RECOVERY, M984A2R1	2320-01-492-8233
TRUCK, CARGO, WITH WINCH, M985	2320-01-097-0261
TRUCK, CARGO, WITH WINCH, M985A2	2320-01-492-8214
TRUCK, CARGO, WITH WINCH, M985A2R1	2320-01-493-3787
TRUCK, CARGO, WITHOUT WINCH, M985	2320-01-100-7673
TRUCK, CARGO, WITHOUT WINCH, M985A2	2320-01-492-8201
TRUCK, CARGO, WITHOUT WINCH, M985A2R1	2320-01-493-3789
TRUCK, CARGO, WITH WINCH, M985E1	2320-01-194-7032
TRUCK, CARGO, WITH WINCH, M985E1A2	2320-01-493-3790
TRUCK, CARGO, WITH WINCH, M985E1A2R1	2320-01-493-3792

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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) Web site. 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 e-mail your letter or DA Form 2028 direct to: AMSTA-LC-CI/TECH PUBS, TACOM-RI, 1Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

M983 with crane and M985E1 without winch are no longer in the fleet. Ignore all references to these vehicles. The M984E1 and M984A1 are the same vehicle. All references to M984E1 shall be interpreted as the M984A1 model. All references to M977 series vehicles shall be interpreted to include A2 and A2R1 models, unless otherwise noted.

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CHAPTER 8

TRANSMISSION MAINTENANCE

Contents

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Section I. INTRODUCTION

8-1. GENERAL. This chapter contains maintenance instructions for removing, replacing, and installing transmission components authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. SHIFT CONTROL

Transmission Maintenance Instructions

8-2. SHIFT CABLE REMOVAL INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Connectors, electrical, butt, Item 19, Appendix C
Tags, identification, Item 48, Appendix C
Tape, insulation, electrical, Item 50, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

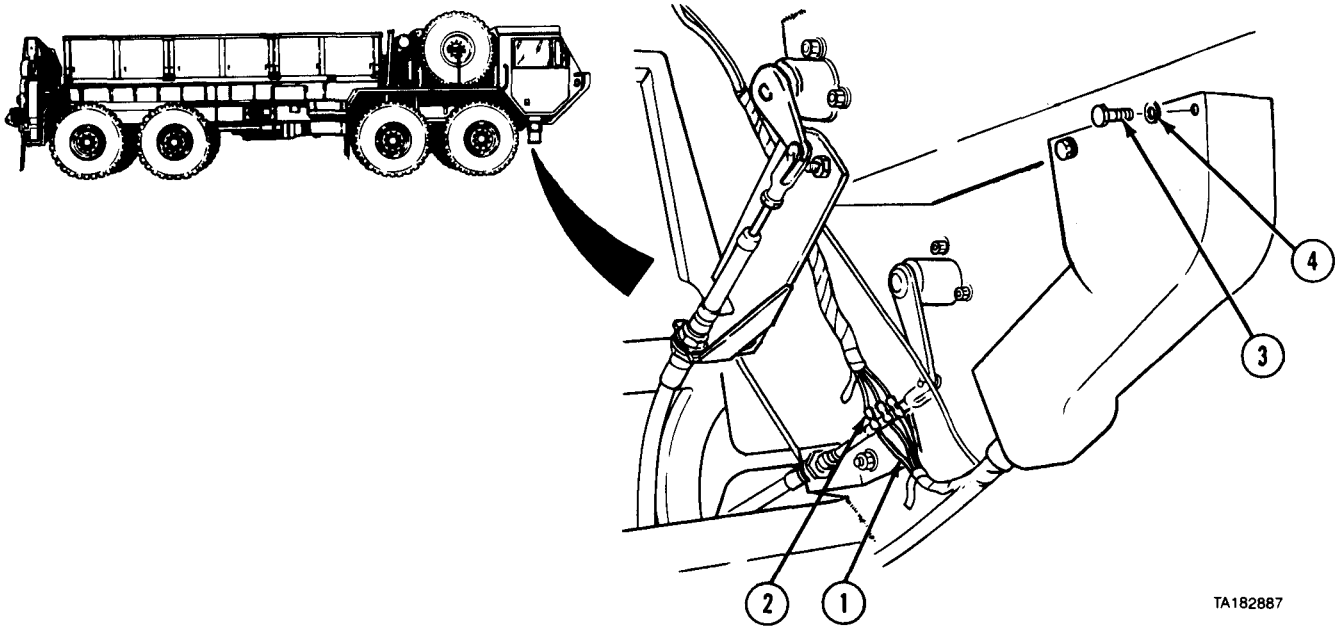
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 14-5	Skid plate grille removed.

Special Environmental Conditions
None

General Safety Instructions
None

8-2. SHIFT CABLE REMOVAL/INSTALLATION (CONT).

a. Removal.

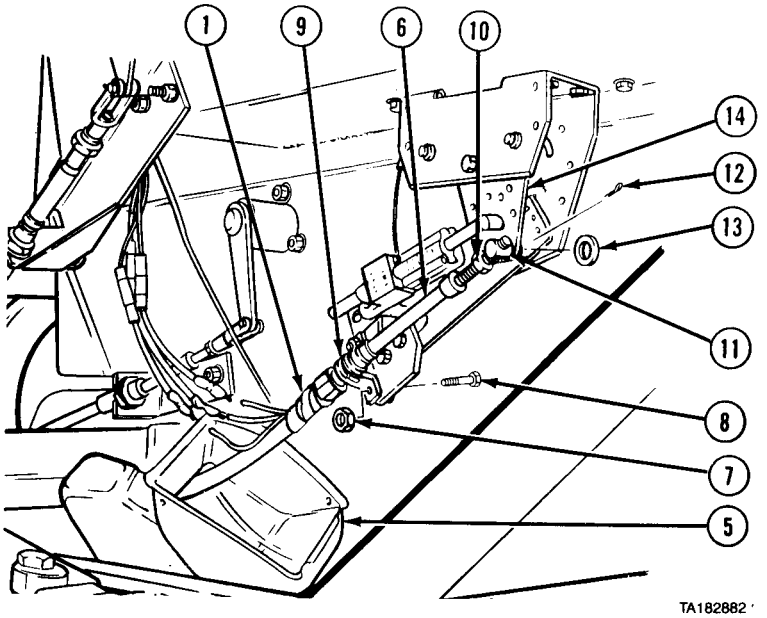


NOTE

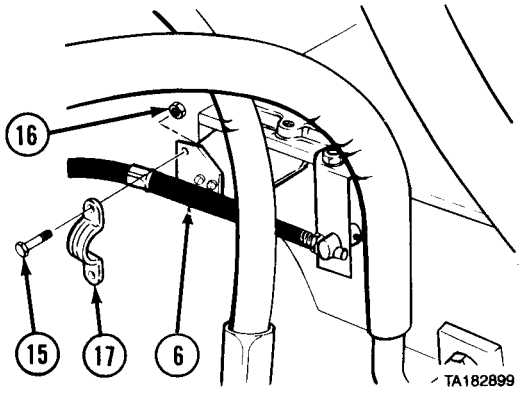
Tag and mark wires before removal.

(1) Remove tape from three wires (1).
(2) Cut three wires (1) at connectors (2).
(3) Remove four screws (3) and washers (4).

(4) Slide rubber boot (5) down shift cable (6).
(5) Remove two nuts (7) from screws (8) and remove clamp (9).
(6) Remove tape holding wires (1) to shift cable (6). Loosen jamnut (10), remove cable anchor (11) from shift cable (6), and remove rubber boot (5).
(7) Remove cotter pin (12) and washer (13) to free shift cable (6) from shift lever bracket (14).



(8) Remove two screws (15) and nuts (16) from clamp (17) at transmission end of shift cable (6).



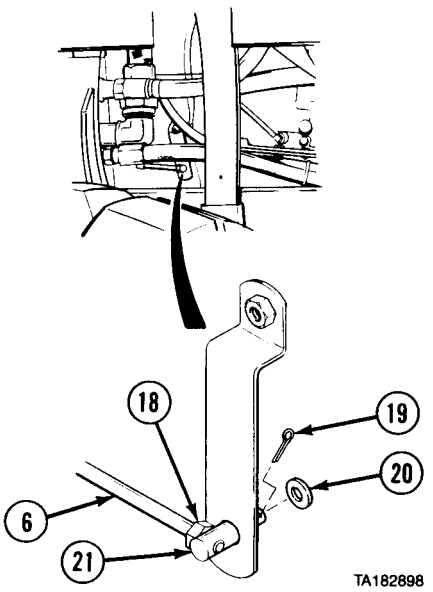
8-2. SHIFT CABLE REMOVAL/INSTALLATION (CONT).

(9) Loosen jamnut (18). Remove cotter pin (19) and washer (20) at cable anchor (21) and remove shift cable (6). Keep anchor for installation.

NOTE

Cut plastic ties as necessary.

(10) Remove shift cable (6).

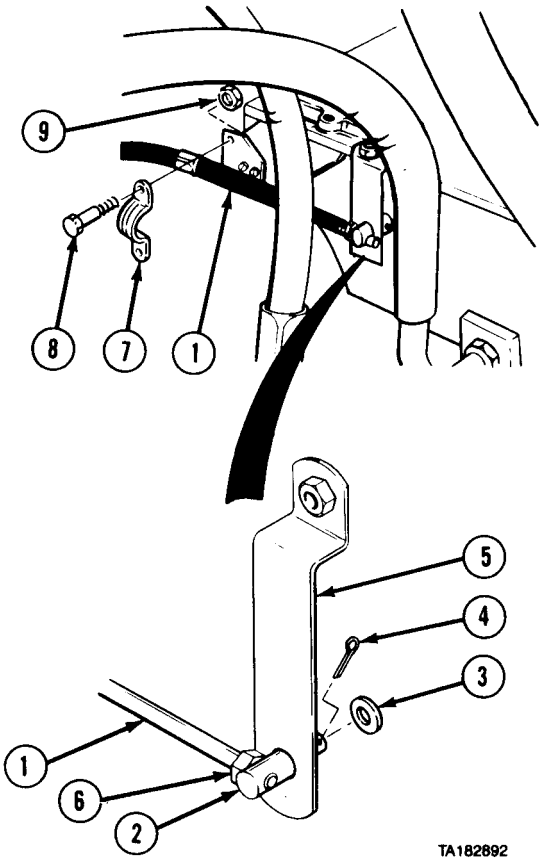


b. Installation.

NOTE

Secure cables with plastic ties as necessary.

(1) Put shift cable (1) in place with bundled cables.
(2) Install cable anchor (2) on threads of shift cable (1) and install washer (3) and cotter pin (4) to connect cable to transmission shift lever (5). Lock jamnut (6) on shift cable against cable anchor.
(3) Install clamp (7), two screws (8), and nuts (9) to secure shift cable (1).
(4) Push shift lever (5) located on left side of transmission all the way to rear.
(5) Push shift lever (5) forward one step to put transmission in neutral.

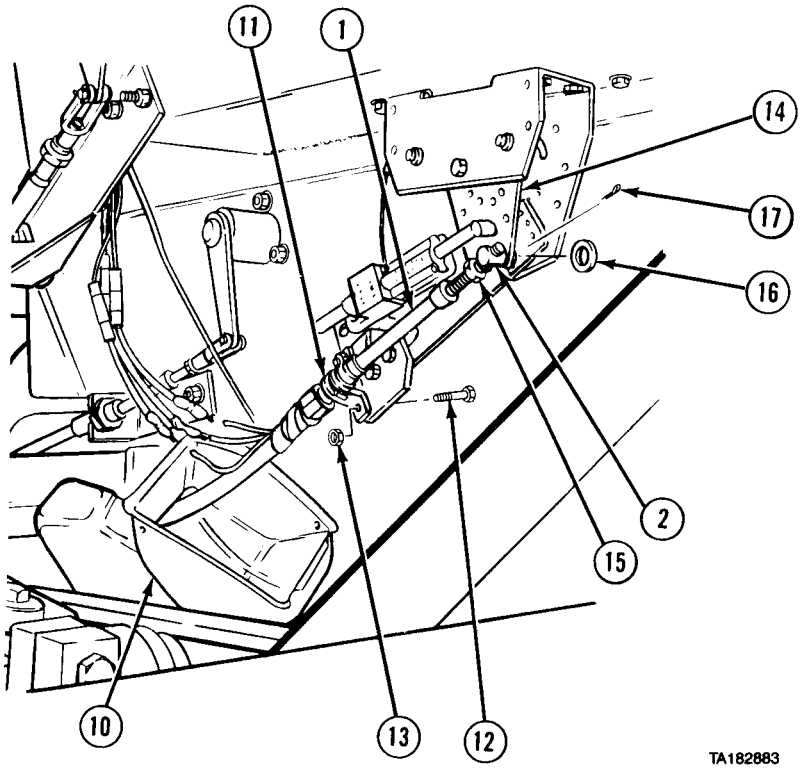


(6) Insert shift selector end of shift cable (1) through rubber boot (10).

NOTE

Make sure transmission shift control lever in cab is set to neutral (N) position.

(7) Install clamp (11) over shift cable (1) with two screws (12) and nuts (13).
(8) Install cable anchor (2) on end of shift cable (1).
(9) Adjust cable anchor (2) to fit in hole in shift lever bracket (14). Tighten jamnut (15).
(10) Install washer (16) and cotter pin (17) on cable anchor (2).



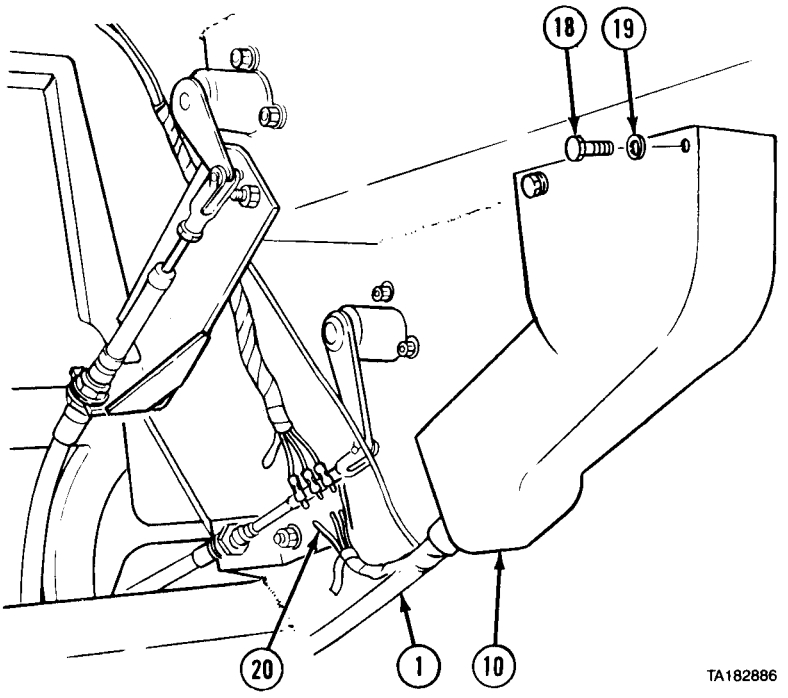
TA182883

(11) Slide rubber boot (10) over shift control bracket and install four screws (18) and washers (19).
(12) Connect three wires (20) of neutral safety switch with electrical butt connectors.
(13) Wrap shift cable (1) and wires (20) with electrical insulation tape.

c. *Follow-on Maintenance.*

(1) Install skid plate grille (para 14-5).
(2) Check operation of shift control (TM 9-2320-279-10).

END OF TASK



TA182886

8-3. SHIFT CONTROL REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

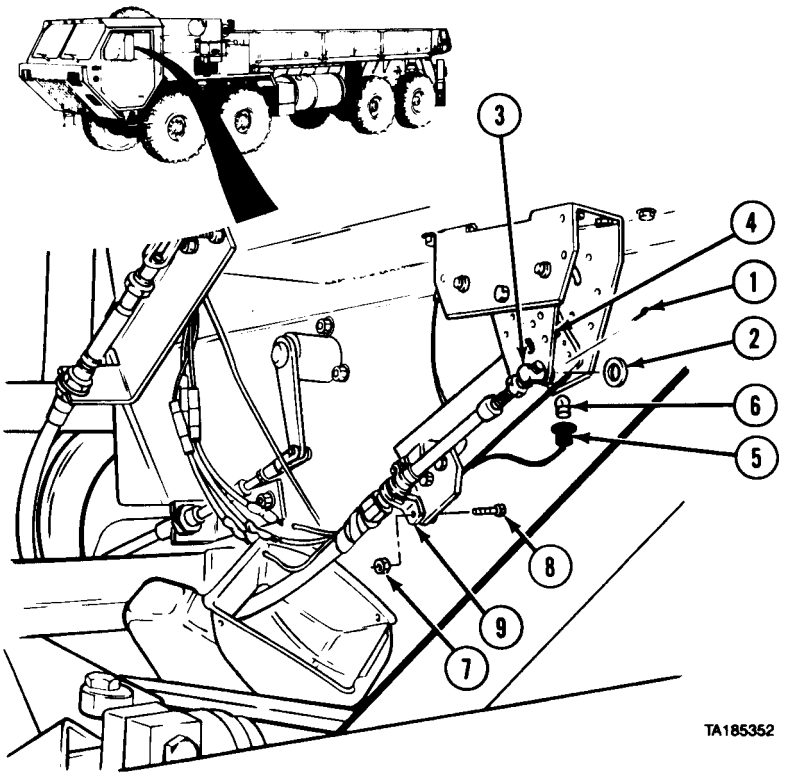
TM or Para	*Condition Description*
Para 14-5	Skid plate grille removed.
Para 8-4	Neutral safety switch removed.

Special Environmental Conditions
None

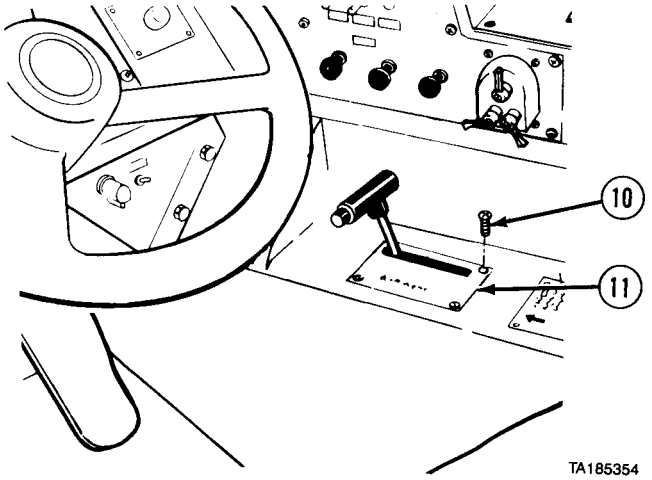
General Safety Instructions
None

a. Removal.

(1) Remove cotter pin (1) and washer (2) and remove cable anchor (3) from shift lever bracket (4).
(2) Remove lamp socket (5) and lamp (6) from shift lever bracket (4).
(3) Remove two nuts (7) from screws (8) and remove clamp (9).



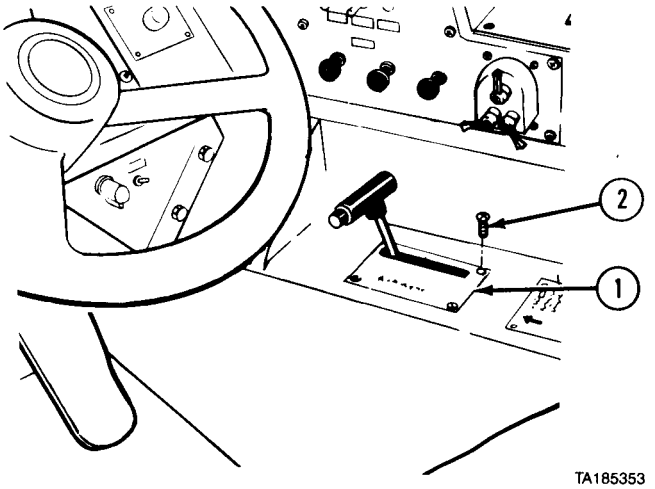
(4) Remove four screws (10) from shift control unit (11).
(5) Remove shift control unit (11) from mounting.



TA185354

b. *Installation.*

(1) Install shift control unit (1) in mounting.
(2) Install four screws (2).

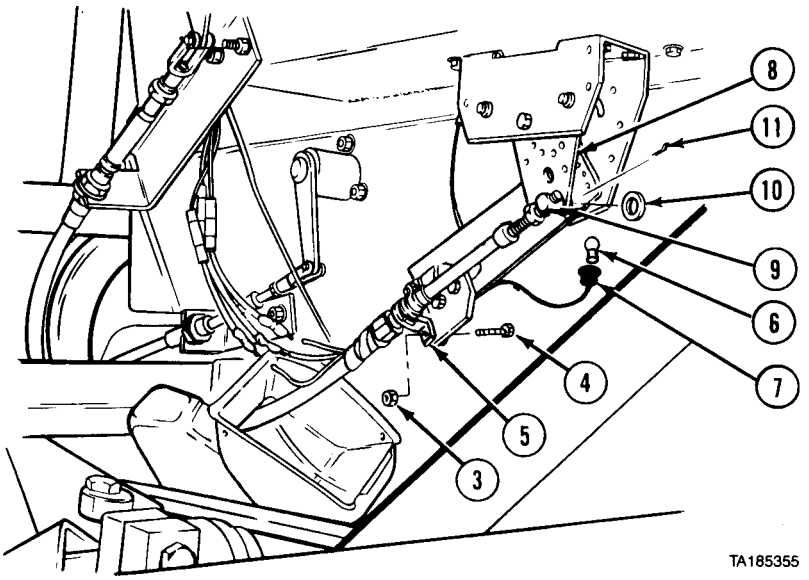


TA185353

(3) Install two nuts (3) and screws (4) on clamp (5).
(4) Install lamp (6) in lamp socket (7) and install lamp socket in shift lever bracket (8).
(5) Install cable anchor (9) in hole in shift lever bracket (8).
(6) Install washer (10) and cotter pin (11) on cable anchor (9).

c. *Follow-on Maintenance.*

(1) Install neutral safety switch (para 8-4).
(2) Check operation of shift control (TM 9-2320-279-10).
(3) Install skid plate grille (para 14-5).



TA185355

END OF TASK

8-4. NEUTRAL SAFETY SWITCH REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
Multimeter NSN 6625-01-139-2512

Special Tools
None

Supplies
Connector, electrical, butt, Item 19, Appendix C
Tags, identification, Item 48, Appendix C
Tape, insulation, electrical, Item 50, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Transmission control lever in neutral.
Para 14-5	Skid plate grille removed.
Para 7-91	Batteries disconnected.

Special Environmental Conditions
None

General Safety Instructions
None

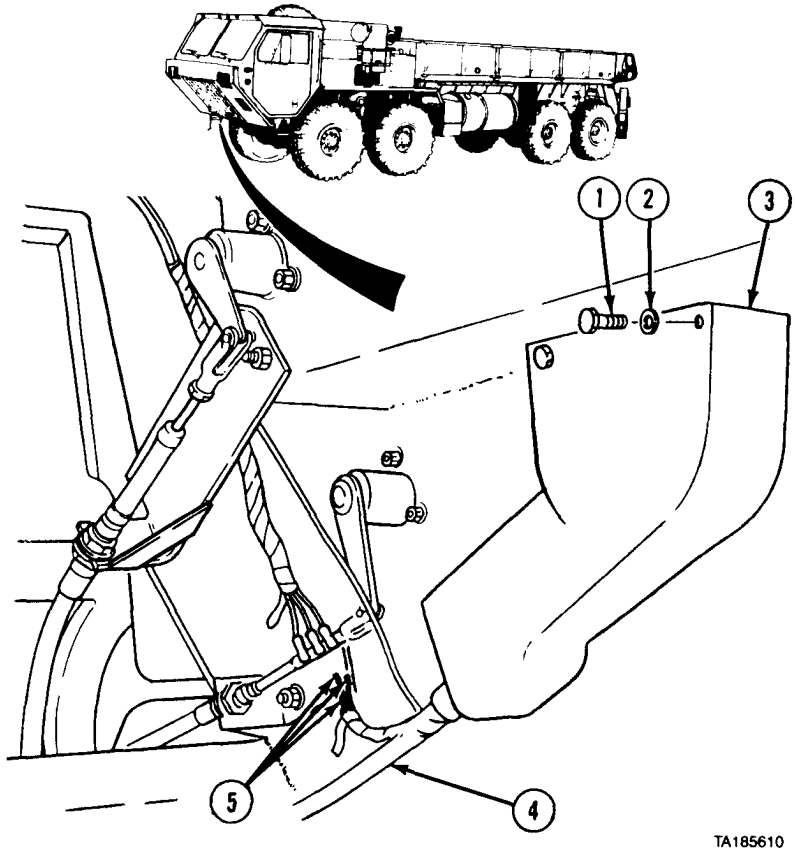
a. Removal.

(1) Remove four screws (1) and washers (2) attaching rubber boot (3).
(2) Remove tape from shift control cable (4) and three wires (5).

NOTE

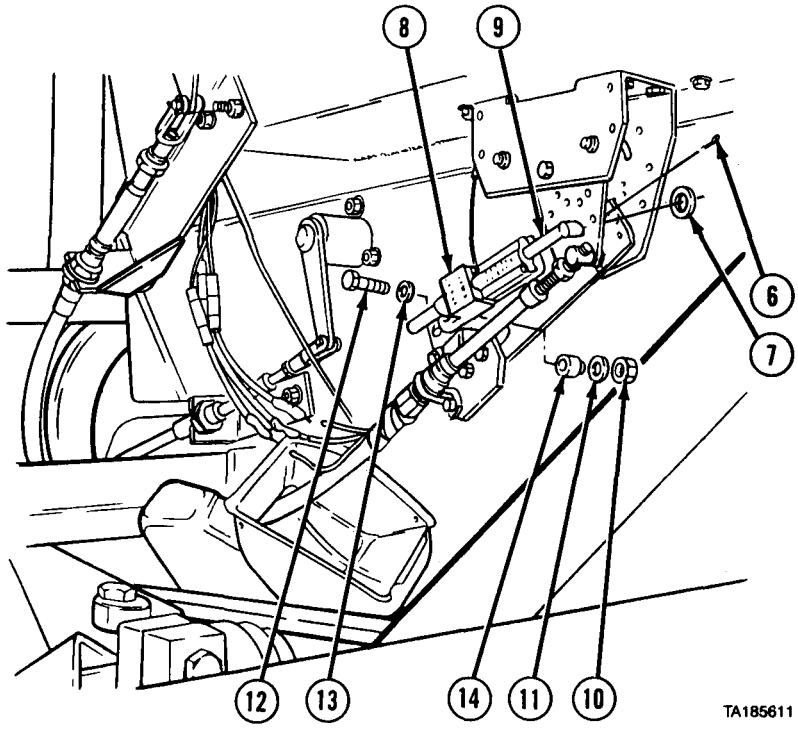
Tag and mark wires before removing.

(3) Cut three wires (5) at connectors. Slide rubber boot (3) over wires.



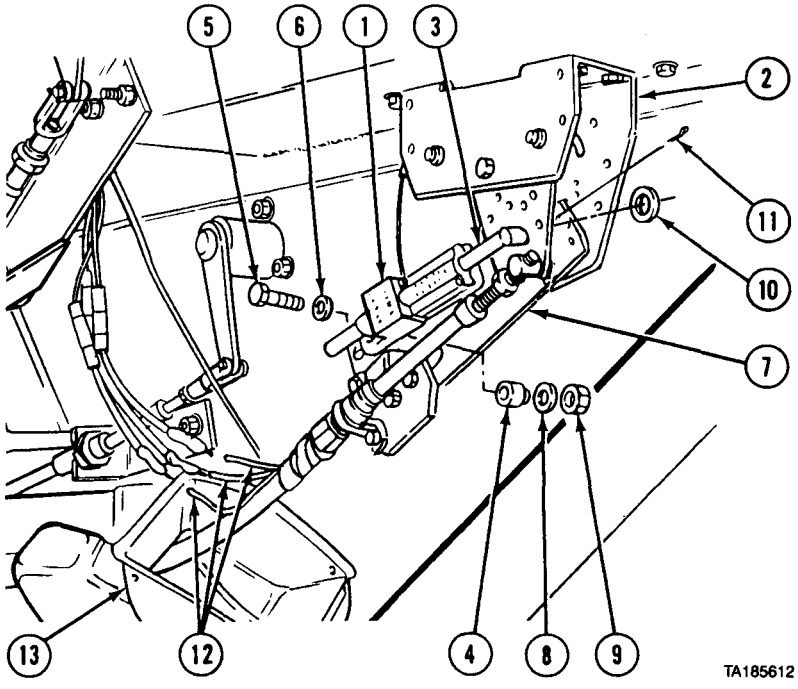
TA185610

(4) Remove cotter pin (6) and washer (7) from neutral safety switch (8).
(5) Pull plunger (9) out of hole and push forward.
(6) Remove nut (10), washer (11), screw (12), washer (13), and spacer (14).
(7) Remove neutral safety switch (8).



b. Installation.

(1) Install neutral safety switch (1) on housing assembly (2) with plunger (3) extended forward.
(2) Install spacer (4), screw (5), and washer (6) through neutral safety switch (1), spacer (4), and strap (7). Install washer (8) and nut (9). Do not tighten.
(3) Push plunger (3) back and install plunger on housing assembly (2) with washer (10) and cotter pin (11).
(4) Connect multimeter leads to two switch leads (12), (green and white).
(5) Slide neutral safety switch (1) back and forth until zero (0) ohms reading shows on meter.



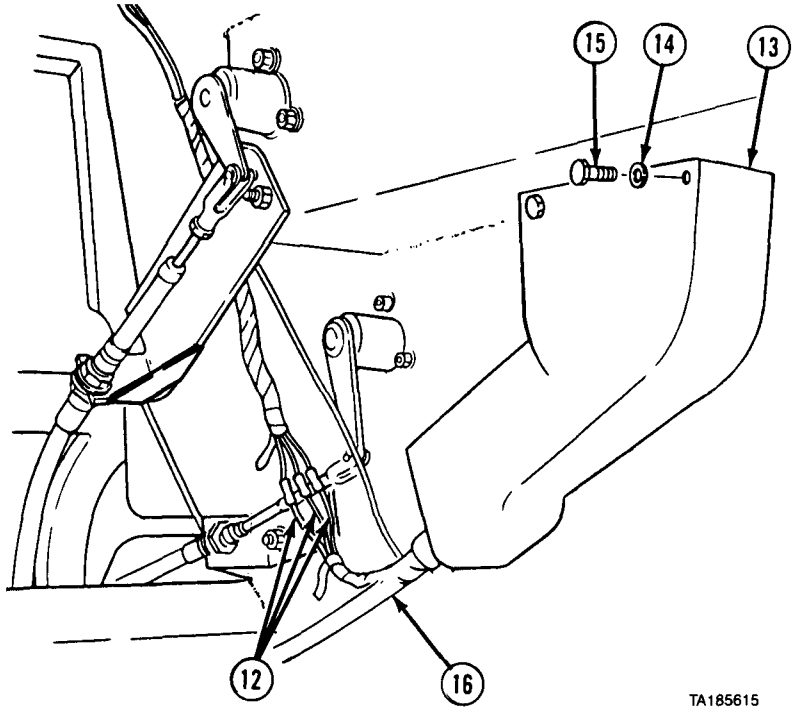
(6) Tighten nut (9).
(7) Make sure rubber boot (13) is up past three wires (12) and connect three wires.

8-4. NEUTRAL SAFETY SWITCH REMOVAL/INSTALLATION (CONT).

(8) Pull rubber boot (13) up over shift control. Install four washers (14) and screws (15).
(9) Wrap three wires (12) to shift control cable (16) with tape up to rubber boot.

c. *Follow-on Maintenance.*
(1) Connect batteries (para 7-91).
(2) Test operation of neutral safety switch (TM 9-2320-279-10).
(3) Install skid plate grille (para 14-5).

END OF TASK



Section III. TRANSMISSION

8-5. TRANSMISSION BREATHER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

Transmission Maintenance Instructions (Cont)

a. Removal.

NOTE

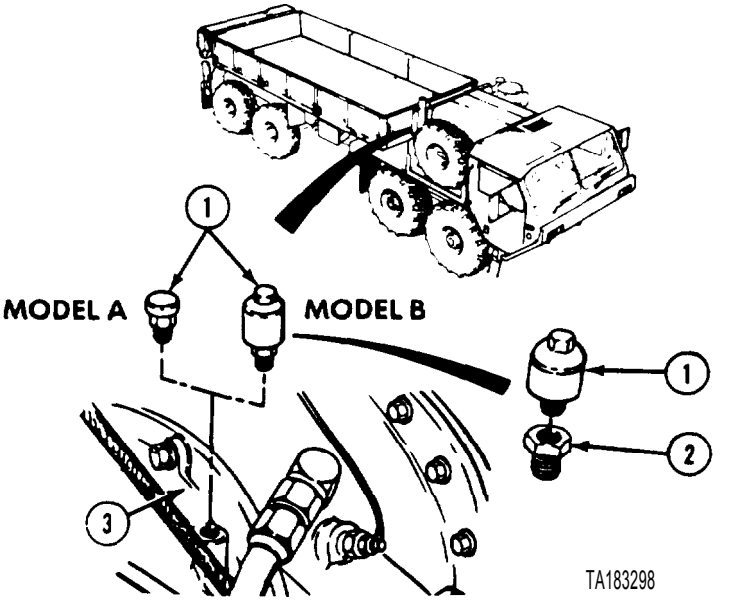
Breather Model A or B may be used on vehicle. Do step (2) for Model B only.

(1) Remove transmission breather (1).
(2) Remove reducer (2) from breather (1).

b. Installation.

WARNING

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



NOTE

Breather Model A or B may be used on vehicle. Do step (1) for Model B. Do step (2) for Model A.

(1) Apply pipe thread sealing compound to threads and install reducer (2) in breather (1).
(2) Apply pipe thread sealing compound to threads and install breather (1) in transmission (3).

c. Follow-on Maintenance. None.

END OF TASK

8-6. TRANSMISSION LOCKUP SOLENOID AND OIL SAMPLING VALVE REMOVAL/INSTALLATION

This task covers:

a. Removal
b. installation
c. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Connector, electrical, butt, Item 19, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Front cargo panel removed (M977, M985 only).

Special Environmental Conditions
None

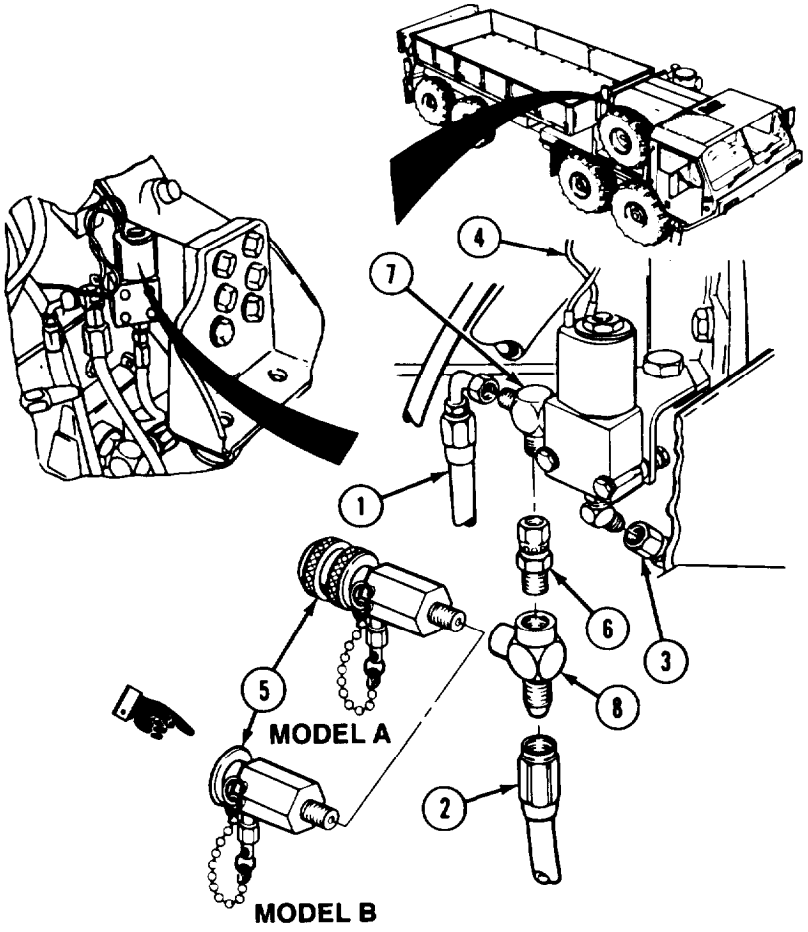
General Safety Instructions
None

NOTE
There are two kinds of oil sampling valves. Both are removed and installed the same way.

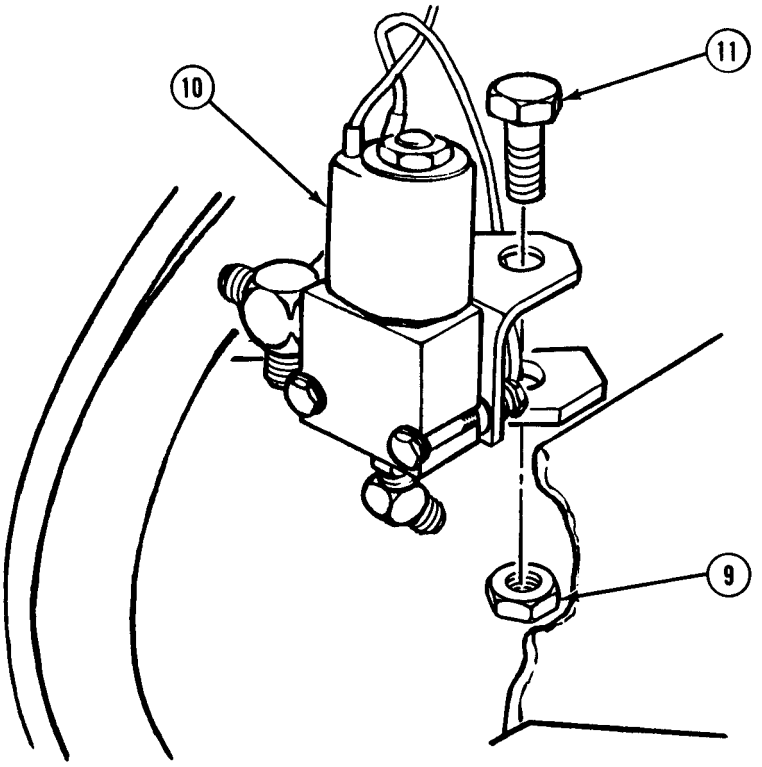
a. Removal.

NOTE
Tag and mark hoses before disconnecting.

(1) Disconnect three hoses (1, 2, and 3).
(2) Cut wire (4).
(3) Remove valve (5) and adapter (6) from tee fitting (7).
(4) Remove tee (8) from adapter (6).

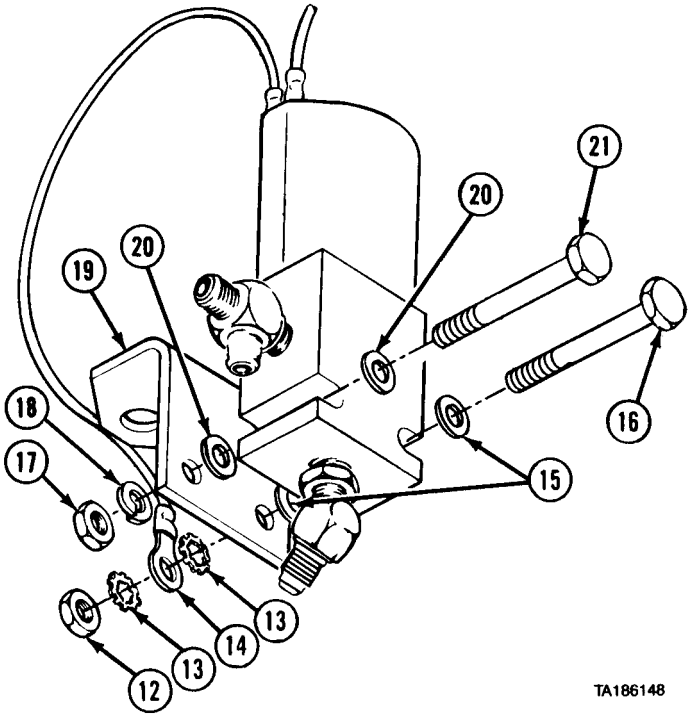


(5) Remove nut (9), solenoid assembly (10), and screw (11).



TA185510

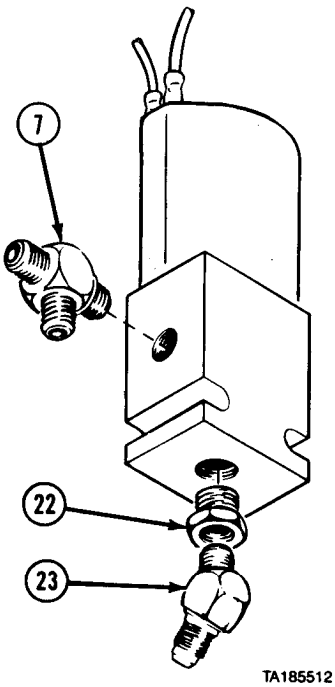
(6) Remove nut (12), two lockwashers (13), ground wire (14), two washers (15), and screw (16).
(7) Remove nut (17), lockwasher (18), bracket (19), two washers (20), and screw (21).



TA186148

8-6. TRANSMISSION LOCKUP SOLENOID AND OIL SAMPLING VALVE REMOVAL/INSTALLATION (CONT).

(8) Remove tee fitting (7).
(9) Remove reducer bushing (22) and elbow (23).
(10) Remove elbow (23) from reducer bushing (22).



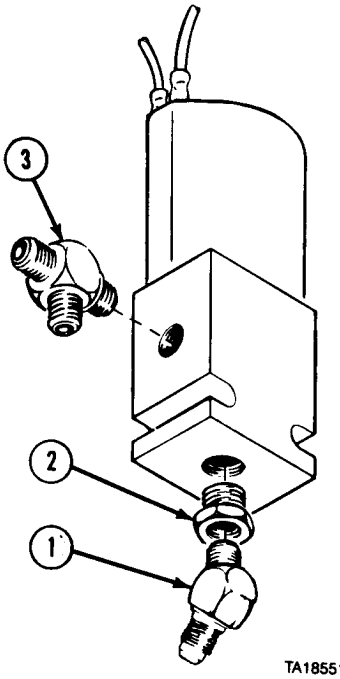
TA185512

b. Installation.

WARNING

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

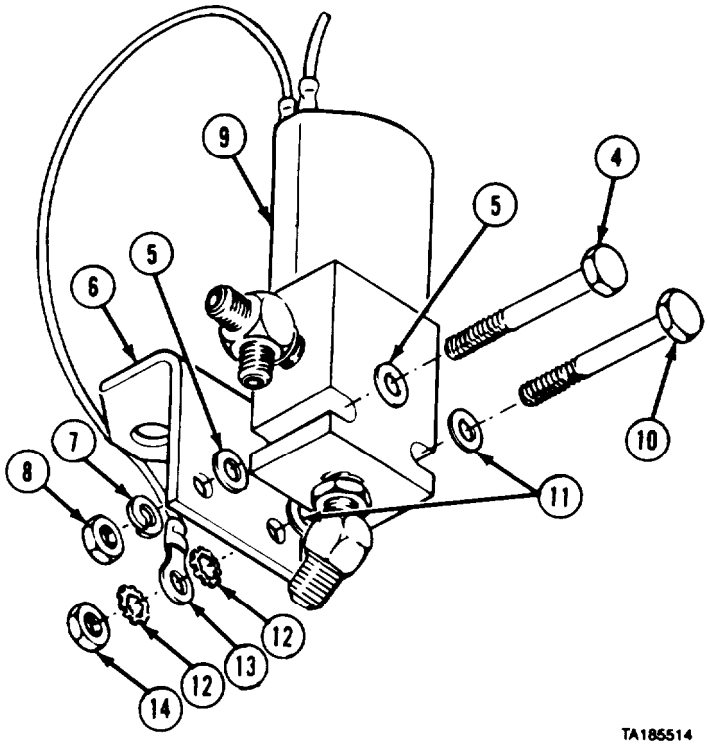
(1) Apply pipe thread sealing compound to elbow (1). Install elbow on reducer bushing (2).
(2) Apply pipe thread sealing compound to threads of reducer bushing (2). Install reducer bushing.
(3) Apply pipe thread sealing compound to tee fitting (3). Install tee fitting.



TA185513

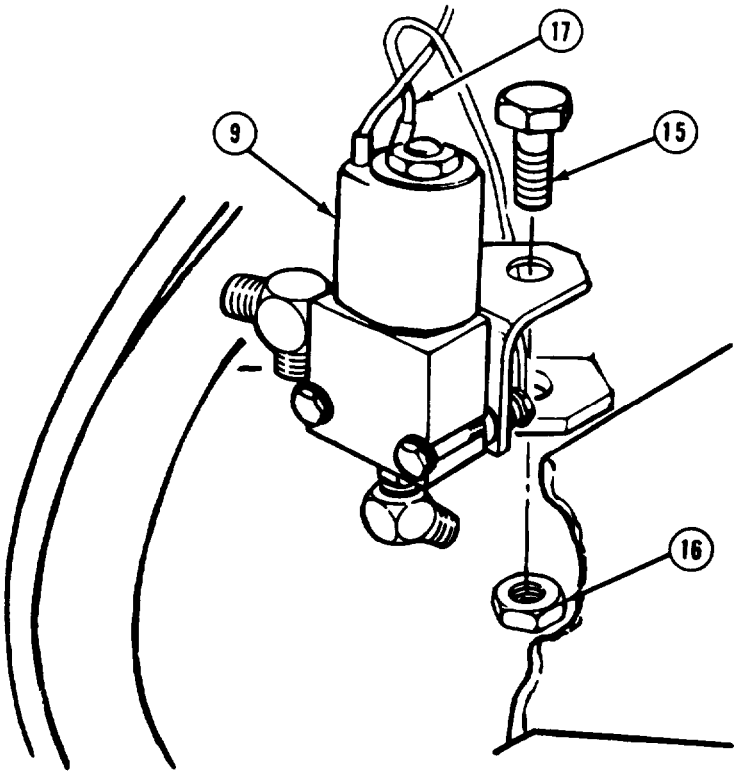
Transmission Maintenance Instructions (Cont)

(4) Install screw (4), two washers (5), bracket (6), lockwasher (7), and nut (8) on solenoid assembly (9).
(5) Install screw (10), two washers (11), two lockwashers (12), ground wire (13), and nut (14).



TA185514

(6) Install solenoid assembly (9) with screw (15) and nut (16).
(7) Attach wire (17) with electrical butt connector.



TA185515

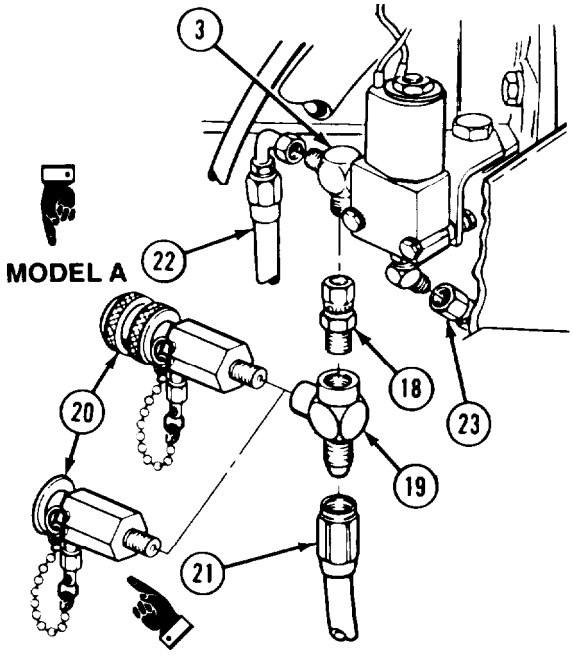
8-6. TRANSMISSION LOCKUP SOLENOID AND OIL SAMPLING VALVE REMOVAL INSTALLATION (CONT).

(8) Install adapter (18) and tee (19) to tee (3).
(9) Apply pipe thread sealing compound to threads of valve (20) and install in tee (19).
(10) Connect three hoses (21, 22, and 23).

c. Follow-on Maintenance.

(1) Start engine and check for leaks (TM 9-2320-279-10).
(2) Shut off engine (TM 9-2320-279-10).
(3) Install front cargo panel (TM 9-2320-279-10) (M977, M985).

END OF TASK



MODEL B

Section IV. FILTER

8-7. TRANSMISSION OIL FILTER BRACKET AND FILTER ELEMENT REMOVAL/ INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, Item 33, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

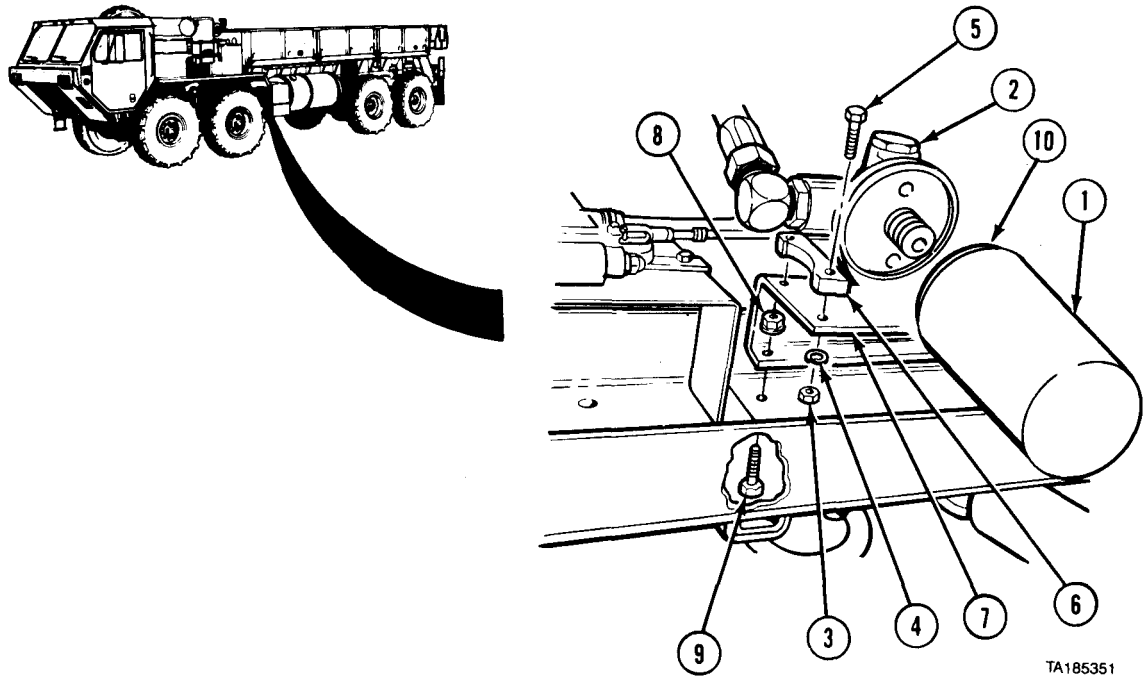
Equipment Condition

TM or *Para*	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
Transmission cooled.

a. Removal.



NOTE

Place drain pan under transmission oil filter.

(1) Remove oil filter (1) from filter assembly (2).
(2) Remove four nuts (3), lockwashers (4), screws (5), and plate (6) from bracket (7).
(3) Remove two nuts (8), screws (9), and bracket (7).

b. Installation.

(1) Install bracket (7) with two screws (9) and nuts (8).
(2) Install plate (6), four screws (5), lockwashers (4), and nuts (3).
(3) Put light coating of oil on seal (10).
(4) Install oil filter (1) in filter assembly (2). Tighten oil filter 2/3 turn after contacting gasket.

c. Follow-on Maintenance.

(1) Fill transmission to proper oil level (LO 9-2320-279-12).
(2) Start engine and check filter for leaks (TM 9-2320-279-10).
(3) Shut off engine (TM 9-2320-279-10).

END OF TASK

CHAPTER 9
TRANSFER CASE AND PROPELLER SHAFT MAINTENANCE

Contents

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Two-Speed Shift Cable and Brackets Removal/Installation	9-4	9-5
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HI-LO Range Transfer Case Lock-up Valve Removal/Installation/Adjustment	9-6	9-16
Traction Control Valve Removal/Installation	9-7	9-19
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Propeller Shaft Removal/Installation	9-9	9-24
Universal Joint and Dust Cap Removal/Installation	9-10	9-26

Section I. INTRODUCTION

9-1. GENERAL. This chapter contains maintenance instructions for removing, replacing, installing, and adjusting the transfer case and propeller shaft components authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. TRANSFER CASE

Transfer Case and Propeller Shaft Maintenance Instructions

9-2. BREATHER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18.1, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or *Para*	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

WEATHER REMOVAL/INSTALLATION (CONT).

NOTE

There are two type of transfer cases. Model A has the breather located in the rear, while Model B has the breather located in the front.

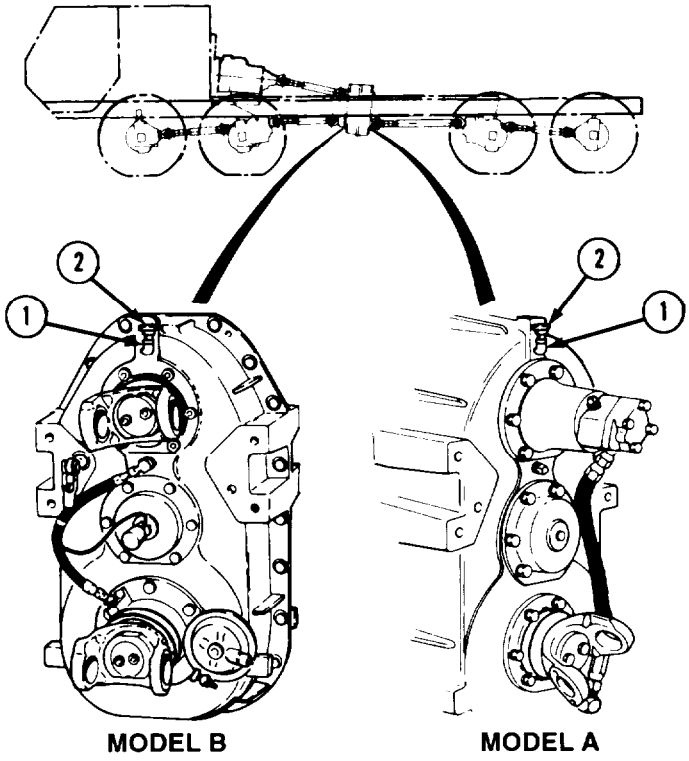
a. ***Removal.*** Loosen nut (1). Remove transfer case breather (2).

WARNING

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

b. Installation. Coat threads with pipe thread sealing compound and install transfer case breather (2) by tightening nut (1).

C. ***Follow-on Maintenance.*** None.



END OF TASK

9-3. TRANSFER CASE SHIFT LEVER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

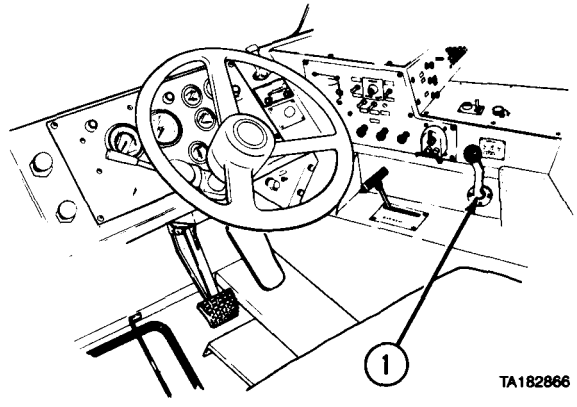
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

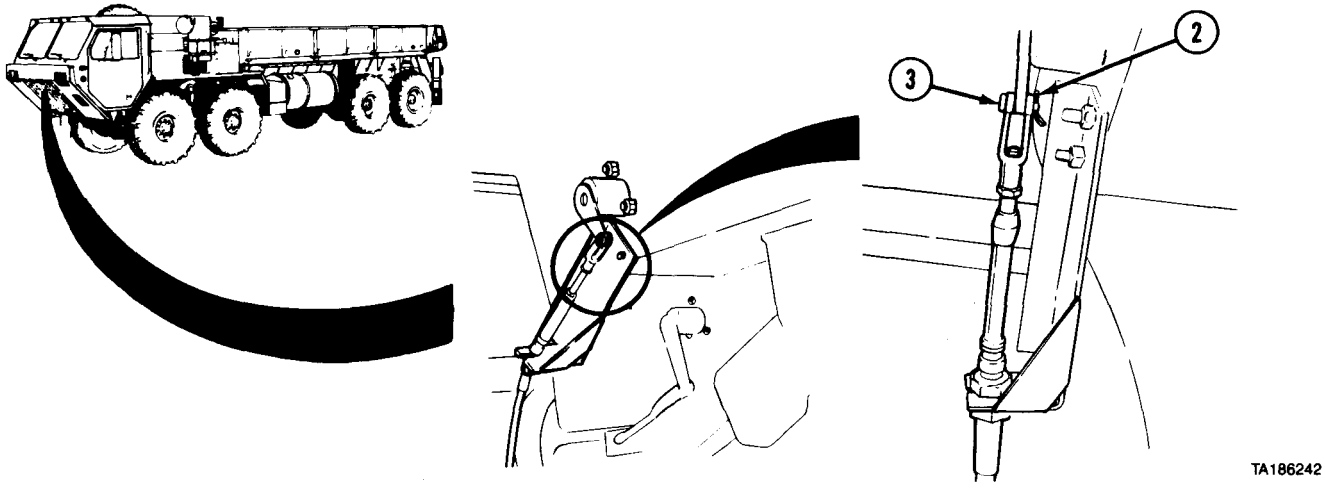
Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

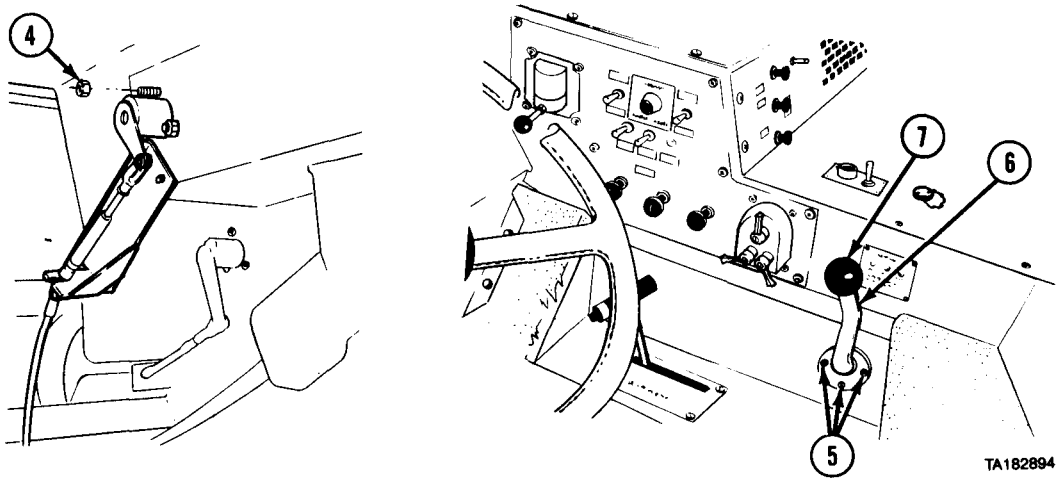
(1) Place TRANSFER CASE shift lever (1) in neutral (N) position.





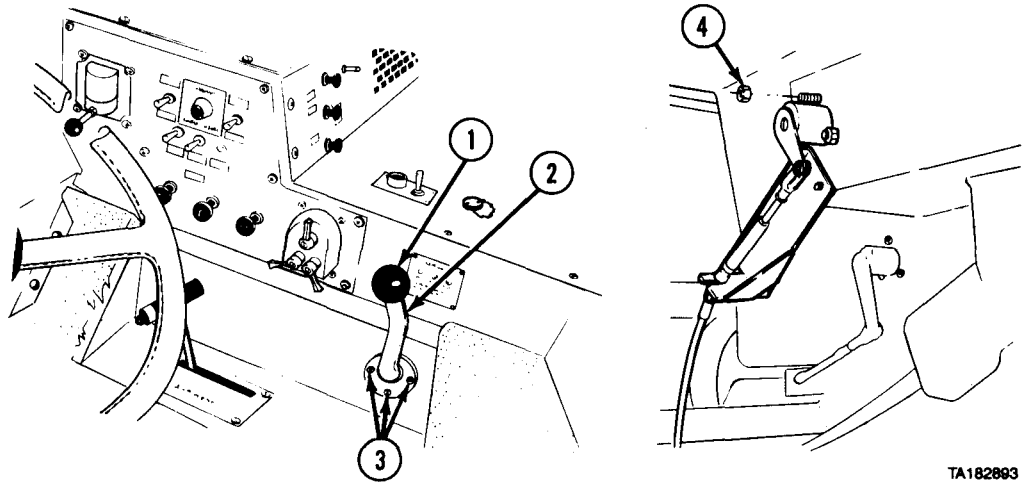
(2) Remove cotter pin (2) and clevis pin (3).

9-3. TRANSFER CASE SHIFT LEVER REMOVAL/INSTALLATION (CONT).



(3) Soldier A holds three nuts (4) while Soldier B removes three mounting screws (5) from inside cab.
(4) Remove shift lever assembly (6) from cab panel.
(5) Unscrew knob (7) from shift lever assembly (6).

b. Installation.



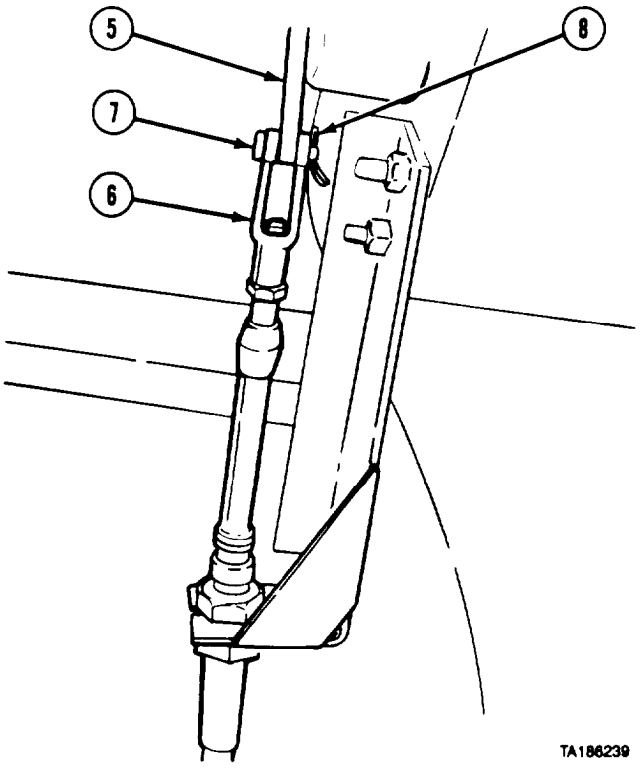
(1) Install knob (1) on shift lever assembly (2).
(2) Install shift lever assembly (2) in cab panel.
(3) Soldier A installs three screws (3) while Soldier B installs three nuts (4).

Transfer Case and Propeller Shaft Maintenance Instructions (Cont)

(4) Install shift lever arm (5) in clevis (6).
(5) Install clevis pin (7) and cotter pin (8).

c. Follow-on Maintenance. Adjust transfer case shift cable (para 9-5).

END OF TASK



9-4. TWO-SPEED SHIFT CABLE AND BRACKETS. REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

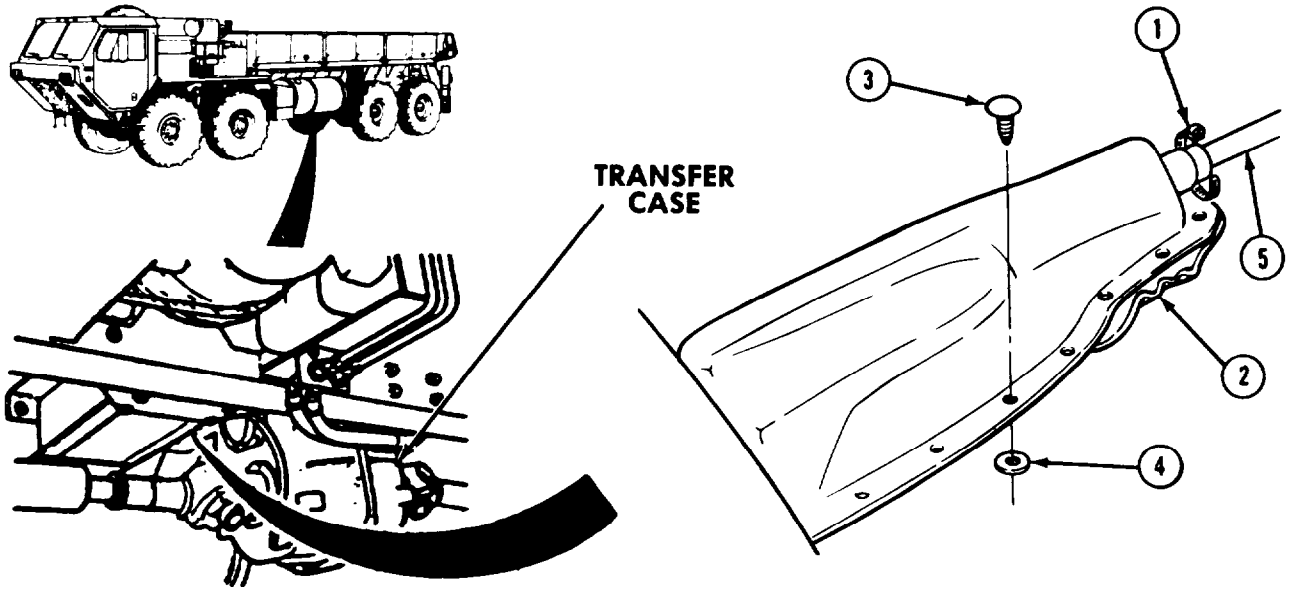
TM or *Para*	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	TRANSFER CASE shift lever set to N.

Special Environmental Conditions
None

General Safety Instructions
None

9-4. TWO-SPEED SHIFT CABLE AND BRACKETS REMOVAL/INSTALLATION (CONT).

a. Removal.



NOTE

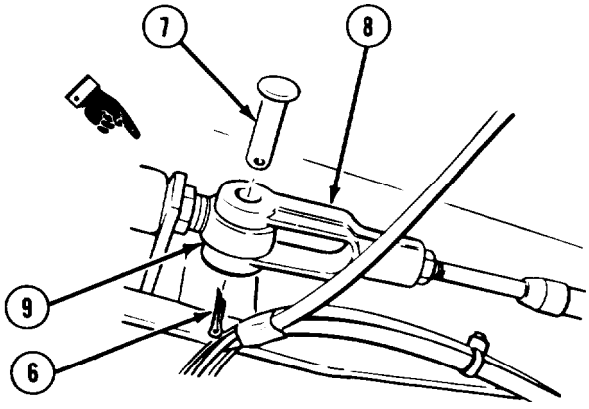
Boot is black plastic cover located on top right side of transfer case.

(1) Remove clamp (1) from boot (2).
(2) Remove seven ratchet fasteners (3) and washers (4).
(3) Remove boot (2) from shift cable (5).

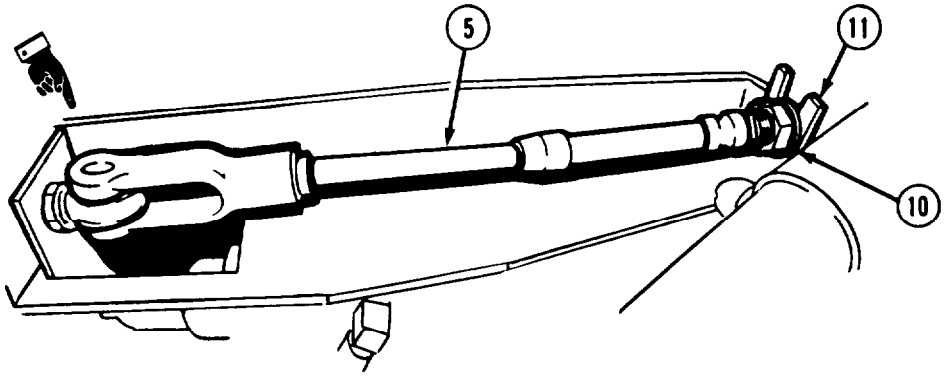
NOTE

Remove plastic ties as needed to remove shift cable.

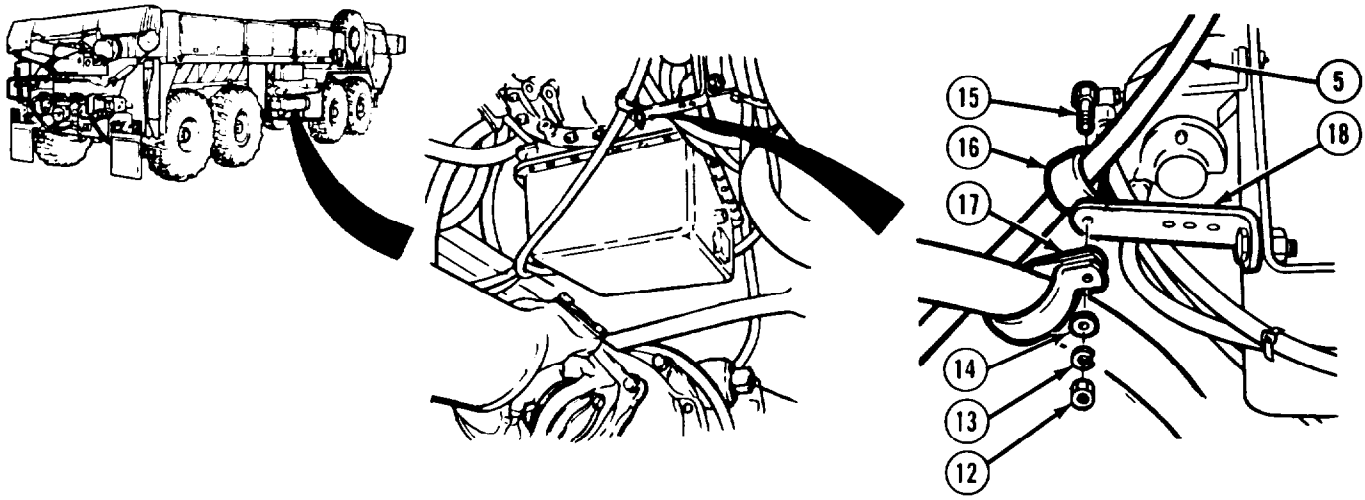
(4) Remove cotter pin (6) and clevis pin (7).
(5) Remove clevis (8) from shift rod end (9).



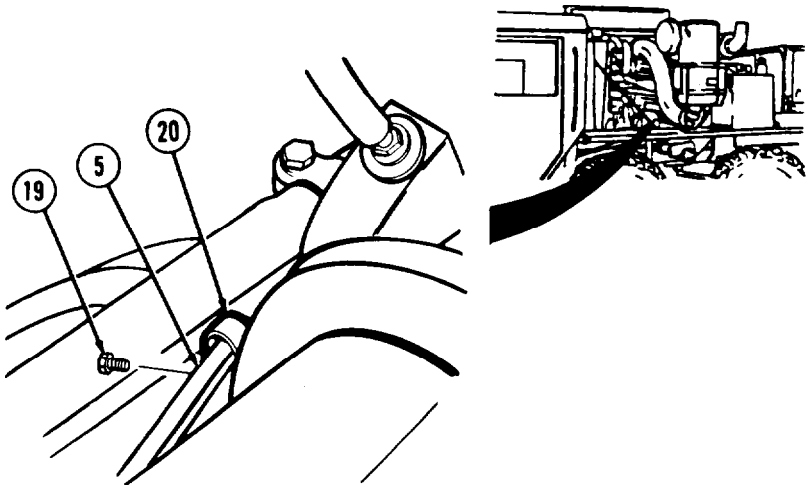
Transfer Case and Propeller Shaft Maintenance Instructions (Cont)



(6) Loosen nut (10).
(7) Remove shift cable (5) from shift cable bracket (11).

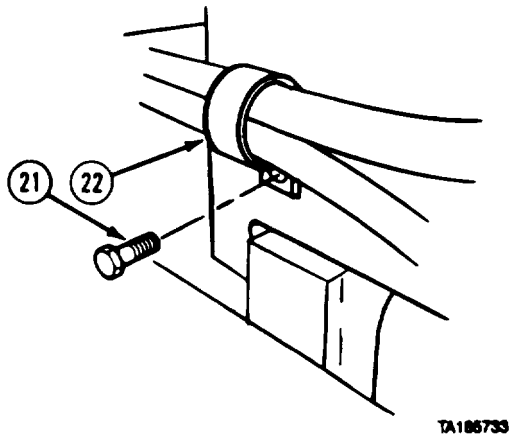


(8) Remove nut (12), lockwasher (13), washer (14), and screw (15) to loosen clamps (16 and 17) from bracket (18).
(9) Take shift cable (5) out of clamp (16).
(10) Remove screw (19).
(11) Pull shift cable (5) out of clamp (20).

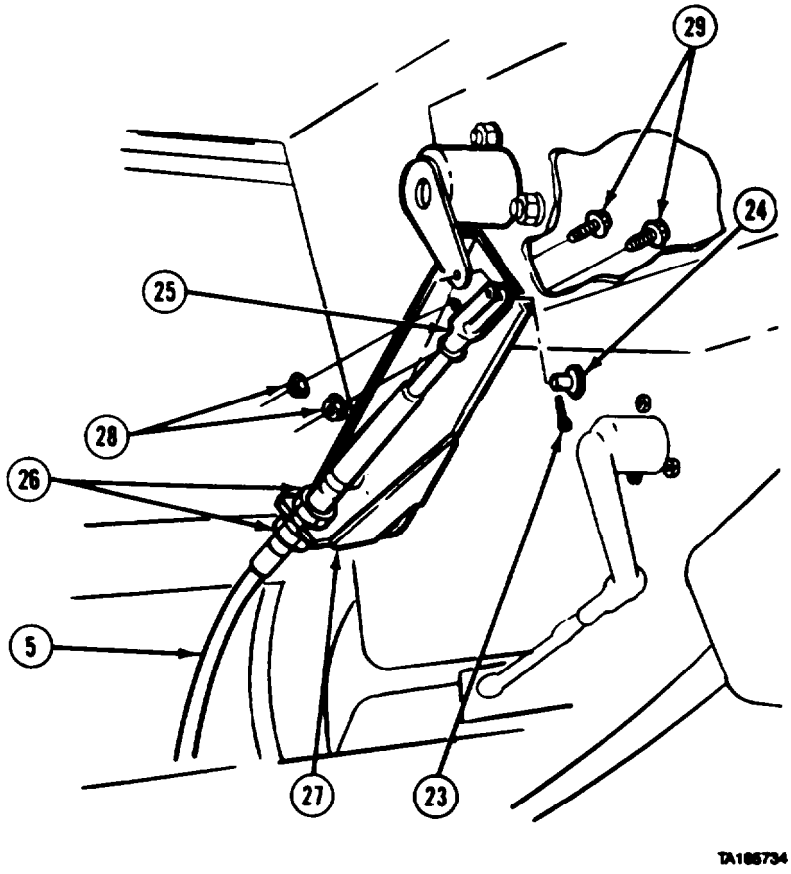


9-4. TWO-SPEED SHIFT CABLE AND BRACKETS REMOVAL/INSTALLATION (CONT).

(12) Remove screw (21) and clamp (22).

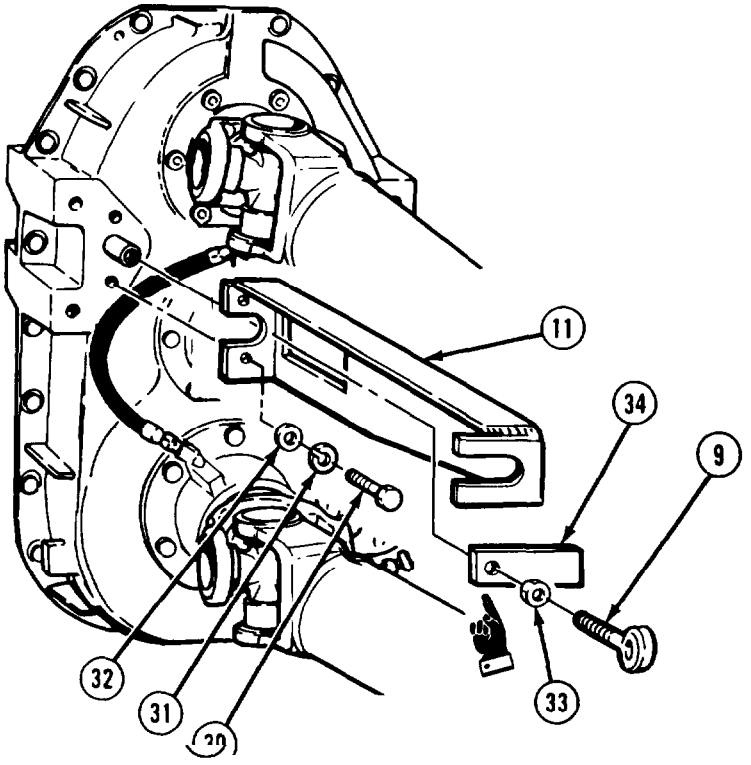


(13) Remove cotter pin (23) and pin (24) from clevis (25).
(14) Loosen two nuts (26) and remove shift cable (5) from bracket (27).
(15) Soldier A removes two locknuts (28) and bracket (27) while Soldier B removes two screws (29).



(16) Remove two screws (30), lockwashers (31), washers (32), and shift cable bracket (11).

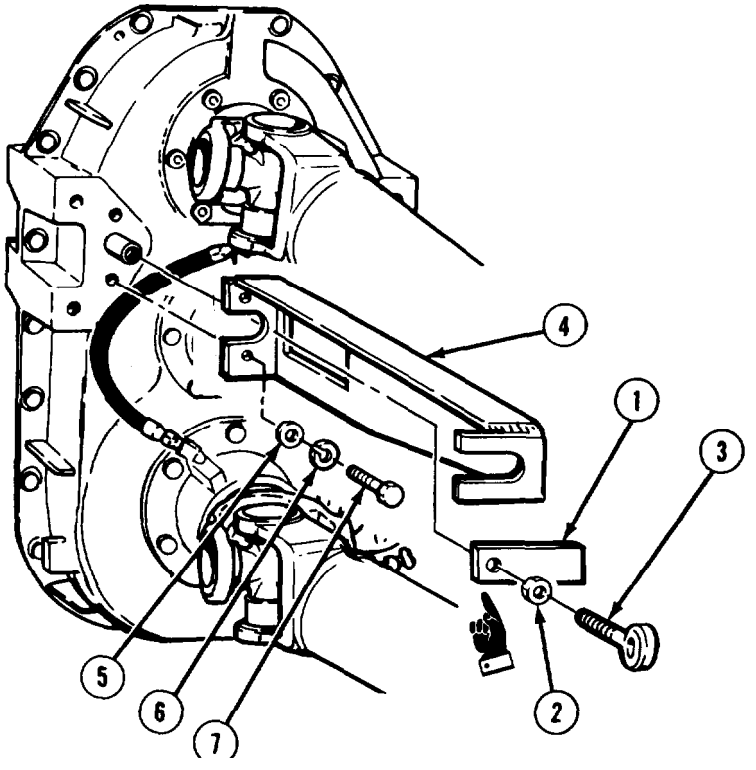
(17) Loosen nut (33) and remove shift rod end (9) and push valve actuator (34).



b. Installation

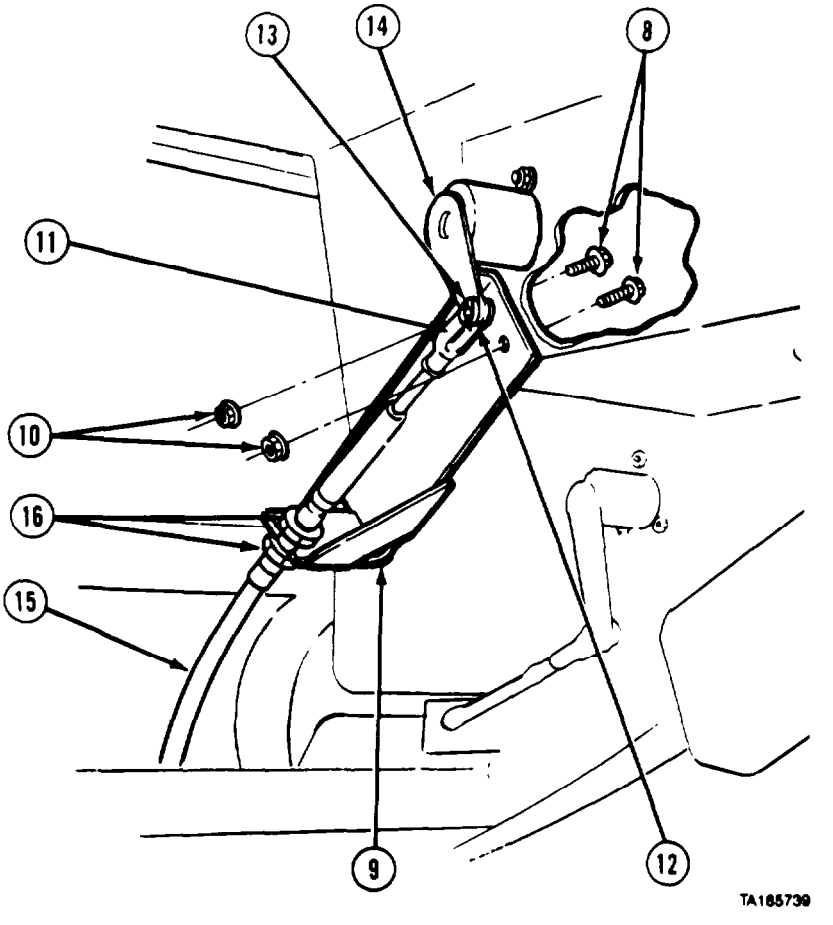
(1) Install push valve actuator (1), nut (2), and shift rod end (3).

(2) Install shift cable bracket (4), two washers (5), lockwashers (6), and screws (7).

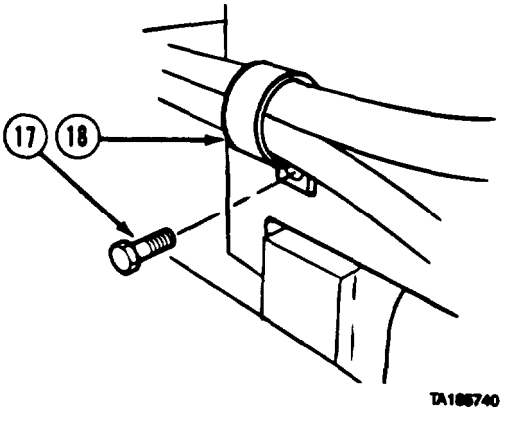


9-4. TWO-SPEED SHIFT CABLE AND BRACKETS REMOVAL/INSTALLATION (CONT).

(3) Soldier A installs two screws (8) while Soldier B installs bracket (9) and two locknuts (10).
(4) Install clevis (11), pin (12), and cotter pin (13) on shift lever arm (14).
(5) Seat shift cable (15) in bracket (9) and tighten two nuts (16).



(6) Install screw (17) and clamp (18).

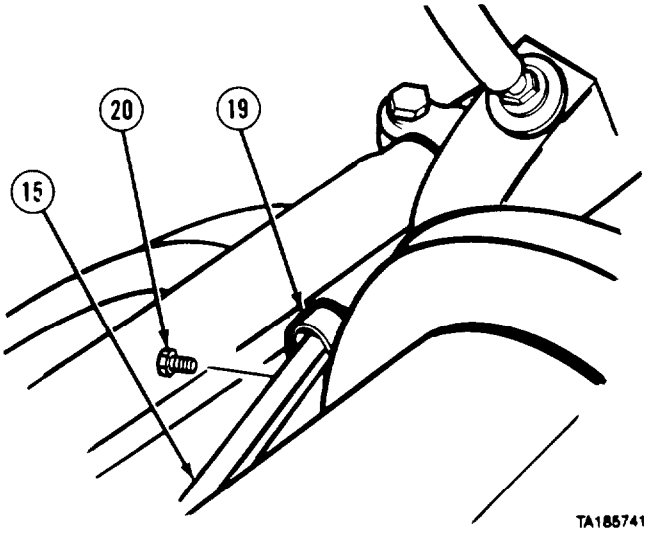


Transfer Case and Propeller Shaft Maintenance Instructions (Cont)

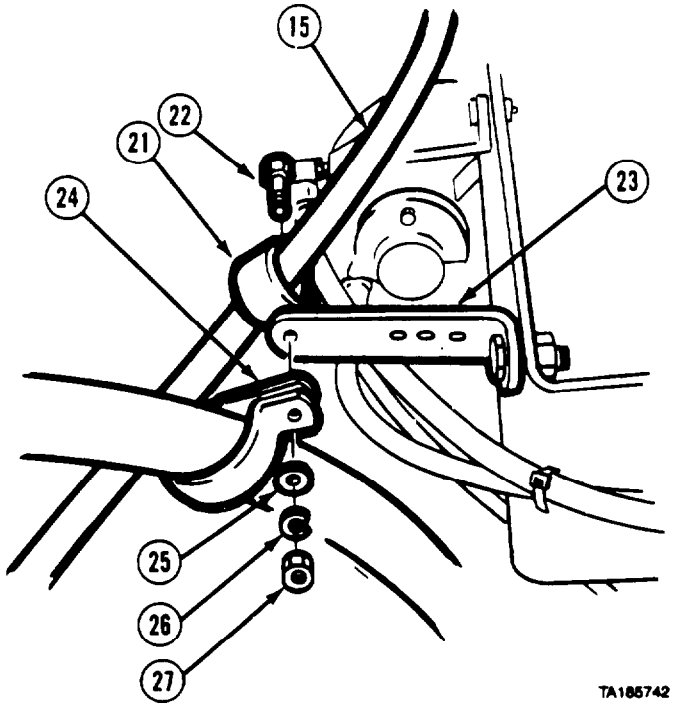
NOTE

Install plastic ties as needed to secure shift cable to frame.

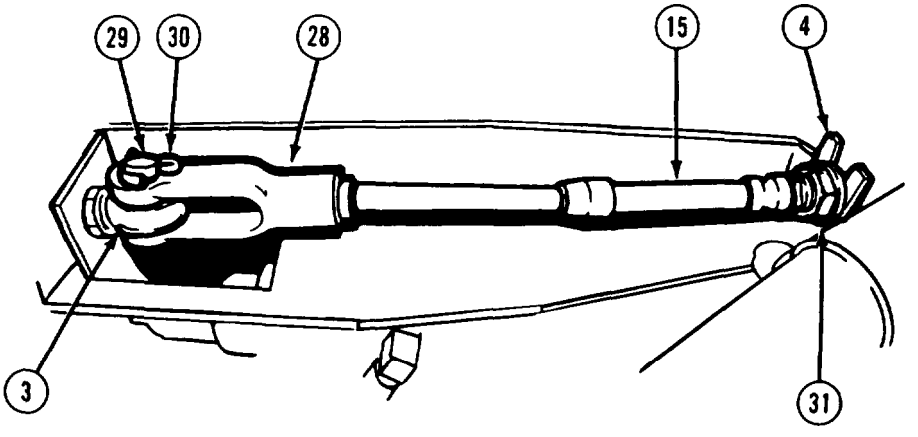
(7) Route shift cable (15) through clamp (19).
(8) Install screw (20).



(9) Install clamp (21) around shift cable (15).
(10) Install screw (22) through clamp (21), bracket (23), and clamp (24).
(11) Install washer (25), lockwasher (26), and nut (27).



9-4. TWO-SPEED SHIFT CABLE AND BRACKETS REMOVAL/INSTALLATION (CONT).

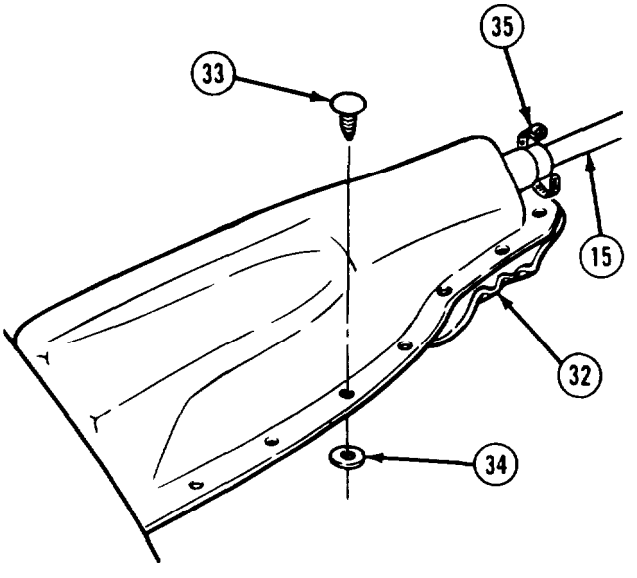


(12) Install clevis (28) on shift rod end (3) and install clevis pin (29) and cotter pin (30).
(13) Install shift cable (15) in shift cable bracket (4) and tighten nut (31).

NOTE

- Do steps (14) through (16) only if two-speed shift linkage is not to be adjusted.
- Boot is black plastic cover located on top right side of transfer case.

(14) Position boot (32) on shift cable (15).
(15) Install seven ratchet fasteners (33) and washers (34).
(16) Install clamp (35) on boot (32).



c. Follow-on Maintenance. Adjust two-speed shift linkage (para 9-5).

END OF TASK

9-5. TWO-SPEED SHIFT LINKAGE ADJUSTMENT.

This task covers:

a. Boot Removal
b. Adjustment
c. Boot Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

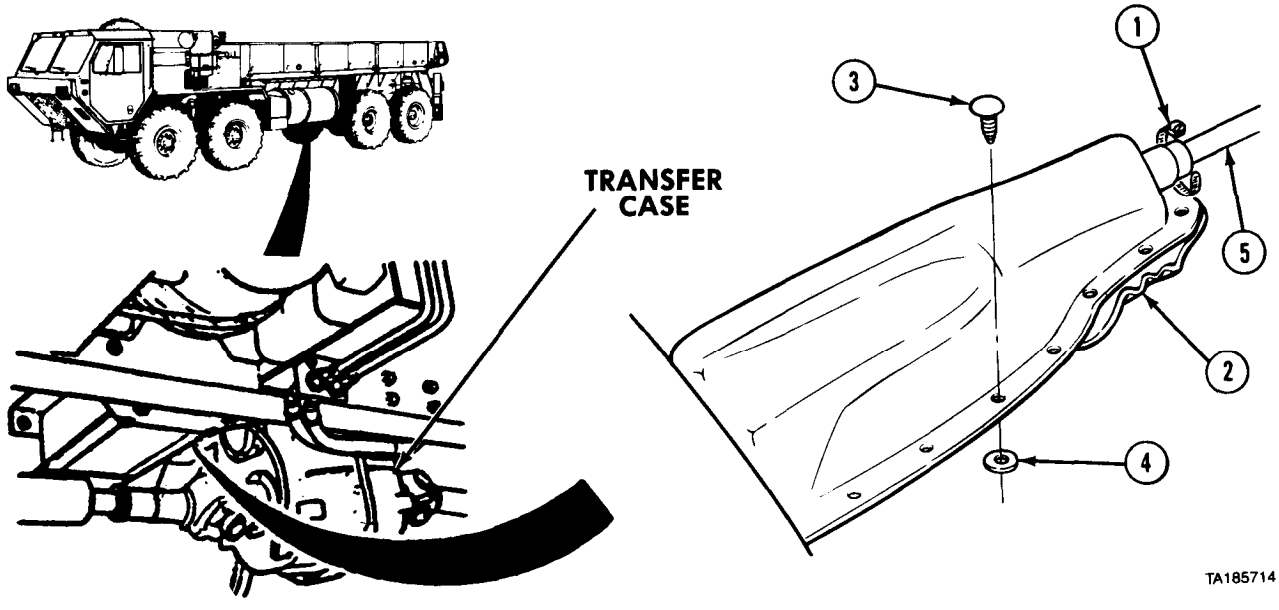
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	TRANSFER CASE shift lever set to N.

Special Environmental Conditions
None

General Safety Instructions
None

a. Boot Removal.



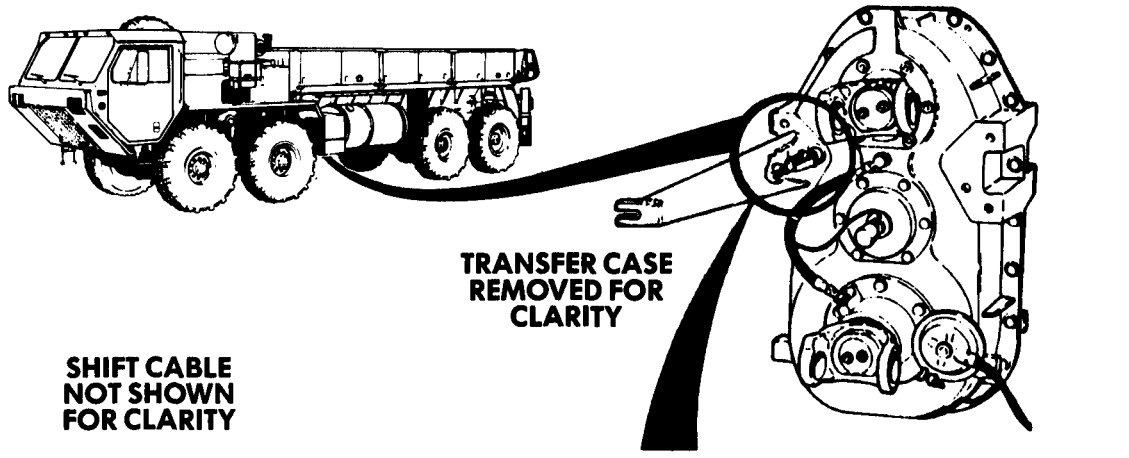
NOTE

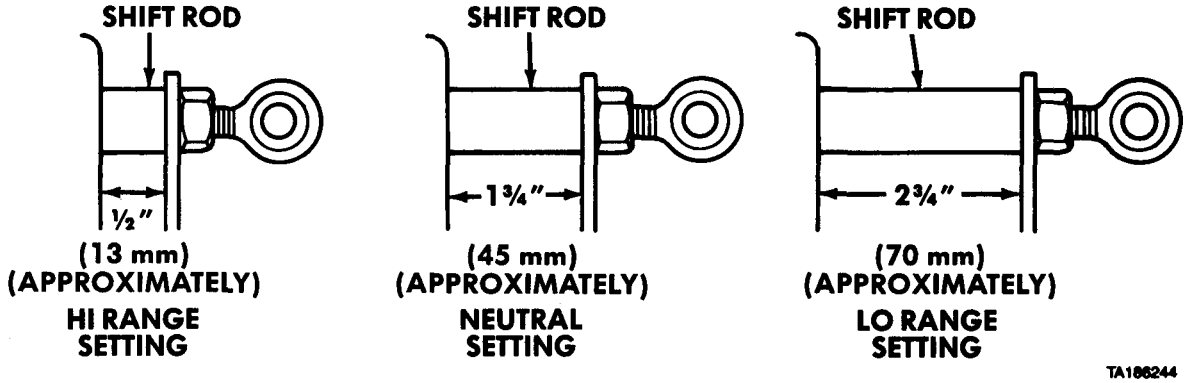
Boot is black plastic cover located on top right side of transfer case.

(1) Remove clamp (1) from boot (2).
(2) Remove seven ratchet fasteners (3) and washers (4).
(3) Remove boot (2) from shift cable (5).

9-5. TWO-SPEED SHIFT LINKAGE ADJUSTMENT (CONT).

b. Adjustment.





NOTE

There are three positive settings (detents) on shift rod: (1) all the way in - HI, (2) middle - N, (3) all the way out - LO. Make sure shift rod is in neutral (N) detent.

(1) Loosen jamnut (1).
(2) Remove cotter pin (2) and clevis pin (3).
(3) Remove clevis (4) from shift rod end (5).

NOTE

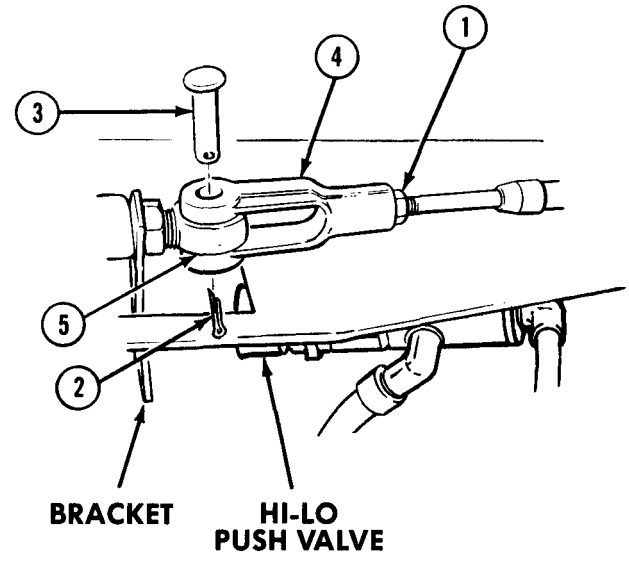
Make sure TRANSFER CASE shift lever in cab is still set to N.

(4) Screw clevis (4) in or out to aline hole in clevis and hole in shift rod end (5).
(5) Install clevis pin (3) and cotter pin (2).

NOTE

Make sure TRANSFER CASE shift lever does not hit doghouse in cab when shifting to LO range. It it hits, readjust linkage.

(6) Shift TRANSFER CASE to LO range.
(7) Tighten jamnut (1).
(8) Shift TRANSFER CASE to neutral (N).



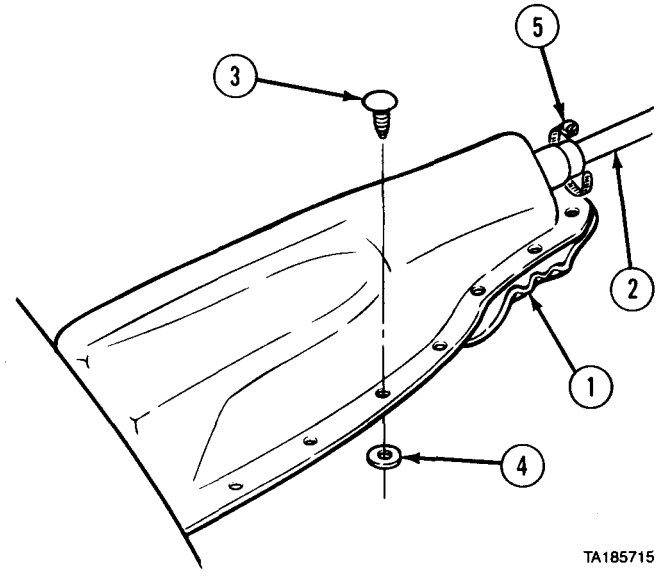
TA182902

c. Boot Installation.

NOTE

- Do steps *(1)* through *(3)* only if transfer case lock-up valve is not to be adjusted.
- Boot is black plastic cover located on top right side of transfer case.

(1) Position boot (1) on shift cable (2).
(2) Install seven ratchet fasteners (3) and washers (4).
(3) Install clamp (5) on boot (1).



TA185715

d. Follow-on Maintenance. Adjust transfer case lock-up valve (para 9-6).

END OF TASK

9-6. HI-LO RANGE TRANSFER CASE LOCK-UP VALVE REMOVAL/INSTALLATION/ADJUSTMENT.

This task covers:

a. Removal
b. Installation
c. Adjustment
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

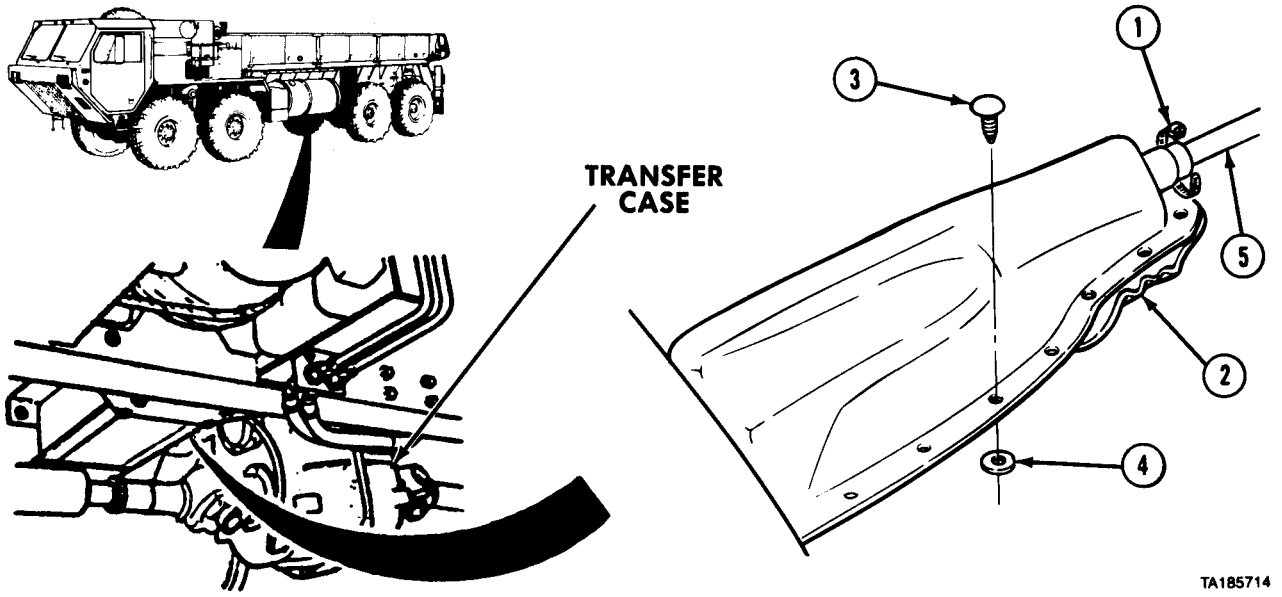
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	TRANSFER CASE in HI range.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



NOTE

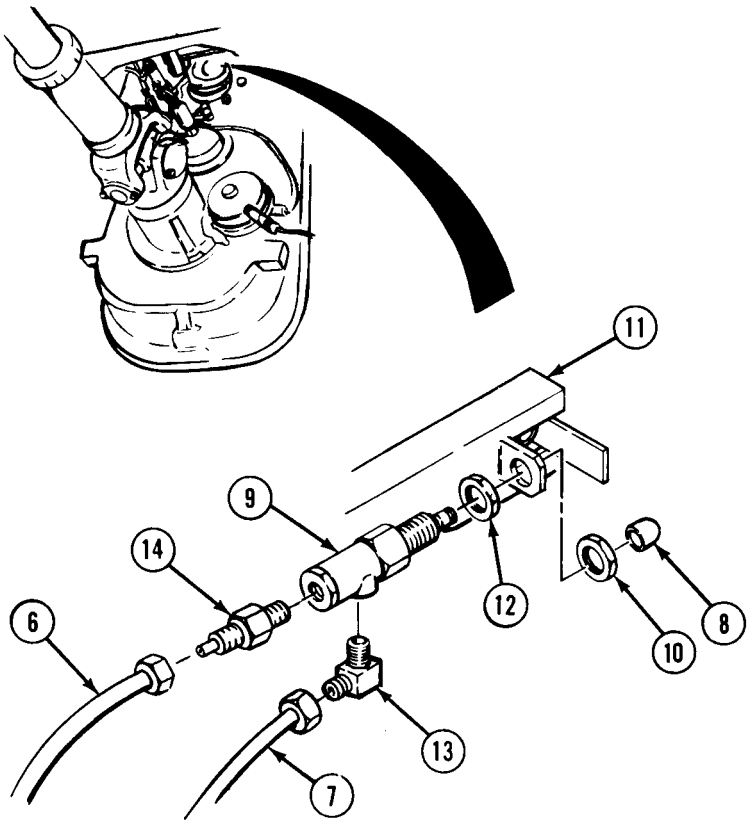
Boot is black plastic cover located on top right side of transfer case.

(1) Remove clamp (1) from boot (2).
(2) Remove seven ratchet fasteners (3) and washers (4).
(3) Remove boot (2) from shift cable (5).

NOTE

Tag and mark air lines, valves, fittings, and connectors before disconnecting or removing.

(4) Disconnect air lines (6 and 7).
(5) Remove rubber boot (8) from push valve (9).
(6) Remove locknut (10) and push valve (9) from bracket (11).
(7) Note position of locknut (12) on push valve (9), and remove locknut.
(8) Note position of elbow (13) and remove from push valve (9).
(9) Remove connector (14).

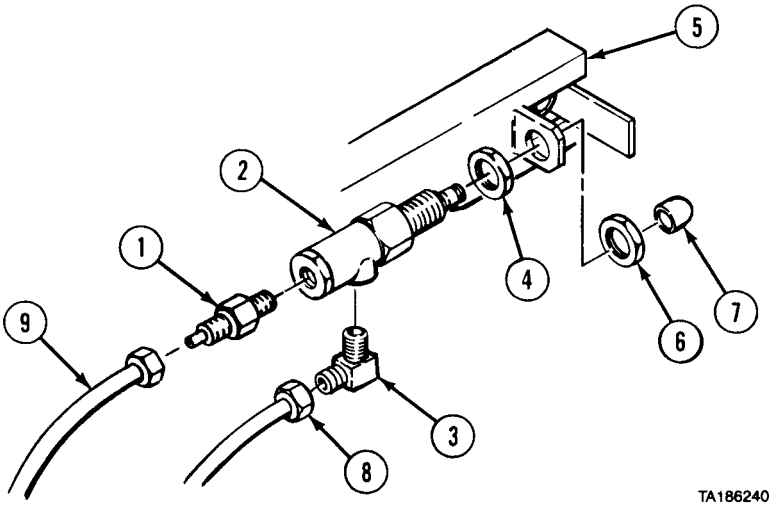


TA186243

b. Installation.

WARNING

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

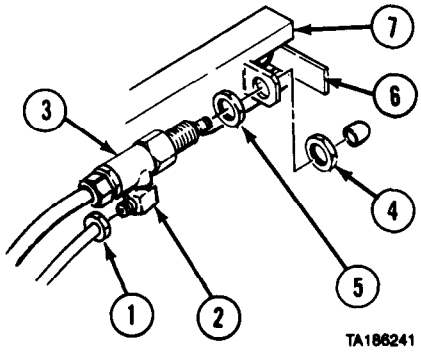


TA186240

(1) Coat threads of connector (1) with pipe thread sealing compound, and install in push valve (2).
(2) Coat threads of elbow (3) with pipe thread sealing compound, and install in push valve (2).
(3) Install locknut (4) on push valve (2).
(4) Install push valve (2) through hole in bracket (5). Hold locknut (4) and install locknut (6).
(5) Install rubber boot (7) on push valve (2).
(6) Connect air line (8) to elbow (3).
(7) Connect air line (9) to connector (1).

9-6. HI-LO RANGE TRANSFER CASE LOCK-UP VALVE REMOVAL/INSTALLATION/ADJUSTMENT (CONT).

c. *Adjustment.*



WARNING

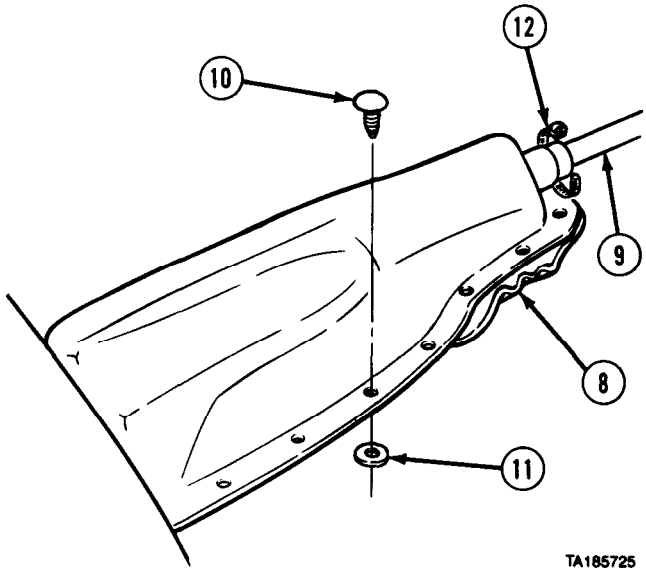
High air pressure is present in transfer case lock-up valve. Be sure to remove correct air line. Personal injury could result if wrong air line is removed.

(1) Shut off engine (TM 9-2320-279-10). Disconnect air line (1) from elbow (2).
(2) Place TRACTION CONTROL switch in INTER-AXLE DIFF. LOCK position.
(3) Place TRANSFER CASE lever in LO.
(4) If air pressure is present at elbow (2), adjustment of transfer case lock-up valve (3) is correct.
(5) If adjustment is correct, install air line (1) on elbow (2).
(6) Start engine and build up air pressure to 110 to 120 psi (758 to 827 kPa) (TM 9-2320-279-10). Check for air leaks at transfer case lock-up valve (3).
(7) If air pressure is not present at elbow (2) when air line (1) is removed, and TRANSFER CASE lever is in LO, loosen locknuts (4 and 5), and move transfer case lock-up valve (3) toward actuator lever (6) through hole in bracket (7).
(8) Tighten locknuts (5 and 4), and test again for proper operation.

NOTE

Boot is black plastic cover located on top right side of transfer case.

(9) Position boot (8) on shift cable (9).
(10) Install seven ratchet fasteners (10) and washers (11).
(11) Install clamp (12) on boot (8).



d. *Follow-on Maintenance.*

(1) Return TRANSFER CASE to HI position (TM 9-2320-279-10).
(2) Start engine and build up air pressure (TM 9-2320-279-10).
(3) Check air lines for leaks (TM 9-2320-279-10).
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

9-7. TRACTION CONTROL VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

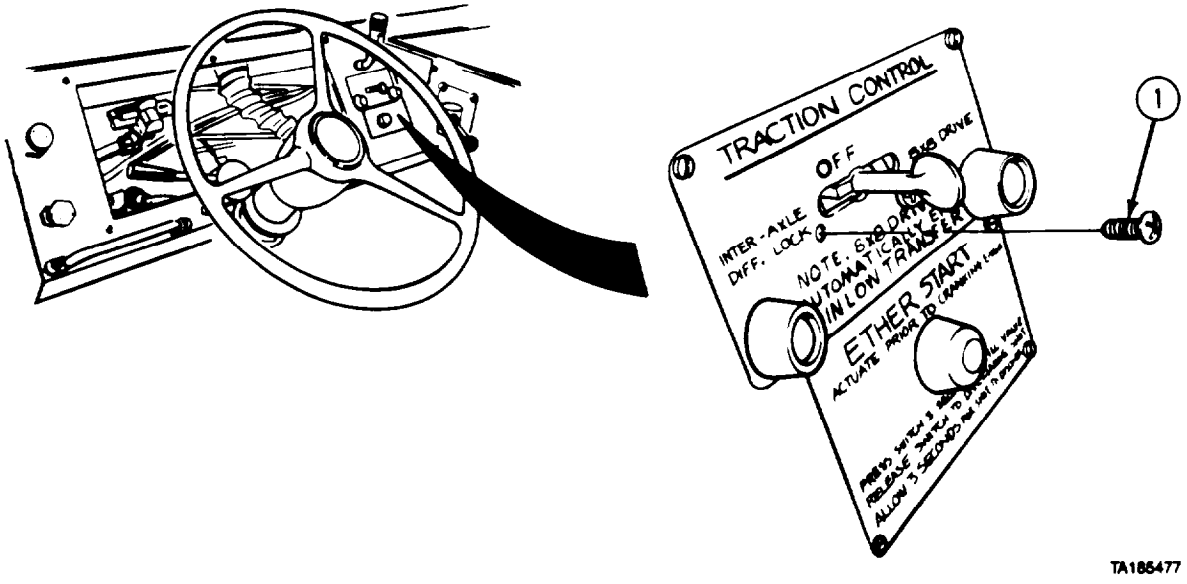
Equipment Condition

TM or *Para*	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 7-91	Batteries disconnected.
TM 9-2320-279-10	Air system drained.
Para 7-19	Instrument panel removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal



(1) Remove two screws (1).

9-7. TRACTION CONTROL VALVE REMOVAL/INSTALLATION (CONT).

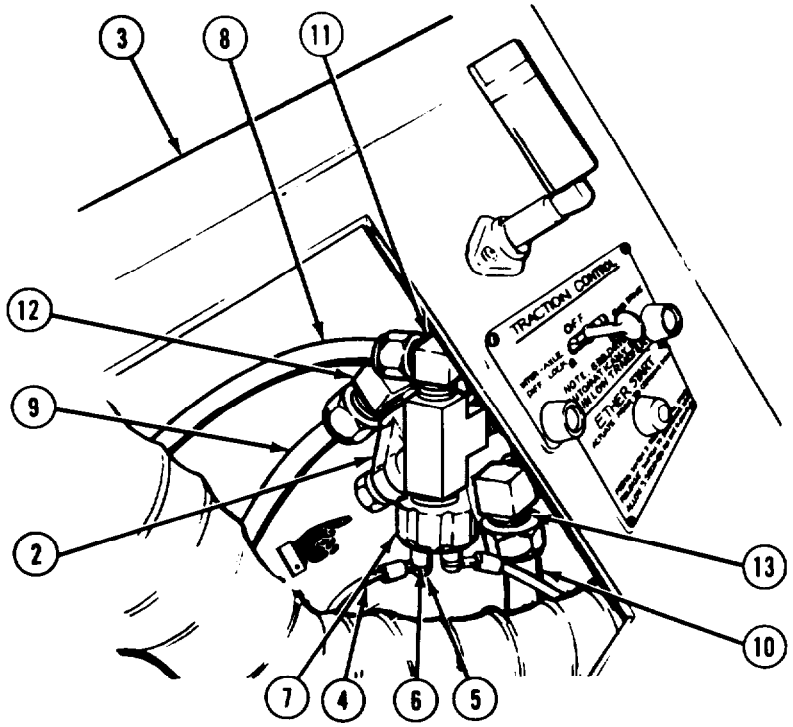
(2) Turn traction control valve (2) and remove from panel (3).

NOTE

Tag and mark wires and air lines before removal.

(3) Remove two wires (4), screws (5), and lockwashers (6) from pressure switch (7).

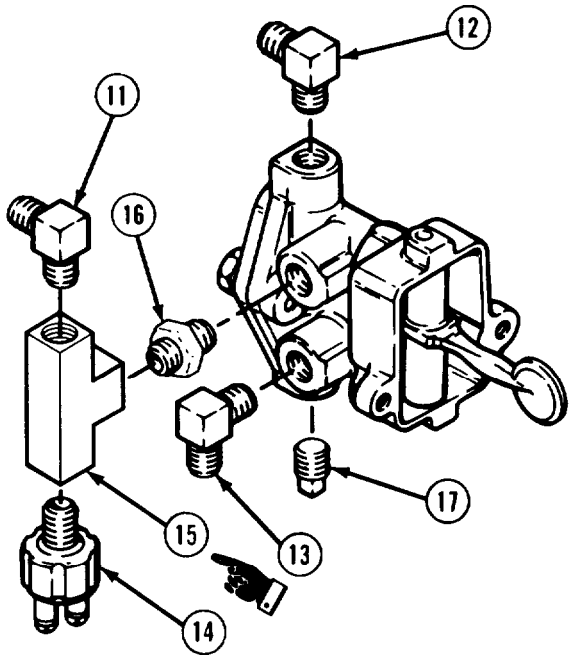
(4) Disconnect three air lines (8,9, and 10) from three elbows (11, 12, and 13).



(5) Remove three elbows (11,12, and 13).

(6) Remove pressure switch (14), tee (15), and nipple (16).

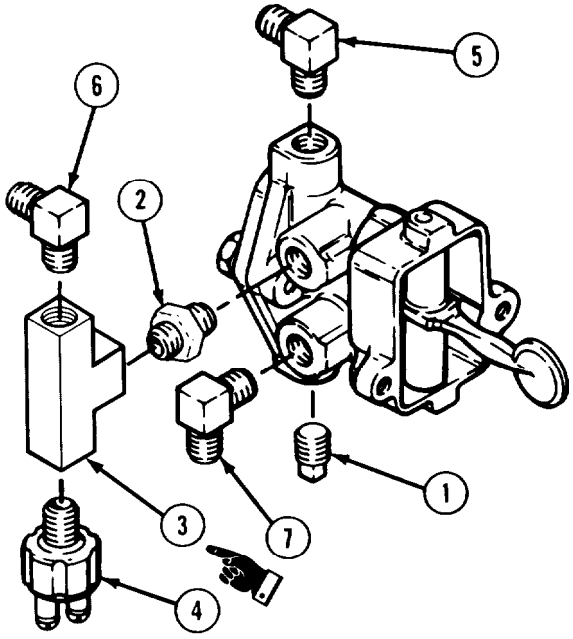
(7) Remove pipe plug (17).



b. Installation

WARNING

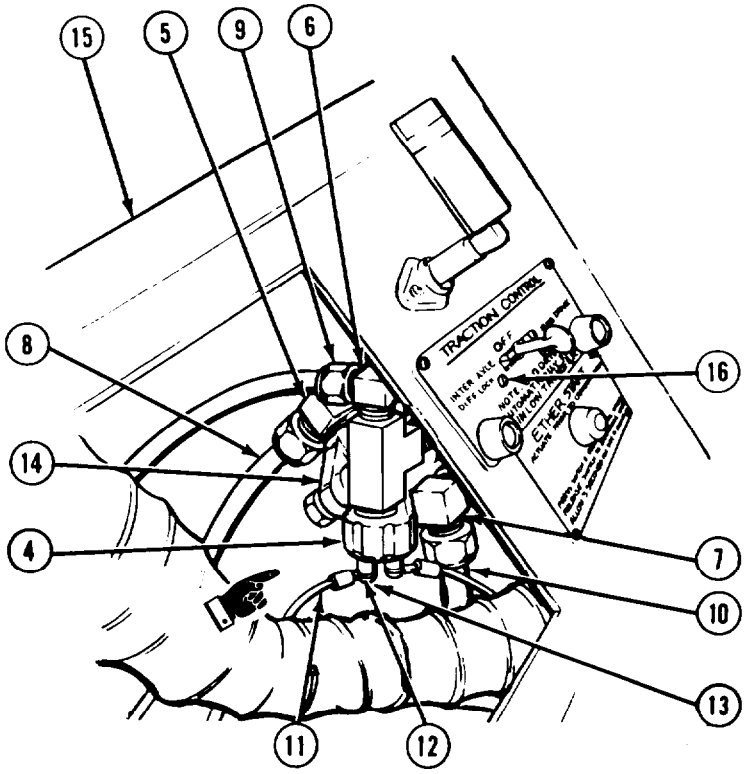
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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



NOTE

Coat all pipe threads with pipe thread sealing compound.

(1) Install pipe plug (1).
(2) Install nipple (2), tee (3), and pressure switch (4).
(3) Install three elbows (5,6, and 7).
(4) Connect three air lines (8,9, and 10) to elbows (5,6, and 7).
(5) Install two wires (11) on pressure switch (4) with lockwashers (12) and screws (13).
(6) Install traction control valve (14) in panel (15) with two screws (16).



c. Follow-on Maintenance

(1) Install instrument panel (para 7-19).
(2) Connect batteries (para 7-91).
(3) Start engine (TM 9-2320-279-10).
(4) Build up air pressure and test operation of valve (TM 9-2320-279-10).
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

9-8. LUBE LINE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18.1, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

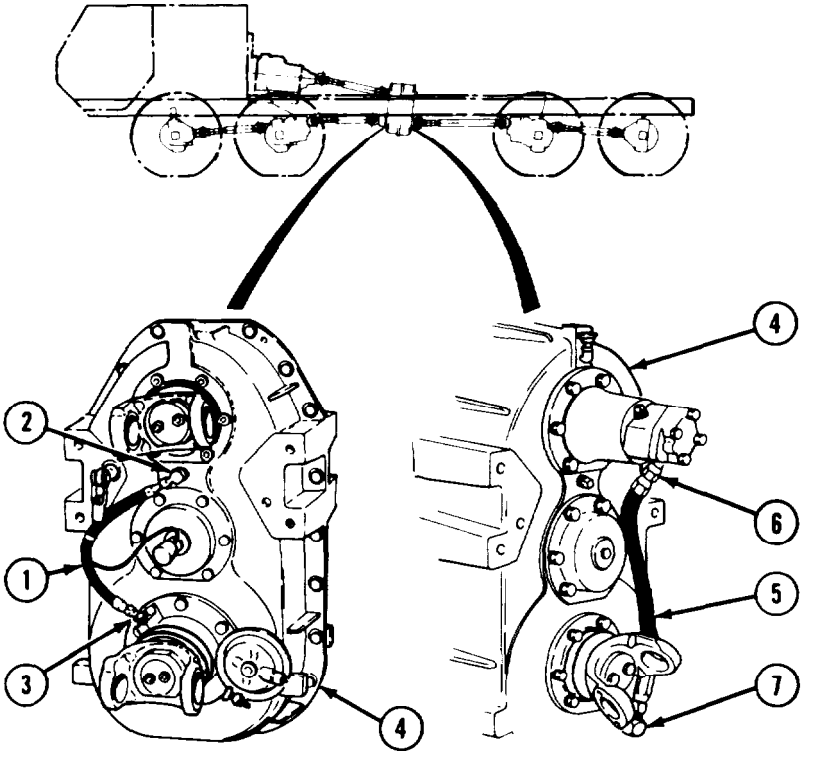
TM or *Para*	*Condition Description*
LO 9-2320-279-12	Drain transfer case. (Required for removal of rear line.)

Special Environmental Conditions
None

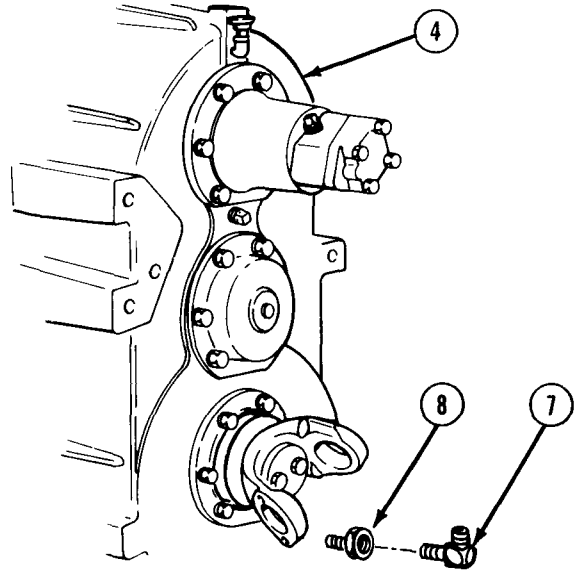
General Safety Instructions
None

a. Removal.

(1) Disconnect lube line (1) from two elbows (2 and 3) and remove two elbows from front of transfer case (4).
(2) Disconnect lube line (5) from fitting (6) and adapter (7).
(3) Remove fitting (6) from rear of transfer case (4).



(4) Remove adapter (7) from strainer (8).
(5) Remove strainer (8) from rear of transfer case (4).



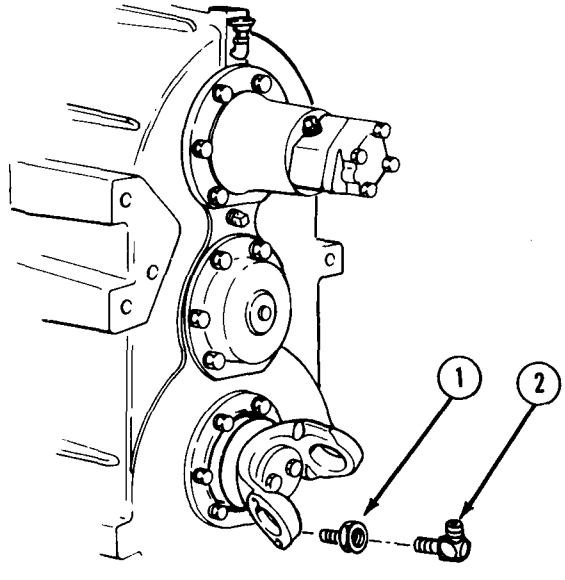
TA185686

b. Installation.

WARNING

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

(1) Apply pipe thread sealing compound to threads of strainer (1) and adapter (2).
(2) Install strainer (1).
(3) Install adapter (2).



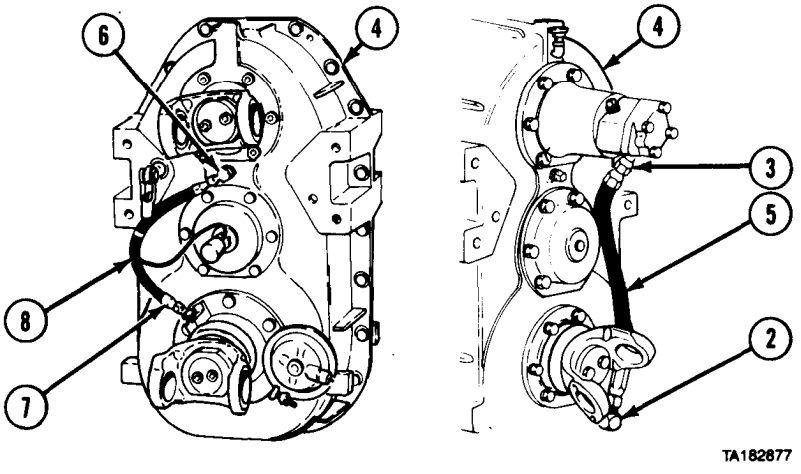
TA185687

9-8. LUBE LINE REMOVAL/INSTALLATION (CONT).

(4) Install fitting (3) in rear of transfer case (4).
(5) Connect lube line (5) to fitting (3) and adapter (2).
(6) Install two elbows (6 and 7) in front of transfer case (4).
(7) Connect lube line (8) to two elbows (6 and 7).

c. *Follow-on Maintenance.*
Fill transfer case (LO 9-2320-279-12). (Required after replacement of rear line.)

END OF TASK



Section III. PROPELLER SHAFTS AND UNIVERSAL JOINTS

9-9. PROPELLER SHAFT REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	TRANSFER CASE shift lever set to N.

Special Environmental Conditions
None

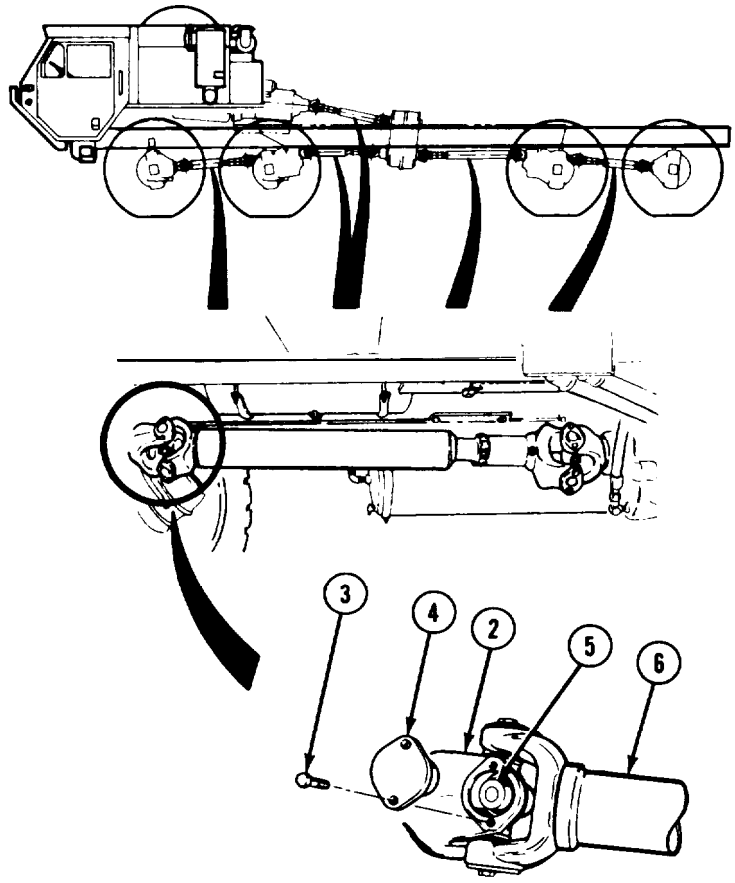
General Safety Instructions
None

Transfer Case and Propeller Shaft Maintenance Instructions (Cont)

a. Removal

NOTE

- Some M978 models have a propeller shaft guard over the transmission-to-transfer case propeller shaft. To remove transmission-to-transfer case propeller shaft, propeller shaft guard must be removed from front intermediate crossmember (para 14-20).
- All propeller shafts are removed and installed in the same manner. Both ends of propeller shaft are removed and installed from flange yokes in the same manner.



(1) Deleted.

(2) Remove and discard two screws (3) from each side of flange yoke (2).

CAUTION

Be careful when removing bearing caps or needle bearings may fall out and be damaged or lost.

(3) Remove bearing caps (4) from each side of flange yoke (2) and universal joint (5).

(4) Pull propeller shaft (6) to one side and pull out to remove propeller shaft from flange yoke (2).

b. Installation

WARNING

Failure to properly tighten bolts, and reuse of self-locking bolts, could cause the driveshaft to loosen and separate from the vehicle, which could cause a loss of control and could result in serious personal injury or death.

NOTE

M984E1 propeller shaft and yoke on transfer case are larger than those used on other vehicles. Refer to TM 9-2320-279-24P for proper parts identification.

(1) Install universal joint (5) in flange yoke (2).

(2) Install bearing caps (4) on both sides of universal joint (5) and flange yoke (2). Make sure bearing caps are sealed against flange yoke (2).

(3) Install two screws (3) on each bearing cap (4).

(4) Tighten screws (3) (fig. 9-1).

(5) Deleted.

Transfer Case and Propeller Shaft Maintenance Instructions (Cont)

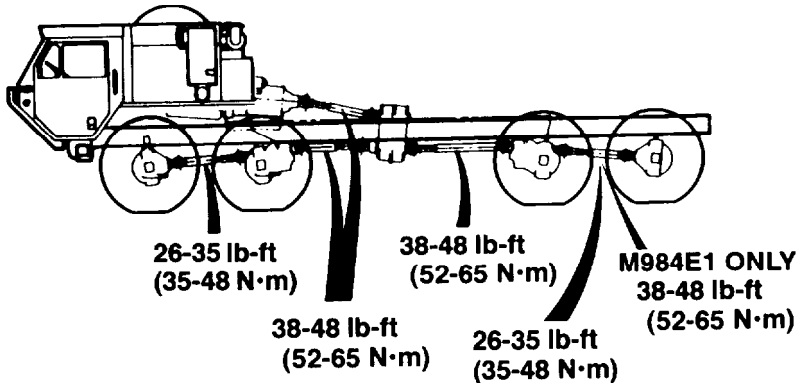


Figure 9-1. Capscrew Torque Limits

NOTE

After installing transmission-to-transfer case propeller shaft, on some M978 models refer to paragraph 14-20 to install propeller shaft guard to front intermediate crossmember.

c. ***Follow-on Maintenance.*** Lubricate propeller shafts (LO9-2320-279-12).

END OF TASK

9-10. UNIVERSAL JOINT AND DUST CAP REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or *Para*	*Condition Description*
Para 9-9	Propeller shaft removed from vehicle

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

NOTE

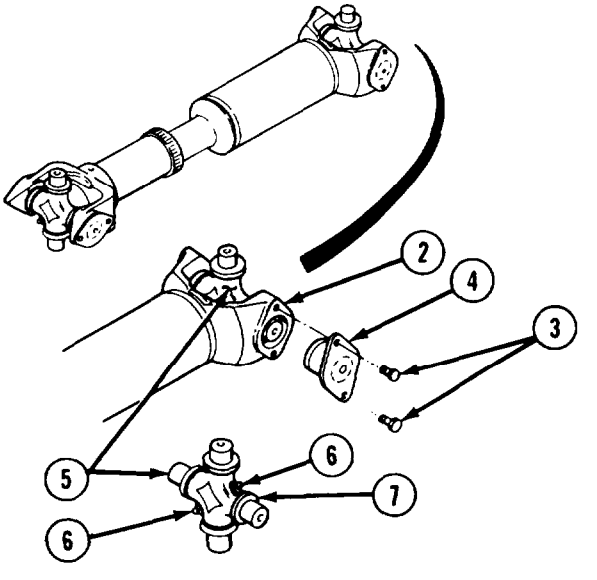
All universal joints are removed in the same manner.

(1) Deleted.
(2) Remove and discard two screws (3) from each side of flange yoke (2).

CAUTION

Be careful when removing bearing caps or needle bearings may fall out and be damaged or lost.

(3) Remove bearing caps (4) from each side of flange yoke (2) and universal joint (5).
(4) Remove universal joint (5) from flange yoke (2).



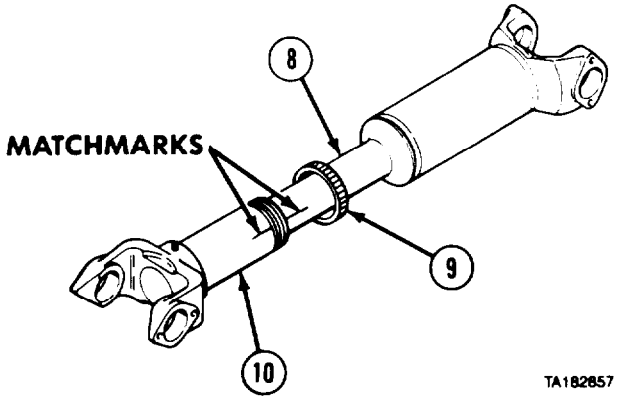
NOTE

Some universals may have two grease fittings.

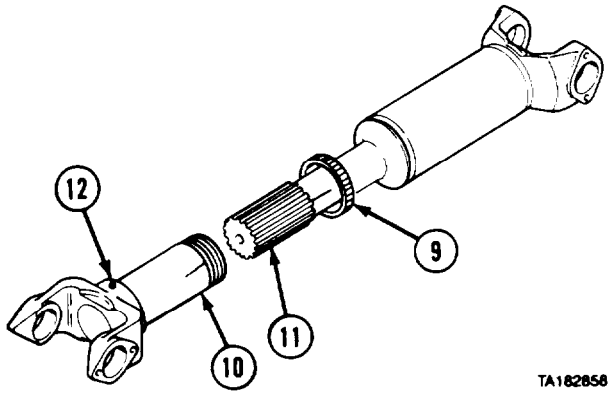
(5) Remove grease fitting (6) from universal joint (5).
(6) Remove two grease seals (7) from universal joint (5).

Transfer Case and Propeller Shaft Maintenance Instructions (Cont)

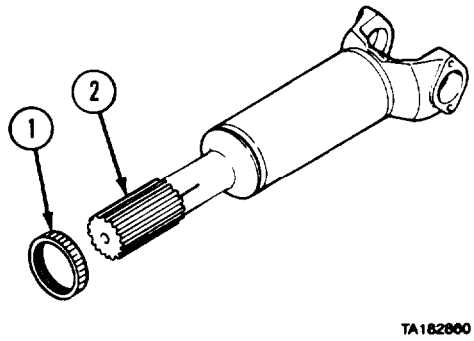
(7) Matchmark both halves of propeller shaft (8) before removing dust cap (9).
(8) Remove dust cap (9) from slip yoke (10)



(9) Remove splined shaft (11) from slip yoke (10).
(10) Remove dust cap (9) from splined shaft (11).
(11) Remove grease fitting (12) from slip yoke (10).



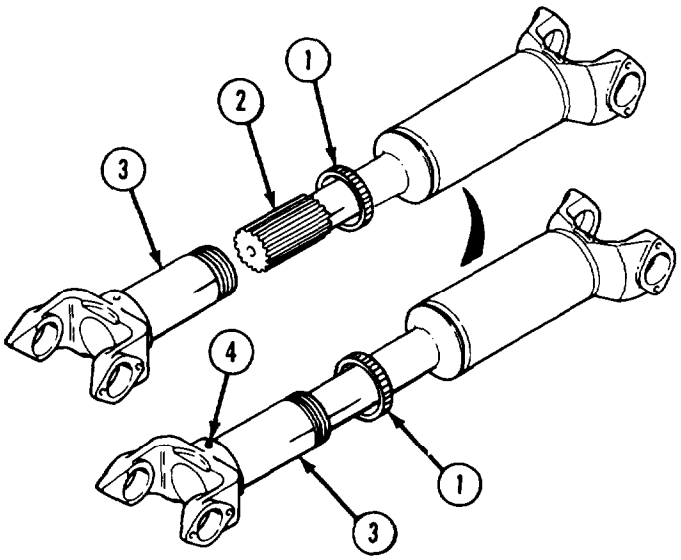
b. Installation.
(1) Install dust cap (1) on splined shaft (2).



9-10. UNIVERSAL JOINT AND DUST CAP REMOVAL/INSTALLATION (CONT).

NOTE
Aline matchmarks.

(2) Install splined shaft (2) in slip yoke (3).
(3) Install dust cap (1) on slip yoke (3).
(4) Install grease fitting (4) in slip yoke (3).



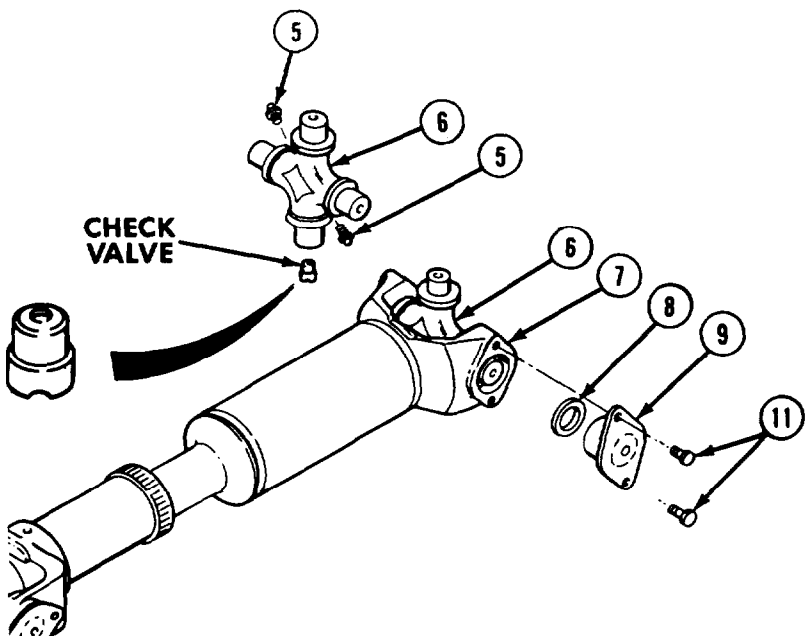
NOTE
Some universals may have two grease fittings.

(5) Install grease fitting (5) in universal joint (6).

CAUTION

If check valve falls out of universal joint, be sure to install check valve with largest end facing out. Make sure all four check valves are installed correctly, otherwise, lubricant will not flow through check valves.

(6) Install universal joint (6) in flange yoke (7).



CAUTION

Be careful when installing bearing caps or needle bearings may fall out and be damaged or lost.

(7) Install two grease seals (8) on bearing caps (9). Install two bearing caps on each side of flange yoke (7) and universal joint (6). Make sure bearing caps are seated against flange yoke (7).

WARNING

Failure to properly tighten bolts, and reuse of self-locking bolts, could cause the driveshaft to loosen and separate from the vehicle, which could cause a loss of control and could result in serious personal injury or death.

(8) Install two screws (11) on bearing caps (9).
(9) Tighten screws (11) (Figure 9-1).

c. Follow-on Maintenance.

(1) Install propeller shaft (para 9-9).
(2) Lubricate propeller shaft and universal joint (LO 9-2320-279-20).

CHAPTER 10

AXLE MAINTENANCE

Contents

	Para	Page
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Steering Arm Removal/Installation, No. 1 and No. 2 Axles	10-4	10-4
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Section I. INTRODUCTION

10-1. GENERAL. This chapter contains maintenance instructions for removing, replacing, installing, and servicing the axle components authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. FRONT AXLES

Axle Maintenance Instructions

10-2. AXLE BREATHER SERVICE.

This task covers:

a. Removal
b. Service
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

10-2. AXLE BREATHER SERVICE (CONT).

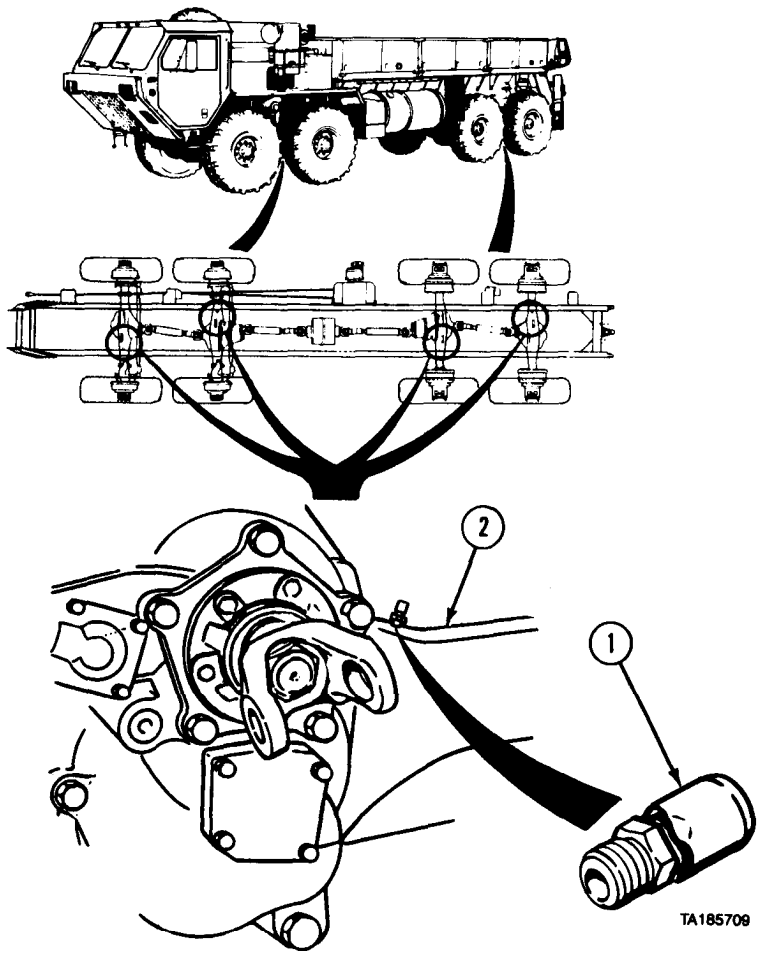
a. Removal. Loosen and remove axle breather (1) from axle housing (2).

WARNING

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

b. Service. Clean axle breather (1) with dry cleaning solvent and dry before installation.

c. Inspection. Check axle breather (1) to be sure cap moves freely and there is no contamination in breather body.



WARNING

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

d. Installation. Coat threads of axle breather (1) with pipe thread sealing compound and install in axle housing (2).

e. Follow-on Maintenance. None.

END OF TASK

10-3. TRUNNION BEARING INSPECTION, NO. 1 AND NO. 2 AXLES.

This task covers:

a. Inspection
b. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine

Special Environment Conditions
None

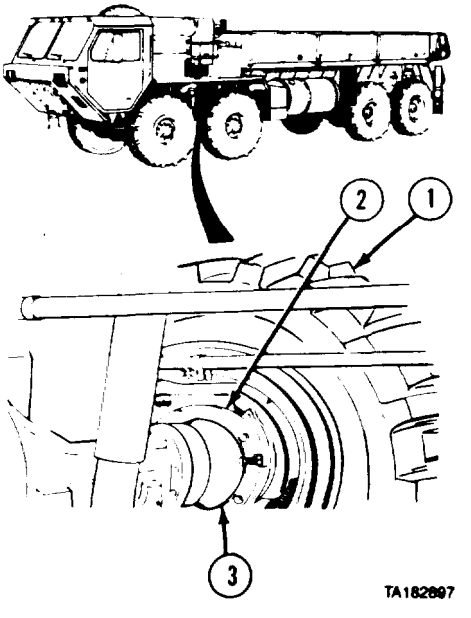
General Safety Instruction
Do not get under vehicle unless supported by jackstands.
Wheels chocked.

a. Inspection.

WARNING

Use jackstands to support axle weight. Failure to do so could result in personal injury.

(1) Jack up end of axle so tire (1) is clear of ground.
(2) Position bar between tire (1) and ground.
(3) Soldier A watches for any play at wheel end socket (2) and ball (3) while Soldier B pries up on tire (1).
(4) Remove bar and lower jack.



b. Follow-on Maintenance. If wheel play is noticed, notify Direct Support Maintenance.

END OF TASK

10-4. STEERING ARM REMOVAL/INSTALLATION, NO. 1 AND NO. 2 AXLES.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, lubricating, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

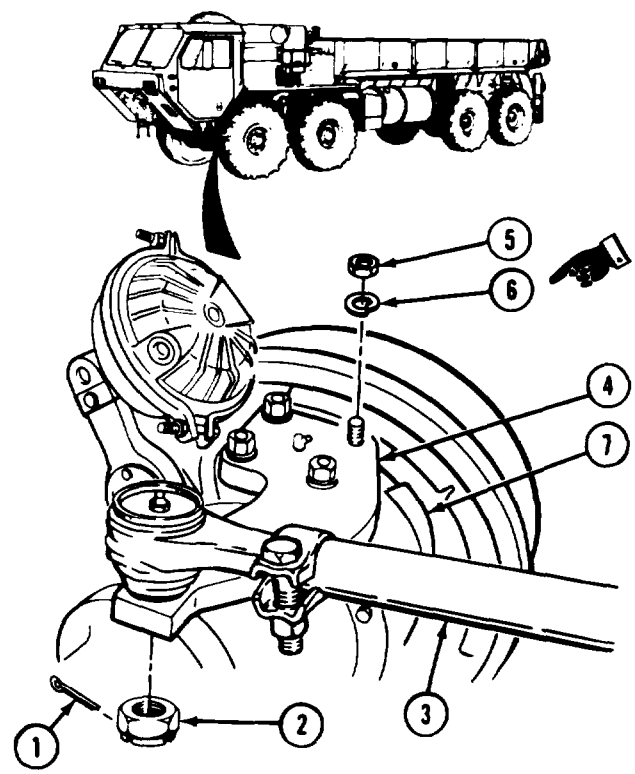
TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

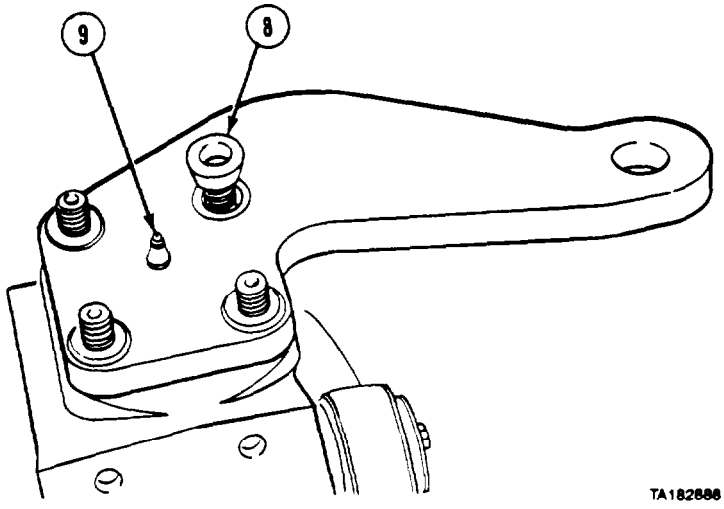
a. Removal.

(1) Remove cotter pin (1) and nut (2) connecting drag link (3) to steering arm (4).
(2) Remove end of drag link (3) from steering arm (4).
(3) Remove four nuts (5) and lockwashers (6) connecting steering arm (4) to ball socket (7).

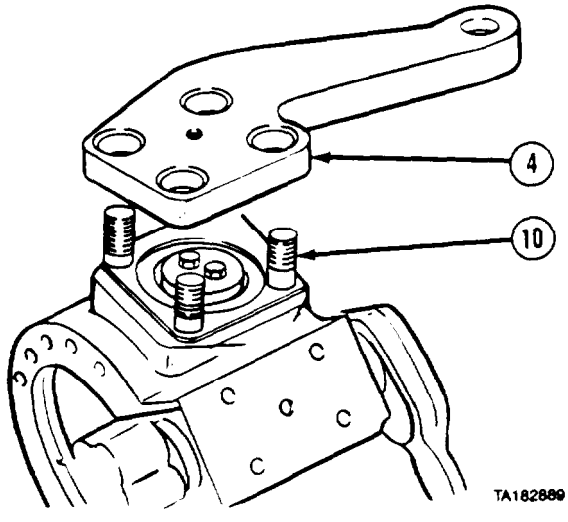


Axle Maintenance instructions (Cont)

(4) Remove four dowels (8) and grease fitting (9).

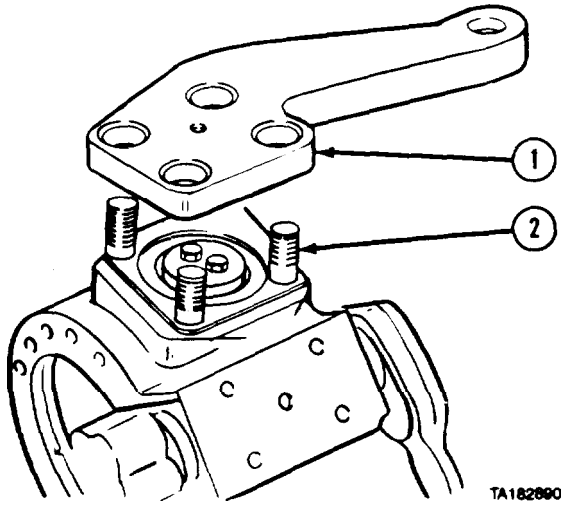


(5) Remove steering arm (4) from ball socket studs (10).



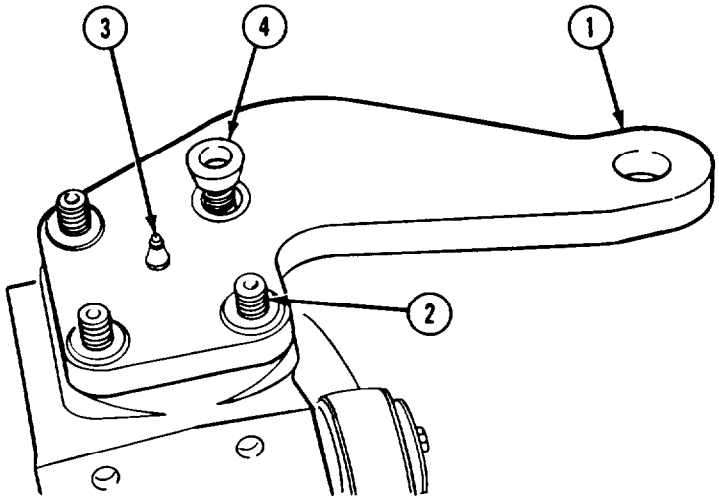
b. Installation.

(1) Position steering arm (1) on ball socket studs (2).

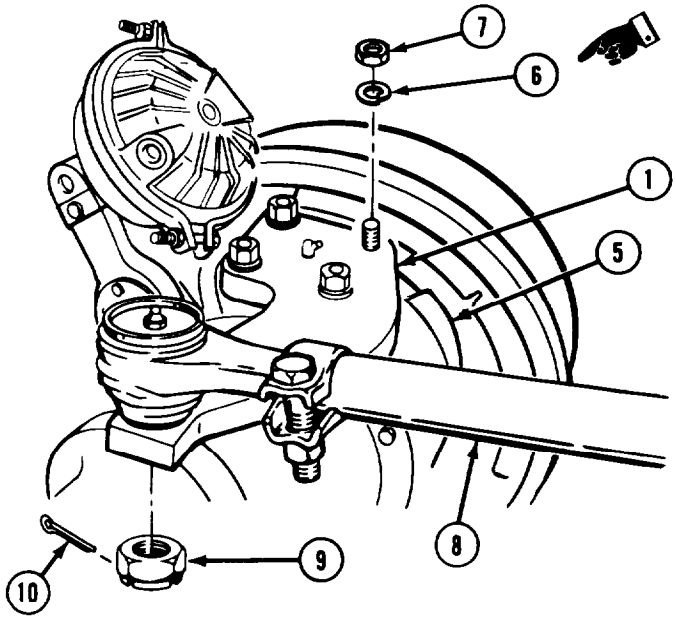


10-4. STEERING ARM REMOVAL/INSTALLATION, NO. 1 AND NO. 2 AXLES (CONT).

(2) Install grease fitting (3) in steering arm (1).
(2.1) Coat outside edge of four dowels (4) with sealing compound.
(3) Install four dowels (4) over ball socket studs (2).



(4) Install steering arm (1) on ball socket (5) with four lockwashers (6) and nuts (7).
(5) Tighten four nuts (7) to 320 lb-ft (434 N•m).
(6) Install end of drag link (8) in steering arm (1).
(7) Install nut (9) on drag link (8).
(8) Tighten nut (9) to 165 lb-ft (224 N•m).
(9) Install cotter pin (10).



c. Follow on Maintenance. None.

END OF TASK

Section III. REAR AXLE SHAFTS

10-5. AXLE SHAFT REMOVAL/INSTALLATION, NO. 3 AND NO. 4 AXLES

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Adhesive-sealant, silicone, RTV, Item 4, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

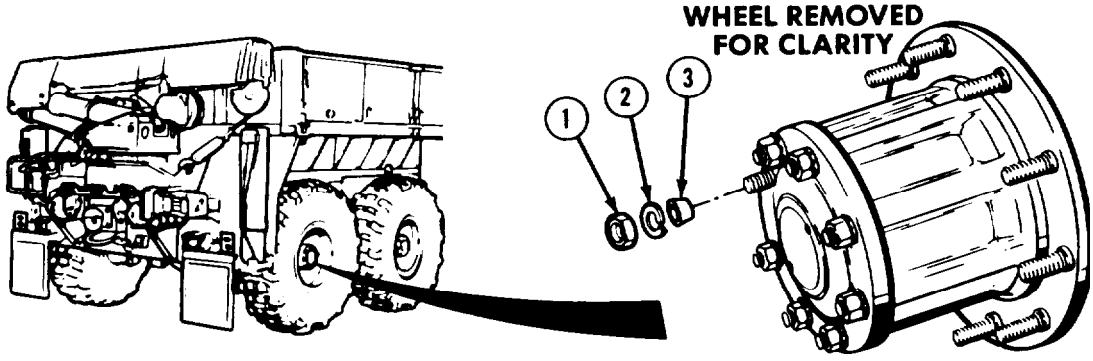
References
None

Equipment Condition
TM or Para *Condition Description*
TM 9-2320-279-10 Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

a. Removal.



NOTE

- Place drain pan under axle shaft cover.
- It may be necessary to tap center of axle flange to loosen dowels.

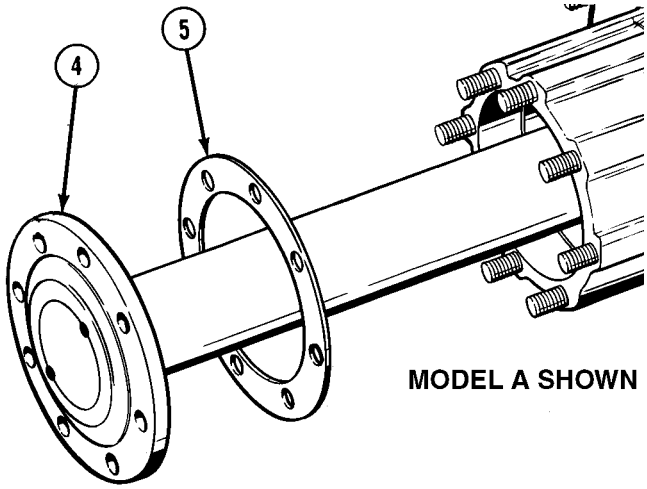
(1) Remove eight nuts (1), lockwashers (2), and dowels (3).

10-5. AXLE SHAFT REMOVAL/INSTALLATION, NO. 3 AND NO. 4 AXLES (CONT).

NOTE

Model A contains an axle shaft gasket, and model B does not.

(2) Remove axle shaft (4) and gasket (5). Discard gasket.



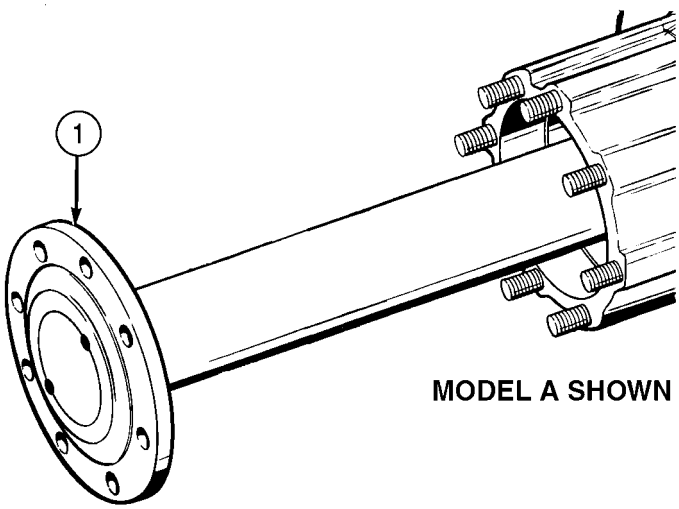
MODEL A SHOWN

b. Installation.

NOTE

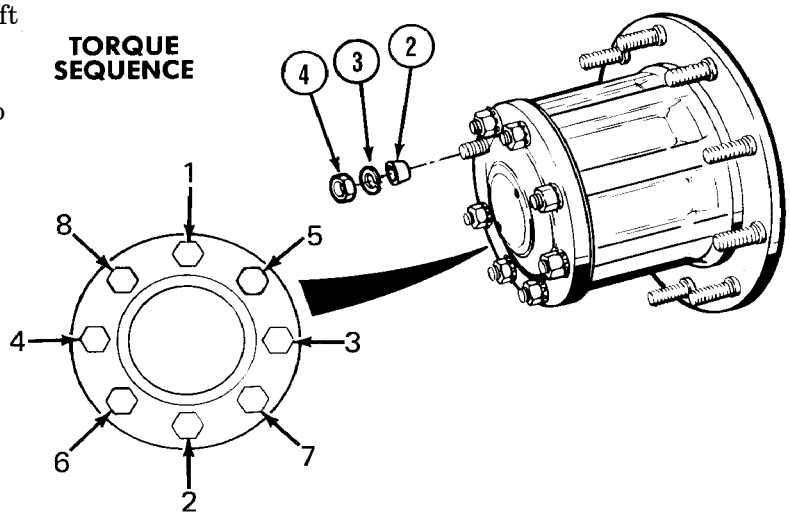
Use RTV sealant on Model A and Model B to seal axle shaft.

(1) Coat inside of axle shaft (1) flange with RTV sealant.
(2) Install axle shaft (1).



MODEL A SHOWN

(2) Install eight dowels (2), lockwashers (3), and nuts (4).
(3) Follow torque sequence and tighten eight nuts (4) to 40 lb-ft (54.24 N•m).
(4) Follow torque sequence and tighten eight nuts (4) to 145 to 155 lb-ft (197 to 210 N•m).



c. Follow-on Maintenance.

Check axle oil. Fill axle with oil (LO 9-2320-279-12).

END OF TASK

CHAPTER 11
BRAKE AND AIR SYSTEM MAINTENANCE

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Section I. INTRODUCTION

11-1. GENERAL. This chapter contains maintenance instructions for removing, repairing, replacing, servicing, adjusting, and installing brake system, air compressor, and governor components authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. BRAKES

Brake and Air System Maintenance Instructions

11-2. BRAKE SPIDER REMOVAL/INSTALLATION, NO. 3 AND NO. 4 AXLES.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

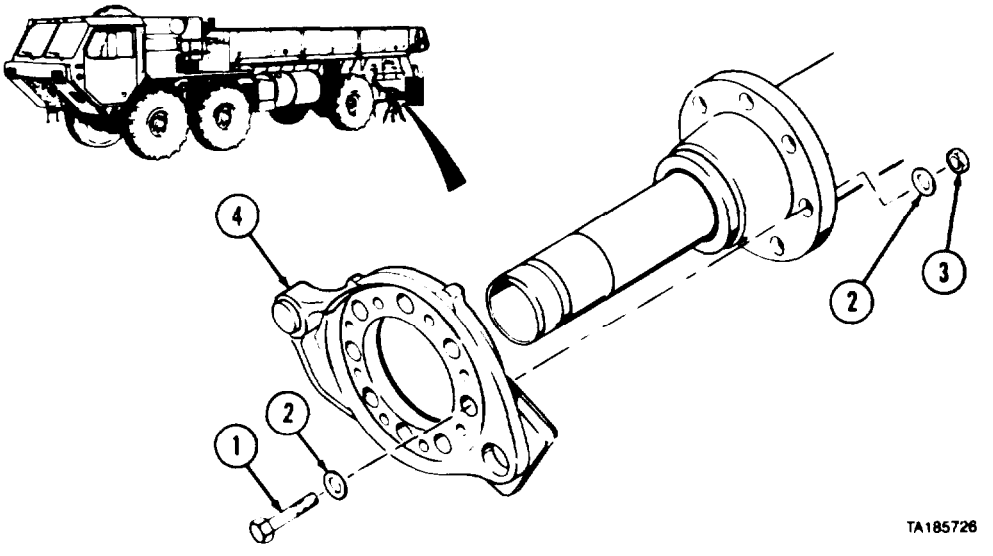
Equipment Condition

TM or Para	*Condition Description*
Para 11-4	Rear brakeshoes removed.
Para 11-6	Rear brake camshaft and slack adjuster removed.

Special Environmental Conditions
None

General Safety Instructions
None

Brake and Air System Maintenance Instructions (Cont)



a. Removal. Remove eight screws (1). 16 washers (2), eight nuts (3), and brake spider (4).

b. Installation. Install brake spider (1) with eight screws (1), 16 washers (2), and eight nuts (3).

c. Follow-on Maintenance.
(1) Install rear brake camshaft and slack adjuster (para 11-6).
(2) Install rear brakeshoes (para 11-4).

END OF TASK

11-3. FRONT BRAKESHOE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools`
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

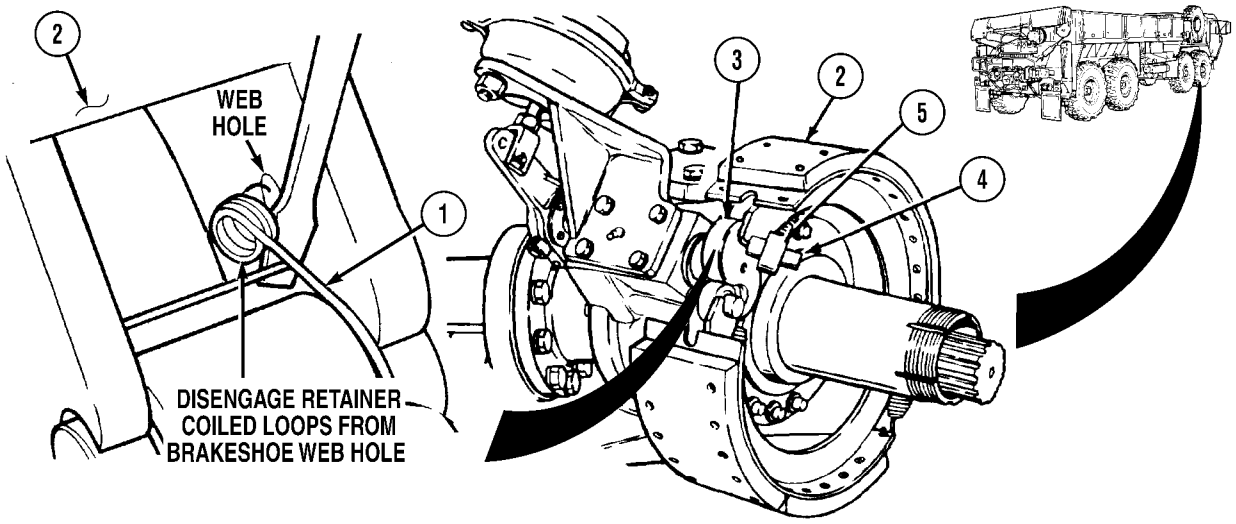
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 12-2	Hub and drum assembly removed.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

11-3. FRONT BRAKESHOE REMOVAL/INSTALLATION (CONT).

a. Removal.



MODEL ES ONLY

MODEL EB AND ES

NOTE

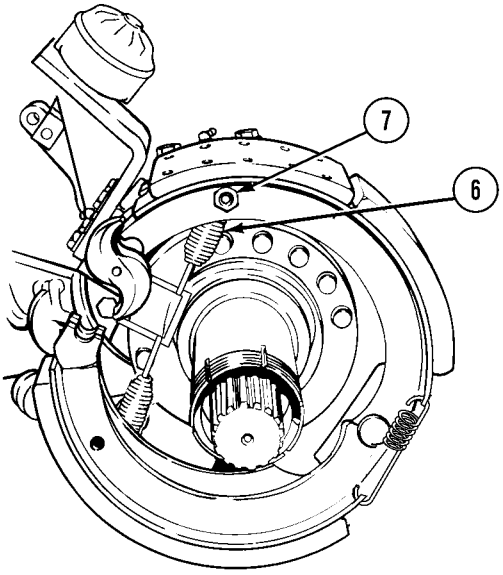
- There are two types of brake chamber brackets. Model A has the brake chamber on the front side of the bracket. Model B has the brake chamber on the rear side of the bracket. On both models, the brakeshoes are removed the same way. Model A shown.
- There are two types of brake assemblies. Model EB brake assemblies have two piece cam roller and pin assemblies. Model ES brake assemblies have one piece cam roller and pin assemblies with retainer springs.
- All vehicles with serial number 67424 or higher are equipped with Model ES brake assemblies. Other vehicles may have been retrofitted with Model ES brake assemblies.
- Top brakeshoes and bottom brakeshoes are removed the same way.
- Perform steps *(1)*, *(3)* and *(4)*, *(6)* and *(7)* for Model ES brake assemblies only.
- Perform steps *(2)* and *(5)* through *(7)* for Model EB brake assemblies only.

(1) Pry roller retaining spring coil loop (1) out of both web holes to disengage, and remove two retainer springs from brakeshoes (2).

(2) Pry brakeshoes (2) away from cam (3) and remove two cam roller pins (4) and cam roller assemblies (5).

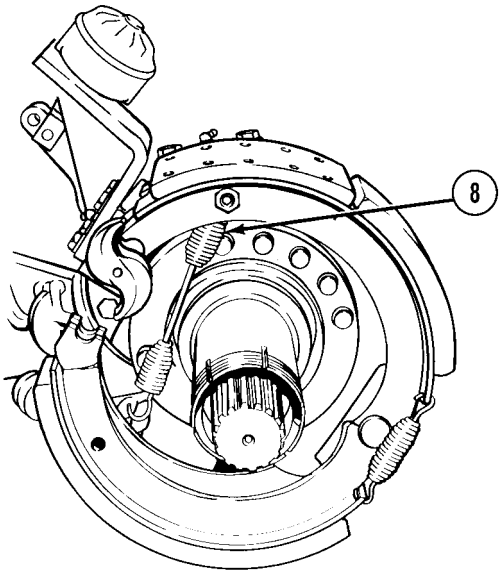
(3) Pry brakeshoes (2) away from cam (3) and remove two cam roller assemblies (5).

(4) Remove two return springs (6) from brakeshoe anchor pins (7).



MODEL ES

(5) Remove release spring (8).



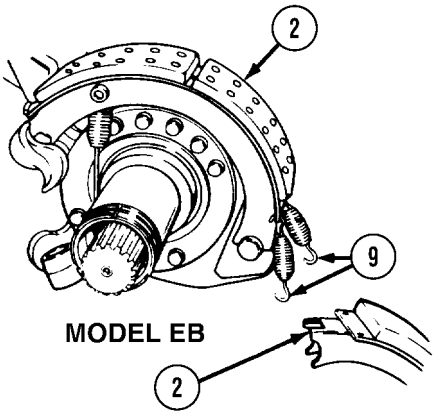
MODEL EB

NOTE

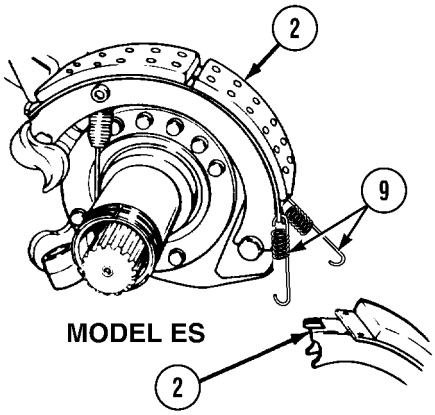
If brakeshoes are to be reused, tag on removal for reference during installation.

(6) Unhook retaining springs (9).

(7) Remove brakeshoes (2).



MODEL EB



MODEL ES

b. Installation.

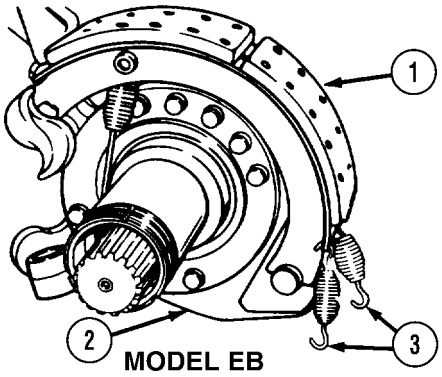
NOTE

- There are three types of brakeshoes. Model A is identified by part number 804378. Model B is identified by part number 805677. Also, Model B has press marks on the brake from one additional manufacturing step. Model ES is identified by part number 819705. Models A and B are EB type brake assemblies.
- Model A, B, and ES brakeshoes must not be mixed on an axle. If one type of brakeshoe must be replaced by another, all brakeshoes on that axle must be replaced.
- Model EB brakeshoes must not be installed on Model ES brake assemblies and Model ES brakeshoes must not be installed on Model EB brake assemblies.
- There are two types of brake assemblies. Model EB brake assemblies have two piece cam roller and pin assemblies. Model ES brake assemblies have one piece cam roller and pin assemblies with retainer springs.
- There are two types of brake chamber brackets. Model A has the brake chamber on the front side of the bracket. Model B has the brake chamber on the rear side of the bracket. On both models, the brakeshoes are installed the same way. Model A shown.

11-3. FRONT BRAKESHOE REMOVAL/INSTALLATION (CONT).

NOTE

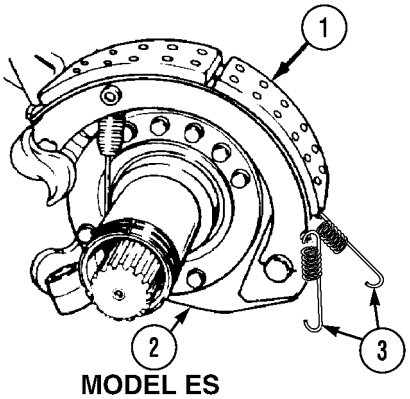
- Perform steps *(1)* through *(4)*, *(6)*, *(8)* and *(9)* for Model ES brake assemblies only.
- Perform steps *(1)* through *(5)*, and *(7)* for Model EB brake assemblies only.



MODEL EB

(1) Install top brakeshoe (1) on brake backing plate (2).

(2) Attach retaining springs (3) to top brakeshoe (1).



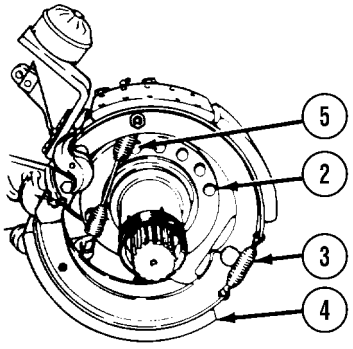
MODEL ES

(3) Hook bottom brakeshoe (4) on retaining springs (3).

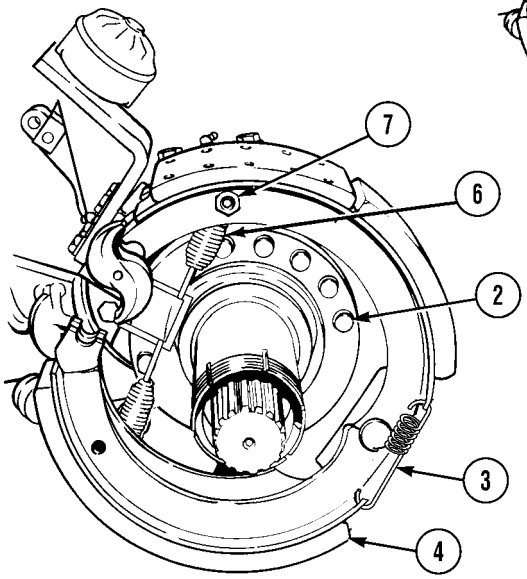
(4) Place bottom brakeshoe (4) on backing plate (2).

(5) Install release spring (5).

(6) Install two return springs (6) on brakeshoe anchor pins (7).



MODEL EB

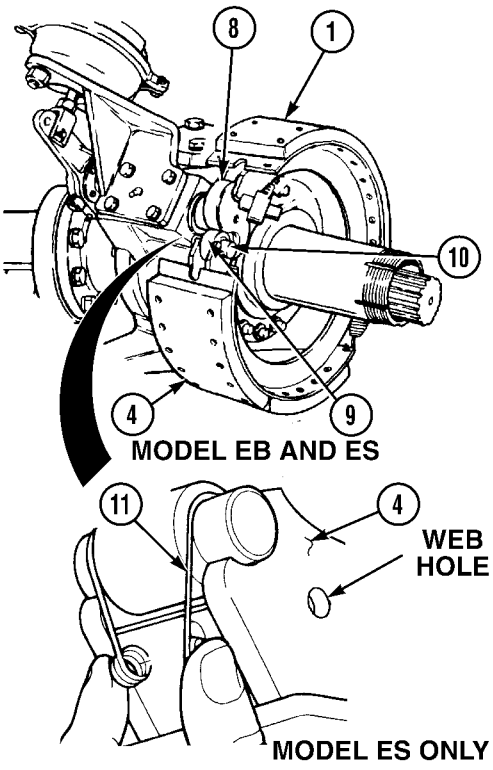


MODEL ES

(7) Pry brakeshoes (1) and (4) away from cam (8) and install two cam roller pins (9) and cam roller assemblies (10).

(8) Pry brakeshoes (1) and (4) away from cam (8) and install two cam roller assemblies (10).

(9) Squeeze coil loops of retainer spring (11) together and snap loops into web holes on brakeshoes (1) and (4).



c. Follow-on Maintenance.

(1) Install wheel hub and drum assembly (para 12-2).

(2) Install wheel assembly (TM 9-2320-279-10).

(3) Adjust brakes (para 11-7).

END OF TASK

11-4. REAR BRAKESHOE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

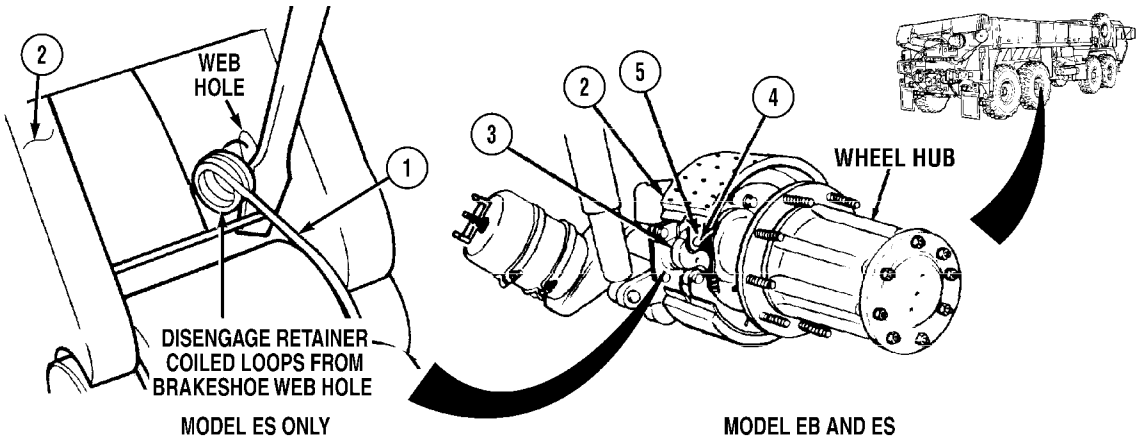
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 12-4	Rear brakedrum removed (all except M984, M984A1).
Para 12-5	Brakedrum and wheel hub removed (M984, M984A1).

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

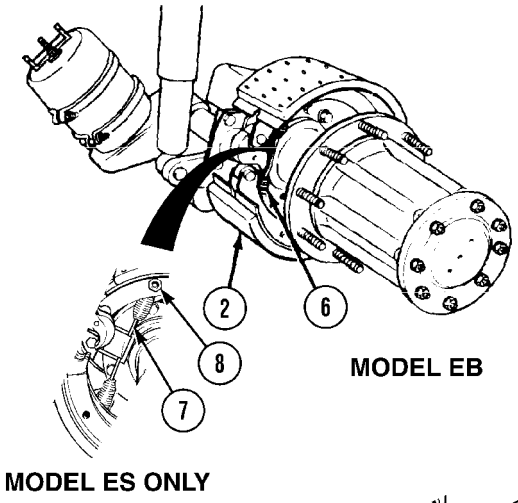
11-4. REAR BRAKESHOE REMOVAL/INSTALLATION (CONT).

a. Removal.



NOTE

- There are two types of brake assemblies. Model EB brake assemblies have two piece cam roller and pin assemblies. Model ES brake assemblies have one piece cam roller and pin assemblies with retainer springs. Both models have release springs.
- All vehicles with serial number 67424 or higher are equipped with Model ES brake assemblies. Other vehicles may have been retrofitted with Model ES brake assemblies.
- Wheel hub comes off with brakedrum on M984 and M984A1 vehicles.
- If shoes are to be reinstalled, mark top and bottom shoes.
- Perform step *(1)* for Model ES brake assemblies only.
- Top brakeshoes and bottom brakeshoes are removed the same way.

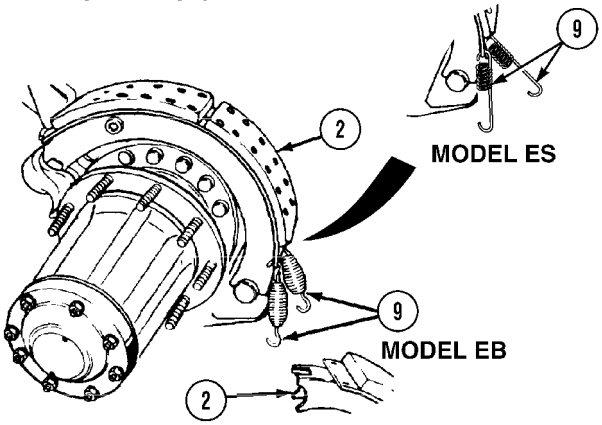


(1) Pry roller retainer spring coil loop (1) out of both web holes to disengage, and remove two retainer springs from brakeshoes (2).

(2) Pry brakeshoes (2) away from cam (3) and remove two cam roller pins (4) and cam roller assemblies (5).

NOTE

Perform step *(3)* for Model EB brake assemblies only.



(3) Remove release spring (6).

(4) Remove two return springs (7) from brakeshoe anchor pins (8).

(5) Unhook retaining springs (9).

(6) Remove brakeshoes (2).

Brake and Air System Maintenance Instructions (Cont)

b. Installation.

NOTE

- There are three types of brakeshoes. Model A is identified by part number 804845. Model B is identified by part number 805460 (except M984 and M984A1), and 1008749 (M984 and M984A1). Also, Model B has press marks on the back from one additional manufacturing step. Model ES is identified by part numbers 819707 (except M984 and M984A1), and 974050 (M984 and M984A1). Models A and B are EB type brake assemblies.
- Model A, B, and ES brakeshoes must not be mixed on an axle. If one type of brakeshoe must be replaced by another, all brakeshoes on that axle must be replaced.
- Model EB brakeshoes must not be installed on Model ES brake assemblies and Model ES brakeshoes must not be installed on Model EB brake assemblies.
- There are two types of brake assemblies. Model EB brake assemblies have two piece cam roller and pin assemblies. Model ES brake assemblies have one piece cam roller and pin assemblies with retainer springs. Both models have release springs.

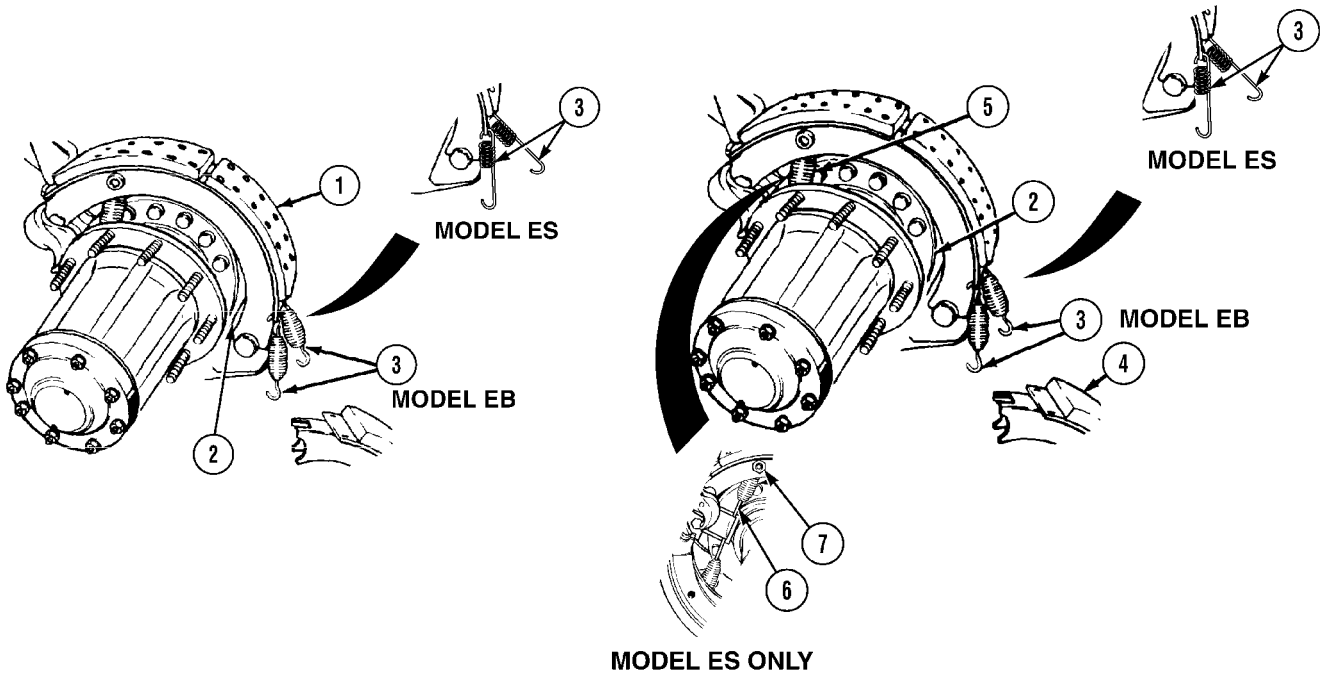
(1) Install top brakeshoe (1) on backing plate (2).

(2) Attach retaining springs (3) to top brakeshoe (1).

(3) Hook bottom brakeshoe (4) on retaining spring (3).

(4) Place bottom brakeshoe (4) on backing plate (2) and install release springs (5).

(5) Place bottom brakeshoe (4) on backing plate (2) and install two return springs (6) on brakeshoe anchor pins (7).



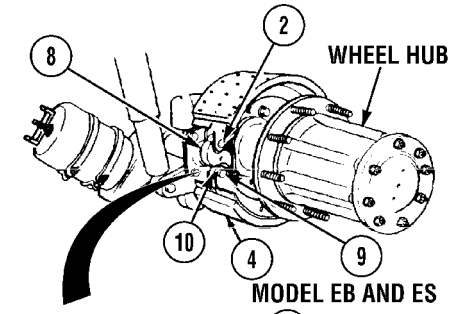
11-4. REAR BRAKESHOE REMOVAL/INSTALLATION (CONT).

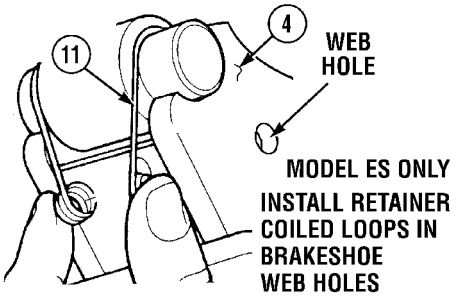
(6) Pry brakeshoes (1) and (4) away from cam (8) and install two cam roller pins (9) and cam roller assemblies (10).

NOTE

Perform step *(7)* on Model ES brake assemblies only.

(7) Squeeze coil loops of retainer spring (11) together and snap loops into web holes on brakeshoes (1) and (4).





c. Follow-on Maintenance.

(1) Install rear brakedrum (para 12-4) (all except M984, M984A1).

(2) Install brakedrum and wheel hub (para 12-5) (M984, M984A1).

(3) Adjust brakes (para 11-7).

END OF TASK

11-5. FRONT BRAKE CAMSHAFT AND SLACK ADJUSTER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

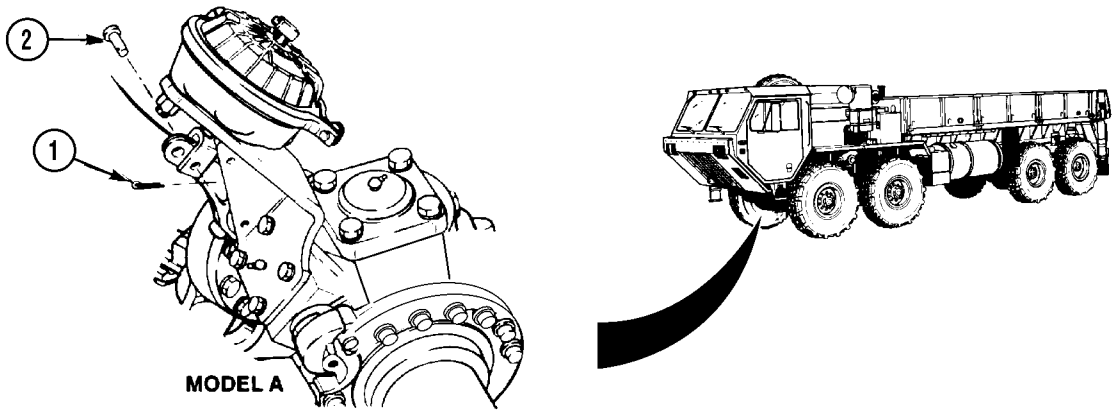
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 12-2	Hub and drum assembly removed.
Para 11-3	Front brakeshoes removed.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

a. Removal.

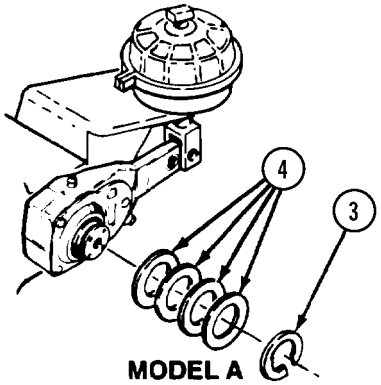


NOTE

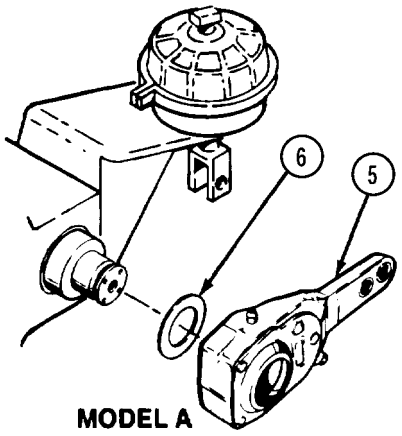
There are two types of brake chamber brackets. Model A has the brake chamber on the front side of the bracket. Model B has the brake chamber on the rear side of the bracket. On both models, the camshaft and slack adjuster are removed the same way. Refer to TM 9-2320-279-24P for proper part identification if camshaft must be replaced.

(1) Remove cotter pin (1) and clevis pin (2).

(2) Remove retaining ring (3) and four shim washers (4).



(3) Remove slack adjuster (5) and washer (6).

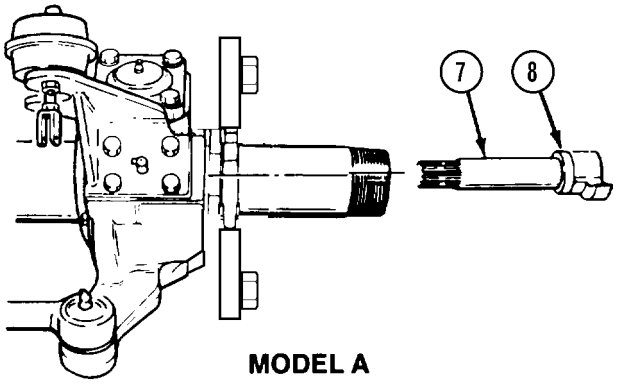


11-5. FRONT BRAKE CAMSHAFT AND SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).

NOTE

There are two types of washers. Washers without shoulders and washers with shoulders.

(4) Remove camshaft (7) and washer (8).



MODEL A

b. Installation.

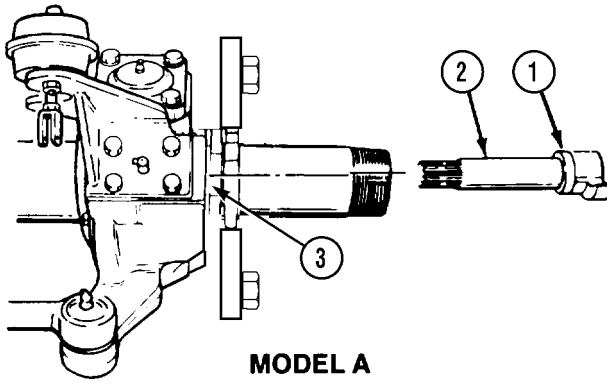
NOTE

- There are two types of brake chamber brackets. Model A has the brake chamber on the front side of the bracket. Model B has the brake chamber on the rear side of the bracket. On both models, camshaft and slack adjuster are installed the same way. Refer to TM 9-2320-279-24P for proper part identification if camshaft must be replaced.
- There are two types of washers. Washers without shoulders and washers with shoulders. Washers with shoulders are installed with shoulders facing toward vehicle.

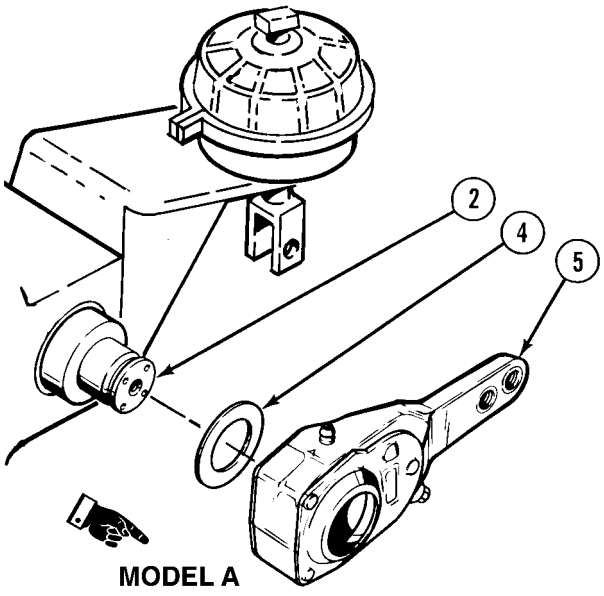
(1) Install washer (1) on camshaft (2).

(2) Install camshaft (2) on ball socket (3).

(3) Install washer (4) and slack adjuster (5) on camshaft (2).



MODEL A

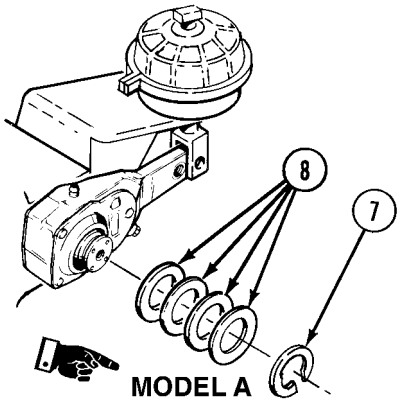


MODEL A

Brake and Air System Maintenance Instructions (Cont)

NOTE
Shim washers are used to remove camshaft end play.

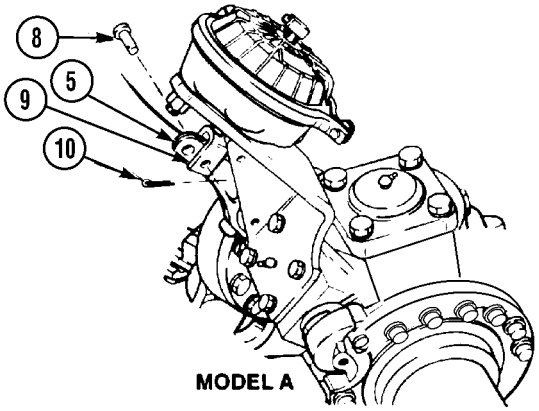
(4) Install four shim washers (6) and retaining ring (7).

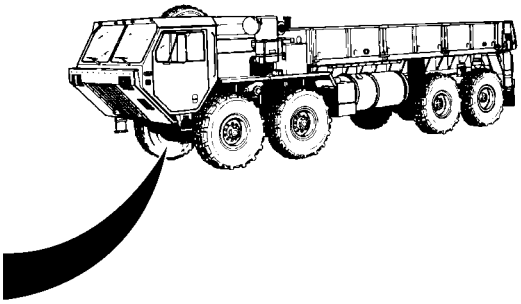


(5) Install clevis pen (8) through slack adjuster (5) and brake chamber yoke (9).

(6) Install cotter pin (10).

(7) Deleted.





c. Follow-on Maintenance.

(1) Install front brakeshoes (para 11-3).
(2) Install hub and drum assembly (para 12-2).
(3) Adjust brakes (para 11-7).

END OF TASK

11-5.1 FRONT BRAKE CAMSHAFT AND AUTOMATIC SLACK ADJUSTER REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Installation
c. Adjustment
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, antiseize, Item 10, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 12-2	Hub and drum assembly removed.
Para 11-3	Front brakeshoes removed.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

Level of Maintenance
General Support

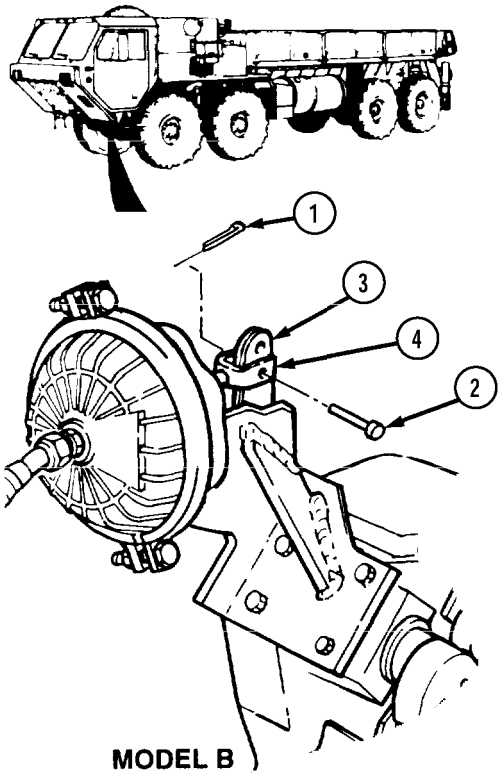
a. Removal.

NOTE

Left and right camshafts and automatic slack adjusters are removed the same way. Right side is shown.

(1) Deleted.

(2) Remove cotter pin (1) and clevis pin (2) from slack adjuster (3) and brake chamber yoke (4).



MODEL B

Brake and Air System Maintenance Instructions (Cont)

NOTE

Number of shim(s) may vary.

(3) Remove retaining ring (5) and shim washers (6).

(4) Remove nuts (7 and 8), washer (9), and bracket (10) from slack adjuster control arm (11) and brake chamber bracket (12).

NOTE

Number of washers may vary. Note quantity of washers removed.

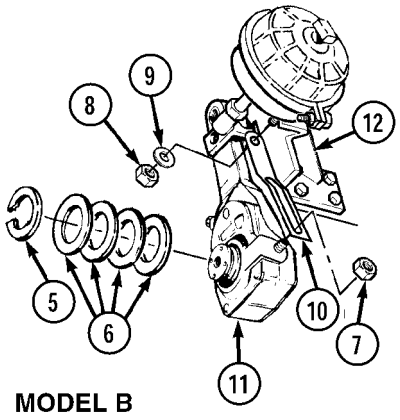
(5) Remove slack adjuster (3) and washers (13) from camshaft (14).

NOTE

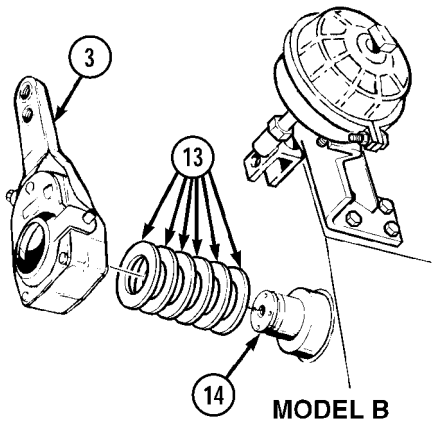
- There are two types of washers. Washers without shoulders and washers with shoulders.
- Perform step *(6)* for Model EB brake assemblies only.
- Perform step *(7)* for Model ES brake assemblies only.

(6) Remove camshaft (14) and washer (15).

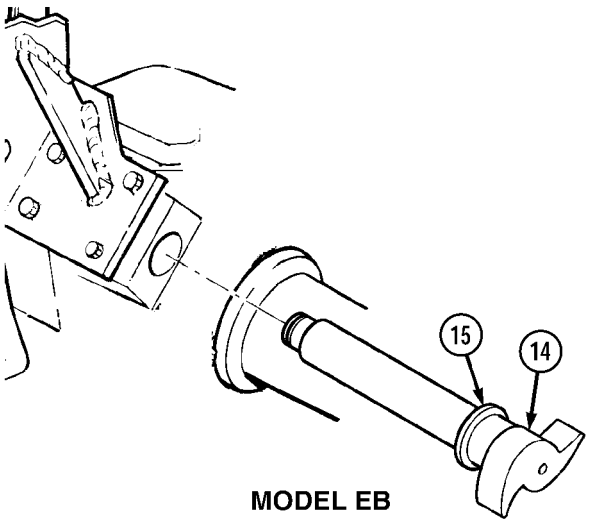
(7) Remove camshaft (14), cam head washer (16), collar (17), and washer (18).



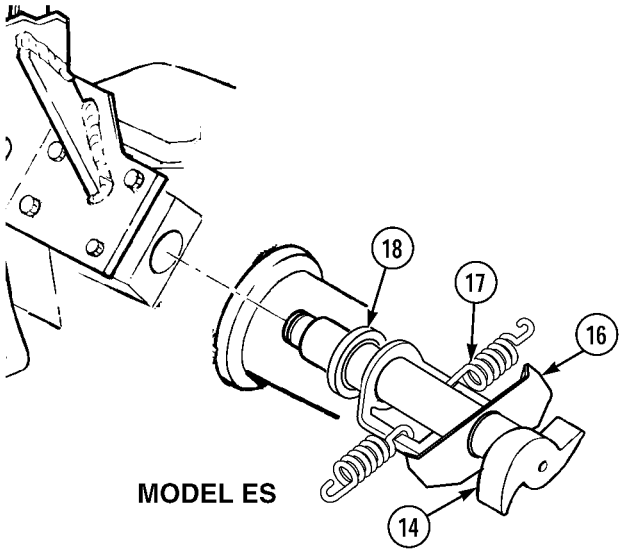
MODEL B



MODEL B



MODEL EB



MODEL ES

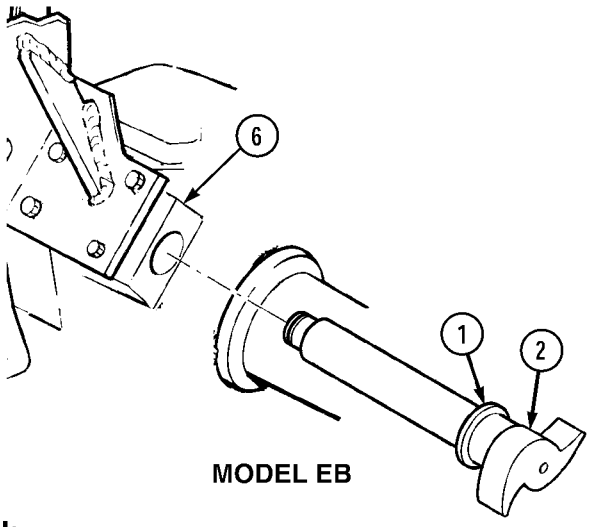
11-5.1 FRONT BRAKE CAMSHAFT AND AUTOMATIC SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).

b. Installation.

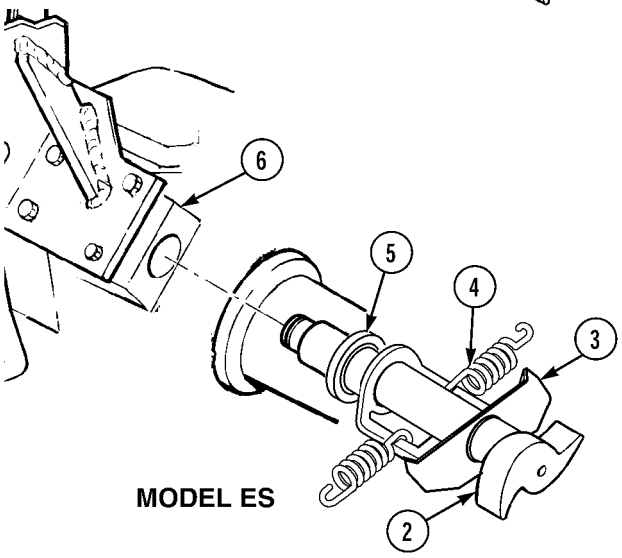
NOTE

- Left and right side camshafts and slack adjusters are installed the same way. Right side is shown.
- There are two types of washers. Washers without shoulders and washers with shoulders. Washers with shoulders are installed with the shoulders facing towards vehicle.
- Perform step *(1)* for Model EB brake assemblies only.
- Perform step *(2)* for Model ES brake assemblies only.

(1) Install washer (1) on camshaft (2).



MODEL EB



MODEL ES

(2) Install cam head washer (3), collar (4), and washer (5) on camshaft (2).

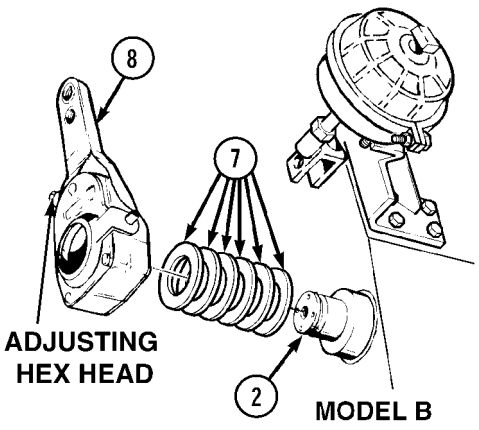
(3) Install camshaft (2) on ball socket (6).

(4) Apply antiseize compound to camshaft (2) splines.

NOTE

- The slack adjuster is installed with the adjusting hex head pointing away from brake air chamber.
- Shim washers are used to remove camshaft end play.
- Number of washers may vary.

(5) Install washers (7) and slack adjuster (8) on camshaft (2).



MODEL B

Brake and Air System Maintenance Instructions (Cont)

NOTE

Adjust camshaft end play to within 0.005 to 0.025 in. (0.127 to 0.635 mm) by adding or removing shim washers as necessary.

(6) Install shim washers (9) and retaining ring (10).

(7) Position bracket (11) on brake chamber (12) with washer (13) and nut (14). Do not tighten nut.

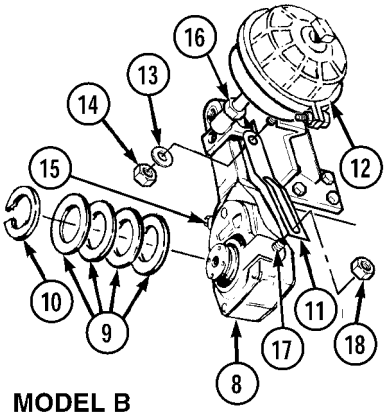
(8) Rotate adjusting hex head (15) until slack adjuster (8) hole alines with brake chamber yoke (16) hole.

(9) Install bracket (11) on slack adjuster control arm (17) with nut (18). Do not tighten nut.

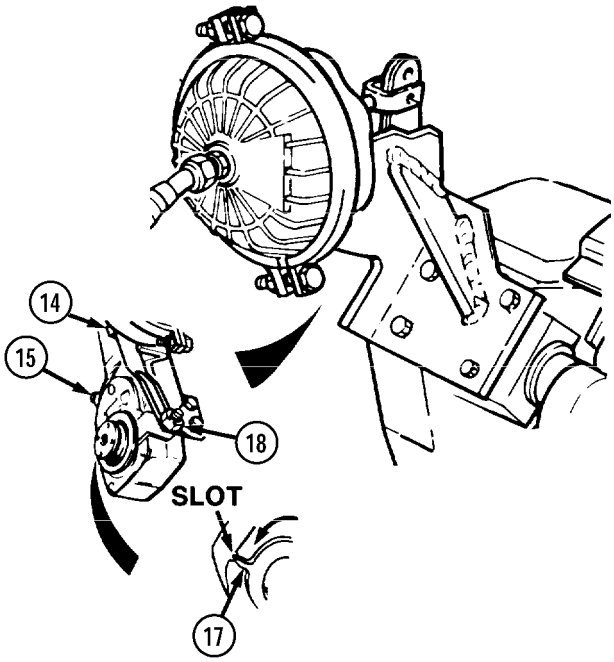
(10) Rotate slack adjuster control arm (17) away from adjusting hex head (15), towards brake chamber (12), until slack adjuster control arm comes to a definite internal stop.

(11) Tighten nut (18). Ensure that slack adjuster control arm (17) does not move its position when tightening nut.

(12) Tighten nut (14).



MODEL B

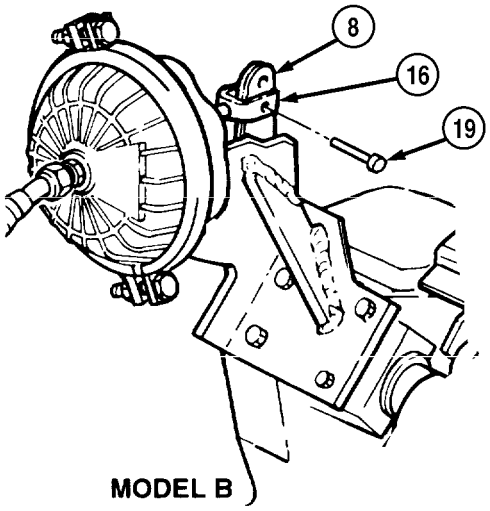


11-5.1 FRONT BRAKE CAMSHAFT AND AUTOMATIC SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).

(13) Install clevis pin (19) through slack adjuster (8) and brake chamber yoke (16).

(14) Install front brakeshoes (para 13-3).

(15) Install front hub and drum assembly (para 12-2).



NOTE

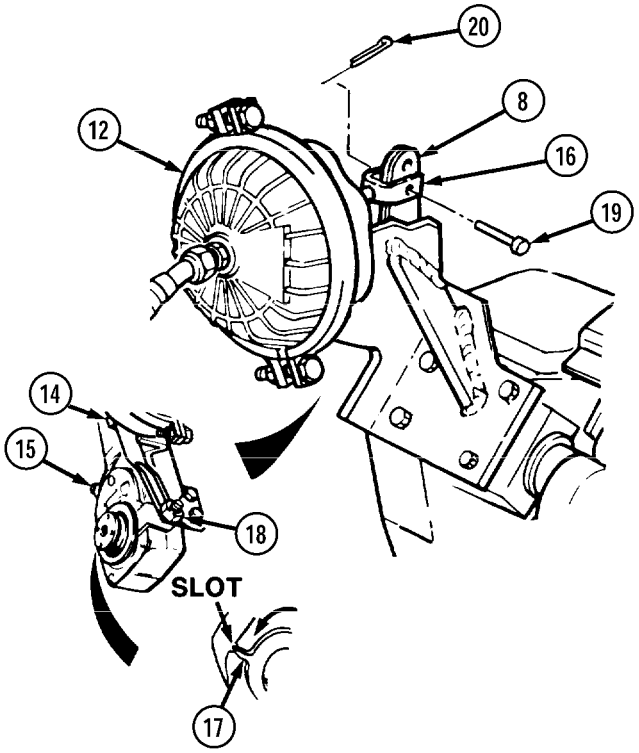
A minimum of 13 lb-ft (18 NSm) of torque is necessary to overcome the slack adjuster's internal clutch. A ratcheting sound will occur. If a minimum of 13 lb-ft (18 NSm) cannot be achieved, replace slack adjuster.

(16) Rotate adjusting hex head (15) clockwise until brake lining contacts the drum. Once contact is made, back-off adjusting hex head by 1/2 turn.

c. Adjustment.

(1) With full air pressure, release spring and service brake, and check that slack adjuster control arm (17) installation indicator is within slotted area.

(2) Remove clevis pin (19) and check that brake chamber yoke (16) hole and slack adjuster (8) hole remain in alinement. If the brake chamber yoke pulls into the brake chamber (12), loosen nuts (14) and (18) and repeat *b. Installation* steps *(10)* through *(16)* and *c. Adjustment* steps *(1)* and *(2)*. If brake chamber yoke hole and adjuster hole remain in alinement, go to step *(3)*.



(3) After slack adjuster (8) is adjusted properly, install clevis pin (19) and new cotter pin (20).

d. Follow-on Maintenance. None.

END OF TASK

11-6. REAR BRAKE CAMSHAFT AND SLACK ADJUSTER REMOVAL/INSTALLATION.

This task covers:

a. Removal (all except M984A1)
b. Installation (all except M984A1)
c. Removal (M984A1)
d. Installation (M984A1)
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 12-4	Rear brakedrum removed (all except M984, M984A1).
Para 12-5	Brakedrum and wheel hub removed (M984, M984A1).
Para 11-4	Rear brakeshoes removed.

NOTE

Remove rear brake chamber only when removing camshaft bracket.

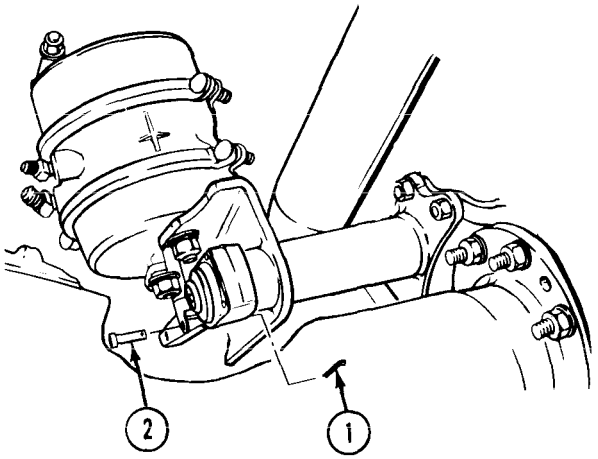
Para 11-9	Rear brake chamber removed.

Special Environmental Conditions
None

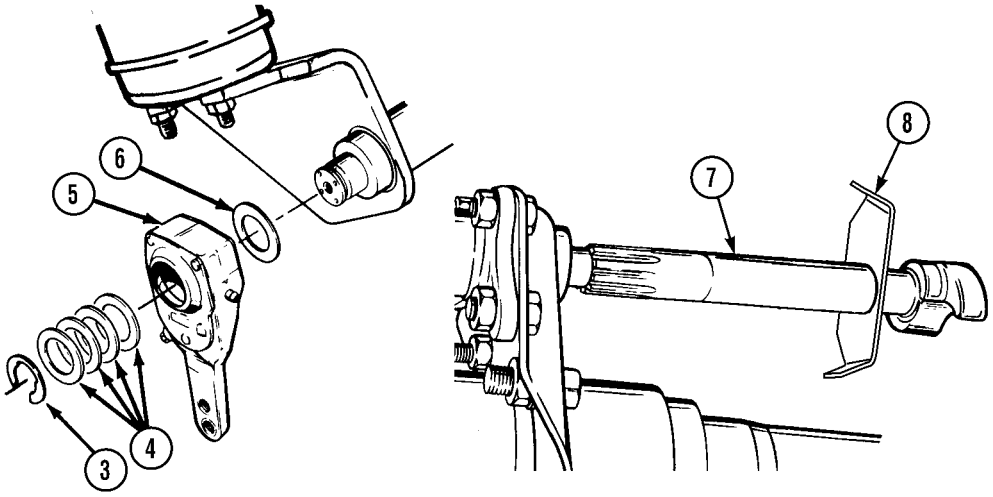
General Safety Instructions
Wheels chocked.

a. Removal (All Except M984A1).

(1) Remove cotter pin (1) and clevis pin (2).



11-6 REAR BRAKE CAMSHAFT AND SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).



NOTE

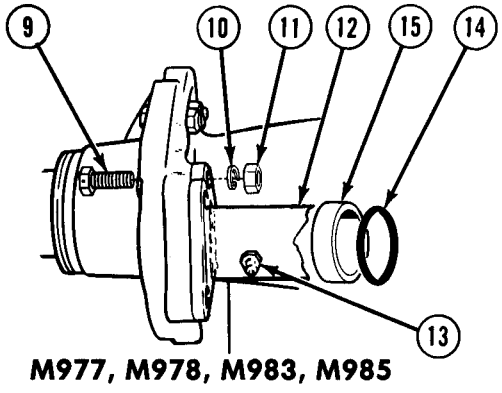
Record number and size of shims after removing.

(2) Remove training ring (3) and shims (4).
(3) Remove slack adjuster (5) and washer (6).

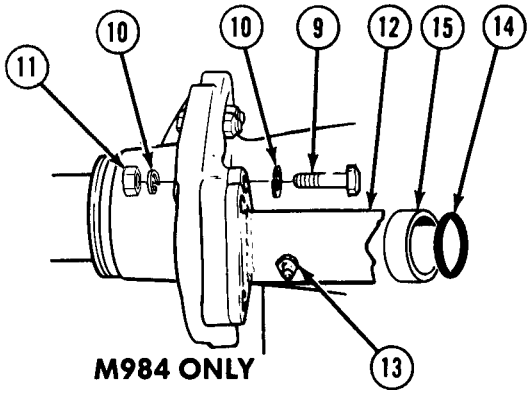
NOTE

Washer is on Model ES brake assemblies only.

(4) Remove camshaft (7) and washer (8).



M977, M978, M983, M985



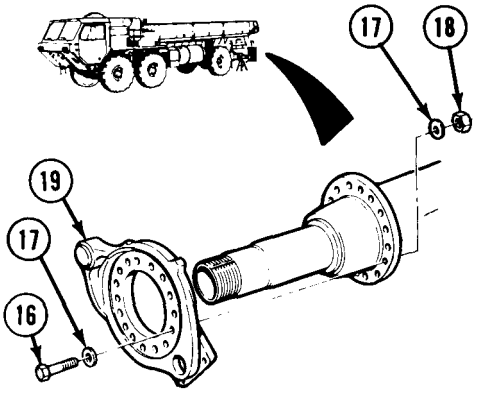
M984 ONLY

NOTE

- Step *(5)* is for all vehicles except M984 and M984A1.
- Step *(6)* is for M984.

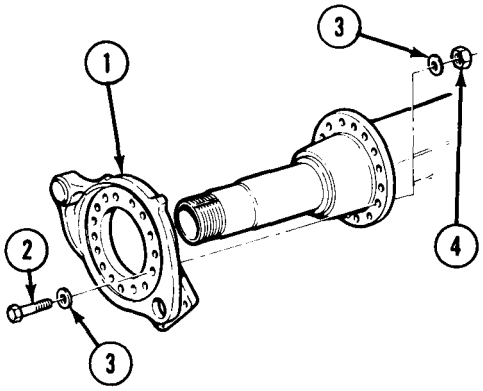
(5) Remove four screws (9), lockwashers (10), nuts (11), and camshaft bracket (12).
(6) Remove four screws (9), eight lockwashers (10), and camshaft bracket (12).
(7) Remove grease fitting (13).
(8) Remove two oil seals (14) and bushings (15) from camshaft bracket (12).

(9) Remove eight screws (16), 16 washers (17), eight nuts (18), and brake spider (19).



b. Installation (All Except M984A1).

(1) Install brake spider (1) with wight screws (2), 16 washers (3), and eight nuts (4).



(2) Install two bushings (5) and oil seals (6) in camshaft bracket (7).

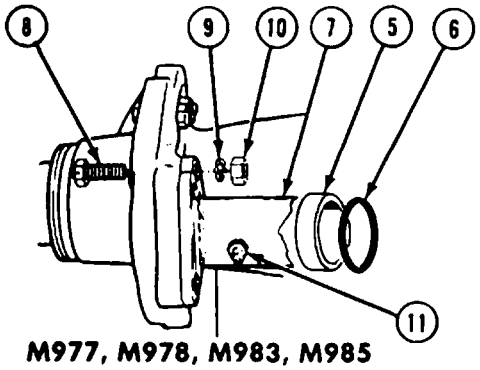
NOTE

- Step (3) is for all vehicles except M984 and M984A1.
- Step (4) is for M984.

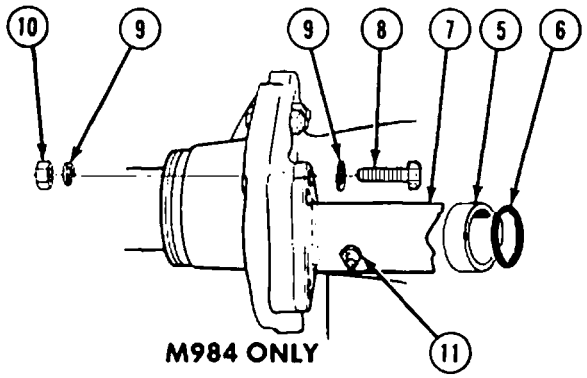
(3) Install bracket (7) with four screws (8), lockwashers (9), and nuts (10).

(4) Install bracket (7) with four screws (8), eight lockwashers (9), and nuts (10).

(5) Install grease fitting (11).



M977, M978, M983, M985



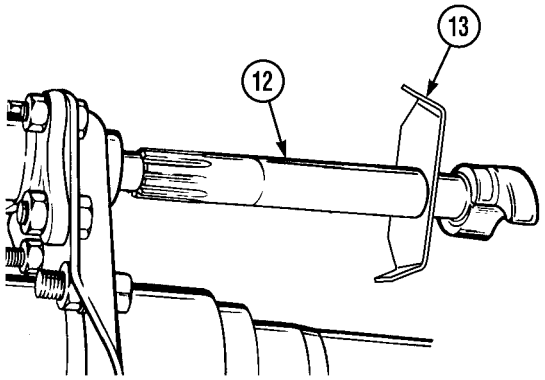
M984 ONLY

11-6 REAR BRAKE CAMSHAFT AND SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).

NOTE

Washer is on Model ES brake assemblies only.

(6) Install camshaft (12) and washer (13).

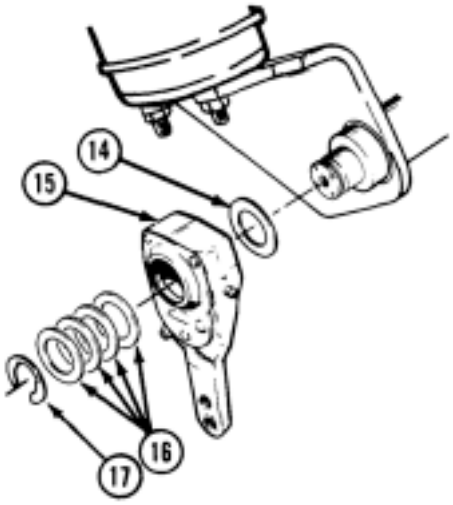


NOTE

- Install slack adjuster with adjusting screw and lock toward brake chamber and make sure camshaft lobes are horizontal.
- Use enough shims to remove camshaft end play.

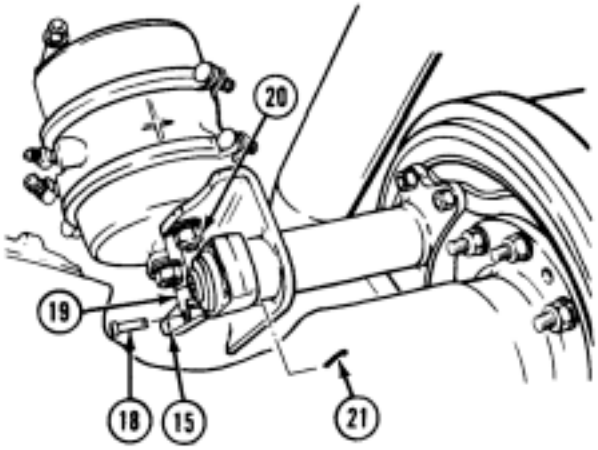
(7) Install washer (14) and slack adjuster (15).

(8) Install shims (16) and retaining ring (17).



(9) Install clevis pin (18) through slack adjuster (15) and brake chamber yoke (19) on brake chamber push rod (20).

(10) Install cotter pin (21).



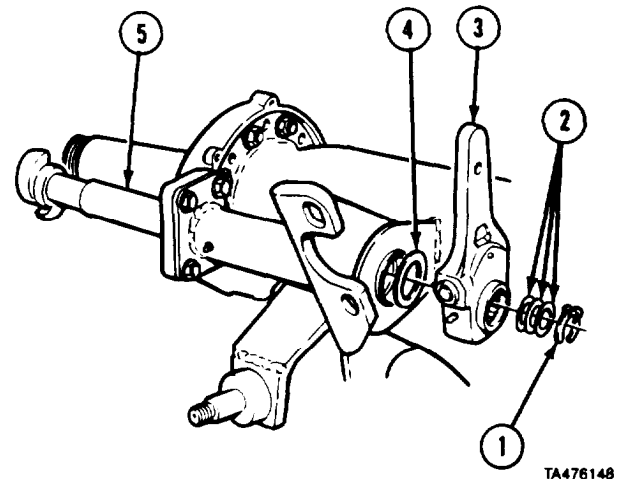
Brake and Air System Maintenance Instructions (Cont)

c. Removal (M984E1).

NOTE

Record number and size of shims after removing.

(1) Remove retaining ring (1) and shims (2).
(2) Remove slack adjuster (3) and washer (4).
(3) Remove camshaft (5).

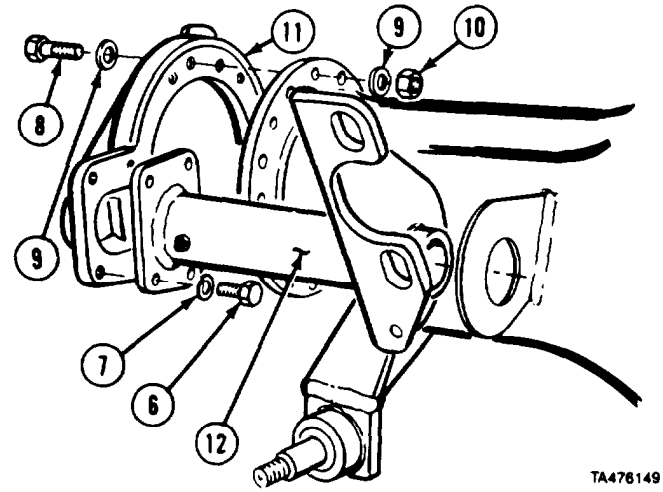


TA476148

NOTE

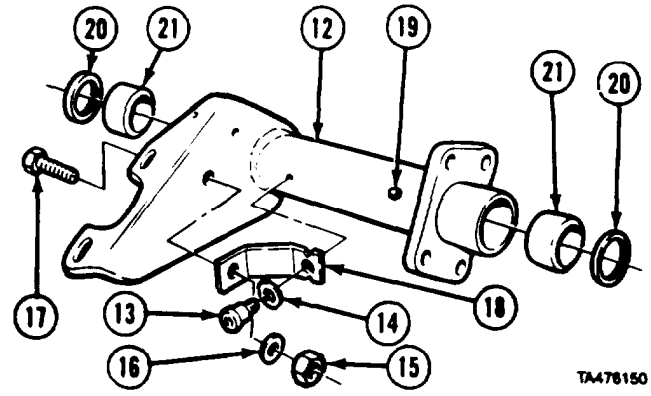
Mark position of brake spider.

(4) Remove four screws (6) and lockwashers (7).
(5) Remove eight screws (8), 16 washers (9), eight nuts (10), and brake spider (11).
(6) Remove camshaft bracket (12).



TA476149

(7) Remove screw (13) and washer (14).
(8) Remove nut (15), washers (16), screw (17), and brace (18).
(9) Remove grease fitting (19).
(10) Remove two oil seals (20) and bushings (21) from camshaft bracket (12).



TA476150

11-6. REAR BRAKE CAMSHAFT AND SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).

d. Installation (M984E1).

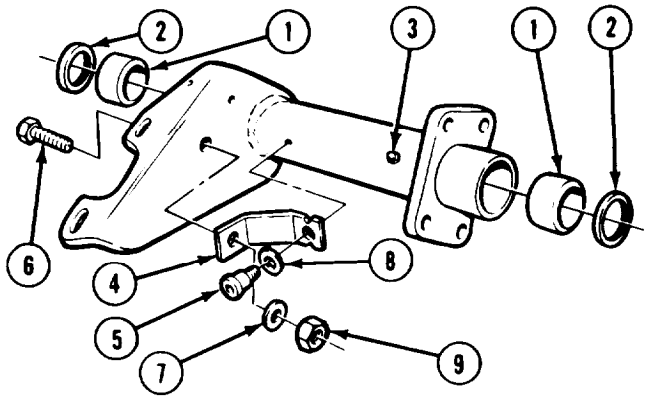
(1) Install two bushings (1) and oil seals (2).
(2) Install grease fitting (3).

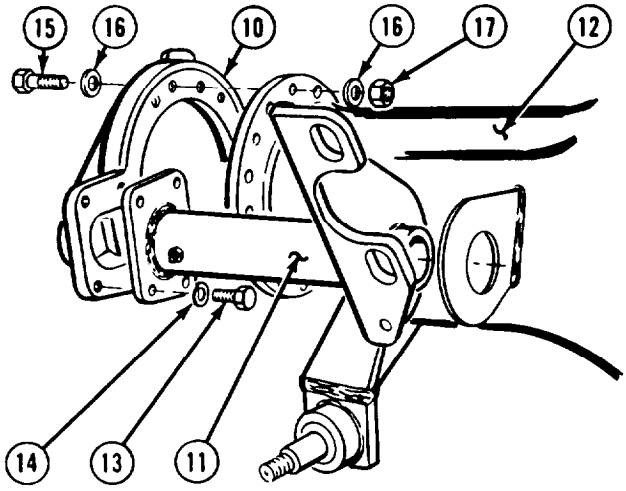
CAUTION

If screw lengths are longer than 1.5 in. (38.1 mm), replace with correct length screw or reverse installed position of screw so that screw head is on shock side (opposite of illustration). Failure to comply could result in damage to shocks.

(3) Install brace (4) with two screws (5 and 6), washers (7 and 8), and nut (9).

(4) Install brake spider (10) and camshaft bracket (11) on axle (12) with four screws (13), lockwashers (14), eight screws (15), 16 washers (16), and eight nuts (17).





(5) Install camshaft (18).

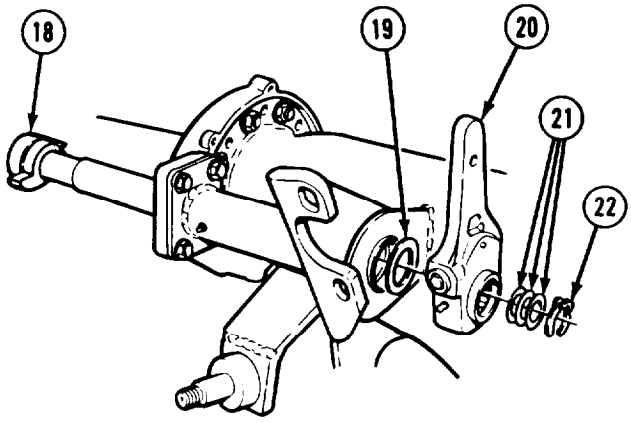
NOTE

- Install slack adjuster with adjusting screw and lock toward brake chamber mounting, make sure camshaft lobes are horizontal.
- Install No. 4 axle brake slack adjuster with arm to top.

(6) Install washer (19) and slack adjuster (20).

NOTE

Adjust camshaft end play to within 0.005 to 0.025 in. (0.127 to 0.635 mm) by adding or removing shim washers as necessary.



(7) Install shims (21) and retaining ring (22).

e. Follow-on Maintenance.

(1) Install rear brakedrum (para 12-4).
(2) Install rear brake chambers (para 11-9).
(3) Install brakedrum and wheel hub (para 12-5) (M984, M984E1)
(4) Install rear brake shoes (para 11-4).

END OF TASK

11-6.1 REAR BRAKE CAMSHAFT AND AUTOMATIC SLACK ADJUSTER REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Installation
c. Adjustment
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, antiseize, Item 10, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 12-4	Rear brakedrum removed (all except M984, M984A1).
Para 12-5	Brakedrum and wheel hub removed (M984, M984A1).
Para 11-4	Rear brakeshoes removed.

NOTE

Remove rear brake chamber only when removing camshaft bracket.

Para 11-9	Rear brake chamber removed.

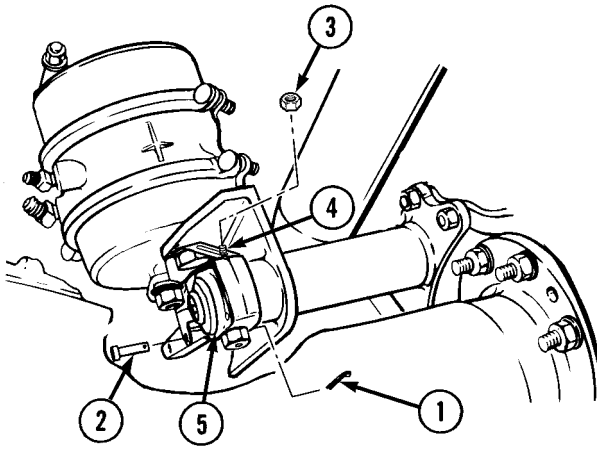
Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

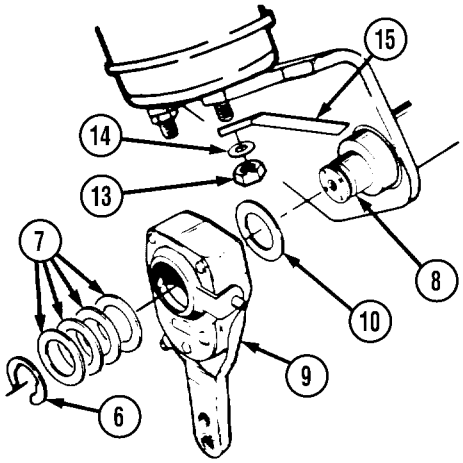
Level of Maintenance
General Support

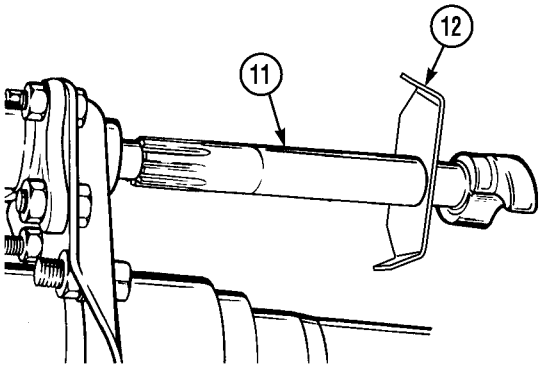
a. Removal.

(1) Remove cotter pin (1) and clevis pin (2).
(2) Remove nut (3) from screw (4) of control arm (5).



11-6.1 REAR BRAKE CAMSHAFT AND AUTOMATIC SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).





NOTE

Record number and size of shims after removing.

(3) Remove retaining ring (6) and shims (7) from camshaft assembly (8).
(4) Remove slack adjuster (9) and washer (10).

NOTE

Washer is on Model ES brake assemblies only.

(5) Remove camshaft (11) and washer (12).
(6) Remove nut (13), lockwasher (14), and bracket (15).

NOTE

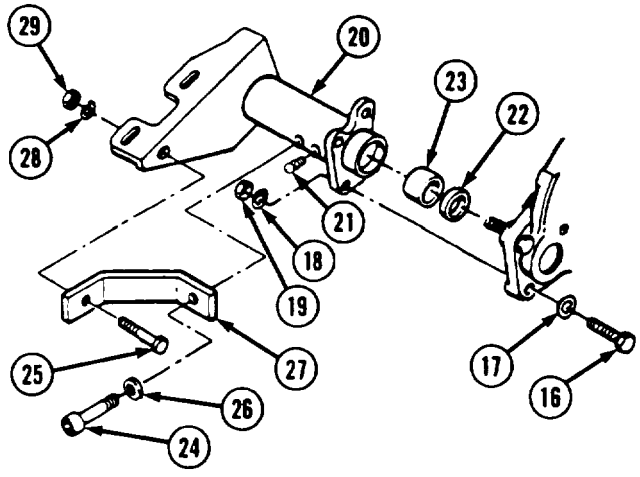
Step *(7)* is for all vehicles except M984A1.

(7) Remove four screws (16), washers (17), lockwashers (18), nuts (19), and camshaft bracket (20).
(8) Remove grease fitting (21).
(9) Remove oil seals (22) and bushings (23) from two camshaft brackets (20).

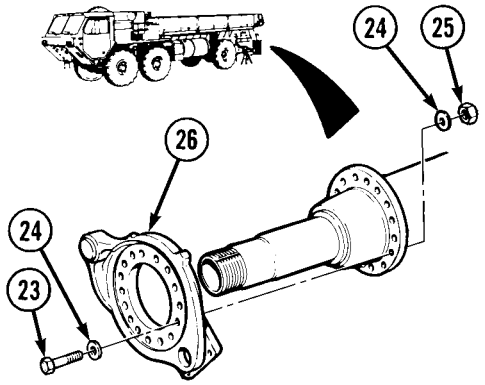
NOTE

Step *(10)* is for M984A1 vehicles only.

(10) Remove two screws (24), two screws (25), washers (26), brackets (27), lockwashers (28), and nuts (29).



(11) Remove eight screws (23), 16 washers (24), eight nuts (25), and brake spider (26).



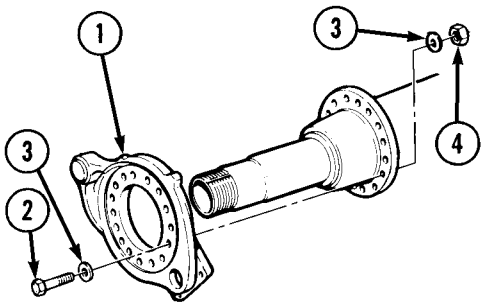
b. Installation.

NOTE

Left and right side camshafts and slack adjusters are installed the same way. Right side is shown.

(1) Install brake spider (1) with eight screws (2), 16 washers (3), and eight nuts (4).

(2) Install two bushings (5) and oil seals (6) in two camshaft brackets (7).



NOTE

Step *(3)* is for all vehicles except M984A1.

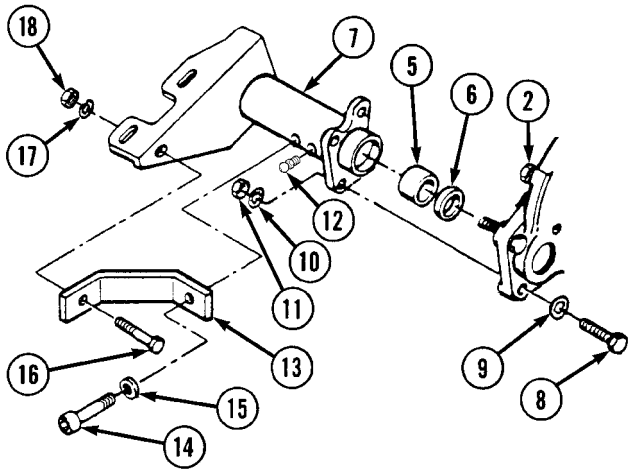
(3) Position each camshaft bracket (7) with four screws (8), washers (9), lockwashers (10), and nuts (11).

(4) Install grease fitting (12).

NOTE

Step *(5)* is for M984A1 vehicles only.

(5) Install two brackets (13) on two camshaft brackets (7) with two screws (14), washers (15), screws (16), lockwashers (17), and nuts (18).



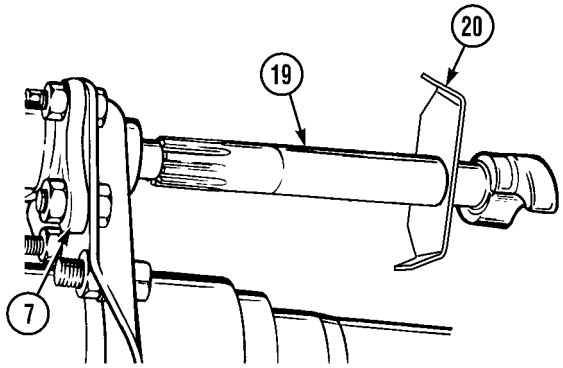
(6) Tighten eight screws (2).

(6.1) Install rear brake chamber (para 11-9) if removed.

11-6.1 REAR BRAKE CAMSHAFT AND AUTOMATIC SLACK ADJUSTER REMOVAL/INSTALLATION (CONT).

NOTE

Washer is on Model ES brake assemblies only.

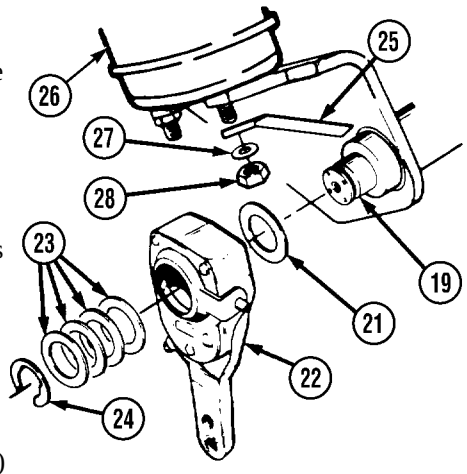


(7) Apply antiseize compound to threads of camshaft (19) splines prior to installation on camshaft bracket (7).

(8) Install camshaft (19) and washer (20) in camshaft bracket (7).

NOTE

- Install slack adjuster with adjusting screw and lock toward brake chamber and make sure camshaft lobes are horizontal.
- Shim washers are used to remove camshaft end play.
- Adjust camshaft end play to within 0.005 to 0.025 in. (0.127 to 0.635 mm) by adding or removing shim washers as necessary.

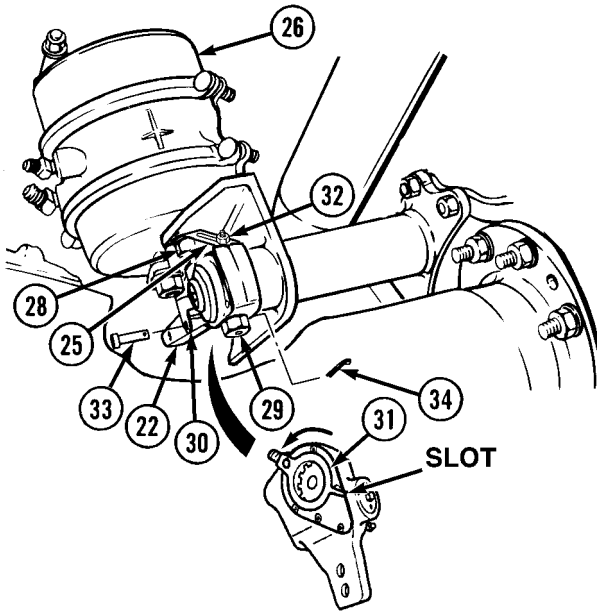


(9) Install washer (21) and slack adjuster (22) on camshaft (19).

(10) Install shims (23) and retaining ring (24).

(11) Install bracket (25) on air chamber (26), with washer (27) and nut (28). Do not tighten nut.

(12) Rotate adjusting hex head (29) until slack adjuster (22) hole alines with brake chamber yoke (30) hole.
(13) Install bracket (25) on control arm (31) with nut (32). Do not tighten nut.
(14) Rotate control arm (31) away from adjusting hex head (29), towards brake chamber (26), until control arm comes to a definite internal stop.
(15) Tighten nut (32). Ensure that control arm (31) does not move its position when tightening nut.
(16) Tighten nut (28).
(17) Install clevis pin (33) through slack adjuster (22) and brake chamber yoke (30).
(18) Install rear brakeshoes (para 11-4).



NOTE

- A minimum of 13 lb-ft (18 NSm) of torque is necessary to overcome the slack adjuster's internal clutch. A ratcheting sound will occur. If a minimum of 13 lb-ft (18 NSm) cannot be achieved, replace slack adjuster.

- Perform step *(18.1)* on all vehicles except M984 and M984A1. Perform step *(18.2)* on M984 and M984A1.

(18.1) Install rear brakedrum (para 12-4).
(18.2) Install rear brakedrum and hub (para 12-5).
(19) Rotate adjusting hex head (29) clockwise until brake lining contacts drum. Once contact is made, back-off adjusting hex head by 1/2 turn.

c. Adjustment.

(1) With full air pressure, release spring and service brake, and check that control arm (31) installation indicator is within slotted area.
(2) Remove clevis pin (33) and check that brake chamber yoke (30) hole and slack adjuster (22) hole remain in alinement. If the brake chamber yoke pulls into the brake chamber (26), loosen nuts (28) and (32) and repeat *b. Installation* steps *(12)* through *(19)* and *c. Adjustment* steps *(1)* and *(2)*. If brake chamber yoke hole and adjuster hole remain in alinement, go to step *(3)*.
(3) After slack adjuster (22) is adjusted properly, install clevis pin (33) and new cotter pin (34).

d. Follow-on Maintenance. None.

END OF TASK

11-7. BRAKE INSPECTION/ADJUSTMENT.

This task covers:

a. Inspection
b. Adjustment
c. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
	None

Special Environmental Conditions
None

General Safety Instructions
Do not get under vehicle until axle is supported by jack stand.
Wheels chocked.

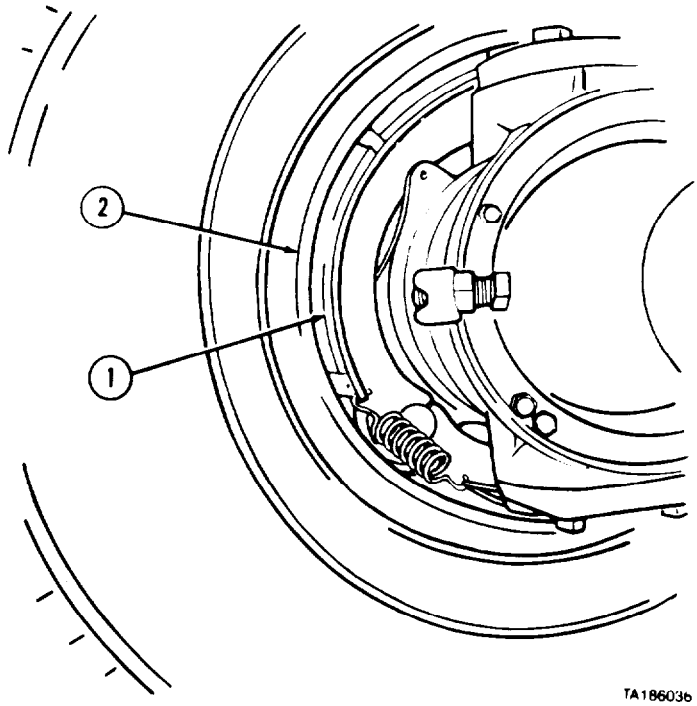
a. Inspection.

NOTE

Brakeshoes, drums. and brake adjustment mechanisms must be cleaned of dirt, mud, and debris before doing inspection.

(1) Measure edge thickness of brake lining (1). If brake lining is less than 1/4 in. (6.35 mm) at thinnest point, replace all brakeshoes on axle (para 11-3).

(2) Inspect brake linings (1) and drums (2) for obvious grooves and uneven wear. If brake linings (1) are worn unevenly and are less than 1/4 in. (6.35 mm) at thinnest point, replace all brakeshoes on axle (para 11-4). If drum (2) has deep grooves, replace drum (para 12-4).

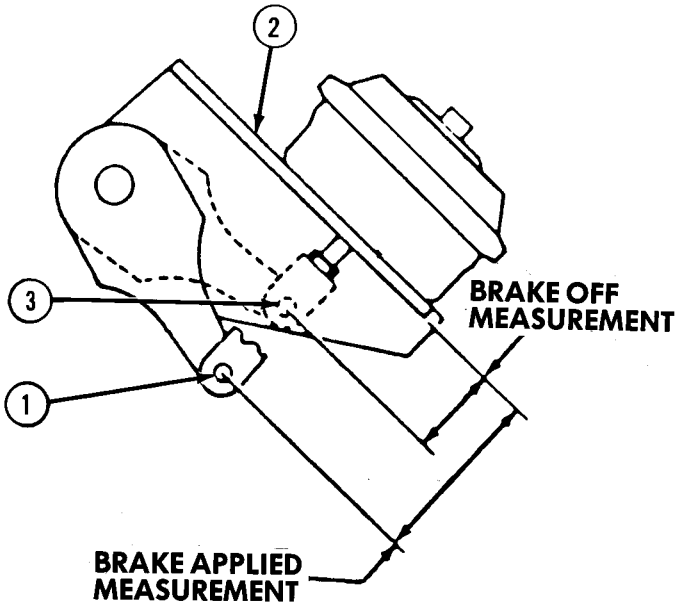


TA186036

11-7. BRAKE INSPECTION ADJUSTMENT (CONT).

NOTE

- Use 80 to 90 psi (552 to 620 kPa) air pressure for inspection.
- Brake chambers with orange stroke alert band do not require measurement.
- Front brake chamber is shown. Rear brake chamber is measured in the same manner.
- Some vehicles have manually adjusted slack adjusters. Others have automatic slack adjusters. Perform steps *(3)* through *(6)* for manually adjusted slack adjusters. Perform steps *(7)*, *(8)*, and *(9)* for automatic slack adjusters.

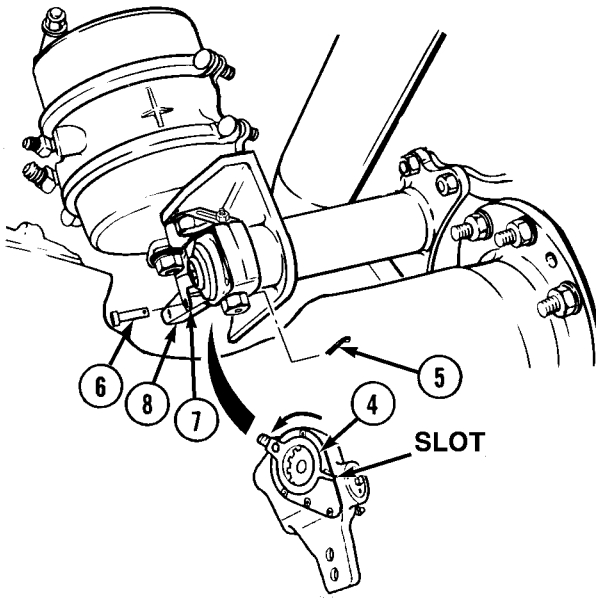


(3) Start engine and build up air pressure (TM 9-2320-279-10).

(4) Soldier A holds brake treadle down while Soldier B measures between center of yoke pin (1) and chamber bracket (2). Record measurement. If orange stroke alert band is visible, adjust all brakes.

(5) With brake treadle released, measure between center of yoke pin (3) and chamber bracket (2). Record measurement.

(6) Subtract brake released measurement from brake applied measurement. If difference is 1-3/4 in. (44.5 mm) or more for front brakes or 2 in. (50.8 mm) or more for rear brakes, adjust all brakes.



(7) Release spring and service brake and check that automatic slack adjuster's installation indicator (4) is within slot. If slack adjuster fails this inspection, refer to para 11-5.1 (front) or para 11-6.1 (rear).

(8) Remove cotter pin (5) and clevis pin (6). Discard cotter pin (5). Check that yoke (7) hole and slack adjuster (8) hole remain in alinement. If brake chamber yoke (7) retracts into the brake chamber, it fails inspection and must be readjusted. Refer to para 11-5.1 (front) or para 11-6.1 (rear).

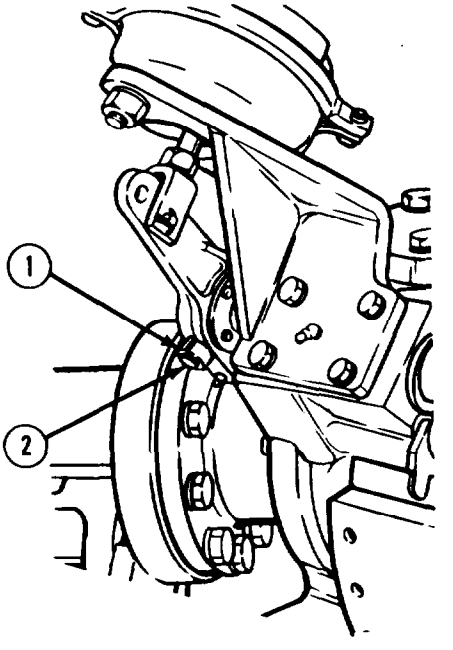
(9) Install clevis pin (6) and new cotter pin (5).

b. Adjustment (manually adjusted slack adjusters only).

WARNING

Do not get under vehicle until axle is supported by jack stand.

(1) Jack up axle (TM 9-2320-279-10) and install jack stand.
(2) Release parking brake when adjusting rear brakes (TM 9-2320-279-10).
(3) Place tool on spring loaded lock (1) around adjusting screw (2). Push down on lock and tighten adjusting screw until wheel can no longer be turned by hand.
(4) Place tool on spring loaded lock (1) around adjusting screw (2). Push lock down and back out adjusting screw three clicks or 1/4 turn. Release lock.



c. Follow-on Maintenance.

(1) Remove jack (TM 9-2320-279-10) and jack stand.
(2) If vehicle is towing trailer, refer to appropriate trailer technical manual to inspect and adjust brakes.

END OF TASK

11-8. FRONT BRAKE CHAMBER AND FRONT ARCTIC BRAKE CHAMBER REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

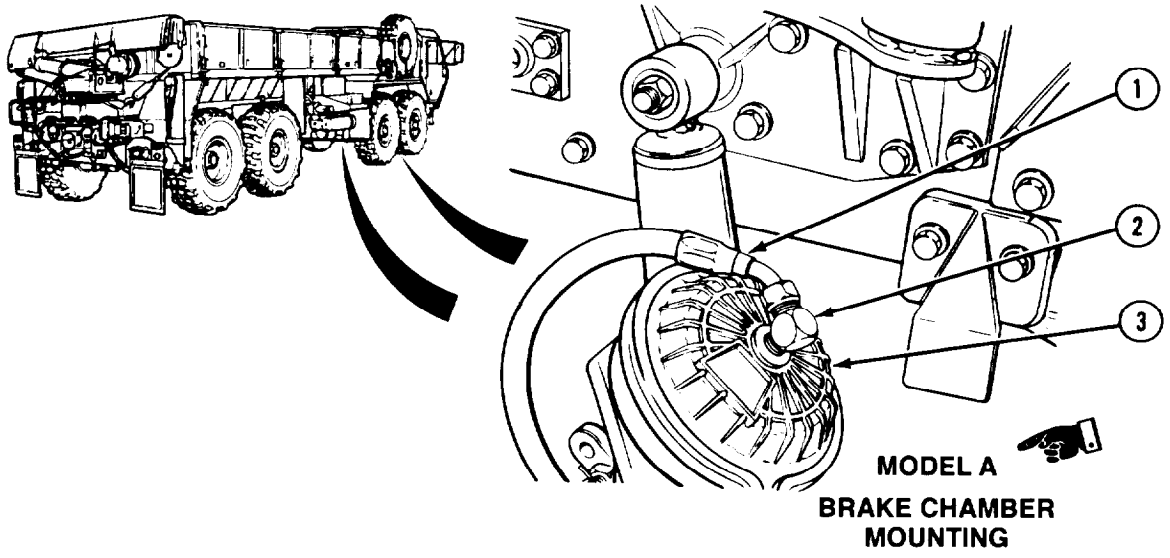
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

Brake and Air System Maintenance Instructions (Cont)

a. Removal.



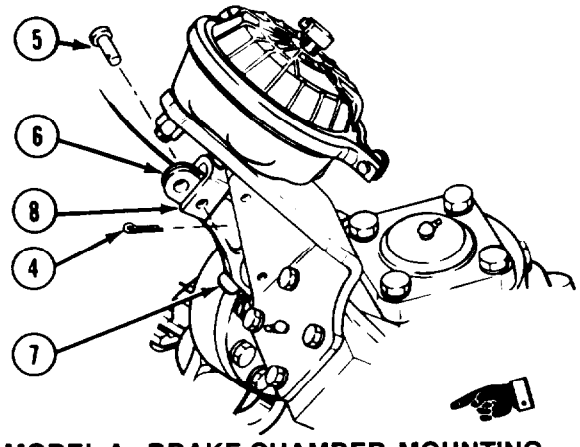
NOTE

- Tag and mark air lines before disconnecting.
- There are two types of non-arctic brake chambers, an old style and a new style. Both are removed and repaired the same way, and are interchangable. Refer to TM 9-2320-279-24P for correct parts identification if chambers must be repaired or replaced.
- Arctic brake chamber is no longer used, and has been replaced with a new style brake chamber. Replace all arctic brake chambers with the new style brake chamber if arctic chamber needs repair. Refer to TM 9-2320-279-24P for parts identification.
- There are two types of brake chamber brackets. Model A has the brake chamber on the front side of the bracket. Model B has the brake chamber on the rear side of the bracket.
- All brake chambers are installed on either Model A or Model B brake chamber brackets the same way.
- Model B uses a straight fitting instead of an elbow.

(1) Disconnect air line (1) from elbow (2) on brake chamber (3).

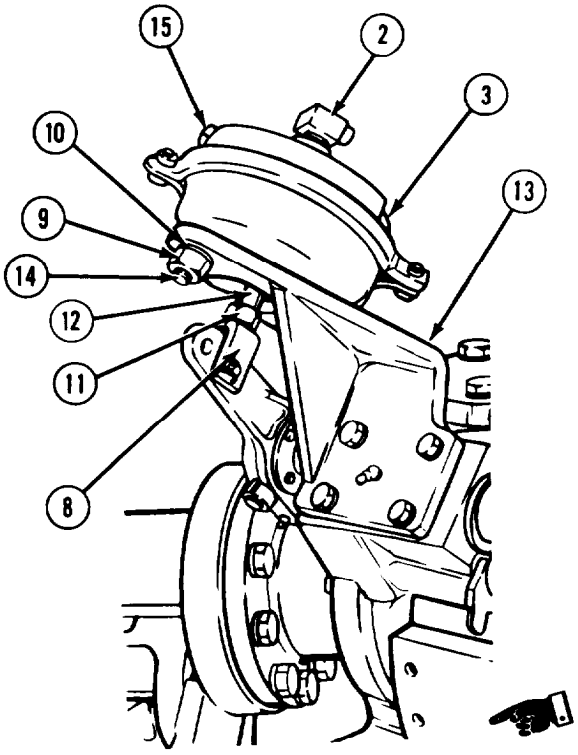
11-8. FRONT BRAKE CHAMBER AND FRONT ARCTIC BRAKE CHAMBER REMOVAIL/REPAIR/INSTALLATION (CONT).

(2) Remove cotter pin (4) and clevis pin (5) from slack adjuster (6).
(3) Back off slack adjuster screw (7) until slack adjuster (6) is clear of brake chamber yoke (8).



MODEL A BRAKE CHAMBER MOUNTING

(4) Remove two nuts (9) and lockwashers (10).
(5) Loosen jamnut (11) on push rod (12). Rotate brake chamber yoke (8) 180 degrees.
(6) Remove brake chamber (3) from mounting bracket (13).
(7) Note position of elbow (2) with respect to chamber mounting studs (14).
(8) Remove elbow (2), plug (15), brake chamber yoke (8), and jamnut (11).



MODEL A BRAKE CHAMBER MOUNTING

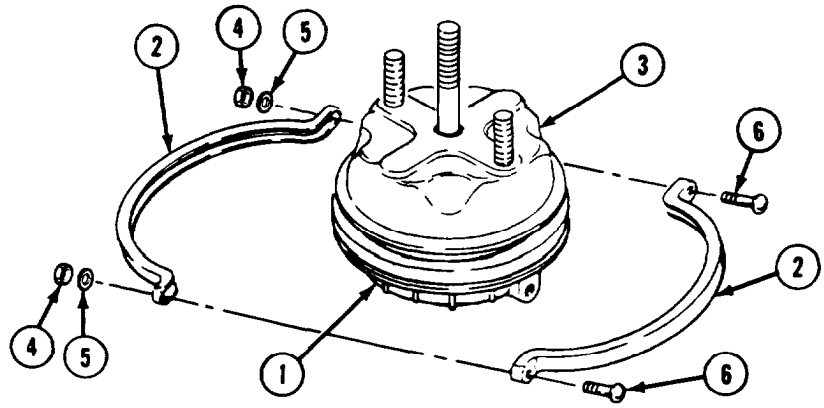
Brake and Air System Maintenance Instructions (Cont)

b. Disassembly.

NOTE

Old style and new style brake chambers are disassembled the same way.

(1) Place pressure housing (1) in suitable clamping device and matchmark pressure housing clamp (2) and nonpressure housing (3).



NOTE

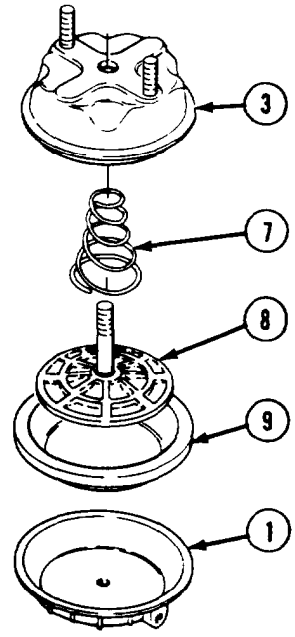
Washers on old style only.

(2) Remove two nuts (4), washers (5), screws (6), and clamp (2).

WARNING

Brake chamber contains a spring under compression. Use extreme care and release spring force slowly to avoid personal injury.

(3) Open clamping device slowly to release spring (7).
(4) Remove nonpressure housing (3).
(5) Remove spring (7) and push rod assembly (8).
(6) Remove diaphragm (9) from pressure housing (1).



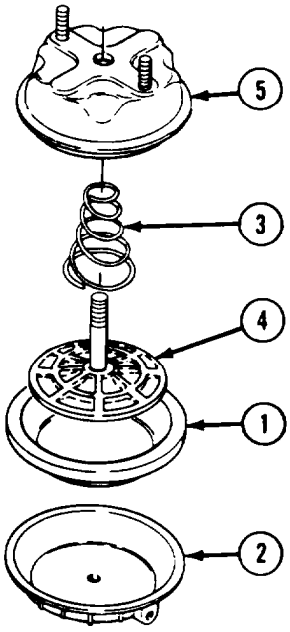
11-8. FRONT BRAKE CHAMBER AND FRONT ARCTIC BRAKE CHAMBER REMOVAL/REPAIR/INSTALLATION (CONT).

c. Assembly.

NOTE

Old style and new style brake chambers are assembled the same way.

(1) Install diaphragm (1) in pressure housing (2).
(2) Install spring (3) and push rod assembly (4) in diaphragm (1).
(3) Install nonpressure housing (5).

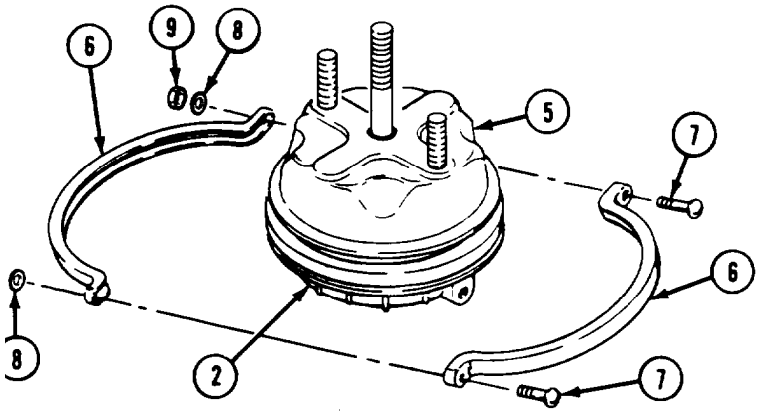


(4) Aline matchmarkers and clamp nonpressure housing (5) and pressure housing (2) together.

NOTE

- Washers on old style chamber only.
- Tighten nuts on new style chamber clamps to 25 lb-ft (34 N•m).

(5) Install clamp (6) with two screws (7), washers (8), and nuts (9). Tighten nuts to 40 lb-ft (54 N•m).
(6) Release clamping device.



Brake and Air System Maintenance Instructions (Cont)

d. Installation.

WARNING

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

NOTE

- There are two types of non-arctic brake chambers, an old style and a new style. Both are installed the same way, and are interchangeable. Refer to TM 9-2320-279-24P for proper part identification.
- All brake chambers are installed on either Model A or Model B brake chamber brackets the same way.

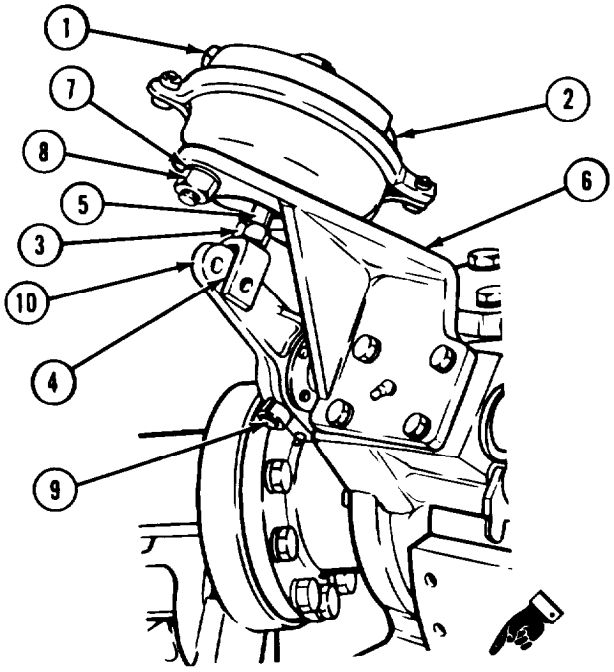
(1) Install plug (1) in side of brake chamber (2).

(2) Install jamnut (3) and brake chamber yoke (4) on push rod (5). Do not tighten jamnut.

(3) Place brake chamber (2) on mounting bracket (6) and install with two lockwashers (7) and nuts (8). Tighten nuts to 75 to 100 lb-ft (102 to 136 N•m).

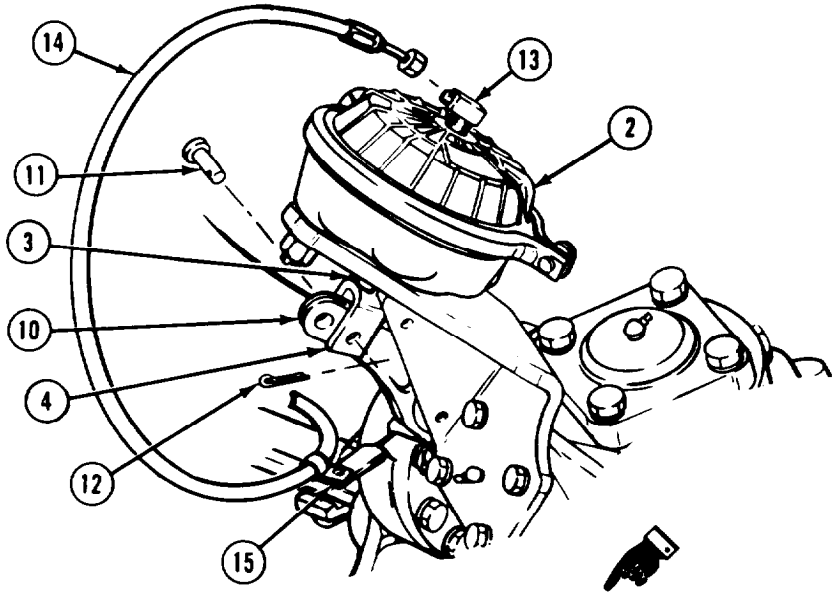
(4) Thread brake chamber yoke (4) on push rod (5) until bottom of brake chamber yoke is flush with end of push rod.

(5) Turn slack adjuster screw (9) until slack adjuster (10) alines with brake chamber yoke (4).



MODEL A BRAKE CHAMBER MOUNTING

11-8. FRONT BRAKE CHAMBER AND FRONT ARCTIC BRAKE CHAMBER REMOVAL/REPAIR/INSTALLATION (CONT).



MODEL A BRAKE CHAMBER MOUNTING

(6) Install clevis pin (11) through slack adjuster (10) and brake chamber yoke (4).
(7) Install cotter pin (12).
(8) Tighten jamnut (3) to lock brake chamber yoke (4).

WARNING

Prevent air brake failure. Brake line failure can increase stopping distance or cause brakes to lock and cause injury to personnel. Be sure to follow steps (9) and *(10)* when installing elbow and air line.

NOTE

Model B brake chamber mounting uses a straight fitting in place of the elbow.

(9) Apply pipe thread sealing compound to threads of elbow (13) and install elbow in brake chamber (2) with elbow parallel to frame.
(10) Measure 20 inches (51 cm) of air line (14) from cushion clip (15). Connect air line to elbow (13).

CAUTION

There must be 1.50 inches (40 mm) clearance between tire and air line after installing. Check clearance in full left and right steer positions.

e. Follow-on Maintenance.

(1) Check air lines for leaks (TM 9-2320-279-10).
(2) Adjust brakes (para 11-7).

END OF TASK

11-9. REAR BRAKE CHAMBER AND REAR ARCTIC BRAKE CHAMBER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air pressure drained.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

11-9. REAR BRAKE CHAMBER AND REAR ARCTIC BRAKE CHAMBER REMOVAL/INSTALLATION (CONT).

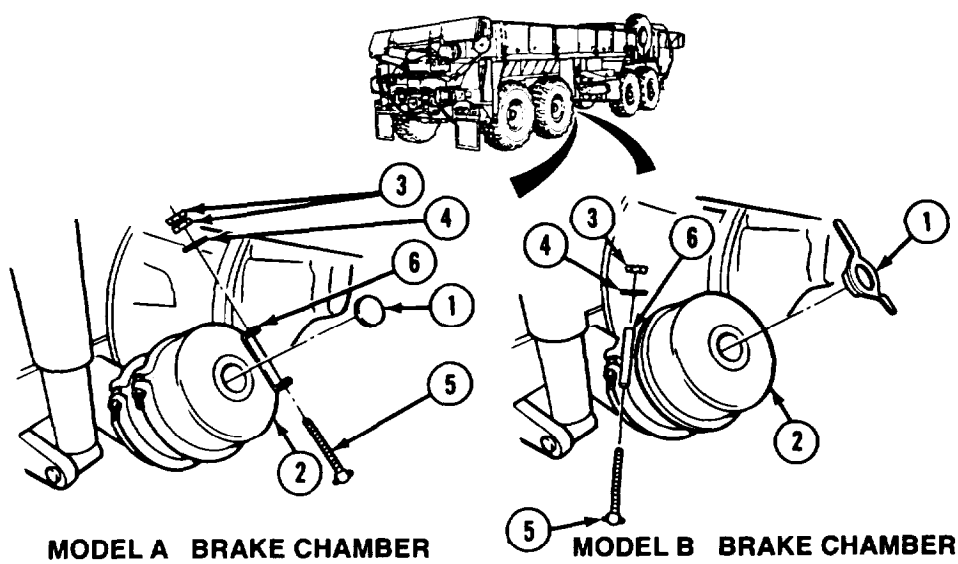
a. Removal.

WARNING

Failure to ensure brake chamber is caged while releasing brakes can result in serious injury or death. Spring is under 2500 lb (1135 kg) tension.

NOTE

- There are two types of brake chambers: Model A and Model B. Both brake chambers are removed the same way. Refer to TM 9-2320-279-24P for proper part identification if chambers must be repaired or replaced.
- Model A brake chamber has a clamp band that retains the spring brake side of chamber. It also has the release bolt mounted at top of chamber. Model B has a permanently sealed spring brake side of chamber. The release bolt is mounted at middle of chamber.
- Arctic brake chamber is no longer used, and has been replaced with Model B type chamber. Replace all arctic brake chambers with the Model B type chamber if arctic chamber needs repair or replacement. Refer to TM 9-2320-279-24P for parts identification.
- Model A rear brake chamber and arctic brake chamber are removed the same way.
- Perform steps (1 through 6) for Model A. Perform steps *(1* through 5) and skip to step *(6.1)* for Model B.



MODEL A BRAKE CHAMBER MODEL B BRAKE CHAMBER

(1) Remove dust cap (1) from brake chamber (2).

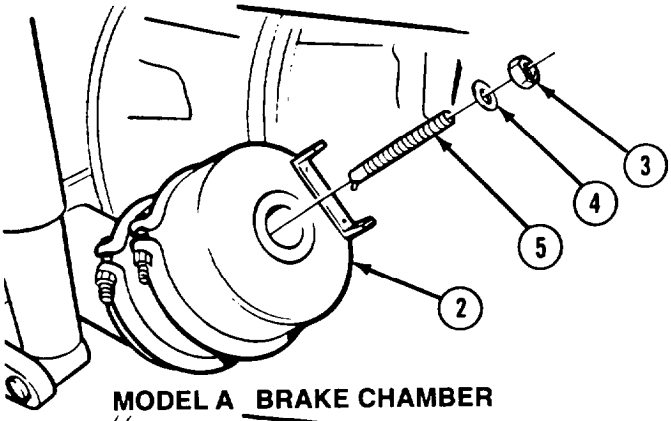
NOTE

Model B has only one nut.

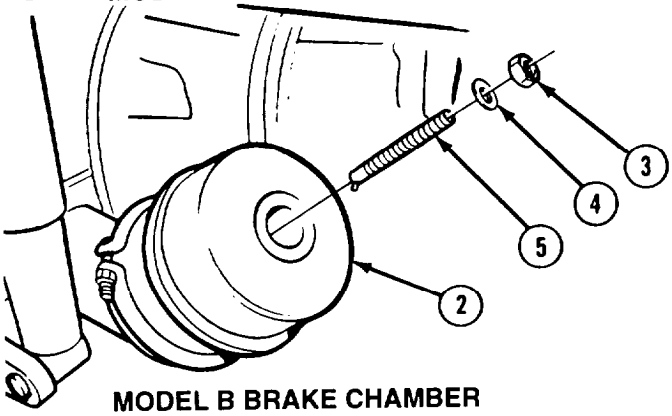
(2) Remove two nuts (3), washer (4), and release bolt (5) from bracket (6).

Brake and Air System Maintenance Instructions (Cont)

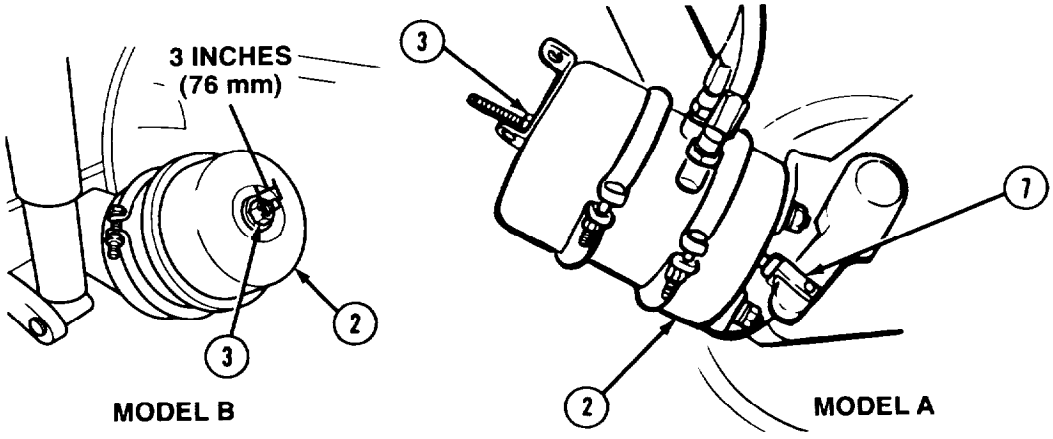
(3) Insert release bolt (5) in brake chamber (2).
(4) Turn release bolt (5) 1/4 turn to engage inside brake chamber (2).
(5) Install washer (4) and nut (3) on release bolt (5).



MODEL A BRAKE CHAMBER



MODEL B BRAKE CHAMBER



NOTE

For Model B, do step (6.1).

(6) Tighten nut (3) until brake chamber yoke (7) is pulled to rear of brake chamber (2).
(6.1) Turn nut (3) clockwise until 3 inches (76 mm) of release bolt (5) extends above nut. Do not exceed 50 lb-ft (68.6 N•m) torque.

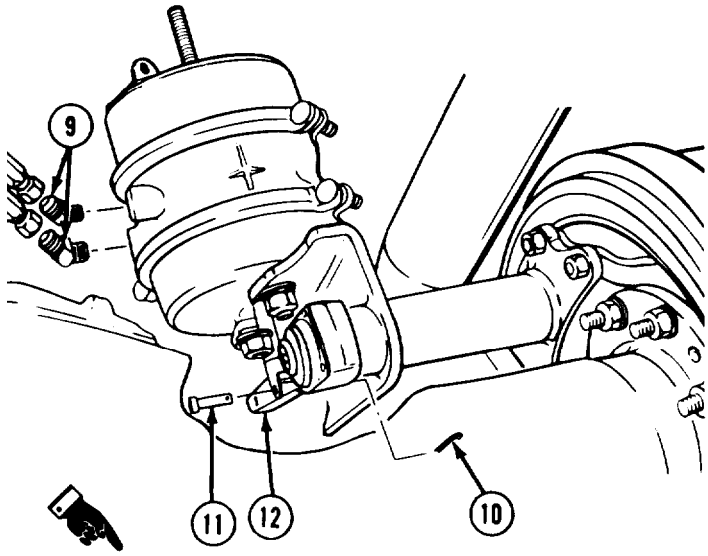
11-9. REAR BRAKE CHAMBER AND REAR ARCTIC BRAKE CHAMBER REMOVAL/INSTALLATION (CONT).

NOTE

- Tag and mark air lines before disconnecting.
- When replacing Model A with Model B, both brake chambers on same axle must be same model.
- Model B has one air line reversed from Model A. Refer to FO-2 of TM 9-2320-279-20-3. Left air line No. 081 must now go to right chamber, while right air line No. 082 must go to left chamber. Left air line No. 022 now goes to right chamber. Right air line No. 023 now goes to left chamber.

M984E1 has 90° elbows on No. 4 axle.

Brake chamber will have to be uncaged slightly to remove pin.

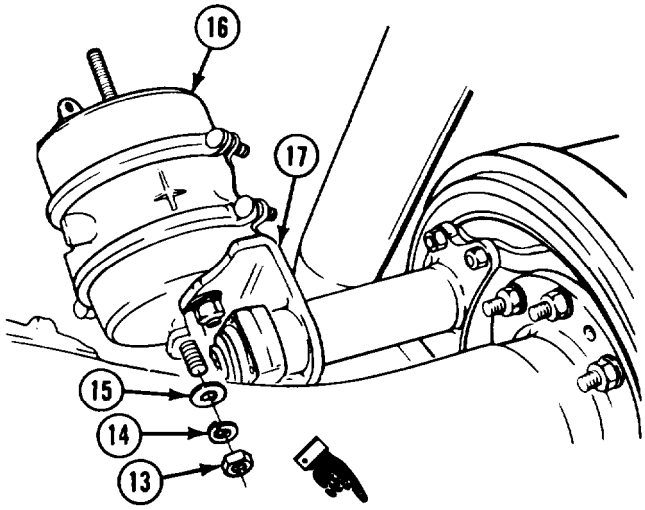


MODEL A BRAKE CHAMBER SHOWN

(7) Disconnect two air lines (8) from elbows (9).
(8) Remove two elbows (9).
(9) Remove cotter pin (10) and clevis pin (11) from slack adjuster (12).

NOTE
Model B has no lockwashers.

(10) Remove two nuts (13), lockwashers (14), and washers (15). Remove brake chamber (16) from mounting bracket (17).



MODEL A BRAKE CHAMBER SHOWN

Brake and Air System Maintenance Instructions (Cont)

b. Installation.

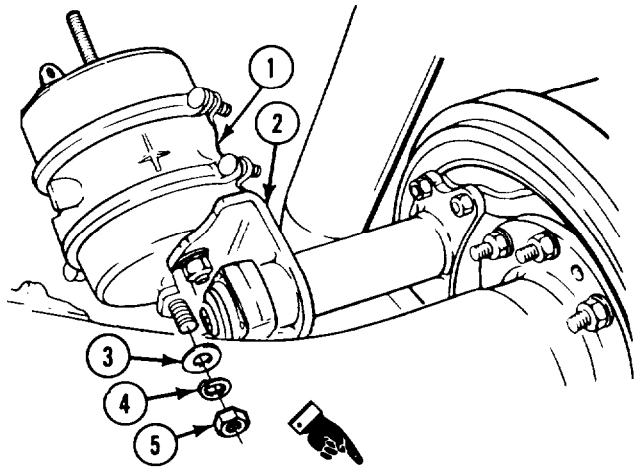
WARNING

Failure to ensure brake chamber is caged while releasing brakes can result in serious injury or death. Spring is under 2500 lb (1135 kg) tension.

NOTE

- There are two types of brake chambers: Model A and Model B. Both brake chambers are installed the same way. Refer to TM 9-2320-279-24P for proper part identification if chambers must be repaired or replaced.
- M984 and M984E1 spring brake chambers on axle No. 4 are installed with spring brake housing pointing downward.
- Model A rear brake chamber and arctic brake chamber are installed the same way.
- Model B has no lockwasher.

(1) Install brake chamber (1) on mounting bracket (2) with two washers (3), lockwashers (4), and nuts (5). Tighten nuts to 75 to 100 lb-ft (102 to 136 N•m).



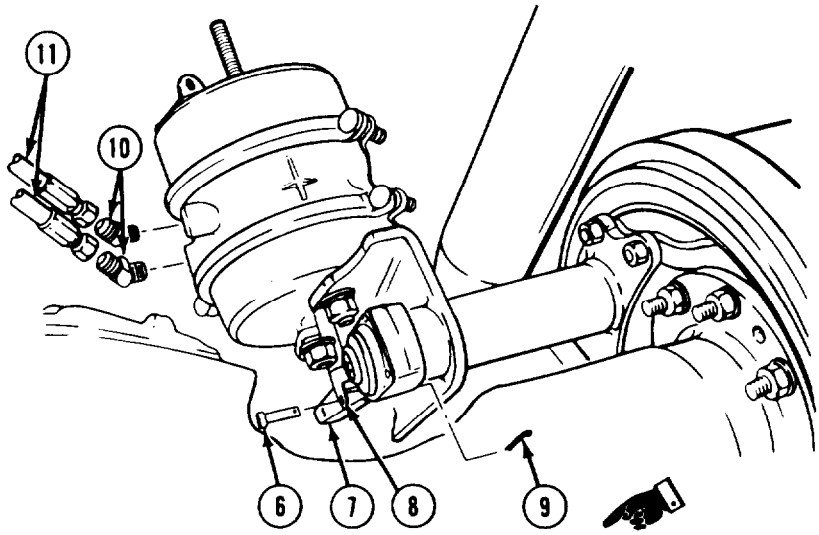
MODEL A BRAKE CHAMBER SHOWN

11-9. REAR BRAKE CHAMBER AND REAR ARCTIC BRAKE CHAMBER REMOVAL/INSTALLATION (CONT).

(2) Install clevis pin (6) through slack adjuster (7) and brake chamber yoke (8).
(3) Install cotter pin (9).

WARNING

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



MODEL A BRAKE CHAMBER SHOWN

NOTE

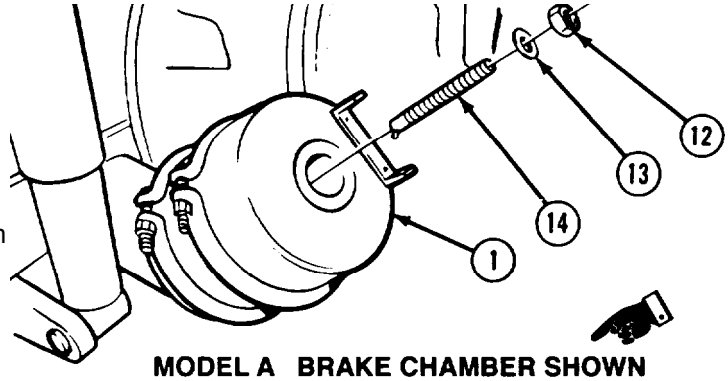
- M984E1 has 90° elbows on No. 4 axle.
- Model B has one air line reversed from Model A. When replacing Model A with Model B, both left air line No. 081 must now go to right chamber, while right air line No. 082 must now go to left chamber. Left air line No. 022 now goes to right chamber. Right air line No. 023 now goes to left chamber.

(4) Coat threads of two elbows (10) with pipe thread sealing compound and install.
(5) Connect two air lines (11).

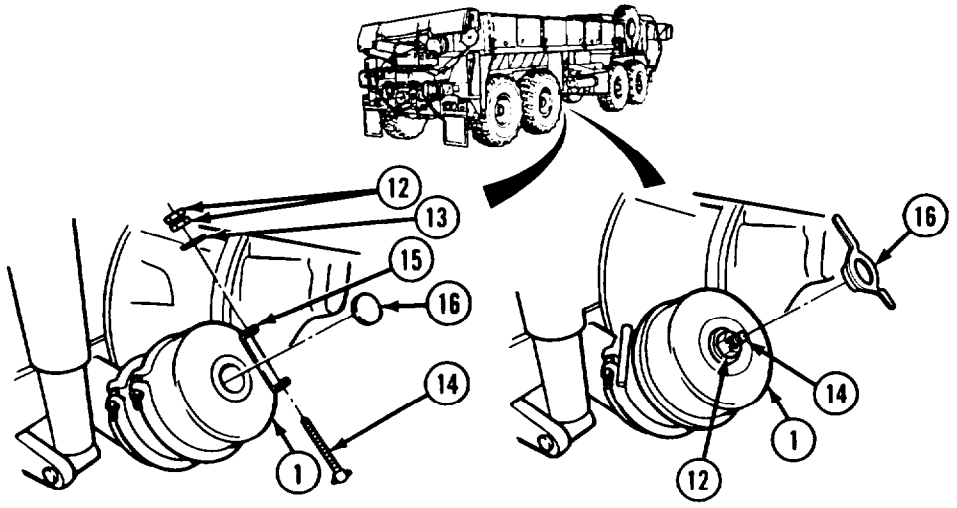
NOTE

There are two models of rear brake chambers. Model A has a release bolt that mounts at top of chamber. Model B release bolt remains installed. Perform steps (6 through 9) for Model A. Perform steps (8.1 and 9) for Model B.

(6) Remove nut (12) and washer (13) from release bolt (14).
(7) Remove release bolt (14) from brake chamber (1).



MODEL A BRAKE CHAMBER SHOWN



MODEL A BRAKE CHAMBER MODEL B BRAKE CHAMBER

NOTE
Model B has only one nut.

(8) Install release bolt (14) in bracket (15) with washer (13) and two nuts (12).
(8.1) Loosen nut (12) and turn release bolt (14) to disengage brake chamber (1).
(9) Install dust cap (16) in brake chamber (1).

c. Follow-on Maintenance.

(1) Start engine and build up air pressure (TM 9-2320-279-10).
(2) Adjust brakes (para 11-7).

END OF TASK

Section III. BRAKE SYSTEM VALVES

11-10. BRAKE TREADLE AND BRAKE TREADLE VALVE REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C
Solvent, drycleaning, Item 47, Appendix C

Personnel Required
MOS 635, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

NOTE

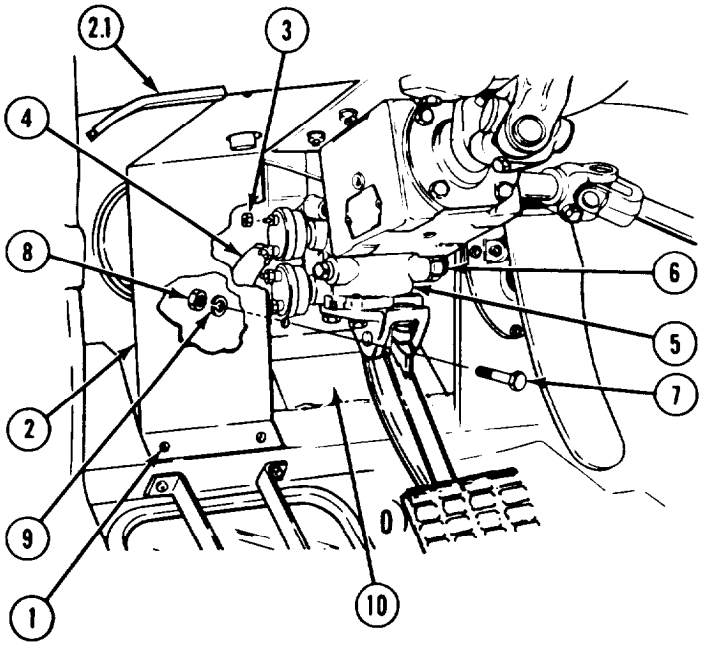
Some models of vehicles have a section of quickedge molding located behind the light guard. Do step *(1.1)* for some models.

(1) Remove four screws (1) and light guard (2).
(1.1) Remove quickedge molding (2.1).

NOTE

Tag and mark all wires before disconnecting.

(2) Remove four nuts (3) and nine wires (4) from brake treadle valve (5).
(3) Disconnect two push-on wire connectors (6) from brake treadle valve (5).
(4) Remove two bottom screws (7), nuts (8), and lockwashers (9) from mounting plate (10). Loosen, but do not remove top screws. Slide brake treadle valve (5) and mounting plate down and turn for access to air lines.



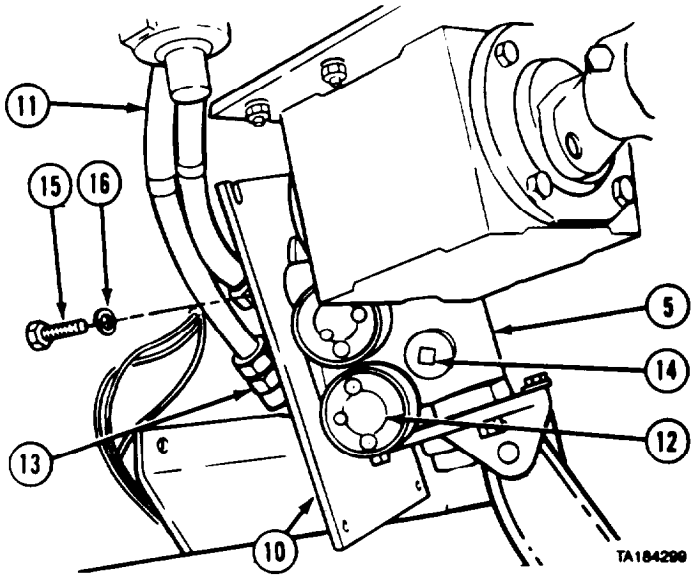
Brake and Air System Maintenance Instructions (Cont)

(5) Remove six air lines (11) from brake treadle valve (5).
(6) Remove brake treadle valve (5) and mounting plate (10).

NOTE

Record location and position of switches, fittings, and plugs.

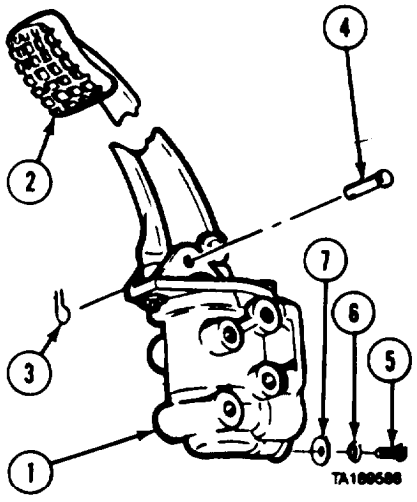
(7) Remove two switches (12) six fittings (13), and three plugs (14).
(8) Remove four screws (15), lockwashers (16), and mounting plate (10).



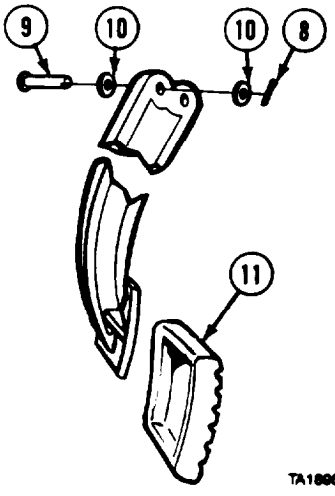
b. Disassembly.

(1) Mount brake treadle valve (1) in vise with soft jaws, pedal (2) up.

(2) Remove cotter pin (3) pivot pin (4) and pedal (2).
(3) Remove screw (5) cup washers (6) and diaphragm (7).



(4) Remove cotter pin (8), pin (9), and two rollers (10).
(5) Remove pedal cover (11).



Brake and Air System Maintenance Instructions (Cont)

(6) Deleted.
(7) Deleted.
(8) Deleted.
(9) Deleted.

c. Cleaning/Inspection.

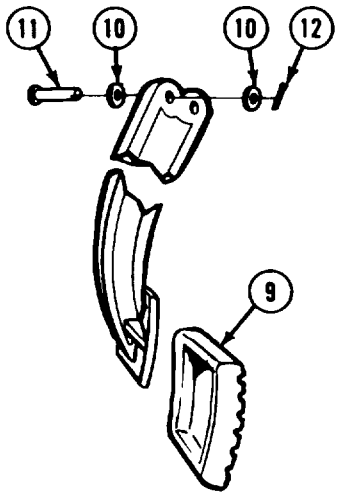
WARNING

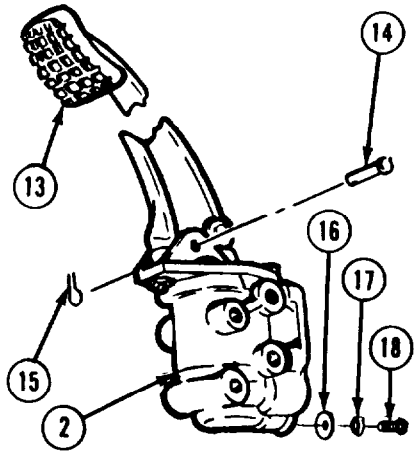
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(1) Clean all metal parts in drycleaning solvent.
(2) Inspect all parts for cracks, damage, or deterioration.
(3) Replace unserviceable parts.

d. Assembly.

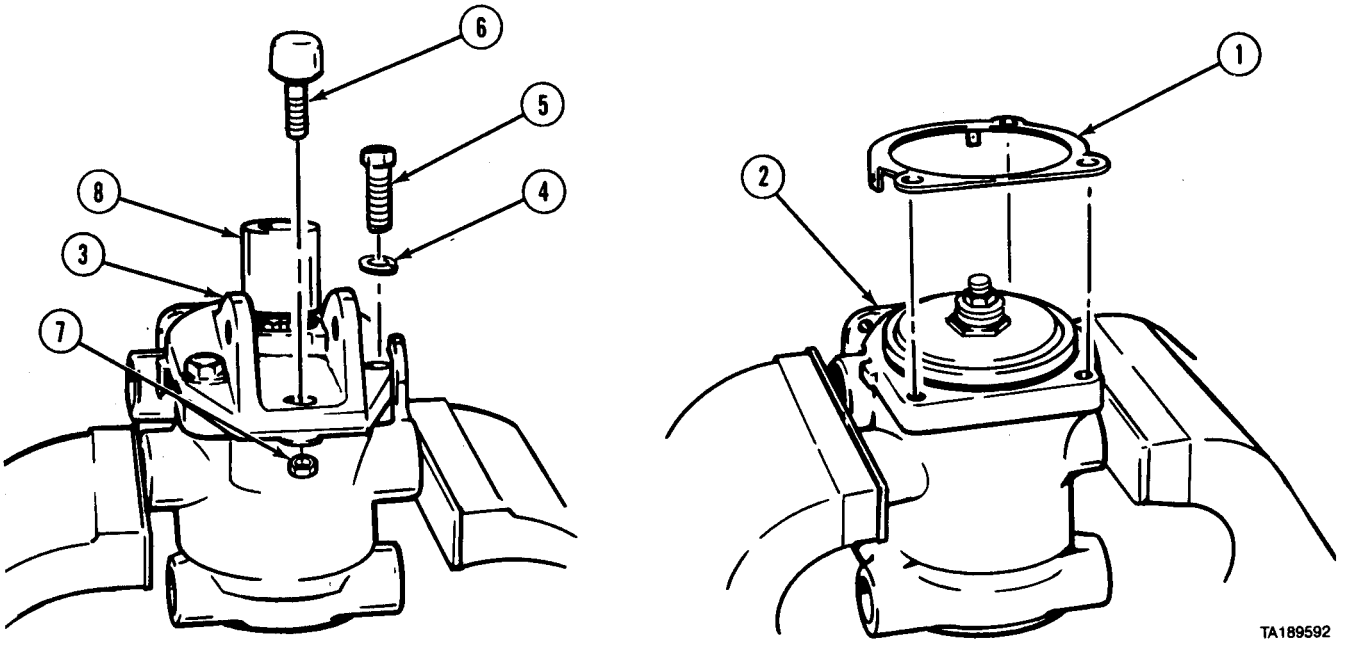
(1) Deleted.
(2) Deleted.
(3) Deleted.
(4) Deleted.



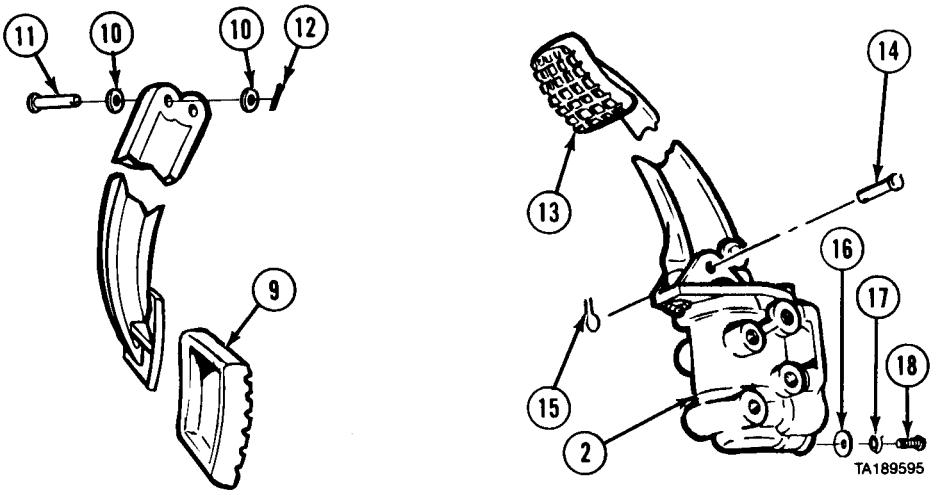


(5) Install pedal cover (9).
(6) Install two rollers (10) with pin (11) and cotter pin (12).
(7) Attach pedal (13) to housing (2) with pin (14) and cotter pin (15).
(8) Install diaphragm (16), cup washer (17), and screw (18).

d. Assembly.



(1) Install retainer (1) making sure tabs engage boss on housing (2).
(2) Install pedal plate (3) with three lockwashers (4) and screws (5).
(3) Install stop button (6) and jamnut (7).
(4) Install plunger (8).

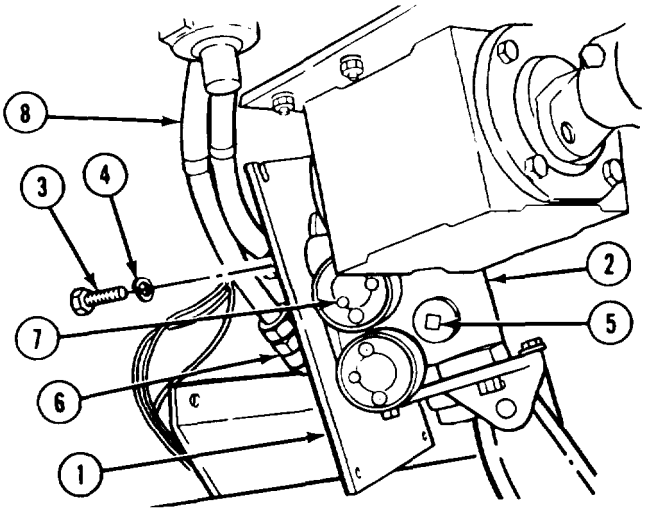


(5) Install pedal cover (9).
(6) Install two rollers (10) with pin (11) and cotter pin (12).
(7) Attach pedal (13) to housing (2) with pin (14) and cotter pin (15).
(8) Install diaphragm (16), cup washer (17), and screw (18).

Brake and Air System Maintenance Instructions (Cont)

e. Installation.

(1) Install mounting plate (1) on brake treadle valve (2) with four screws (3) and lockwashers (4).



WARNING

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

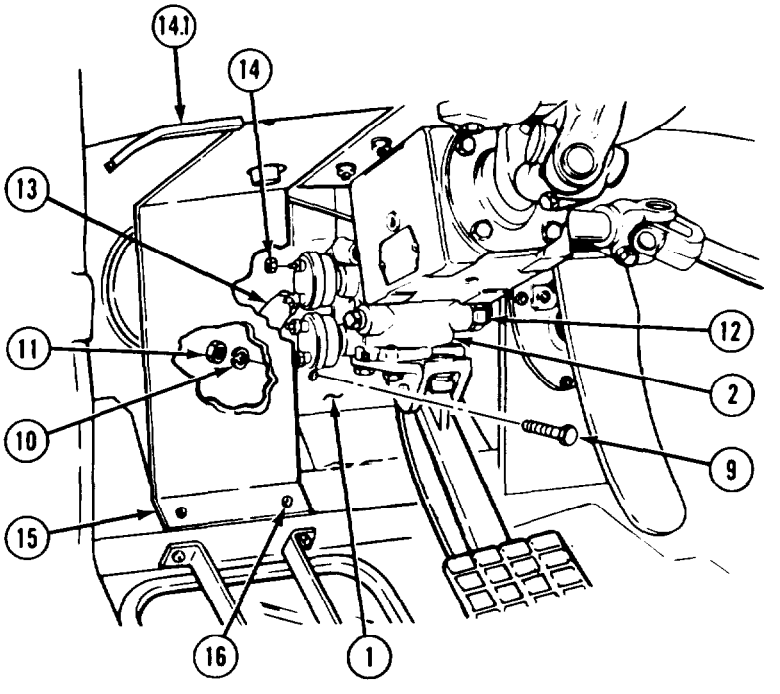
(2) Apply pipe thread sealing compound to threads of three plugs (5), six fittings (6), and two switches (7). Install plugs, fittings, and switches in brake treadle valve (2).

(3) Connect six air lines (8) to brake treadle valve (2).

(4) Install brake treadle valve (2) with two screws (91, lockwashers (10), and nuts (11) at bottom of mounting plate (1). Tighten screws.

(5) Connect two wires (12) to brake treadle valve (2).

(6) Install nine wires (13) and four nuts (14) on brake treadle valve (2).



NOTE

Some models of vehicles have a section of quickedge molding located behind the light guard. To prevent hose chafing, quickedge can be applied to all models. Do step *(6.1)* to apply quickedge.

(6.1) Install quickedge molding (14.1).

(7) Install light guard (15) with four screws (16).

f. Follow-on Maintenance.

(1) Start engine and build up air pressure to 120-125 psi (827-862 kPa) (TM 9-2320-279-10).

(2) Check connections for air leaks.

(3) Check operation of brake treadle valve (TM 9-2320-279-10).

(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

Brake and Air System Maintenance Instructions (Cont)

11-11. BRAKE TREADLE VALVE LOW AIR PRESSURE SWITCH REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread. Item 18, Appendix C

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

Equipment Condition

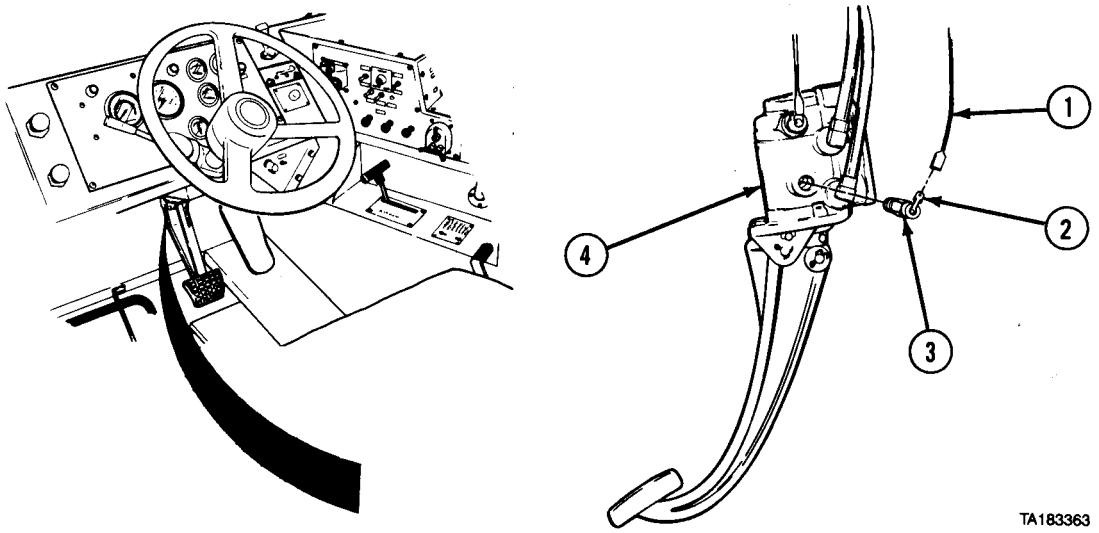
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

11-11. BRAKE TREADLE VALVE LOW AIR PRESSURE SWITCH REMOVAL/INSTALLATION (CONT).

a. Removal.



NOTE

Each switch is removed and installed the same way.

(1) Disconnect wire (1) from terminal (2) of low air pressure switch (3).
(2) Remove low air pressure switch (3) from brake treadle valve (4).

b. Installation.

WARNING

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

(1) Coat threads of low air pressure switch (3) with pipe thread sealing compound, and install on brake treadle valve (4).
(2) Connect wire (1) on terminal (2) of low air pressure switch (3).

c. Follow-on Maintenance.

(1) Start engine to build up air pressure (TM 9-2320-279-10).
(2) Check operation of low air pressure switch.
(3) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-12. BRAKE RELAY VALVES REMOVAL/INSTALLATION.

This task covers:

a. Front Brake Relay Valve Removal
b. Front Brake Relay Valve Installation
c. Right Rear Brake Relay Valve Removal
d. Right Rear Brake Relay Valve Installation
e. Left Rear Brake Relay Valve Removal
f. Left Rear Brake Relay Valve Installation
g. Left Rear Brake Relay Valve Removal (M978)
h. Left Rear Brake Relay Valve Installation (M978)
i. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

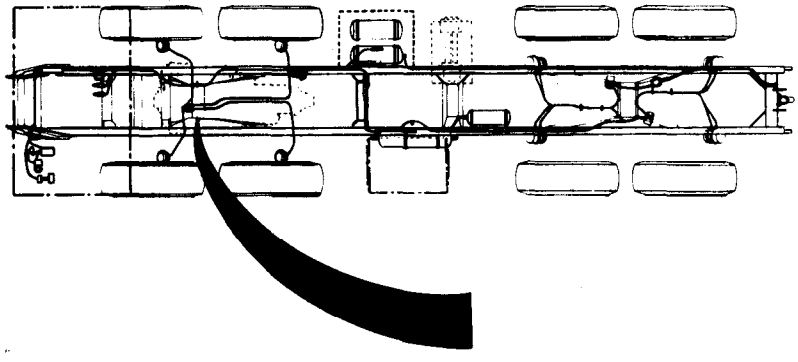
Equipment Condition

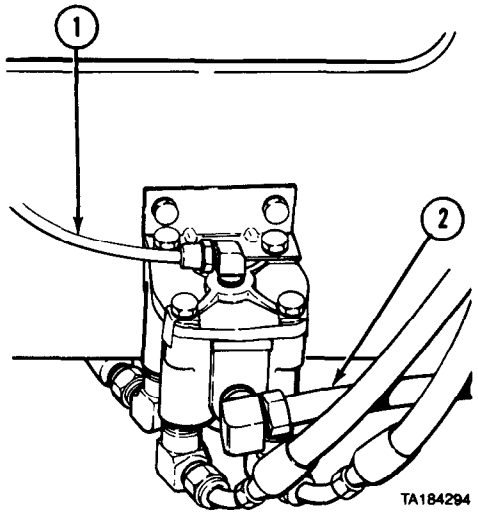
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air systems drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Front Brake Relay Valve Removal.





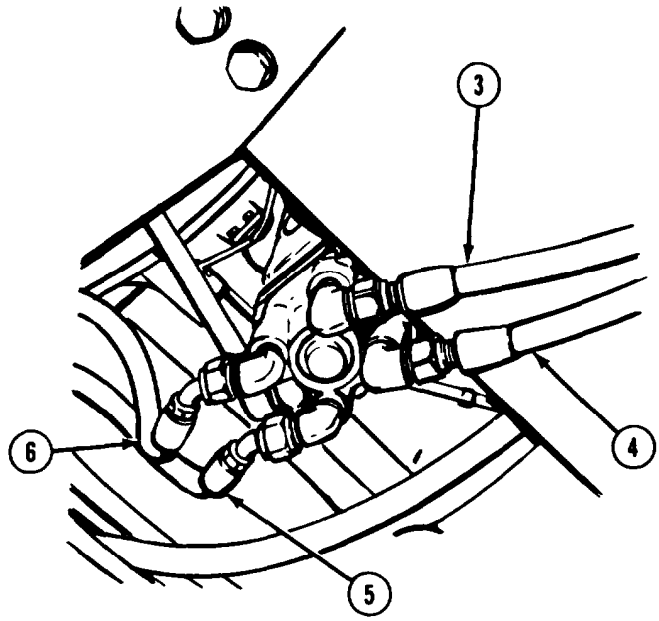
NOTE

Tag and mark air lines and elbows before removal.

(1) Disconnect control line (1) and supply line (2).

Brake and Air System Maintenance Instructions (Cont)

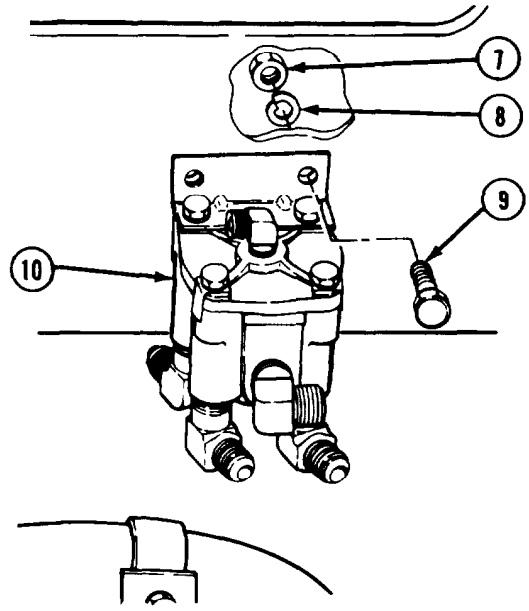
(2) Disconnect air lines (3, 4, 5, and 6).



NOTE

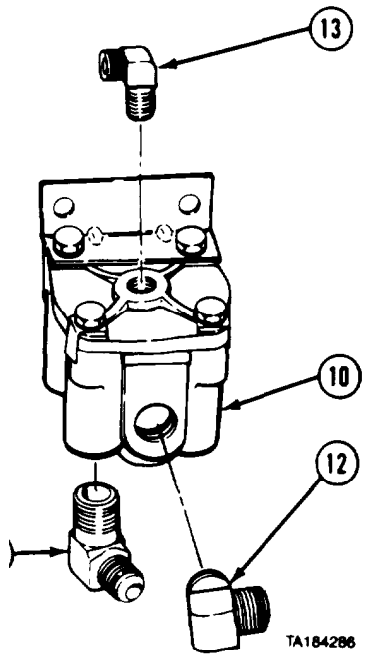
Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(3) Remove two nuts (7), lockwashers (8), and screws (9). Remove brake relay valve (10).



Brake and Air System Maintenance Instructions (Cont)

(4) Remove four elbows (11) from bottom of brake relay valve (10).
(5) Remove elbows (12 and 13).

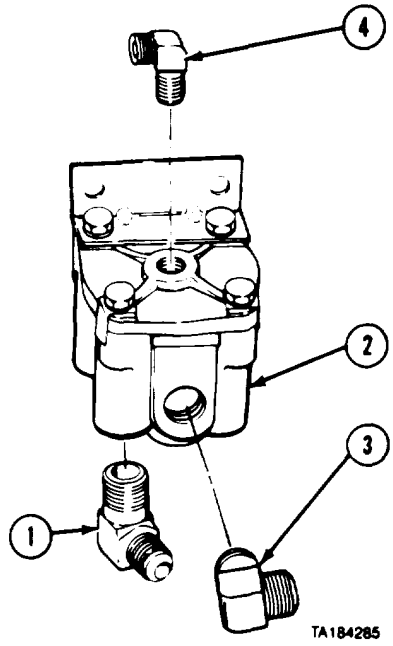


b. Front Brake Relay Valve Installation.

WARNING

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

(1) Coat threads with pipe thread sealing compound and install four elbows (1) in bottom of brake relay valve (2).
(2) Coat threads with pipe thread sealing compound and install elbow (3) in side of brake relay valve (2).
(3) Coat threads with pipe thread sealing compound and install elbow (4) in top of brake relay valve (2).

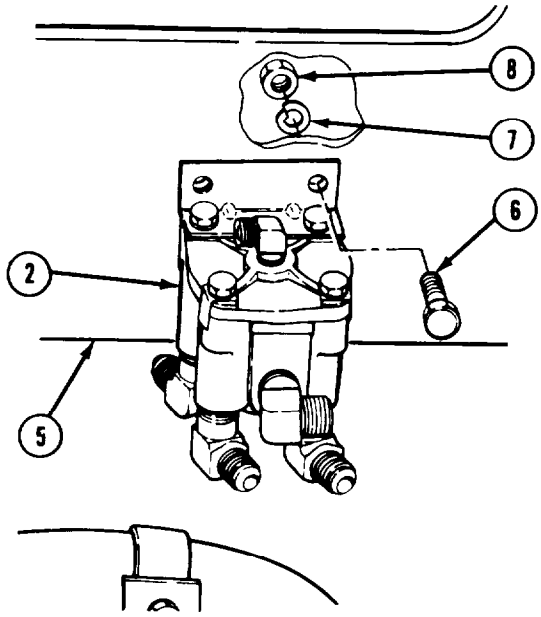


Brake and Air System Maintenance Instructions (Cont)

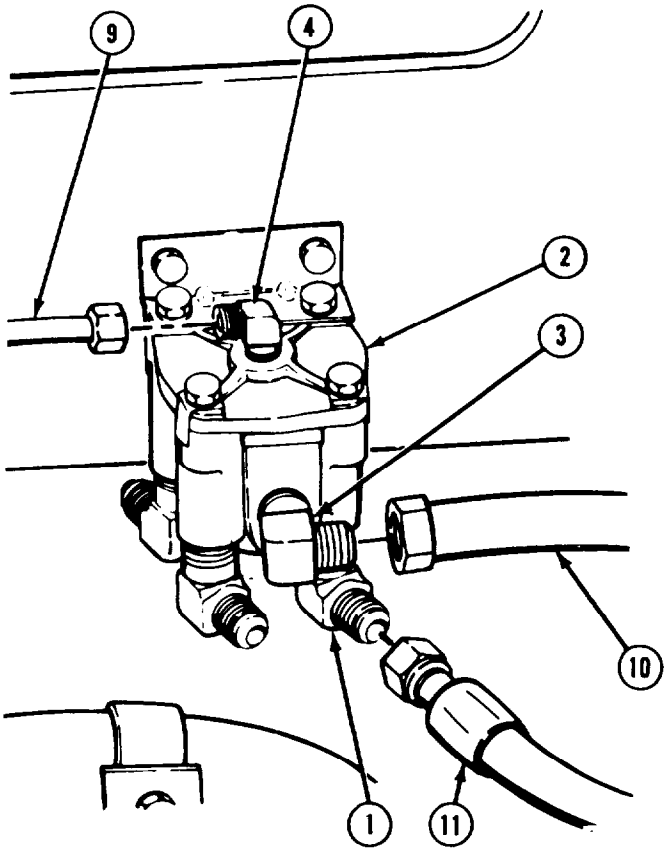
NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(4) Install brake relay valve (2) on crossmember (5) with two screws (6), lockwashers (7), and nuts (8).

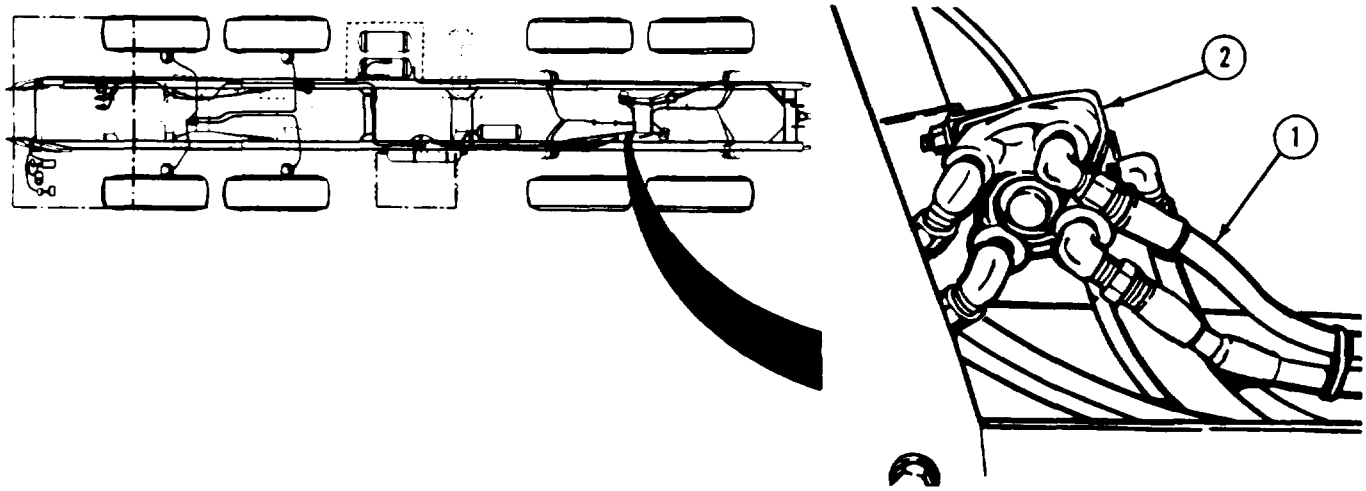


(5) Connect control line (9) to elbow (4).
(6) Connect supply line (10) to elbow (3).
(7) Connect four air lines (11) to elbows (1) on bottom of brake relay valve (2).



11-12. BRAKE RELAY VALVES REMOVAL/INSTALLATION (CONT).

c. Right Rear Brake Relay Valve Removal.



NOTE

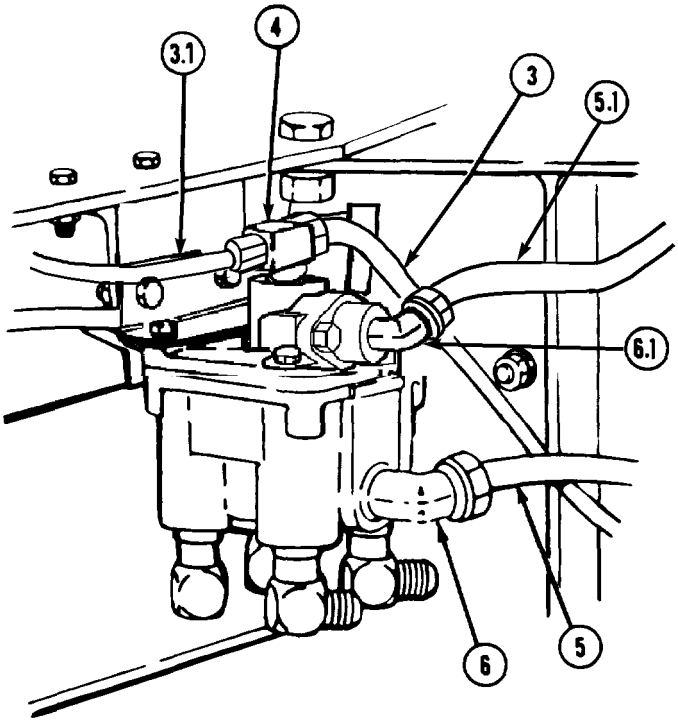
Tag and mark air lines and elbows before removal.

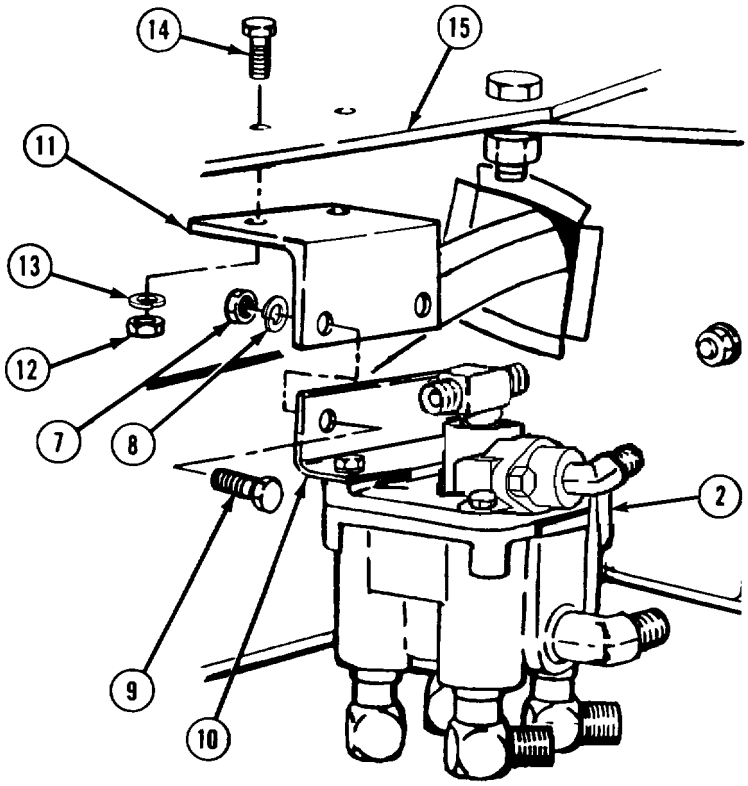
(*1*) Disconnect four air lines (1) from bottom of brake relay valve (2).

(*2*) Disconnect primary air supply lines (3) and (3.1) from tee (4).

(*3*) Disconnect air supply line (5) from elbow (6).

(*3.1*) Disconnect secondary air supply line (5.1) from elbow (6.1).





NOTE

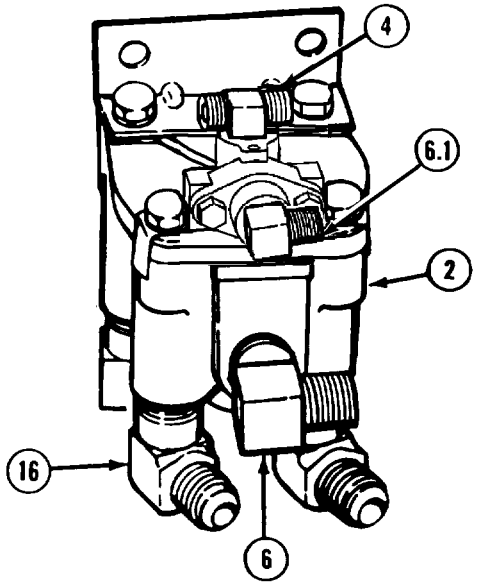
Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(*4*) Remove two nuts (7), lockwashers (8), and screws (9) from brackets (10 and 11).
(*5*) Remove brake relay valve (2).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(*6*) Remove two nuts (12), lockwashers (13), screws (14), and bracket (11) from crossmember (15).
(*7*) Remove four elbows (16) from bottom of brake relay valve (2).
(*8*) Remove two elbows (6) and (6.1) and tee (4) from brake relay valve (2).



11-12. BRAKE RELAY VALVES REMOVAL/INSTALLATION (CONT).

d. Right Rear Brake Relay Valve Installation.

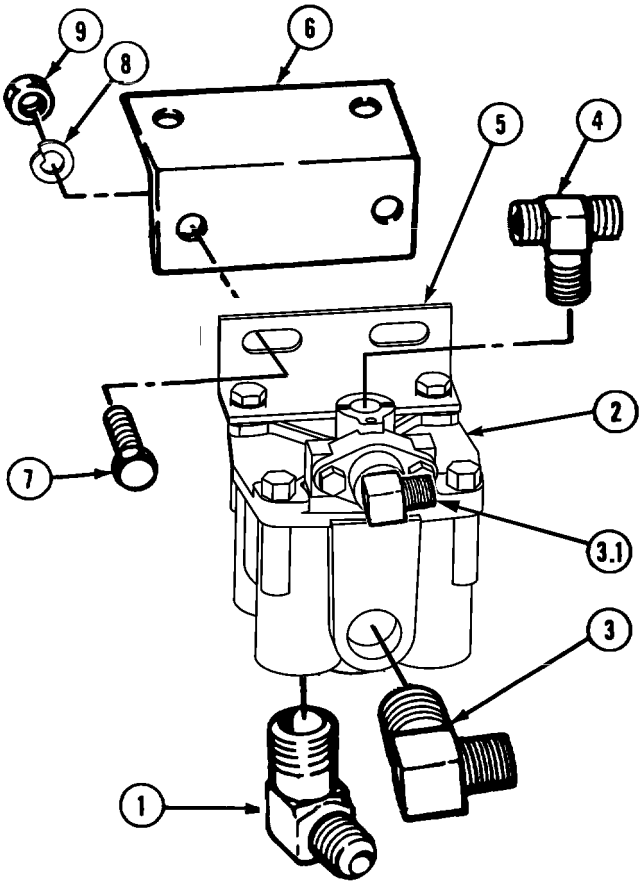
WARNING

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

(*1*) Coat threads of four elbows (1) with pipe thread sealing compound and install four elbows (1) in bottom of brake relay valve (2).

(*2*) Coat threads of two elbows (3) and (3.1) with pipe thread sealing compound and install two elbows in side of brake relay valve (2).

(*3*) Coat threads of tee (4) with pipe thread sealing compound and install tee in top of brake relay valve (2).



NOTE

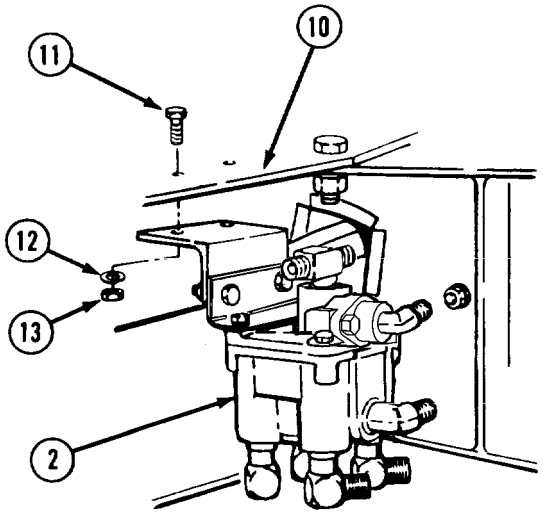
Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(*4*) Install bracket (5) on bracket (6) with two screws (7), lockwashers (8), and nuts (9).

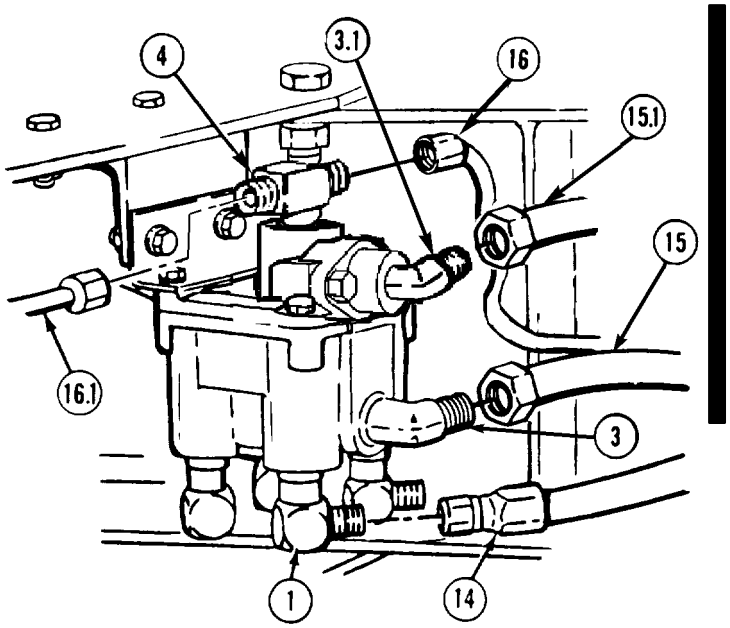
NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

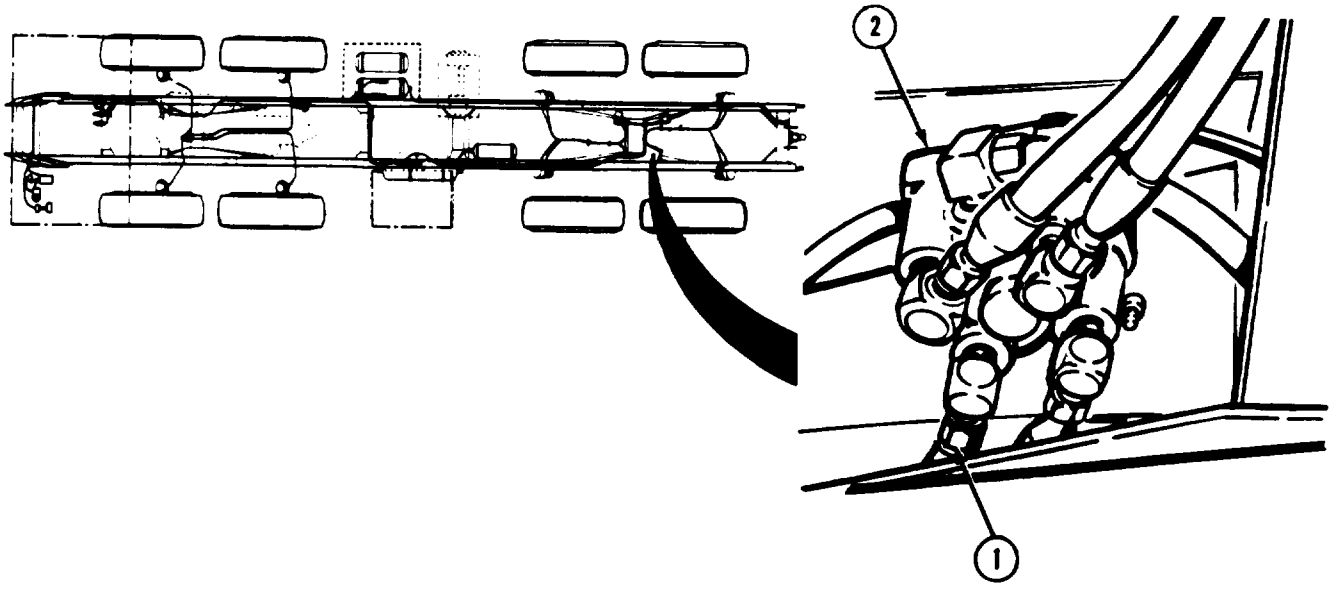
(*5*) Install brake relay valve (2) on crossmember (10) with two screws (11), lockwashers (12), and nuts (13).



(*6*) Connect four air lines (14) to four elbows (1).
(*7*) Connect air supply line (15) to elbow (3).
(7.*1*) Connect secondary air supply line (15.1) to elbow (3.1).
(*8*) Connect primary air supply lines (16) and (16.1) to tee (4).



e. Left Rear Brake Relay Valve Removal.



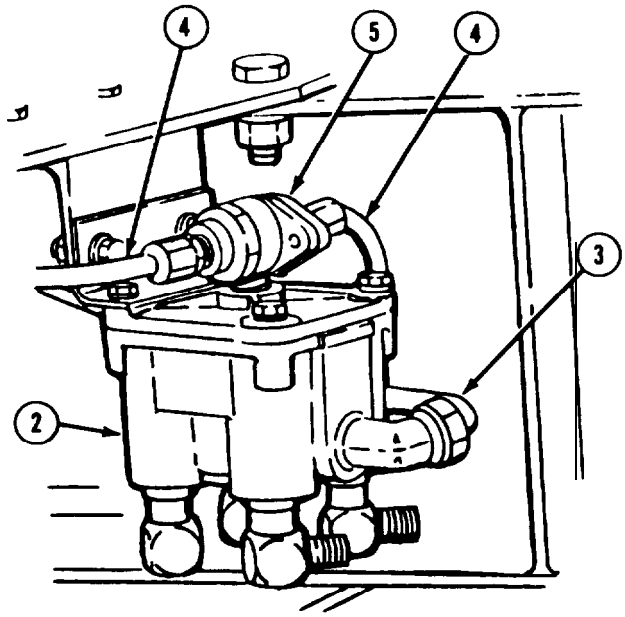
NOTE
Tag and mark air lines and elbows before removal.

(*1*) Disconnect four air lines (1) from brake relay valve (2).

11-12. BRAKE RELAY VALVES REMOVAL/INSTALLATION (CONT).

(2) Disconnect air supply line (3) from side of brake relay valve (2).

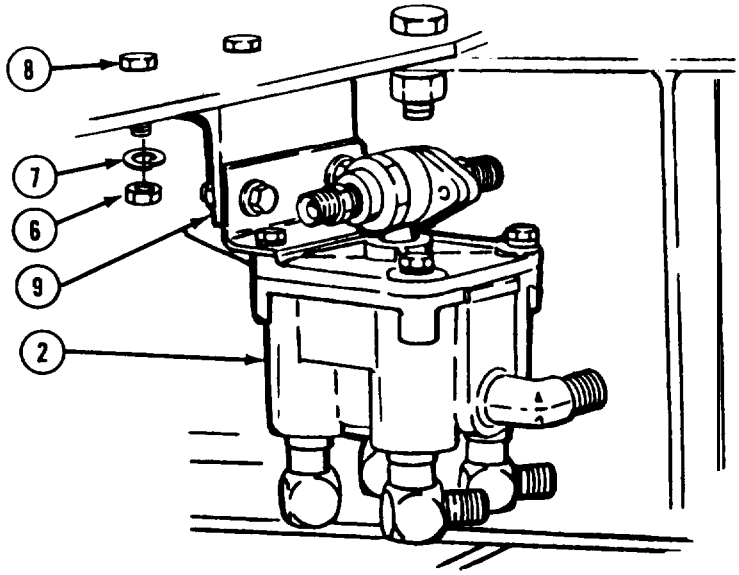
(3) Disconnect control lines (4) from double check valve (5).



NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(4) Remove two nuts (6), lockwashers (7), screws (8), brake relay valve (2), and bracket (9).

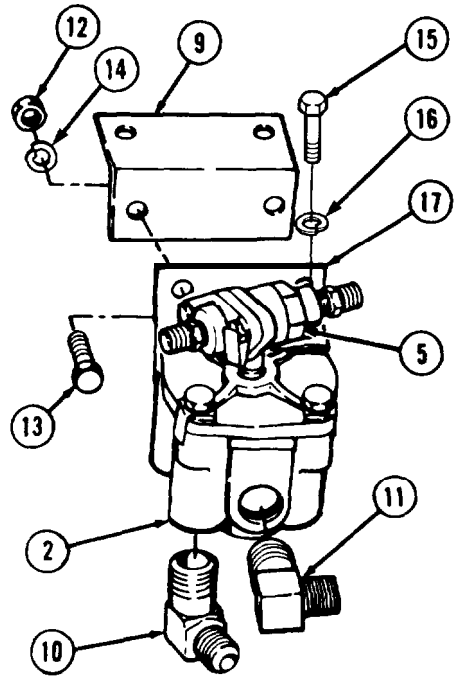


(5) Remove four elbows (10) from bottom of brake relay valve (2).
(6) Remove elbow (11).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(7) Remove two nuts (12), screws (13), lockwashers (14), and bracket (9).
(8) Remove two screws (15), lockwashers (16), and bracket (17).
(9) Remove double check valve (5).

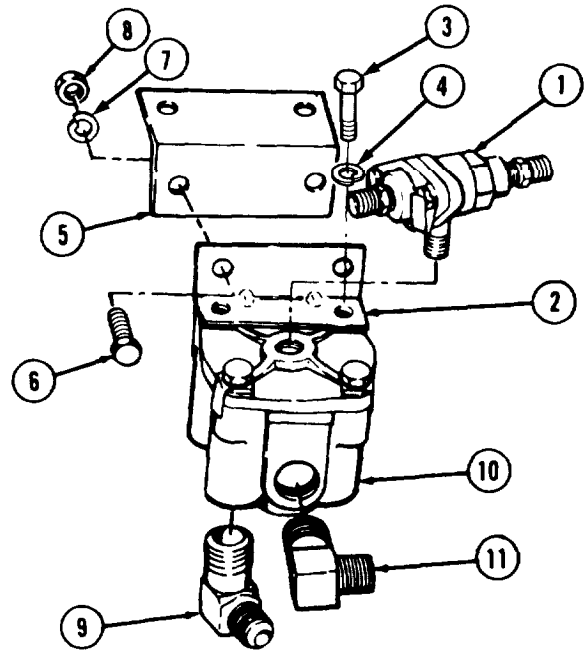


f. *Left* Rear *Brake* Relay Valve Installation.

WARNING

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

(1) Coat threads with pipe thread sealing compound and install double check valve (1).
(2) Install bracket (2) with two screws (3) and lockwashers (4).



NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

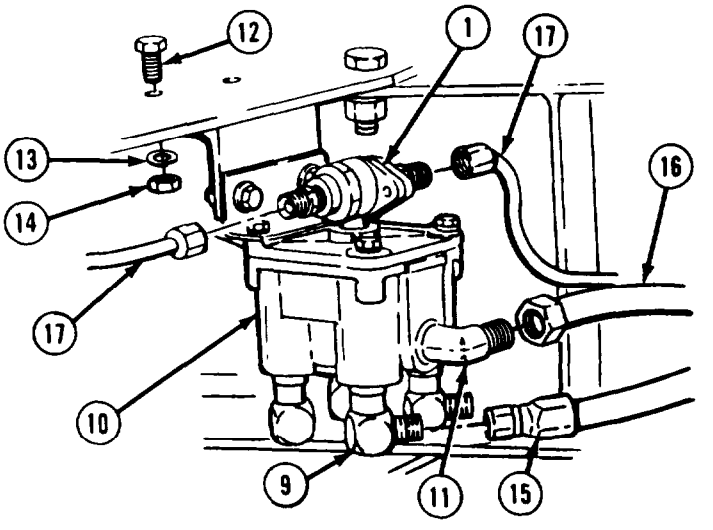
(3) Install bracket (5) with two screws (6), lockwashers (7), and nuts (8).
(4) Coat threads with pipe thread sealing compound and install four elbows (9) in bottom of brake relay valve (10).
(5) Coat threads with pipe thread sealing compound and install elbow (11).

11-12. BRAKE RELAY VALVES REMOVAL/INSTALLATION (CONT).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(6) Install brake relay valve (10) with two screws (12), lockwashers (13), and nuts (14).
(7) Connect four air lines (15) to elbows (9).
(8) Connect air supply line (16) to elbow (11).
(9) Connect two control lines (17) to double check valve (1).

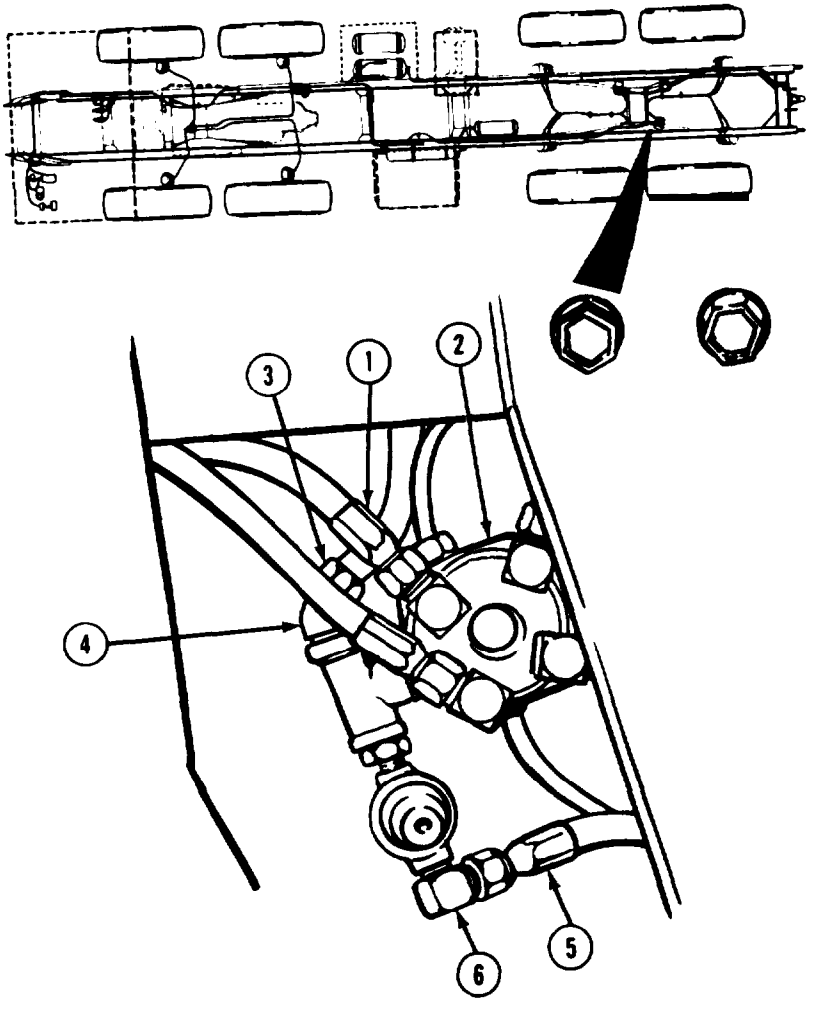


g. Left Rear Brake Relay Valve Removal (M978).

NOTE

Tag and mark air lines and elbows before removal.

(1) Disconnect four air lines (1) from brake relay valve (2).
(2) Disconnect air supply line (3) from elbow (4).
(3) Disconnect air line (5) from elbow (6).



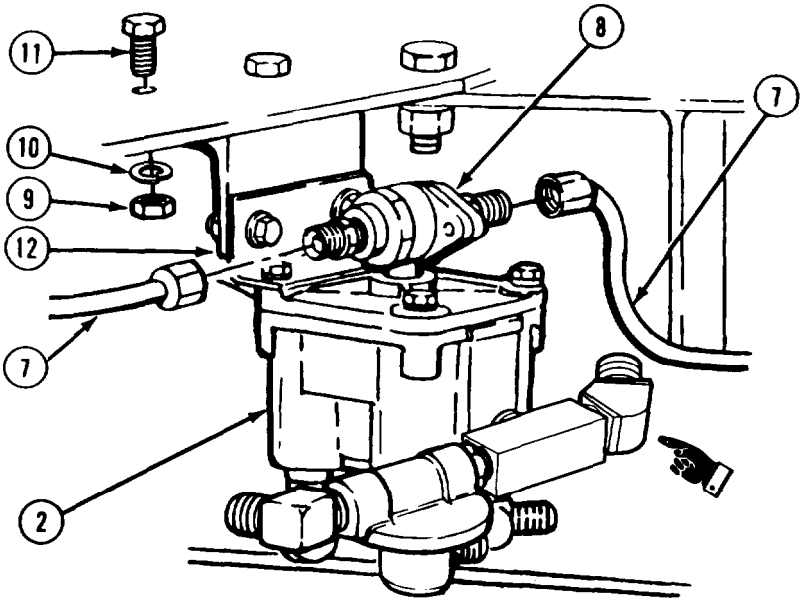
Brake and Air System Maintenance Instructions (Cont)

(4) Disconnect two control lines (7) from double check valve (8).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(5) Remove two nuts (9), lockwashers (10), screws (11), and brake relay valve (2) from bracket (12).

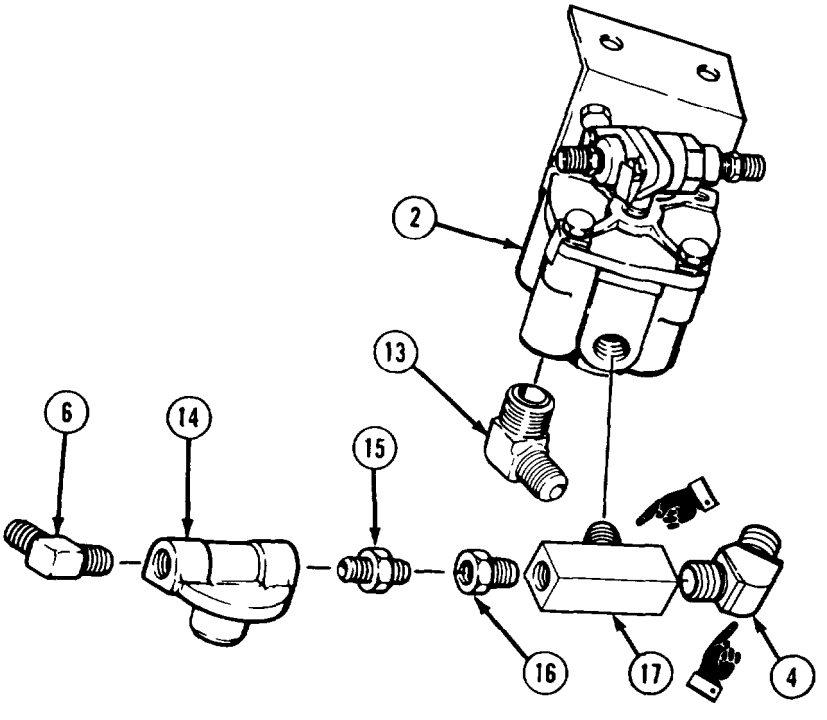


(6) Remove four elbows (13) from bottom of brake relay valve (2).

(7) Remove elbow (6), protection valve (14), nipple (15), and bushing (16) from tee tee (17).

(8) Remove elbow (4) from tee (17).

(9) Remove tee (17) from brake relay valve (2).

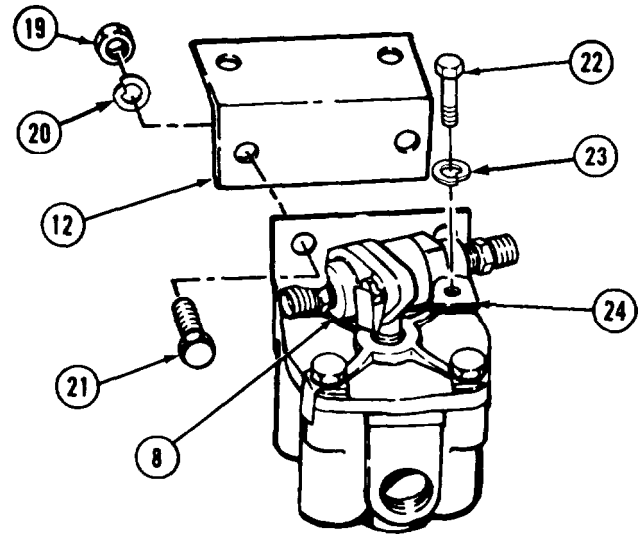


11-12. BRAKE RELAY VALVES REMOVAL/INSTALLATION (CONT).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(10) Remove two nuts (19), lockwashers (20), screws (21), and bracket (12).
(11) Remove two screws (22), lockwashers (23), and bracket (24).
(12) Remove double check valve (8).



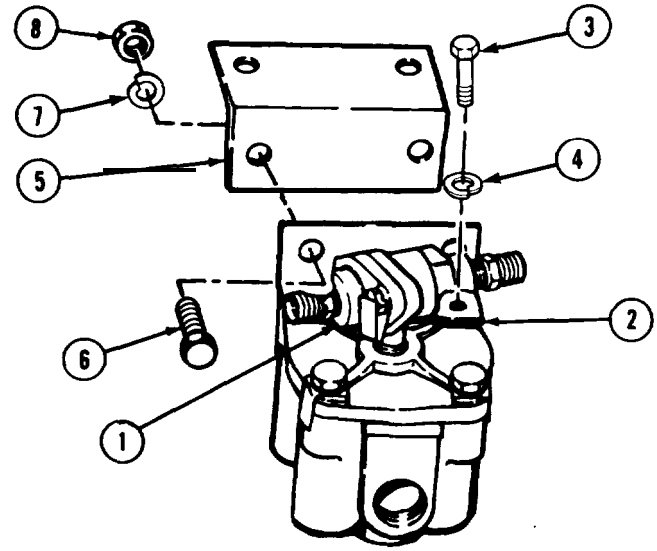
h. Left Rear Brake Relay Valve Installation (M978).

(1) Coat threads with pipe thread sealing compound and install double check valve (1).
(2) Install bracket (2) with two screws (3) and lockwashers (4).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

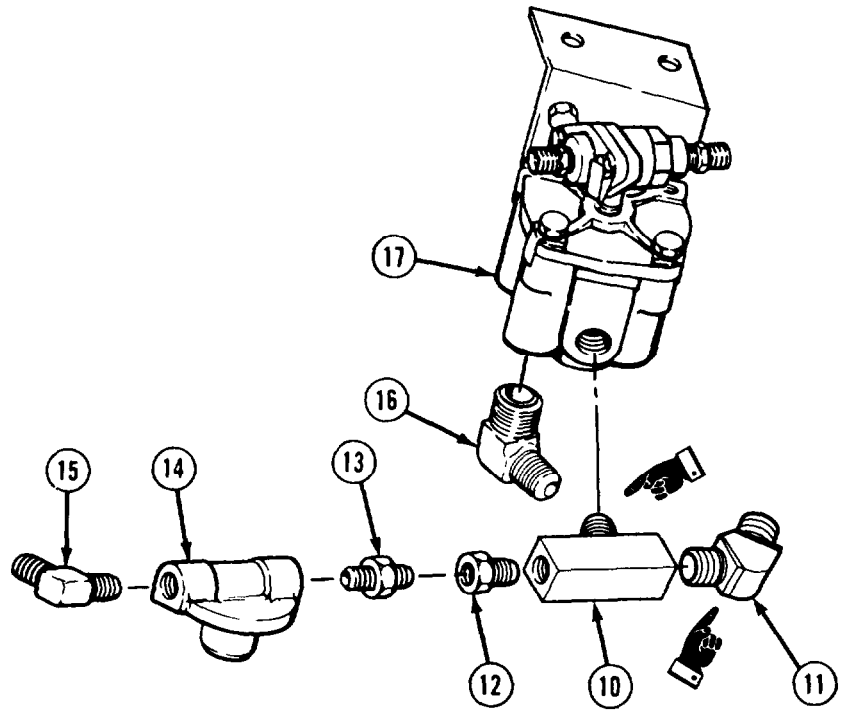
(3) Install bracket (5) with two screws (6), lockwashers (7), and nuts (8).



Brake and Air System Maintenance Instructions (Cont)

WARNING

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



(4) Coat threads with pipe thread sealing compound and install tee (10), elbow (11), and bushing (12).

(5) Coat threads with pipe thread sealing compound and install nipple (13), protection valve (14), and elbow (15).

(6) Coat threads with pipe thread sealing compound and install four elbows (16) in bottom of brake relay valve (17).

11-12. BRAKE RELAY VALVES REMOVAL/INSTALLATION (CONT).

Some vehicles have two screws, lockwashers, and nuts. Others have two flanged nuts and screws.

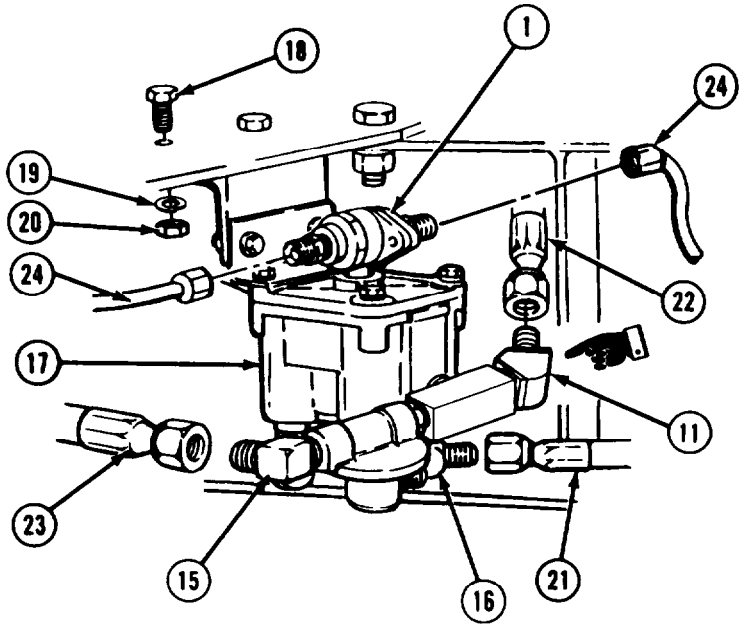
(7) Install brake relay valve (17) with two screws (18), lockwashers (19), and nuts (20).

(8) Coat threads with pipe thread sealing compound and connect four air lines (21) to elbows (16).

(9) Coat threads with pipe thread sealing compound and connect air supply line (22) to elbow (11).

(10) Coat threads with pipe thread sealing compound and connect air line (23) to elbow (15).

(11) Coat threads with pipe thread sealing compound and connect two control lines (24) to double check valve (1).



i. Follow-on Maintenance.

(1) Start engine and build up air pressure to normal operating pressure (TM 9-2320-279-10).

(2) Check air connections for leaks.

(3) Check operation of brakes.

(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-13. QUICK RELEASE VALVE AND TOWING STOPLIGHT PRESSURE SWITCH REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All except M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

Equipment Condition

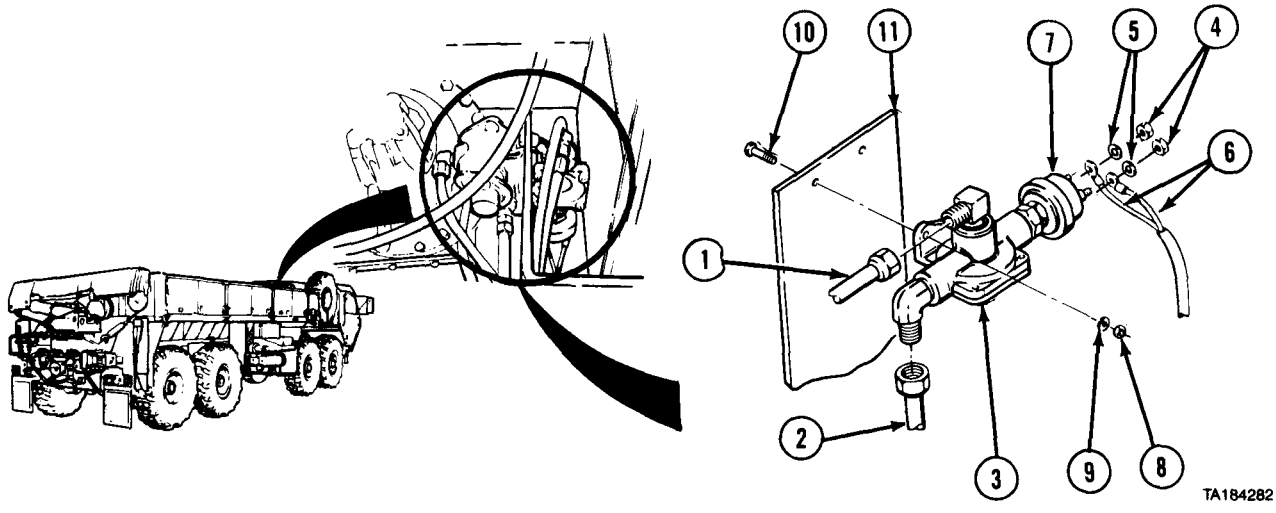
TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
Para 7-91	Batteries disconnected.

Special Environmental Conditions
None

General Safety Instructions
None

11-13. QUICK RELEASE VALVE AND TOWING STOPLIGHT PRESSURE SWITCH REMOVAL/INSTALLATION (CONT).

a. Removal.

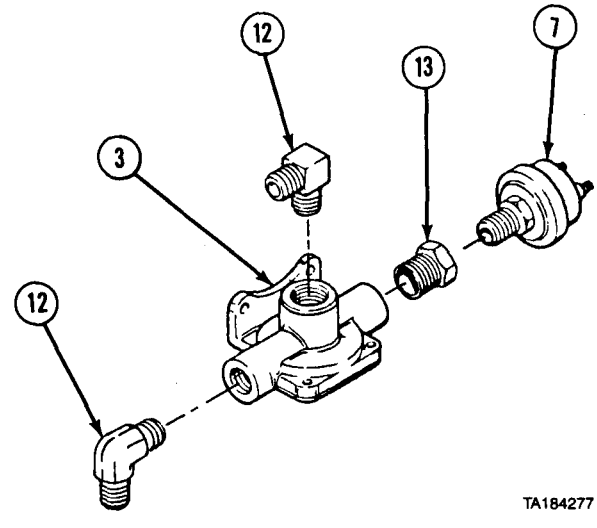


NOTE

Tag and mark air lines, wires, or elbows before removal.

(1) Remove air lines (1 and 2) from quick release valve (3).
(2) Remove two nuts (4) and washers (5). Disconnect wires (6) from pressure switch (7).
(3) Remove two nuts (8), lockwashers (9), and screws (10). Remove quick release valve (3) from mounting bracket (11).

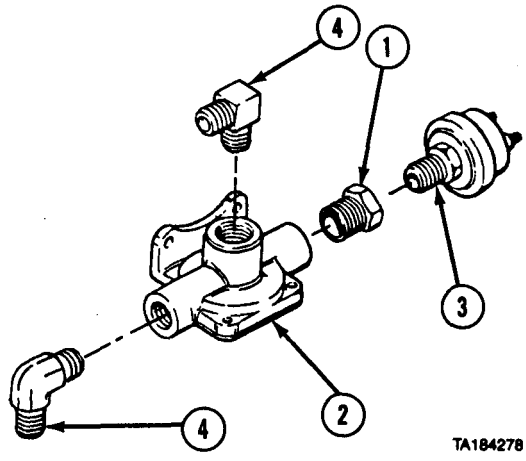
(4) Remove two elbows (12) from quick release valve (3).
(5) Remove towing stoplight pressure switch (7).
(6) Remove reducer (13) from quick release valve (3).



b. Installation.

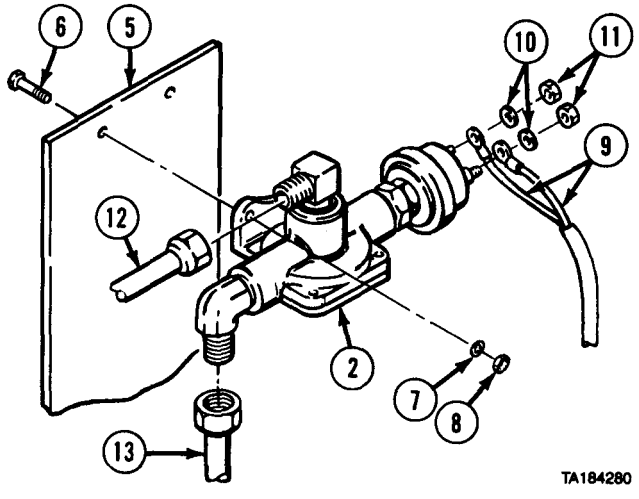
WARNING

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



(1) Coat threads of reducer (1) with pipe thread sealing compound. Install reducer in quick release valve (2).
(2) Coat threads of towing stoplight pressure switch (3) with pipe thread sealing compound. Install towing stoplight pressure switch in reducer (1).
(3) Coat threads of two elbows (4) with pipe thread sealing compound. Install elbows in quick release valve (2).

(4) Install quick release valve (2) on mounting bracket (5) with two screws (6), lockwashers (7), and nuts (8).
(5) Install two wires (9), washers (10), and nuts (11).
(6) Connect air lines (12 and 13).



c. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine and build up air pressure to 110 to 120 psi (758 to 827 kPa) (TM 9-2320-279-10).
(3) Check for air leaks.
(4) Check if stoplights work when connected to towing vehicle (TM 9-2320-279-10).
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-13.1. QUICK RELEASE VALVE AND TOWING STOPLIGHT PRESSURE SWITCH REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

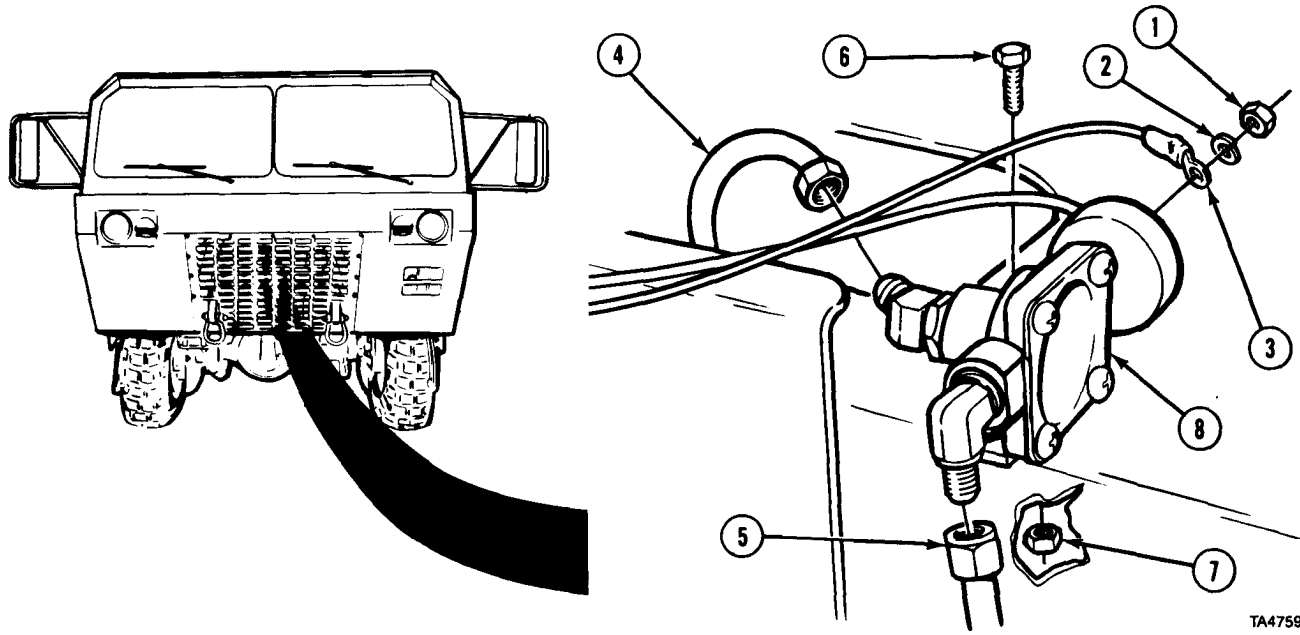
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained (when removing quick release valve).
Para 7-91	Batteries disconnected

Special Environmental Conditions
None

General Safety Instructions
None

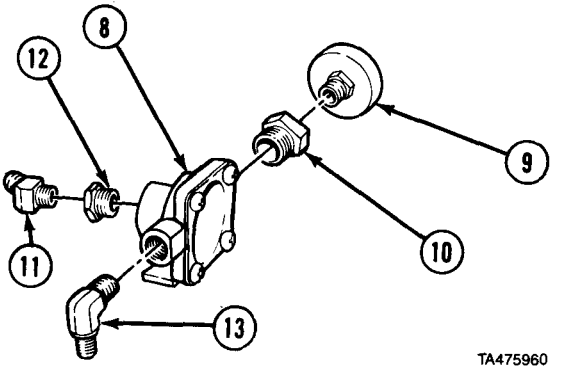
a. Removal.



NOTE

Tag and mark air lines and wires before removal.

(1) Remove two nuts (1), lockwashers (2), and wires (3).
(2) Remove two air lines (4 and 5).
(3) Remove two screws (6), nuts (7), and quick release valve (8).

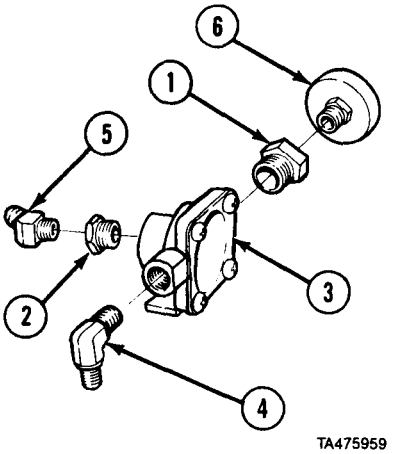


(4) Remove towing stoplight pressure switch (9) and fitting (10).
(5) Remove elbow (11) and fitting (12).
(6) Remove elbow (13).

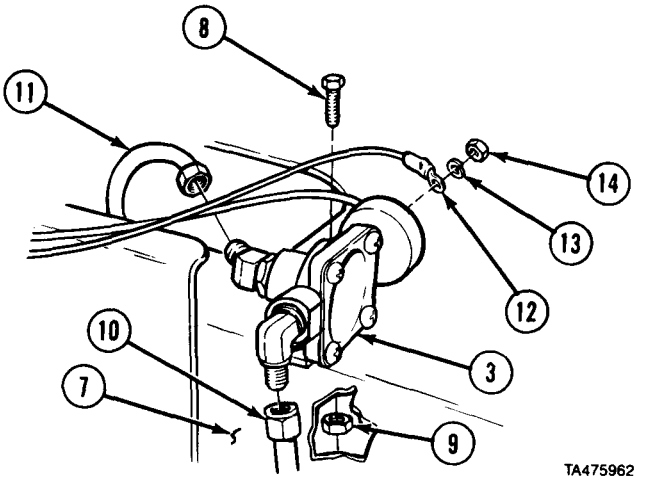
b. Installation.

WARNING

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



(1) Coat threads of fittings (1 and 2) with pipe thread sealing compound and install in quick release valve (3).
(2) Coat threads of elbows (4 and 5) with pipe thread sealing compound and install in quick relase valve (3) and fitting (2).
(3) Coat threads of towing stoplight pressure switch (6) with pipe thread sealing compound and install in fitting (1).
(4) Install quick release valve (3) on front crossmember (7) with two screws (8) and nuts (9).
(5) Connect air lines (10 and 11).
(6) Install two wires (12), lockwashers (13) and nuts (14).



c. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine (TM 9-2320-279-10). Build up air pressure to 110 to 120 psi (758 to 827 kPa).
(3) Check for air leaks.
(4) Check if stoplights work when connected to towing vehicle (TM 9-2320-279-10).
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

Brake and Air System Maintenance Instructions (Cont)

11-14. FRONT DOUBLE CHECK VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

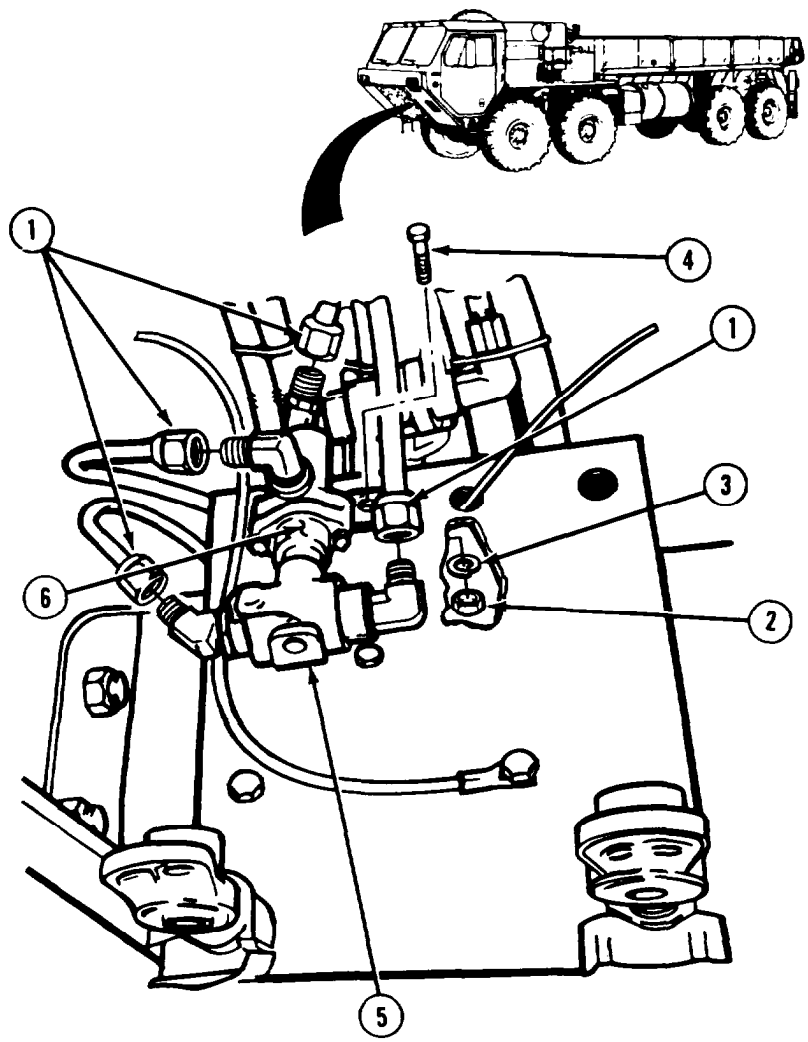
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

11-14. FRONT DOUBLE CHECK VALVE REMOVAL/INSTALLATION (CONT).

a. Removal.



NOTE

. Three double check valves are mounted near front crossmember. One is mounted on top and two are connected together in front of crossmember.

. Tag and mark air lines before removal.

(1) Disconnect four air lines (1).

NOTE

Some vehicles have a nut, lockwasher, and screw. Others have a flanged nut and screw.

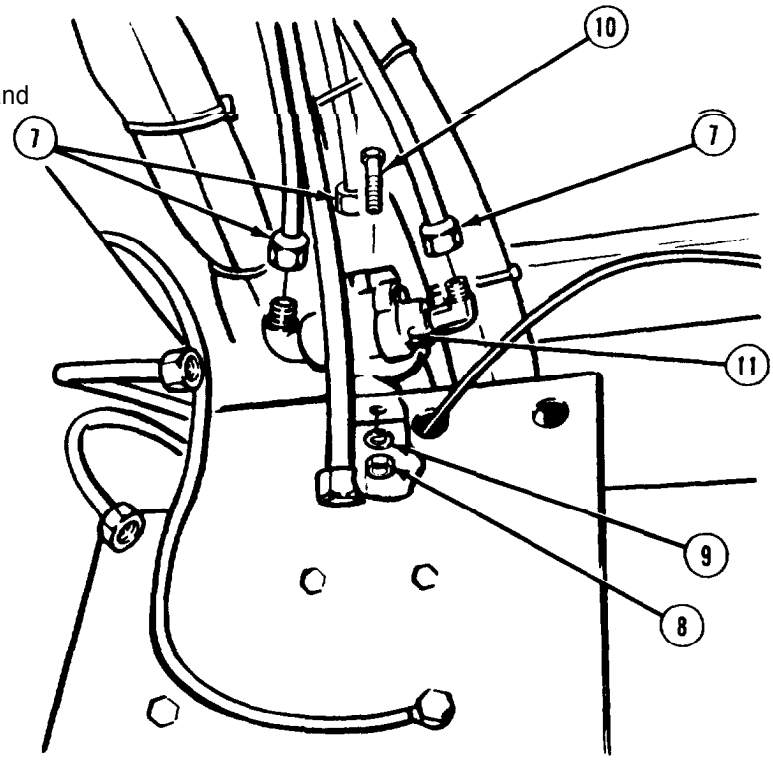
(2) Remove nut (2), lockwasher (3), and screw (4). Remove lower double check valve (5) and middle double check valve (6).

(3) Disconnect three air lines (7).

NOTE

Some vehicles have a nut, lockwasher, and screw. Others have a flanged nut and screw.

(4) Remove nut (8), lockwasher (9), screw (10), and upper double check valve (11).



(5) Remove lower double check valve (5) and middle double check valve (6) from nipple (12).

NOTE

Tag and mark elbows before removal.

(6) Remove two elbows (13 and 14) from lower double check valve (5).

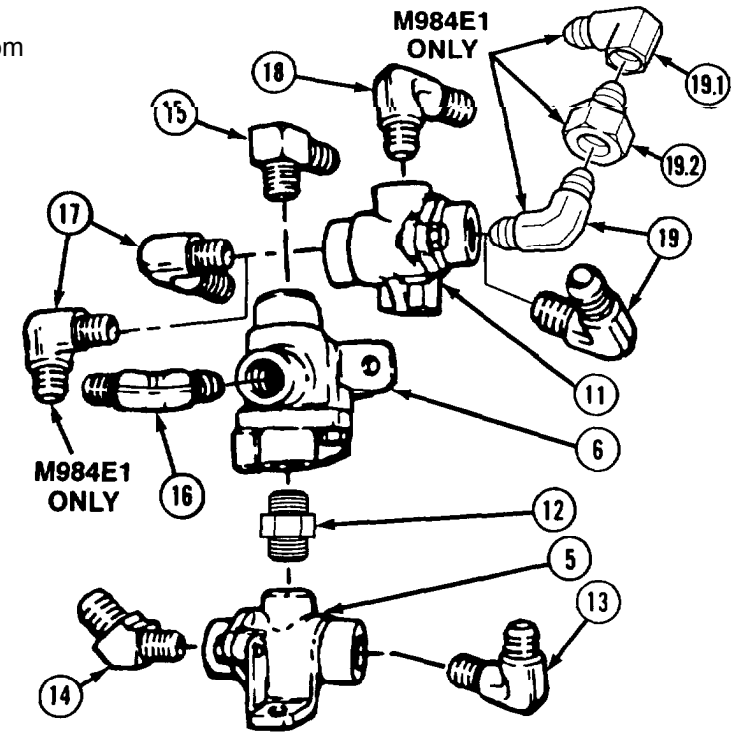
(7) Remove two elbows (15 and 16) from middle double check valve (6).

NOTE

Do step *(7.1)* for M984E1 only. Do step *(8)* for all others.

17.1) Remove four elbows (17, 18, 19, and 19.1) and adapter (19.2) from upper double check valve (11).

(8) Remove three elbows (17, 18, and 19) from upper double check valve (11).



FRONT DOUBLE CHECK VALVE REMOVAL/INSTALLATION (CONT).

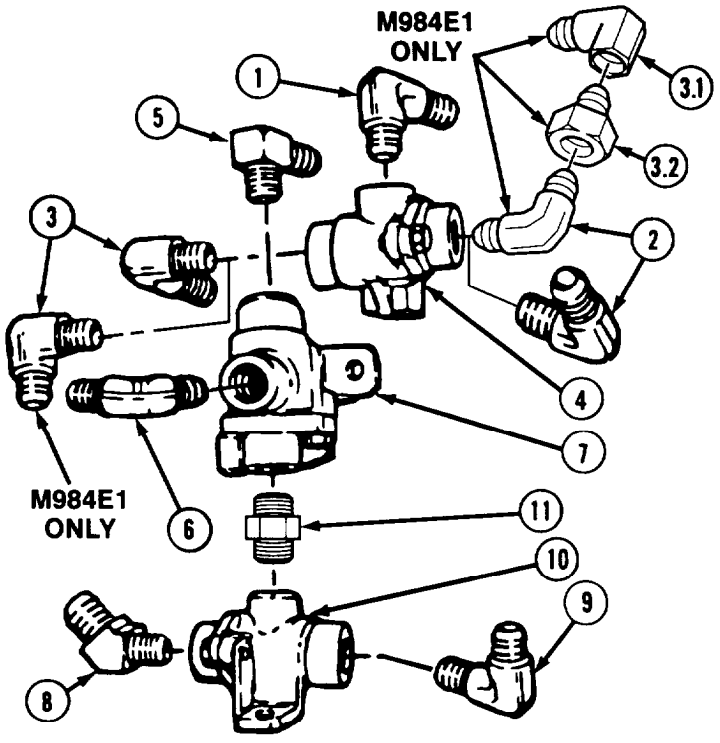
b. Installation.

WARNING

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

NOTE

Do step *(1.1)* for M984E1 only. Do step *(1)* for all others.



(1) Coat threads with pipe thread sealing compound and install three elbows (1, 2, and 3) in upper double check valve (4).

(1.1) Coat threads with pipe thread sealing compound and install three elbows (1, 2, and 3), one street elbow (3.1), and adapter (3.2) in upper double check valve (4).

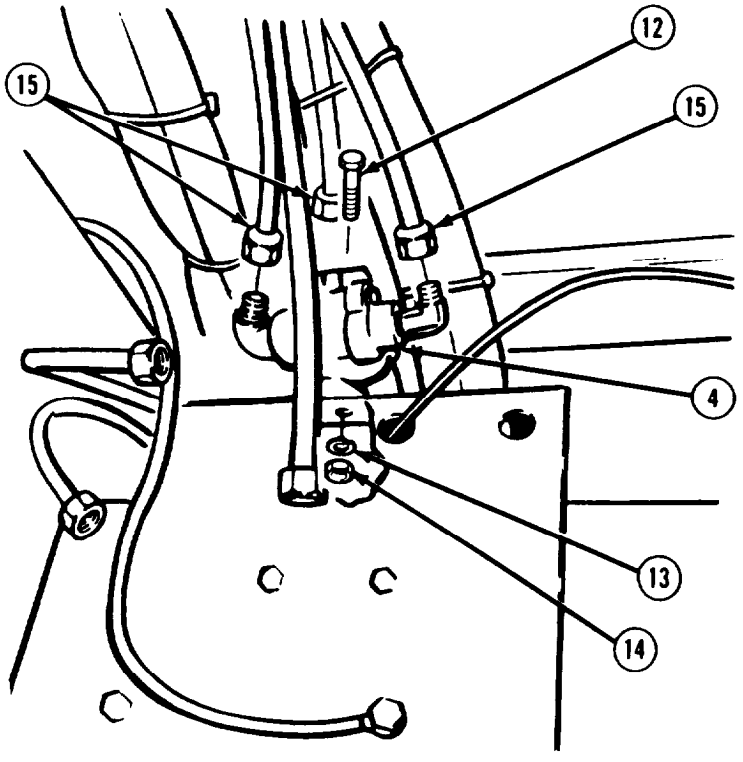
(2) Coat threads with pipe thread sealing compound and install two elbows (5 and 6) in middle double check valve (7).

(3) Coat threads with pipe thread sealing compound and install two elbows (8) and 9) in lower double check valve (10).

(4) Install middle double check valve (7) and lower double check valve (10) on nipple (11).

NOTE

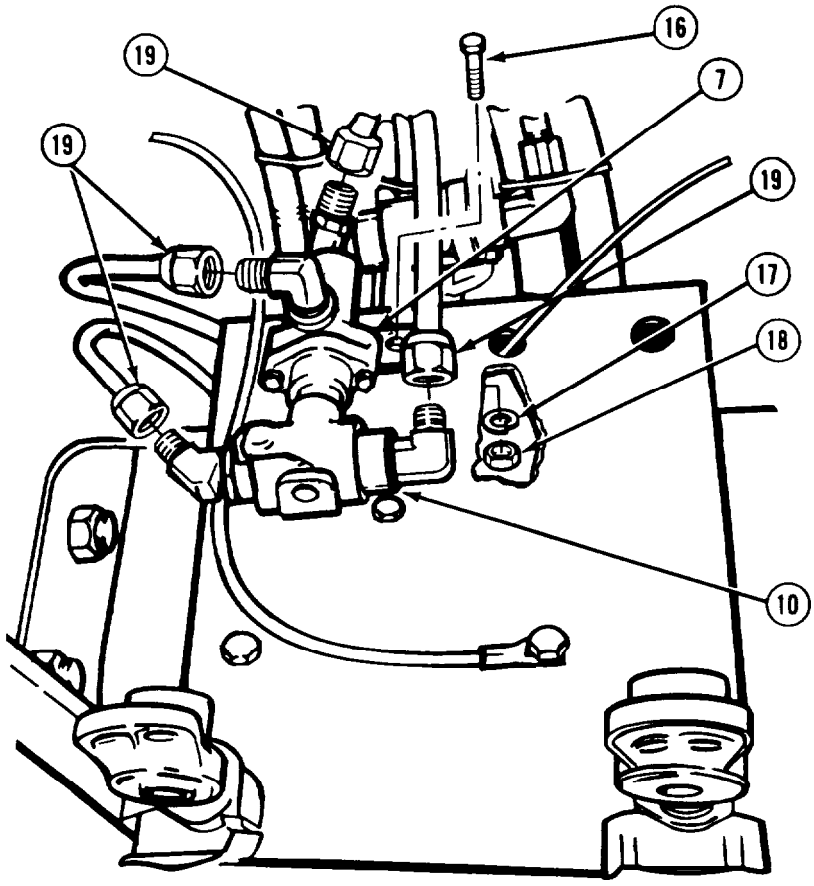
Some vehicles have a screw, lockwasher, and nut. Others have a screw and flanged nut.



(5) Install upper double check valve (4) with screw (12), lockwasher (13), and nut (14).

(6) Install three air lines (15) on upper double check valve (4).

Brake and Air System Maintenance Instructions (Cont)



NOTE

Some vehicles have a screw, lockwasher, and nut. Others have a screw and flanged nut.

(7) Install middle double check valve (7) and lower double check valve (10) with screw (16), lockwasher (17), and nut (18).
(8) Install four air lines (19).

c. Follow-on Maintenance.

(1) Start engine (TM 9-2320-279-10).
(2) Build air pressure (TM 9-2320-279-10).
(3) Check valves for leaks.
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

Broke and Air System Maintenance Instructions (Cont)

11-15. REAR DOUBLE CHECK VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread. Item 18. Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S Heavy wheel vehicle mechanic

References
None

Equipment Condition

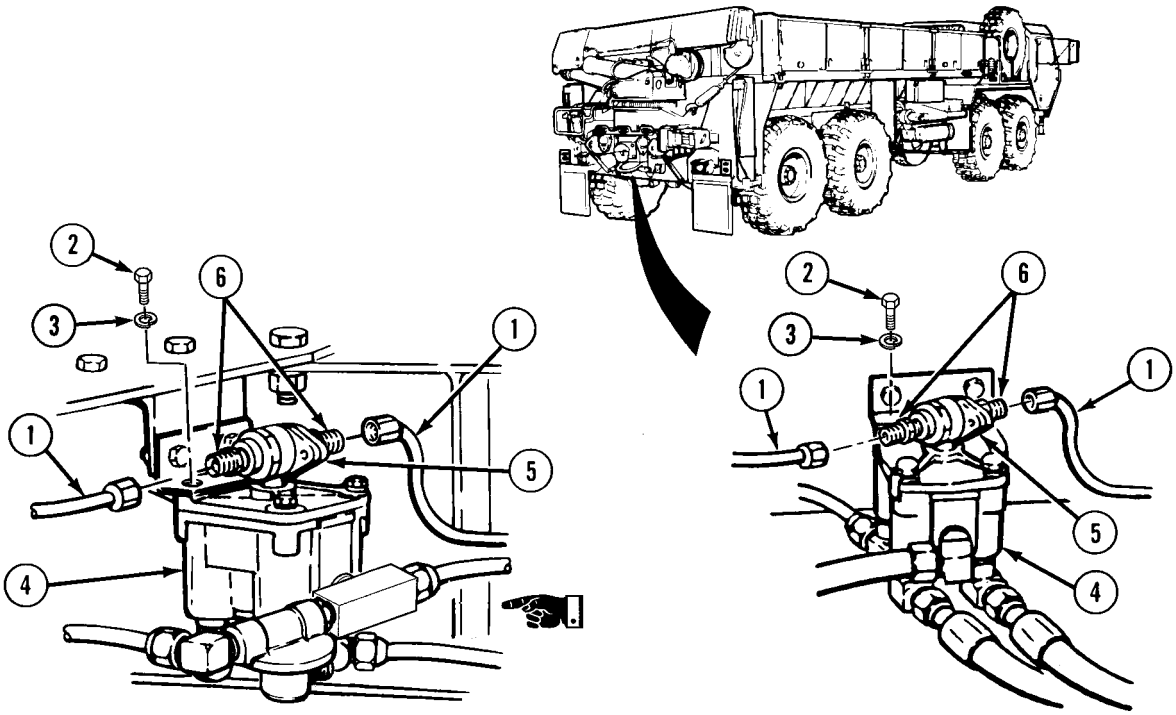
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

Brake and Air System Maintenance Instructions (Cont)

a. Removal.



(M978) (M977, M983, M984, & M985)

NOTE

- Double check valve is mounted differently on M978. Double check valve removal is the same on all other vehicles.
- Tag and mark air lines before removal.

(1) Disconnect two air lines (1).
(2) Remove two screws (2) and lockwashers (3) from brake relay valve (4).
(3) Remove double check valve (5) from brake relay valve (4).
(4) Remove two connectors (6).

11-1.5. REAR DOUBLE CHECK VALVE REMOVAVL/INSTALLATION (CONT).

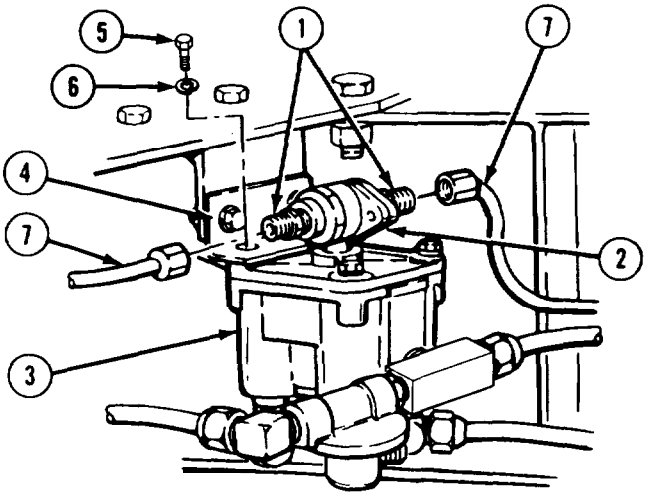
b. Installation.

WARNING

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

NOTE

Double check valve is mounted differently on M978. Double check valve installation is the same on all other vehicles.



(1) Coat threads with pipe thread sealing compound and install two connectors (1) in double check valve (2).
(2) Coat threads with pipe thread sealing compound and install double check valve (2) on brake relay valve (3).
(3) Install brake relay valve (3) on bracket (4) with two screws (5) and lockwashers (6).
(4) Connect two air lines (7).

c. Follow-on Maintenance.

(1) Start engine and build up air pressure to normal operating pressure (TM 9-2320-279-10).
(2) Check air connections for leaks.
(3) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-16. CAB PRESSURE PROTECTION VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

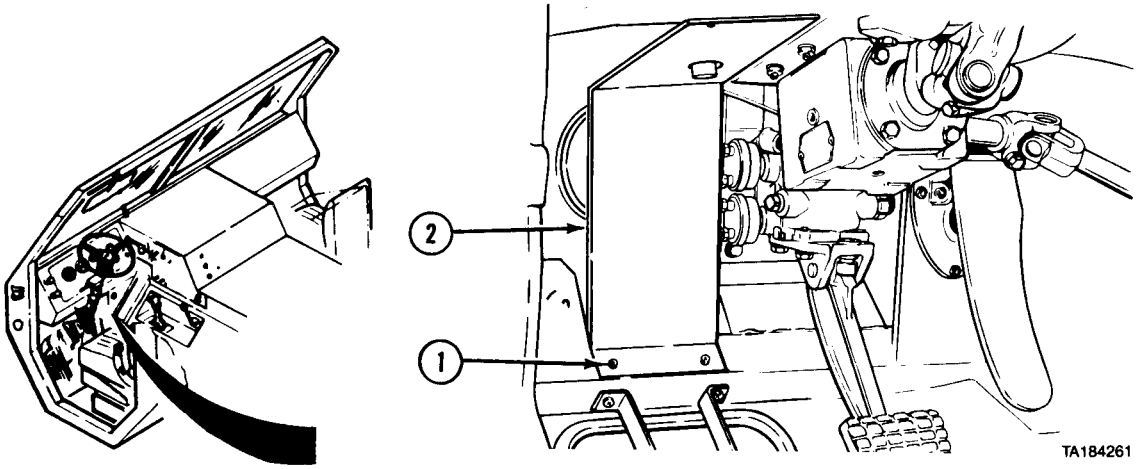
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

11-16. CAB PRESSURE PROTECTION VALVE REMOVAL/INSTALLATION (CONT).

a. Removal.



(1) Remove four screws (1) and light guard (2).

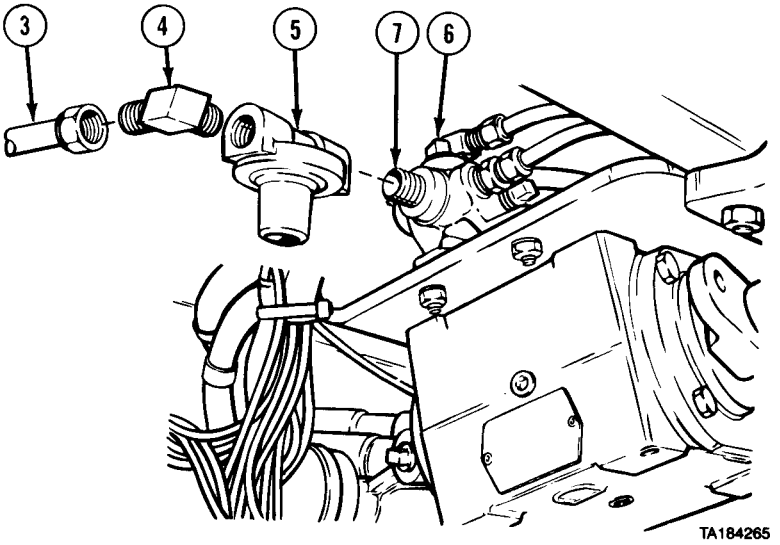
(2) Disconnect air line (3) from elbow (4).

NOTE

Nipple may come out of manifold when pressure protection valve is removed.

(3) Remove pressure protection valve (5) from manifold (6) and nipple (7).

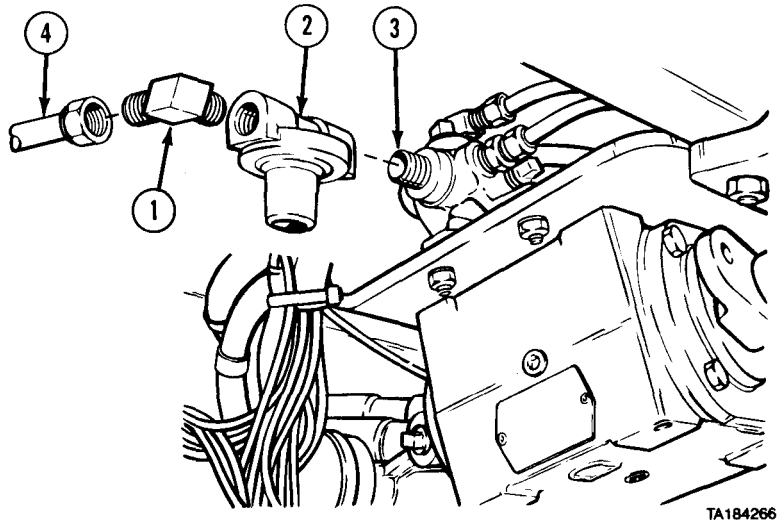
(4) Remove elbow (4) from pressure protection valve (5).



b. Installation.

WARNING

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

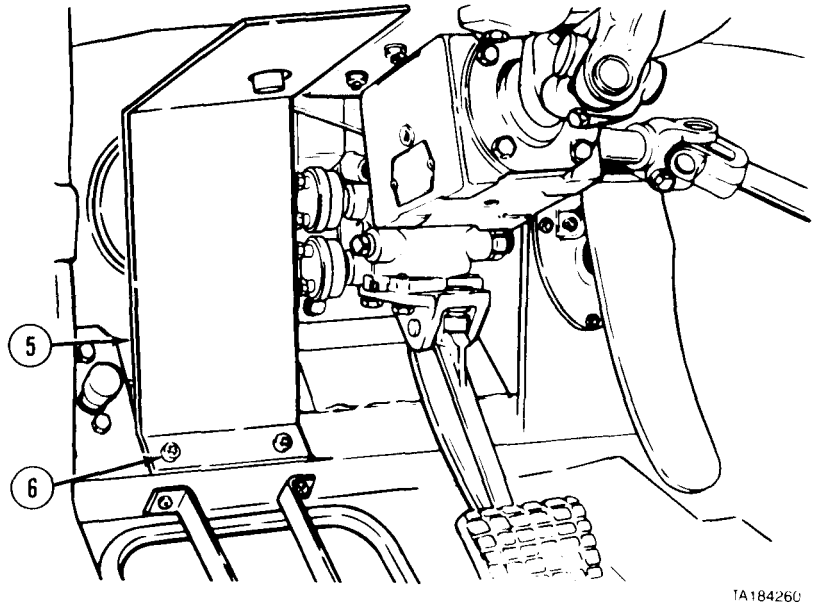


(1) Coat threads of elbow (1) with pipe thread sealing compound and install elbow in pressure protection valve (2).

(2) Coat threads of nipple (3) with pipe thread sealing compound and install pressure protection valve (2).

(3) Connect air line (4) to elbow (1).

(4) Install light guard (5) with four screws (6).



c. Follow-on Maintenance.

(1) Start engine and build up air pressure to 90 psi (621 kPa) (TM 9-2320-279-10).

(2) Check connections for leaks.

(3) Check operation of air horn and windshield wipers.

(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-17. SPRING BRAKE CONTROL VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

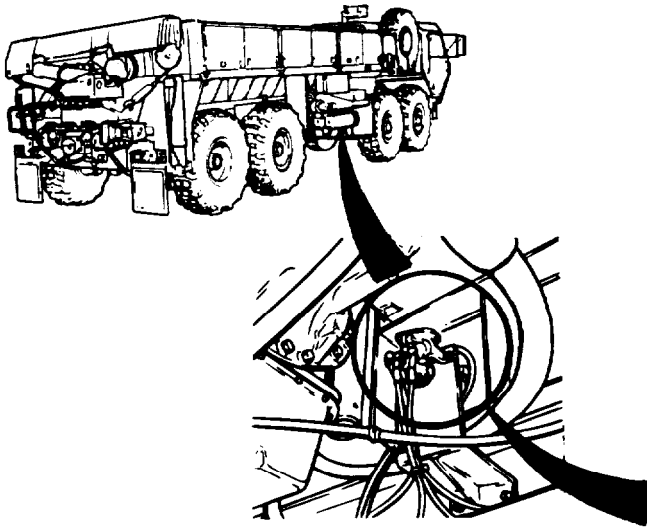
Equipment Condition

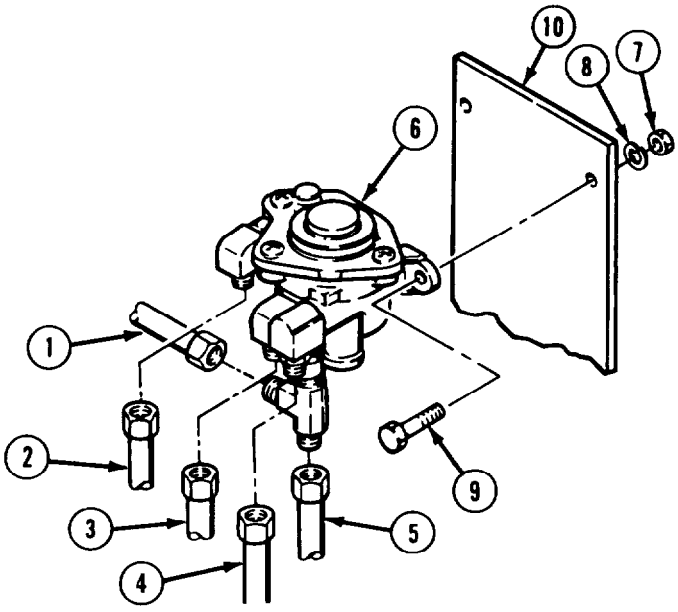
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.





NOTE
Tag and mark air lines before removal.

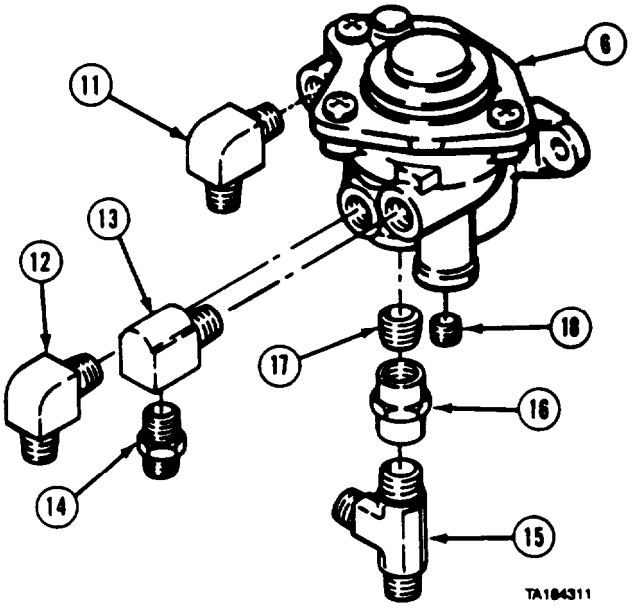
(1) Disconnect air lines (1, 2, 3, 4, and 5) from spring brake control valve (6).

NOTE
Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(2) Remove two nuts (7), lockwashers (8), and screws (9). Remove spring brake control valve (6) from bracket (10).

Brake and Air System Maintenance Instructions (Cont)

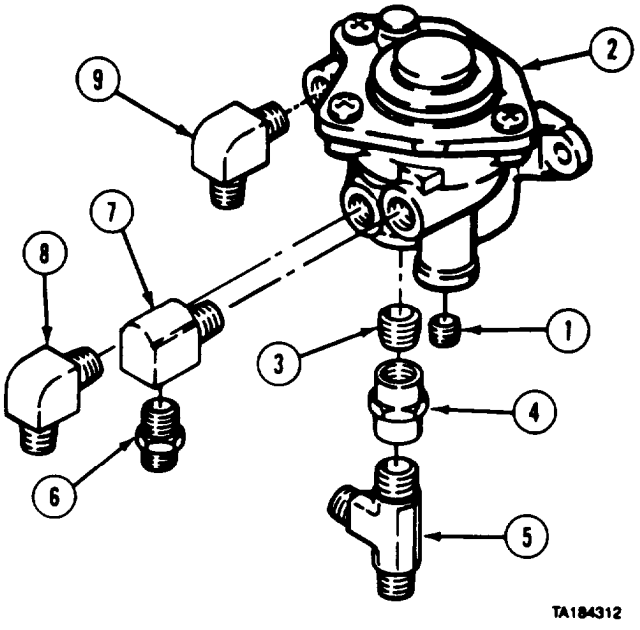
(3) Mark position of elbows (11, 12, and 13) and remove from spring brake control valve (6). Remove fitting (14).
(4) Remove tee (15), coupling (16) and nipple (17) from spring brake control valve (6).
(5) Remove plug (18).



b. Installation.

WARNING

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



(1) Coat threads with pipe thread sealing compound and install plug (1) in spring brake control valve (2). Install nipple (3).
(2) Coat threads with pipe thread sealing compound and install coupling (4) on nipple (3). Install tee (5) on coupling.
(3) Coat threads with pipe thread sealing compound and install fitting (6) in elbow (7).
(4) Coat threads with pipe thread sealing compound and install elbows (7, 8, and 9) in spring brake control valve (2).

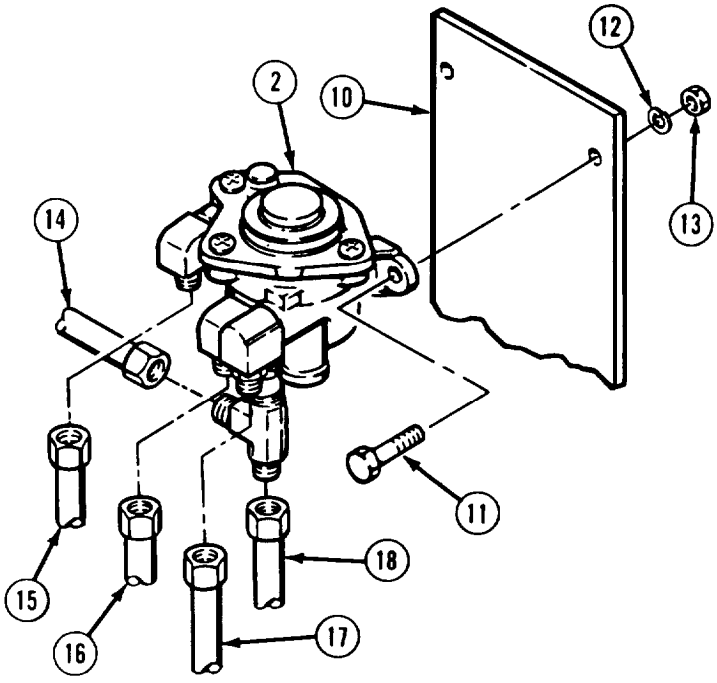
Brake and Air System Maintenance instructions (Cont)

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(5) Mount spring brake control valve (2) on bracket (10) with two screws (11), lockwashers (12), and nuts (13).

(6) Connect air lines (14, 15, 16, 17, and 18).



c. Follow-on Maintenance.

(1) Start engine and build up air pressure to at least 90 psi (621 kPa) (TM 9-2320-279-10).
(2) Check connections for leaks.
(3) Check operation of parking brake (TM 9-2320-279-10).
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-18. DELETED.

Brake and Air System Maintenance Instructions (Cont)

11 - 19. TRAILER STOPLIGHT PRESSURE SWITCH REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread. Item 18. Appendix C

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

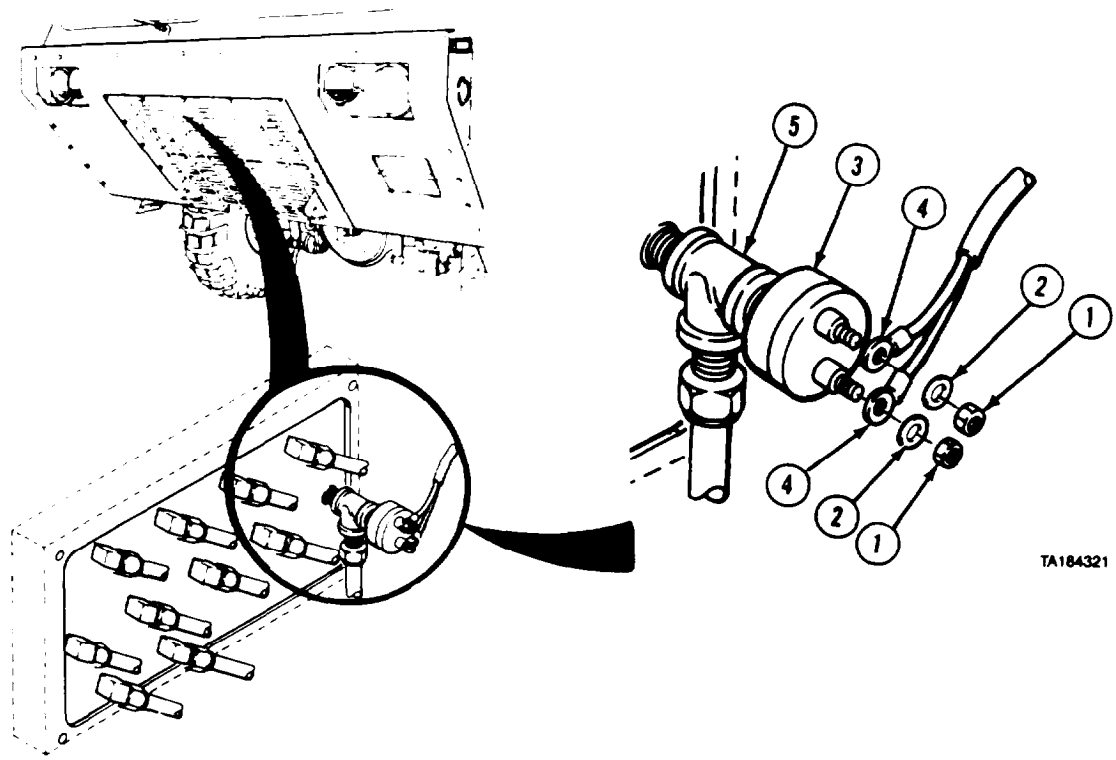
Equipment Condition

TM or Para	*Condition Description*
Para 7-91	Batteries disconnected.
TM 9-2320-279-10	Air system drained.

Special Environment Conditions
None

General Safety Instructions
None

a. Removal.



Brake and Air System Maintenance Instructions (Cont)

(1) Remove two nuts (1) and washers (2) from pressure switch (3). Disconnect two wires (4) from pressure switch.
(2) Remove pressure switch (3) from fitting (5).

b. Installation.

WARNING

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

(1) Coat threads of pressure switch (3) with pipe thread sealing compound, and install on fitting (5).
(2) Install two wires (4) on pressure switch (3).
(3) Install two washers (2) and nuts (1).

c. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine and build up air pressure (TM 9-2320-279-10).
(3) Check for air leaks (TM 9-2320-279-10).
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-20. PARKING BRAKE VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required

References

Equipment Condition

TM or Para
TM 9-2320-279-10 Air system drained. Para 7-19

Special Environmental Conditions
None

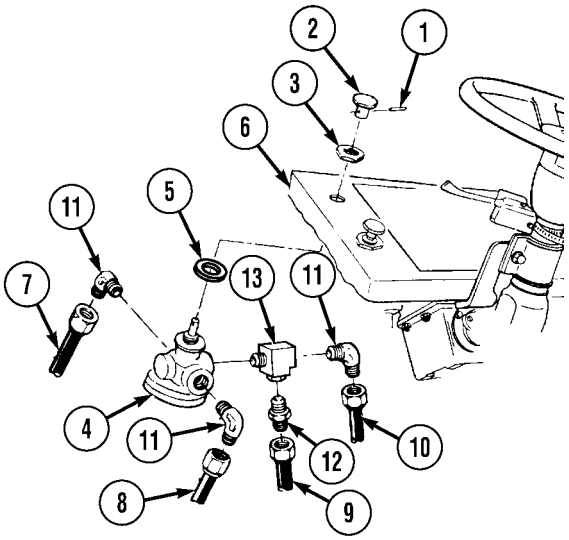
None

11-20. PARKING BRAKE VALVE REMOVAL/INSTALLATION (CONT).

a. Removal.

NOTE

There are two types of parking brake valves installed on vehicles. Model A is a manually set valve (black knob). Model B is an automatic set valve (yellow knob). When installing model B type parking brake valve (yellow knob), on Non-FHTV vehicles, washer (5) must be installed with parking brake valve. Tag and mark air lines before removal.



(1) Remove pin (1) and knob (2).

(2) Remove nut (3), parking brake valve (4), and washer (5) (if installed) from dash (6).

(3) Remove four air lines (7, 8, 9, and 10).

(4) Mark location and remove three elbows (11) from parking brake valve (4).

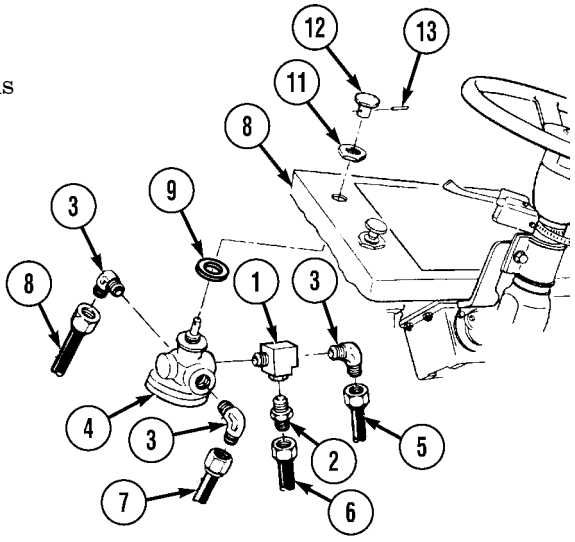
(5) Remove fitting (12) from fitting (13).

(6) Remove tee (13) from parking brake valve (4).

b. Installation

WARNING

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



(1) Apply pipe thread sealing compound to threads of two fittings (1 and 2) and three elbows (3).

(2) Install fitting (1) on parking brake valve (4).

(3) Install fitting (2) and three elbows (3).

(4) Connect four air lines (5, 6, 7, and 8).

(5) Install parking brake valve and washer (9) (if removed) through dash (10).

(6) Install nut (11) on parking brake valve (4).

(7) Install knob (12) on parking brake valve (4).

(8) Install pin (13) through knob (12).

c. Follow-on Maintenance.

(1) Install instrument panel (para 7-19).

(2) Start engine and build up air pressure to 120-125 psi (827-862 kPa) (TM 9-2320-279-10).

(3) Check operation of parking brake (TM 9-2320-279-10).

(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-21. GLAD HAND REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

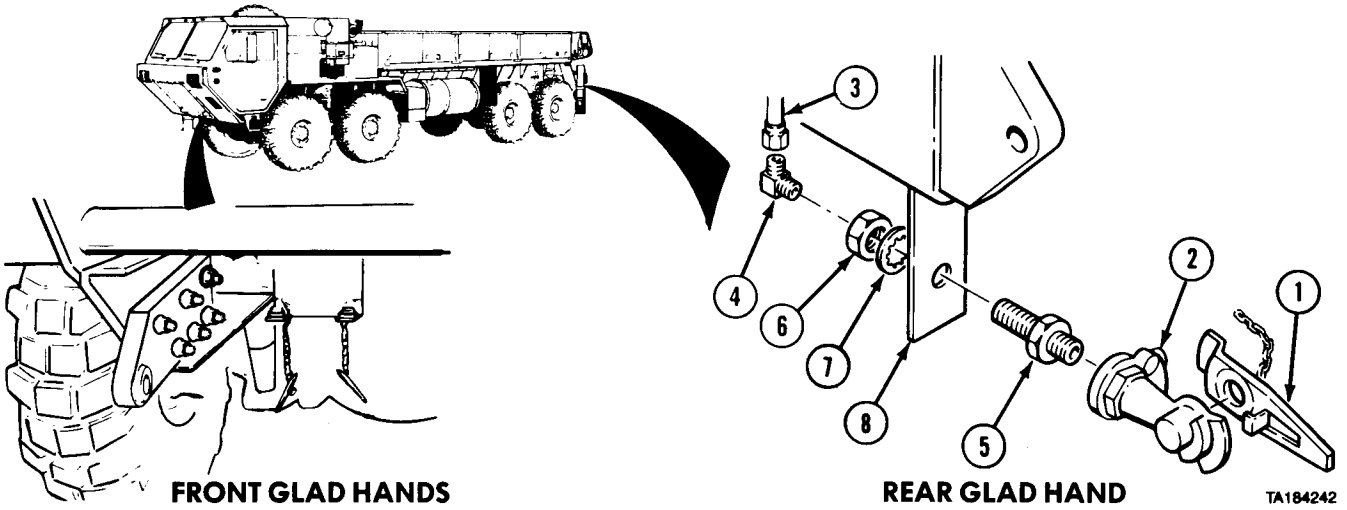
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



NOTE

All glad hands are removed in the same manner except right front glad hand has straight nipple instead of 90 degree elbow. M984E1 front glad hands have 45-degree elbow on each glad hand.

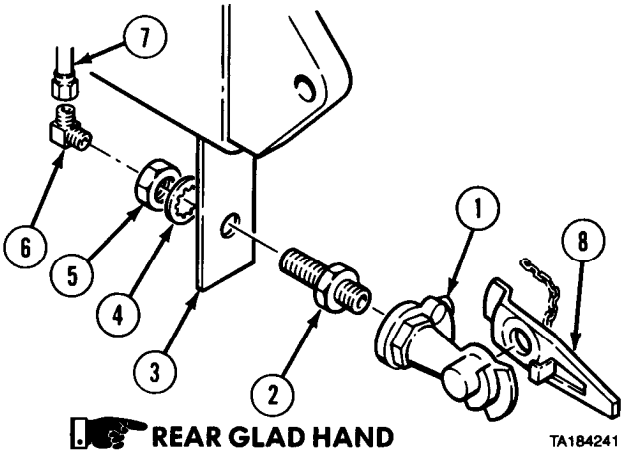
(1) Remove dummy coupling (1) from glad hand (2).
(2) Disconnect air line (3) from elbow (4).
(3) Remove elbow (4) from anchor stud (5).
(4) Remove nut (6) and lockwasher (7).
(5) Remove anchor stud (5) from bracket (8).
(6) Remove glad hand (2) from anchor stud (5).

11-21. GLAD HAND REMOVAL/INSTALLATION (CONT).

b. Installation.

WARNING

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



(1) Coat threads with pipe thread sealing compound and install glad hand (1) on anchor stud (2).
(2) Install anchor stud (2) in bracket (3).
(3) Install lockwasher (4) and nut (5).
(4) Coat threads with pipe thread sealing compound and install elbow (6) in anchor stud (2).
(5) Install air line (7) to elbow (6).
(6) Install dummy coupling (8) to glad hand (1).

c. Follow-on Maintance. Start engine, build up air pressure (TM 9-2320-279-10). Check for leaks.

END OF TASK

Section IV. AIR DRYER

11-22. AIR DRYER SERVICE.

This task covers:

a. Removal
b. Disassembly
c. Cleaning
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

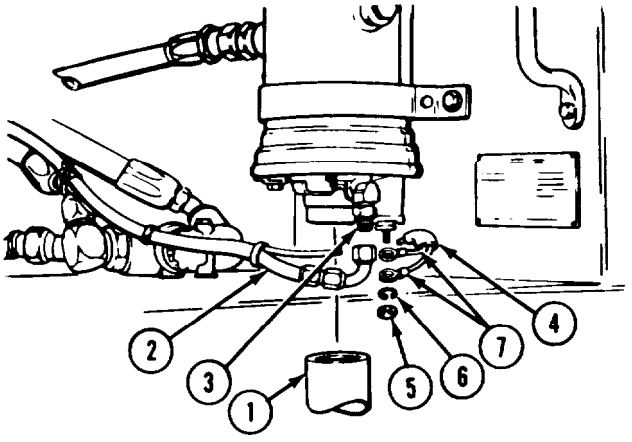
a. Removal.

NOTE
Tag and mark hoses, lines, wires, and fittings before removal.

(1) Remove hose (1).
(2) Disconnect air line (2) from fitting (3).

NOTE
M984, M985E1, and M983 with crane have three wires on air dryer.

(3) Pull back rubber boot (4). Remove nut (5), lockwasher (6), and two wires (7).

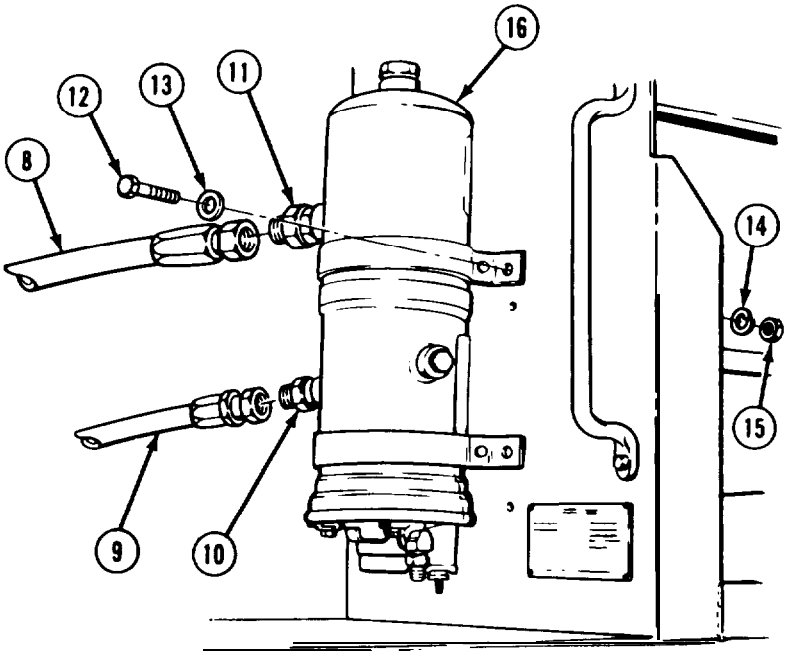


(4) Disconnect two air lines (8 and 9) from fittings (10 and 11).

NOTE
Some vehicles have four screws, washers, lockwashers, and nuts. Others have four flanged nuts and screws.

(5) Remove four screws (12), washers (13), lockwashers (14) and nuts (15).

(6) Remove air dryer assembly (16).



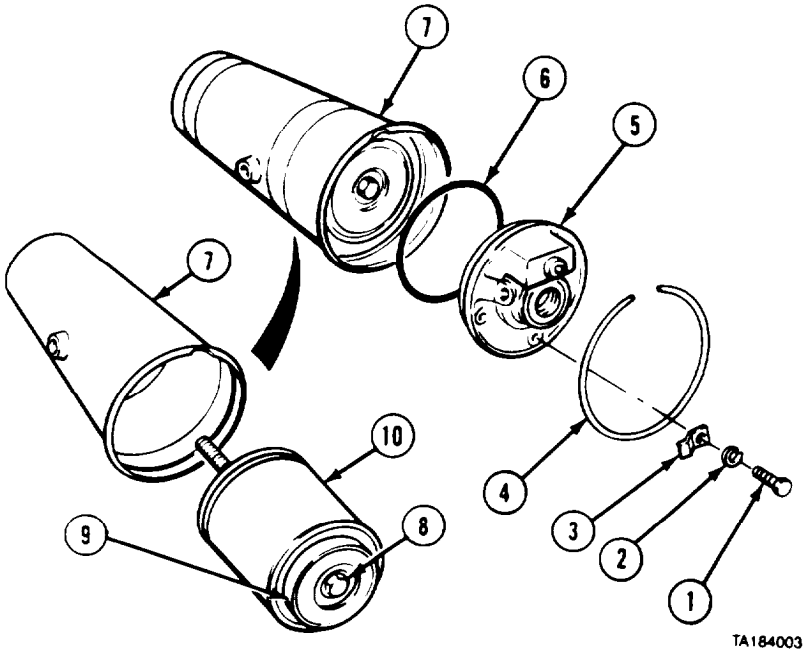
11-22. AIR DRYER SERVICE (CONT).

b. Disassembly.

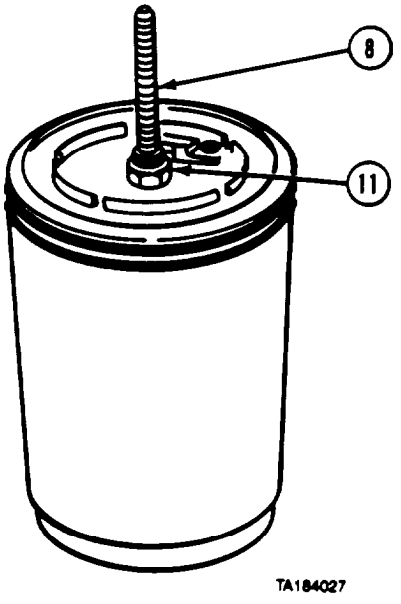
(1) Remove three screws (1), lockwasher (2), and retaining clips (3).

(2) Remove retaining ring (4), end cover (5), and preformed packing (6) from air dryer housing (7).

(3) Turn cartridge stud (8) counterclockwise to remove oil filter (9) and cartridge (10) from air dryer housing (7).

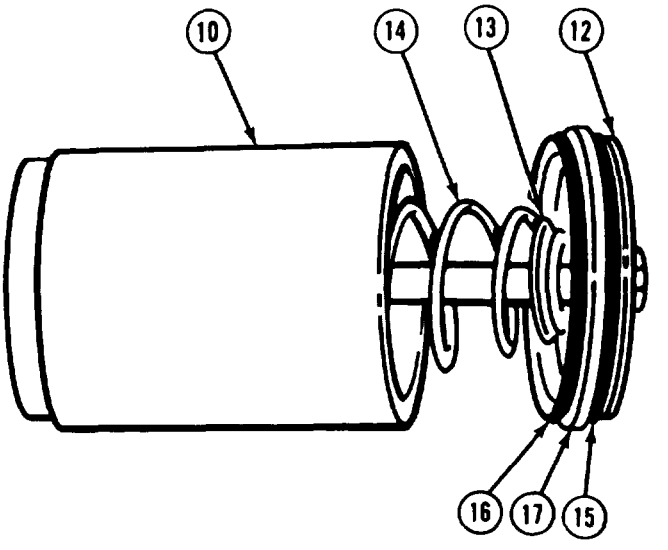


(4) Hold cartridge stud (8) and remove locknut (11).



(5) Remove sealing plate assembly (12), spring seat (13), and spring (14) from cartridge (10).

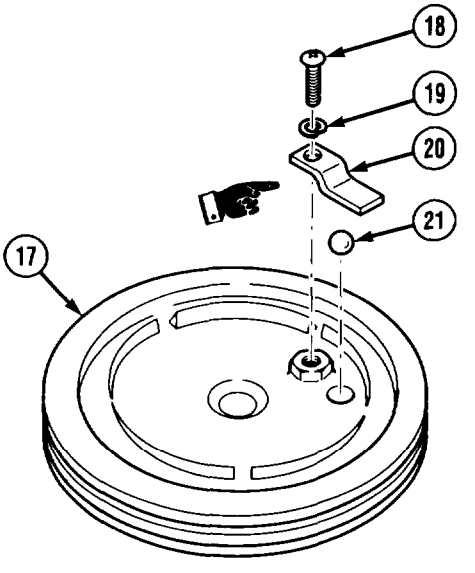
(6) Remove two preformed packings (15 and 16) from sealing plate (17).



(7) Remove screw (18), lockwasher (19), plate (20), and check ball (21) from sealing plate (17).

WARNING

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

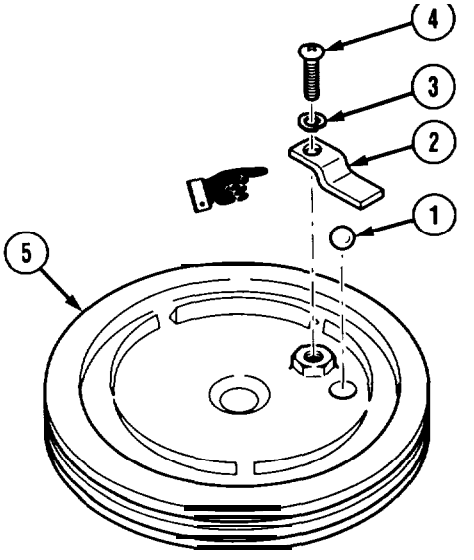


c. Cleaning. Clean all metal parts with drycleaning solvent.

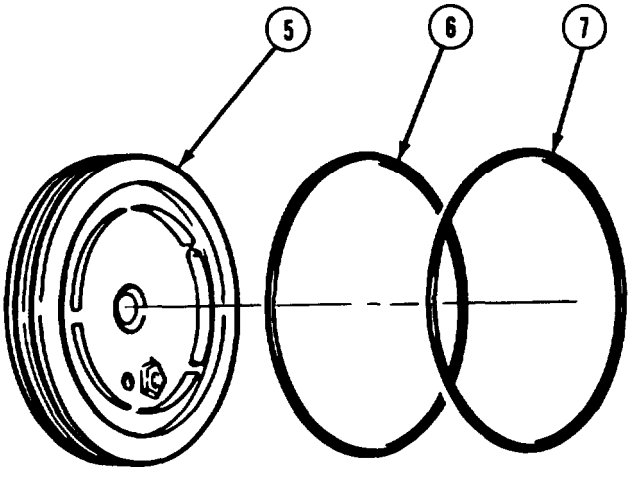
11-22. AIR DRYER SERVICE (CONT).

d. Assembly.

(1) Install check ball (1), plate (2), lockwasher (3), and screw (4) in sealing plate (5).



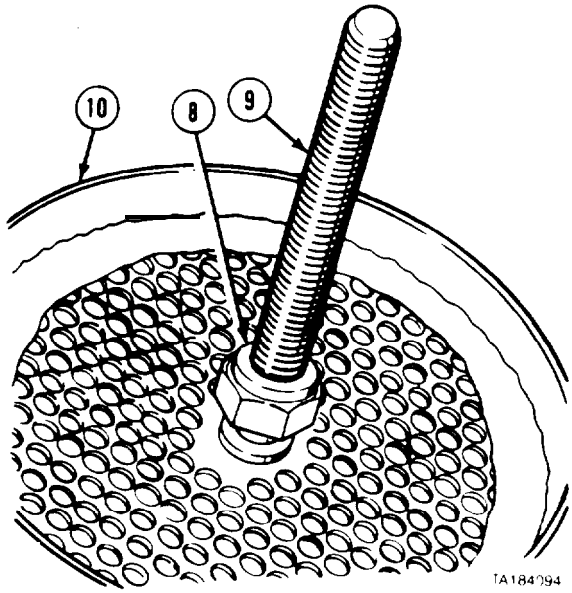
(2) Install two preformed packings (6 and 7) on sealing plate (5).



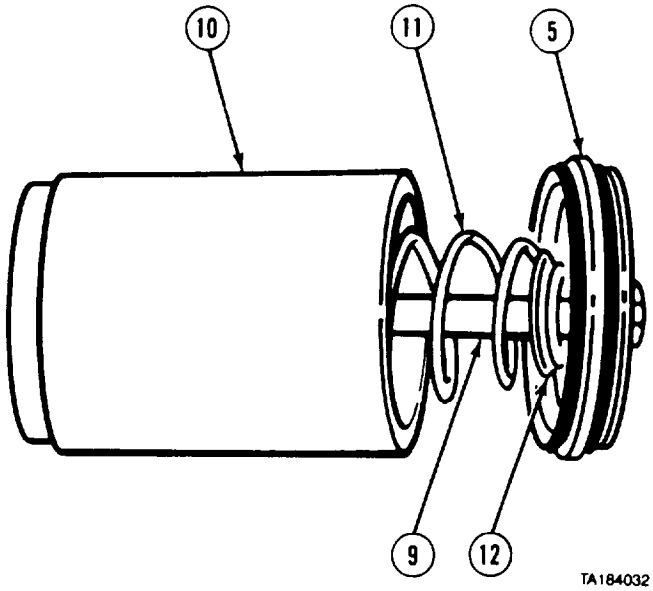
CAUTION

Be careful not to let stud slip out of cartridge or desiccant material will be lost.

(3) Remove locknut (8) from cartridge stud (9) of cartridge (10).



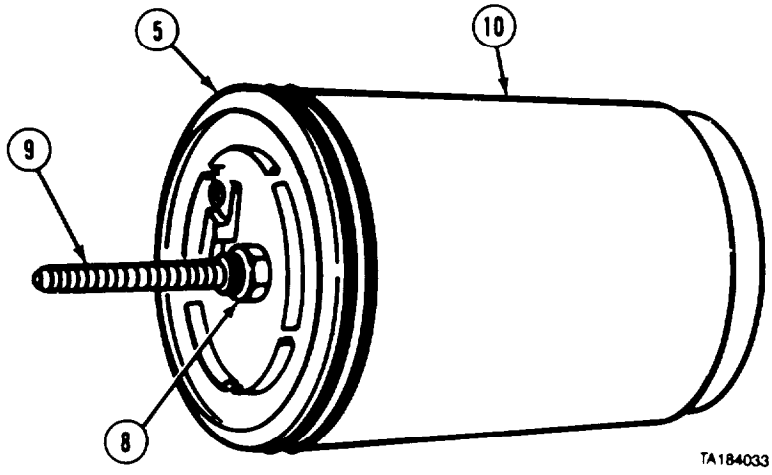
(4) Install spring (11) in cartridge (10) and place spring seat (12) and sealing plate (5) on stud (9).



CAUTION

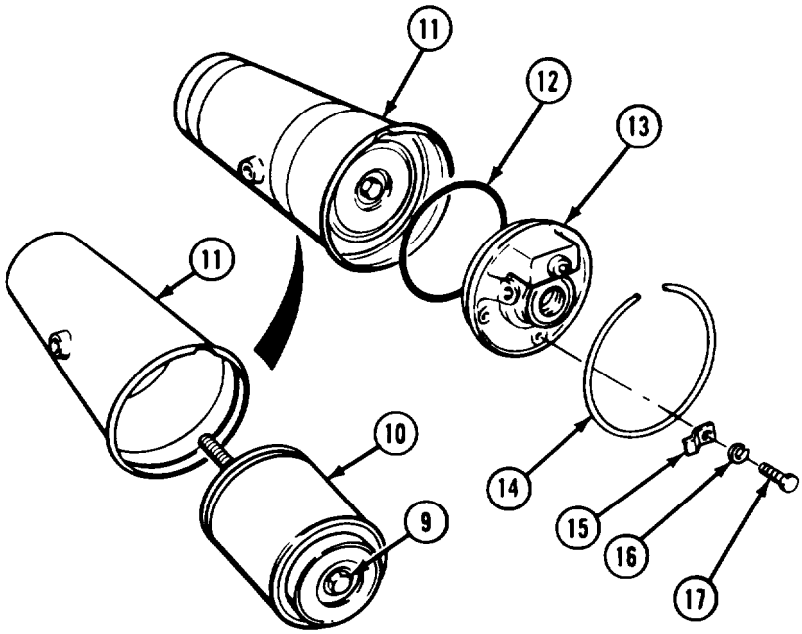
Be sure inner preformed packing on desiccant plate enters cartridge without pinching. Damage to preformed packing will result in leakage of air.

(5) Install nut (8) on stud (9). Tighten nut until shoulder of sealing plate (5) is against cartridge (10).



11-22. AIR DRYER SERVICE (CONT).

(6) Install cartridge (10) in dryer housing (11).
(7) Tighten cartridge stud (9) to 32 lb-ft (43 N•m).
(8) Install preformed packing (12) in air dryer housing (11).
(9) Aline matchmarks and install end cover (13) in air dryer housing (11) with retaining ring (14).
(10) Install three retaining clips (15) with lockwashers (16) and screws (17).

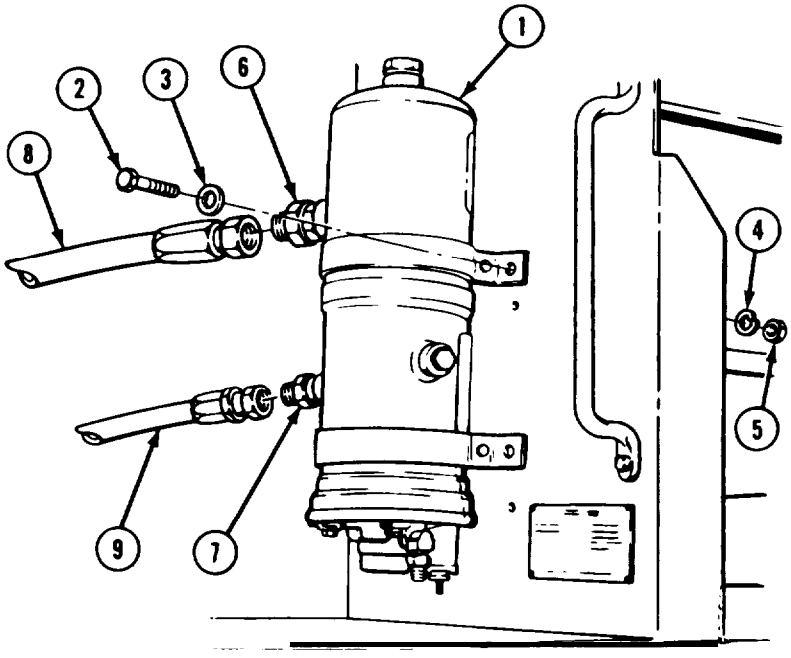


e. Installation.

NOTE

Some vehicles have four screws, washers, lockwashers, and nuts. Others have four flanged nuts and screws.

(1) Install air dryer assembly (1) with four screws (2), washers (3), lockwashers (4), and nuts (5).



WARNING

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

(2) Coat threads of fitting (6) and fitting (7) with pipe thread sealing compound and connect two air lines (8 and 9) to fittings.

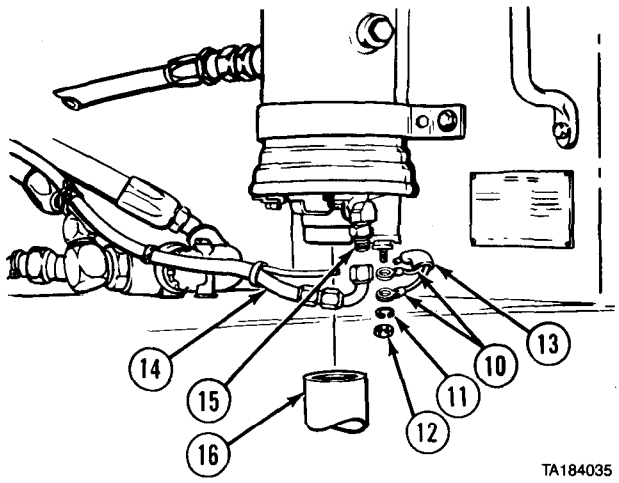
NOTE

Three wires are installed on air dryer on M984, M985E1, and M983 with crane.

(3) Install two wires (10), lockwasher (11), and nut (12). Pull up boot (13).
(4) Install air line (14) on fitting (15).
(5) Install hose (16).

f. Follow-on Maintenance.

(1) Start engine (TM 9-2320-279-10).
(2) Build up air pressure (TM 9-2320-279-10).
(3) Listen for operation of air dryer (TM 9-2320-279-10).
(4) Check air dryer lines and fittings for leaks.
(5) Shut off engine (TM 9-2320-279-10).



END OF TASK

11-23. AIR DRYER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

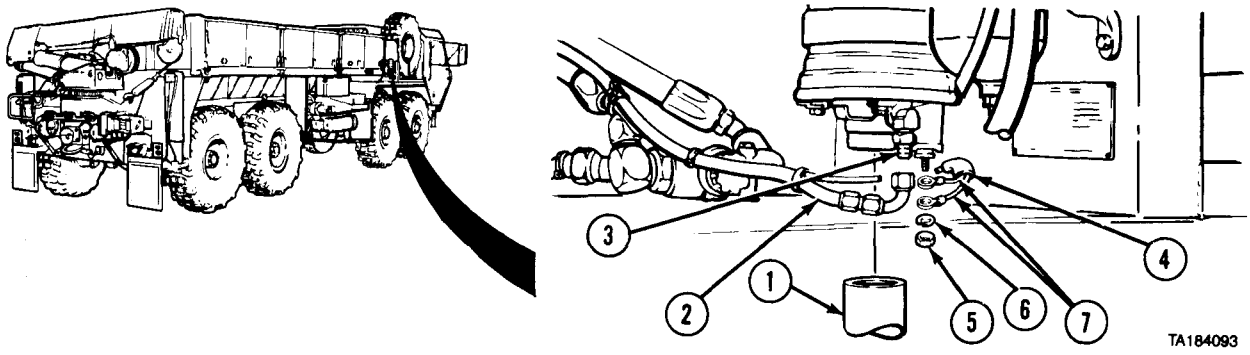
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

11-23. AIR DRYER REMOVAL/INSTALLATION (CONT).

a. Removal.



(1) Remove hose (1).
(2) Disconnect air line (2) from fitting (3).

NOTE

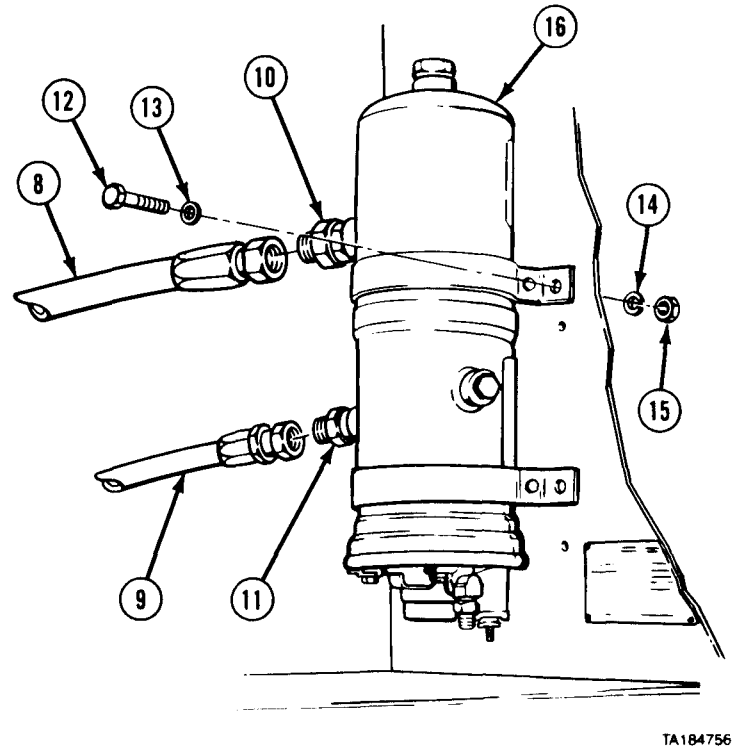
M984, M985E1, and M983 with crane have three wires on air dryer.

(3) Pull back rubber boot (4). Remove nut (5), lockwasher (6), and two wires (7).

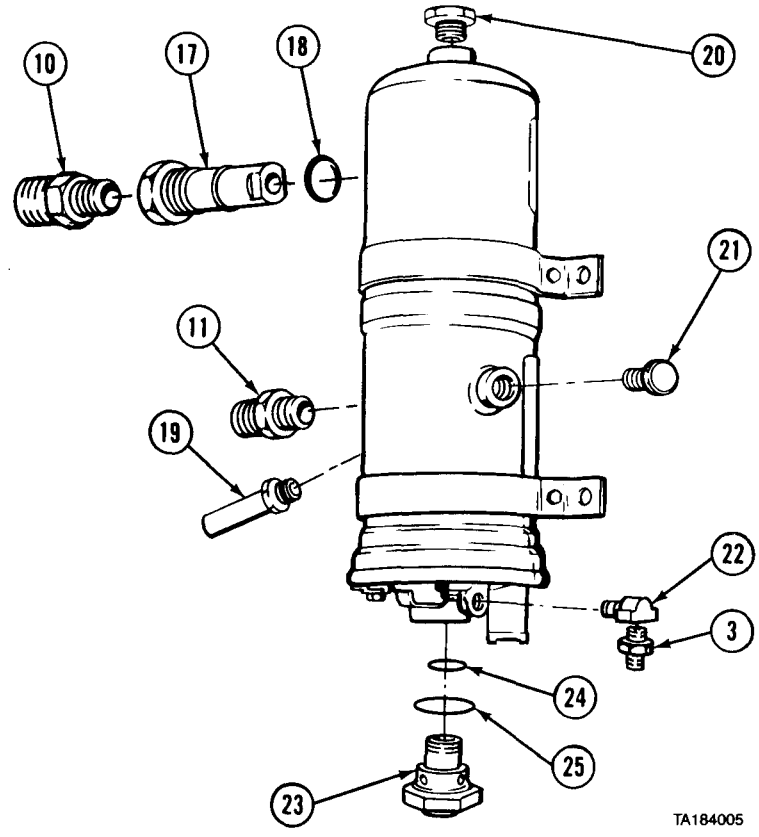
NOTE

Tag and mark air lines before removal.

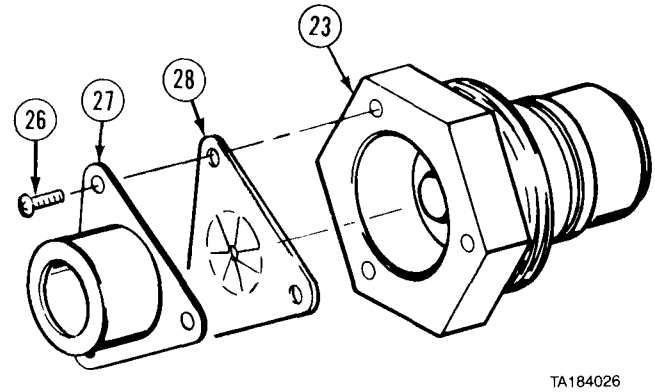
(4) Disconnect two air lines (8 and 9) from fittings (10 and 11).
(5) Remove four screws (12), washers (13), lockwashers (14), and nuts (15).
(6) Remove air dryer assembly (16).



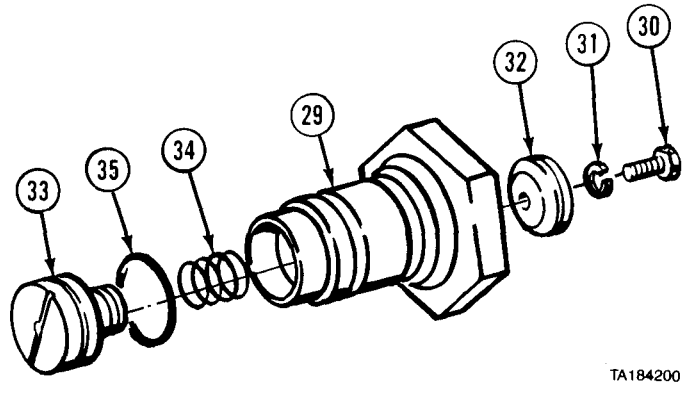
(7) Remove fitting (10).
(8) Remove check valve (17) and preformed packing (18).
(9) Remove fitting (11).
(10) Remove safety valve (19).
(11) Remove plugs (20 and 21).
(12) Remove fitting (3) and elbow (22).
(13) Remove purge valve (23) and preformed packings (24 and 25).



(14) Remove three screws (26), exhaust cover (27), and adapter (28) from purge valve (23).



(15) Hold purge valve housing (29) and remove screw (30), lockwasher (31), valve (32), purge valve piston (33), and spring (34).
(16) Remove preformed packing (35) from purge valve piston (33).

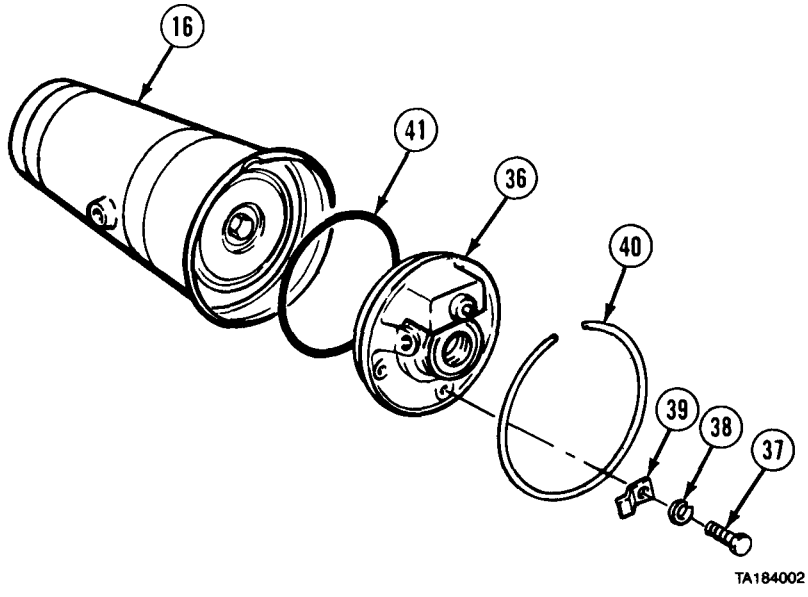


11-23. AIR DRYER REMOVAL/INSTALLATION (CONT).

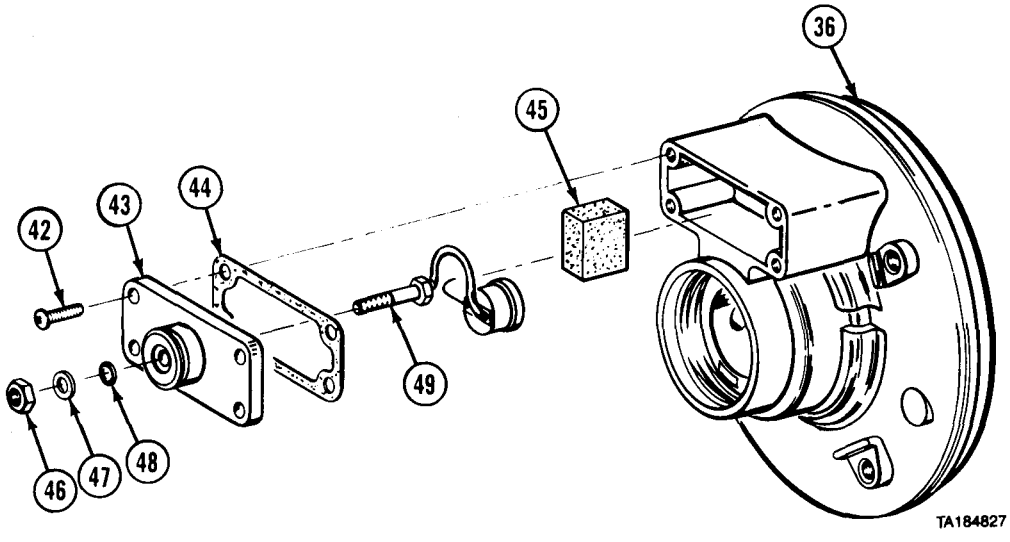
(17) Make matchmarks on end cover (36) and air dryer housing (16).
(18) Remove three screws (37), lockwashers (38), and retaining clips (39).
(19) Push in on end cover (36) and remove retaining ring (40).
(20) Remove end cover (36) and preformed packing (41).

NOTE

Refer to paragraph 11-22 to replace desiccant cartridge.



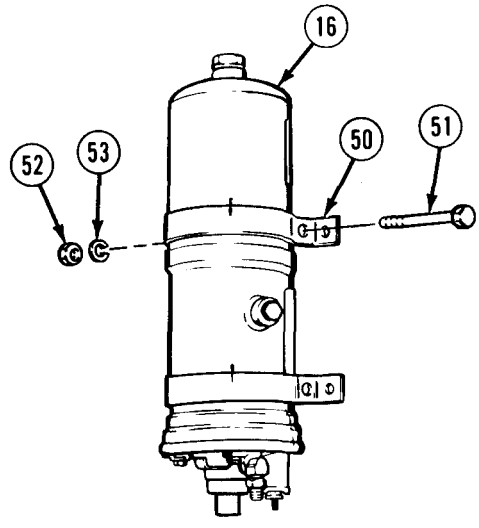
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(21) Remove four screws (42), cover (43), gasket (44), and foam block (45) from end cover (36).
(22) Remove nut (46), lockwasher (47), preformed packing (48), and thermostat (49) from cover (43).

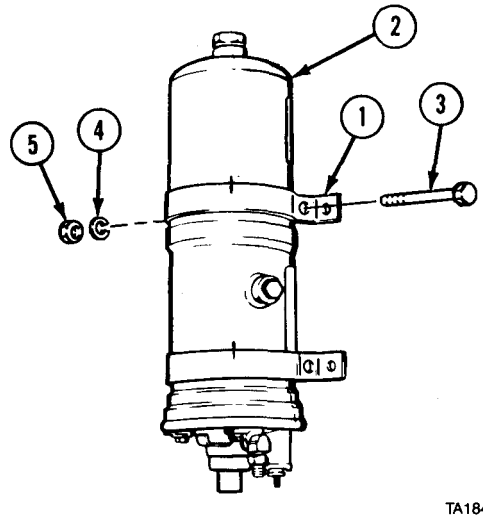
(23) Make matchmarks on two brackets (50) and air dryer housing (16).
(24) Remove two screws (51), nuts (52), lockwashers (53), and brackets (50) from air dryer housing (16).



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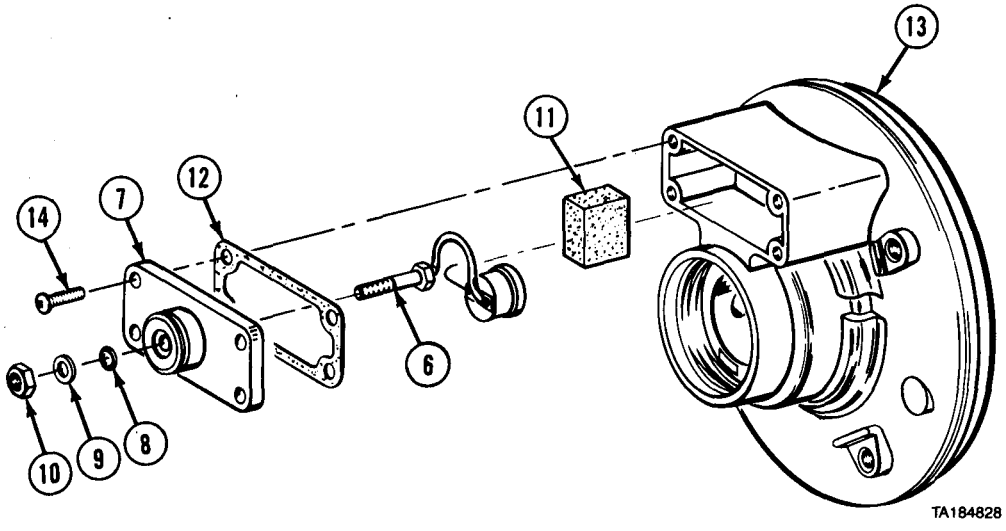
b. *Installation.*

(1) Aline matchmarks and install two brackets (1) on air dryer housing (2) with two screws (3), lockwashers (4), and nuts (5).



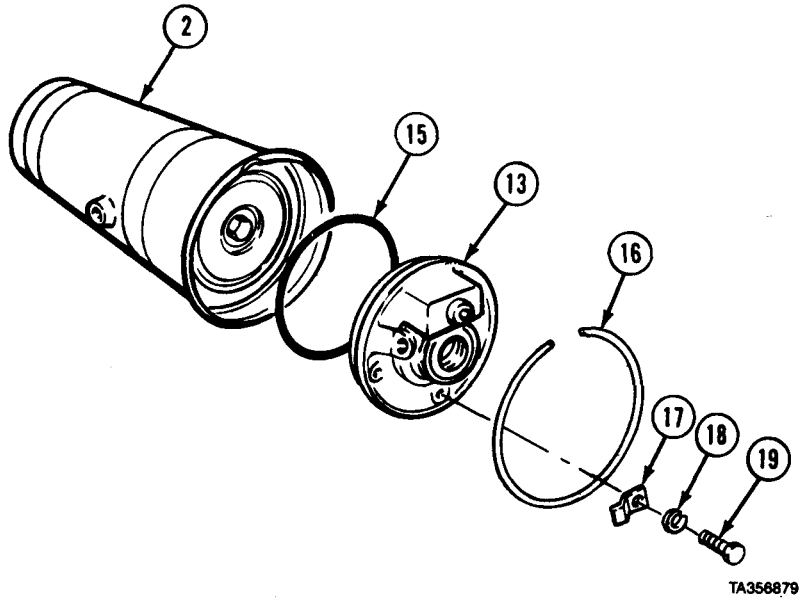
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11-23. AIR DRYER REMOVAL/INSTALLATION (CONT).

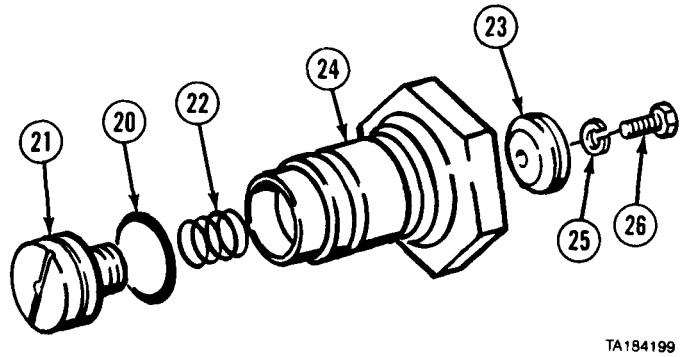


(2) Install thermostat (6) in cover (7) with preformed packing (8), lockwasher (9), and nut (10).
(3) Install foam block (11), gasket (12), and cover (7) on end cover (13) with four screws (14).

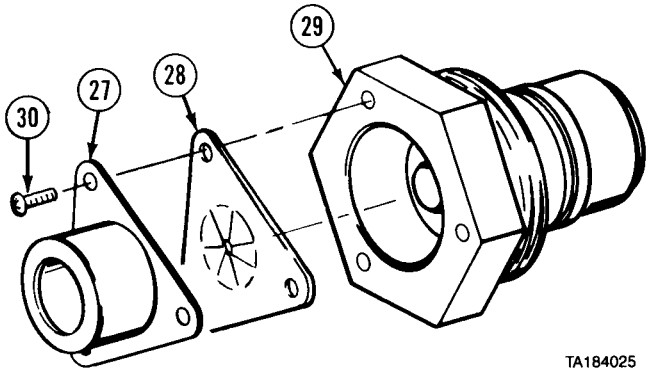
(4) Install preformed packing (15) in air dryer housing (2).
(5) Aline matchmarks and install end cover (13) in air dryer housing (2) with retaining ring (16).
(6) Install three retaining clips (17) with lockwashers (18) and screws (19).



(7) Install preformed packing (20) on purge valve piston (21).
(8) Install purge valve piston (21), spring (22), and valve (23) in purge valve housing (24) with lockwasher (25) and screw (26).



(9) Install exhaust cover (27) and adapter (28) on purge valve (29) with three screws (30).



(10) Install preformed packings (31 and 32) on purge valve (29).
(11) Install purge valve (29) in end cover (13).
(12) Install elbow (33).

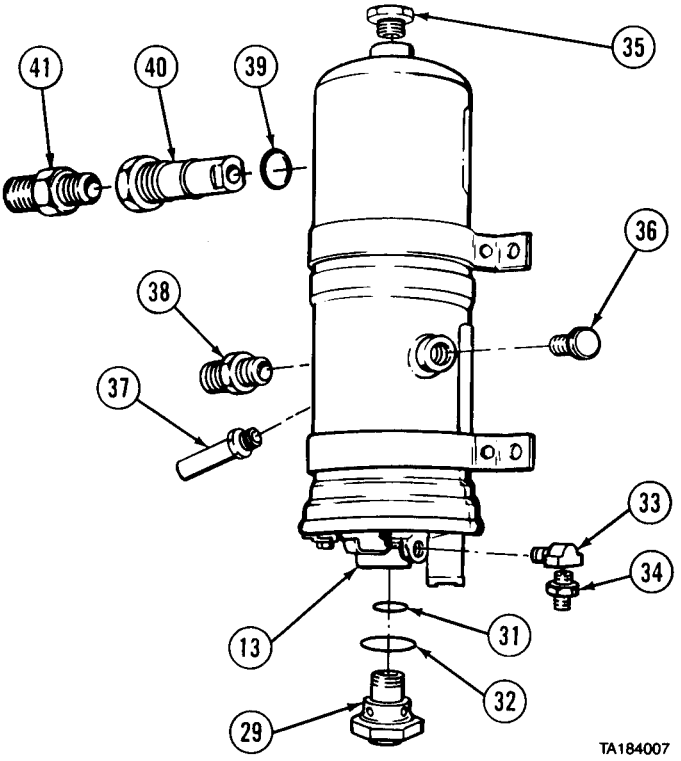
WARNING

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

NOTE

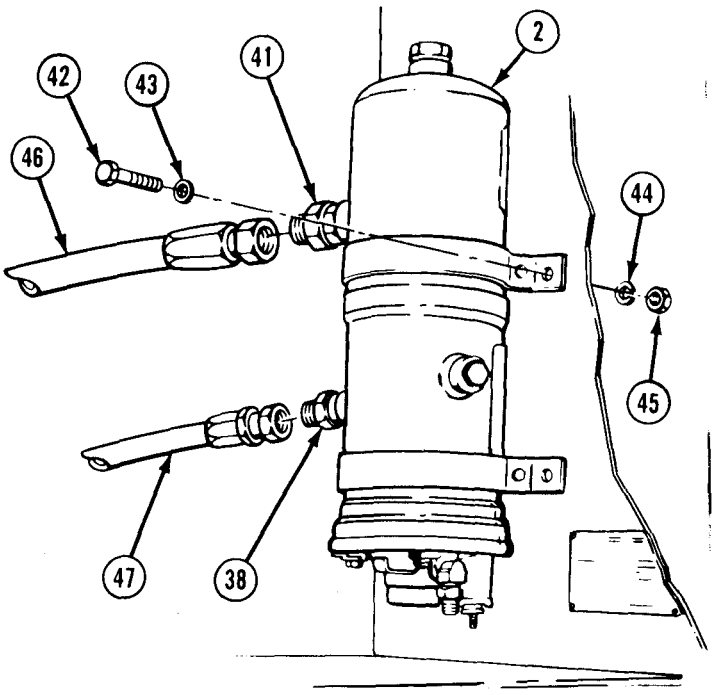
Coat all pipe threads with pipe thread sealing compound.

(13) Install fitting (34) in elbow (33).
(14) Install plugs (35 and 36).
(15) Install safety valve (37).
(16) Install connector (38).
(17) Install preformed packing (39) on check valve (40). Install check valve.
(18) Install connector (41).



11-23. AIR DRYER REMOVAL/INSTALLATION (CONT).

(19) Install air dryer assembly (2) with four screws (42), washers (43), lockwashers (44), and nuts (45).
(20) Connect two air lines (46 and 47) to connectors (38 and 41).



TA184757

NOTE

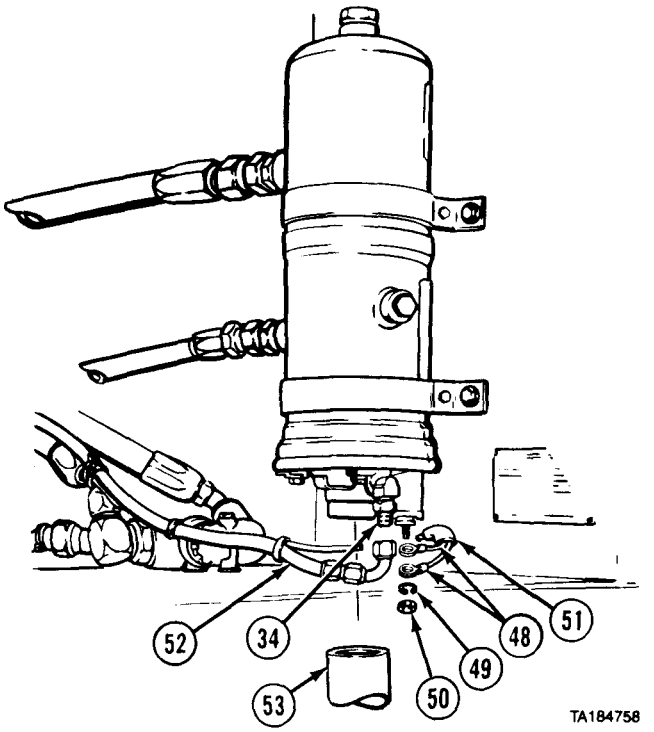
M984, M985E1, and M983 with crane have three wires on air dryer.

(21) Install two wires (48), lockwasher (49), and nut (50). Pull up boot (51).
(22) Install air line (52) on fitting (34).
(23) Install hose (53).

c. *Follow-on Maintenance.*

(1) Start engine (TM 9-2320-279-10).
(2) Build up air pressure (TM 9-2320-279-10).
(3) Check air dryer lines and fittings for leaks.
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK



TA184758

11-24. AIR DRYER CHECK VALVE REPAIR.

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Solvent, dry cleaning, Item 47, Appendix C
Oil, lubricating, Item 33, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

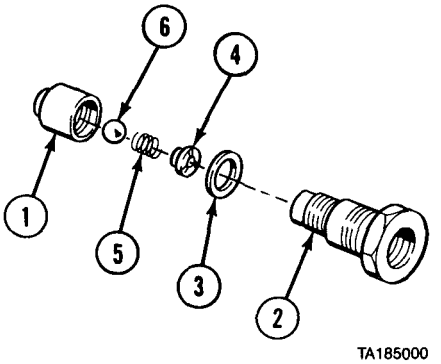
TM or Para	*Condition Description*
Para 11-23	Check valve removed and on clean work surface.

Special Environmental Conditions
None

General Safety Instructions
None

a. Disassembly.

(1) Position end cap (1) in vise with soft jaws.
(2) Remove valve body (2), sealing washer (3), spring guide (4), spring (5), and ball valve (6).
(3) Remove end cap (1) from vise.



TA185000

b. Cleaning/Inspection.

WARNING

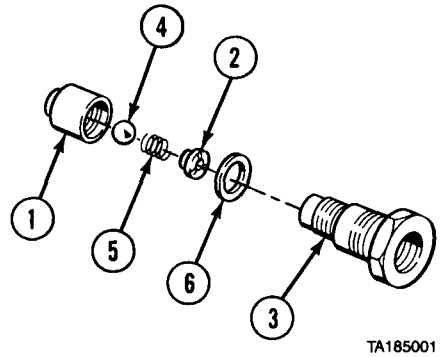
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(1) Clean metal parts in dry cleaning solvent.
(2) Remove pipe sealant from threaded parts.
(3) Inspect parts for damage or corrosion.

11-24. AIR DRYER CHECK VALVE REPAIR (CONT).

c. Assembly.

(1) Position end cap (1) in vise with soft jaws.
(2) Coat spring guide (2), valve body (3), ball valve (4), spring (5), and sealing washer (6) with lubricating oil and install in end cap (1).
(3) Tighten valve body (3) and end cap (1) to 16 to 19 lb-ft (22 to 26 N·m).



TA185001

d. Follow-on Maintenance. Install check valve (para 11-23).

END OF TASK

Section V. AIR MANIFOLDS AND RESERVOIRS

11-25. NO. 1 AIR MANIFOLD REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

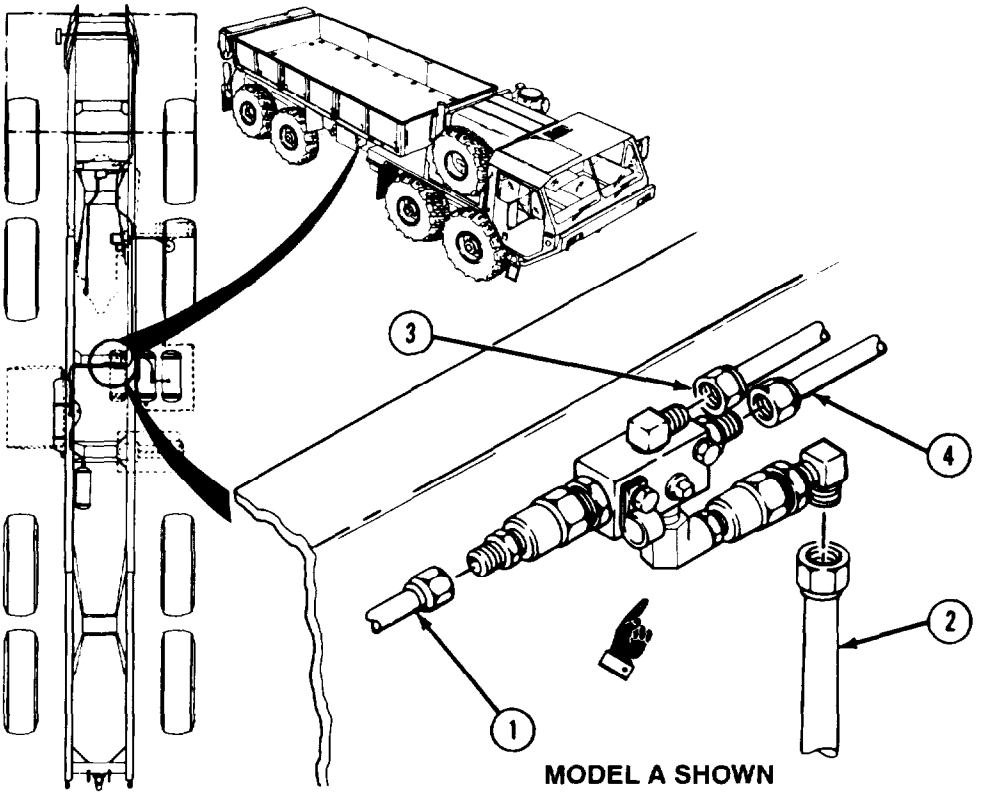
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

Brake and Air System Maintenance Instructions (Cont)

a. Removal.



MODEL A SHOWN

NOTE

- Tag and mark air lines before removal.
- Cut plastic cable ties as necessary to disconnect air lines.
- There are two configurations of No. 1 air manifold used. Model A configuration is used by M977, M978, M984, and M985. Model B is used by M983 and M984E1.

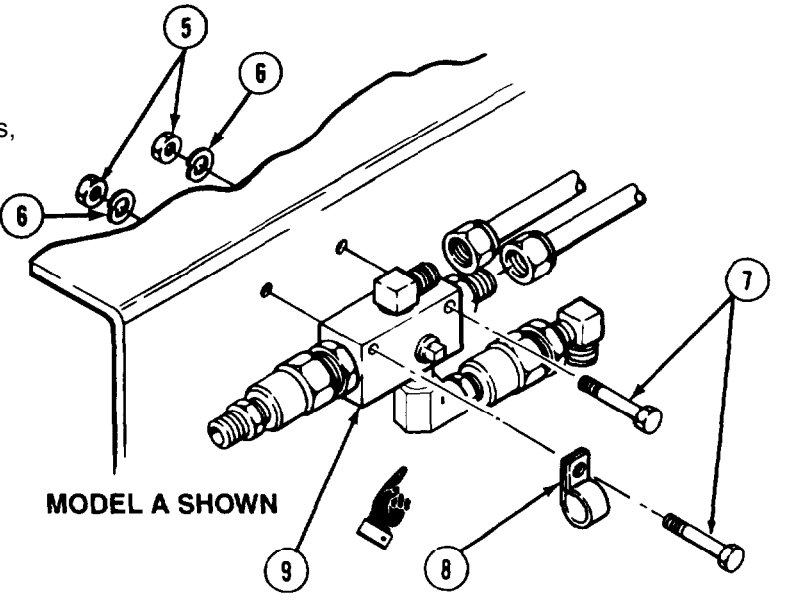
(1) Disconnect air lines (1, 2, 3, and 4).

NOTE

Model A - Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts, one flanged screw, one screw, and one flat washer. Flat washer is between screw and clamp.

(2) Remove two nuts (5), lockwashers (6), two screws (7), and clamp (8).

(3) Remove No. 1 air manifold (9).



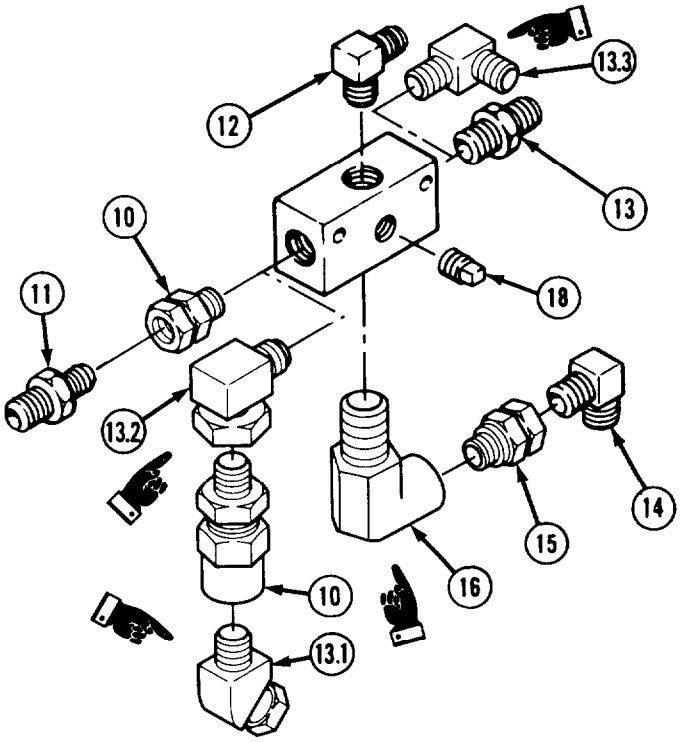
MODEL A SHOWN

11-25. NO. 1 AIR MANIFOLD REMOVAL/INSTALLATION (CONT).

NOTE

There are two configurations of No. 1 air manifold used. Model A configuration is used by M977, M978, M984, and M985. Model B is used by M983 and M984E1. Perform steps (4) and (5) for Model A and steps *(5.1)* and (5.2) for Model B. Perform steps (6) and (7) for both models.

(4) Remove check valve (10) and connector (11).
(5) Remove elbow (12) and connector (13).
(5.1) Remove elbow (13.1), check valve (10), and elbow (13.2).
(5.2) Remove elbows (12 and 13.3).
(6) Remove elbow (14), check valve (15), and elbow (16).
(7) Remove pipe plug (18).



b. Installation.

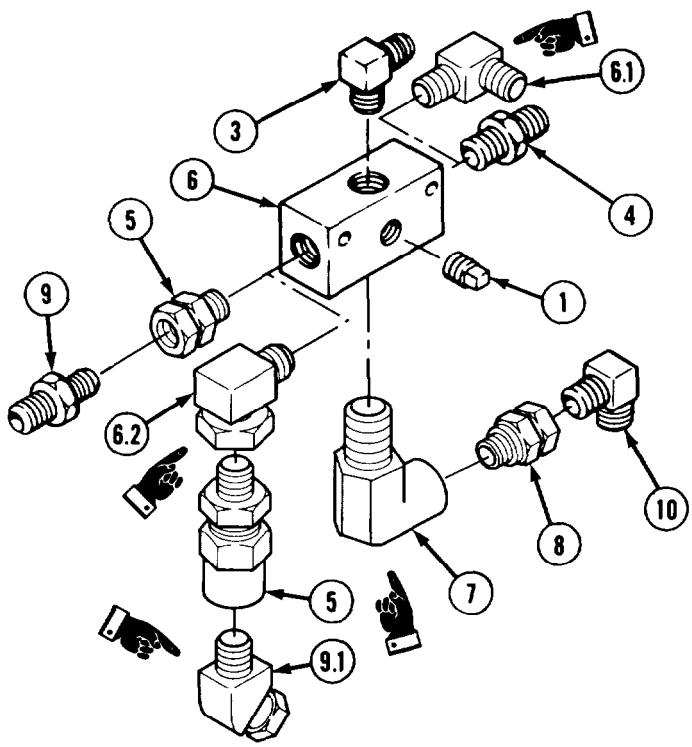
WARNING

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

NOTE

- Coat all pipe threads with pipe thread sealing compound.
- There are two configurations of No. 1 air manifold used. Model A configuration is used by M977, M978, M984, and M985. Model B is used by M983 and M984E1.
- Perform steps *(1)* and *(4)* for Model A and steps *(1. 1), (1.2),* and *(4.1)* for Model B.
- Perform steps *(2), (3),* and *(5)* for all models.

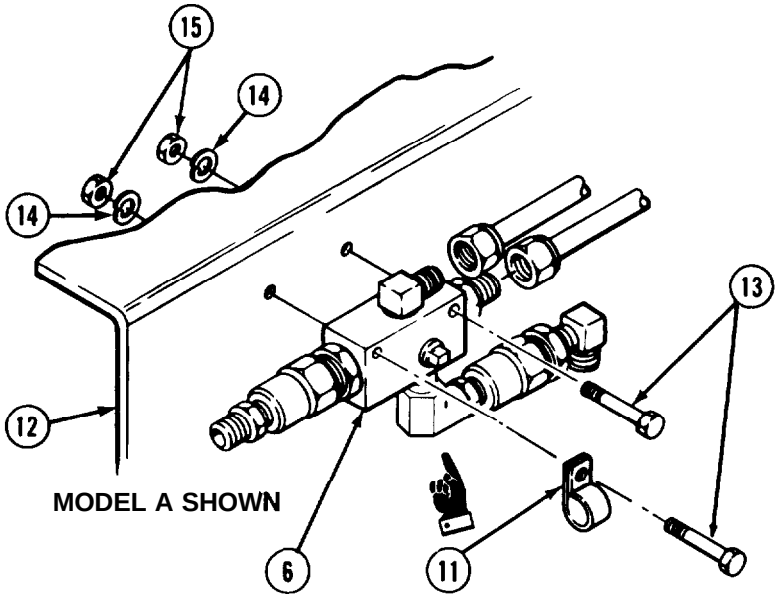
(1) Install pipe plug (1), elbow (3), connector (4), and check valve (5) in No. 1 air manifold (6).
(1.1) Install pipe plug (1), elbow (3), elbow (6.1), and elbow (6.2) in air manifold (6).
(1.2) Install check valve (5) in elbow (6.2).
(2) Install elbow (7) in manifold (6).
(3) Install check valve (8) on elbow (7).
(4) Install connector (9) in check valve (5).
(4.1) Install elbow (9.1) in check valve *(5).*
(5) Install elbow (10) on check valve (8).



NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts, one flanged screw, one screw, and one flat washer. Flat washer is between screw and clamp.

(6) Install clamp (11) and No. 1 air manifold (6) on crossmember (12) with two screws (13), lockwashers (14), and two nuts (15).



MODEL A SHOWN

(7) Connect air lines (16, 17, 18, and 19).

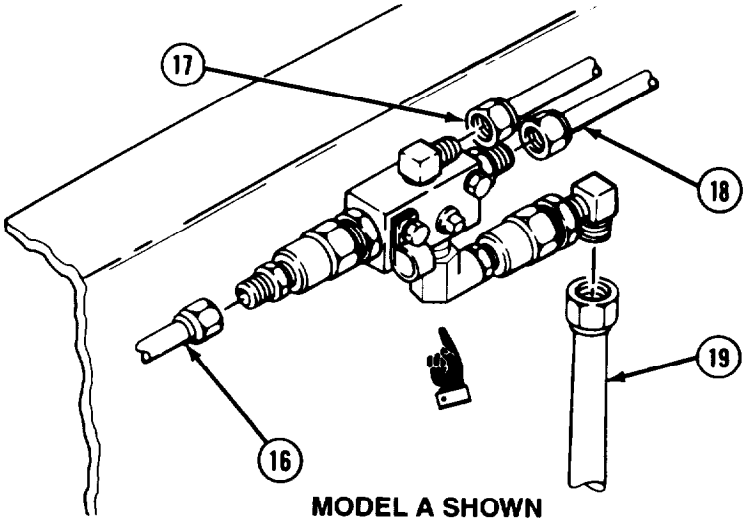
NOTE

Install plastic cable ties as necessary.

c Follow-on Maintenance.

(1) Start engine to build up air pressure (TM 9-2320-279-10).
(2) Check for air leaks (TM 9-2320-279-10).
(3) Shut off engine (TM 9-2320-279-10).

END OF TASK



MODEL A SHOWN

Brake and Air System Maintenance Instructions (Cont)

11-26. NO. 2 AIR MANIFOLD REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Installationl
c. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread. Item 18 Appendix C
Tags, idenitification. Item 48, Appendix C

Personal Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

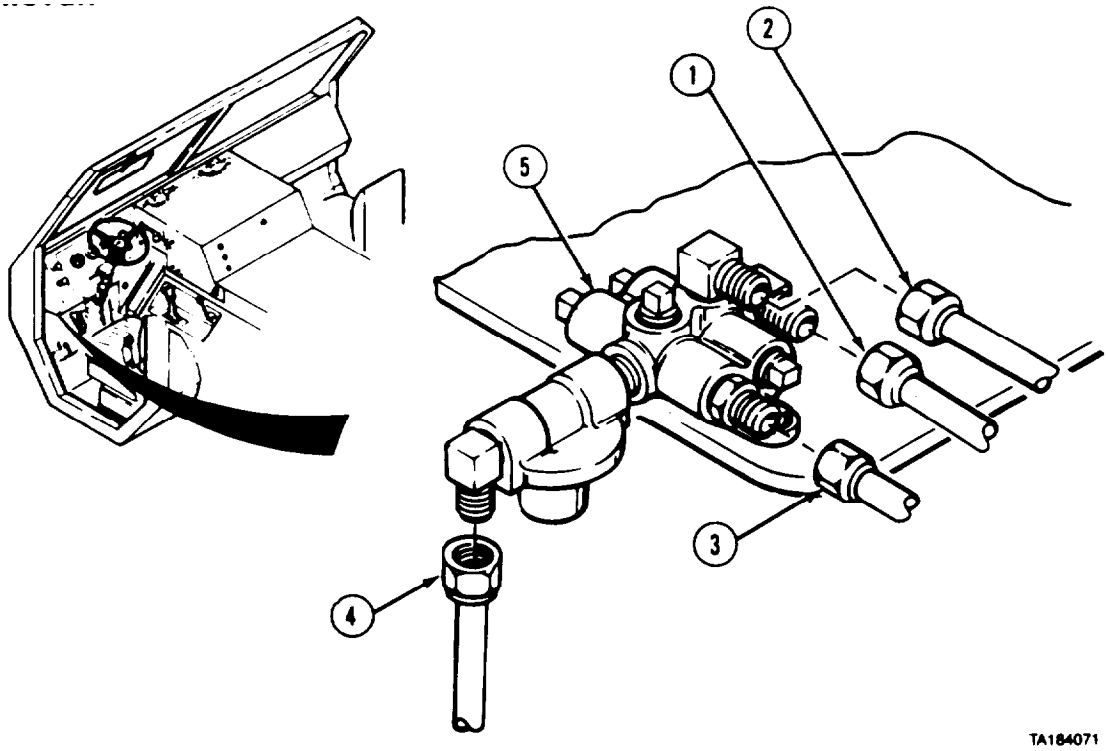
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279- 10	Air system drained.
Para 7-19	Instrument panel removed.
Para 7-59	Headlight guard removed.

Special Environment Conditions
None

General Safety Instructions
None

a. Removal

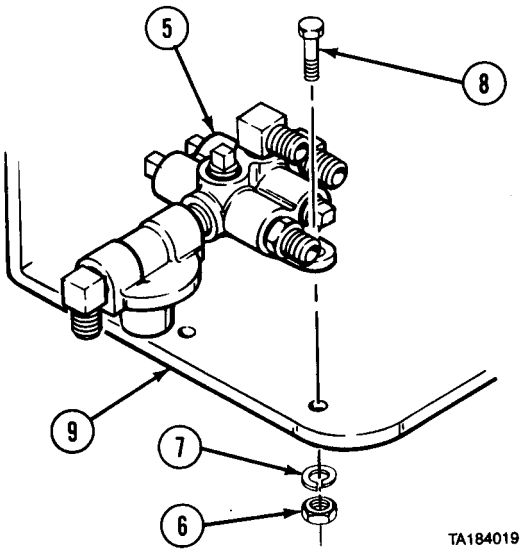


NOTE

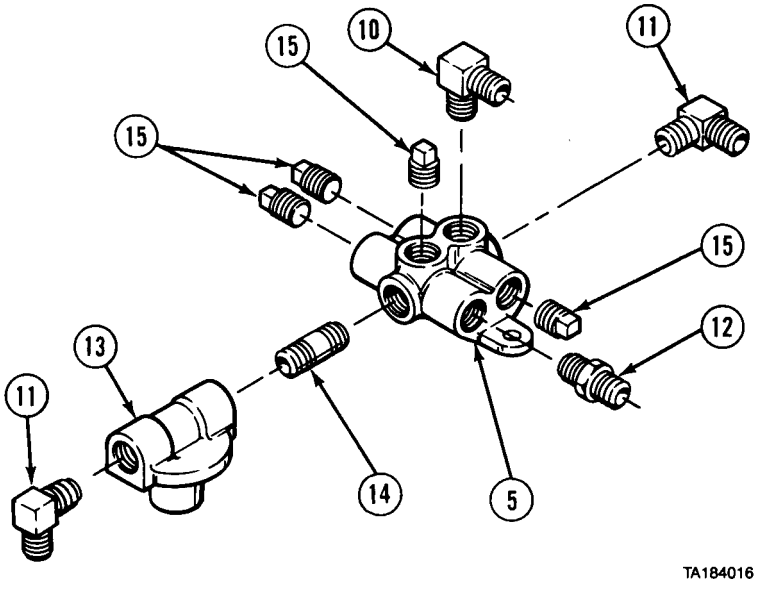
Tag and mark air lines before removal.

(1) Disconnect air lines (1, 2, 3, and 4) from No. 2 air manifold (5).

(2) Remove two nuts (6), lockwashers (7), and screws (8) from No. 2 air manifold (5) and bracket (9). Lift off No. 2 air manifold.



(3) Remove one elbow (10), two elbows (11), and connector (12) from No. 2 air manifold (5).
(4) Remove pressure protection valve (13).
(5) Remove nipple (14).
(6) Remove four plugs (15).



11-26. NO. 2 AIR MANIFOLD REMOVAL/INSTALLATION (CONT).

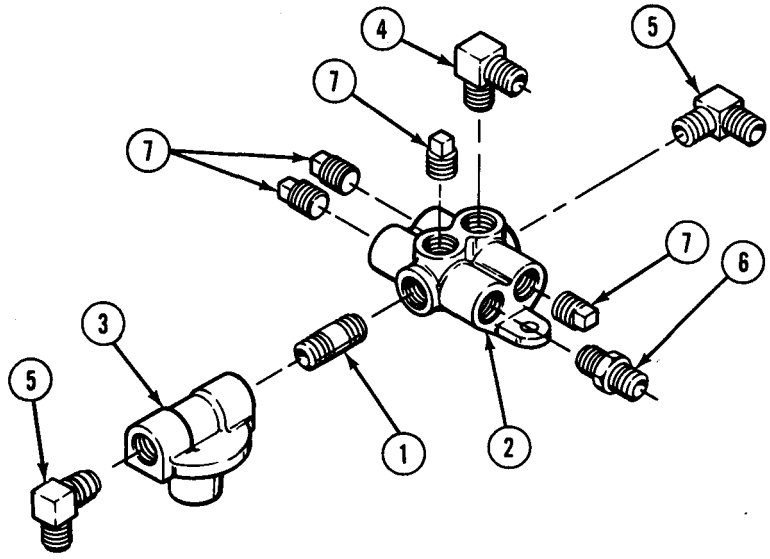
b. Installation.

WARNING

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

NOTE

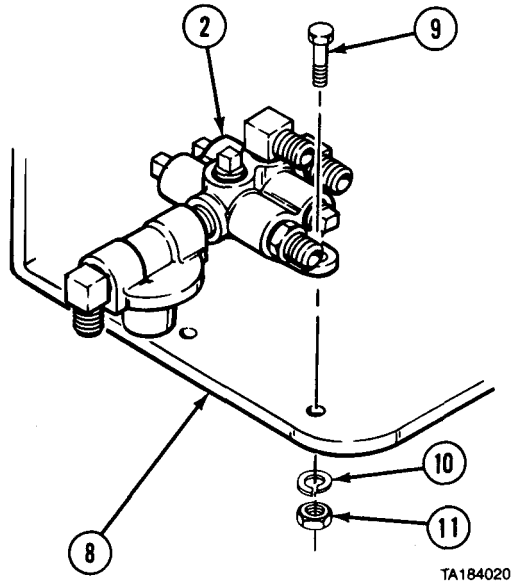
Coat all pipe threads with pipe thread sealing compound.



TA184017

(1) Install nipple (1) in No. 2 air manifold (2).
(2) Connect pressure protection valve (3) to nipple (1) and tighten.
(3) Install one elbow (4), two elbows (5), and connector (6) in No. 2 air manifold (2).
(4) Install plugs (7) in No. 2 air manifold (2).

(5) Position No. 2 air manifold (2) on bracket (8). Install two screws (9), lockwashers (10), and nuts (11).



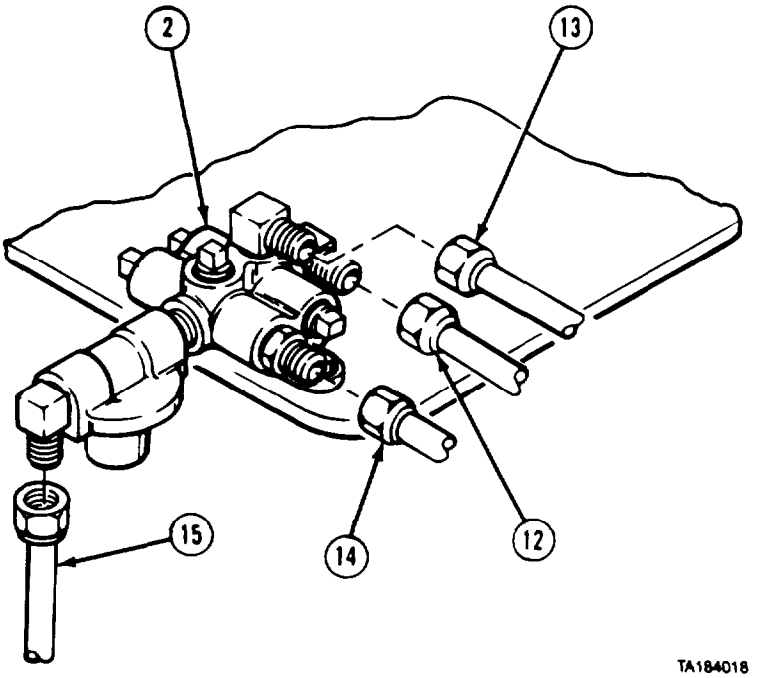
TA184020

(6) Connect air lines (12, 13, 14, and 15) to No. 2 air manifold (2).

c. Follow-on Maintenance.

(1) Install headlight guard (para 7-59).
(2) Install instrument panel (para 7-19).
(3) Start engine and build up air pressure (TM 9-2320-279-10).
(4) Check connections for leaks.
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK



11-27. NO. 3 AIR MANIFOLD REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

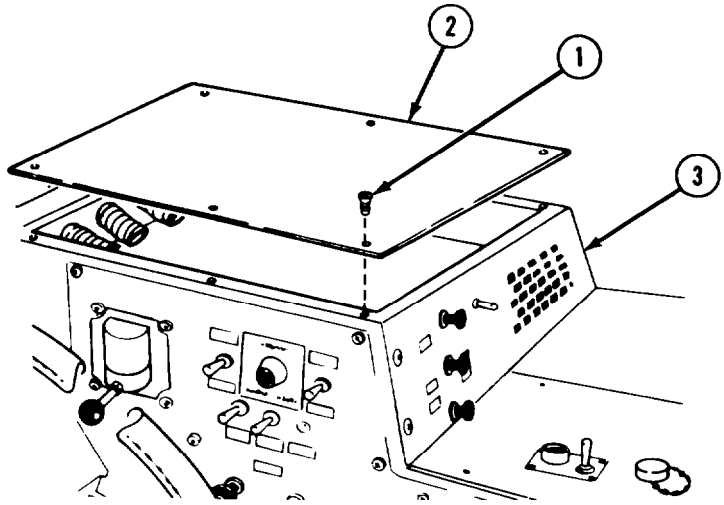
TM or Para	*Condition Description*
TM 9-2320-279-10 Para 7-91	Air system drained. Batteries disconnected.

Special Environmental Conditions
None

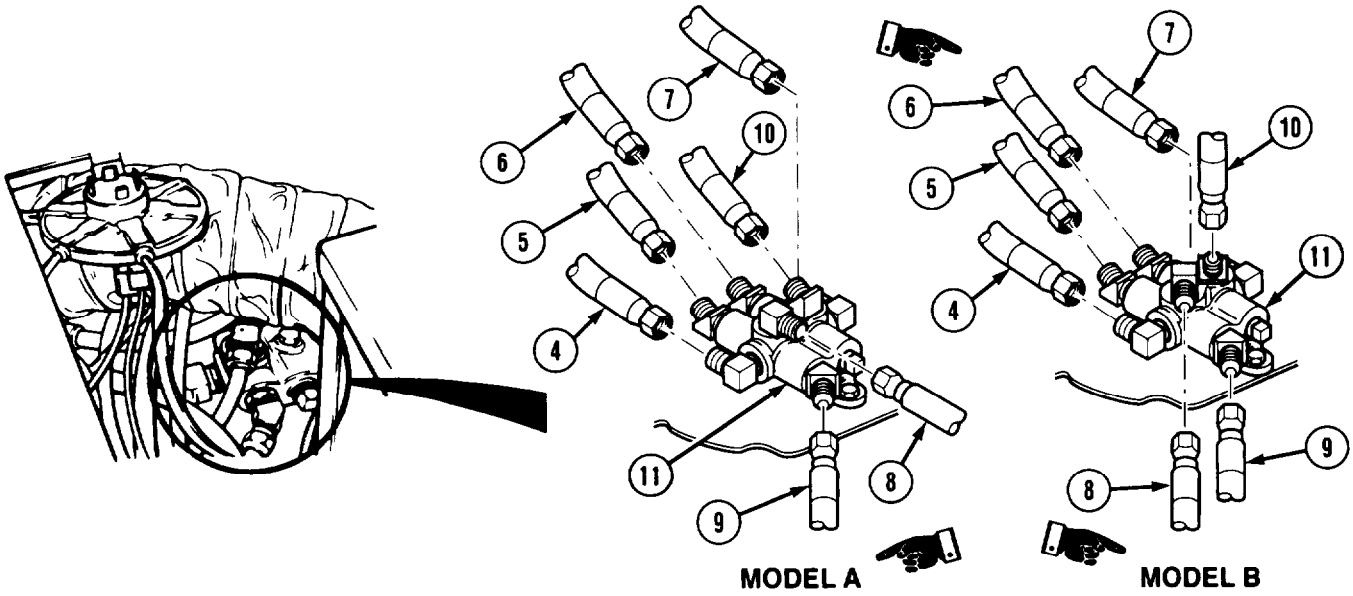
General Safety Instructions
None

11-27. NO. 3 AIR MANIFOLD REMOVAL/INSTALLATION (CONT).

a. Removal.



(1) Remove eight screws (1) and remove heater compartment cover (2) from heater control

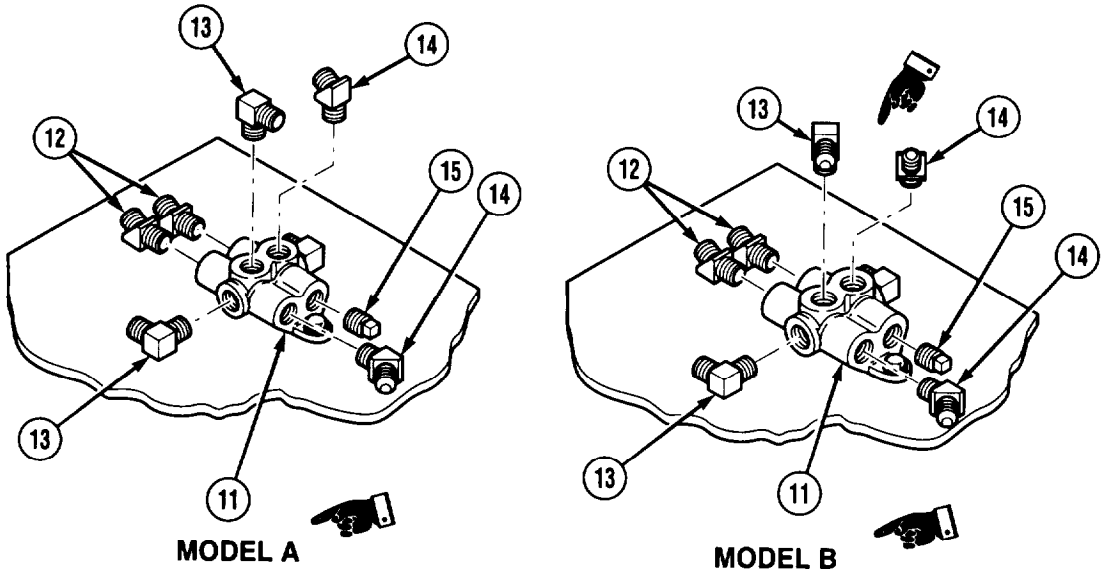


NOTE

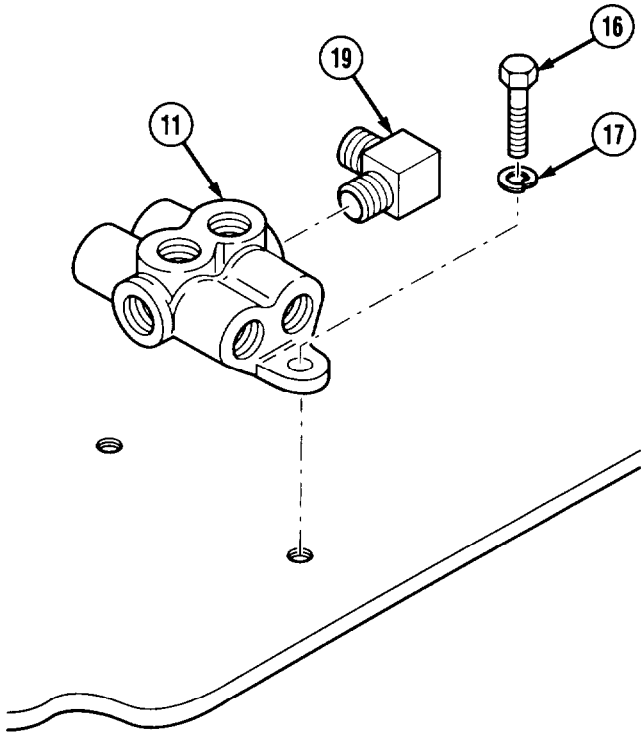
The two air lines and fittings located at top of No. 3 air manifold are oriented

- Tag and mark air lines before removal.

(2) Disconnect air lines (4 through 10) from No. 3 air manifold (11)



(3) Remove two fittings (12) from No. 3 air manifold (11).
(4) Remove two elbows (13) from No. 3 air manifold (11).
(5) Remove two elbows (14) from No. 3 air manifold (11).
(6) Remove plug (15) from No. 3 air manifold (11).
(7) Remove two screws (16) and lockwashers (17) from No. 3 air manifold (11) and plate (18).
(8) Remove No. 3 air manifold (11) from plate (18).
(9) Remove elbow (19) from No. 3 air manifold (11).



11-27. NO. 3 AIR MANIFOLD REMOVAL/INSTALLATION (CONT).

b. Installation.

WARNING

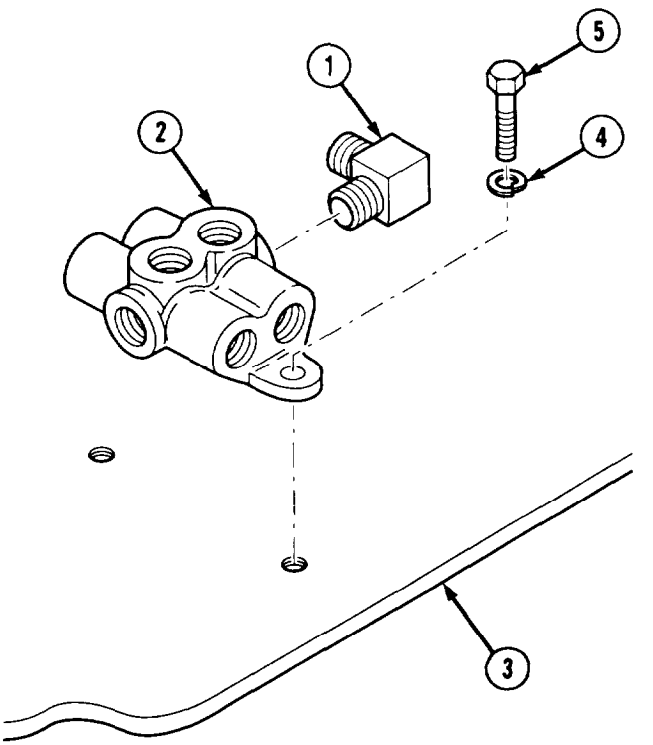
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

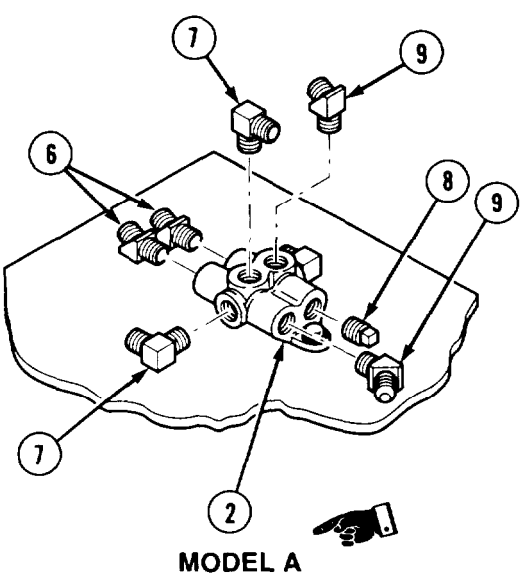
NOTE

Coat all pipe threads with pipe thread sealing compound.

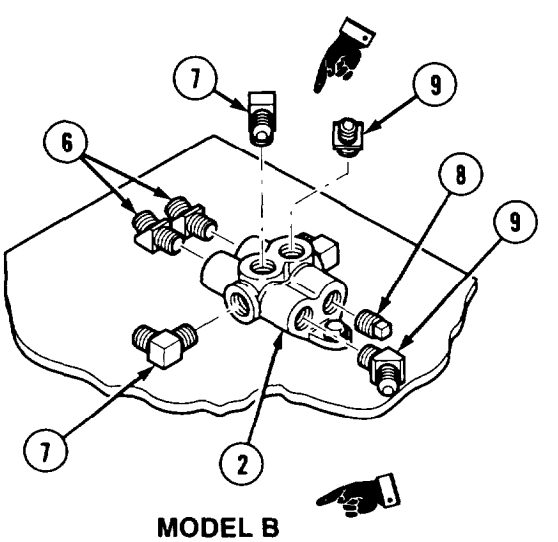
(1) Install elbow (1) in No. 3 air manifold (2).

(2) Install No. 3 air manifold (2) on plate (3) with two lockwashers (4) and screws (5).





MODEL A



MODEL B

NOTE

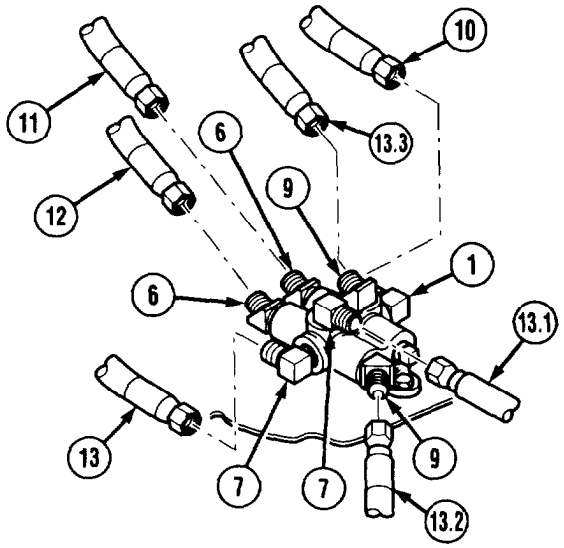
The two air lines and fittings located at top of No. 3 air manifold are oriented differently on some models of vehicles.

(3) Install two fittings (6) in No. 3 air manifold (2).

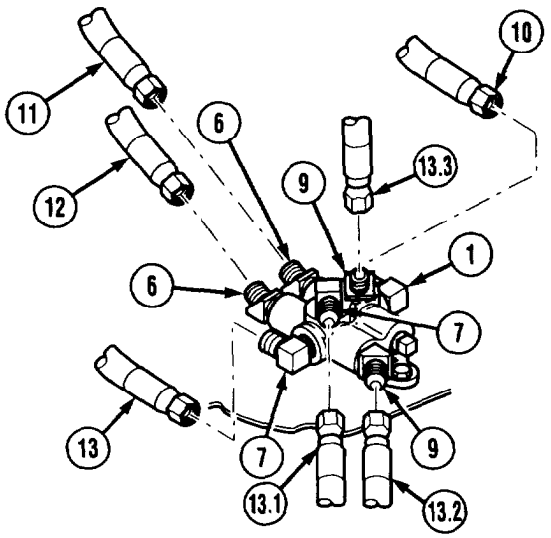
(4) Install two elbows (7) in No. 3 air manifold (2).

(5) Install plug (8) in No. 3 air manifold (2).

(6) Install elbows (9) in No. 3 air manifold (2).

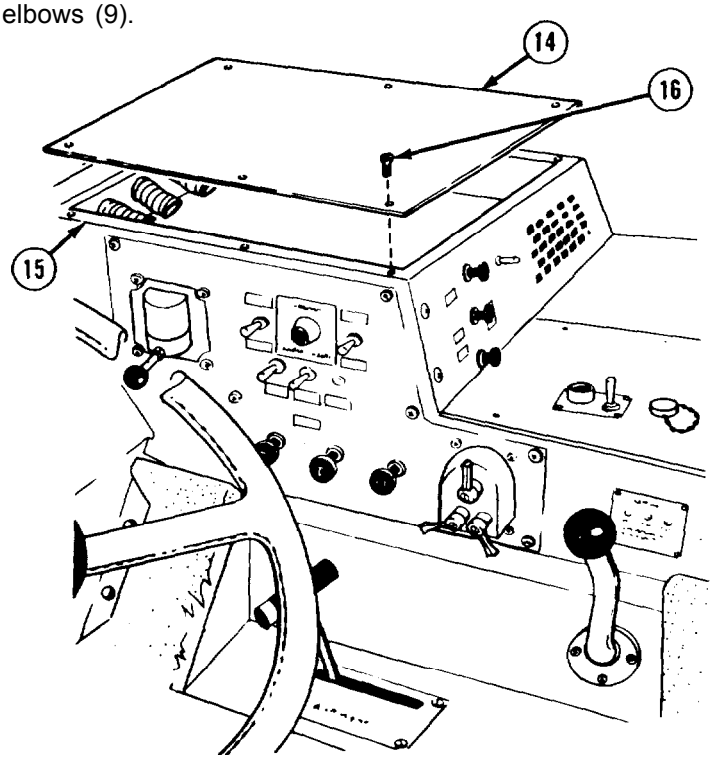


MODEL A



MODEL B

(7) Connect air supply line (10) to elbow (1).
(8) Connect two air lines (11 and 12) to fittings (6).
(9) Connect air lines (13 and 13.1) to elbows (7).
(10) Connect two air lines (13.2 and 13.3) to elbows (9).
(11) Install heater compartment cover (14) on heater control panel (15) with eight screws (16).



c. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine to build air pressure (TM 9-2320-279-10).
(3) Shut off engine (TM 9-2320-279-10).
(4) Check connections for leaks.

END OF TASK

11-28. NO. 4 AIR MANIFOLD REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Tags. identification. Item 48, Appendix C
Ties, cable, plastic. Item 52, Appendix C
Compound. sealing. pipe thread, Item 18, Appendix C

Personnel Required
MOS 62S Heavy wheel vehicle mechanic

References
None

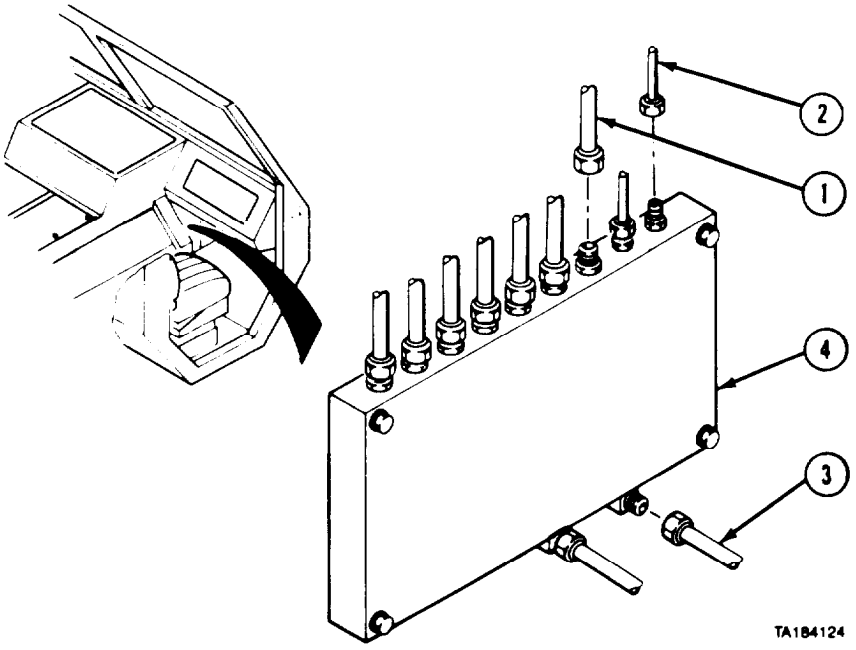
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
Para 7-91	Batteries disconnected.

Special Environmental Conditions
None

General Safety Instruction
None

a. Removal.

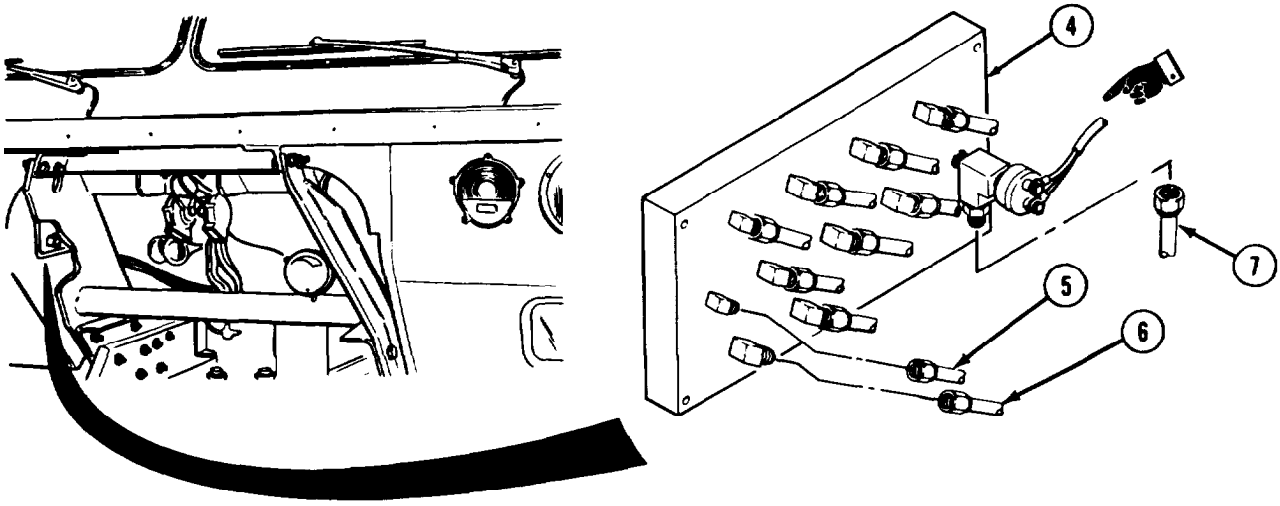


NOTE

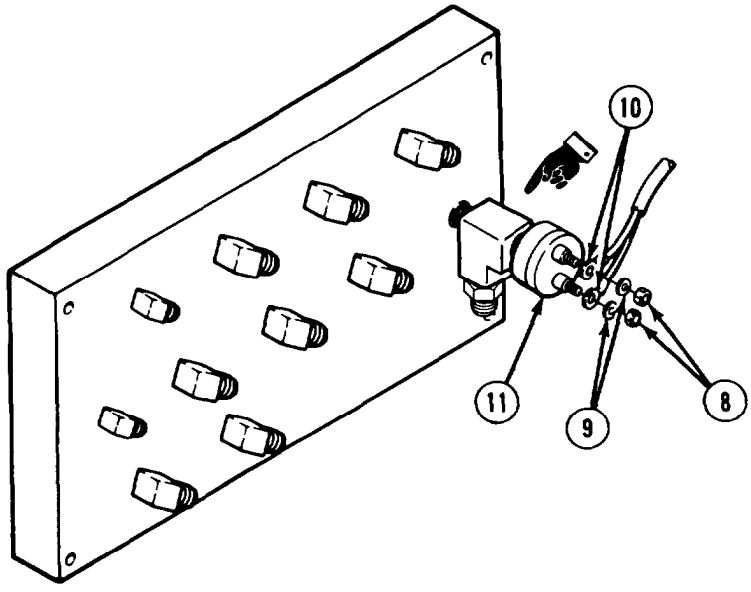
. Tag and mark air and electrical lines before disconnecting.

. Remove plastic cable ties as necessary.

(1) Disconnect seven air lines (1), two air lines (2), and two air lines (3) from side of No. 4 air manifold (4).



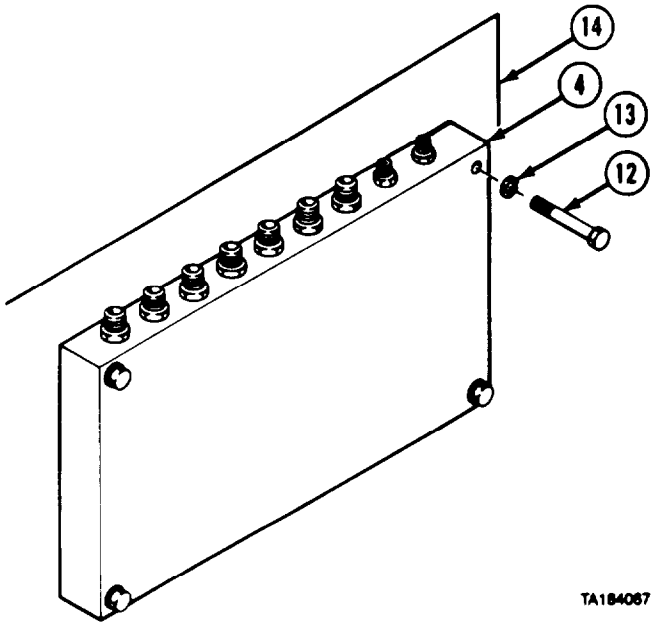
(2) Disconnect two air lines (5), eight air lines (6), and air line (7) from No. 4 air manifold (4).



(3) Remove two nuts (8) and washers (9). Disconnect two electrical leads (10) from pressure switch (11).

11-28. NO. 4 AIR MANIFOLD REMOVAL/INSTALLATION (CONT).

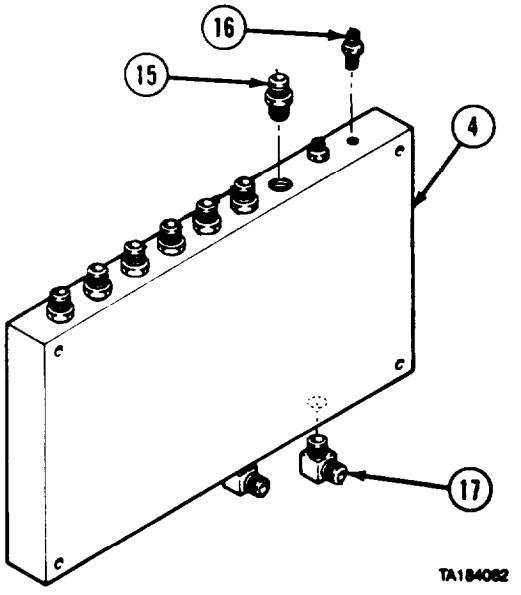
(4) Remove four screws (12) and lockwashers (13). Remove No. 4 air manifold (4) from bulkhead (14).



NOTE

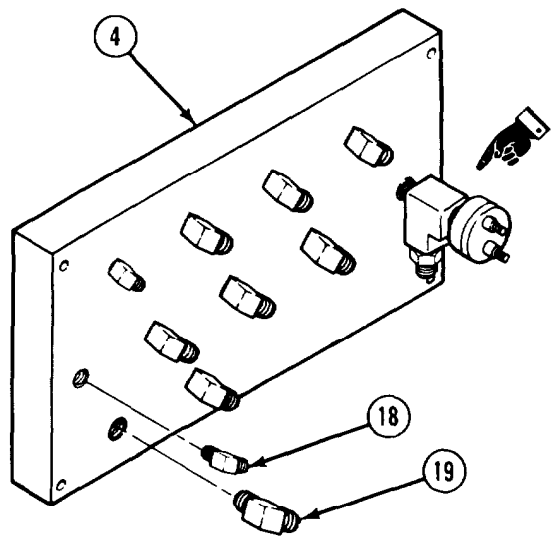
Mark locations of all elbows before removal. Elbows must be installed in corresponding holes in new manifold.

(5) Remove seven connectors (15), two connectors (16), and two elbows (17) from No. 4 air manifold (4).

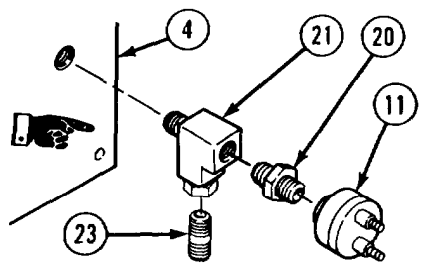


Brake and Air System Maintenance Instructions (Cont)

(6) Remove two elbows (18) and eight elbows (19) from side of No. 4 air manifold (4).



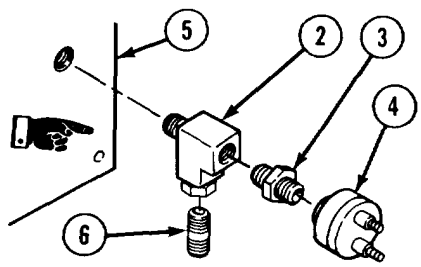
(7) Remove pressure switch (11), adapter (20), and tee (21) from No. 4 air manifold (4).
(8) Remove fitting (23) from tee (21).



b. Installation

WARNING

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

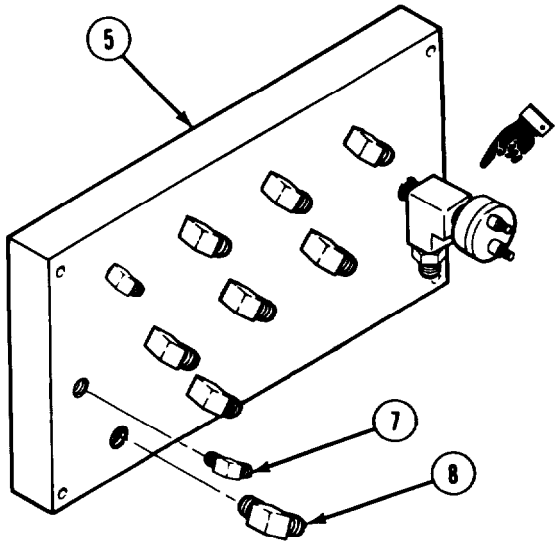


NOTE

Coat all pipe threads with pipe thread sealing compound

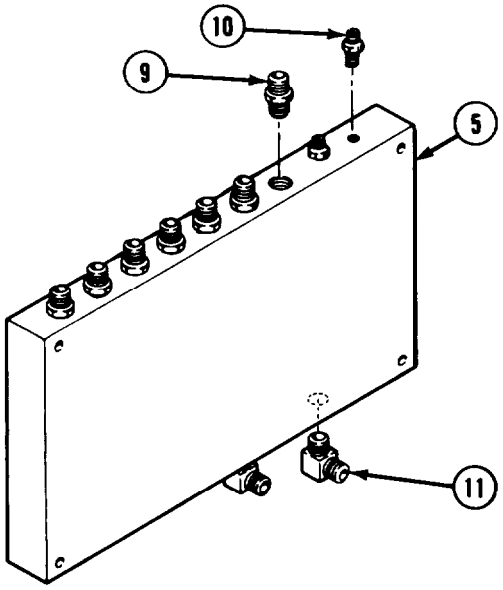
(1) Install tee (2), adapter (3), and pressure switch (4) in No. 4 air manifold (5).
(2) Install fitting (6) in tee (2).

11-28. NO. 4 AIR MANIFOLD REMOVAL/INSTALLATION (CONT).



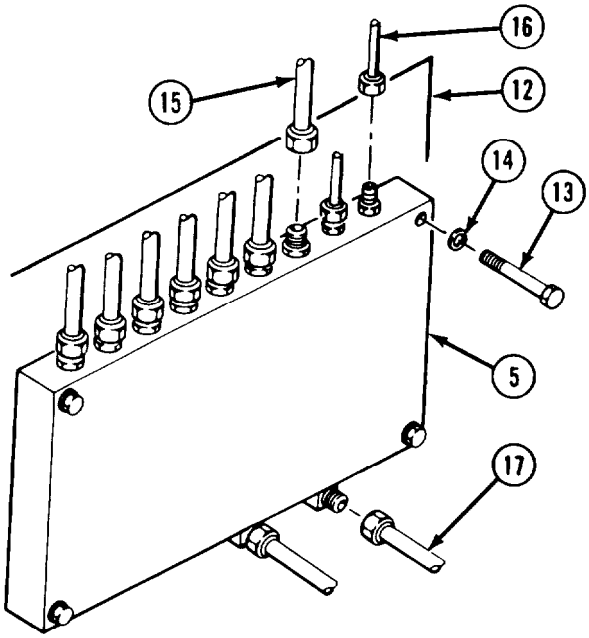
(3) Install two elbows (7) and eight elbows (8) in No. 4 air manifold (5).

(4) Install seven connectors (9), two connectors (10), and two elbows (11) in No. 4 air manifold (5).



Brake and Air System Maintenance Instructions (Cont)

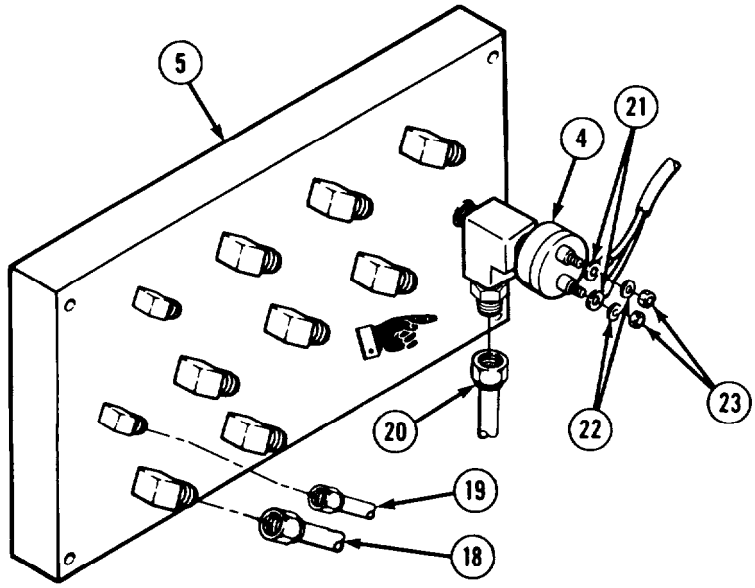
(5) Install No. 4 air manifold (5) on bulkhead (12) with four screws (13) and lockwashers (14).
(6) Connect seven air lines (15), two air lines (16), and two air lines (17) on No. 4 air manifold (5).



(7) Connect eight air lines (18), two air lines (19), and air line (20) to No. 4 air manifold (5).
(8) Connect two electrical leads (21) to pressure switch (4) with washers (22) and nuts (23).

NOTE

Install plastic cable ties as needed to secure air lines.



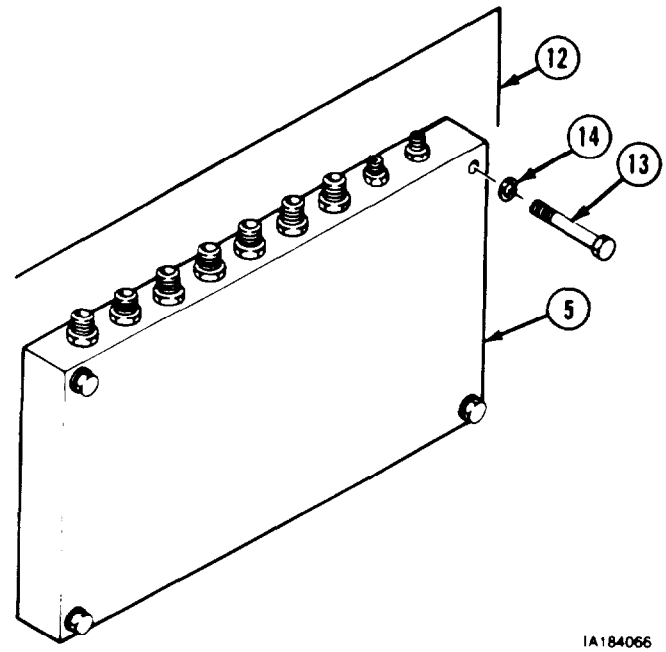
c. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine and build up air pressure (TM 9-2320-279-10).
(3) Check air connections for leaks.
(4) Shut off engine (TM 9-2320-279-10).

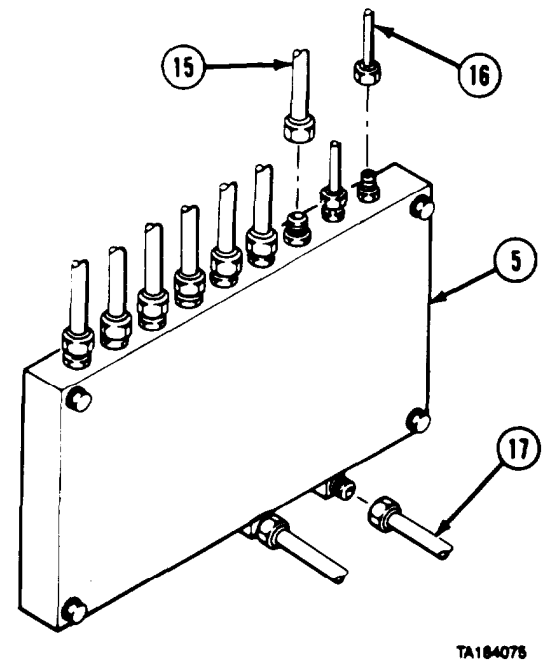
Brake and Air System Maintenance Instructions (Cont)

11-28. NO. 4 AIR MANIFOLD REMOVAL/INSTALLATION (CONT).

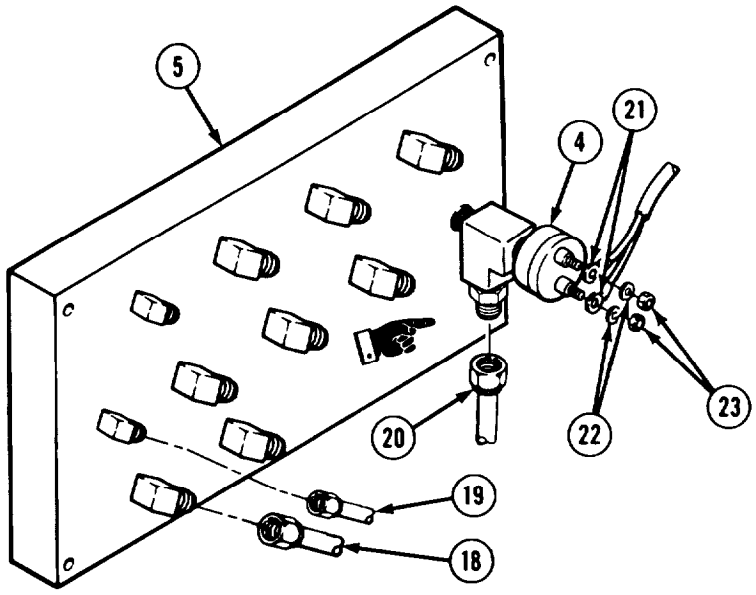
(5) Install No. 4 air manifold (5) on bulkhead (12) with four screws (13) and lockwashers (14).



(6) Connect seven air lines (15), two air lines (16), and two air lines (17) on No. 4 air manifold (5).



Brake and Air System Maintenance Instructions (Cont)



(7) Connect eight air lines (18), two air lines (19), and air line (20) to No. 4 air manifold (5).
(8) Connect two electrical leads (21) to pressure switch (4) with washers (22) and nuts (23).

NOTE

Install plastic cable ties as needed to secure air lines.

c. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine and build up air pressure (TM 9-2320-279-10).
(3) Check air connections for leaks.
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-29. AIR RESERVOIR NO. 1 AND VALVES REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

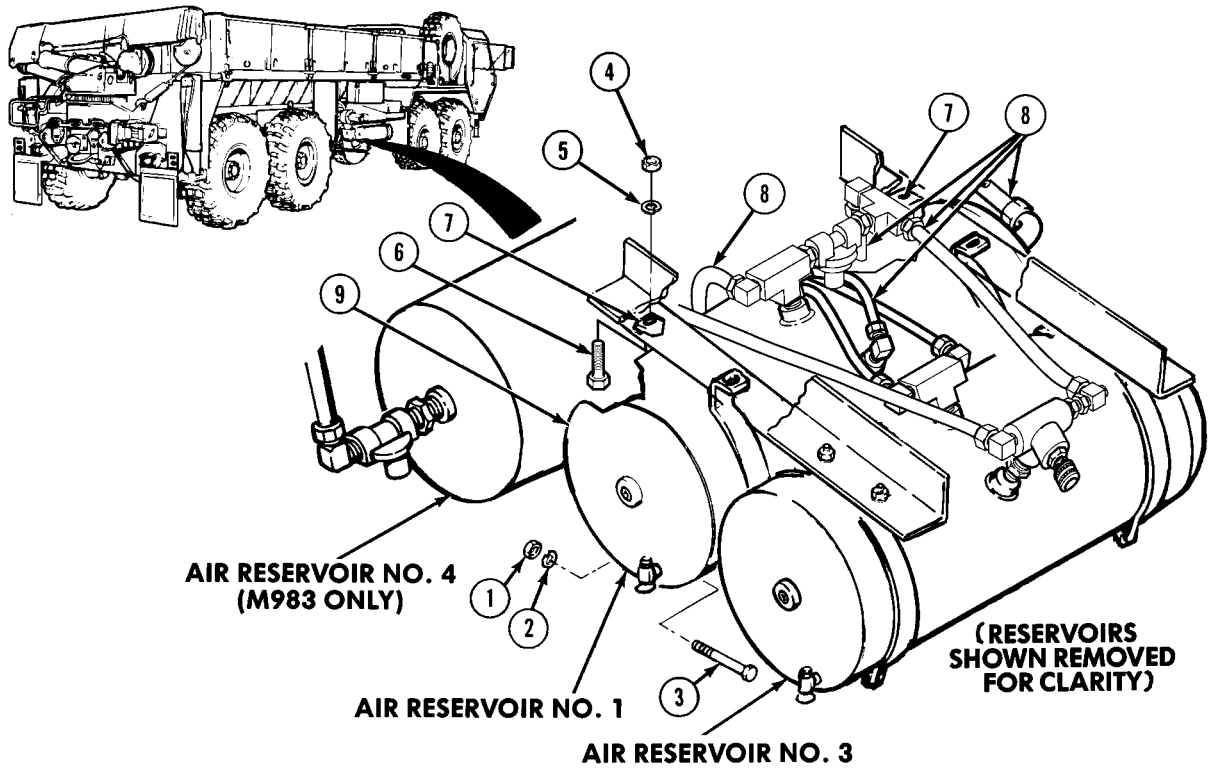
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Remove two nuts (1), lockwashers (2), and screws (3).

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

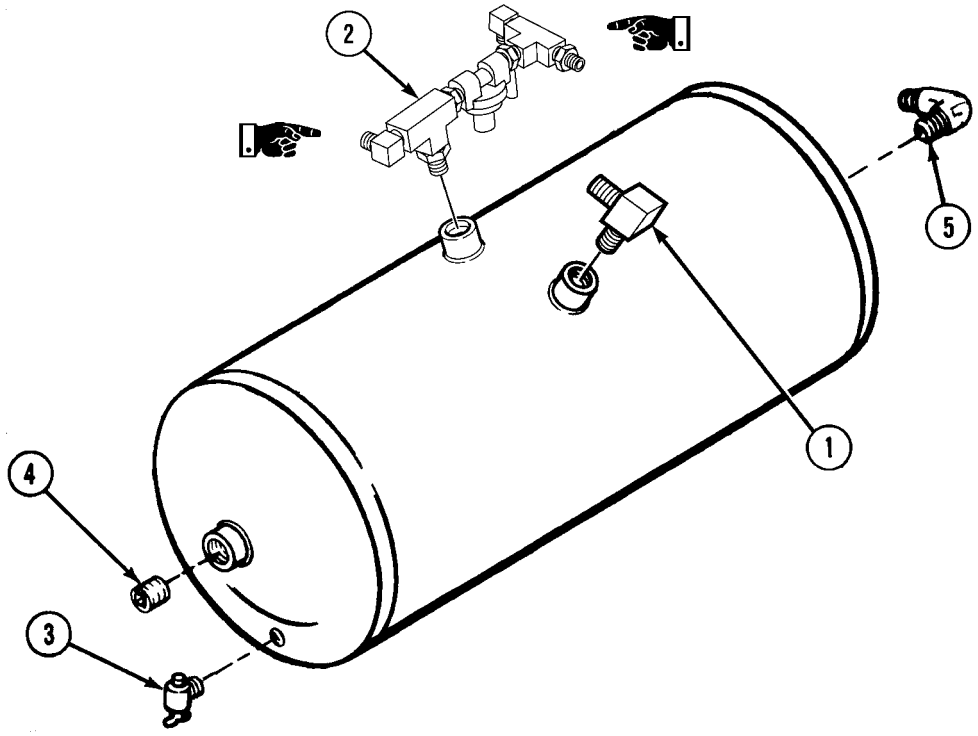
(2) Remove four nuts (4), lockwashers (5), screws (6), and clamps (7).

NOTE

Tag and mark air lines before removal.

(3) Disconnect five air lines (8) from reservoir (9).
(4) Remove reservoir (9).

b. Disassembly.

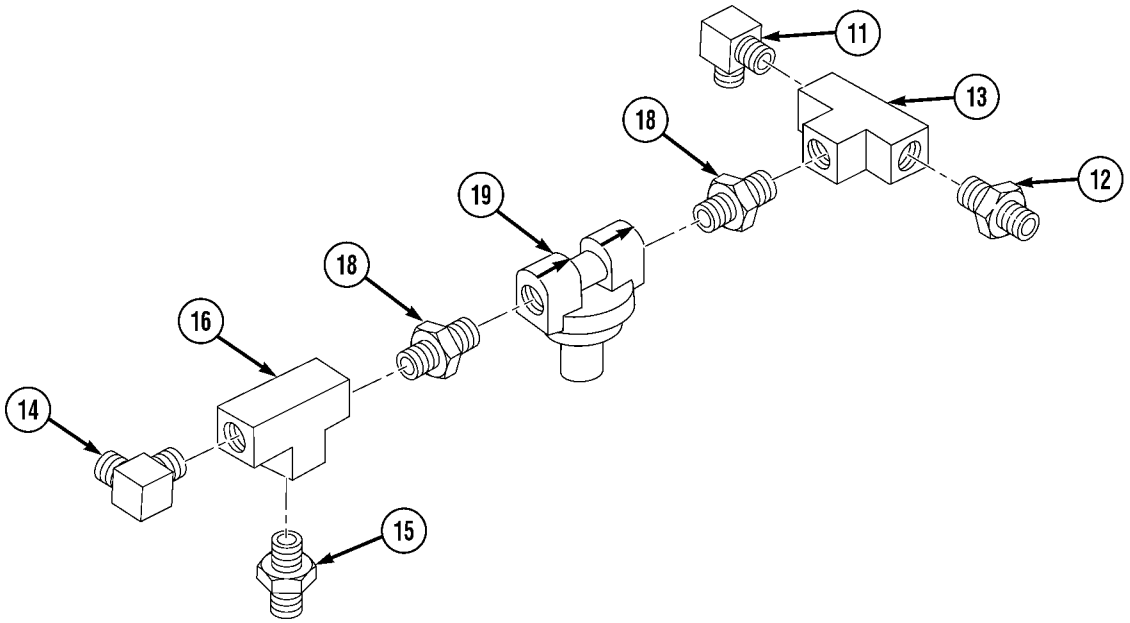


NOTE

Tag and mark valves, connectors, and fittings before removal.

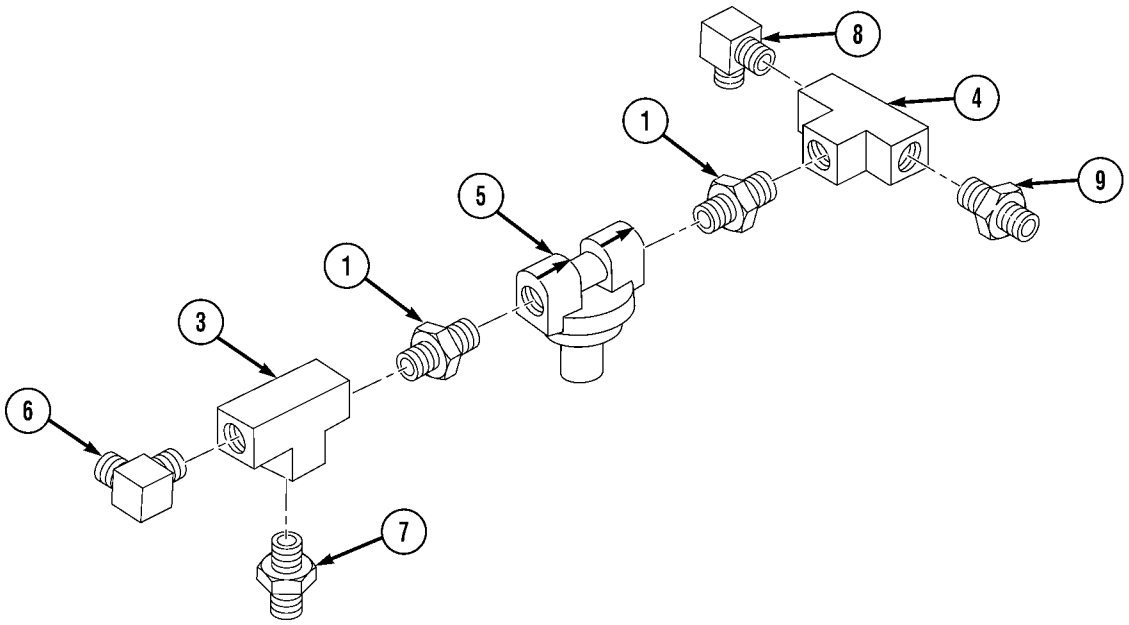
(1) Remove elbow (1) and protection valve assembly (2).
(2) Remove drain valve (3), plug (4), and elbow (5).
(3) Deleted.

11-29. AIR RESERVOIR NO. 1 AND VALVES REMOVAL/REPAIR/INSTALLATION (CONT).



(4) Remove elbow (11) and connector (12) from tee (13).
(5) Remove elbow (14) and nipple (15) from tee (16).
(6) Remove tees (13 and 16) and nipples (18) from pressure protection valve (19).

c. Assembly.



WARNING

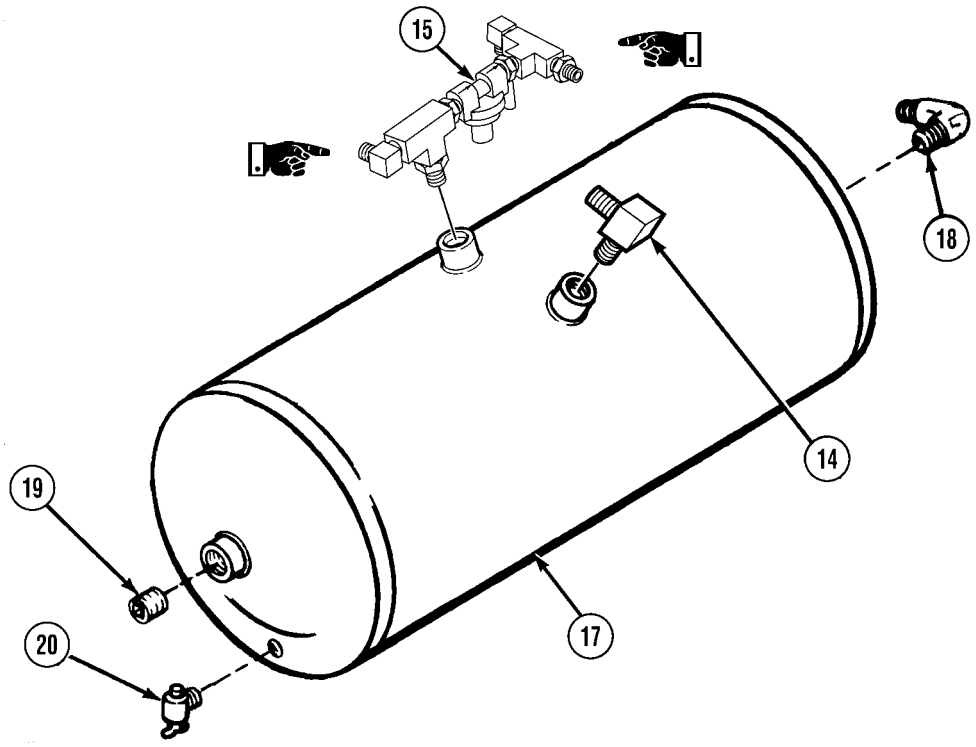
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

NOTE

- Coat all pipe threads with pipe thread sealing compound.
- Note direction of arrows on pressure protection valve before assembly.

(1) Install two nipples (1) and tees (3 and 4) on pressure protection valve (5).
(2) Install elbow (6) and nipple (7) on tee (3).
(3) Install elbow (8) and connector (9) on tee (4).

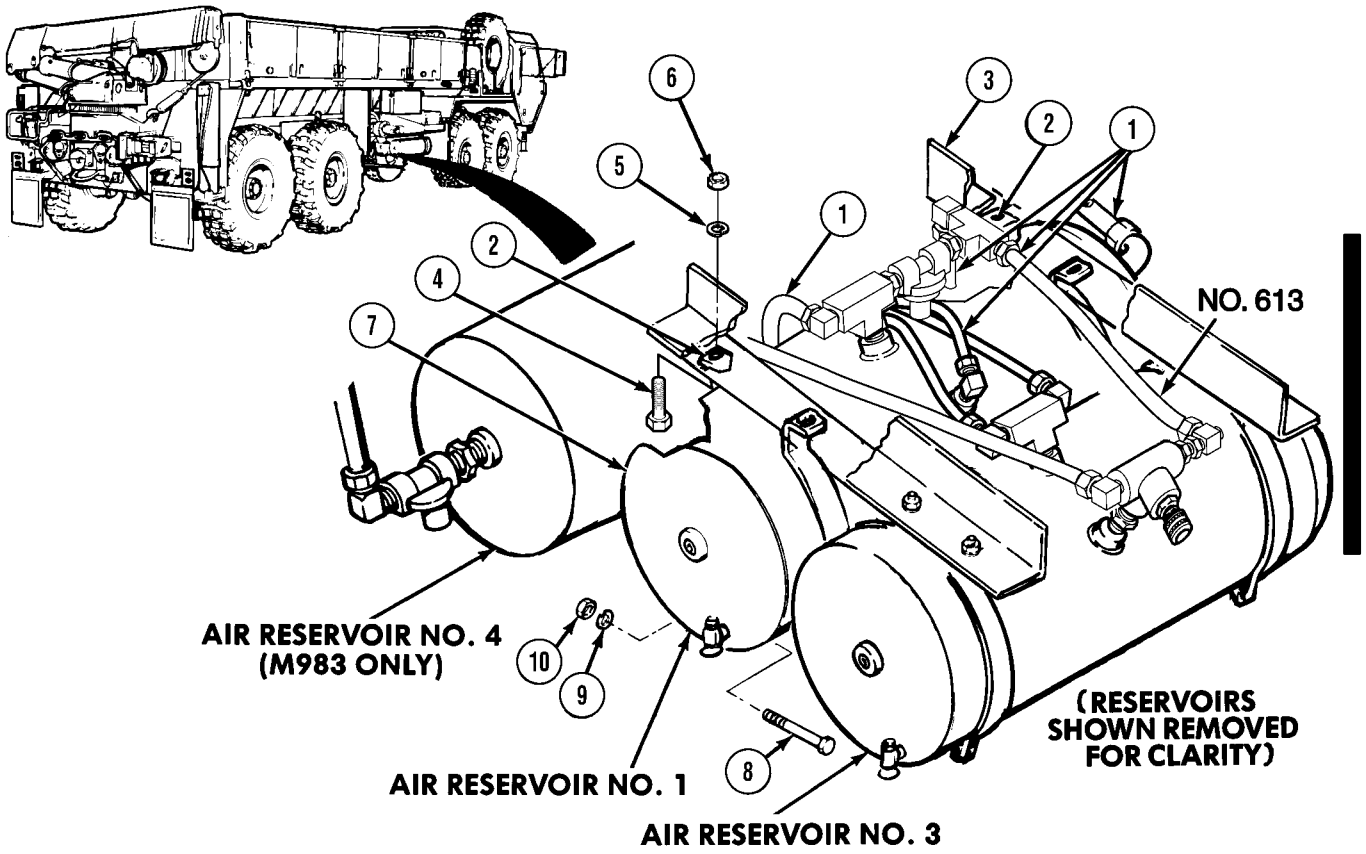
11-29. AIR RESERVOIR NO. 1 AND VALVES REMOVAL/REPAIR/INSTALLATION (CONT).



(4) Install pressure protection valve assembly (15) and elbow (14) on reservoir (17).
(5) Install elbow (18), plug (19), and drain valve (20).

Brake and Air System Maintenance Instructions (Cont)

d. Installation.



NOTE

- It may be necessary to remove air line No. 613 from reservoir No. 3 to reservoir No. 1 and install first on reservoir No. 1.
- Ensure air line No. 613 is installed from check valve on reservoir No. 3 to tee fitting on reservoir No. 1.

(1) Connect five air lines (1).

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(2) Loosely install four clamps (2) on brackets (3) with four screws (4), lockwashers (5), and nuts (6).
(3) Install reservoir (7) in clamps (2) with two screws (8), lockwashers (9), and nuts (10). Do not tighten.
(4) Tighten four nuts (6) on top of clamps (2) and two nuts (10) on bottom of clamps (2).

e. Follow-on Maintenance.

(1) Close drain valve (TM 9-2320-279-10).
(2) Start engine (TM 9-2320-279-10).
(3) Build air pressure.
(4) Check reservoir for leaks.
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-30. AIR RESERVOIR NO. 2 REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

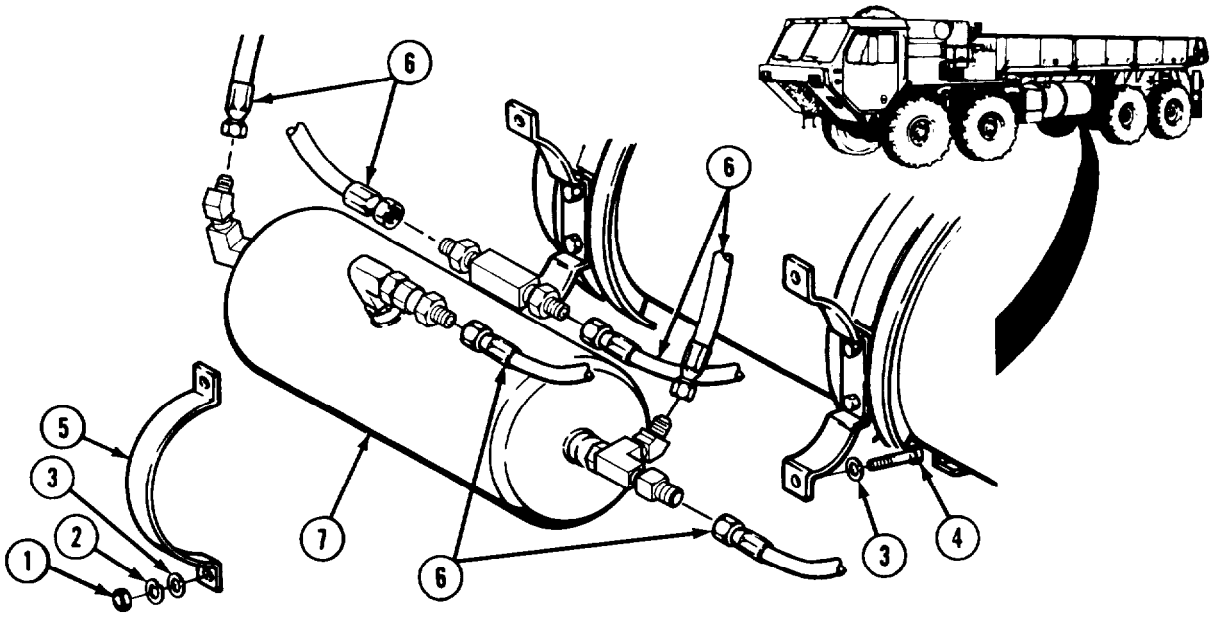
Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



Brake and Air System Maintenance instructions (Cont)

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(1) Remove four nuts (1), lockwashers (2), eight washers (3), four screws (4), and two clamps (5).

NOTE

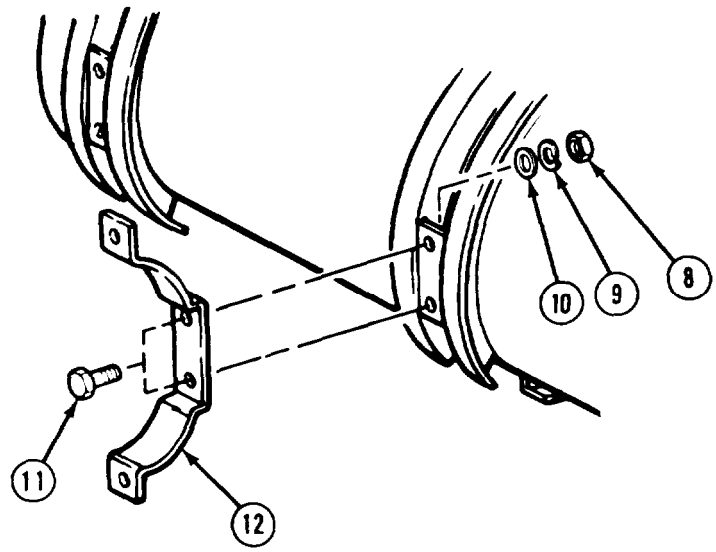
- Tag and mark airhoses before removal.
- Cut plastic cable ties as necessary for removal of hoses.

(2) Disconnect six airhoses (6).
(3) Remove reservoir (7).

NOTE

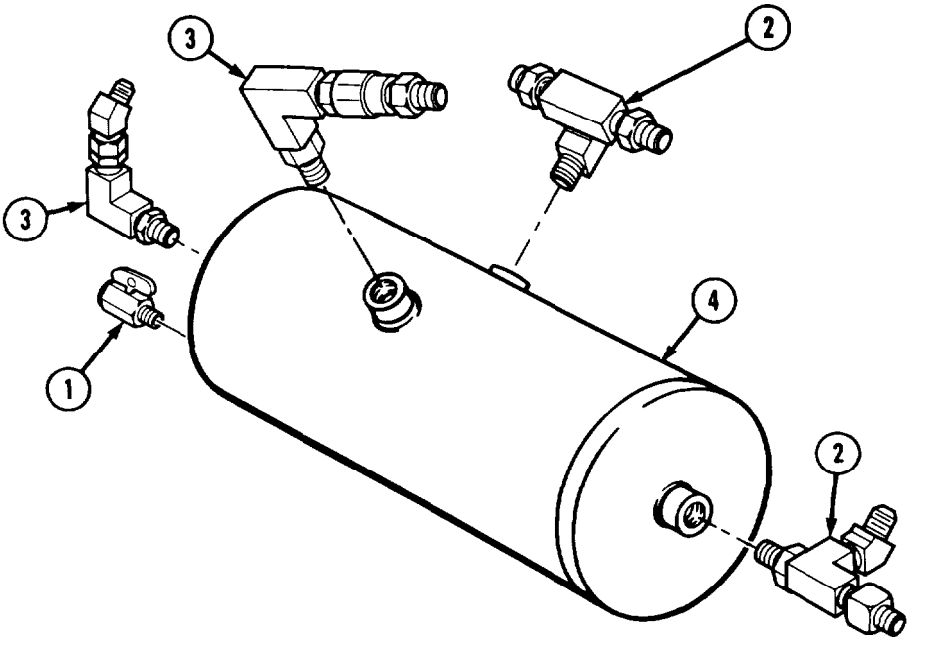
Some vehicles have screws, washers, lockwashers, and nuts. Others have screws and flanged nuts.

(4) Remove four nuts (8), lockwashers (9), washers (10), and screws (11).
(5) Remove two clamps (12).



11-30. AIR RESERVOIR NO. 2 REMOVAL/REPAIR/INSTALLATION (CONT).

b. Disassembly.

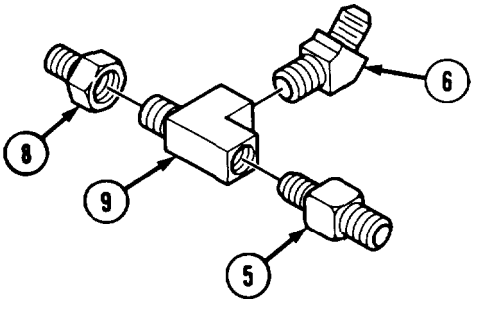


NOTE

Tag and mark valves, fittings, and connectors before removal.

(1) Remove drain valve (1), two tee assemblies (2), and two elbow assemblies (3) from reservoir (4).

(2) Remove adapter (5), elbow (6), and reducer bushing (8) from tee (9).



Brake and Air System Maintenance Instructions (Cont)

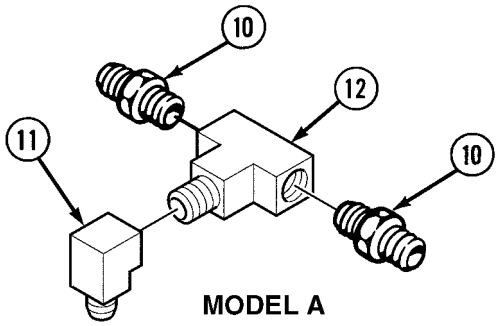
NOTE

- There are two models of vehicle configuration when working on tee and associated fittings. Model A has two fittings and one elbow attached to tee. Model B has three fittings and one elbow attached to tee.
- Perform step (3) for Model A.
- Perform step (3.1) Model B.

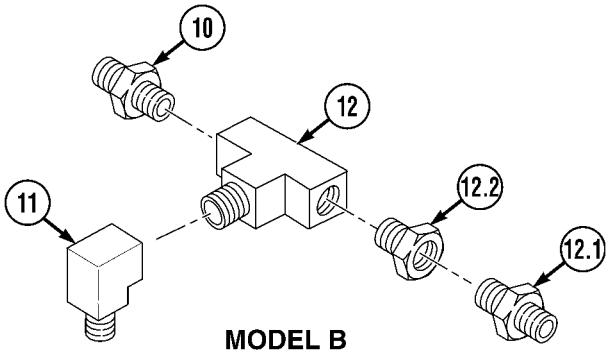
(3) Remove two connectors (10) and elbow (11) from tee (12).

(3.1) Remove connector (10), connector (12.1), reducer adapter (12.2), and elbow (11) from tee (12).

(4) Deleted.

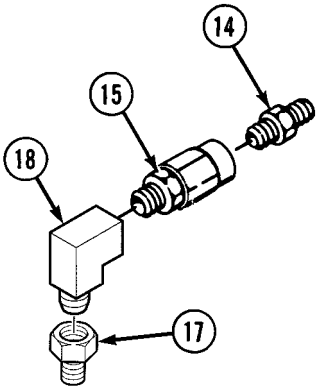


MODEL A

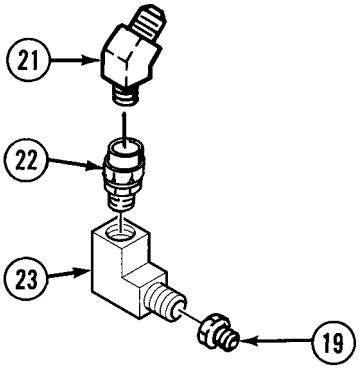


MODEL B

(5) Remove connector (14), check valve (15), and reducer bushing (17) from elbow (18).



(6) Remove reducer bushing (19), elbow (21), and check valve (22) from elbow (23).



11-30. AIR RESERVOIR NO. 2 REMOVAL/REPAIR/INSTALLATION (CONT).

c. Assembly.

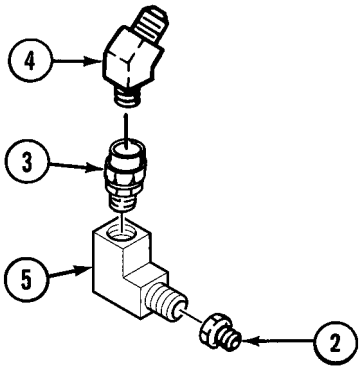
WARNING

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

NOTE

Coat all pipe threads with pipe thread sealing compound.

(1) Install reducer bushing (2), check valve (3), and elbow (4) on elbow (5).



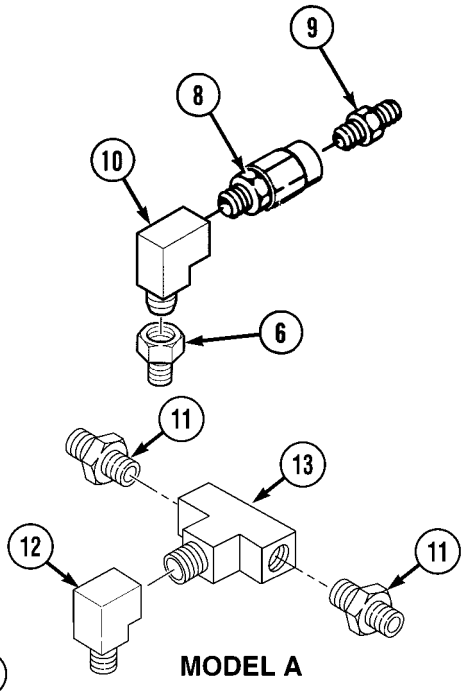
(2) Install reducer bushing (6), check valve (8), and connector (9) on elbow (10).

NOTE

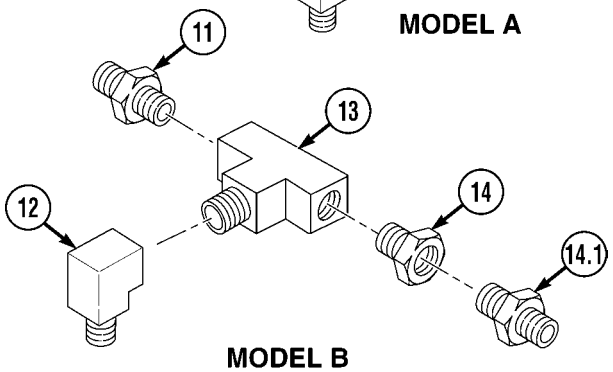
- There are two models of vehicle configuration when working on tee and associated fittings. Model A has two fittings and one elbow attached to tee. Model B has three fittings and one elbow attached to tee.
- Perform step (3) for Model A.
- Perform step (4) for Model B.

(3) Install two connectors (11) and elbow (12) on tee (13).

(4) Install reducer adapter (14), connector (11), connector (14.1), and elbow (12) on tee (13).

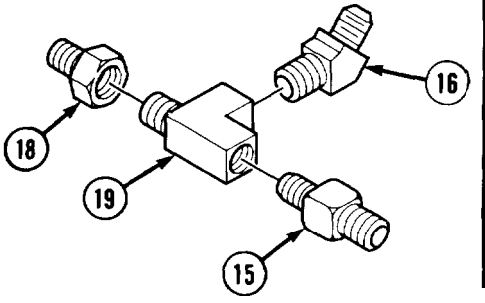


MODEL A



MODEL B

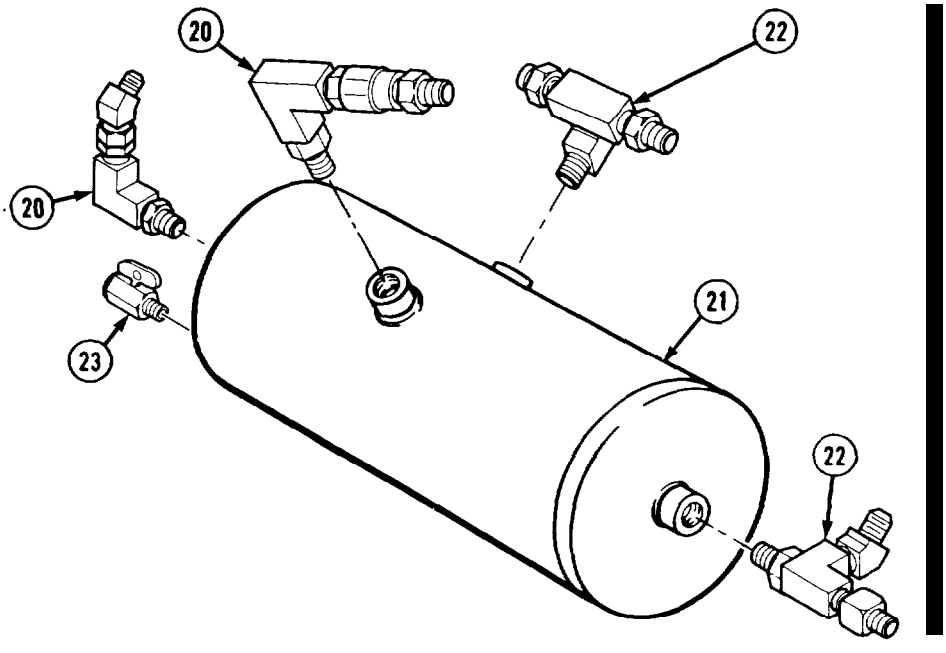
(5) Install adapter (15), elbow (16), and reducer bushing (18) on tee (19).



(6) Install two elbow assemblies (20) on reservoir (21).

(7) Install two tee assemblies (22) in reservoir (21).

(8) Install drain valve (23).

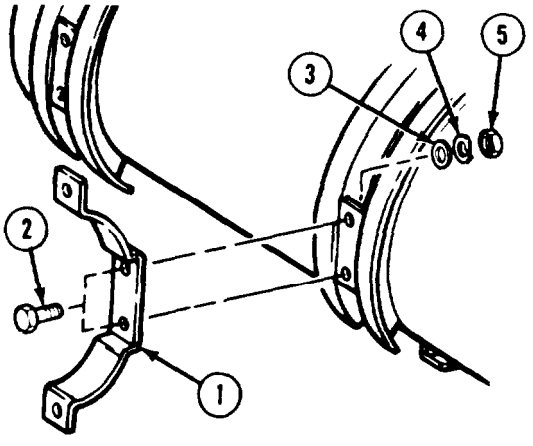


d. Installation.

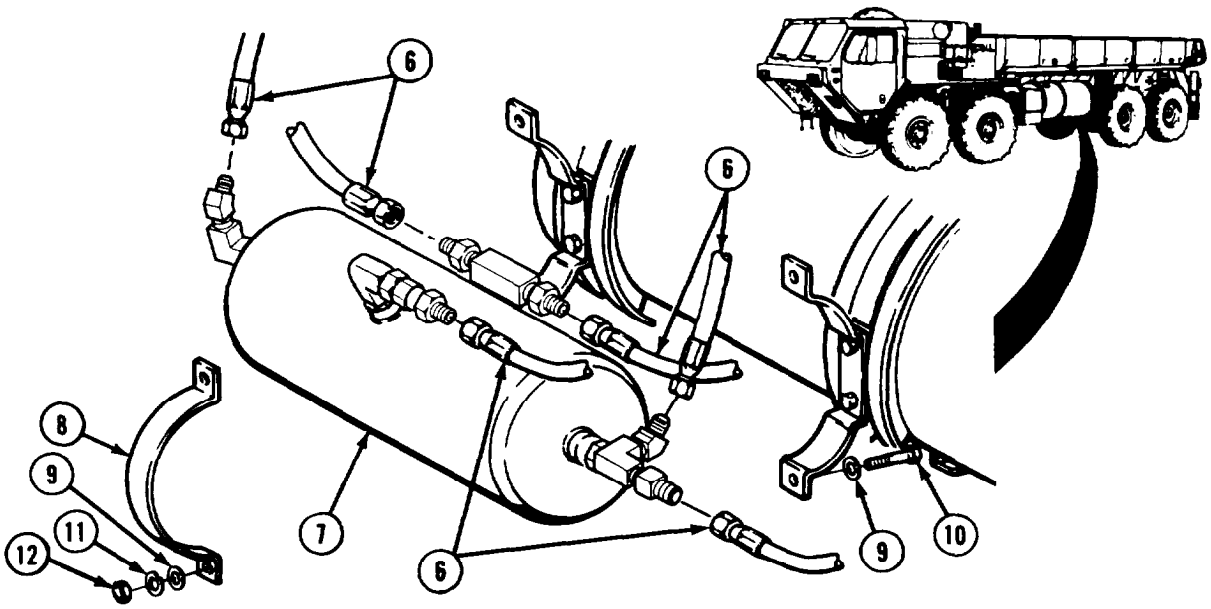
NOTE

- Clamps are installed with long ends up.
- Some vehicles have screws, washers, lockwashers, and nuts. Others have screws and flanged nuts.

(1) Install two clamps (1) with four screws (2), washers (3), lockwashers (4), and nuts (5).



11-30. AIR RESERVOIR NO. 2 REMOVAL/REPAIR/INSTALLATION (CONT).



(2) Install six airhoses (6).
(3) Install reservoir (7) with two clamps (8), eight washers (9), four screws (10), four lockwashers (11), and four nuts (12).

NOTE

Install plastic cable ties, as needed, to secure airhoses.

e. Follow-on Maintenance.

(1) Close drain valve (TM 9-2320-279-10).
(2) Start engine (TM 9-2320-279-10).
(3) Build air pressure (TM 9-2320-279-10).
(4) Check reservoir for leaks.
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-31. AIR RESERVOIR NO. 3 AND RIGHT SIDE TIRE INFLATION CONNECTOR REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly Model A
c. Disassembly Model B
d. Assembly Model A
e. Assembly Model B
f. Installation
g. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

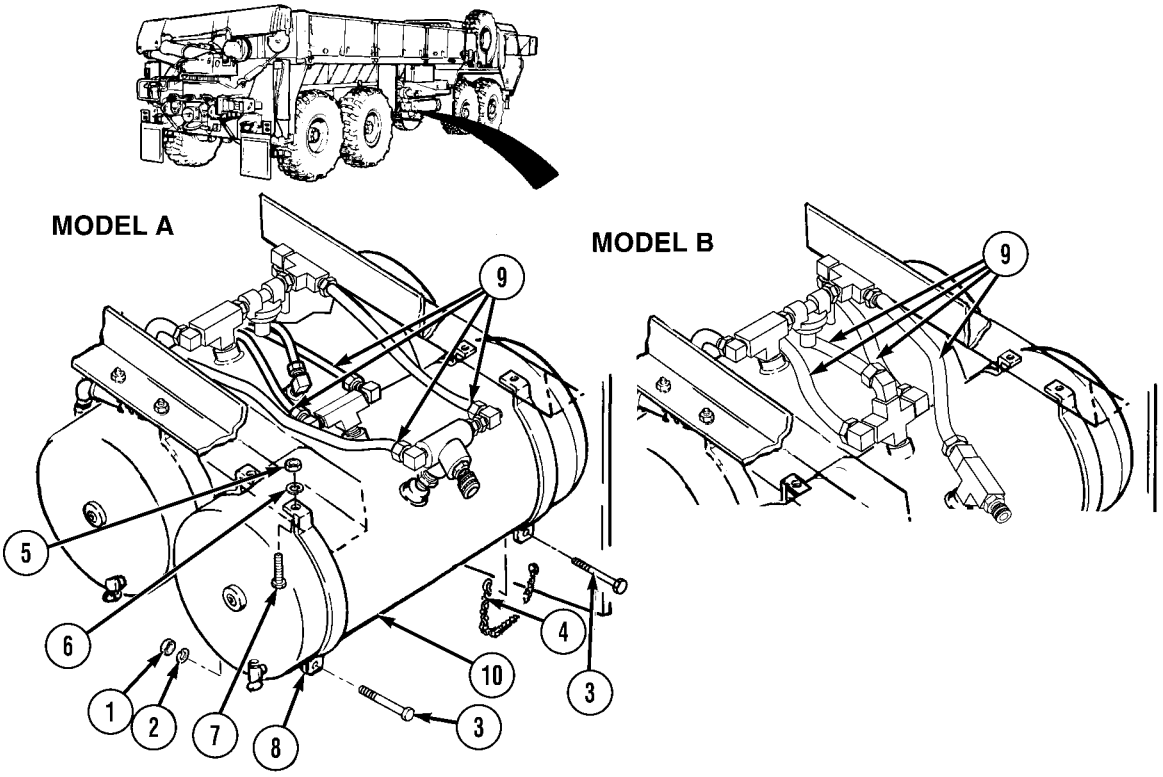
General Safety Instructions
None

11-31. AIR RESERVOIR NO. 3 AND RIGHT SIDE TIRE INFLATION CONNECTOR REMOVAL/REPAIR/INSTALLATION (CONT).

a. Removal.

NOTE

- There are two fitting configurations on air reservoir No. 3.
- Model A has tee fitting on inside port and four-way tee fitting on outside port.
- Model B has cross fitting on inside port and tee fitting on outside port.



(1) Remove two nuts (1), lockwashers (2), screws (3), and one chain assembly (4).

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(2) Remove four nuts (5), lockwashers (6), screws (7), and four clamps (8).

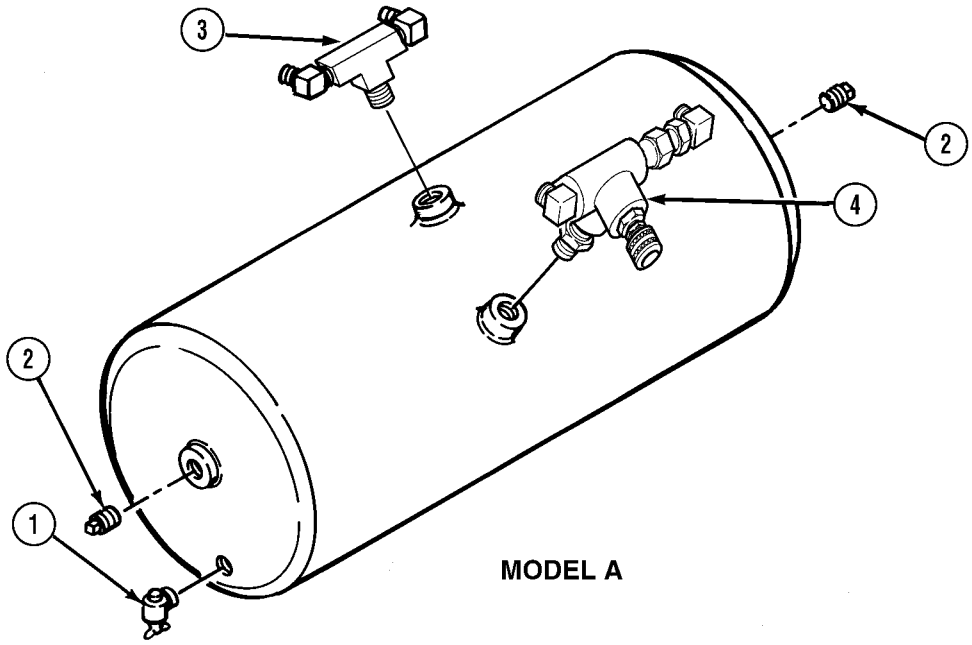
NOTE

Tag and mark air lines, valves, and fittings before removal.

(3) Disconnect four air lines (9) and remove reservoir (10).

Brake and Air System Maintenance Instructions (Cont)

b. Disassembly Model A.



MODEL A

(1) Remove drain valve (1), two plugs (2), tee assembly (3), and four-way tee assembly (4).

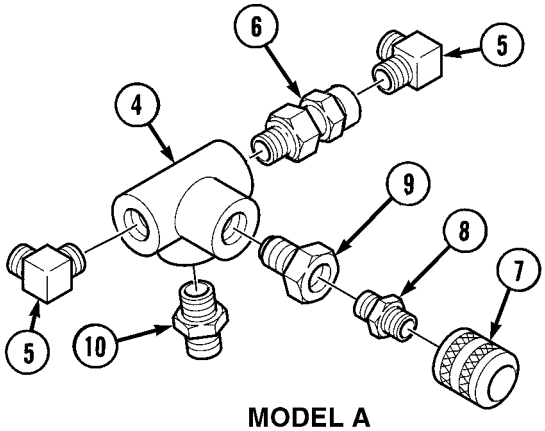
NOTE

Note position of check valve prior to removal to ensure proper installation.

(2) Remove two elbows (5) and check valve (6) from four-way tee (4).

(3) Remove quick disconnect (7), nipple (8), and reducer bushing (9) from four-way tee (4).

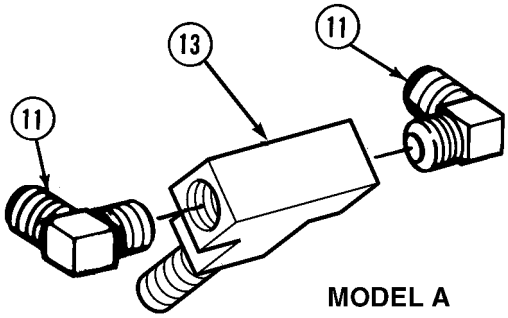
(4) Remove nipple (10) from four-way tee (4).



MODEL A

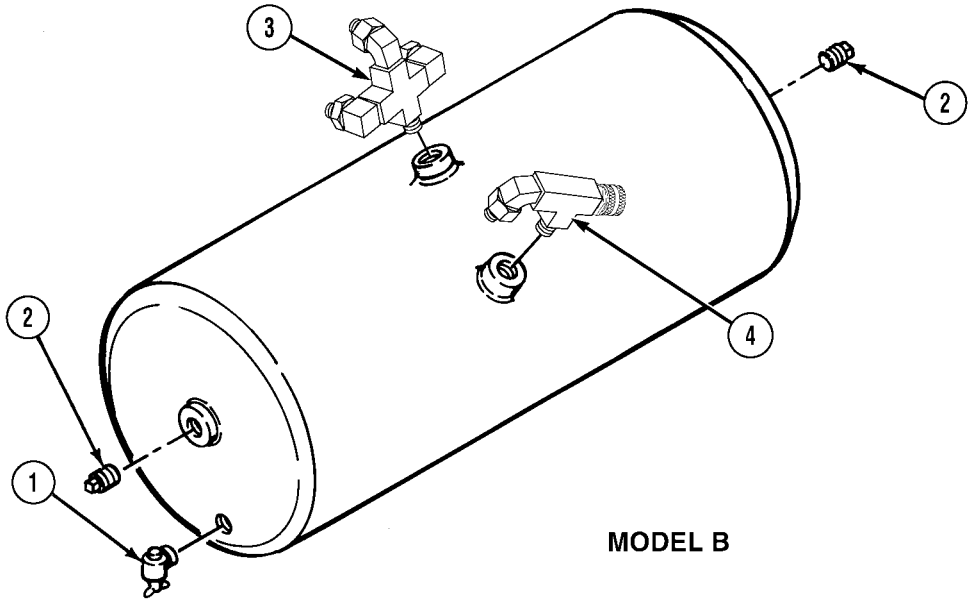
11-31. AIR RESERVOIR NO. 3 AND RIGHT SIDE TIRE INFLATION CONNECTOR REMOVAL/REPAIR/INSTALLATION (CONT).

(5) Remove two elbows (11) from tee (13).



MODEL A

c. Disassembly Model B.



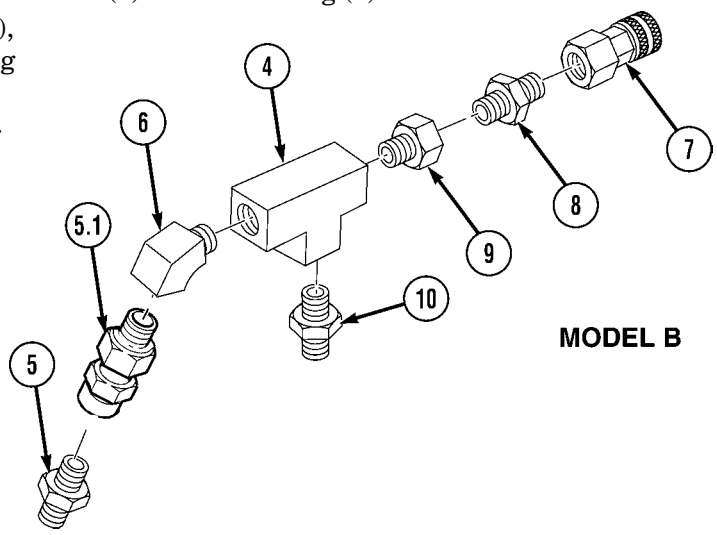
MODEL B

(1) Remove drain valve (1), two plugs (2), cross assembly (3), and tee assembly (4).

(2) Remove fitting (5), check valve (5.1) and elbow (6) from tee fitting (4).

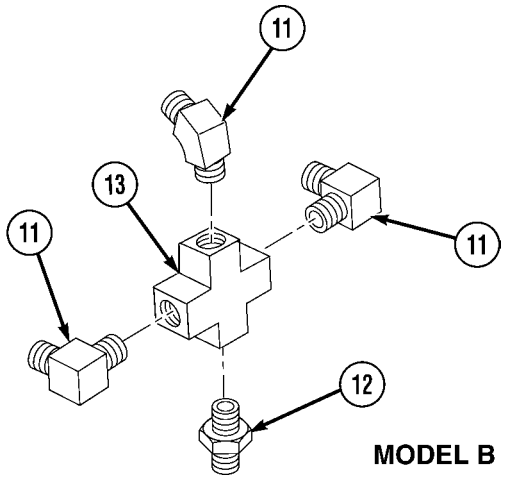
(3) Remove quick disconnect (7), nipple (8), and reducer bushing (9) from tee fitting (4).

(4) Remove nipple (10) from tee fitting (4).



MODEL B

(5) Remove three elbows (11) and nipple (12) from cross fitting (13).



MODEL B

d. Assembly Model A.

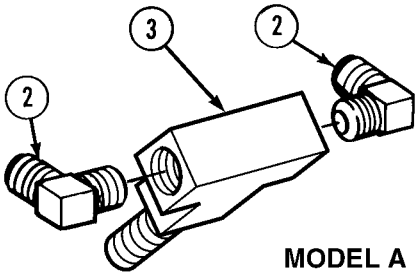
WARNING

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

NOTE

Coat all pipe threads with pipe thread sealing compound.

(1) Install two elbows (2) in tee (3).



MODEL A

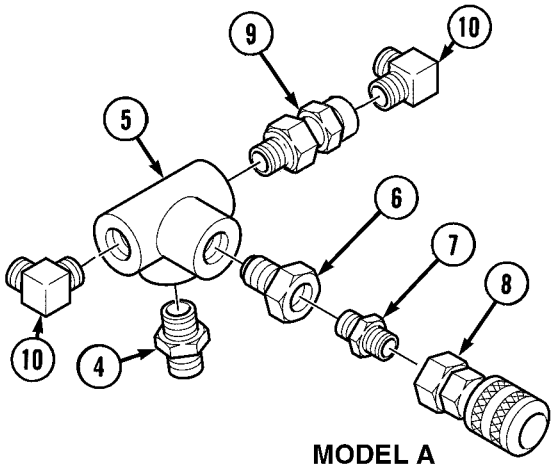
(2) Install nipple (4) in four-way tee (5).

(3) Install reducer bushing (6), nipple (7), and quick disconnect (8) in four-way tee (5).

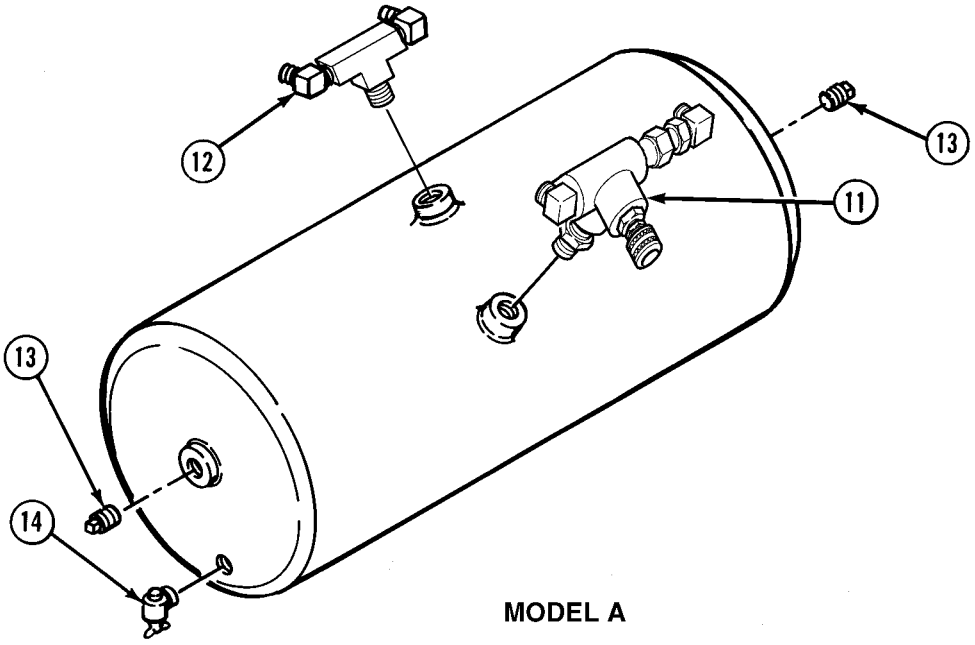
NOTE

Install check valve in same position as noted prior to removal.

(4) Install check valve (9) and two elbows (10) in four-way tee (5).



MODEL A



MODEL A

(5) Install four-way tee assembly (11), tee assembly (12), two plugs (13), and drain valve (14).

e. Assembly Model B.

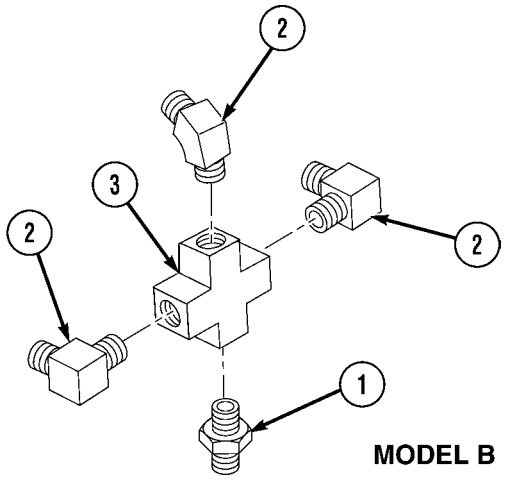
WARNING

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

NOTE

Coat all pipe threads with pipe thread sealing compound.

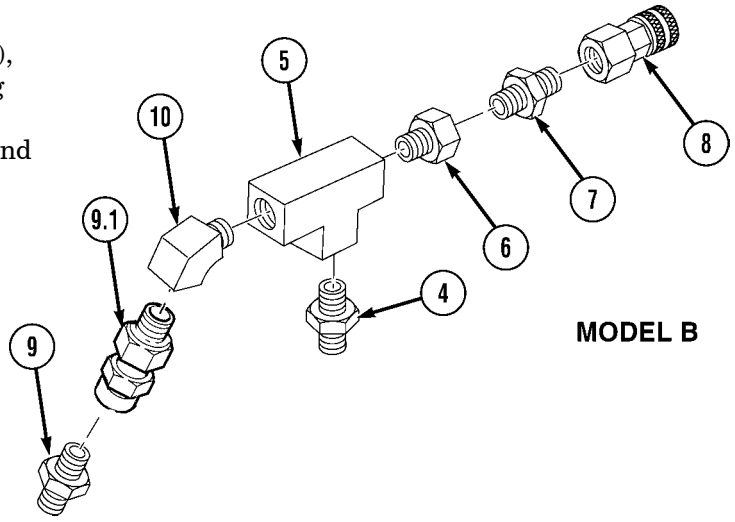
(1) Install nipple (1) and three elbows (2) in cross fitting (3).



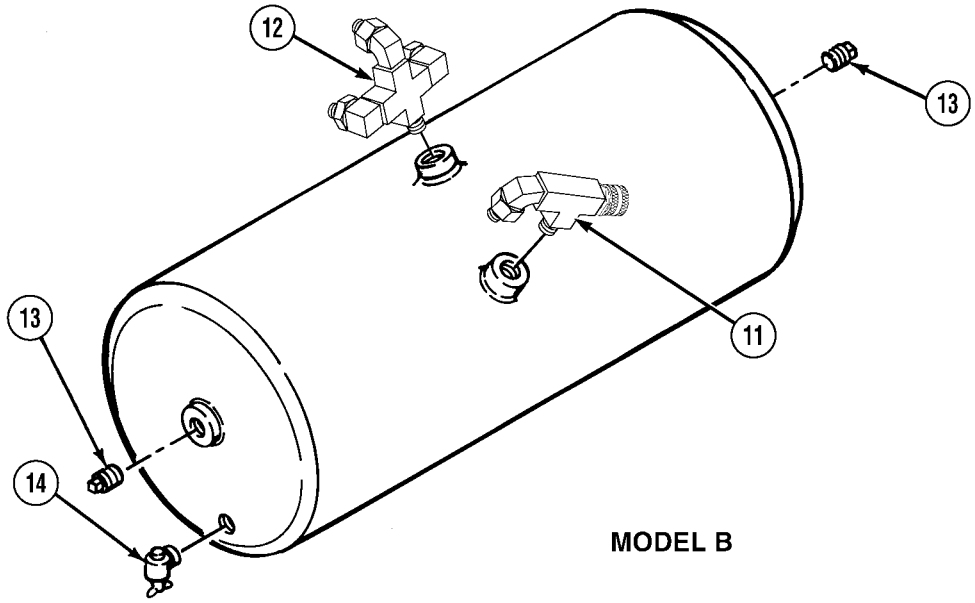
MODEL B

Brake and Air System Maintenance Instructions (Cont)

(2) Install nipple (4) in tee fitting (5).
(3) Install reducer bushing (6), nipple (7), and quick disconnect (8) in tee fitting (5).
(4) Install fitting (9), check valve (9.1), and elbow (10) in tee fitting (5).



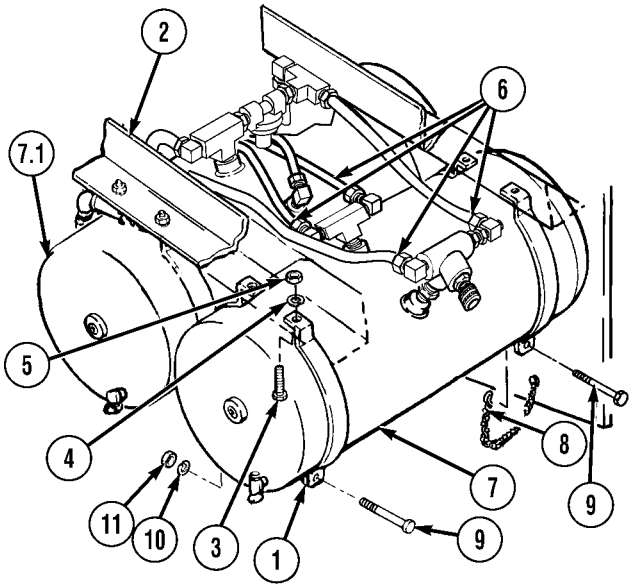
MODEL B



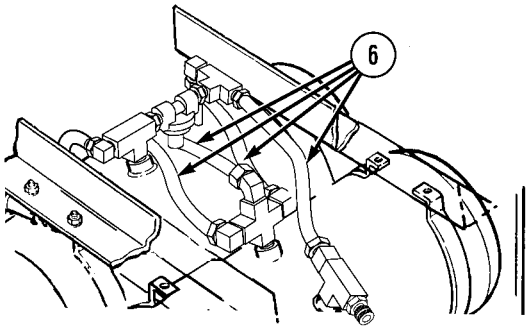
MODEL B

(5) Install tee assembly (11), cross assembly (12), two plugs (13), and drain valve (14).

MODEL A



MODEL B



f. Installation.

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(1) Loosely install four clamps (1) on brackets (2) with four screws (3), lockwashers (4), and nuts (5).

NOTE

Ensure air line from reservoir (7) is installed on outlet side of pressure protection valve on reservoir (7.1).

(2) Install four air lines (6).
(3) Install reservoir (7) in clamps (1) with chain assembly (8), two screws (9), lockwashers (10), and nuts (11).
(4) Tighten four nuts (5) on top of clamps (1) and two nuts (11) on bottom of clamps.

g. Follow-on Maintenance.

(1) Close drain valve (TM 9-2320-279-10).
(2) Start engine (TM 9-2320-279-10).
(3) Build up air pressure (TM 9-2320-279-10).
(4) Check reservoir for leaks.
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

Brake and Air System Maintenance Instructions (Cont)

11-32. AIR RESERVOIR NO. 4, LEFT SIDE TIRE INFLATION CONNECTOR, AND VALVE REMOVAL/INSTAIIATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread. Item 18, Appendix C
Tags, identification, Item 48. Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

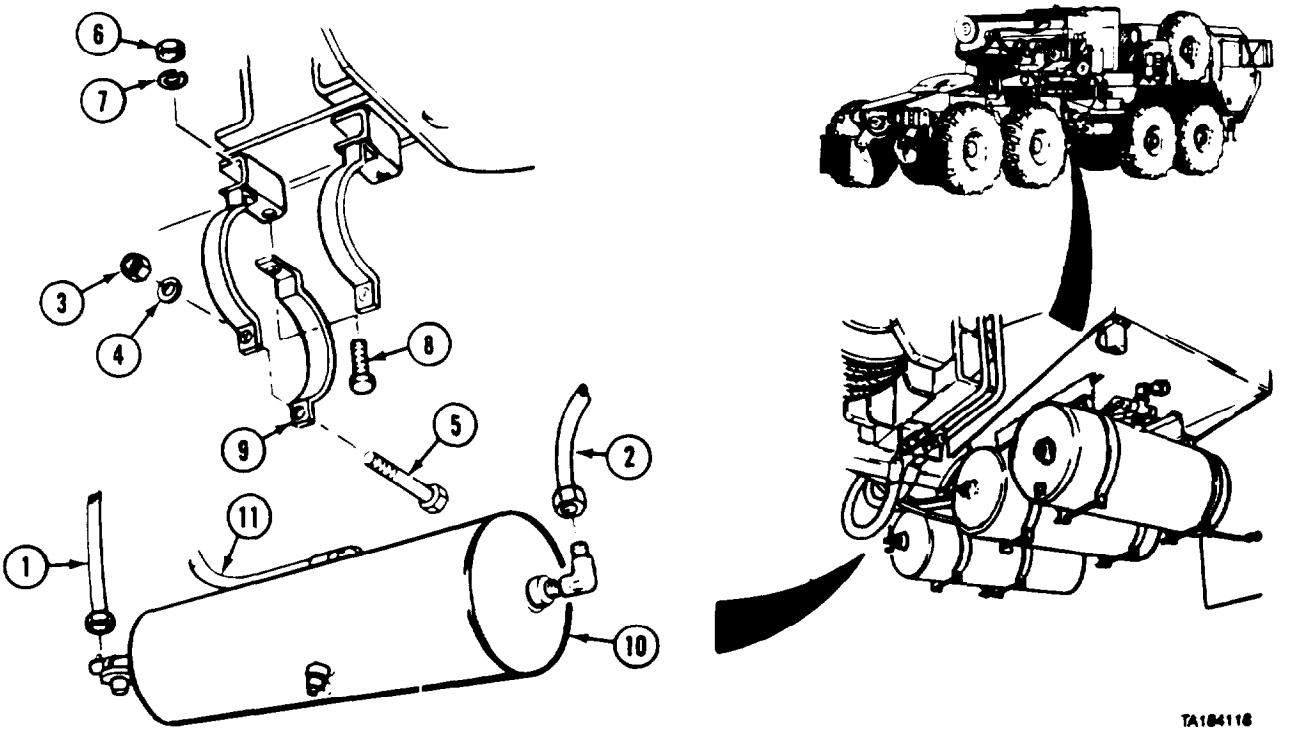
Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279- 10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



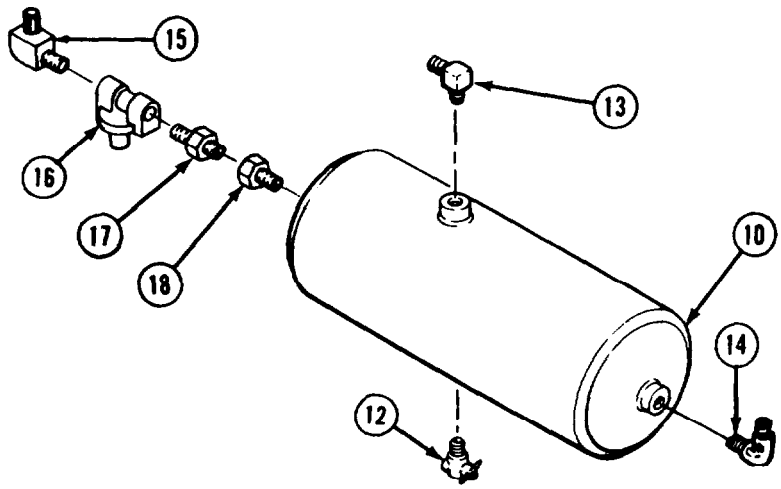
Brake and Air System Maintenance Instructions (Cont)

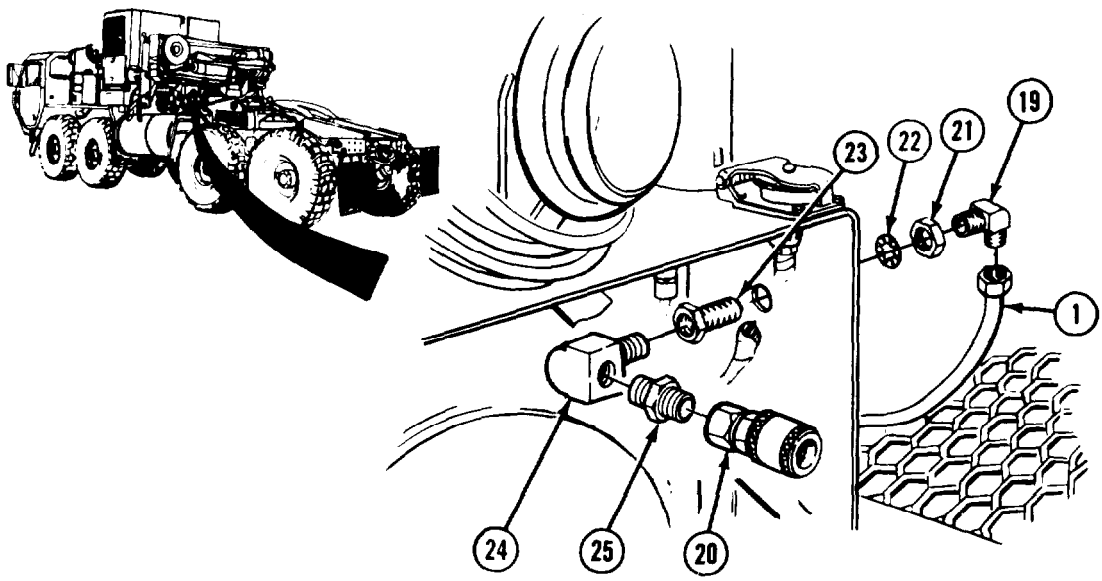
NOTE
Tag and mark air lines, valves, and fittings before removal.

(1) Remove air line (1).
(2) Remove air line (2).
(3) Remove two nuts (3), lockwashers (4), and screws (5).

NOTE
Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws

(4) Remove two nuts (6), lockwashers (7), and screws (8).
(5) Remove two inner clamps (9) and reservoir (10) from vehicle.
(6) Remove air line (11).
(7) Remove drain valve (12) and two elbows (13 and 14) from reservoir (10).
(8) Remove elbow (15), pressure valve (16), nipple (17), and reducer bushing (18).

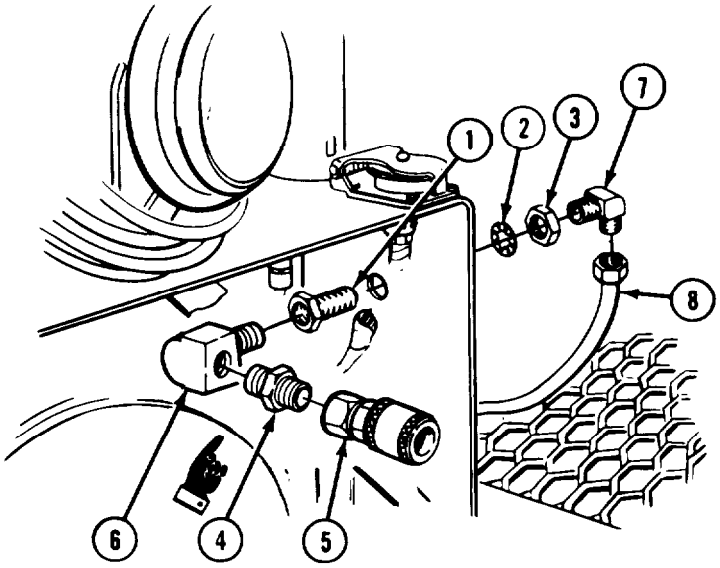




(9) Remove air line (1).
(10) Remove elbow (19).
(11) Remove quick disconnect (20), nut (21), lockwasher (22), anchor fitting (23), elbow (24), and nipple (25).

11-32. AIR RESERVOIR NO. 4 LEFT SIDE TIRE INFLATION CONNECTOR, AND VALVE REMOVAL/INSTALLATION (M983) (CONT).

b. Installation



WARNING

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

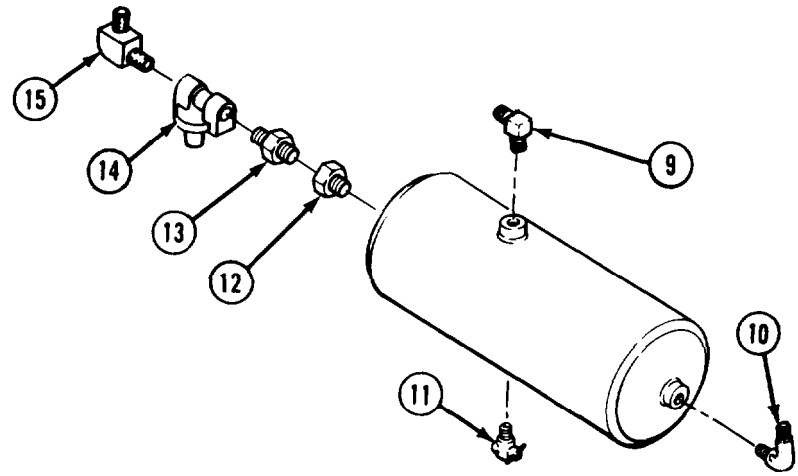
NOTE

Coat all pipe threads with pipe thread sealing compound.

(1) Install anchor fitting (1), lockwasher (2), and nut (3).
(2) Install nipple (4) and quick disconnect (5) in elbow (6).
(3) Install elbows (6 and 7) in anchor fitting (1).
(4) Install air line (8).

Brake and Air System Maintenance Instructions (Cont)

(5) Install two elbows (9 and 10) and drain valve (11).
(6) Install reducer bushing (12), nipple (13), pressure valve (14), and elbow (15).

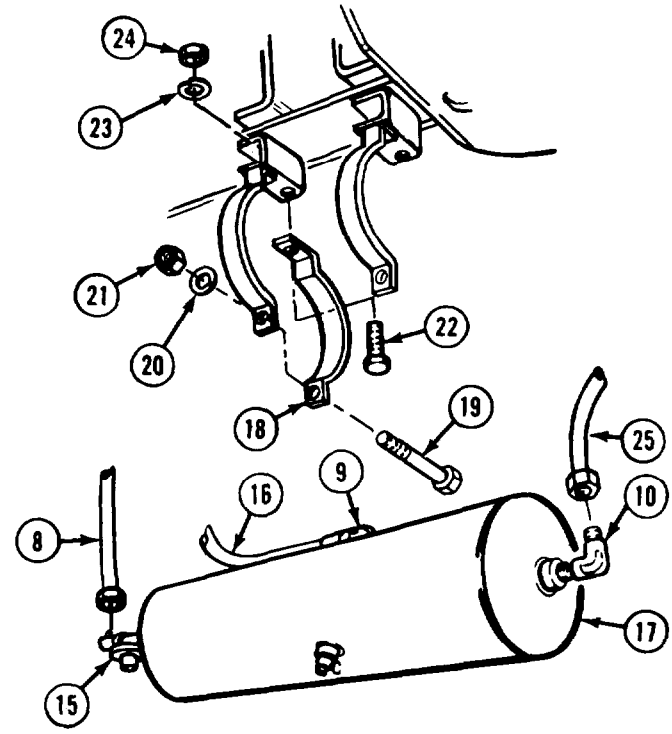


(7) Install air line (16) on elbow (9).
(8) Install reservoir (17) in two inner clamps (18) with two screws (19), lockwashers (20), and nuts (21).

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(9) Install two screws (22), lockwashers (23), and nuts (24).
(10) Install air line (25) on elbow (10).
(11) Install air line (8) on elbow (15).



C. Follow-on Maintenance.

(1) Close drain valve (TM 9-2320-279-10).
(2) Start engine (TM 9-2320-279-10).
(3) Build air pressure (TM 9-2320-279-10).
(4) Check reservoir and tire inflation connection for leaks.
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-33. AIR RESERVOIR NO. 4 AND LEFT SIDE TIRE INFLATION CONNECTOR REMOVAL/INSTALLATION (M977, M978, M984, M985).

This task covers:

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

INITIAL SETUP

Models
M977, M978, M984, M985

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread. Item 18. Appendix C
Tags identification, Item 48, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

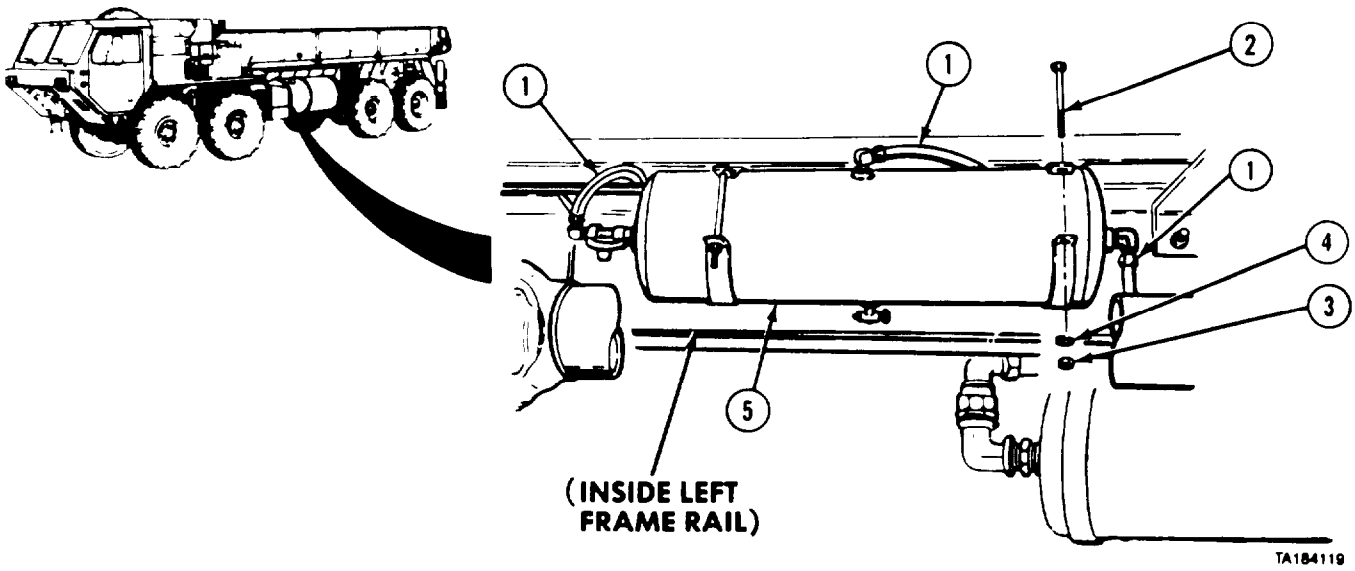
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
Para 4-7	Fuel tank removed.

Special Environmental Conditions
None

General Safety Instructions
None

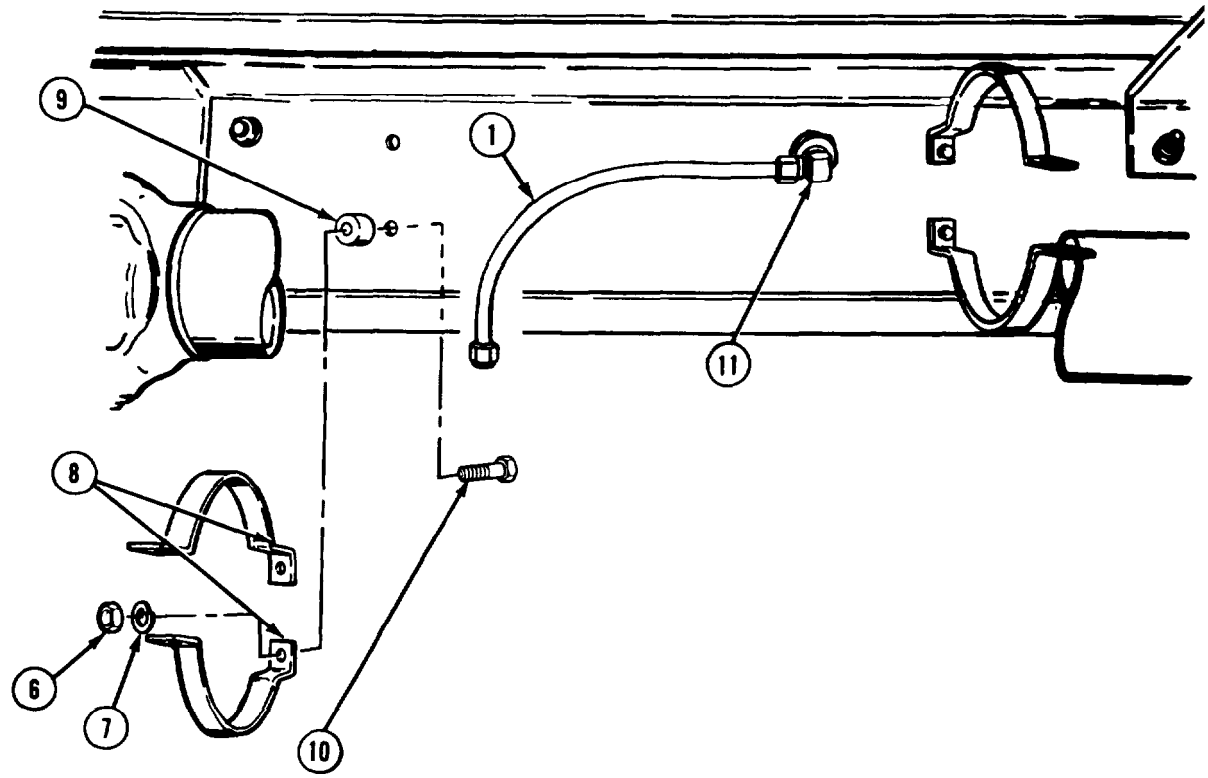
a. Removal.



NOTE

- It will be necessary to cut plastic cable ties and move hoses out of the way on M984 vehicles.
- Tags and mark air lines before removal.

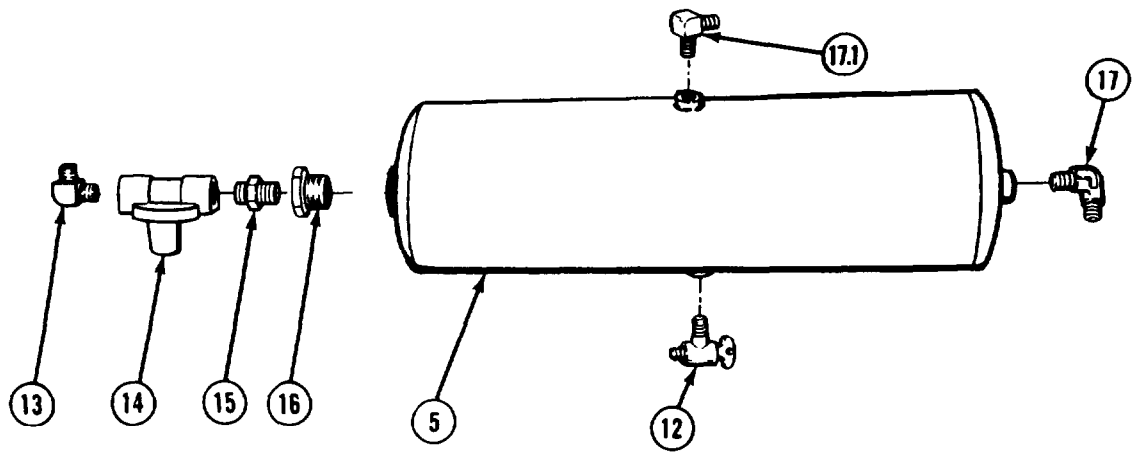
(1) Remove three air lines (1).
(2) Remove two screws (2), nuts (3), and lockwashers (4).
(3) Remove reservoir (5).



NOTE

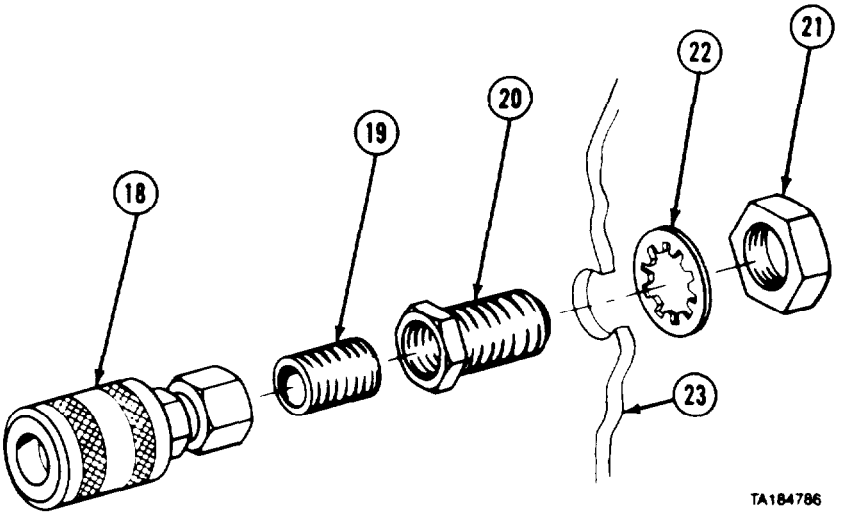
Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(4) Remove four nuts (6), lockwashers (7), clamps (8), spacers (9), and screws (10).
(5) Remove air line (1) and elbow (11).



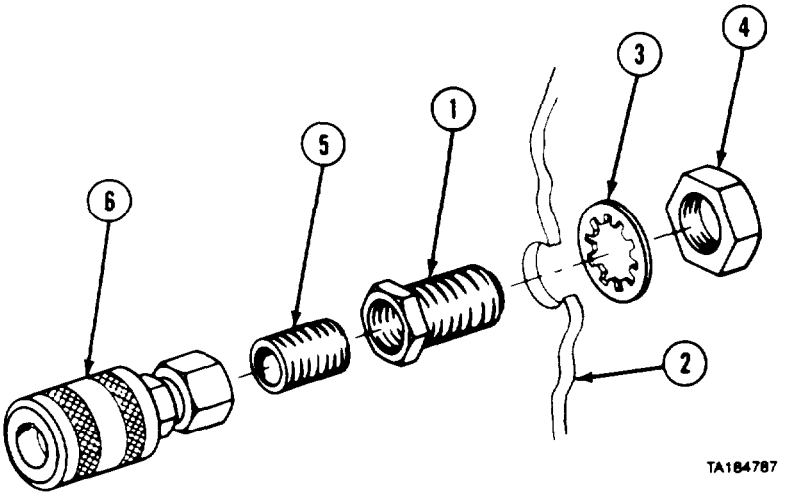
(6) Remove drain valve (12), elbow (13), pressure valve (14), nipple (15), reducer bushing (16), and elbows (17 and 17.1) from reservoir (5).

11-33. AIR RESERVOIR NO. 4 AND LEFT SIDE TIRE INFLATION CONNECTOR REMOVAL/INSTALLATION (M977, M978, M984, M985) (CONT).



(7) Remove quick disconnect (18) and nipple (19) from anchor fitting (20).
(8) Remove nut (21), lockwasher (22), and anchor fitting (20) from frame (23).

b. Installation.



WARNING

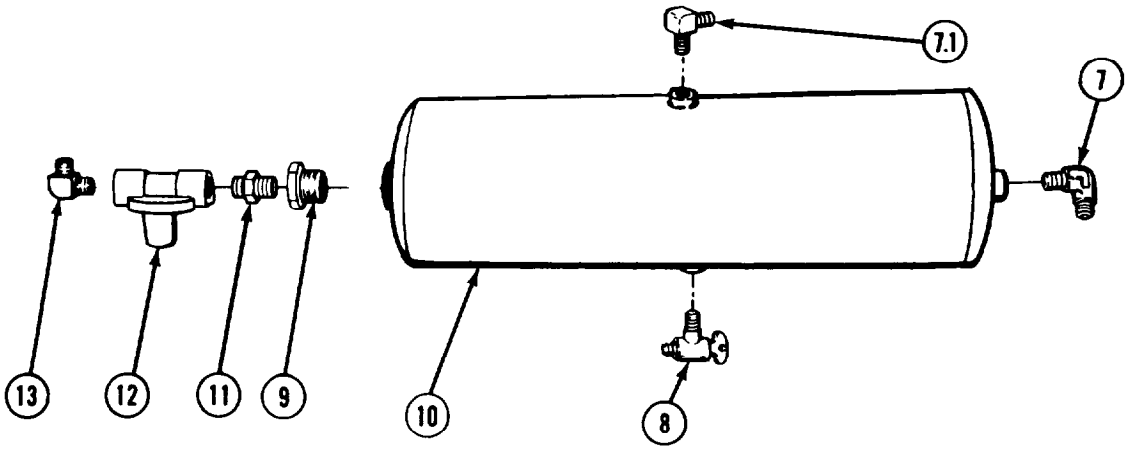
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive; solvent, or sealing compound gets on skin or clothing, wash immediately with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

(1) Install anchor fitting (1) in frame (2) with lockwasher (3) and nut (4).

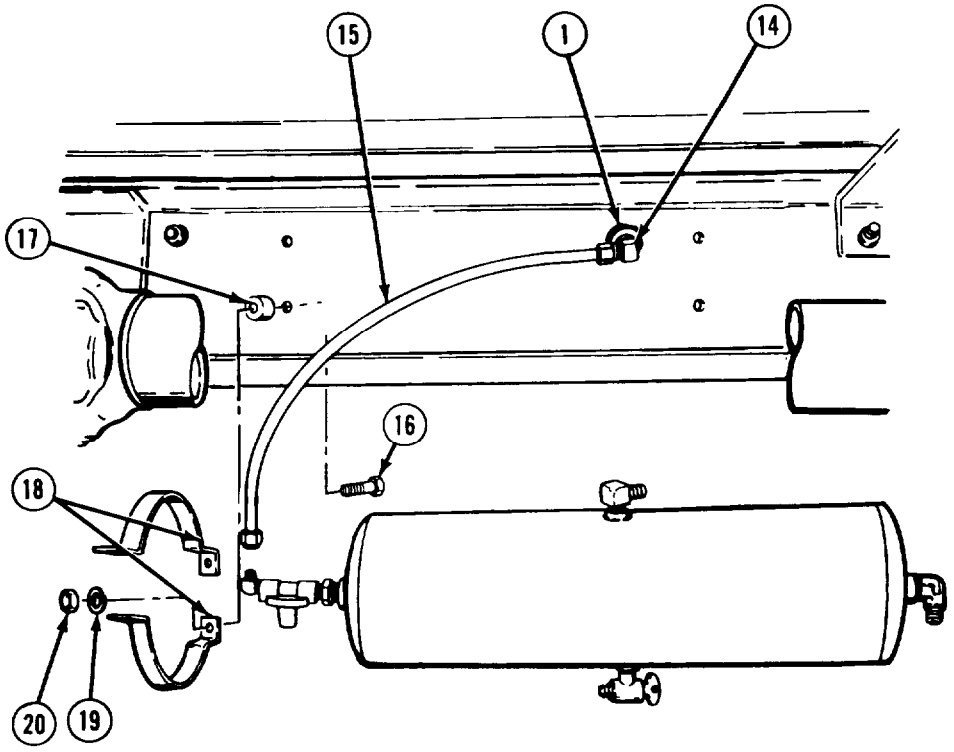
NOTE

Coat all pipe threads with pipe thread sealing compound.

(2) Install nipple (5) and quick disconnect (6) in anchor fitting (1).



(3) Install two elbows (7 and 7.1), drain valve (8), and reducer bushing (9) in reservoir (10).
(4) Install nipple (11), pressure valve (12), and elbow (13).



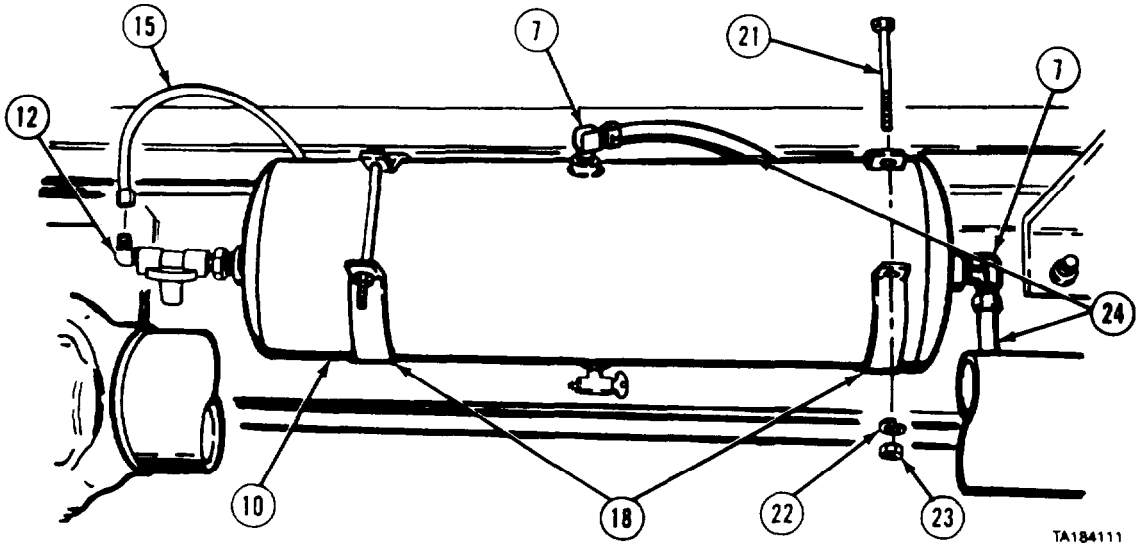
(5) Install elbow (14) in anchor fitting (1).
(6,) Install air line (15) to elbow (14).

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(7) Install four screws (16), spacers (17), clamps (18), lockwashers (19), and nuts (20).

11-33. AIR RESERVOIR NO. 4 AND LEFT SIDE TIRE INFLATION CONNECTOR REMOVAL/INSTALLATION (M977, M978, M984, M985) (CONT).



(8) Position reservoir (10) in clamps (18).
(9) Install two screws (21), lockwashers (22). and nuts (23).
(10) Install two air lines (24) on elbows (7).
(11) Install air line (15) on elbow (12).

NOTE

Plastic cable ties must be installed on M984 vehicle.

c. Follow-on Maintenance.
(1) Install fuel tank (para 4-7).
(2) Close petcock (TM 9-2320-279- 10).
(3) Start engine (TM 9-2320-279-10).
(4) Build up air pressure (TM 9-2320-279-10).
(5) Check reservoir and tire inflation connection for leaks.
(6) Shut off engine (TM 9-2320-279-10)).

END OF TASK

11-33.1 AIR RESERVOIR NO. 4 AND LEFT SIDE TIRE INFLATION CONNECTOR REMOVAL/INSTALLATION (M984E1).

This task covers:

a. Air Reservoir No. 4 Removal
b. Air Reservoir No. 4 Installation
c. Left Side Tire Inflation Connector Removal
d. Left Side Tire Inflation Connector Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

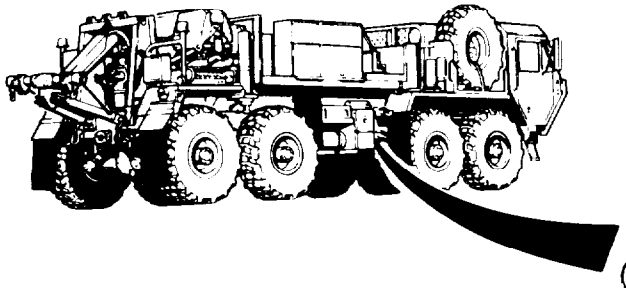
Equipment Condition

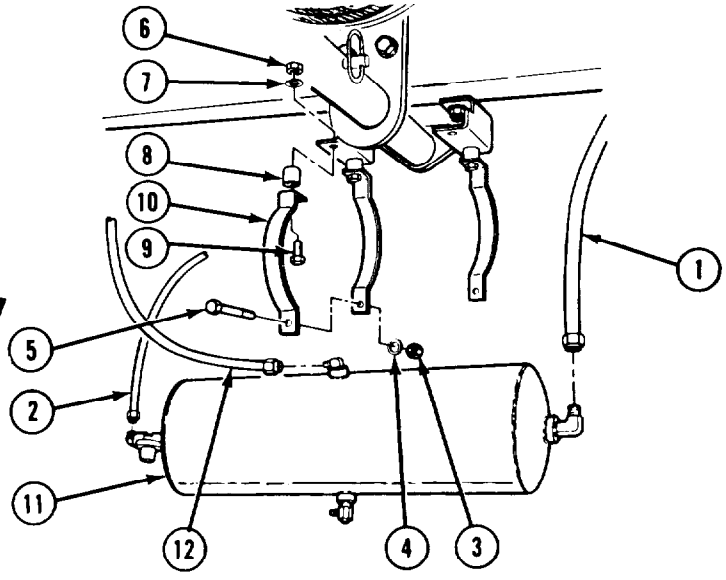
TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Air Reservoir No. 4 Removal.





(1) Tag, mark, and remove two air lines (1 and 2).
(2) Remove two nuts (3), lockwashers (4), and screws (5).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(3) Remove two nuts (6), lockwashers (7), spacers (8), and screws (9).
(4) Remove two outer clamps (10) and reservoir (11).
(5) Tag, mark, and remove air line (12).

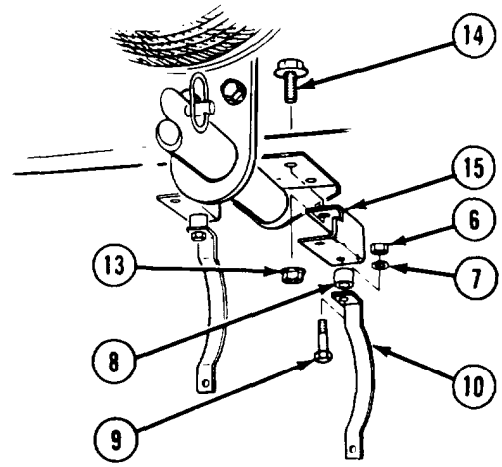
11-33.1 AIR RESERVOIR NO. 4 AND LEFT SIDE TIRE INFLATION CONNECTOR REMOVAL/INSTALLATION (M984E1) (CONT).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(6) Remove two nuts (6), lockwashers (7), spacers (8), screws (9), and two inner clamps (10).

(7) Remove four nuts (13), screws (14), and two brackets (15).

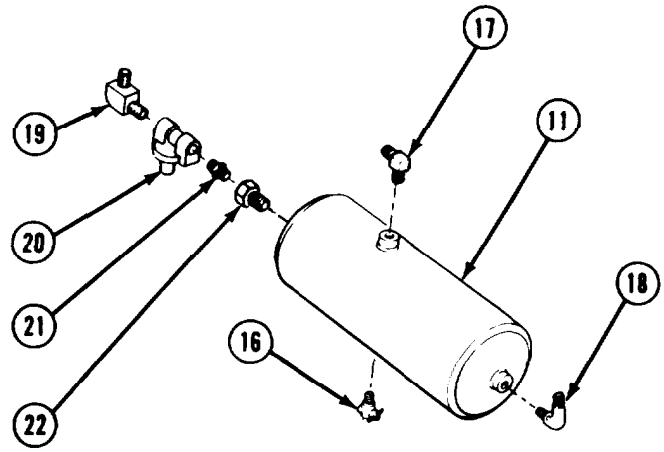


NOTE

Note position of drain valve and elbows.

(8) Remove drain valve (16) and two elbows (17 and 18) from reservoir (11).

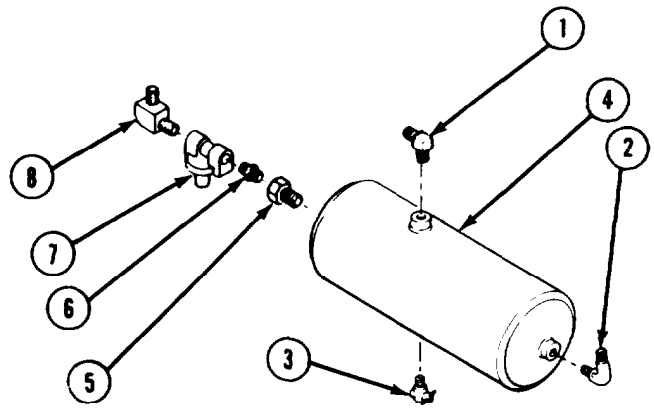
(9) Remove elbow (19), valve (20), nipple (21), and reducer bushing (22).



b. Air Reservoir No. 4 Installation.

(1) Install two elbows (1 and 2) and drain valve (3) in reservoir (4).

(2) Install reducer bushing (5), nipple (6), pressure valve (7), and elbow (8) in reservoir (4).

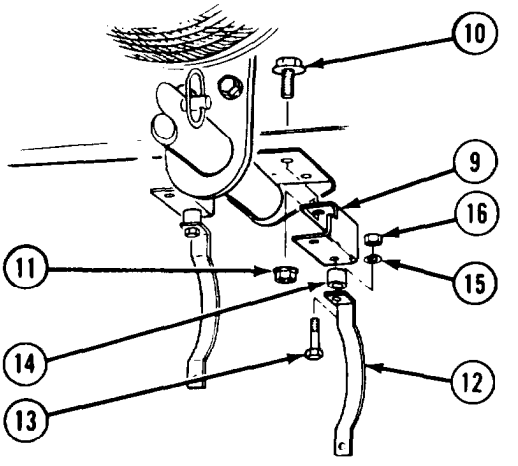


NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(3) Install two brackets (9) with four screws (10) and nuts (11).

(4) Install two inner clamps (12) on brackets (9) with two screws (13), spacers (14), lockwashers (15), and nuts (16).



(5) Install air line (17).

(6) Position reservoir (4) in two inner clamps (12).

NOTE

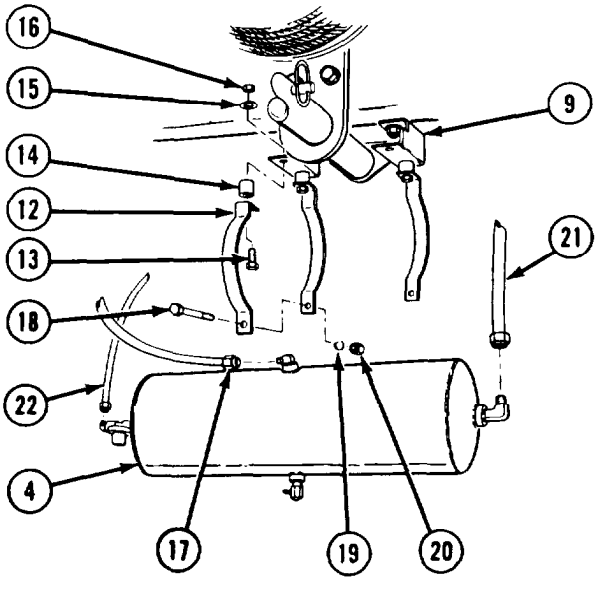
Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(7) Install but do not tighten two outer clamps (12) with two screws (13), spacers (14), lockwashers (15), and nuts (16) on brackets (9).

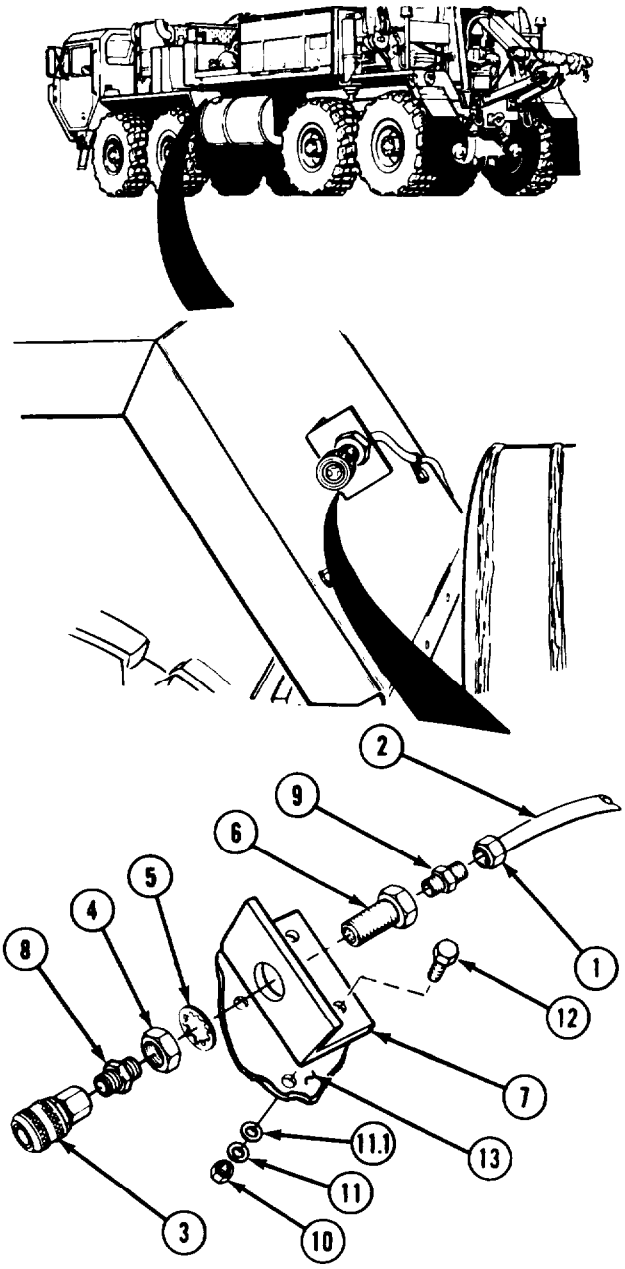
(8) Install two screws (18) through outer and inner clamps with two lockwashers (19) and nuts (20).

(9) Tighten two screws (13).

(10) Install two air lines (21 and 22).



11-33.1 AIR RESERVOIR NO. 4 AND LEFT SIDE TIRE INFLATION CONNECTOR REMOVAL/INSTALLATION (M984E1) (CONT).



c. Left Side Tire Inflation Connector Removal.

(1) Loosen nut (1) and remove tube (2).
(2) Remove quick disconnect (3).
(3) Remove nut (4), lockwasher (5), and anchor fitting (6) from bracket (7).
(4) Remove nipple (8) and (9) from anchor fitting (6).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(5) Remove two nuts (10), lockwashers (11), washers (11.1), screws (12), and bracket (7) from fender (13).

d. Left Side Tire Inflation Connector Installation.

NOTE

Some vehicles have nuts, lockwashers, and screws. Others have flanged nuts and screws.

(1) Install bracket (7) on fender (13) with two screws (12), washers (11.11, lockwashers (11) and nuts (10).

WARNING

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

NOTE

Coat all pipe threads with pipe thread sealing compound.

(2) Install fitting (9) and nipple (8) on anchor fitting (6).
(3) Install anchor fitting (6) in bracket (7) with lockwasher (5) and nut (4).
(4) Install quick disconnect (3).
(5) Install tube (2) and tighten nut (1).

e. Follow-on Maintenance.

(1) Close drain valve (TM 9-2320-279-10).
(2) Start engine (TM 9-2320-279-10).
(3) Build air pressure (TM 9-2320-279-10).
(4) Check reservoir and tire inflation connection for leaks.
(5) Shut off engine (TM 9-2320-279-10).

END OF TASK

Section VI. TRANSFER CASE LOCKUP VALVE

11-34. TRANSFER CASE LOCKUP VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

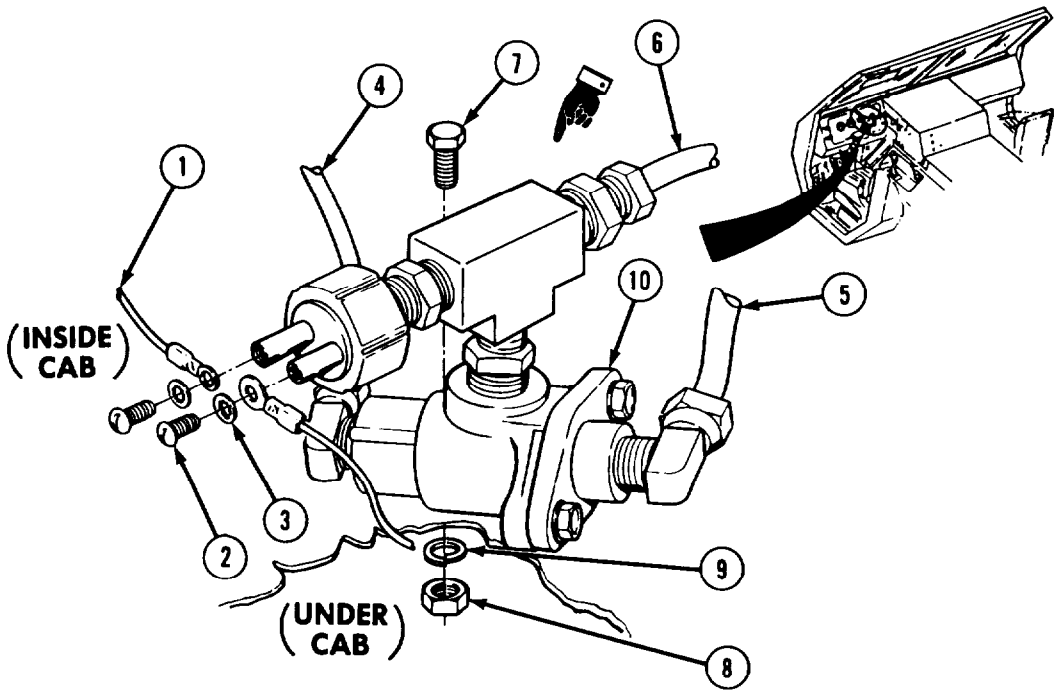
TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
Para 7-91	Batteries disconnected.

Special Environmental Conditions
None

General Safety Instructions
None

11-34. TRANSFER CASE LOCKUP VALVE REMOVAL/INSTALLATION (CONT).

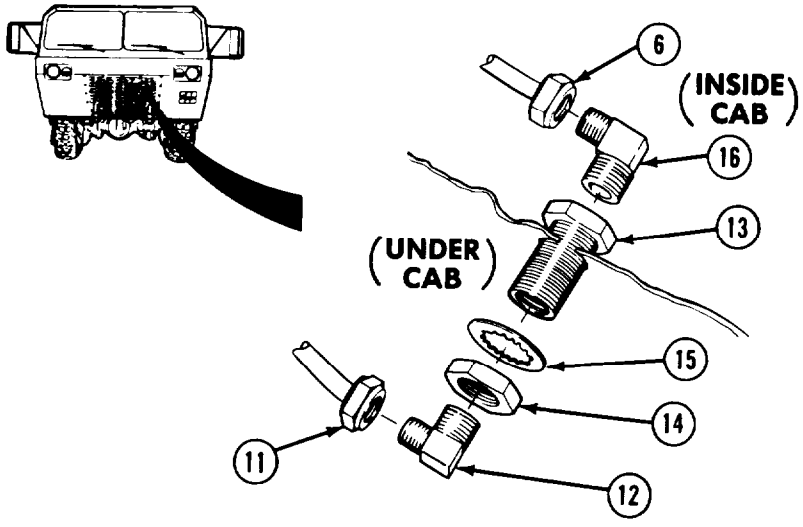
a. Removal.



NOTE

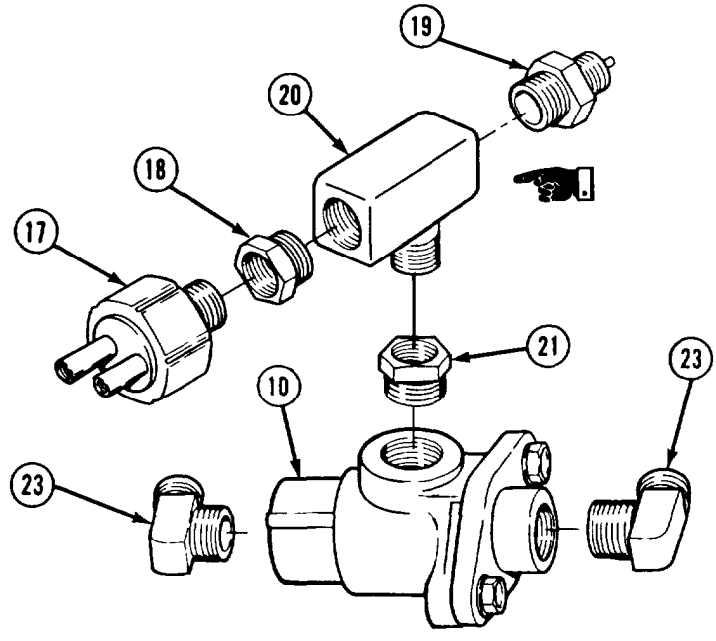
- Soldier A is inside cab. Soldier B is under cab.
- Tag and mark wires and air lines before removal.

(1) Remove two wires (1), screws (2), and lockwashers (3).
(2) Loosen three air lines (4, 5, and 6).
(3) Soldier A holds screw (7) while Soldier B removes nut (8) and lockwasher (9).
(4) Remove three air lines (4, 5, and 6) and lockup valve (10).
(5) Remove air line (6).
(6) Remove air line (11) and elbow (12).
(7) Soldier A holds bulkhead fitting (13) while Soldier B removes nut (14) and lockwasher (15).
(8) Remove bulkhead fitting (13).
(9) Remove elbow (16) from fitting (13).



(10) Remove pressure switch (17), reducer bushing (18), adapter (19), tee (20), and reducer bushing (21).

(11) Remove two elbows (23) from valve (10).



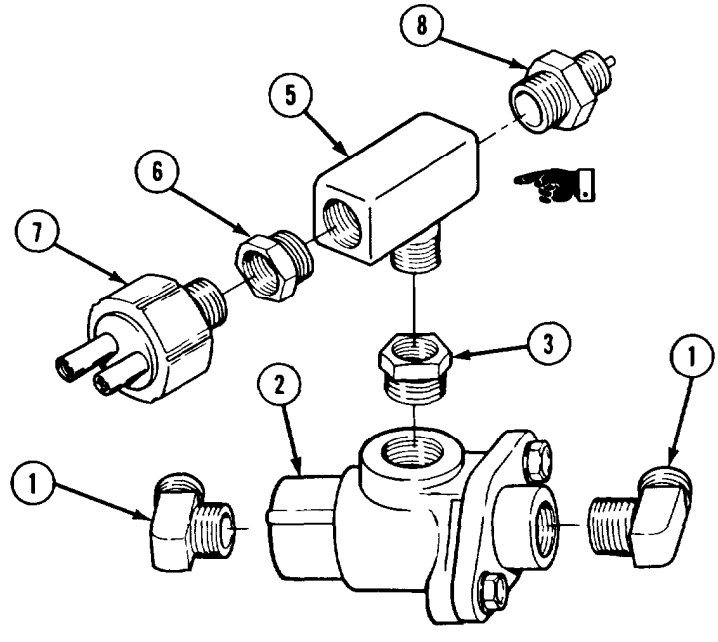
b. Installation.

WARNING

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

NOTE

Soldier A is inside cab. Soldier B is under cab.



(1) Coat threads of two elbows (1) with pipe thread sealing compound and install elbows in valve (2).

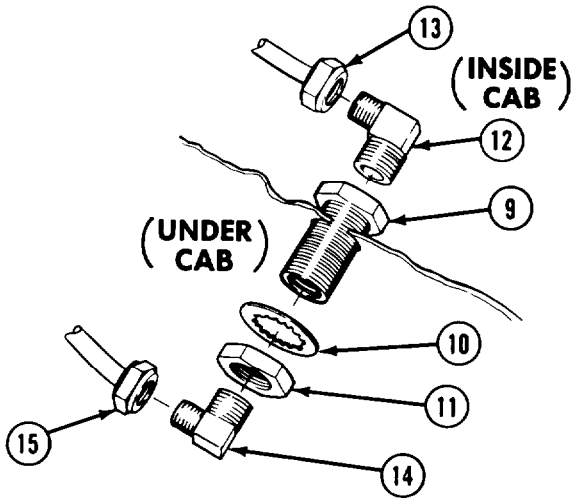
(2) Coat threads of reducer bushing (3) and tee (5) with pipe thread sealing compound and install in valve (2).

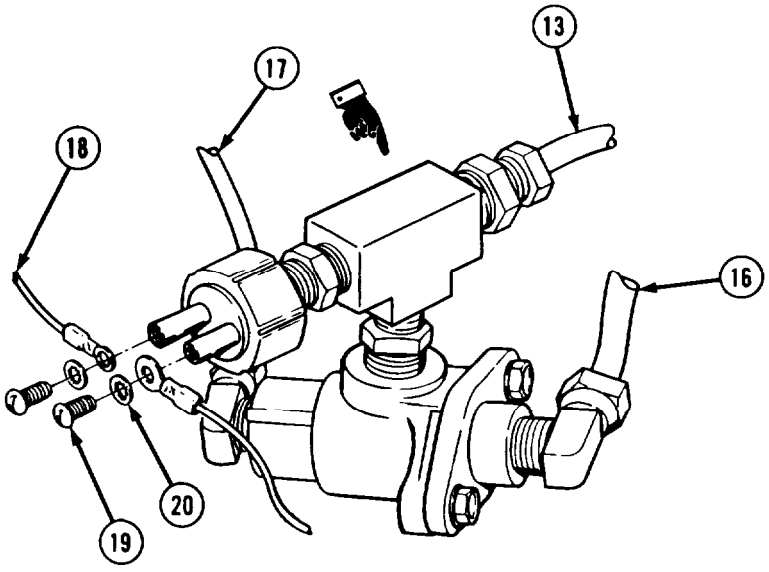
(3) Deleted.

(4) Coat threads of reducer bushing (6), pressure switch (7), and adapter (8) with pipe thread sealing compound and install in tee (5).

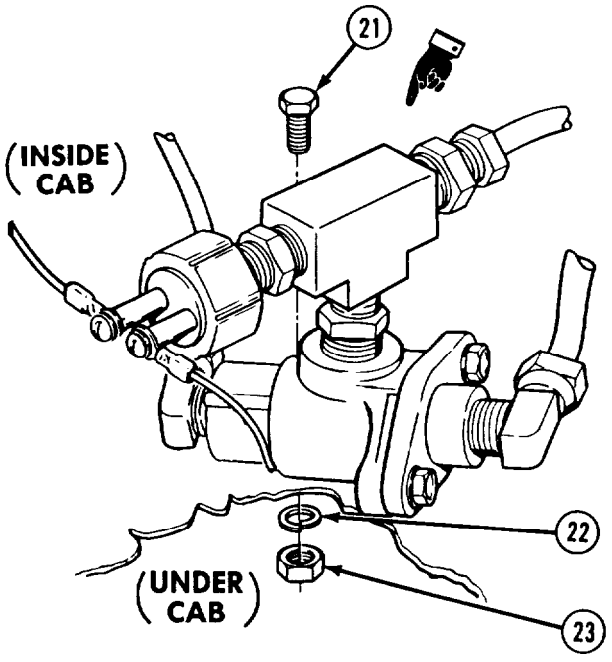
11-34. TRANSFER CASE LOCKUP VALVE REMOVAL/INSTALLATION (CONT).

(5) Soldier A installs and holds bulkhead fitting (9) while Soldier B installs lockwasher (10) and nut (11).
(6) Coat threads of elbow (12) with pipe thread sealing compound and install elbow and air line (13).
(7) Coat threads of elbow (14) with pipe thread sealing compound and install elbow and air line (15).





(8) Connect three air lines (16, 17, and 13).
(9) Install two wires (18) with screws (19) and lockwashers (20).



(10) Soldier A installs screw (21) while Soldier B installs lockwasher (22) and nut (23).

C. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine (TM 9-2320-279-10).
(3) Build air pressure (TM 9-2320-279-10).
(4) Check for air leaks.
(5) Check that 8X8 DRIVE lamp lights when TRACTION CONTROL lever is operated (TM 9-2320-279-10).
(6) Shut off engine (TM 9-2320-279-10).

END OF TASK

Section VII. AIRHOSES

11-35. AIRHOSES AND FIITINGS REPLACEMENT.

This task covers:

a. Type 1 Airhose Fittings Replacement
h. Type 2 Airhose Fittings Replacement
c. Airhose Replacement
d. Follow-on Maintenance

INITIAL SETUP

MODELS
All

Test EQUIPMENT
None

SPECIAL Tools
None

Supplies
Tags, identification. Item 48, Appendix C
Ties, cable. plastic. Item 52. Appendix C

Personnal Required
MOS 63S Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279- 10	Air system drained.
TX 9-2320-279- 10	Engine side panels removed, if necessary.
Para 16-9	Engine cover removed, if necessary.
Para 18-26	Defroster hoses removed, if necessary.
Para 11-12	Brake treadle valve removed, if necessary.
Para 4-14	Throttle treadle valve removed, if necessary.
Para 7-19	Instrument panel removed, if necessary.

Special Environmental Conditions
None

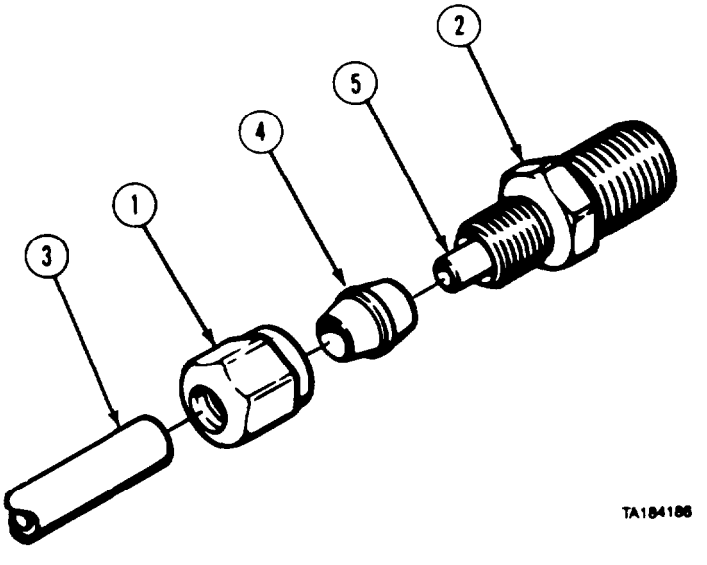
General Safety Instructions
None

a. Type 1 Airhose Fittings Replacement.

NOTE

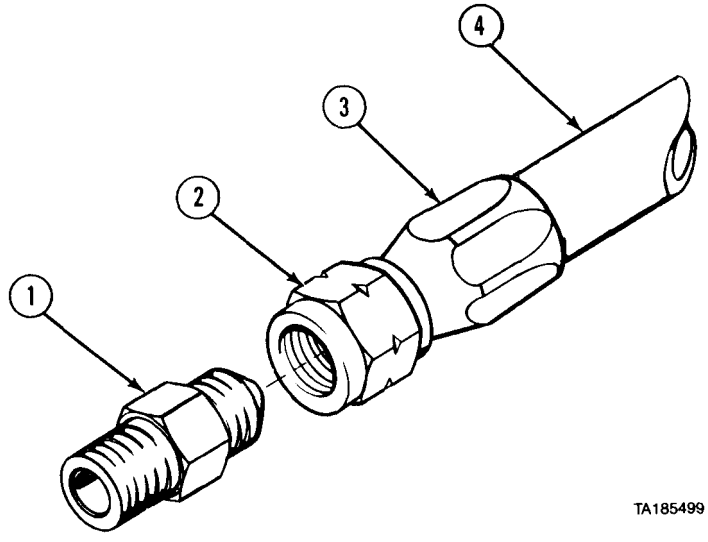
Tube may stay with adapter or come off with line.

(1) Remove nut (1) from adapter (2). Pull line (3) from adapter.
(2) Cut about 3/4-in. (19 mm) off end of line (3). Remove nut (1) from line.
(3) Put **nut** (1) on line (3). Put new bushing (4) on line.
(4) Push line (3) over tube (5) in adapter (2) and all the way in adapter.
(.5) Install bushing (4) and nut (1) on adapter (2).



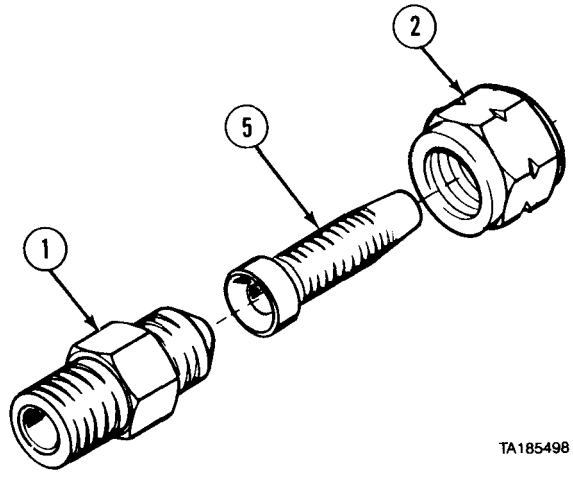
b. Type 2 Airhose Fittings Replacement.

(1) Install fitting (1) in hose nut (2). Jam fitting tightly against hose nut. Remove hose nut from nut (3).
(2) Remove nut (3) from hose (4).



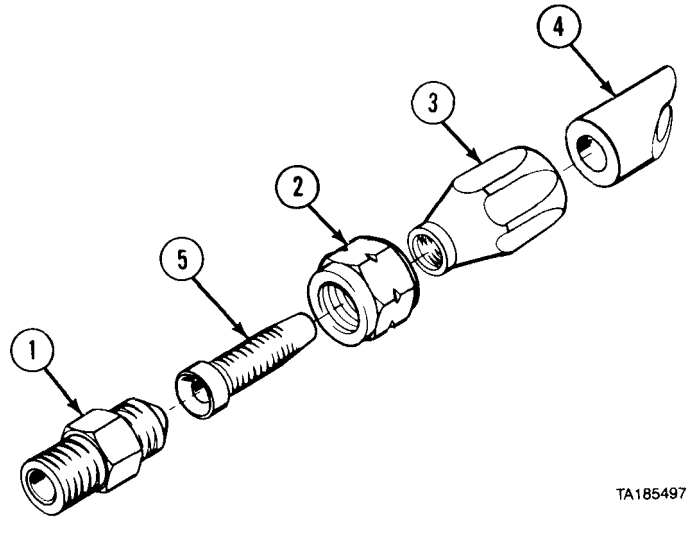
TA185499

(3) Remove fitting (1) and bushing (5) from nut (2).



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(4) Install nut (3) on hose (4).
(5) Install bushing (5) and fitting (1) in nut (2). Jam fitting tightly against nut.
(6) Install bushing (5) in hose (4). Remove fitting (1) from nut (2).



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11-35. AIRHOSES AND FITTINGS REPLACEMENT (CONT).

c. Airhose Replacement.

NOTE

- This section consists of Hose Indexes, Tables 11-1 through 11-5, and diagrams to help locate ends of all airhoses on the M977 series vehicles (figs. 11-1 through 11-6). Hose numbers on Tables 11-1 through 11-5 are from AIR SCHEMATIC, FO-2, located at end of manual.
- Tag and mark airhoses before removal.
- Cut plastic cable ties as necessary to remove airhoses.
- When replacing airhoses or tubing, remove hose or tubing from vehicle, remove fittings, cut new hose or tubing 1/4 to l/2-in. (6 to 13 mm) longer than hose or tubing being replaced, then install fittings.

Table 11-1. Engine Hose Index

Hose No.	From	To/From	To
001	Air Governor (1)		Air Dryer (2)
126	Air Governor (1)		Air Dryer (Bottom) (2)
159	Air Governor (1)		Air Reservoir No. 1 Safety Valve (3)
493 M984	Air Governor (1)		Pressure Regulator (4)
741 M984	Pressure Regulator (4)		Throttle Control Solenoid (5)
184	Air Reservoir No. 1 (3)		Air Dryer (2)
600	Air Compressor (6)		Air Intake Manifold (7)
750	High Idle Solenoid (8)		Engine Speed Governor (9)
757	Throttle Cylinder (10)		Transmission Modulator Valve (11)
793	Throttle Control Solenoid (5)		Throttle Cylinder (10)
758	Air Governor (1)		Thermostat (12)
759	Thermostat Valve (12)		Fan Clutch (13)
492	High Idle Solenoid (8)		Air Governor (1)
416	Throttle Cylinder (10)	Air Manifold No. 4 (14)	Throttle Treadle Valve (15)

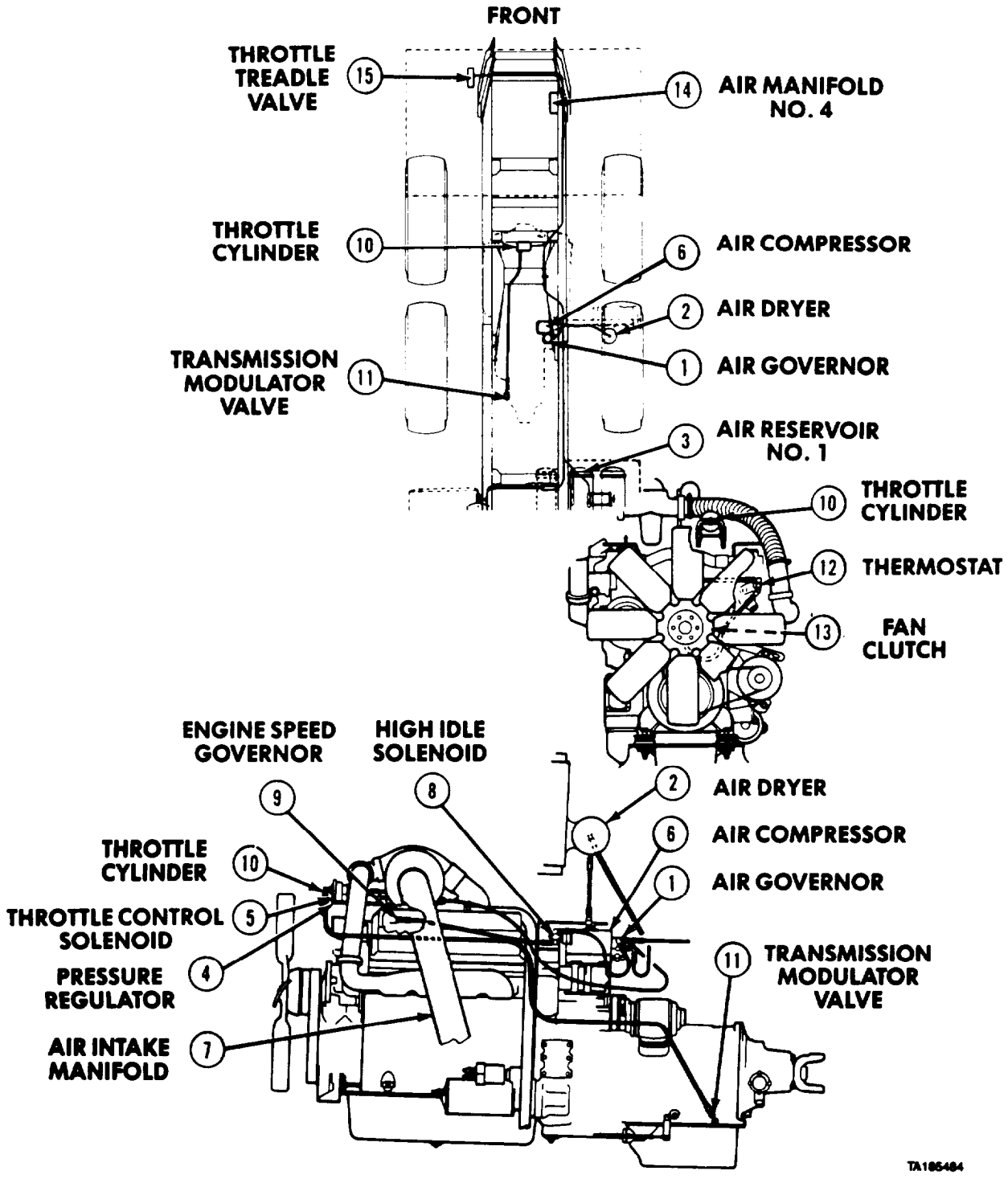


Figure 11-1. Engine Airhoses.

11-35. AIRHOSES AND FITTINGS REMOVA/INSTALLATION (CONT).

Table 11-2. Wiper and Air Horn Hoses

Hose No.	From	To/From	To
032	L.H. Wiper (16)		Air Manifold No. 3 (17)
033	L.H. Wiper (16)		Wiper Motor (18) (Run)
034	L.H. Wiper (16)		Wiper Motor (18) (Park)
035	R.H. Wiper (19)		Air Manifold No. 3 (17)
036	R.H. Wiper (19)		Wiper Motor (20) (Run)
037	R.H. Wiper (19)		Wiper Motor (20) (Park)
336	Wiper Motors (18, 20)		Vent
*074	Windshield Washer (21)		Air Manifold No. 3 (17)
*074	Windshield Washer (21)		Windshield Washer Reservoir (22)
*	Windshield Washer Reservoir (22)		Washer Hose Tee (23) (Fluid hose not part of Air Schematic.)
	Washer Hose Tee (23)		R.H. and L.H. Washer Nozzles (24) (Fluid hose not part of Air Schematic.)
038	Horn Valve (25)		Air Manifold No. 3 (17)
039	Horn Valve (25)		Horn (26)
073	Pressure Protection Valve (27)		Air Manifold No. 3 (17)

*Routing different for Model A and Model B windshield washer reservoirs.

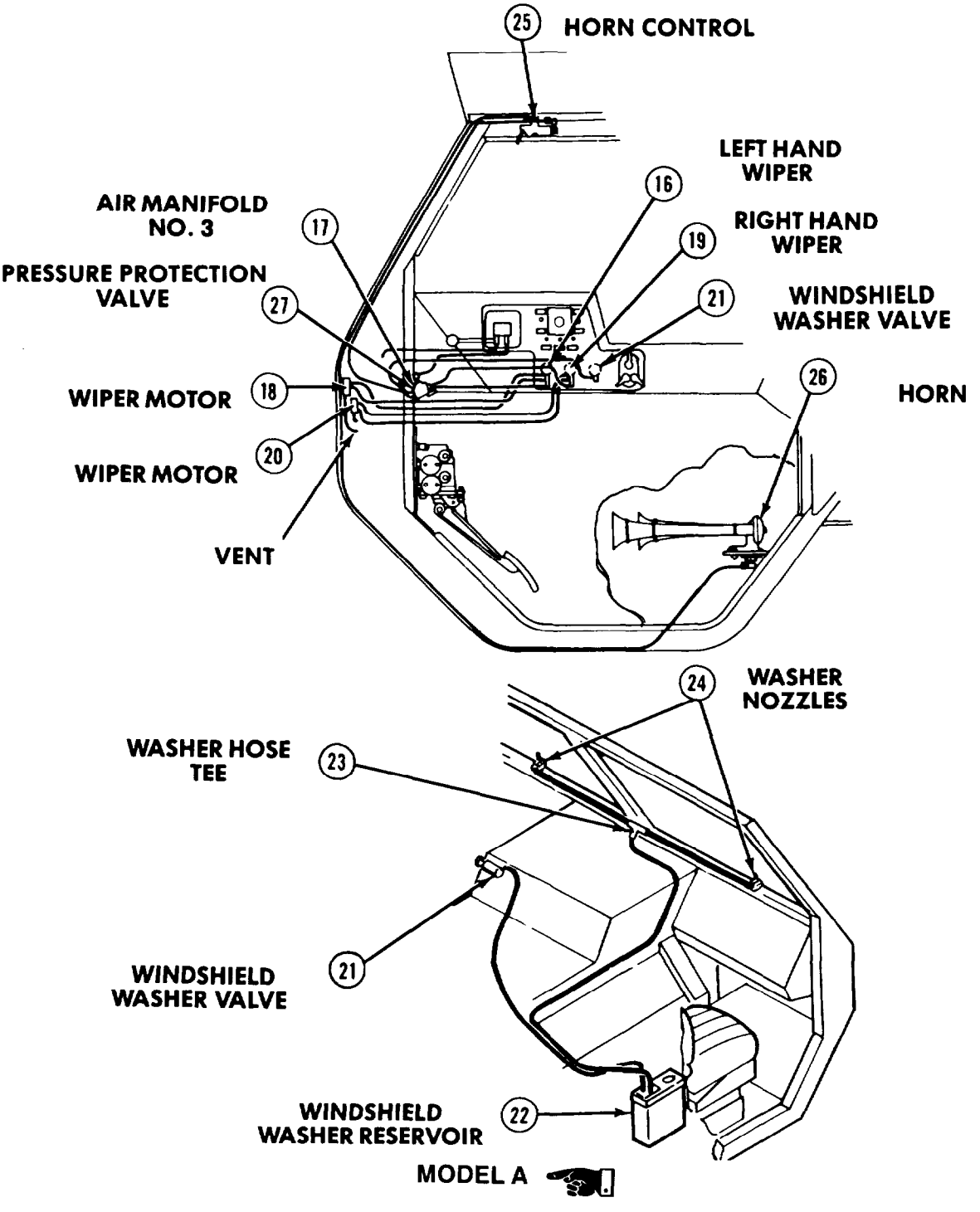


Figure 11-2. Wiper and Air Horn Hoses

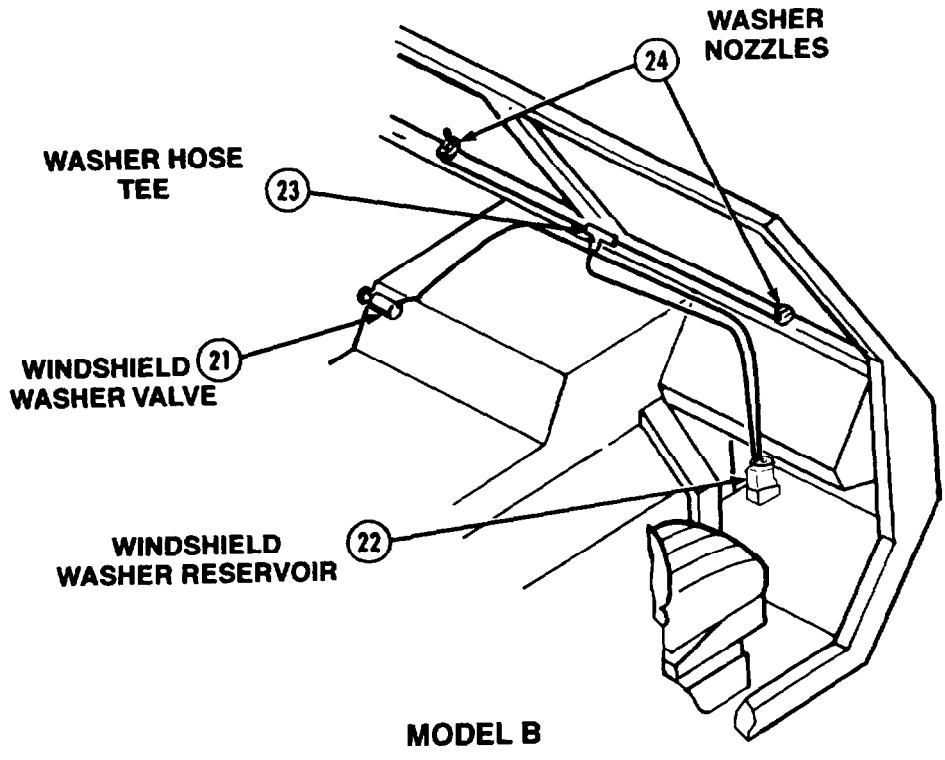


Figure 11-2.1 Wiper Hoses

11-35. AIRHOSES AND FITTINGS REPLACEMENT (CONT).

Table 11-3. Chassis Airhoses

Hose NO.	From	To/From	To
003 Except M984E1	Air Reservoir No. 1 Pressure Protection Valve (3)		Air Reservoir No. 2 Check Valve (28)
003 M984E1 Only	Air Reservoir No. 1 Pressure Protection Valve (60)		Air Governor No. 2 Check Valve (28)
159 M984E1 Only	Air Reservoir No. 1 Safety Valve (60)		Air Governor (1) (Figure 11-1)
184 M984E1 Only	Air Reservoir No. 1 (60)		Air Dryer (2)
415 Except M984E1	Air Reservoir No. 1 (13)	Air Manifold No. 4 (1-1)	Throttle Treadle Valve (15) (Figure 11-5)
415 M984E1 Only	Air Reservoir No. 1 (60)	Air Manifold No. 4 (14)	Throttle Treadle Valve (15) (Figure 11-5)
014	Air Reservoir No. 2 (28)		Service Brake Relay Valve (29) (Sup)
621	Air Reservoir No. 2 (28)		Spring Brake Control Valve (30) (Res)
632 Except M984E1	Air Reservoir No. 2 (28)		Air Reservoir No. 4 (31)
005	Air Reservoir No. 2 (28)	Bulkhead Fitting (32)	Treadle Valve (Sup) (65) (Figure 11-5)
536 Except M984E1	Air Reservoir No. 3 (33)		Service Brake Relay Valve (34) (Sup)
536 M984E1 Only	Air Reservoir No. 3 (61)		Service Brake Relay Valve (34) (Sup)
613 Except M984E1	Air Reservoir No. 3 Check Valve (33)		Air Reservoir No. 1 Pressure Protection Valve (3)
613 M984E1 Only	Air Reservoir No. 3 Check Valve (61)		Air Reservoir No. 1 Pressure Protection Valve (60)
614 Except M984E1	Air Reservoir No. 3 (33)		Air Manifold No. 1 (35)
614 M984E1	Air Reservoir No. 3 (61)		Air Manifold No. 1 (35)
619 Except M984E1	Air Reservoir No. 3 (33)	Bulkhead Fitting (32)	Treadle Valve (65) (Sup) (Figure 11-5)
619 M984E1	Air Reservoir No. 3 (61)	Bulkhead Fitting (32)	Treadle Valve (65) (Sup) (Figure 11-5)
865 Except M984E1	Air Reservoir No. 4 (31)		Tire Inflation Connector (63) L.H.

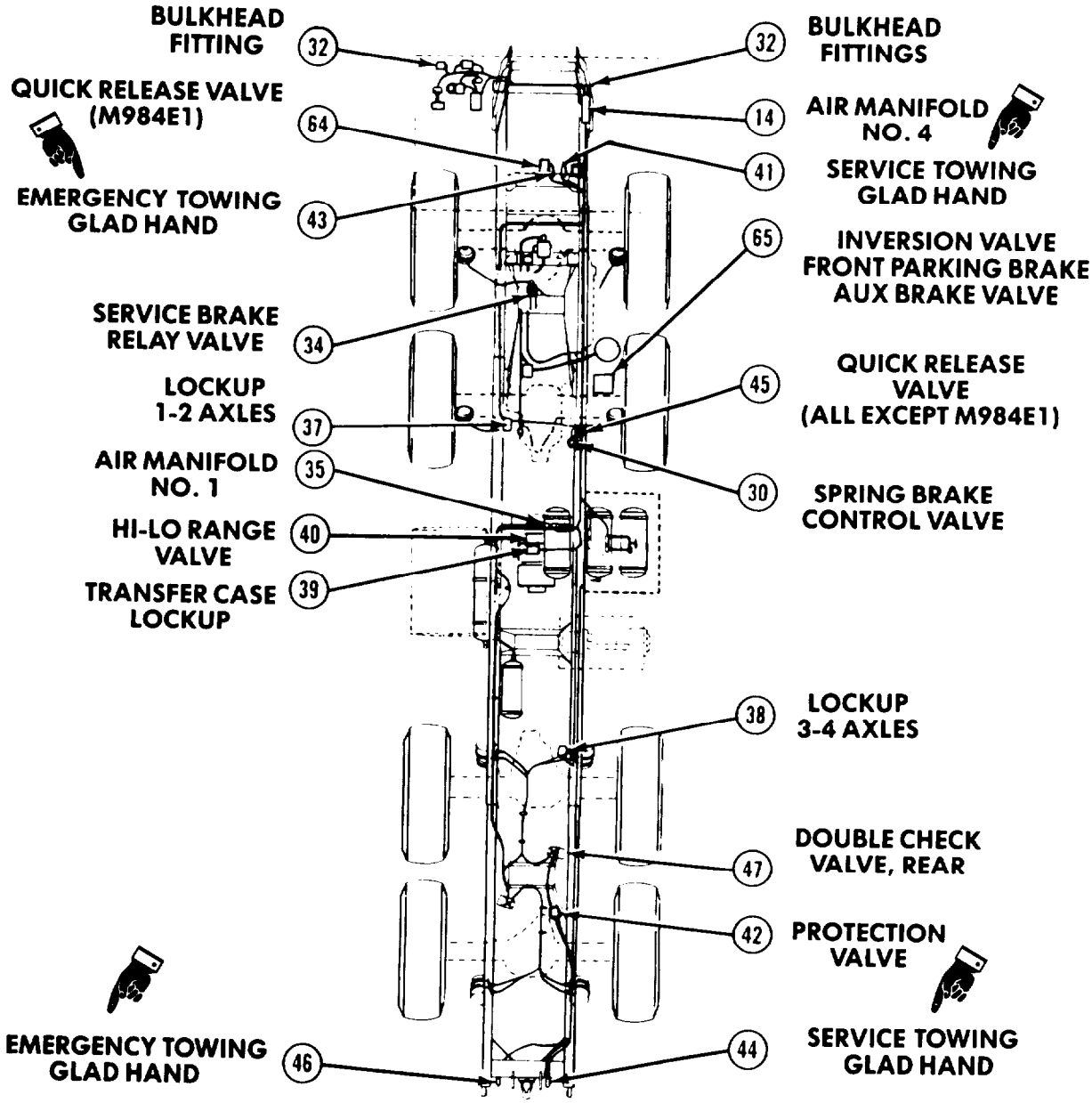


Figure 11-3. Chassis Airhoses

11-35. AIRHOSES AND FITTINGS REPLACEMENT (CONT).

Table 11-3. Chassis Airhoses (Cont)

Hose No	From	To/From	To
865 M984E1	Air Reservoir No. 4(62)		Tire Inflation Connector (63) L.H.
618 Except M9841	Air Reservoir No. 4 (31)		Air Manifold No. 1 (35)
618 M984E1	Air Reservoir No. 4 (62)		Air Manifold No. 1 (35)
632 Except M984E1	Air Reservoir No. 4 (3l)		Air Reservoir No. 2 (28)
632 M984E1	Air Reservoir So. 4 (62)		Air Reservoir No. 2 (28)
069	Driveline Lockup Valve (66) (Figure l l-.5)	Air Manifold No. 4 (14)	Lockup l-2 Axle (37)
069A	Lockup l-2 Axle (37)		Lockup 3-4 Axle (38)
923	Driveline Lockup Valve (66) (Figure 11-5)		Transfer Case Lockup Valve (67) (Figure 1l-5)
923A	Transfer (Case Lockup Valve (67) (Figure 11 -5)	Air Manifold No. 4 (14)	Transfer Case Lockup (39)
706	Transfer (Case Lockup Valve (67) (Figure 11-5)	Air manifold No. 4 (14)	Hi-Lo Range Valve (40)
893	Transfer Case Lockup (39)		Vent
072	Hi-Lo Range Valve (40)	Air Manifold No. 4 (14)	Air Manifold No. 3 (17) (Figure 11-2)
611	Air Manifold No. 1 (35)	Air Manifold No. 4 (14)	Spring Brake Valve (Sup) (62) (Figure 11-5)
620	Air Manifold No. 1 (25)		Spring Brake Relay Valve (55) (Sup) (Figure 11-4)
653	Service Towing Glad Hand (43)		Protection Valve (42) (Sup)
654	Emergency Towing (Glad Hand (41)		Protection Valve (42) (E)
661	Protectron Valve (42)		Double Check Valve Front (58) (Figure 11-4)
894A Except M984E1	Service Glad Hand Tow (46)		Quick Release Valve (45)
895	Emergency Glad Hand Tow (44)		Air Reservoir No. 2 (28)
894 Except M984E1	Quick Release Valve (45)		Double Check Valve, Rear (47)
894 M984E1	Quick Release Valve (64)		Double Check Valve, Front (58) (Figure 11-4)
894A M984E1	Service Towing Glad Hand (46)		Quick Release Valve (64)
789 M984El	Aux Brake Valve (65)		Service Brake Relay Valve (34) (C)
788 M984E1	Aux Brake Valve (65)		Inversion Valve Front Parking Brake Control Box (65)
612A M984E1	Spring Brake Control Valve (30) (Sup)		Inversion Valve Front Parking Brake Control Box (65)
536A M984E1	Front Parking Brake Control Box Inversion Valve (65)		Service Brake Relay Valve (34) (Sup)

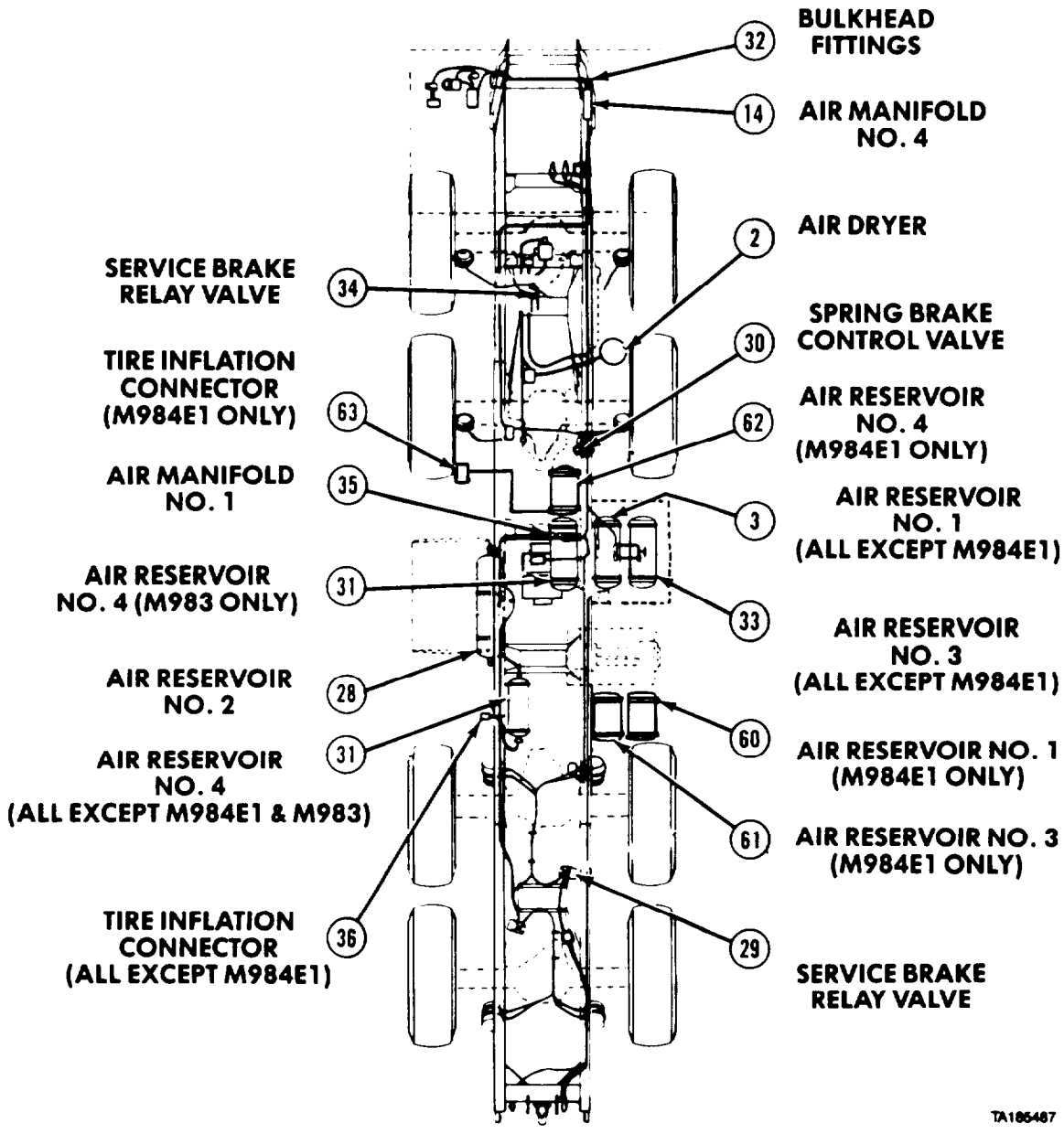


Figure 11-3. Chassis Airhoses (Cont).

11-35. AIRHOSES AND FITTINGS REMOVAL/INSTALLATION (CONT).

Table 11-4. Brake Airhoses

Hose No.	From	To
012	Left Front Brake Chamber (48)	Service Brake Relay Valve (34) (Del)
013	Right Front Brake Chamber (49)	Service Brake Relay Valve (34) (Del)
387	Right Front Int. Brake Chamber (50)	Service Brake Relay Valve (34) (Del)
388	Left Front Int. Brake Chamber (51)	Service Brake Relay Valve (34) (Del)
016	Left Rear Brake Chamber (52)	Service Brake Relay Valve (53) (Del)
081	Left Rear Brake Chamber (52)	Service Brake Relay Valve (55) (Del)
081*	Right Rear Brake Chamber (56)	Service Brake Relay Valve (55) (Del)
015	Left Rear Int. Brake Chamber (54)	Service Brake Relay Valve (53) (Del)
022	Left Rear Int. Brake Chamber (54)	Spring Brake Relay Valve (55) (Del)
022*	Right Rear Int. Brake Chamber (56)	Spring Brake Relay Valve (55) (Del)
018	Right Rear Brake Chamber (56)	Service Brake Relay Valve (53) (Del)
082	Right Rear Brake Chamber (56)	Service Brake Relay Valve (53) (Del)
082*	Left Rear Brake Chamber (52)	Service Brake Relay Valve (53) (Del)
017	Right Rear Int. Brake Chamber (57)	Service Brake Relay Valve (53) (Del)
023	Right Rear Int. Brake Chamber (57)	Service Brake Relay Valve (55) (Del)
023*	Left Rear Int. Brake Chamber (54)	Service Brake Relay Valve (55) (Del)
489A	Double Check Valve, Rear (47)	Service Brake Relay Valve (53) (Pri)
664	Double Check Valve, Front (58)	Spring Brake Control Valve (59) (Con)
660	Spring Brake Relay Valve (55) (Con)	Service Brake Relay Valve (53) (Con)
622	Spring Brake Relay Valve (55) (Con)	Spring Brake Control Valve (59) (Del)
621	Air Reservoir No. 2 (28)	Spring Brake Control Valve (59) (Del)
620	Air Manifold No. 1 (35)	Spring Brake Relay Valve (55) (Sup)
624	Spring Brake Control Valve (59)	Service Brake Relay Valve (53) (Sec)

* For Model B brake chambers.

NOTE

- There are two types of brake chambers: Model A and Model B. Both brake chambers are removed the same way. Refer to TM 9-2320-279-24P for proper part identification if chambers must be repaired or replaced.
- Model A brake chamber has a clamp band that retains the spring brake side of chamber. It also has the release bolt mounted at top of chamber. Model B has a permanently sealed spring brake side of chamber. The release bolt is mounted at middle of chamber.
- Arctic brake chamber is no longer used, and has been replaced with Model B type chamber. Replace all arctic brake chambers with the Model B type chamber if arctic chamber needs repair or replacement. Refer to TM 9-2320-279-24P for parts identification.
- Model A rear brake chamber and arctic brake chamber are removed the same way.

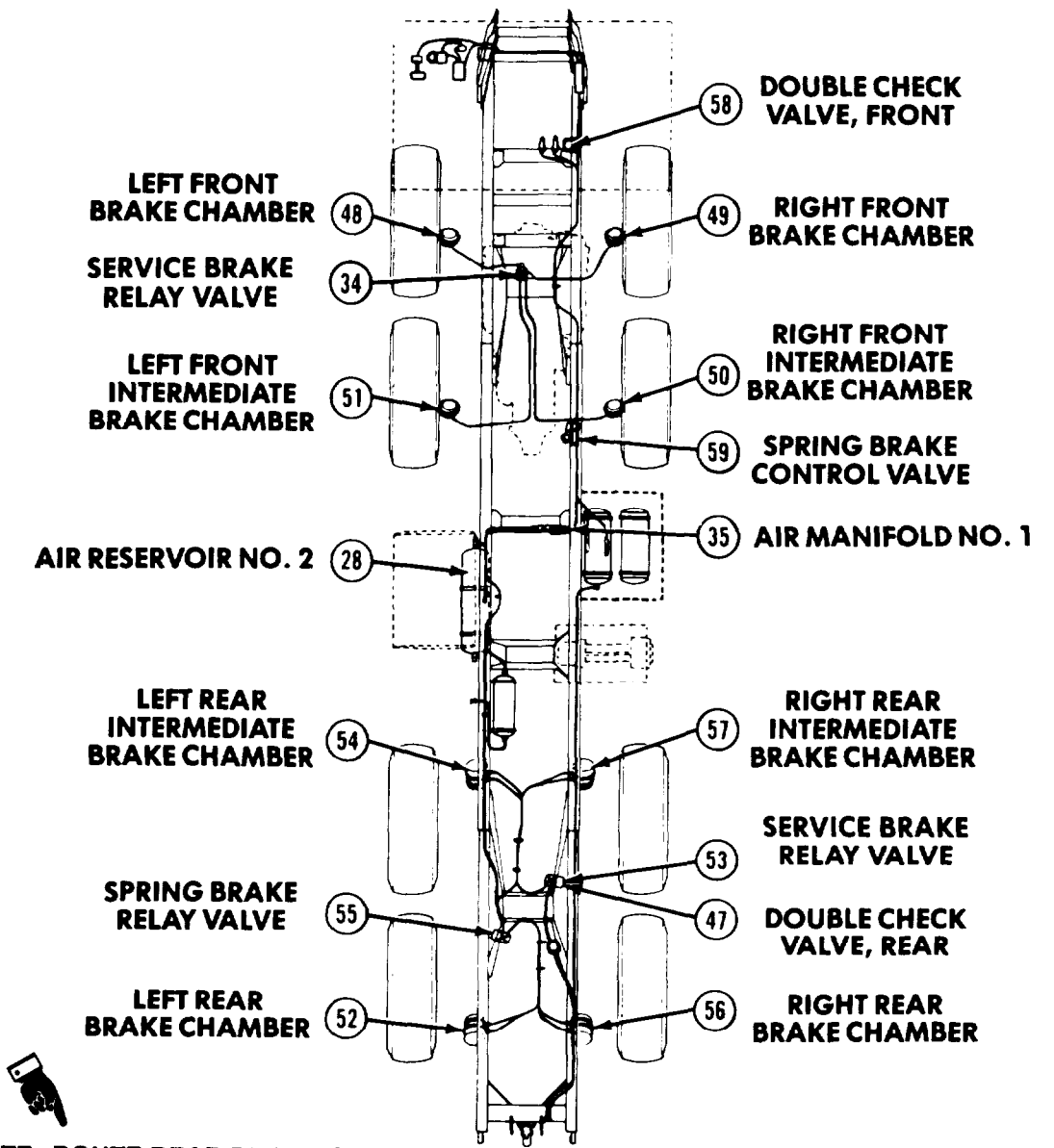


Figure 11-4. Brake Airhoses

11-35. AIRHOSES AND FITTINGS REPLACEMENT (CONT).

Table 11-5. Cab Airhoses

Hose No.	From	To/From	To
027	Trailer Brake Hand Control Valve (60)		Air Manifold No. 2 (61)
029	Trailer Brake Hand Control Valve (60)		Vent
663	Trailer Brake Hand Control Valve (60) (Del)	Air Manifold No. 4 (14)	Double Check Valve, Front (58) (fig. 114-4)
05-1	Spring Brake Valve (Sup) (62)		Trailer Air Supply Valve (Sup) (63)
661	Trailer Brake Valve (Con) (63)		Spring Brake Valve (Del) (62)
611	Spring Brake Valve (Sup) (62)	Air Manifold No. 1 (14)	Air Manifold No. 1 (35) (fig. 11-3)
612	Spring Brake Valve (Del) (62)	Air Manifold No. 4 (14)	Spring Brake Control Valve (Sup) (63)
662	Trailer Brake Valve (Del) (63)	Air Manifold No. 4 (14)	Tractor Protection Valve (42) (fig. 11-3)
041	Air Pressure Gage (64)		Air Manifold No. 2 (61)
610	Air Pressure Gage (64)		Brake Treadle Valve (65) (SUP)
069	Driveline Lockup Valve (66)	Air Manifold No. 4 (12)	Axle 1-2 Lockup Chamber (37) (fig. 11-3)
071	Driveline Lockup Valve (66)		Air Manifold No. 3 (17) (Figure 11-2)
923	Driveline Lockup Valve (66)	Bulkhead Fitting (32)	Transfer Case Lockup Valve (67)
923A	Transfer Case Lockup Valve (67)	Bulkhead Fitting (32)	Transfer Case Lockup (39) (Table 11-3)
415	Throttle Treadle Valve (15)	Air Manifold No. 4 (14)	Air Reservoir No. 1 (3) (fig. 11-1)
416	Throttle Treadle Valve (15) (SUP)	Air Manifold No. 4 (14)	Throttle Cylinder (10) (fig. 11-1)
005	Brake Treadle Valve (65) (Sup)	Bulkhead Fitting (32)	Air Reservoir No. 2 (28)
006	Brake Treadle Valve (65) (Sup)		Air Manifold No. 2 (61)
488	Brake Treadle Valve (65) (Del)		Front Brake Relay Valve (34) (Con)
489	Brake Treadle Valve (65) (Del)		Double Check Valve, Rear (47)
610	Brake Treadle Valve (65) (Sup)		Air Pressure Gage (64)
619	Brake Treadle Valve (65) (Sup)	Bulkhead Fitting (32)	Air Reservoir No. 3 (33) (fig. 11-3)
623	Brake Treadle Valve (65) (Del)	Air Manifold No. 4 (14)	Spring Brake Control Valve (59) (Con)
665	Brake Treadle Valve (65) (Del)	Bulkhead Fitting (32)	Double Check Valve, Front (58) (fig. 11-4)

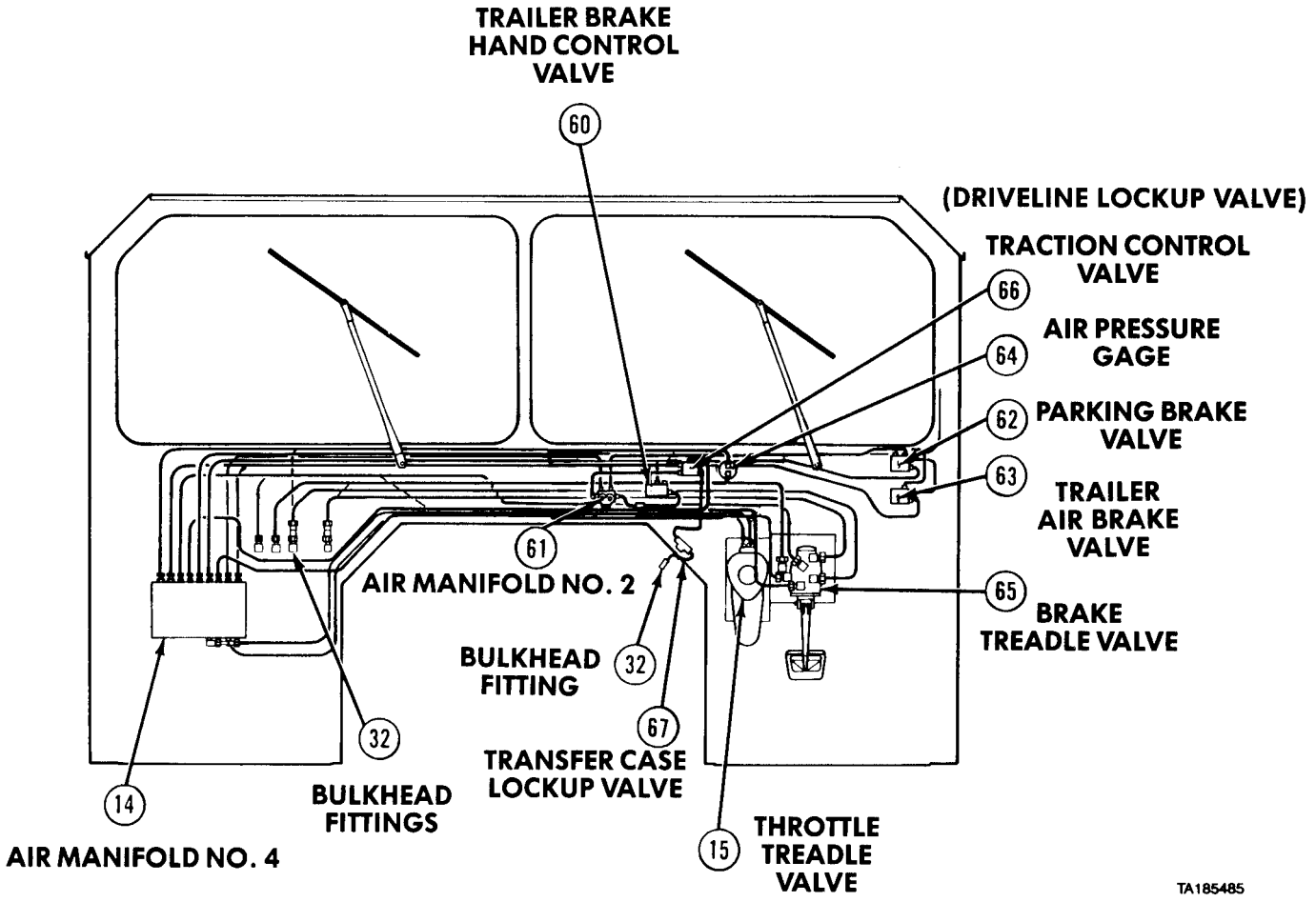


Figure 11-5. Cab Airhoses.

11-35. AIRHOSES AND FITTINGS REPLACEMENT (CONT).

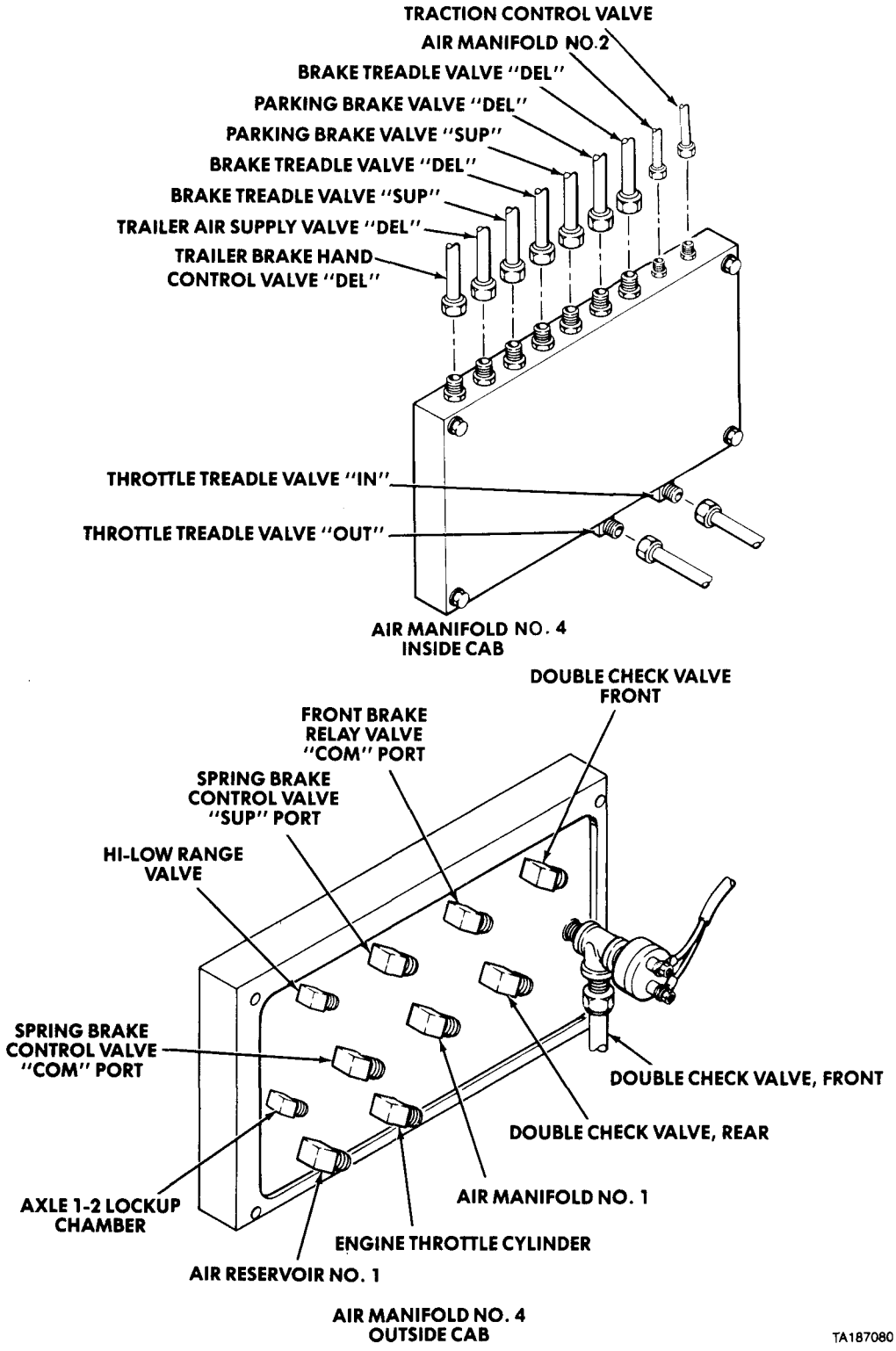


Figure 11-6. Air Manifold No. 4.

Brake and Air System Maintenance Instructions (Cont)

d. Follow-on Maintenance.

NOTE

Do the following procedures as required.

(1) Install engine cover (para 16-9).

(2) Install engine side panels (TM 9-2320-279-10).

(3) Install defroster hoses (para 18–26).

(4) Install brake treadle valve (para 11-12).

(5) Install throttle treadle valve (para 4-14).

(6) Install instrument panel (para 7-19).

(7) Start engine (TM 9-2320-279-10).

(8) Build up air pressure (TM 9-2320-279-10).

(9) Check airhoses for leaks.

(10) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS).

This task covers:

a. Type 1 Airhose Fittings Replacement
b. Type 2 Airhose Fittings Replacement
c. Airhose Replacement
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Tags, identification. Item 48, Appendix C
Ties, cable, plastic. Item 52, Appendix C

Personnel Required
MOS 63S Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
TM 9-2320-279-10	Engine side panels removed, if necessary.
Para 16-9	Engine cover removed, if necessary.
Para 18-26	Defroster hoses removed, if necessary.
Para 11-12	Brake treadle valve removed. if necessary.
Para 7-19	Instrument panel removed, if necessary.

Special Environmental Conditions
None

General Safety Instructions
None

a. Type 1 Airhose Fittings Replacement.

NOTE

Tube may stay with adapter or come off with line.

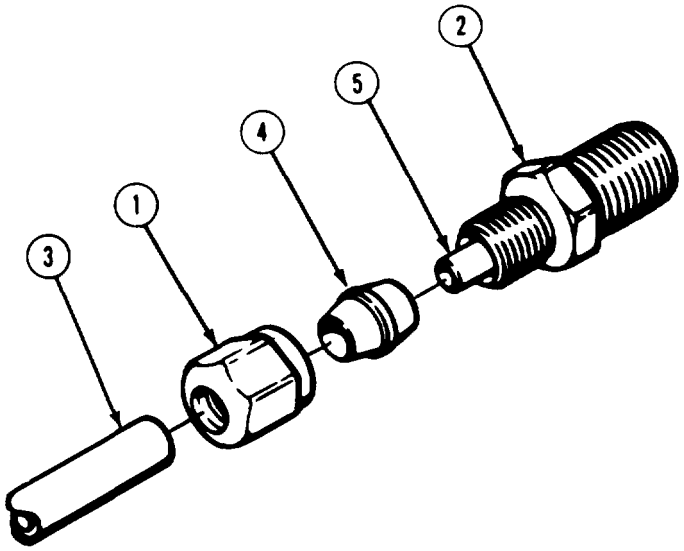
(1) Remove nut (1) from adapter (2). Pull line (3) from adapter.

(2) Cut about 3/4 in. (19 mm) off end of line (3). Remove nut (1) from line.

(3) Put nut (1) on line (3). Put new bushing (4) on line.

(4) Push line (3) over tube (5) in adapter (2) and all the way in adapter.

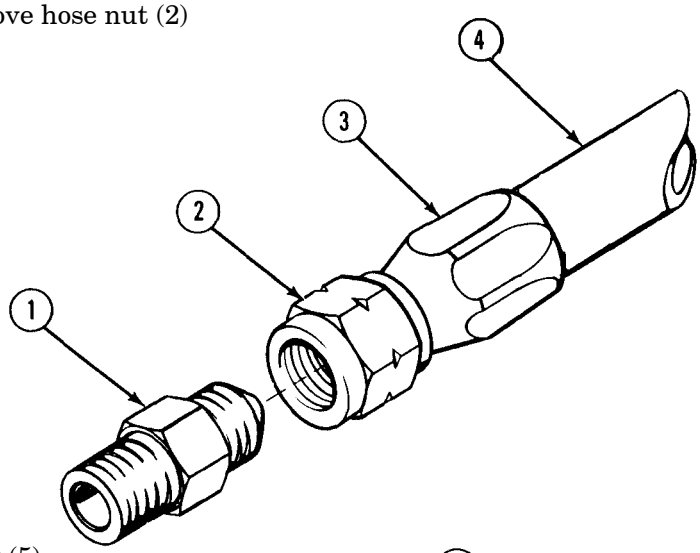
(5) Install bushing (4) and nut (1) on adapter (2).



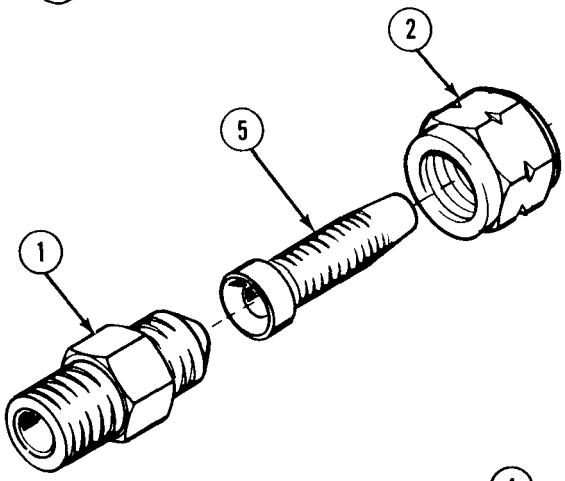
b. Type 2 Airhose Fittings Replacement.

(1) Install fitting (1) in hose nut (2). Jam fitting tightly against hose nut. Remove hose nut (2) from nut (3).

(2) Remove nut (3) from hose (4).



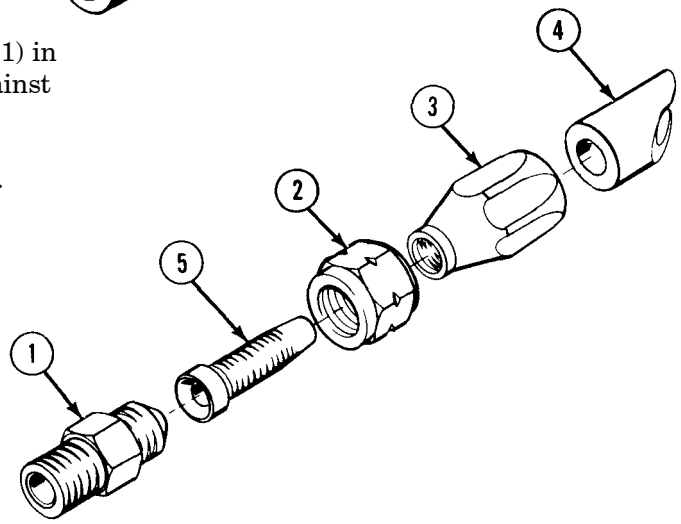
(3) Remove fitting (1) and bushing (5) from nut (2).



(4) Install nut (3) on hose (4).

(5) Install bushing (5) and fitting (1) in nut (2). Jam fitting tightly against nut.

(6) Install bushing (5) in hose (4). Remove fitting (1) from nut (2).



11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS) (CONT).

c. Airhose Replacement.

NOTE

- This section consists of Hose Indexes, Tables 11-6 through 11-10, and diagrams to help locate ends of all airhoses on the M977 series vehicles (figs. 11-1 through 11-6). Hose numbers on Tables 11-1 through 11-5 are from AIR SCHEMATIC, FO-2 located at end of manual.
- Tag and mark airhoses before removal.
- Remove cable ties as required.
- When replacing airhoses or tubing, remove hose or tubing from vehicle, remove fittings, cut new hose or tubing 1/4 to 1/2 in. (6 to 13 mm) longer than hose or tubing being replaced, then install fittings.

Table 11-7. Engine Hose Index

Hose No.	From	To/From	To
001	Air Governor (1)		Air Dryer (2)
126	Air Governor (1)		Air Dryer (Bottom) (2)
159	Air Governor (1)		Air Reservoir No.1 (Safety Valve) (3)
184	Air Reservoir No. 1 (3)		Air Dryer (2)
600	Air Compressor (4)		Air Intake Manifold (5)
758	Air Governor (1)		Thermostat (6)
759	Thermostat (Valve) (6)		Fan Clutch (7)

Brake and Air System Maintenance Instructions (Cont)

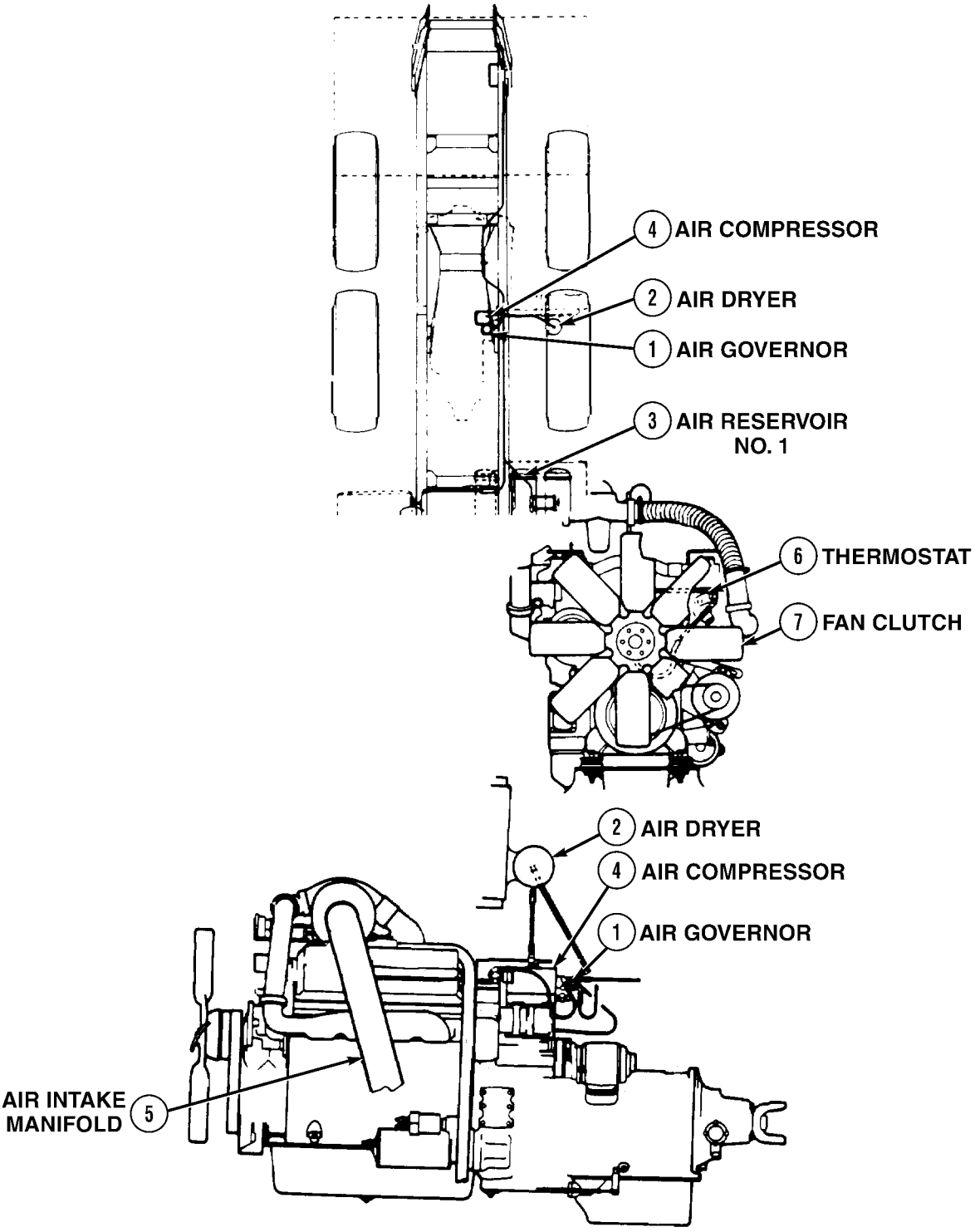


Figure 11-7. Engine Airhoses

11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS) (CONT).

Table 11-7. Electric Windshield Wiper, Air-ride Seat, and Air Horn Hoses Table

Hose No.	From	To/From	To
074	Windshield Washer Solenoid Valve (8)		Air Manifold No. 3 (9)
074	Windshield Washer Solenoid Valve (8)		Windshield Washer Reservoir (10)
	Windshield Washer Reservoir (10)		Washer Hose Tee (11) (Fluid hose not part of Air Schematic.)
	Washer Hose Tee (11)		R.H. and L.H. Washer Nozzles (12) (Fluid hose not part of Air Schematic.)
038	Horn Control (13)		Air Manifold No. 3 (9)
039	Horn Control (13)		Horn (14)
073	Pressure Protection Valve (15)		Air Manifold No. 3 (9)
	Air-Ride Seat (16)		Air Manifold No. 3 (9)

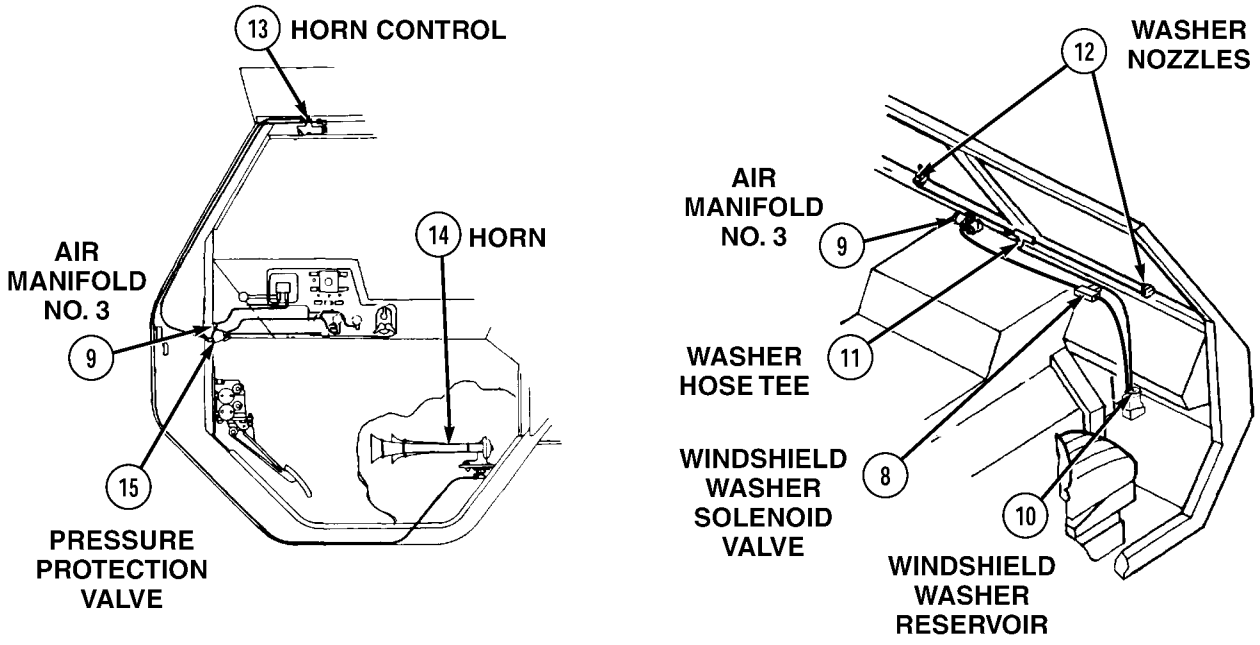


Figure 11-8. Electric Windshield Wiper and Air Horn Hoses

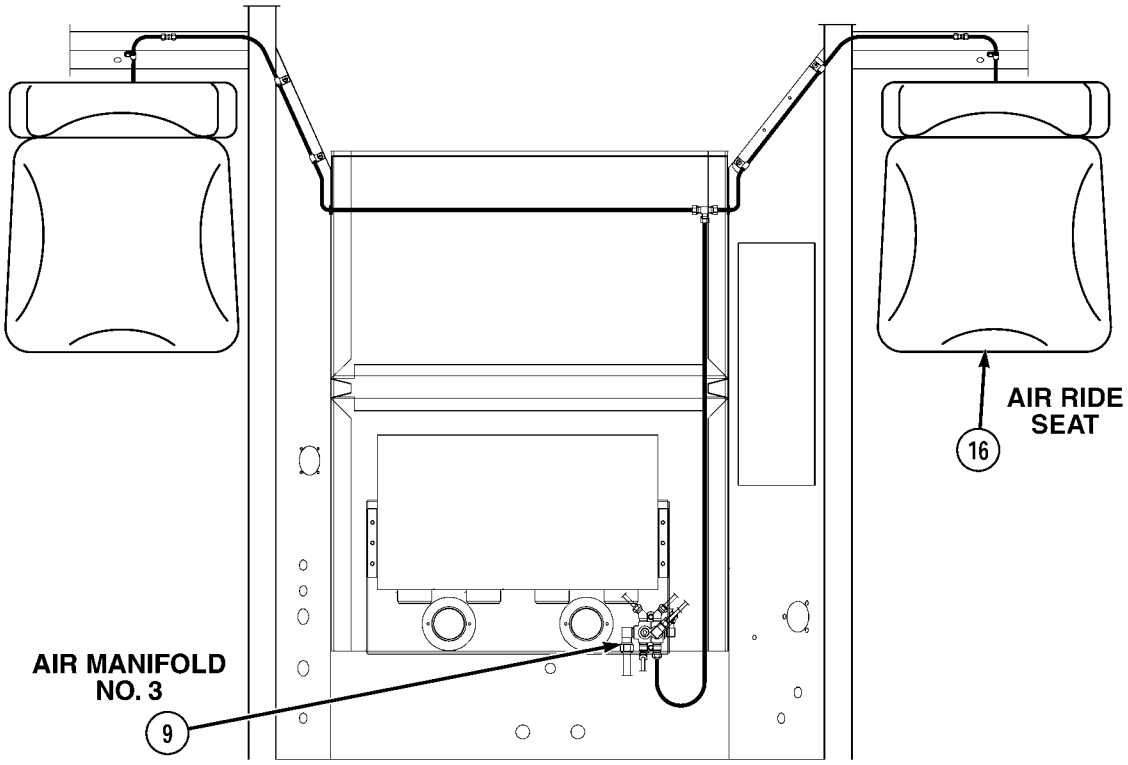


Figure 11-9. Air-ride Seat Hoses

11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS) (CONT).

Table 11-8. Chassis Airhoses

Hose No.	From	To/From	To
003 Except M984A1	Air Reservoir No. 1 (Pressure Protection Valve) (17)		Air Reservoir No. 2 (Check Valve) (18)
003 M984A1 Only	Air Reservoir No. 1 (Pressure Protection Valve) (19)		Air Reservoir No. 2 (Check Valve) (18)
159 M984A1 Only	Air Reservoir No. 1 (Safety Valve) (19)		Air Governor (1) (Figure 11-7)
184 M984A1 Only	Air Reservoir No. 1 (19)		Air Dryer (2) (Figure 11-7)
014	Air Reservoir No. 2 (18)		Service Brake Relay Valve (Sup) (20)
621	Air Reservoir No. 2 (18)		Spring Brake Control Valve (Res) (21)
632 Except M984A1	Air Reservoir No. 2 (18)		Air Reservoir No. 4 (22)
005 536 Except M984A1	Air Reservoir No. 2 (18) Air Reservoir No. 3 (25)	Bulkhead Fitting (23)	Brake Treadle Valve (Sup) (24) (figure 11-12) Service Brake Relay Valve (Sup) (26)
536 M984A1 Only	Air Reservoir No. 3 (27)		Service Brake Relay Valve (Sup) (26)
613 Except M984A1	Air Reservoir No. 3 (Check Valve) (25)		Air Reservoir No. 1 (Pressure Protection Valve) (17)
613 M984A1 Only	Air Reservoir No. 3 (Check Valve) (27)		Air Reservoir No. 1 (Pressure Protection Valve) (19)
614 Except M984A1	Air Reservoir No. 3 (25)		Air Manifold No. 1 (28)
614 Except M984A1	Air Reservoir No. 3 (27)		Air Manifold No. 1 (28)
619 Except M984A1	Air Reservoir No. 3 (25)	Bulkhead Fitting (23)	Brake Treadle Valve (Sup) (24)
619 Except M984A1	Air Reservoir No. 3 (27)	Bulkhead Fitting (23)	Brake Treadle Valve (Sup) (24)
865 Except M984A1	Air Reservoir No. 4 (29)		Tire Inflation Connector (L.H.) (30)

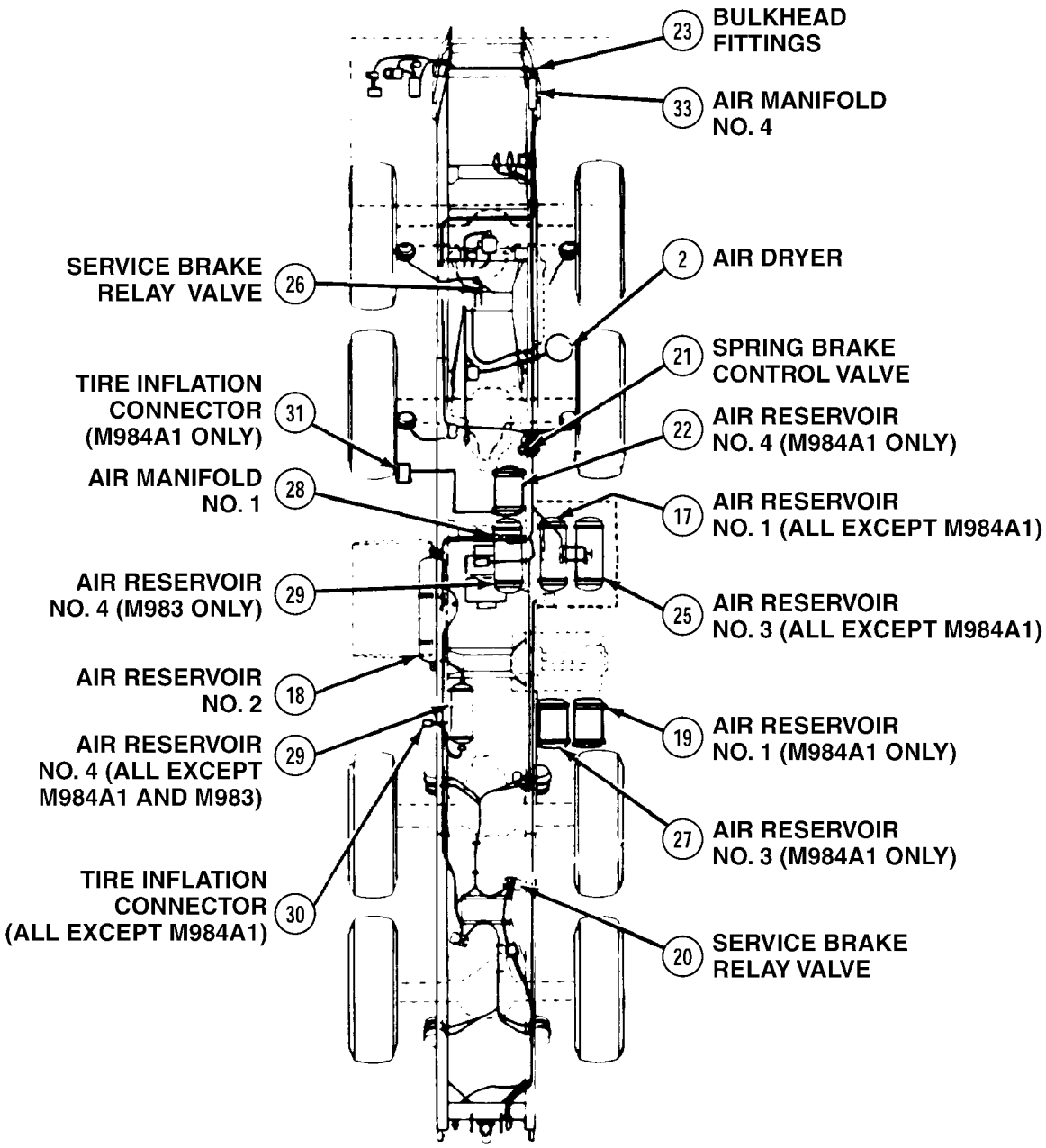


Figure 11-10. Chassis Airhoses

11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS) (CONT).

Table 11-8. Chassis Airhoses (Cont)

Hose No.	From	To/From	To
865 M984A1	Air Reservoir No. 4 (22)		Tire Inflation Connector (L.H.) (31)
618 Except M984A1	Air Reservoir No. 4 (29)		Air Manifold No. 1 (28)
618 M984A1	Air Reservoir No. 4 (22)		Air Manifold No. 1 (28)
632 Except M984A1	Air Reservoir No. 4 (29)		Air Reservoir No. 2 (18)
632 M984A1	Air Reservoir No. 4 (22)		Air Reservoir No. 2 (18)
069	Driveline Lockup Valve (32) (Figure 11-12)	Air Manifold No. 4 (33)	Lockup 1-2 Axles (34)
069A	Lockup 1-2 Axles (34)		Lockup 3-4 Axles (35)
923	Driveline Lockup Valve (32) (Figure 11-12)		Transfer Case Lockup Valve (36) (Figure 11-12)
923A	Transfer Case Lockup Valve (36) (Figure 11-12)	Air Manifold No. 4 (33)	Transfer Case Lockup (37)
706	Transfer Case Lockup Valve (36) (Figure 11-12)	Air Manifold No. 4 (33)	Hi-Lo Range Valve (38)
893	Transfer Case Lockup (37)		Vent
072	Hi-Lo Range Valve (38)	Air Manifold No. 4 (33)	Air Manifold No. 3 (9) (Figure 11-8)
611	Air Manifold No. 1 (28)	Air Manifold No. 4 (33)	Parking Brake Valve (Sup) (39) (Figure 11-12)
620	Air Manifold No. 1 (28)		Spring Brake Relay Valve (Sup) (40) (Figure 11-11)
653	Service Towing Glad Hand (41)		Protection Valve (Sup) (42)
654	Emergency Towing Glad Hand (43)		Protection Valve (E) (42)
661	Protection Valve (42)		Double Check Valve Front (44) (Figure 11-11)
894 Except M984A1	Quick Release Valve (45)		Double Check Valve, Rear (46)
894 M984A1	Quick Release Valve (47)		Double Check Valve, Front (44) (Figure 11-11)
894A M984A1	Service Towing Glad Hand (48)		Quick Release Valve (47)
789 M984A1	Aux Brake Valve (49)		Service Brake Relay Valve (C) (26)
788 M984A1	Aux Brake Valve (49)		Inversion Valve Front Brake Control Box (49)
612A M984A1	Spring Brake Control Valve (Sup) (21)		Inversion Valve Front Brake Control Box (49)
536A M984A1	Inversion Valve Front Brake Control Box (49)		Service Brake Relay Valve (Sup) (26)

Brake and Air System Maintenance Instructions (Cont)

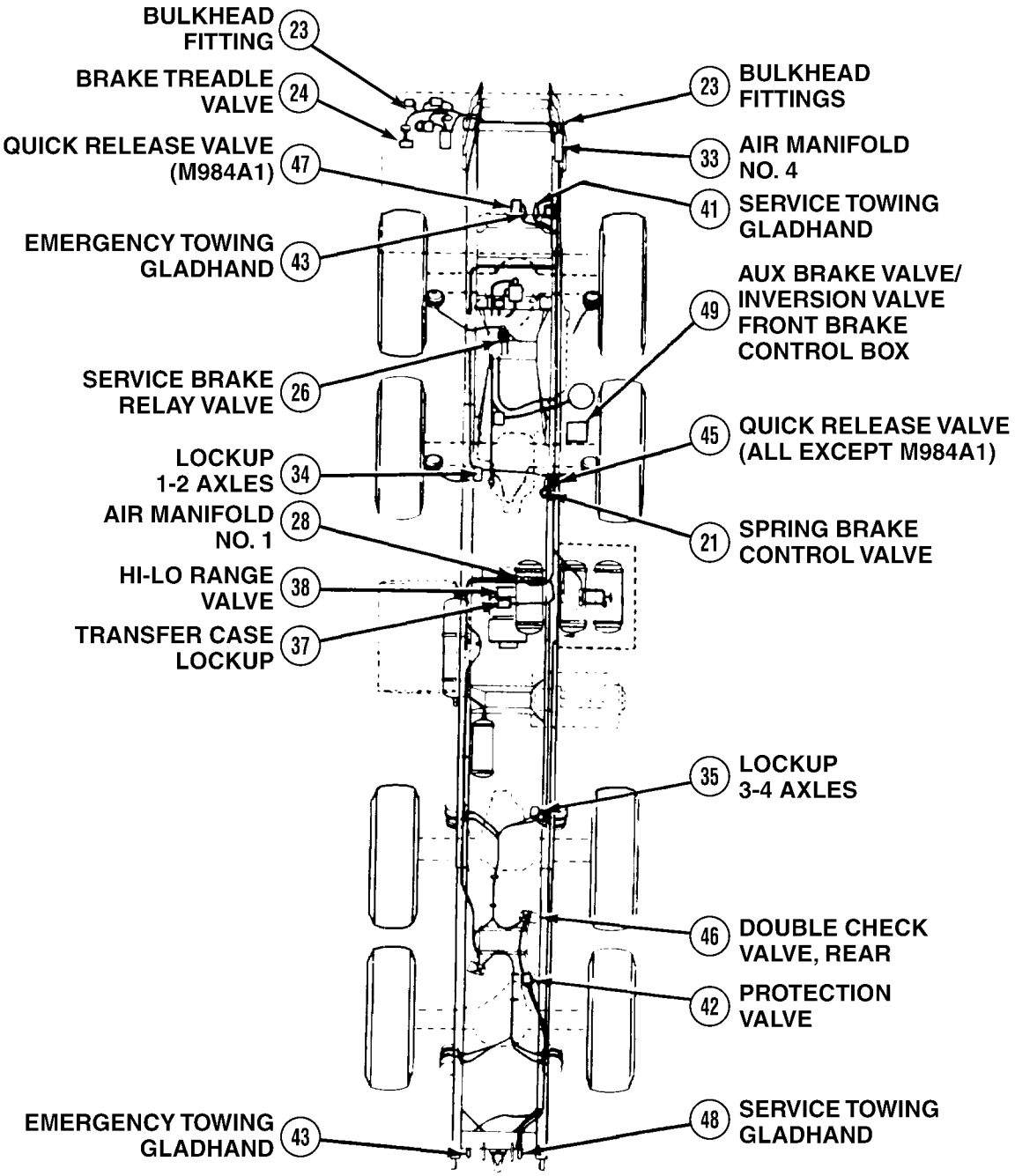


Figure 11-10. Chassis Airhoses (Cont).

11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS) (CONT).

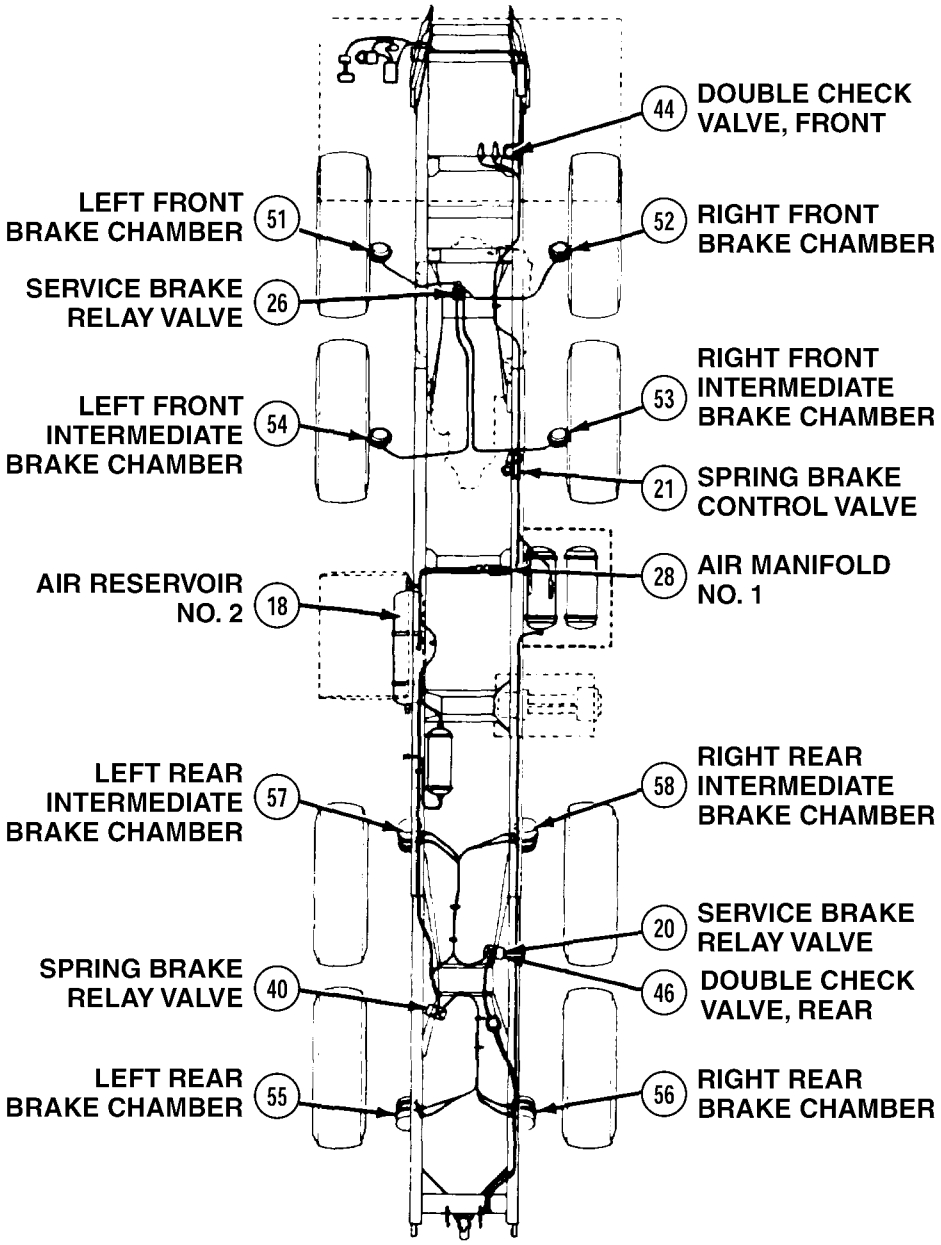
Table 11-9. Brake Airhoses

Hose No.	From	To
012	Left Front Brake Chamber (51)	Service Brake Relay Valve (Del) (26)
013	Right Front Brake Chamber (52)	Service Brake Relay Valve (Del) (26)
387	Right Front Int. Brake Chamber (53)	Service Brake Relay Valve (Del) (26)
388	Left Front Int. Brake Chamber (54)	Service Brake Relay Valve (Del) (26)
016	Left Rear Brake Chamber (55)	Service Brake Relay Valve (Del) (20)
081	Left Rear Brake Chamber (55)	Spring Brake Relay Valve (Del) (40)
081*	Right Rear Brake Chamber (56)	Spring Brake Relay Valve (Del) (40)
015	Left Rear Int. Brake Chamber (57)	Service Brake Relay Valve (Del) (20)
022	Left Rear Int. Brake Chamber (57)	Spring Brake Relay Valve (Del) (40)
022*	Right Rear Int. Brake Chamber (58)	Spring Brake Relay Valve (Del) (40)
018	Right Rear Brake Chamber (56)	Service Brake Relay Valve (Del) (20)
082	Right Rear Brake Chamber (56)	Service Brake Relay Valve (Del) (20)
082*	Left Rear Brake Chamber (55)	Service Brake Relay Valve (Del) (20)
017	Right Rear Int. Brake Chamber (58)	Service Brake Relay Valve (Del) (20)
023	Left Rear Int. Brake Chamber (57)	Spring Brake Relay Valve (Del) (40)
023*	Right Rear Int. Brake Chamber (58)	Spring Brake Relay Valve (Del) (40)
489A	Double Check Valve, Rear (46)	Service Brake Relay Valve (Con) (20)
664	Double Check Valve, Front (44)	Spring Brake Control Valve (Con) (21)
660	Spring Brake Relay Valve (Con) (40)	Service Brake Relay Valve (Con) (20)
622	Spring Brake Relay Valve (Con) (40)	Spring Brake Control Valve (Del) (21)
621	Air Reservoir No. 2 (18)	Spring Brake Control Valve (Res) (21)
620	Air Manifold No. 1 (28)	Spring Brake Relay Valve (Sup) (40)

* For Model B brake chambers.

NOTE

- There are two types of brake chambers: Model A and Model B. Both brake chambers are removed the same way. Refer to TM 9-2320-279-24P for proper part identification if chambers must be repaired or replaced.
- Model A brake chamber has a clamp band that retains the spring brake side of chamber. It also has the release bolt mounted at top of chamber. Model B has a permanently sealed spring brake side of chamber. The release bolt is mounted at middle of chamber.
- Arctic brake chamber is no longer used, and has been replaced with Model B type chamber. Replace all arctic brake chambers with the Model B type chamber if arctic chamber needs repair or replacement. Refer to TM 9-2320-279-24P for parts identification.
- Model A rear brake chamber and arctic brake chamber are removed the same way.



NOTE: ROUTE REAR BRAKE CHAMBER AIRHOSES AS CLOSE AS POSSIBLE TO REAR DIFFERENTIAL CARRIER AND TORQUE ROD BRACKET

Figure 11-11. Brake Airhoses

11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS) (CONT).

Table 11-10. Cab Airhoses

Hose No.	From	To/From	To
027	Trailer Brake Hand Control Valve (59)		Air Manifold No. 2 (60)
029	Trailer Brake Hand Control Valve (59)		Vent
663	Trailer Brake Hand Control Valve (Del) (59)	Air Manifold No. 4 (33)	Double Check Valve, Front (44) (Figure 11-11)
054	Parking Brake Valve (Sup) (39)		Trailer Air Brake Supply Valve (Sup) (61)
661	Trailer Air Brake Valve (Con) (61)		Parking Brake Valve (Del) (39)
611	Parking Brake Valve (Sup) (39)	Air Manifold No. 4 (33)	Air Manifold No. 1 (28) (Figure 11-10)
612	Parking Brake Valve (Del) (39)	Air Manifold No. 4 (33)	Spring Brake Control Valve (Sup) (21)
662	Trailer Air Brake Valve (Del) (61)	Air Manifold No. 4 (33)	Protection Valve (42) (Figure 11-10)
041	Air Pressure Gage (62)		Air Manifold No. 2 (60)
610	Air Pressure Gage (62)		Brake Treadle Valve (Sup) (24)
069	Driveline Lockup Valve (32)	Air Manifold No. 4 (33)	Air Manifold No. 3 (9)
923	Driveline Lockup Valve (32)	Bulkhead Fitting (23)	Transfer Case Lockup Valve (36)
923A	Transfer Case Lockup Valve (36)	Bulkhead Fitting (23)	Transfer Case Lockup (37) (Figure 11-10)
005	Brake Treadle Valve (Sup) (24)	Bulkhead Fitting (23)	Air Reservoir No. 2 (18)
006	Brake Treadle Valve (Sup) (24)		Air Manifold No. 2 (60)
488	Brake Treadle Valve (Del) (24)		Service Brake Relay Valve (Con) (26)
489	Brake Treadle Valve (Del) (24)		Double Check Valve, Rear (46)
610	Brake Treadle Valve (Sup) (24)		Air Pressure Gage (62)
619	Brake Treadle Valve (Sup) (24)	Bulkhead Fitting (23)	Air Reservoir No. 3 (25) (Figure 11-10)
623	Brake Treadle Valve (Del) (24)	Air Manifold No. 4 (33)	Spring Brake Control Valve (Con) (21)
665	Brake Treadle Valve (Del) (24)	Bulkhead Fitting (23)	Double Check Valve, Front (44) (Figure 11-11)

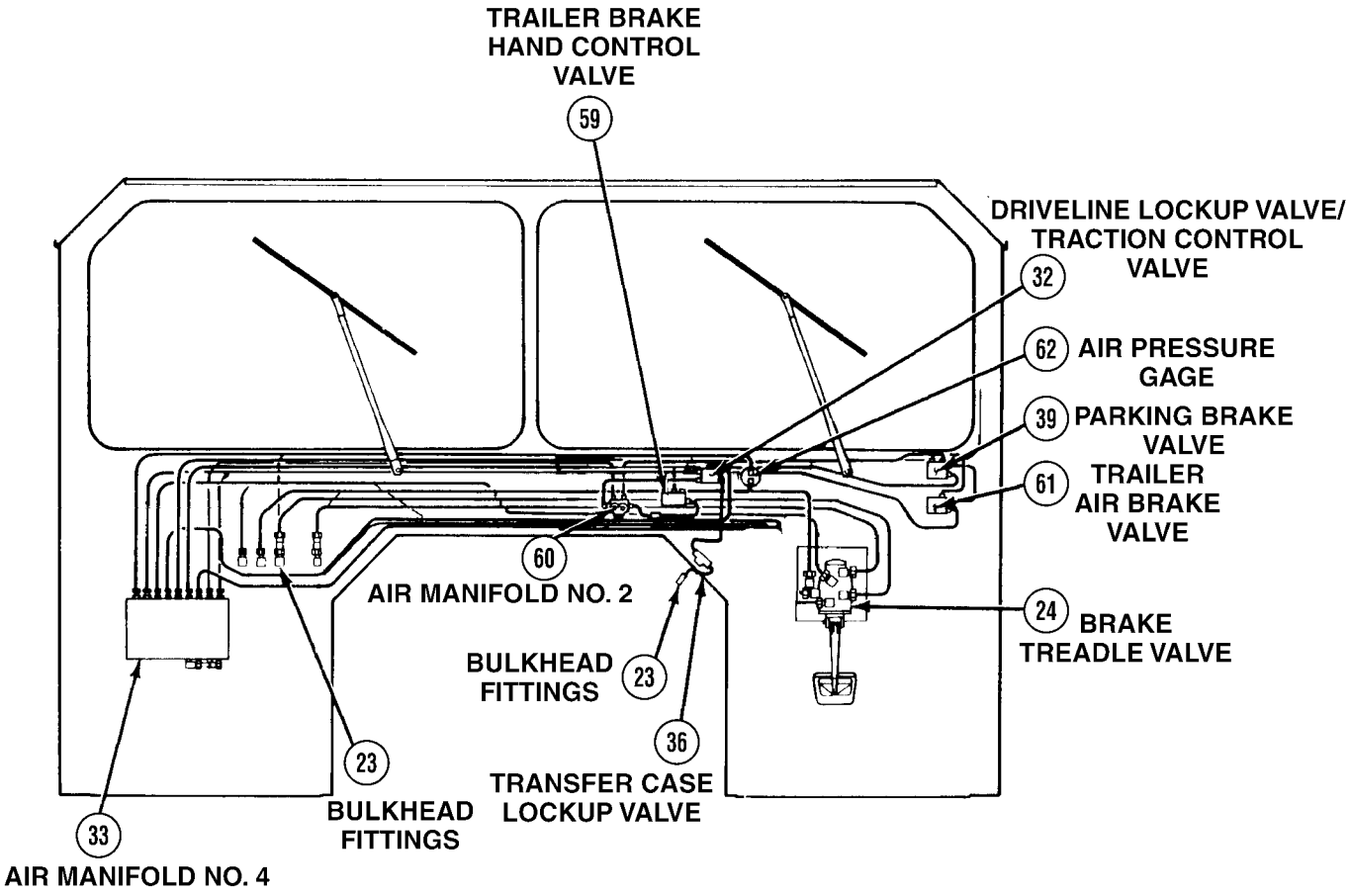


Figure 11-12. Cab Airhoses

11-35.1. AIRHOSES AND FITTINGS REPLACEMENT (VEHICLES WITH DDEC IV ENGINE, ELECTRIC WINDSHIELD WIPERS, AND AIR-RIDE SEATS) (CONT).

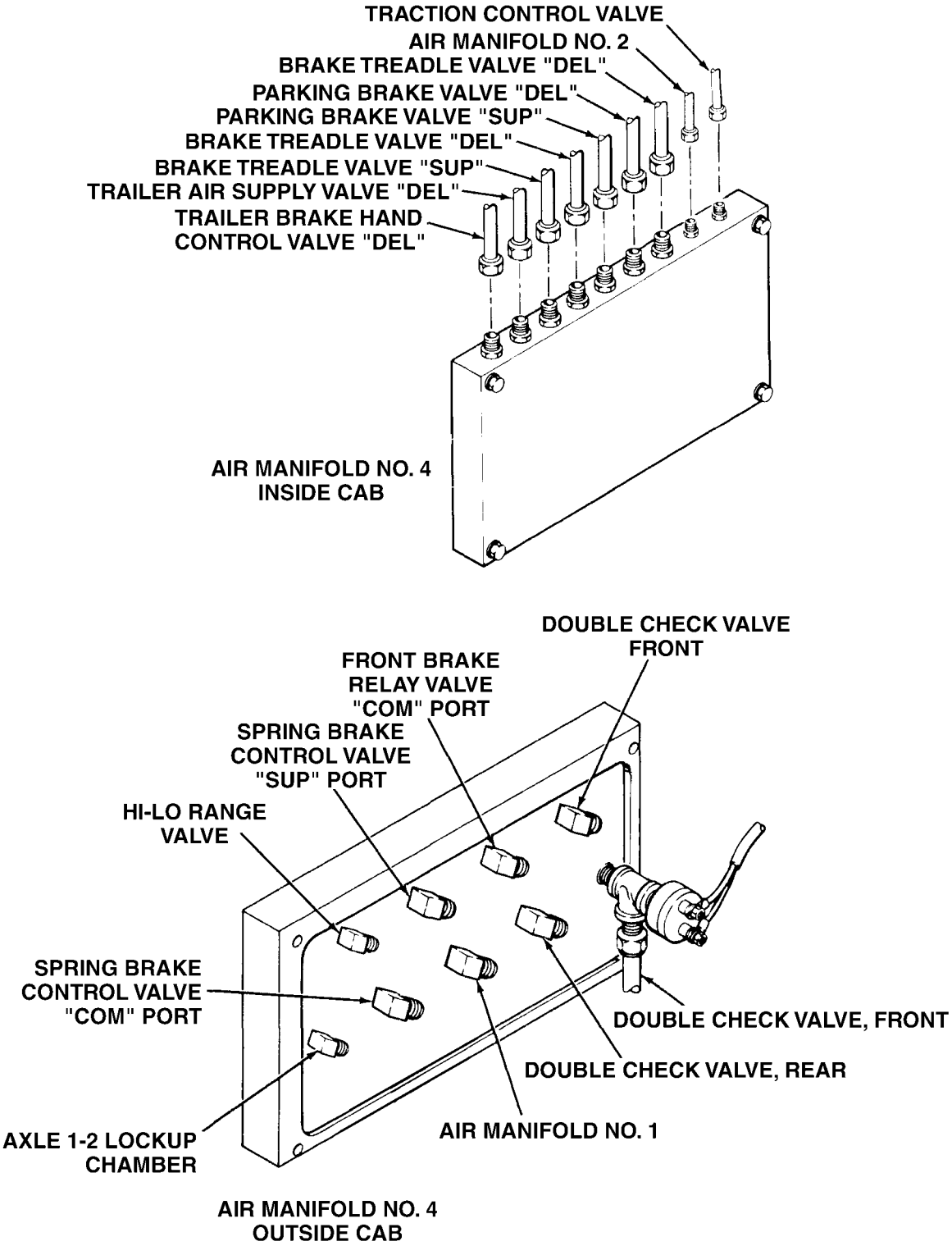


Figure 11-13. Air Manifold No. 4.

d. Follow-on Maintenance.

NOTE

Do the following procedures as required.

(1) Install engine cover (para 16-9).

(2) Install engine side panels (TM 9-2320-279-10).

(3) Install defroster hoses (para 18–26).

(4) Install brake treadle valve (para 11-12).

(5) Install instrument panel (para 7-19).

(6) Start engine (TM 9-2320-279-10).

(7) Build up air pressure (TM 9-2320-279-10).

(8) Check airhoses for leaks.

(9) Shut off engine (TM 9-2320-279-10).

END OF TASK

Section VIII. AIR GOVERNOR AND COMPRESSOR

11-36. AIR GOVERNOR TESTING/ADJUSTMENT.

This task covers:

a. Testing
b. Adjustment
c. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

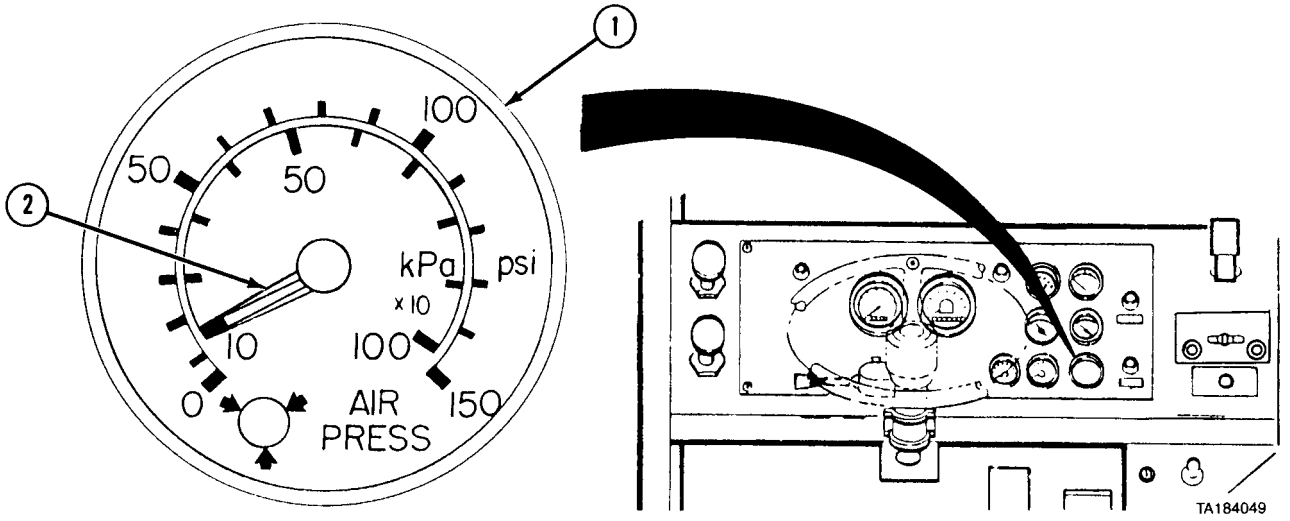
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

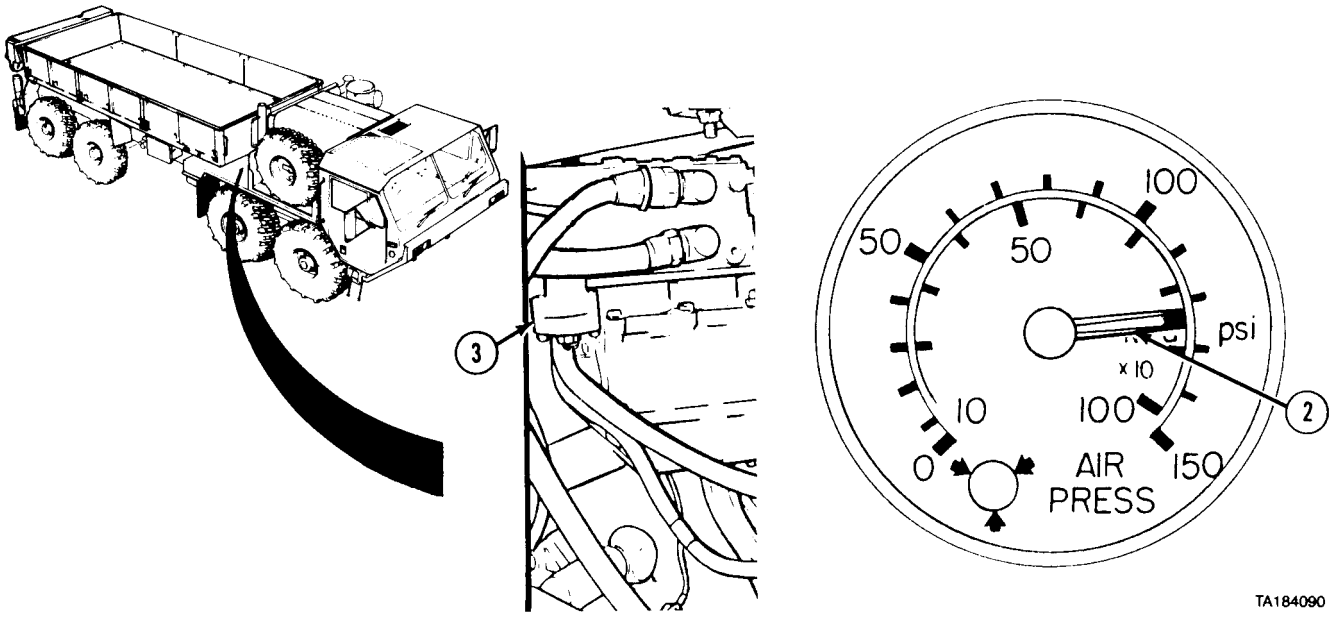
General Safety Instructions
None

11-36. AIR GOVERNOR TESTING/ADJUSTMENT (CONT).

a. Testing.

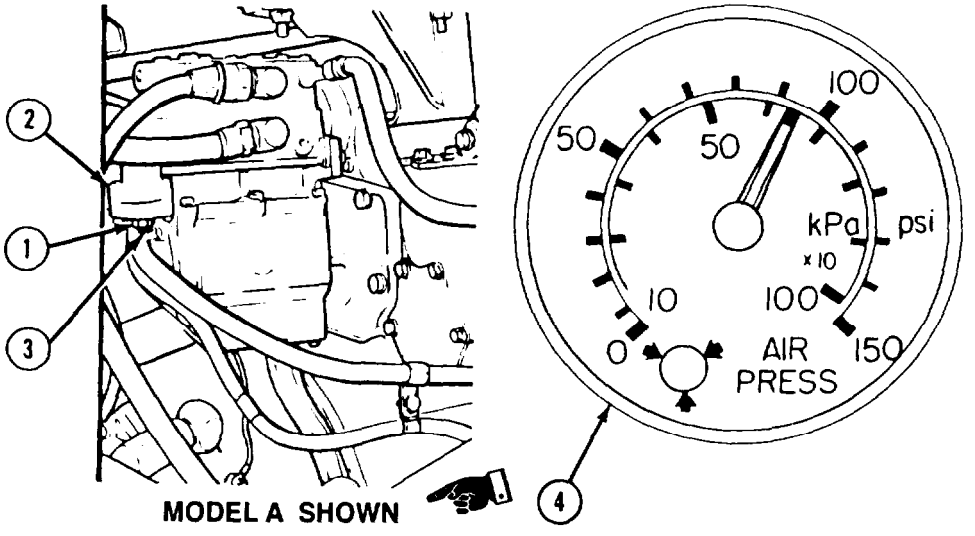


(1) Start engine (TM 9-2320-279-10).
(2) Watch air pressure gage (1). Needle (2) should move up scale as system pressure builds up.



(3) After several minutes, gage needle (2) should stop at between 120 and 125 psi (827 and 862 kPa) as governor (3) cuts out. When governor cuts out, released air from air dryer can be heard.
(4) If governor (3) does not cut out between 120 and 125 psi (827 and 862 kPa), adjust governor.

b. Adjustment.



(1) Shut off engine (TM 9-2320-279-10).

WARNING

Muffler and connecting parts may be hot. Do not touch or lean against muffler. Serious burns could result.

NOTE

There are two kinds of air governors. Model A has the adjusting screw uncovered on the bottom. Model B has a plastic cover threaded on the adjusting screw. Both are adjusted the same way, however, the plastic cover on Model B must be removed before adjustment.

(2) Loosen locknut (1) on bottom of governor (2). Turn adjusting screw (3) in to decrease cutout pressure or out to increase cutout pressure.

(3) Hold adjusting screw (3) and tighten locknut (1) to 80 to 120 lb-in (9.4 to 13.5 N°m).

(4) Depress and release brake pedal enough times to reduce air pressure reading on gage to below 100 psi (690 kPa).

(5) Start engine. Note pressure at which governor (2) cuts out. If further adjustment is needed, go back to step *(1).*

NOTE

The plastic cover on Model B must be installed after adjustment is made,

(6) Shut off engine (TM 9-2320-279-10).

C. ***Follow-on Maintenance.*** None.

END OF TASK

11-37. AIR GOVERNOR REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

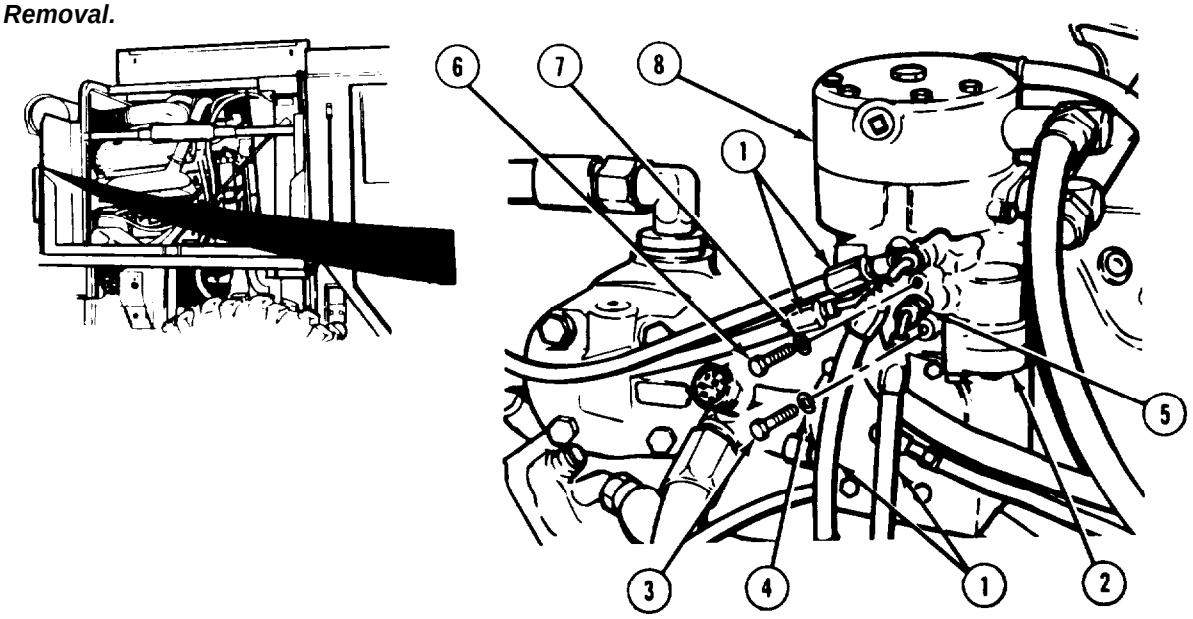
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
Allow engine, muffler, and connecting parts to cool before removing governor.

a. Removal.



NOTE
Tag and mark air lines before removal.

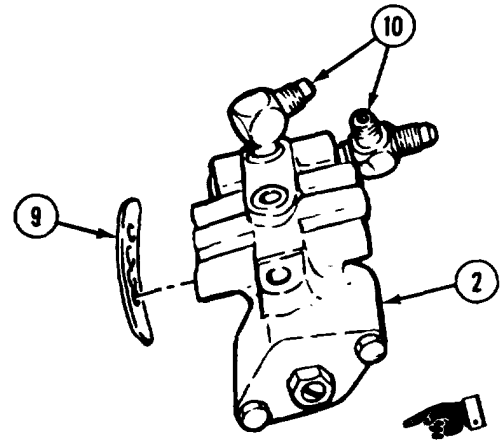
(1) Remove four air lines (1) from air governor (2).

NOTE
There are two kinds of air governors. Model A has the adjusting screw uncovered on the bottom. Model B has a plastic cover threaded on the adjusting screw. Both are removed the

(2) Remove bottom mounting screw (3) and lockwasher (4) from air governor (2).
(3) Remove straight fitting (5).
(4) Remove top mounting bolt (6) and lockwasher (7).
(5) Remove air governor (2) from air compressor (8).

(6) Remove gasket (9).

(7) Remove fittings (10) from air governor (2).



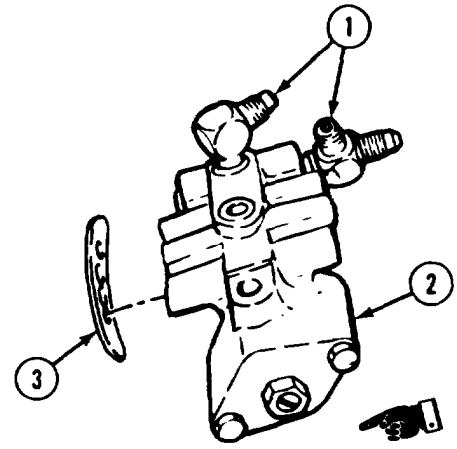
MODEL A SHOWN

b. Installation.

WARNING

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

(1) Coat threads of fittings (1) with pipe thread sealing compound and install in air governor (2).



MODEL A SHOWN

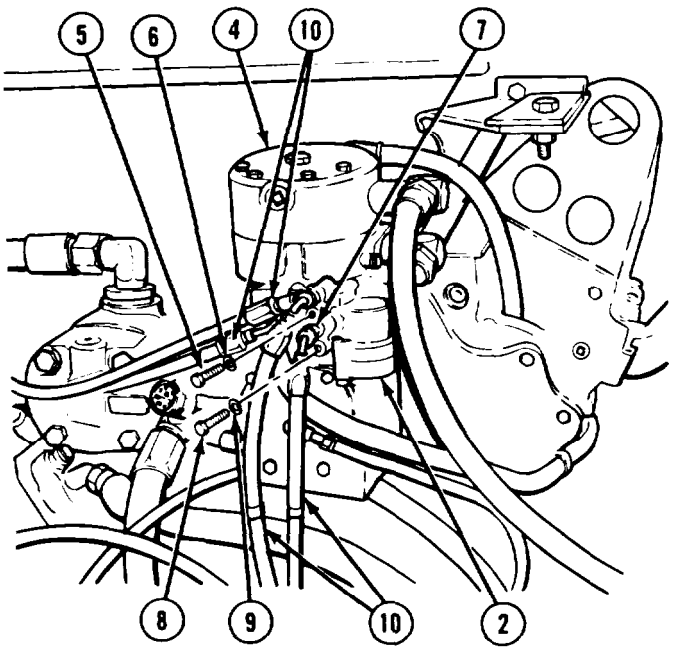
NOTE

There are two kinds of air governors. Model A has the adjusting screw uncovered on the bottom. Model B has a plastic cover threaded on the adjusting screw. Both are installed the same way.

(2) Install gasket (3) on air governor (2).

11-37. AIR GOVERNOR REMOVAL/INSTALLATION (CONT).

(3) Install air governor (2) on air compressor (4).
(4) Install top mounting bolt (5) and lockwasher (6) in air governor (2). Tighten bolt to 9-13 lb-ft (12.2-17.6 N°m).
(5) Coat threads of fitting (7) with pipe thread sealing compound and install fitting.
(6) Install bottom mounting bolt (8) and lockwasher (9) in air governor (2). Tighten bolt to 9-13 lb-ft (12.2-17.6 N°m).
(7) Connect four air lines (10) to air governor (2).



c. ***Follow-on Maintenance.*** Adjust air governor setting (para 11-36).

END OF TASK

11-38. AIR COMPRESSOR REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

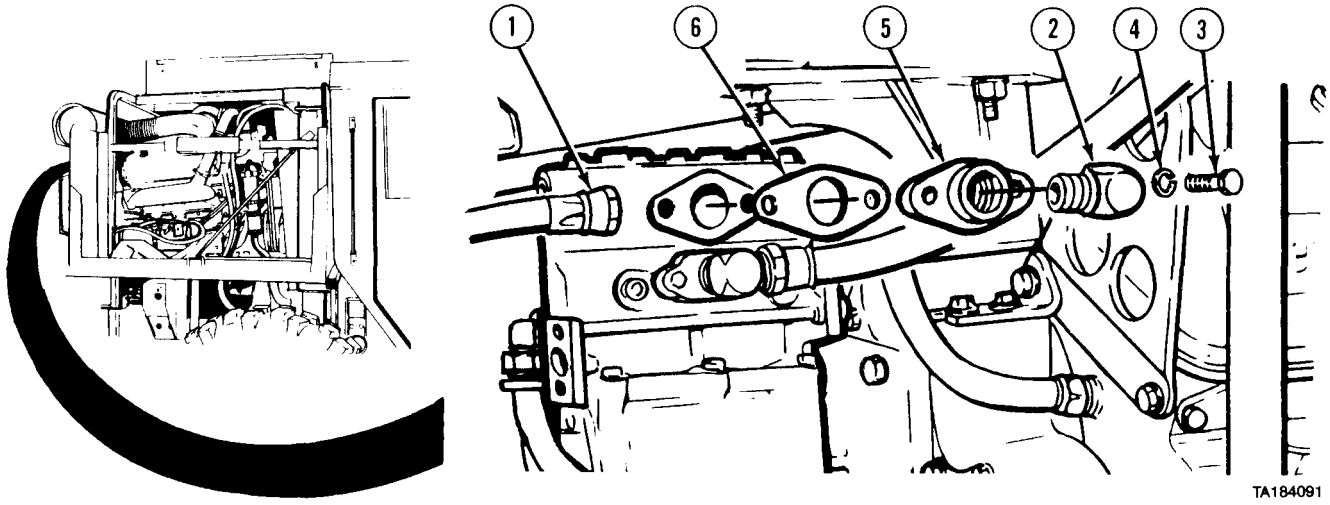
Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Air system drained.
Para 6-2	Cooling system drained.
Para 11-37	Air governor removed.

Special Environmental Conditions
None

General Safety instructions
Allow engine, muffler, and connecting parts to cool before removing governor.

a. Removal.

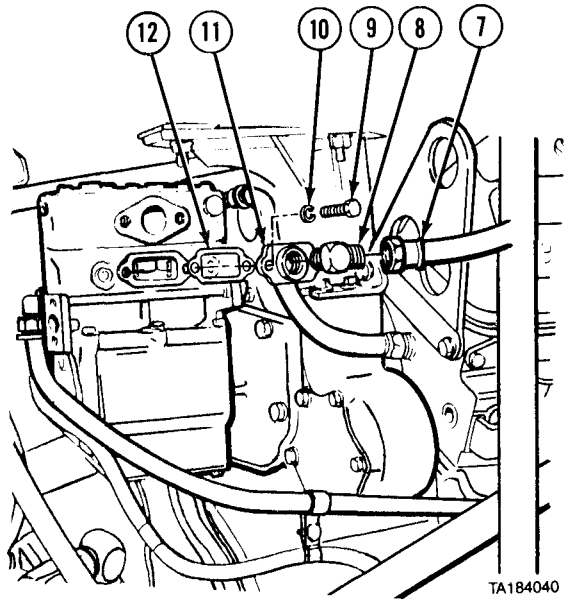


NOTE

Tag and mark air lines and water lines before disconnecting.

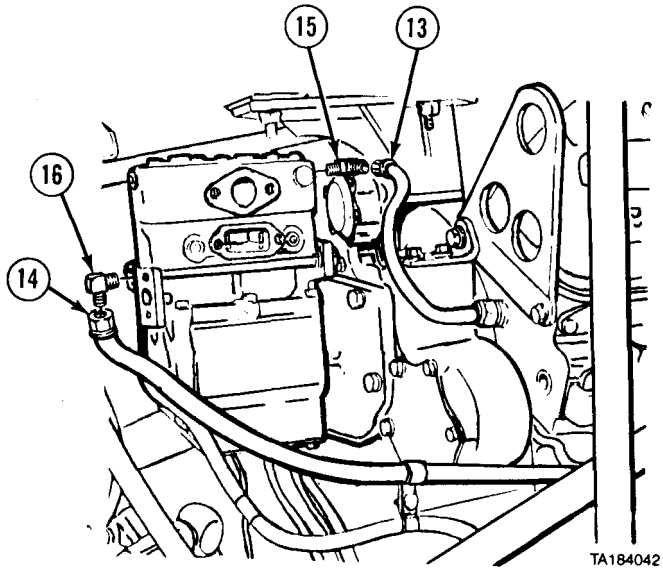
(1) Disconnect air line (l).
(2) Turn elbow (2) for access and remove two screws (3), lockwashers (4), flange (5), and gasket (6).
(3) Remove elbow (2) from flange (5).

(4) Disconnect air line (7).
(5) Remove elbow (8), two screws (9), lockwashers (10), flange (11), and gasket (12).

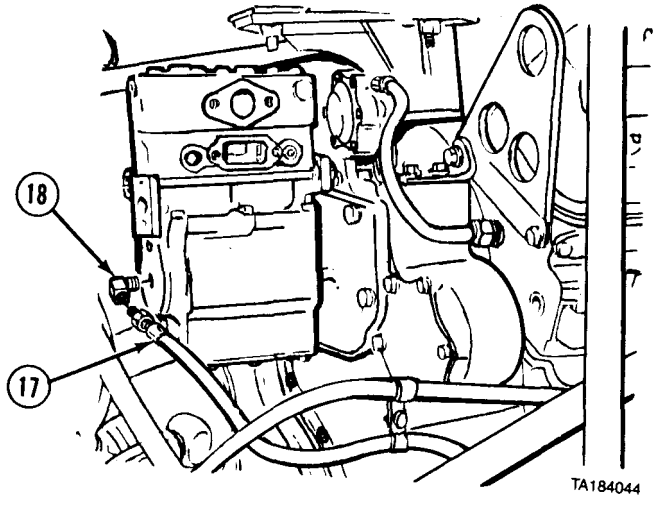


11-38. AIR COMPRESSOR REMOVAL/INSTALLATION (CONT).

(6) Disconnect two water lines (13 and 14).
(7) Remove two elbows (15 and 16).



(8) Disconnect oil line (17).
(9) Remove elbow (18).



NOTE

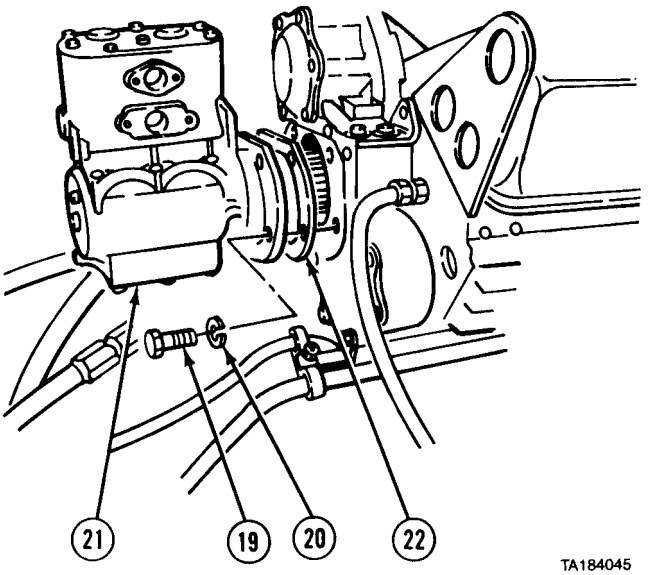
Two inside screws should be removed first.

(10) Remove four screws (19) and lockwashers (20).

NOTE

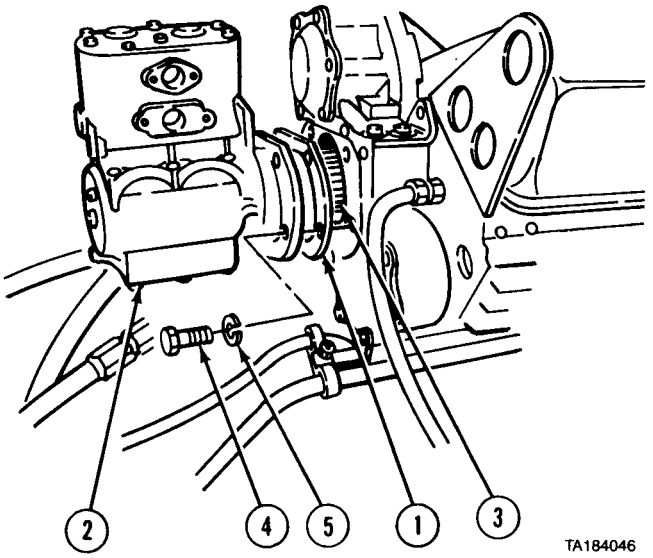
Splined coupling between compressor and engine may come off with compressor or stay on engine.

(11) Remove compressor (21) and gasket (22).



b. Installation.

(1) Install gasket (l).
(2) Soldier A holds compressor (2) in mounting position, while Soldier B positions spline coupling (3).
(3) Install four screws (4) and lockwashers (5).

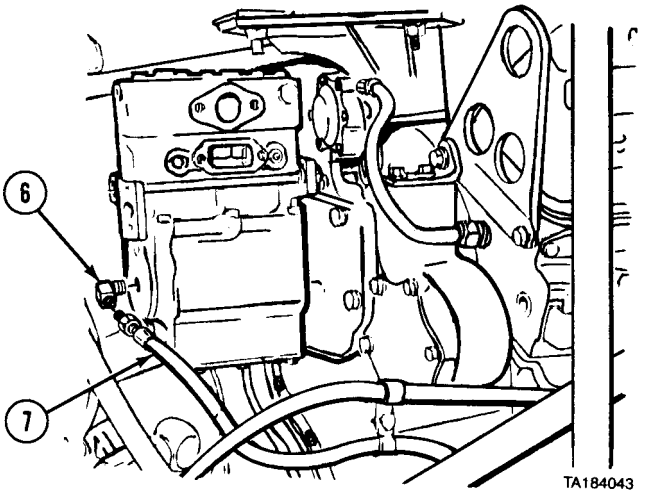


11-38. AIR COMPRESSOR REMOVAL/INSTALLATION (CONT).

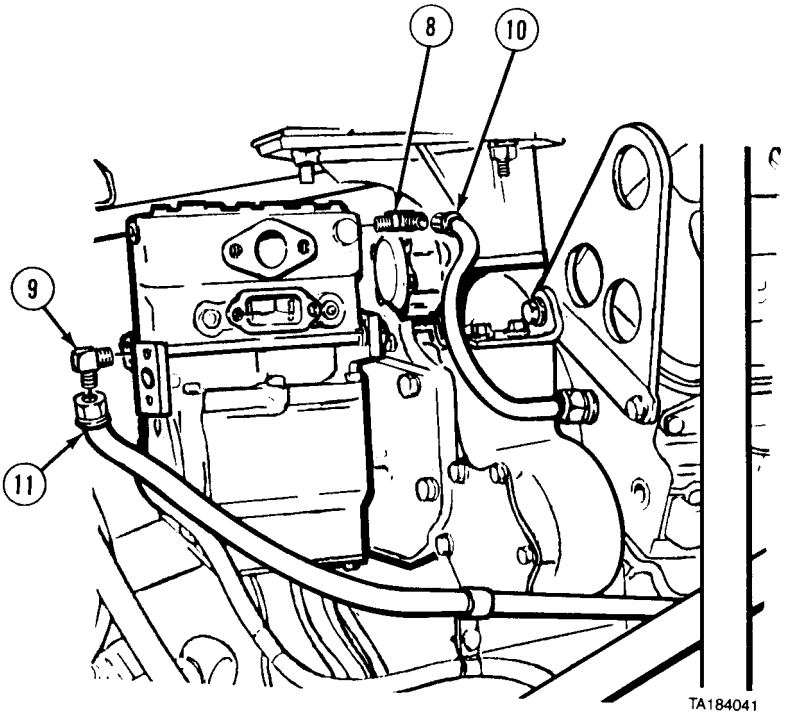
WARNING

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

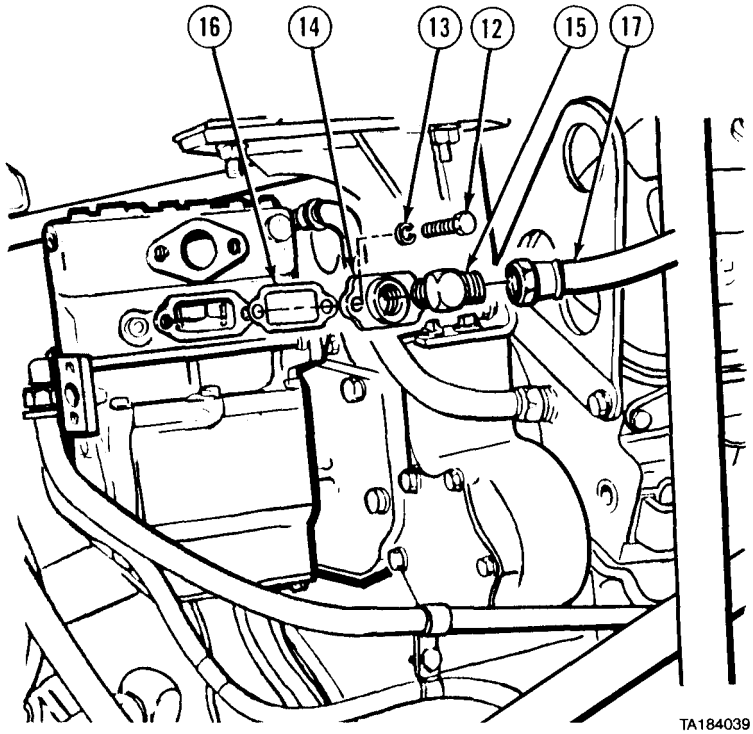
(4) Apply pipe thread sealing compound to threads on elbow (6) and install elbow.
(5) Connect oil line (7).



(6) Apply pipe thread sealing compound to threads on elbows (8 and 9) and install elbows.
(7) Connect water lines (10 and 11).



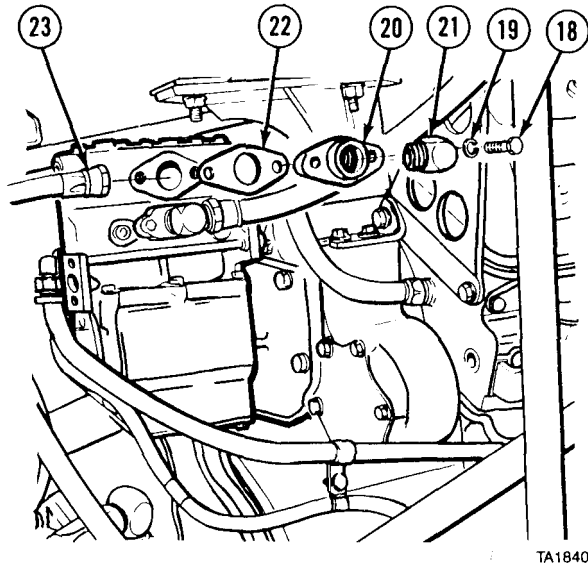
(8) Install screws (12) and lockwashers (13) in flange (14).
(9) Apply pipe thread sealing compound to threads on elbow (15) and install elbow.
(10) Install flange (14) with screws (12), lockwashers (13), and gasket (16).
(11) Connect air line (17).



(12) Install screws (18) and lockwashers (19) in flange (20).
(13) Apply pipe thread sealing compound to threads on elbow (21).
(14) Install elbow (21) in flange (20).
(15) Install gasket (22) and flange (20) with screws (18) and lockwashers (19).
(16) Connect air line (23).

c. Follow-on Maintenance.

(1) Install air governor (para 11-37).
(2) Fill cooling system (para 6-2).
(3) Start engine and build up air pressure (TM 9-2320-279-10).
(4) Check air governor for leaks.
(5) Check air governor adjustment (para 11-36).
(6) Shut off engine (TM 9-2320-279-10).



END OF TASK

Section IX. TRAILER CONNECTION SYSTEM

11-39. TRACTOR PROTECTION VALVE REMOVAL/INSTALLATION (M977, M978, M984, M985).

This task covers:

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

INITIAL SETUP

Models
M977, M978, M984, M985

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS *63S,* Heavy wheel vehicle mechanic

References
None

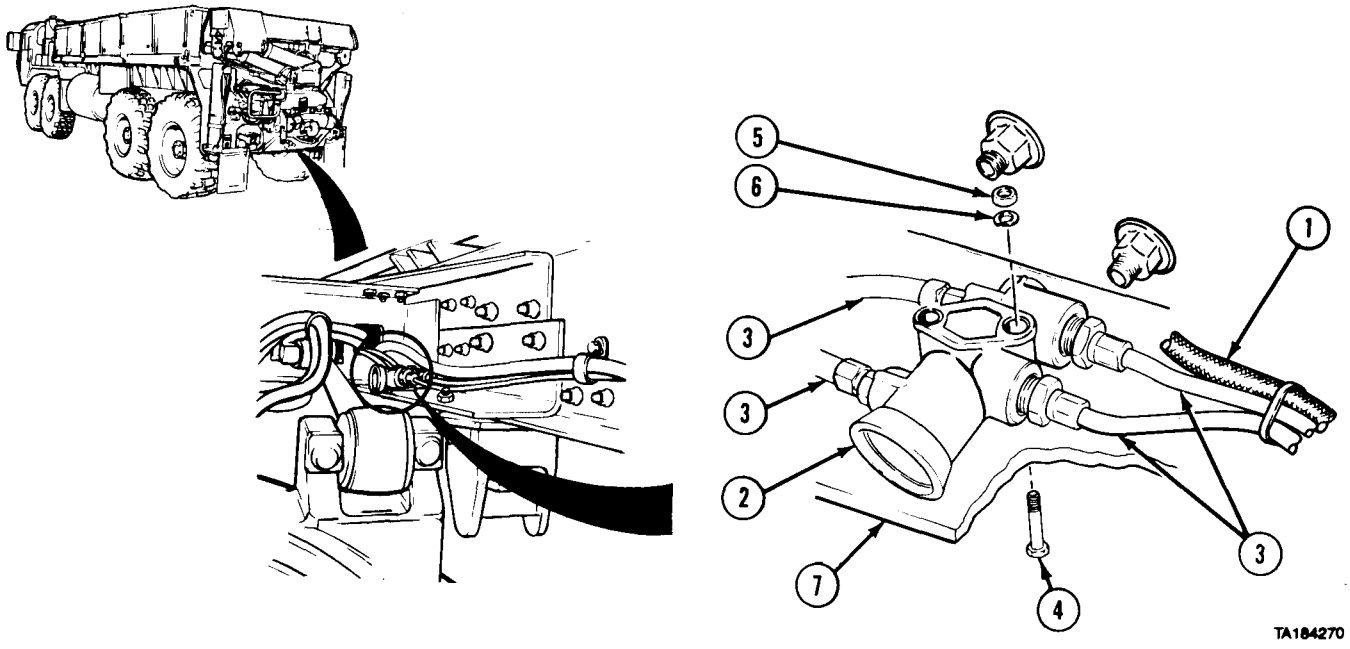
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



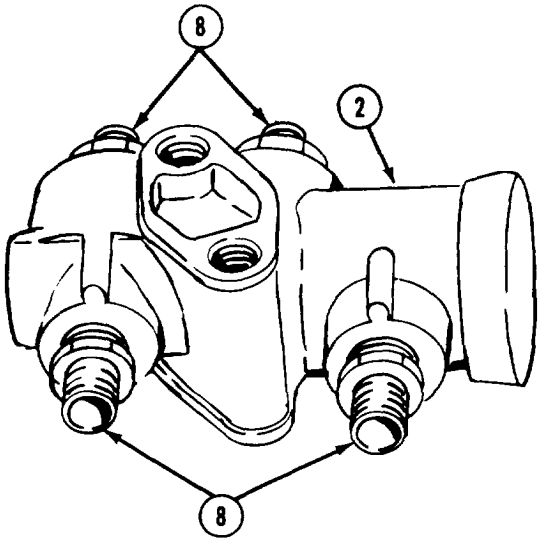
Brake and Air System Maintenance Instructions (Cont)

NOTE
Tag and mark air lines before disconnecting.

(1) Cut plastic cable ties that fasten wire harness (1) to protection valve (2) and four air lines (3).
(2) Disconnect four air lines (3).

NOTE
Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(3) Remove two screws (4), nuts (5), and lockwashers (6)
(4) Remove protection valve (2) from frame (7).
(5) Remove four air line fittings (8) from protection valve (2).

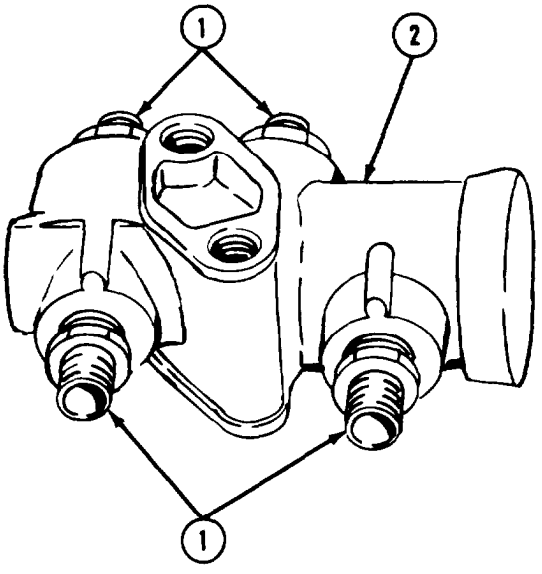


b. Installation.

WARNING

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

(1) Apply pipe thread sealing compound to four air line fittings (1) and install in protection valve (2).



11-39. TRACTOR PROTECTION VALVE REMOVAL/INSTALLATION (M977, M978, M984, M985) (CONT).

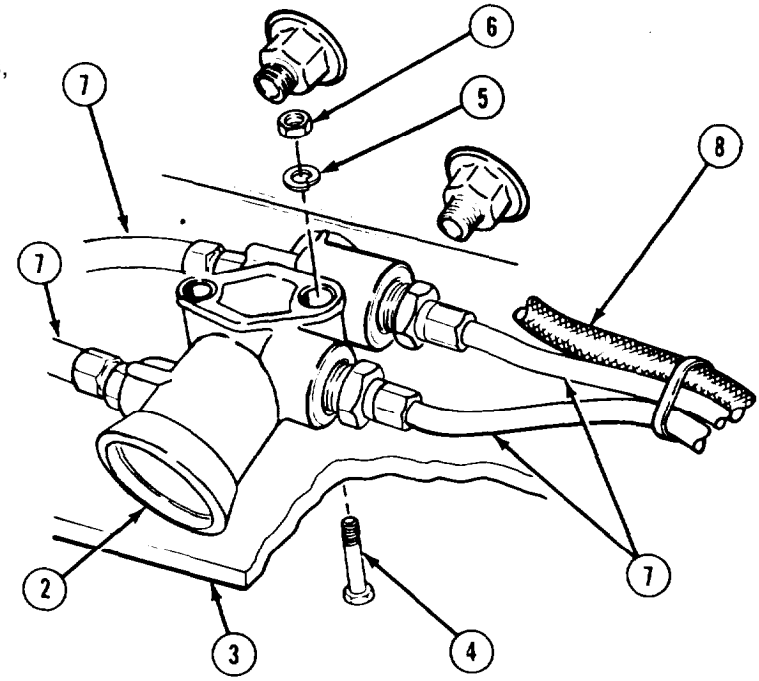
NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(2) Install protection valve (2) on frame (3) with two screws (4), lockwashers (5), and nuts (6).
(3) Connect four air lines *(7)* to protection valve (2).
(4) Fasten wiring harness (8) to air lines (7) and protection valve (2) with plastic cable ties.

C. ***Follow-on Maintenance.***

(1) Start engine and build up air pressure to 120-125 psi (827-862 kPa) (TM 9-2320-279-10).
(2) Check connections for air leaks.
(3) Shut off engine (TM 2320-279-10).



END OF TASK

II-40. TRACTOR PROTECTION VALVE REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

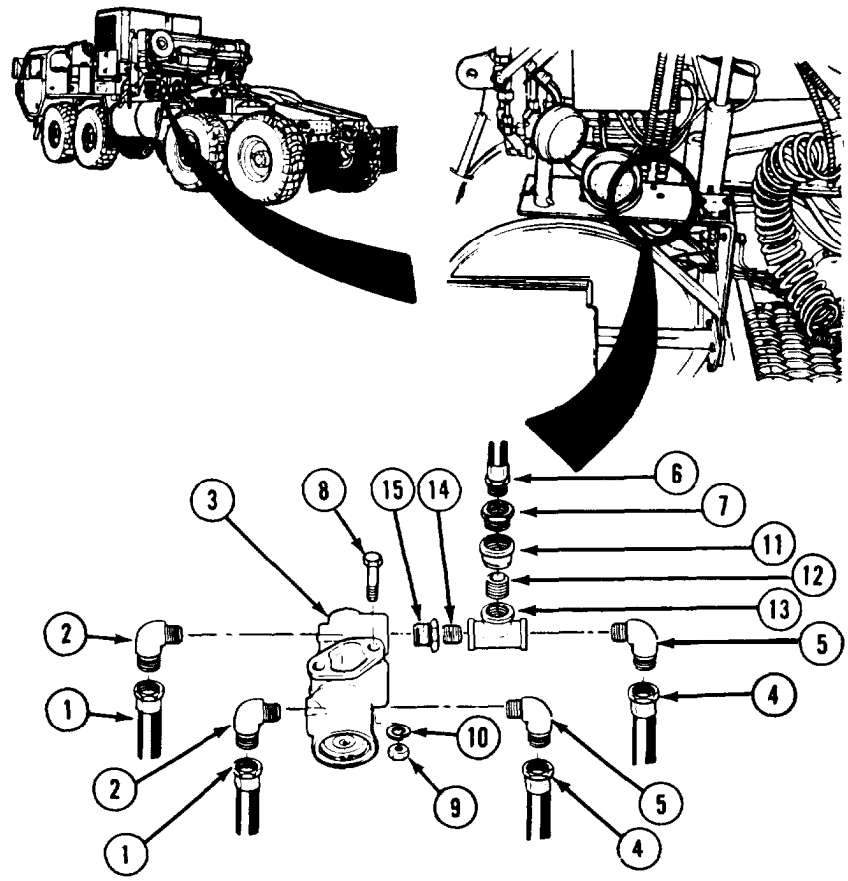
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

Brake and Air System Maintenance Instructions (Cont)

a. Removal.



NOTE
Tag and mark air lines before removal.

(1) Disconnect two air lines (1) from elbows (2) on protection valve (3).
(2) Disconnect two air lines (4) from elbows (5).
(3) Remove two trailer connection air lines (6) from fittings (7).

NOTE
Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

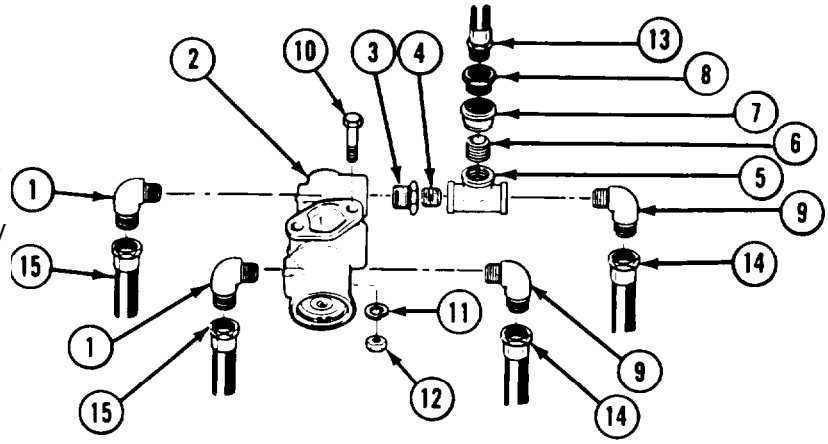
(4) Remove two screws (8), nuts (9), lockwashers (10), and protection valve (3).
(5) Remove two elbows (5), fittings (7), reducers (11), nipples (12), tees (13), nipples (14) reducers (15), and two elbows (2) from protection valve.

11-40. TRACTOR PROTECTION VALVE REMOVAL/INSTALLATION (M983) (CONT.)

b. Installation.

WARNING

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



NOTE

Coat all threads with pipe thread sealing compound.

(1) Install two elbows (1) in protection valve (2).
(2) Install two reducers (3), nipples (4), and tees (5) in protection valve (2).
(3) Install two nipples (6), reducers (7), fittings (8), and elbows (9) on tees (5).

NOTE

Some vehicles have two nuts, lockwashers, and screws. Others have two flanged nuts and screws.

(4) Install protection valve (2) on bracket with two screws (10), lockwashers (11), and nuts (12).
(5) Connect two trailer connection air lines (13) to fittings (8).
(6) Connect two air lines (14) to elbows (9).
(7) Connect two air lines (15) to elbows (1).

c. Follow-on Maintenance.

(1) Start engine and build up air pressure (TM 9-2320-279-10).
(2) Check connections for air leaks.
(3) Check operation of protection valve.
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-41. GLAD HAND REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special *Tools*
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

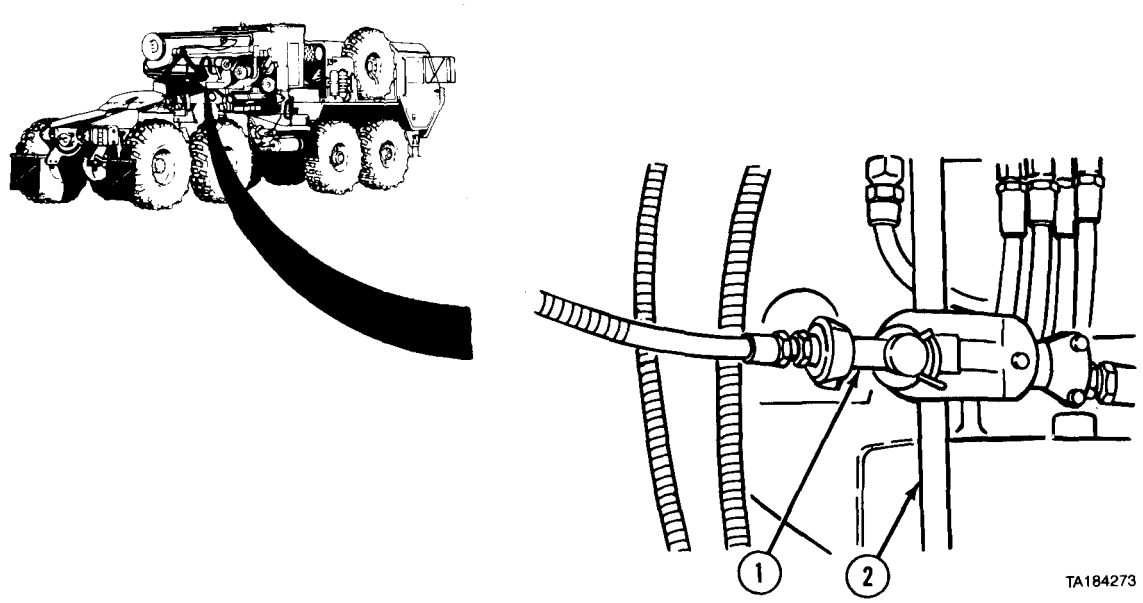
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

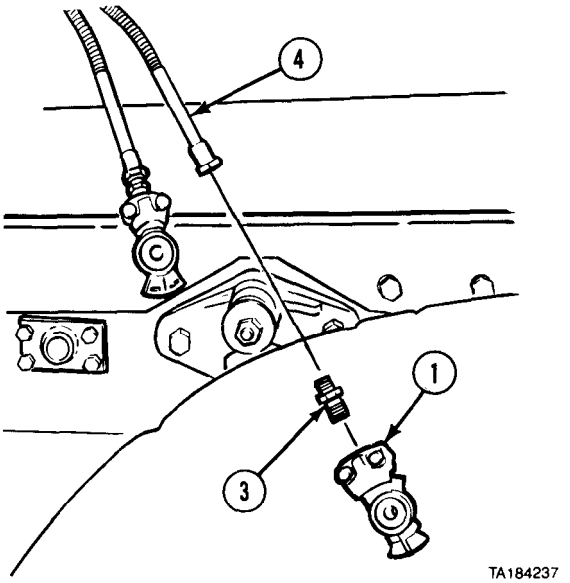
a. Removal.



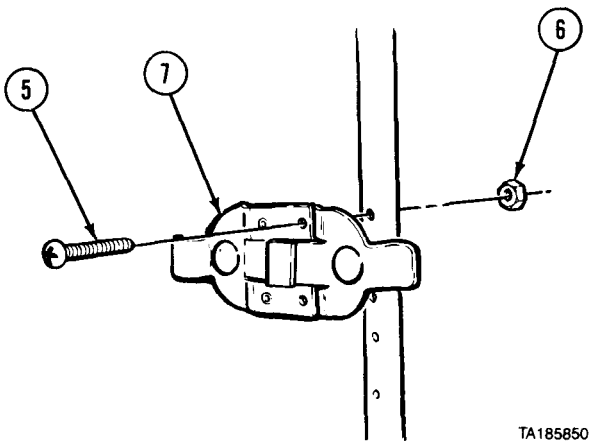
(1) Twist glad hands (1) downward and remove two glad hands from hose support (2).

11-41. GLAD HAND REMOVAL/INSTALLATION (M983) (CONT).

(2) Remove two glad hands (1) and connectors (3) from air lines (4).

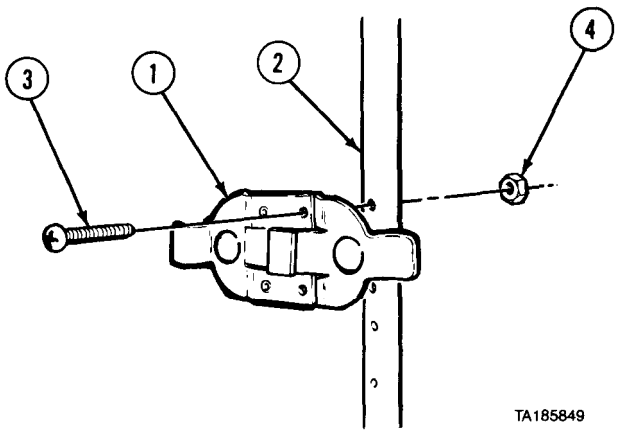


(3) Remove two screws (5), locknuts (6), and two-piece brake hose holder (7).



b. Installation.

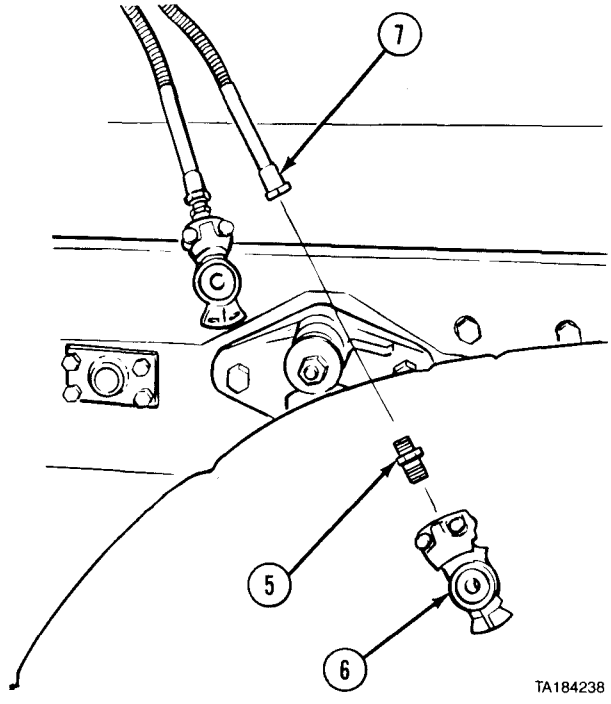
(1) Install two-piece brake hose holder (1) to hose support (2) with two screws (3), and locknuts (4).

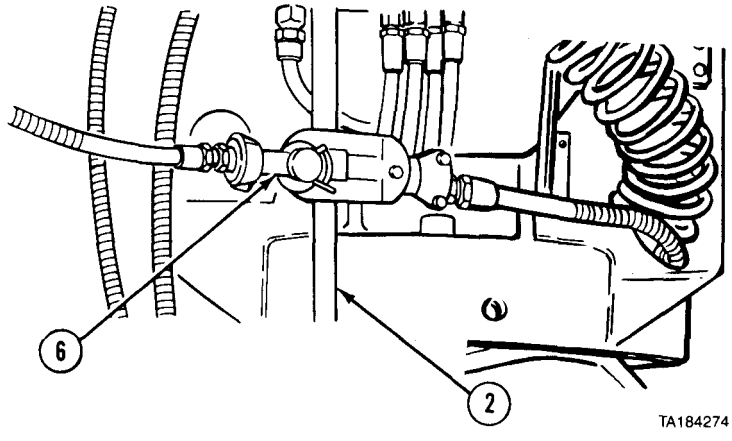


WARNING

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

(2) Apply pipe thread sealing compound to threads of two connectors (5).
(3) Install two connectors and glad hands (6) on air lines (7).





(4) Install two glad hands (6) on hose support (2).

c. Follow-on Maintenance.
(1) Start engine and build up air pressure to 120-125 psi (827-862 kPa) (TM 9-2320279-10).
(2) Check connections for air leaks.
(3) Shut off engine (TM 9-2320-279-10)."

END OF TASK

11-42. TRAILER AIR LINES REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

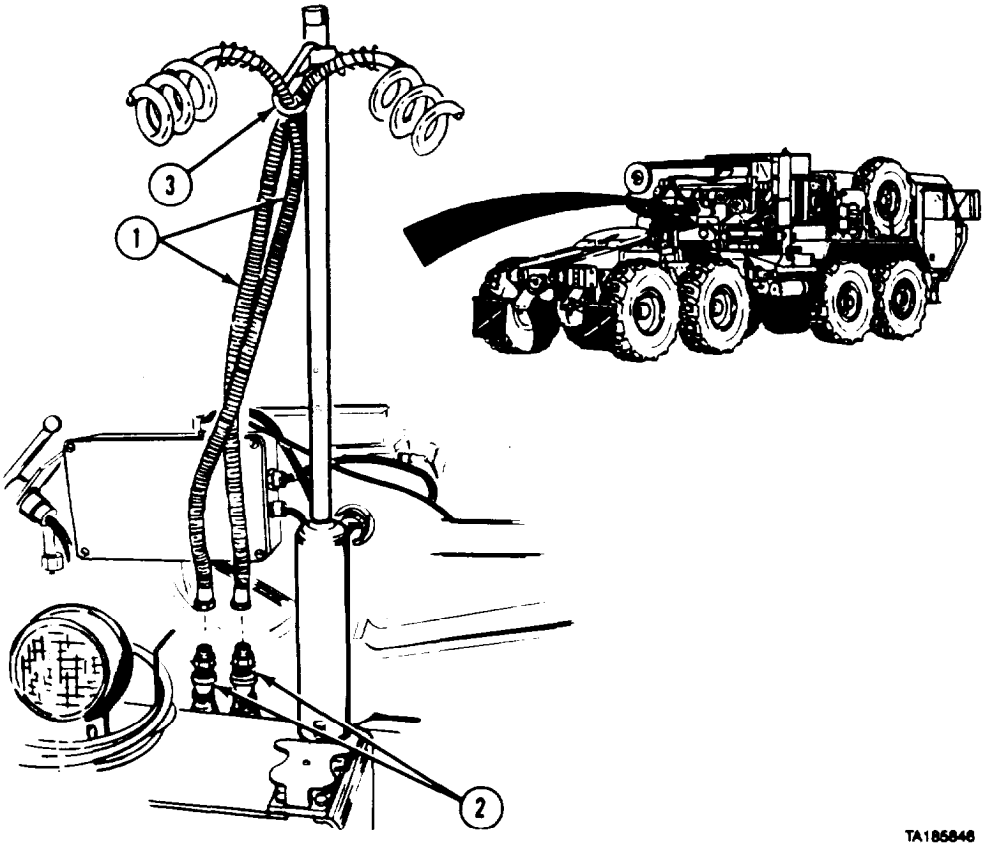
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
TM 9-2320-279-10	Intervehicular electrical cable stowed.
Para 11-41	Glad hands removed.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

a. Removal.



NOTE

Mark position of red and blue hoses.

(1) Remove two hoses (1) from fittings (2).
(2) Thread two hoses (1) through support ring (3).

b. Installation.

WARNING

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

(1) Thread two hoses (1) through support ring (3).
(2) Coat two fittings (2) with pipe thread sealing compound and install two hoses (1) on fittings.

c. Follow-on Maintenance.

(3) Install glad hands (para 11-41).
(4) Start engine and build up air pressure to 120-125 psi (827-862 kPa) (TM 9-2320-279-10).
(5) Check connections for air leaks.
(6) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-43. CWASSIS HOSE SUPPORT ASSEMBLY REMOVAL/REPAIR/INSTALLATION

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

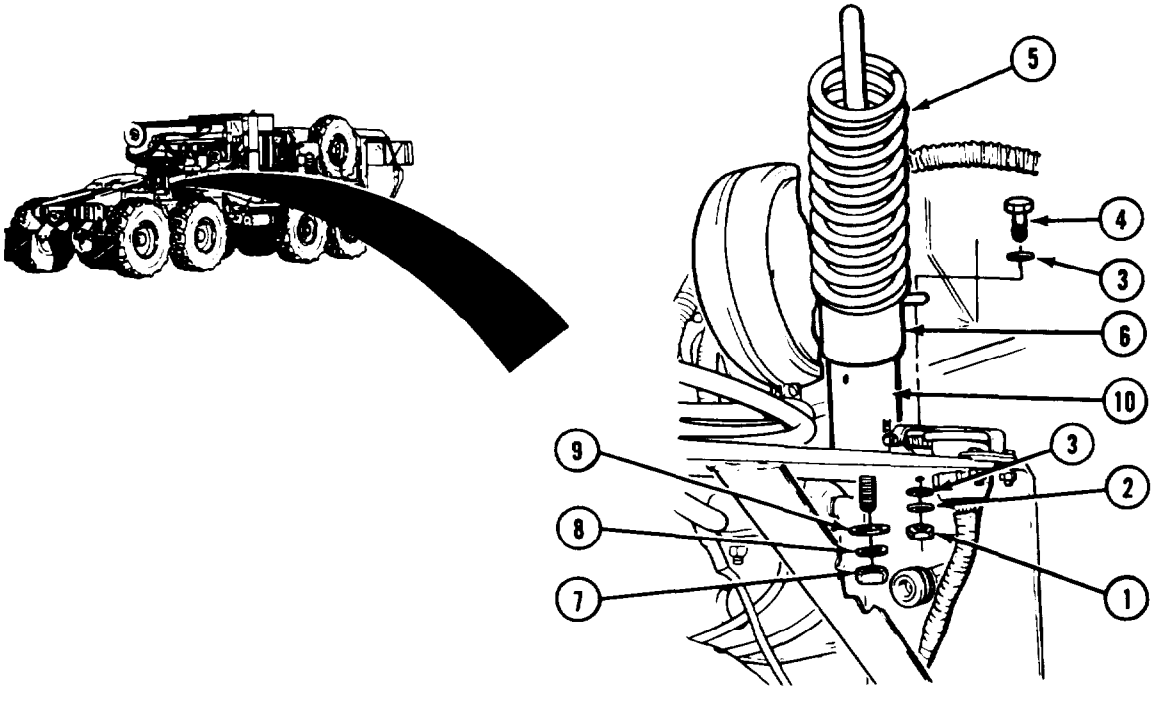
Equipment Condition

TM or Para	*Condition Description*
Para 11-42	Trailer air lines removed.
Para 11-41	Glad hands removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



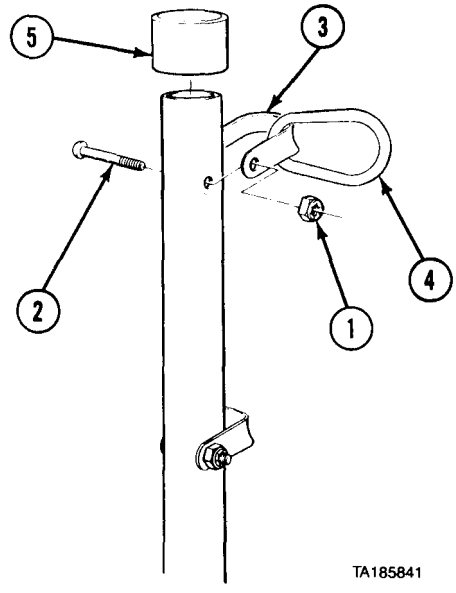
NOTE

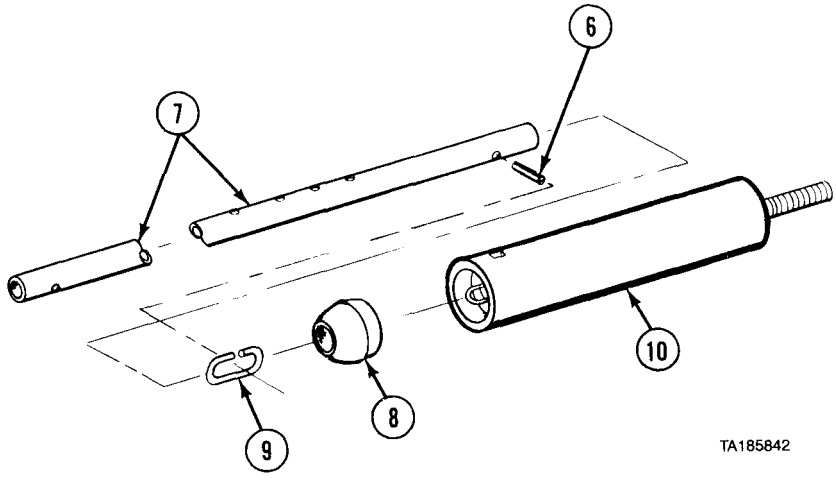
Some vehicles have a nut, lockwasher, washers, and a screw. Others have a flanged nut and screw.

(1) Remove nut (1), lockwasher (2), two washers (3), and screw (4).
(2) Remove spring (5) and hose (6).
(3) Remove nut (7), lockwasher (8), washer (9), and support (10).

b. Disassembly.

(1) Remove two nuts (l), screws (2), brackets (3), and support ring (4).
(2) Remove end cap (5).

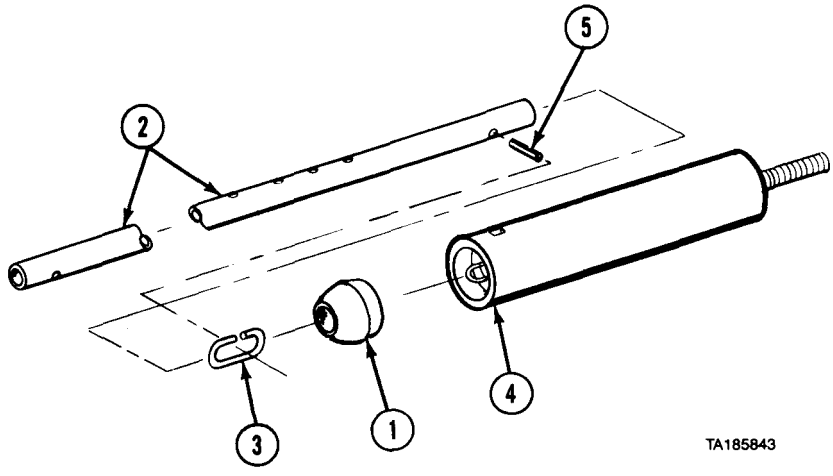




(3) Remove link pin (6) and hose support tube (7).
(4) Remove pivot cup (8) from hose support tube (7).
(5) Remove pivot link (9) from support (10).

11-43. CHASSIS HOSE SUPPORT ASSEMBLY REMOVAL/REPAIR/INSTALLATION (M983) (CONT).

c. Assembly.



(1) Install pivot cup (1) on hose support tube (2).
(2) Install pivot link (3) in support (4).
(3) Install pivot cup (1) on support (4) with link pin (5) through hose support tube (2) and pivot link (3).

(4) Install support ring (6) and two brackets (7) with two screws (8) and nuts (9).
(5) Install end cap (10).

d. Installation.

(1) Install support (1) with washer (2), lockwasher (3), and nut (4).
(2) Install hose (5) on support (1).
(3) Install spring (6).

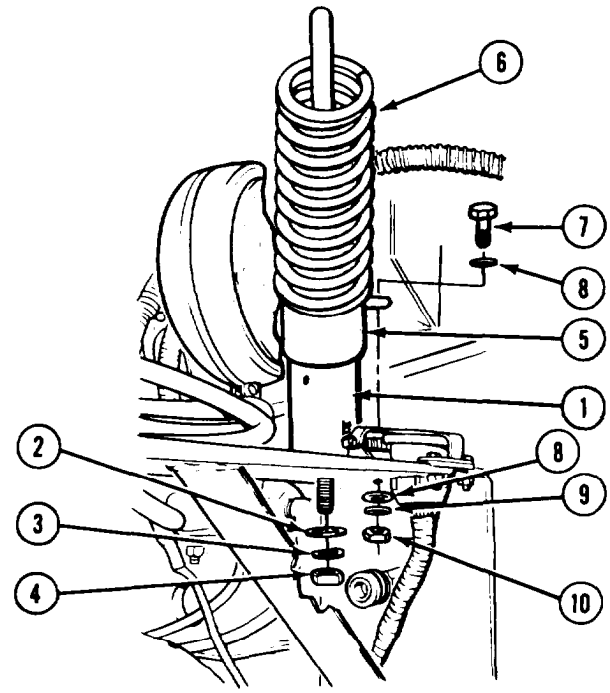
NOTE
Some vehicles have a nut, lockwasher, washers, and a screw. Others have a flanged nut and screw.

(4) Install screw (7), two washers (8), lockwasher (9), and nut (10).

e. *Follow-on Maintenance.*

(1) Install trailer air lines (para 11-42).
(2) Install glad hands (para 11-41).

END OF TASK



11-44. TRAILER AIR SUPPLY VALVE REMOVAI/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

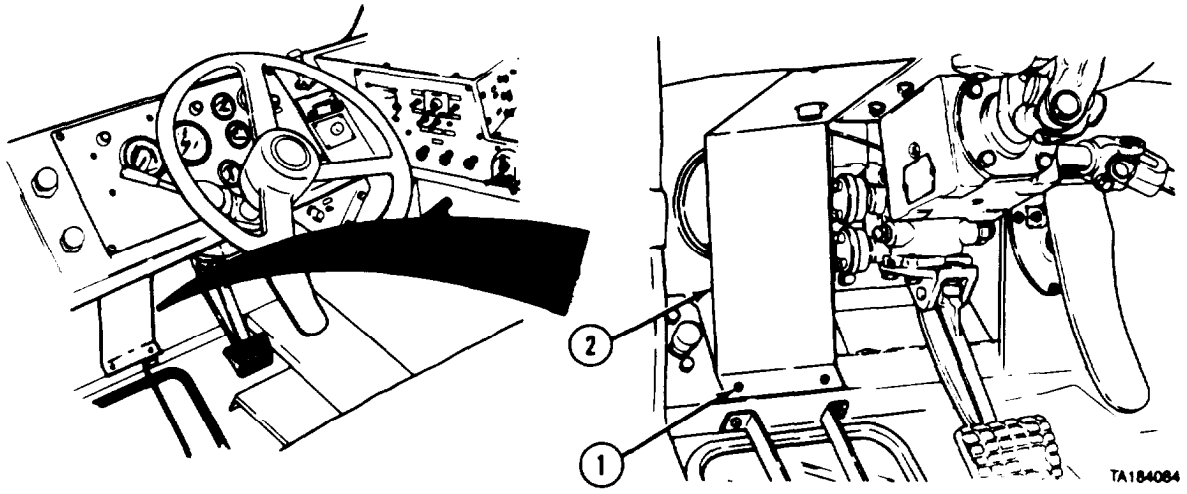
TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
Para 7-19	Instrument panel removed.

Special Environmental Conditions
None

General Safety Instructions
None

11-44. TRAILER AIR SUPPLY VALVE REMOVAL/INSTALLATION (CONT).

a. Removal.

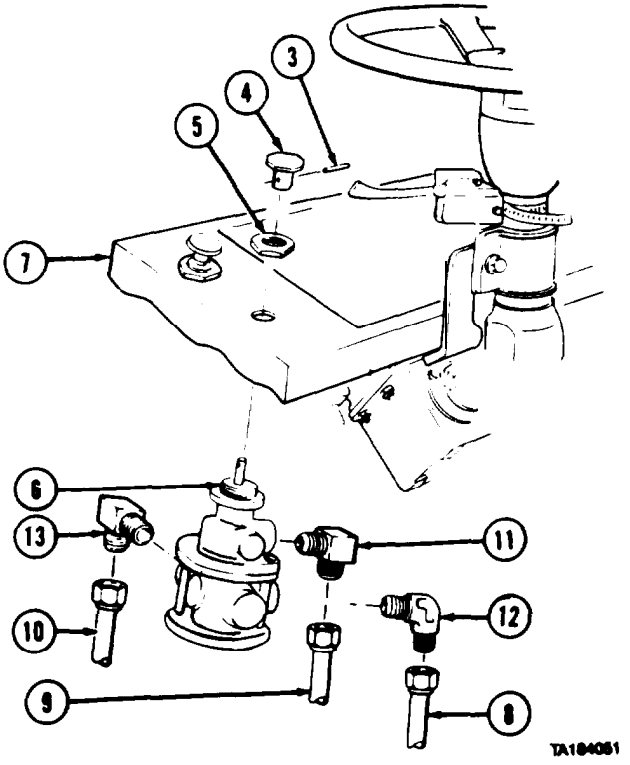


(1) Remove four screws (1) and remove light guard (‘2).

NOTE

Tag and mark air lines and fittings before removal.

(2) Remove roll pin (3), button (4), and nut (5) from valve (6).
(3) Remove valve (6) from dashboard (7).
(4) Disconnect three air lines (8, 9, and 10).
(5) Remove fittings (11, 12, and 13).

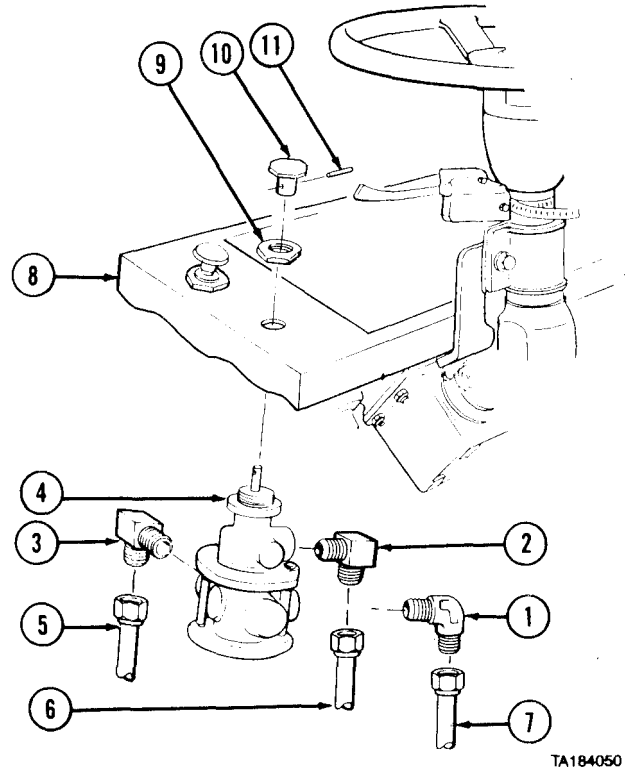


b. Installation.

WARNING

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

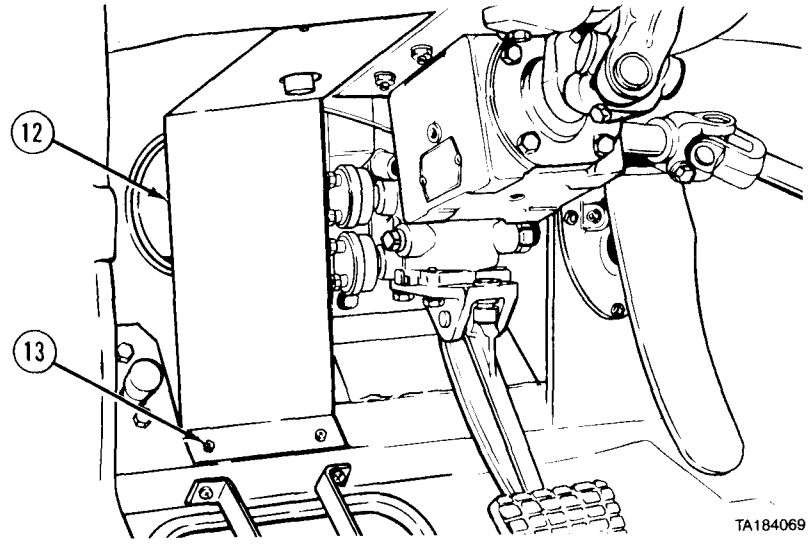
(1) Apply pipe thread sealing compound to threads of fittings (1, 2, and 3).
(2) Install fittings (1, 2, and 3) in valve (4).
(3) Connect three air lines (5, 6, and 7) to valve (4).
(4) Install valve (4) in dashboard (8). Install nut (9) and button (10) on valve.
(5) Install roll pin (11) in button (10).



(6) Install light guard (12) with four screws (13).

c. Follow-on Maintenance.

(1) Install instrument panel (para 7-19).
(2) Connect batteries (para 7-91).
(3) Start engine and allow air pressure to build up (TM 9-2320-279-10).
(4) Check connections for air leaks.
(5) Check operation of trailer air valve (TM 9-2320-279-10).
(6) Shut off engine (TM 9-2320-279-10).



END OF TASK

11-45. TRAILER BRAKE HAND CONTROL VALVE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test *Equipment*
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

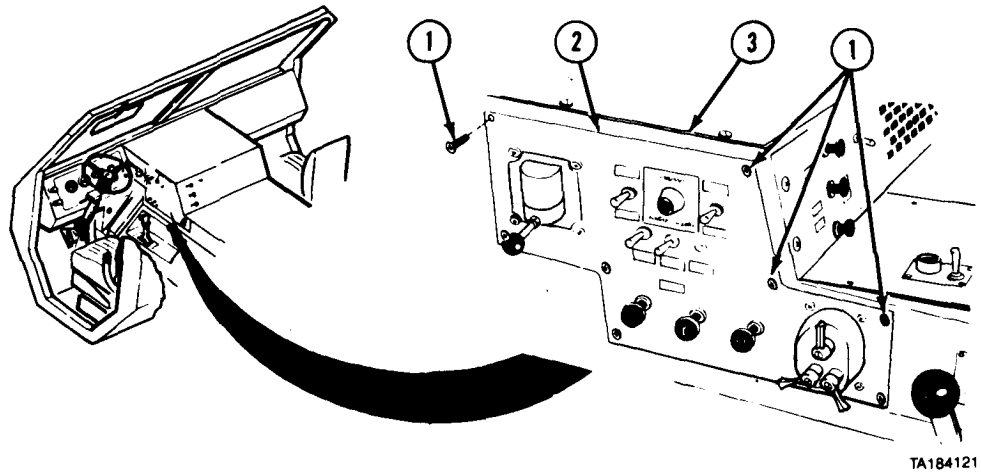
Equipment Condition

TM or Para	*Condition Description*
Para 7-91	Batteries disconnected.
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

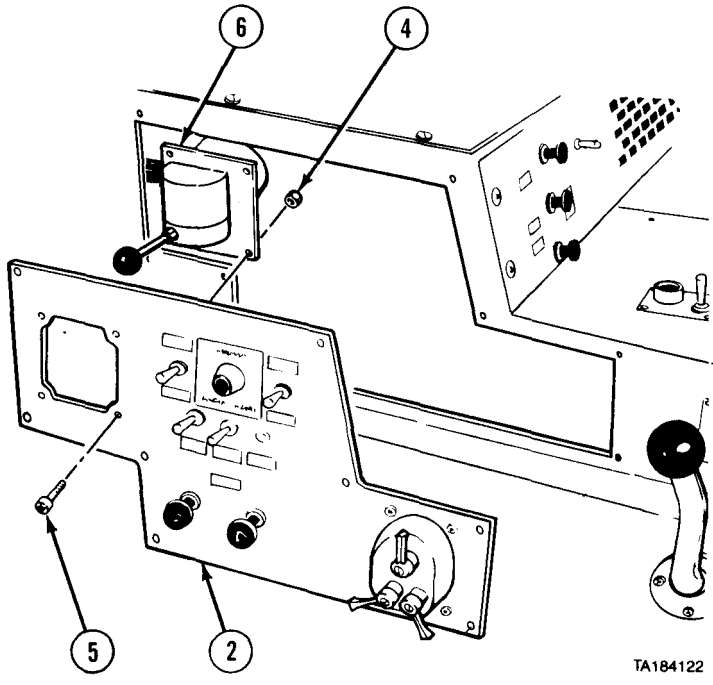
General *Safety Instructions*
None

a. Removal.



(1) Remove eight screws (1) and remove side panel (2) from console (3).

(2) Remove four nuts (4) and four screws (5) to remove hand control valve (6) from side panel (2).

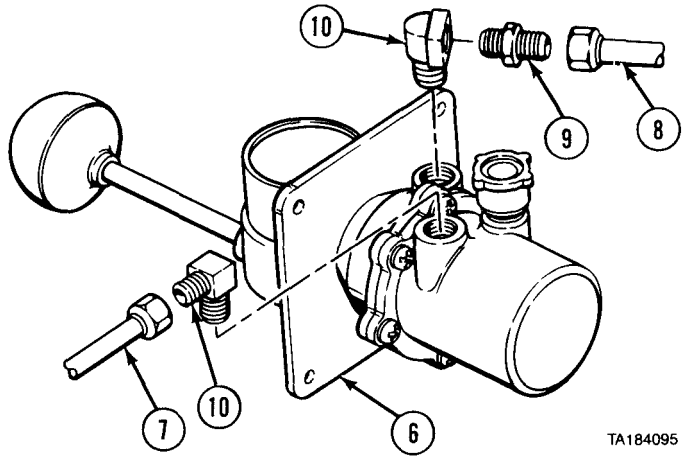


NOTE

Tag and mark air lines before removal.

(3) Disconnect air lines (7 and 8) and remove hand control valve (6).

(4) Remove connector (9) and two elbows (10) from hand control valve (6).



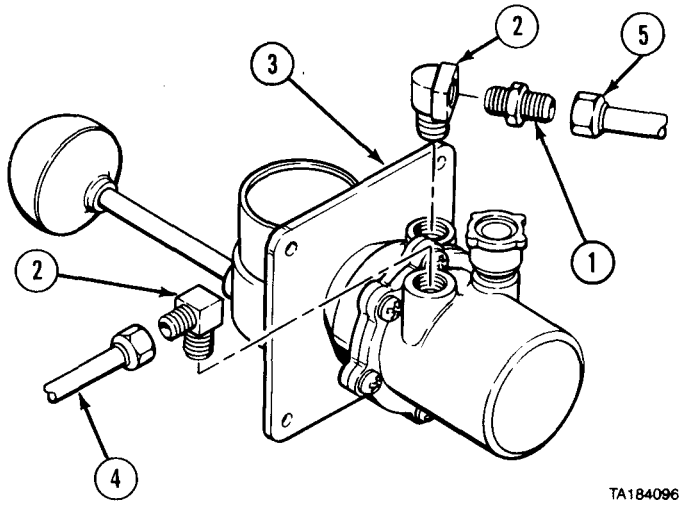
11-45. TRAILER BRAKE HAND CONTROL VALVE REMOVAL/INSTALLATION (CONT).

b. Installation.

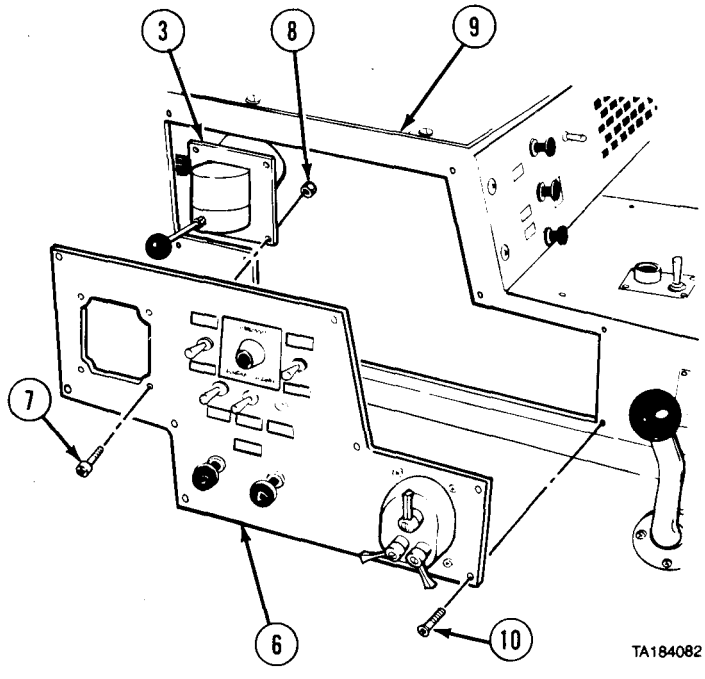
WARNING

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(1) Coat threads of connector (1) and two elbows (2) with pipe thread sealing compound.
(2) Install connector (1) and two elbows (2) in hand control valve (3).
(3) Connect air lines (4 and 5) to valve (3).



(4) Install hand control valve (3) in side panel (6) with four screws (7) and nuts (8).
(5) Install side panel (6) on console (9) with eight screws (10).



c. Follow-on Maintenance.

(1) Connect batteries (para 7-91).
(2) Start engine and build up air pressure (TM 9-2320-279-10).
(3) Check for leaks (TM 9-2320-279-10).
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

11-46. FRONT SERVICE BRAKE CONTROL VALVE BOX REMOVAL/REPAIR/INSTALLATION (M984E1).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspecton
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special TooIs
None

Supplies
Adhesive, Item 4, Appendix C
Tags, identification, Item 48, Appendix C
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

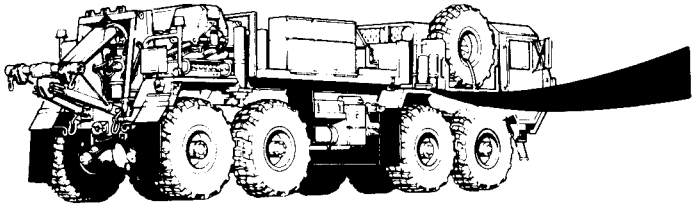
Equipment Condition

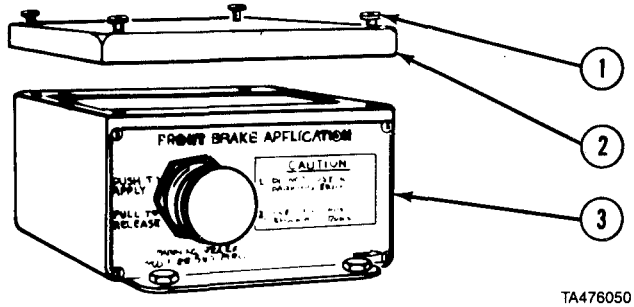
TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

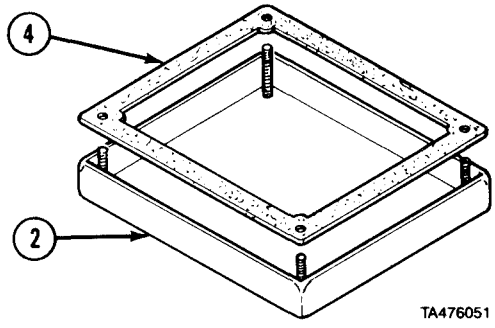




TA476050

(1) Loosen four screws (1) and remove cover (2) from box (3).

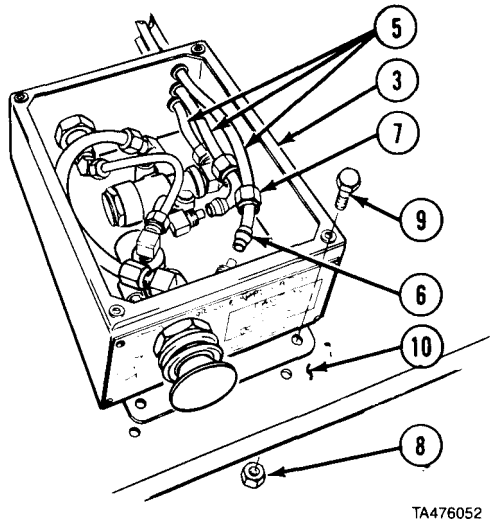
(2) Remove gasket (4) from cover (2).



TA476051

11-46. FRONT SERVICE BRAKE CONTROL VALVE BOX REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

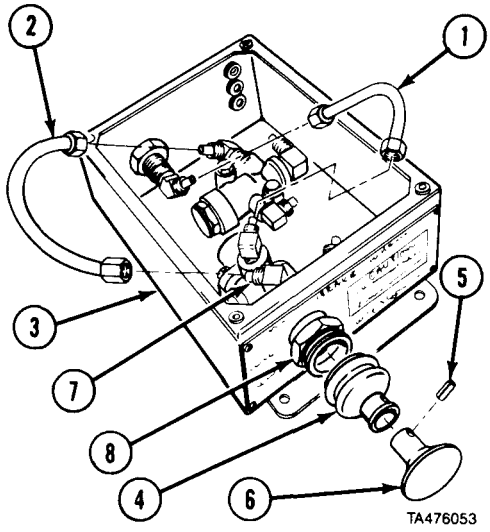
(3) Tag, mark, and disconnect three hoses (5).
(4) Cut off end of three hoses (5) behind bushings (6) and remove nuts (7).
(5) Remove three hoses (5) from box (3).
(6) Remove four locknuts (8), screws (9), and box (3) from fender (10).



TA476052

b. Disassembly.

(1) Tag, mark, and remove two hoses (1 and 2) from box (3).
(2) Slide boot (4) back and remove roll pin (5) from knob (6).
(3) Remove knob (6) and boot (4) from valve (7).
(4) Remove nut (8) and valve (7) from box (3).

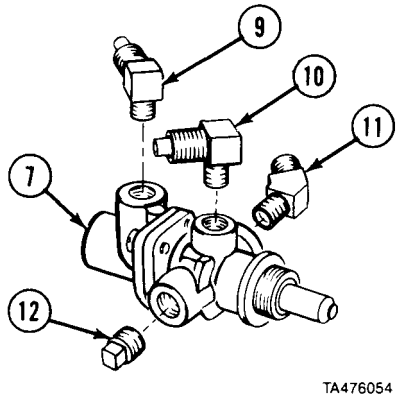


TA476053

NOTE

Note position of elbows before removal.

(5) Remove three elbows (9, 10, and 11) and plug (12) from valve (7).

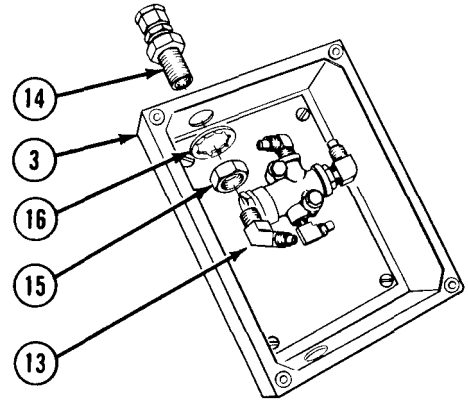


TA476054

NOTE

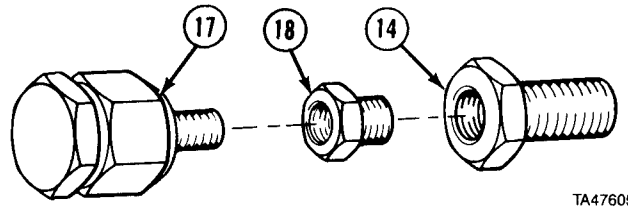
Note position of elbow.

(6) Remove elbow (13) from fitting (14).
(7) Remove nut (15), lockwasher (16), and fitting (14) from box (3).



TA476055

(8) Remove breather (17) from reducer (18).
(9) Remove reducer (18) from fitting (14).



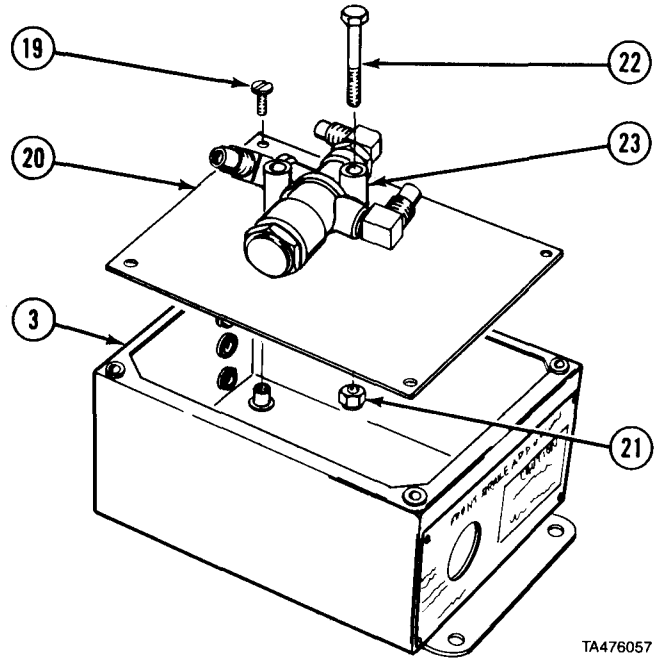
TA476056

(10) Remove four screws (19) and plate (20) from box (3).

NOTE

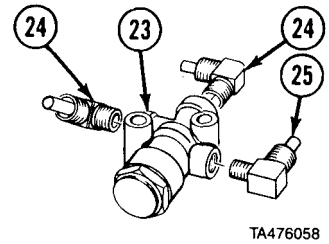
Mark position of valve before removal.

(11) Remove two locknuts (21), screws (22), and valve (23) from plate (20).



TA476057

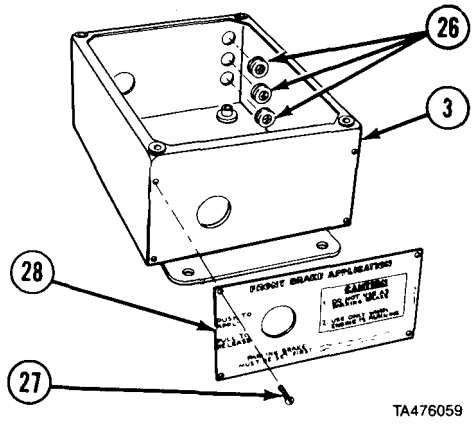
(12) Remove two elbows (24) and elbow (25) from valve (23).



TA476058

11-46. FRONT SERVICE BRAKE CONTROL VALVE BOX REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

(13) Remove three grommets (26) from box (3).
(14) Remove four screws (27) and data plate (28) from box (3).



c. Cleaning/Inspection.

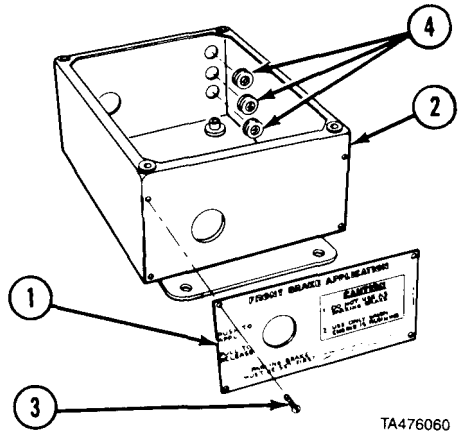
WARNING

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

(1) Wash all metal parts thoroughly in solvent.
(2) Inspect parts for damage. Replace if necessary.

d. Assembly.

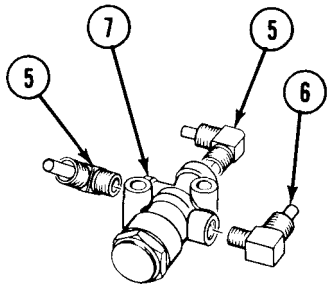
(1) Install data plate (1) on box (2) with four screws (3).
(2) Install three grommets (4) in box (2).



WARNING

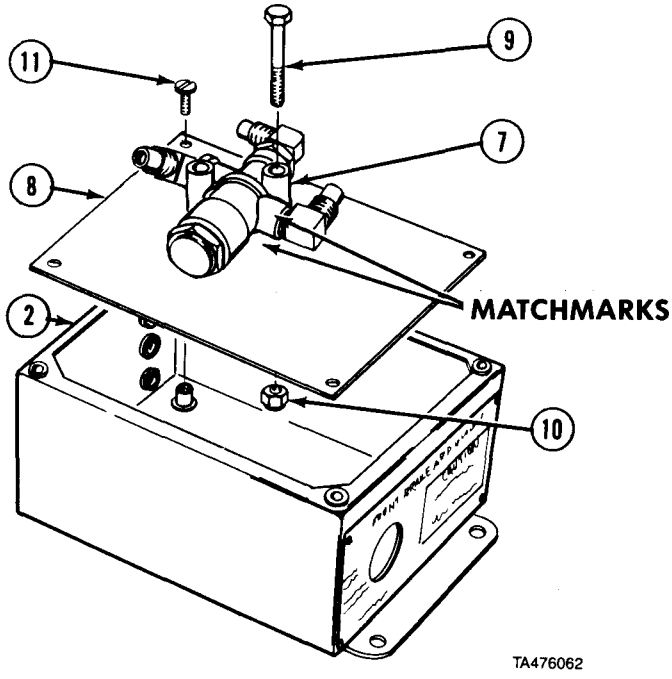
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(3) Coat threads of three elbows (5 and 6) with pipe thread sealing compound and install on valve (7).



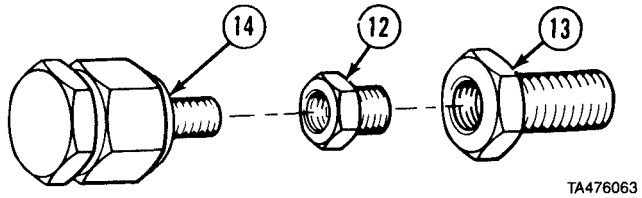
Brake and Air System Maintenance Instructions (Cont)

(4) Align matchmarks and install valve (7) on plate (8) with two screws (9) and locknuts (10).
(5) Install plate (8) in box (2) with four screws (11).



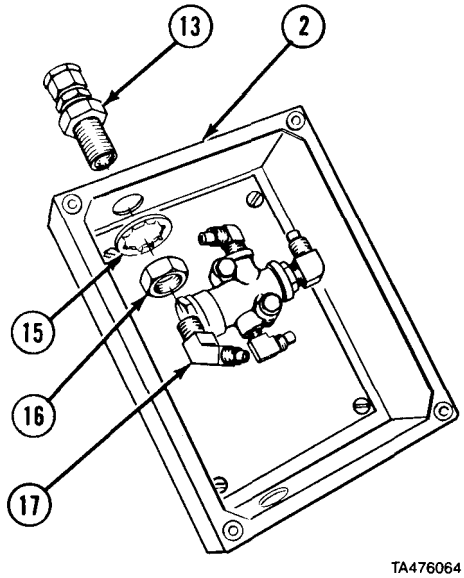
TA476062

(6) Coat threads of reducer (12) with pipe thread sealing compound and install on fitting (13).
(7) Coat threads of breather (14) with pipe thread sealing compound and install on reducer (12).



TA476063

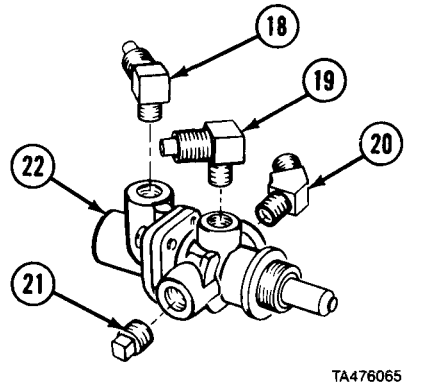
(8) Install fitting (13) in box (2) with lockwasher (15) and nut (16).
(9) Coat threads of elbow (17) with pipe thread sealing compound and install in fitting (13).



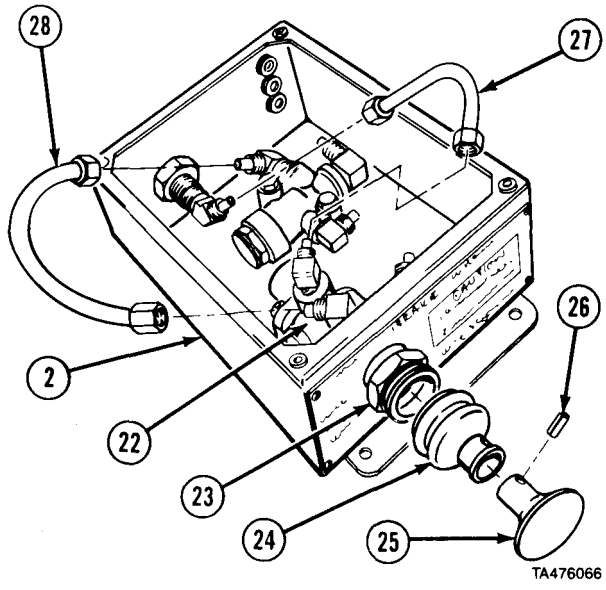
TA476064

11-46. FRONT SERVICE BRAKE CONTROL VALVE BOX REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

(10) Coat threads of three elbow (18, 19 and 20) and plug (21) with pipe thread sealing compound and install on valve (22).

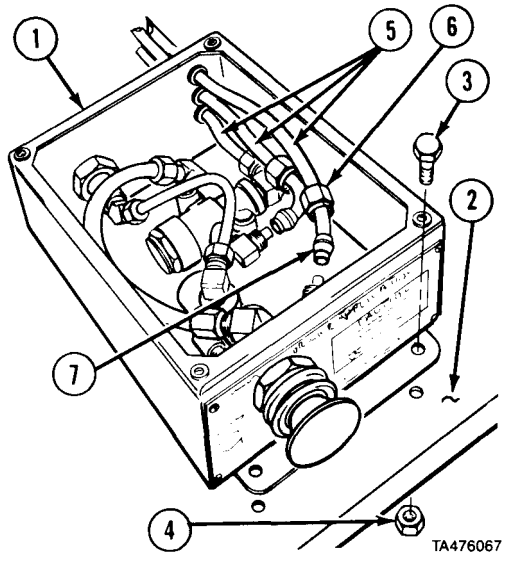


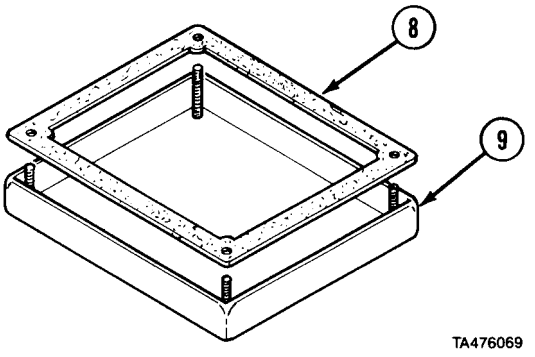
(11) Install valve (22) in box (2) with nut (23).
(12) Install boot (24) on knob (25).
(13) Install knob (25) on valve (22) with roll pin (26).
(14) Install two hoses (27 and 28) in box (2).



e. Installation.

(1) Install box (1) on fender (2) with four screws (3) and locknuts (4).
(2) Install three hoses (5) in box (l).
(3) Install three nuts (6) and bushings (7) on hoses (5).
(4) Connect three hoses (5).

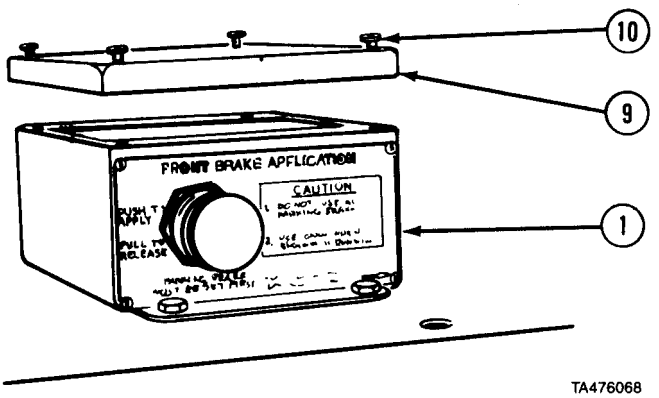




WARNING

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

(5) Apply a small bead of adhesive all the way around gasket (8) and install on cover (9).



(6) Install cover (9) on box (1) and tighten four screws (10).

f. Follow-on Maintenance.

(1) Start engine, build up air pressure (TM 9-2320-279-10).
(2) Check lines and fittings for leaks.
(3) Shut off engine (TM 9-2320-279-10).

END OF TASK

CHAPTER 12
WHEEL MAINTENANCE

Contents

	Para	Page
General	12-1	12-1
Hub and Drum Assembly, Wheel Bearing, and Stud Removal/Installation, No. 1 and No. 2 Axles	12-2	12-1
Hub, Wheel Bearing, and Wear Ring Removal/Installation, No. 3 and No. 4 Axles (Model 480) (M977, M978, M983, M985)	12-3	12-9
Rear Brakedrum Removal/Installation (M977, M978, M983, M985, M985E1)	12-4	12-15
Brakedrum, Wheel Hub, Bearing, Oil Seal, and Wear Ring Removal/Installation, No. 3 and No. 4 Axles (Models 580 and 650) (M984, M984E1)	12-5	12-19
Wheel/Tire Assembly Repair (Three Piece Split Rim)	12-6	12-24
Wheel/Tire Assembly Repair (Two Piece Bolt Together Wheel)	12-6.1	12-32.1

Section I. INTRODUCTION

12-1. GENERAL. This chapter contains maintenance instructions for removing, servicing, and installing the hub and drum components authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level. For repair procedures and equipment for HEMTT tires, refer to TM 9-2610-200-14.

Section II. HUB AND DRUM

Wheel Maintenance Instructions

12-2. HUB AND DRUM ASSEMBLY, WHEEL BEARING, AND STUD REMOVAL/INSTALLATION, NO. 1 AND NO. 2 AXLES.

This task covers:

a. Removal
b. Inspection
c. Bearing Cup, Wheel Stud, and Hub Removal
d. Bearing Cup, Wheel Stud, and Hub Installation
e. Installation
f. Follow-on Maintenance.

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
Wrench, wheel bearing 409GX

Supplies
Adhesive-sealant, silicone, Item 4, Appendix C
Grease, automotive and artillery, Item 23, Appendix C
Oil, lubricating, Item 33, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
TM 9-214
TM 9-2610-200-14

Equipment Condition

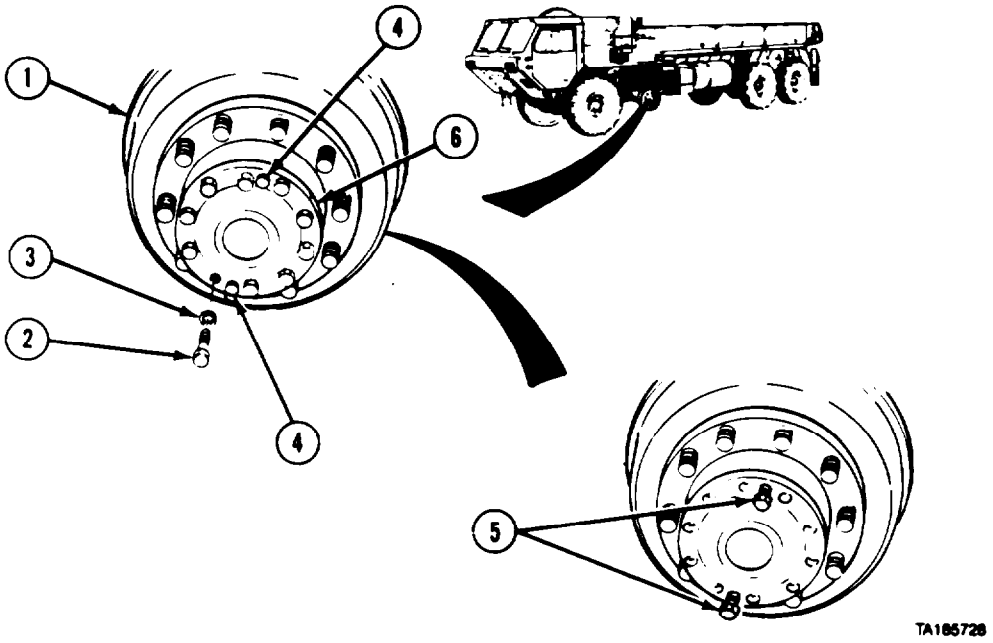
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Wheel and tire removed.

Special Environmental Conditions
None

General Safety Instructions
Do not get under vehicle unless supported by jackstands.
Wheels chocked.

12-2. HUB AND DRUM ASSEMBLY, WHEEL BEARING, AND STUD REMOVAL/INSTALLATION NO. 1 AND NO. 2 AXLES CONT).

a. Removal.

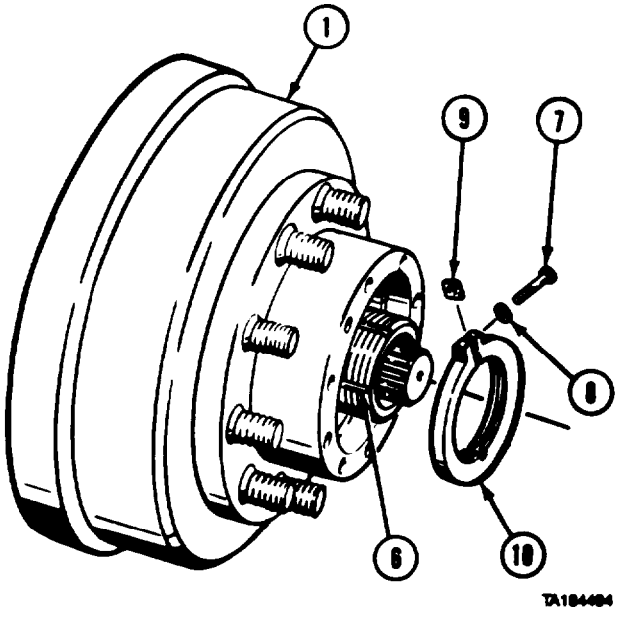


WARNING

Use jackstands to support weight of axle. Failure to do so could result in personal injury.

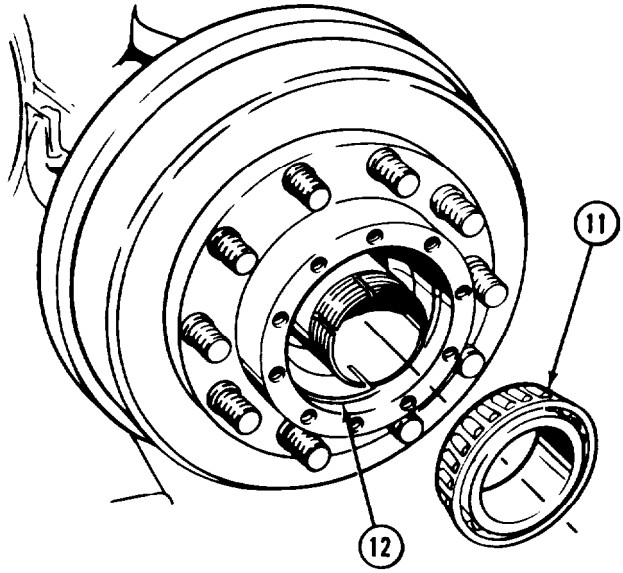
(1) Keep hub and drum assembly (1) from turning. Remove 10 screws (2) and lockwashers (3).
(2) Remove two screws (4).
(3) Use puller screws (5) to remove hub cap (6). Remove two puller screws.

(4) Turn hub and drum assembly (1) to recess (6) and remove screw (7), lockwasher (8), and lock (9).
(5) Using wheel bearing wrench, remove locknut (10).



Wheel Maintenance Instructions (Cont)

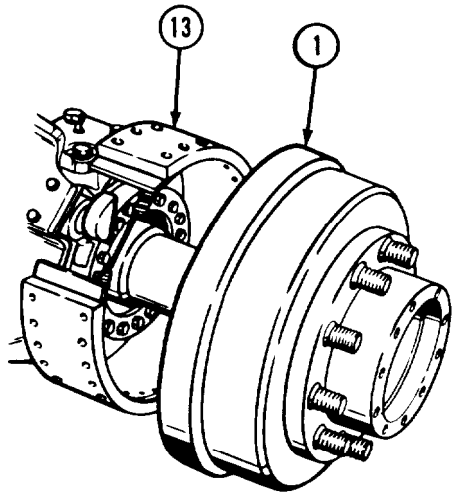
(6) Remove outer bearing (11) from outer bearing cup (12).



NOTE

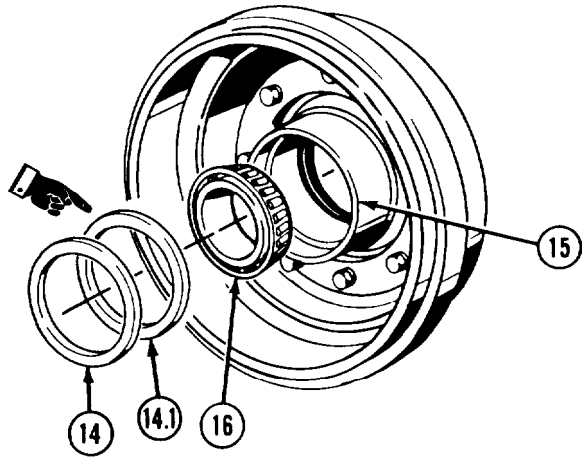
If hub and drum assembly will not come off, loosen slack adjuster (para 11-5 or para 11-5.1).

(7) Soldier A and Soldier B pull hub and drum assembly (1) from brakeshoe (13).



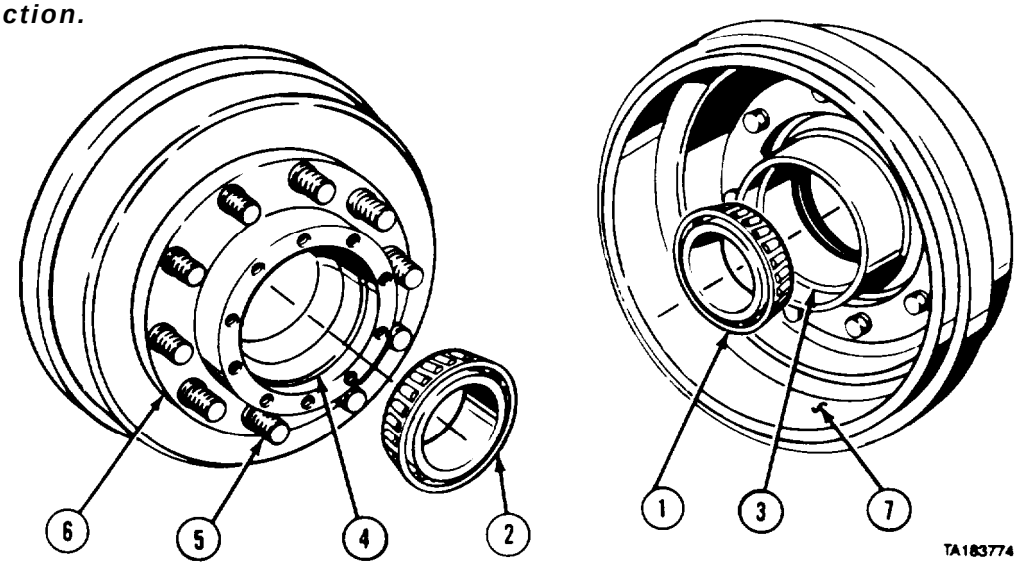
(8) Remove oil seal (14) and spacer (14.1) from hub (15).

(9) Lift out inner bearing (16).



12-2. HUB AND DRUM ASSEMBLY, WHEEL BEARING, AND STUD REMOVAL/INSTALLATION, NO. 1 AND NO. 2 AXLES (CONT).

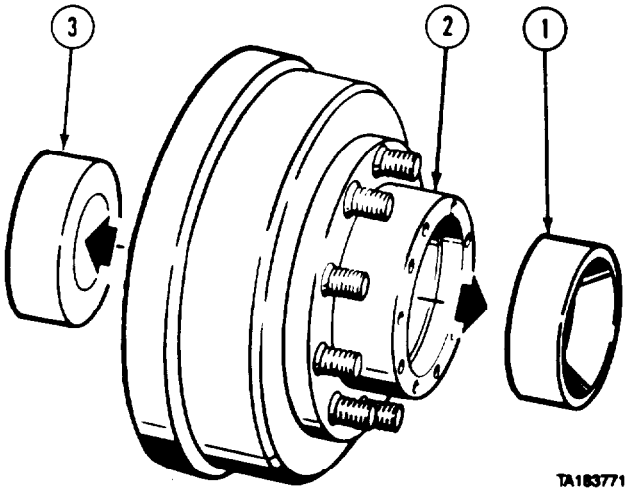
b. Inspection.



(1) Clean and inspect inner and outer bearings (1 and 2) inner bearing cup (3) and outer bearing cup (4) for cracks and pitting (TM 9-214).
(2) Inspect wheel studs (5) for stripped threads, breaks, cracks, or loose fit. If damaged, replace.
(3) Inspect hub (6) and drum (7) for breaks or cracks, and grooves at braking surfaces. If damaged, replace.

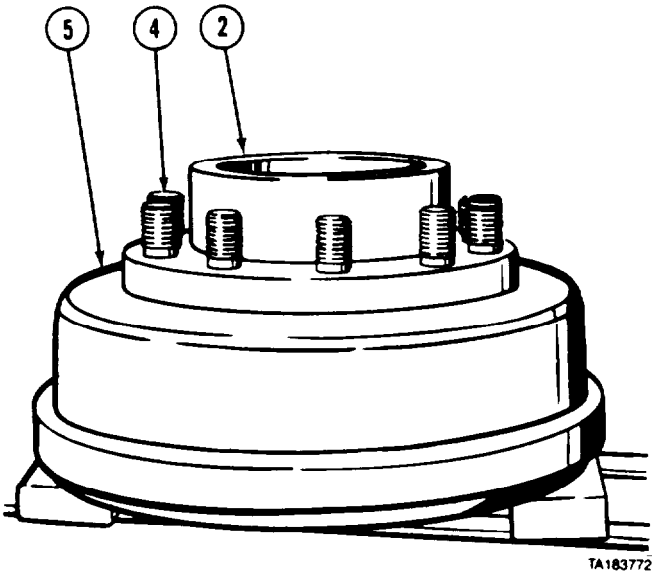
c. Bearing Cup, Wheel Stud, and Hub Removed.

(1) Drive outer bearing cup (1) out of hub (2).
(2) Drive inner bearing cup (3) out of hub (2).



Wheel Maintenance Instructions (Cont)

(3) Drive out 10 wheel studs (3) from hub (2) and drum (5).
(4) Remove hub (2) from drum (5).

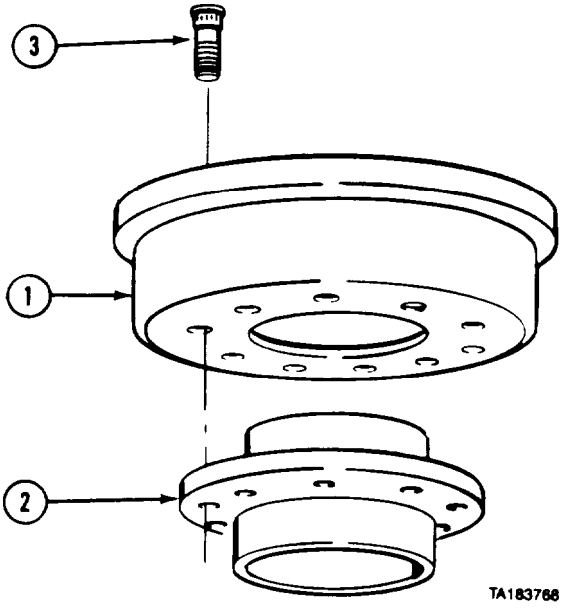


d. Bearing Cup, Wheel Stud, and Hub Installation.

NOTE

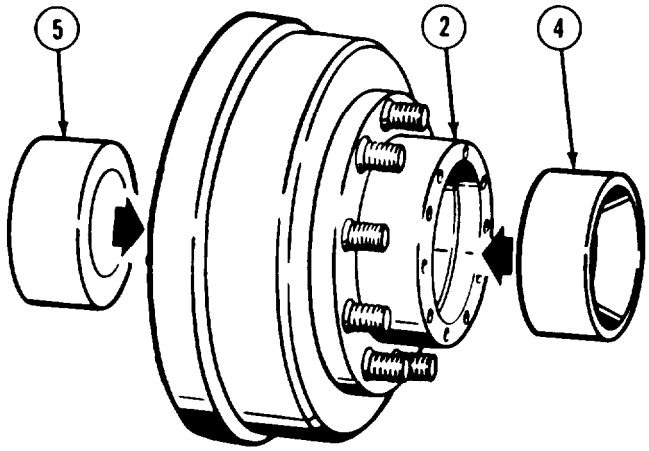
Studs are stamped R and L. R studs are threaded for installation into right side of vehicle only. L studs are threaded for installation into left side of vehicle only. Be sure to install correct studs in hub.

(1) Position drum (1) on hub (2).
(2) Drive 10 wheel studs (3) through drum (1) in hub (2).

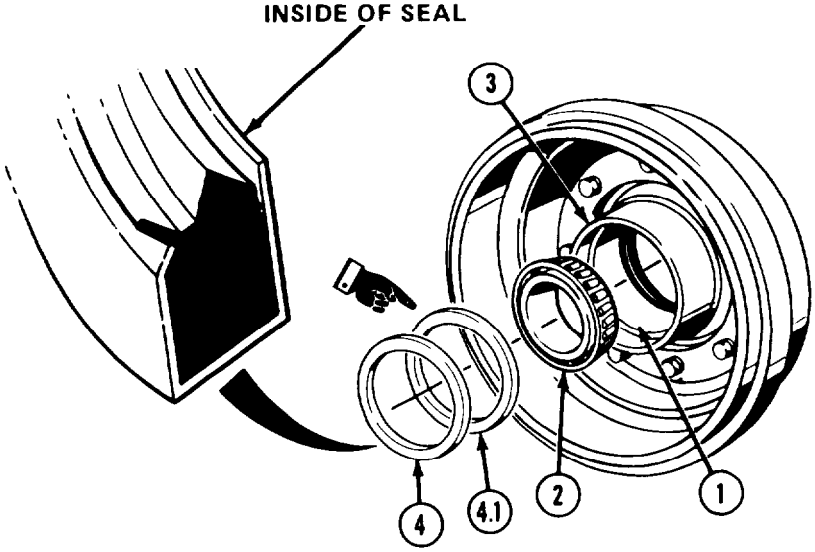


12-2. WHEEL AND DRUM ASSEMBLY, WHEEL BEARING AND STUD REMOVAL/INSTALLATION, NO. 1 AND NO. 2 AXLES (CONT).

(3) Install outer bearing cup (4) and inner bearing cup (5) in hub (2) with stamped face pointing into hub (2).



e. Installation.



(1) Apply grease to inside of inner bearing cup (1) and pack inner bearing (2) with grease.
(2) Install inner bearing (2) in hub (3).

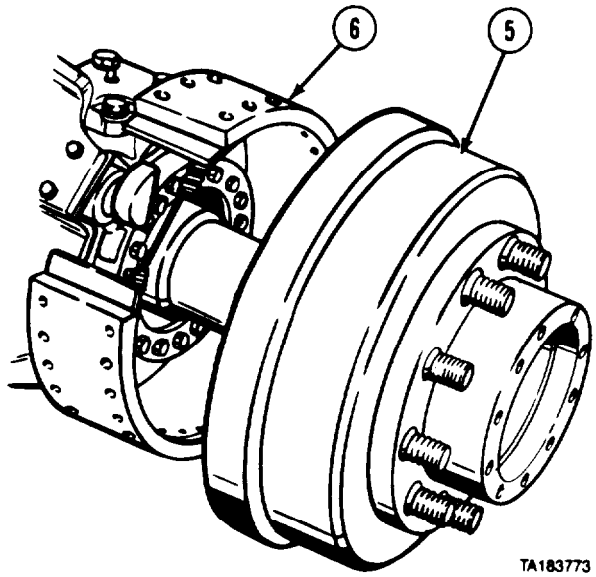
NOTE

Inside of oil seal is facing hub when installed.

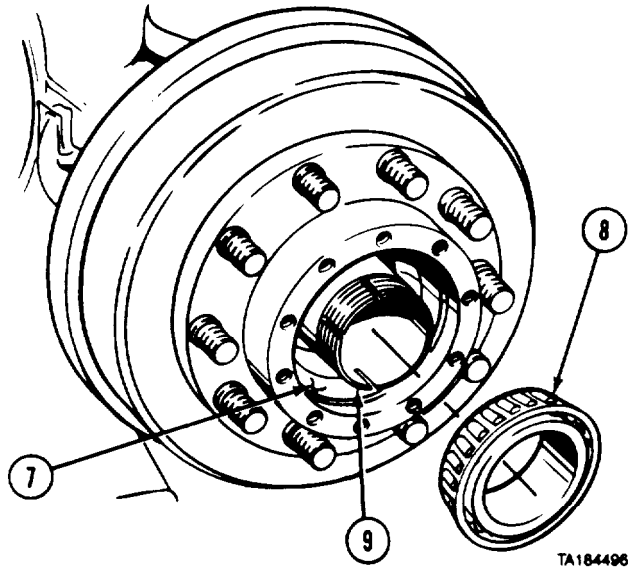
(3) Coat inside of oil seal (4) with lubricating oil.
(3.1) Install spacer (4.1) and oil seal (4) in hub (3).

Wheel Maintenance Instructions (Cont)

(4) Soldier A and Soldier B slide hub and drum assembly (5) over brakeshoe (6).



(5) Apply grease to inside of outer bearing cup (7) and pack outer bearing (8) with grease.
(6) Position outer bearing (8) over axle stub (9).



12-2. WHEEL AND DRUM ASSEMBLY, WHEEL BEARING AND STUD REMOVAL/INSTALLATION, NO. 1 AND NO. 2 AXLES (CONT).

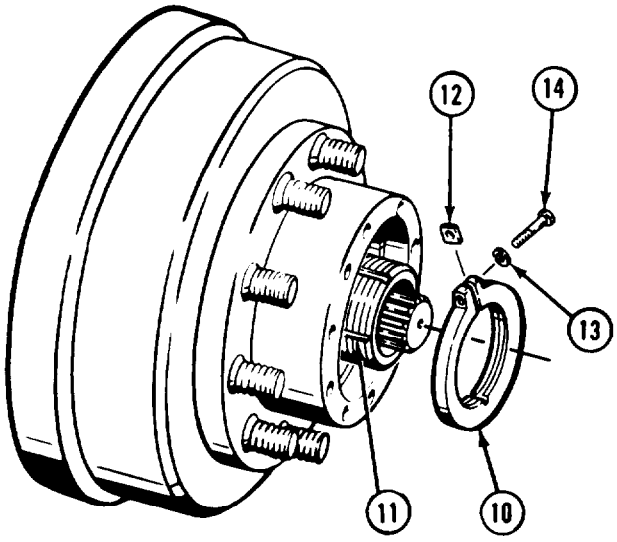
(6.1) Loosely install locknut (10).

NOTE

Rotate wheel hub during adjustment.

(7) Using wheel bearing wrench, tighten locknut (10) to 100 lb-ft (135.6 N•m), loosen 1/2 turn, and retighten to 50 lb-ft (68 N•m).

(7.1) Loosen locknut (10) until, slot in locknut alines with nearest groove.



WARNING

Ensure that the lock hole is in the center and that the lock is not damaged. A defective lock could cause the wheel to come off resulting in injury to personnel and/or damage to equipment.

(8) Aline lock (12) in locknut (10) and groove (11).

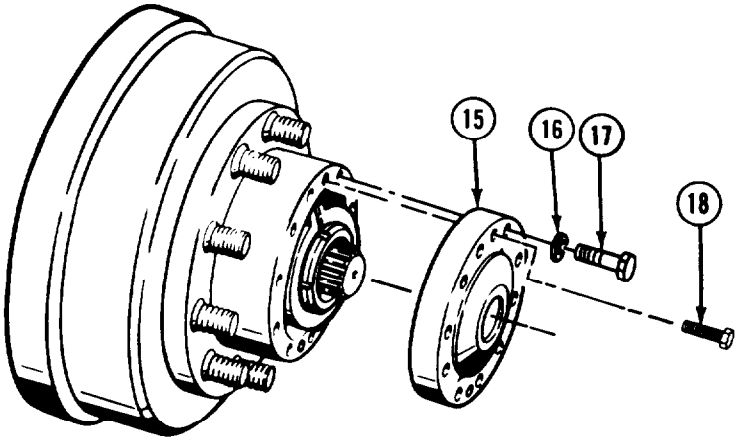
(9) Install lockwasher (13) and screw (14). Tighten to 30 lb-ft (41 N•m).

WARNING

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

(10) Apply silicone adhesive-sealant to hub cap (15) and install with 10 lockwashers (16) and screws (17).

(11) Install two screws (18).



f. Follow-on Maintenance.

(1) Install wheel and tire (TM 9-2320-279-10).

(2) Adjust brakes (para 11-7).

END OF TASK

12-3. HUB, WHEEL BEARING AND WEAR RING REMOVAL/INSTALLATION, NO. 3 AND NO. 4 AXLES (MODEL 480) (M977, M978, M983, M985).

This task covers:

a. Removal
b. Cleaning/Inspection
c., Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
M977, M978, M983, M985

Test Equipment
None

Special Tools
Handle, RD296
Adapter, RD289
Pilot, RD415
Adapter, RD305

Supplies
Oil, lubricating, Item 33, Appendix C
Grease, automotive and artillery, Item 23, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
TM 9-214

Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.
Para 10-5	Axle shaft removed.
Para 12-4	Rear brake drum removed.

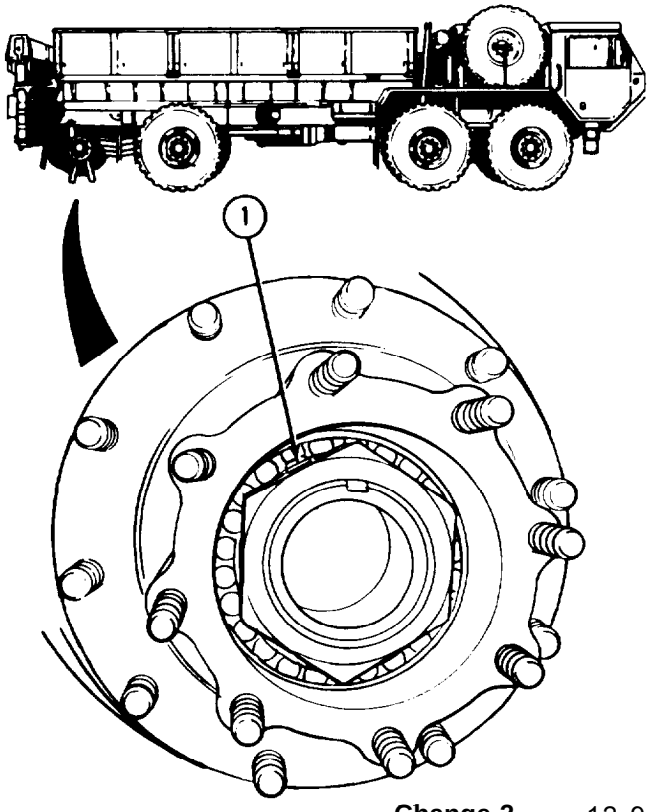
Special Environmental Conditions
None

General Safety Instructions
Do not get under vehicle unless supported by jackstands.
Wheels chocked.

a. Removal.

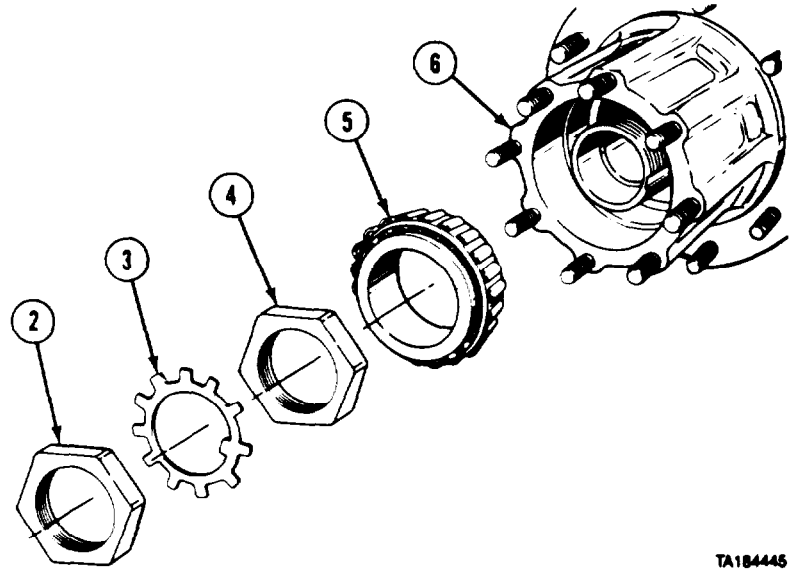
NOTE
One lockwasher tang is bent down over flat of each adjusting nut.

(1) Straighten lockwasher tang (1).

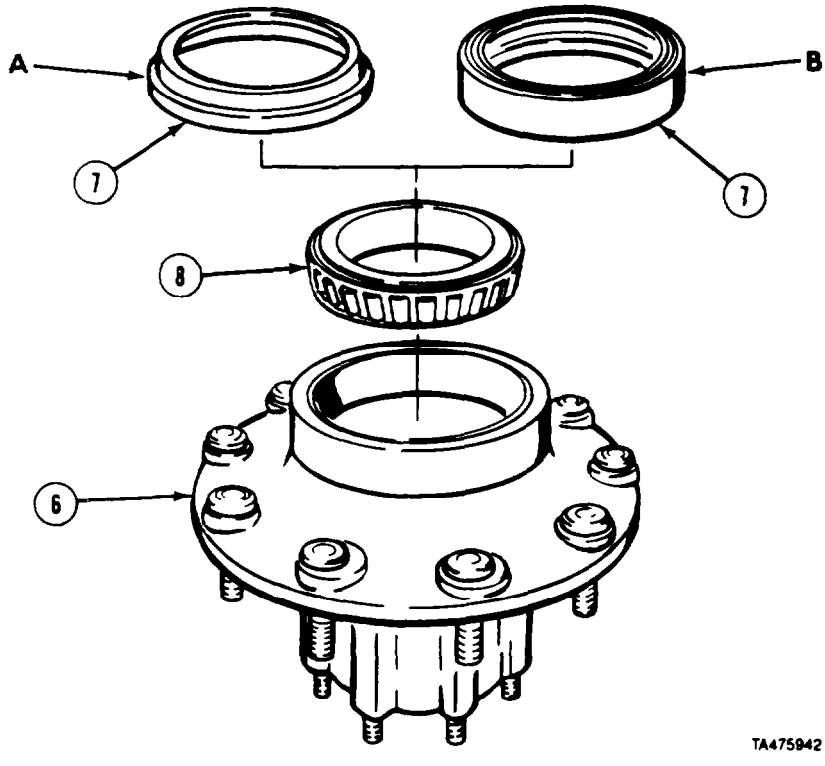


12-3. HUB, WHEEL BEARING, AND WEAR RING REMOVAL/INSTALLATION, NO. 3 AND NO. 4 AXLES (MODEL 480) (M977, M978, M983, M985) (CONT).

(2) Remove outer adjusting nut (2).
(3) Remove tanged lockwasher (3).
(4) Remove inner adjusting nut (4).
(5) Remove outer bearing (5)
(6) Soldier A and Soldier B remove hub (6).



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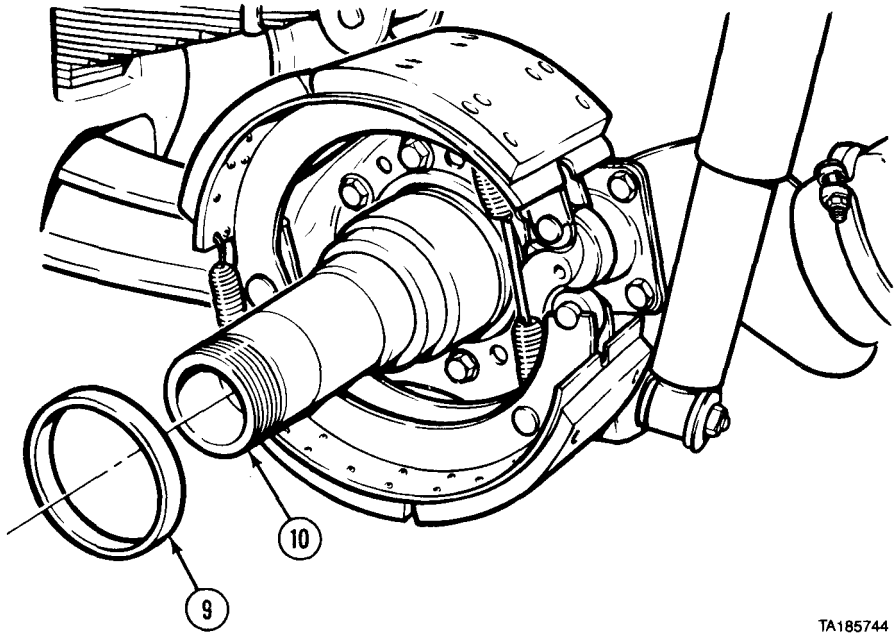
TA475942

(7) Remove seal (7) and inner **bearing (8) from hub (6).**

NOTE

If Seal A is removed from hub, **continue with step (8). If Seal B is removed,** continue with step (9).

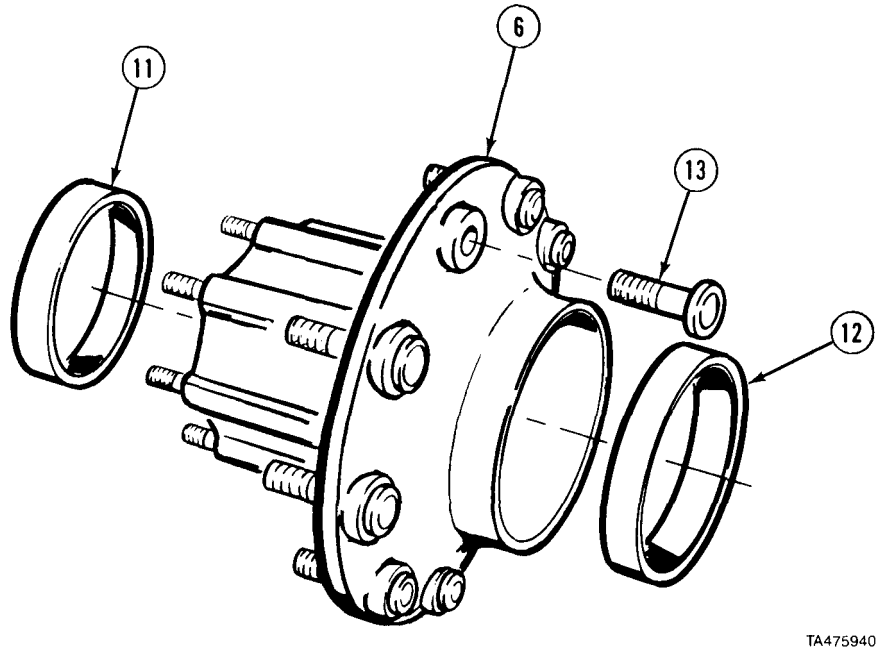
Wheel Maintenance Instructions (Cont)



NOTE

Not all axle housings have wear rings

(8) Remove wear ring (9) from axle housing (10).



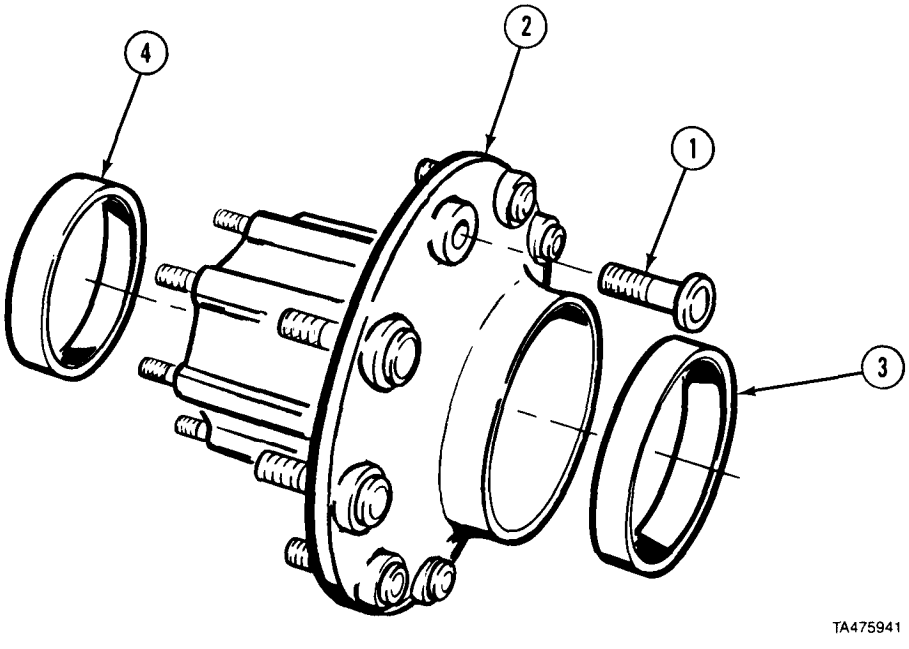
(9) Drive outer bearing cup (11) out through front of hub (6).
(10) Drive inner bearing cup (12) out through rear of hub (6).
(11) Drive out 10 wheel studs (13) from hub (6).

12-3. HUB, WHEEL BEARING, AND WEAR RING REMOVAL/INSTALLATION, NO. 3 AND NO. 4 AXLES (MODEL 480) (M977, M978, M983, M985) (CONT).

b. Cleaning/Inspection.

(1) Clean and inspect inner bearing, inner bearing cup, and outer bearing cup for cracks and pitting (TM 9-214).
(2) Inspect wheel studs for stripped threads, breaks, cracks, or loose fit in hub. If damaged or loose, replace.
(3) Inspect hub for breaks or cracks, and grooves at braking surface. If damaged, replace.

c. Installation.

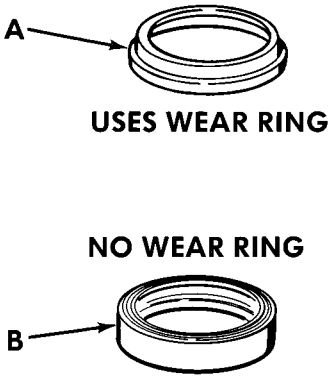


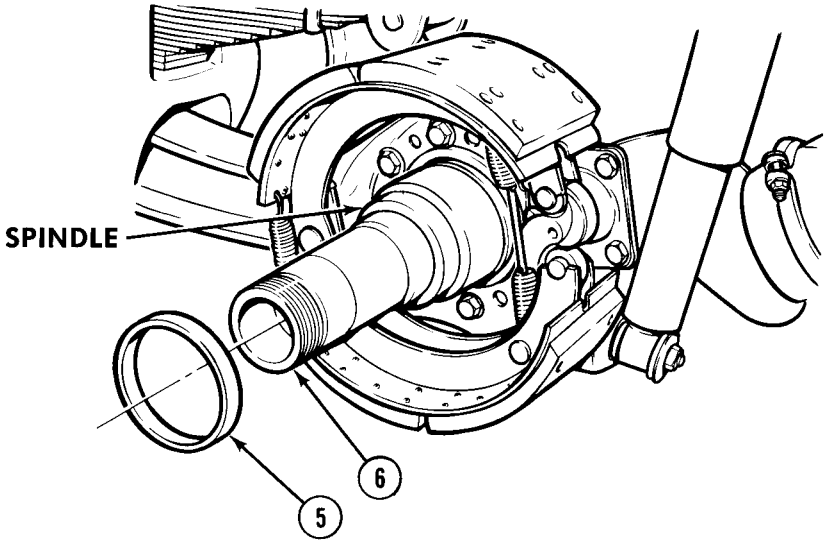
NOTE

Studs are stamped R and L. R studs are threaded for installation on right side of vehicle only. L studs are threaded for installation on left side of vehicle only. Be sure to install correct studs in hub.

(1) Drive 10 wheel studs (1) in hub (2).
(2) Line inner wall of hub (2) with grease.
(3) Install inner bearing cup (3) in rear of hub (2) with stamped face pointing in toward rear of hub.
(4) Install outer bearing cup (4) in front of hub (2) with stamped face pointing in toward front of hub.

Wheel Maintenance Instructions (Cont)





NOTE

If seal kit contains seal A, install wear ring on axle spindle before installing oil seal. If seal kit contains seal B, no wear ring is used.

(5) Install wear ring (5) on axle housing (6) with beveled edge facing out.

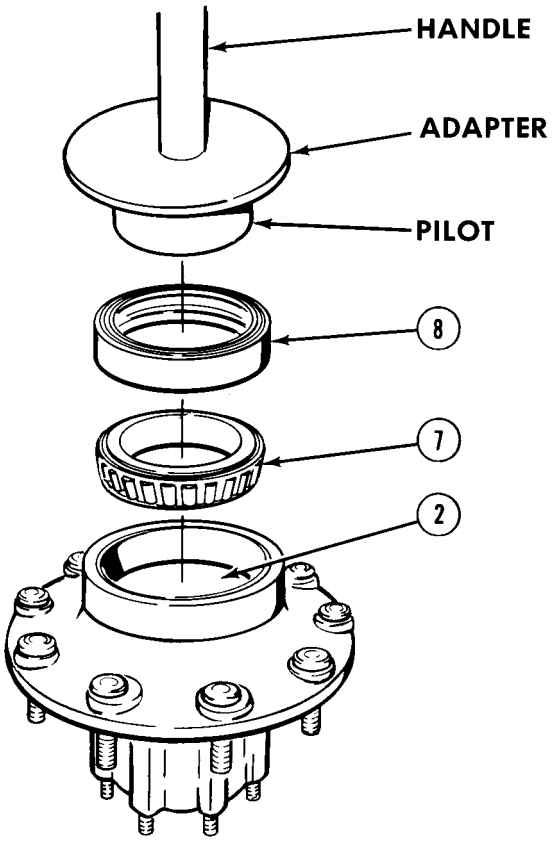
(6) Apply grease to inside of hub (2) and pack inner bearing (7).

(7) Install inner bearing (7).

(8) Coat inner lip of seal (8) with lubricating oil.

NOTE

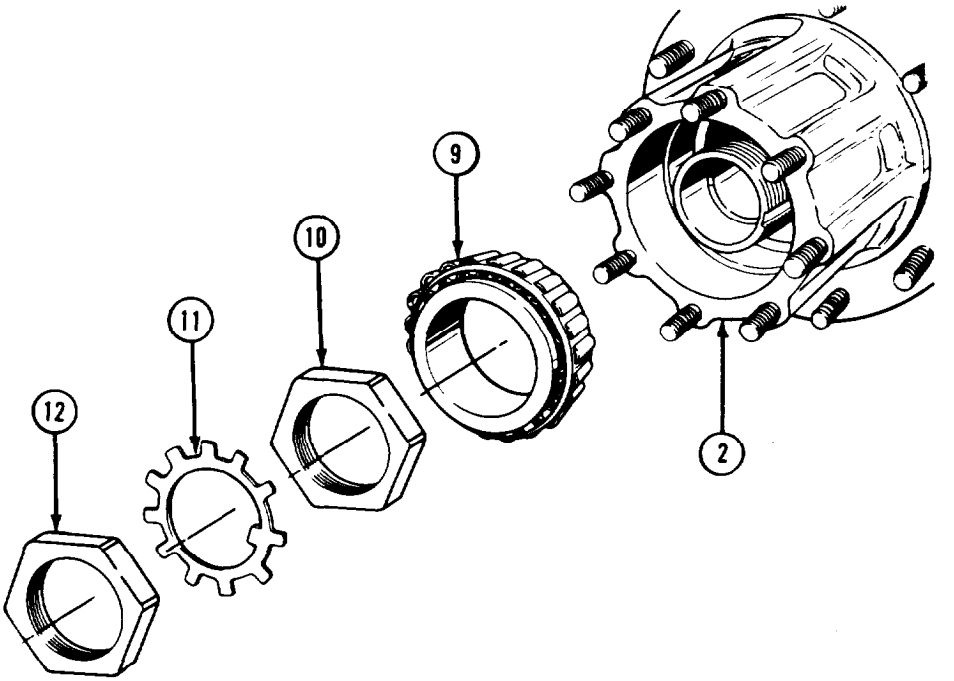
- Make sure hub is on a solid surface prior to using pilot, adapter and handle.
- If seal with wear ring is being installed, do not use handle, adapter, and pilot.
- Some hub assemblies use a newly designed seal B. This seal (P/N B-370003-BG3) is fully interchangeable and replaces previous seal B. However, a different adapter (RD 305) must be used to install this seal. If installing seal B (P/N B-37003-BG3), skip step *(9)* and do step *(9.1)*.
- Make sure seal is seated and square.



(9) Using handle, adapter (RD 289) and pilot, install seal (8) (P/N B-37003-BG0).

(9.1) Using handle, adapter (RD 305) and pilot, install seal (8) (P/N B-37003-BG3).

12-3. HUB, WHEEL BEARING, AND WEAR RING REMOVAL/INSTALLATION, NO. 3 AND NO. 4 AXLES (MODEL 480) (M977, M978, M983, M985) (CONT).



(10) Soldier A and Soldier B install hub (2).
(11) Pack outer bearing (9) with grease and install.

NOTE
Inner adjusting nut has a machined surface.

(12) Install inner adjusting nut (10) with machined surface against outer bearing (9).

NOTE
Rotate wheel hub during adjustment.

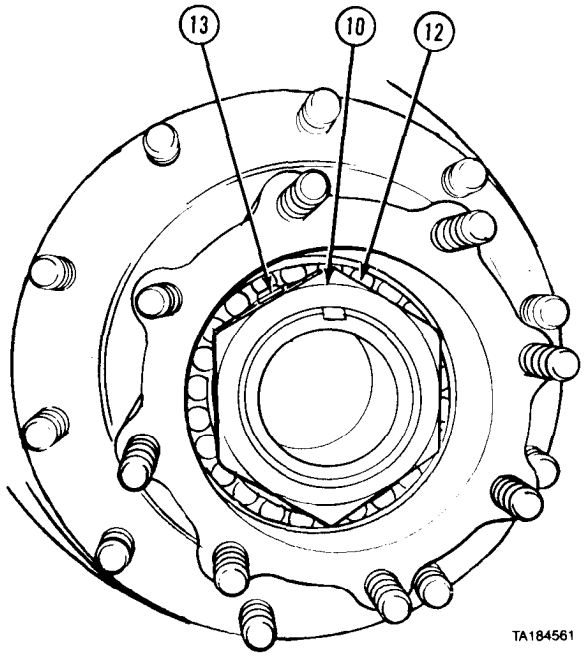
(12.1) Tighten inner adjusting nut (10) to 200 lb-ft (271.2 N•m).
(13) Loosen inner adjusting nut (101 and retighten to 50 lb-ft (67.8 N•m). Hub (2) should turn easily.
(14) Loosen inner adjusting nut (10) 1/8 turn.
(15) Install tanged lockwasher (11).
(16) Install outer adjusting nut (12) and tighten to 250 lb-ft (339 N•m).

(17) Bend one lockwasher tang (13) over flat of each adjusting nut (10 and 12).

d. Follow-on Maintenance.

(1) Install axle shaft (para 10-5).
(2) Install rear brakedrum (para 12-4),
(3) Install wheel and tire (TM 9-2320-279-10).

END OF TASK



12-4. REAR BRAKEDRUM REMOVAL/INSTALLATION (M977, M978, M983, M985, M985E1).

This task covers:

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

INITIAL SETUP

Models
M977, M978, M983, M985, M985E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Parking brake released.
TM 9-2320-279-10	Rear wheel removed.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked

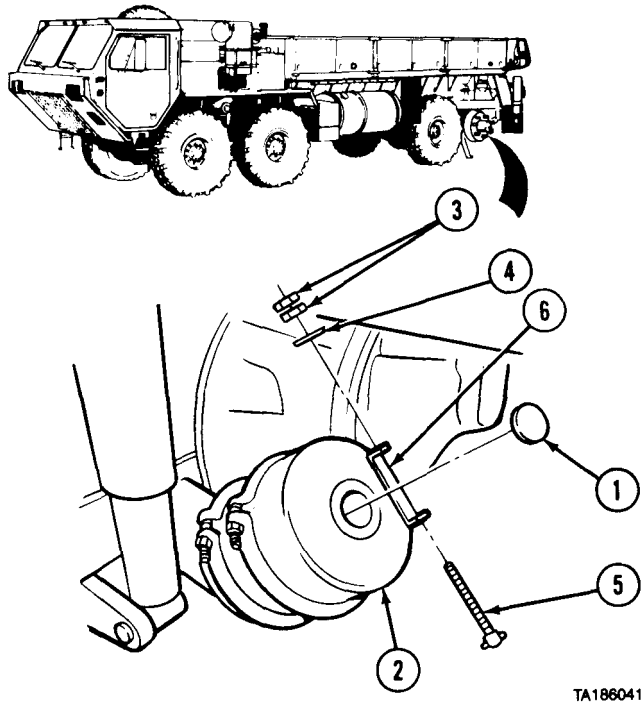
12-4. REAR BRAKEDRUM REMOVAL/INSTALLATION (M977, M978, M983, M985, M985E1) (CONT).

a. Removal.

NOTE

Left brake chamber on fourth axle is shown. Steps are the same for right side and third axle.

(1) Remove dust cap (1) from brake chamber (2).
(2) Remove two nuts (3), washer (4), and release bolt (5) from bracket (6).

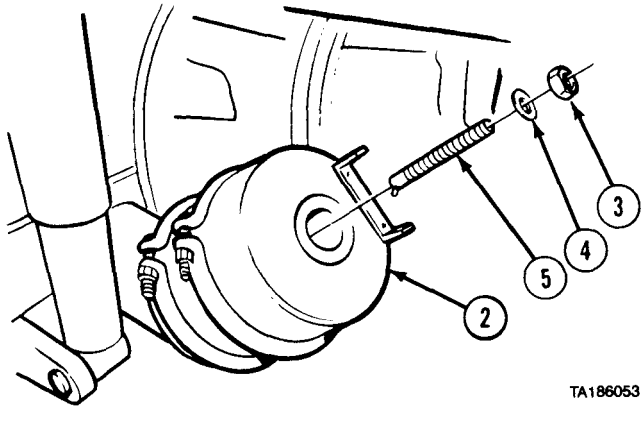


TA186041

WARNING

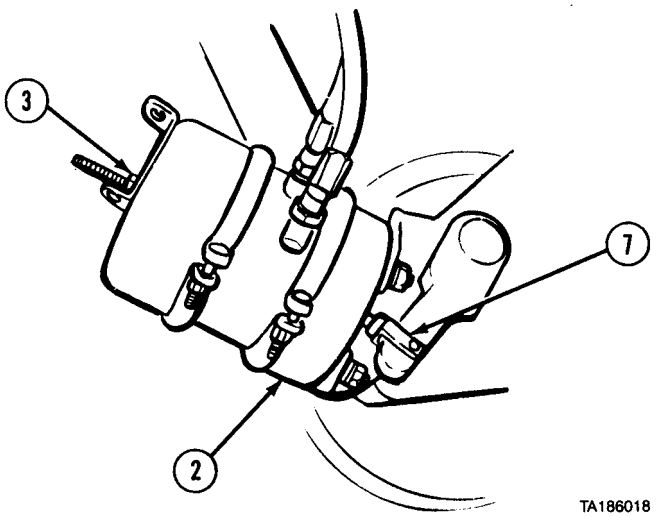
Failure to ensure brake chamber is caged while releasing brakes can result in serious injury or death. Spring is under 2500 lb (1135 kg) tension.

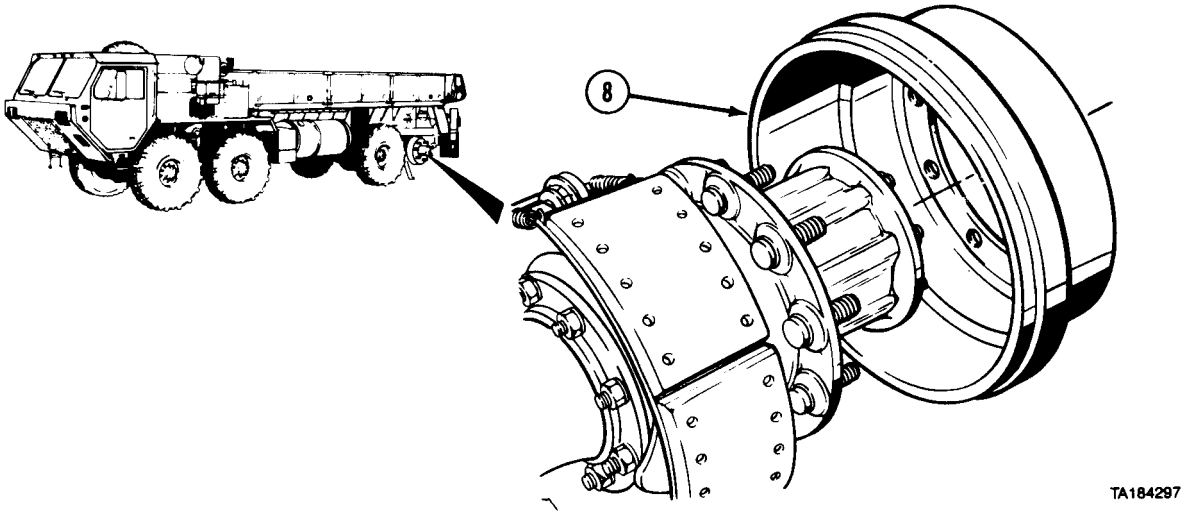
(3) Insert release bolt (5) in brake chamber (2).
(4) Turn release bolt (5) 1/4 turn to engage inside brake chamber (2).
(5) Install washer (4) and nut (3) on release bolt (5).



TA186053

(6) Tighten nut (3) until brake chamber yoke (7) is pulled to rear of brake chamber (2).



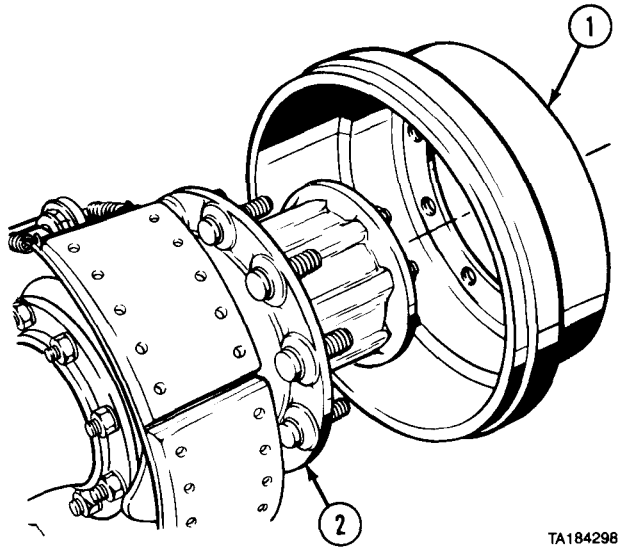


(7) Remove brakedrum (8).

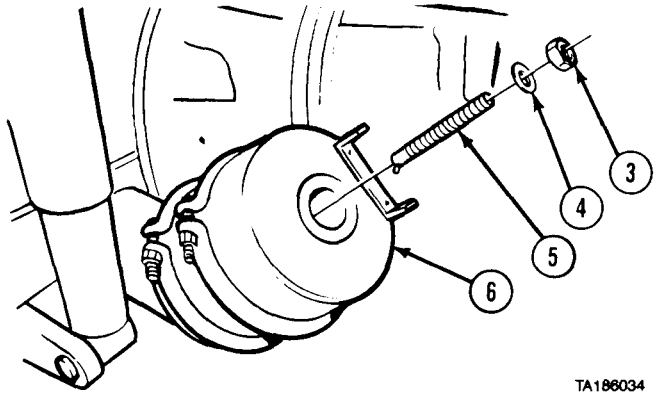
12-4. REAR BRAKEDRUM REMOVAL/INSTALLATION (M977, M978, M983, M985, M985E1) (CONT).

b. Installation.

(1) Install brakedrum (1) on hub (2).



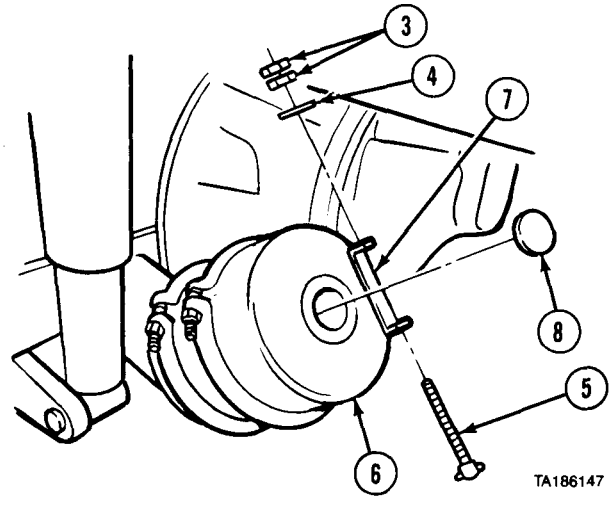
(2) Remove nut (3) and washer (4) from release bolt (5).
(3) Remove release bolt (5) from brake chamber (6).



(4) Install release bolt (5) in bracket (7) with washer (4) and two nuts (3).
(5) Install dust cap (8) in brake chamber (6).

c. Follow-on Maintenance. Install rear wheel (TM 9-2320-279-10).

END OF TASK



12-5. BRAKE DRUM, WHEEL HUB, BEARING, OIL SEAL AND WEAR RING REMOVAL/ INSTALLATION, NO. 3 AND NO. 4 AXLES (MODELS 580 AND 650).

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
M984, M984E1

Test Equipment
None

Special Tools
Handle, RD296
Adapter, RD291
Pilot, RD414

Supplies
Oil, lubricating, Item 33, Appendix C
Grease, automotive and artillery, Item 23, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
TM 9-214

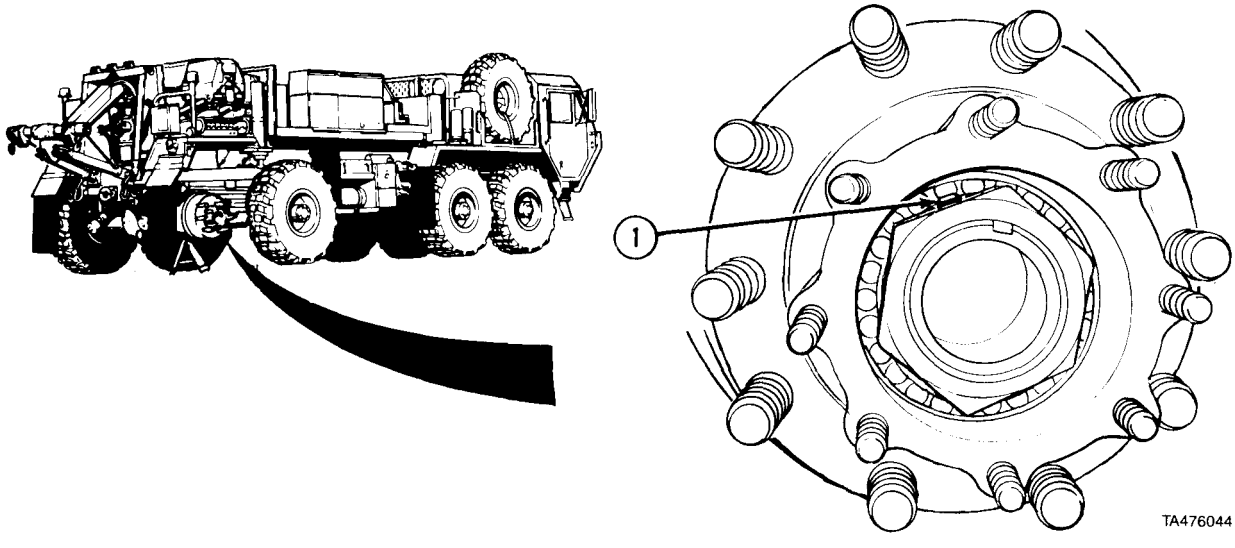
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Rear wheel removed.
Para 10-5	Axle shaft removed.
TM 9-2320-279-10	Manually release vehicle spring brakes.

Special Environmental Conditions
None

General Safety Instructions
Do not get under vehicle unless supported by jackstands. Wheels chocked.

a. Removal.

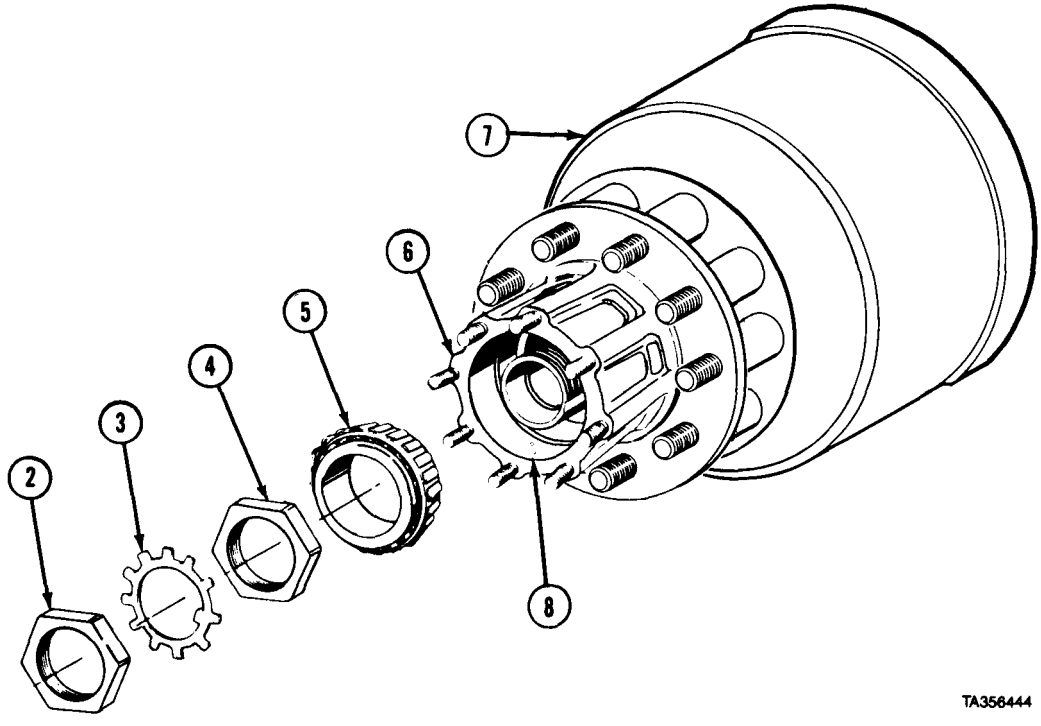


NOTE

One lockwasher tang is bent down over flat of each adjusting nut.

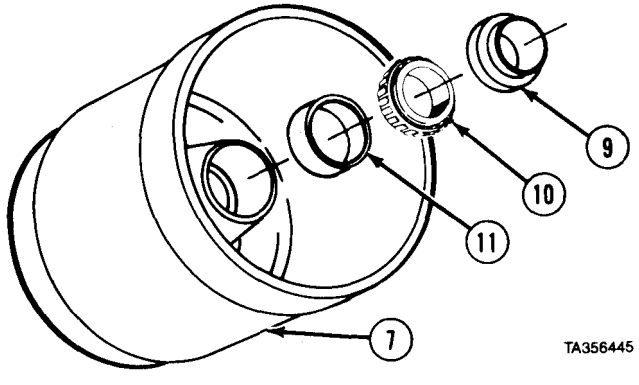
(1) Straighten lockwasher tang (1).

12-5. BRAKE DRUM, WHEEL HUB, BEARING, OIL SEAL AND WEAR RING REMOVAL/ INSTALLATION, NO. 3 AND NO. 4 AXLES (MODELS 580 AND 650) (CONT).



(2) Remove outer adjusting nut (2).
(3) Remove tanged lockwasher (3).
(4) Remove inner adjusting nut (4).
(5) Remove outer bearing (5).
(6) Soldier A and Soldier B lift wheel hub (6) and drum (7) off axle spindle (8) with suitable lifting device.

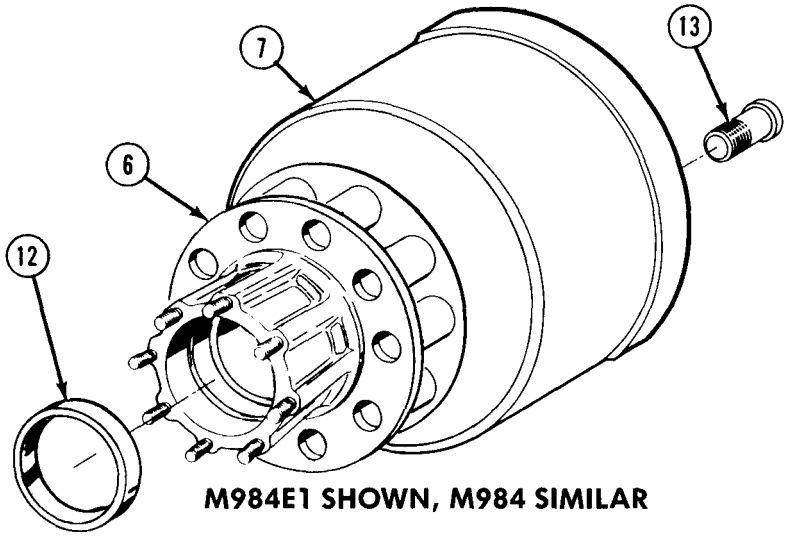
(7) Remove oil seal (9) and wheel inner bearing (10) from drum (7).
(8) Remove inner bearing cup (11).



Wheel Maintenance Instructions (Cont)

(9) Remove outer bearing cup (12) from front of wheel hub (6).

(10) Remove ten wheel studs (13) and separate wheel hub (6) from drum (7).



M984E1 SHOWN, M984 SIMILAR

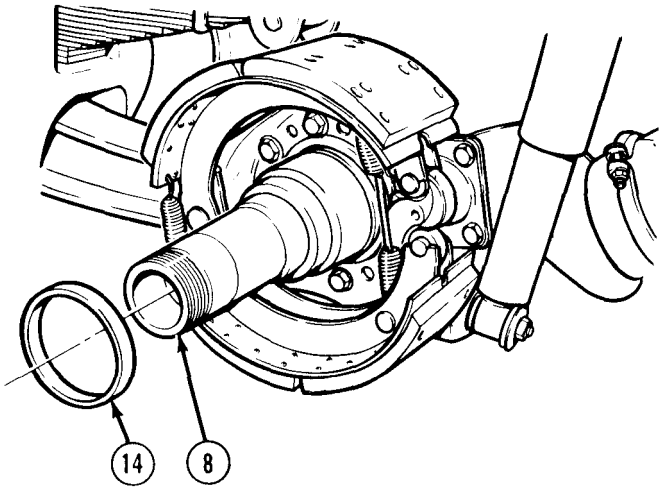
CAUTION

Do not use chisel to remove wear ring. Axle spindle could be damaged.

NOTE

- M984E1 and some M984 do not have wear rings.
- Use round end of ball peen hammer to flatten wear ring for removal.
- Always remove wear ring when removing wheel bearings.

(11) Remove wear ring (14) from axle spindle (8).



b. Cleaning/Inspection.

(1) Clean and inspect inner bearing, inner bearing cup, and outer bearing cup for cracks and pitting (TM 9-214).

(2) Inspect wheel studs for stripped threads, breaks, cracks, or loose fit in hub. If damaged, replace.

(3) Inspect hub for breaks or cracks, and grooves at braking surface. If damaged, replace.

(4) Deleted.

NOTE

Deleted.

12-5. BRAKE DRUM, WHEEL HUB, BEARING, OIL SEAL AND WEAR RING REMOVAL/ INSTALLATION, NO. 3 AND NO. 4 AXLES (MODELS 580 AND 650) (CONT).

c. Installation.

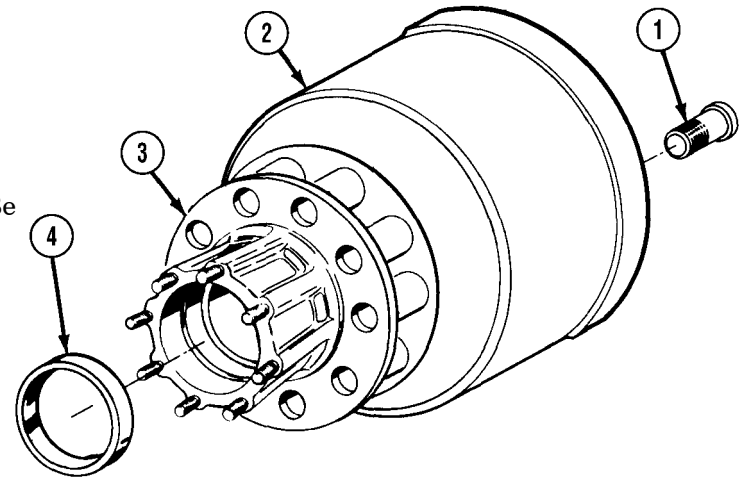
NOTE

New seal (7) does not require wear ring.

(1) Deleted.

NOTE

Studs are stamped R and L. R studs are threaded for installation on right side of vehicle only. L studs are threaded for installation on left side of vehicle only. Be sure to install correct studs into drum.



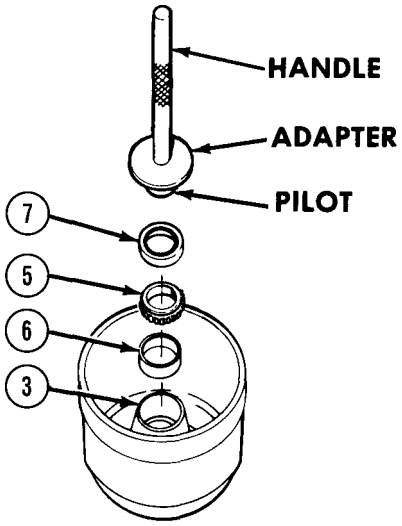
(2) Drive ten wheel studs (1) into drum (2).
(3) Install hub (3) onto drum (2).
(4) Install outer bearing cup (4) into hub (3).

(5) Apply grease to inside of hub (3). Pack inner bearing (5) with grease.
(6) Install inner bearing cup (6).
(7) Install inner bearing (5).

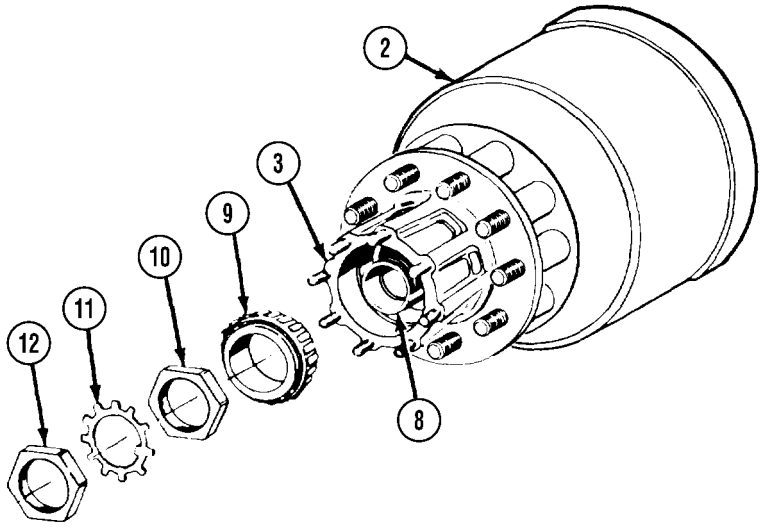
NOTE

Deleted.

(8) Coat inner lip of seal (7) with lubricating oil.
(9) Using handle, adapter, and pilot, install seal (7).



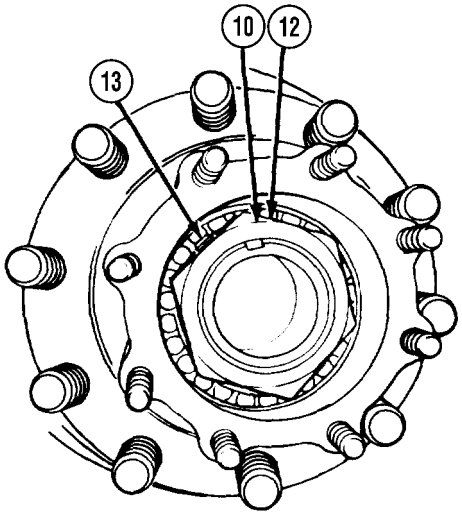
Wheel Maintenance Instructions (Cont)



(10) Soldier A and Soldier B install wheel hub (3) and drum (2) on axle spindle (8).
(11) Pack outer bearing (9) with grease and install.

NOTE
One adjusting nut has a machined surface.

(12) Install inner adjusting nut (10) with machined surface against outer bearing (9).
(12.1) Tighten inner adjusting nut (10) to 200 lb-ft (271.2 N•m).
(13) Loosen inner adjusting nut (10) and retighten to 50 lb-ft (67.8 N•m). Hub should turn easily.
(14) Back off inner nut (10) 1/8 turn.
(15) Install tanged lockwasher (11).
(16) Install outer adjusting nut (12) and tighten to 250 lb-ft (339 N•m).
(17) Bend one lockwasher tang (13) over one flat of each adjusting nut (10 and 12).



d. Follow-on Maintenance.

(1) Install axle shaft (para 10-5).
(2) Install wheel and tire (TM 9-2320-279-10).
(3) Uncage rear brake chambers (TM 9-2320-279-10).

END OF TASK

Section III. Wheel/Tire Assembly

Wheel Maintenance Instructions (Cont)

12-6. WHEEL/TIRE ASSEMBLY REPAIR (THREE PIECE SPLIT RIM).

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Models
All with three piece split rim.

Test Equipment
None

Special Tools
Tire iron (2) T23B
Tire iron T48A
Tire iron T52

Supplies
Lubricant, tire and rim, Item 24.1, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
TM 9-2610-200-14

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Engine shut off.
TM 9-2320-279-10	Wheels chocked.
TM 9-2320-279-10	Wheel and tire removed.

Special Environmental Conditions
None

General Safety Instructions

- Do not take tire pressure readings or perform wheel/tire repairs without first reading warnings or personal injury or death may result.
- Failure to comply with these procedures may result in faulty positioning of the tire and/or rim parts, and cause the assembly to burst with explosive force, sufficient to cause serious physical injury or death. Never mount or use damaged tires or rims.

CAUTION

For longer tire life and more efficient performance, all tires on a HEMTT must be of a single NSN. Improperly matched tires cause rapid, uneven wear. They can also cause transfer case and differential failures.

Wheel Maintenance Instructions (Cont)

a. Disassembly.

WARNING

- Wheel/tire assembly weighs 540 lbs (245 kg). Use suitable lifting device to lift wheel/tire assembly and prevent possible injury to personnel.
- Wheel/tire must be deflated in a safety cage or personal injury or death may result.

NOTE

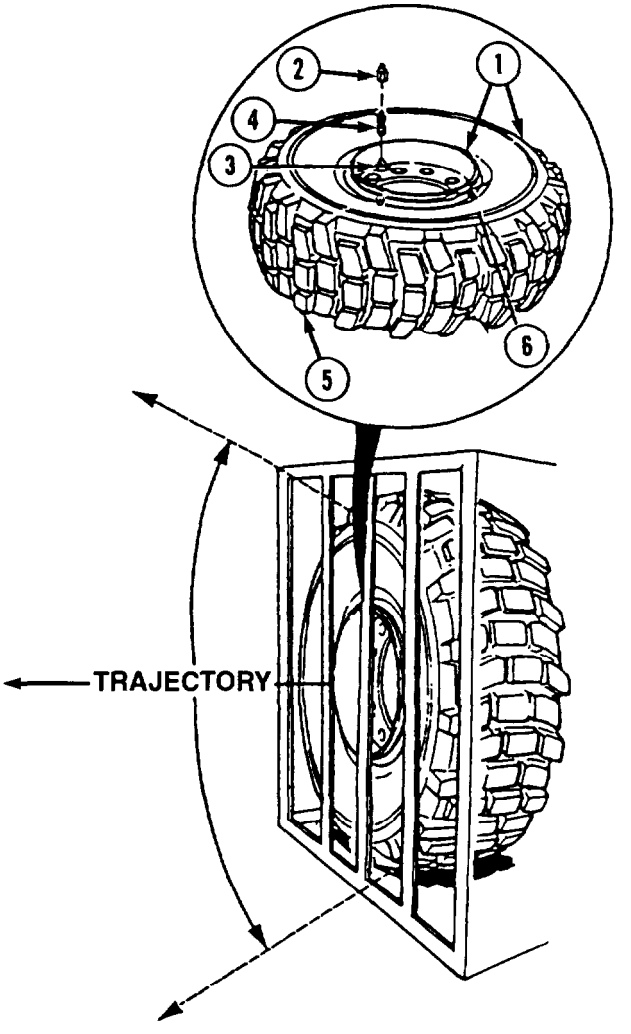
Refer to TM 9-2610-200-14 for construction of safety cage.

(1) Using lifting device, position wheel/tire assembly (1) in a safety cage.

(2) Remove cap (2) from valve stem (3).

WARNING

- Always completely deflate tire by removing valve core from valve stem before attempting demounting operation. After air has finished exhausting from valve stem, carefully run a piece of wire through valve stem to ensure it is not plugged and tire is completely deflated. Failure to comply may result in injury to personnel.
- High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.
- Stand clear of trajectory area during deflation, or personal injury or death may result.



(3) Using valve core inserter and remover, remove valve core (4) from valve stem (3) and completely deflate tire (5). Discard valve core.

NOTE

If required, turn valve stem toward lockring side of wheel.

(4) Remove wheel/tire assembly (1) from safety cage and position on wooden stand with lockring (6) facing up.

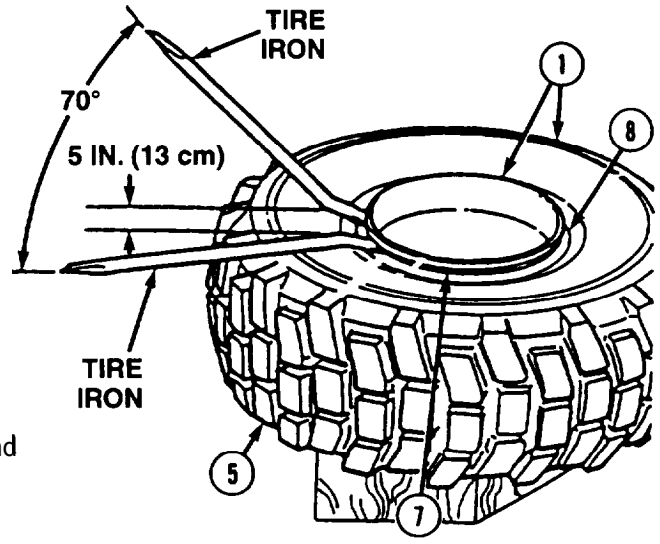
12-6. WHEEL/TIRE ASSEMBLY REPAIR (CONT).

(5) Insert the goose-necked end of two tire irons between tire (5) and side ring (7) approximately 5 in. (13 cm) apart.

CAUTION

- Ensure not to tear the chafer fabric when unseating the tire bead or damage to tire may result.
- Use tire lubricant as necessary to avoid damaging tire beads or bead seats during demounting.

(6) Pry both tire irons outward and sideways through an arc of about 70 degrees. Leave one tire iron in position and place the second tire iron approximately 5 in. (13 cm) away. Repeat this procedure until tire bead (8) is completely unseated.



WARNING

Lockring is under tension. If lockring breaks loose it could cause injury to personnel. Keep hands and fingers away from lockring when removing.

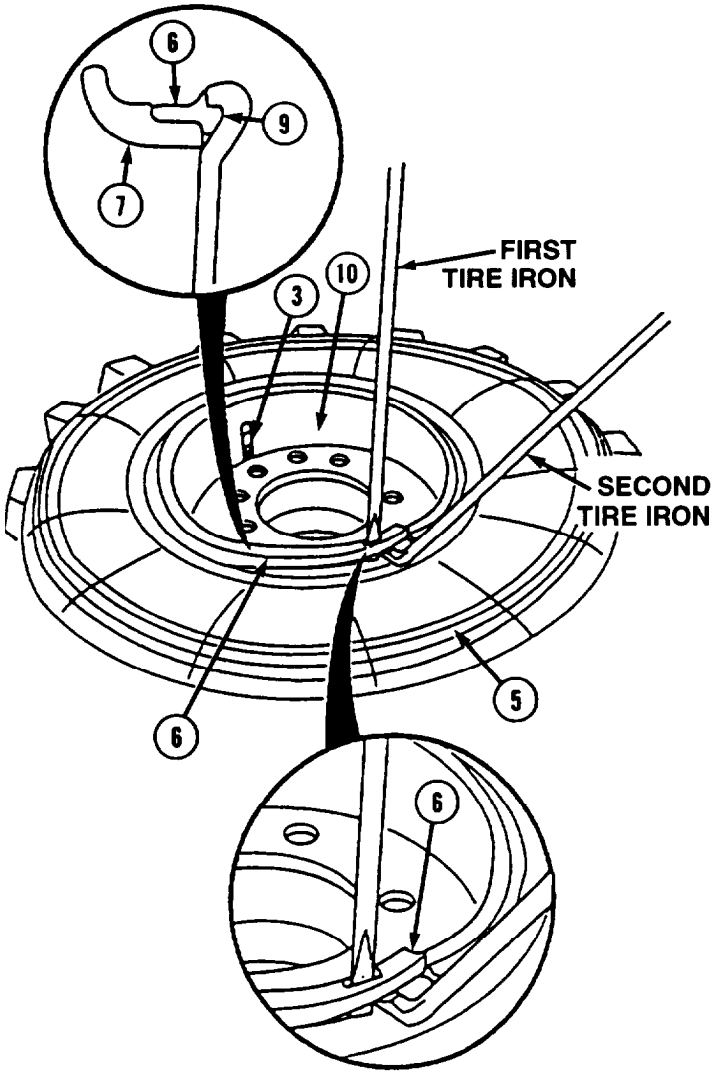
NOTE

Ensure side ring and tire side wall are depressed below lockring.

(7) Insert tire iron in tool notch in lockring (6) and pry lockring outward while using second tire iron to pry lockring upward, then using first tire iron next to second tire iron to pry lockring upward, continue around lockring until it is fully removed from lockring groove (9) in wheel (10).

(8) Remove side ring (7) from tire (5) and wheel (10). Use tire irons if necessary.

(9) Turn valve stem (3) to face away from lockring groove (9).



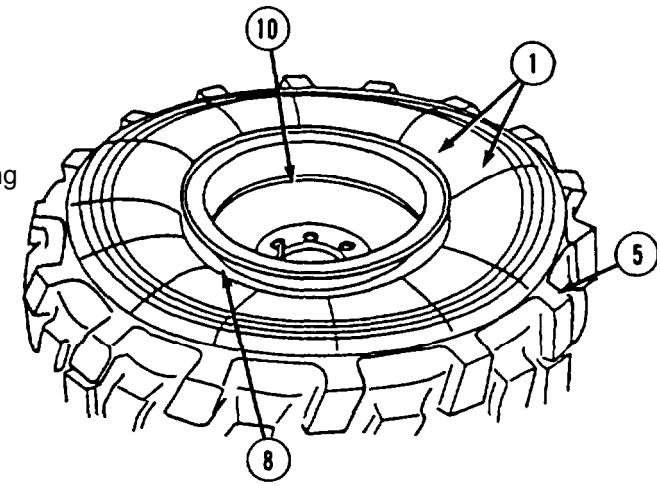
Wheel Maintenance Instructions (Cont)

WARNING

Wheel/tire assembly weighs 540 lbs (245 kg). Use suitable lifting device to lift wheel/tire assembly and prevent possible injury to personnel.

(10) Using lifting device, turn wheel/tire assembly (1) over on block so flange is facing up.

(11) Repeat steps (5) and (6) to unseat tire bead (8) from wheel/tire assembly (1).



WARNING

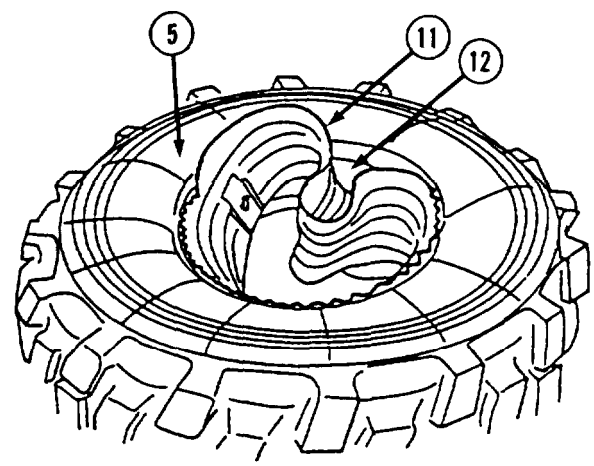
Wheel weighs 110 lbs (50 kg). Use suitable lifting device to lift wheel to prevent possible injury to personnel.

CAUTION

When removing wheel from tire, be careful to allow valve stem to clear the wheel valve stem slot or damage to valve stem will result.

(12) Using lifting device, remove wheel (10) from tire *(5).*

(13) Remove wooden stand from tire (5).



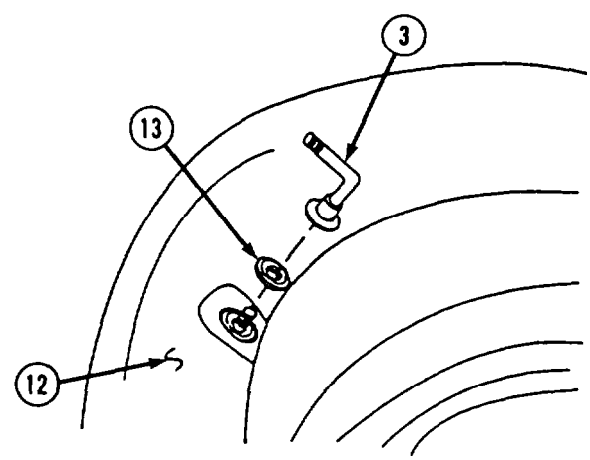
CAUTION

When removing flap from tire be careful not to damage valve stem.

(14) Remove flap (11) from tire (5).

(15) Remove inner tube (12) from tire (5).

(16) Remove valve stem (3) and rubber seal (13) from inner tube (12). Discard rubber seal.



12-6. WHEEL/TIRE ASSEMBLY REPAIR (CONT).

b. Cleaning/Inspection.

(1) Inspect tire tread for nails, glass and other foreign objects and for irregular wear, cuts and blisters.

(2) Inspect bead of tire for damaged rim seal ridges.

(3) Inspect complete inside surface of inner tire liner for imperfections, discoloration or irregular surface that may indicate excessive heat, breaks or other fabric damage.

(4) Do not use a wheel, side ring, or lock ring if they are cracked , broken, bent, heavily corroded, discolored from heat, sprung, or have irregular, warped, or damaged surfaces that may affect proper secure seating during assembly. Destroy all damaged parts in accordance with the regulatory supply update.

(5) Inspect wheel assembly (wheel, side ring, and lock ring) completely for any cracked, broken, or bent surfaces that may indicate excessive heat or impact damage. Check for elongated mounting holes. Check the lock ring groove for rust, dirt, dents, bends, cracks, burrs, a mashed groove, and irregular or warped surfaces that may affect lock ring mounting. Clean all rust and dirt from wheel, side ring, and lock ring surfaces using a wire brush, especially from the lock ring groove. Check the lock ring ends for burrs or damage that would cause the ends to touch when assembled. Inspect the two lock ring notches to ensure they are not damaged, cracked, or torn. Ensure that the outer notch is raised and the liner notch is indented.

(6) Remove rust, gummy rubber deposits, nicks and gouges in the rim bead seat surfaces.

(7) Inspect inner tube and flap for cuts, pinch marks, punctures or deterioration. Check valve stem for damage.

(8) Paint wheel assembly parts as needed to protect against rust.

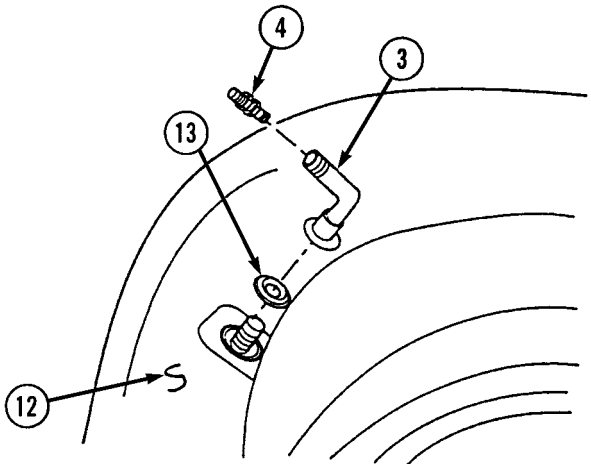
Wheel Maintenance Instructions (Cont)

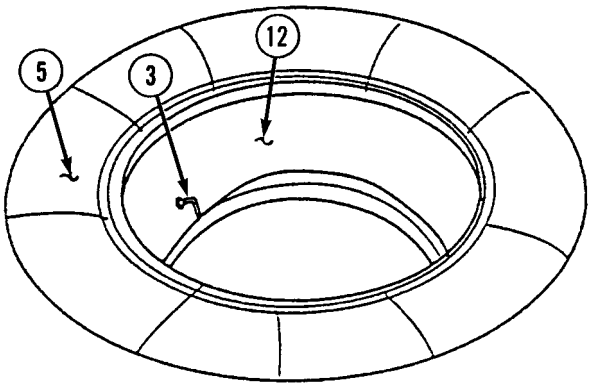
c. Assembly.

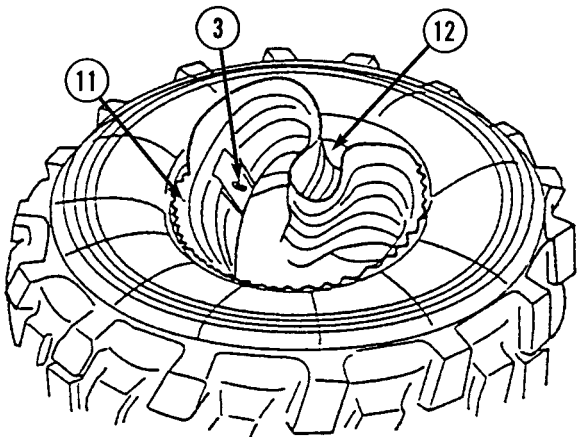
NOTE

- Always use a new tube and new flap when a new tire is being installed.
- There are two types of tires for the HEMTT. Model A is the Michelin XL or Goodyear AT2A. Model B is the Michelin XZL tire. Do not mix model A and B on the HEMTT.

(1) Install rubber seal (13) and valve stem (3) on inner tube (12).
(2) Install valve core (4) in valve stem (3).
(3) Install inner tube (12) in tire (5) with valve stem (3) pointing downward.
(4) Inflate inner tube (12) to just round out against side of tire (5).
(5) Lubricate flap (11) with tire lubricant and position over valve stem (3) and between bottom part of inner tube (12) and bottom part of tire (5).
(6) Install flap (11) between top of inner tube (12) and top of tire (5).







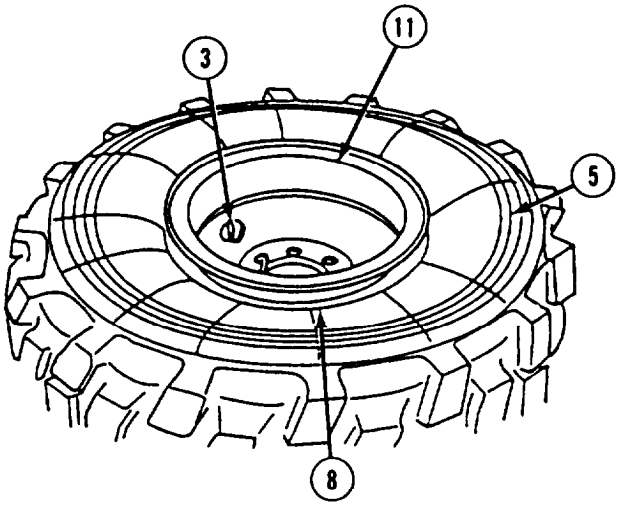
Wheel Maintenance Instructions (Cont)

CAUTION

Never use silicone, solvents or petroleum based lubricants on tire bead or bead seat areas. Failure to comply will result in damage to equipment.

(7) Lubricate both tire beads (8) and bead seat area of wheel (11) making sure excess lubricant does not run down into tire (5).

(8) Remove valve core (4) from valve stem (3) and allow air to escape.



WARNING

Wheel weighs 110 lbs (50 kg). Use a suitable lifting device to lift the wheel and prevent possible injury to personnel.

CAUTION

Carefully aline the wheel slot with the valve stem during installation or damage to the inner tube or valve stem will result.

(9) Aline wheel slot with valve stem (3) and using lifting device lower wheel (11) into tire (5). Push wheel until tire bead (8) makes contact with wheel flange.

WARNING

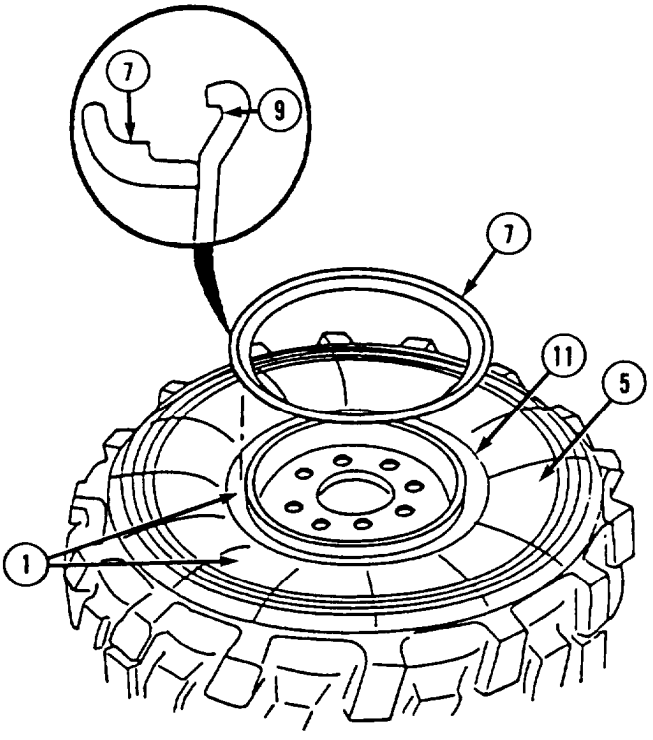
Wheel/tire assembly weighs approximately 540 lbs (245 kg). Use a suitable lifting device to lift the wheel/tire assembly and prevent possible injury to personnel.

(10) With lifting device, turn wheel/tire assembly (1) over and set on wooden stand.

NOTE

Standing on side ring may aid in assembly.

(11) Lubricate and position side ring (7) on wheel (11) and tire (5) and push straight down, ensuring that side ring does not bind on wheel. Check that side ring can be pushedpast lockring groove (9) to allow for correct lockring installation.

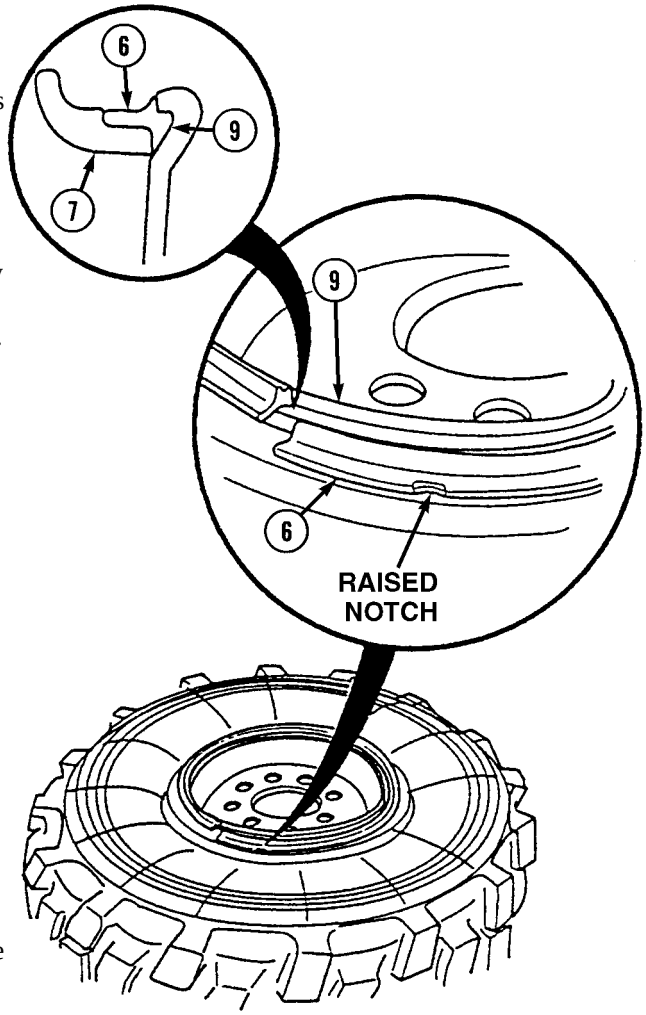


12-6. WHEEL/TIRE ASSEMBLY REPAIR (CONT).

WARNING

- When lockring snaps into position it could pinch hands and fingers. Do not allow hands or fingers to get between lockring and lockring groove when installing lockring or injury to personnel may result.
- Raised notch on lockring must face away from wheel or lockring will not seat properly in lockring groove, causing lockring to unseat, possibly causing injury to personnel.
- Cracked, broken, bent, or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated or damage or personal injury or death may result.
- No heat shall be applied to a multi-piece wheel or wheel component or damage or injury or death may result.

(12) Position lockring (6) in lockring groove (9) with raised notch facing up and outward.



CAUTION

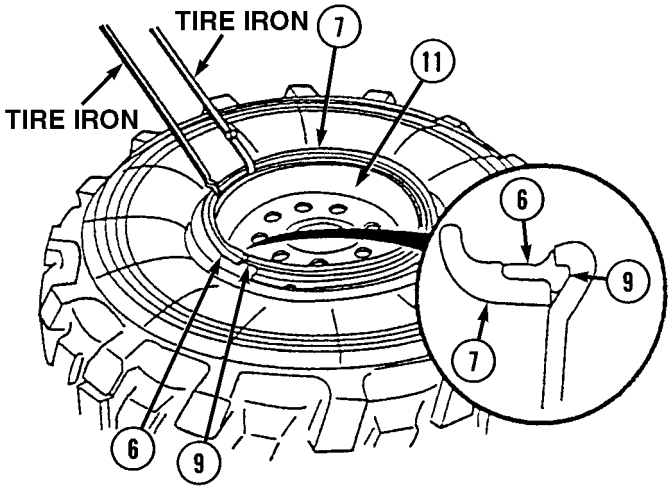
The lockring can be snapped into position evenly around the entire lockring groove with the aid of a soft faced hammer. Do not use a steel sledge or mallet or damage to lockring or lockring groove will result.

(13) Using tire irons, pry the lockring (6) into the lockring groove (9) around the wheel (11). Check that the lockring "snaps" into the lockring groove all around the wheel.

WARNING

Lockring must be fully seated in lockring groove around the entire circumference or lockring could unseat during tire inflation, causing serious injury to personnel.

(14) Check that lockring (6), side ring (7),ol "wheel (11) are assembled correctly.



WARNING

If lockring ends touch, reposition or replace lockring, or injury or death to personnel may result. Destroy defective lockring so it cannot be reused.

(15) Check that ends of lockring (6) do not touch.

Wheel Maintenance Instructions (Cont)

WARNING

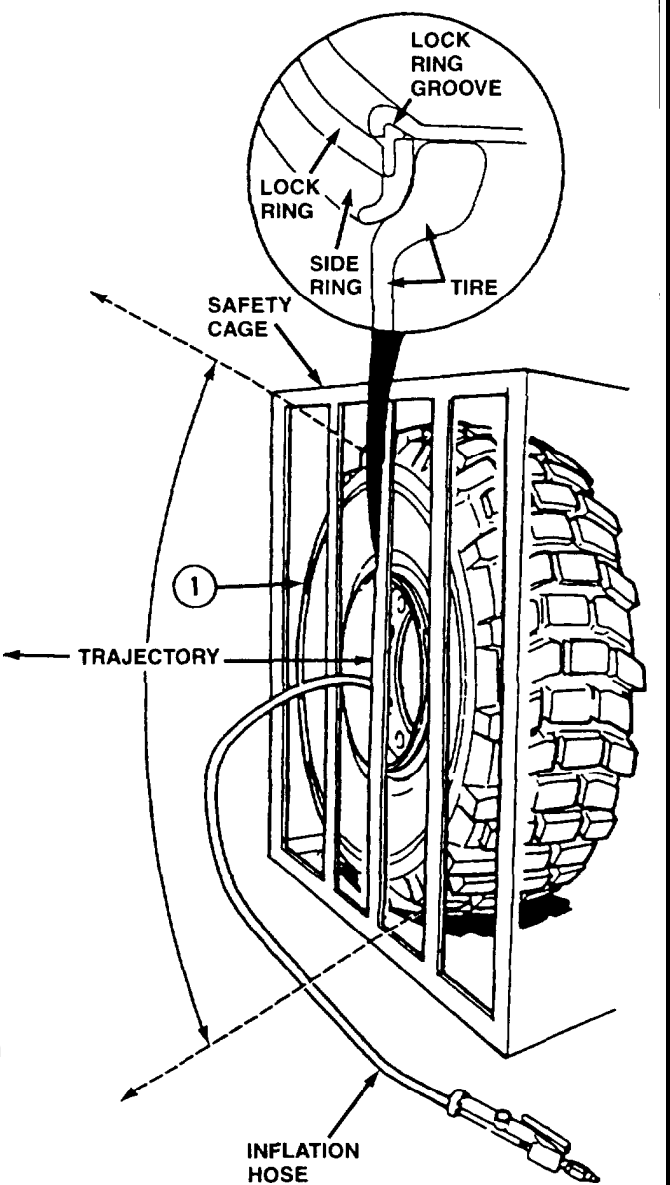
- Wheel/tire assembly weighs 540 lbs. (245 kg). Use suitable lifting device to lift wheel/tire assembly and prevent possible injury to personnel.
- Failure to place wheel/tire assembly in safety cage prior to initial inflation could result in serious injury or death to personnel.
- When a wheel/tire is in a restraining device, do not rest or lean any part of body or equipment on or against the restraining device, or injury or death could result.

(16) Using lifting device, position wheel/tire assembly (1) in safety cage.

WARNING

- While changing tires or while performing tire maintenance, stay out of the trajectory as shown by the area indicated. Failure to follow proper procedures may result in injury or death to personnel.
- Improperly seated lockrings and side rings may blow off during inflation. Never attempt to seat a lockring or side ring during or after inflation. Failure to comply may result in serious injury or death.
- When inflating tires, always use an inflation hose with an in-line gage and a clip-on chuck. The gage and valve must be mounted a minimum of 10 ft (3.10 m) away from air chuck.
- All personnel must remain a minimum of 10 ft (3.10 m) away from tire and not in possible path of lockring or side ring. Failure to comply may result in serious injury or death.
- Do not inflate above 3 psi (21 kPa) or personal injury or death may result.

(17) Using an inflation hose with an in-line gage and clip-on chuck inflate wheel/tire assembly (1) to 3 psi (21 kPa).



12-6. WHEEL/TIRE ASSEMBLY REPAIR (CONT).

WARNING

Improperly seated lockrings or side rings may blow off at any time. Never attempt to seat a lockring or side ring during or after inflation. Failure to comply may result in serious injury or death.

(18) Repeat steps *(14)* and *(15)*.

WARNING

Never inflate tires over 40 psi (276 kPa) to seat tire beads. If beads do not seat, deflate, demount, and check the tire/rim parts. Relubricate and remount tire. Serious injury or death could result if these procedures are not followed.

(19) If wheel/tire assembly (1) is properly assembled, continue to inflate to 20 psi (138 kPa) until beads seat with no gap between tire and rim parts.

NOTE

Inflating, then deflating wheel/tire assembly will remove wrinkles from tube.

(20) Continue to inflate wheel/tire assembly (1) to 100 psi (690 kPa) and check that the ends of the lock ring do not touch. If the components are not seated properly or do not have a uniform appearance, carefully deflate the wheel/tire and return to step (b14). If this is the second attempt to re-seat the lock ring or wheel components, carefully deflate the tire, disassemble, replace non-seating components, and tag the lock ring for destruction.

(21) Install valve core (4) into valve stem (3).

(22) Inflate wheel/tire assembly (1) to 100 psi (690 kPa).

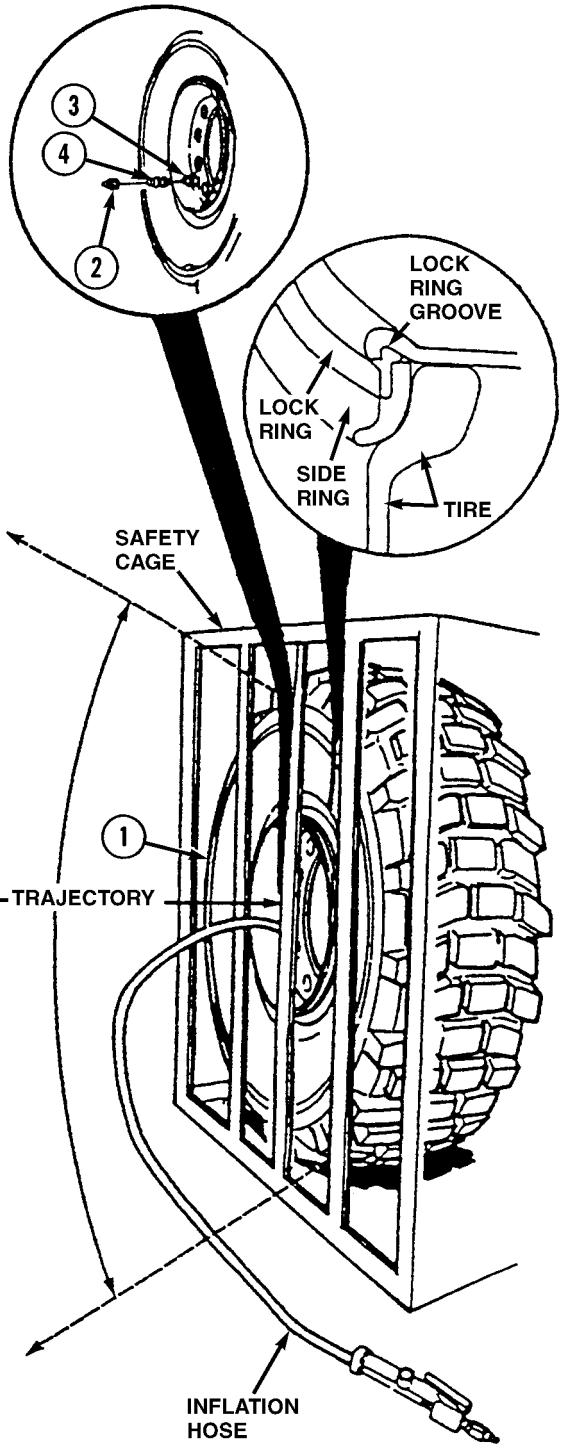
WARNING

If ends of lockring touch, deflate wheel/tire assembly by removing valve core, then replace lockring, or serious injury or death to personnel may result. Destroy defective lockring so it cannot be reused.

(23) Check that ends of lockring (6) do not touch.

(24) Install cap (2) onto valve stem (3).

(25) Remove wheel/tire assembly (1) from safety cage.



d. Follow-on Maintenance. Install wheel/tire assembly on truck (TM 9-2320-279-10).

END OF TASK

12-6.1 WHEEL/TIRE ASSEMBLY REPAIR (TWO PIECE BOLT TOGETHER WHEEL).

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Models
All with two piece bolt together wheel.

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing (torque), Item 18.3, Appendix C
Compound, sealing, lubricating, wicking, thread locking, anaerobic, single component, Item 16.1, Appendix C
Lubricant, tire and rim, Item 24.1, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
TM 9-2610-200-14

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Engine shut off.
TM 9-2320-279-10	Wheels chocked.
TM 9-2320-279-10	Wheel and tire removed.

Special Environmental Conditions
None

General Safety Instructions
Do not take tire pressure readings or perform wheel/tire repairs without first reading warnings or personal injury or death may result.

CAUTION

For longer tire life and more efficient performance, all tires on a HEMTT must be of a single NSN. Improperly matched tires cause rapid, uneven wear. They can also cause transfer case and differential failures.

12-6.1 WHEEL/TIRE ASSEMBLY REPAIR (TWO PIECE BOLT TOGETHER WHEEL) (CONT).

a. Disassembly.

WARNING

- Wheel/tire assembly weighs 540 lbs (245 kg). Attach suitable lifting device prior to moving to prevent possible injury to personnel.
- Wheel/tire assembly must be deflated in a safety cage or personal injury or death may result.

NOTE

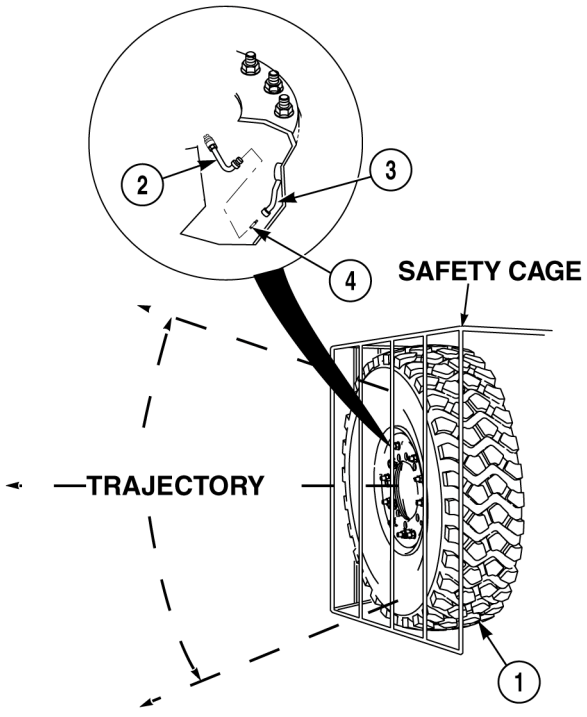
Refer to TM 9-2610-200-14 for construction of safety cage.

(1) Using lifting device, position wheel/tire assembly (1) in a safety cage.
(2) Remove valve stem extension (2) from valve stem (3).

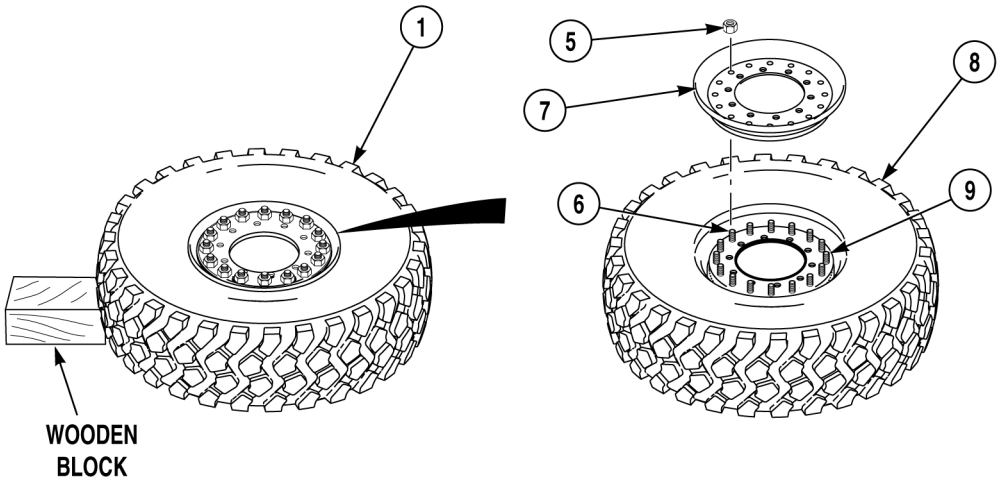
WARNING

- Stand clear of trajectory area during deflation or personal injury or death may result.
- High air pressure will be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.
- Always completely deflate tire by removing valve core from valve stem before attempting demounting operation. After air has finished exhausting from valve stem, carefully run a piece of wire through valve stem to ensure it is not plugged and tire is completely deflated. Failure to comply may result in injury to personnel.

(3) Remove valve core (4) from valve stem (3) and completely deflate wheel/tire assembly (1). Discard valve core.
(4) Remove wheel/tire assembly (1) from safety cage and position on wooden block on flat surface with valve stem (3) facing up.



Wheel Maintenance Instructions (Cont)



(5) Remove 16 lug nuts (5) from studs (6).

WARNING

Keep hands clear of studs and outer face of wheel to prevent injury to personnel.

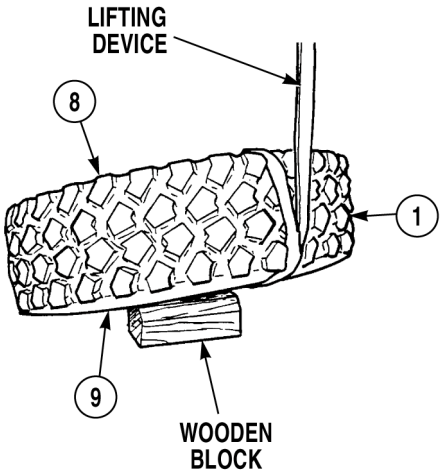
NOTE

A tire iron can be used to lift the outer wheel.

(6) Pry outer wheel (7) and tire (8) apart.
(7) Remove outer wheel (7) from inner wheel (9).

WARNING

Wheel/tire assembly weighs 523 lbs (237 kg). Attach suitable lifting device prior to moving to prevent possible injury to personnel.



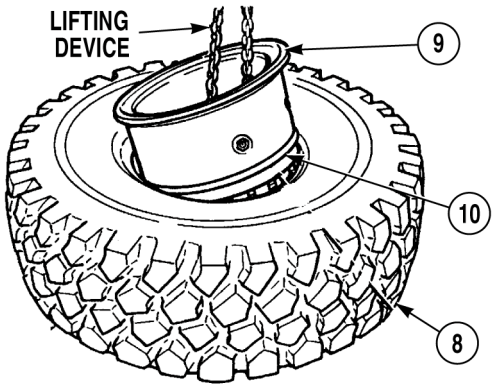
(8) Attach lifting device to wheel/tire assembly (1).
(9) Raise and turn wheel/tire assembly (1) over so inner wheel (9) center rests on wooden block. Lower wheel/tire assembly (1).
(10) Remove lifting device from wheel/tire assembly (1).
(11) Pry inner wheel (9) and tire (8) apart.

12-6.1 WHEEL/TIRE ASSEMBLY REPAIR (TWO PIECE BOLT TOGETHER WHEEL) (CONT).

WARNING

Inner wheel weighs 105 lbs (48 kg). Attach suitable lifting device prior to moving rim to prevent possible injury to personnel.

(12) Attach lifting device to inner wheel (9).
(13) Remove inner wheel (9) from tire (8).
(14) Remove and discard preformed packing (10) from inner wheel (9) and cut in two.



NOTE

Application of heat to nut may be required to loosen sealing compound sufficiently to allow removal of nut.

(15) Remove nut (11), grommet (12), and valve stem (3) from inner wheel (9). Discard grommet.

NOTE

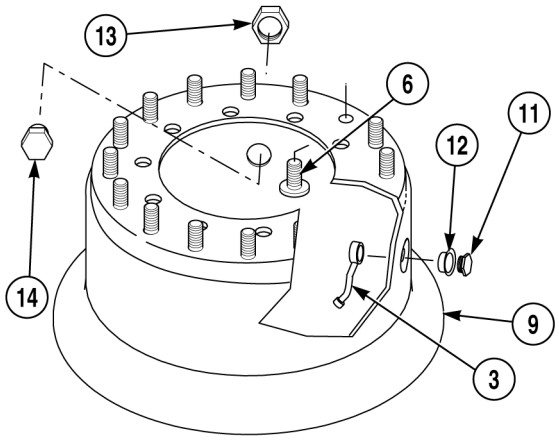
If studs are damaged, perform Steps (16) through (23). If studs are not damaged, perform steps (17) through (23).

(16) Remove damaged studs (6) from inner wheel (9). Discard damaged studs.

NOTE

- Some inner wheels have an extra hole that is plugged. Perform step (17) if plug must be removed.
- Application of heat to nut may be required to loosen sealing compound sufficiently to allow removal of nut.

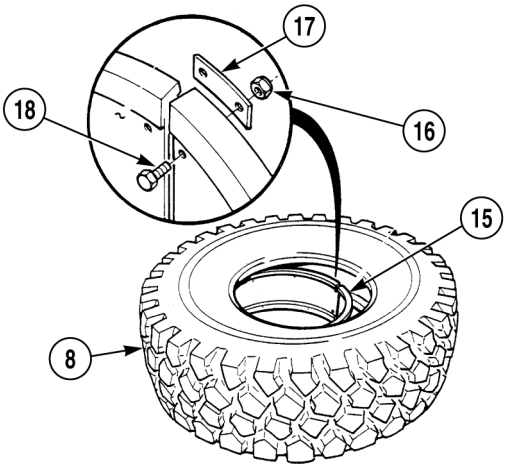
(16) Remove nut (13) and plug (14) from inner wheel (9).



NOTE

Mallet and tire lubricant may be used to ease movement of bead lock.

(18) Move bead lock (15) until locknuts (16) are visible.



NOTE

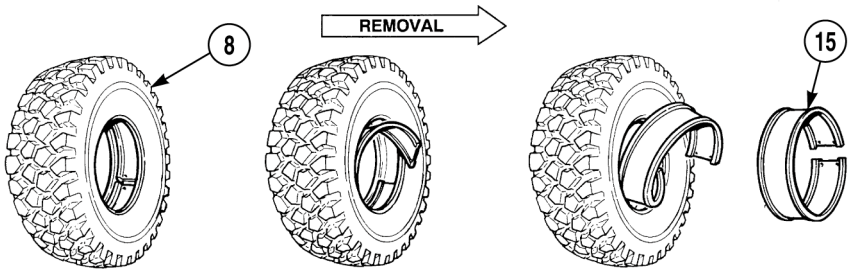
Positioning tire against a stationary object may ease in removal of bead lock.

(19) Attach lifting device to tire (8) and position tire upright.

WARNING

Tire is heavy. Brace tire to ensure tire will not fall over on you or on others. Failure to comply could result in personnel injury.

(20) Remove lifting device from tire (8).
(21) Remove four locknuts (16), two plates (17), and screws (18) from bead lock (15). Discard locknuts.



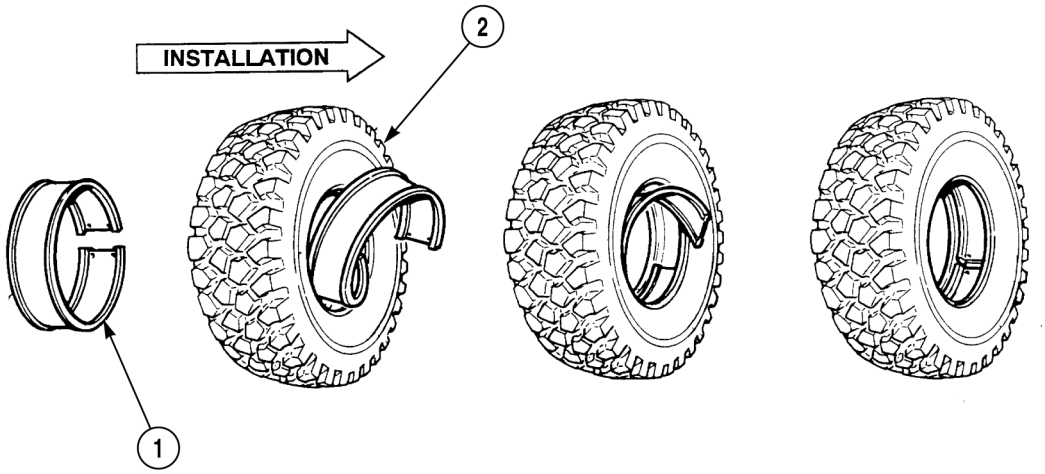
(22) Remove one end of bead lock (15) from tire (8).
(23) Remove the remaining section of bead lock (15) from tire (8) by "cork screwing" bead lock from tire (8).

b. Cleaning/Inspection.

(1) Inspect tire tread for nails, glass, and other injurious particles in tread.
(2) Inspect tire for irregular wear, cuts, and blisters appearing on tire.
(3) Inspect bead of tire for damaged rim seal ridges.
(4) Inspect complete inside surface of inner liner for imperfections, discoloration, or irregular surface that may indicate excessive beat, breaks, or other fabric damage.
(5) Check rims for cracks, dents, dirt, and rust.
(6) Remove rust, gummy rubber deposits, nicks, and gouges in the rim bead seat surface to provide an airtight seal with the tire bead.
(7) Remove all dirt and foreign material from inside of tire and inspect the inside of tire for damage.
(8) Clean rust and dirt from rim using a steel brush.
(9) Paint wheel assembly parts as needed to protect against rust.
(10) Replace any bent, broken, stripped, or damaged studs or bolts.

12-6.1 WHEEL/TIRE ASSEMBLY REPAIR (TWO PIECE BOLT TOGETHER WHEEL) (CONT).

c. Assembly.



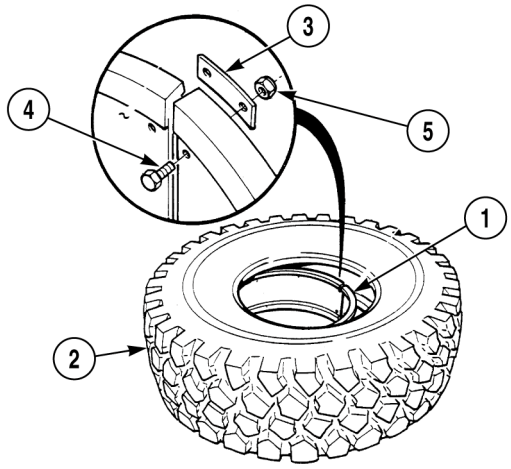
WARNING

- Ensure all personnel keep hands and fingers out from between tire and bead lock. Failure to comply may result in injury to personnel.
- Tire is heavy. Brace tire to ensure tire will not fall over on you or on others. Failure to comply could result in personnel injury.

NOTE

- Tire lubricant may be used to ease installation of bead lock in tire.
- Curved plate is installed in same direction as curve in bead lock.
- Positioning tire against a stationary object may ease in installation of bead lock.

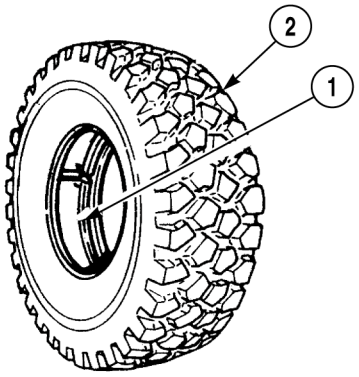
(1) Insert one end of bead lock (1) into tire (2).
(2) Insert remaining section of bead lock (1) by "cork screwing" into tire (2).
(3) Align both ends of bead lock (1) and install two plates (3) on bead lock (1) with four screws (4) and locknuts (5).



(4) With the aid of an assistant, position bead lock (1) in tire (2) by rolling tire until bead lock has centered properly.

(5) Attach lifting device to tire (2) and lay tire on wooden block.

(6) Remove lifting device from tire (2).



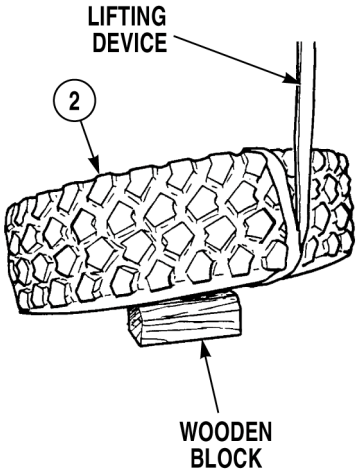
CAUTION

If wheel studs were replaced, they must be torqued after 50 to 75 miles (80 to 120 km) of use. Failure to comply may result in failure of wheel studs.

NOTE

- If damaged studs were removed, perform Step (7).
- Ensure flat edge of stud head is positioned parallel to edge of inner wheel.

(7) Install new stud (6) in inner wheel (7) until base of stud is solid against back side of rim.



WARNING

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

(8) Coat threads of nut (8) with sealing compound.

NOTE

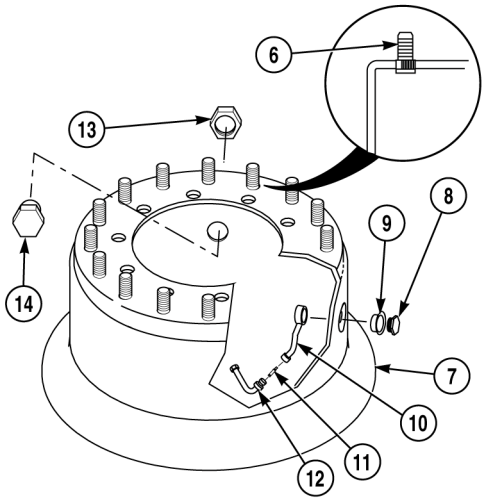
Install valve stem so end of valve stem faces valve stem hole.

(9) Install grommet (9) and valve stem (10) in inner wheel (7) with nut (8). Tighten nut (8) to 175-200 in-lb (19.7-22.6 N•m).

(10) Install valve core (11) in valve stern (10).

(11) Install valve stem extension (12) on valve stem (10).

(12) If removed, coat threads of nut (13) with sealing compound and install plug (14) and nut (13) in inner wheel (7). Tighten nut (13) to 175-200 in-lb (19.7-22.6 N•m).



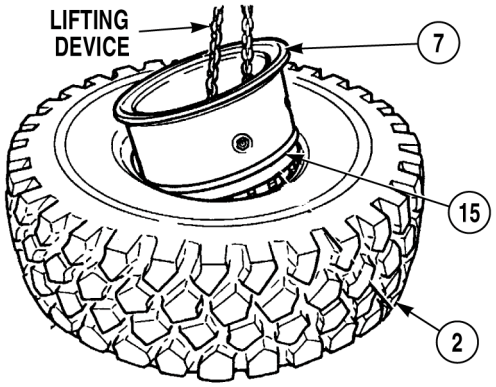
12-6.1 WHEEL/TIRE ASSEMBLY REPAIR (TWO PIECE BOLT TOGETHER WHEEL) (CONT).

(13) Apply tire lubricant to preformed packing (15) and install on inner wheel (7).

WARNING

Inner wheel weighs 105 lbs (48 kg). Attach suitable lifting device prior to moving rim to prevent possible injury to personnel.

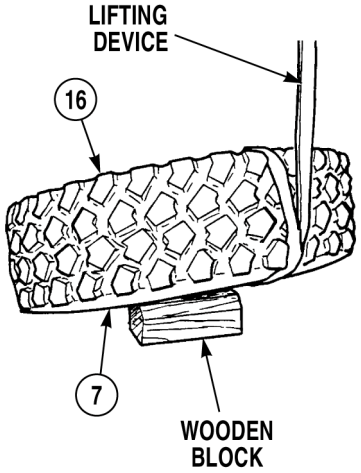
(14) Attach lifting device to inner wheel (7).
(15) Install inner wheel (7) in tire (2).



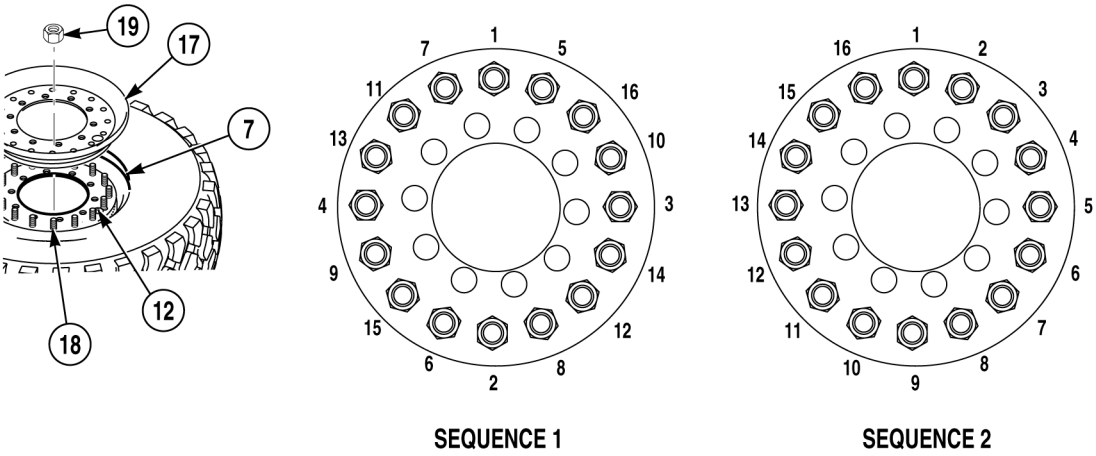
WARNING

Wheel/tire assembly weighs 523 lbs (227 kg.) Attach suitable lifting device prior to moving to prevent possible injury to personnel.

(16) Attach lifting device to wheel/tire assembly (16).
(17) Raise and turn wheel/tire assembly (16) over and position inner wheel (7) on wooden block.
(18) Remove lifting device from wheel/tire assembly (16).



Wheel Maintenance Instructions (Cont)



WARNING

Keep hands clear of studs and outer face of wheel to prevent injury to personnel.

CAUTION

Holes in outer wheel must align with holes in inner wheel. Failure to comply may result in damage to valve stem extension.

(19) Position outer wheel (17) on inner wheel (7) so that valve stem extension (12) is positioned through outer wheel.

NOTE

Tighten lug nuts 1/4 in. (6.4 mm) maximum at a time in sequence shown until inner wheel and outer wheel meet.

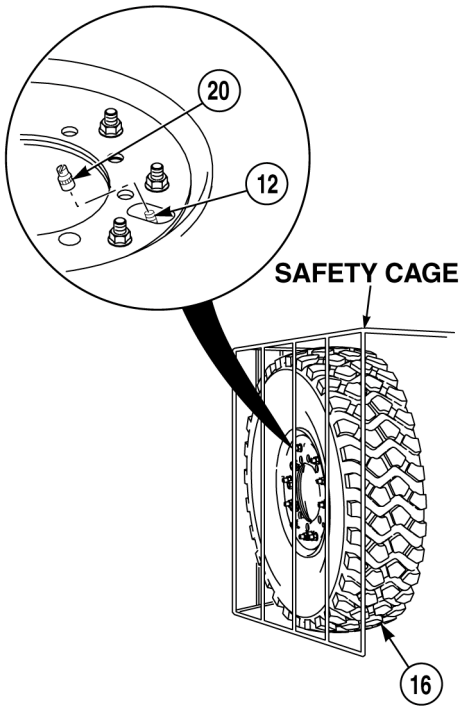
(20) Install outer wheel (17) on studs (18) with 16 lug nuts (19). Use tightening sequence 1 and tighten to 75 to 100 lb-ft (102 to 136 N•m).

NOTE

Tightening sequence is performed three times.

(21) Tighten 16 lug nuts (19) in sequence 1 to 450 to 500 lb-ft (610 to 678 N•m).
(22) Tighten 16 lug nuts (19) in sequence 2 to 450 to 500 lb-ft (610 to 678 N•m).
(23) Tighten 16 lug nuts (19) in sequence 2 to 450 to 500 lb-ft (610 to 678 N•m).

12-6.1 WHEEL/TIRE ASSEMBLY REPAIR (TWO PIECE BOLT TOGETHER WHEEL) (CONT).



WARNING

- Failure to place wheel/tire assembly in safety cage prior to initial inflation could result in serious injury or death to personnel.
- When a wheel/tire is in a restraining device, do not lean any part of body or equipment on or against the restraining device, or injury or death could result.

(24) Using lifting device, position wheel/tire assembly (16) in safety cage.
(25) Remove valve cap (20) from valve stem extension (12).

Wheel Maintenance Instructions (Cont)

WARNING

- Stay out of trajectory as indicated by the area shown. Under some circumstances, the trajectory may deviate from its expected path. Injury or death to personnel may result.
- Never inflate the wheel/tire assembly unless all 18 outer wheel nuts have been properly torqued or personal injury could result.

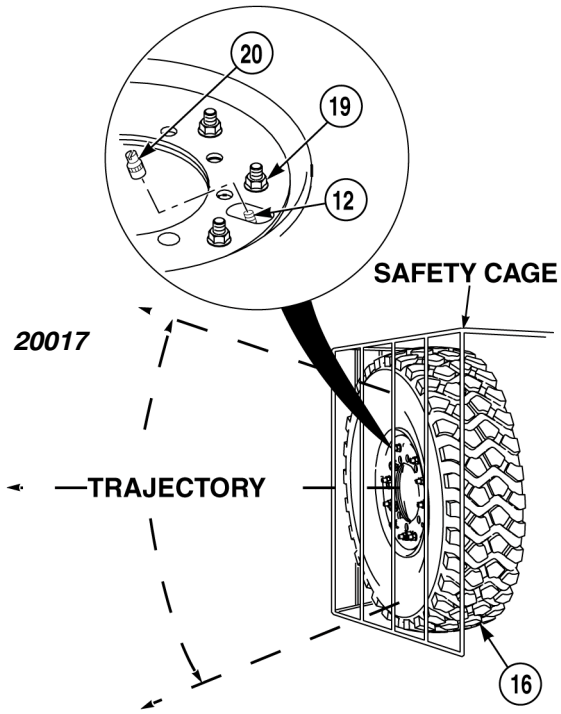
NOTE

Refer to TM 9-2610-200-14 for construction of safety cage.

(26) Inflate wheel/tire assembly (16) to 100 psi (690 kPa) and check for leaks (TM 9-2320-279-10).

(27) Install valve cap (20) on valve stem extension (12).

(28) Remove wheel/tire assembly (16) from safety cage.



WARNING

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

NOTE

When applying torque seal, apply a small amount to joint between nut and stud. This material will act as an indicator to show if nuts have been loosened.

(29) Apply sealing compound to 16 lug nuts (19).

d. Follow-on Maintenance. Install tire on truck (TM 9-2320-279-10).

END OF TASK

CHAPTER 13
STEERING SYSTEM MAINTENANCE

Contents

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Section I. INTRODUCTION

13-1. GENERAL. This chapter contains maintenance instructions for removing, servicing, replacing, and installing steering system components authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. STEERING WHEEL AND LINKAGE

Steering System Maintenance Instructions

13-2. STEERING WHEEL REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Adhesive, Item 2.1, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
	Front wheels straight ahead.
Para 7-91	Batteries disconnected.

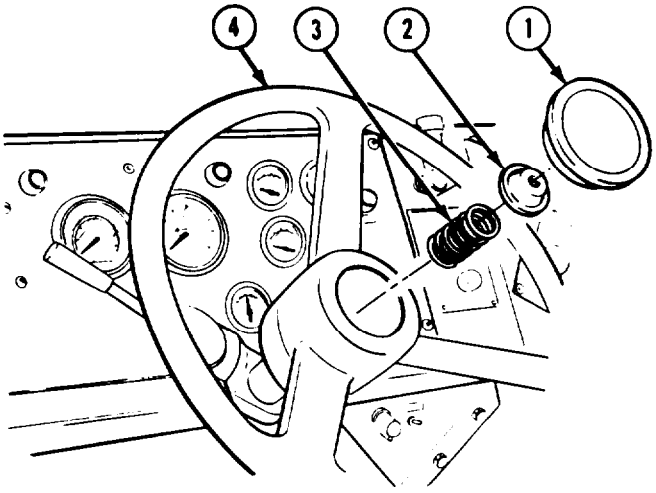
Special Environmental Conditions
None

General Safety Instructions
None

13-2. STEERING WHEEL REMOVAL/INSTALLATION (CONT).

a. Removal.

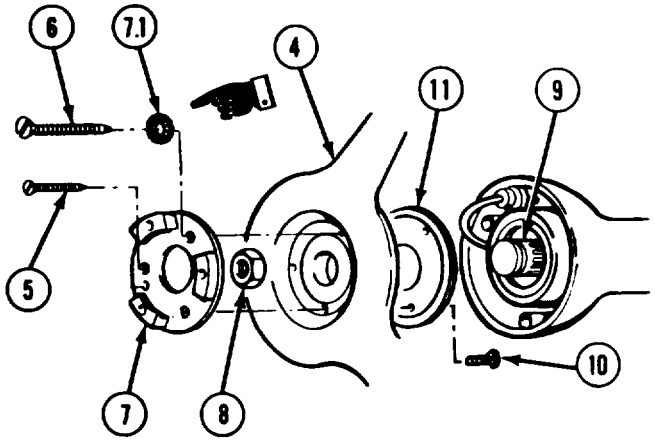
(1) Push down and turn horn button (1) counterclockwise 1/3 of a turn.
(2) Remove horn button (1), spring plate (2) and spring (3) from steering wheel (4).



NOTE

Some steering wheel assemblies have a lockwasher under the long screw that secures the base plate. Do step *(3.1)* for this model.

(3) Remove two screws (5) and long screw (6) from base plate (7).
(3.1) Remove two screws (5) long screw (6) and lockwasher (7.1) from base plate (7).
(4) Remove base plate (7) from steering wheel (4).
(5) Remove nut (8) from steering shaft (9).
(6) Remove steering wheel (4) from steering shaft (9).
(7) Remove two screws (10) from contact plate (11) on back side of steering wheel (4).
(8) Remove contact plate (11).



b. Installation.

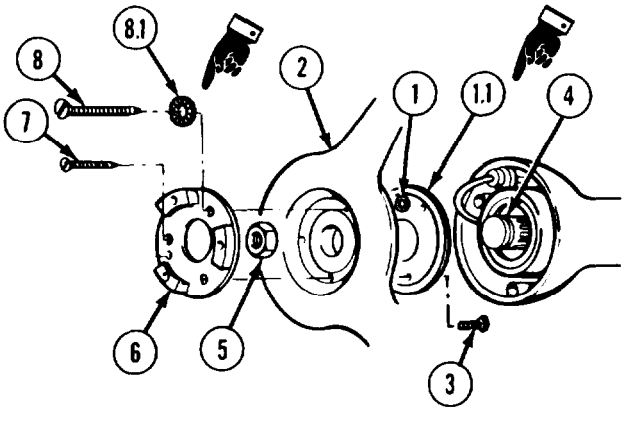
WARNING

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

NOTE

Some steering wheel assemblies have a small washer glued to bottom of steering wheel centered on hole for item 8. If small washer is not attached, do step *(1),* otherwise go to step *(1.1).*

(1) Apply adhesive to washer (1) and install on steering wheel (2) centered on hole for screw (8).
(1.1) Install contact plate (1.1) on steering wheel (2) with two screws (3).
(2) Install steering wheel (2) on steering shaft (4) with nut (5). Tighten nut.
(3) Install base plate (6) on steering wheel (2) using two screws (7).



NOTE

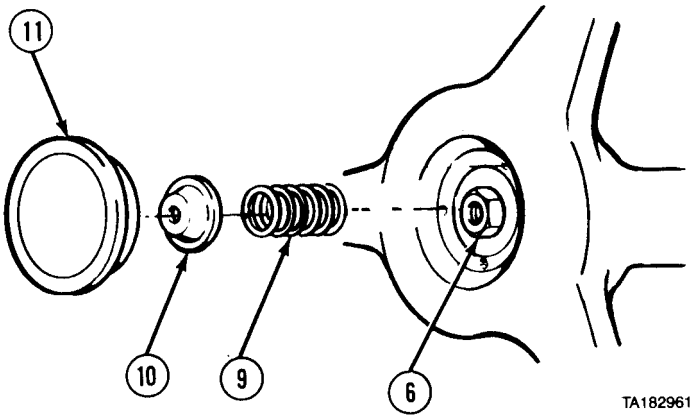
Some steering wheel assemblies have a lockwasher under the long screw. Do step *(4.1)* for this model.

(4) Install long screw (8).
(4.1) Install long screw (8) with lockwasher (8.1).

(5) Install spring (9), spring plate (10), and horn button (11) on base plate (6).
(6) Push down and turn horn button (11) clockwise one-third of a turn. Horn button will lock in place.

c. Follow-on Maintenance.
(1) Connect batteries (para 7-91).
(2) Check operation of horn.

END OF TASK



13-3. STEERING LINKAGE AND UNIVERSAL JOINT REMOVAL/REPAIR/INSTALLATION/ADJUSTMENT.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Adjustment
f. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

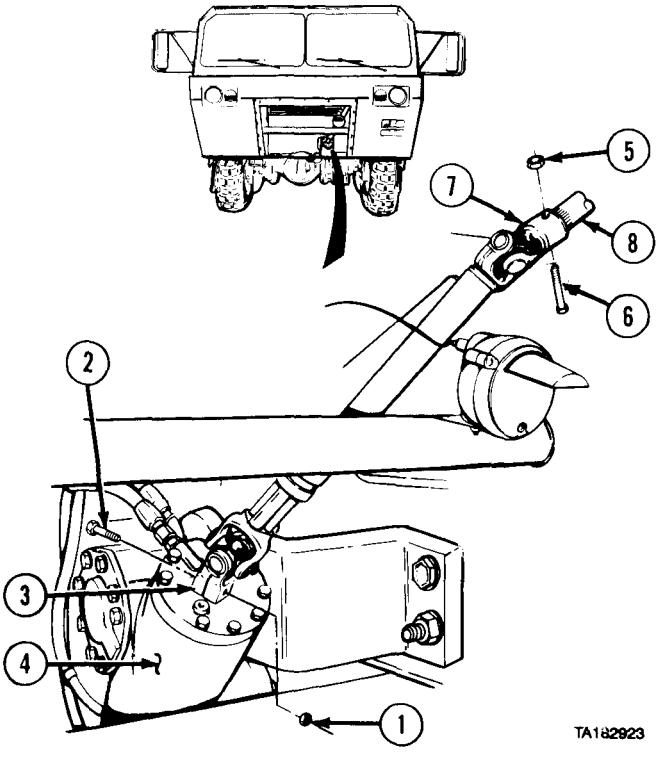
TM or Para	*Condition Description*
	Front wheels straight ahead.
TM 9-2320-279-10	Shut off engine.
Para 14-5	Skid plate grille removed.
Para 7-91	Batteries disconnected (for adjustment only).

Special Environmental Conditions
None

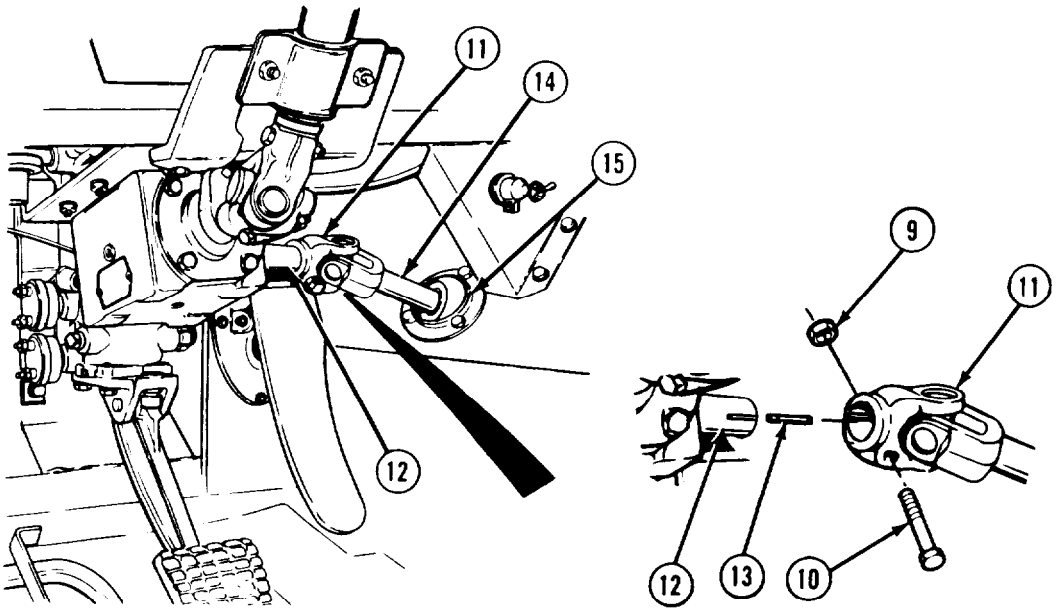
General Safety Instructions
None

13-3. STEERING LINKAGE AND UNIVERSAL JOINT REMOVAL/REPAIR/INSTALLATION/ADJUSTMENT (CONT).

a. Removal.



(1) Remove nut (1) and screw (2).
(2) Remove yoke (3) from steering gear (4).
(3) Remove nut (5) and screw (6).
(4) Remove yoke (7) from shaft (8).



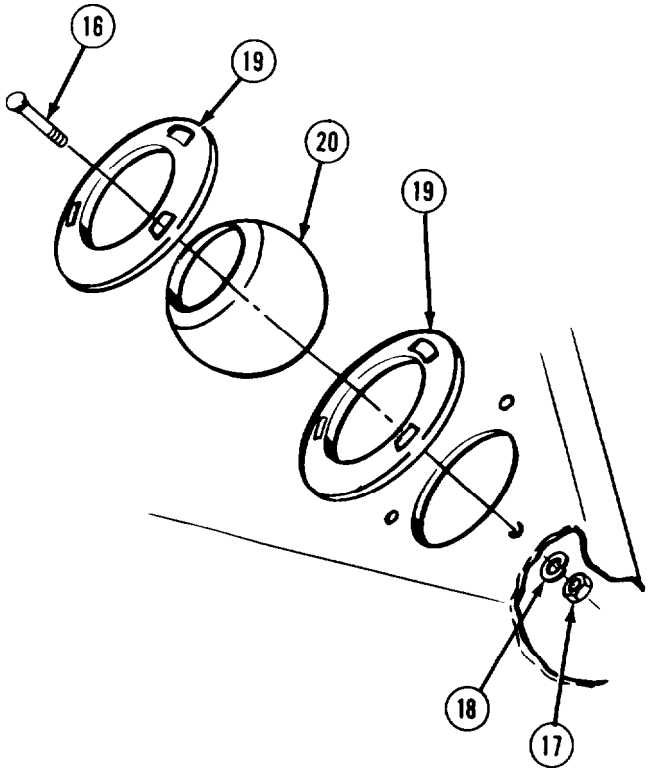
(5) Remove nut (9) and screw (10).
(6) Remove yoke (11) from go-degree gearbox shaft (12).

NOTE
Key may stay with shaft or come off with yoke.

(7) Remove key (13).
(8) Remove shaft (14) from ball socket (15).

NOTE
Some vehicles have three nuts, lockwashers, and screws. Others have carriage screws and three flanged nuts.

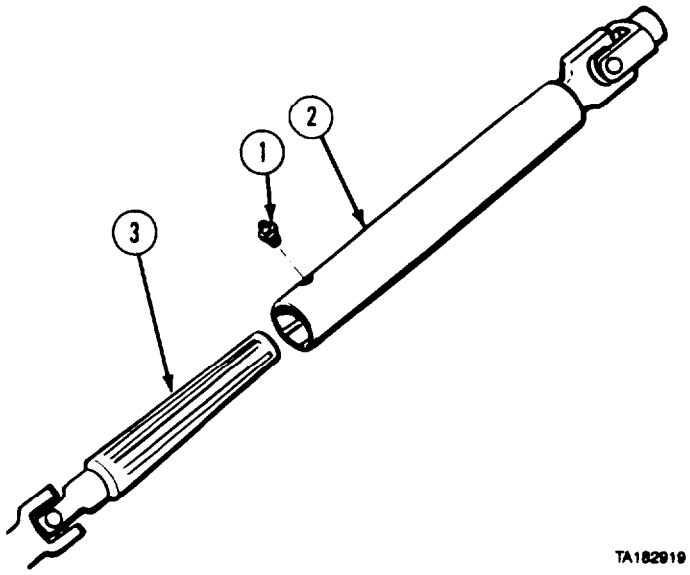
(9) Soldier A removes three screws (16) while Soldier B removes nuts (17) and lockwashers (18).
(10) Remove two retainers (19) and ball (20).



13-3. STEERING LINKAGE AND UNIVERSAL JOINT REMOVAL/REPAIR/INSTALLATION/ADJUSTMENT (CONT).

b. Disassembly.

(1) Remove grease fitting (1) from shaft (2).
(2) Pull splined shaft (3) from shaft (2).



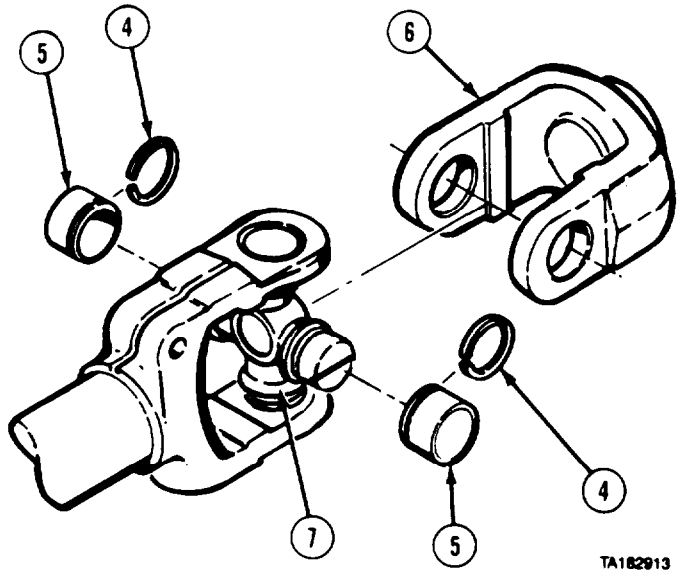
CAUTION

Be careful when removing bearing caps or bearings may fall out and be lost.

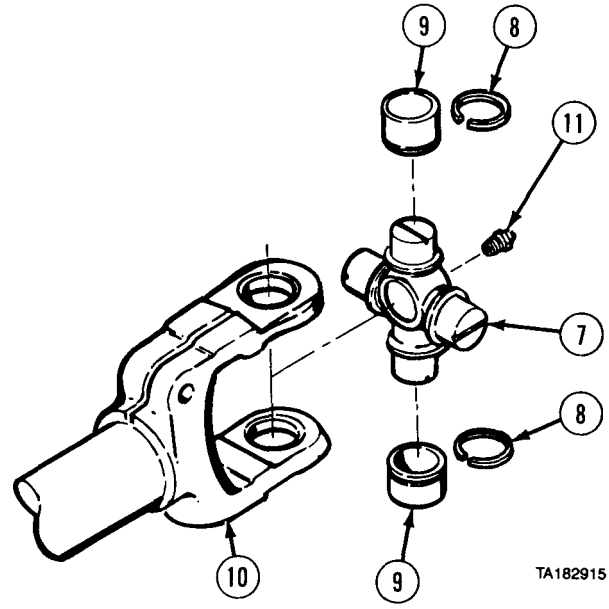
NOTE

All three universal joints are removed the same way.

(3) Remove two retaining rings (4) from two caps (5).
(4) Remove two caps (5) and end **yoke (6)** from universal joint (7).



(5) Remove two retaining rings (8) from two caps (9).
(6) Remove two caps (9) and universal joint (7) from yoke (10).
(7) Remove grease fitting (11) from universal joint (7).



c. Assembly.

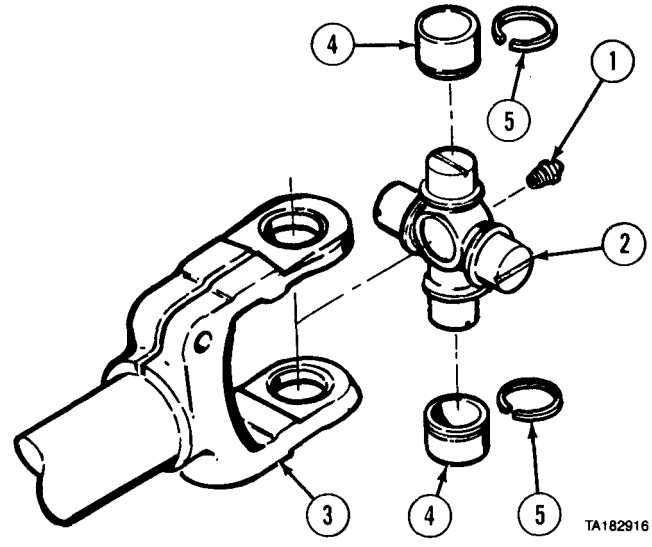
CAUTION

Be careful when installing bearing caps or bearings may fall out and be lost.

NOTE

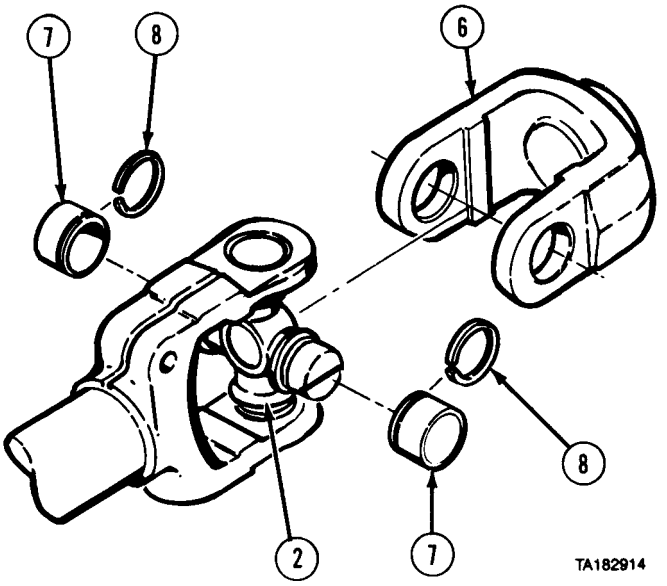
All three universal joints are installed the same way.

(1) Install grease fitting (1) in universal joint (2).
(2) Install universal joint (2) in yoke (3) with two caps (4).
(3) Install two retaining rings (5) on caps (4).

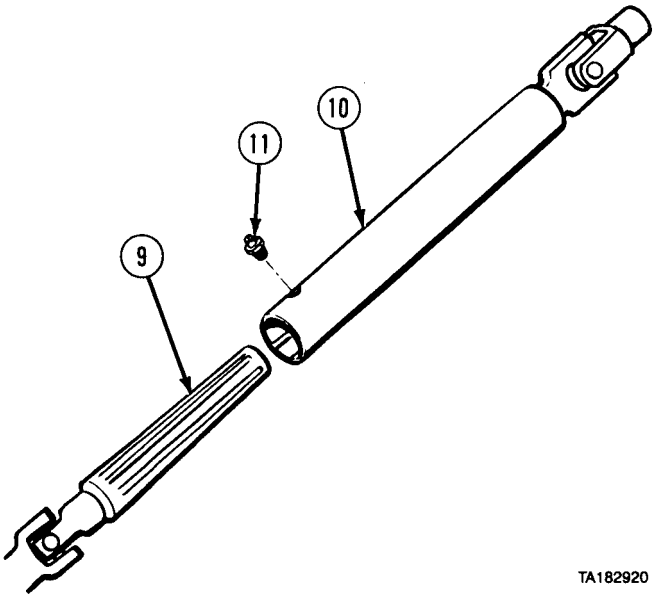


13-3. STEERING LINKAGE AND UNIVERSAL JOINT REMOVAL/REPAIR/INSTALLATION/ADJUSTMENT (CONT).

(4) Install end yoke (6) to universal joint (2) with two caps (7).
(5) Install two retaining rings (8) on two caps (7).



(6) Install splined shaft (9) in shaft (10).
(7) Install grease fitting (11) on shaft (10).



Steering System Maintenance Instructions (Cont)

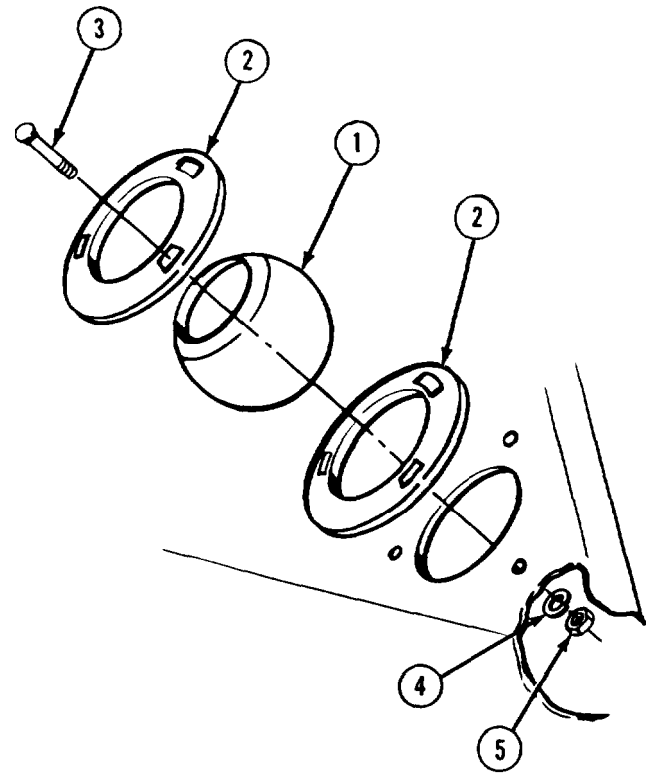
d. Installation.

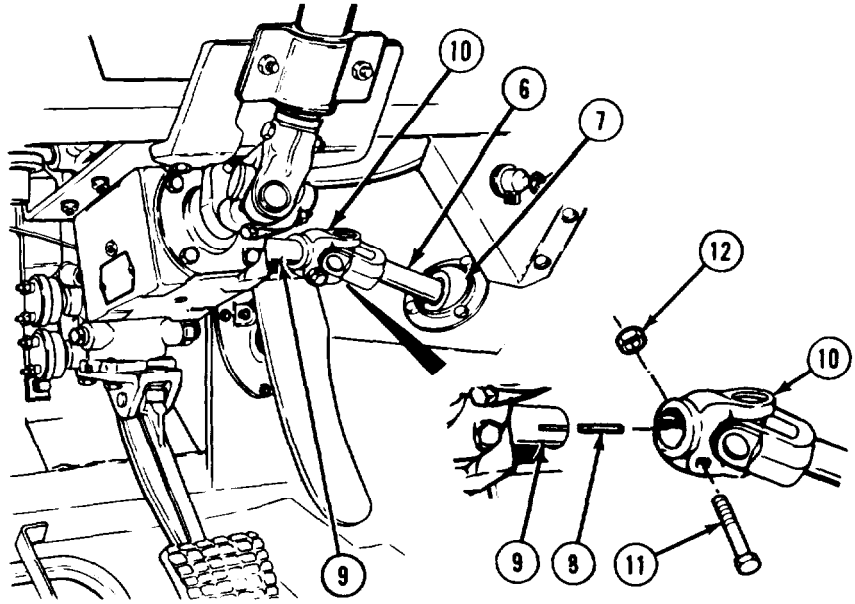
(1) Install ball (1) and retainers (2).

NOTE

Some vehicles have three nuts, lockwashers, and screws. Others have three carriage screws and flanged nuts.

(2) Soldier A installs three screws (3) while Soldier B holds lockwashers (4) and nuts (5).





(3) Install shaft (6) in ball socket (7).

(4) Install key (8) in go-degree gearbox shaft (9).

(5) Aline slot in yoke (10) with key (8).

(6) Install yoke (10) on go-degree gearbox shaft (9) with screw (11) and nut (12). Tighten to 35 to 40 lb-ft (48 to 54 N•m).

13-3. STEERING LINKAGE AND UNIVERSAL JOINT REMOVAL/REPAIR/INSTALLATION/ADJUSTMENT (CONT).

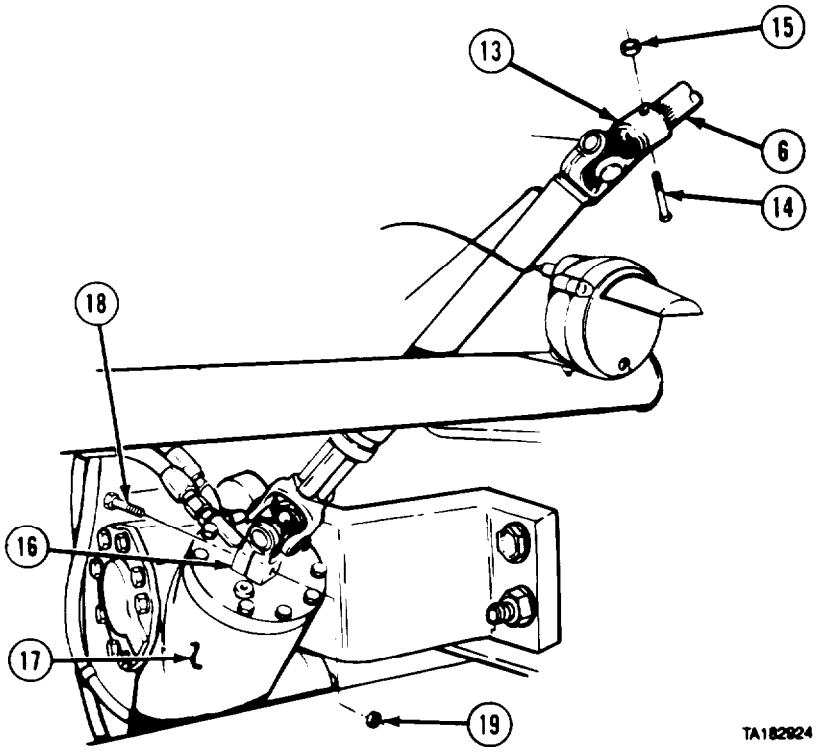
NOTE

Check to see that wheels are straight before performing step *(7).*

(7) Install yoke (13) on shaft (6) with screw (14) and nut (13). Tighten to 35 to 40 lb-ft (48 to 54 N•m).

(8) Install yoke (16) on steering gear (17) with screw (18) and nut (19). Tighten to 35 to 40 lb-ft (48 to 54 N•m).

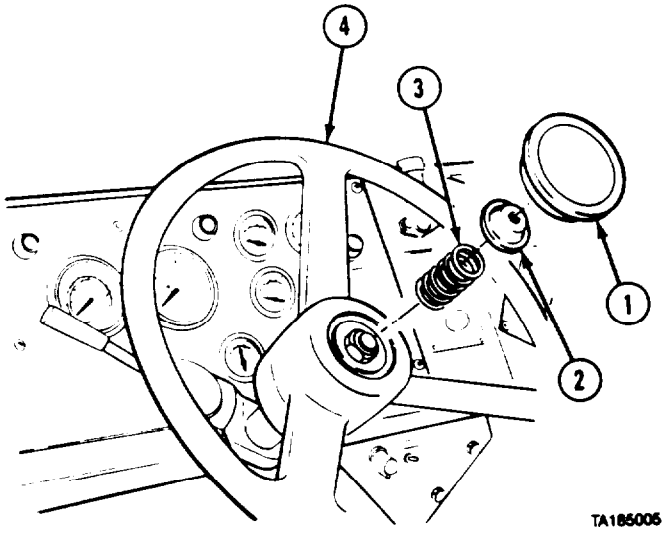
(9) Lubricate steering column linkage (LO 9-2320-279-12).



e. Adjustment.

(1) Push down and turn horn button (1) counterclockwise 1:3 of a turn.

(2) Remove horn button (1), spring plate (2), and spring (3) from steering wheel (4).



Steering System Maintenance Instructions

NOTE

Some steering wheel assemblies have a lockwasher under the long screw that secures the base plate. Do step (3.1) for this model.

(3) Remove two screws (5) and long screw (6) from base plate (7).

(3.1) Remove two screws (5), long screw (6) and lockwasher (7.1) from base plate (7).

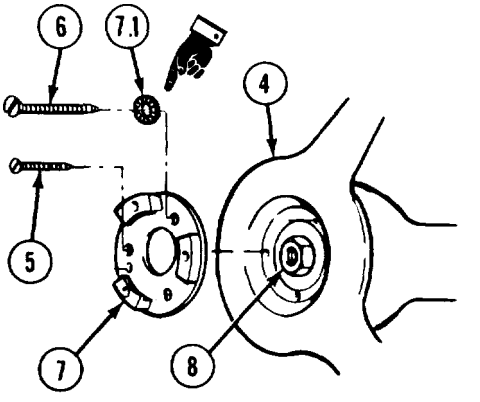
(4) Remove base plate (7) from steering wheel (4).

(5) Start engine (TM 9-2320-279-10).

(6) Turn steering gear from lock to lock with an inch pound torque wrench and socket on nut (8).

(7) If torque reading changes more than 15 lb-in (103.4 kPa), steering is not properly adjusted.

(8) Shut off engine (TM 9-2320-279-10). If adjustment is right, go to step *(15).* If adjustment is not right, go to step (9).



(9) Remove nut (9) and screw (10).

(10) Remove yoke (11) from steering gear (12).

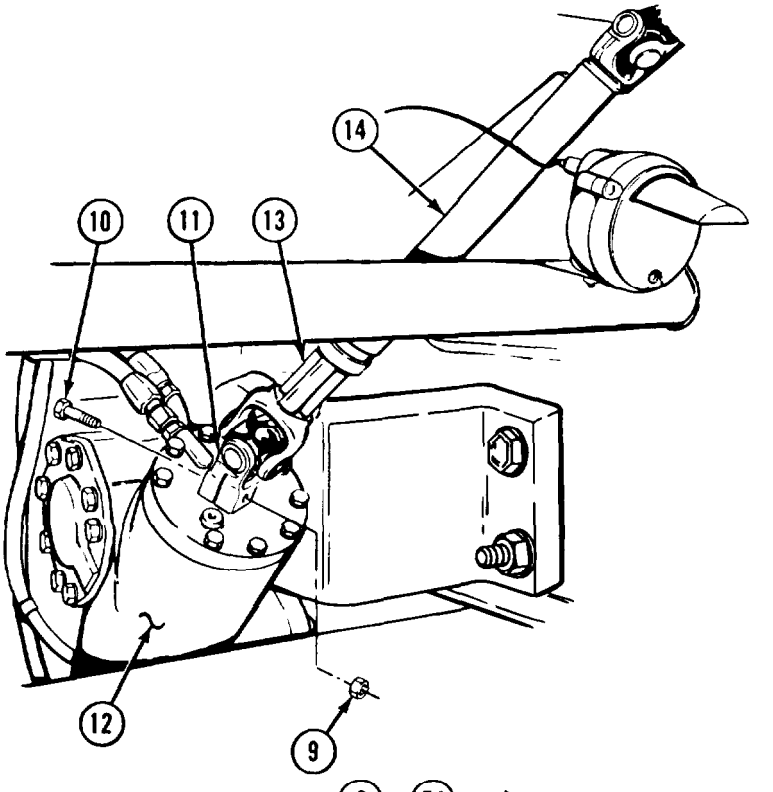
(11) Pull splined shaft (13) from shaft (14).

(12) Turn splined shaft (13) one spline in either direction and install splined shaft in shaft (14).

(13) Install yoke (11) on steering gear (12) with screw (10) and nut (9). Tighten to 35 to 40 lb-ft *(48* to 54 N•m).

(14) Check adjustment. Repeat steps (5) through (8).

(15) Install base plate (7) to steering wheel (4) using two screws (5).

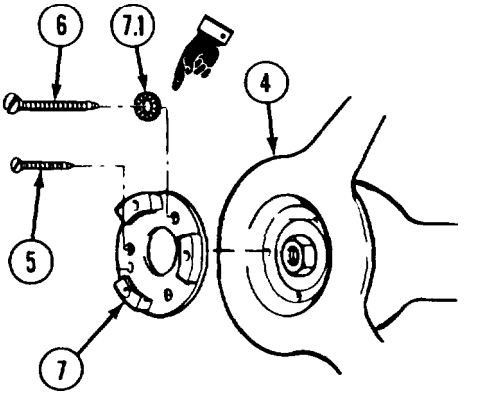


NOTE

Some steering wheel assemblies have a lockwasher under the long screw. Do step *(16.1)* for this model.

(16) Install long screw (6).

(16.1) Install long screw (6) with lockwasher (7.1).

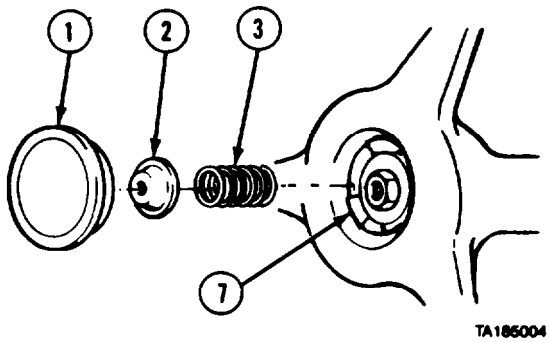


13-3. STEERING LINKAGE AND UNIVERSAL JOINT REMOVAL/REPAIR/INSTALLATION/ADJUSIMENT (CONT).

(17) Install spring (3), spring plate (2), and horn button (1) on base plate (7).
(18) Push down and turn horn button (1) clockwise 1/3 of a turn. Horn button will lock into place.

f. Follow-on Maintenance.

(1) Install skid plate grille (para 14-5).
(2) Connect batteries (for adjustment only) (para 7-91).



END OF TASK

13-4. DRAG LINK REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Adjustment
f. Installation
g. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tool
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C
Solvent, dry cleaning, Item 47, Appendix C
Compound, antiseize, high temperature, Item 10, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

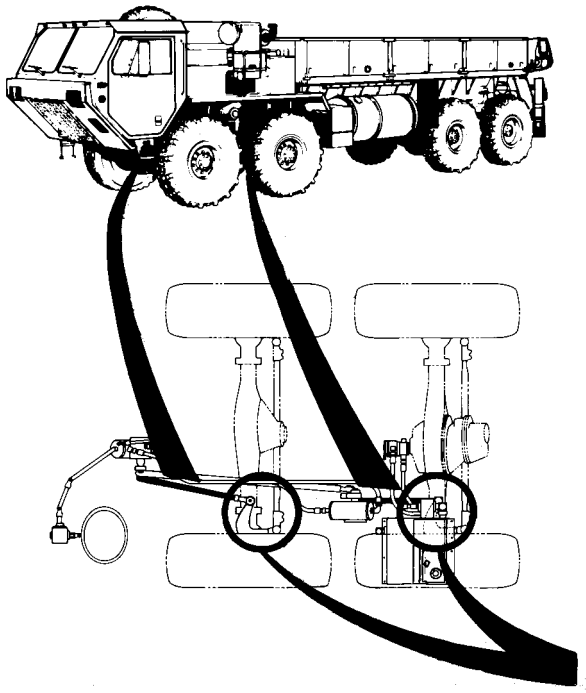
Equipment Condition

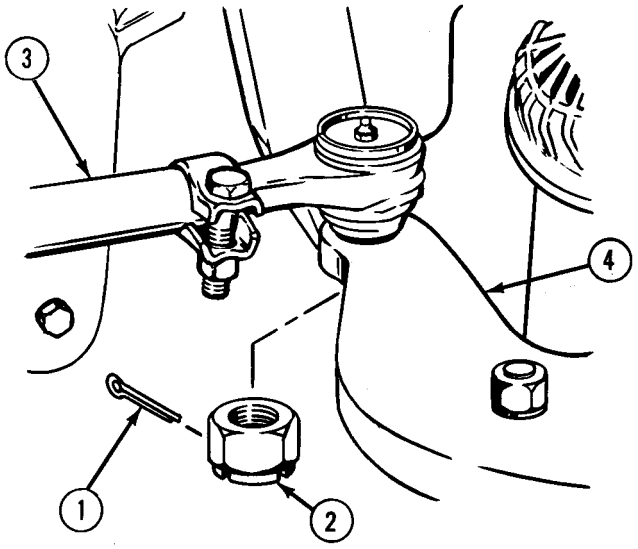
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine. Wheels turned fully to left.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

a. Removal.



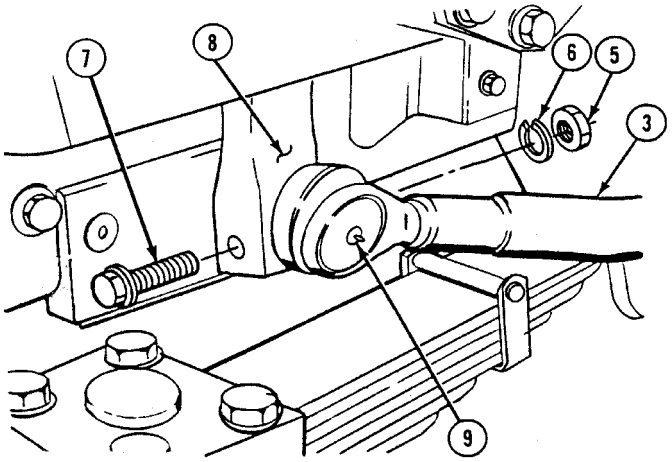


(1) Remove cotter pin (1).
(2) Remove nut (2).

CAUTION

Threads of socket stud may be damaged if not protected. Put nut part way on stud.

(3) Tap upward on bottom end of socket stud to disconnect drag link (3) at steering arm (4).
(4) Remove nut (5), lockwasher (6), and screw (7).
(5) Spread slot in lower end of pitman arm (8).
(6) Disconnect drag link (3) from pitman arm (8).



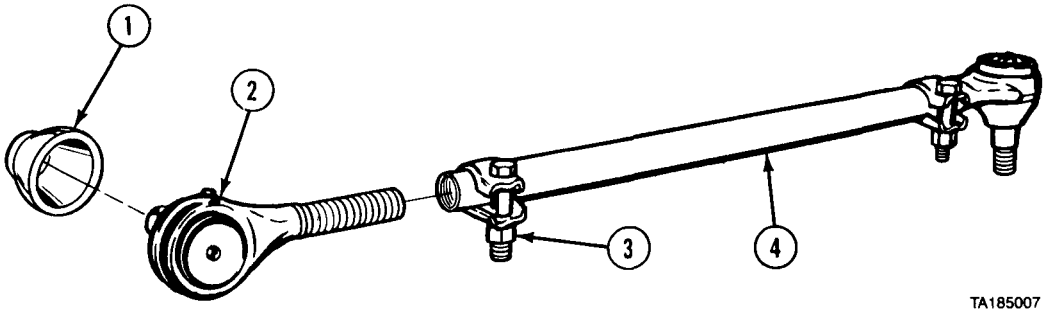
NOTE

Some drag links have lube fittings. Others do not.

(7) Remove two lubrication fittings (9) from drag link (3).

13-4. DRAG LINK REMOVAL/REPAIR/INSTALLATION (CONT).

b. Disassembly.

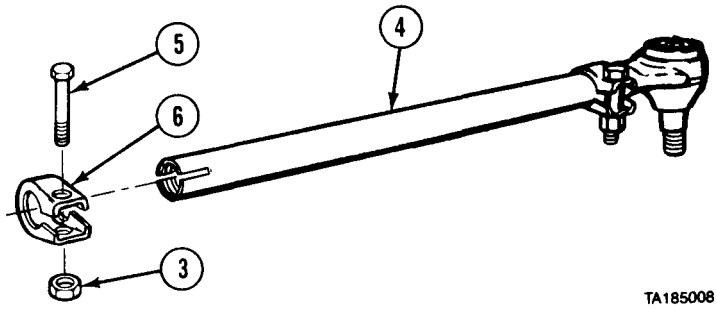


NOTE

Right and left side drag link ends are removed the same way.

(1) Remove boot (1) from drag link end (2).
(2) Loosen nut (3).
(3) Remove drag link end (2) from drag link (4).

(4) Remove nut (3), screw (5), and clamp (6) from drag link (4).



c. Cleaning/Inspection.

WARNING

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

(1) Clean all metal parts with dry cleaning solvent.
(2) Inspect all threaded parts for crossed or stripped threads.
(3) Replace all damaged parts.

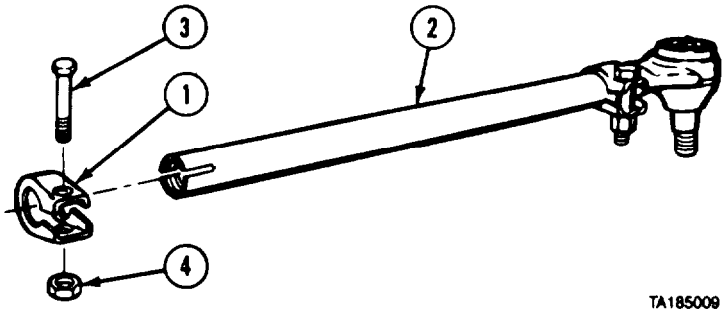
Steering System Maintenance Instructions (Cont)

d. Assembly.

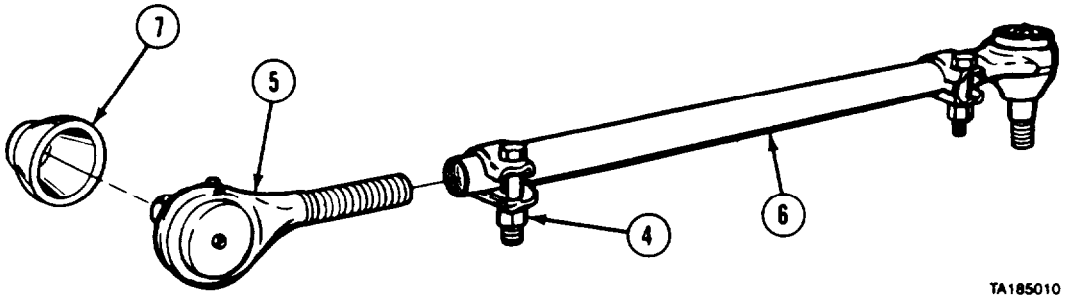
NOTE

Right and left side drag link ends are installed the same way.

(2) Install clamp (1) on drag link (2) with screw (3) and nut (4). Do not tighten nut.



TA185009

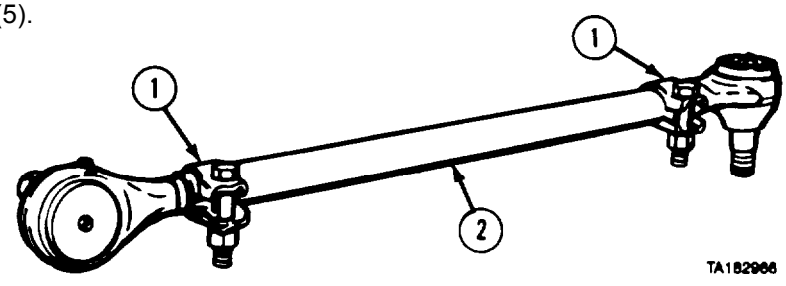


TA185010

(2) Coat threads of drag link end (5) with antiseize compound.
(3) Install drag link end (5) in drag link (2).
(4) Tighten nut (4).
(5) Install boot (6) on drag link end (5).

e. Adjustment.

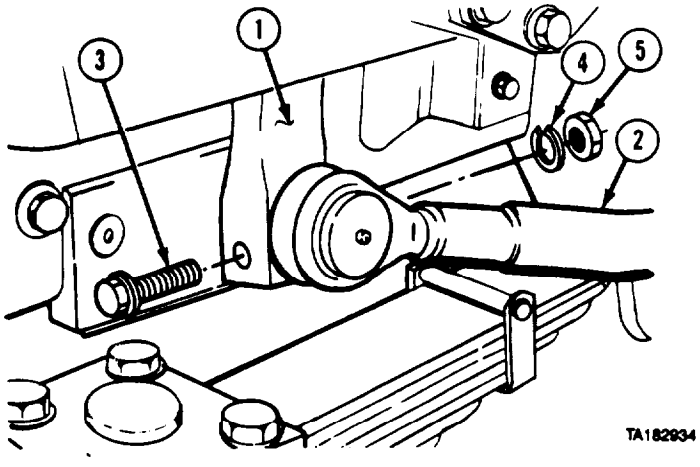
(1) Loosen clamps (1).
(2) Adjust socket ends of front drag link (2). Do not tighten two clamps at this time.



TA182966

f. Installation.

(2) Spread slot in pitman arm (1) and install one end of drag link (2). Install screw (3), lockwasher (4), and nut (5) and tighten to 70 to 80 lb-ft (95 to 108 N•m).



TA182934

13-4. DRAG LINK REMOVAL/REPAIR/INSTALLATION (CONT).

(2) Install other end of drag link (2) in steering arm (6).

NOTE

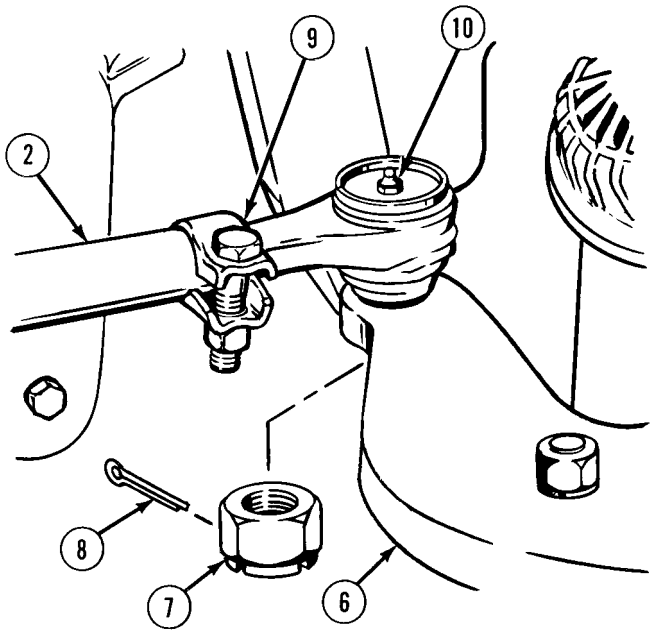
If cotter pin cannot be installed because slot does not line up with cotter pin hole, tighten nut until alinement permits cotter pin to be installed.

(3) Install nut (7) and tighten to 165 to 180 lb-ft (224 to 244 NSm).
(4) Install cotter pin (8).
(5) Tighten two clamps (9) on front drag link (2).

NOTE

Some drag links have lube fittings. Others do not.

(6) Install two lubrication fittings (10) on drag link (2).



g. Follow-on Maintenance.

(1) Lubricate drag link (LO 9-2320-279-12).
(2) Notify Direct Support that front wheel alinement is required.

END OF TASK

13-5. FRONT AND REAR TIE RODS REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

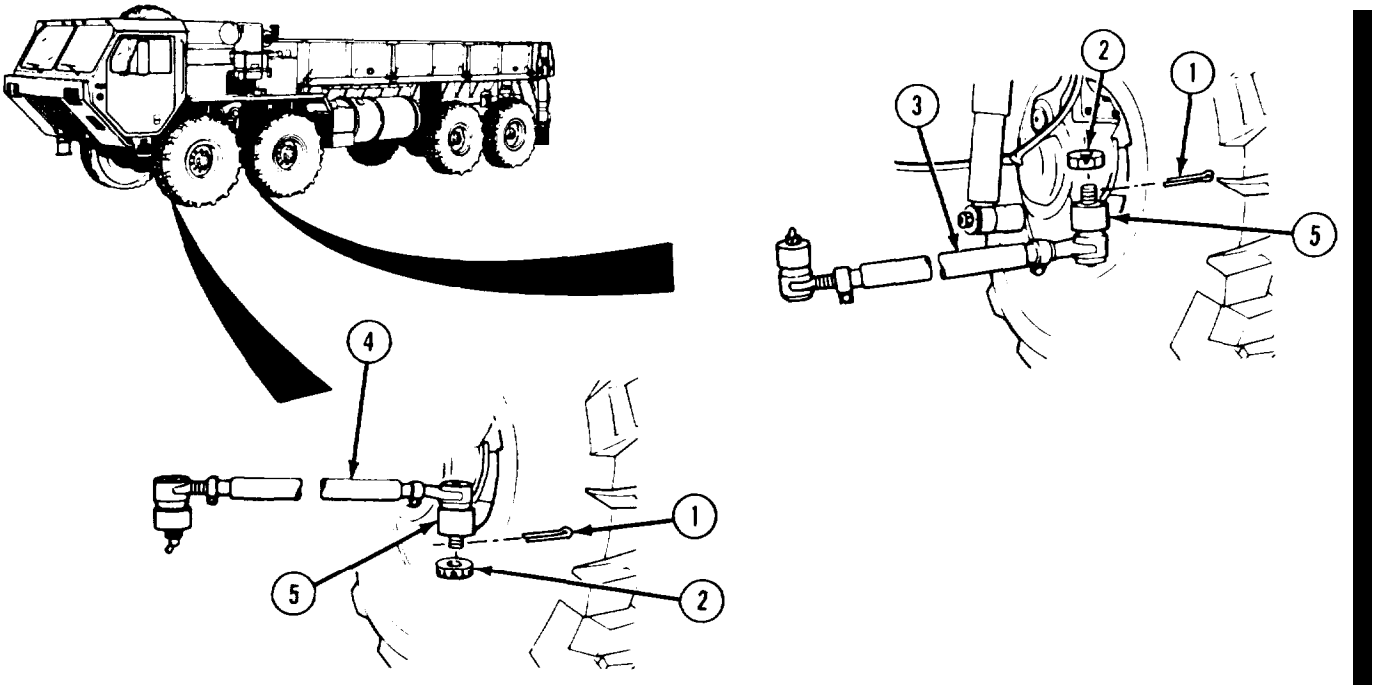
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine. Vehicle parked with wheels pointing straight ahead on flat, level, hard surface. Tire pressure adjusted to equal pressure in front tires.

Special Environmental Conditions
None

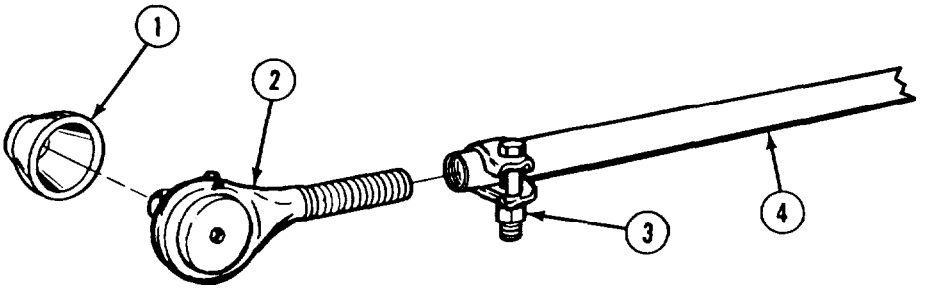
General Safety Instructions
Wheels chocked.

a. Removal.



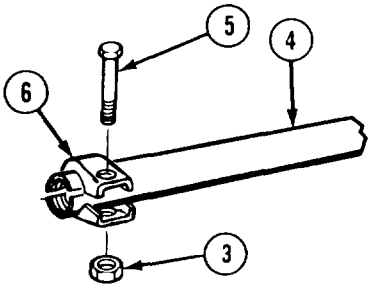
(1) Remove cotter pins (11 and two castle nuts (2) on each side of tie rod (3 or 4).
(2) Remove tie rod (3 or 4) from steering arms (5).

b. Disassembly.



NOTE

- This procedure is the same for all repairable tie rods.
- Right and left tie rod ends are removed the same way; however, one tie rod end has coarse threads while the other has fine threads.
- Note exposed thread length to aid assembly.



(1) Remove dust cover (1) from tie rod end (2).
(2) Loosen nut (3).
(3) Remove tie rod end (2) from tie rod (4).
(4) Remove nut (3) and screw (5) from clamp (6) of tie rod (4).

13-5. FRONT AND REAR TIE RODS REMOVAL/REPAIR/INSTALLATION (CONT).

c. ***Cleaning/Inspection.***

WARNING

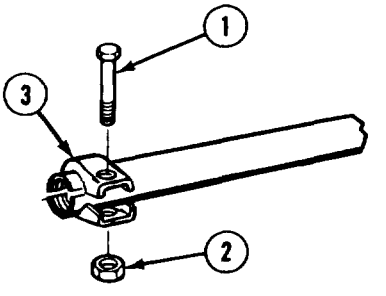
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap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

(1) Clean all metal parts with drycleaning solvent.
(2) Inspect all threaded parts for crossed or stripped threads.
(3) Replace all damaged parts.

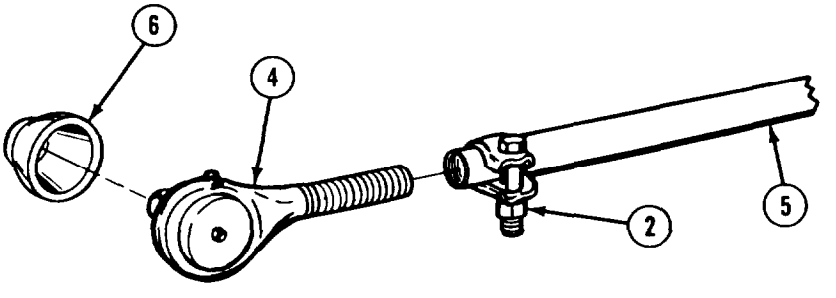
d . ***Assembly,***

NOTE

- This procedure is the same for all repairable tie rods.
- Right and left tie rod ends are assembled the same way; however, one tie rod end has course threads while the other has fine threads.



(1) Install screw (1) and nut (2) in clamp. Do not tighten nut.

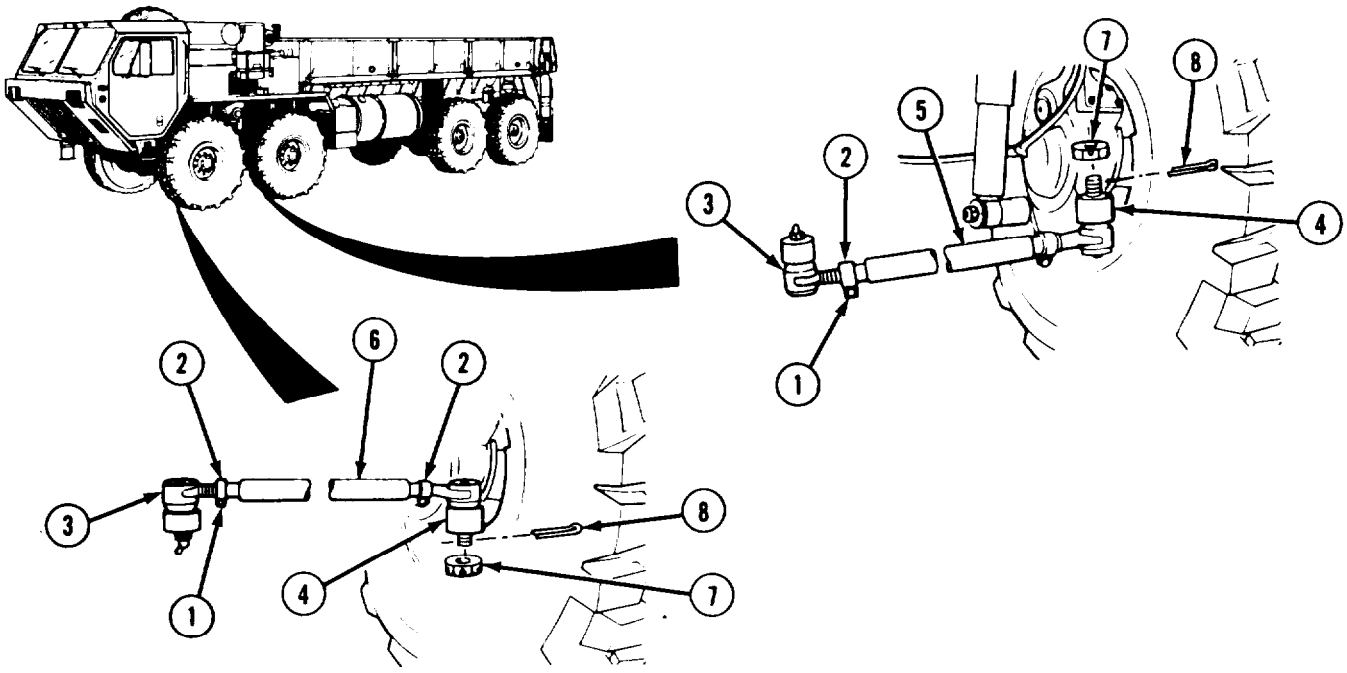


(2) Coat threads of tie rod end (4) with antiseize compound.

NOTE

Install tie rod end so that the length of exposed threads is the same as noted during removal.

(3) Install tie rod end (4) in the tie rod (5).
(4) Tighten nut (2).
(5) Install dust cover (6) on tie rod end (4).



e. Installation.

(1) Loosen nuts (1) on tie rod end clamps (2).

CAUTION

Tie rod ends must be threaded into tie rod so threads are beyond opening under clamp. Failure to do so, may result in damage to equipment.

NOTE

Be sure tie rod ends are installed evenly in steering arm.

(2) Turn tie rod ends (3) in or out until ends fit in holes in steering arm (4).

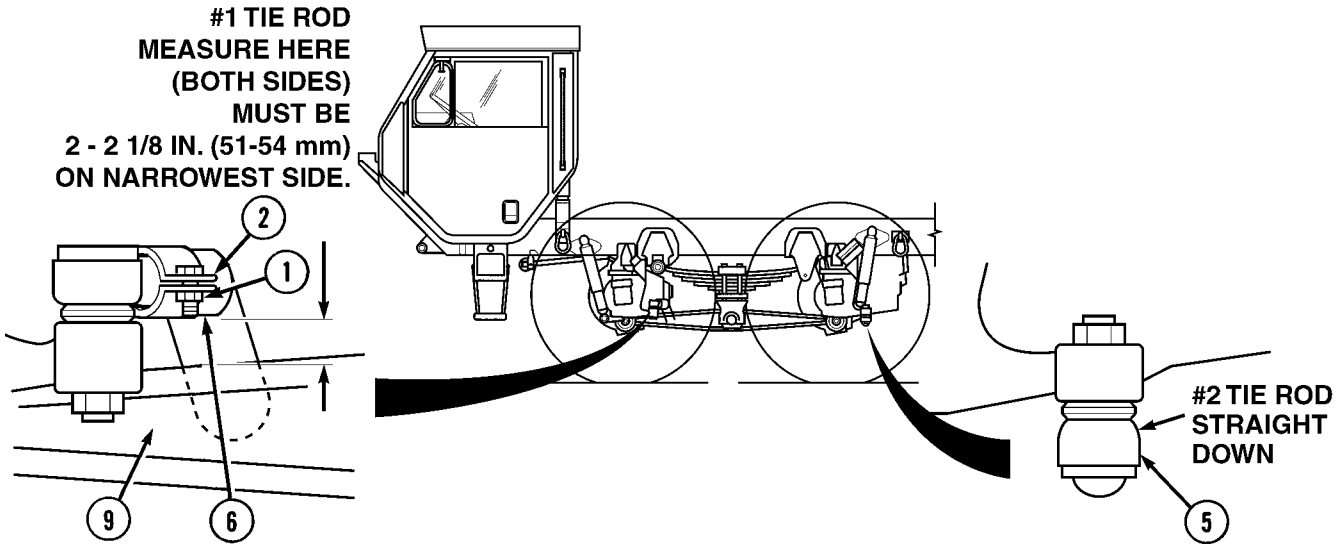
(3) Install tie rod (5 or 6) into steering arm (4) holes.

CAUTION

Tie rod end clamps on number two axle must have nuts and screws on bottom of tie rod to prevent end clamps from striking shock absorber mount.

(4) Install castle nut (7).

(5) Install cotter pin (8).



(6) Adjust tie rod (5) until slight bend is straight down and tighten nuts (1) on tie rod end clamps (2).

(7) Measure distance between tie rod (6) and equalizer beam (9) on both sides. Push or pull tie rod until 2-2 1/8 inches (51-54 mm) are measured on narrowest side and tighten nuts (1) on tie rod end clamps (2).

f. Follow-on Maintenance.

NOTE

Front tie rod has grease fittings. Rear tie rod may or may not have grease fittings.

(1) Lubricate tie rod (LO 9-2320-279-12).

(2) Notify Direct Support that toe-in adjustment is required.

END OF TASK

Section III. HYDRAULIC RESERVOIR AND HOSES

13-6. STEERING SYSTEM HOSES AND FITTINGS REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All (except M984E1)

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Tags, identification, Item 48, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 16-13	Left front splash guard removed.

Special Environmental Conditions
None

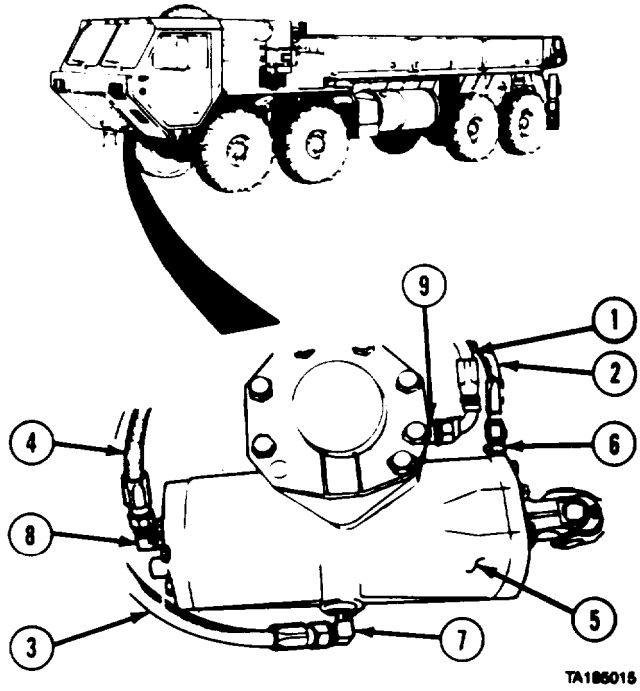
General Safety Instructions
None

a. Removal.

NOTE

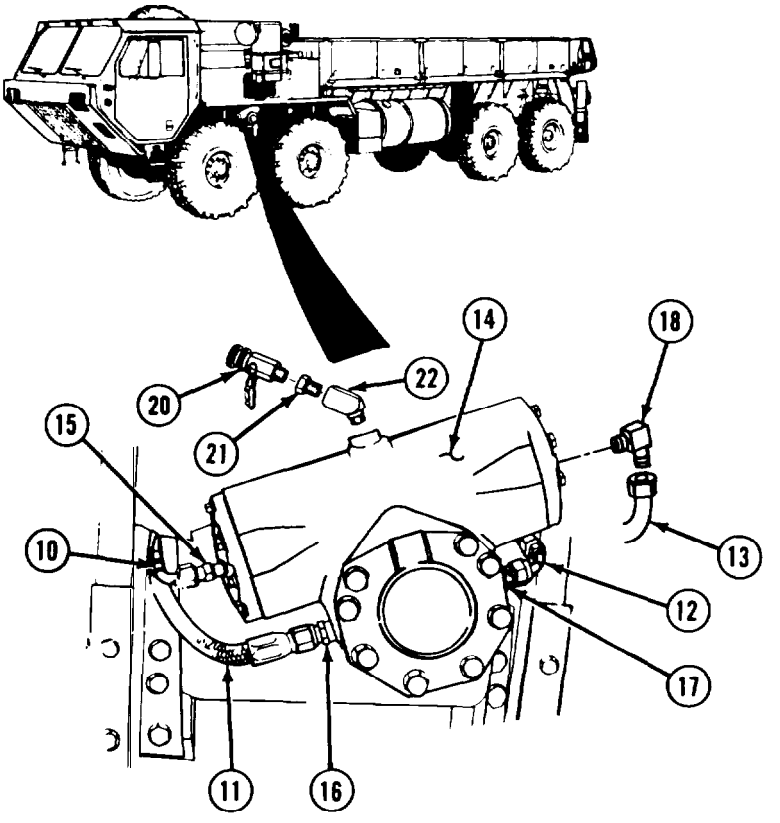
- Tag and mark hoses before removing.
- Position suitable container under vehicle to catch dripping oil.

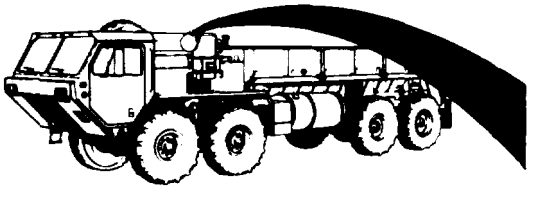
(1) Disconnect hoses (1, 2, 3, and 4) from steering gear (5).
(2) Remove bushing (6), elbows (7 and 8), and adapter (9).

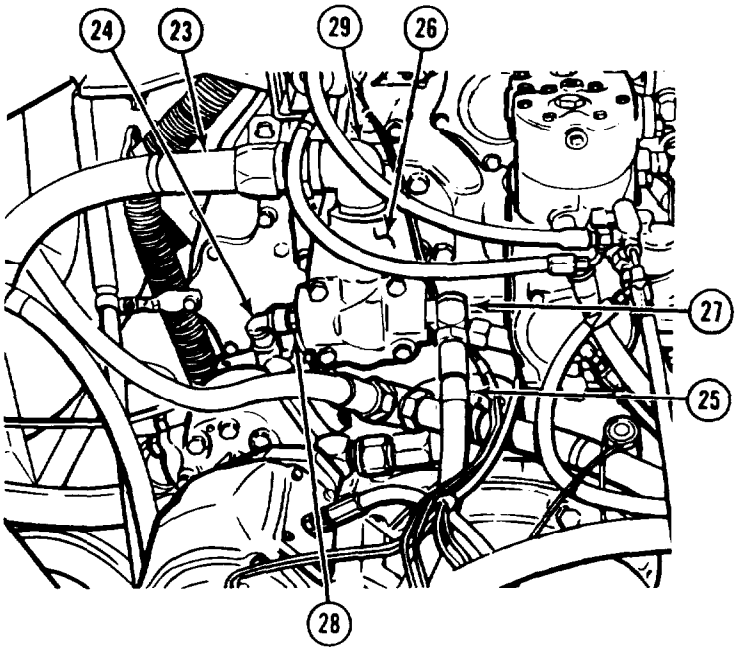


Steering System Maintenance Instructions (Cont)

(3) Disconnect hoses (10, 11, 12, and 13) from slave steering gear (14).
(4) Remove adapter (15) and two fittings (16 and 17) from slave steering gear (14).
(5) Remove elbow (18) from slave steering gear (14).
(6) Remove valve (20), adapter (21), and elbow (22).

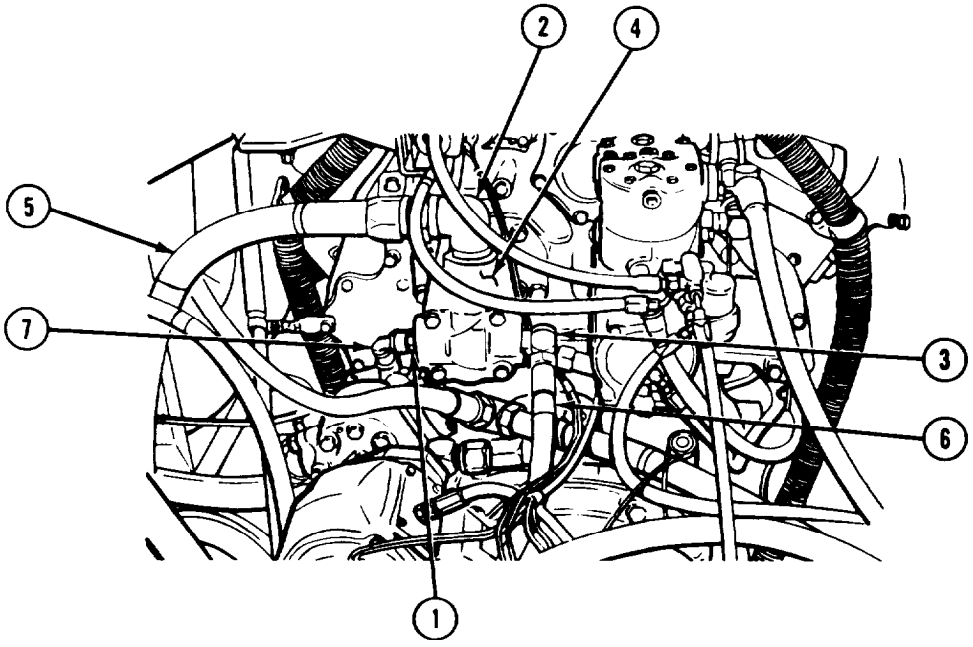






(7) Disconnect hoses (23, 24, and 25) from steering pump (26).
(8) Remove elbow (27), adapter (28), and elbow (29) from steering pump (26).

13-6. STEERING SYSTEM HOSES AND FITTINGS REMOVAL/INSTALLATION (CONT).



WARNING

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

(1) Apply pipe thread sealing compound to adapter (1) and elbows (2 and 3). Install adapter and elbows in steering pump (4).

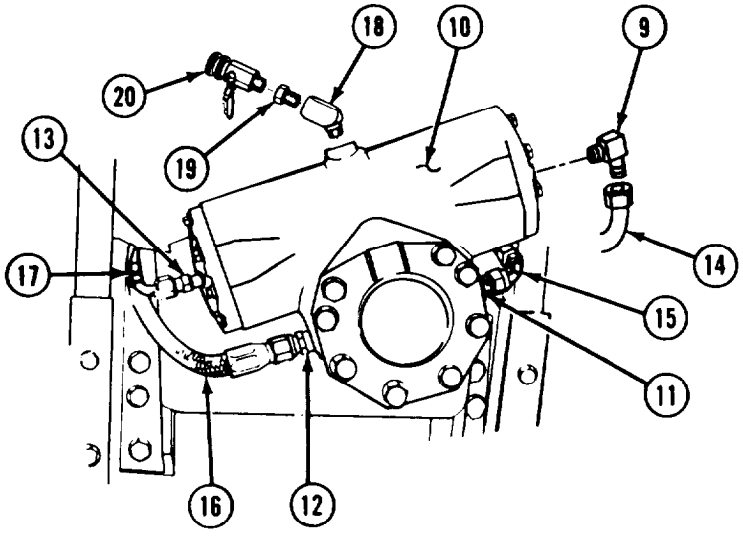
(2) Install hoses (5, 6, and 7).

(3) Install elbow (9) in slave steering gear (10).

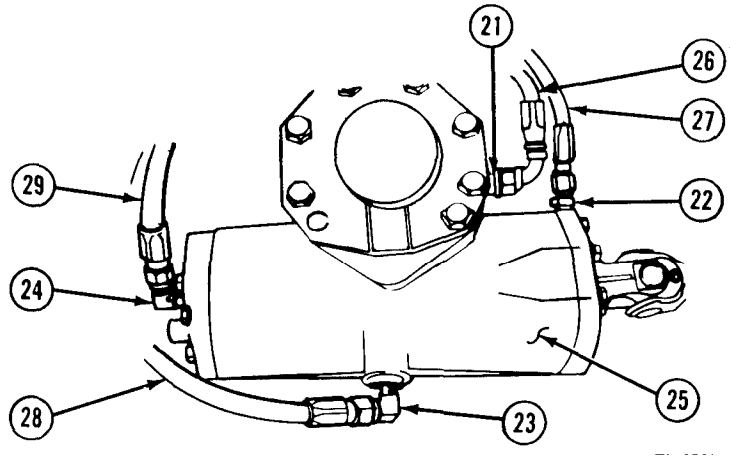
(4) Install two fittings (11 and 12) and adapter (13) in slave steering gear (10).

(5) Install hoses (14, 15, 16, and 17).

(6) Apply pipe thread sealing compound to elbow (18), adapter (19), and valve (20). Install elbow, adapter,. and valve in slave steering gear (10).



(7) Install adapter (21), bushing (22), and elbows (23 and 24) in steering gear (25).
(8) Install hoses (26, 27, 28, and 29).



c. Follow-on Maintenance.
(1) Fill hydraulic reservoir (LO 9-2320-279-12).
(2) Check steering system for proper operation.
(3) Check hydraulic system for leaks.
(4) Install left front splash guard (para 16-13).

END OF TASK

13-6.1. STEERING/TENSIONER SYSTEM HOSES AND FITTINGS REMOVAL/INSTALLATION (M984E1).

This task covers:
a. Removal
b. Installation
c. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C
Ties, cable, plastic, Item 52, Appendix C
Oil, lubricating, Item 33, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

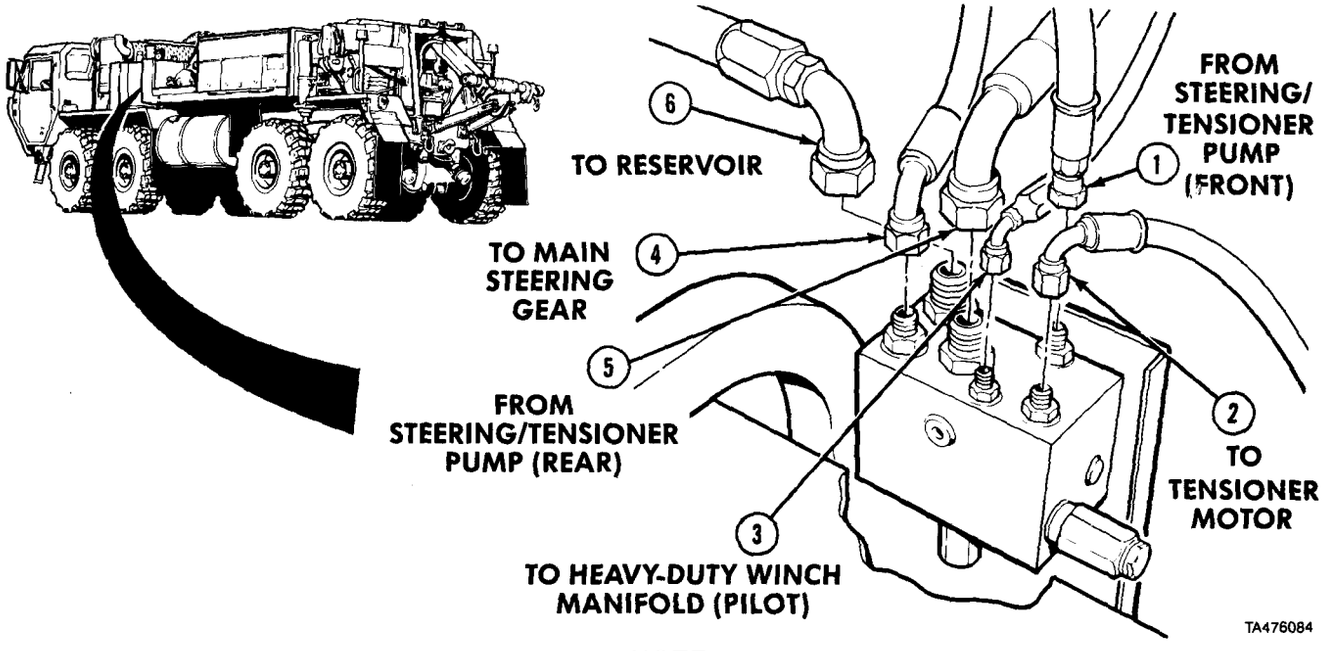
TM or Para	*Condition Description*
TM 9-2320-279-10	Lower fairlead/tensioner.
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 16-13	Left front splash guard removed.

Special Environmental Conditions
None

General Safety Instructions
None

13-6.1. STEERING/TENSIONER SYSTEM HOSES AND FITTINGS REMOVAL/INSTALLATION (M984E1) (CONT).

a. Removal.

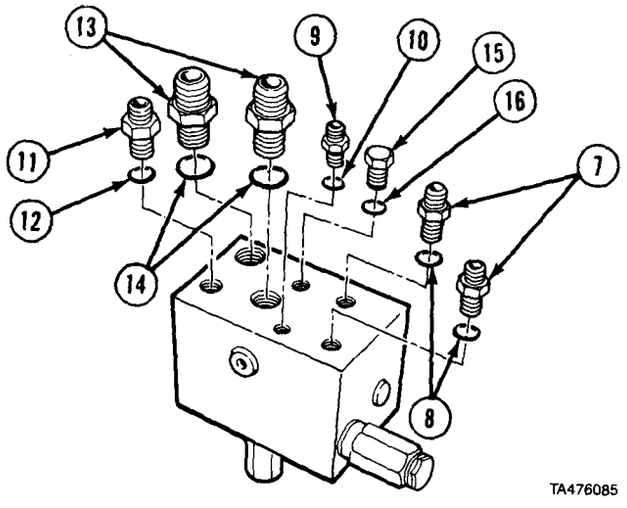


NOTE

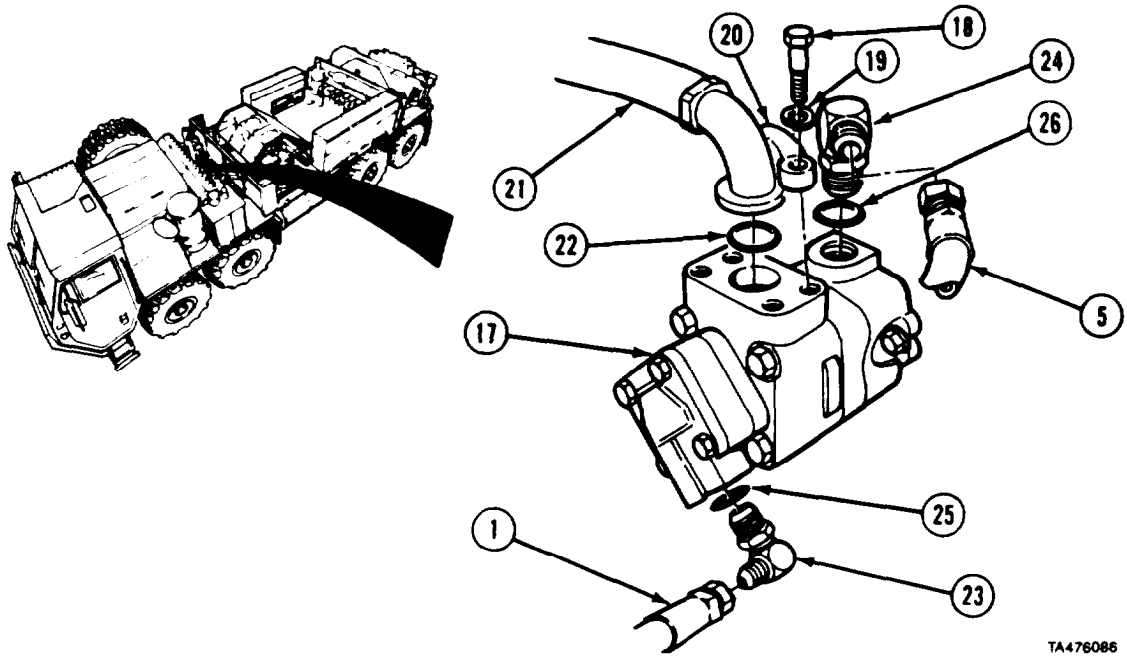
- Position suitable container under vehicle to catch oil.
- Tag and mark hoses and fittings before removal.

(1) Disconnect six hoses (1 through 6).

(2) Remove two connectors (7) and preformed packings (8).
(3) Remove connector (9) and preformed packing (10).
(4) Remove adapter (11) and preformed packing (12).
(5) Remove two connectors (13) and preformed packing (14).
(6) Remove plug (15) and preformed packing (16).



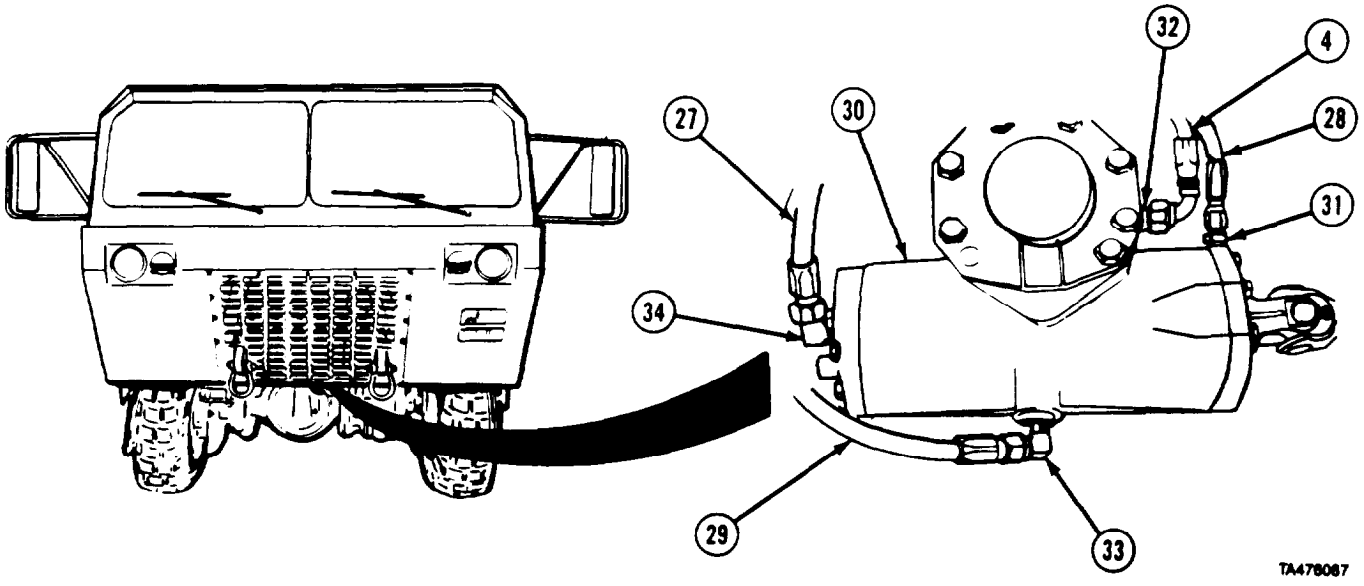
Steering System Maintenance Instructions (Cont)



NOTE

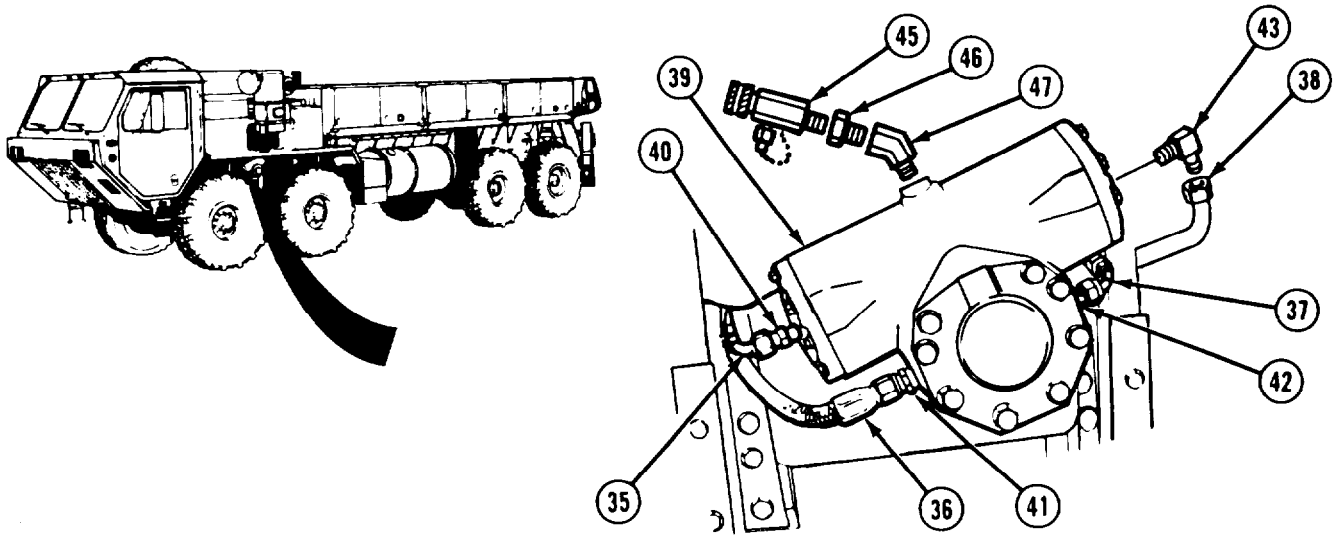
Tag and mark hoses and fittings before removal.

(7) Disconnect two hoses (1 and 5) from steering/tensioner pump (17).
(8) Remove four screws (18). lockwashers (19), two clamp halves (20) hose (21) and preformed packing (22).
(9) Remove two elbows (23 and 24) and preformed packings (25 and 26).

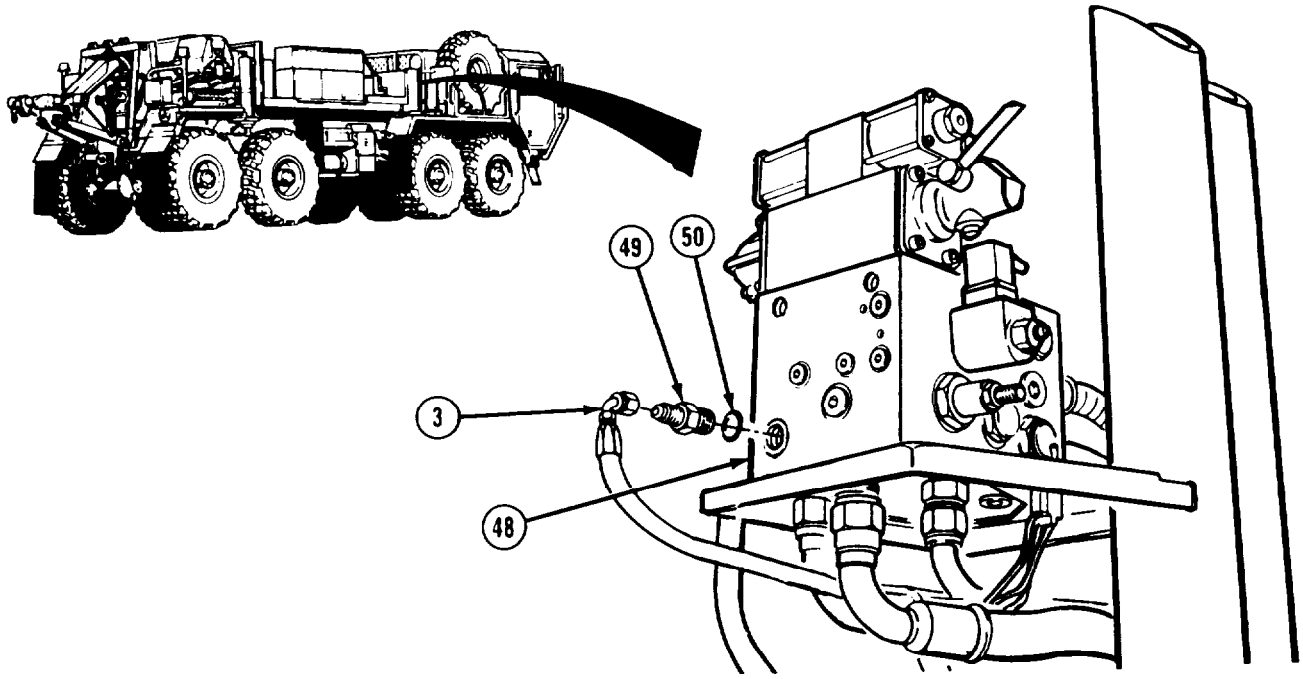


(10) Disconnect hoses (27, 28, 29 and 4) from steering gear (30).
(11) Remove two fittings (31 and 32) and elbows (33 and 34).

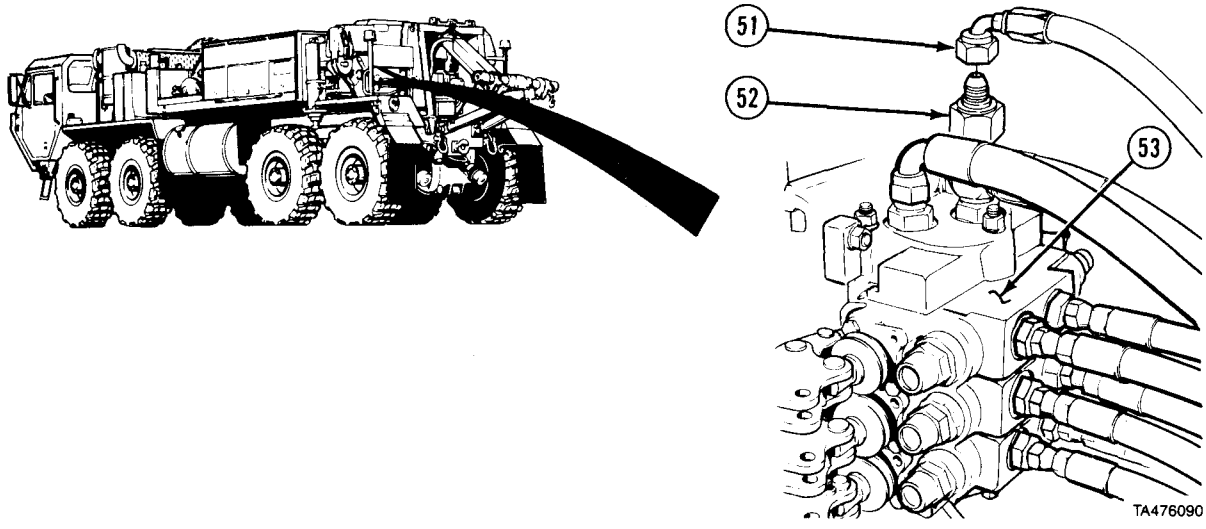
13-6.1. STEERING/TENSIONER SYSTEM HOSES AND FITTINGS REMOVAL/ INSTALLATION (M984E1) (CONT).



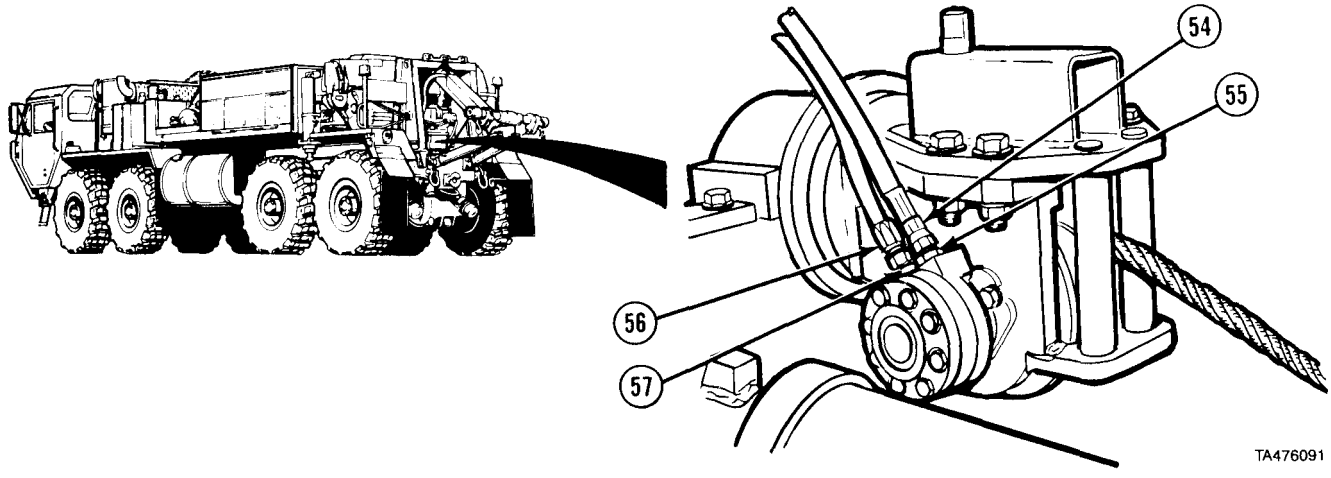
(12) Disconnect hoses (35, 36, 37, and 38) from slave steering gear (39).
(13) Remove fitting (40) and two fittings (41 and 42) from slave steering gear (39).
(14) Remove elbow (43) from slave steering gear (39).
(15) Remove valve (45), adapter (46), and elbow (47) from slave steering gear (39).



(16) Disconnect hose (3) from heavy-duty winch manifold (48).
(17) Remove adapter (49) and preformed packing (50) from heavy-duty winch manifold (48).



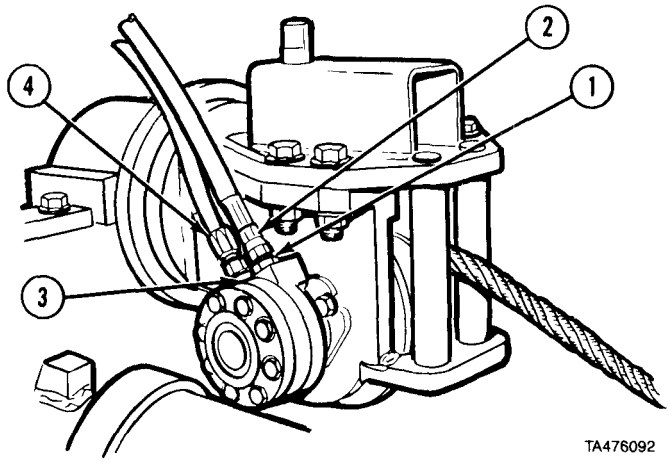
(18) Disconnect hose (51) from fitting (52) on retriever control (53).



(19) Disconnect hydraulic hose (54). Remove adapter (55).
(20) Disconnect hydraulic hose (56). Remove adapter (57).

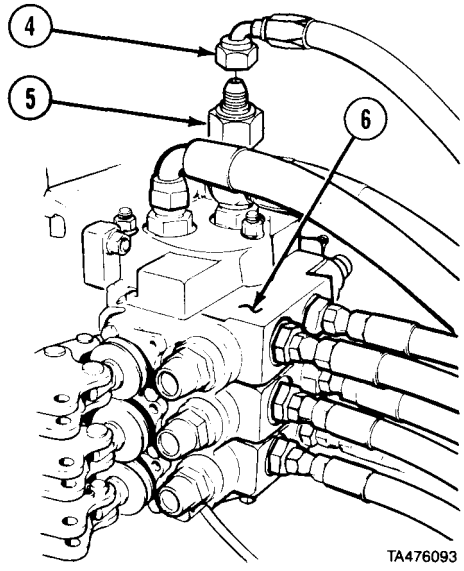
b. Installation.

(1) Install adapter (1), connect hydraulic hose (2) and route end of hose toward front of vehicle.
(2) Install adapter (3). Connect hydraulic hose (4) and route through tow support assembly to retriever control.

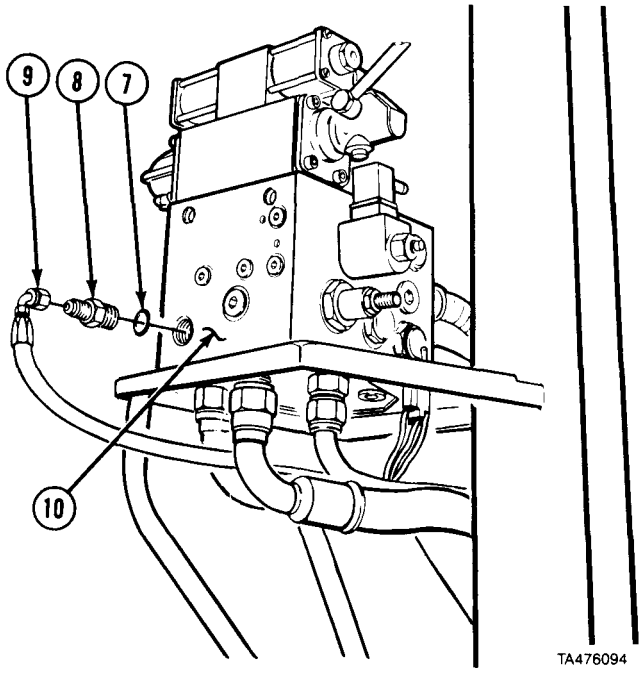


13-6.1. STEERING/TENSIONER SYSTEM HOSES AND FITTINGS REMOVAL/INSTALLATION (M984E1) (CONT).

(3) Connect hose (4) to fitting (5) on retrieval control (6).



(4) Install preformed packing (7) and adapter (8) and connect hose (9) to heavy-duty winch manifold (10).

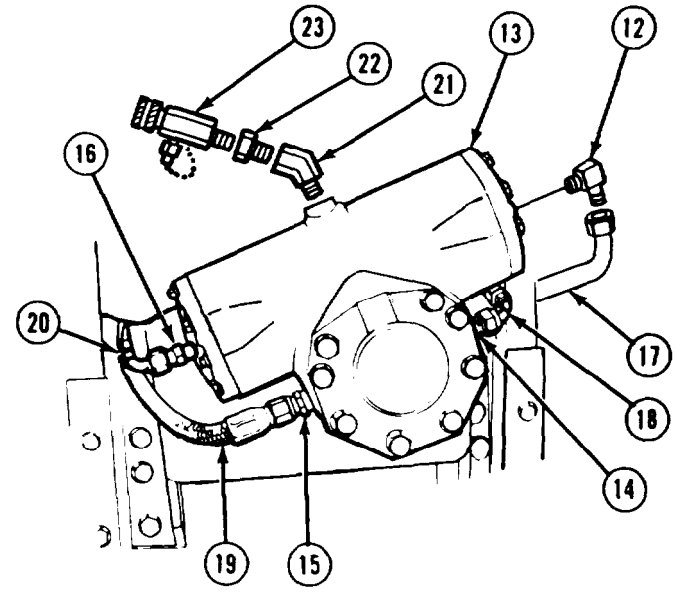


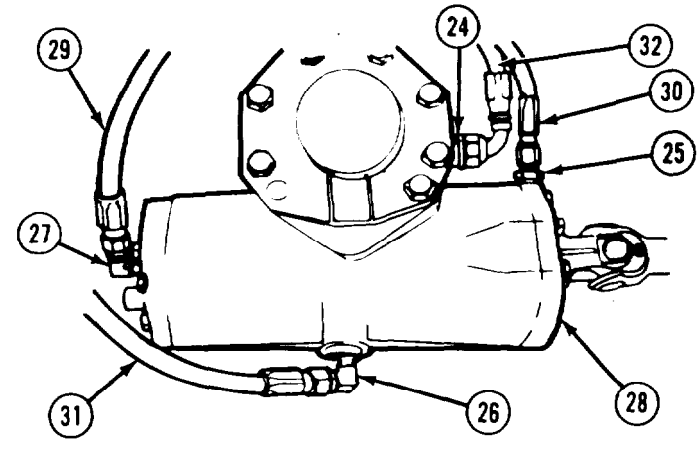
(5) Install elbow (12) in slave steering gear (13).
(6) Install two fittings (14 and 15) and fitting (16) in slave steering gear (13).
(7) Install hoses (17, 18, 19, and 20).

WARNING

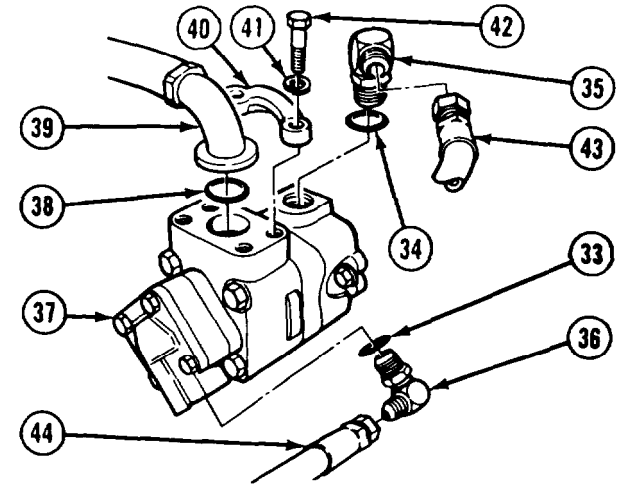
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(8) Apply pipe thread sealing compound to elbow (21), adapter (22), and valve (23). Install elbow, adapter, and valve in slave steering gear (13).
(9) Install fitting (24), fitting (25), and elbows (26 and 27) in steering gear (28).
(10) Install hoses (29, 30, 31, and 32).





(11) Install two preformed packings (33 and 34) on elbows (35 and 36) and install elbows in steering/tensioner pump (37).
(12) Install preformed packing (38), hose (39), two clamp halves (40), four lockwashers (41), and screws (42).
(13) Connect two hoses (43 and 44).

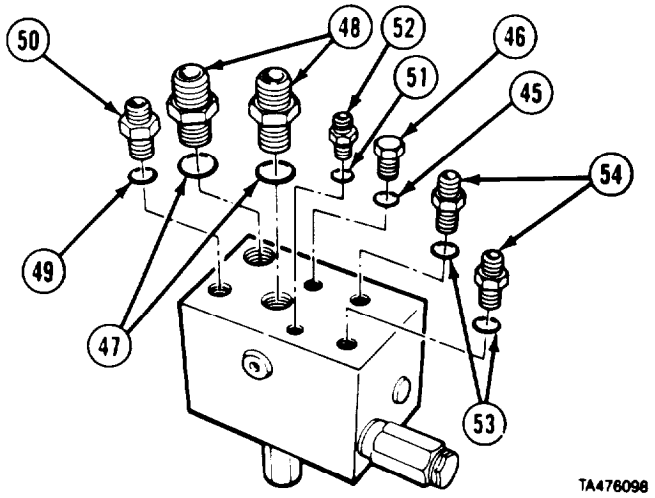


13-6.1. STEERING/TENSIONER SYSTEM HOSES AND FITTINGS REMOVAL/INSTALLATION (M984E1) (CONT).

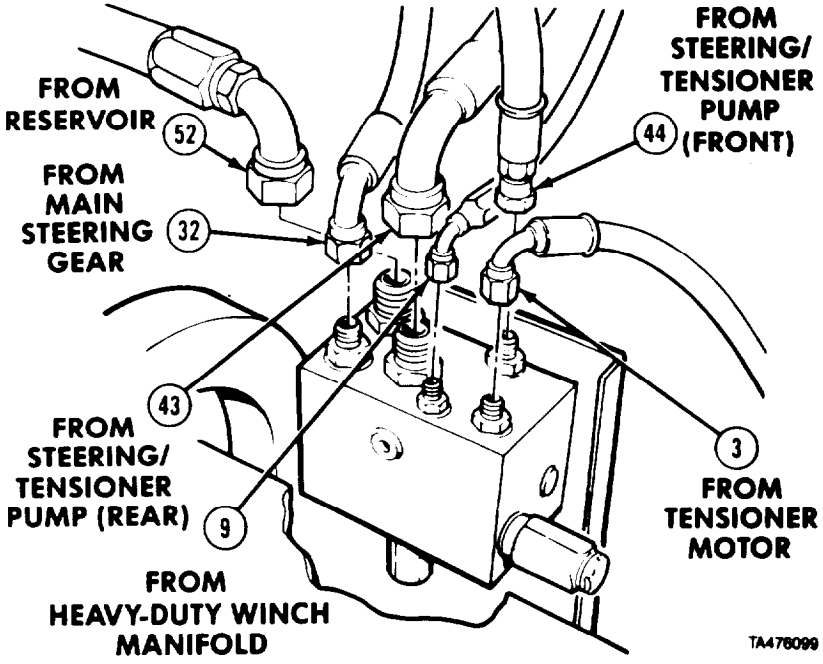
NOTE

Lubricate preformed packings before installing.

(14) Install preformed packing (35) on plug (46). Install plug.
(15) Install two preformed packings (47) on connectors (48). Install connectors
(16) Install preformed packing (49) on adapter (50). Install adapter.
(17) Install preformed packing (51) on connector (52). Install connector.
(18) Install two preformed packings (5:3) on connectors (54). Install connectors.



(19) Install six hoses (3, 9, 32, 43, 44 and 52).



c. Follow-on Maintenance.

(1) Fill hydraulic reservoir (LO 9-2320-279-12).
(2) Install left front splash guard (para 16-13).
(3) Start engine and turn steering wheel stop-to-stop three times to bleed air out of system (TM 9-2320-279-10).
(4) Check hydraulic system for leaks.
(5) Stow fairlead/tensioner (TM 9-2320-279-10).

END OF TASK

13-7. HYDRAULIC MANIFOLD REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
Para 16-13	Left splash guard removed.
LO 9-2320-279-12	Hydraulic reservoir drained.

Special Environmental Conditions
None

General Safety Instructions
None

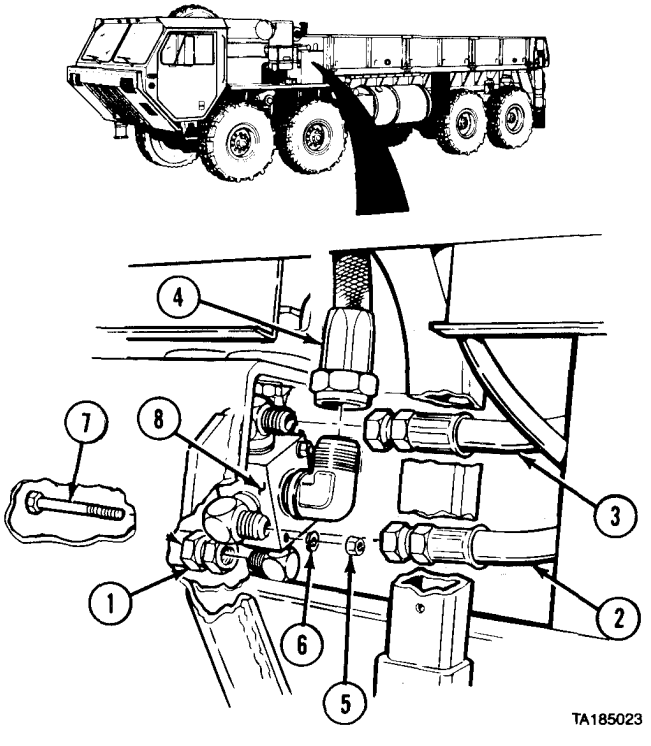
a. *Removal.*

(1) Place suitable container under vehicle.

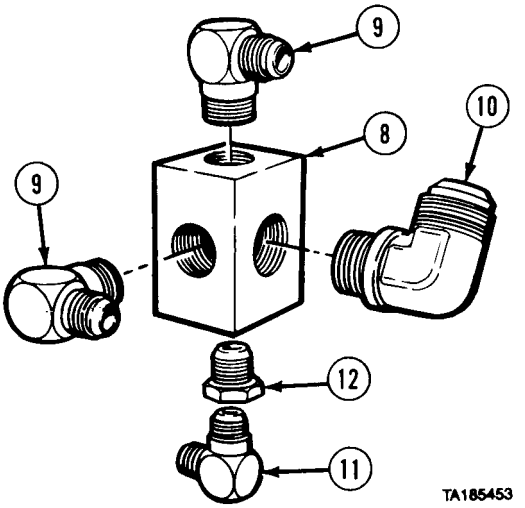
NOTE

Tag and mark hoses before disconnecting.

(2) Disconnect three hoses (1, 2, and 3).
(3) Disconnect hose (4).
(4) Remove two nuts (5), lockwashers (6), screws (7), and manifold (8).



(5) Remove two elbows (9).
(6) Remove elbow (10).
(7) Remove elbow (11) and adapter (12) from manifold (8).



b. Installation.

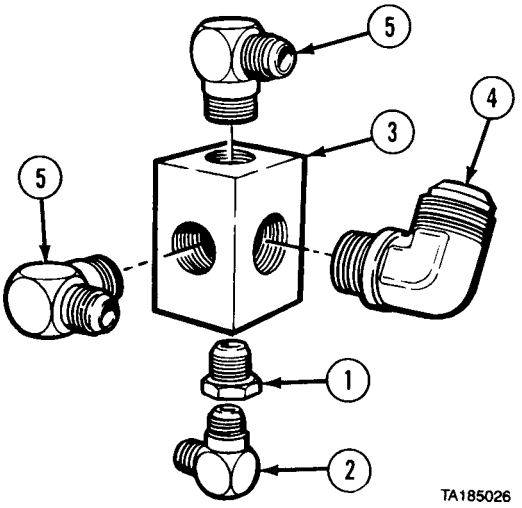
WARNING

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

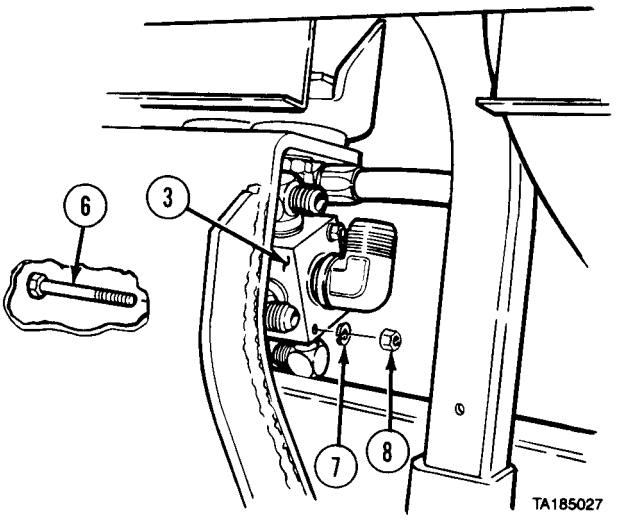
NOTE

Coat all pipe threads with pipe thread sealing compound.

(1) Install adapter (1) and elbow (2) in manifold (3).
(2) Install elbow (4).
(3) Install two elbows (5).



(4) Install manifold (3) with two screws (6), lockwashers (7), and nuts (8).

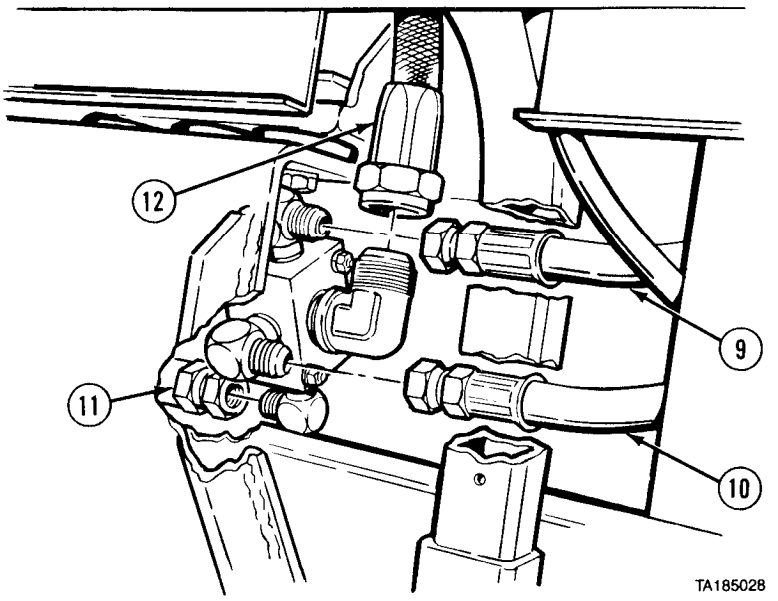


13-7. HYDRAULIC MANIFOLD REMOVAL/INSTALLATION (CONT).

(5) Connect three hoses (9, 10, and 11).
(6) Connect hose (12).

c. Follow-on Maintenance.
(1) Fill hydraulic reservoir (LO 9-2320-279-12).
(2) Check connections for leaks.
(3) Install left splash guard (para 16-13).

END OF TASK



13-8. HYDRAULIC FILTER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All (except M984E1)

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, Item 29, Appendix C
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

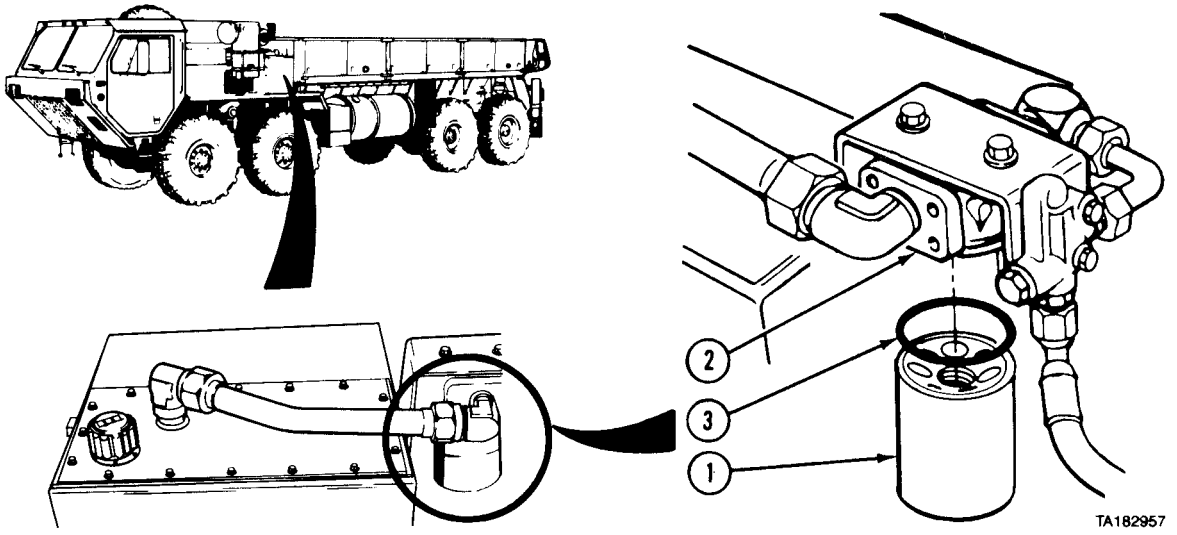
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

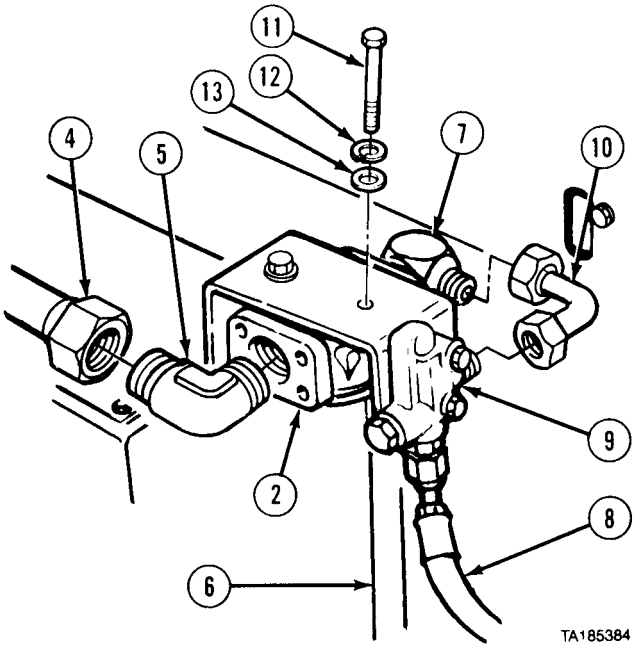
General Safety Instructions
None

a. Removal.



(1) Remove spin-on filter element (1) from hydraulic filter housing (2).
(2) Remove seal (3) from hydraulic filter housing (2).

(3) Disconnect tube (4) from elbow (5).
(4) Disconnect hose (6) from elbow (7).
(5) Disconnect hose (8) from relief valve (9).
(6) Disconnect tube (10) from relief valve (9) and elbow (7).
(7) Mark hydraulic filter housing (2) for *IN* and *OUT* connections.
(8) Remove two screws (11), lockwashers (12), washers (13), and hydraulic filter housing (2).
(9) Note positions of elbows (5 and 7) and remove from hydraulic filter housing (2).



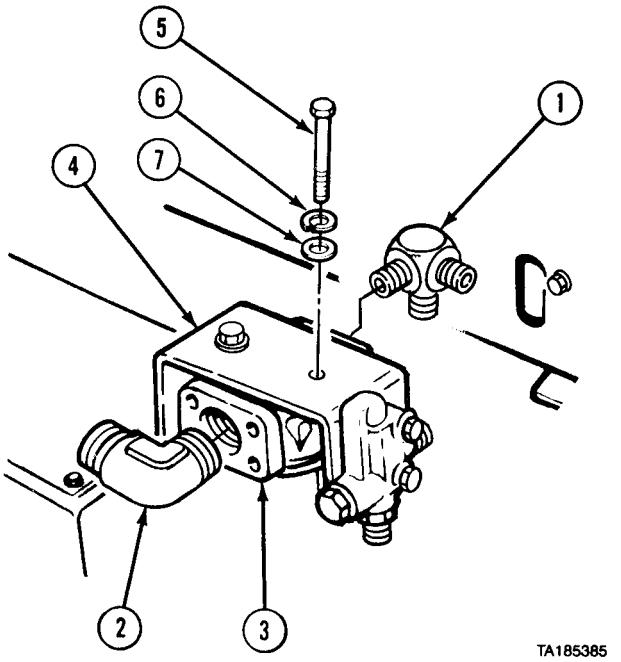
13-8. HYDRAULIC FILTER REMOVAL/INSTALLATION (CONT).

b. Installation.

WARNING

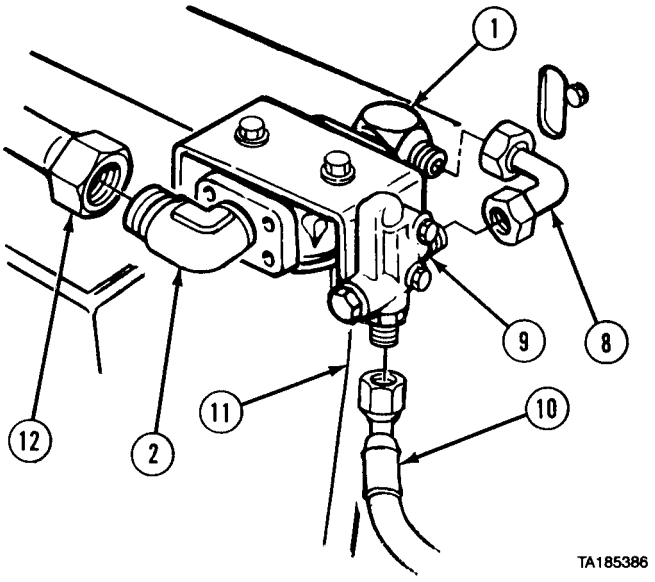
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(1) Coat threads of elbows (1 and 2) with pipe thread sealing compound and install in hydraulic filter housing (3).
(2) Install hydraulic filter housing (3) on mounting bracket (4) with two screws (5), lockwashers (6), and washers (7).



TA185385

(3) Connect tube (8) to relief valve (9) and elbow (1).
(4) Connect hose (10) to relief valve (9).
(5) Connect hose (11) to elbow (l).
(6) Connect tube (12) to elbow (2).

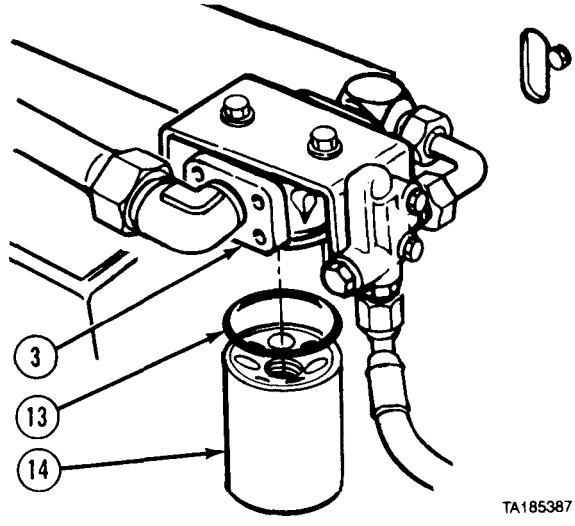


TA185386

(7) Coat seal (13) with lubricating oil and install seal in hydraulic filter housing (3).
(8) Install spin-on filter element (14) on hydraulic filter housing (3).

c. Follow-on Maintenance.
(1) Start engine (TM 9-2320-279-10).
(2) Check for leaks.
(3) Shut off engine (TM 9-2320-279-10).

END OF TASK



13-9. HYDRAULIC RESERVOIR SIGHT GLASS REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All except M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

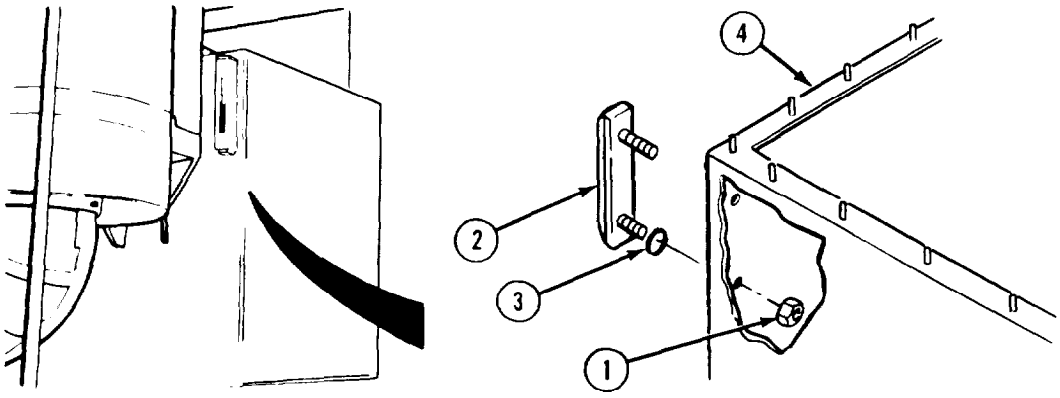
Equipment Condition

TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 13-10	Hydraulic reservoir top plate removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Remove two locknuts (1)
(2) Remove hydraulic reservoir sight glass (2) and two preformed packings (3) from hydraulic reservoir (4).

b. Installation.

(1) Install two preformed packings (3) on hydraulic reservoir sight glass (2).
(2) Install hydraulic reservoir sight glass (2) on hydraulic reservoir (4).
(3) Install two locknuts (1) and tighten to 50 to 55 lb-in (5.6 to 6.2 N•m).

c. Follow-on Maintenance.

(1) Install hydraulic reservoir top plate (para 13-10).
(2) Fill hydraulic reservoir (LO 9-2320-279-12).
(3) Check hydraulic reservoir for leaks.

END OF TASK

13-10. HYDRAULIC RESERVOIR TOP PLATE AND GASKET REMOVA/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All except M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18.2, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
LO 9-2320-279-12	Hydraulic reservoir drained.

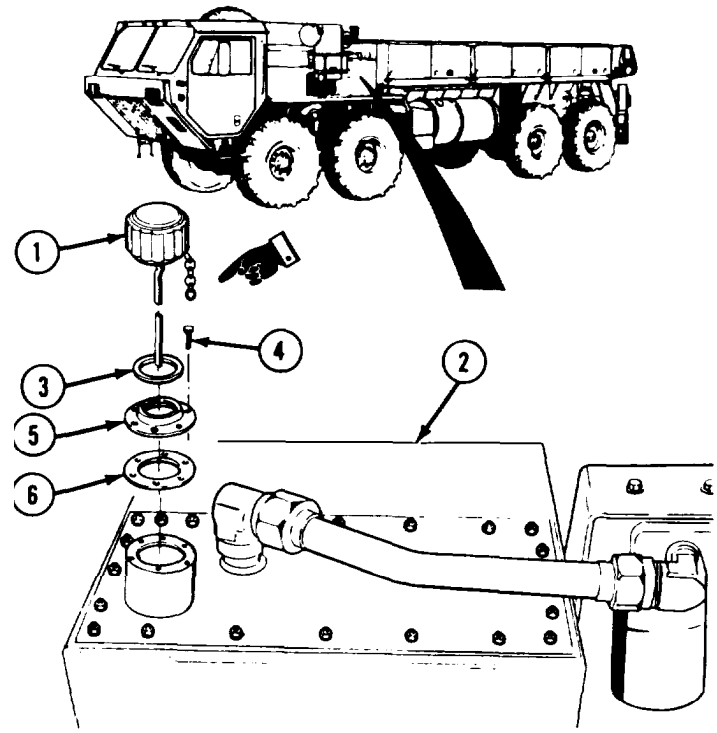
Special Environmental Conditions
None

General Safety Instructions
None

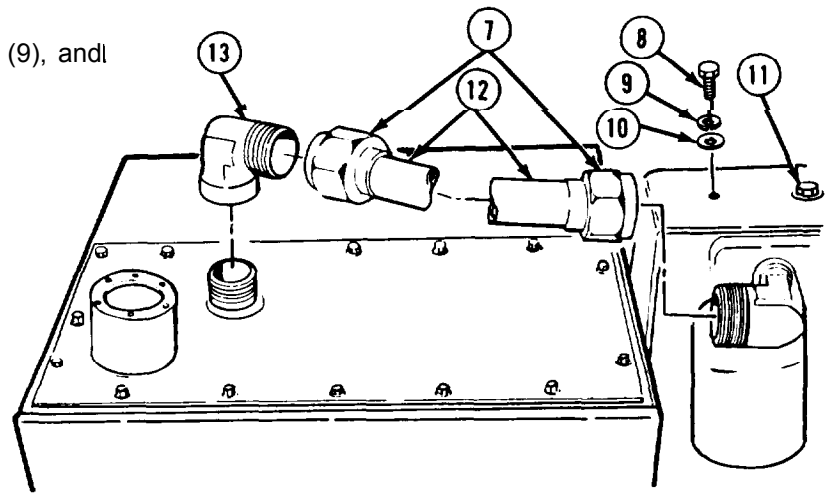
13-10. HYDRAULIC RESERVOIR TOP PLATE AND GASKET REMOVAL/INSTALLATION (CONT).

a. Removal.

(1) Remove dipstick (1) from top of hydraulic reservoir (2).
(2) Remove seal (3) from dipstick (1),
(3) Remove six screws (4) from retaining plate (5).
(4) Remove retaining plate (5) and gasket (6).

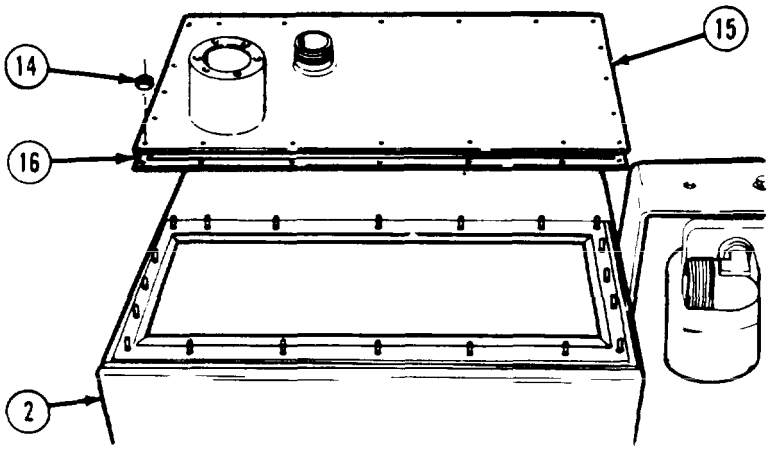


(5) Loosen two connectors (7).
(6) Remove screw (8), lockwasher (9), and washer (10).
(7) Loosen screw (11).
(8) Remove pipe (12).
(9) Tag and remove elbow (13).



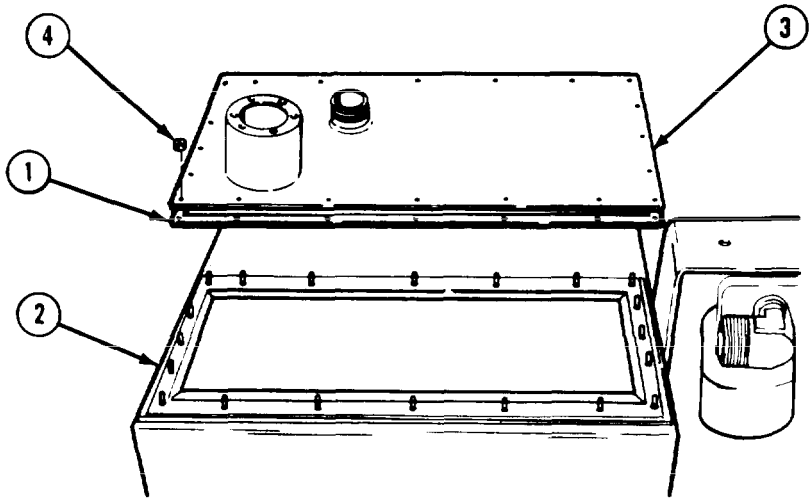
13-10. HYDRAULIC RESERVOIR TOP PLATE AND GASKET REMOVAL/INSTALLATION (CONT).

(10) Remove 20 locknuts (14) from top plate (15).
(11) Remove top plate (15) from hydraulic reservoir (2).
(12) Remove gasket (16).

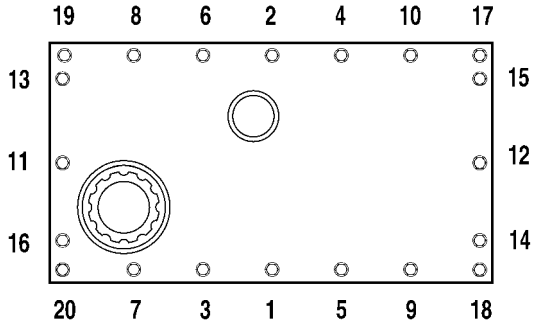


b. Installation.

(1) Install gasket (1) on top of hydraulic reservoir (2).
(2) Install top plate (3) with 20 locknuts (4).



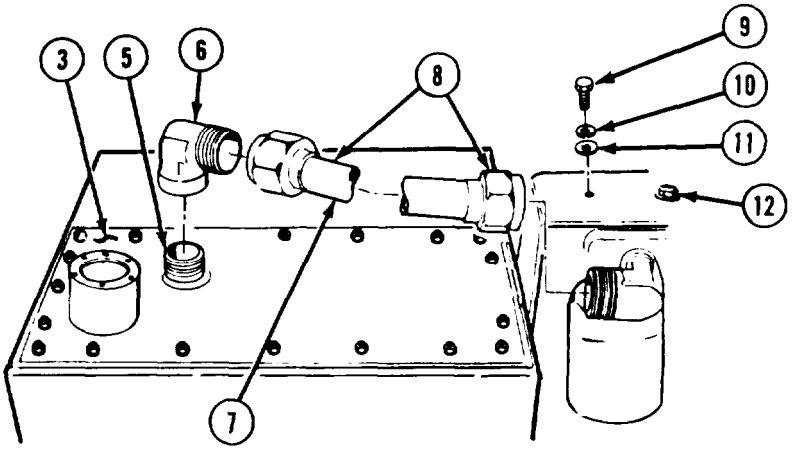
(2.1) Tighten locknuts (4) to 45 to 55 lb-in (5 to 6 N•m) in sequence shown.
(2.2) Tighten locknuts (4) to 60 to 65 lb-in (7 to 7.5 N•m) in sequence shown.



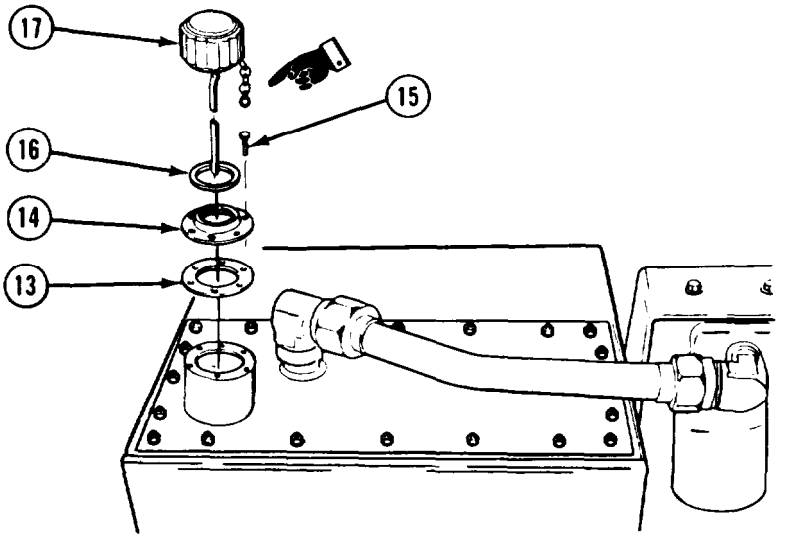
13-10. HYDRAULIC RESERVOIR TOP PLATE AND GASKET REMOVAL/INSTALLATION (CONT).

WARNING

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



(3) Apply light coat of pipe thread sealing compound on threads of nipple (5) and install elbow (6) on top plate (3).
(4) Install pipe (7). Tighten two connectors (8).
(5) Install screw (9), lockwasher (10), and washer (11).
(6) Tighten screw (12).



(7) Install gasket (13) and retaining plate (14) with six screws (15).
(8) Install seal (16) in dipstick (17).
(9) Install dipstick (17).

c. Follow-on Maintenance.

(1) Fill hydraulic reservoir (LO 9-2320-279-12).
(2) Start engine (TM 9-2320-279-10).
(3) Check reservoir for leaks.

END OF TASK

13-11. HYDRAULIC RESERVOIR STRAINERS REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Cleaning
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
All except M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18.2, Appendix C
Solvent, drycleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

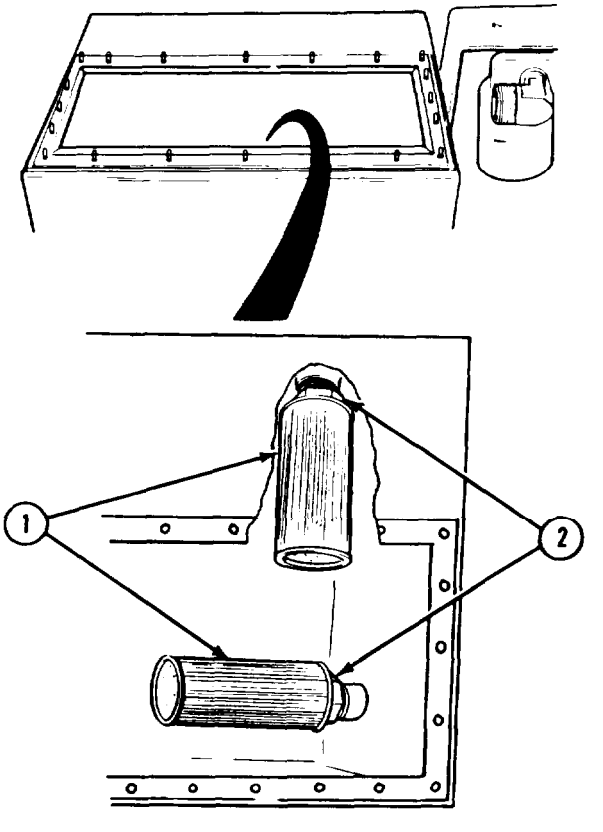
TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 13-10	Hydraulic reservoir top plate removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

(1) Remove two strainers (1) from threaded pipes (2).



b. Cleaning.

WARNING

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

(1) Clean hydraulic reservoir with drycleaning solvent and clean rags.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

(2) Dry hydraulic reservoir with compressed air.

13-11. HYDRAULIC RESERVOIR STRAINERS REMOVAL/INSTALLATION (CONT).

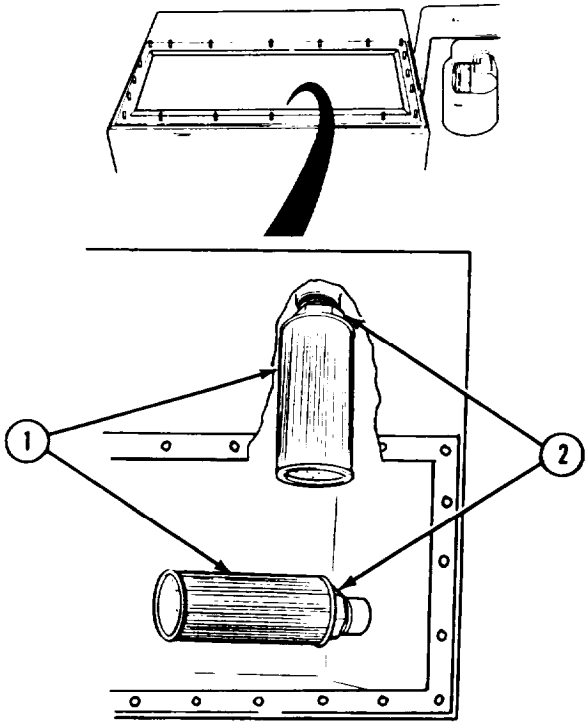
c. Installation.

WARNING

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

(1) Apply light coat of pipe thread sealing compound on threads of two pipes (2).

(2) Install two strainers (1) on threaded pipes (2).



d. Follow-on Maintenance.

(1) Install hydraulic reservoir top plate (para 13-10).

(2) Fill hydraulic reservoir with oil (LO 9-2320-279-121.

(3) Check hydraulic reservoir for leaks.

END OF TASK

13-12. HYDRAULIC RESERVOIR REMOVAL/INSTALLATION

This task covers:

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

INITIAL SETUP

Models
All except M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18.2, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
Para 16-13	Left rear splash guard removed.
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 13-9	Hydraulic reservoir sight glass removed.
Para 13-11	Hydraulic reservoir strainers removed.
Para 4-5	Air cleaner assembly removed.
Para 13-10	Hydraulic reservoir top plate removed.

Special Environmental Conditions
None

General Safety Instructions
None

Steering System Maintenance Instructions (Cont)

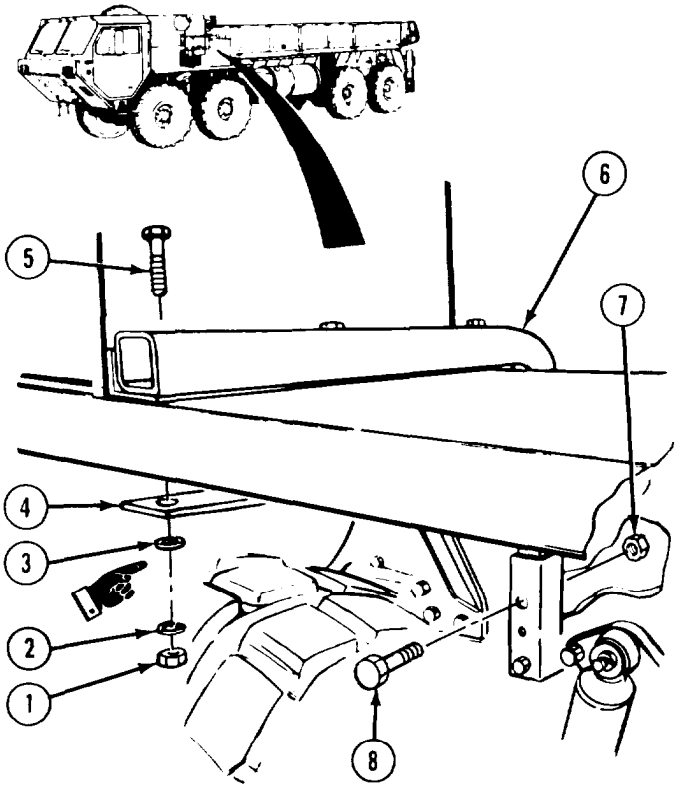
a. Removal.

(1) Remove three nuts (1), lockwashers (2), washers (3), plate (4), and screws (5) from fender brace (6).

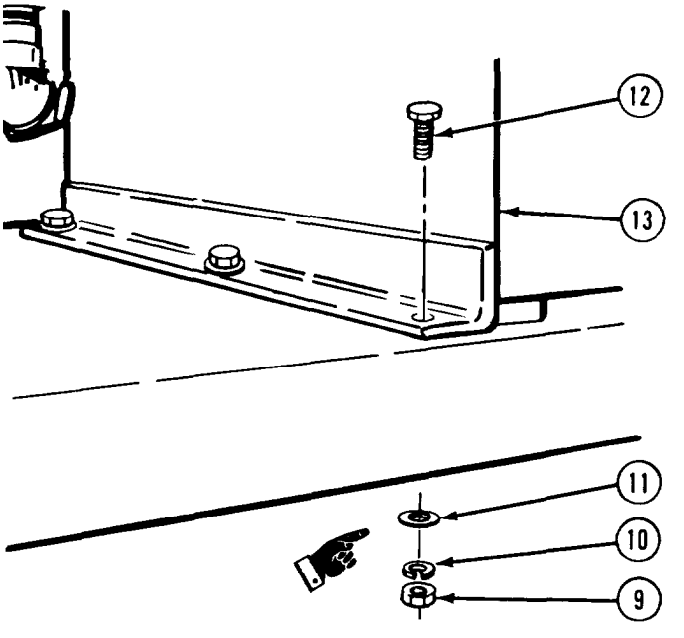
NOTE

There are four screws on M978 tanker on right side of reservoir.

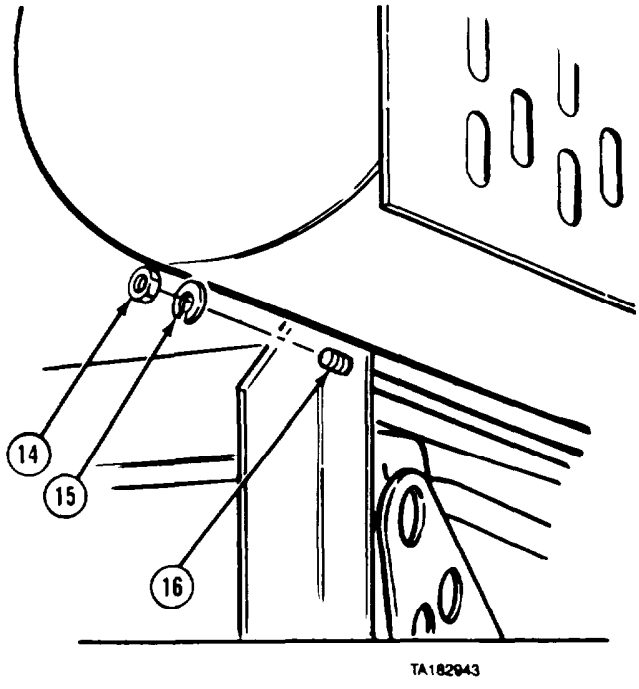
(2) Remove two nuts (7) and screws (8) from lower side of fender brace (6). Remove fender brace.



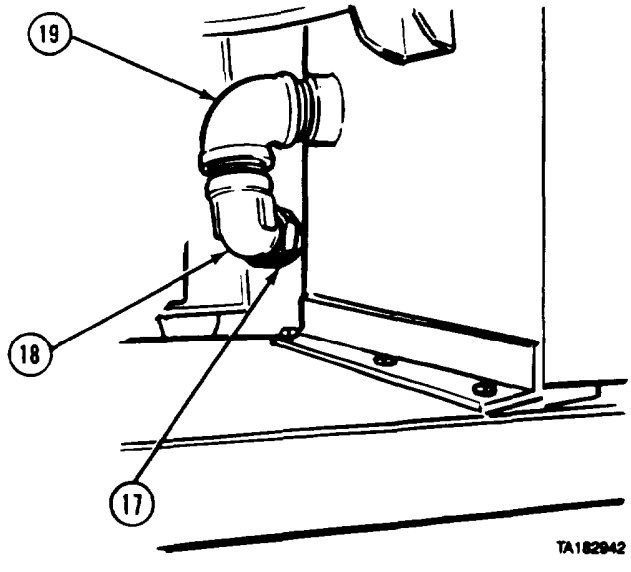
(3) Remove three nuts (9), lockwashers (10), washers (11), and screws (12) from left side of hydraulic reservoir (13).



(4) Remove nut (14) and lockwasher (15) from support rod (16).



(5) Loosen and remove connector (17).
(6) Remove two elbows (18 and 19).

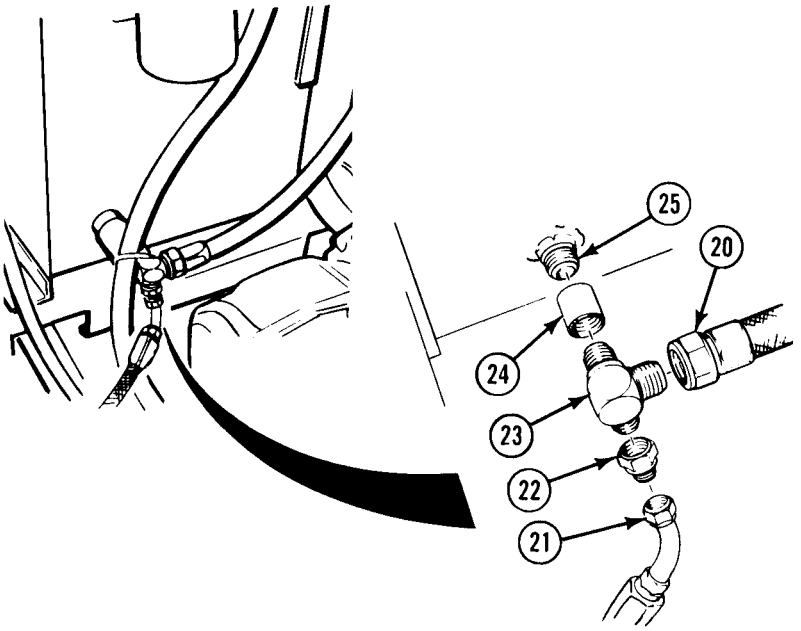


13-12. HYDRAULIC RESERVOIR REMOVAL/INSTALLATION (CONT).

NOTE

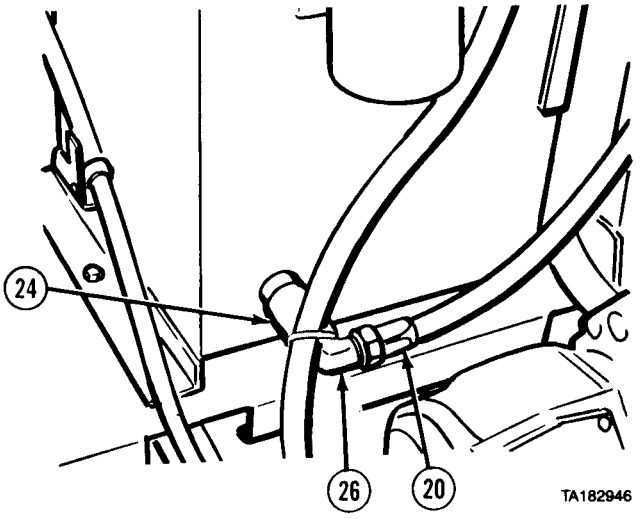
Do steps (7), (8), and (9) for M983 with crane, M984, and M985E1 only.

(7) Remove connector (20).
(8) Remove connector (21) and reducer-adapter (22).
(9) Remove tee (23) and coupling (24) from hydraulic reservoir fitting (25).



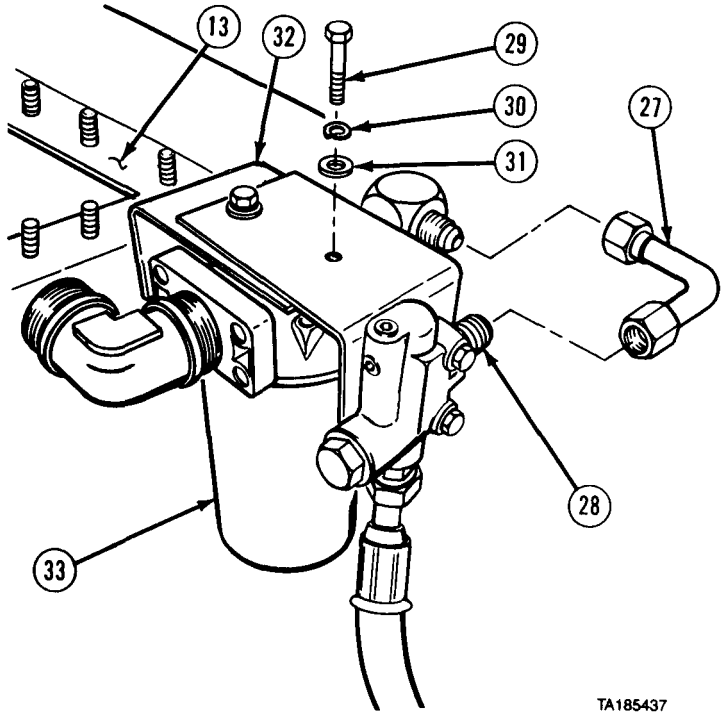
TA185436

(10) Remove connector (20).
(11) Remove elbow (26).
(12) Remove coupling (24).



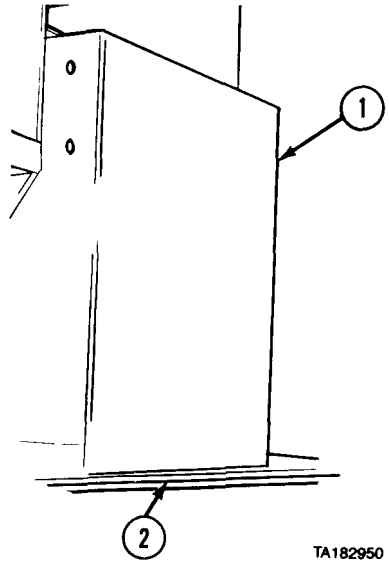
TA182946

(13) Remove tube (27).
(14) Remove pipe nipple (28).
(15) Remove two screws (29), lockwashers (30), washers (31), and bracket (32).
(16) Move filter housing (33) aside.
(17) Remove hydraulic reservoir (13).

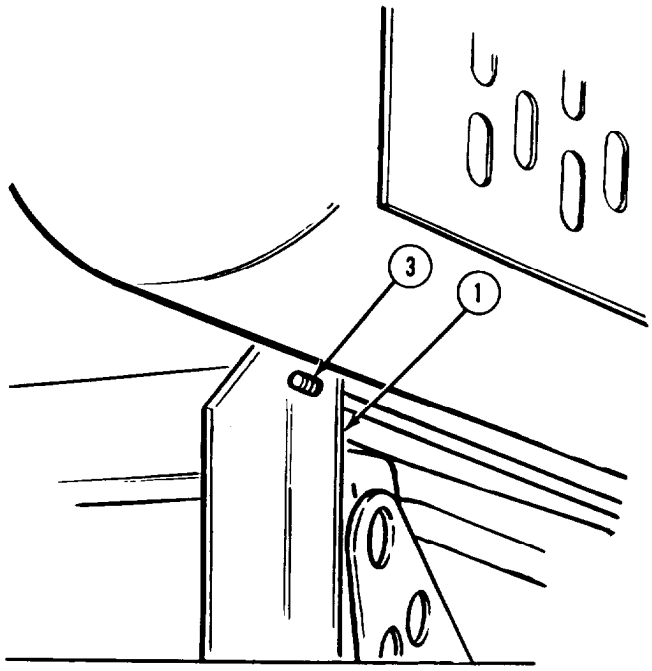


b. Installation.

(1) Soldier A and Soldier B install hydraulic reservoir (1) on fender (2).



(2) Aline support rod (3) with hole in hydraulic reservoir (1).

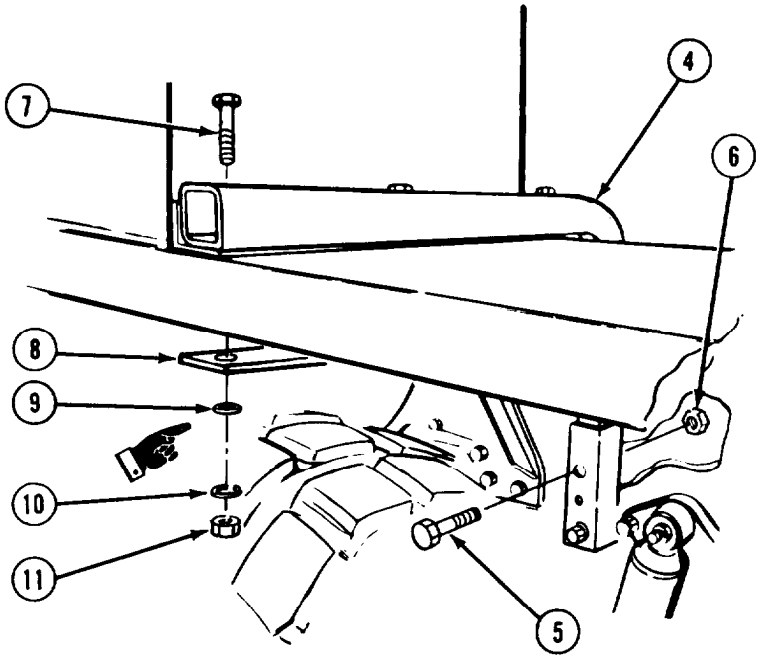


NOTE

M978 tanker has four mounting screws on right side of reservoir.

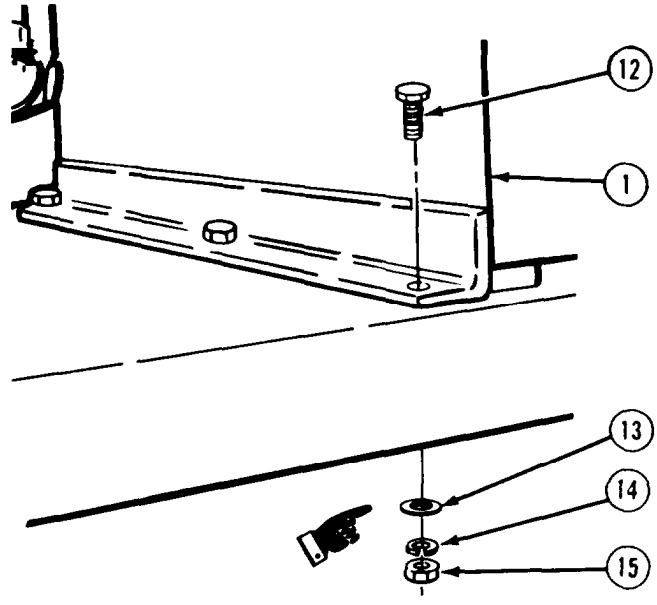
(3) Install fender brace (4) on frame with two screws (5) and nuts (6).

(4) Install three screws (7), plate (8), washers (9), lockwashers (10) and nuts (11) on fender brace (4).



13-12. HYDRAULIC RESERVOIR REMOVAL/INSTALLATION (CONT).

(5) Install three screws (12), washers (13), lockwashers (14), and nuts (15) on left side of hydraulic reservoir (1).



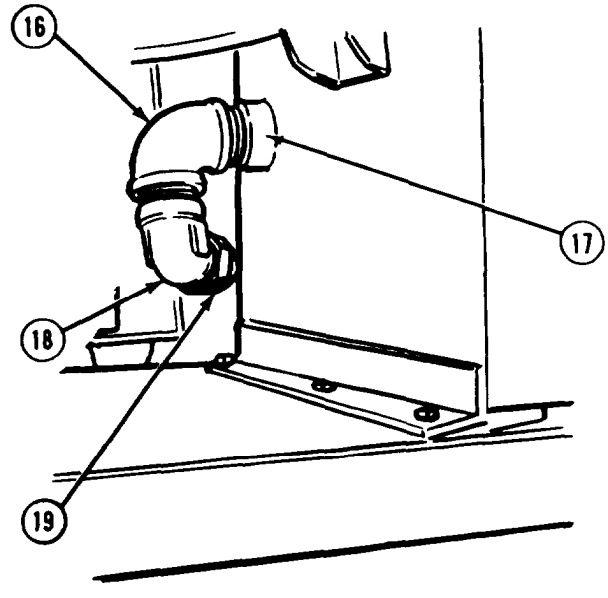
WARNING

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

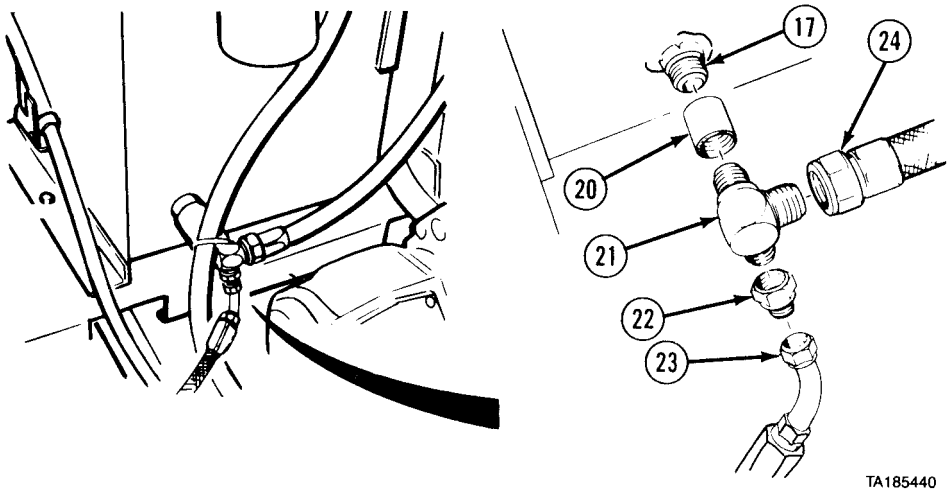
NOTE

Coat all pipe threads with pipe thread sealing compound.

(6) Install elbow (16) on hydraulic reservoir fitting (17).
(7) Install elbow (18) on elbow (16).
(8) Install connector (19) on elbow (18).



13-12. HYDRAULIC RESERVOIR REMOVAL/INSTALLATION (CONT).

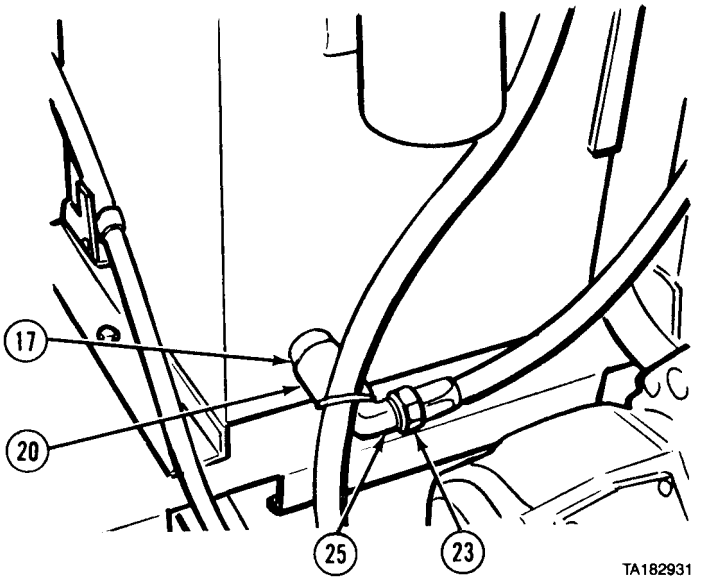


NOTE

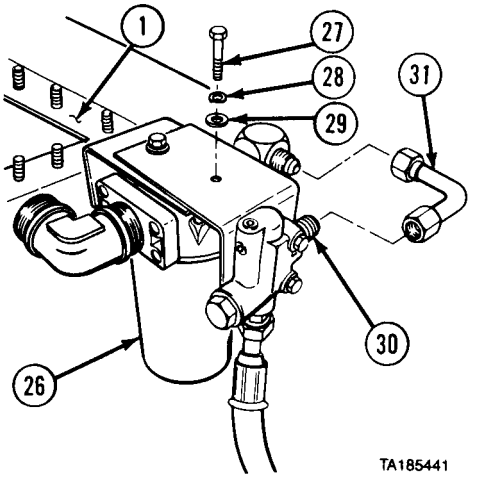
Do steps *(9), (101), (11),* and *(12)* for M983 with crane, M984, and M985E1 only.

(9) Install coupling (20) in hydraulic reservoir fitting (17).
(10) Install tee (21) on coupling (20).
(11) Install reducer-adapter (22) on tee (21).
(12) Install two connectors (23 and 24) on tee (21).

(13) Install coupling (20) on hydraulic reservoir fitting (17).
(14) Install elbow (25) on coupling (20).
(15) Install connector (23) on elbow (25).



(16) Install filter housing (26) on hydraulic reservoir (1) with two screws (27), lockwashers (28), and washers (29).
(17) Install pipe nipple (30).
(18) Install tube (31) on filter housing (26).

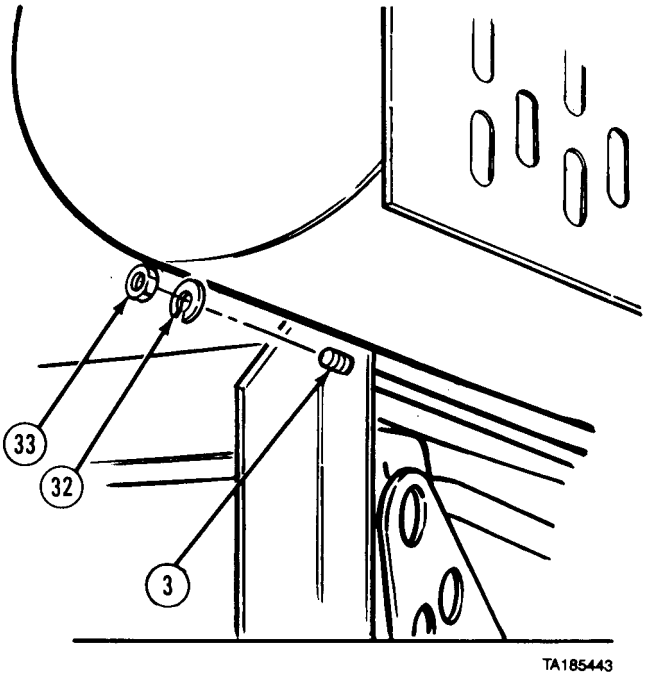


(19) Install lockwasher (32) and nut (33) on support rod (3).

c. Follow-on Maintenance.

(1) Install hydraulic reservoir strainers (para 13-11).
(2) Install hydraulic reservoir sight glass (para 13-9).
(3) Install hydraulic reservoir top plate (para 13-10).
(4) Fill hydraulic reservoir with oil (LO 9-2320-279-12),
(5) Install air cleaner assembly (para 4-5).
(6) Install left rear splash guard (para 16-13).
(7) Check hydraulic reservoir for leaks.

END OF TASK



13-13. HYDRAULIC FILTER AND HOUSING REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, Item 30, Appendix C
Compound, sealing, pipe thread, Item 18.2 Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

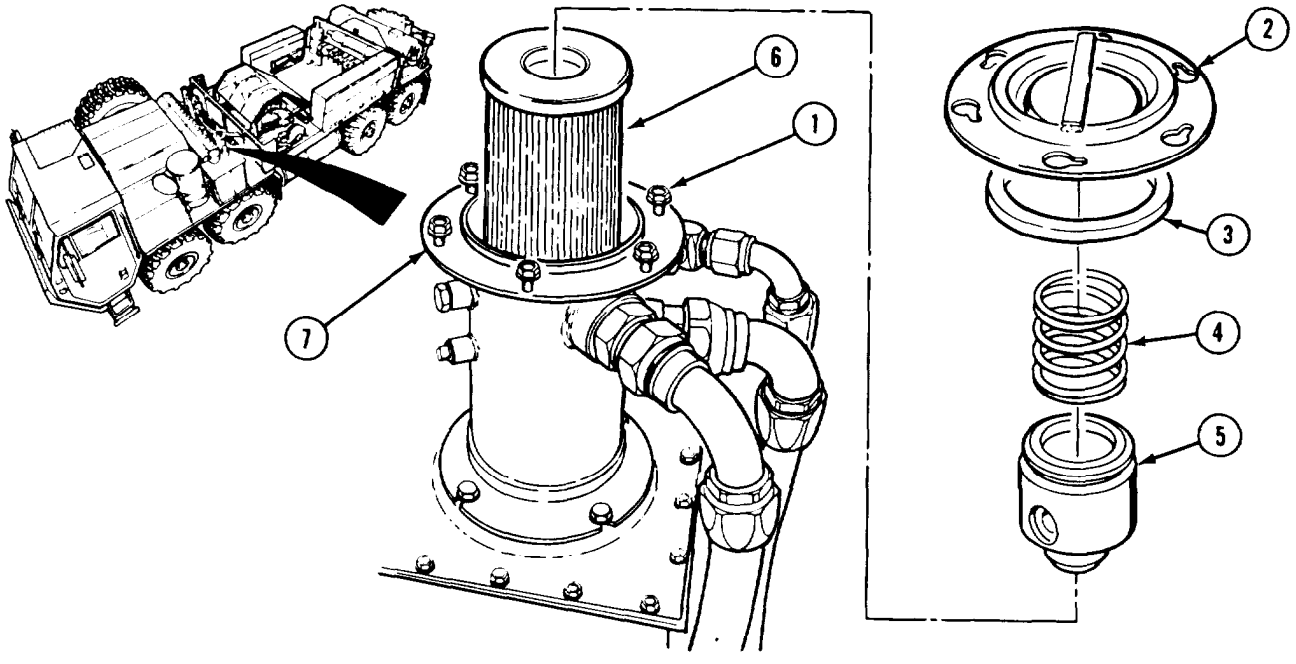
Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

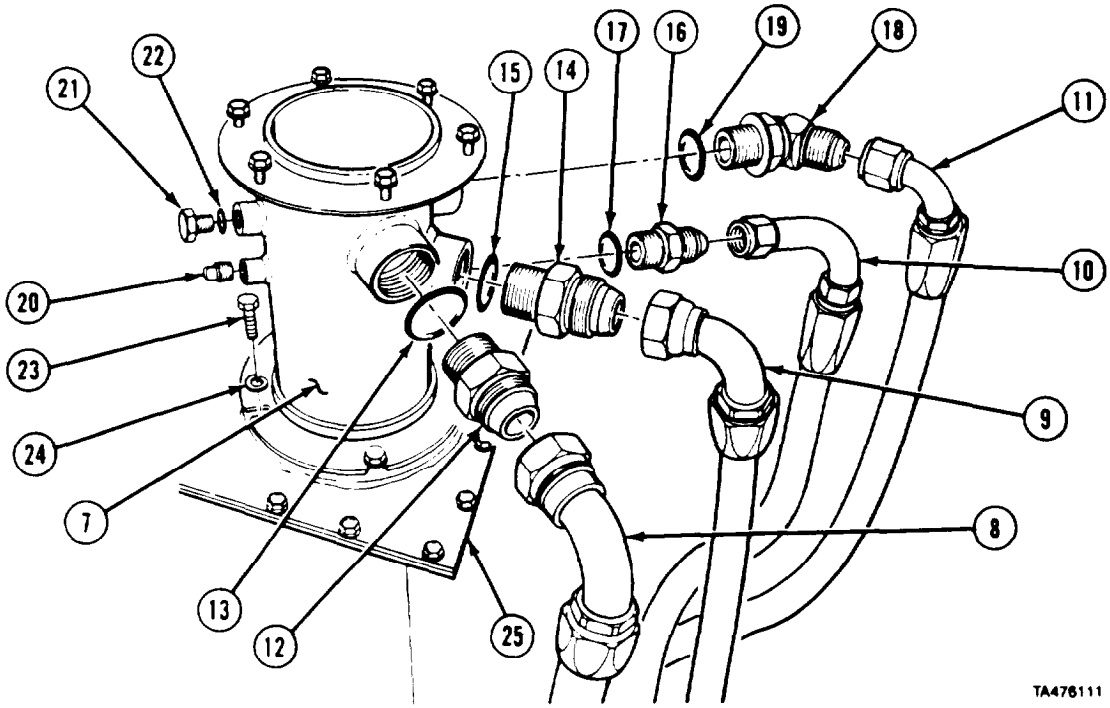
General Safety Instructions
None

a. Removal.



(1) Loosen six screws (1) and remove cover (2).
(2) Remove seal (3) from cover (2).
(3) Remove spring (4), bypass valve (5), and element (6) from filter housing (7).

Steering System Maintenance Instructions (Cont)



NOTE

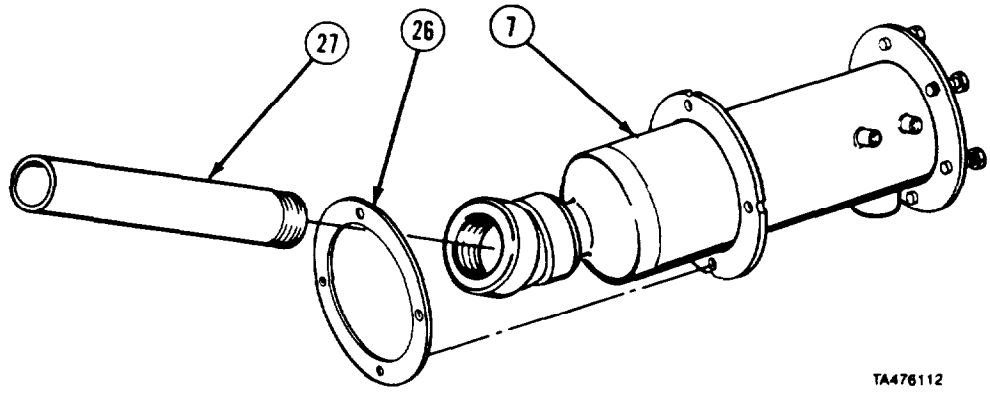
Tag and mark hoses and fittings before removing.

(4) Disconnect four hoses (8. 9, 10 and 11).
(5) Remove fitting (12), preformed packing (13), fitting (14), and preformed packing (15).
(6) Remove fitting (16), preformed packing (17), elbow (18), and preformed packing (19).
(7) Remove two plugs (20 and 21).
(8) Remove preformed packing (22) from plug (21).

NOTE

Mark position of filter housing before removing.

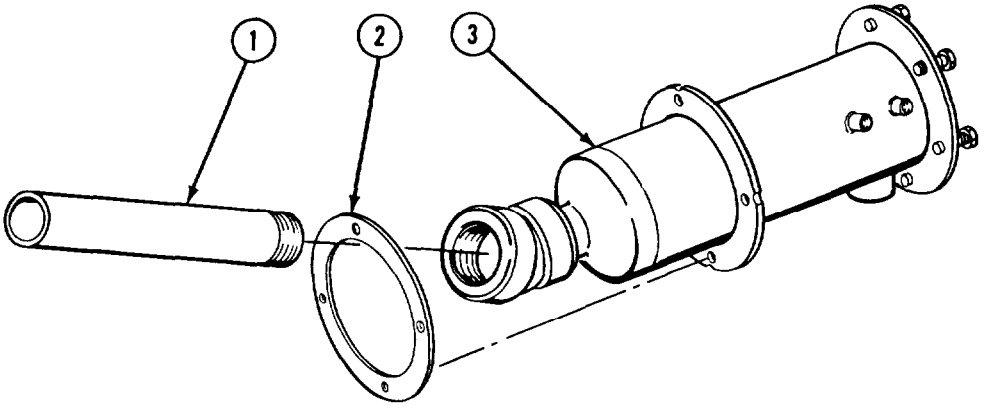
(9) Remove four screws (23), lockwashers (24), and filter housing (7) from reservoir (25).



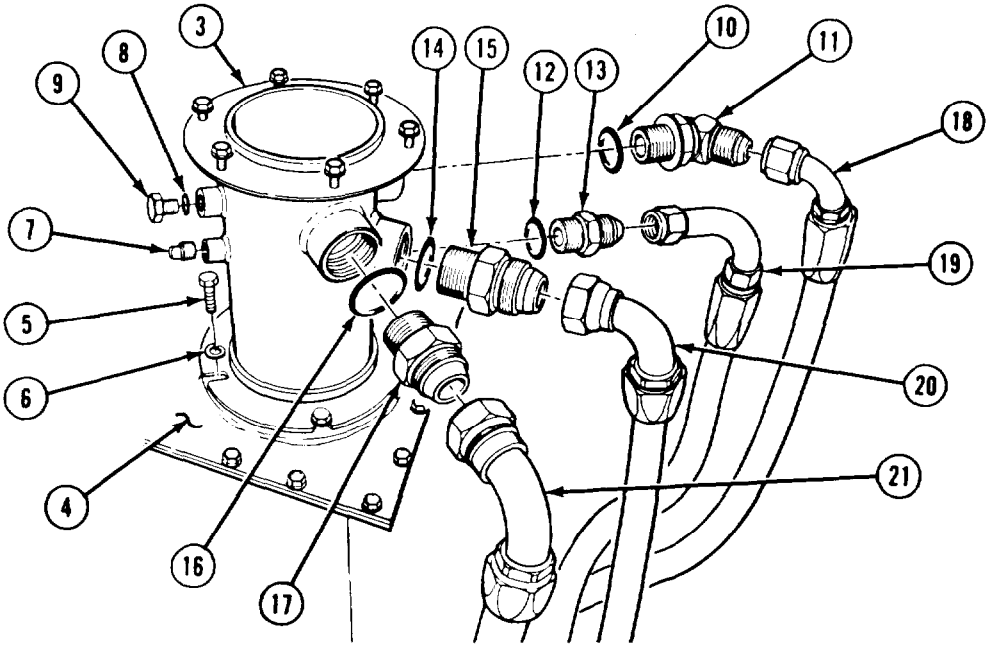
(10) Remove gasket (26) and pipe (27) from filter housing (7).

Steering System Maintenance Instructions (Cont)

b. Installation.



(1) Install pipe (1) and gasket (2) on filter housing (3).



(2) Install filter housing (3) on reservoir (4) with four screws (5) and lockwashers (6).

WARNING

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

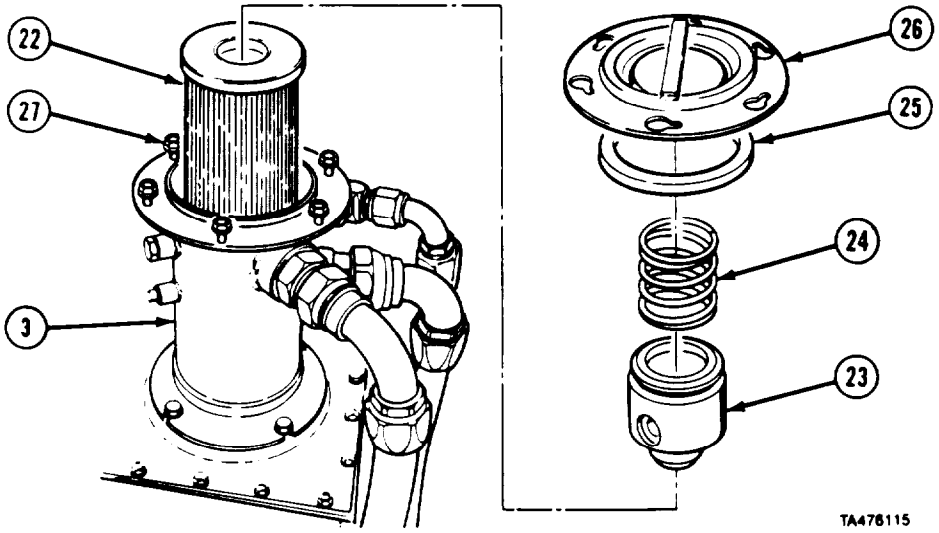
(3) Coat threads of plug (7) with pipe thread sealing compound and install in filter housing (3).

(4) Install preformed packing (8) on plug (9) and install in filter housing (3).

(5) Install preformed packing (10) on elbow (11), preformed packing (12) on fitting (13), preformed packing (14) on fitting (15), preformed packing (16) on fitting (17) and install in filter housing (3).

(6) Connect four hoses (18, 19, 20, and 21).

Steering System Maintenance Instructions (Cont)



(7) Install element (22), bypass valve (23) and spring (24) in filter housing (3).
(8) Coat seal (25) with lubricating oil and install on cover (26).
(9) Install cover (26) on filter housing (3) and tighten six screws (27).

c. Follow-on Maintenance.
(1) Start engine (TM 9-2320-279-10).
(2) Turn steering wheel to right, then to left and return to center.
(3) Check for leaks.
(4) Shut off engine (TM 9-2320-279-10).

END OF TASK

13-14. HYDRAULIC RESERVOIR TOP PLATE AND SIGHT GLASS REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Pam	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 13-13	Hydraulic filter removed.

Special Environmental Conditions
None

General Safety Instructions
None

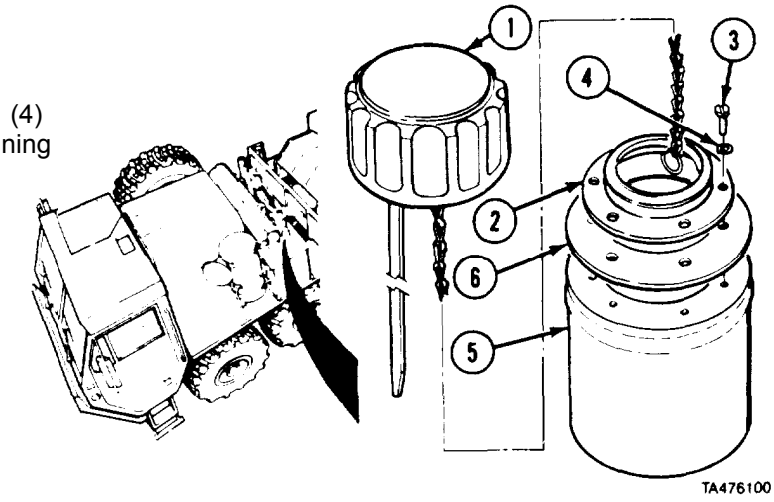
13-14. HYDRAULIC RESERVOIR TOP PLATE AND SIGHT GLASS REMOVAL/INSTALLATION (M984E1) (CONT).

a. Removal.

(1) Remove breather filler cap (1) from retaining plate (2).

(2) Remove six screws (3), lockwashers (4) and breather filler cap (1) and retaining plate (2) from reservoir (5).

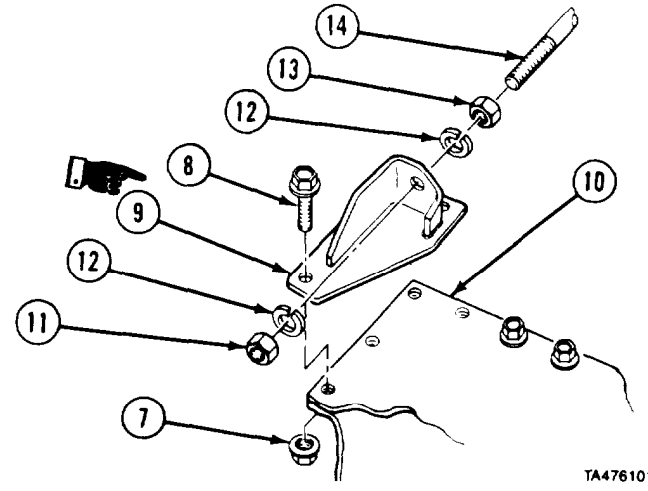
(3) Remove gasket (6).



TA476100

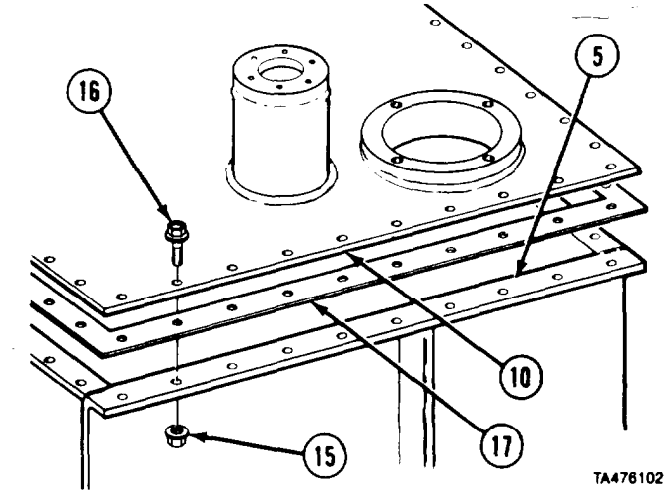
(4) Remove four nuts (7), screws (8), and bracket (9) from top plate (10).

(5) Remove nut (11), two lockwashers (12), nut (13), and support rod (14) from bracket (9).



TA476101

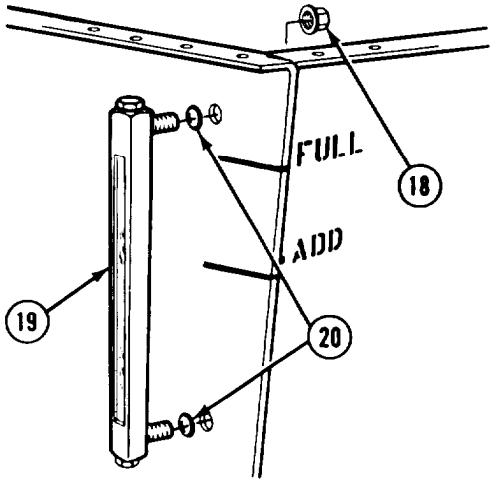
(6) Remove 32 locknuts (15), screws (16), top plate (10), and gasket (17) from reservoir (5).



TA476102

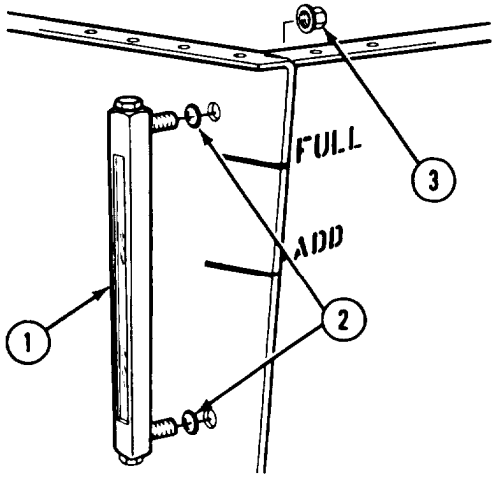
13-14. HYDRAULIC RESERVOIR TOP PLATE AND SIGHT GLASS REMOVAL/INSTALLATION (M984E1) (CONT).

(7) Remove two locknuts (18), sight glass (19), and two preformed packings (20).

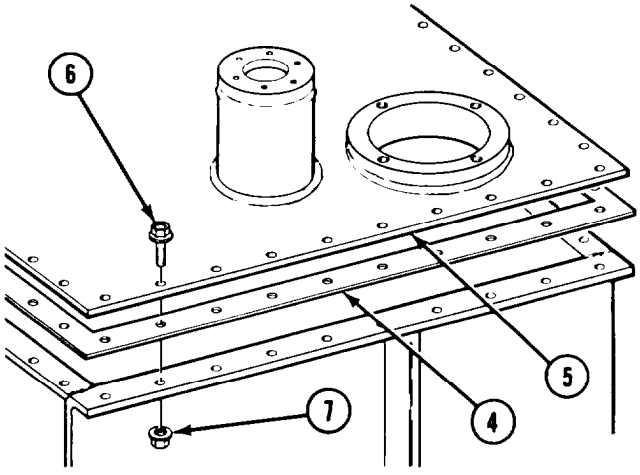


b. Installation.

(1) Install sight glass (1) with two preformed packings (2) and locknuts (3). Tighten locknuts to 50 to 55 lb-in (5.6 to 6.2 N•m).

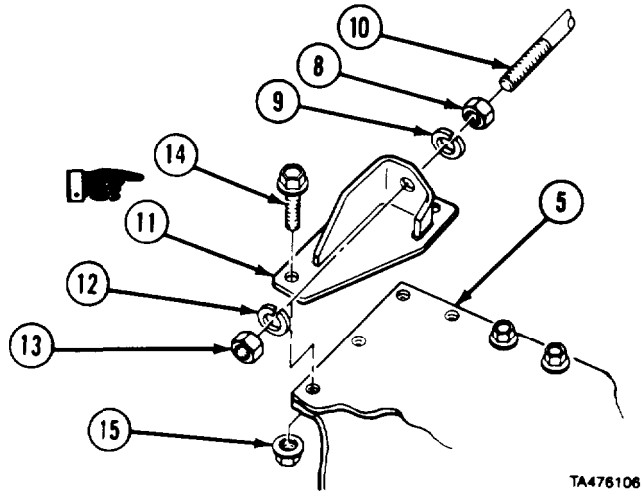


(2) Install gasket (4) and top plate (5) with 32 screws (6) and nuts (7).

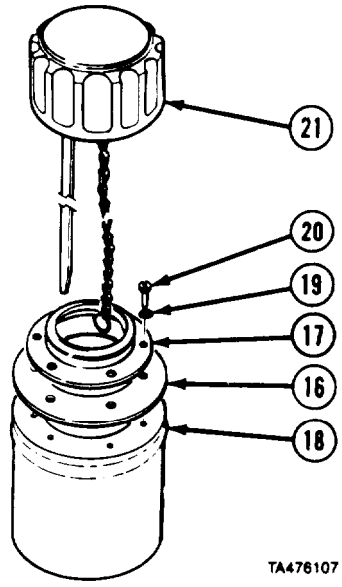


13-14. HYDRAULIC RESERVOIR TOP PLATE AND SIGHT GLASS REMOVAL/INSTALLATION (M984E1) (CONT).

(3) Install nut (8) and lockwasher (9) on support rod (10).
(4) Install support rod (10) on bracket (11) with lockwasher (12) and nut (13).
(5) Install bracket (11) on top plate (5) with four screws (14) and nuts (15).



(6) Install gasket (16) and retaining plate (17) on reservoir (18) with six lockwashers (19) and screws (20).
(7) Install breather filler cap (21) on retaining plate (17)



c. Follow-on Maintenance.
(1) Install hydraulic filter (para 13-13).
(2) Check reservoir for leaks.

END OF TASK

13-15. HYDRAULIC RESERVOIR STRAINERS REMOVAL/INSTALLATION (M984E1).

This task covers:

a. Removal
b. Cleaning
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18.2, Appendix C
Solvent, drycleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

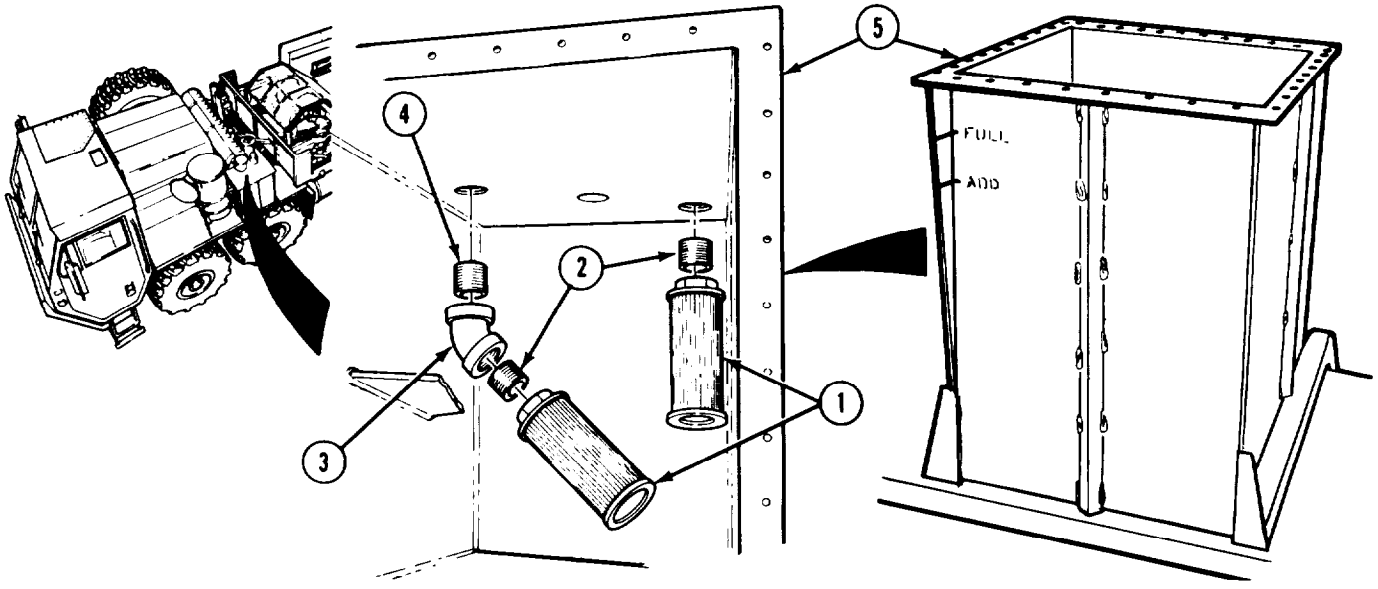
Equipment Condition

TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 13-14	Reservoir top plate and gasket removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



NOTE

- Nipples may remain on strainers.
- Note position of strainer for installation.

(1) Remove two strainers (1) from nipples (2).
(2) Remove elbow (3) from nipple (4).
(3) Remove two nipples (2 and 4) from reservoir (5).
(4) Remove nipple (2) from elbow (3).

13-15. HYDRAULIC RESERVOIR STRAINERS REMOVAL/INSTALLATION (M984E1) (CONT).

b. Cleaning.

(1) Clean hydraulic reservoir, nipples, and elbow with dry cleaning solvent and clean, lint-free rags.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protection equipment (goggles/shield, gloves, etc.).

(2) Dry reservoir, nipples, and elbow with compresses air.

(3) Clean strainers with dry cleaning solvent. Inspect for tears, large pieces of contamination. Dry with compressed air.

c. Installation.

WARNING

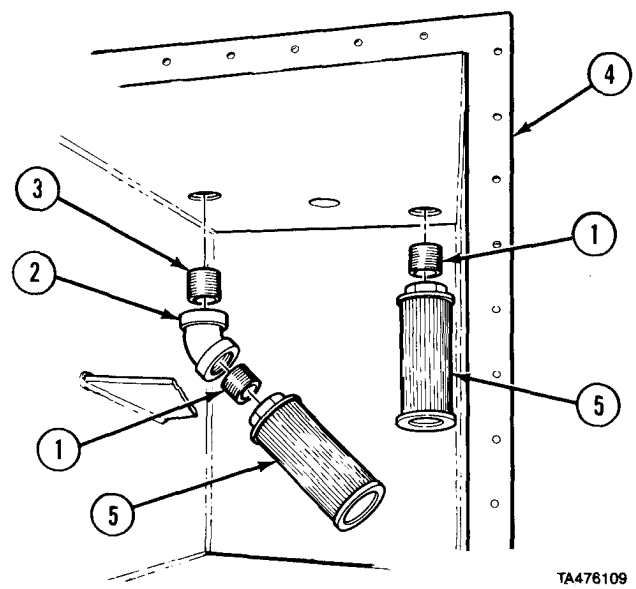
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(1) Coat threads on both ends of nipple (1) with pipe thread sealing compound and install in elbow (2).

(3) Coat threads on both ends of two nipples (1 and 3) with pipe thread sealing compound and install in reservoir (4).

(4) Install elbow (2) on nipple (3).

(5) Install two strainers (5) on nipples (3 and 1).



d. Follow-on Maintenance.

(1) Install reservoir top plate and gasket (para 13-14).

(2) Fill hydraulic reservoir (LO 9-2320-279-12).

(3) Check hydraulic reservoir for leaks.

END OF TASK

13-16. HYDRAULIC RESERVOIR REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

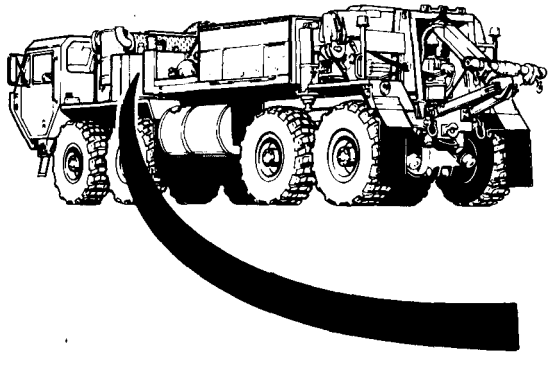
Equipment Condition

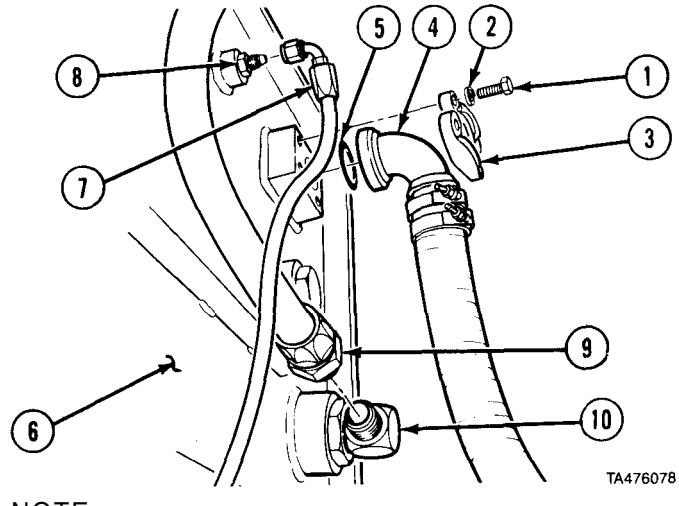
TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 13-13	Hydraulic filter removed.
Para 13-14	Hydraulic reservoir top plate and slight glass removed.
Para 13-15	Hydraulic reservoir strainers removed.
Para 4-5	Air cleaner canister removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.





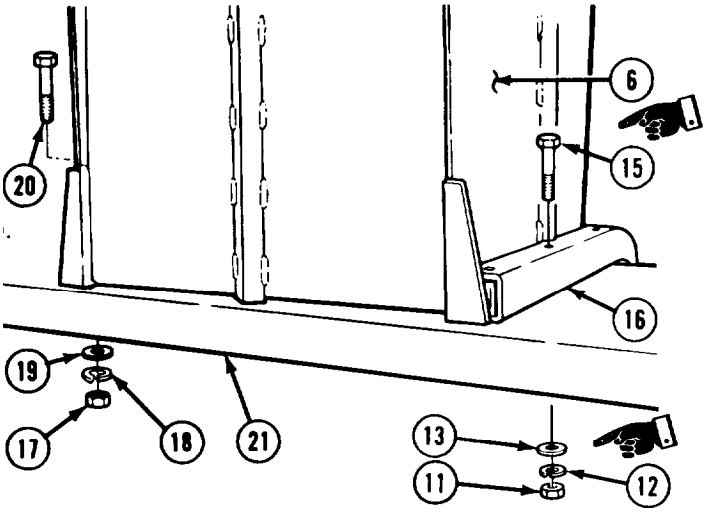
NOTE

Tag and mark hoses before removing.

(1) Remove four screws (l), lockwashers (2), two clamp halves (3), hose (4), and preformed packing (5) from reservoir (6).
(2) Disconnect hose (7) from fitting (8).
(3) Disconnect hose (9) from elbow (10).

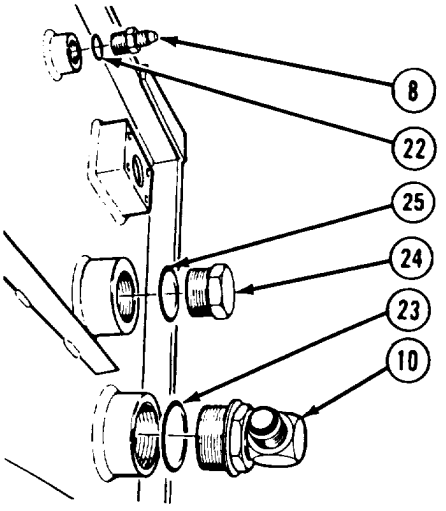
NOTE
Washer is only used on screw through center hole of fender brace.

(4) Remove three nuts (11), three lockwashers (12), one washer (13), a three screws (15) from fender brace.
(5) Remove three nuts (17), lockwashers (18), washers (19), and screws (20) from left side of reservoir (6).
(6) Soldier A and Soldier B remove reservoir (6) from fender (21).



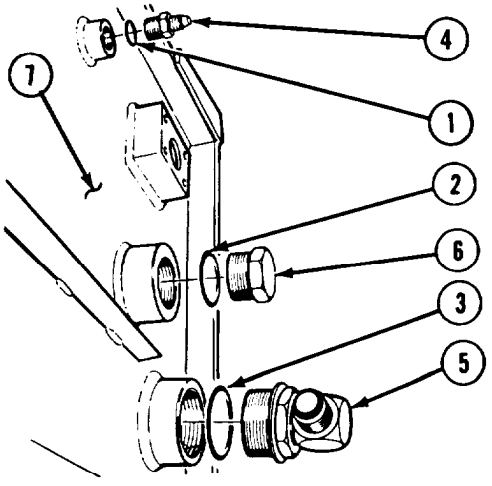
NOTE
Note position of elbow for installation,

(7) Remove fitting (8) and preformed packing (22).
(8) Remove elbow (10) and preformed packing (23).
(9) Remove plug (24) and preformed packing (25).



b. Installation.

(1) Install three preformed packings (1,2, and 3) on fitting (4), elbow (5), and plug (6).
(2) Install fitting (4), elbow (5), and plug (6) in reservoir (7).



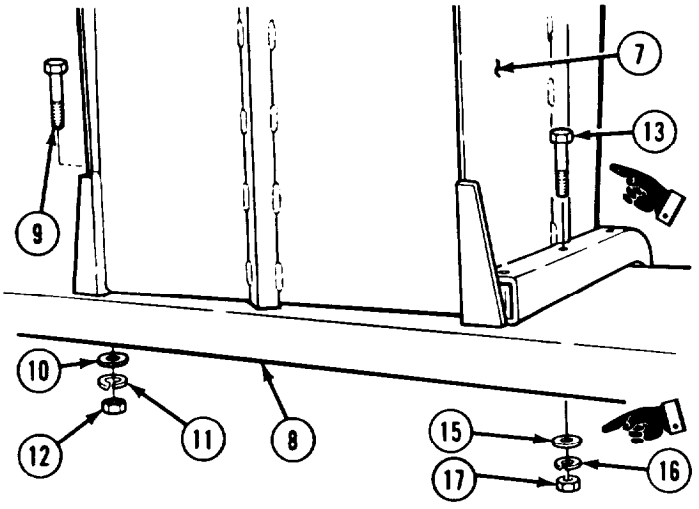
13-16. HYDRAULIC RESERVOIR REMOVAL/INSTALLATION (M964E1) (CONT).

(3) Soldier A and Soldier B install reservoir (7) on fender (8).
(4) Install three screws (9), washers (10), lockwashers (11), and nuts (12) on left side of reservoir (7).

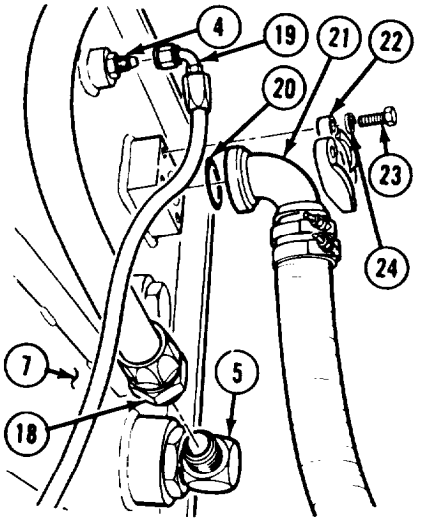
NOTE

Washer is only installed on screw through center hole of fender brace.

(5) Install three screws (13), one washer (15), three lockwashers (16), and three nuts (17) on right side of reservoir (7).



(6) Connect hose (18) to elbow (5).
(7) Connect hose (19) to fitting (4).
(8) Install preformed packing (20), hose (21), and clamp halves (22) on reservoir (7) with four screws (23) and lockwashers (24).



c. Follow-on Maintenance.

(1) Install air cleaner canister (para 4-5).
(2) Install reservoir strainers (para 13-15).
(3) Install reservoir top plate and sight glass (para 13-14).
(4) Install hydraulic filter (para 13-13).
(5) Fill hydraulic reservoir (LO 9-2320-279-12).
(6) Check reservoir for leaks.

END OF TASK

CHAPTER 14
FRAME AND TIRE CARRIER MAINTENANCE

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Section I. INTRODUCTION

14-1. GENERAL. This chapter contains instructions for removing, installing, and replacing vehicle frame, fifth wheel, pintle hitch, towing, and tire equipment as authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. DECKING, SKID PLATE, AND FRAME ATTACHMENTS

14-2. FIFTH WHEEL RAMP REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

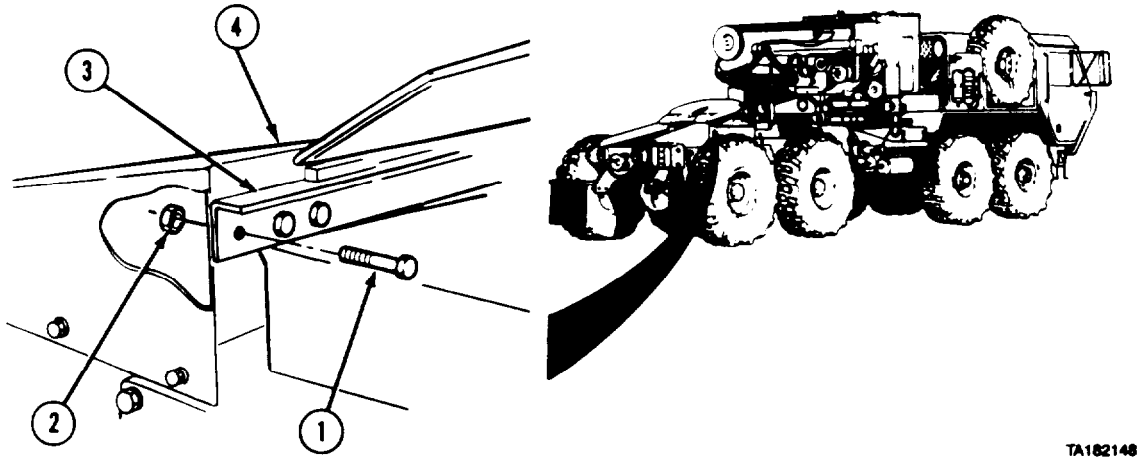
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 17-5	Small rear cable guide removed.
Para 17-6	Rear cable guide removed.

Special Environmental Conditions
None

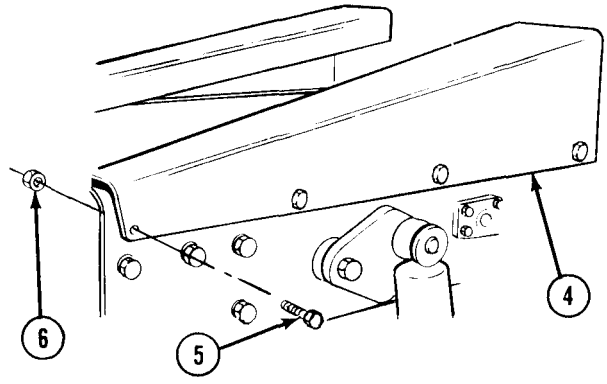
General Safety Instructions
None

a. Removal.



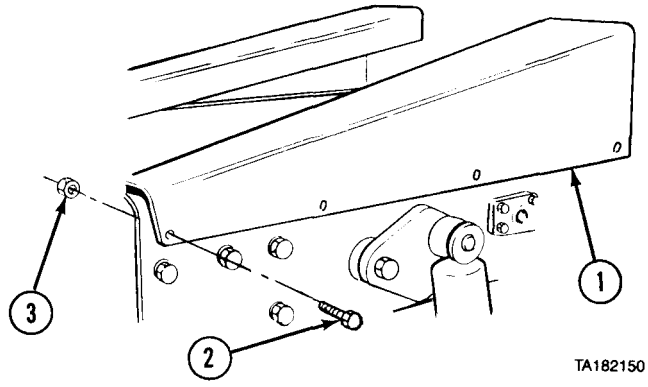
(1) Remove six screws (1) and nuts (2) to remove crosspiece (3) from fifth wheel ramp (4).

(2) Remove four screws (5) and nuts (6) from each side of fifth wheel ramp (4),
(3) Remove fifth wheel ramp (4).

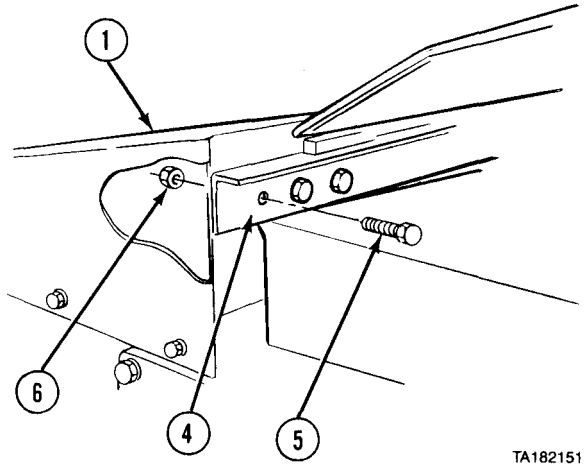


TA182149

b. Installation.
(1) Install fifth wheel ramp (1).
(2) Install four screws (2) and nuts (3) on each side of fifth wheel ramp (1).



TA182150



TA182151

(3) Install crosspiece (4) on fifth wheel ramp (1) with six screws (5) and nuts (6).

c. Follow-on Maintenance.
(1) Install small rear cable guide (para 17-5).
(2) Install rear cable guide (para 17-6).

END OF TASK

14-3. REAR DECKING REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

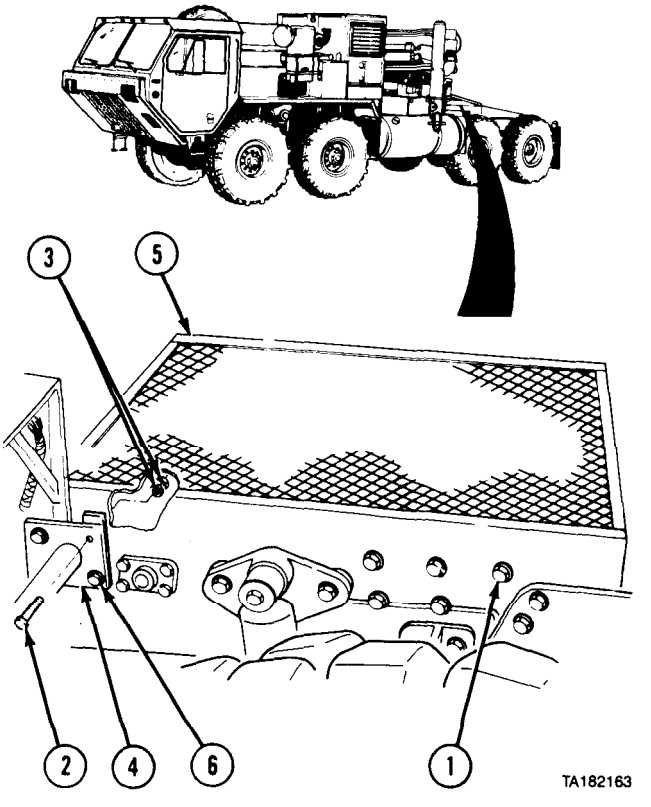
(1) Remove three screws (1) on each side of vehicle.
(2) Remove two upper screws (2) and nuts (3) on each side of vehicle from fender mounts (4) and decking (5).
(3) Loosen, but do not remove, two lower fender mount screws (6) on each side of vehicle.
(4) Pry decking (5) up from frame.
(5) Soldier A and Soldier B remove decking (5).

b. Installation.

(1) Soldier A and Soldier B install decking (5).
(2) Install, but do not tighten, two upper screws (2) and nuts (3) to upper fender mounts (4) and decking (5).
(3) Install, but do not tighten, three screws (1) on each side of vehicle.
(4) Tighten screws (2 and 1) and nuts (3).
(5) Tighten two lower fender mount screws (6).

c. Follow-on Maintenance. None.

END OF TASK



14-4. SKID PLATE WINDOW GUARD AND SKID PLATE REMOVAL/INSTALLATION.

This task covers:

a. Skid Plate Window Guard Removal
b. Skid Plate Window Guard Installation
c. Skid Plate Removal
d. Skid Plate Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic (3)

References
None

Equipment Condition

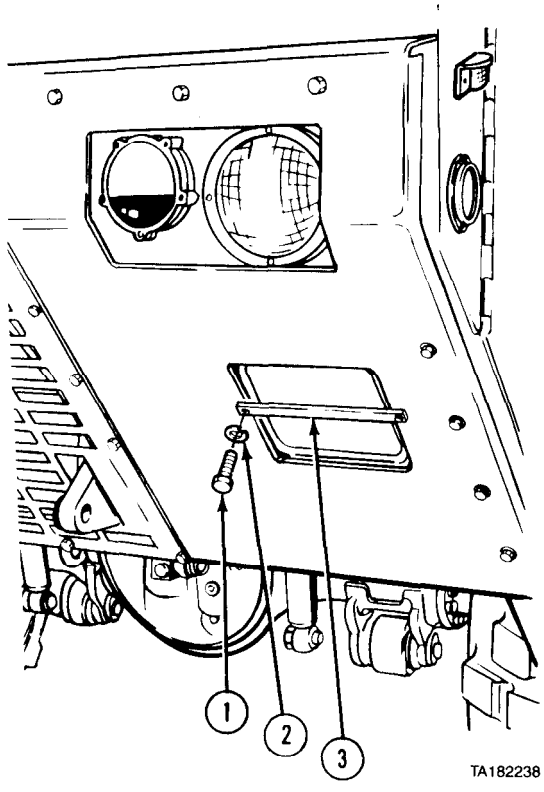
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

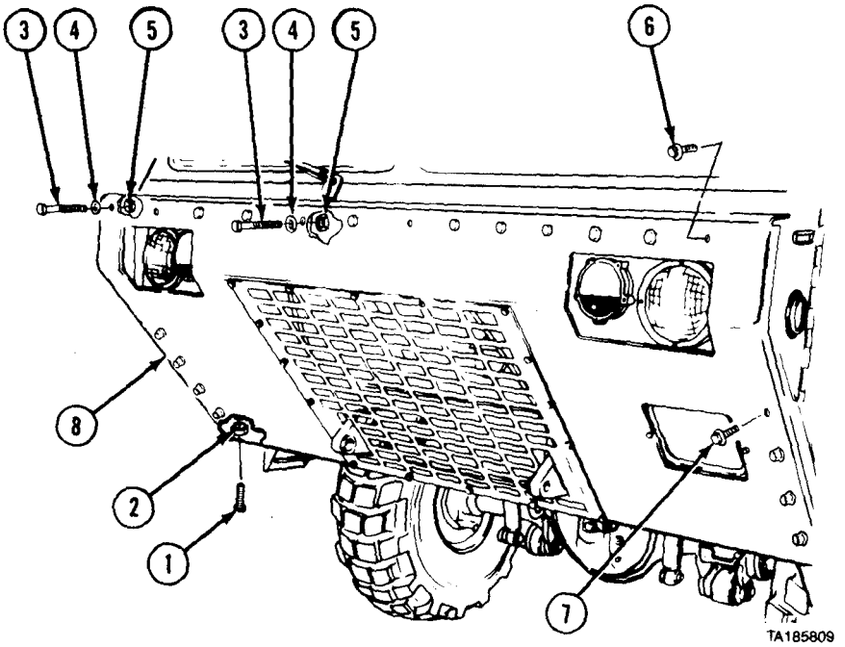
a. Skid Plate Window Guard Removal. Remove two screws (1), lockwashers (2), and skid plate window guard (3).

b. Skid Plate Window Guard Installation. Install skid plate window guard (3) with two screws (1) and lockwashers (2).



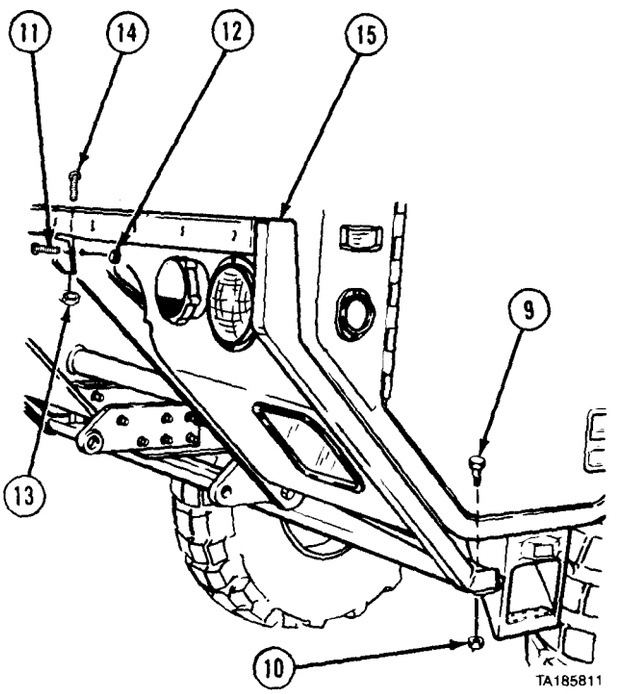
14-4. SKID PLATE WINDOW GUARD AND SKID PLATE REMOVAL/INSTALLATION (CONT).

c. Skid Plate Removal.



(1) Remove nine screws (1) and nuts (2).
(2) Remove two screws (3), washers (4), and nuts (5).
(3) Remove nine screws (6).
(4) Remove eight screws (7).
(5) Soldier A and Soldier B remove skid plate (8).

(6) Remove two screws (9) and nuts (10).
(7) Remove four screws (11) and nuts (12).
(8) Remove four nuts (13).
(9) Soldier A and Soldier B remove four screws (14) and frame (15).

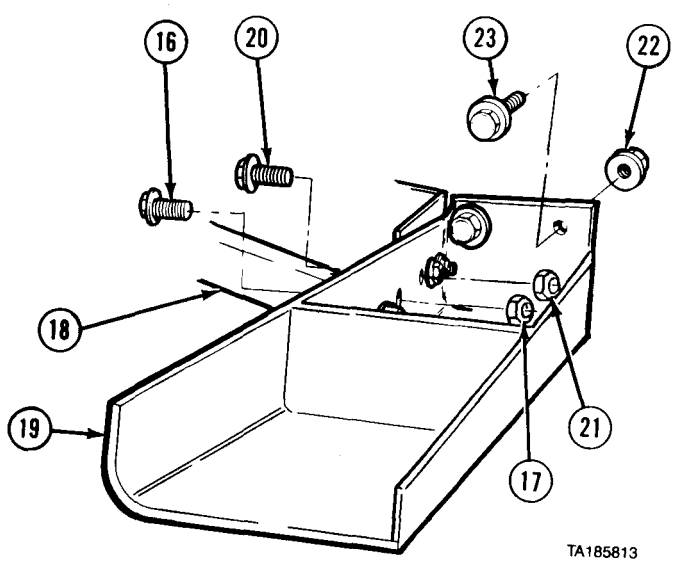


(10) Remove two screws (16) and nuts (17) from two braces (18) on each side of crosspiece (19).

NOTE

Step (11) applies only to vehicles with self-recovery winches.

(11) Remove three screws (20) and nuts (21 from right side of crosspiece (19).
(12) Remove four nuts (22).
(13) Soldier A and Soldier B remove four screws (23) and crosspiece (19).



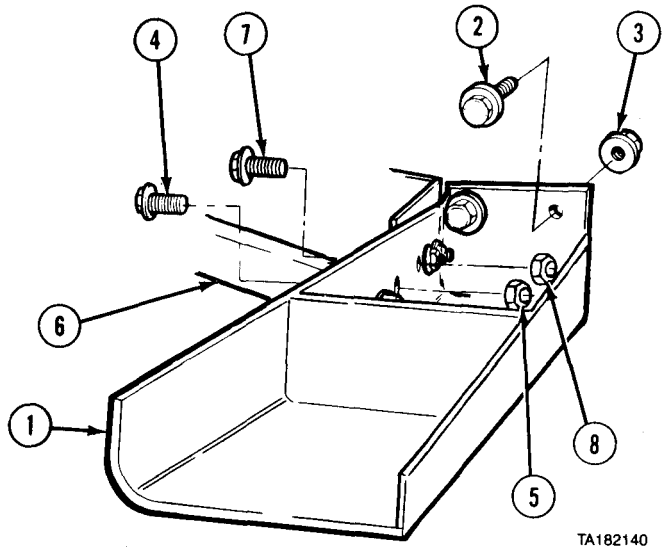
d. Skid Plate Installation.

(1) Soldier A, Soldier B, and Soldier C install crosspiece (1) with four screws (2) and nuts (3).
(2) Install two screws (4) and nuts (5) through two braces (6) on each side of crosspiece (1).

NOTE

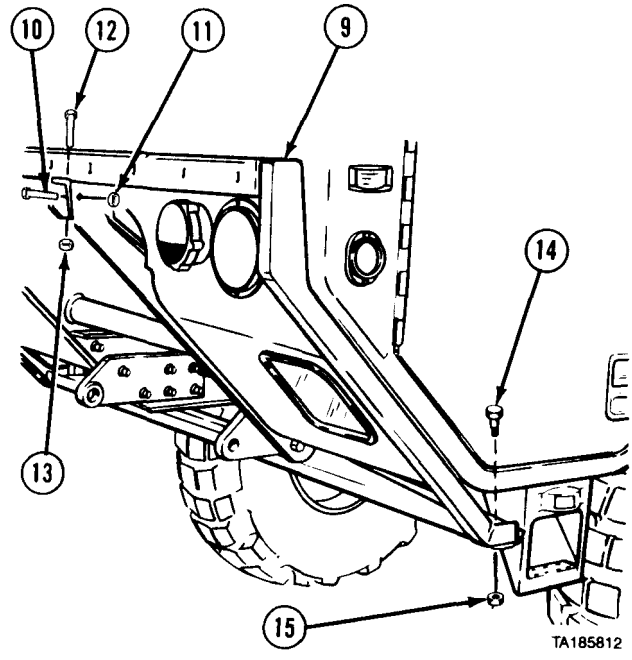
Step *(3)* applies only to vehicles with self -recovery winches.

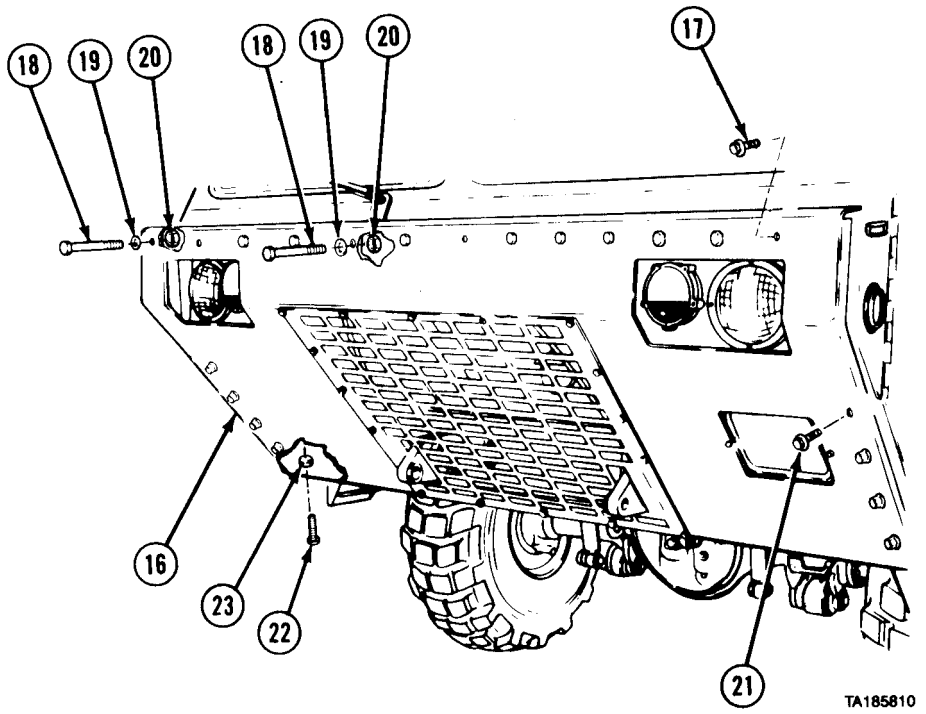
(3) Install three screws (7) and nuts (8) on right side of crosspiece (1).



14-4. SKID PLATE WINDOW GUARD AND SKID PLATE REMOVAL/INSTALLATION (CONT).

(4) Soldier A and Soldier B install frame (9) with four screws (10) and nuts (11).
(5) Soldier A and Soldier B install four screws (12) and nuts (13).
(6) Install two screws (14) and nuts (15).





(7) Soldier A and Soldier B install skid plate (16) with nine screws (17), two screws (18), washers (19), and nuts (20).
(8) Install eight screws (21).
(9) Install nine screws (22) and nuts (23).

e. Follow-on Maintenance. None.

END OF TASK

14-5. SKID PLATE GRILLE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

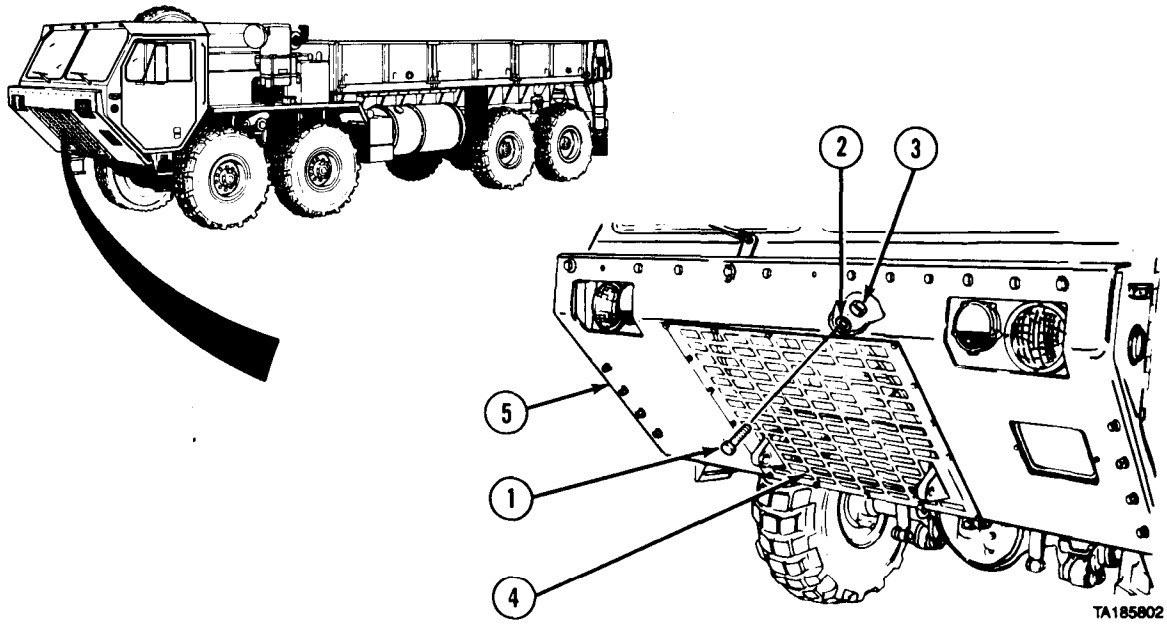
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

14-5. SKID PLATE GRILLE REMOVAL/INSTALLATION (CONT).

a. *Removal.*



(1) Soldier A removes 16 screws (l), washers (2), and locknuts (3) while Soldier B holds skid plate grille (4) to skid plate (5).
(2) Soldier A and Soldier B remove skid plate grille (4).

b. *Installation.*
(1) Soldier A and Soldier B install skid plate grille (4) on skid plate (5).
(2) Soldier A installs 16 screws (l), washers (2), and locknuts (3) while Soldier B holds skid plate grille (4) to skid plate (5).

c. *Follow-on Maintenance.* None.

END OF TASK

14-6. AXLE STOP REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All except M984, M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

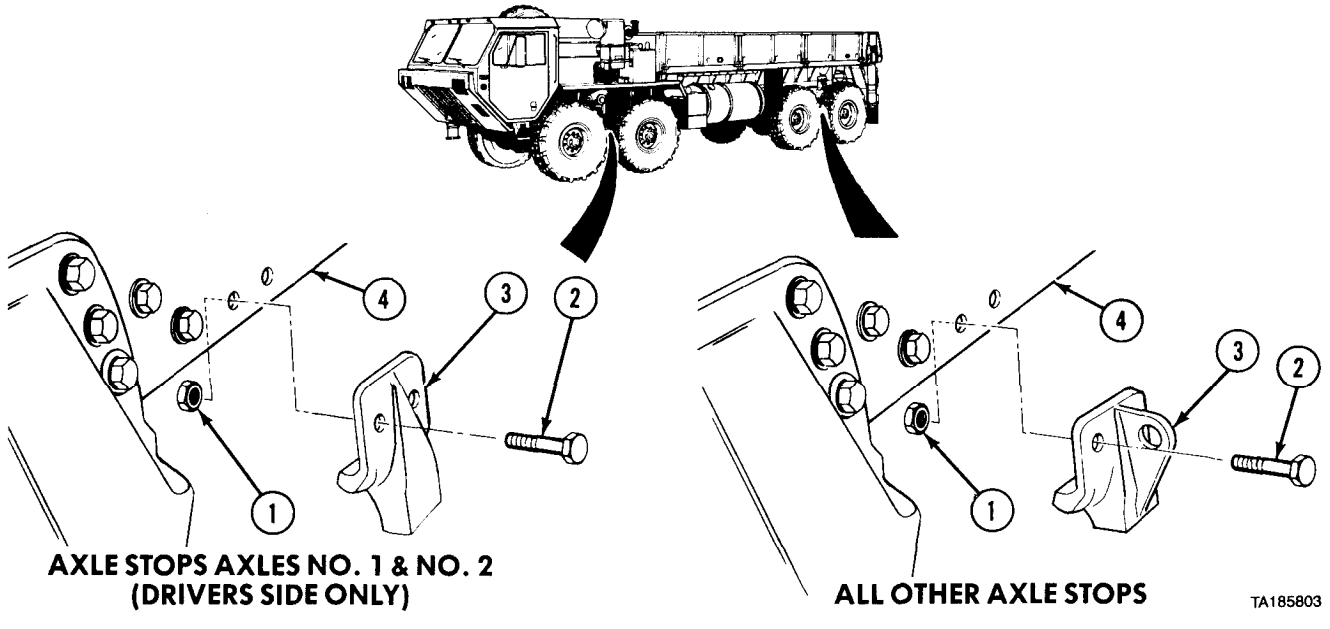
References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None



a. Removal. Remove two nuts (1) and screws (2) from axle stop (3) and frame (4).

b. Installation.
(1) Position axle stop (3) on frame (4).
(2) Install two screws (2) and nuts (l).

c. Follow-on Maintenance. None.

END OF TASK

14-6.1. AXLE STOP REMOVAL/INSTALLATION (M984, M984E1).

This task covers:

a. Axles No. 1 and No. 2 Axle Stop Removal
b. Axles No. 1 and No. 2 Axle Stop Installation
c. Axles No. 3 and No. 4 Axle Stop Removal
d. Axles No. 3 and No. 4 Axle Stop Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M984, M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

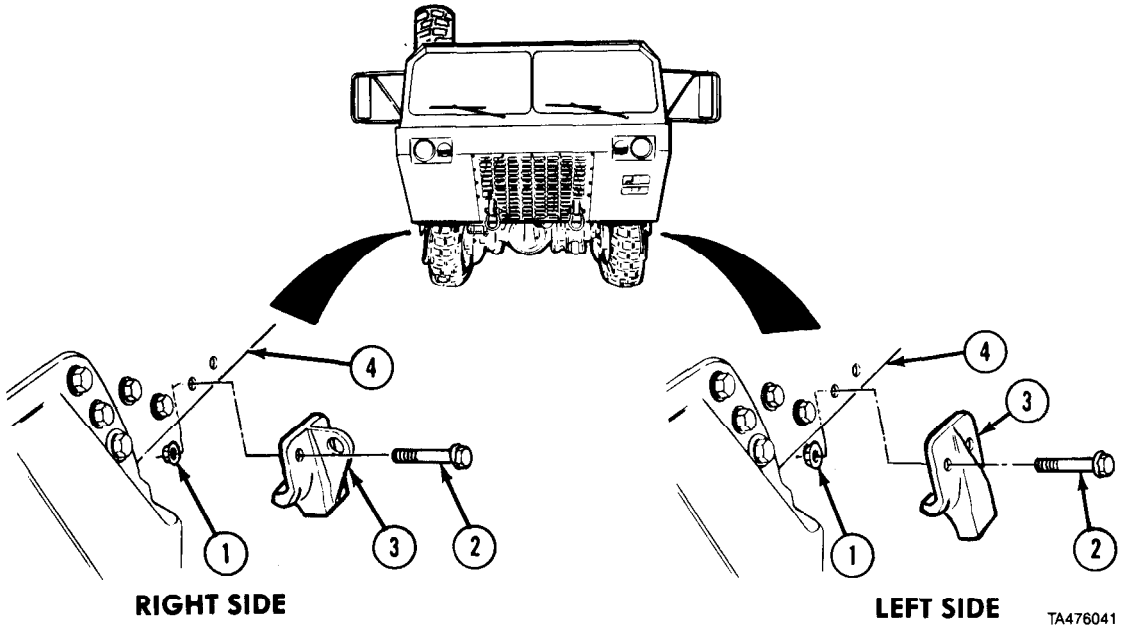
References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

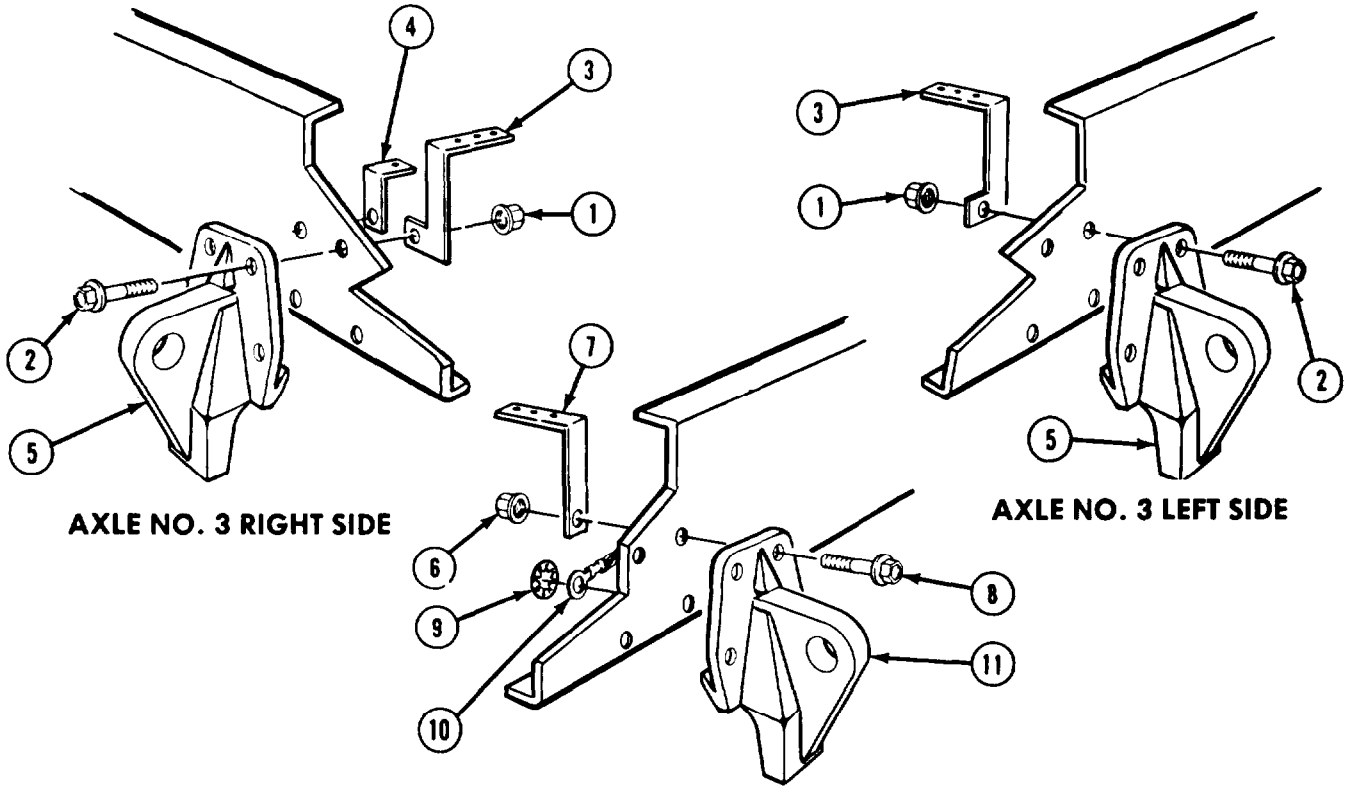
General Safety Instructions
None



a. Axles No. 1 and No. 2 Axle Stop Removal. Remove two nuts (l), screws (2), and axle stop (3) from frame (4).

b. Axles No. 1 and No. 2 Axle Stop Installation.
(1) Position axle stop (3) on frame (4).
(2) Install two screws (2) and nuts (1).

c. Ax/es No. 3 and No. 4 Axle Stop Removal.



AXLE NO. 4 RIGHT SIDE SHOWN

NOTE

Only M984E1 has brackets and wires on axle stop fasteners. Wires are on right side only.

Do steps *(1)* through *(3)* for No. 3 axle. Do steps (4) through (6) for No. 4 axle.

(1) Remove four nuts (1).

NOTE

M984E1 bracket size may vary.

(2) Remove four screws (2) and move brackets (3 and 4) aside.
(3) Remove two axle stops (5).
(4) Remove four nuts (6).
(5) Move bracket (7) aside.
(6) Remove four screws (8), lockwasher (9), wire (10), and axle stop (11).

d. Axles No. 3 and No. 4 Axle Stop Installation.

NOTE

Do step (1) for axle No. 4. Do step (2) for axle No. 3.

(1) Aline and install axle stop (11), four screws (8), wire (10), lockwasher (9), bracket (7), and four nuts (6).

NOTE

M984E1 bracket size may vary.

(2) Aline and install axle stop (5), four screws (2), two brackets (3 and 4), and four nuts (1).

e. Follow-on Maintenance. None.

END OF TASK

14-7. ENGINE WIRING HARNESS CONNECTOR BRACKET REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

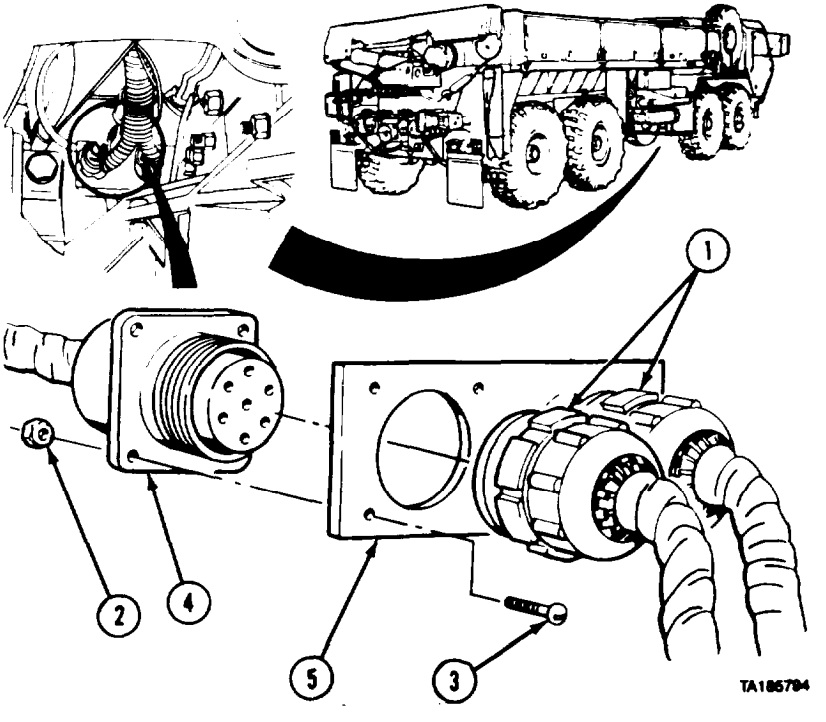
Equipment Condition

TM or Para	*Condition Description*
Para 7-91	Batteries disconnected.

Special Environmental Conditions
None

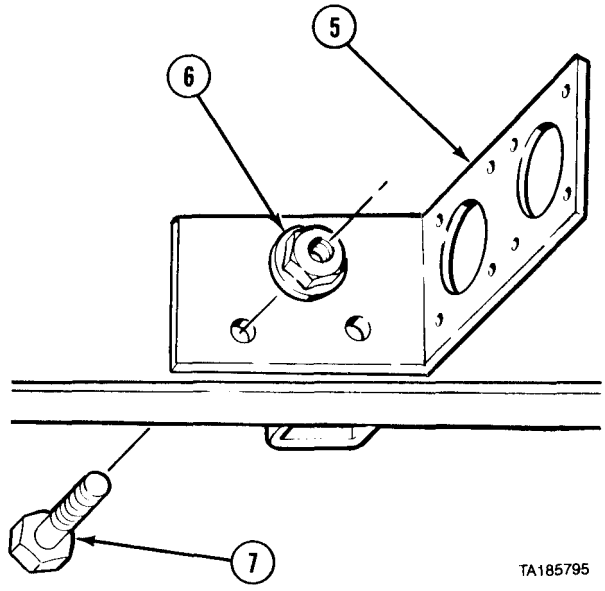
General Safety Instructions
None

a. Removal.



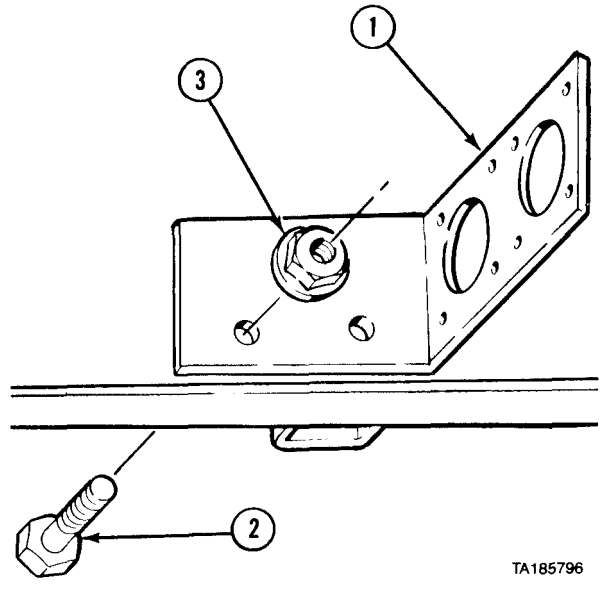
(1) Remove two connector plugs (1).
(2) Remove eight nuts (2), screws (3), and two connector sockets (4) from bracket (6).

(3) Remove two nuts (6) and screws (7). Remove bracket (5).



b. Installation.

(1) Install bracket (1) with two screws (2) and nuts (3).

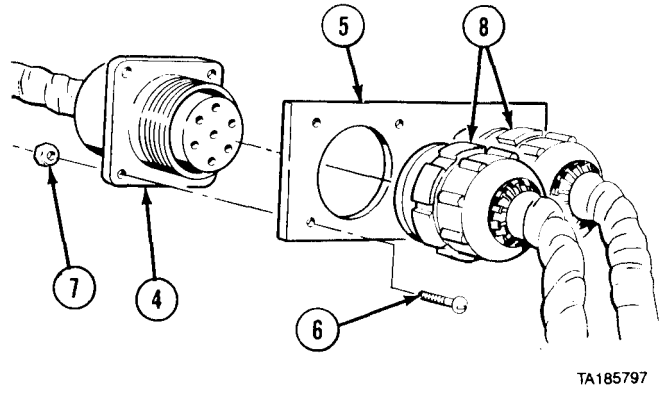


(2) Install two connector sockets (4) on bracket (5) with eight screws (6) and nuts (7).

(3) Install two connector plugs (8).

c. *Follow-on Maintenance.* Connect batteries (para 7-91).

END OF TASK



14-8. REAR CROSSMEMBER BRACE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All (except M984E1)

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

NOTE

Both crossmember braces are removed and installed the same way. Left crossmember brace is shown.

(1) Remove nut (l), lockwasher (2), and washer (3).
(2) Remove screw (4) and clip (5) from crossmember brace (6).
(3) Remove four nuts (7), screws (8), and crossmember brace (6).

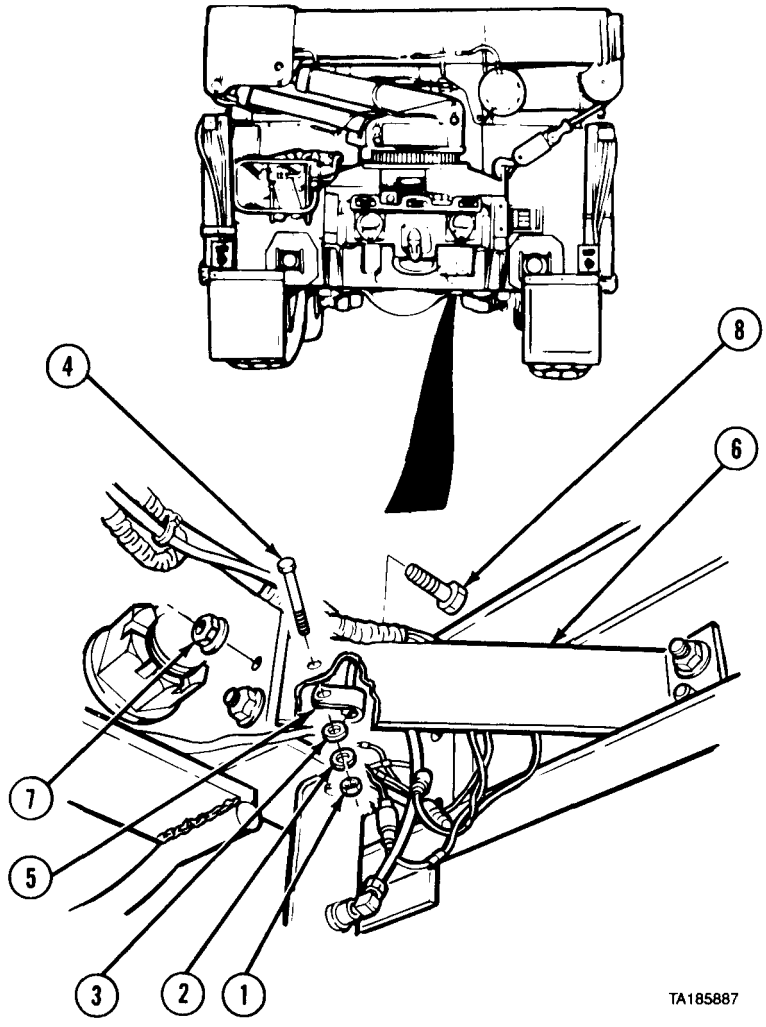
b. Installation.

(1) Install crossmember brace (6) with four screws (8) and nuts (7).
(2) Install screw (4), clip (5), washer (3), lockwasher (2), and nut (l).

c. Follow-on Maintenance.

None.

END OF TASK



14-9. CAB BRACE ASSEMBLY REMOVAI/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

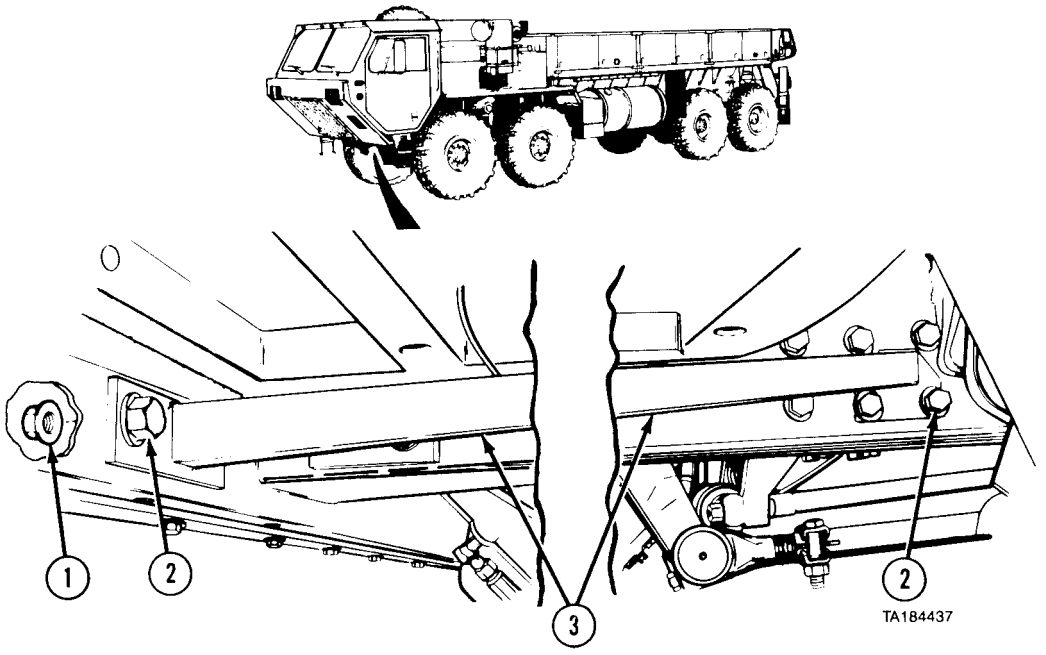
References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None



NOTE

Both brace assemblies are removed and installed the same way. Left-hand brace assembly shown.

a. Removal. Remove four nuts (1), screws (2), and brace assembly (3).

b. Installation. Install brace assembly (3) with four screws (2) and nuts (l).

c. Follow-on Maintenance. None.

END OF TASK

14-10. VEHICLE TIEDOWN REMOVAL/iNSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

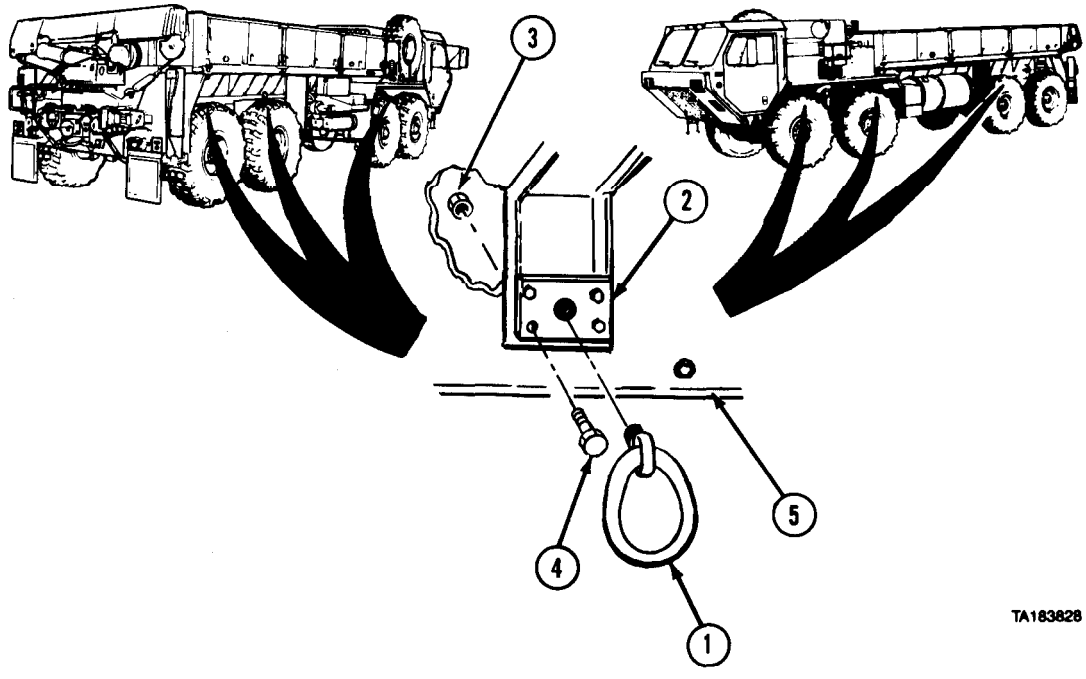
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



CAUTION

Do not remove both front tiedown plates at the same time. If both tiedown plates are removed, cab will sag.

NOTE

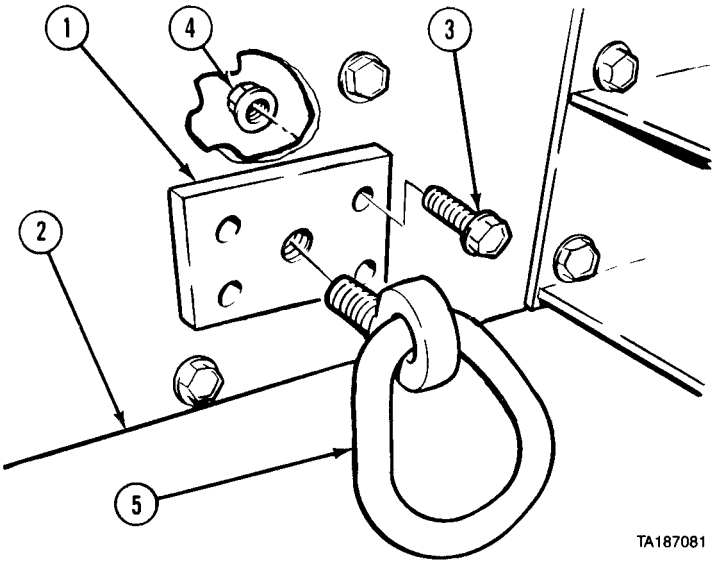
Support cab before removing either front tiedown plate.

(1) Remove tiedown ring (1) from tiedown plate (2).
(2) Remove four nuts (3) and screws (4) from tiedown plate (2).
(3) Remove tiedown plate (2) from frame (5).

b. Installation.
(1) Install tiedown plate (1) to frame (2). Install four screws (3) and nuts (4).
(2) Install tiedown ring (5) into tiedown plate (l).

c. Follow-on Maintenance. None.

END OF TASK



Section III. CATWALKS AND GENERATOR MOUNT

14-11. GUARDRAIL ASSEMBLY REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

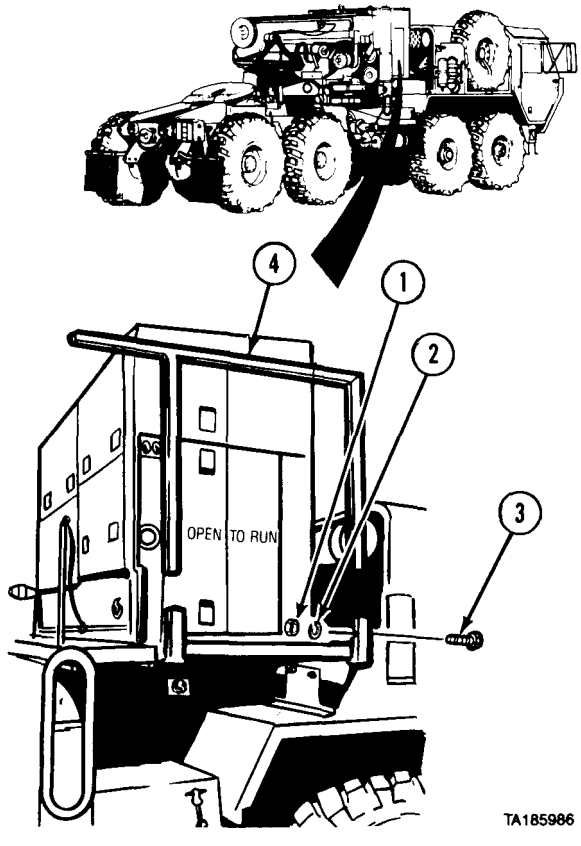
General Safety Instructions
None

a. Removal
(1) Remove two nuts (l), lockwashers (2), and screws (3).
(2) Remove guardrail (4).

b. Installation.
(1) Install guardrail (4) and align screw holes.
(2) Install two screws (3), lockwashers (2), and nuts (1).

c. Follow-on Maintenance. None.

END OF TASK



14-12. RIGHT SIDE AND REAR CATWALK REMOVAL/INSTALLATION (M983).

This task covers:

a. Right Side Catwalk Removal
b. Right Side Catwalk Installation
c. Rear Catwalk Removal
d. Rear Catwalk Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

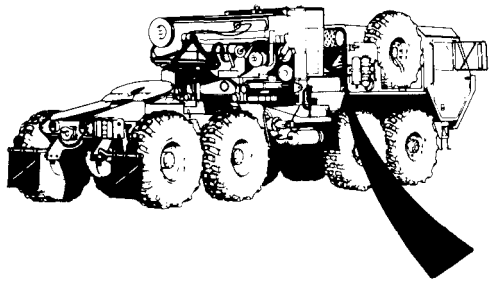
Equipment Condition

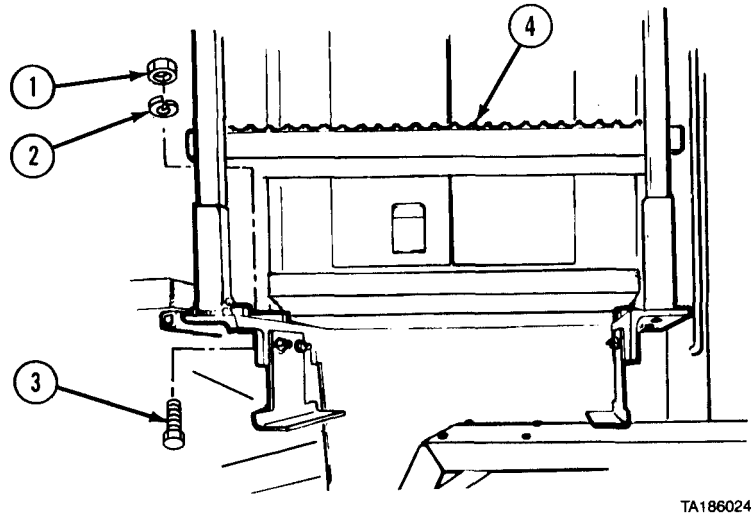
TMl or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Ladder support plate removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Right Side Catwalk Removal.





(1) Remove four nuts (l), lockwashers (2), and screws (3).
(2) Remove right side catwalk (4).

b. Right Side Catwalk Installation.

(1) Position right side catwalk (4).
(2) Install four screws (3), lockwashers (2), and nuts (l).

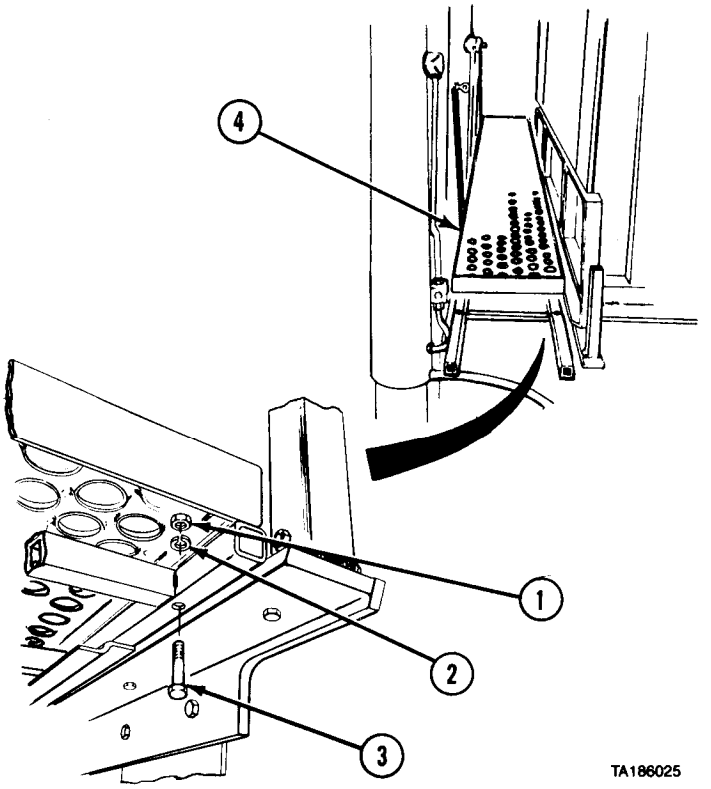
14-12. RIGHT SIDE AND REAR CATWALK REMOVAL/INSTALLATION (M983) (CONT).

c. Rear Catwalk Removal.
(1) Remove 12 nuts (1), lockwashers (2), and screws (3).
(2) Remove rear catwalk (4).

d. Rear Catwalk Installation.
(1) Position rear catwalk (4).
(2) Install 12 screws (3), lockwashers (2), and nuts (1).

e. Follow-on Maintenance. Install ladder support plate (TM 9-2320-279-10).

END OF TASK



14-13. REAR CATWALK MOUNT REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 14-12	Rear catwalk removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

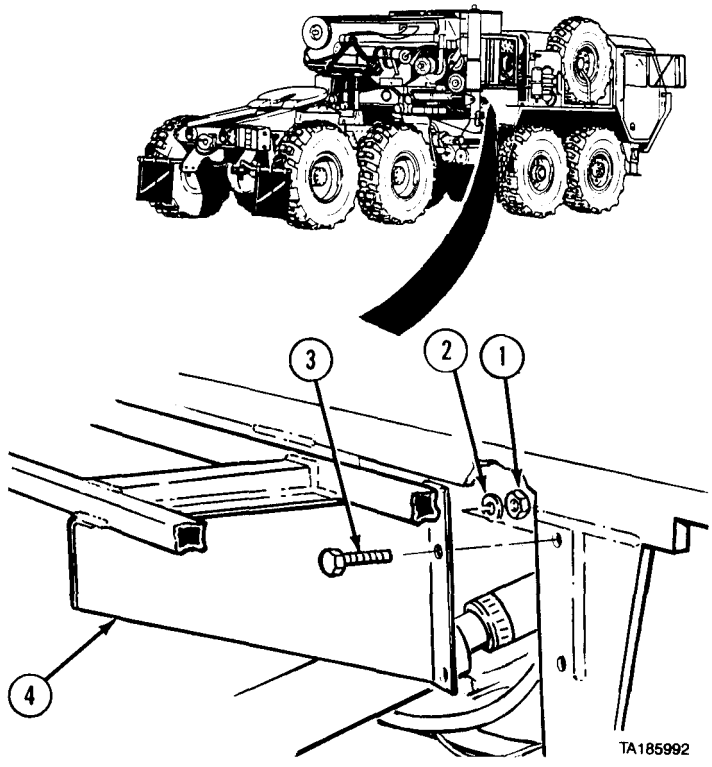
(1) Remove four nuts (l), lockwashers (2), and screws (3).
(2) Remove catwalk mount (4).

b. Installation.

(1) Position catwalk mount (4).
(2) Install four screws (3), lockwashers (2), and nuts (1).

c. Follow-on Maintenance. Install rear catwalk (para 14-12).

END OF TASK



14-14. GENERATOR MOUNT ASSEMBLY REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

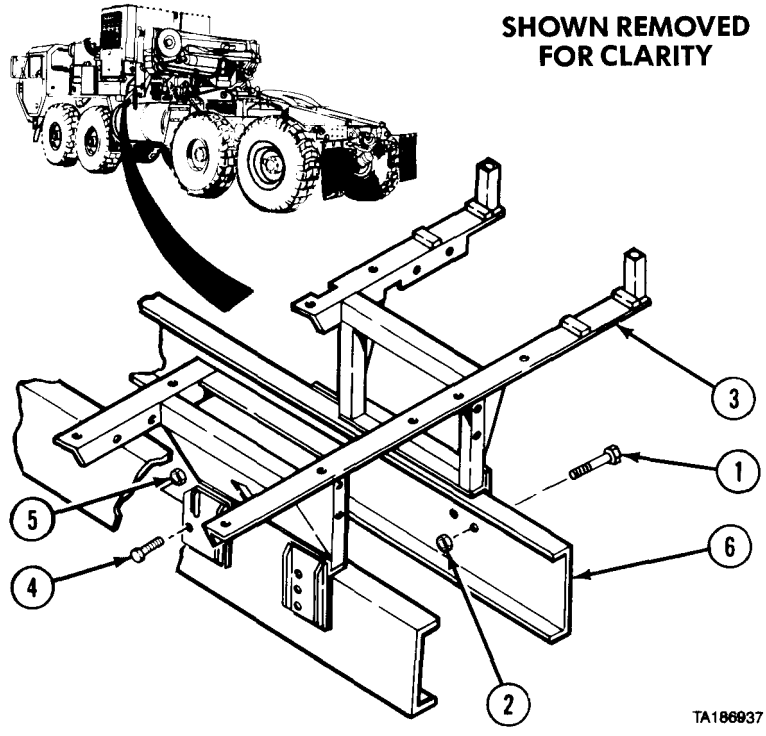
References
None

Equipment Condition

TM or Para	*Condition Description*
Para 7-92	Battery box removed.
Para 16-35	Outrigger pad stowage box removed.
Para 27-2	Generator set removed.
Para 14-12	Right side and rear catwalk removed.
Para 14-13	Rear catwalk mount removed.
Para 4-7	Fuel tank and front bracket removed.
Para 15-3	Axle No. 2 left shock absorber mount removed.
Para 15-4	Tire davit shock mount removed.
Para 16-13	Left rear splash guard removed.

Special Environmental Conditions
None

General Safety Instructions
None



a. Removal.

(1) Soldier A removes two screws (1) while Soldier B holds and removes two nuts (2).

(2) Support generator mount (3) with suitable lifting device.

(3) Soldier A removes three screws (4) while Soldier B holds and removes three nuts (5).

(4) Soldier A operates lifting device while Soldier B guides and removes generator mount (3) from frame (6).

b. Installation.

(1) Soldier A operates lifting device while Soldier B positions generator mount (3) on frame (6) and aligns holes.

(2) Soldier A installs three screws (4) while Soldier B holds and installs three nuts (5).

(3) Soldier A installs two screws (1) while Soldier B holds and installs two nuts (2).

c. Follow-on Maintenance.

(1) Install tire davit shock mount (para 15-4).
(2) Install axle No. 2 left shock absorber mount (para 15-3).
(3) Install fuel tank and front bracket (para 4-7),
(4) Install rear catwalk mount (para 14-13).
(5) Install right side and rear catwalk (para 14-12).
(6) Install generator set (para 27-2).
(7) Install outrigger pad stowage box (para 16-35).
(8) Install battery box (para 7-92).
(9) Install left rear splash guard (para 16-13).

END OF TASK

Section IV. TOWING AND RETRIEVER SYSTEM

14-15. PINTLE HITCH REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

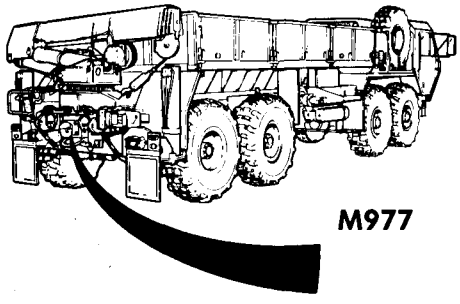
Equipment Condition

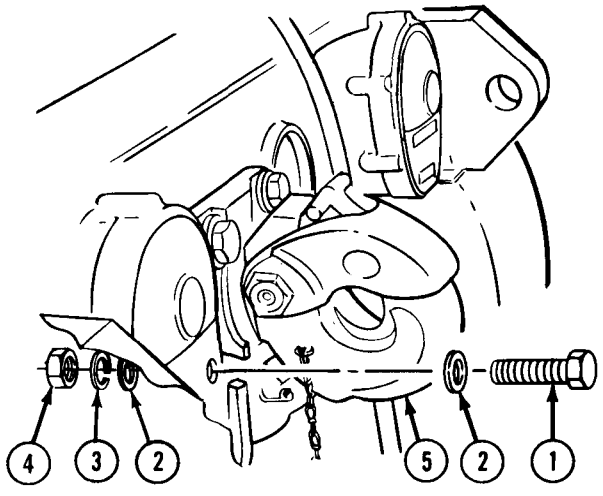
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



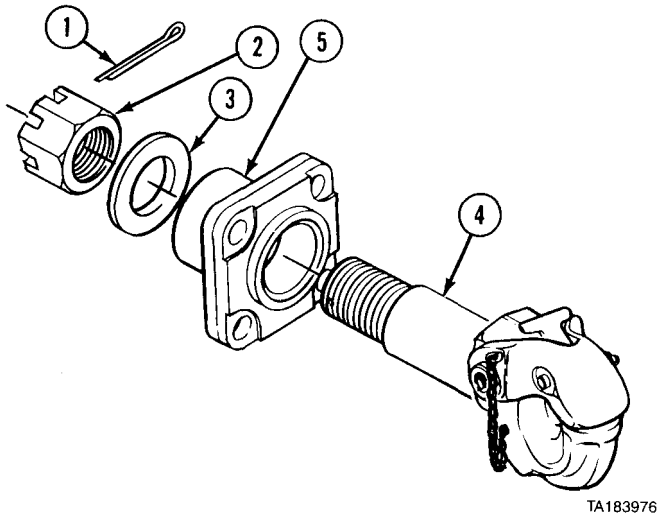


M977 SHOWN, ALL VEHICLES SIMILAR TA185808

(1) Remove four screws (1), eight washers (2), four lockwashers (3), and four nuts (4).
(2) Remove pintle hitch (5).

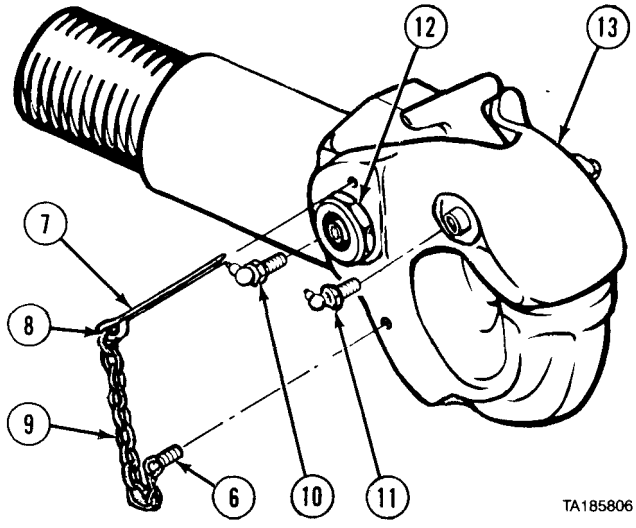
b. Disassembly.

(1) Remove cotter pin (1), slotted nut (2), and washer (3) from pintle hook (4).
(2) Remove pintle hook (4) from bearing cone (5).



TA183976

(3) Remove drivescrew (6).
(4) Remove cotter pin (7).
(5) Slide chain link (8) off cotter pin (7).
(6) Spread chain link (8) and remove chain (9).
(7) Remove grease fittings (10 and 11) from screw (12) and pintle latch assembly (13).

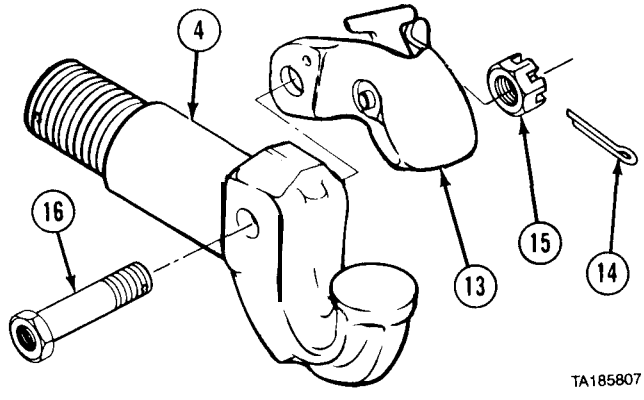


TA185806

(8) Remove cotter pin (14).
(9) Remove slotted nut (15), screw (16), and pintle latch assembly (13) from pintle hook (4).

WARNING

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



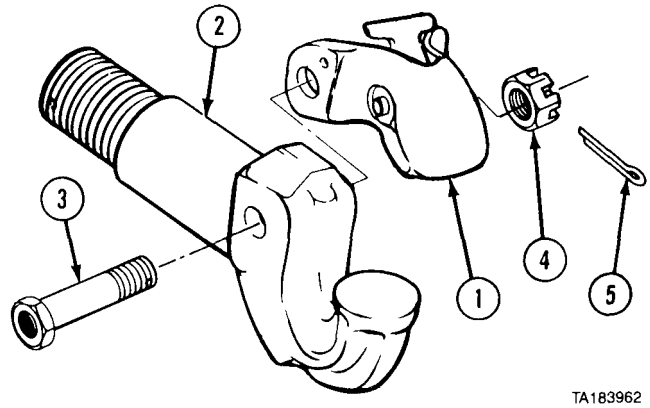
TA185807

(10) Clean all parts in dry cleaning solvent and inspect for defects.

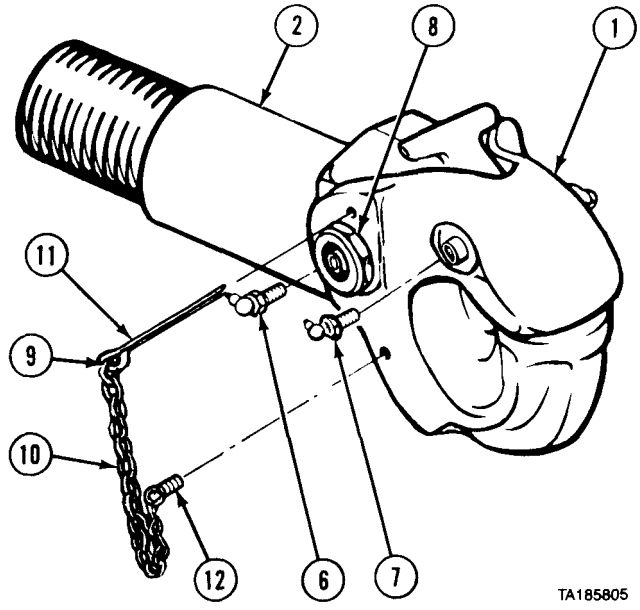
14-15. PINTLE HITCH REMOVAL/REPAIR/INSTALLATION (CONT).

c. Assembly.

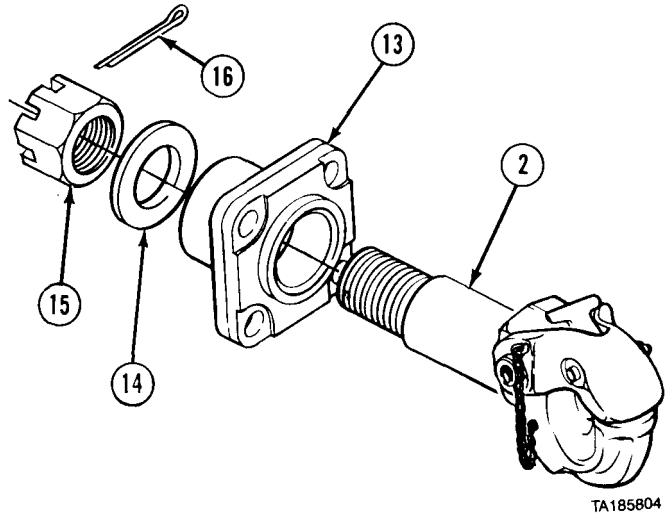
(1) Install pintle latch assembly (1) on pintle hook (2) with screw (3) and slotted nut (4).
(2) Install cotter pin (5).



(3) Install grease fittings (6 and 7) in screw (8) and pintle latch assembly (1).
(4) Install chain link (9) on chain (10) and cotter pin (11).
(5) Install drivescrew (12) loosely in pintle hook (2).
(6) Spread end link of chain (10) and wrap around drivescrew (12).
(7) Tighten drivescrew (12).



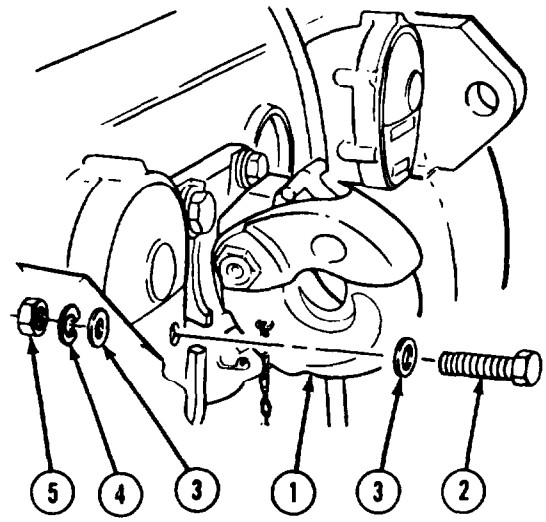
(8) Install pintle hook (2) in bearing cone (13).
(9) Install washer (14), slotted nut (15), and cotter pin (16) on pintle hook (2).



Frame and Tire Carrier Maintenance Instructions (Cont)

d. Installation.

(1) Position pintle hitch (1) on vehicle.
(2) Install four screws (2), eight washers (3), four lockwashers (4), and four nuts (5). Tighten screws to 600 to 660 lb-ft (814 to 895 N•m).



e. Follow-on Maintenance. Lubricate pintle hitch (LO 9-2320-279-12).

END OF TASK

14-15.01 SELF-GUIDED COUPLER REMOVAL/REPAIR/INSTALLATION (M1977-CBT ONLY).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M1977-CBT

Test Equipment
None

Special Tools
Socket, 3-1/4 in., A-A-2635

Supplies
Solvent, drycleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

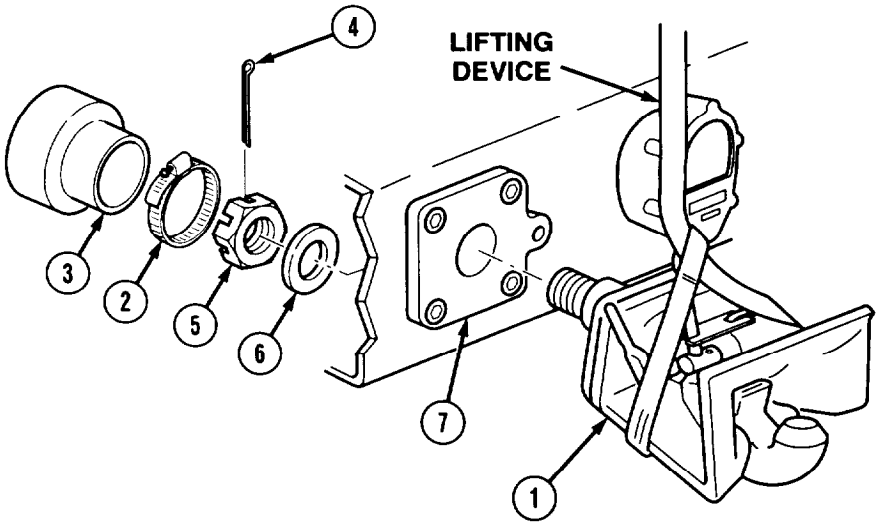
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



WARNING

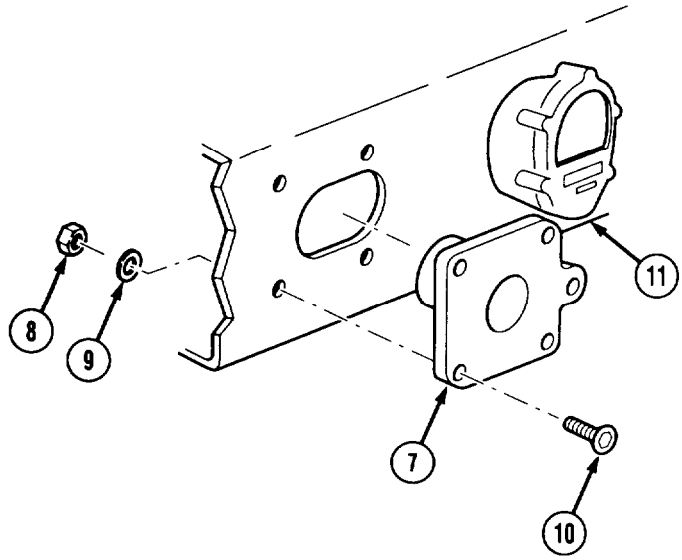
Self-guided coupler weighs 100 lbs (45 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(1) Attach lifting device to self-guided coupler (1).
(2) Remove hose clamp (2) and boot (3) from self-guided coupler (1).
(3) Remove cotter pin (4), nut (5), and washer (6) from self-guided coupler (1).
(4) Remove self-guided coupler (1) from sleeve (7) and position on clean work surface.
(5) Remove lifting device from self-guided coupler (1).

CAUTION

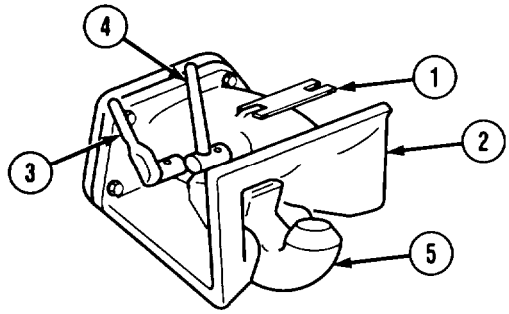
Ensure sleeve is fully supported upon removal of four nuts, washers, and screws, or sleeve may fall and damage to parts may occur.

(6) With the aid of an assistant, remove four nuts (8), washers (9), screws (10), and sleeve (7) from truck (11).

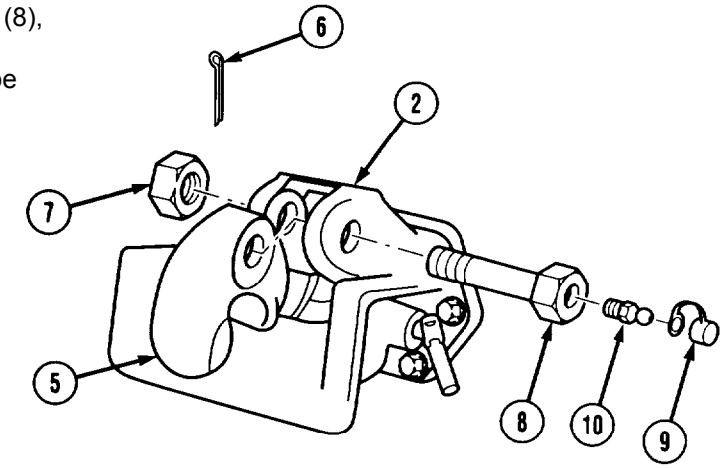


b. Disassembly.

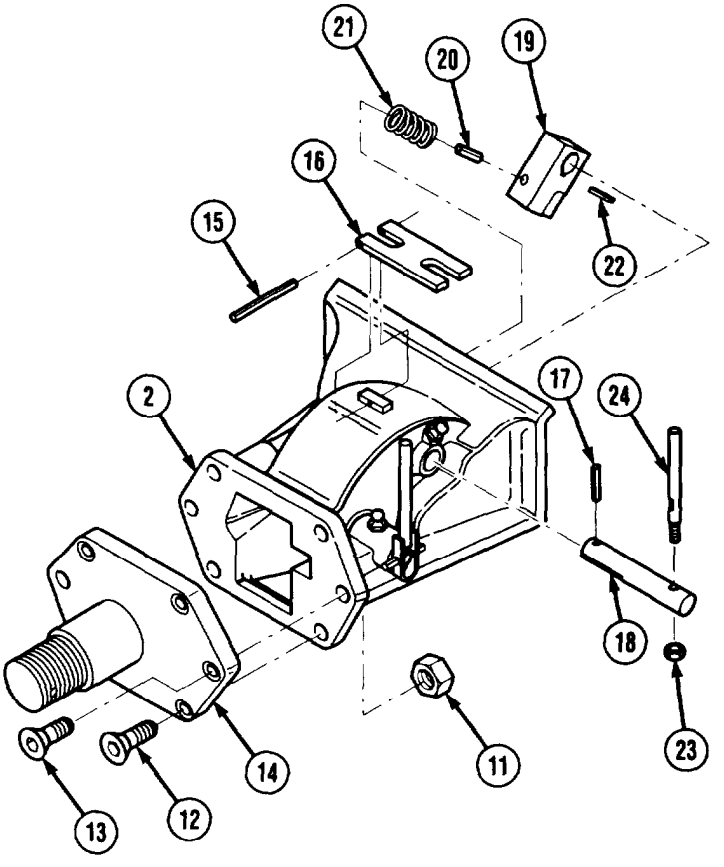
(1) Lift up indicator lock (1) on coupler (2).
(2) Pull locking lever (3) out and pull lever (4) back at same time to open coupler jaw (5).



(3) Remove cotter pin (6), nut (7), screw (8), and coupler jaw (5) from coupler (2).
(4) Remove lube fitting cover (9) and lube fitting (10) from screw (8).



14-15.01 SELF-GUIDED COUPLER REMOVAL/REPAIR/INSTALLATION (M1977-CBT ONLY) (CONT).



(5) Remove five locknuts (11), four screws (12), screw (13), and shank (14) from coupler (2).
(6) Remove roll pin (15) and indicator lock (16) from coupler (2).

WARNING

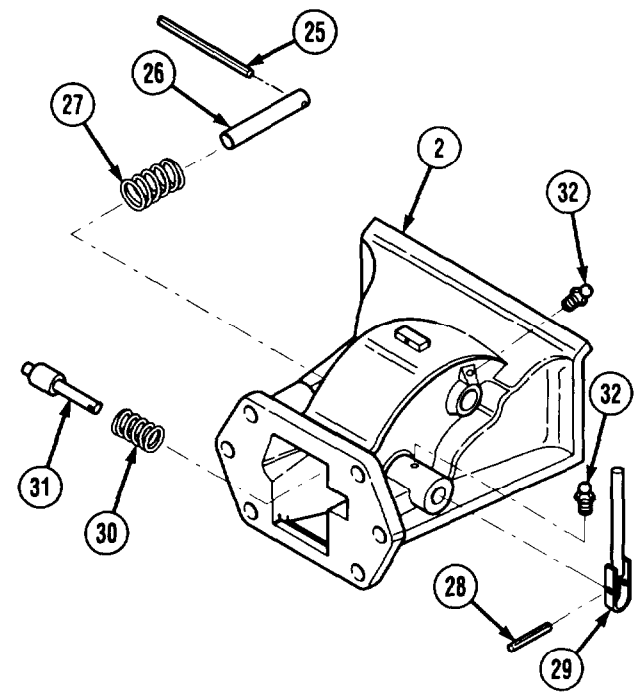
Use care when removing or installing coupler latch. Coupler latch and components are under spring tension and can act as projectiles when released and cause severe eye injury.

(7) Remove roll pin (17) from latch pin (18).
(8) While applying slight upward pressure on latch (19), remove latch pin (18), key (22), latch (19), roll pin (20), and spring (21) from coupler (2).
(9) Remove locknut (23) and handle (24) from latch pin (18).

WARNING

Use care when removing or installing rotation pin and pivot. Rotation pin, pivot, and components are under spring tension and can act as projectiles when released and cause severe eye injury.

(10) Remove roll pin (25), rotation pin (26), and spring (27) from coupler (2).
(11) Remove roll pin (28), coupler handle assembly (29), spring (30), and pivot (311 from coupler (2).
(12) Remove two grease fittings (32) and covers from coupler (2).



c. Cleaning/Inspection.

WARNING

- Drycleaning solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves and use only in a well-ventilated area; avoid contact with skin, eyes, and clothes and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for type I drycleaning solvent is 100°F (38°C) and for type II drycleaning solvent is 140°F (60°C). Failure to do so may result in injury or death to personnel.

- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

(1) Clean excess grease from coupler using drycleaning solvent and a cleaning cloth.
(2) Clean all parts in drycleaning solvent.
(3) Dry components with compressed air.
(4) Inspect all components with machined surfaces for scratches, cracks, gouges and stripped threads.
(5) Replace damaged components.

14-15.01 SELF-GUIDED COUPLER REMOVAL/REPAIR/INSTALLATION (M1977-CBT ONLY) (CONT).

d. Assembly.

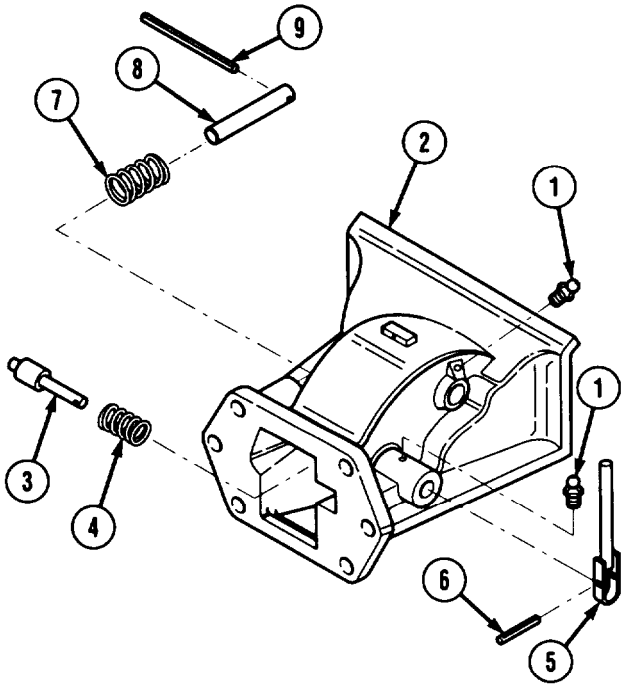
(1) Install two grease fittings (1) and covers on coupler (2).

WARNING

Use care when removing or installing rotation pin and pivot. Rotation pin, pivot, and components are under spring tension and can act as projectiles when released and cause severe eye injury.

(2) Install pivot (3) and spring (4) in coupler (2) with coupler handle assembly (5) and roll pin (6).

(3) Install spring (7) and rotation pin (8) in coupler (2) with roll pin (9).



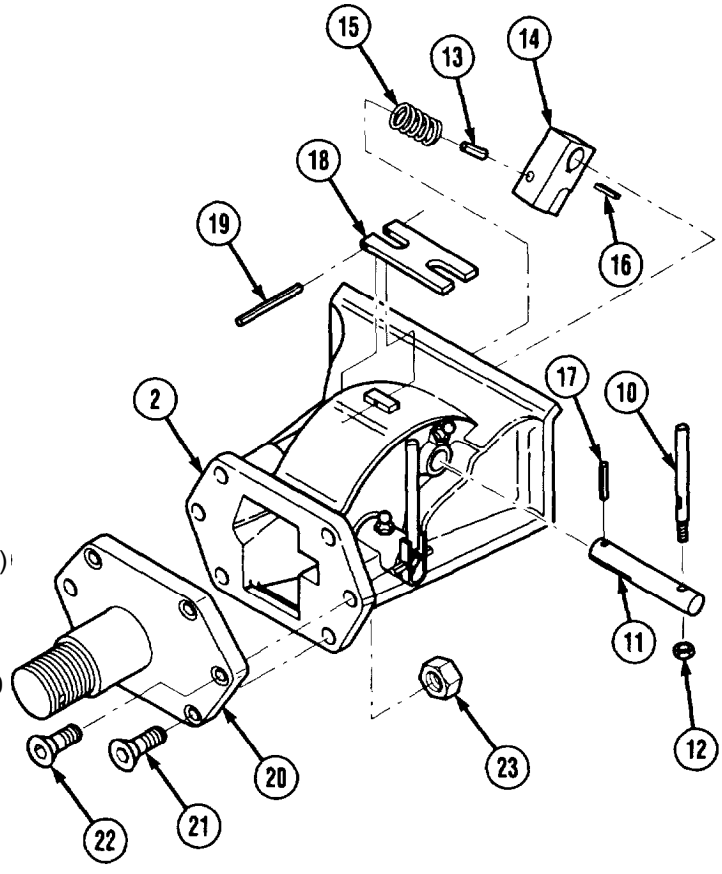
Frame and Tire Carrier Maintenance Instructions (Cont)

(4) Install handle (10) on latch pin (11) with locknut (12).
(5) Install roll pin (13) on latch (14).

WARNING

Use care when removing or installing coupler latch. Coupler latch and components are under spring tension and can act as projectiles when released and cause severe eye injury.

(6) Position latch (14) with roll pin (13) and spring (15) in coupler (2).
(7) Applying slight upward pressure on latch (14), install latch pin (11) and key (16) in coupler (2) and latch (14) with roll pin (17).
(8) Install indicator lock (18) on coupler (2) with roll pin (19).
(9) Install shank (20) on coupler (2) with four screws (21), screw (22), and five locknuts (23). Tighten locknuts to 210 lb-ft (285 N•m).

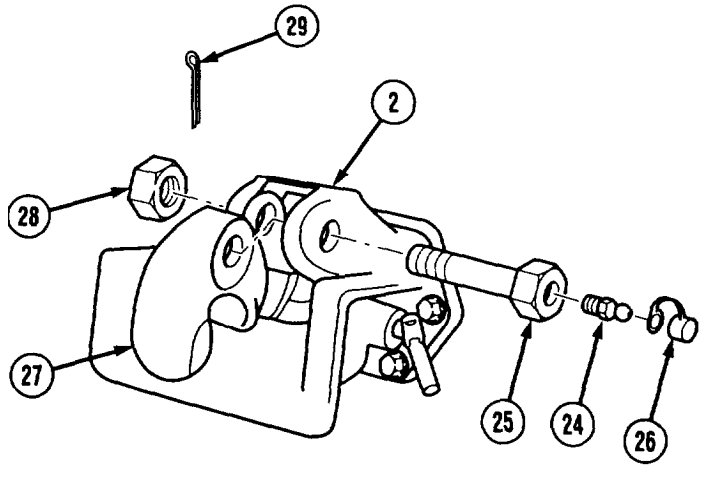


(10) Install lube fitting (24) in screw (25).
(11) Install lube fitting cover (26) on lube fitting (24).
(12) Install coupler jaw (27) on coupler (2) using screw (25) and nut (28).

NOTE

Nut is properly installed when coupler jaw can rotate freely.

(13) Tighten nut (28).
(14) Back off nut (28) to nearest slot and install cotter pin (29).



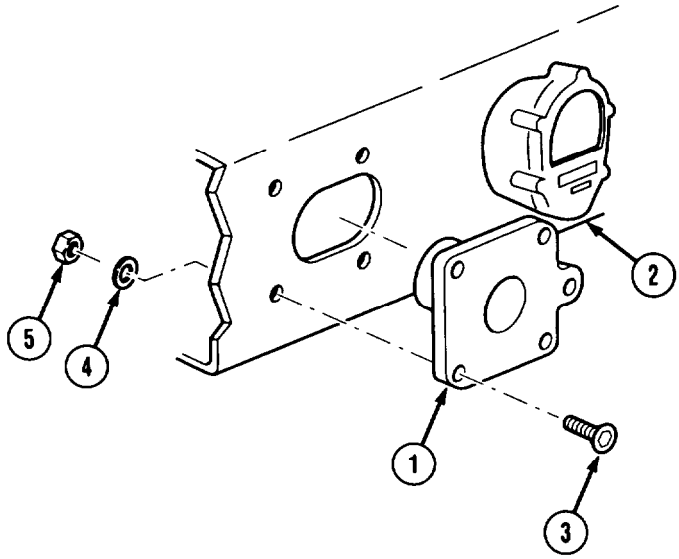
14-15.01 SELF-GUIDED COUPLER REMOVAL/REPAIR/INSTALLATION (M1977-CBT ONLY) (CONT).

e. ***Installation.***

CAUTION

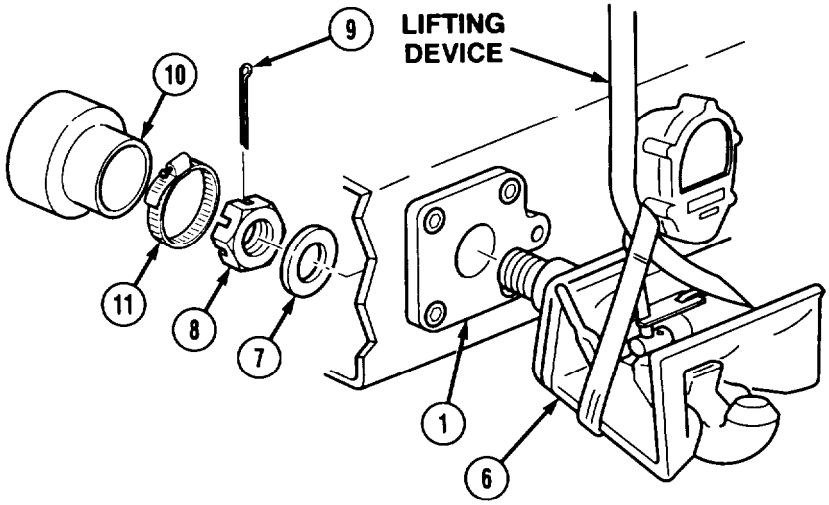
Ensure sleeve is fully supported until after step *(2)* is completed or sleeve may fall. Failure to comply may result in damage to parts.

(1) With the aid of an assistant, position sleeve (1) on truck (2).
(2) With the aid of an assistant, install four screws (3), washers (4), and nuts (5) in sleeve (1). Tighten nuts to 500 lb-ft (678 N•m).



WARNING

Self-guided coupler weighs 100 lbs (45 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



(3) Attach lifting device to self-guided coupler (6).
(4) Position self-guided coupler (6) on sleeve (1).
(5) Install washer (7) and nut (8) in self-guided coupler (6).
(6) Tighten nut (8) to 100 lb-ft (136 N•m).
(7) Back off nut (8) to nearest slot and install cotter pin (9).
(8) Remove lifting device from self-guided coupler (6).

NOTE

If thickness of washer behind nut is less than 0.19 inch when steps (6) and (7) are repeated, replace washer.

(9) Check that axial clearance does not exceed 1/32 inch. If clearance exceeds 1/32 inch, remove cotter pin (9) and repeat steps (6) and (7).
(10) Install boot (10) and hose clamp (11).

f. ***Follow-on Maintenance.*** Lubricate self-guided coupler (LO 9-2320-279-12).

END OF TASK

14-15.1 LOCKPIN REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Disengage lockpin from load hook.
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

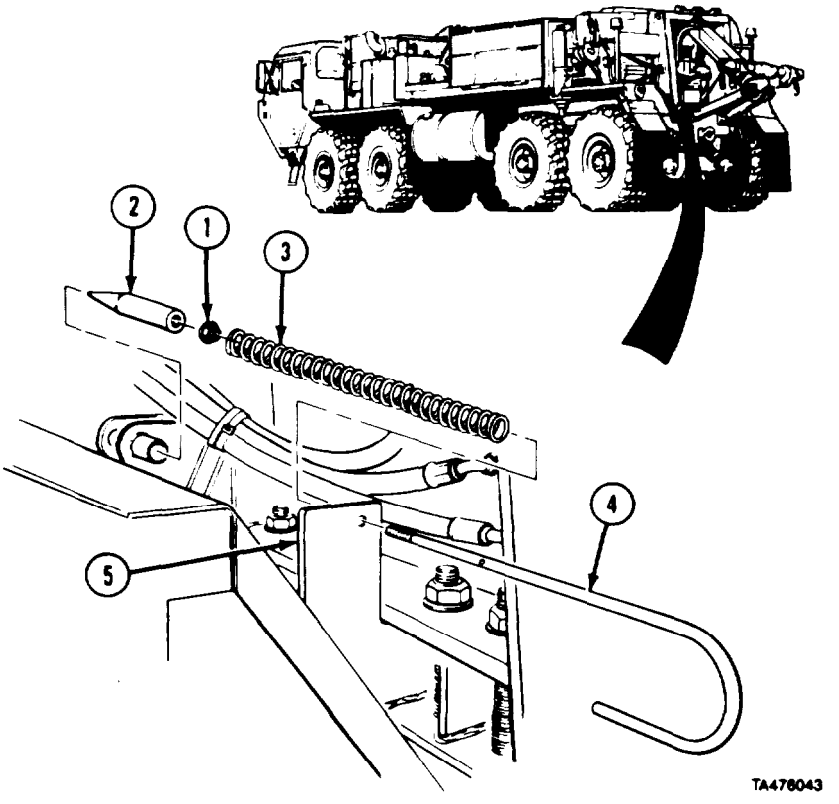
14-15.1. LOCKPIN REMOVAL/INSTALLATION (M984E1) (CONT).

a. Removal.

(1) Loosen nut (1).
(2) Remove snatch block pin (2), nut (1), and spring (3) from snatch block bar (4).
(3) Remove bar (4) from holder (5).

b. Installation.

(1) Install bar (4) in holder (5).
(2) Install spring (3), nut (1), and pin (2) on bar (4).
(3) Tighten nut (1) to 37 lb-ft (50 Nm).



c. Follow-on Maintenance. Stow crane (TM 9-2320-279-10).

END OF TASK

14-15.2. TOW ADAPTER REPAIR (M984E1).

This task covers:

a. Disassembly
b. Inspection
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

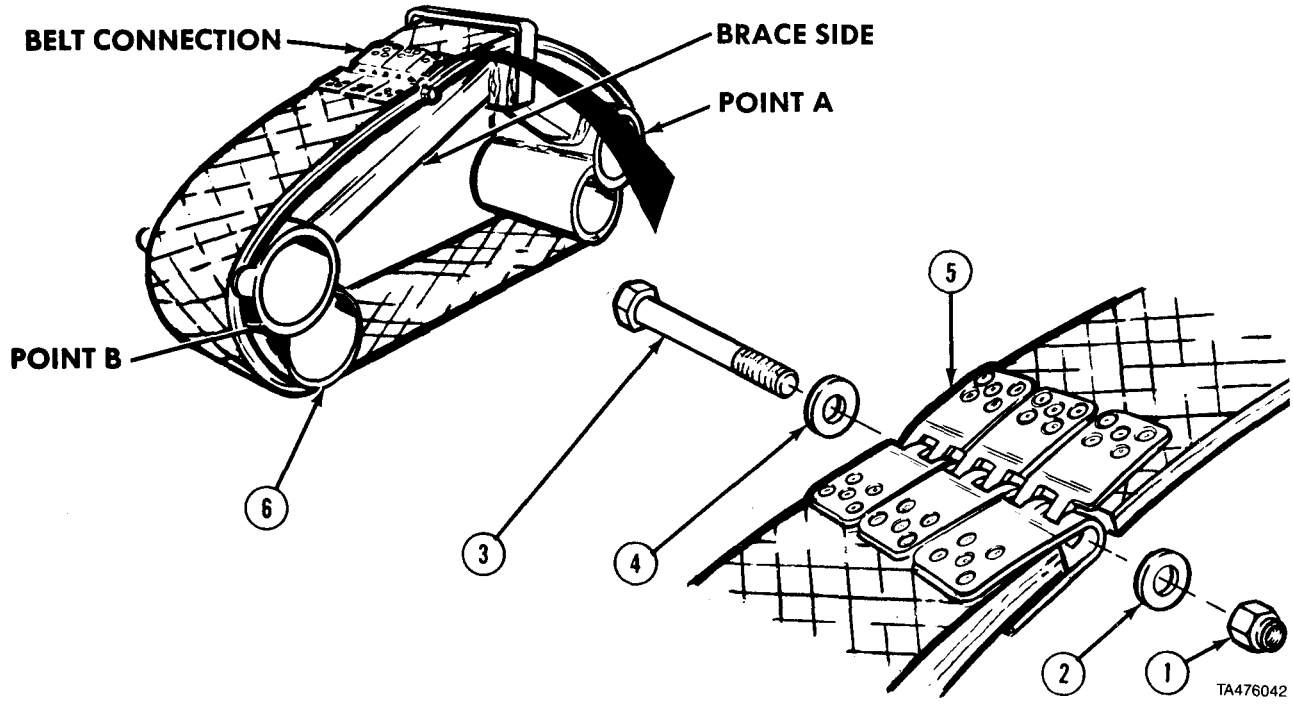
References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Tow adapters removed from holders.

Special Environmental Conditions
None

General Safety Instructions
None



a. Disassembly. Remove locknut (1), washer (2), screw (3), washer (4), and belt (5) from tow adapter (6).

b. Inspection. Inspect belts for wear, cuts or tears. Replace belt is cut or tear exceeds 2 inches (50 mm) or if worn deeper than 2 plies of the 4 plies of entire width of belt.

NOTE

- Belt must be installed with heavy rubber side up and cords down. Position connector on brace side of adapter.
- Rotate belt from point A to point B as wear occurs.
- Keep belt connection away from metal parts of tow adapter.

c. Assembly. Install belt (5) on tow adapter (6) with washer (4), screw (3), washer (2), and locknut (l).

d. Follow-on Maintenance. Stow adapters (TM 9-2320-279-10).

END OF TASK

14-15.3. FAIRLEAD/TENSIONER LIFT BAR SUPPORT REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

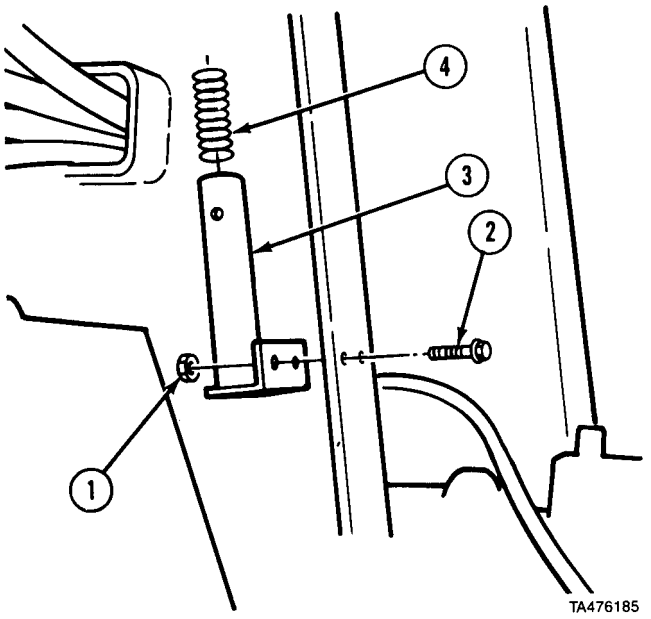
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Lift bar removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Remove two nuts (l), screws (2), and support (3).
(2) Remove spring (4) from support (3).

b. Installation.
(1) Install spring (4) in support (3).
(2) Install support (3) with two screws (2) and nuts (l).

c. Follow-on Maintenance. Install fairlead/tensioner lift bar (TM 9-2320-279-10).

END OF TASK

Section V. TIRE CARRIER AND FIFTH WHEEL

14-16. TIRE CARRIER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

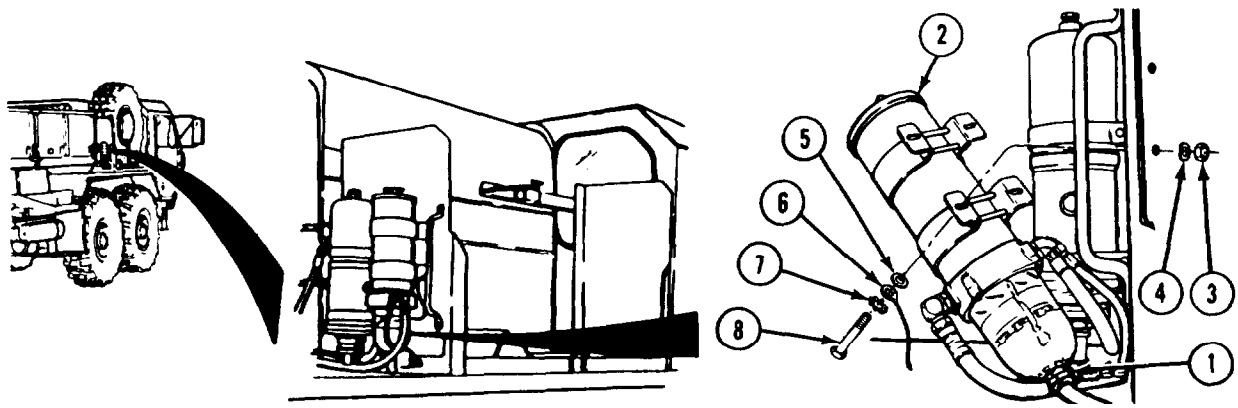
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Spare tire removed.
Para 7-109	Fuel restriction sensor removed.
Para 4-10	Fuel-water separator guard removed.
TM 5-5420-234-14&P	Ladder hooks work station removed (M1977-CBT only)

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



NOTE

Some models have fuel/water separator guards.

(1) Open drain valve (1) and drain fuel from fuel-water separator (2).

CAUTION

Do not bend or pull connected wires or hoses when removing fuel-water separator from mount. Damage to attached parts and fuel-water separator could result.

NOTE

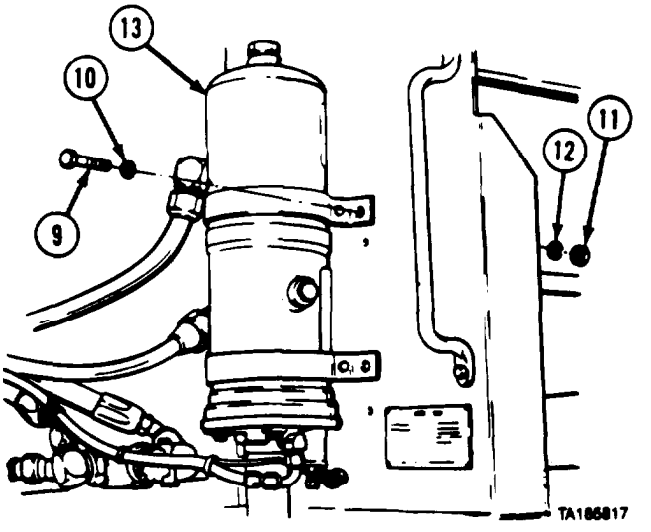
Some vehicles have nuts, lockwashers, flatwashers, and screws. Others have flanged nuts and screws.

(2) Remove four nuts (3), three lockwashers (4), flat washers (5), ground wire (6), two lockwashers (7), and four screws (8).

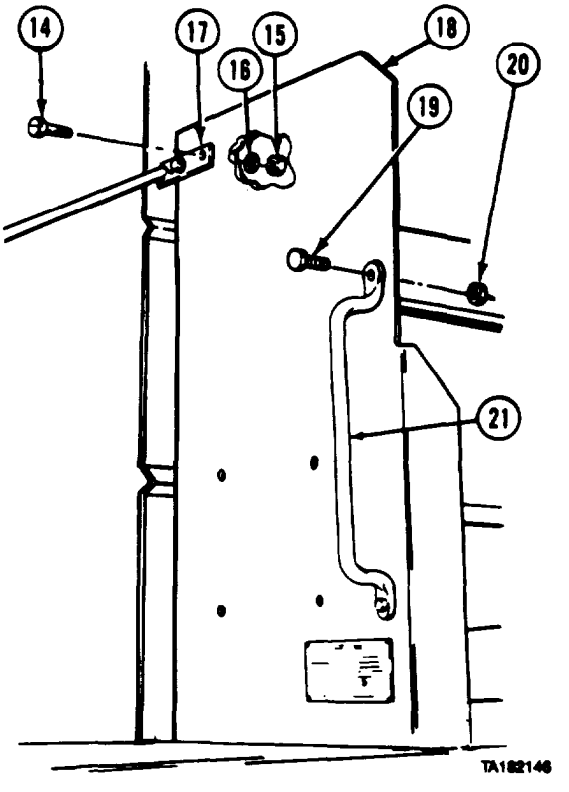
(3) Pull fuel-water separator (2) aside.

Frame and Tire Carrier Maintenance Instructions (Cont)

(4) Remove four screws (9), washers (10), nuts (11), and lockwashers (12).
(5) Pull air dryer assembly (13) aside.



(6) Remove two screws (14), nuts (15), and lockwashers (16) from cross brace (17) and tire carrier (18).
(7) Remove two screws (19) and nuts (20) from grab handle (21) and tire carrier (18).



(8) Remove four screws (22), nuts (23), and lockwashers (24) from tire carrier (18) and fender (25).

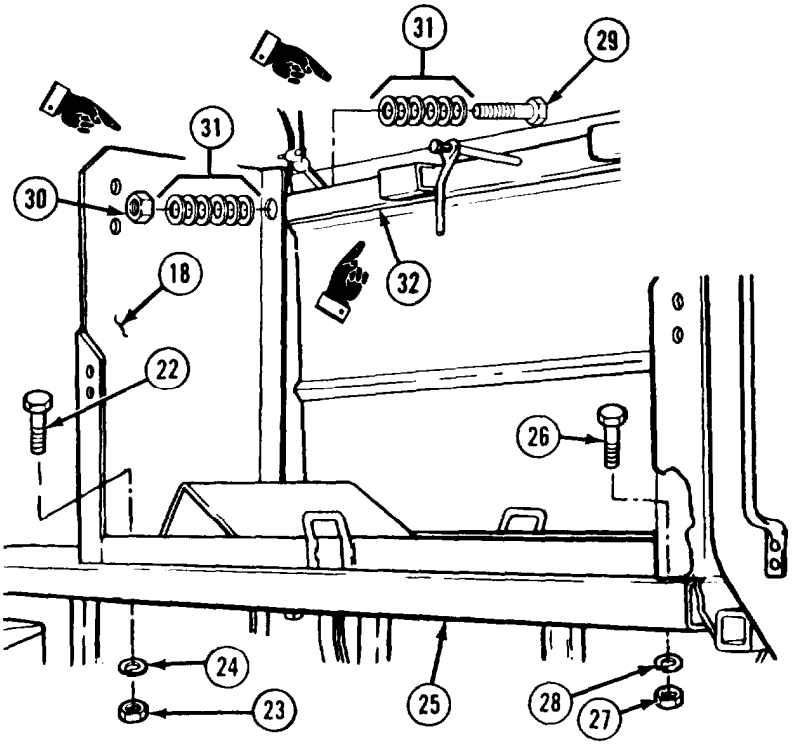
(9) Remove two screws (26), nuts (27), and lockwashers (28).

(10) Remove tire carrier (18) from fender (25).

NOTE

If tire carrier has bolt-on type top bar, do step *(11).*

(11) Remove two screws (29), nuts (30), 24 washers (31), and bar (32).



b. Installation.

NOTE

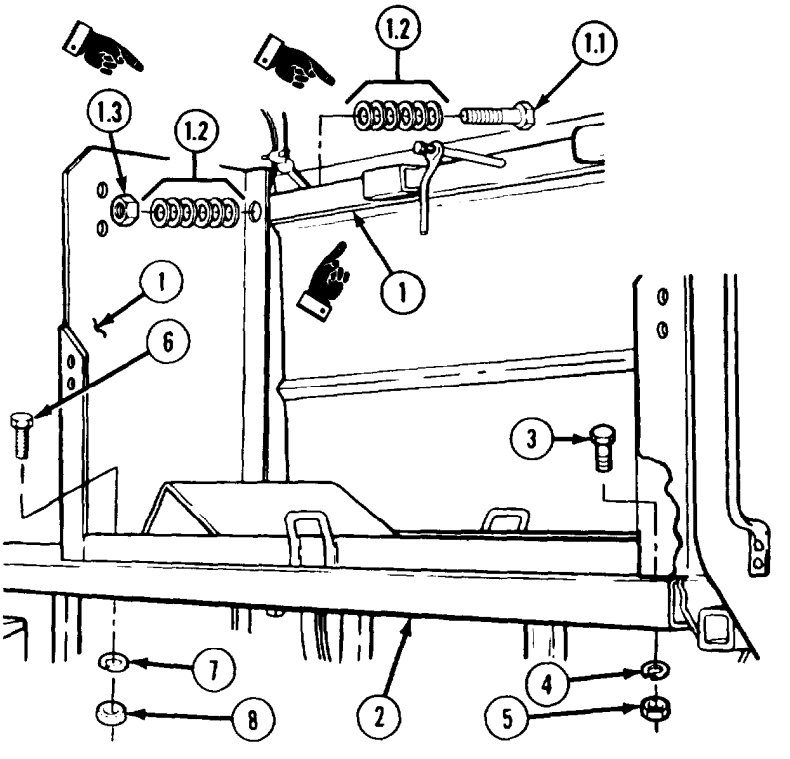
- If tire carrier has bolt on type top bar, do step *(1).*
- Alternately stack washers in pairs.
- Only M1977-CBT tire carrier has additional bolt holes on each end.

(1) Install bar (1) with two screws (1.11, 24 washers (1.21, and two nuts (1.31. Tighten nuts to 35 lb-ft (47 N•m).

(1.1) Place tire carrier (1) on fender (2).

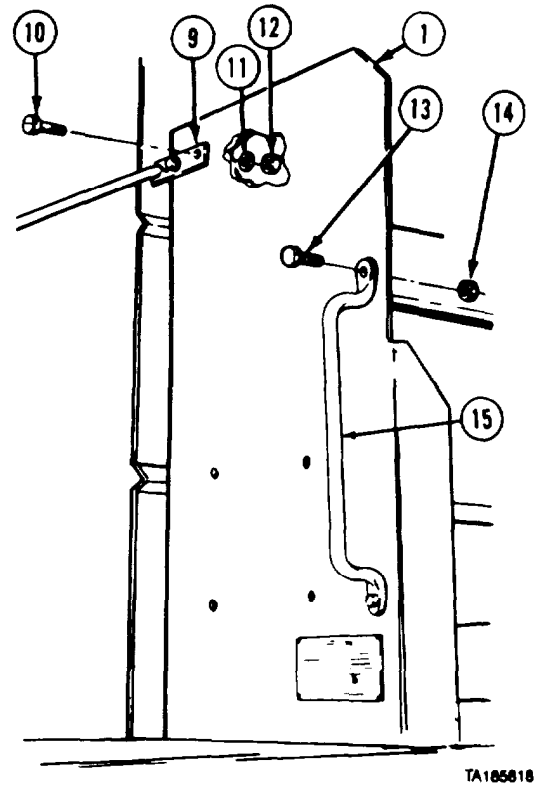
(2) Install two screws (3), lockwashers (4), and nuts (5).

(3) Install four screws (6), lockwashers (7), and nuts (8) on tire carrier (1) and fender (2).

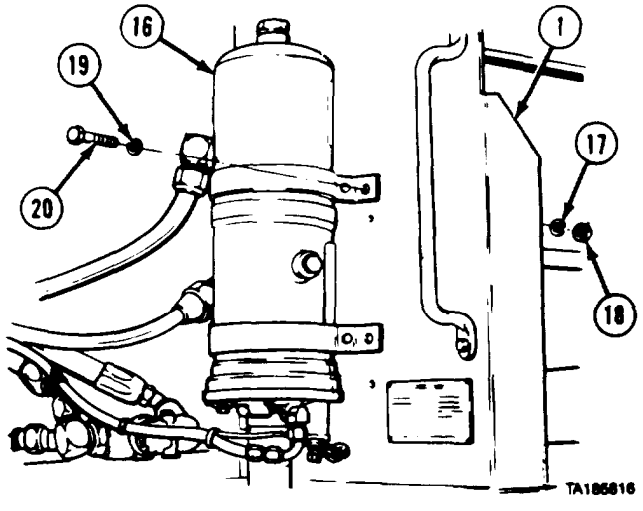


Frame and Tire Carrier Maintenance Instructions (Cont)

(4) Attach cross brace (9) to tire carrier (1). Install two screws (10), lockwashers (11), and nuts (12) on cross brace and tire carrier.
(5) Install two screws (13) and nuts (14) on grab handle (15) and tire carrier (1).



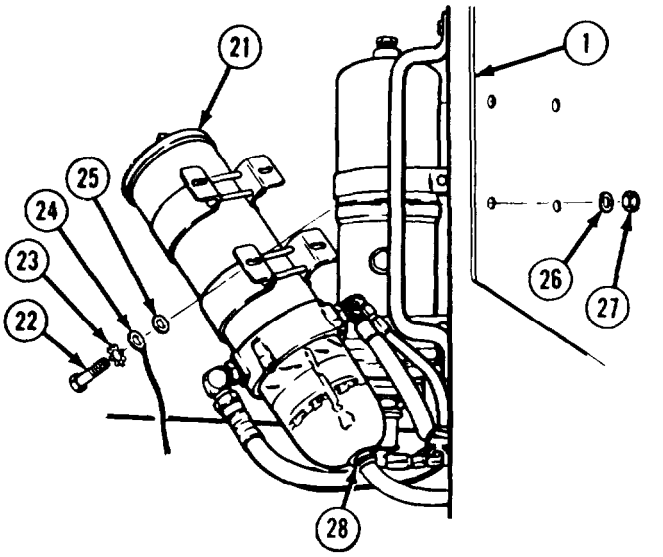
(6) Position air dryer assembly (16) on tire carrier (1).
(7) Install four lockwashers (17), nuts (18). washers (19), and screws (20).



CAUTION

Do not bend or pull connected wires or hoses when installing fuel-water separator to mount. Damage to attached parts and fuel-water separator could result.

(8) Position fuel-water separator (21) on tire carrier (1).



NOTE

Some vehicles have nuts, lockwashers, washers, and screws. Others have flanged nuts and screws.

(9) Install four screws (22), two lockwashers (23), ground wire (24), three flat washers (25), three lockwashers (26), and four nuts (27).

(10) Close drain valve (28).

c. Follow-on Maintenance.

(1) Stow spare tire (TM 9-2320-279-10).

(2) Install fuel restriction sensor (para 7-109).

(3) Install fuel-water separator guard (para 4-10).

END OF TASK

14-17. TIRE CARRIER DECKING AND BRACKETS ASSEMBLY REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983, without crane

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

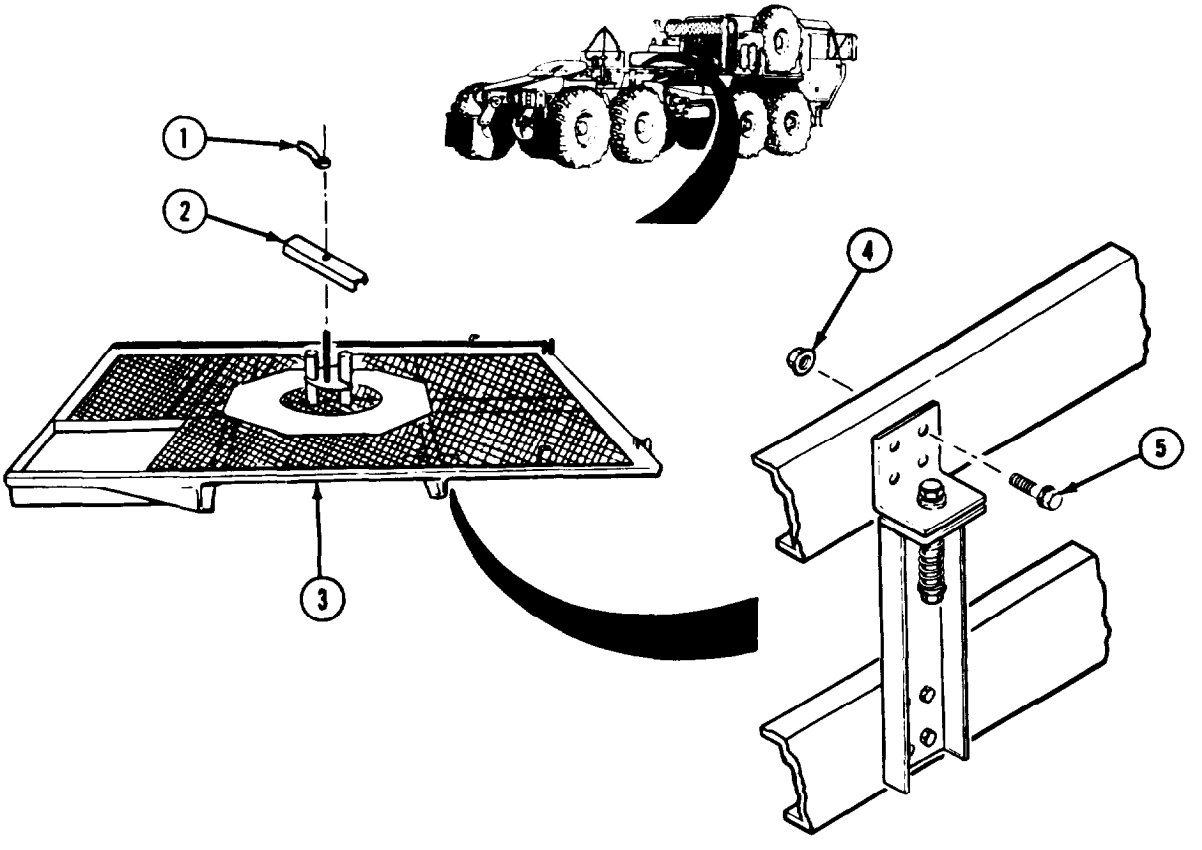
TM or Para	*Condition Description*
Para 16-70	Slave cable hooks removed.
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Ladder removed.
Para 16-35	Stowage box removed.

Special Environmental Conditions
None

General Safety Instructions
None

14-17. TIRE CARRIER DECKING AND BRACKETS ASSEMBLY REMOVAL/INSTALLATION (M983) (CONT).

a. Removal.



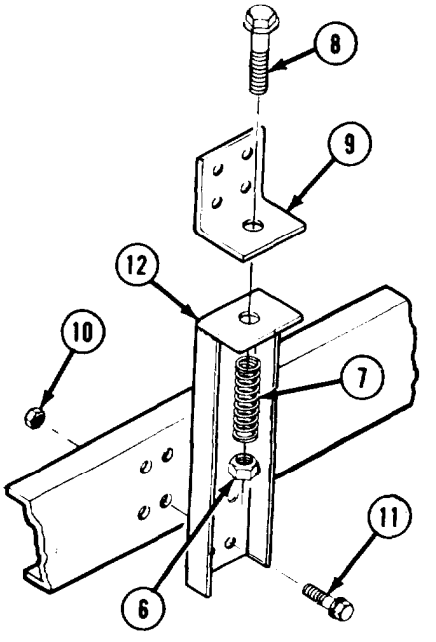
(1) Remove lever nut (1) and holddown plate (2).

NOTE

If trailer spare tire is in place remove trailer spare tire.

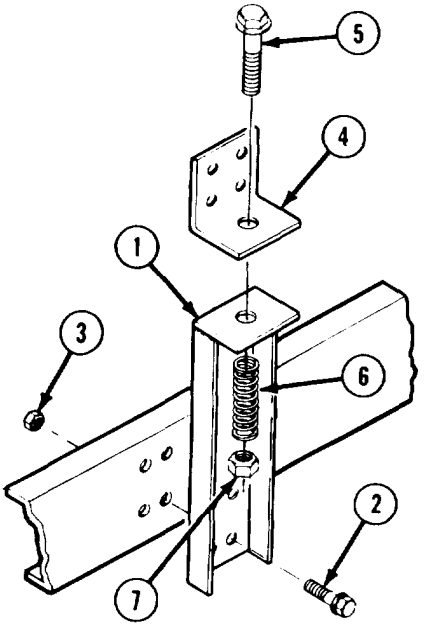
(2) Using suitable lifting device, support decking assembly (3).
(3) Remove 16 nuts (4) and screws (5).
(4) Soldier A removes and guides decking assembly (3) while Soldier B operates lifting device.

(5) Remove two nuts (6), springs (7), screws (8), and deck mounting angles (9).
(6) Soldier A removes 16 nuts (10) while Soldier B holds and removes 16 screws (11) and four deck support brackets (12).

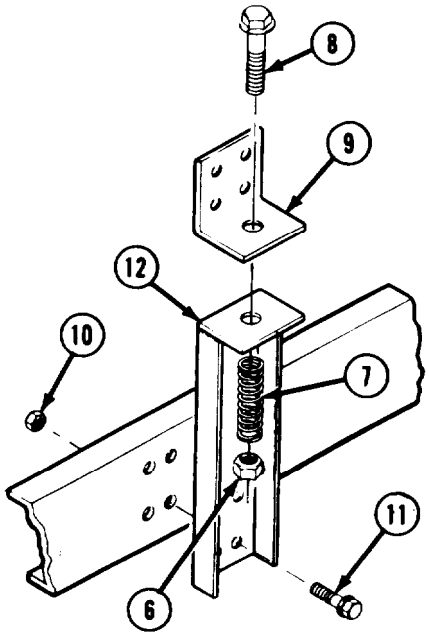


b. Installation.

(1) Soldier A installs and holds four deck support brackets (1) and 16 screws (2) while Soldier B installs 16 nuts (3).
(2) Install two deck mounting angles (4) with two screws (5), springs (6), and nuts (7). Do not tighten.



14-17. TIRE CARRIER DECKING AND BRACKETS ASSEMBLY REMOVAL/INSTALLATION (M983) (CONT).



(3) Soldier A guides and positions decking assembly (8) while Soldier B operates lifting device.
(4) Install 16 screws (9) and nuts (10).
(5) Tighten nuts (7) and remove lifting device.

NOTE

If trailer spare tire was removed, install trailer spare tire.

(6) Install holddown plate (11) and lever nut (12).

c. Follow-on Maintenance.

(1) Install stowage box (para 16-35).
(2) Install slave cable hooks (para 16-70).
(3) Install ladder (TM 9-2320-279-10).

END OF TASK

14-18. TIRE DAVIT WINCH AND CABLE REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

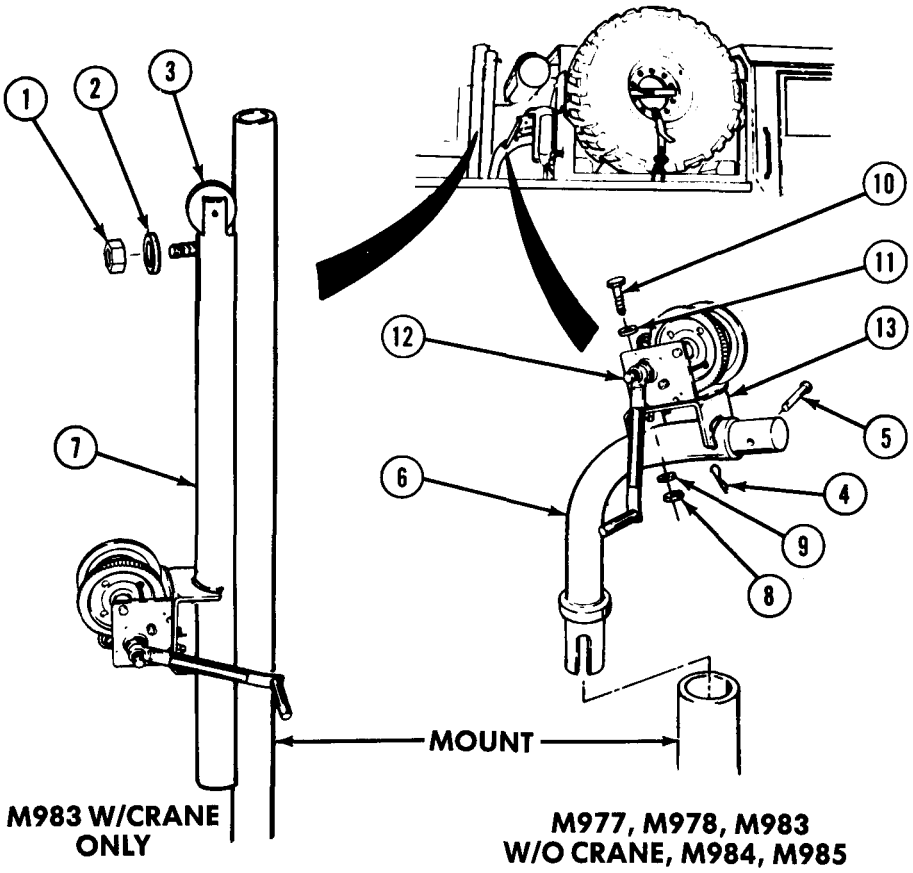
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

14-18. TIRE DAVIT WINCH AND CABLE REMOVAL/REPAIR/INSTALLATION (CONT).

a. Removal.

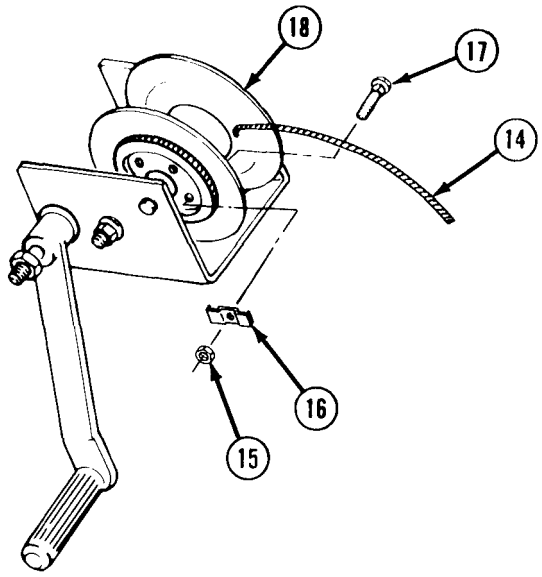


NOTE

- Do step (1) for M983 w/crane only.
- Tire davit may be equipped with Model A or Model B winch. Both are removed and installed the same way.

(1) Remove nut (1) and washer (2) from stud (3).
(2) Remove safety pin (4) and pin (5) from hoist arm (6).
(3) Remove extension (7) or hoist arm (6) from mount.
(4) Remove three nuts (8), lockwashers (9), screws (10), washers (11), and winch (12) from bracket (13).

(5) Unwind cable (14) and remove nut (15), clamp (16), screw (17), and cable from winch reel (18).

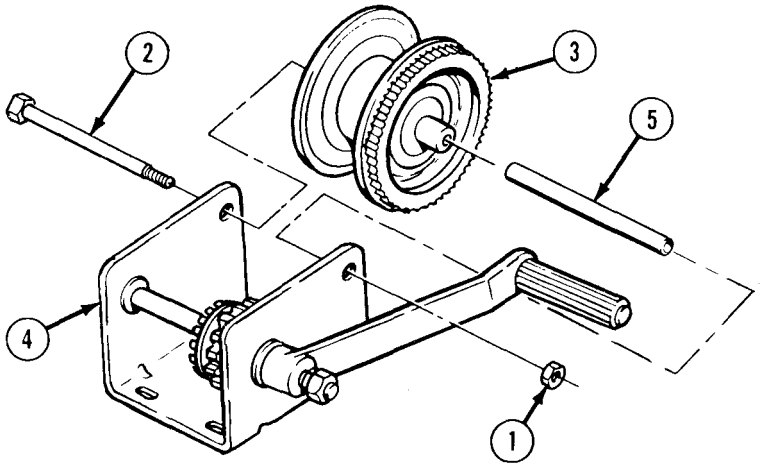


b. Disassembly.

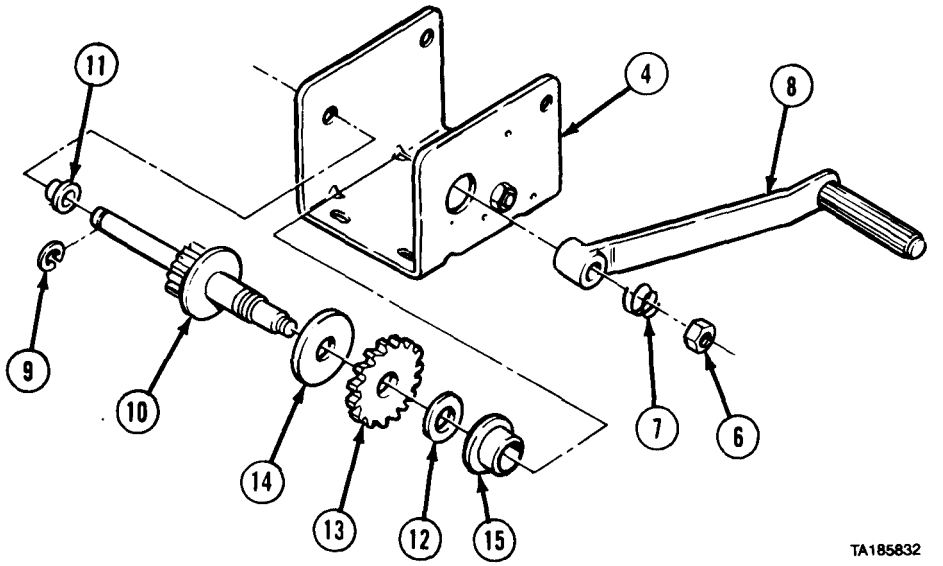
NOTE

Model A, P/N DLB1500, and Model B, P/N 3320108 look the same. Model A is repairable. Model B is not repairable.

(1) Remove locknut (1), reel bolt (2), and winch reel (3) from winch base (4).
(2) Remove bushing (5) from winch reel (3).



Frame and Tire Carrier Maintenance Instructions (Cont)



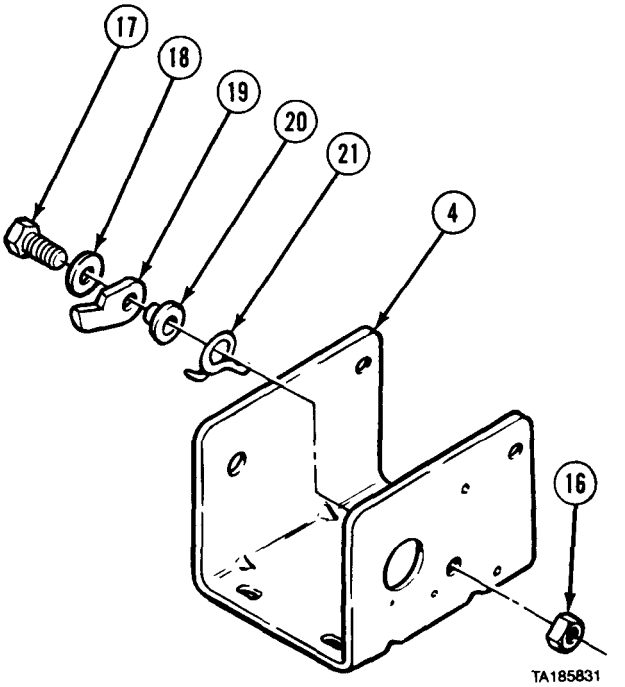
(3) Remove handle locknut (6) and handle spring (7).
(4) Turn handle (8) counterclockwise and remove.
(5) Remove retaining ring (9) and push drive shaft (10) in bushing (11) until it stops.

NOTE

Note direction of ratchet wheel teeth before removal.

(6) Remove pressure washer (12), ratchet wheel (13), and pressure plate (14) from drive shaft (10).
(7) Remove bushing (15), drive shaft (10), and bushing (11) from winch base (4).

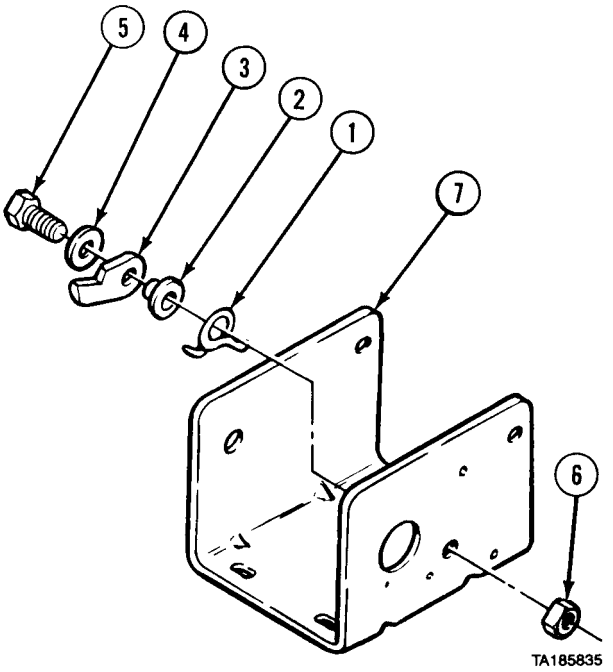
(8) Remove locknut (16), screw (17), washer (18), pawl (19), spacer (20), and ratchet spring (21) from winch base (4).

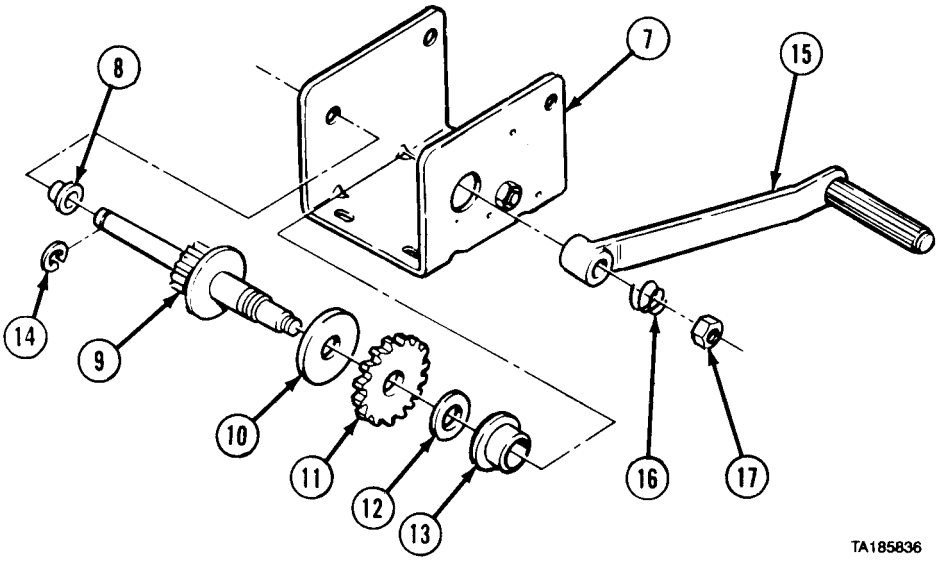


14-18. TIRE DAVIT WINCH AND CABLE REMOVAL/REPAIR/iNSTALLATION (CONT).

c. Assembly.

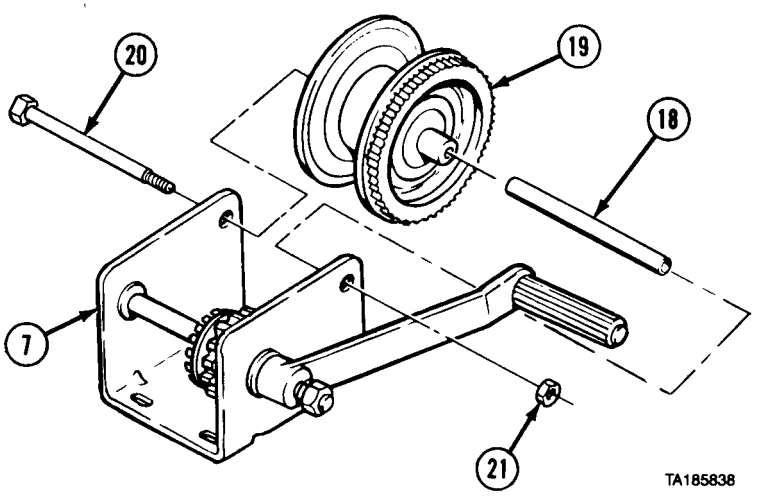
(1) Install ratchet spring (1), spacer (2), pawl (3), washer (4), screw (5), and locknut (6) on winch base (7).



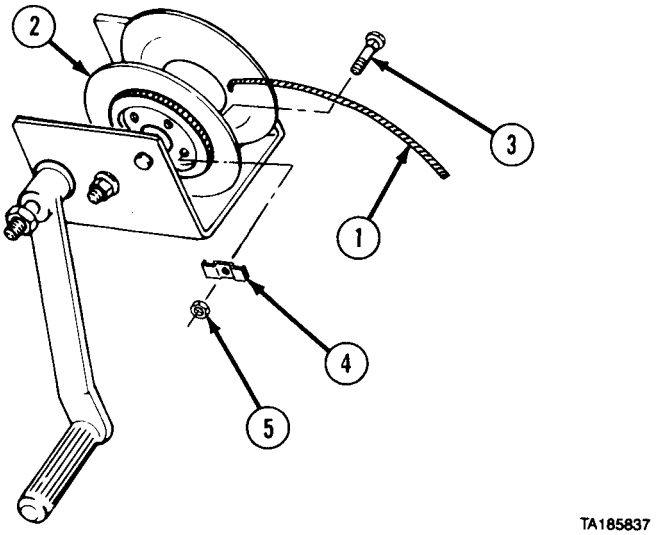


(2) Install bushing (8) and drive shaft (9) in winch base (7). Push drive shaft in bushing until it stops.
(3) Install pressure plate (10), ratchet wheel (11), pressure washer (12), and bushing (13).
(4) Position drive shaft (9) in bushing (13) and install retaining ring (14).
(5) Install and rotate handle (15) clockwise.
(6) Install handle spring (16) and handle locknut (17).

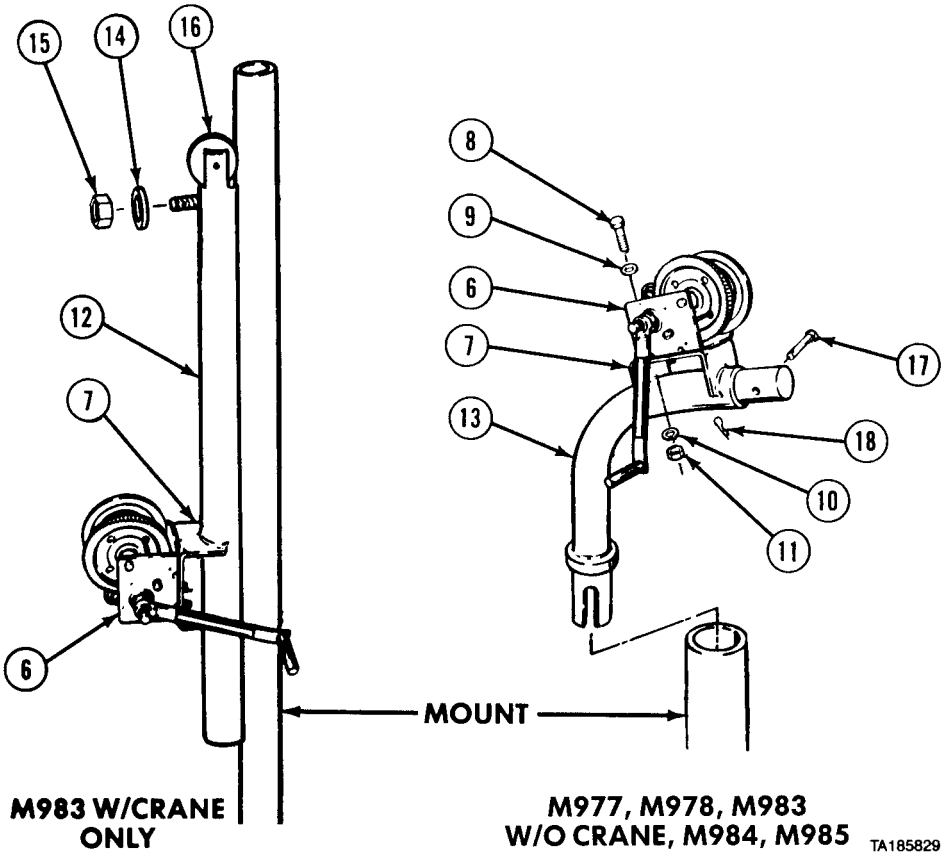
(7) Install bushing (18) in winch reel (19).
(8) Install winch reel (19) in winch base (7) with reel bolt (20) and locknut (21).



d. Installation.
(1) Install cable (1) on winch reel (2) with screw (3), clamp (4), and nut (5). Wind cable.



14-18. TIRE DAVIT WINCH AND CABLE REMOVAL/REPAIR/I NSTALLATION (CONT).



(2) Install winch (6) on bracket (7) with three screws (8), washers (9), lockwashers (10), and nuts (11).
(3) Install extension (12) or hoist arm (13) on mount.

NOTE

Do step (4) for M983 w/crane only.

(4) Install washer (14) and nut (15) on stud (16).
(5) Install pin (17) and safety pin (18).

e. Follow-on Maintenance. Lubricate tire davit winch (LO 9-2320-279-12)

END OF TASK

14-19. FIFTH WHEEL REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General *Safety Instructions*
None

a. Removal.

(1) Remove eight screws (1) and nuts (2) on each side of fifth wheel (3).
(2) Using lifting device, remove fifth wheel (3) from frame (4).

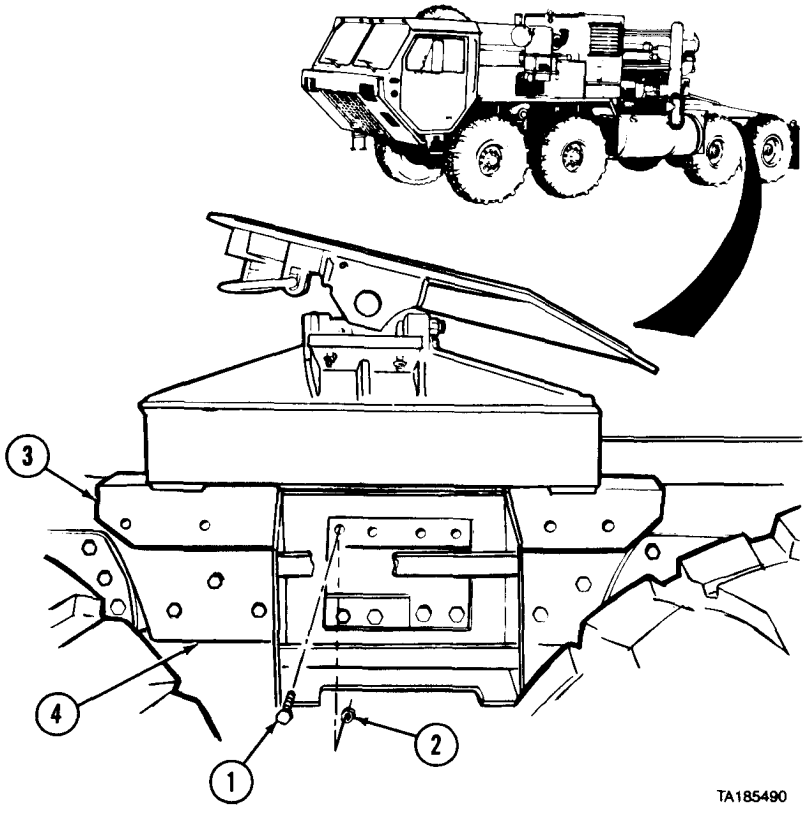
b. Installation.

(1) Using lifting device, install fifth wheel (3) on frame (4).
(2) Install eight screws (1) and nuts (2) on each side of fifth wheel (3).

c. Follow-on Maintenance.

None.

END OF TASK



14-20. PROPELLER SHAFT GUARD REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

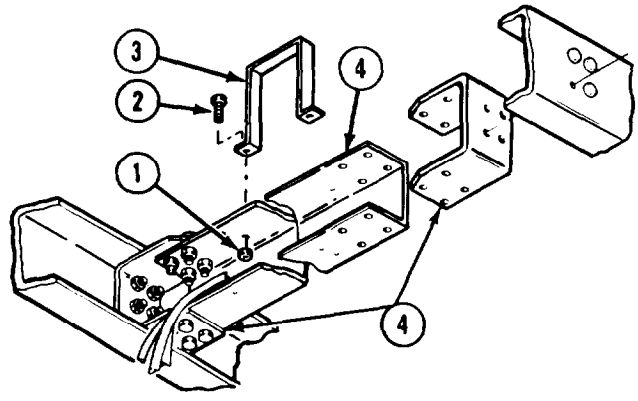
NOTE
This procedure applies only to M978 trucks equipped with the propeller shaft guard.

a. Removal. Remove two nuts (1), screws (2), and guard (3) from crossmember (4).

b. Installation. Using two nuts (1) and screws (2), install guard (3) on crossmember (4).

c. Follow-on Maintenance. None

END OF TASK



CHAPTER 15
SUSPENSION MAINTENANCE

Contents

	Para	Page
General	15-1	15-1
Shock Absorber and Bushing Removal/Installation	15-2	15-1
Shock Absorber Mounts Removal/Installation	15-3	15-5
Tire Davit Shock Mount Removal/Installation	15-4	15-7
Torque Rod Removal/Installation	15-5	15-14

Section I. INTRODUCTION

15-1. GENERAL. This chapter contains maintenance instructions for removing, replacing, and installing the vehicle suspension system components as authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. SHOCK ABSORBERS AND TORQUE RODS

Suspension Maintenance Instructions

15-2. SHOCK ABSORBER AND BUSHING REMOVAL/INSTALLATION.

This task covers:

a. No. 1 Axle Shock Absorber Removal
b. No. 1 Axle Shock Absorber Installation
c. No. 2 Axle Shock Absorber Removal
d. No. 2 Axle Shock Absorber Installation
e. No. 3 and No. 4 Axles Shock Absorber Removal
f. No. 3 and No. 4 Axles Shock Absorber Installation
g. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

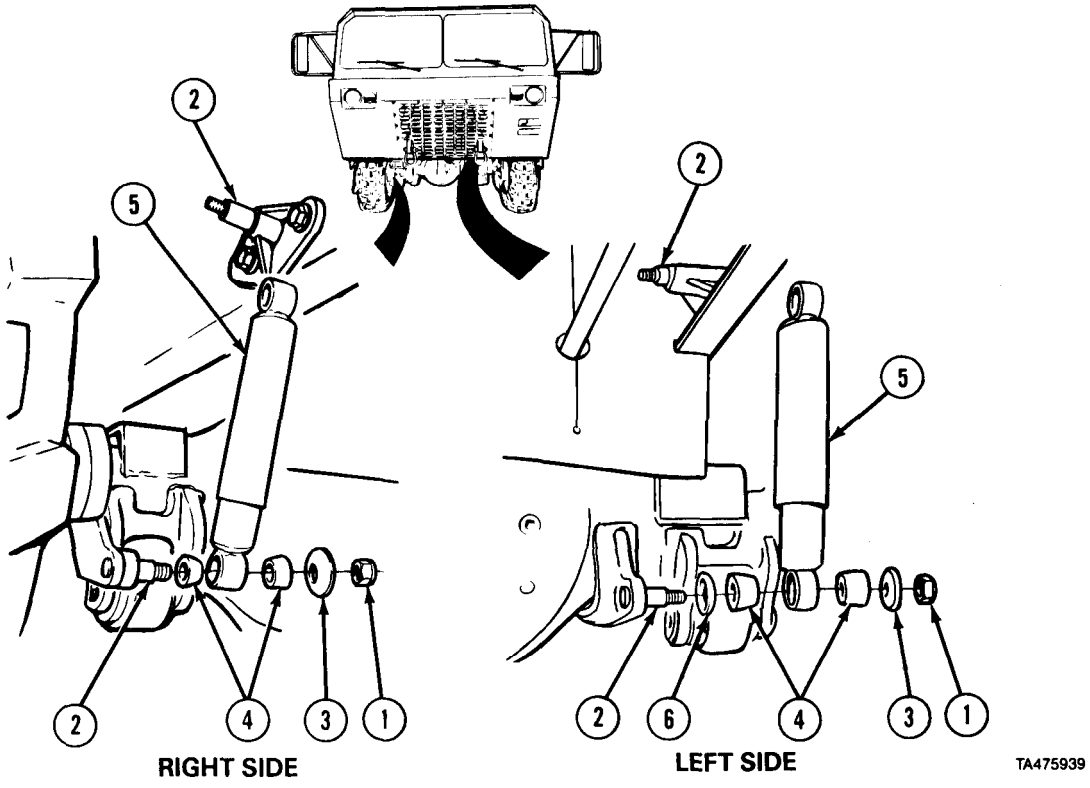
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

15-2. SHOCK ABSORBER AND BUSHING REMOVAL/INSTALLATION (CONT).

a. No. 1 Axle Shock Absorber Removal.



NOTE

Do steps (1) through (3) for right side shock absorber and bushings. Do steps (4) through (6) for left side shock absorber and bushings.

(1) Remove two locknuts (1) from top and bottom studs (2).
(2) Remove two cupped washers (3) and bushings (4) from top and bottom studs (2).
(3) Remove shock absorber (5) and two bushing (4) from top and bottom studs (2).
(4) Remove two locknuts (1) from top and bottom studs (2).
(5) Remove two cupped washers (3) and bushings (4) from top and bottom studs (2).
(6) Remove shock absorber (5), two bushings (4) and two cupped washers (6) from top and bottom studs (2).

b. No. 1 Axle Shock Absorber Installation.

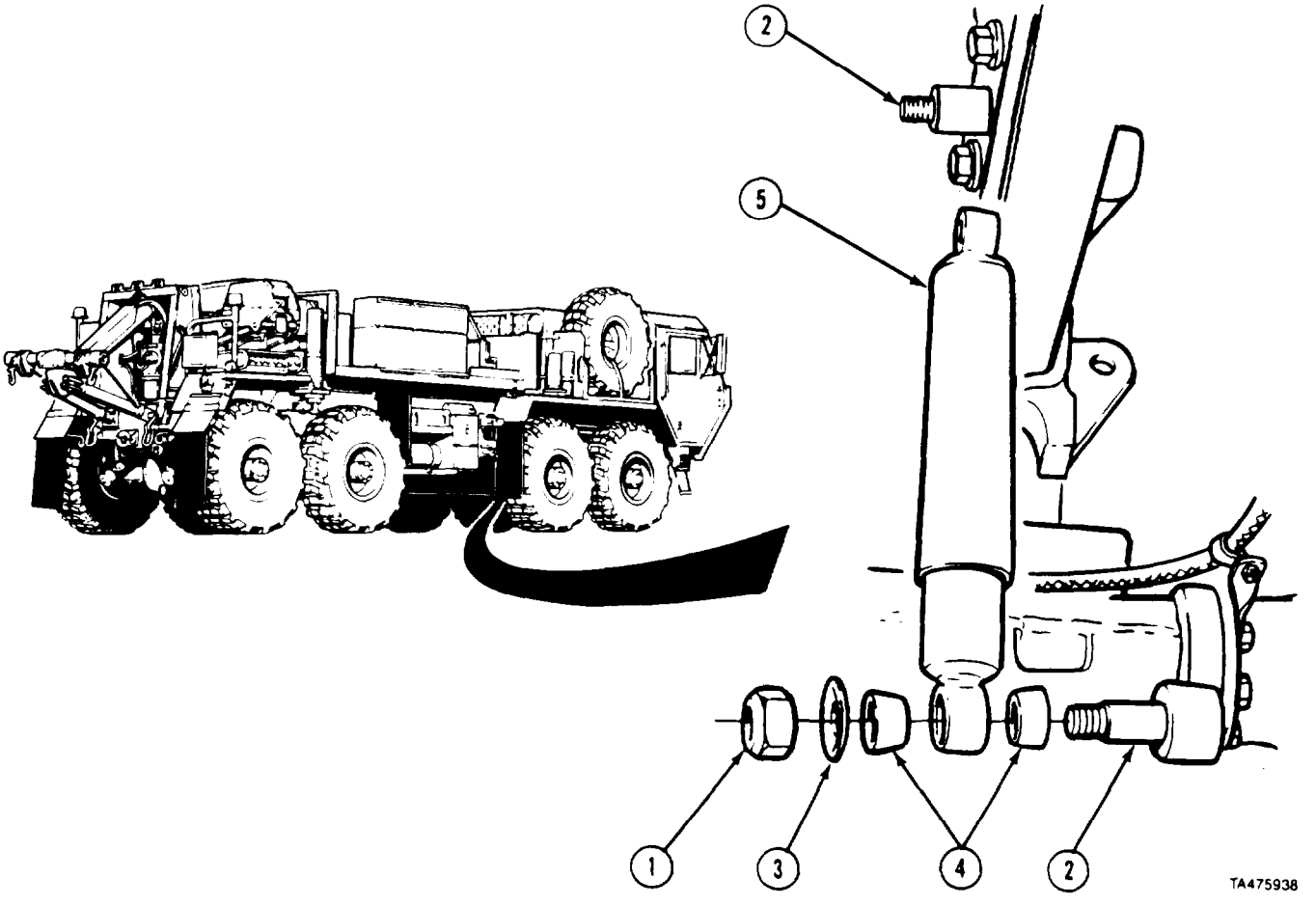
NOTE

Do steps (1) through (3) for right side shock absorber and bushings. Do steps (4) through (6) for left side shock absorber and bushings.

(1) Install two bushings (4) and shock absorber (5) on top and bottom studs (2).
(2) Install two bushings (4) and cupped washers (6), cupped side out, on top and bottom studs (2).
(3) Install two locknuts (1) on top and bottom studs (2).
(4) Install two cupped washers (6), cupped side in, and bushings (4) on top and bottom studs (2).
(5) Install shock absorber (5), two bushings (4), and cupped washers (3), cupped side out, on top and bottom studs (2).
(6) Install two locknuts (1) on top and bottom studs (2).

Suspension Maintenance instructions (Cont)

c. No. 2 Axle Shock Absorber Removal.



NOTE

Left and right side shock absorbers and bushings are removed and installed the same way. Right side shown.

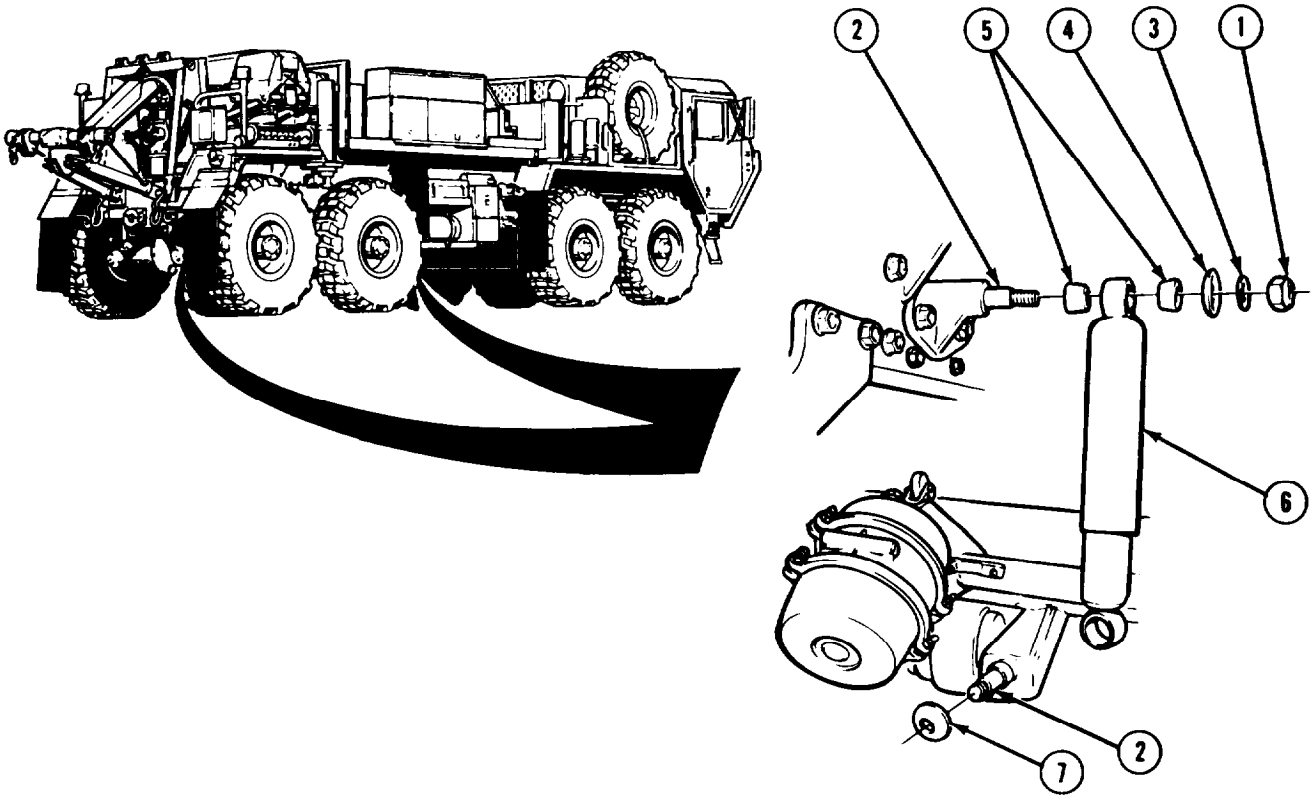
(1) Remove two locknuts (1) from top and bottom studs (2).
(2) Remove two cupped washers (3) and busings (4) from top and bottom studs (2).
(3) Remove shock absorber (5) and two bushings (4) from top and bottom studs (2).

d. No. 2 Axle Shock Absorber Installation.

(1) Install two bushings (4) and shock absorber (5) on top and bottom studs (2).
(2) Install two bushings (4) and cupped washers (3), cupped side out, on top and bottom studs (2).
(3) Install two locknuts (1) on top and bottom studs (2).

15-2. SHOCK ABSORBER AND BUSHING REMOVAL/INSTALLATION (CONT).

e. No. 3 and No. 4 Axle Shock Absorber Removal.



NOTE

- No. 3 and No. 4 left and right side shock absorbers and bushings are removed and installed the same way. No. 4 right side is shown.
- No. 4 left and right side shock absorbers use cupped washers on bottom studs only.

(1) Remove two locknuts (1) from top and bottom studs (2).
(2) Remove two flat washers (3), cupped washers (4) and bushings (5) from top and bottom studs (2).
(3) Remove shock absorber (6) and two bushings (5) from top and bottom studs (2).
(4) Remove inner cupped washer (7) from bottom stud (2).

f. No. 3 and No. 4 Axle Shock Absorber Installation.

(1) Install cupped washer (7), cupped side in, on bottom stud (2).
(2) Install two bushings (5) and shock absorber (6) on top and bottom studs (2).
(3) Install two bushings (5) and cupped washers (4), cupped side out, on top and bottom studs (2).
(4) Install two washers (3) and locknuts (1) on top and bottom studs (2).

g. Follow-on Maintenance. Stow wheel chocks.

END OF TASK

15-3. SHOCK ABSORBER MOUNTS REMOVAL/INSTALLATION.

This task covers:

a. Left Front Shock Absorber Mount Removal
b. Left Front Shock Absorber Mount Installation
c. Shock Absorber Mounts Removal
d. Shock Absorber Mounts Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

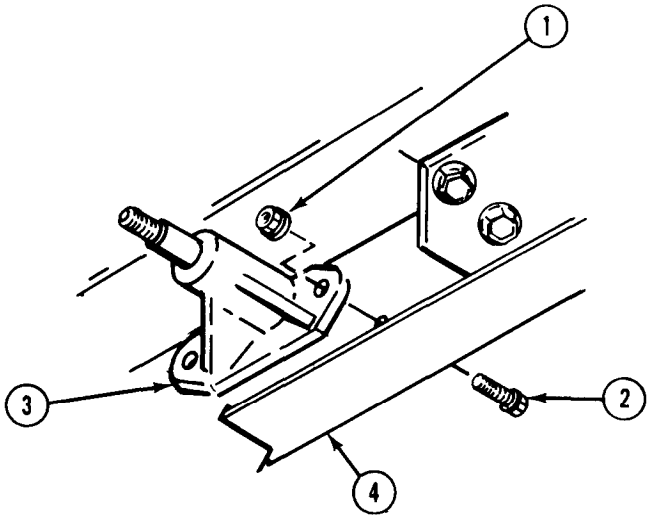
References
None

Equipment Condition

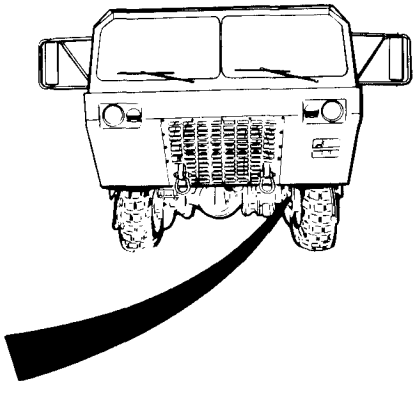
TM or Para	*Condition Description*
	NOTE Refer to para 15-4 for tire davit and No. 2 axle right shock absorber mount removal and installation.
TM 9-2320-279-10	Shut off engine.
Para 15-2	Shock absorber removed.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.



LEFT FRONT MOUNT TA185823

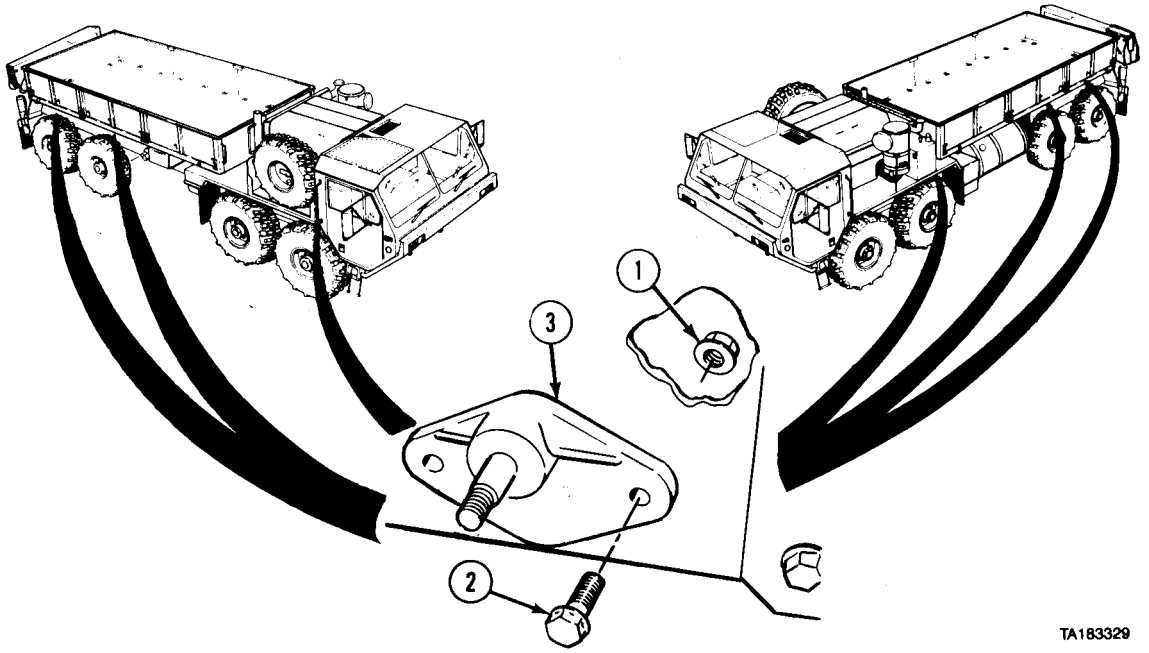


TA475944

a. Left Front Shock Absorber Mount Removal. Remove two nuts (1), screws (2), and left front shock absorber mount (3) from inside of frame (4).

b. Left Front Shock Absorber Mount Installation. Install two screws (2), nuts (1), and left front shock absorber mount (3) on inside of frame (4).

15-3. SHOCK ABSORBER MOUNTS REMOVAL/INSTALLATION (CONT).



c. Shock Absorber Mounts Removal. Remove two nuts (1), screws (2) and shock absorber mount (3) from frame (4).

d. Shock Absorber Mounts Installation. Install shock absorber mount (3) on frame (4) with two screws (2) and nuts (l).

e. Follow-on Maintenance. Install shock absorber (para 15-2).

END OF TASK

15-4. TIRE DAVIT SHOCK MOUNT REMOVAL/INSTALLATION.

This task covers:

a. Removal (all except M984E1)
b. Installation (all except M984E1)
c. Removal (M984E1)
d. Installation (M984E1)
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48 Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

a. Removal (all except M984E1).

NOTE

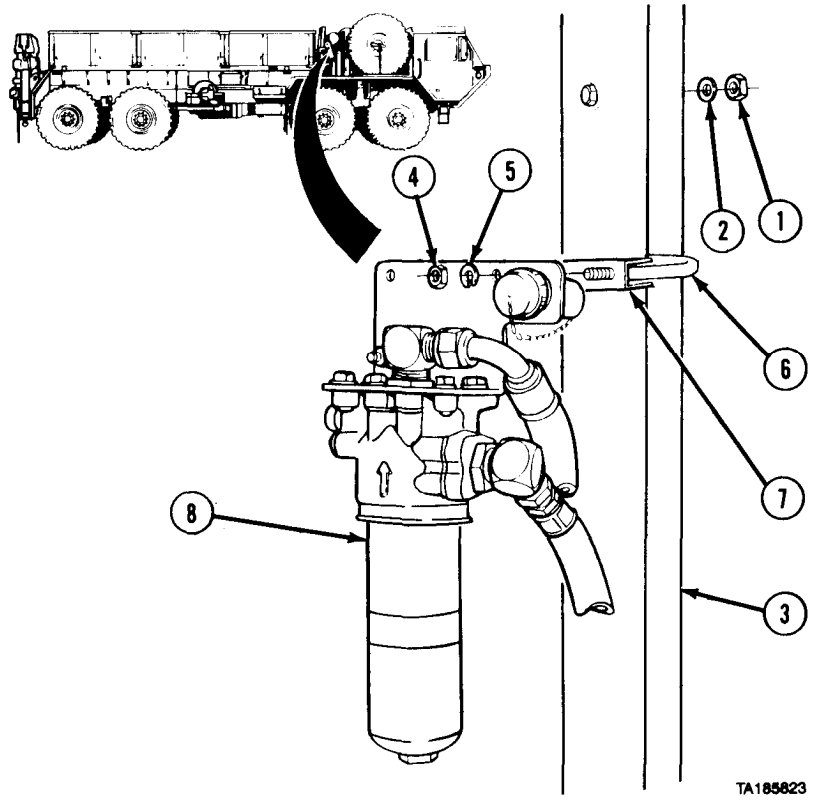
M977 tire davit mount shown. Tire davit mount on other vehicles removed in similar manner except for equipment installed on mount.

(1) Remove nut (1), washer (2), and tire davit extension (3).

NOTE

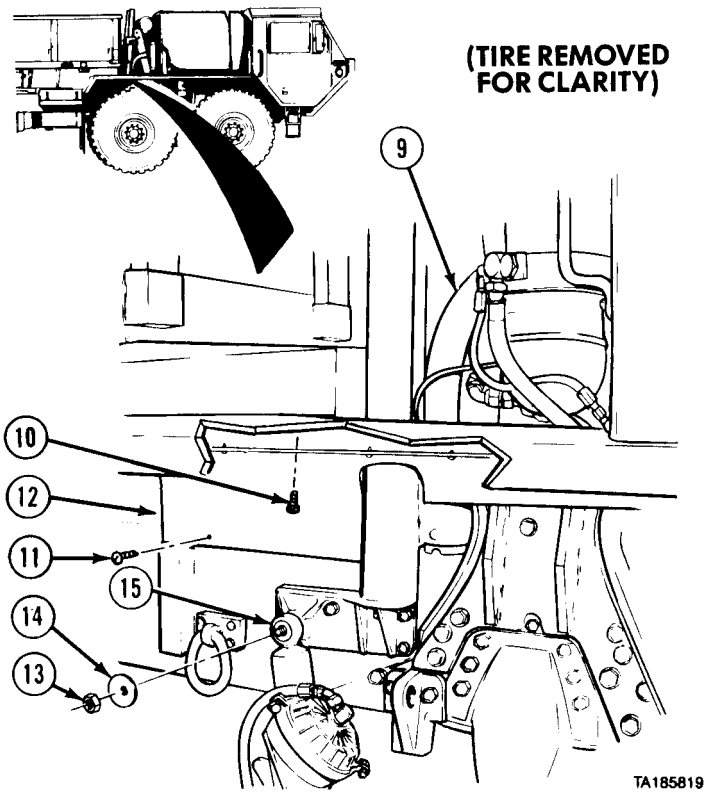
Do step (2) for M977, M985 only.

(2) Remove four nuts (4), lockwashers (5), two U-bolts (6), and two clamps (7). Move hydraulic filter (8) aside.

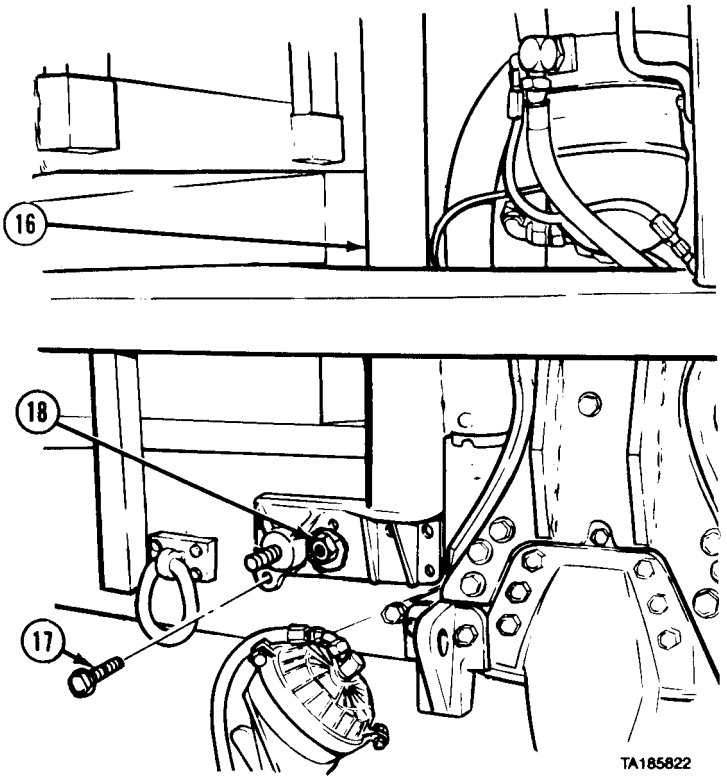


15-4. TIRE DAVIT SHOCK MOUNT REMOVAL/iNSTALLATION (CONT).

(3) Remove tire davit (9).
(4) Remove seven screws (10), remove two screws (11) and splash guard (12).
(5) Remove locknut (13) and cupped washer (14). Pull top of shock absorber (15) out of way.



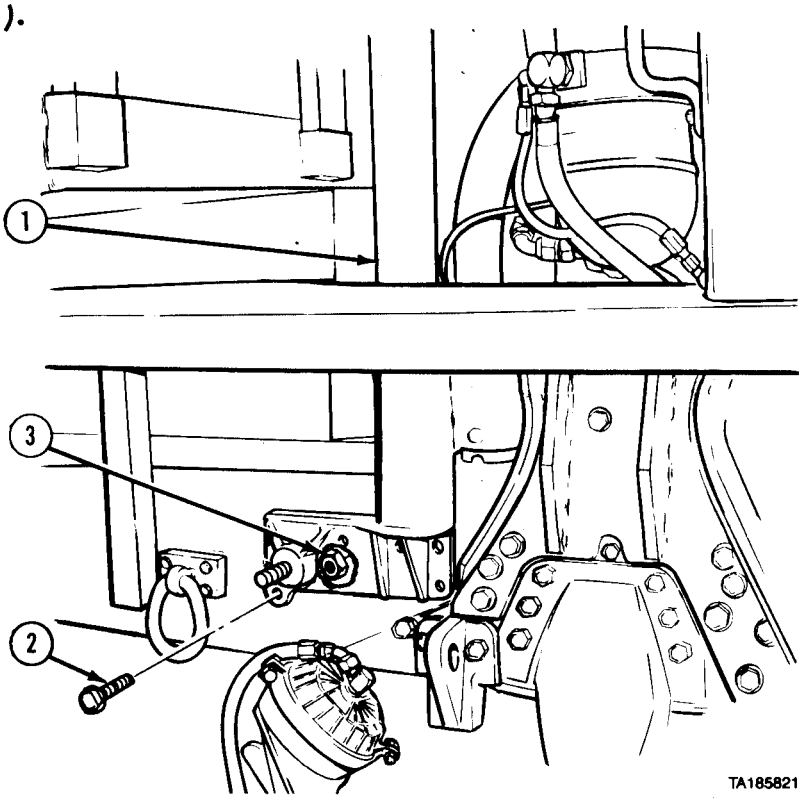
(6) Soldier A attaches suitable lifting device to tire davit shock mount (16), Soldier B operates lifting device to support tire davit shock mount.
(7) Soldier A removes six screws (17) while Soldier B removes nuts (18).
(8) Soldier A guides tire davit shock mount (16) from vehicle while Soldier B operates lifting device to remove tire davit shock mount.



b. Installation (all except M984E1).

(1) Soldier A operates lifting device while Soldier B guides tire davit shock mount (1) into place.

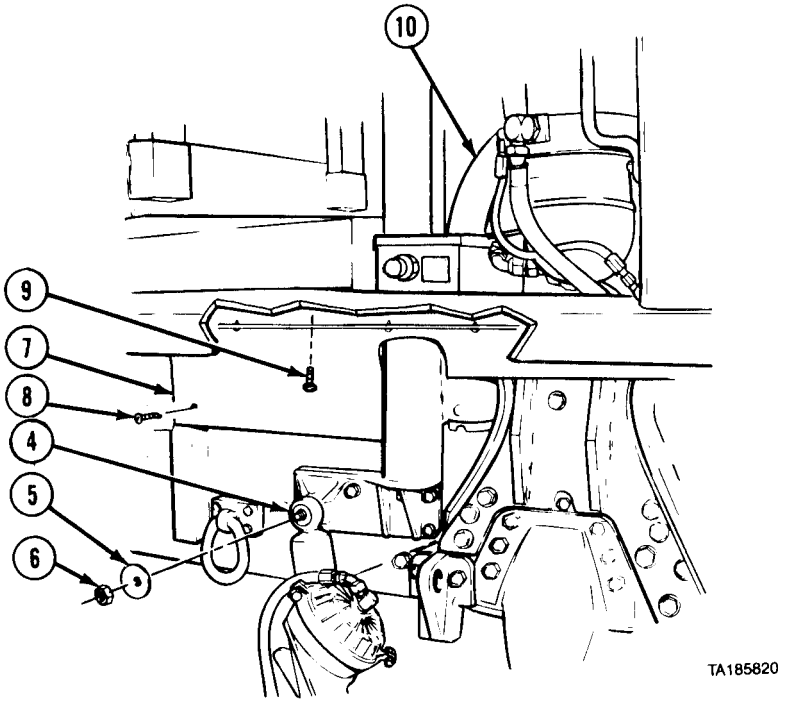
(2) Soldier A installs tire davit shock mount (1) with six screws (2) while Soldier B installs nuts (3).



(3) Install top of shock absorber (4) with cupped washer (5), cupped side out, and locknut (6).

(4) Install splash guard (7) with two screws (8) and seven screws (9).

(5) Install tire davit (10).

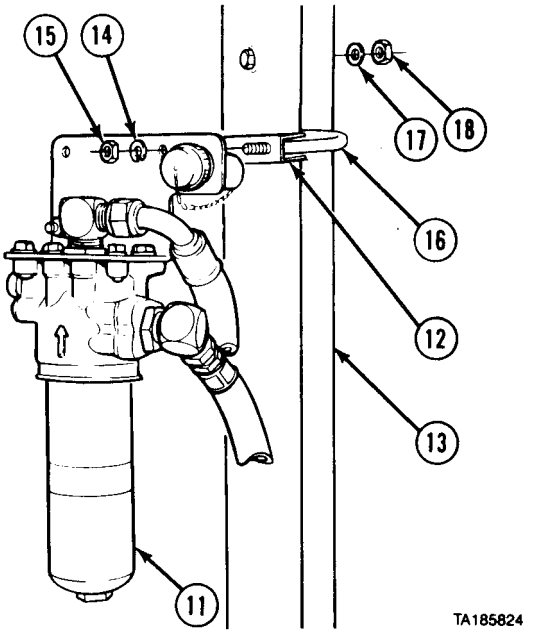


15-4. TIRE DAVIT SHOCK MOUNT REMOVAL/INSTALLATION (CONT).

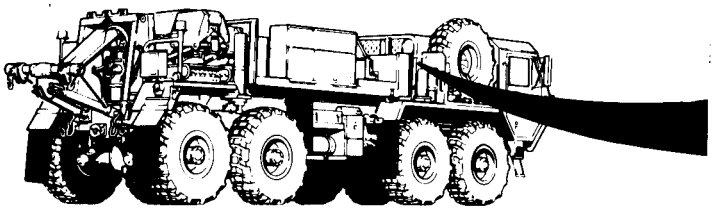
NOTE

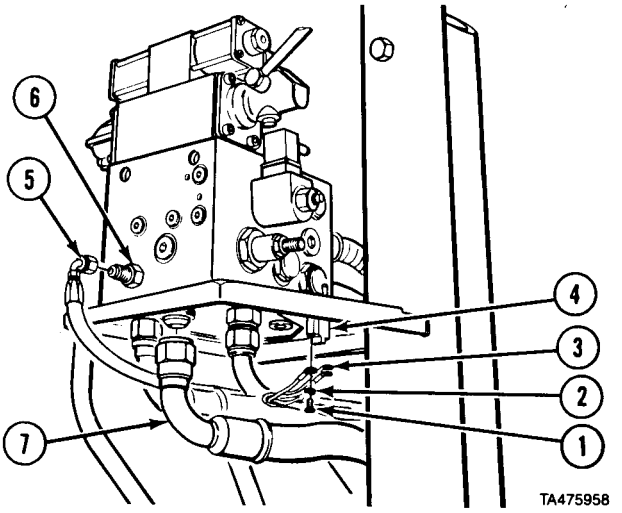
Do step (6) for M977, M985 only.

(6) Install hydraulic filter (11) with two U-bolts (12), two clamps (13), four lockwashers (14), and nuts (15).
(7) Install tire davit extension (16) with washer (17) and nut (18).



c. Removal (M984E1).



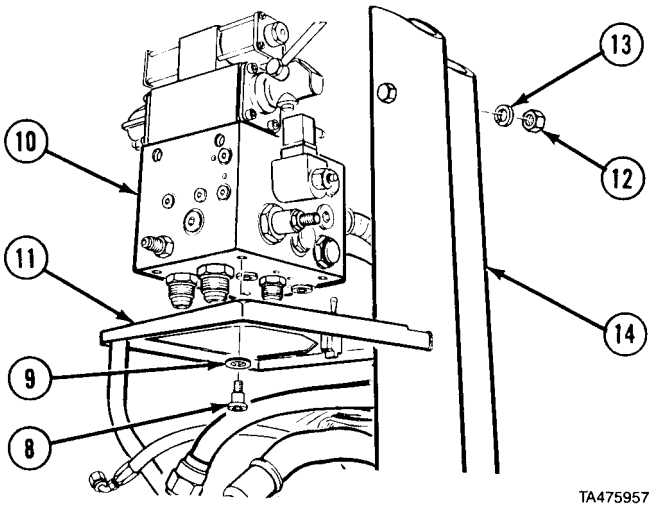


NOTE

Tag and mark all wires and hoses when removing.

(1) Remove two screws (1), lockwashers (2), and wires (3) from switch (4)
(2) Disconnect hose (5) from fitting (6).
(3) Disconnect five hoses (7).

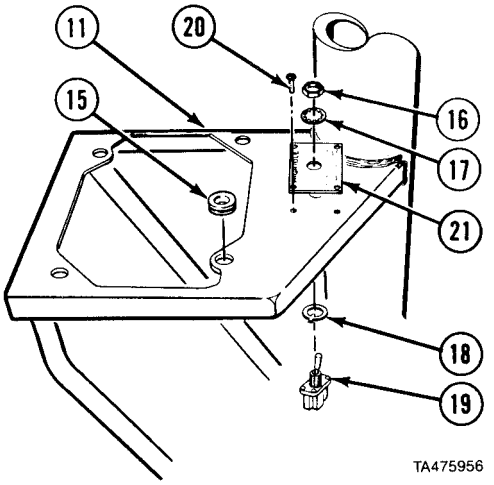
(4) Remove four screws (8) and washers (9).
(5) Remove valve (10) from mount (11) and move aside.
(6) Remove nut (12), washer (13) and tire davit extension (14).



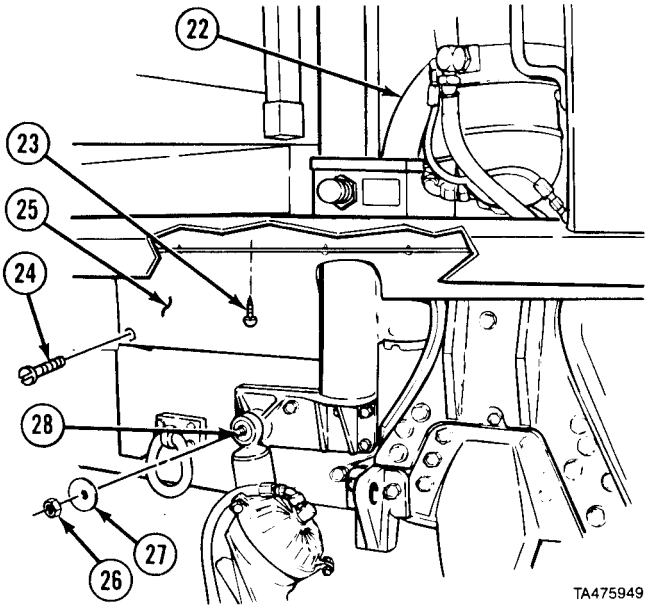
NOTE

Mark position of switch.

(7) Remove four grommets (15) from mount (11).
(8) Remove nut (16), lockwasher (17), washer (18), and switch (19) from mount (11).
(9) Remove four screws (20) and data plate (21).

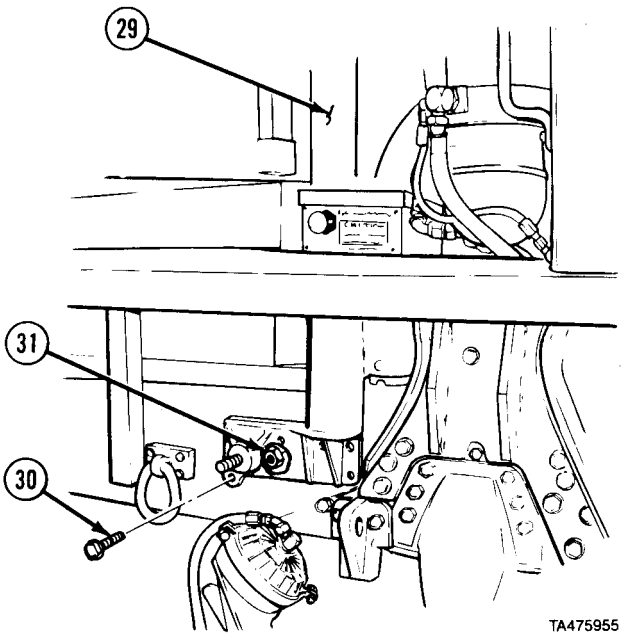


(10) Remove tire davit (22).
(11) Remove nine screws (23) and two screws (24) from splash guard (25).
(12) Remove locknut (26) and cupped washer (27). Pull top of shock absorber (28) out of way.



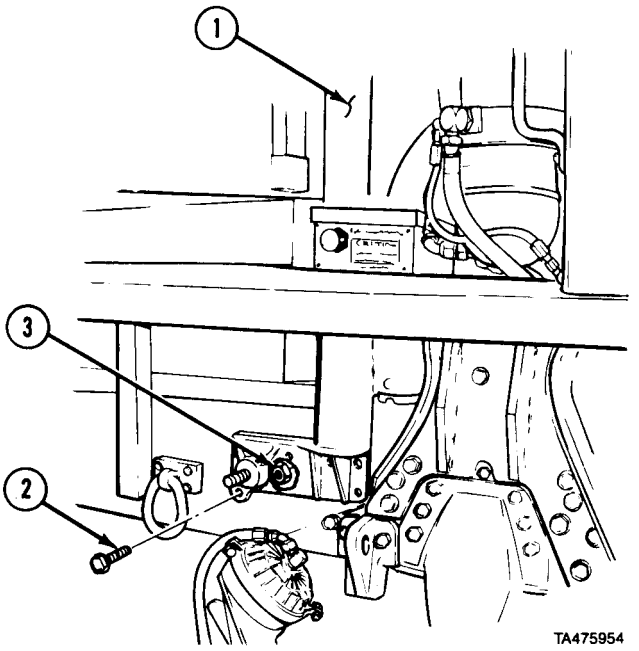
15-4. TIRE DAVIT SHOCK MOUNT REMOVAL/INSTALLATION (CONT).

(13) Soldier A attaches suitable lifting device to tire davit shock mount (29). Soldier B operates lifting device to support tire davit shock mount.
(14) Soldier A removes six screws (30) while Soldier B removes nuts (31).
(15) Soldier B operates lifting device to remove tire davit shock mount (29) while Soldier A guides tire davit shock mount from vehicle.

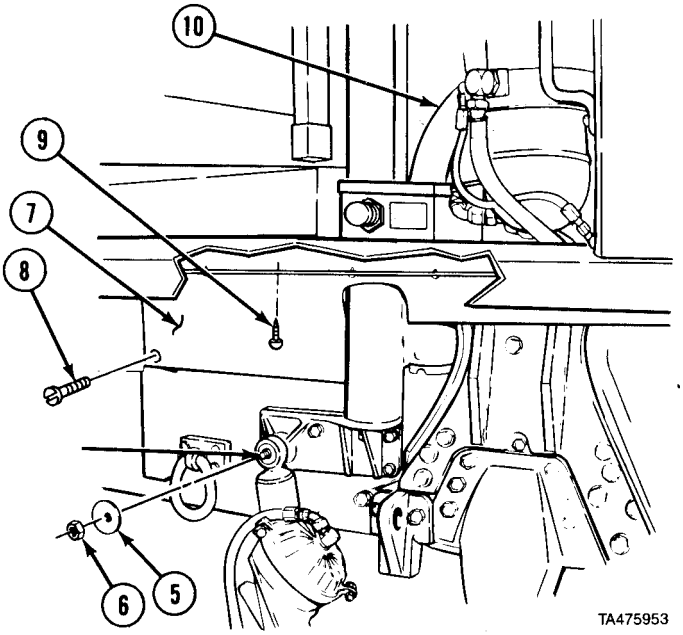


d. Installation (M984E1).

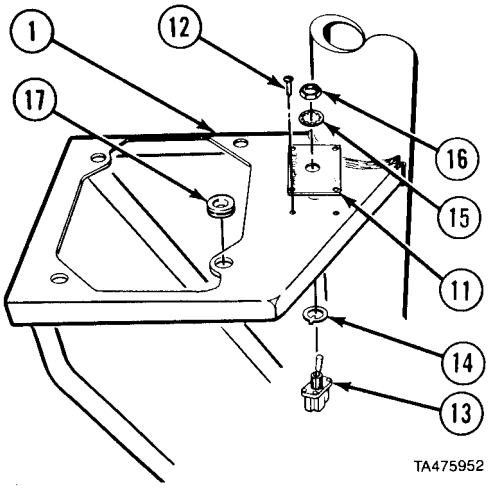
(1) Soldier A operates lifting device while Soldier B guides tire davit shock mount (1) into place.
(2) Soldier A installs tire davit shock mount (1) with six screws (2) while Soldier B installs nuts (3).



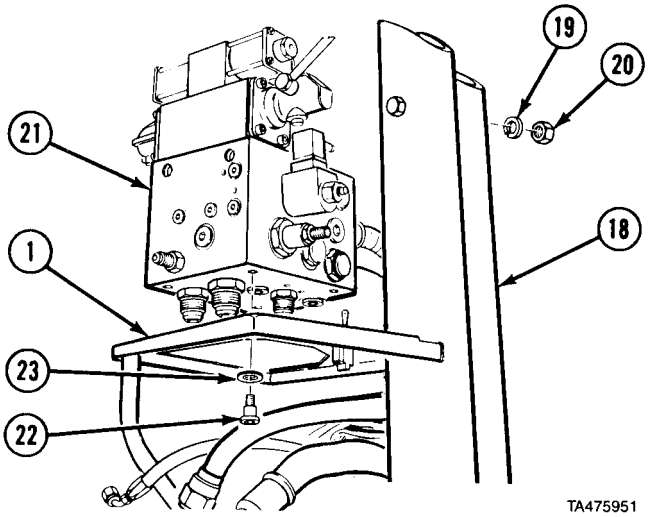
(3) Install top of shock absorber (4) with cupped washer (5), cupped side out, and locknut (6).
(4) Install splash guard (7) with two screws (8) and nine screws (9).
(5) Install tire davit (10).



(6) Install data plate (11) with four screws (12).
(7) Install switch (13) on tire davit shock mount (1) with washer (14), lockwasher (15) and nut (16).
(8) Install four grommets (17) in tire davit shock mount (l).



(9) Install tire davit extension (18), washer (19) and nut (20).
(10) Install valve (21) on tire davit shock mount (1) with four screws (22) and washers (23).



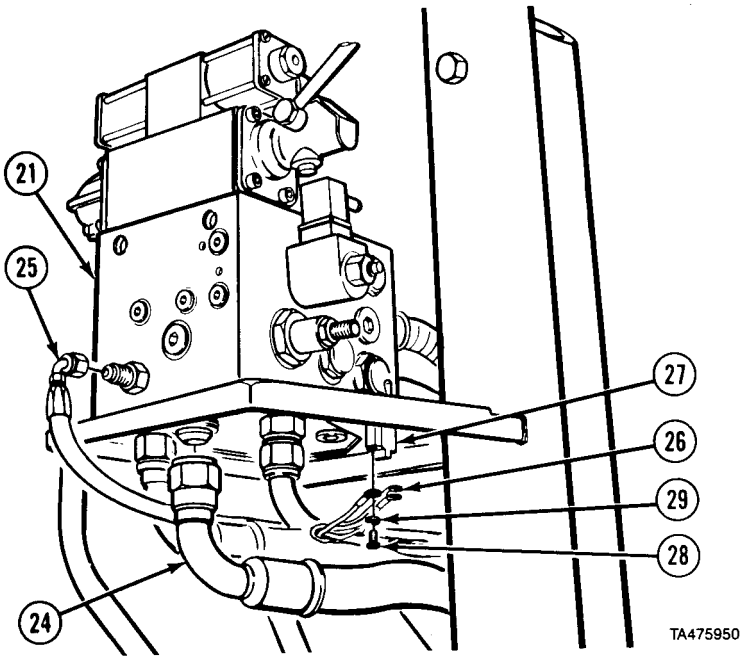
15-4. TIRE DAVIT SHOCK MOUNT REMOVAL/INSTALLATION (CONT).

(11) Connect five hoses (24) to valve (21),
(12) Connect hose (25).
(13) Connect two wires (26) to switch (27) with two screws (28) and lockwashers (29).

e. Follow-on Maintenance.

(1) Stow wheel chocks (TM 9-2320-279-10)
(2) Check operation of heavy duty winch controls (TM 9-2320-279-10).
(3) Check for oil leaks.

END OF TASK



15-5. TORQUE ROD REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, Item 32, Appendix C
Tags, identification, Item 48, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

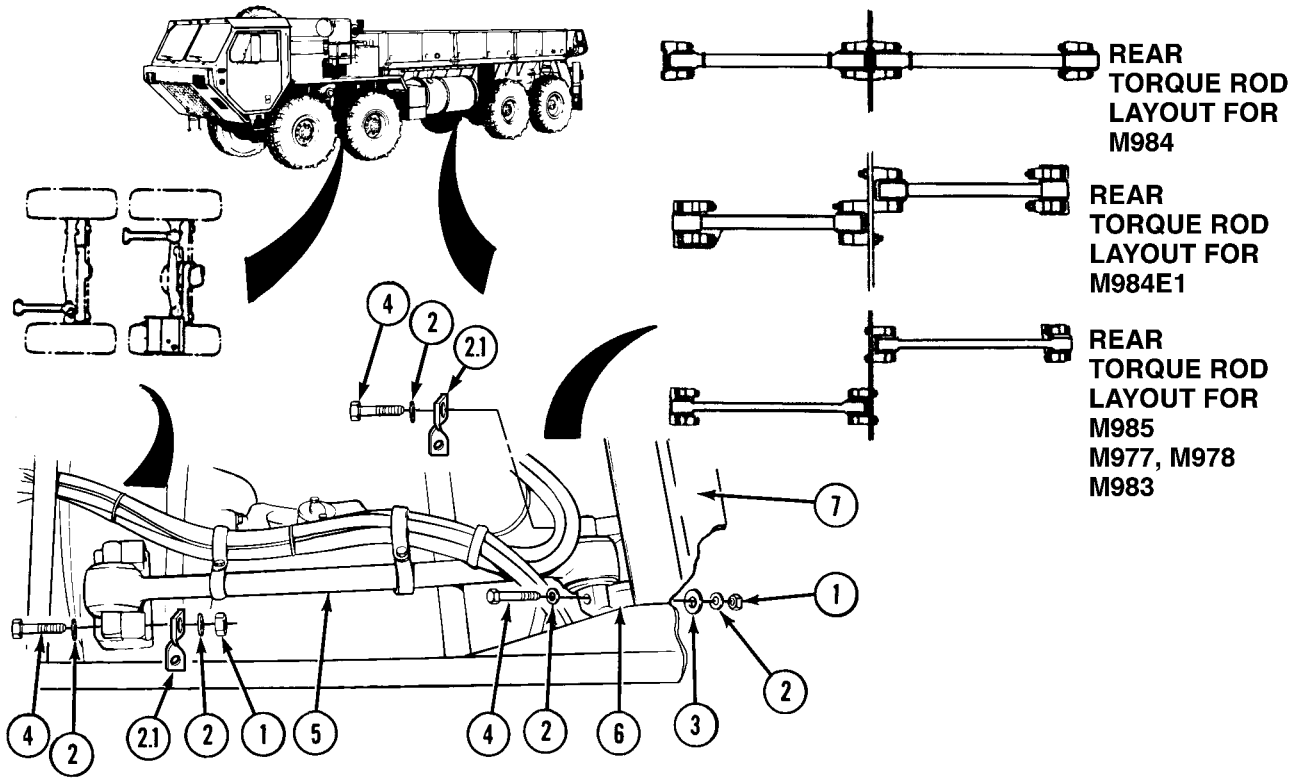
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

Suspension Maintenance Instructions (Cont)

a. Removal.



WARNING

If working with propeller shafts removed, place jackstand under differential input shaft to keep axle from rotating when torque rod is removed. Axle can swing down and cause injury or death.

NOTE

- Plastic cable ties or clamps are removed as necessary to detach hoses from torque rods.
- Deleted.
- Do steps (1) and (2) for all torque rods except torque rod No. 2 with front tandem crossmember/torque rod kit. Do steps (3) through (5) for torque rod No. 2 with kit. If equipped with a crossmember/torque rod kit, a plate will be visible on the front of the front tandem crossmember.

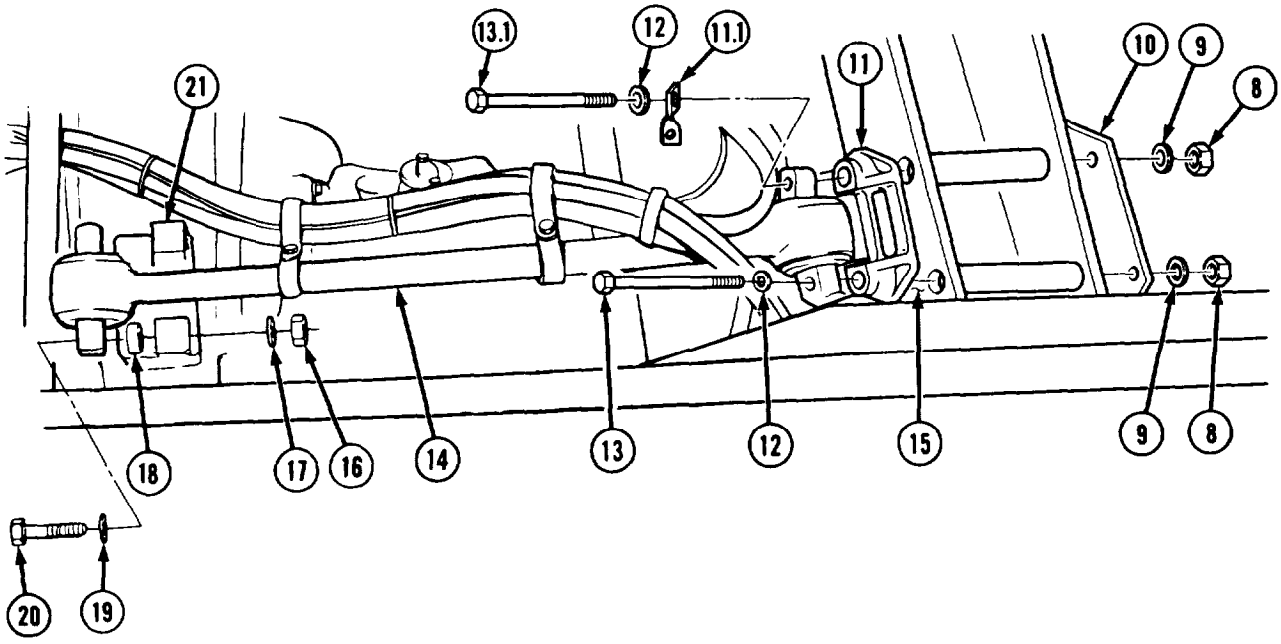
(1) Remove two nuts (1), four washers (2), and two screws (4) from axle end of torque rod (5). Remove two nuts (1), four washers (2), twist bracket (2.1) (on torque rod No. 2 only), two washers (3) (on torque rod No. 2 only), and two screws (4) from crossmember end of torque rod (5).

NOTE

On M983 there are two shims between No. 3 torque rod bracket and crossmember.

(2) Remove torque rod (5) from vehicle. Bracket (6) attached to frame crossmember (7) will also come free when torque rod is removed from No. 2, 3, or 4 axle.

15-5. TORQUE ROD REMOVAL/INSTALLATION (CONT).



NOTE

Some crossmembers have welded spacers. Others have spacers that are held in by screws.

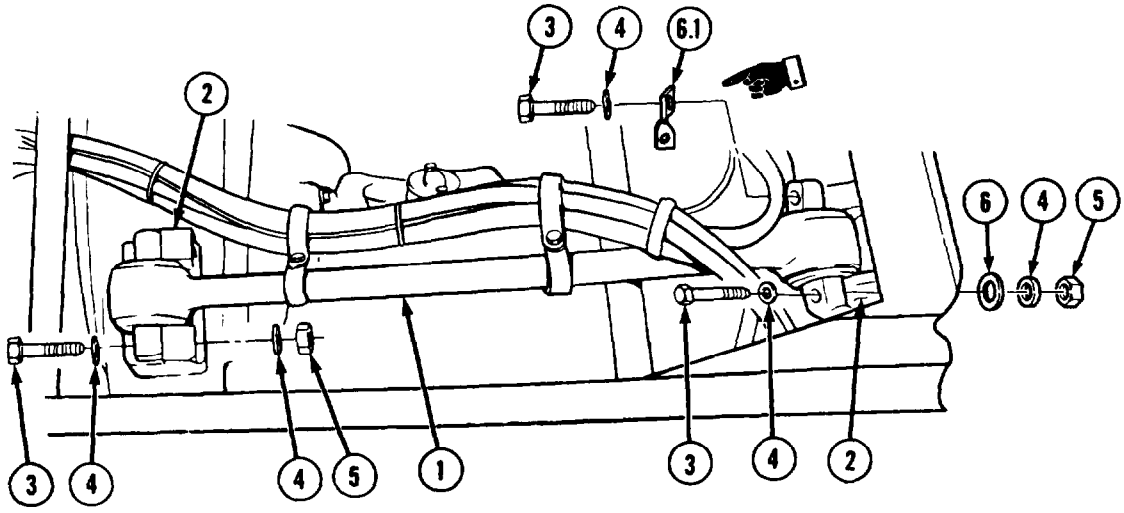
(3) Remove two locknuts (8), two washers (9), plate (10), bracket (11), one twist bracket (11.1), two washers (12), and two screws (13 and 13.1) from No. 2 torque rod (14) and crossmember (15).

(4) Remove two locknuts (16), two washers (17), one twist bracket (11.1), two spacers (18), two washers (19), and two screws (20) from torque rod (14) and No. 2 axle (21).

(5) Remove torque rod (14) from axle (21).

Suspension Maintenance Instructions (Cont)

b. Installation.



NOTE

Do steps (1) through (7) for torque rods except torque rod No. 2 with front tandem crossmember/torque rod kit. Do steps (8) through (11) for torque rod No. 2 with kit.

(1) Position torque rod (1) on No. 1 axle mounting bracket (2), lubricate two screws (3) with oil and install screws, four washers (4), and two locknuts (5) on axle end of torque rod.

(2) Tighten nuts (5) to 170 lb-ft (231 N•m).

NOTE

On M983 two shims are installed between No. 3 torque rod bracket and crossmember.

(3) Install torque rod (1) on No. 2 axle and aline torque rod and bracket (2) at frame crossmember.

NOTE

Install longer screw on left side of bracket.

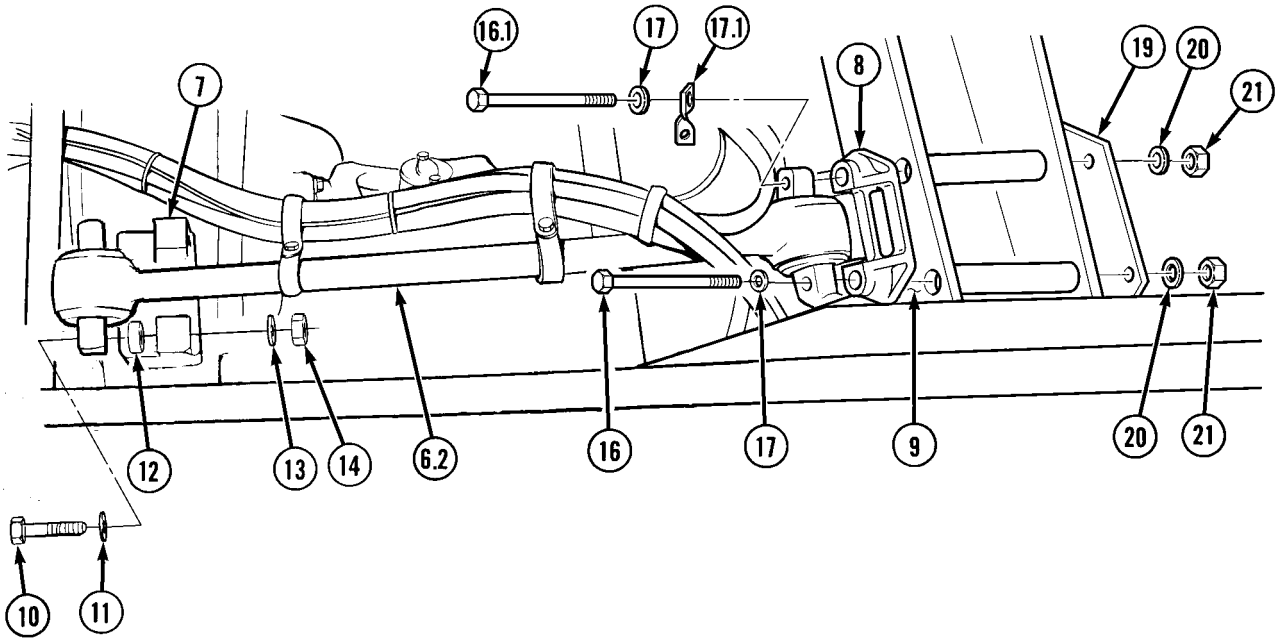
(4) Lubricate two screws (3) with oil and install screws, two washers (6) (crossmember end only), twist bracket (6.1) (crossmember end only), four washers (4) and two nuts (5) on each end of torque rod (1). Tighten nuts to 170 lb-ft (231 N•m).

(5) Install torque rods (1) on No. 3 or No. 4 axles and aline torque rod and mounting bracket (2) at frame crossmember.

(6) Lubricate two screws (3) with oil and install screws, four washers (4), and two nuts (5) on each end of torque rod (1).

(7) For M984 tighten nuts (5) to 280 lb-ft (380 N•m). For M984E1 tighten nuts (5) to 300 lb-ft (407 N•m). For all other vehicles tighten nuts (5) to 170 lb-ft (231 N•m).

15-5. TORQUE ROD REMOVAL/INSTALLATION (CONT).



NOTE

Install plastic cable ties or clamps to secure hoses to torque rods.

(8) Position torque rod (6.2) on No. 2 axle (7) and aline torque rod and bracket (8) with holes in crossmember (9).

(9) Lubricate two screws (10) with oil and install screws, two washers (11), two spacers (12), two washers (13), and two locknuts (14) on axle end of torque rod (6.2). Do not tighten.

NOTE

- Deleted.
- Some vehicles have removeable spacers in crossmember. Reinstall spacers if removed.

(10) Lubricate two screws (16 and 16.1) with oil and install screws, two washers (17), twist bracket (17.1), bracket (8), plate (19), two washers (20), and two locknuts (21).

(11) Tighten locknuts (14 and 21) to 170 lb-ft (231 N•m).

c. Follow-on Maintenance. Remove jackstand from under differential input shaft.

END OF TASK

CHAPTER 16
CAB AND BODY MAINTENANCE

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Section I. INTRODUCTION

16-1. GENERAL. This chapter contains maintenance instructions for removing, replacing, installing, and adjusting cab and body components authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. CAB, DOORS, AND ENGINE COVERS

Cab and Body Maintenance Instructions

16-2. DOOR REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Adhesive, Item 1.1, Appendix C
Adhesive, Item 3.1, Appendix C
Primer, Item 43.3, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 18-11	Side mirror bracket removed.

Special Environmental Conditions
None

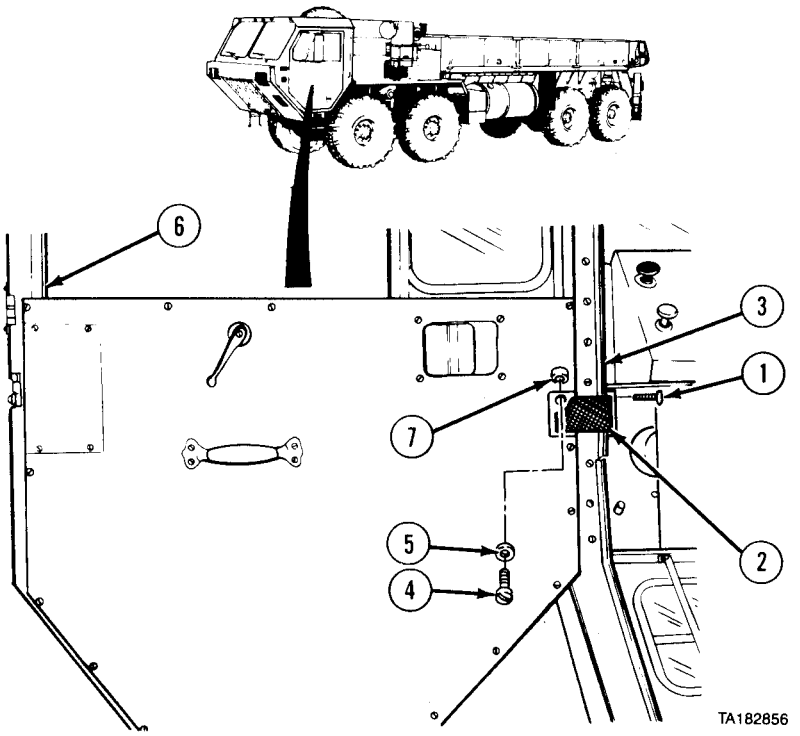
General Safety Instructions
None

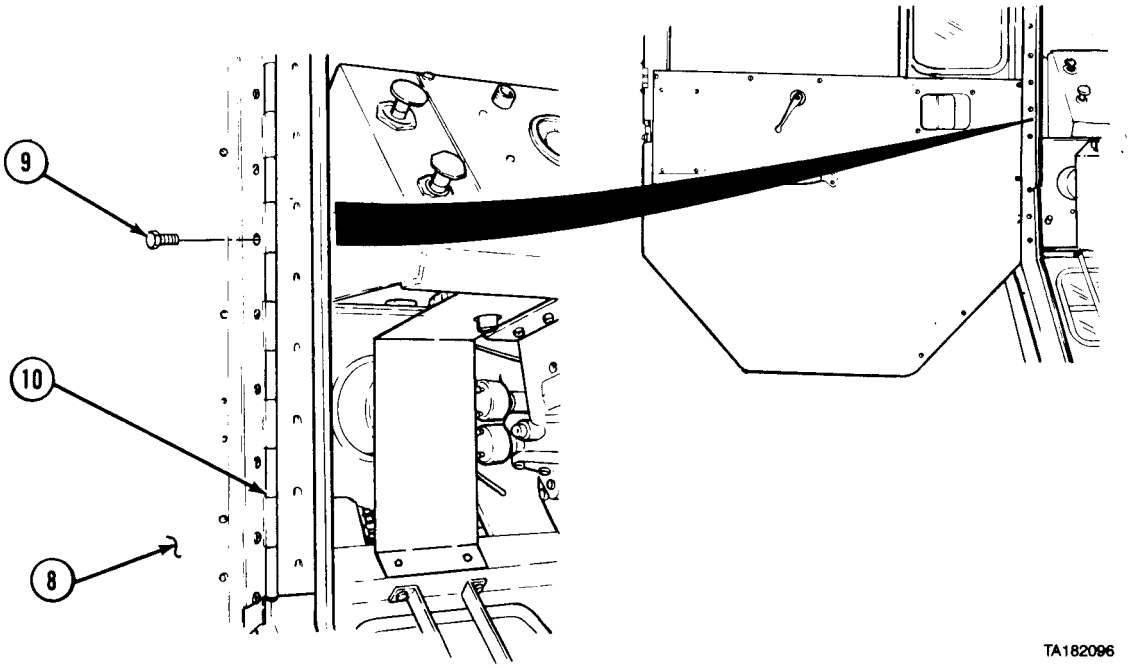
a. Removal.

NOTE

Removal procedure is the same for both doors. Left door is shown.

(1) Remove two screws (1) that fasten doorstrap (2) to cab (3).
(2) Remove two screws (4) and washers (5) that fasten doorstrap (2) to doorframe (6).
(3) Remove spacer (7) and doorstrap (2).

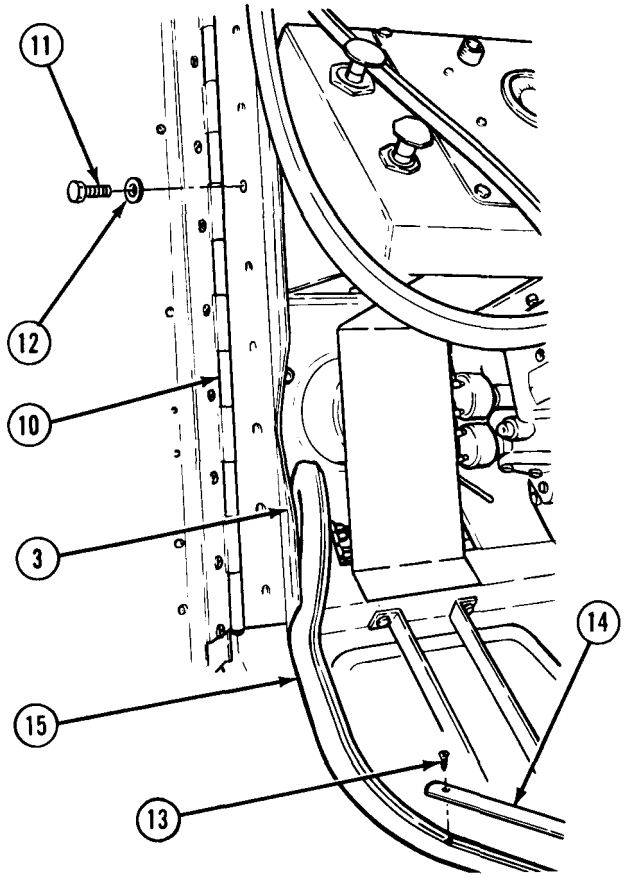




(4) Soldier A braces and holds door (8) while Soldier B performs step (5).
(5) Remove 10 screws (9) to remove door (8) from door hinge (10).

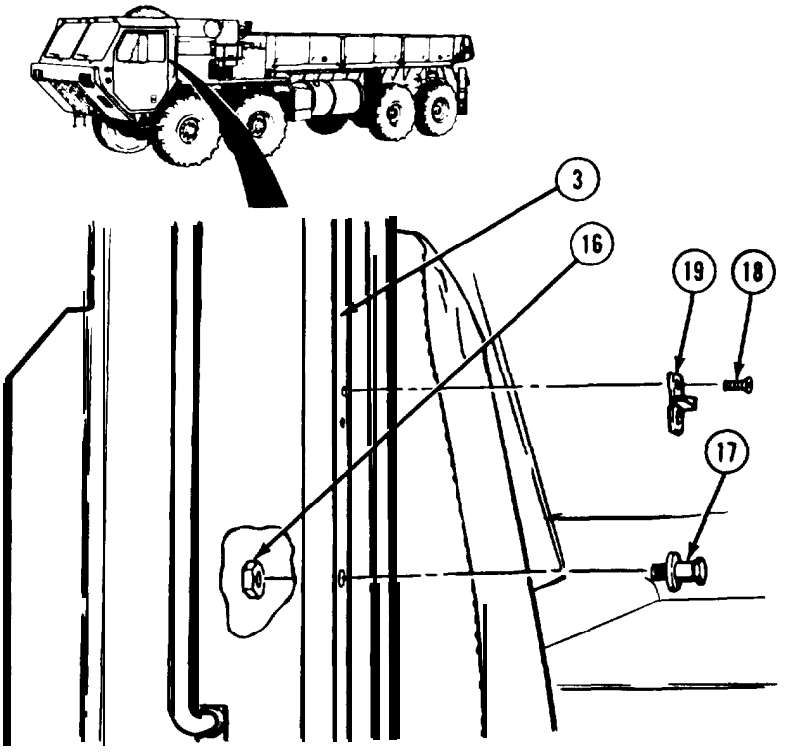
16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

(6) Remove nine screws (11), washers (12), and door hinge (10) from cab (3).
(7) Remove four screws (13) and plate (14).
(8) Remove door seal (15).



TA182100

(9) Remove nut (16) and striker pin (17) from cab (3).
(10) Remove two screws (18) and male dovetail (19).

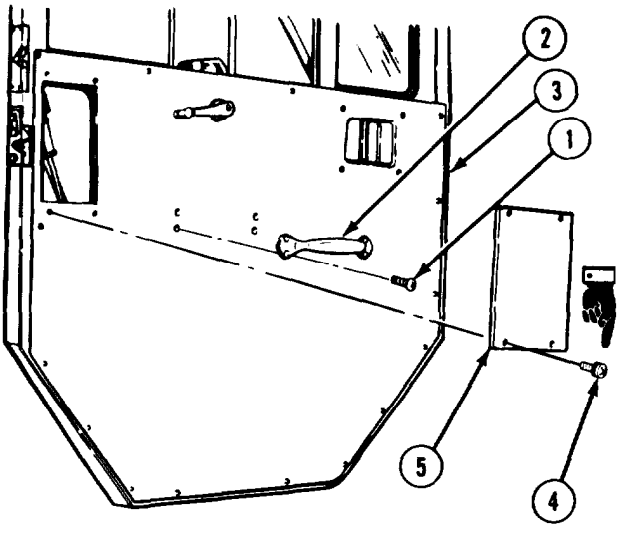


b. Disassembly.

NOTE

Disassembly procedure is the same for both doors. Left door is shown.

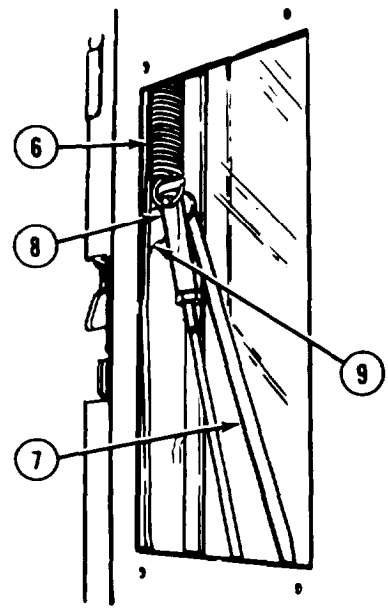
(1) Remove four screws (1) and door handle (2) from door (3).
(2) Remove four washer head screws (4).
(3) Remove cover plate (5).



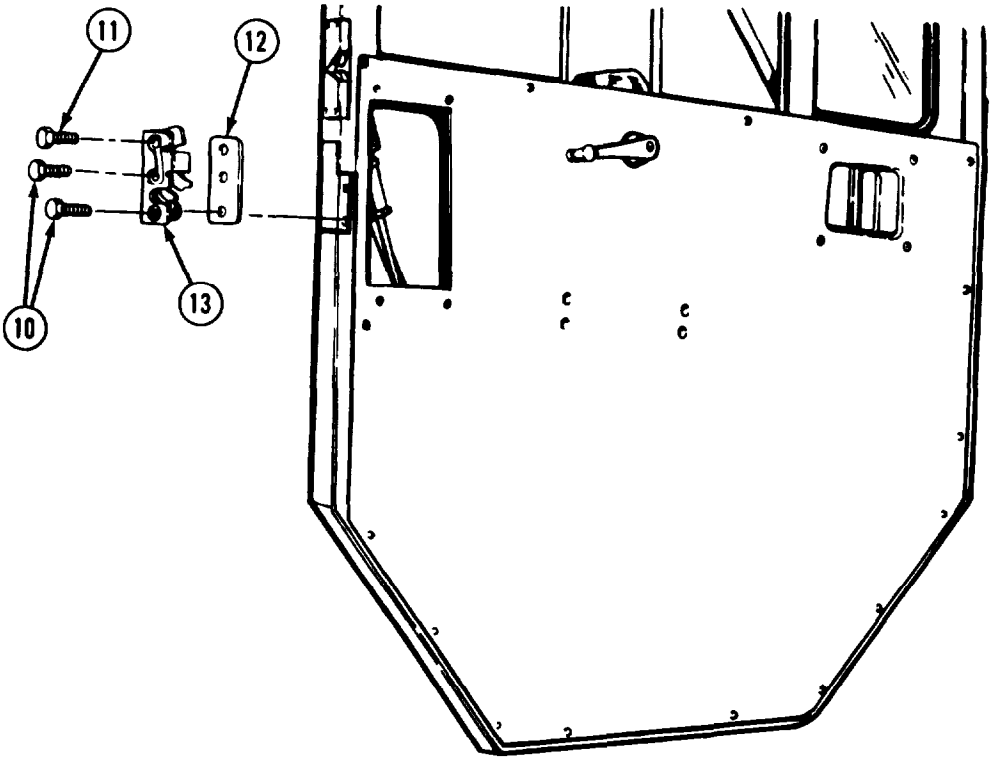
16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

(4) Remove spring (6) from outer link rod (7).

(5) Separate cable end fitting (8) from outer link rod (7) and door lock connecting lever (9).



Cab and Body Maintenance Instructions (Cont)

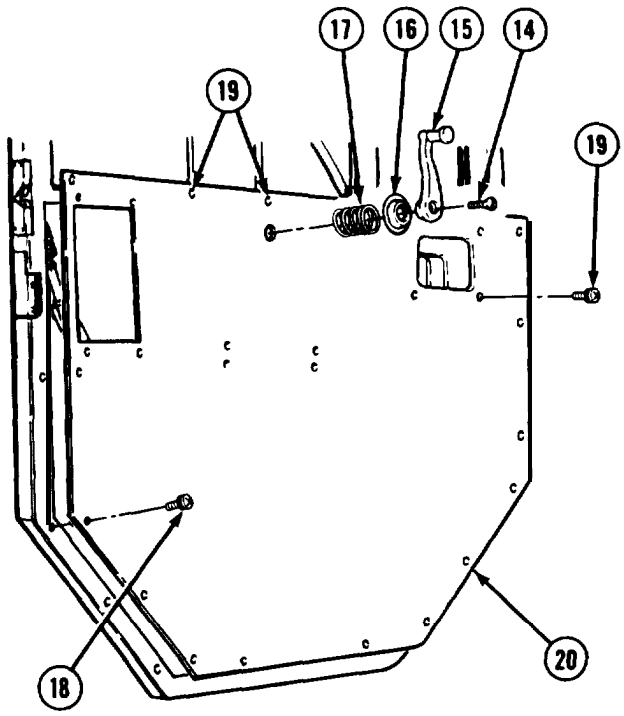


NOTE
Latch must be in closed position to remove lock.

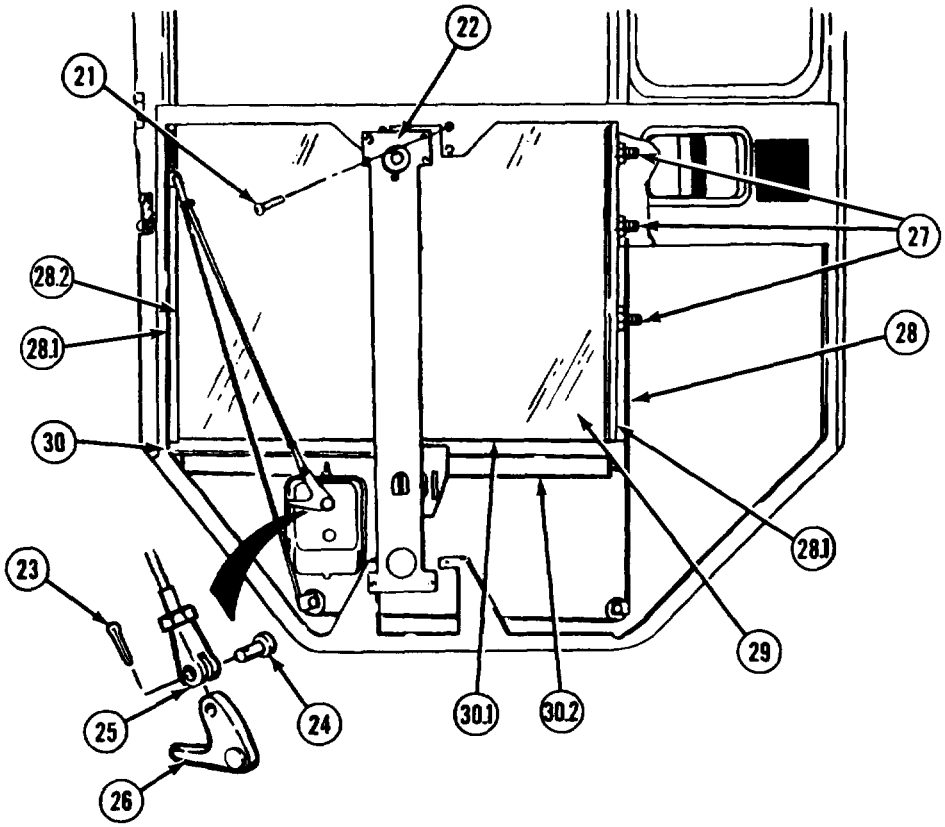
(6) Remove two screws (10).
(7) Loosen screw (11).
(8) Hold lock spacer plate (12) and remove screw (11).
(9) Remove door lock mechanism (13).
(10) Remove lock spacer plate (12).

16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

(11) Remove screw (14), window crank (15), cover (16), and spring (17).
(12) Remove 13 washer head screws (18).
(13) Remove six washer head screws (19).
(14) Remove inside door panel (20).



Cab and Body Maintenance Instructions (Cont)



(15) Remove six screws (21) from regulator (22). Remove regulator.
(16) Remove cotter pin (23) and pin (24) from outer rod link (25).
(17) Remove outer rod link (25) from door latch (26) and set outer rod link aside.

NOTE

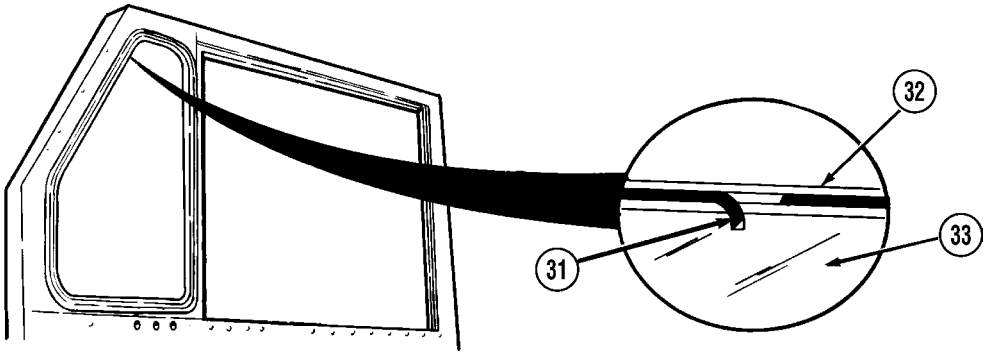
Some vehicles have two nuts.

(18) Remove three nuts (27) and channel (28).

NOTE

Some vehicles may have felt channel.

(18.1) Remove rubber seal (28.1) from channel (28).
(18.2) Remove rubber seal (28.1) from door channel (28.2).
(19) Pull glass (29) from bottom and remove glass from door channel (30).
(19.1) Remove rubber pad (30.1) from window stop (30.2).



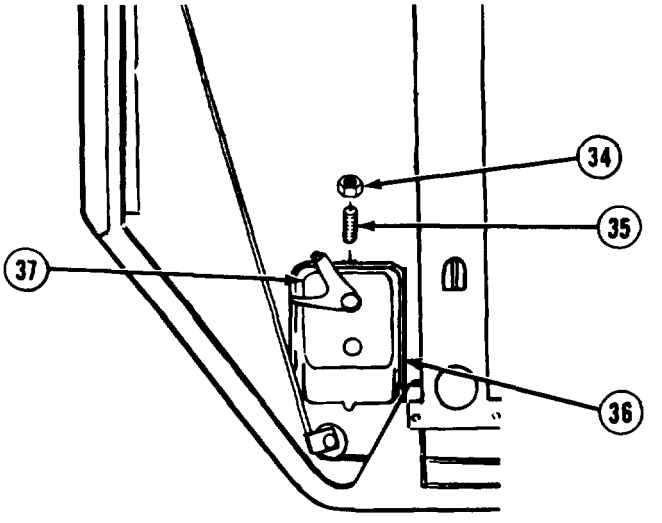
(20) Remove locking strip (31).
(21) Fold inside edge of locking channel (32) out around entire peep window glass (33).
(22) Remove peep window glass (33).
(23) Remove locking channel (32).

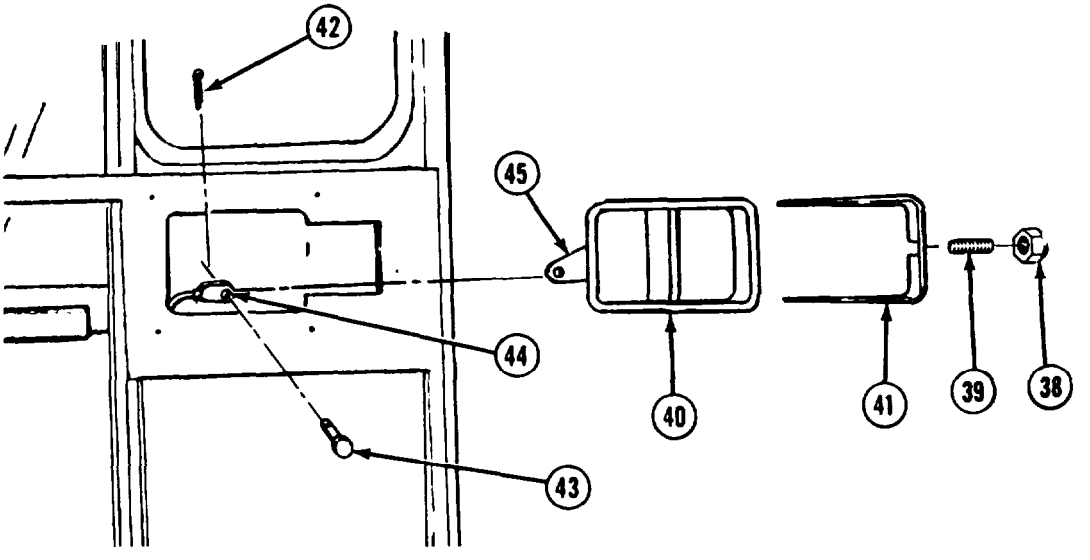
16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

NOTE

Locknut may come off stud, or stud and locknut may come off together.

(24) Remove locknut (34) and stud (35) from outside door latch (36).
(25) Remove latch retainer (37).
(26) Tag and remove outside door latch (36).



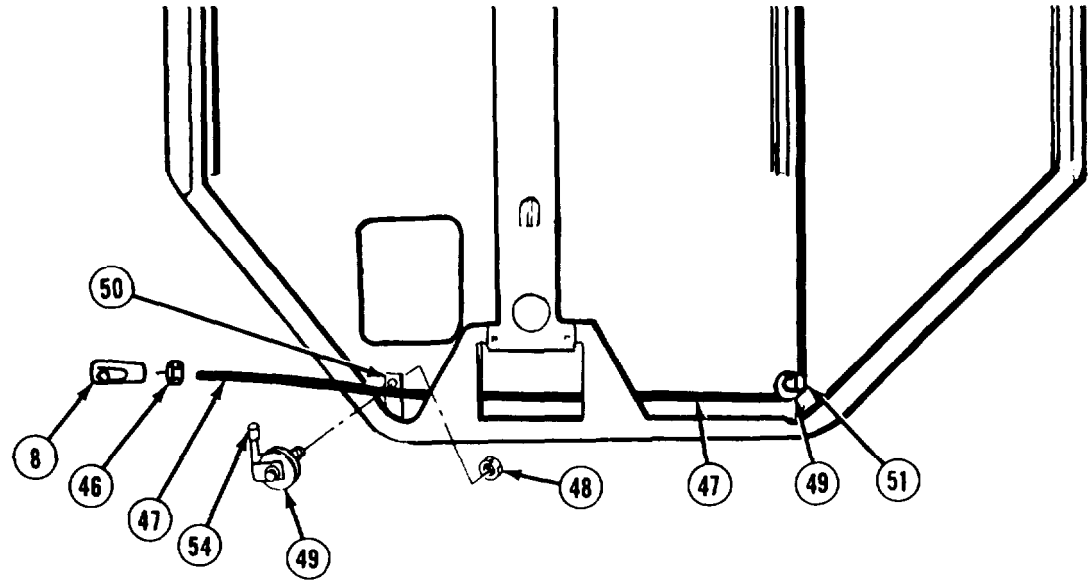


NOTE

Locknut may come off stud, or stud and locknut may come off together.

(27) Remove locknut (38) and stud (39) from inside door latch (40).
(28) Remove door latch retainer (41) from behind inside door latch (40).
(29) Tag and remove inside door latch (40) from door.
(30) Remove cotter pin (42) and short pin (43) from cable end (44) and door latch lever (45).

Cab and Body Maintenance Instructions (Cont)

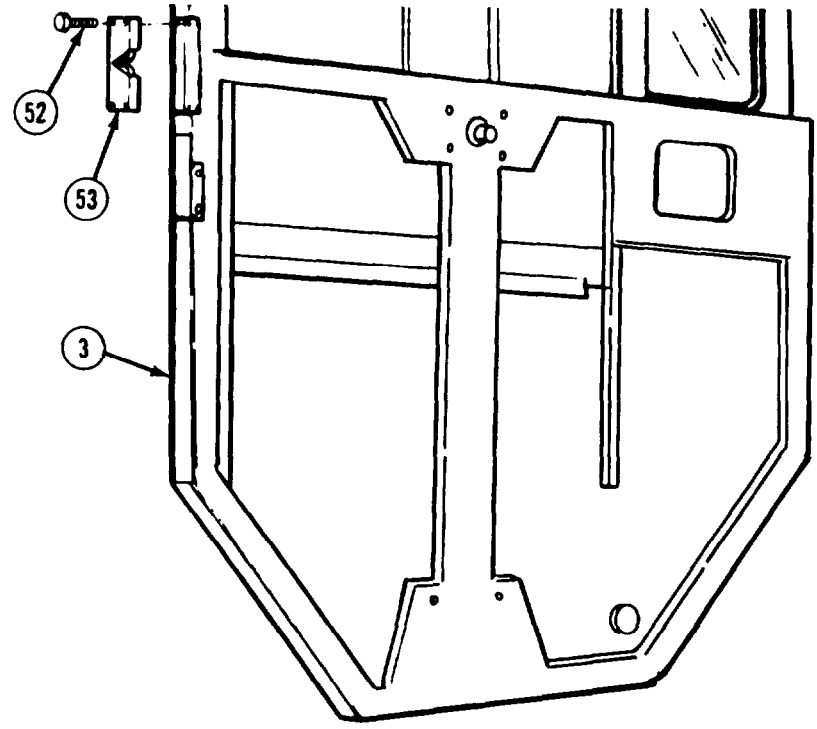


(31) Loosen jamnut (46) on cable end fitting (8).
(32) Remove cable end fitting (8) and jamnut (46) from cable (47).
(33) Loosen two nutserts (48) on rear of two rollers (49).

NOTE

Rollers are threaded into bracket.

(34) Remove two rollers (49) and nutserts (48) from brackets (50).
(35) Remove cable (47) from two roller eyelets (51) on rollers (49).



(36) Remove four screws (52) and female dovetail (53) from door (3).

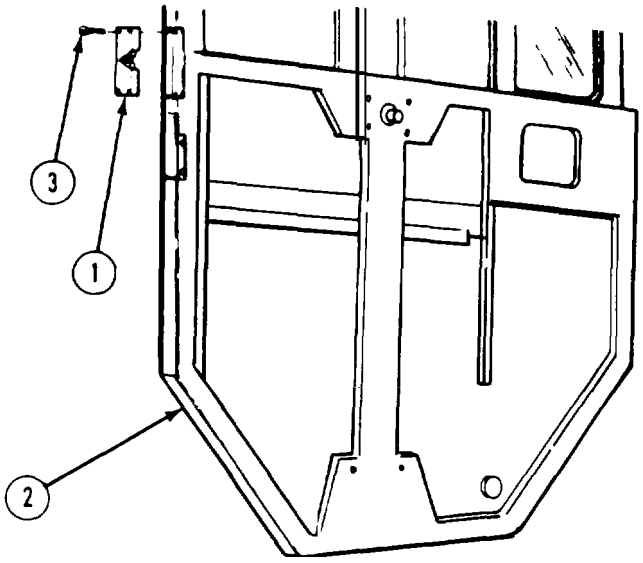
16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

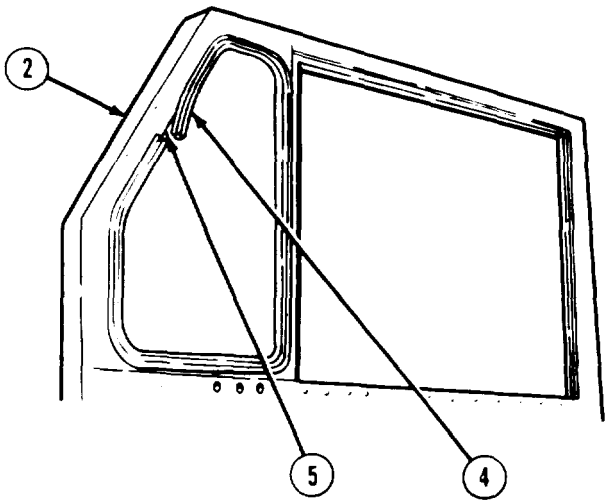
c. Assembly.

NOTE

Assembly procedure is the same for both doors. Left door is shown.

(*1*) Install female dovetail (1) in door (2) with four screws (3).





(*2*) Coat locking channel (4) and locking strip (5) with soapy water.

(*3*) Slip locking channel (4) on door (2) with locking slot facing outside.

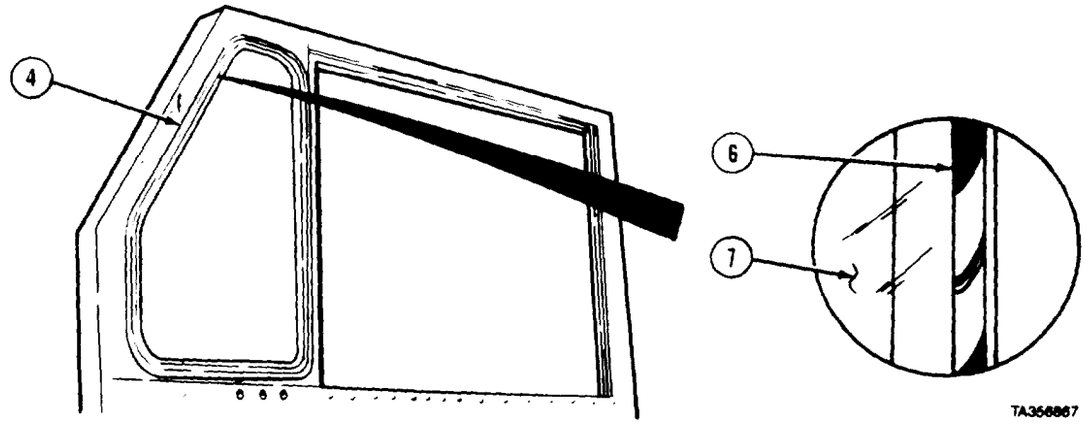
WARNING

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

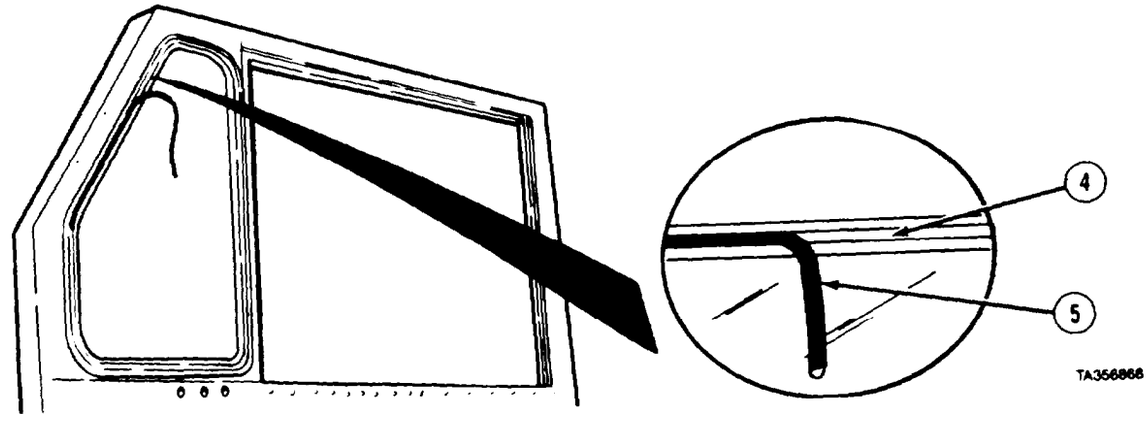
(*3.1*) Clean ends of locking channel (4) with primer.

(*3.2*) Apply adhesive to ends of locking channel (4).

Cab and Body Maintenance Instructions (Cont)



(4) Fold inside edge (6) of locking channel (4) outward. Fit new peep window glass (7) in locking channel.
(5) Drop inside edge (6) over peep window glass (7).



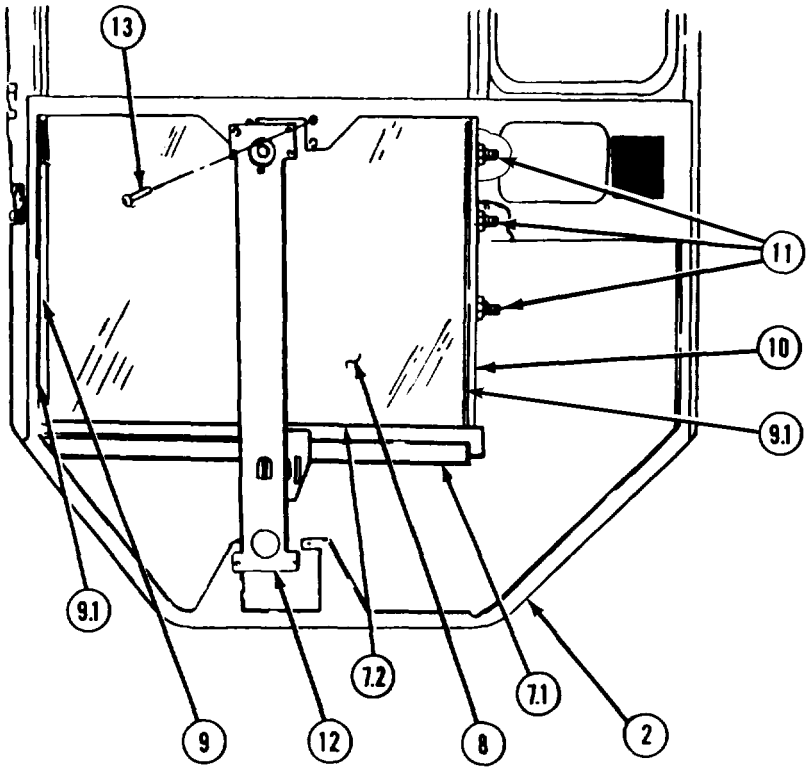
(6) Install locking strip (5) in center of locking channel (4).

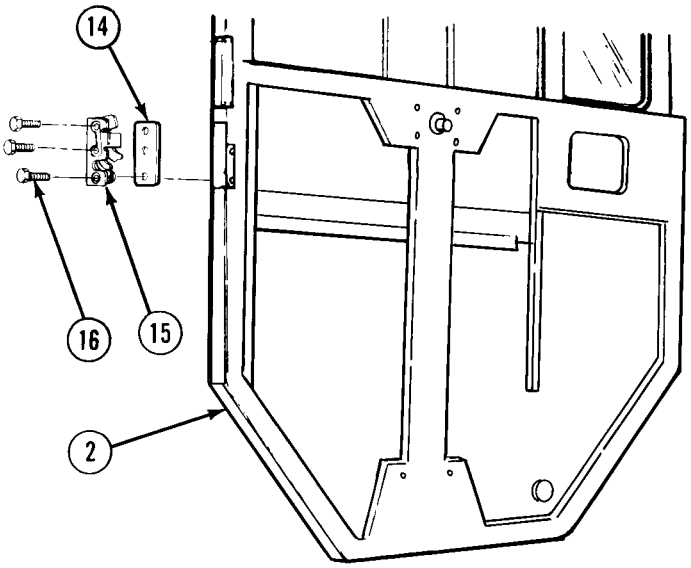
16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

WARNING

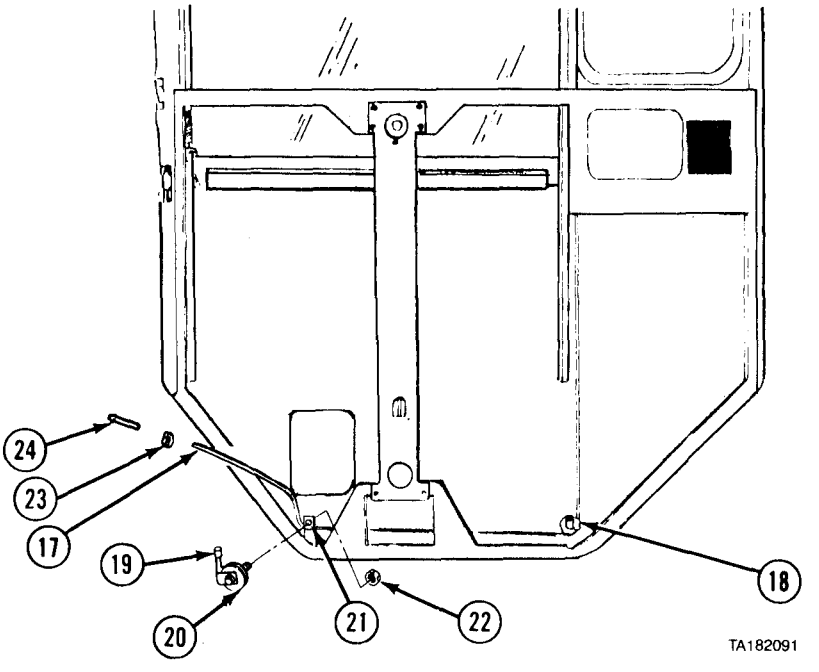
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(6.1) Apply adhesive to window stop (7.1).
(6.2) Install rubber pad (7.2) to window stop (7.1).
(6.3) Apply adhesive to door channel (9).
(6.4) Install rubber seal (9.1) in door channel (9).
(6.5) Install rubber seal (9.1) in channel (10).
(7) Install door glass (8) in door channel (9).
(8) Install channel (10) on glass (8) and door (2) with three nuts (11).
(9) Install regulator (12) with six screws (13).
(10) Hold lock spacer plate (14) against door (2) and install door lock mechanism (15).
(11) Install three screws (16) through door lock mechanism (15) and lock spacer plate (14) to door (2).

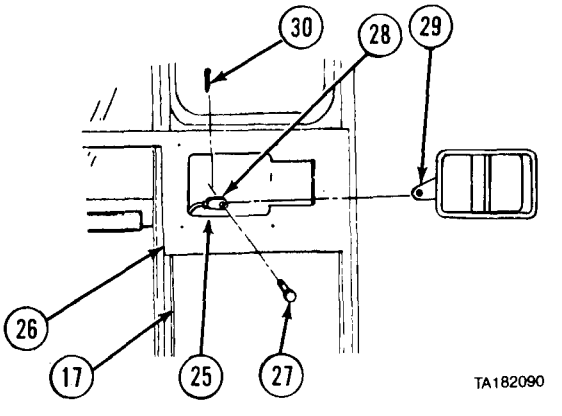




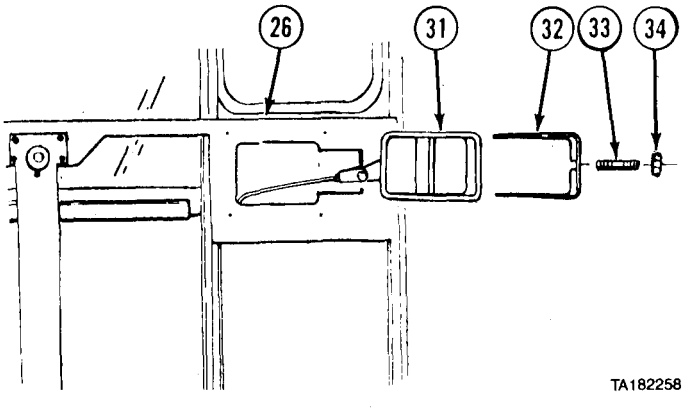
(12) Install cable (17) through two roller eyelets (18 and 19) starting from roller eyelet (18).
(13) Install two rollers (20) in brackets (21).
(14) Install two nutserts (22) on rollers (20).
(15) Install jamnut (23) and cable end fitting (24).



(16) Place cable (17) behind and through hole (25) in inside door latch mounting plate (26).
(17) Install short pin (27) through cable end (28) and inside door latch lever (29). Install cotter pin (30) in short pin.

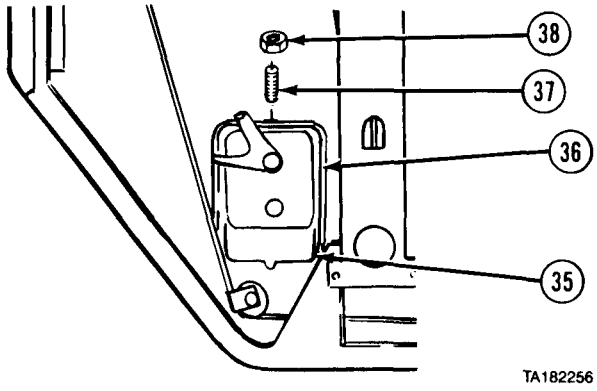


(18) Install inside door latch (31) in inside door latch mounting plate (26).
(19) Install door latch retainer (32).
(20) Install stud (33) and locknut (34).

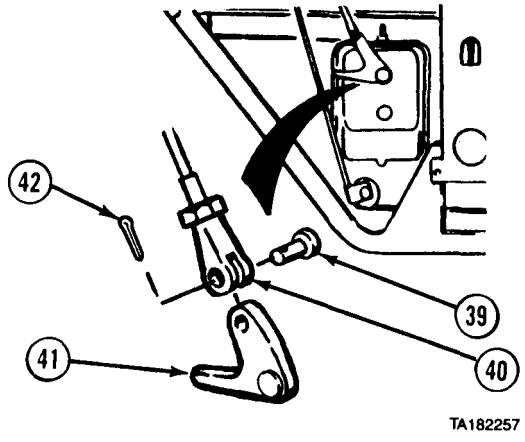


16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

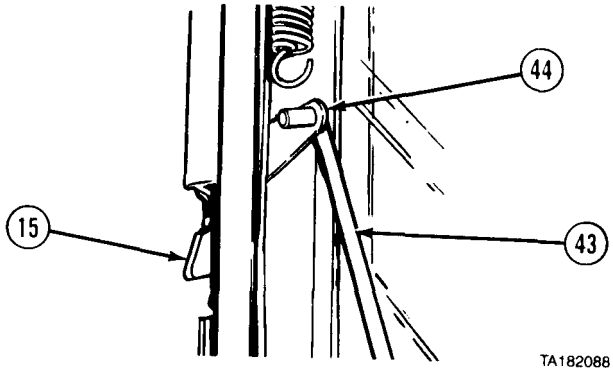
(21) Install outside door latch (35) through front of door.
(22) Install latch retainer (36).
(23) Install stud (37) and locknut (38).

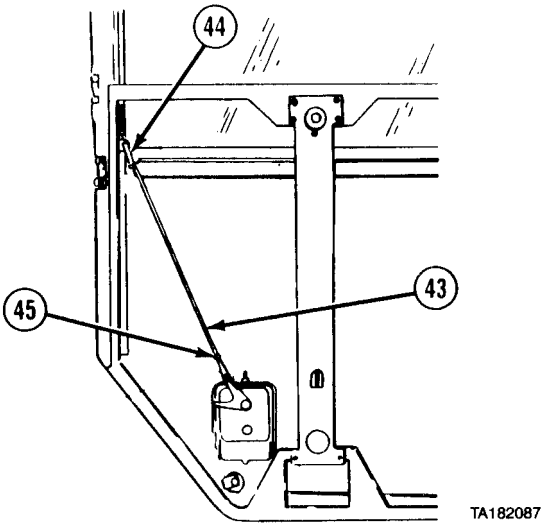


(24) Install long pin (39) through outer rod link (40) and outside door latch lever (41). Install cotter pin (42) in long pin.

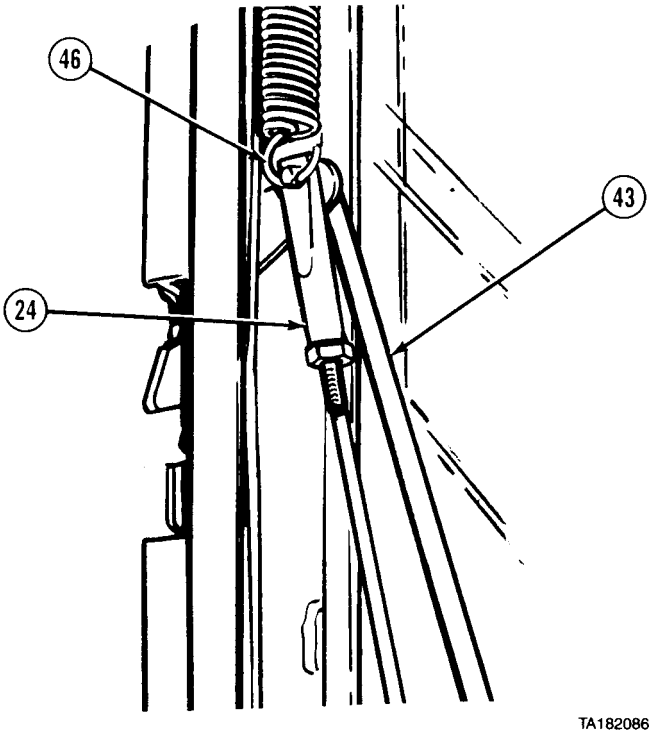


(25) Close door lock (15) manually.
(26) Install outer link rod (43) through door lock connecting lever (44).



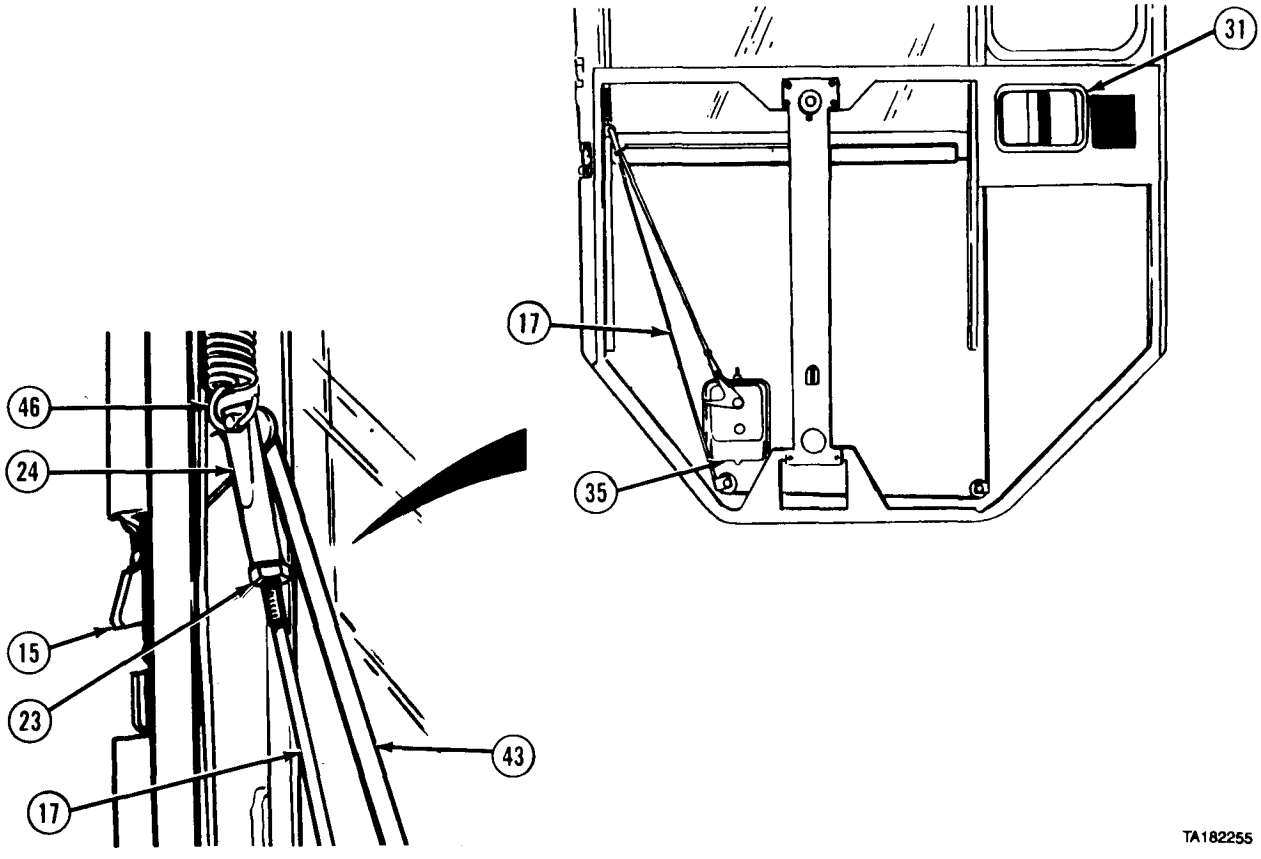


(27) If needed, adjust length of outer link rod (43) as follows:
(a) Loosen jamnut (45).
(b) Remove outer link rod (43) from door lock connecting lever (44).
(c) Turn outer link rod (43) clockwise to shorten, counterclockwise to lengthen.
(d) Install outer link rod (43) through door lock connecting lever (44).
(e) Tighten jamnut (45).



(28) Install cable end fitting (24) on end of outer link rod (43).
(29) Install spring (46) on end of outer link rod (43).

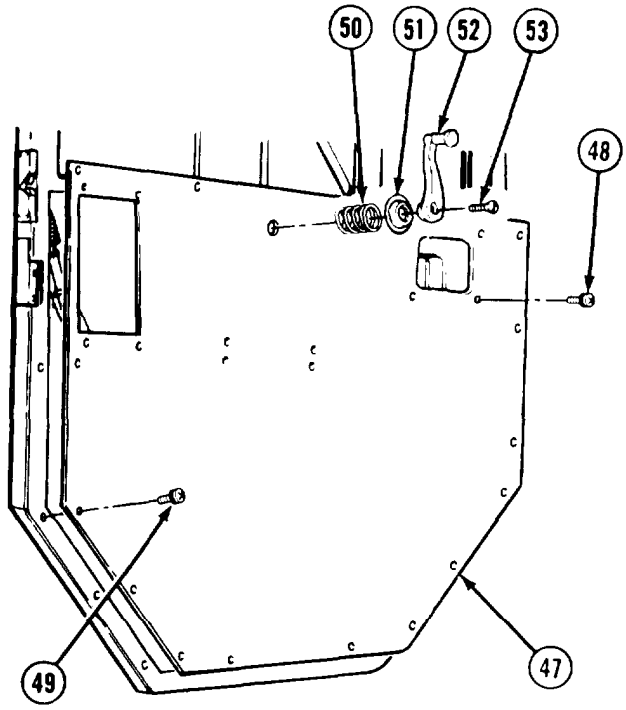
16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

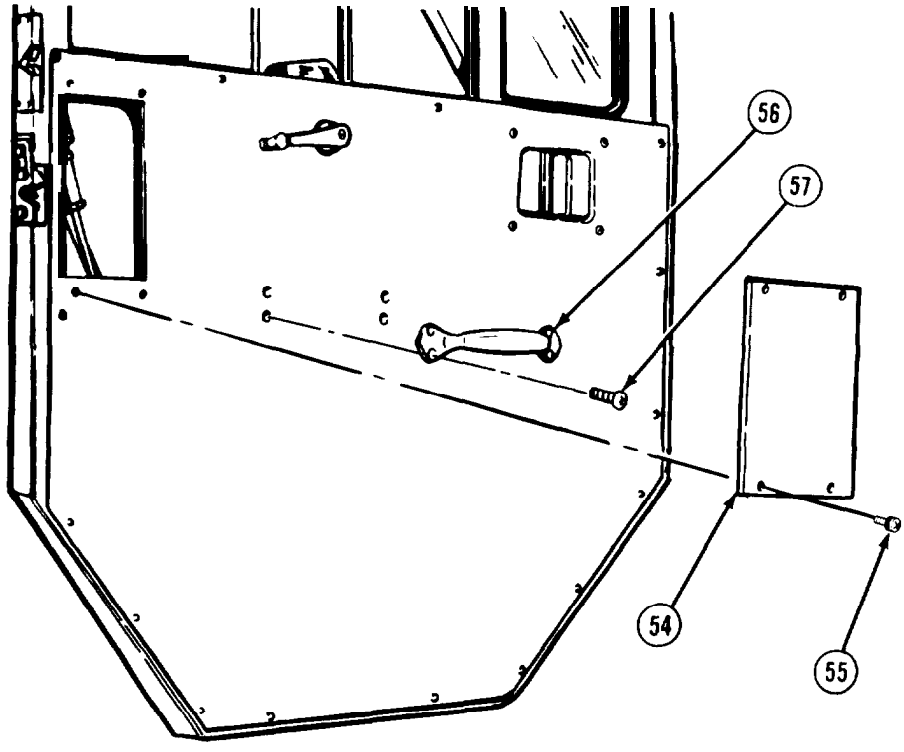


(30) Operate inside door latch (31) to make sure cable (17) unlatches door lock (15).
(31) If needed, adjust cable (17) as follows:
(a) Loosen jamnut (23) and remove spring (46) from end of outer link rod (43).
(b) Remove cable end fitting (24) from outer link rod (43).
(c) Turn cable end fitting (24) clockwise on cable (17) to shorten, counterclockwise to make cable longer.
(d) Install cable end fitting (24) on outer link rod (43).
(e) Install spring (46).
(f) Tighten jamnut (23).
(32) Operate inside and outside door latches (31 and 35) to make sure door lock (15) works.

Cab and Body Maintenance Instructions (Cont)

(33) Install inside door panel (47).
(34) Install six washer head screws (48).
(35) Install 13 washer head screws (49) on inside door panel (47).
(36) Install spring (50), cover (51), window crank (52), and screw (53).





(37) Install cover plate (54) with four washer head screws (55), and lockwashers (58).
(38) Install door handle (56) with four screws (57).

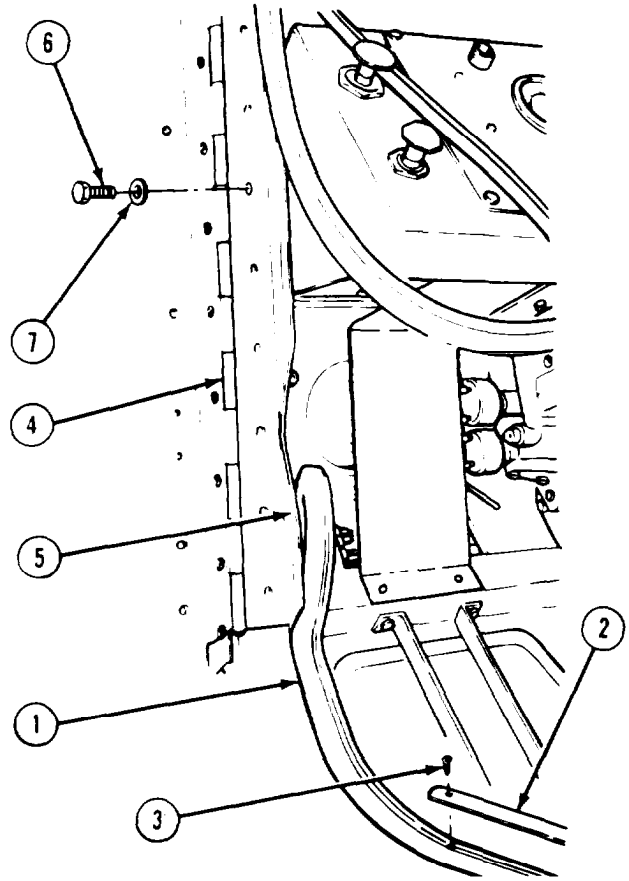
16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).

d. Installation.

NOTE

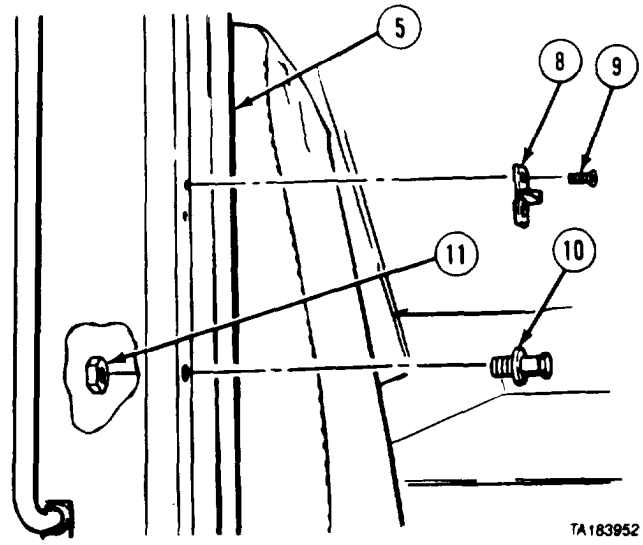
Installation procedure is the same for both doors. Left door is shown.

(1) Install door seal (1).
(2) Install plate (2) and four services (3).
(3) Position hinge (1) on cab (5).
(4) Install nine screws (6) and washers (7).



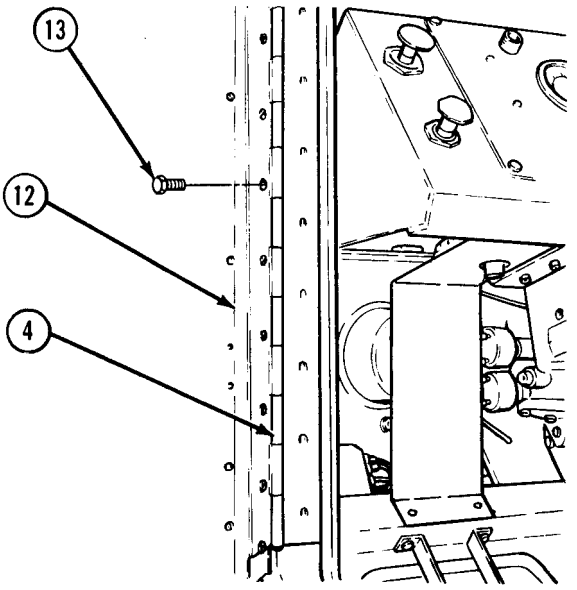
TA182101

(5) Install male dovetail (8) on cab (5) with two screws (9)
(6) Install striker pin (10) and nut (1 1) in cab (5).



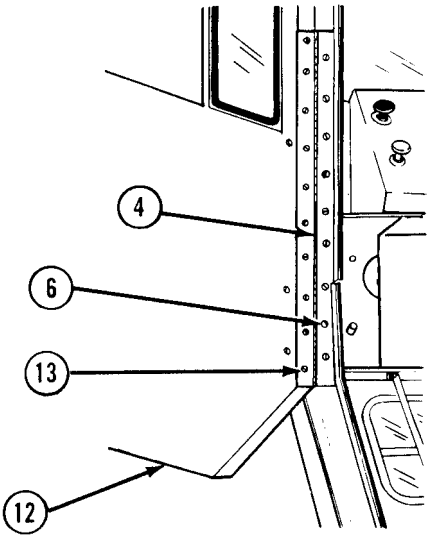
TA183952

(7) Soldier A holds door (12) in position while Soldier B performs step *(8).*
(8) Install door (12) on hinge (4) with 10 screws (13).



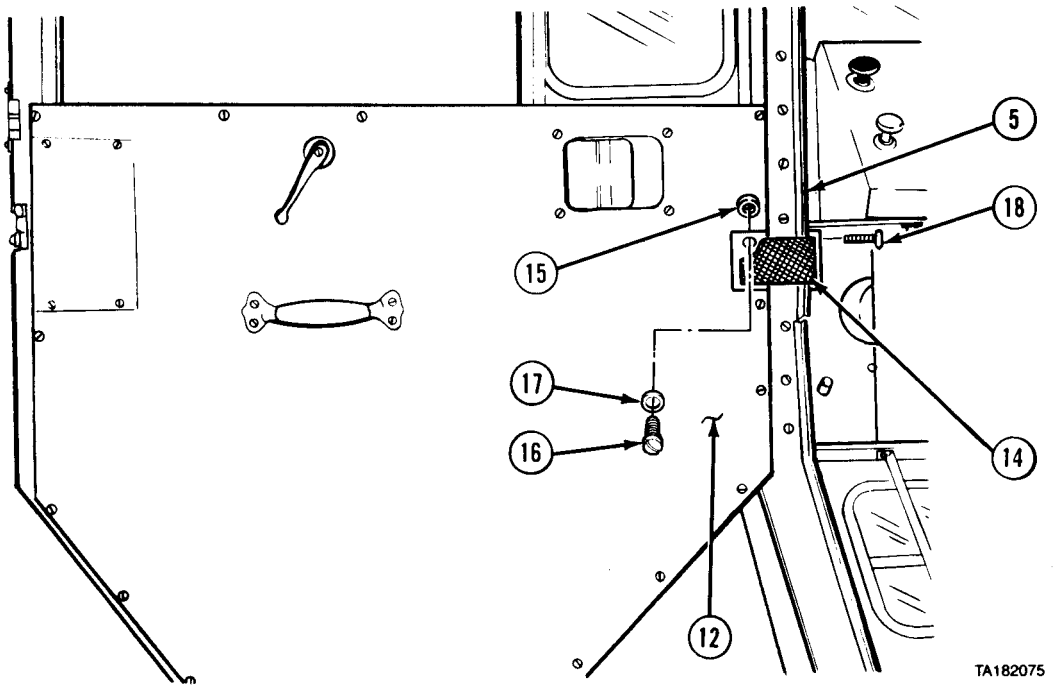
TA182097

(9) If needed, adjust door (9) as follows:
(a) Loosen screws (6) that fasten hinge (4) to vehicle.
(b) Adjust door (12) up or down to permit proper closing and locking.
(c) Loosen screws (13) that fasten door (12) to hinge (4).
(d) Adjust door (12) in or out to permit proper closing and locking.
(e) Tighten screws (6 and 13) after adjustment.



TA182099

16-2. DOOR REMOVAL/REPAIR/INSTALLATION (CONT).



(10) Position doorstrap (14) and spacer (15) on door (12).
(11) Install two screws (16) and washers (17) that fasten doorstrap (14) to door (12),
(12) Position doorstrap (14) on cab (5).
(13) Install two screws (18) that fasten doorstrap (14) to cab (5).

e. Follow-on Maintenance. Install side mirror bracket (para 18-11).

END OF TASK

16-3. STEP REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Adhesive, thread locking, Item 4.3, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 7-66	Step clearance light assembly removed.

Special Environmental Conditions
None

General Safety Instructions
None

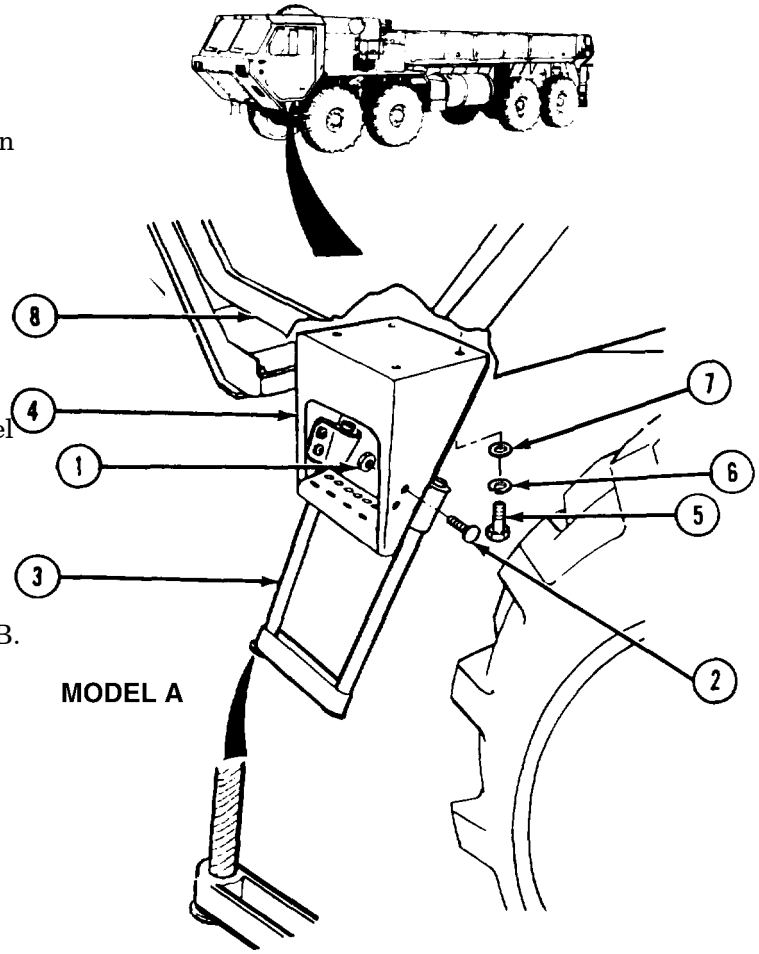
a. Removal.

NOTE

- There are two models of steps than may be removed from the vehicle.
- Model A does not have a chain or step link.
- Model B does have a chain and step link.
- Perform steps (1) and (2) for Model A.
- Perform steps (3) through (9) for Model B.

Perform steps (1) and (2) for Model A.
Perform steps (3) through (9) for Model B.

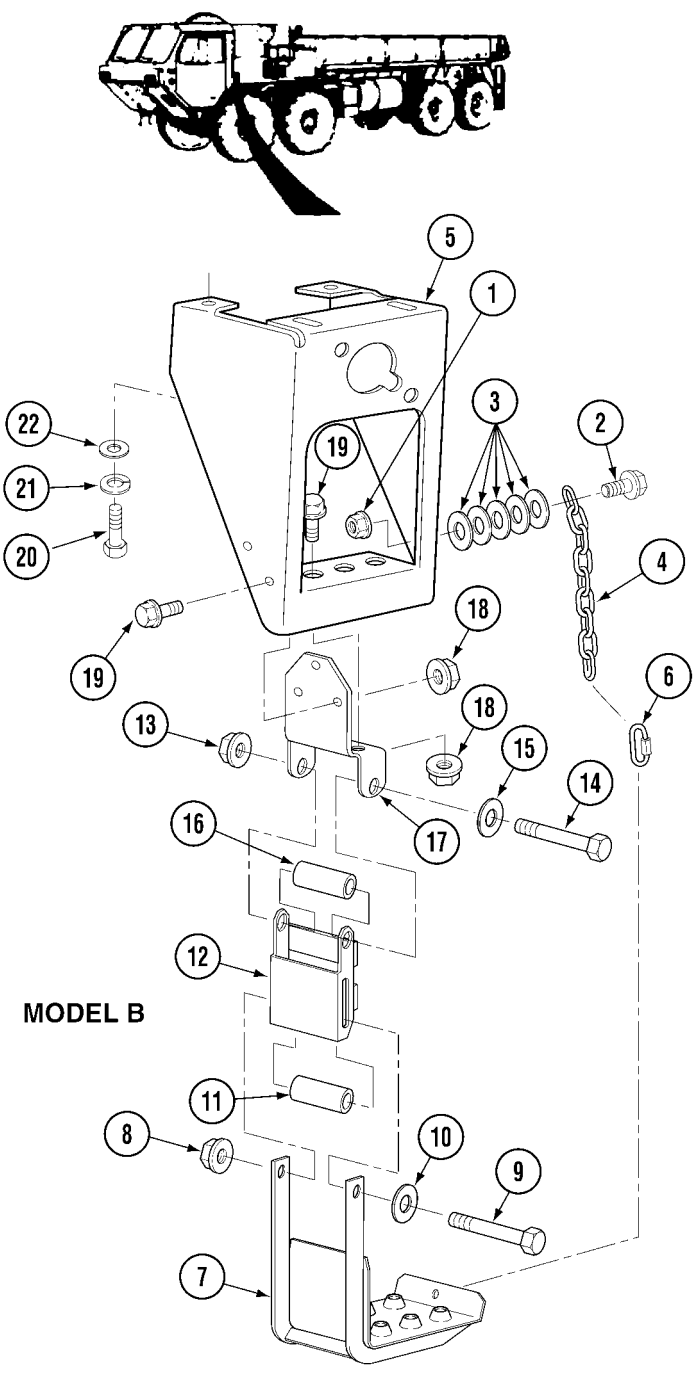
(1) Remove four nuts (1) and screws (2). Remove flexible step (3) from step (4).
(2) Remove four screws (5), lockwashers (6), and washers (7) from step (4). Remove step from cab (8).



MODEL A

16-3. STEP REMOVAL/INSTALLATION (CONT).

(3) Remove locknut (1), screw (2), five washers (3), and chain (4) from cab step (5).
(4) Remove rapid link (6) and chain (4) from lower step (7).
(5) Remove locknut (8), screw (9), washer (10), spacer (11), and lower step (7) from step link (12).
(6) Remove locknut (13), screw (14), washer (15), spacer (16), and step link (12) from step support (17).
(7) Remove three locknuts (18), screws (19), and step support (17) from cab step (5).
(8) Remove four screws (20), lockwashers (21), and washers (22).
(9) Remove cab step (5).



Cab and Body Maintenance Instructions (Cont)

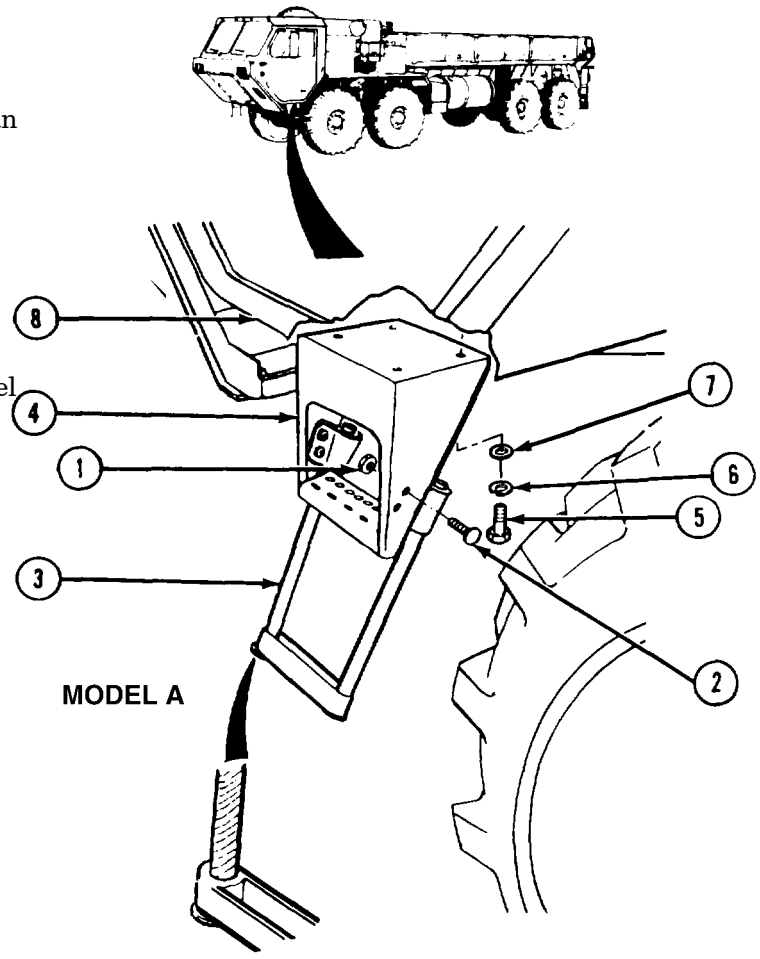
b. Installation.

NOTE

- There are two models of steps than may be installed on the vehicle.
- Model A does not have a chain or step link.
- Model B does have a chain and step link.
- Perform steps (1) and (2) for Model A.
- Perform steps (3) through (9) for Model B.

(1) Install step (4) to bottom of cab (8) with four screws (5), lockwashers (6), and washers (7).

(2) Position ring (9) on bottom of flexible step (3) toward front of vehicle. Install flexible step to step (4) with four screws (2) and nuts (1).



(3) Install cab step (5) with four washers (22), lockwashers (21), and screws (20).
(4) Install step support (17) onto cab step (5) with three screws (19) and locknuts (18).
(5) Install step link (12) onto step support (17) with screw (14), washer (15), spacer (16), and locknut (13).
(6) Install lower step (7) onto step link (12) with screw (9), washer (10), spacer (11), and locknut (8).
(7) Install chain (4) to lower step (7) with rapid link (6).

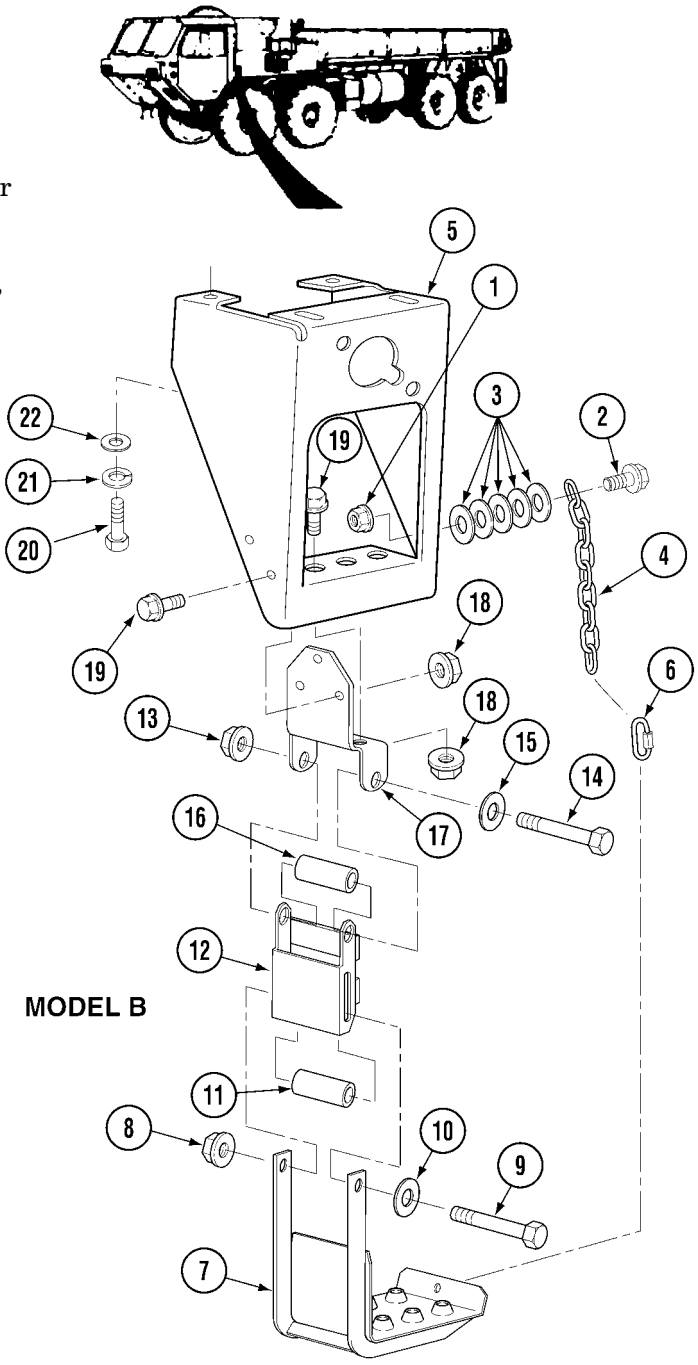
WARNING

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

(8) Lightly apply adhesive to threads of screw (2).
(9) Install chain (4) onto cab step (5) with screw (2), five washers (3), and locknut (1).

c. Follow-on Maintenance. Install clearance light assembly (para 7-66).

END OF TASK



MODEL B

16-4. GRAB HANDLE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

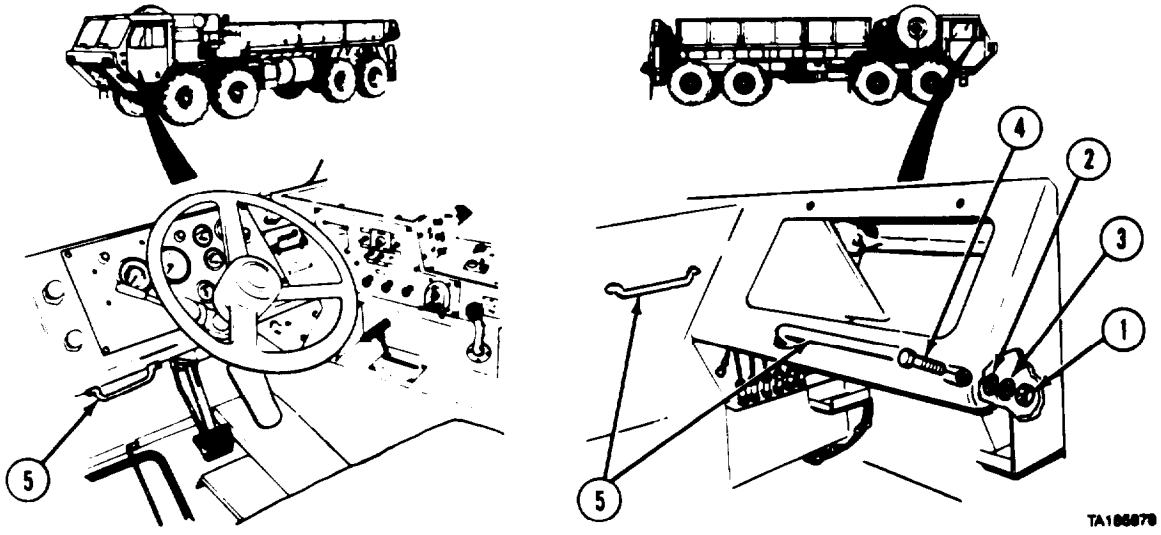
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

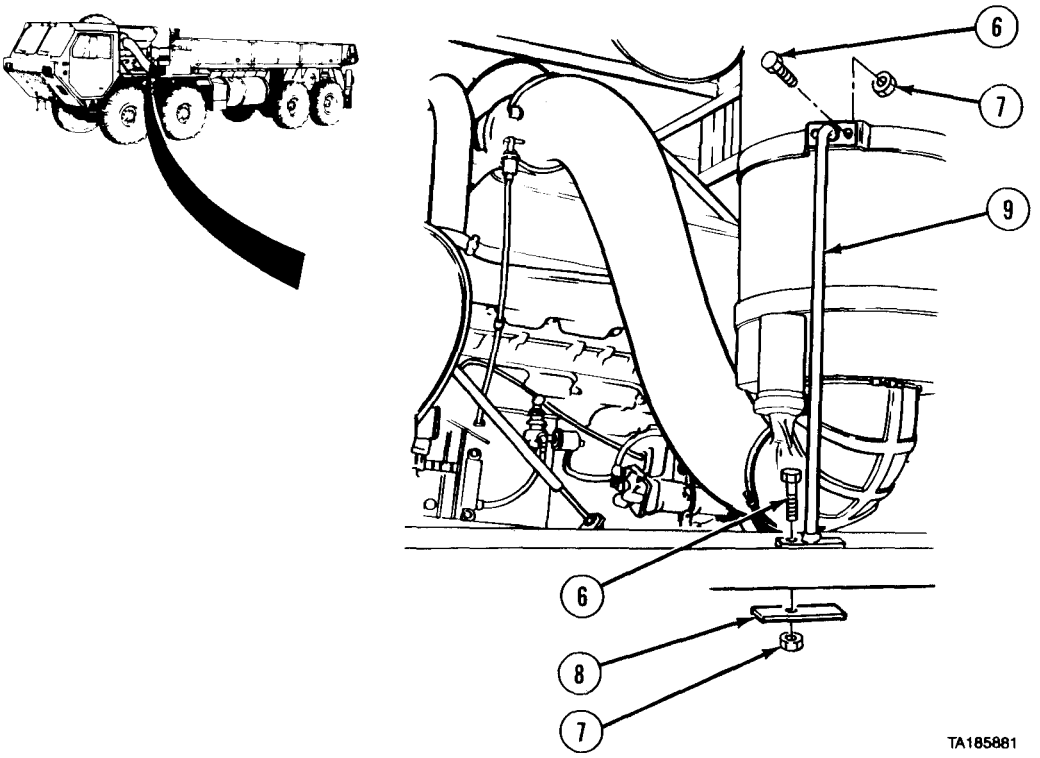
a. Removal.



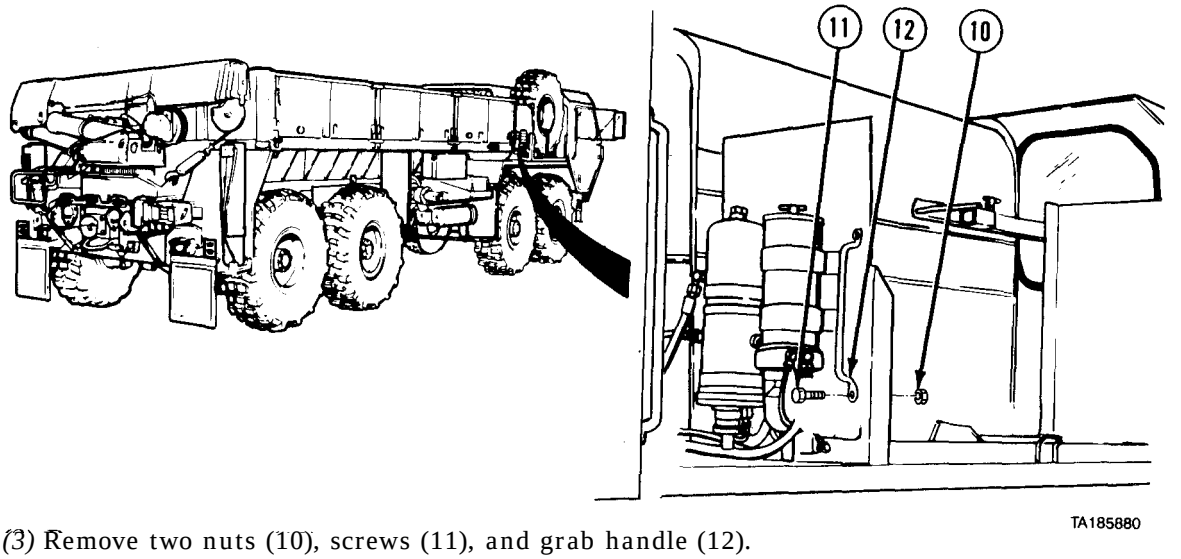
NOTE

To remove any grab handle in or on cab, do step *(1)* only. To remove grab handle on air cleaner, do step *(2)* only. To remove grab handle on tire carrier and cargo box, do step *(3)* only.

(1) Remove two nuts (1), lockwashers (2), washers (3), screws (4), and grab handle (5).



(2) Remove three screws (6), nuts (7), plate (8), and grab handle (9).



(3) Remove two nuts (10), screws (11), and grab handle (12).

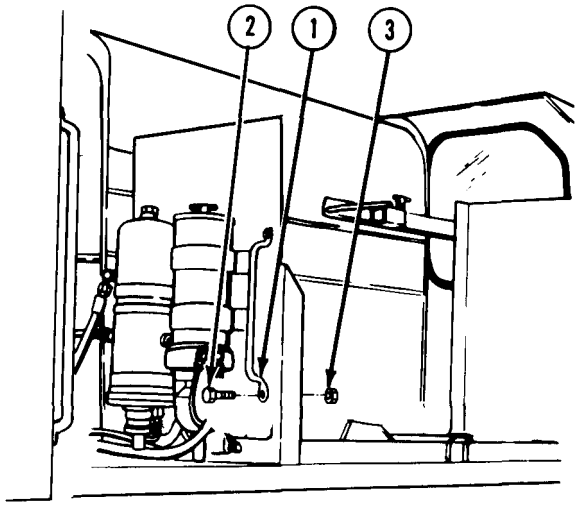
16-4. GRAB HANDLE REMOVAL/INSTALLATION (CONT).

b. Installation.

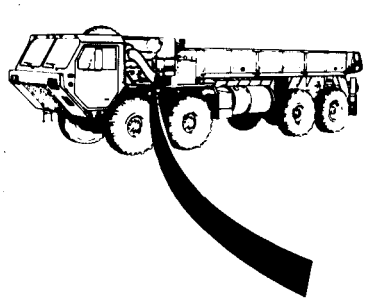
NOTE

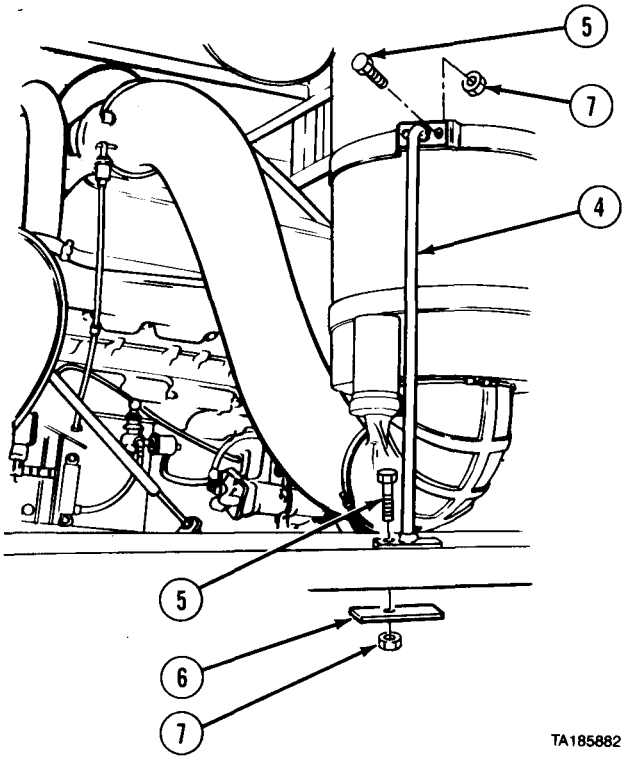
To install any grab handle on tire carrier and cargo box, do step *(1)* only. To install grab handle on air cleaner, do step *(2)* only. To install grab handle in or on cab, do step *(3)* only.

(1) Install grab handle (1) with two screws (2) and nuts (3).



TA185879

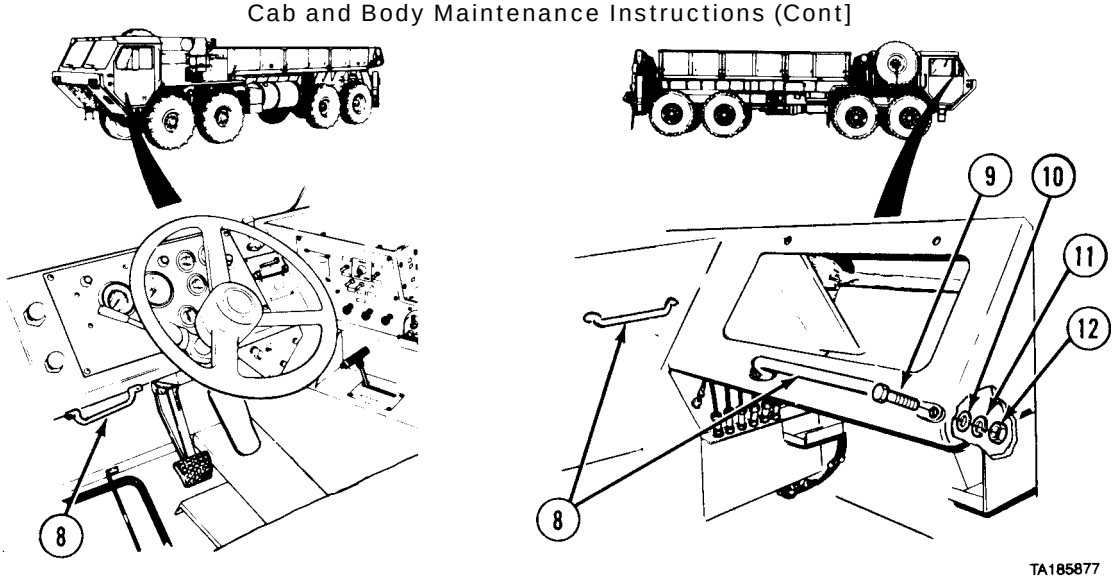




TA185882

(2) Install grab handle (4) with three screws (5), plate (6), and three nuts (7).

Cab and Body Maintenance Instructions (Cont]



(3) Install grab handle (8) with two screws (9), washers (10), lockwashers (11), and nuts (12).

c. Follow-on Maintenance. None.

END OF TASK

16-5. IGNITION SWITCH BRACKET REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

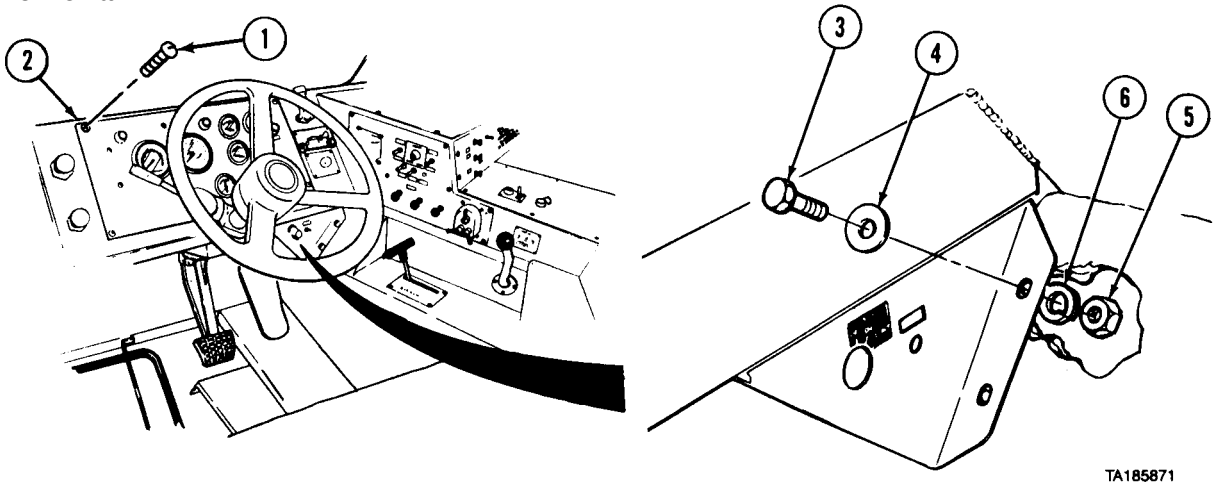
TM or Para	*Condition Description*
Para 7-56	Optic ribbon removed from rear of ignition switch bracket.
Para 7-63	Engine start switch removed.
Para 7-38	Engine stop switch removed.

Special Environmental Conditions
None

General Safety Instructions
None

16-5. IGNITION SWITCH BRACKET REMOVAL/INSTALLATION (CONT).

a. Removal.

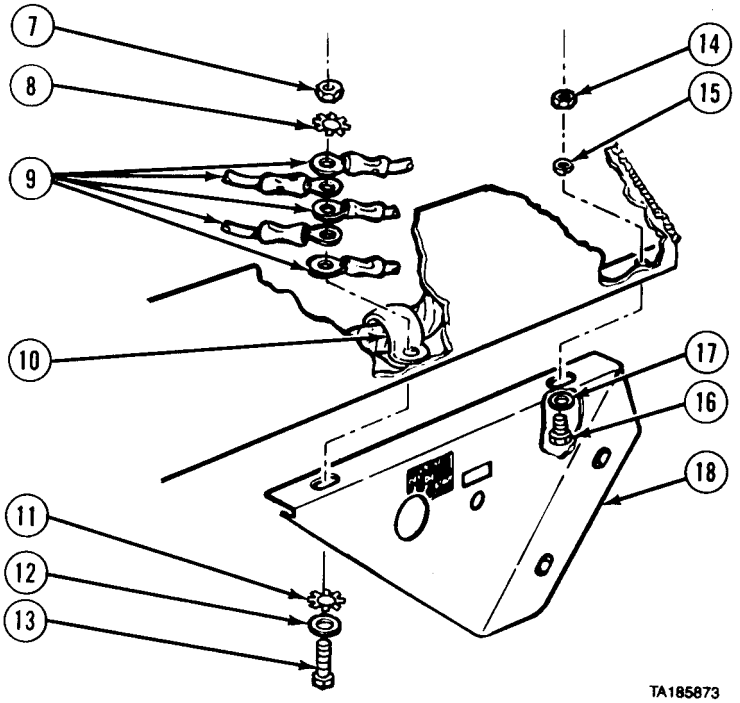


(1) Remove six screws (1) and move instrument panel (2) toward steering wheel.
(2) Soldier A removes two screws (3) and washers (4) while Soldier B removes two nuts (5) and lockwashers (6).

NOTE

Tag and mark wires before disconnecting.

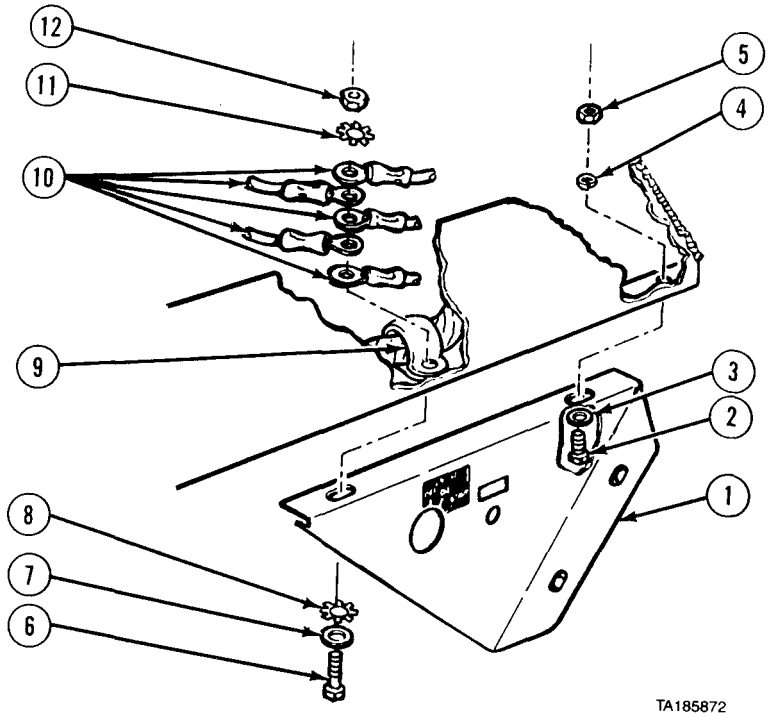
(3) Remove nut (7), lockwasher (8), five ground wires (9), clip (10), lockwasher (11), washer (12), and screw (13).
(4) Remove nut (14), lockwasher (15), screw (16), and washer (17).
(5) Remove ignition switch bracket (18).



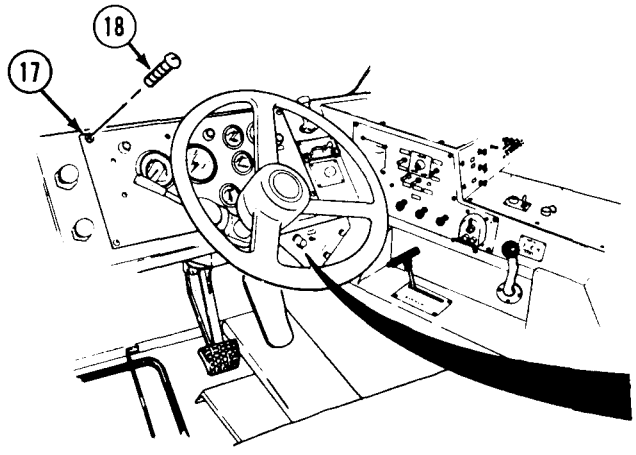
b. Installation.

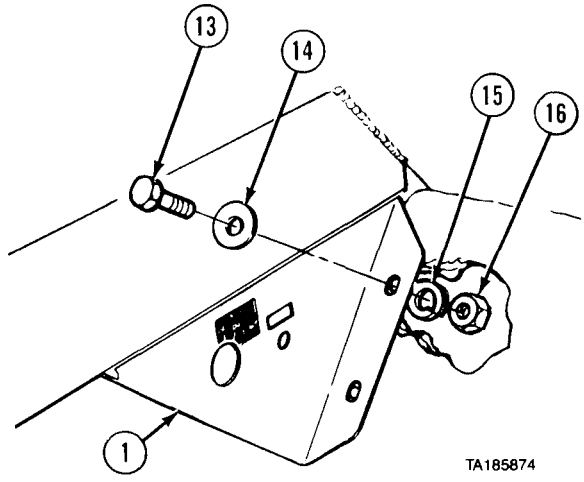
(1) Install ignition switch bracket (1), screw (2), washer (3), lockwasher (4), and nut (5).

(2) Install screw (6), washer (7), lockwasher (8), clip (9), five ground wires (10), lockwasher (11), and nut (12).



TA185872





TA185874

(3) Install two screws (13) and washers (14) in ignition switch bracket (1).

(4) Install two lockwashers (15) and nuts (16).

(5) Soldier A tightens two screws (13) while Soldier B holds two nuts (16).

(6) Install instrument panel (17) with six screws (18).

c. Follow-on Maintenance.

(1) Install engine stop switch (para 7-38).

(2) Install engine start switch (para 7-63).

(3) Install optic ribbon in rear of ignition switch bracket (para 7-56).

END OF TASK

16-6. ENGINE COVER AND SIDE PANEL HOLDDOWN REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

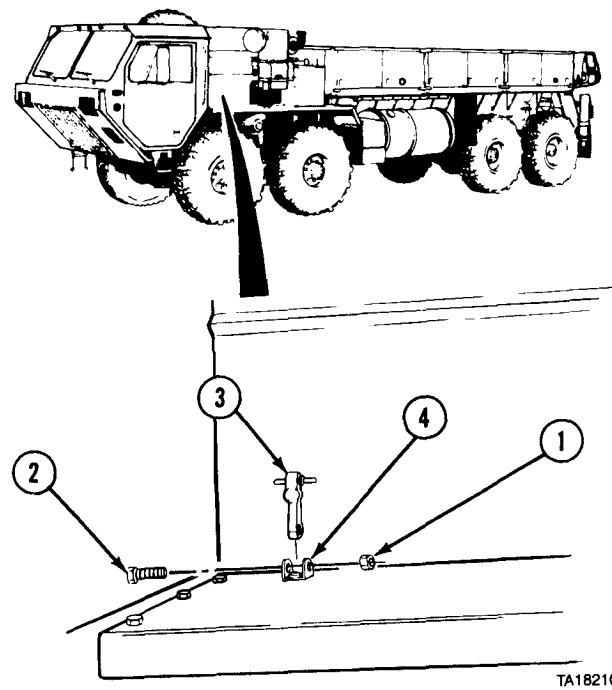
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Engine side panel removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Remove nut (1), screw (2), and holddown (3) from bracket (4).

NOTE

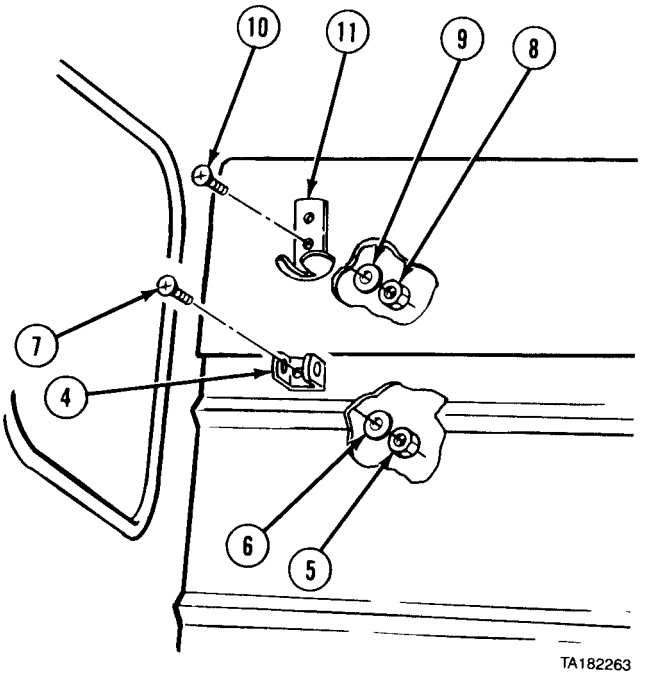
Lower brackets are fastened to vehicle frame. Upper brackets are fastened to side panel.

(2) Remove nut (5), washer (6), screw (7), and bracket (4).

NOTE

Lower catches are fastened to side panel. Upper catches are fastened to engine top cover.

(3) Remove two nuts (8), washers (9), screws (10), and catch (11).



b. Installation.

NOTE

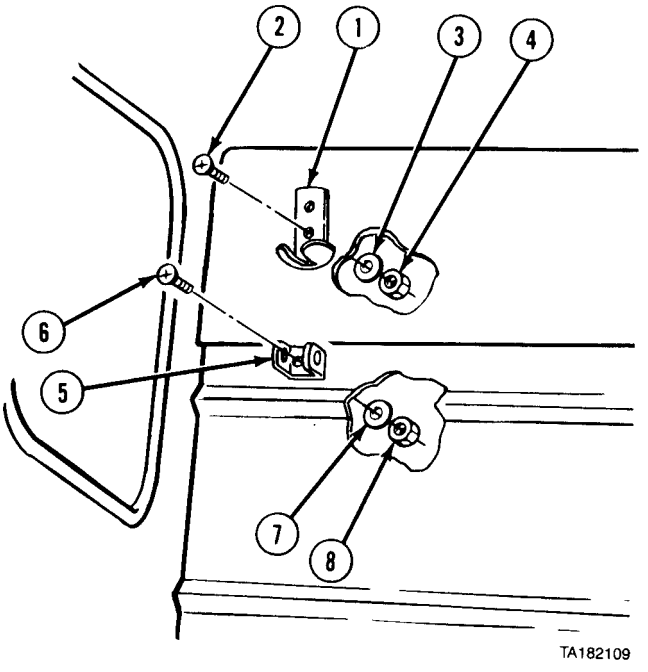
Lower catches are fastened to side panel. Upper catches are fastened to engine top cover.

(1) Install catch (1) with two screws (2), washers (3), and nuts (4).

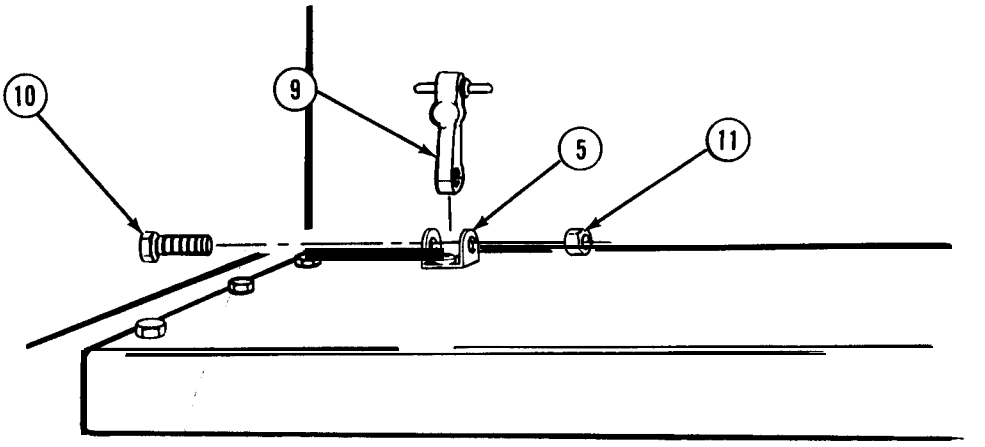
NOTE

Lower brackets are fastened to vehicle frame. Upper brackets are fastened to side panel.

(2) Install bracket (5) with screw (6), washer (7), and nut (8).



16-6. ENGINE COVER AND SIDE PANEL HOLDDOWN REMOVAL/INSTALLATION (CONT).



TA182108

(3) Install holddown (9) in bracket (5) with screw (10) and nut (11).

c Follow-on Maintenance. Install engine side panel (TM 9-2320-279-10)

END OF TASK

16-7. REAR CAB MOUNT REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

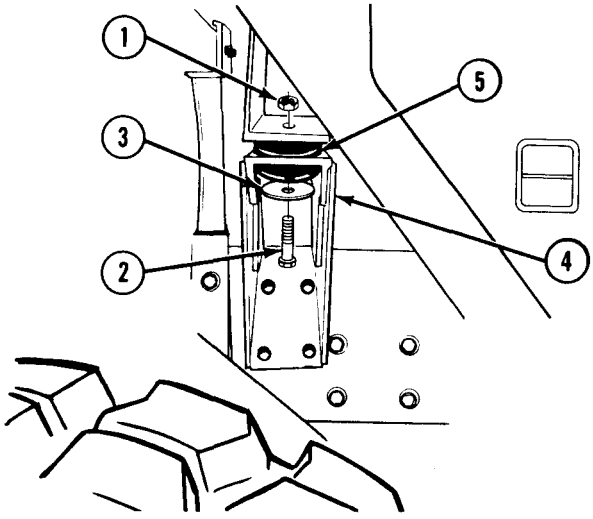
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 14-10	Vehicle tiedown removed.

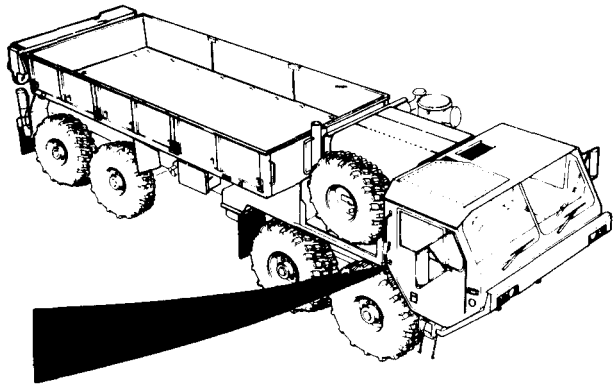
Special Environmental Conditions
None

General Safety Instructions
None

Cab and Body Maintenance Instructions (Cont)

a. Removal.

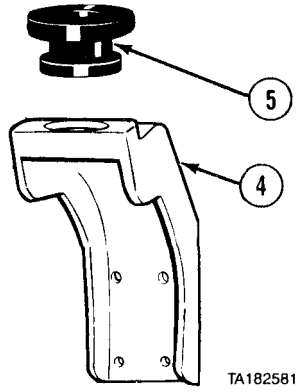




TA182582

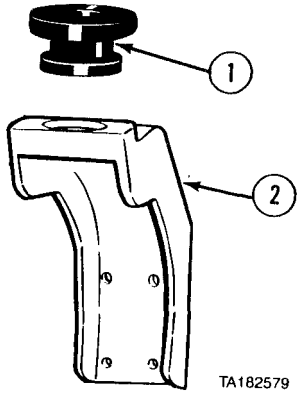
(1) Remove nut (1), screw (2), and washer (3).
(2) Remove cab support (4) and cushion (5).

(3) Remove cushion (5) from rear cab support (4).



TA182581

b. Installation.
(1) Install cushion (1) in rear cab support (2).



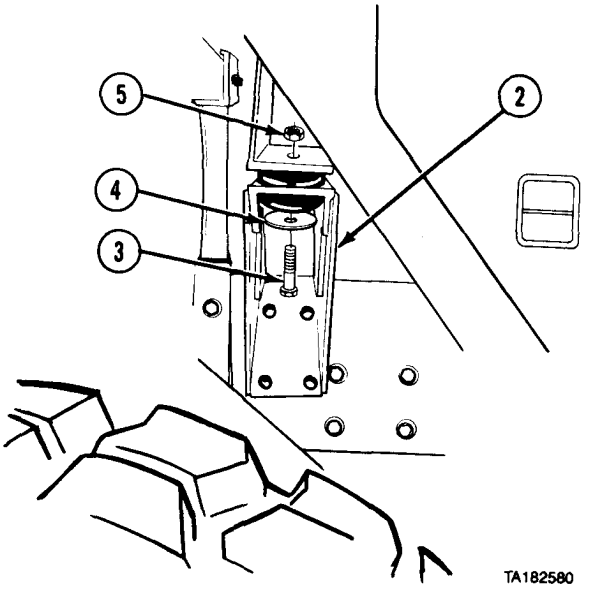
TA182579

16-7. REAR CAB MOUNT REMOVAL/INSTALLATION (CONT).

(2) Install cab support (2) with screw (3), washer (4), and nut (5).

c. Follow-on Maintenance. Install vehicle tiedown (para 14-10).

END OF TASK



16-8. CAB ROOF COVER PLATE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Adhesive-sealant, silicone, Item 4, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

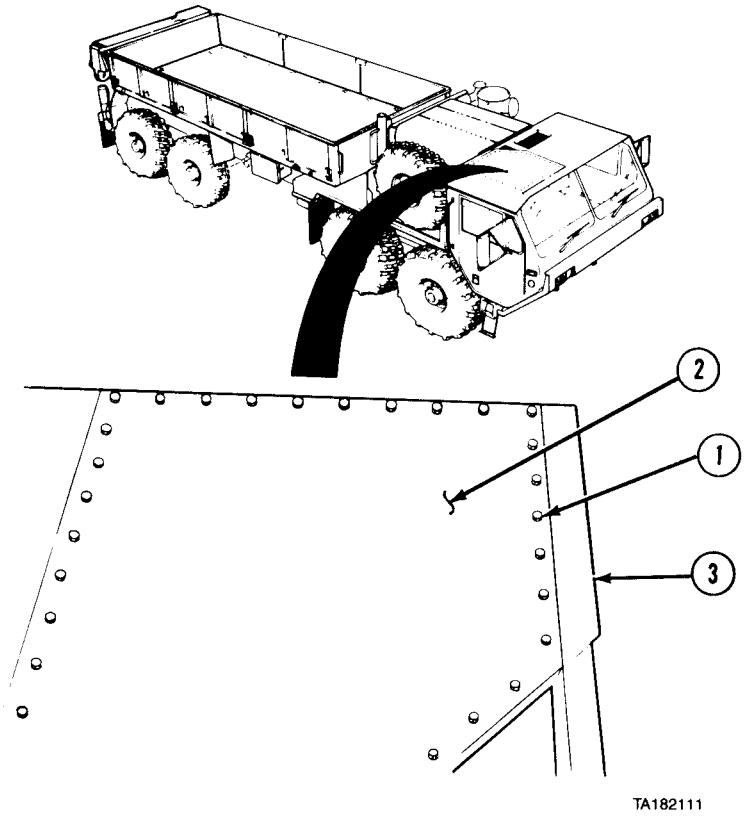
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



WARNING

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

(1) Remove 34 screws (1) and cover plate (2) from top of cab (3).
(2) Remove silicone adhesive-sealant from cab (3).

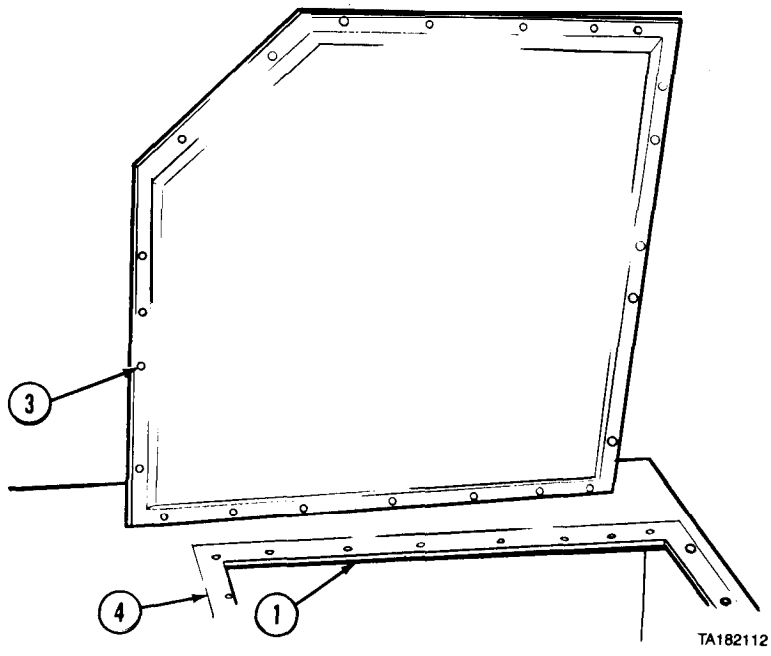
16-8. CAB ROOF COVER PLATE REMOVAL/INSTALLATION (CONT).

b. Installation.

WARNING

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

(1) Apply silicone adhesive-sealant around rim of cab opening (1).
(2) Position cover plate (2). Install 34 screws (3) in" cover plate and top of cab (4).



c. Follow-on Maintenance. None.

END OF TASK

16-9. ENGINE COVER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

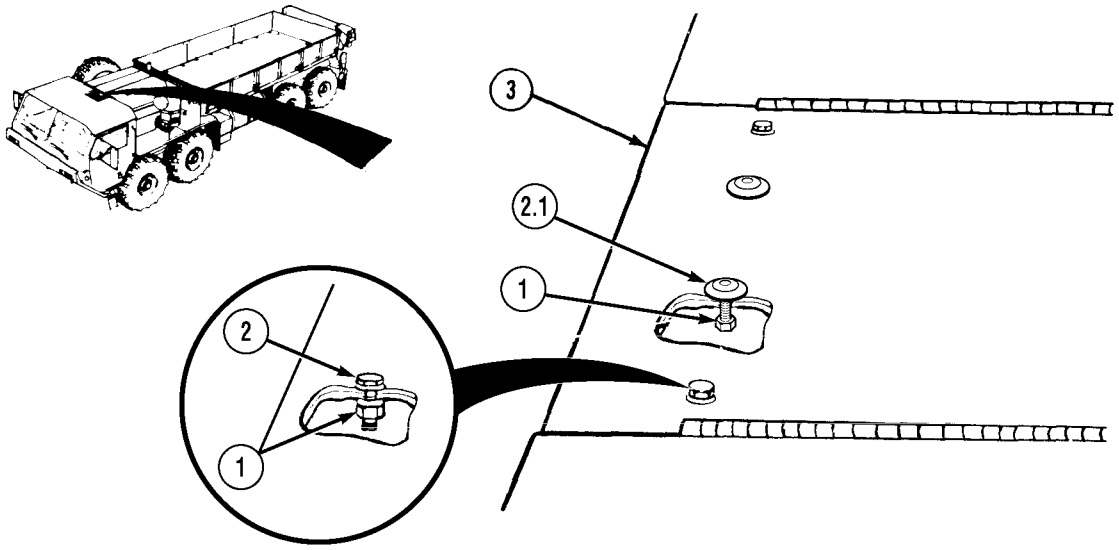
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Engine side panels removed.

Special Environmental Conditions
None

General Safety Instructions
None

Cab and Body Maintenance Instructions (Cont)



a. Removal. Remove eight nuts (1), four screws (2), and four rubber bumpers (2.1). Remove top cover (3).

b. Installation. Install top cover (3) with four screws (2), four rubber bumpers (2.1), and eight nuts (1).

c. Follow-on Maintenance. Install engine side panels (TM 9-2320-279-10).

END OF TASK

16-10. FRONT AND REAR ENGINE COVER FRAME REMOVAL/INSTALLATION.

This task covers:

a. Front Engine Cover Frame Removal
b. Front Engine Cover Frame Installation
c. Rear Engine Cover Frame Removal
d. Rear Engine Cover Frame Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

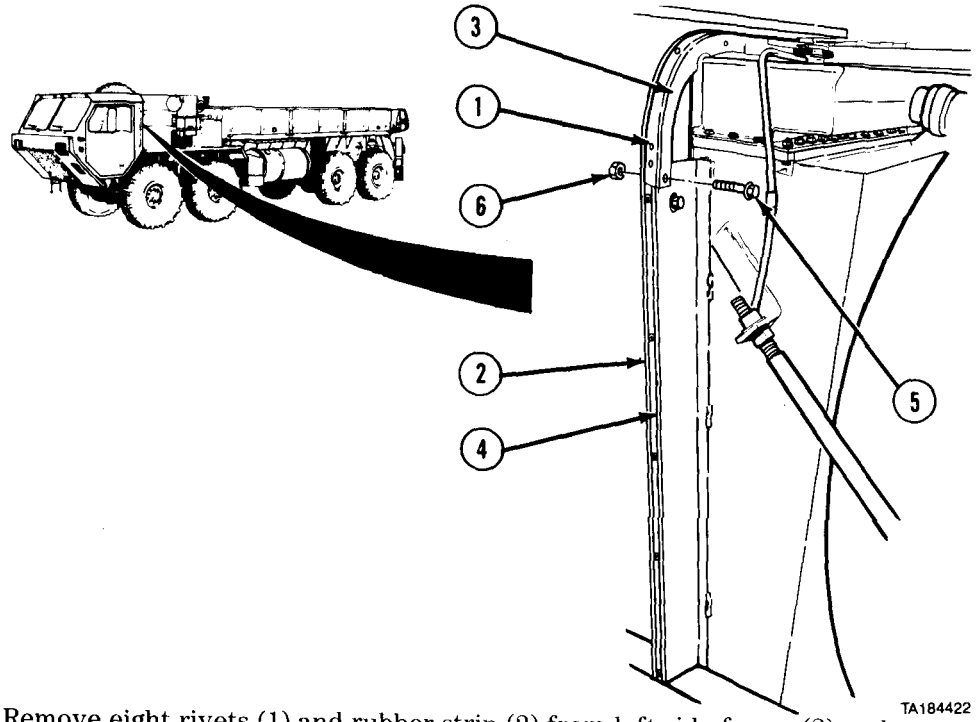
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Spare tire removed (only when front engine cover frame is being removed).
Para 16-9	Engine cover removed.
TM 9-2320-279-10	Engine side panels removed.

Special Environmental Conditions
None

General Safety Instructions
None

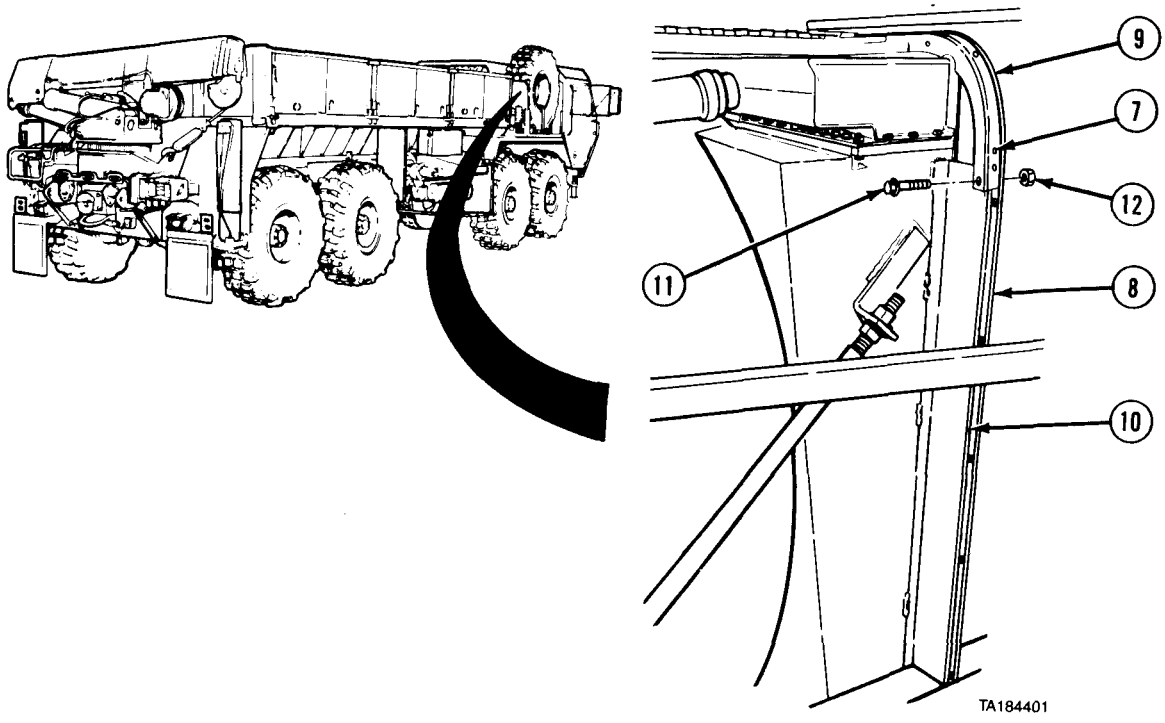
16-10. FRONT AND REAR ENGINE COVER FRAME REMOVAL/INSTALLATION (CONT).

a. Front Engine Cover Frame Removal.



(1) Remove eight rivets (1) and rubber strip (2) from left side frame (3) and support (4).
(2) Remove three screws (5), locknuts (6), and left side frame (3).

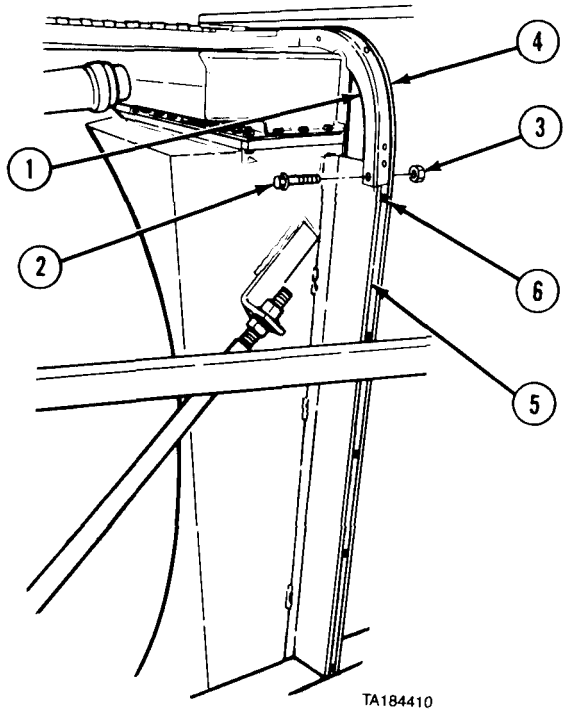
Cab and Body Maintenance Instructions (Cont)



(3) Remove nine rivets (7) and rubber strip (8) from right side frame (9) and support (10).
(4) Remove five screws (11), locknuts (12), and right side frame (9).

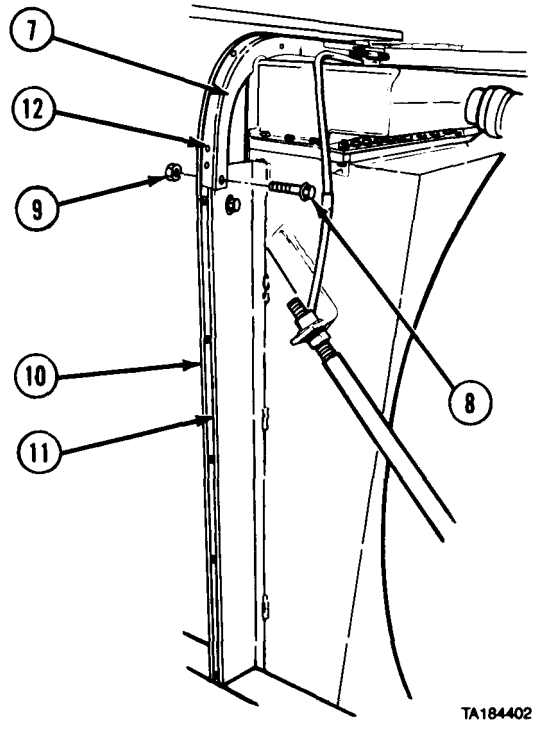
b. Front Engine Cover Frame Installation.

(1) Install right side frame (1) with five screws (2) and locknuts (3).
(2) Install rubber strip (4) to right side frame (1) and support (5) with nine rivets (6).



16-10. FRONT AND REAR ENGINE COVER FRAME REMOVAL/INSTALLATION (CONT).

(3) Install left side frame (7) with three screws (8) and locknuts (9).
(4) Install rubber strip (10) to left side frame (7) and support (11) with eight rivets (12).

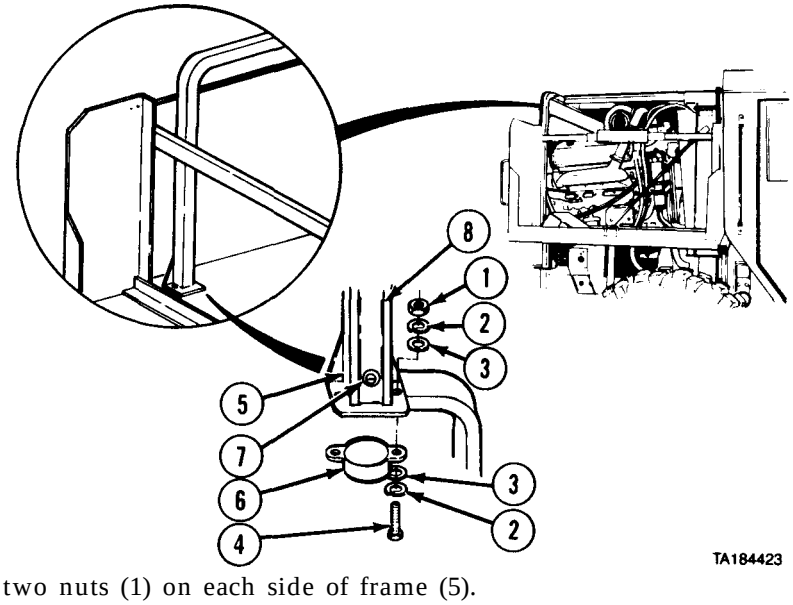


c. Rear Engine Cover Frame Removal.

(1) Remove two nuts (1), four lockwashers (2), washers (3), and two screws (4) from each side of frame (5).
(2) Remove frame (5) from mounts (6).
(3) Remove 16 rivets (7) and two rubber strips (8).

d. Rear Engine Cover Frame Installation.

(1) Install two rubber strips (8) to frame (5) with 16 rivets (7).
(2) Place frame (5) on mounts (6).
(3) Install two screws (4), four lockwashers (2), washers (3), and two nuts (1) on each side of frame (5).



e. Follow-on Maintenance.

(1) Install engine side panels (TM 9-2320-279-10).
(2) Install engine cover (para 16-9).
(3) Stow spare tire (only if front engine cover frame was removed) (TM 9-2320-279-10).

END OF TASK

16-11. HEATER COMPARTMENT COVERS REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

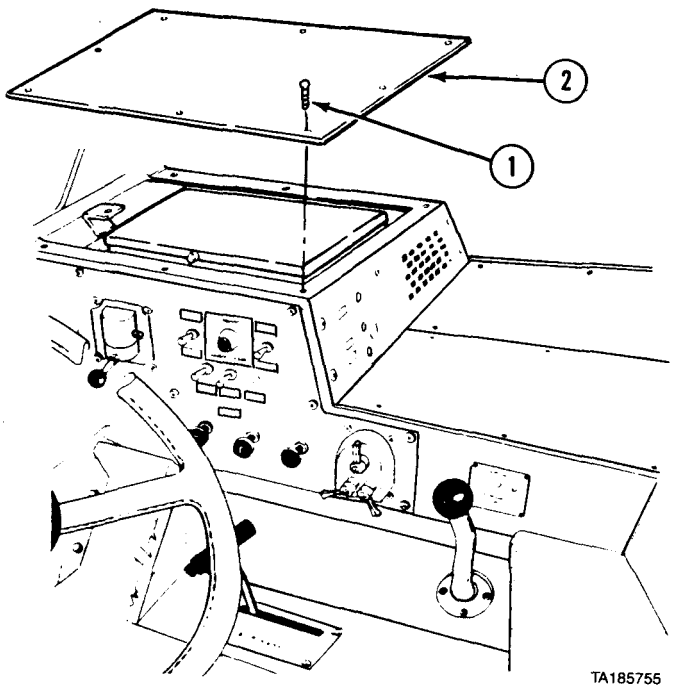
TM or Para	*Condition Description*
Para 7-91	Batteries disconnected.
Para 7-18	Utility outlet removed (for left cover only).
Para 7-95	PTO indicator light assembly and switch removed (for left cover only).
Para 18-25	Air control knob removed (for center cover only).
Para 18-23	Heater control cable assembly removed (for center cover only).
Para 18-24	Defroster control cable assembly removed (for center cover only).
Para 7-42	Heater fan switch removed (for center cover only).

Special Environmental Conditions
None

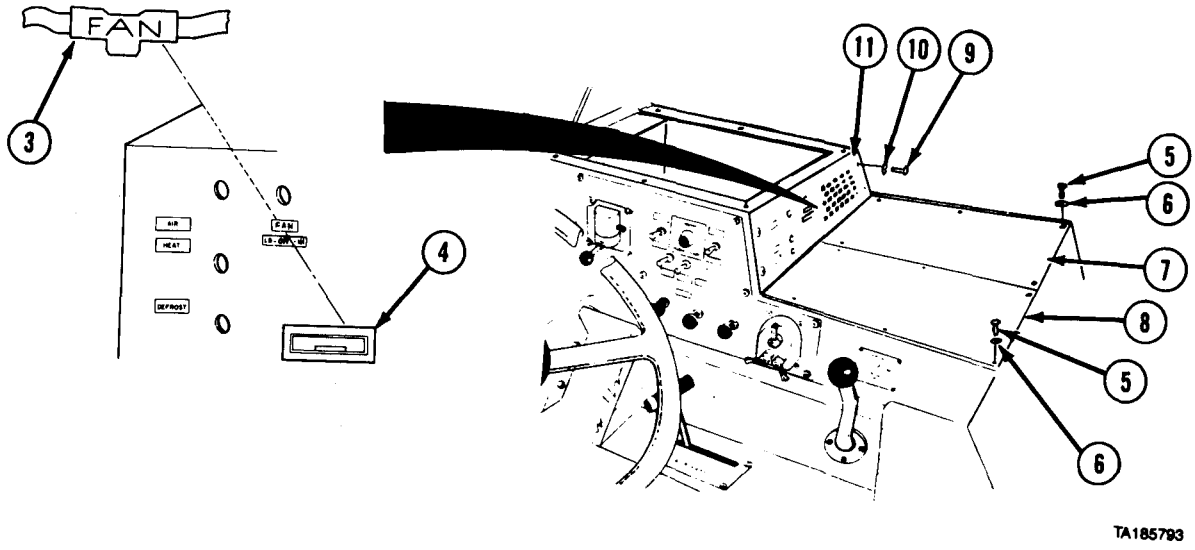
General *Safety Instructions*
None

a. Removal.

(1) Remove eight screws (1) and top heater compartment cover (2).

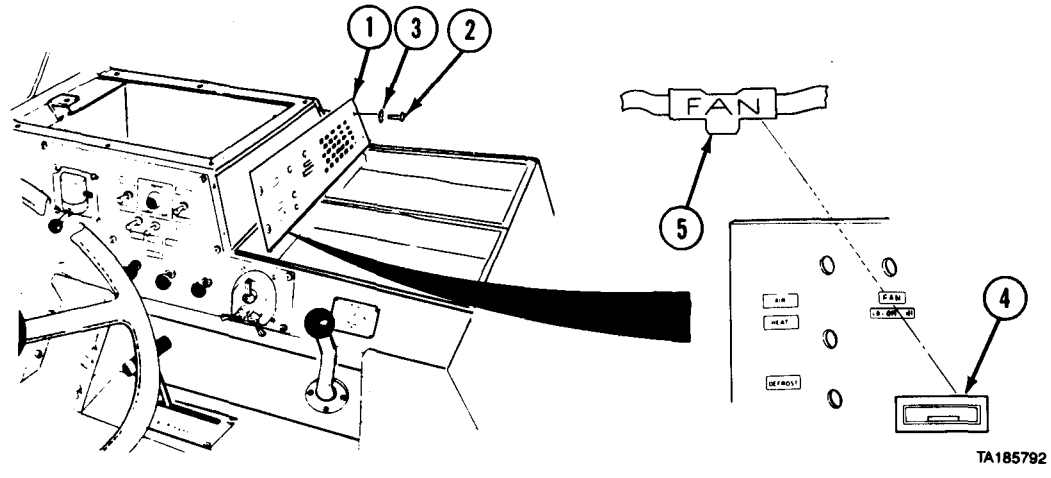


16-11. HEATER COMPARTMENT COVERS REMOVAL/INSTALLATION (CONT).



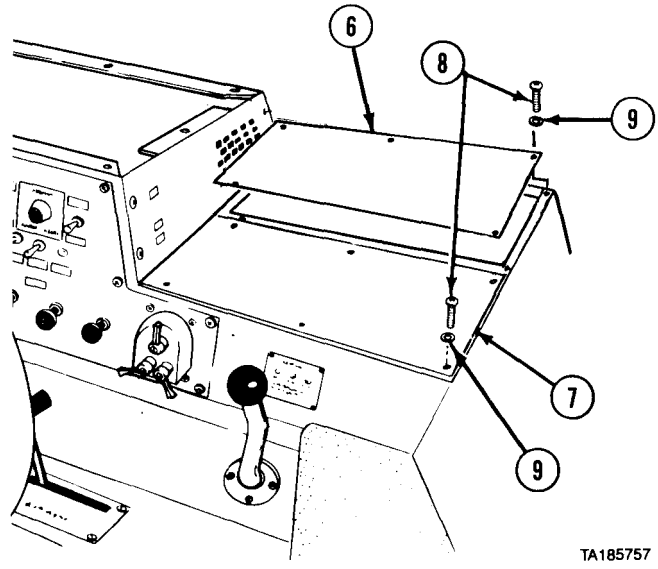
(2) Press tab at rear of each identification marker (3) and remove five identification markers,
(3) Remove five lenses (4).
(4) Remove 11 screws (5) and lockwashers (6).
(5) Remove right and left heater compartment covers (7 and 8).
(6) Remove four screws (9), lockwashers (10), and center heater compartment cover (11).

b. Installation.



(1) Install center heater compartment cover (1) with four screws (2) and lockwashers (3).
(2) Install five lenses (4).
(3) Install five identification markers (5).

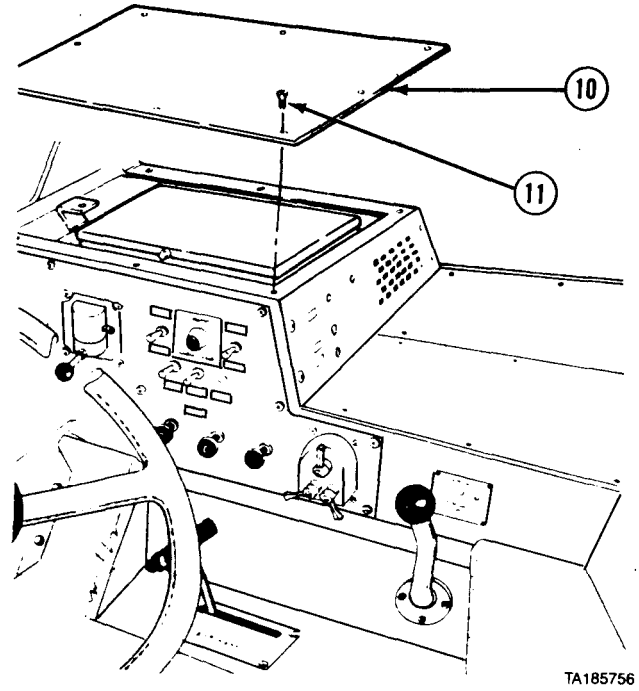
(4) Install right and left heater compartment covers (6 and 7) with eight screws (8) and lockwashers (9).



(5) Install top heater compartment cover (10) with eight screws (11).

c. Follow-on Maintenance.

(1) Install heater fan switch (for center cover only, para 7-42).
(2) Install defroster control cable assembly (for center cover only, para 18-24).
(3) Install heater control cable assembly (for center cover only, para 18-23).
(4) Install air control knob (for center cover only, para 18-25).
(5) Install utility outlet (for left cover only, para 7-18).
(6) Install PTO indicator light assembly and switch (for left cover only, para 7-95).
(7) Connect batteries (para 7-91).



END OF TASK

16-12. RIGHT AND LEFT WARNING KIT BRACKETS REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

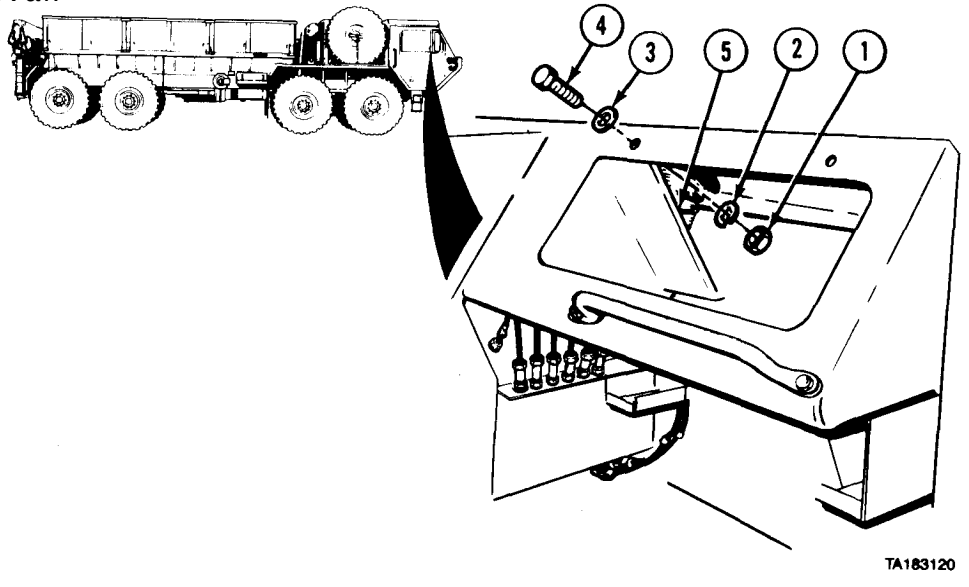
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Emergency highway marker removed.

Special Environmental Conditions
None

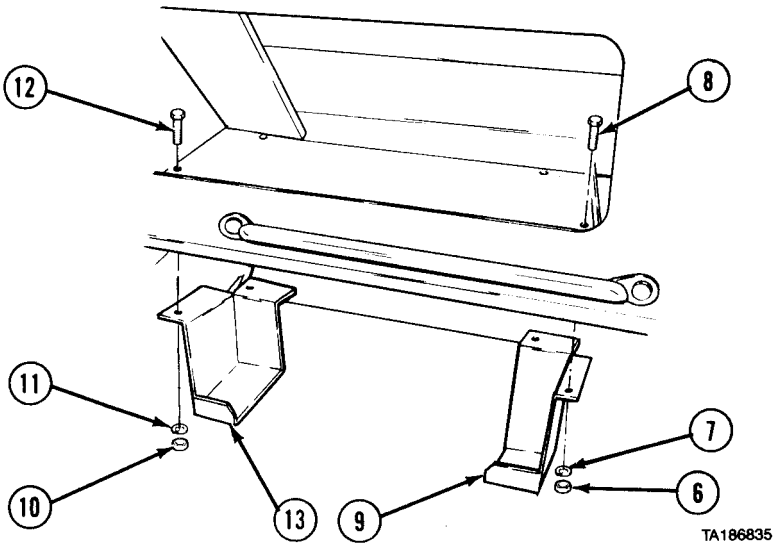
General Safety Instructions
None

a. Removal.



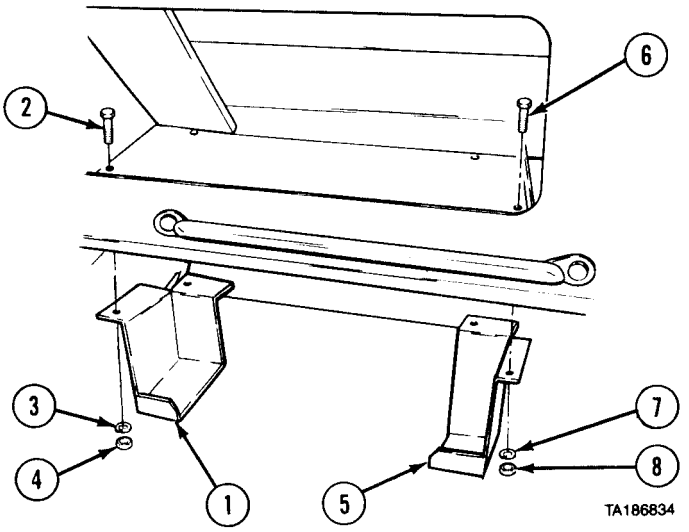
(1) Remove nut (1), lockwasher (2), washer (3), screw (4), and defroster hose guard (5).

(2) Remove two nuts (6), lockwashers (7), screws (8), and right bracket (9).
(3) Remove two nuts (10), lockwashers (11), screws (12), and left bracket (13).



b. Installation.

(1) Install left bracket (1) with two screws (2), lockwashers (3), and nuts (4).
(2) Install right bracket (5) with two screws (6), lockwashers (7), and nuts (8).

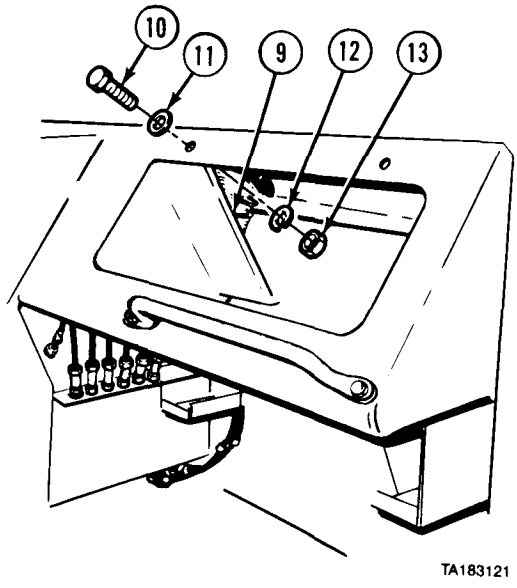


16-12. RIGHT AND LEFT WARNING KIT BRACKETS REMOVAL/INSTALLATION (CONT).

(3) Install defroster hose guard (9), screw (10), washer (11), lockwasher (12), and nut (13).

c. Follow-on Maintenance. Install emergency highway marker (TM 9-2320-279-10).

END OF TASK



Section III. SPLASH GUARDS, FENDERS, AND MUD FLAPS

16-13. SPLASH GUARD REMOVAL/INSTALLATION.

This task covers:

a. Right Splash Guard Removal
b. Right Splash Guard Installation
c. Left Splash Guard Removal
d. Left Splash Guard Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

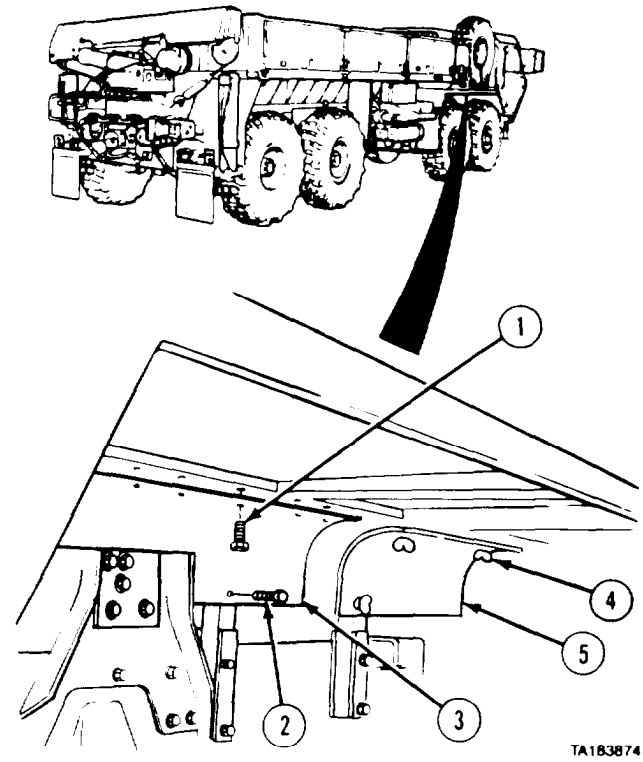
General Safety Instructions
None

a. Right Splash Guard Removal.

(1) Remove nine screws (1) and two screws (2).
(2) Remove splash guard (3).
(3) Loosen three studs (4) 1/4 turn and remove splash guard (5).

b. Right Splash Guard Installation.

(1) Aline splash guard (5) anti tighten three studs (4) 1/4 turn.
(2) Install splash guard (3) with nine screws (1) and two screws (2).



c. Left Splash Guard Removal.

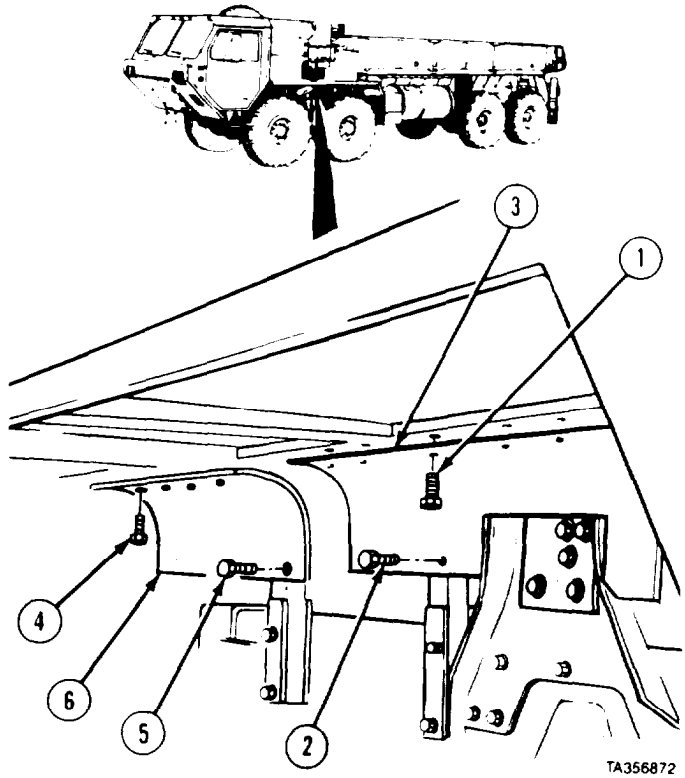
(1) Remove seven screws (1) and three screws (2).
(2) Remove splash guard (3).
(3) Remove four screws (4) and screw (5).
(4) Remove splash guard (6).

d. Left Splash Guard Installation.

(1) Install splash guard (6) with four screws (4) and screw (5).
(2) Install splash guard (3) with seven screws (1) and three screws (2).

e. Follow-on Maintenance. None.

END OF TASK



16-14. LEFT FRONT FENDER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

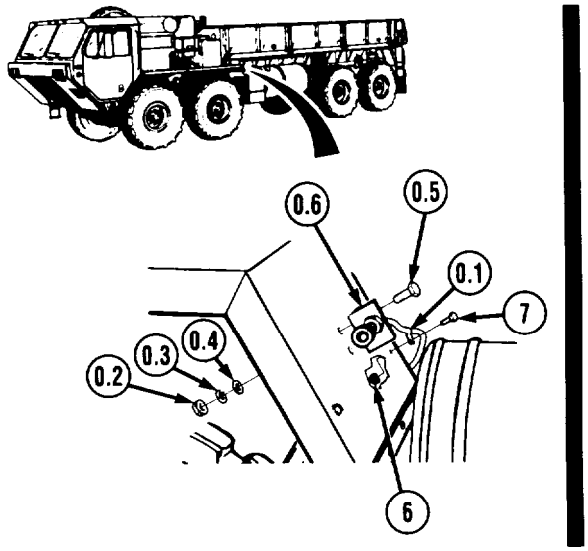
Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Engine side panel removed.
Para 4-5	Air cleaner assembly removed.
Para 4-4	Air intake ducting removed.
Para 7-92.1	NATO slave receptacle box removed.
Para 13-12	Hydraulic reservoir removed.
Para 16-13	Left splash guards removed (2).
Para 16-34	Stowage box removed (M978 only).
Para 16-20	Left front mud flap removed.
Para 16-70	Slave cable support hooks removed (M983 only).
Para 26-3	Decontamination unit brackets removed.
Para 16-33	Wheel chock stowage box removed (M978).

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



NOTE

- Do steps *(0.1)* and *(0.2)* for left fenders with inflators only.
- Do step *(1)* for all models except M984E1.
- The M1977-CBT uses a spacer and shorter front fender mount.
- Do steps *(1)* through (3) for all models except M1977-CBT.
- Do steps *(3.1)* through *(3.4)* for M1977-CBT only.
- Note position of screws and brackets prior to removal.

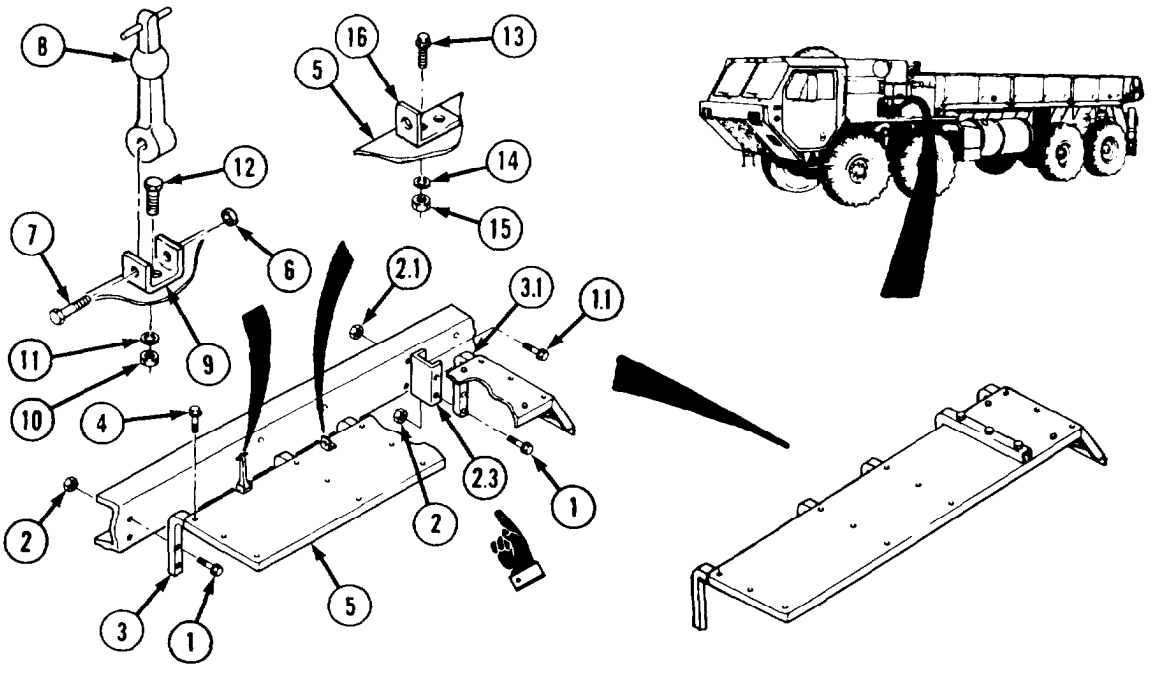
Cab and Body Maintenance Instructions (Cont)

(0.1) Remove screw (7), cushion clip (0.1) and nut (6).

NOTE

Some vehicles have nuts, lockwashers, washers, and screws. Others have flanged nuts and flanged screws.

(0.2) Remove two nuts (0.2), lockwashers (0.3), washers (0.4), screws (0.5), and inflator bracket (0.6).



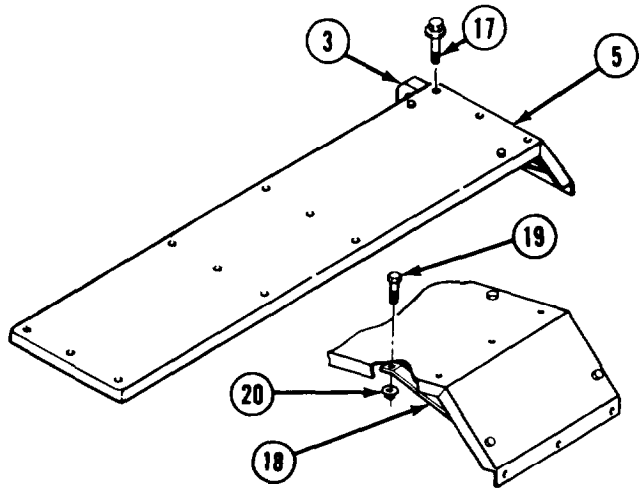
(1) Remove two screws (1) and nuts (2) from bracket (3).
(2) Remove seven screws (4) and eight screws (1) and nuts (2).
(3) Soldier A and Soldier B remove fender (5).
(3.1) Soldier A removes 10 screws (1) and nuts (2) from brackets (3) and bracket (3.1) while Soldier B supports fender (5).
(3.2) Soldier A and Soldier B remove fender (5).
(3.3) Remove seven screws (4).
(3.4) Remove two nuts (2.1), screws (1.1), and bracket (2.3).
(4) Remove nut (6) and screw (7) to detach holddown (8) from bracket (9).
(5) Remove nut (10), lockwasher (11), and screw (12) from bracket (9). Remove bracket.
(6) Remove two screws (13), lockwashers (14), and nuts (15) from bracket (16). Remove bracket.

NOTE
Do step (7) for all models except M984E1.

(7) Remove three screws (17) from fender (5) and fender bracket (3).

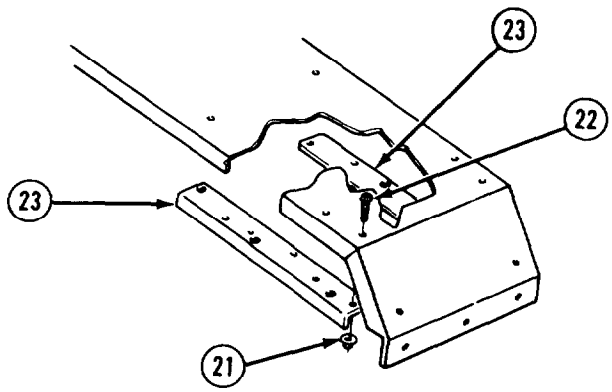
NOTE
Only three screws and nuts will be present if air inflator was removed.

(8) Remove four nuts (18), screws (19), and two fender braces (20).



NOTE
Do step (9) for M984E1 only.

(9) Remove two nuts (21), screws (22), and braces (23).



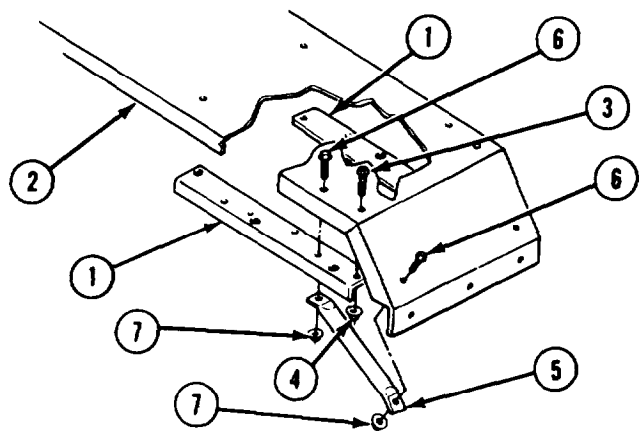
b. Installation.

NOTE
Do step (1) for M984E1 only.

(1) Install two braces (1) to fender (2) with two screws (3) and nuts (4).

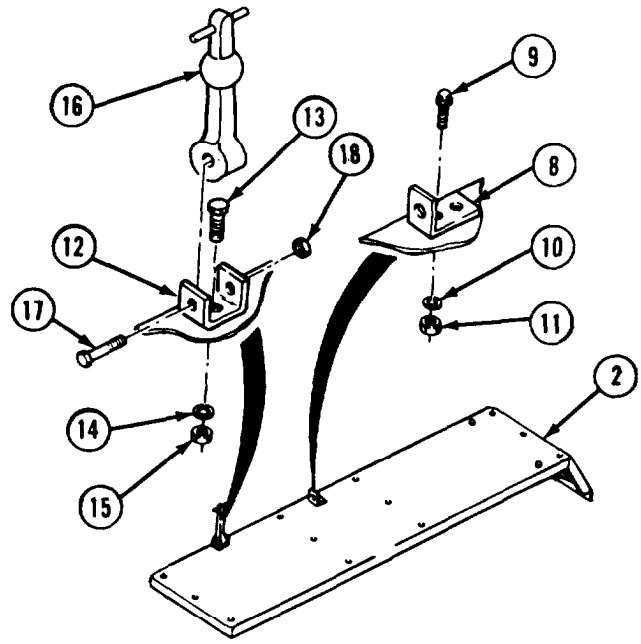
NOTE
Do not install bottom, right-hand (inside, lower) screw and nut if inflator is to be installed.

(2) Install two fender braces (5) to fender (2) with four screws (6) and nuts (7).



Cab and Body Maintenance Instructions (Cont)

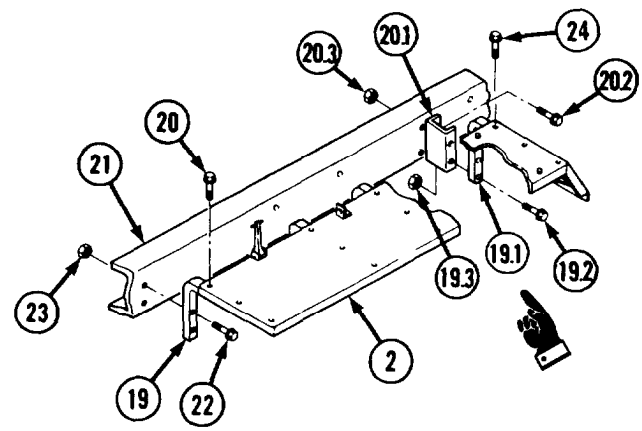
(3) Attach bracket (8) to fender (2) with two screws (9), lockwashers (10), and nuts (11).
(4) Attach bracket (12) with screw (13), lockwasher (14), and nut (15).
(5) Attach holddown (16) with screw (17) and nut (18).



NOTE

- The M1977-CBT uses a spacer and shorter front fender mount.
- Do steps (6.1) through (6.4) for M1977-CBT only.
- Do steps (7) through (9) for all models except M1977-CBT.
- Do steps (7) and (8) for all models except M984E1 and M1977-CBT.
- Do step (9) for M984E1 only.

(6) Attach rear fender bracket (19) with three screws (20).
(6.1) Install bracket (20.1) with two screws (20.2) and nuts (20.3).
(6.2) Install brackets with seven screws (24).
(6.3) Soldier A installs three brackets (19) and bracket (19.1) with eight screws (19.2) and nuts (19.3), while Soldier B supports fender (2).
(6.4) Soldier A tightens nuts (19.3 and 20.3) while Soldier B holds screws (19.2 and 20.2).
(7) Soldier A and Soldier B install fender (2) on vehicle and attach fender bracket (19) to vehicle chassis (21) with two screws (22) and nuts (23).



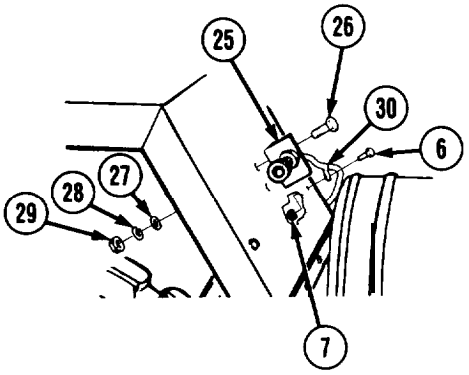
(8) Soldier A and Soldier B install fender (2) on vehicle.
(9) Install three screws (24) through fender (2) to bracket (19).

Cab and Body Maintenance instructions (Cont)

NOTE

- Do steps *(10)* and *(11)* for left fenders with inflator only.
- Some vehicles have nuts, lockwashers, washers, and screws. Others have flanged nuts and flanged screws.

(10) Install inflator bracket (25) with two screws (26), washers (27), lockwashers (28), and nuts (29).
(11) Install cushion clip (30) with screw (6) and nut (7).



c. Follow-on Maintenance.

(1) Install decontamination unit brackets (para 26-3).
(1.1) Install chock block stowage (M978 only).
(1.2) Install slave cable support hooks (M983 only) (para 16-70).
(2) Install left front mud flap (para 16-20).
(3) Install stowage box (M978 only) (para 16-34).
(4) Install left splash guards (para 16-13).
(5) Install hydraulic reservoir (para 13-12).
(5.1) Install NATO slave receptacle box (para 7-92.1).
(6) Install air intake duct (para 4-4).
(7) Install air cleaner assembly (para 4-5).
(8) Install engine side panel (TM 9-2320-279-10).

END OF TASK

16-15. RIGHT FRONT FENDER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

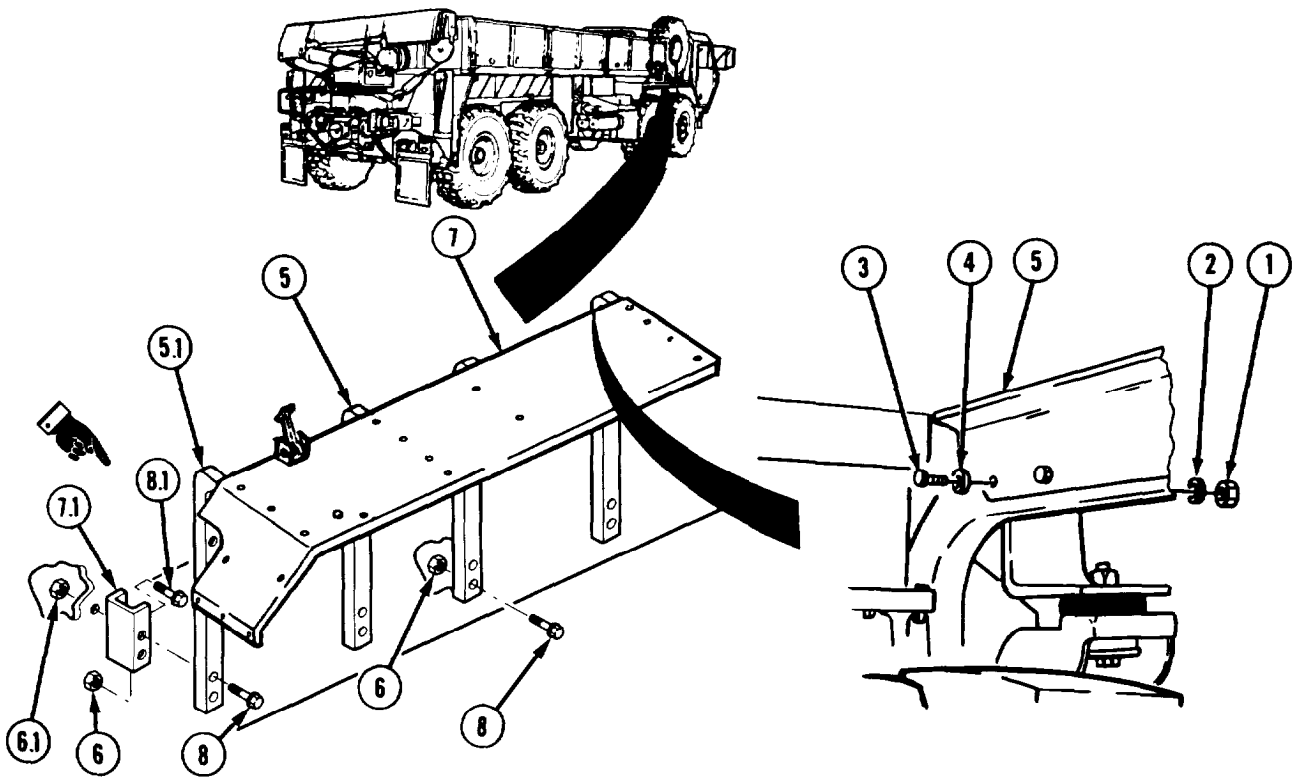
TM or Para	*Condition Description*
TM 9-2320-279-10	Engine side panel removed.
Para 16-13	Front splash guards removed.
Para 16-20	Front mud flap removed.
Para 19-2	Hydraulic hand pump removed (M983 only).
Para 4-10	Fuel-water separator removed.
Para 11-23	Air dryer removed.
Para 7-104	Fuel restriction sensor removed.
Para 14-16	Tire carrier removed.
Para 19-13	Selector valve removed.
Para 6-3	Radiator brace removed.
Para 16-10	Rear engine cover frame removed.

Special Environmental Conditions
None

General Safety Instructions
None

16-15. RIGHT FRONT FENDER REMOVAL/INSTALLATION (CONT).

a. ***Removal.***



(1) Remove two nuts (1), lockwashers (2), screws (3), and flat washers (4).
(2) Tag and mark four fender mounts (5) and (5.1).

NOTE

- The M1977-CBT has a spacer and shorter front fender mount.
- Do steps *(2.1)* thru *(2.4)* for M1977-CBT.
- Do steps *(3)* thru *(5)* for all models except M1977-CBT.

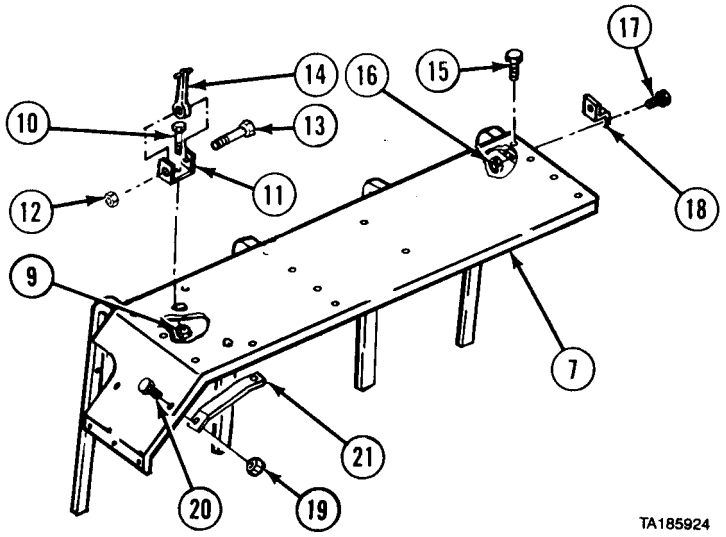
(2.1) Soldier A removes six nuts (6) and two nuts (6.1) while Soldier B supports fender (7).
(2.2) Soldier A removes six screws (8) and two screws (8.1) while Soldier B supports fender (7).
(2.3) Soldier A and Soldier B remove fender (7) with fender mounts (5) and (5.1) attached.
(2.4) Remove two nuts (6), screws (8), and spacer (7.1) from fender mount (5).
(3) Soldier A removes eight nuts (6) while Soldier B supports fender (7).
(4) Soldier A removes eight screws (8) while Soldier B supports fender (7).
(5) Soldier A and Soldier B remove fender (7) with fender mounts (5) attached.

(6) Remove locknut (9), screw (10), and bracket (11).
(7) Remove locknut (12), screw (13), and holddown (14).

NOTE

Do step *(8)* through *(10)* for all models except M984E1.

(8) Remove nine screws (15) and four fender mounts (5) from fender (7).
(9) Remove two locknuts (16), screws (17), and bracket (18).
(10) Remove four nuts (19), screws (20), and two fender braces (21).

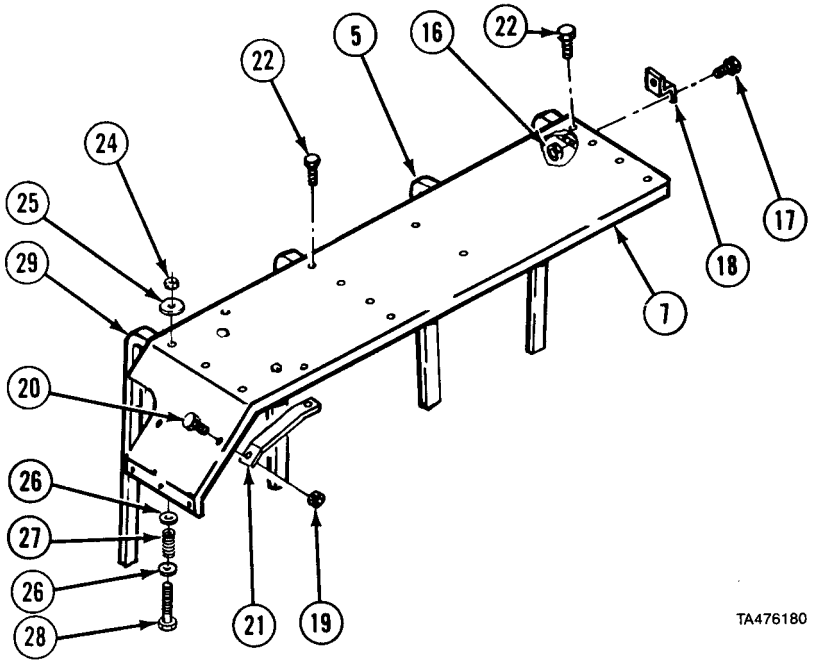


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NOTE

Do steps *(11)* through ***(14)*** for M984E1 *only*.

(11) Remove two locknuts (16), screws (17), and bracket (18) from fender (7).
(12) Remove four nuts (19), screws (20), and two fender braces (21).
(13) Remove six screws (22) and three fender mounts (5).
(14) Remove three locknuts (24), washers (25), six washers (26), three springs (27), screws (28), and fender mount (29).



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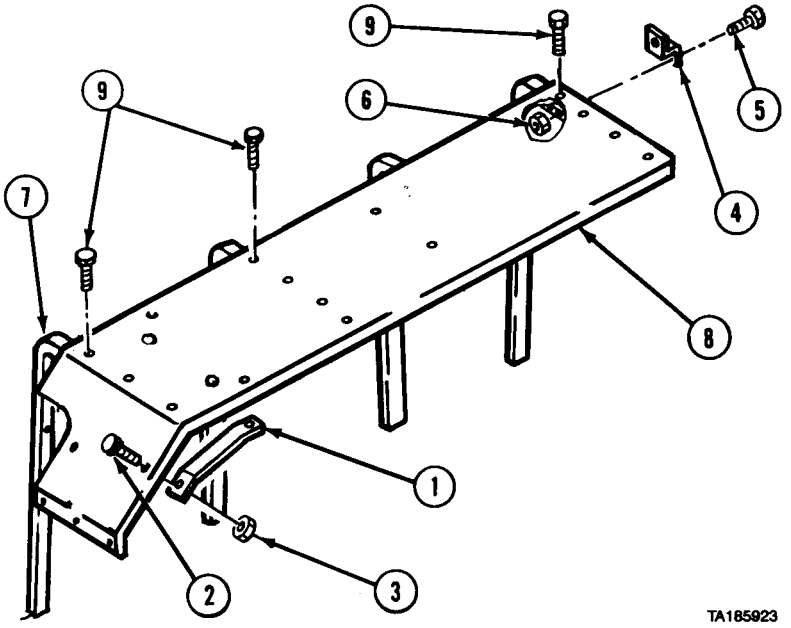
16-15. RIGHT FRONT FENDER REMOVAL/INSTALLATION (CONT).

b. Installation.

NOTE

Do steps *(1)* and (3) for all models except M984E1.

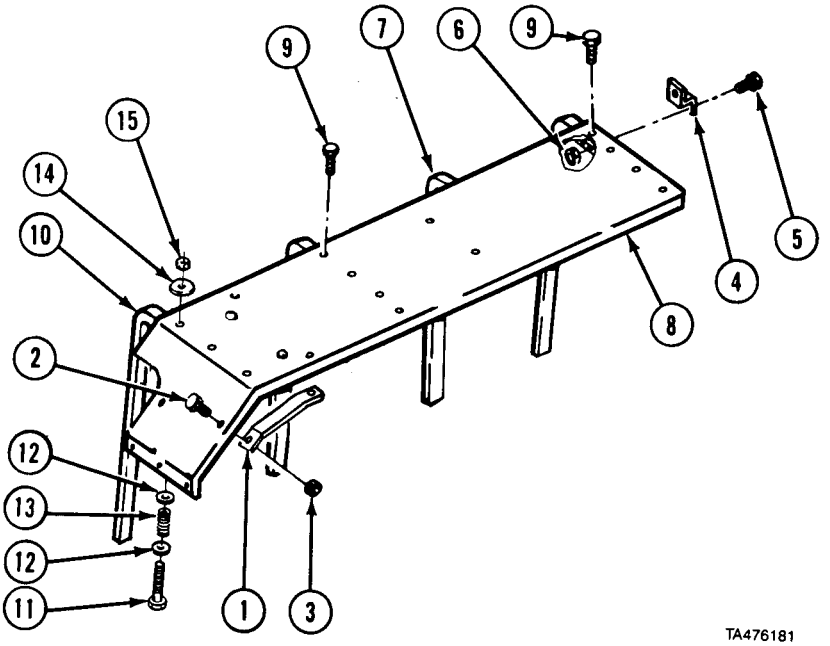
(1) Install two fender braces (1) with four screws (2) and nuts (3).
(2) Install bracket (4) with two screws (5) and locknuts (6).
(3) Install four fender mounts (7) on fender (8) with nine screws (9).



NOTE

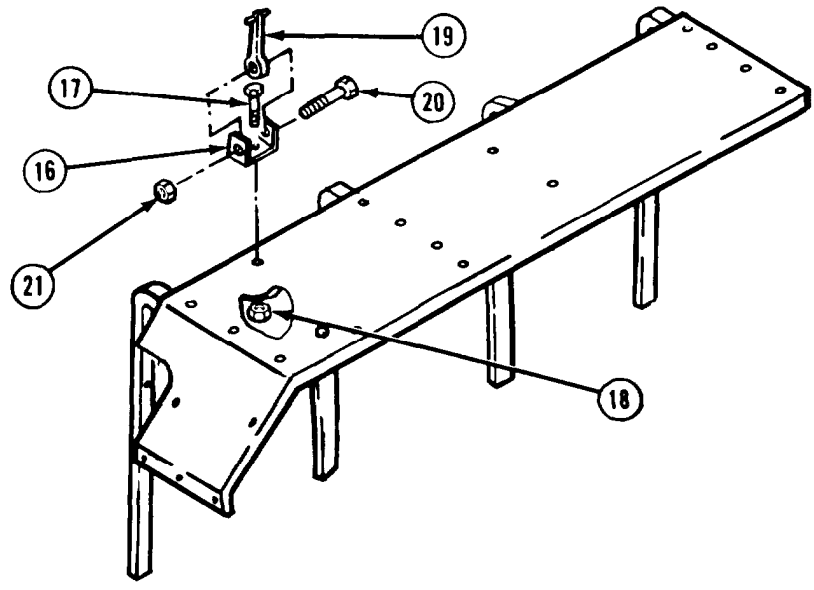
Do steps *(4)* through *(7)* for M984E1 only.

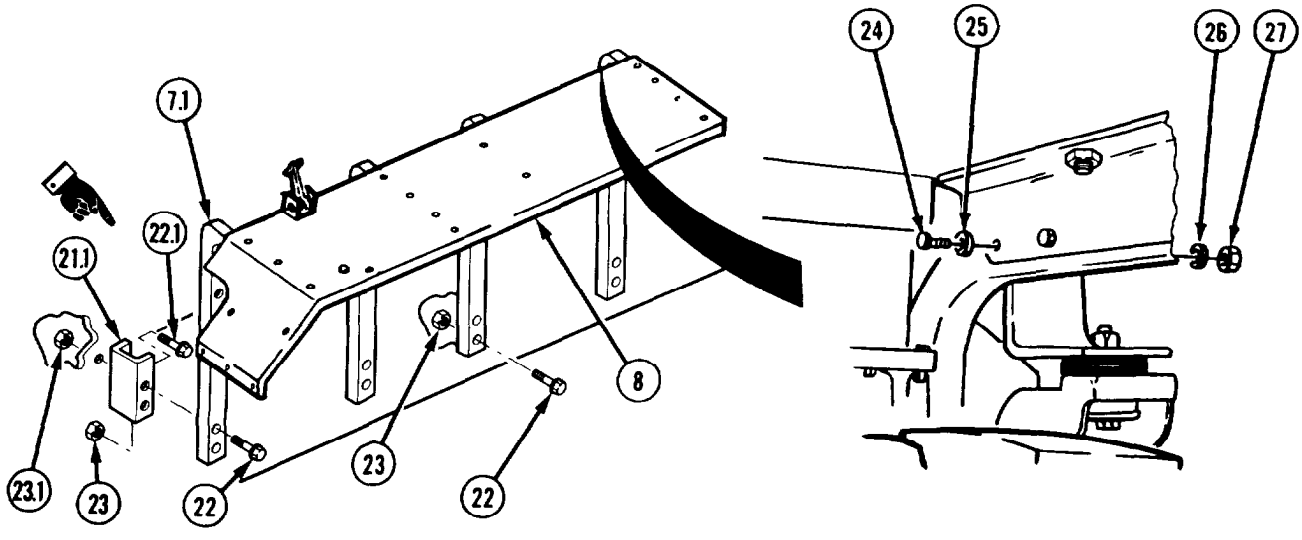
(4) Install fender mount (10) with three screws (11), six washers (12), springs (13), washer (14), and locknut (15). Tighten locknut until two threads show through nut.
(5) Install three fender mounts (7) on fender (8) with six screws (9).
(6) Install two fender braces (1) with four screws (2) and nuts (3).
(7) Install bracket (4) with two screws (5) and locknuts (6).



Cab and Body Maintenance Instructions (Cont)

(8) Install bracket (16) with screw (17) and locknut (18).
(9) Install holdown (19) with screw (20) and locknut (21).





NOTE

- The M1977-CBT has a spacer and shorter front fender mount.
- Do steps *(9.1)* thru *(9.3)* for M1977-CBT only
- Do steps *(10)* thru *(12)* for all models except M1977-CBT.

(9.1) Install spacer (21.1) on fender mount (7.1) with two screws (22) and nuts (23).
(9.2) Soldier A installs fender (8) with six screws (22), two screws (22.1), six nuts (23), and two nuts (23.1) while Soldier B supports fender.
(9.3) Soldier A tightens nuts (23 and 23.1) while Soldier B holds screws (22 and 22.1).
(10) Soldier A and Soldier B position fender (8) on vehicle.
(11) Soldier A installs eight screws (22) while Soldier B supports fender (8).
(12) Soldier A installs eight nuts (23) while Soldier B holds eight screws (22).
(13) Install two screws (24), flat washers (2.5), lockwashers (26), and nuts (27).

16-15. RIGHT FRONT FENDER REMOVAL/INSTALLATION (CONT).

c. Follow-on Maintenance.

(1) Install radiator brace (para 6-3).
(2) Install front splash guards (para 16-13).
(3) Install front mud flap (para 16-20).
(4) Install engine side panel (TM 9-2320-279-10).
(5) Install tire carrier (para 14-16).
(6) Install selector valve (para 19-13).
(7) Install air dryer (para 11-23).
(8) Install fuel restriction sensor (para 7-104).
(9) Install fuel-water separator (para 4-10).
(10) Install hydraulic hand pump (M983 only) (para 19-2).
(11) Install rear engine cover frame (para 16-10).

END OF TASK

16-16. REAR FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

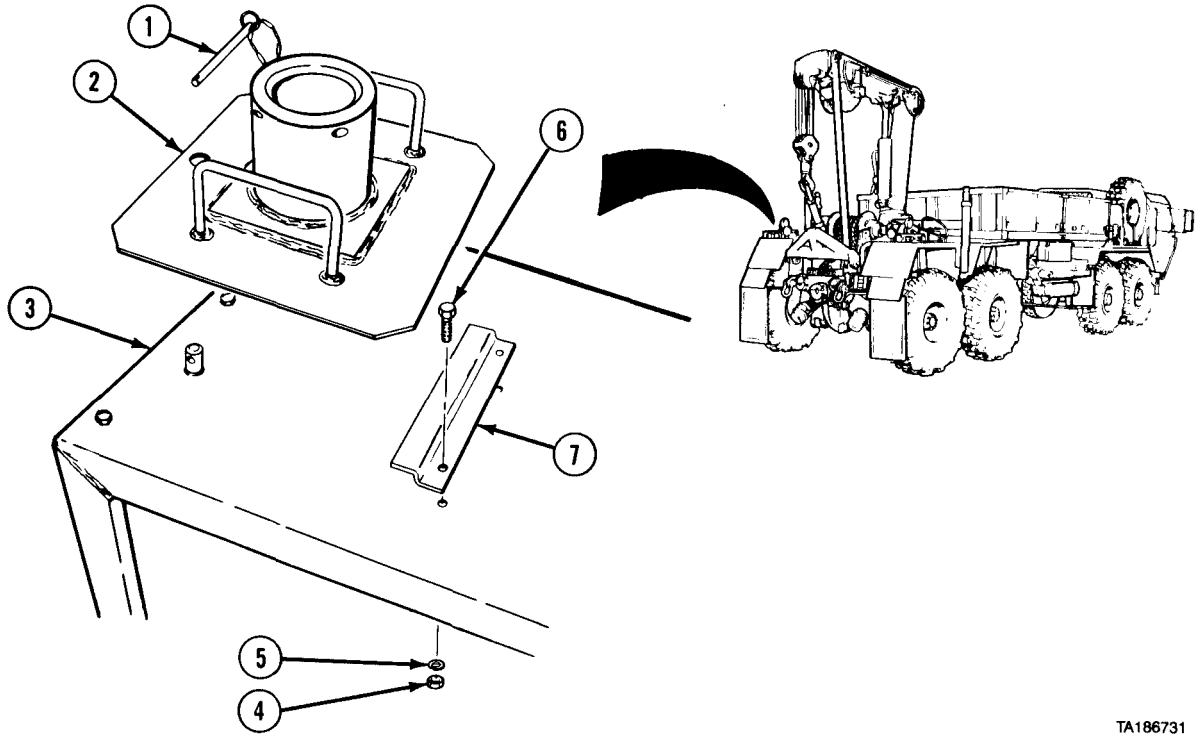
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 7-65	Side clearance lights removed.
Para 7-72	Work lamps removed.
Para 18-12	Side reflectors removed.
Para 16-22	Center and rear mud flaps removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



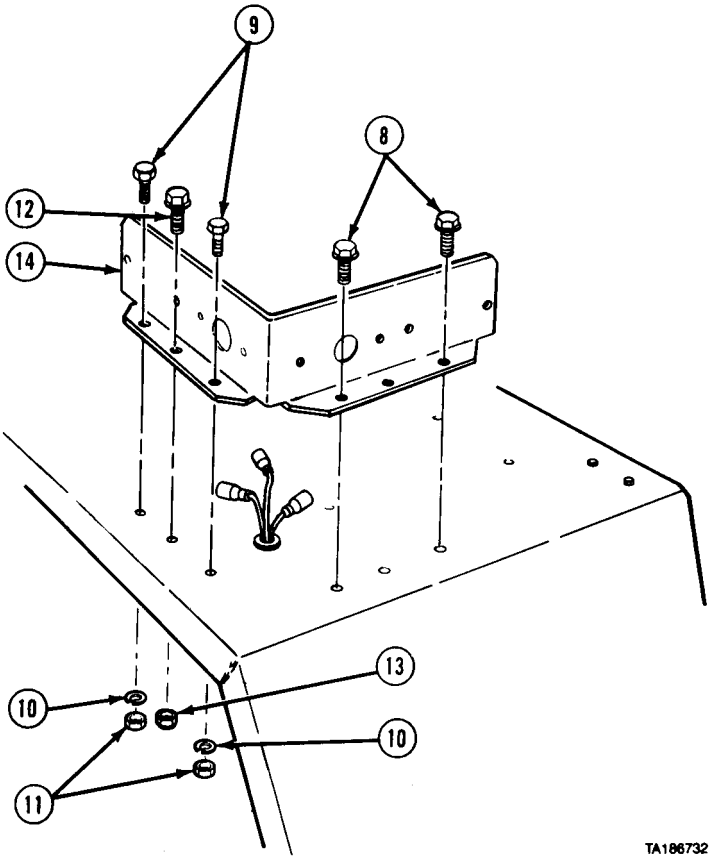
NOTE

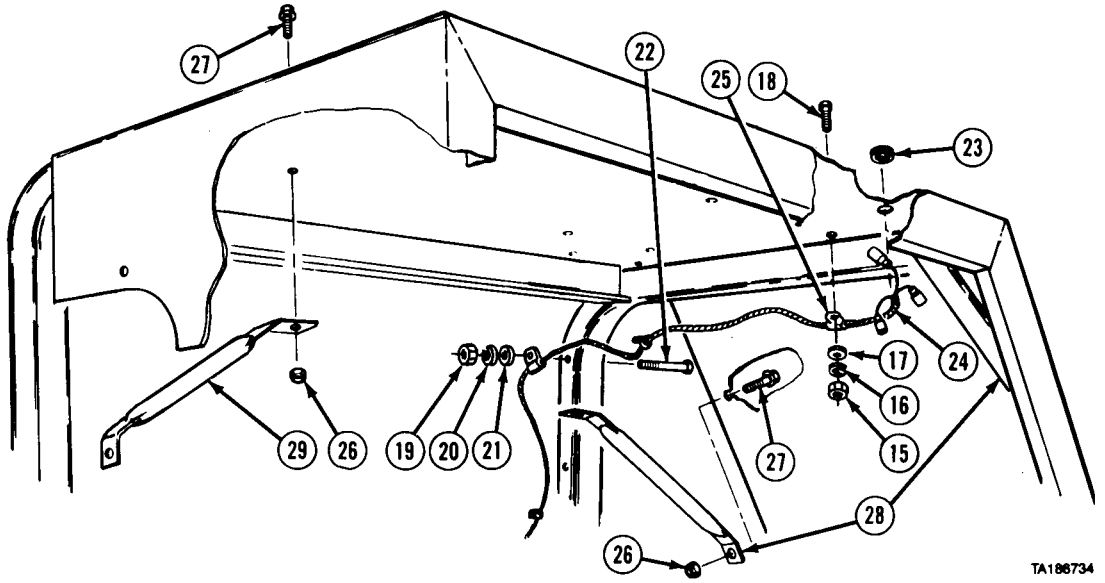
Left and right fenders are removed the same way. Left fender is shown.

(1) Remove pin (l).
(2) Lift outrigger pad (2) from fender (3).
(3) Remove two nuts (4), lockwashers (5), and screws (6).
(4) Remove outrigger pad retainer (7) from fender (3).

16-16. REAR FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).

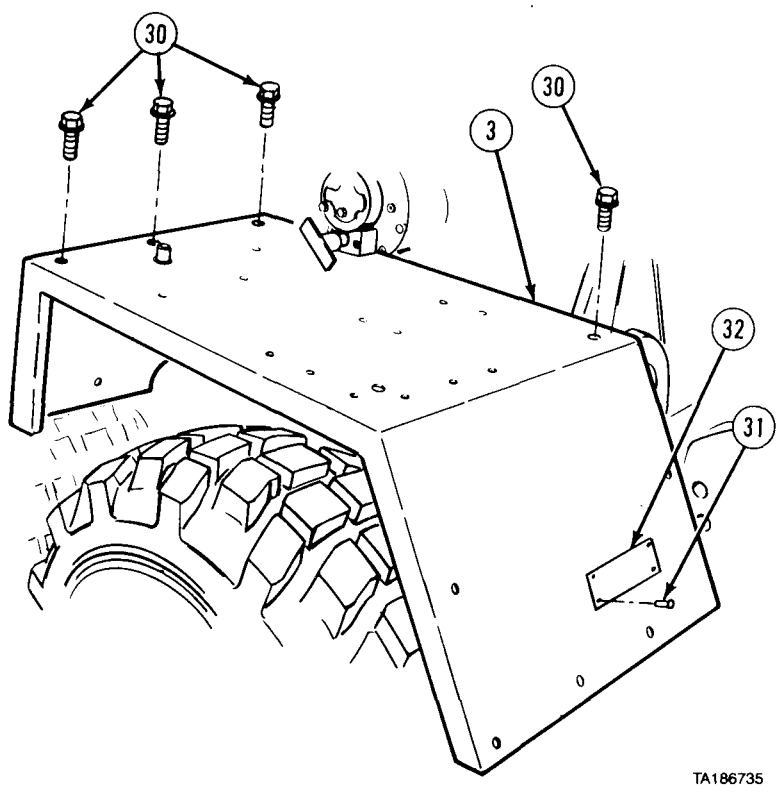
(5) Remove two screws (8).
(6) Remove two screws (9), lockwashers (10), nuts (11), screw (12), and locknut (13).
(7) Remove mounting bracket (14).

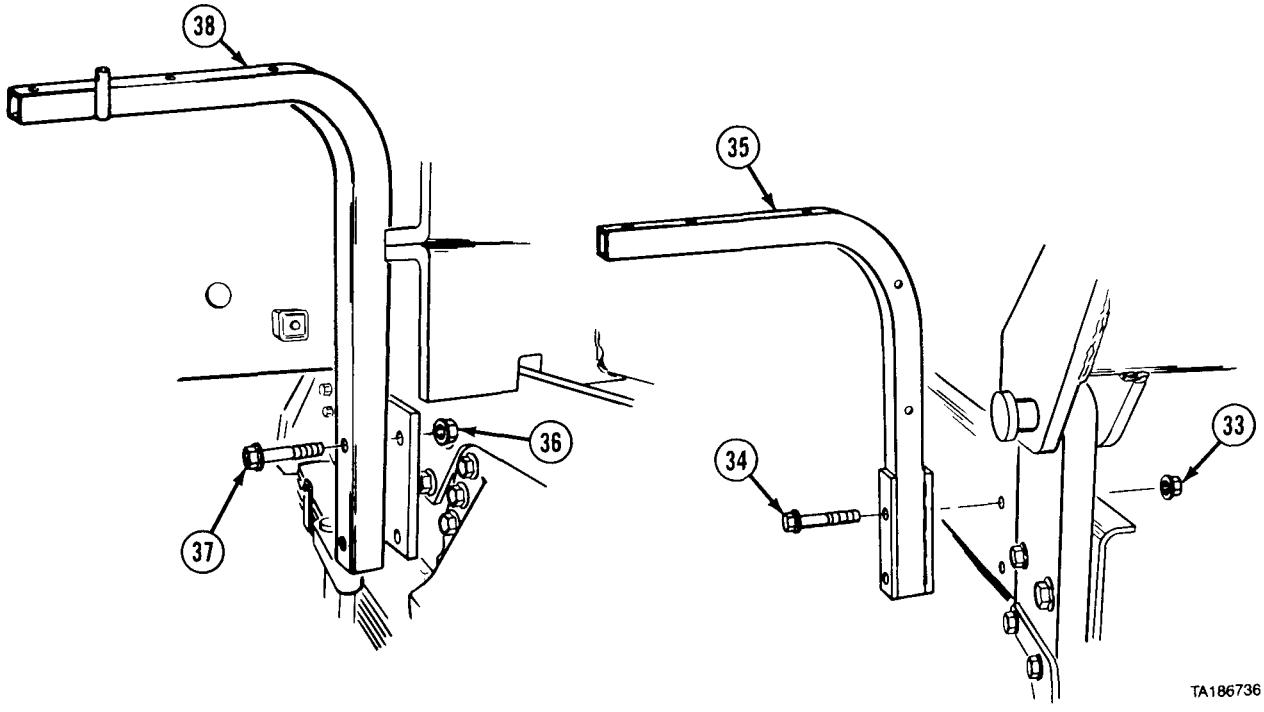




(8) Remove two nuts (15), lockwashers (16), washers (17). and screws (18).
(9) Remove two nuts (19), lockwashers (20), washers (21) and screws (22).
(10) Remove grommet (23) and power cable (24) with four clamps (25).
(11) Remove four nuts (26), screws (27), two fender braces (28), and fender brace (29).

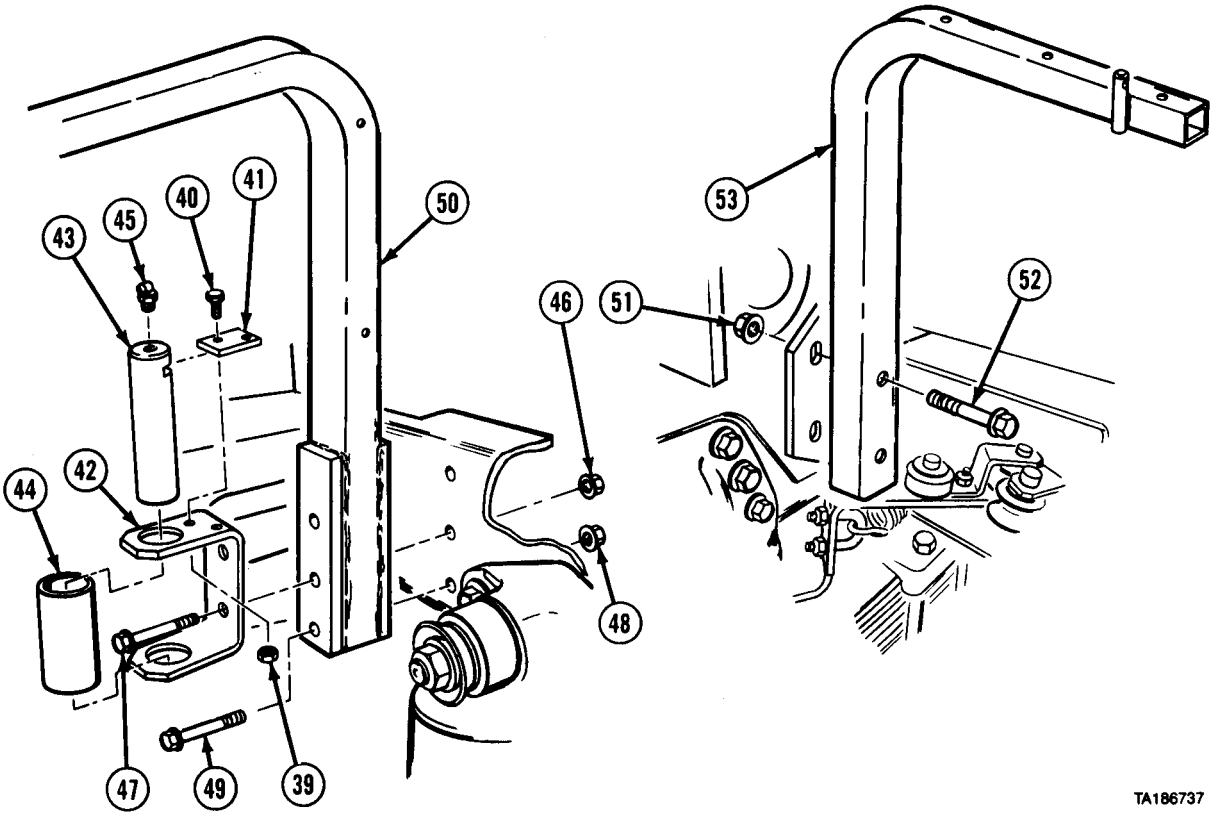
(12) Remove four screws (30).
(13) Remove fender (3).
(14) Remove four screws (31) and data plate (32).





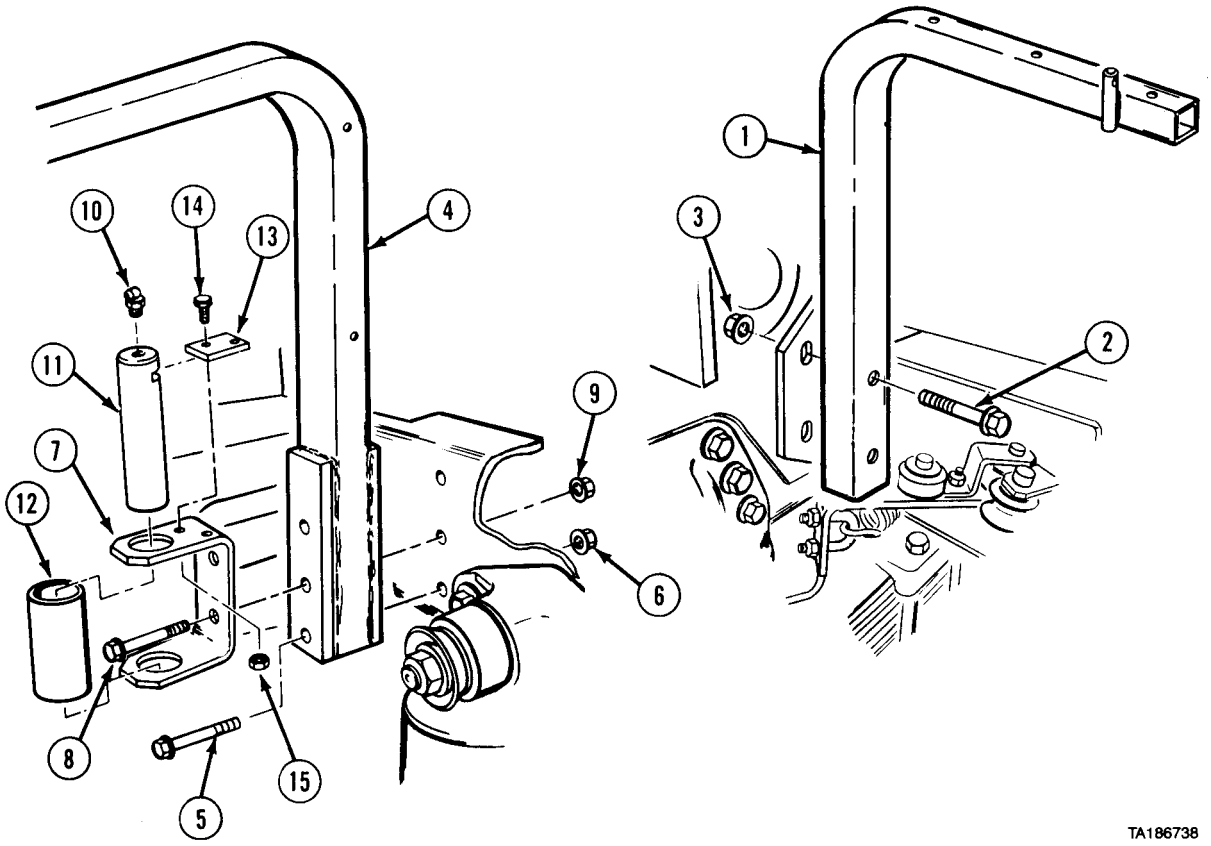
(15) Remove two nuts (33), screws (34), and left rear fender support (35).
(16) Remove two nuts (36), screws (37), and left front fender support (38).

16-16. REAR FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).



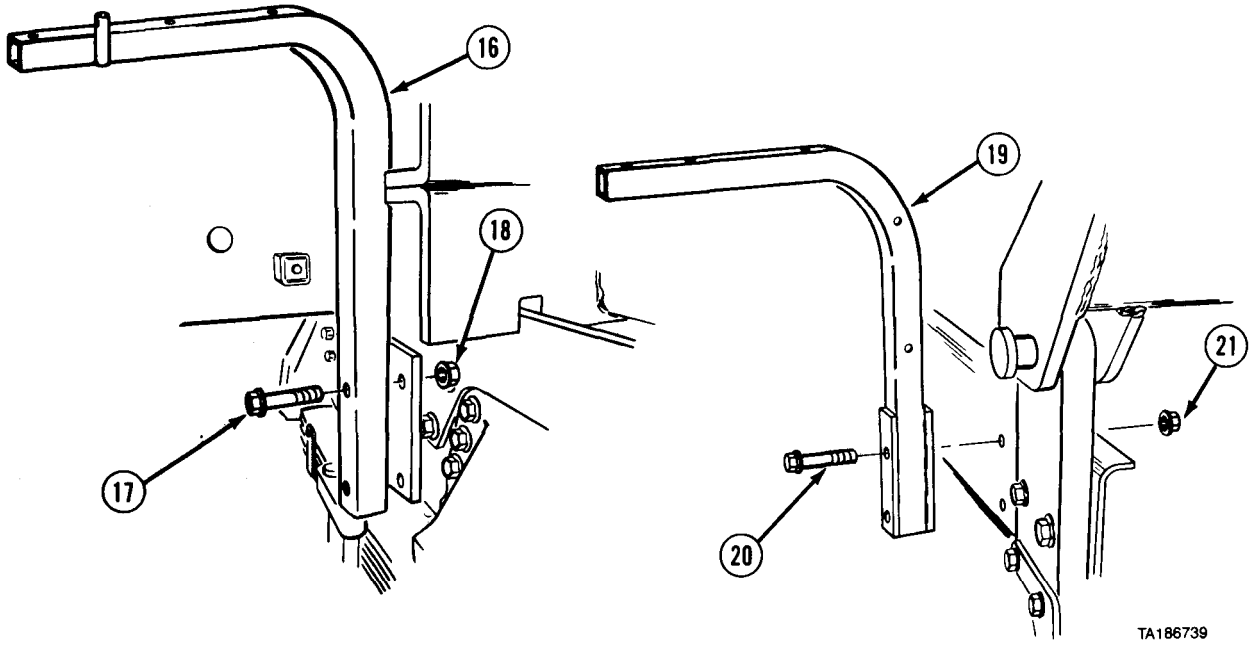
(17) Remove two locknuts (39), screws (40), and lockdate (41) from cable roller bracket (42),
(18) Remove pin (43) and roller (44).
(19) Remove grease fitting (45) from pin (43).
(20) Remove two nuts (46), screws (47), and cable roller bracket (42).
(21) Remove nut (48), screw (49), and right rear fender support (50).
(22) Remove two nuts (51), screws (52), and right front fender support (53).

b. Installation.



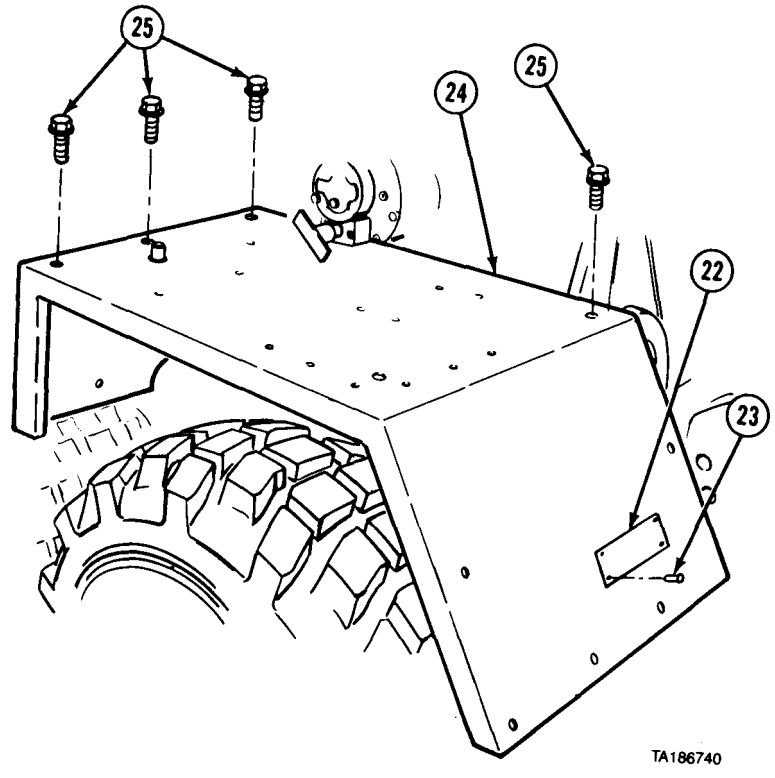
(1) Install right front fender support (1) with two screws (2) and nuts (3).
(2) Install right rear fender support (4) with screw (5) and nut (6).
(3) Install cable roller bracket (7) with two screws (8) and nuts (9).
(4) Install grease fitting (10) in pin (11).
(5) Install roller (12) and pin (11).
(6) Install lockplate (13) on cable roller bracket (7) with two screws (14) and locknuts (15).

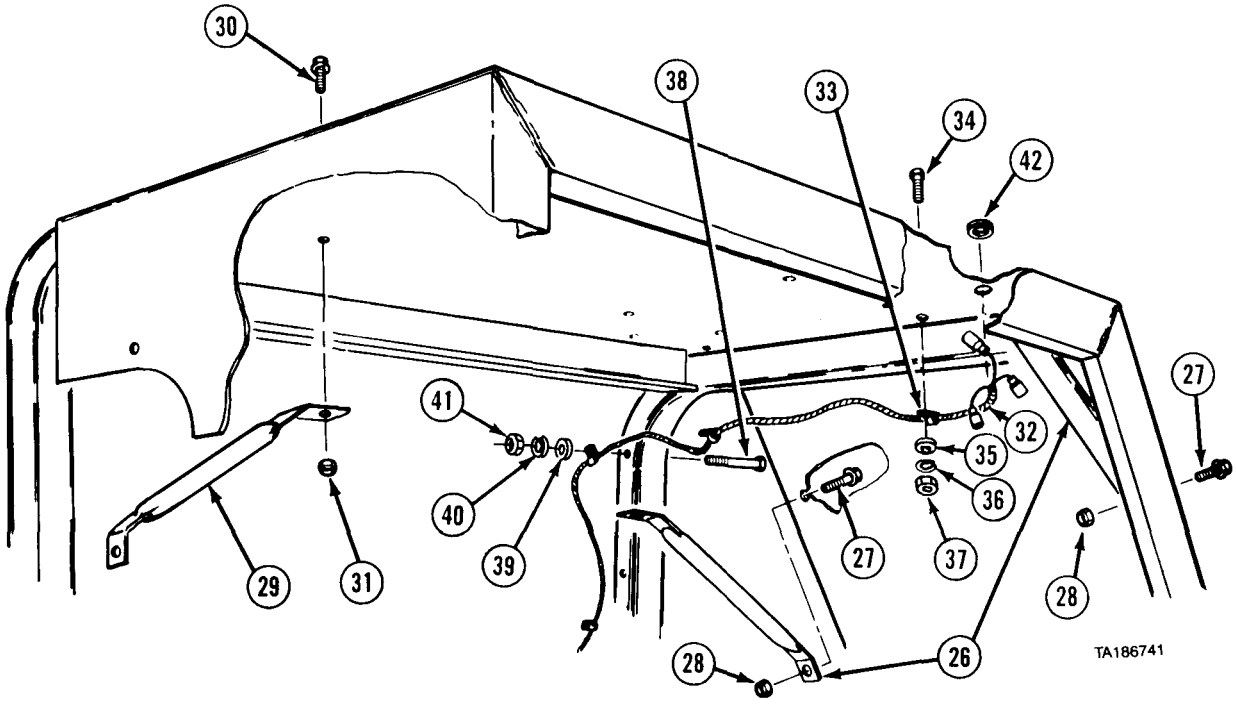
16-16. REAR FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).



(7) Install left front fender support (16) with two screws (17) and nuts (18).
(8) Install left rear fender support (19) with two screws (20) and nuts (21).

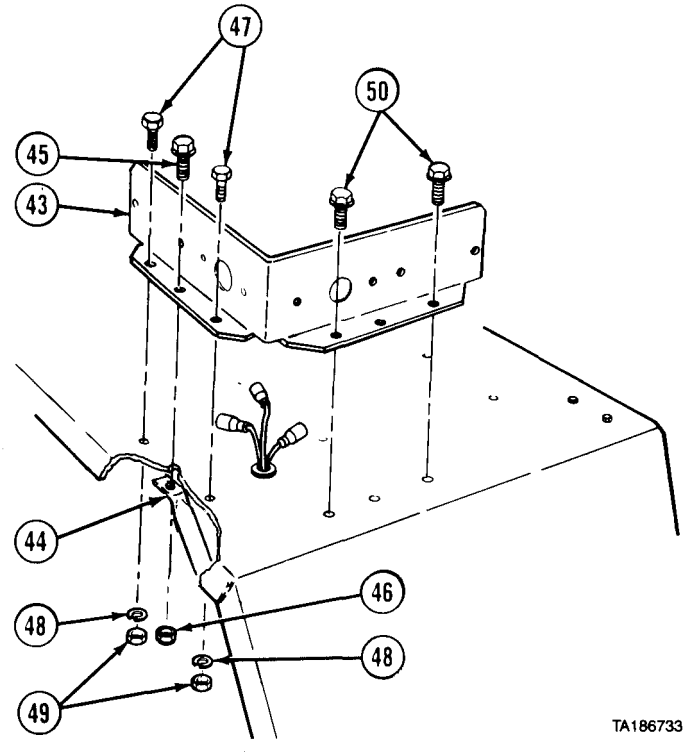
(9) Install data plate (22) with four screws (23) on fender (24).
(10) Position fender (24).
(11) Install four screws (25).





(12) Install two fender braces (26) with three screws (27) and locknuts (28).
(13) Install fender brace (29) with screw (30) and locknut (31).
(14) Install power cable (32) in four clamps (33) with two screws (34), washers (35), lockwashers (36), and nuts (37).
(15) Install two screws (38), washers (39), lockwashers (40), and nuts (41).
(16) Install power cable (32) through grommet (42).

(17) Install mounting bracket (43) and attach outer fender brace (44) with screw (45) and locknut (46).
(18) Install two screws (47), lockwashers (48), and nuts (49).
(19) Install two screws (50).



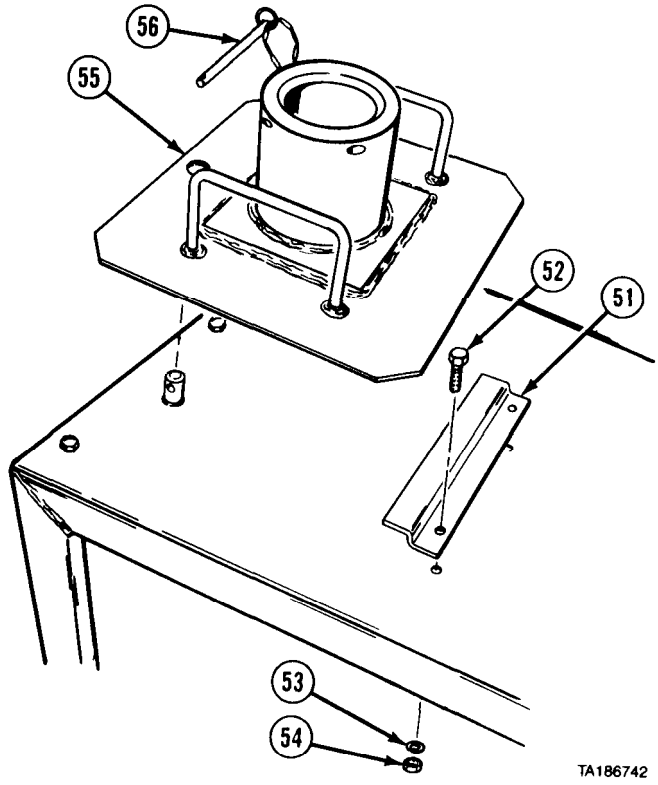
16-16. REAR FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).

(20) Install outrigger pad retainer (51) with two screws (52), lockwashers (53), and nuts (54).
(21) Install outrigger pad (55) in outrigger pad retainer (51).
(22) Install pin (56).

c. Follow-on Maintenance.

(1) Install side clearance lights (para 7-65).
(2) Install work lamps (para 7-72).
(3) Install side reflectors (para 18-12).
(4) Install center and rear mud flaps (para 16-22).
(5) Check operation of lights (TM 9-2320-279-10).

END OF TASK



16-170 REAR FENDER REMOVAL/INSTALLATION (M977, M985).

This task covers:

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

INITIAL SETUP

Models
M977, M985

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
Para 7-10	Engine high idle box removed.

Special Environmental Conditions
None

General Safety Instructions
None

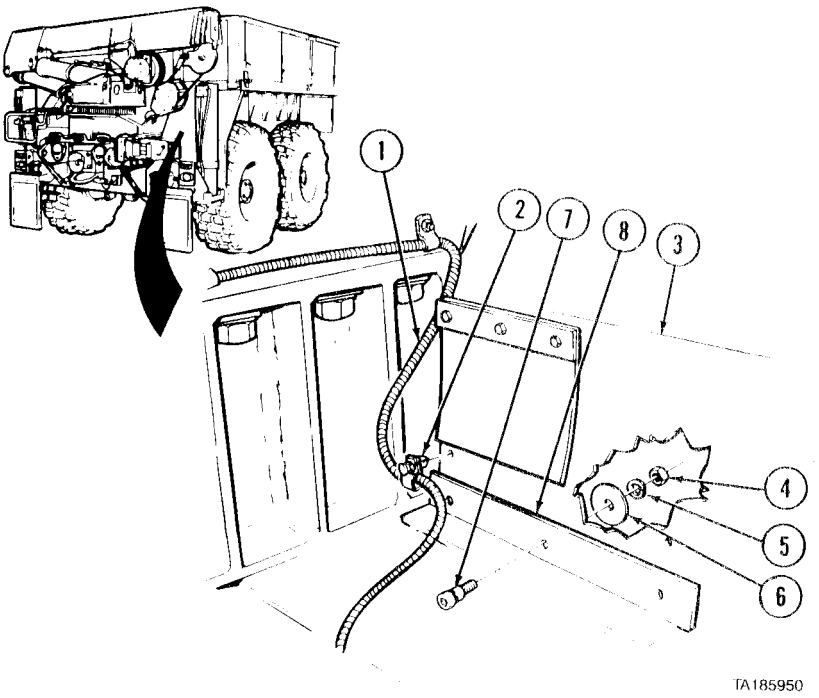
a. Removal.

NOTE

Right and left fenders are removed the same way. Right fender shown.

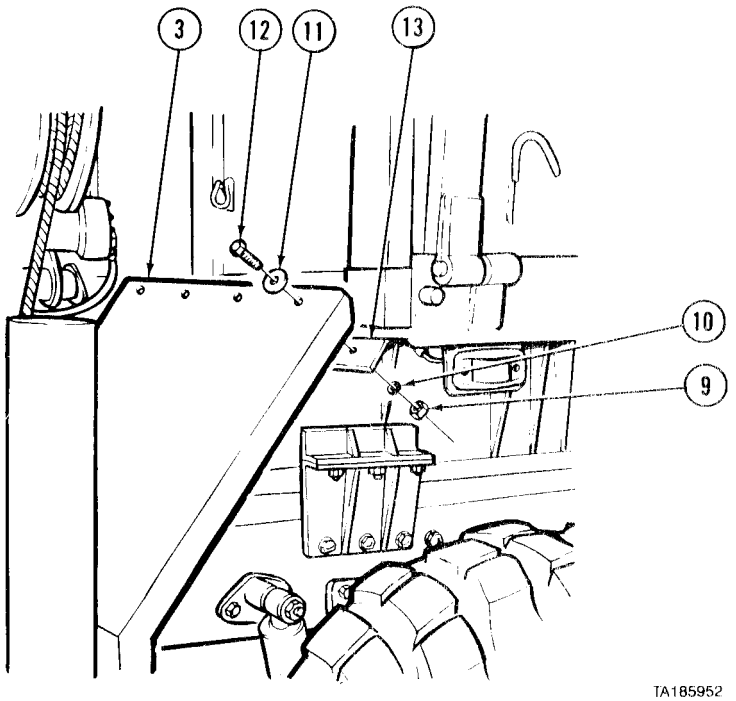
(1) Remove power cable (1) with two clamps (2) from fender (3) and set aside.

(2) Remove three nuts (4), lockwashers (5), washers (6), and screws (7) from bracket (8).



TA185950

(3) Remove four nuts (9), lockwashers (10), washers (11), screws (12), and fender (3) from bracket (13).



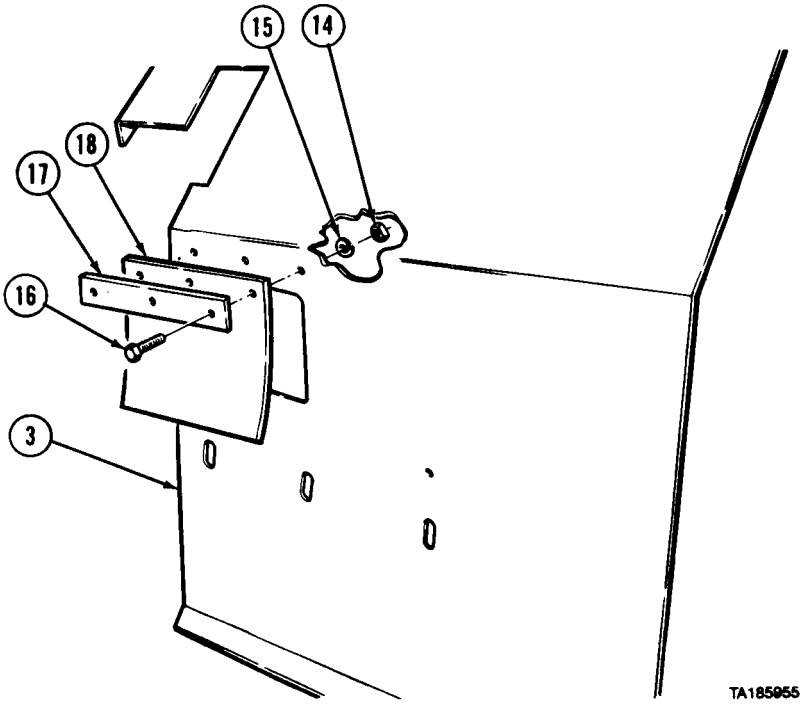
TA185952

16-17. REAR FENDER REMOVAL/INSTALLATION (M977, M985) (CONT).

NOTE

Do step *(4)* for right fender only.

(4) Remove three nuts (14), lockwashers (15), screws (16), holddown strap (17), and fender flap (18) from fender (3).

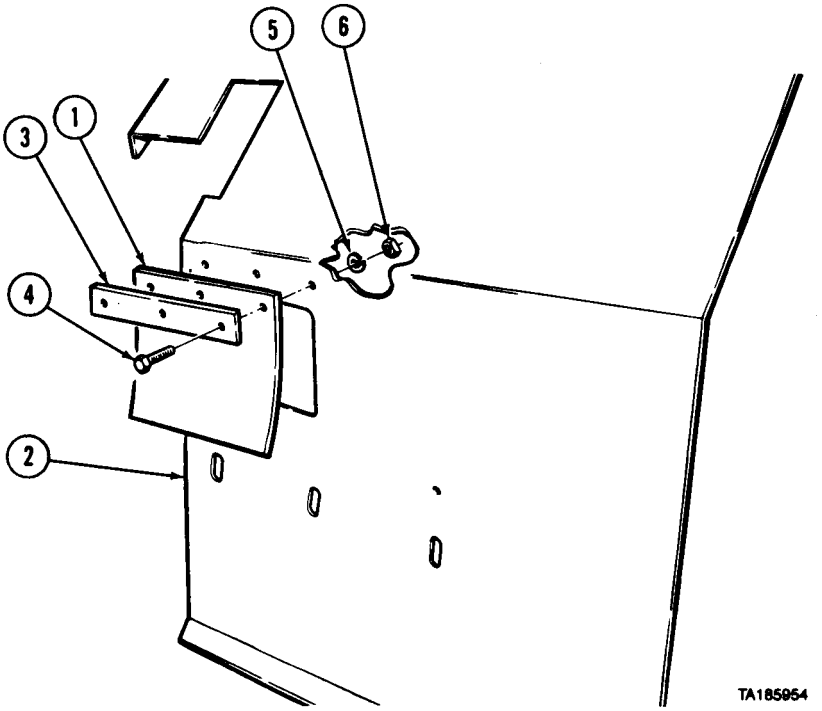


b. Installation.

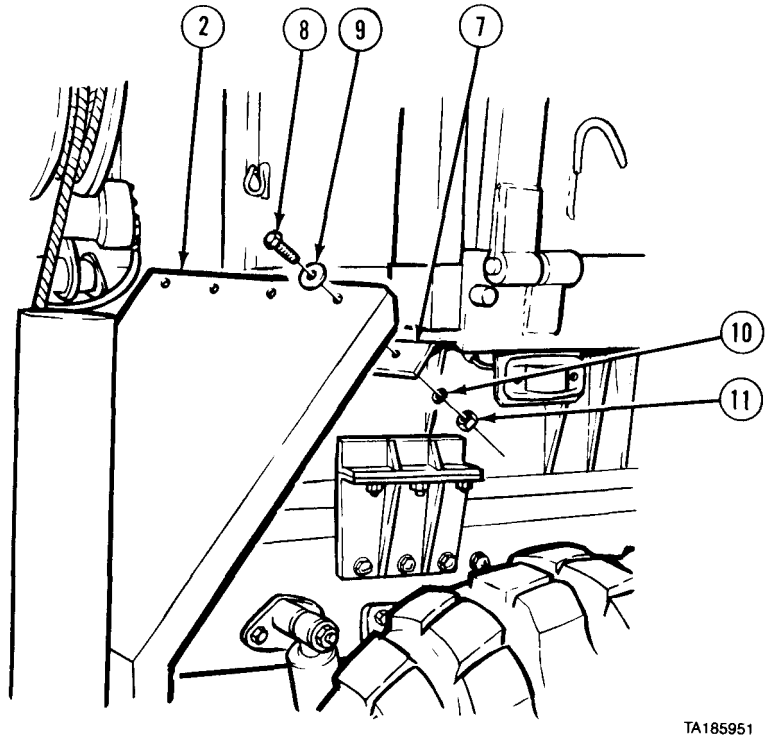
NOTE

- Right and left fenders are installed the same way. Right fender shown.
- Do step *(1)* for right fender only.

(1) Install fender flap (1) on fender (2) with holddown strap (3), three screws (4), lockwashers (5), and nuts (6).



(2) Install fender (2) on bracket (7) with four screws (8), washers (9), lockwashers (10), and nuts (11).



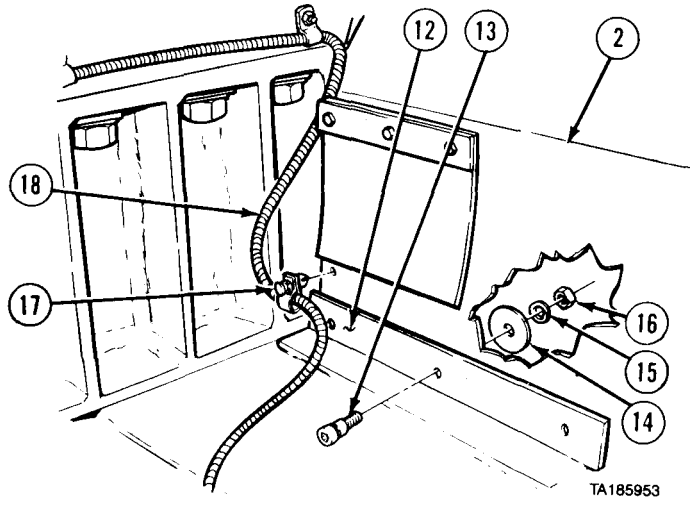
TA185951

(3) Install fender (2) on bracket (12) with three screws (13), washers (14), lockwashers (15), and nuts (16).

(4) Install two clamps (17) with power cable (18) on fender (2).

c. Follow-on Maintenance. Install engine high idle box (para 7-10).

END OF TASK



TA185953

16-18. LEFT INTERMEDIATE FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

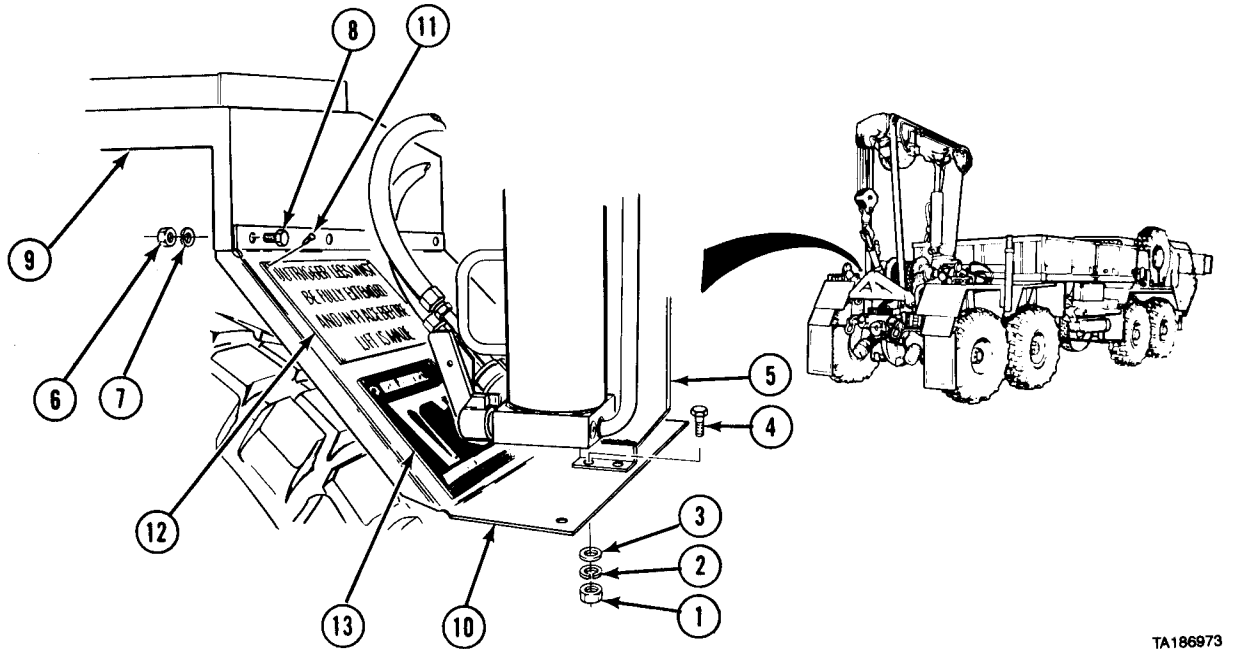
Equipment Condition

TM or Para	*Condition Description*
Para 16-22	Left center mud flap removed.

Special Environmental Conditions
None

General Safety Instructions
None

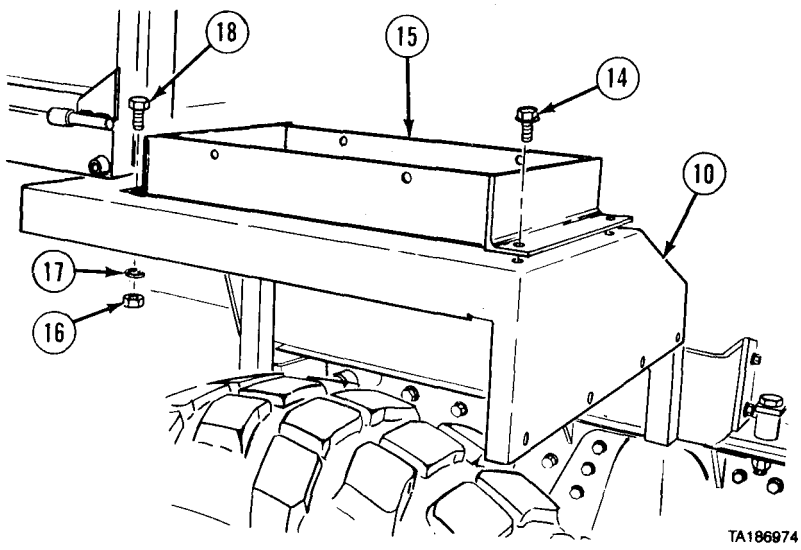
a. **Removal.**

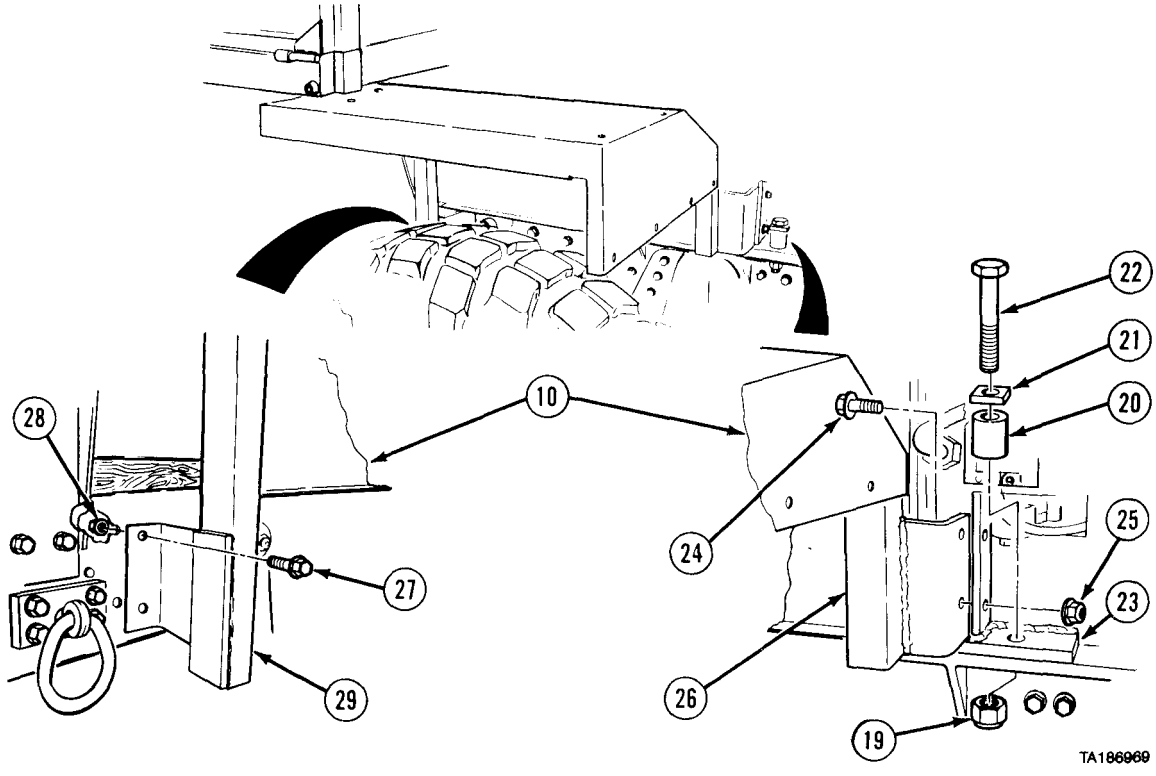


(1) Remove nut (l), lockwasher (2), washer (3), and screw (4) from outrigger beam (5).
(2) Remove four nuts (6), lockwashers (7), screws (8), and rear intermediate fender (9) from intermediate fender (10),
(3) Remove eight screws (11) and two data plates (12 and 13) from rear intermediate fender (9).

Cab and Body Maintenance Instructions (Cont)

(4) Remove two screws (14) from hook stowage box (15).
(5) Remove two nuts (16), lockwashers (17), and screws (18) from hook stowage box (15).
(6) Remove hook stowage box (15) from intermediate fender (10).

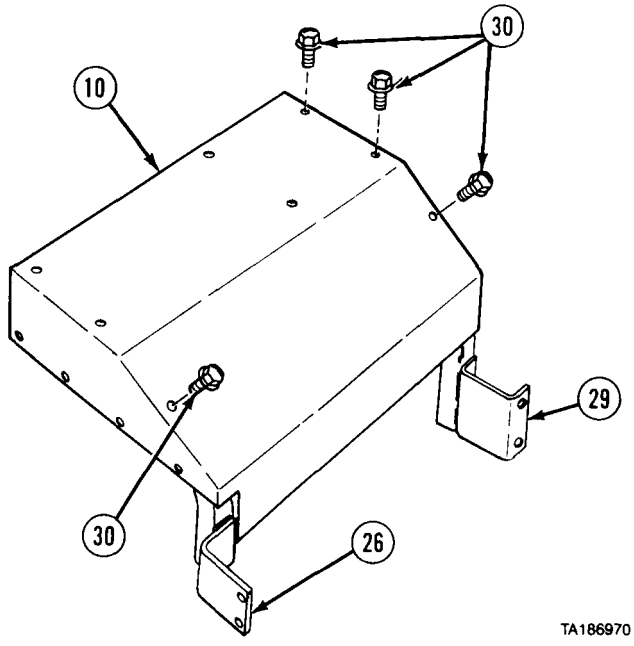




(7) Remove nut (19), spacer (20), washer (21), and screw (22) from crane mount (23).
(8) Soldier A holds two screws (24) while Soldier B removes two nuts (25) from rear support (26).
(9) Soldier A holds two screws (27) while Soldier B removes two nuts (28) from front support (29).
(10) Soldier A and Soldier B remove intermediate fender (10) and two supports (26 and 29).

16-18. LEFT INTERMEDIATE FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).

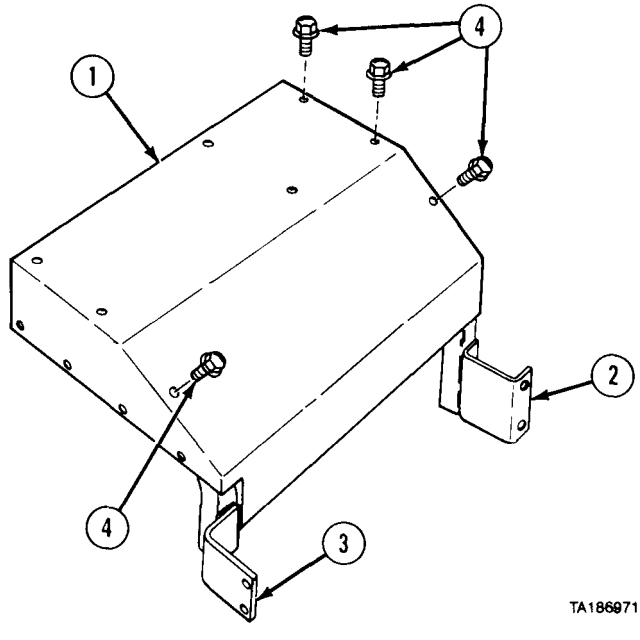
(11) Remove four screws (30) and intermediate fender (10) from two supports (26 and 29).



TA186970

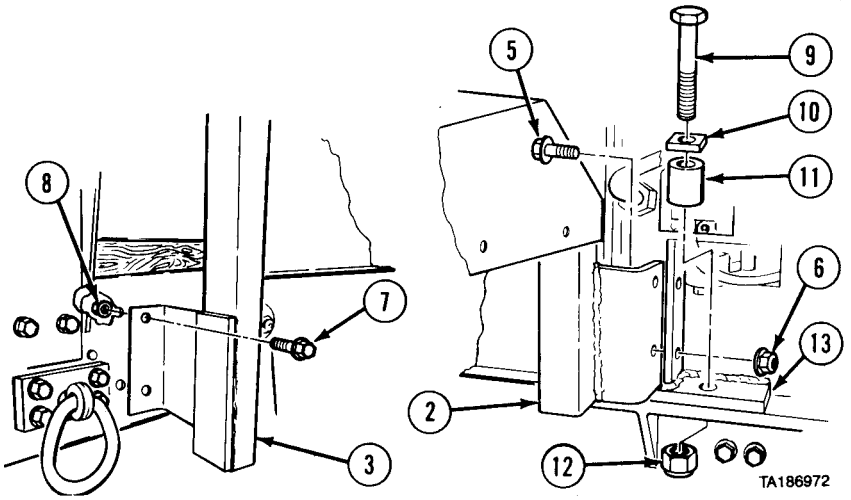
b. Installation.

(1) Install intermediate fender (1) on front support (2) and rear support (3) with four screws (4).

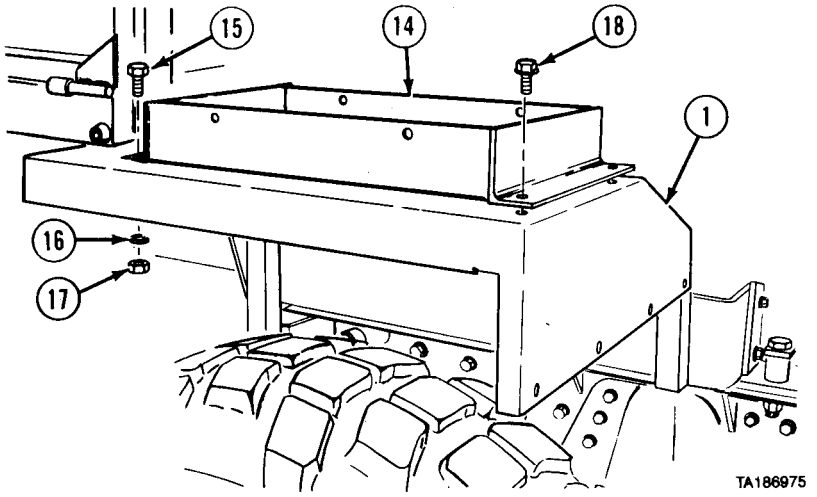


TA186971

(2) Soldier A and Soldier B position two supports (2 and 3) on vehicle.
(3) Soldier A installs two screws (7) on rear support (3) while Soldier B holds two nuts (8).
(4) Soldier A holds two screws (5) on front support (2) while Soldier B installs two nuts (6).
(5) Install screw (9), washer (10), spacer (11), and nut (12) on crane mount (13).



(6) Install hook stowage box (14) on intermediate fender (1) with two screws (15), lockwashers (16), and nuts (17).
(7) Install two screws (18) on hook stowage box (14).



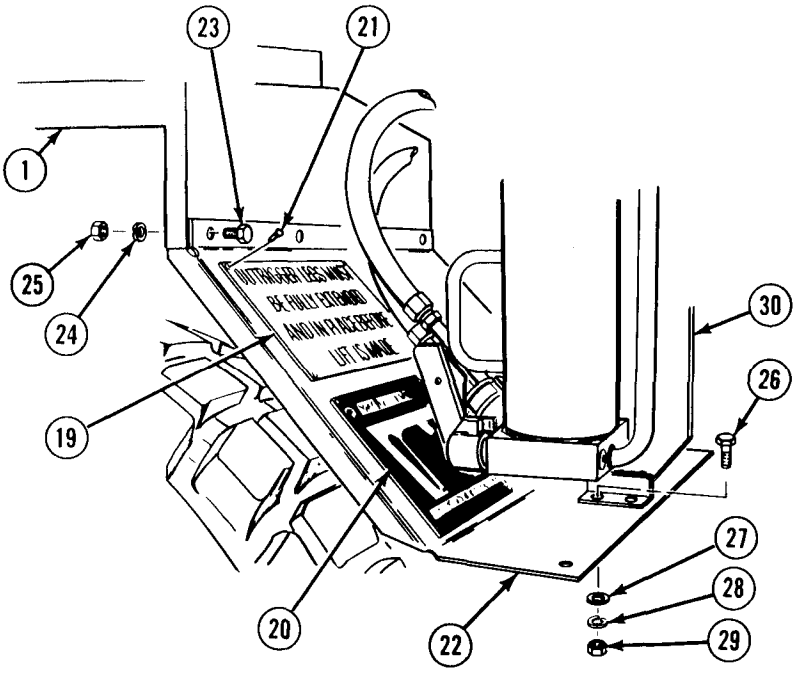
16-18. LEFT INTERMEDIATE FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).

(8) Install two data plates (19 and 20) with eight screws (21) on rear intermediate fender (22).
(9) Install rear intermediate fender (22) on intermediate fender (1) with four screws (23), lockwashers (24), and nuts (25).
(10) Install screw (26), washer (27), lockwasher (28), and nut (29) on outrigger beam (30).

c. Follow-on Maintenance.

Install left center mud flap (para 16-22).

END OF TASK



TA186976

16-19. RIGHT INTERMEDIATE FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

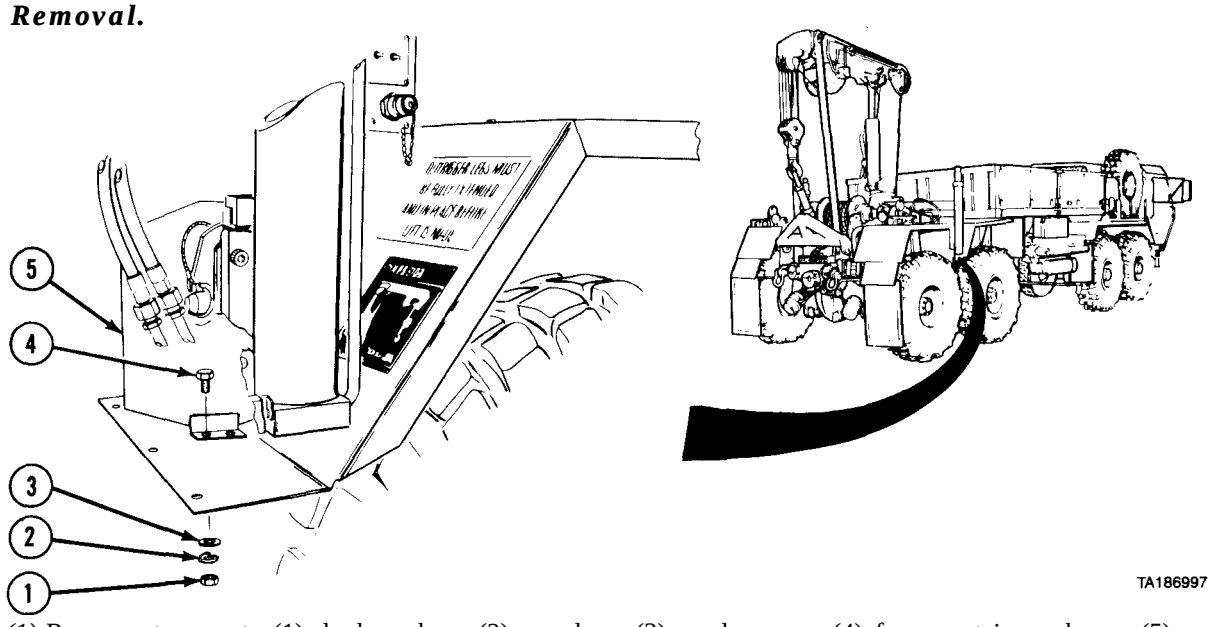
Equipment Condition

TM or Para	*Condition Description*
Para 16-22	Right center mud flap removed.

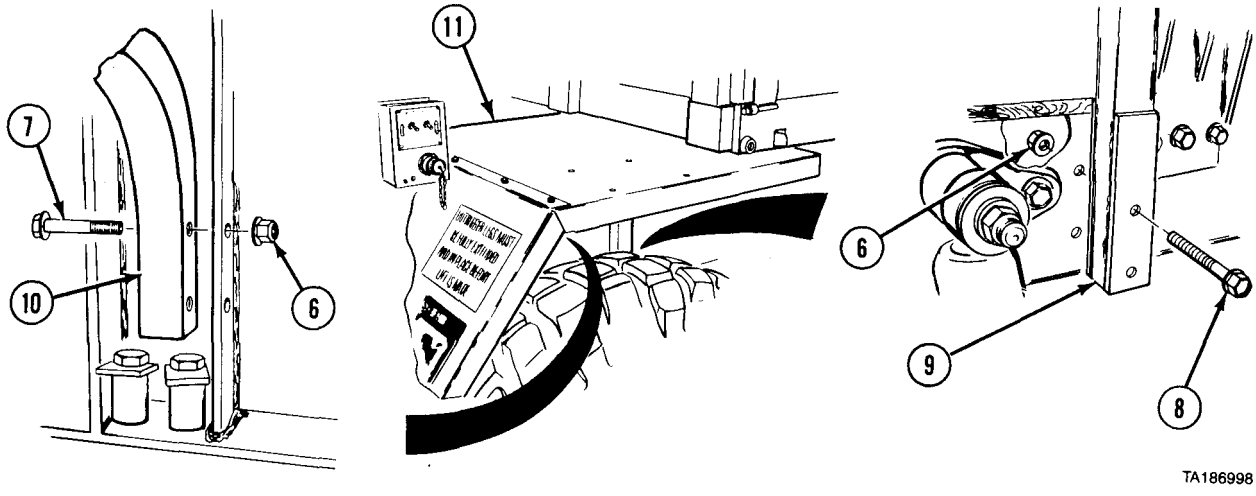
Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Remove two nuts (1), lockwashers (2), washers (3), and screws (4) from outrigger beam (5).

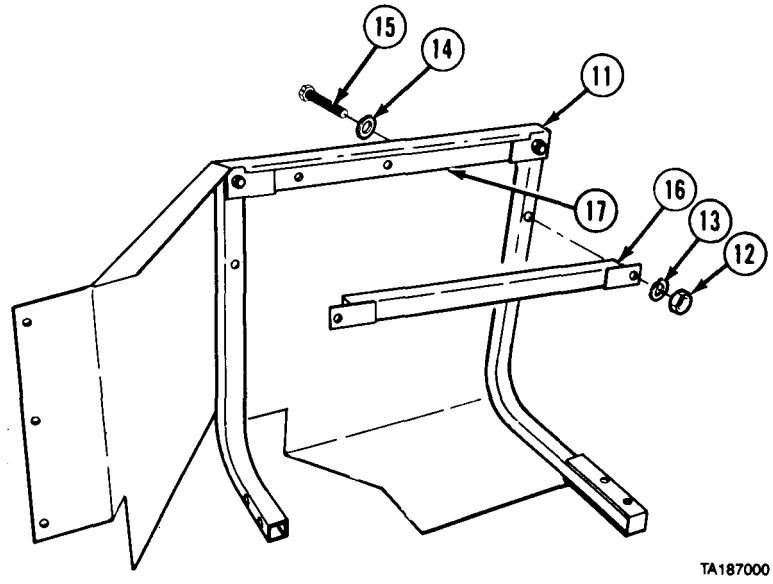


(2) Soldier A removes four nuts (6), two screws (7), and two screws (8) from front support (9) and rear support (10) while Soldier B supports fender (11).

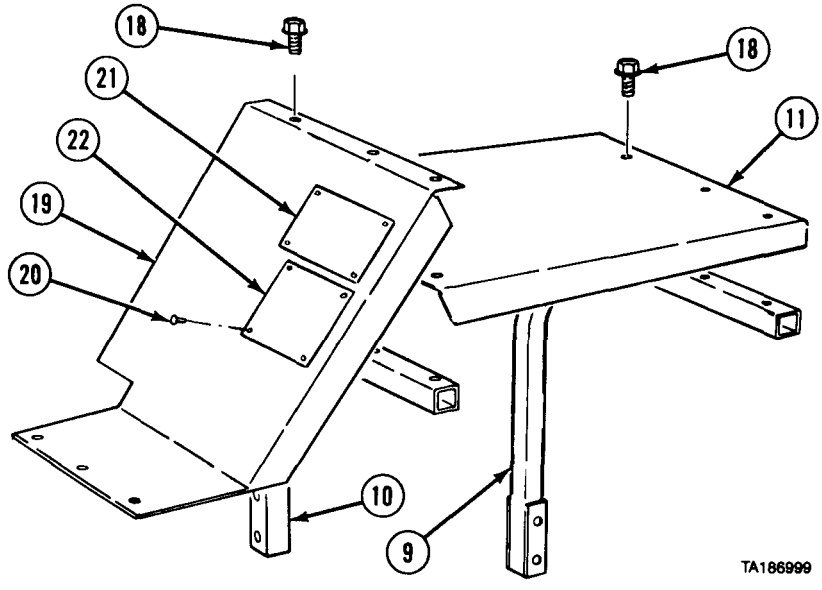
(3) Soldier A and Soldier B remove fender (11) and two supports (9 and 10).

16-19. RIGHT INTERMEDIATE FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).

(4) Remove four nuts (12), lockwashers (13), washers (14), screws (15), brace (16), and brace (17) from fender (11).



(5) Remove two screws (18) and supports (9 and 10) from fender (11).
(6) Remove rear fender (19) from fender (11).
(7) Remove eight screws (20) and two data plates (21 and 22).

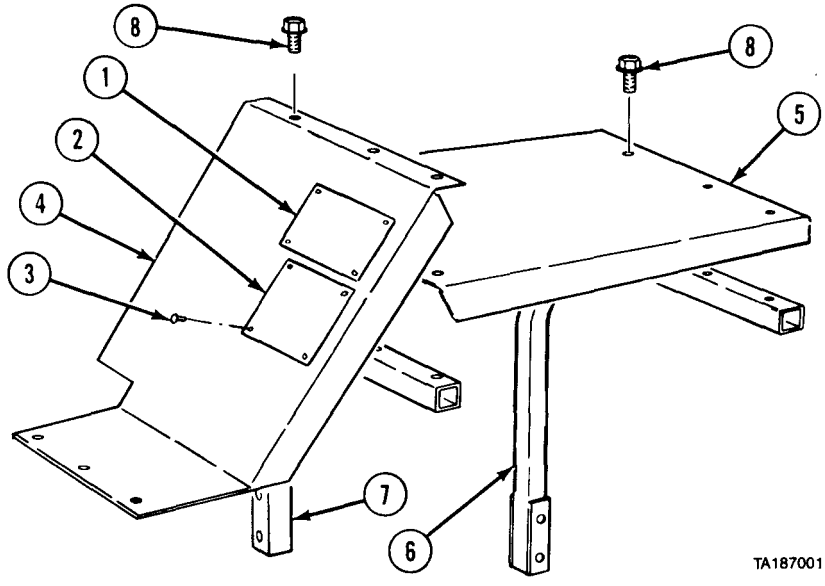


b. Installation.

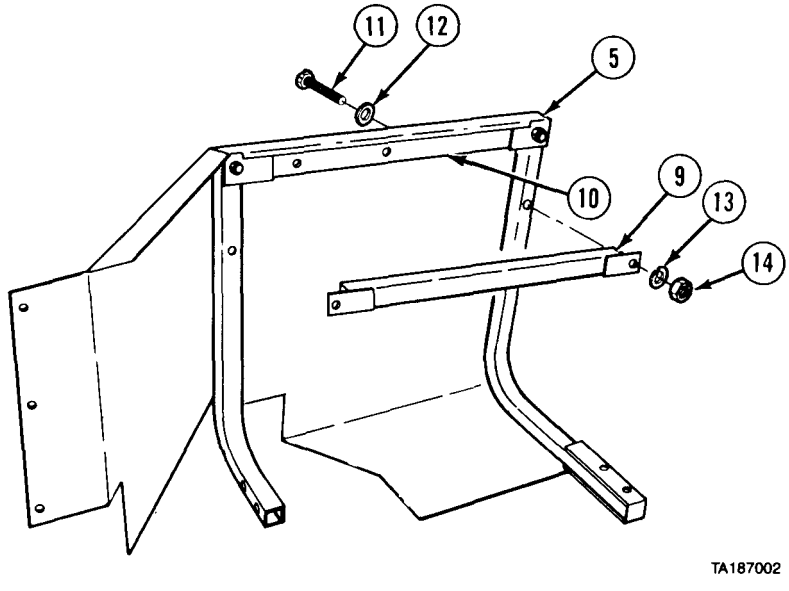
(1) Install two data plates (1 and 2) on rear fender (3) with eight screws (4).

(2) Position rear fender (3) on fender (5).

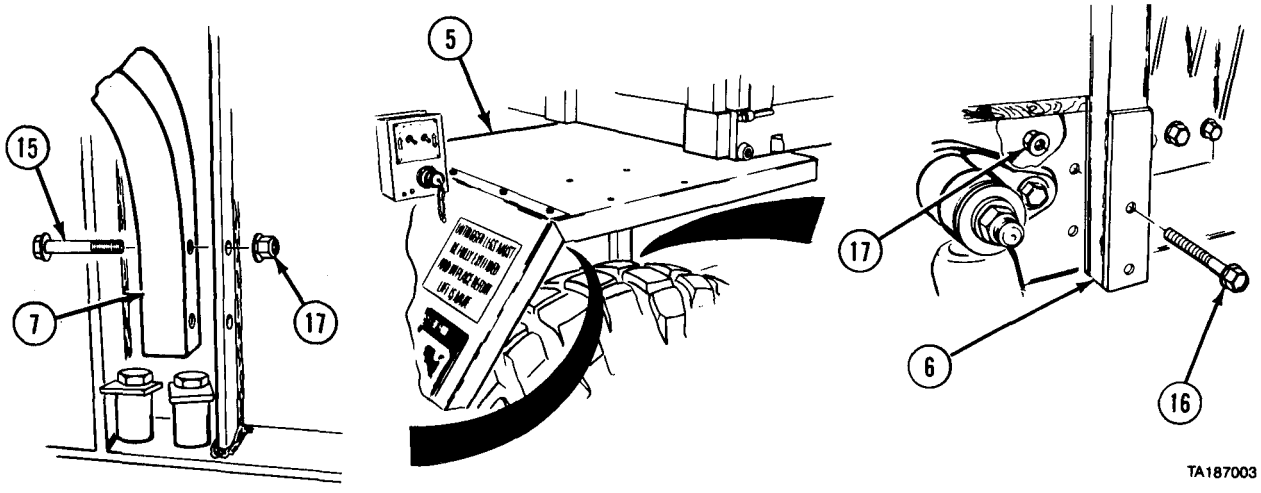
(3) Install front support (6) and rear support (7) on fender (5) with two screws (8).



(4) Install brace (9) and brace (10) on fender (5) with four screws (11), washers (12), lockwashers (13), and nuts (14).

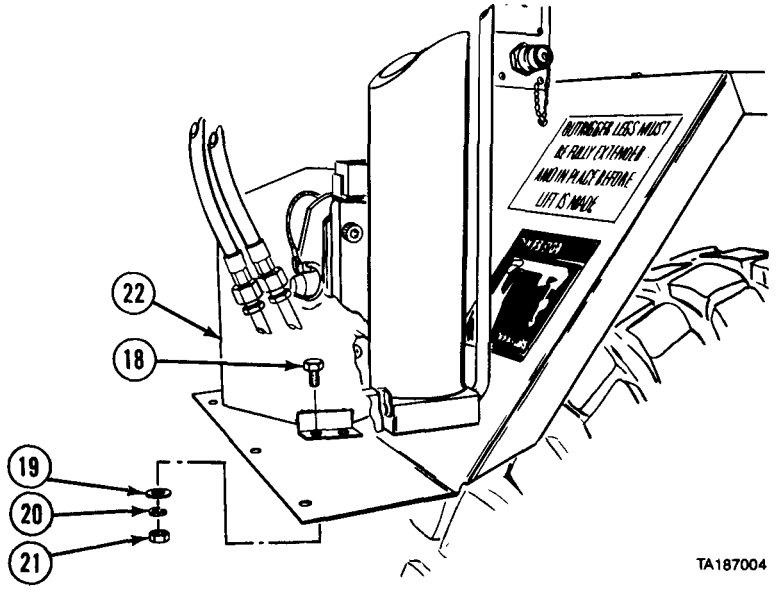


16-19. RIGHT INTERMEDIATE FENDER AND SUPPORTS REMOVAL/INSTALLATION (M984) (CONT).



(5) Soldier A and Soldier B position fender (5) and two supports (6 and 7).
(6) Soldier A supports fender (5) while Soldier B installs two screws (15), two screws (16), and four nuts (17) on two supports (6 and 7).

(7) Install two screws (18), washers (19), lockwashers (20), and nuts (21) on outrigger beam (22).



c. Follow-on Maintenance.
Install right center mud flap (para 16-22).

END OF TASK

16-20. FRONT, CENTER, AND REAR MUD FLAPS AND REAR SPLASH GUARD REMOVAL/INSTALLATION (M977, M978, M985, M985E1).

This task covers:

a. Left Front Mud Flap Removal
b. Left Front Mud Flap Installation
c. Right Front Mud Flap Removal
d. Right Front Mud Flap Installation
e. Center Mud Flap Removal
f. Center Mud Flap Installation
g. Rear Mud Flap and Bracket Removal (M977, M985 only)
h. Rear Mud Flap and Bracket Installation (M977, (M985 only)
i. Rear Mud Flap Removal (M985E1 only)
j. Rear Mud Flap Installation (M985E1 only)
k. Rear Mud Flap and Splash Guard Removal (M978 only)
1. Rear Mud Flap and Splash Guard Installation (M978 only)
m. Follow-on Maintenance

INITIAL SETUP

Models
M977, M978, M985, M985E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 18-12	Red reflectors and bracket removed (M978 only).
Para 16-48	Pump module side access panels removed (M978 only).

Special Environmental Conditions
None

General Safety Instructions
None

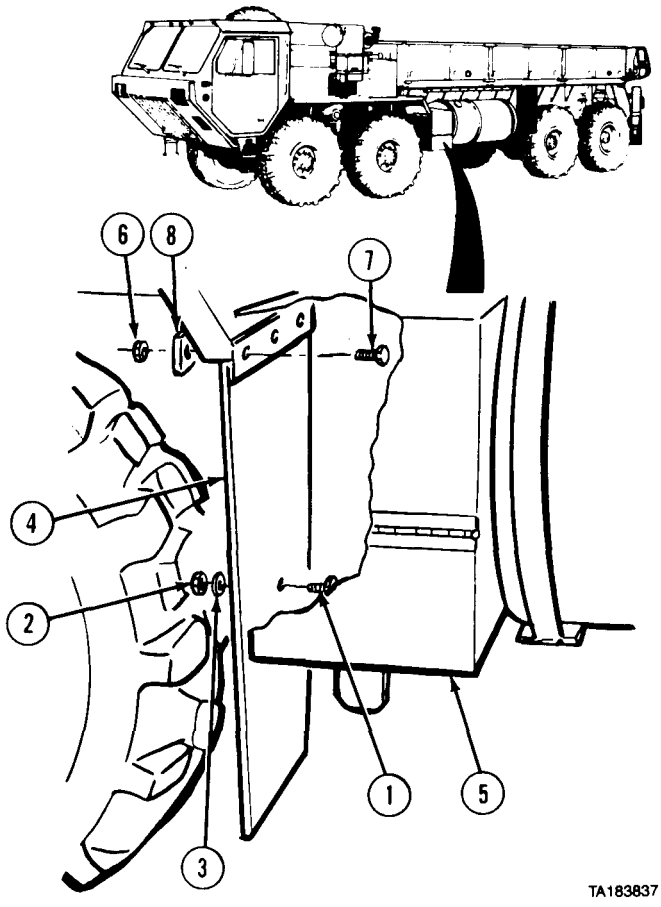
16-20. FRONT, CENTER, AND REAR MUD FLAPS AND REAR SPLASH GUARD REMOVAL/iNSTALLATION (M977, M978, M985, M985E1) (CONT).

a. Left Front Mud Flap Removal.

(1) Open stowage box (TM 9-2320-279-10).
(2) Remove screw (1), nut (2), and washer (3) from mud flap (4) and stowage box (5).
(3) Remove three locknuts (6), screws (7), mud flap (4), and retainer (8).

b. Left Front Mud Flap Installation.

(1) Install mud flap (4) and retainer (8) with three screws (7) and locknuts (6).
(2) Install mud flap (4) to stowage box (5) with screw (1), washer (3), and nut (2).
(3) Close stowage box (TM 9-2320-279-10).



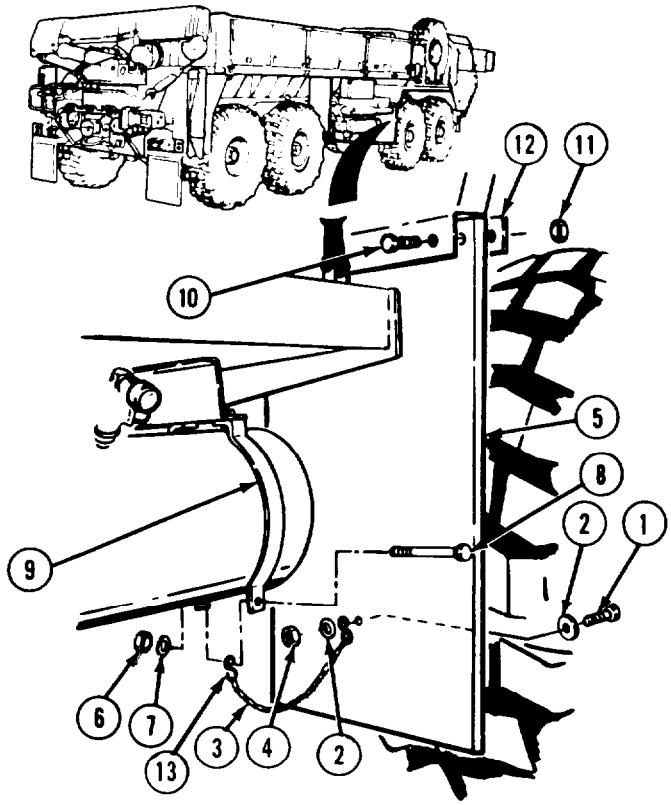
Cab and Body Maintenance Instructions (Cont)

c. Right Front Mud Flap Removal.

(1) Remove screw (1), two washers (2), chain (3), and locknut (4) from mud flap (5).
(2) Remove nut (6), lockwasher (7), chain (3), and screw (8) from bracket (9).
(3) Remove three screws (10), locknuts (11), mud flap (5), and retainer (12).
(4) Remove two hooks (13) from chain (3).

d. Right Front Mud Flap Installation.

(1) Install mud flap (5) and retainer (12) with three screws (10) and locknuts (11).
(2) Install two hooks (13) on chain (3).
(3) Install chain (3) to bracket (9) with screw (8), lockwasher (7), and nut (6).
(4) Install chain (3) in mud flap (5) with screw (1), two washers (2), and locknut (4).

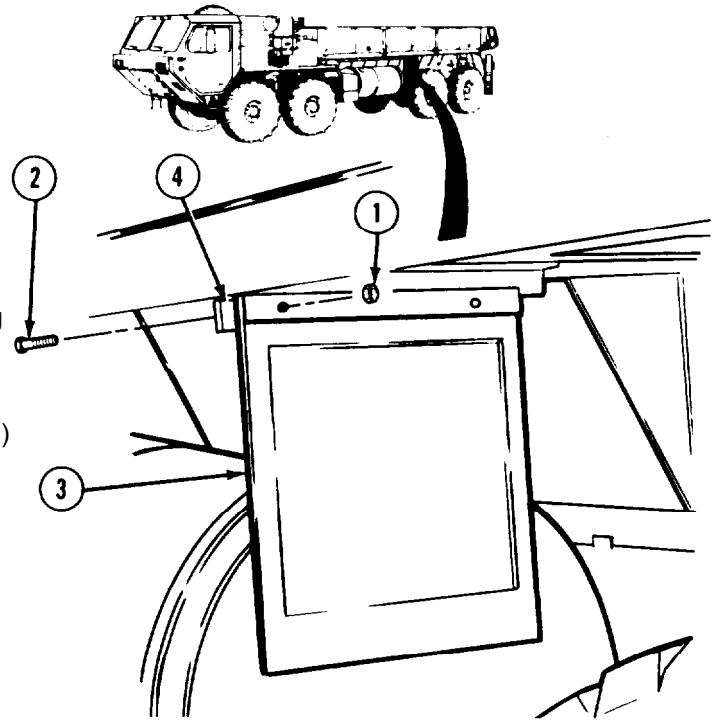


NOTE

- Left and right center mud flaps are removed and installed in a similar manner.
- M1977-CBT vehicles do not have center mud flaps.

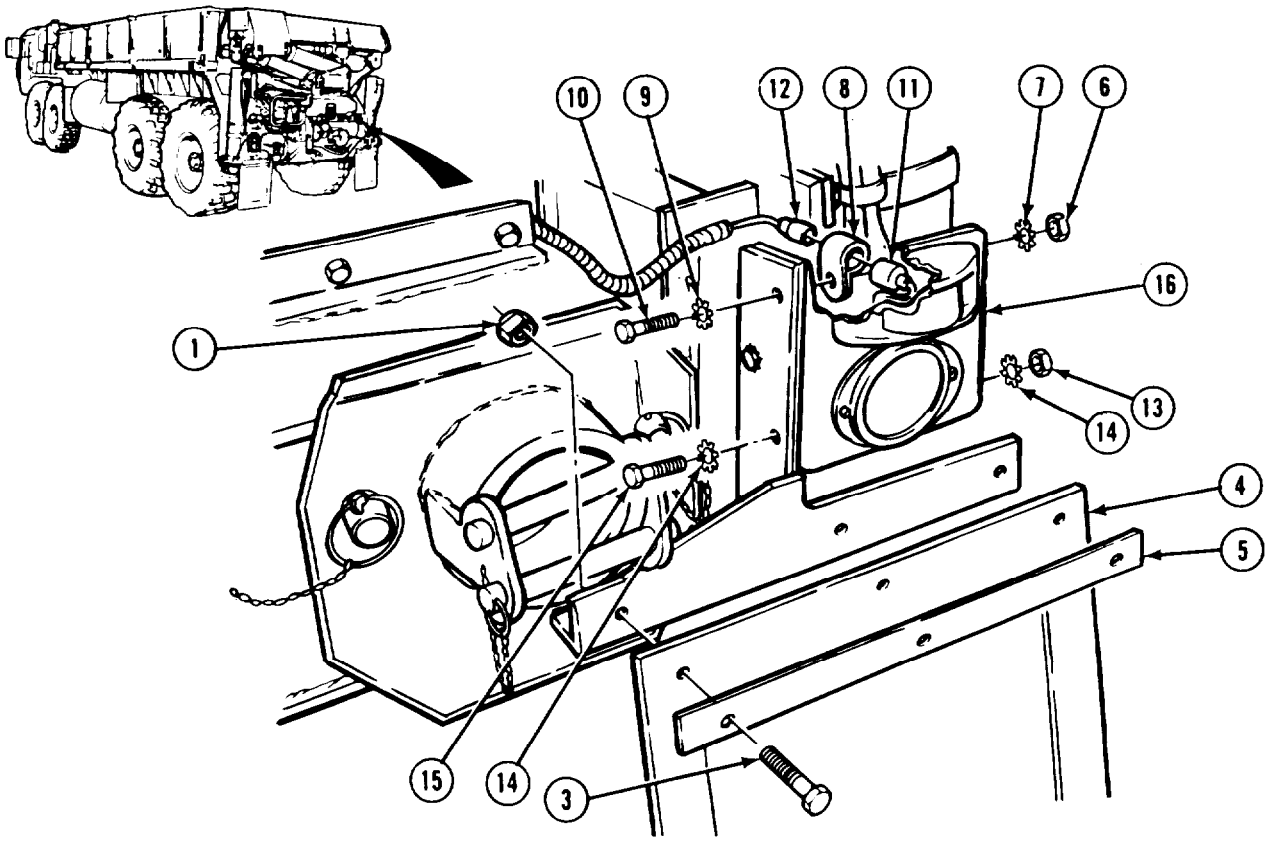
e. Center Mud Flap Removal. Remove three locknuts (1), screws (2), mud flap (3), and retaining plate (4).

f. Center Mud Flap Installation. Install mud flap (3) and retaining plate (4) with three screws (2) and locknuts (1).



16-20. FRONT, CENTER, AND REAR MUD FLAPS AND REAR SPLASH GUARD REMOVAL/INSTALLATION (M977, M978, M985, M985E1) (CONT).

g. Rear Mud Flap and Bracket Removal (M977, M985 only).



NOTE

- Left and right mud flaps are removed the same way.
- Some mud flaps may have washers installed under locknuts. These washers are not necessary and should be discarded.

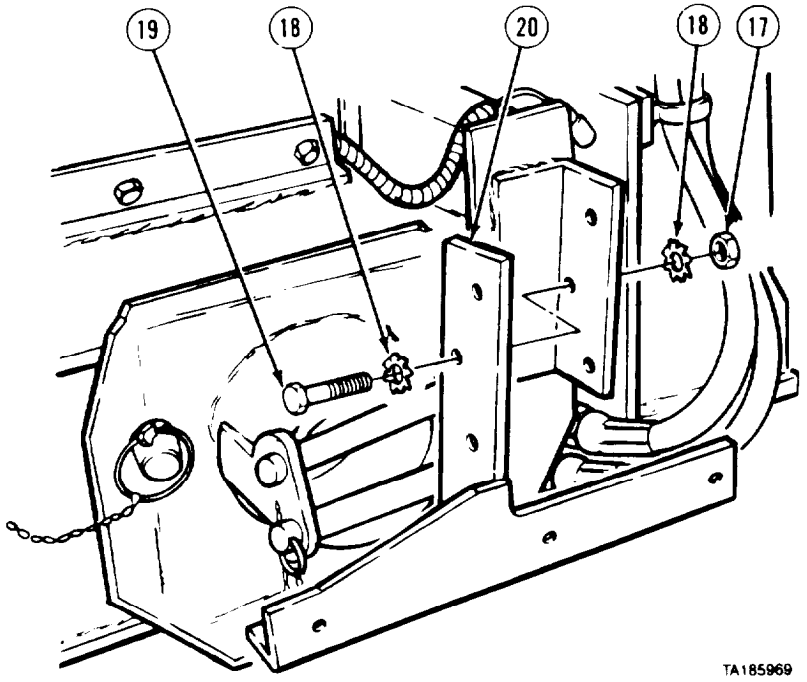
(1) Remove three locknuts (1) and screws (3).
(2) Remove mud flap (4) and retaining plate (5).

NOTE

- Do steps *(3)* through *(7)* if bracket is to be removed.
- Left and right brackets are removed the same way.

(3) Remove nut (6), lockwasher (7), cushion clip (8), lockwasher (9), and screw (10).
(4) Remove cushion clip (8) and disconnect clearance light wire (11) from wire (12).
(5) Remove nut (13), two lockwashers (14), screw (15), and clearance light mounting bracket (16).

(6) Remove nut (17), two lockwashers (18), and screw (19).
(7) Remove bracket (20).

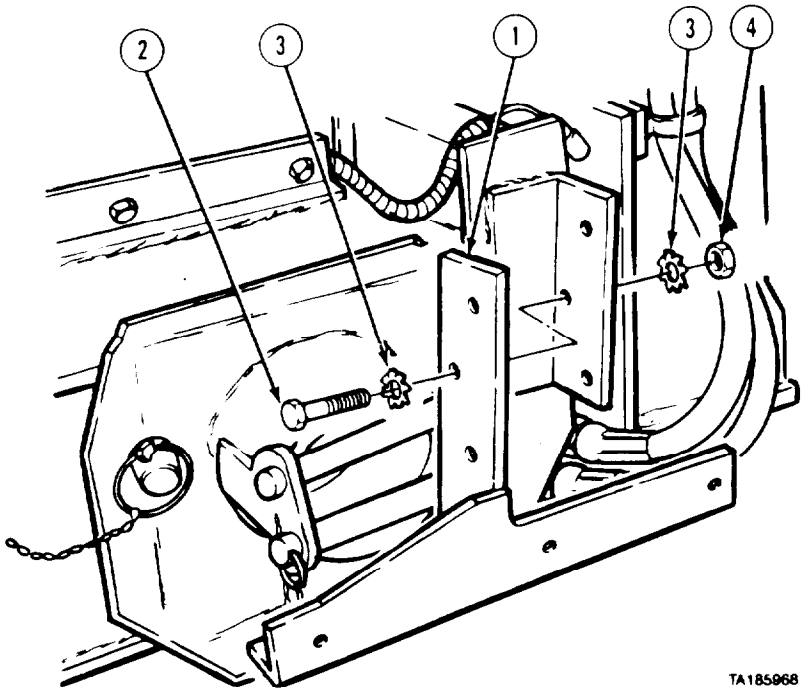


h. Rear Mud Flap and Bracket Installation (M977, M985 only).

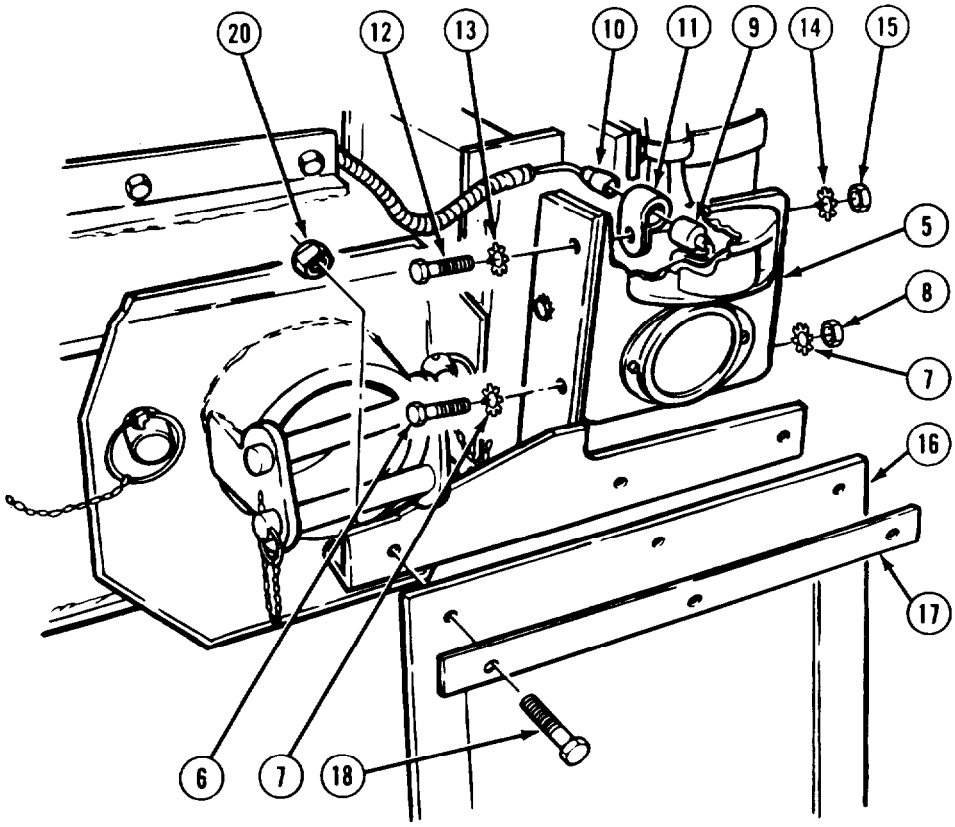
NOTE

Do steps *(1)* through *(4)* if bracket was removed. Left and right brackets are installed the same way.

(1) Install bracket (1) with screw (2). two lockwashers (3), and nut (4).



16-20. FRONT, CENTER, AND REAR MUD FLAPS AND REAR SPLASH GUARD REMOVAL/INSTALLATION (M977, M978, M985, M985E1) (CONT).



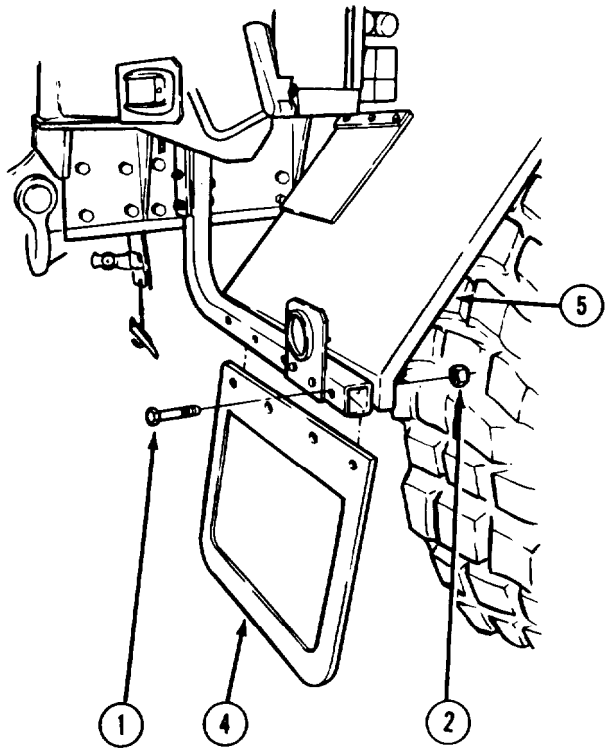
(2) Install clearance light mounting bracket (5) with screw (6), two lockwashers (7), and nut (8).
(3) Connect clearance light wire (9) to wire (10) and install cushion clip (11).
(4) Install screw (12), lockwasher (13), cushion clip (11), lockwasher (14), and nut (15).
(5) Install mud flap (16) and retaining plate (17) with three screws (18) and locknuts (20).

NOTE

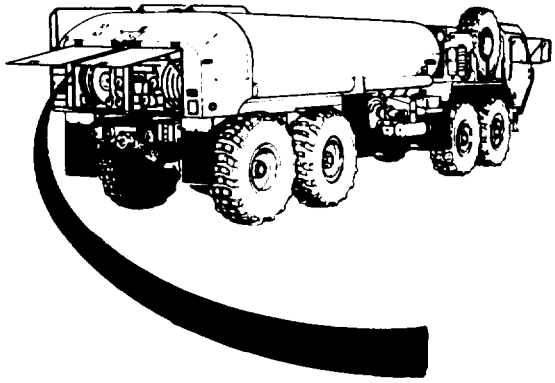
- Right and left mud flaps are removed and installed the same way.
- Some mud flaps have washers installed under locknuts. These washers are not necessary and should be discarded.

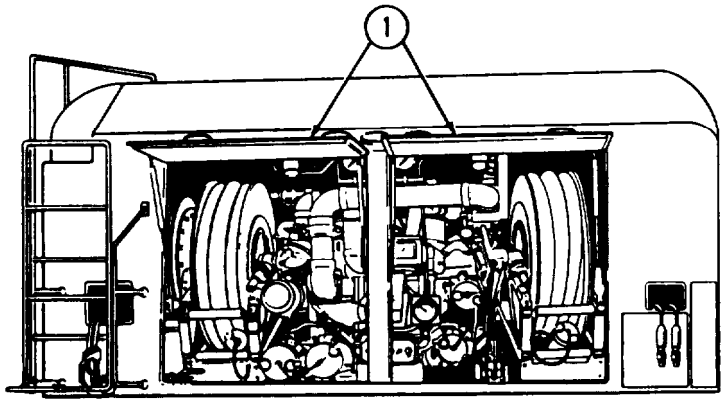
i. ***Rear Mud Flap Removal (M985E1 only).*** Remove four screws (1), locknuts (2), and mud flap (4) from fender (5).

j. ***Rear Mud Flap Installation (M985E1 only).*** Install mud flap (4) with four screws (1) and locknuts (2) to fender (5).



k. ***Rear Mud Flap and Splash Guard Removal (M978 only).***





WARNING

To avoid injury, stand clear when opening pump module rear doors. When each door is about halfway open, gas pistons push door open quickly and with much force.

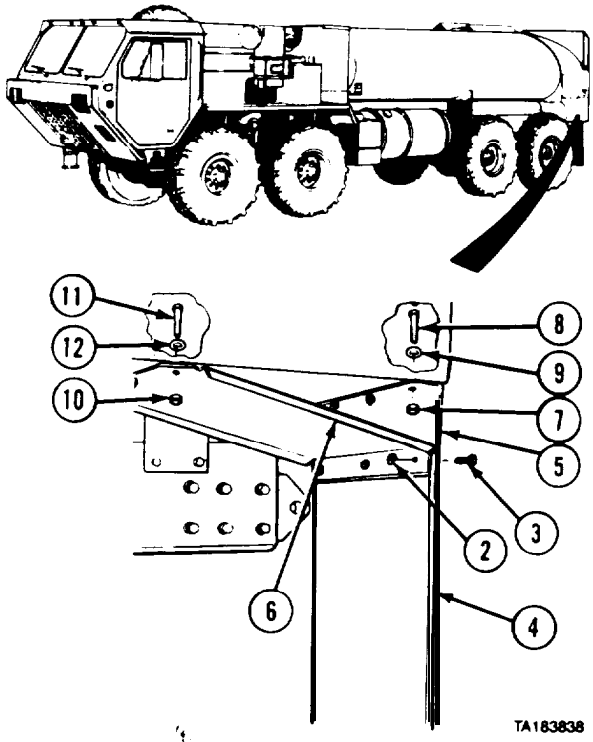
(1) Open pump module rear doors (1).

16-20. FRONT, CENTER, AND REAR MUD FLAPS AND REAR SPLASH GUARD REMOVAL/INSTALLATION (M977, M978, M985, M985E1) (CONT).

NOTE

Left and right splash guard and mud flap assemblies are removed in a similar manner.

(2) Remove three locknuts (2), screws (3), and mud flap (4) from bracket (5) and splash guard (6).
(3) Remove three locknuts (7), screws (8). and washers (9) from bracket (5). Remove bracket.
(4) Soldier A removes three locknuts (10) while Soldier B holds and removes three screws (11) and washers (12) from splash guard (6). Soldier A removes splash guard.

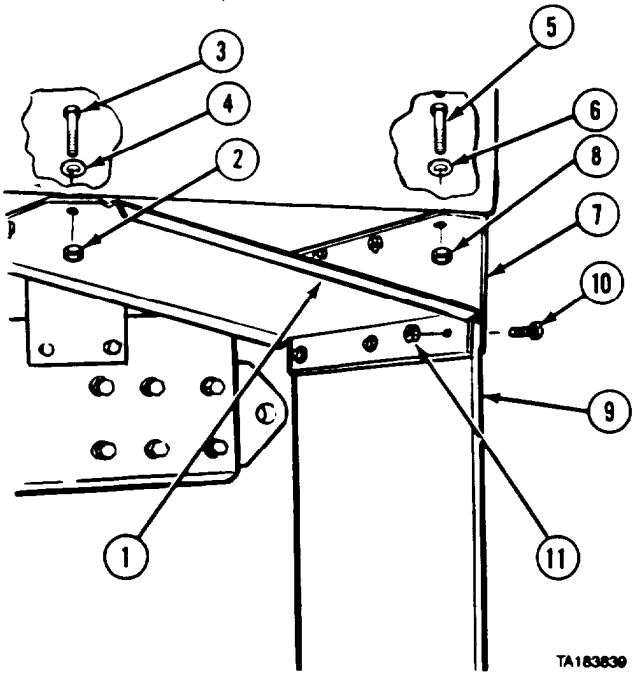


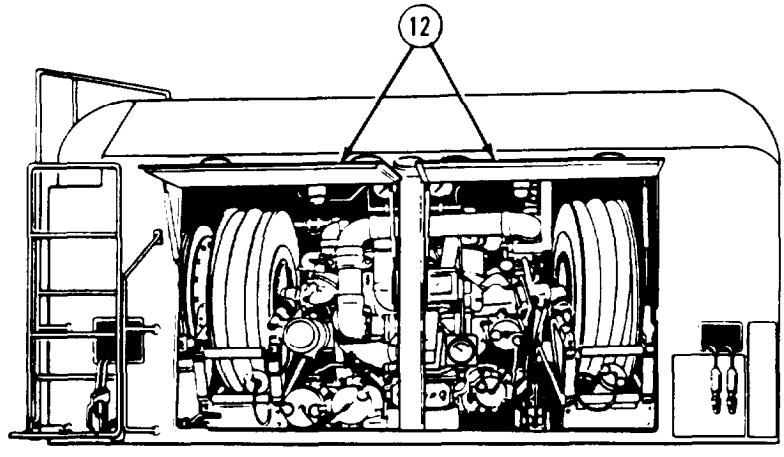
I. Rear Mud Flap and Splash Guard Installation (M978 only).

NOTE

Left and right splash guard and mud flap assemblies are installed in a similar manner.

(1) Soldier A installs splash guard (1) and three locknuts (2) while Soldier B installs three screws (3) and washers (4).
(2) Install three screws (5), washers (6), bracket (7), and three locknuts (8).
(3) Install mud flap (9) between bracket (7) and splash guard (1) with three screws (10) and locknuts (11).





(4) Close pump module rear doors (12).

m. Follow-on Maintenance.

(1) Install red reflector and bracket (M978 only) (para 18-12).

(2) Install pump module side access panels (M978 only) (para 16-48).

END OF TASK

6-21. MUD FLAPS QUARTER FENDERS FENDER BRACKETS, AND REAR BRACKETS REMOVAL/INSTALLATION (M983).

This task covers:

a. Left Front Mud Flap Removal
b. Left Front Mud Flap Installation
c. Right Front Mud Flap Removal
d. Right Front Mud Flap Installation
e. Center Flap, Quarter Fender, and Fender Bracket Removal
f. Center Flap, Quarter Fender, and Fender Bracket Installation
g. Rear Mud Flap and Bracket Removal
h. Rear Mud Flap and Bracket Installation
i. Follow-on Maintenance

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-70	Slave cable support hooks removed.
Para 17-6	Rear cable guide removed for right rear mud flap removal.

Special Environmental Conditions
None

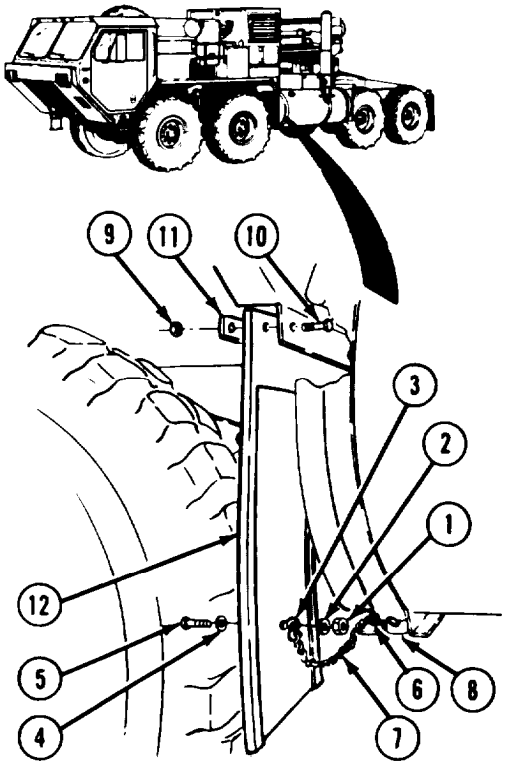
General Safety Instructions
None

a. Left Front Mud Flap Removal.

(1) Remove locknut(l), washer (2), S-hook (3), washer (4), and screw (5).
(2) Remove S-hook (6) and chain (7) from fuel tank strap (8).
(3) Remove three locknuts (9) and screws (10).
(4) Remove retaining plate (11) and mud flap (12).

b. Left Front Mud Flap Installation.

(1) Install retaining plate (11) and mud flap (12) with three locknuts (9) and screws (10).
(2) Install S-hook (6) and chain (7) on fuel tank strap (8).
(3) Install screw (5), washer (4), S-hook (3), washer (2), and locknut (1).

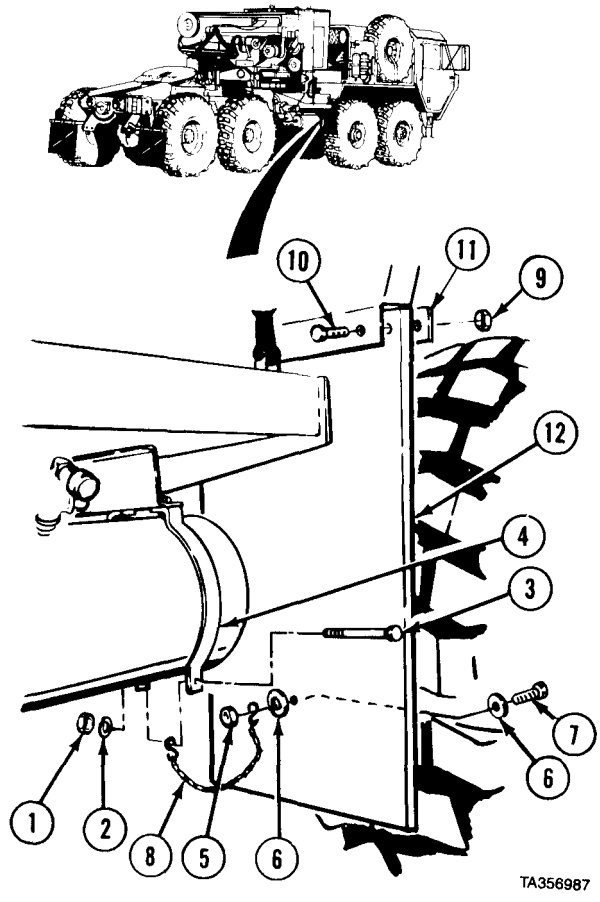


c. Right Front Mud Flap Removal.

(1) Remove nut (1), lockwasher (2), and screw (3) from reservoir clamp (4).
(2) Remove nut (5), two washers (6), screw (7), and chain (8).
(3) Remove three locknuts (9) and screws (10).
(4) Remove retaining plate (11) and mud flap (12).

d. Right Front Mud Flap Installation.

(1) Install retaining plate (11) and mud flap (12) with three locknuts (9) and screws (10).
(2) Install chain (8) with screw (7), two washers (6). and nut (5) on mud flap (12).
(3) Install chain (8) and screw (3) on reservoir clamp (4) with lockwasher (2) and nut (1)



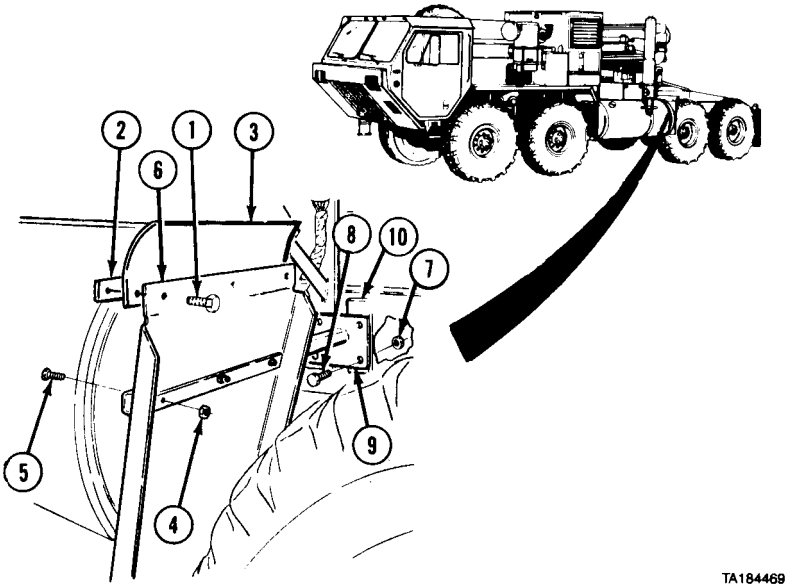
16-21. MUD FLAPS, QUARTER FENDERS, FENDER BRACKETS, AND REAR BRACKETS REMOVAL/INSTALLATION (M983) (CONT).

e. Center Flap, Quarfer Fender, and Fender Bracket Removal.

NOTE

Left and right center flap and fender assemblies are removed and installed in a similar manner.

(1) Remove three screws (1).
(2) Remove retaining plate (2) and mud flap (3).
(3) Remove three locknuts (4) and screws (5).
(4) Remove fender (6).
(5) Remove four locknuts (7) and screws (8).
(6) Remove mounting bracket (9) and two spacers (10).



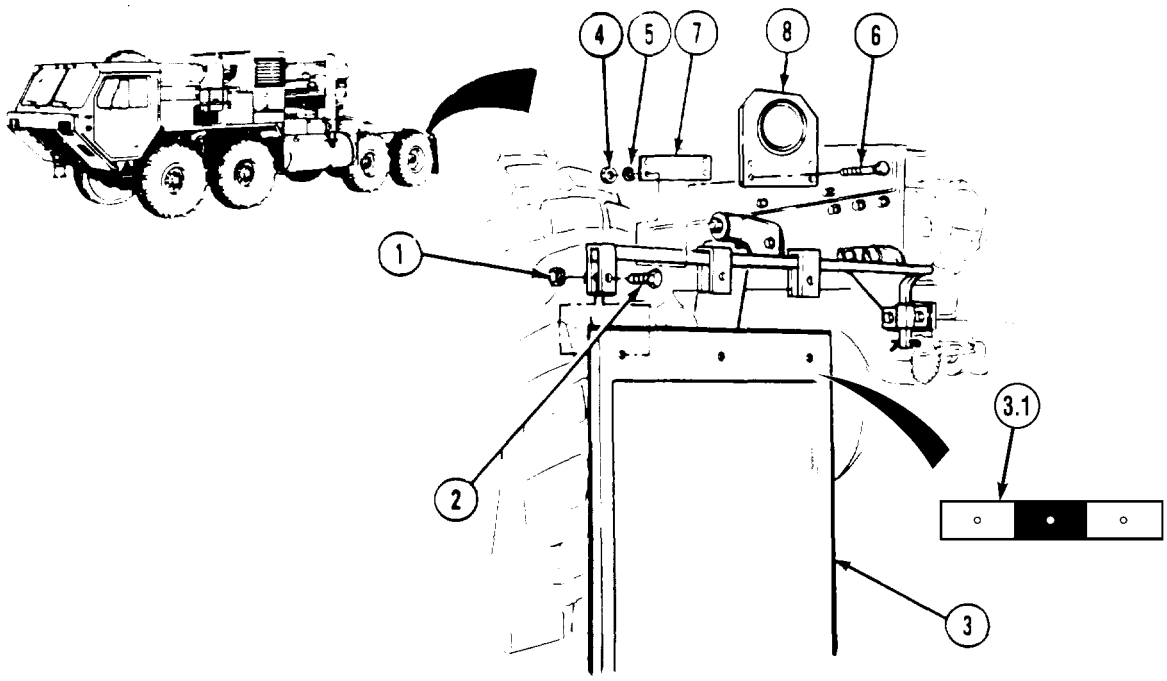
TA184469

f. Center Flap, Quarter Fender, and Fender Bracket Installation.

(1) Install two spacers (10) and mounting bracket (9) with four screws (8) and locknuts (7).
(2) Install fender (6) with three screws (5) and locknuts (4).
(3) Install retaining plate (2) and mud flap (3) with three screws (1).

Cab and Body Maintenance Instructions (Cont)

g. Rear Mud Flap and Bracket Removal.

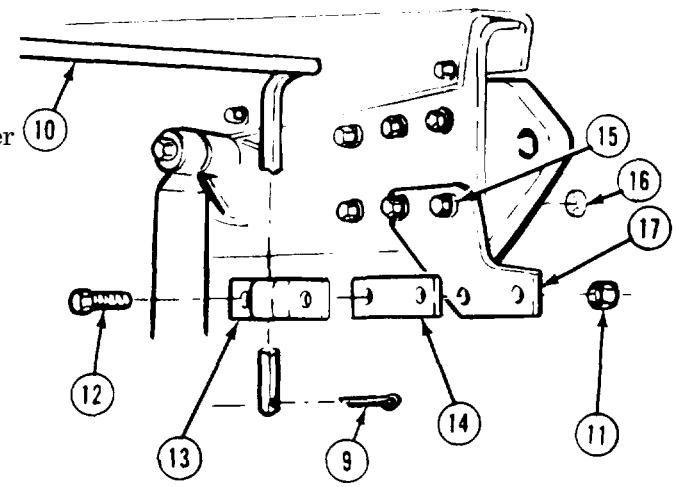


NOTE

Left and right rear mud flap and bracket assemblies are removed in a similar manner.

(1) Remove three locknuts (1) and screws (2).
(2) Remove mud flap (3) and reflective tape plate (3.1).
(3) Remove four nuts (4), lockwashers (5), and screws (6).
(4) Remove retainer plate (7) and reflector (8).

(5) Remove cotter pin (9).
(6) Remove mounting bar (10).
(7) Remove two locknuts (11) and screws (12).
(8) Remove support bracket (13) and spacer plate (11).
(9) Remove two screws (15), nuts (16), and mounting bracket (17).



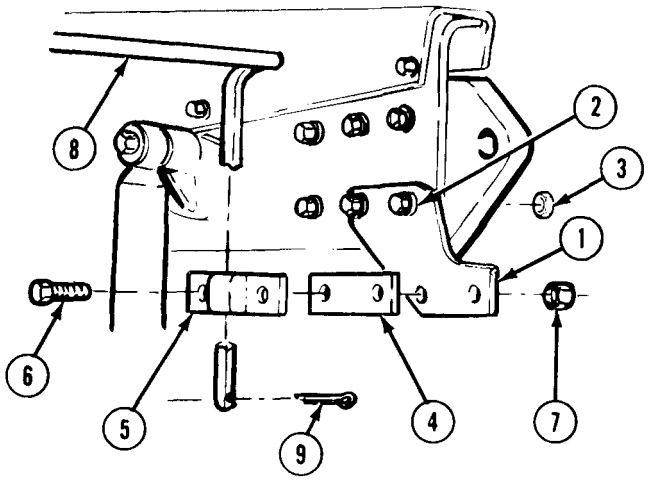
16-21. MUD FLAPS, QUARTER FENDERS, FENDER BRACKETS, AND REAR BRACKETS REMOVAL/INSTALLATION (M983) (CONT).

h. Rear Mud Flap and Bracket Installation.

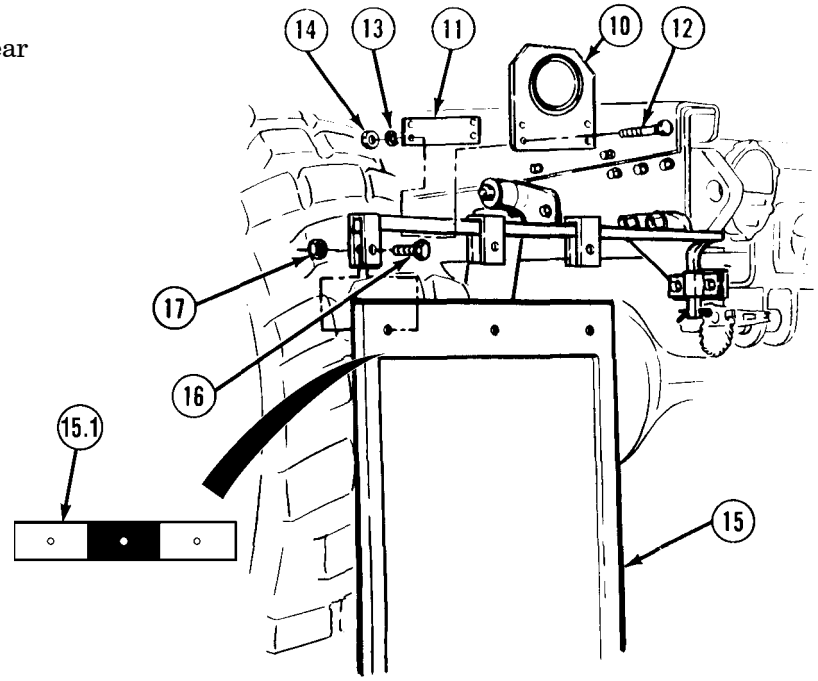
NOTE

Left and right rear mud flap bracket assemblies are installed in a similar manner.

(1) Install mounting bracket (1) with two screws (2) and nuts (3).
(2) Install spacer plate (4) and support bracket (5) with two screws (6) and locknuts (7).
(3) Install mounting bar (8).
(4) Install cotter pin (9).



(5) Install reflector (10) and retainer plate (11) with four screws (12), lockwashers (13), and nuts (14).
(6) Install mud flap (15) and reflective tape plate (15.1) with three screws (16) and locknuts (17).



i. Follow-on Maintenance. Install rear cable guide (para 17-6).

END OF TASK

16-22. FRONT, CENTER, AND REAR MUD FLAPS REMOVAL/INSTALLATION (M984).

This task covers:

a. Left Front Mud Flap Removal
b. Left Front Mud Flap Installation
c. Right Front Mud Flap Removal
d. Right Front Mud Flap Installation
e. Center Mud Flap Removal
f. Center Mud Flap Installation
g. Rear Mud Flap and Bracket Removal
h. Rear Mud Flap and Bracket Installation
i. Follow-on Maintenance

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

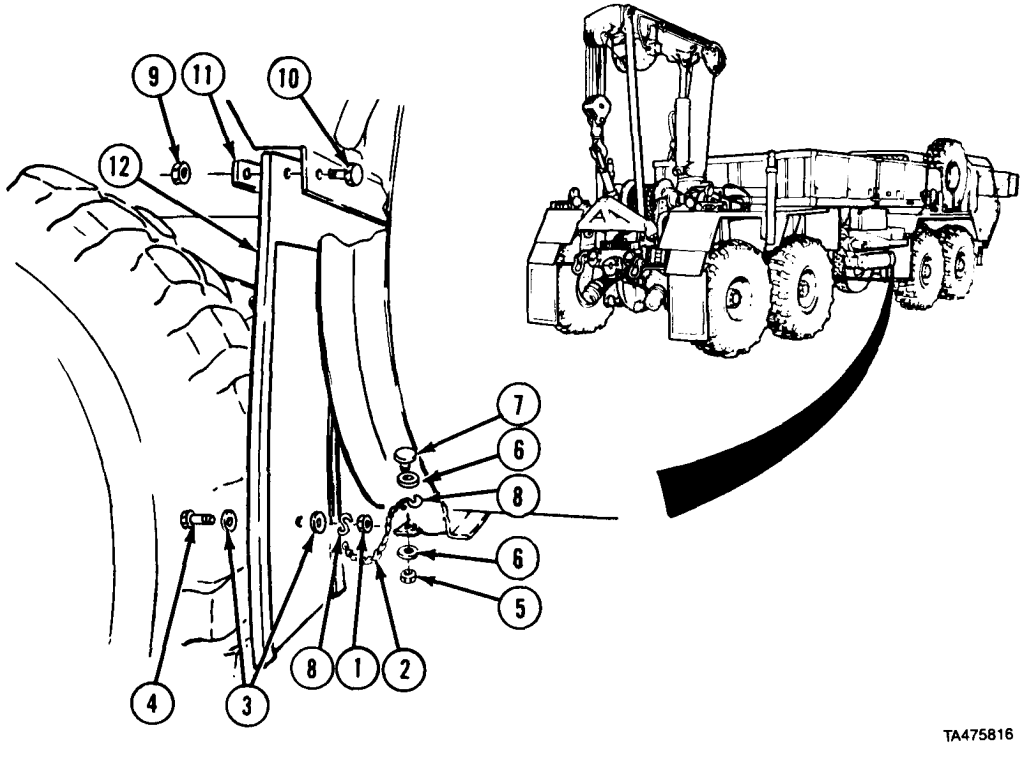
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 17-6	Rear cable guide removed for rear mud flap removal.

Special Environmental Conditions
None

General Safety Instructions
None

16-22. FRONT, CENTER, AND REAR MUD FLAPS REMOVAL/INSTALLATION (M984) (CONT).

a. Left Front Mud Flap Removal.



(1) Remove locknut (1), chain (2), two washers (3), and screw (4).
(2) Remove locknut (5), two washers (6), chain (2), and screw (7).
(3) Remove two hooks (8) from chain (2).
(4) Remove three locknuts (9) and screws (10).
(5) Remove retaining plate (11) and mud flap (12).

b. Left Front Mud Flap Installation.

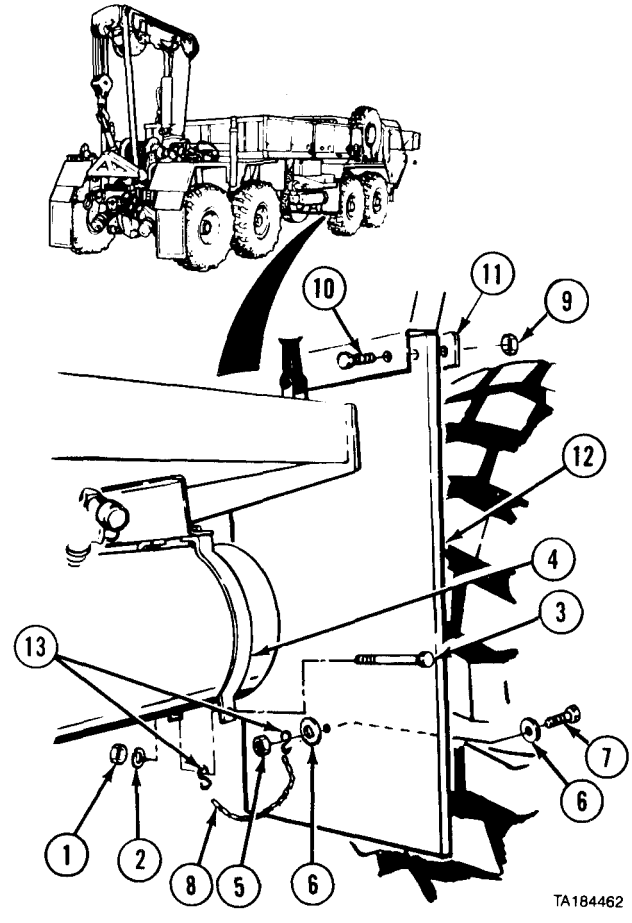
(1) Install retaining plate (11) and mud flap (12) with three locknuts (9) and screws (10).
(2) Install two hooks (8) on chain (2).
(3) Install screw (4), two washers (3), chain (2), and locknut (1).
(4) Install screw (7), two washers (6), chain (2), and locknut (5).

c Right Front Mud Flap Removal.

(1) Remove nut (1), lockwasher (2), and screw (3) from reservoir clamp (4).
(2) Remove nut (5), two washers (6), screw (7), and chain (8).
(3) Remove three locknuts (9) and screws (10).
(4) Remove retaining plate (11) and mud flap (12).
(5) Remove two hooks (13) from chain (8).

d. Right Front Mud Flap Installation.

(1) Install retaining plate (11) and mud flap (12) with three locknuts (9) and screws (10).
(2) Install two hooks (13) on chain (8).
(3) Install chain (8) with screw (7), two washers (6), and nut (5).
(4) Install chain (8) and screw (3) on reservoir clamp (4) with lockwasher (2) and nut (1).



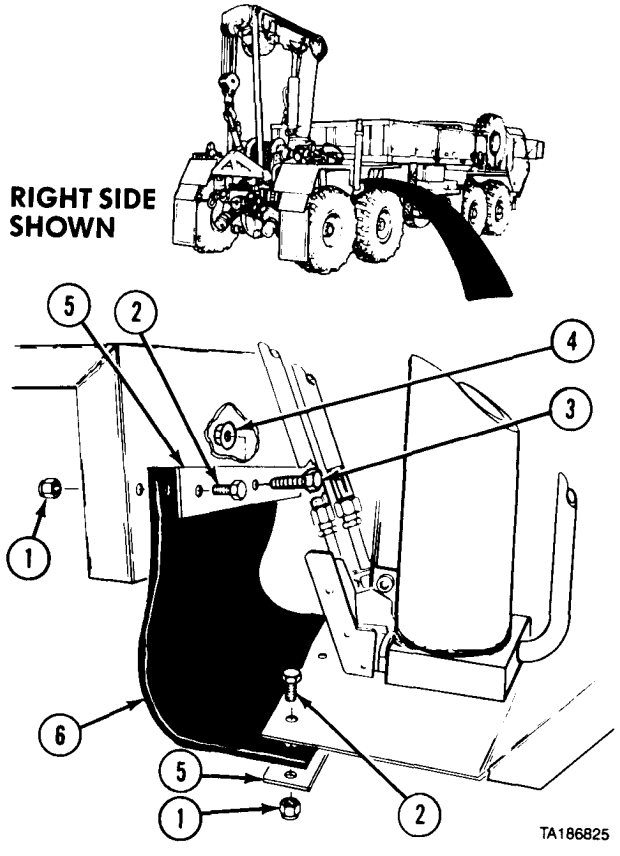
16-22. FRONT, CENTER, AND REAR MUD FLAPS REMOVAL/INSTALLATION (M984) (CONT).

NOTE

- Left and right center mud flaps are removed and installed in a similar manner.
- Left-side center screw is longer to accommodate bracket.

e. Center Mud Flap Removal. Remove five locknuts (1), screws (2), screw (3), nut (4), two retaining plates (5) and mud flap (6).

f. Center Mud Flap Installation. Install mud flap (6) and two retaining plates (5) with five screws (2), locknuts (1), screw (3), and nut (4).

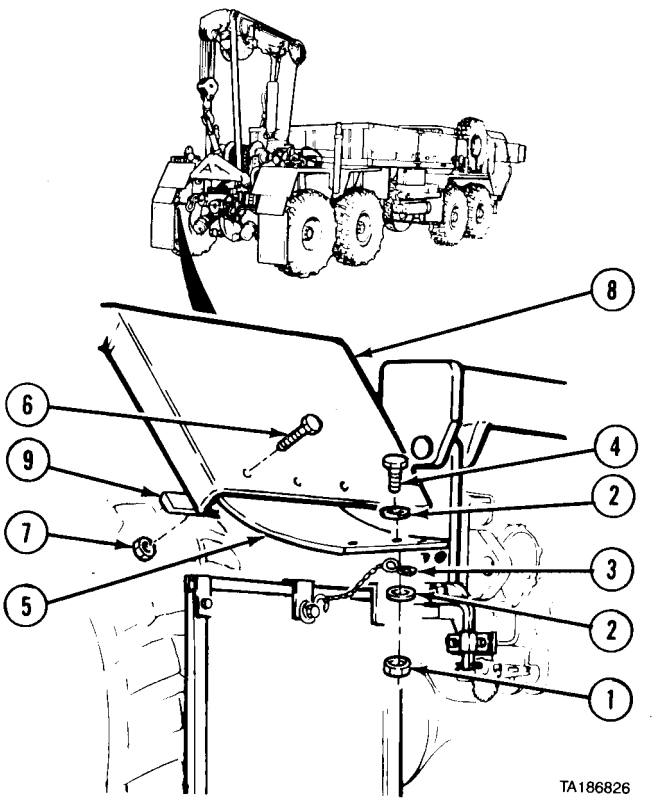


g. Rear Mud Flap and Bracket Removal.

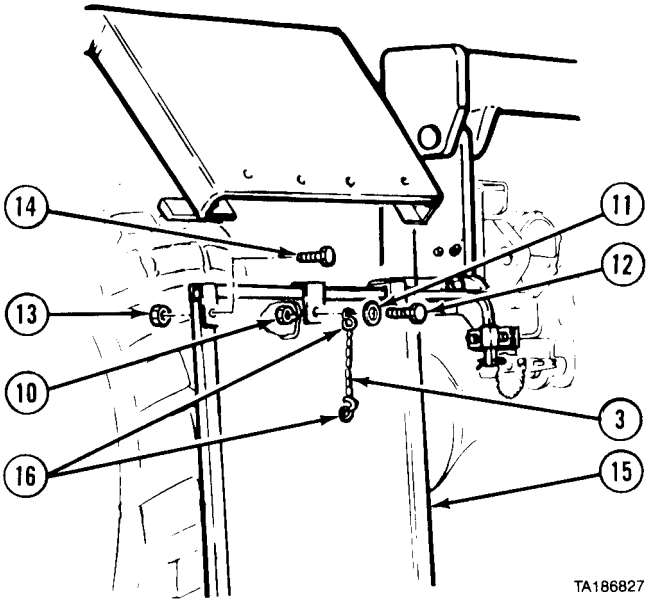
NOTE

Left and right rear mud flap and bracket assemblies are removed in a similar manner. Only left rear mud flap and bracket is shown.

(1) Remove locknut (1), two washers (2), chain (3), and screw (4) from mud flap (5).
(2) Remove three screws (6) and locknuts (7) from fender (8).
(3) Remove mud flap (5) and retaining plate (9).

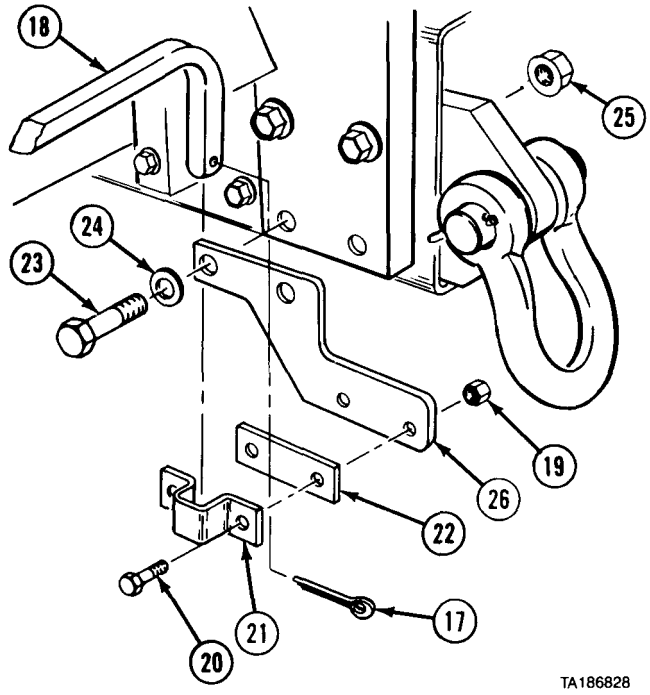


(4) Remove locknut (10), washer (11), chain (3), and screw (12).
(5) Remove two locknuts (13) and screws (14).
(6) Remove mud flap (15).
(7) Remove two hooks (16) from chain (3).



16-22. FRONT, CENTER, AND REAR MUD FLAPS REMOVAL/INSTALLATION (M984) (CONT).

(8) Remove cotter pin (17).
(9) Remove mounting bar (18).
(10) Remove two locknuts (19) and screws (20).
(11) Remove support bracket (21) and spacer plate (22).
(12) Remove two screws (23), washers (24), nuts (25), and mounting bracket (26).

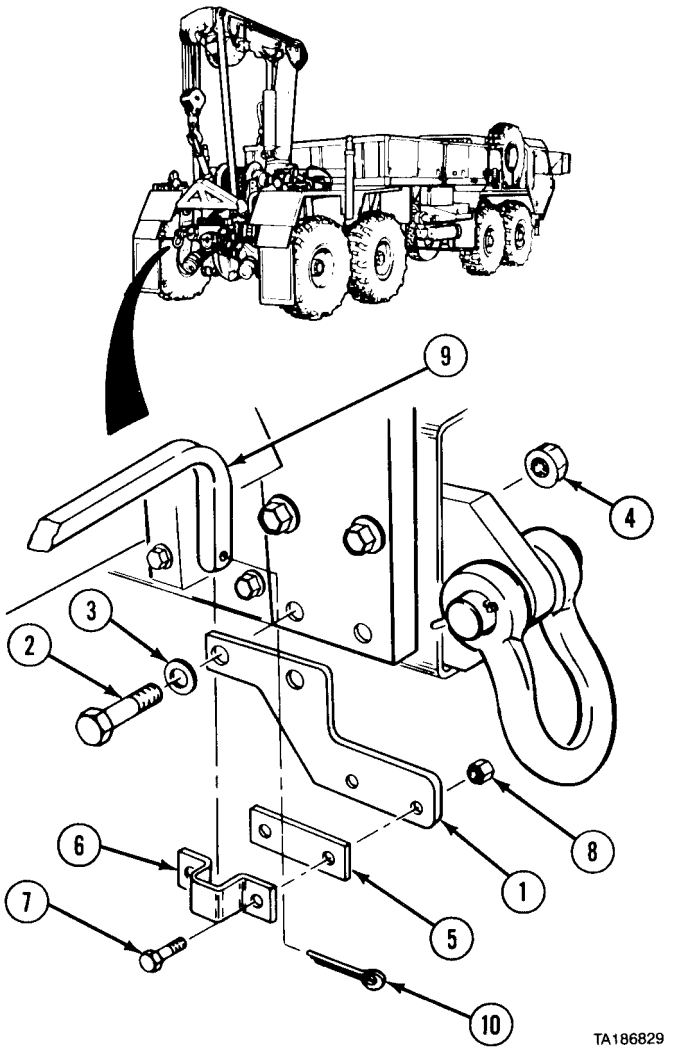


h. Rear Mud Flap and Bracket Installation.

NOTE

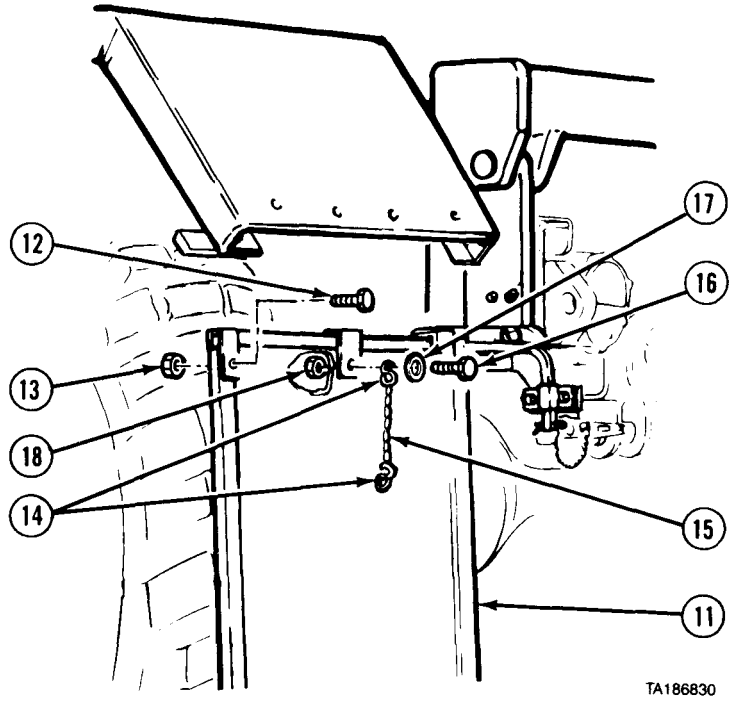
Left and right mud flap and bracket assemblies are installed in a similar manner.

(1) Install mounting bracket (1) with two screws (2), washers (3), and nuts (4).
(2) Install spacer plate (5) and support bracket (6) with two screws (7) and locknuts (8).
(3) Install mounting bar (9).
(4) Install cotter pin (10).



16-22. FRONT, CENTER, AND REAR MUD FLAPS REMOVAL/INSTALLATION (M984) (CONT).

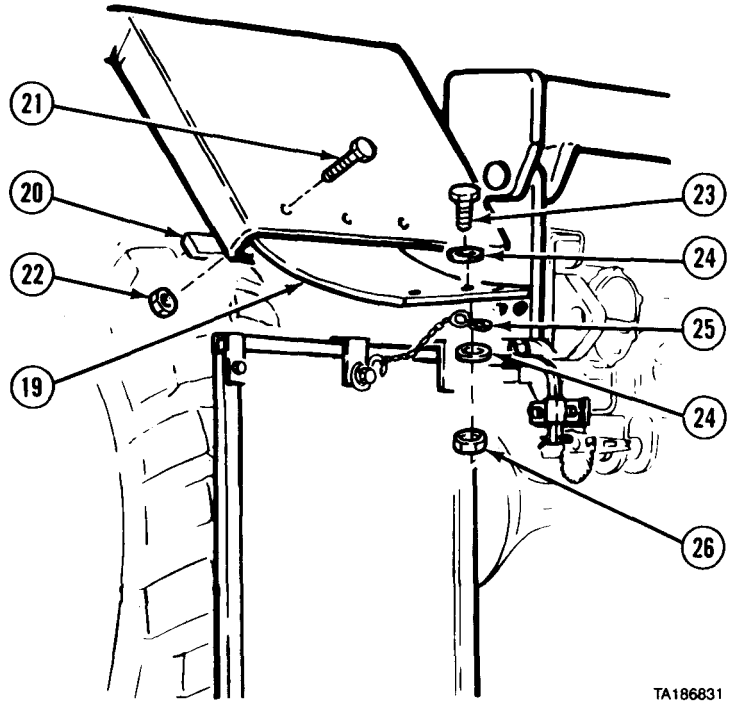
(5) Install mud flap (11) with two screws (12) and locknuts (13).
(6) Install two hooks (14) on chain (15).
(7) Install screw (16), washer (17), chain (15), and locknut (18).



(8) Install mud flap (19) and retaining plate (20) with three screws (21) and locknuts (22).
(9) Install screw (23), two washers (24), hook (25), and locknut (26).

f. Follow-on Maintenance. Install rear cable guide (para 17-6).

END OF TASK



16-22.1 MUD FLAPS AND REAR BRACKETS REMOVAL/INSTALLATION (M984E1).

This task covers:

a. Right Front Mud Flap Removal
a1. Right Front Mud Flap Installation
a2. Left Front Mud Flap Removal
b. Left Front Mud Flap Installation
c. Left Center Mud Flap and Bracket Removal
d Left Center Mud Flap and Bracket Installation
e Right Center Mud Flap Removal
f. Right Center Mud Flap Installation
g. Rear Splash Guards, Mud Flaps and Brackets Removal
h. Rear Splash Guards, Mud Flaps and Brackets Installation
i. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

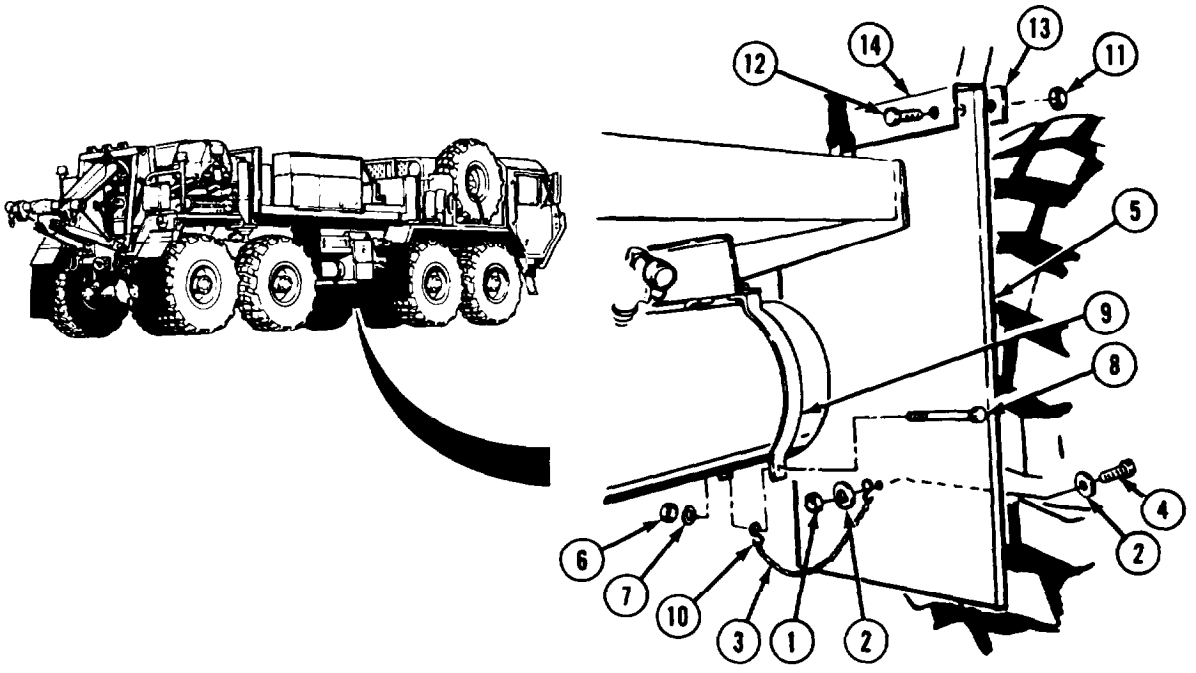
Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Remove ladder (right center mud flap only).

Special Environmental Conditions
None

General Safety Instructions
None

16-22.1. MUD FLAPS AND REAR BRACKETS REMOVAL/INSTALLATION (M984E1) (CONT).

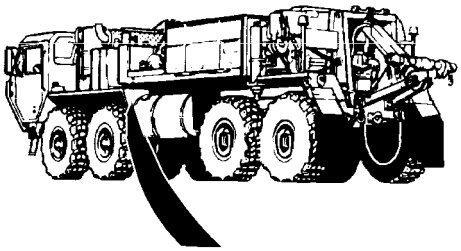


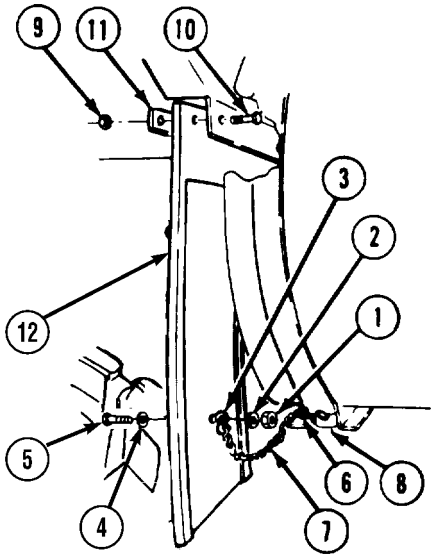
a. Right Front Mud Flap Removal.

(1) Remove locknut (1), two washers (2), chain (3), and screw (4) from mud flap (5).
(2) Remove nut (6), lockwasher (7), screw (8), and chain (3) from reservoir clamp (9).
(3) Remove two S-hooks (10) from chain (3).
(4) Remove four locknuts (11), screws (12), retaining plate (13), and mud flap (5) from fender (14).

a.1 Right Front Mud Flap Installation.

(1) Install mud flap (5) and retaining plate (13) on fender (14) with four screws (12) and locknuts (11).
(2) Install two S-hooks (10) on chain (3).
(3) Install chain (3) on reservoir clamp (9) with screw (8), lockwasher (7), and nut (6).
(4) Install chain (3) on mud flap (5) with screw (4), two washers (2), and locknut (1).





a. Left Front Mud Flap Removal.

NOTE

- Two configurations of mud flap may be installed on the vehicle.
- Model A does not have a chain.
- Model B does have a chain.
- Perform steps (1) through (4) for Model B and steps (3) and (4) for Model A.

(1) Remove locknut (1), washer (2), S-hook (3), washer (4), and screw (5).
(2) Remove S-hook (6) and chain (7) from fuel tank strap (8).
(3) Remove three locknuts (9) and screws (10).
(4) Remove retaining plate (11) and mud flap (12).

b. Left Front Mud Flap Installation.

NOTE

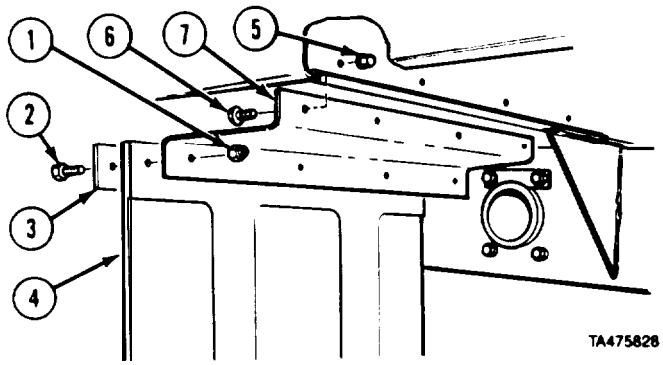
Perform step (1) for Model A and steps (1) through (3) for Model B.

(1) Install retaining plate (11) and mud flap (12) with three locknuts (9) and screws (10).
(2) Install S-hook (6) and chain (7) on fuel tank strap (8).
(3) Install screw (5), washer (4), S-hook (3), washer (2), and locknut (1).

16-22.1. MUD FLAPS AND REAR BRACKETS REMOVAL/INSTALLATION (M984E1) (CONT).

c. Left Center Mud Flap and Bracket Removal.

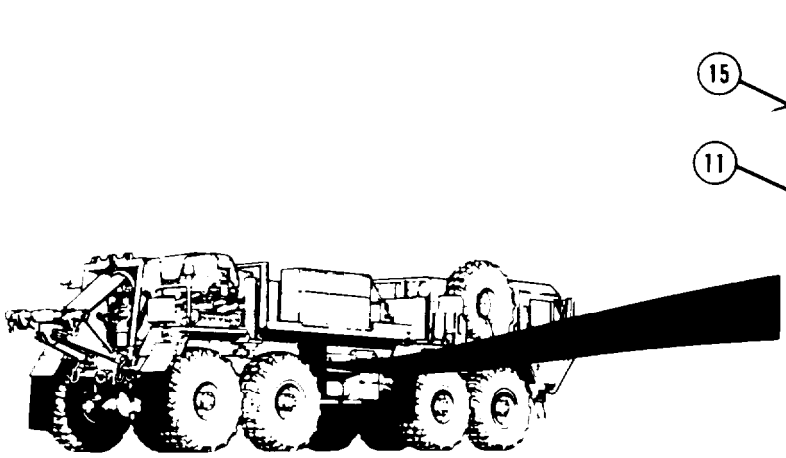
(1) Remove four locknuts (1), screws (2), retaining plate (3), and mud flap (4).
(2) Remove four nuts (5), screws (6), and mounting bracket (7).

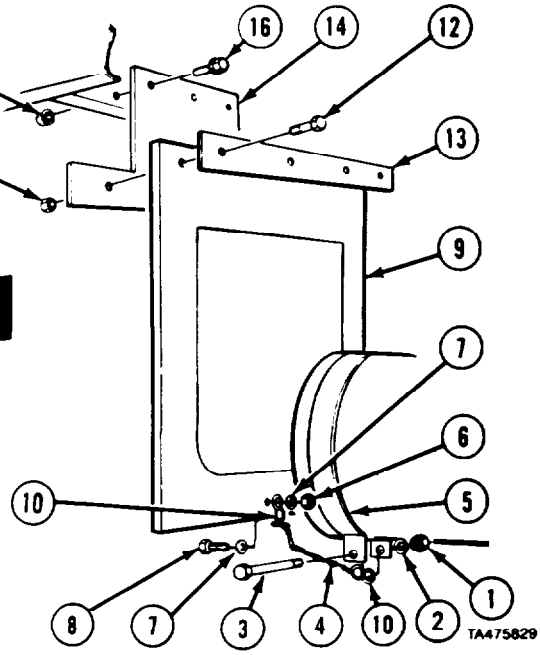


d. Left Center Mud Flap and Bracket Installation.

(1) Install mounting bracket (7) with four screws (6) and nuts (5).
(2) Install mud flap (4) and retaining plate (3) with four screws (2) and locknuts (1).

e. Right Center Mud Flap Removal.





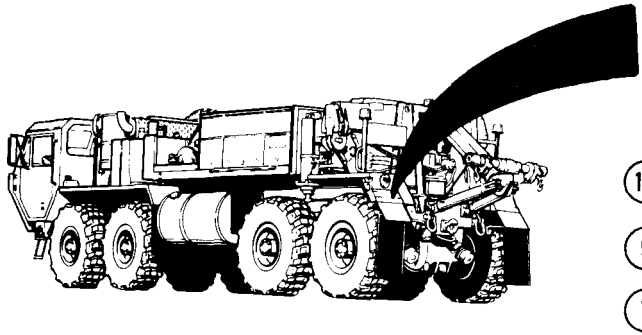
(1) Remove nut (1), lockwasher (2), screw (3), and chain (4) from reservoir clamp (5).
(2) Remove nut (6), two washers (7), screw (8), and chain (4) from mud flap (9).
(3) Remote two S-hooks (10) from chain (4).
(4) Remove four locknuts (11), screws (12), retaining plate (13) and mud flap (9) from bracket (14).
(5) Remove three nuts (15), screws (16), and bracket (14).

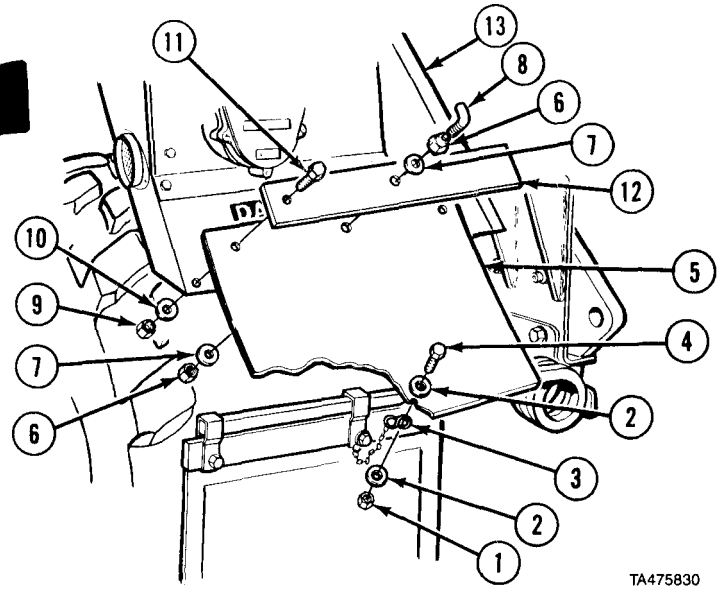
f. Right Center Mud flop Installation.

(1) Install bracket (14) with three screws (16) and nuts (15).
(2) Install retaiing plate (13) and mud flap (9) with four screws (12) and locknuts (11).
(3) Install two S-hooks (10) on chain (4).
(4) Install chain (4) on mud flap (9) with screw (8), two washers (7) and nut (6).
(5) Install chain (4) on reservoir clamp (5) with screw (3), lockwasher (2) and nut (1).

Cab and Body Maintenance Instructions (Cont)

g. Rear Splash Guards, Mud Flaps and Brackets Removal.



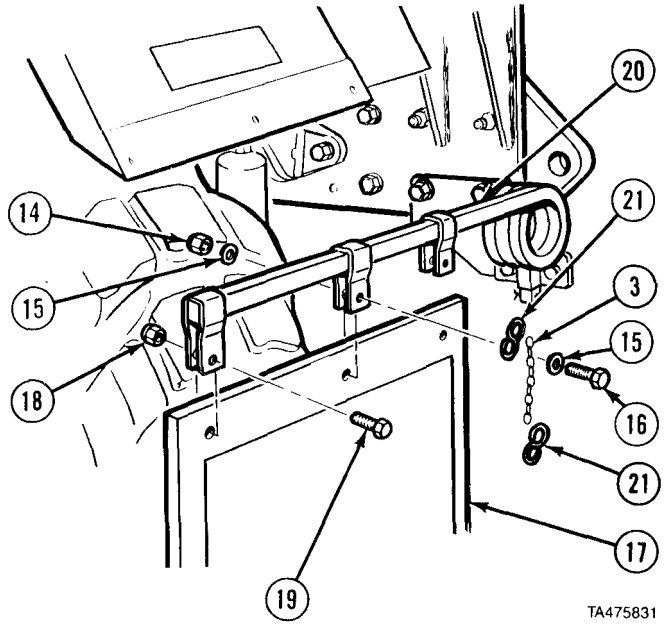


NOTE

Left and right splash guards, mud flaps and brackets are removed the same way.

(1) Remove locknut (1), two washers (2), chain (3), and screw (4) from splash guard (5).
(2) Remove locknut (6), two washers (7), and hook (8). Remove locknut (6) from hook (8).
(3) Remove two locknuts (9), washers (10), screws (11), retaining plate (12), and splash guard (5) from fender (13).

(4) Remove locknut (14), two washers (15), chain (3), and screw (16) from mud flap (17).
(5) Remove two locknuts (18), screws (19), and mud flap (17) from mounting bar (20).
(6) Remove two S-hooks (21) from chain (3).



16-22.1. MUD FLAPS AND REAR BRACKETS REMOVAL/INSTALLATION (M984E1) (CONT).

(7) Remove cotter pin (22) and mounting bar (20).

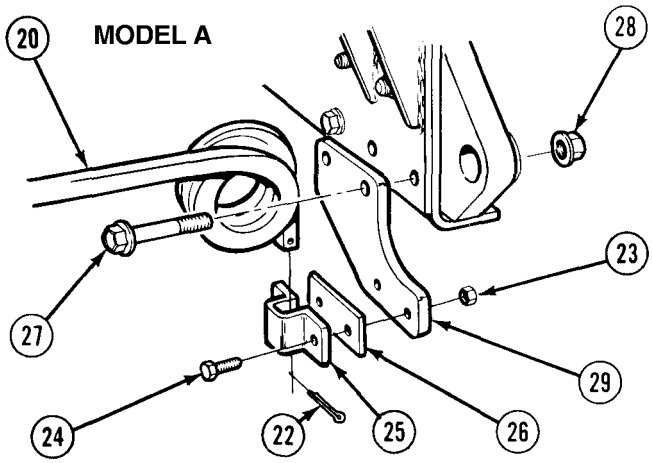
NOTE

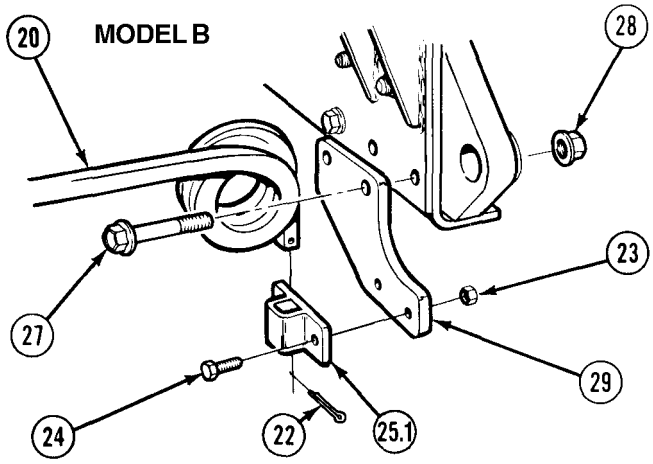
- There are two models of mud flap that may be installed on the vehicle.
- Model A has a support bracket and spacer.
- Model B has a one piece support bracket.
- Perform steps (8 and 9) for Model A.
- Perform step (8.1 and 9) for Model B.

(8) Remove two locknuts (23), screws (24), support bracket (25), and spacer (26).

(8.1) Remove two locknuts (23), screws (24), and support bracket (25.1).

(9) Remove two screws (27), nuts (28), and mounting bracket (29).



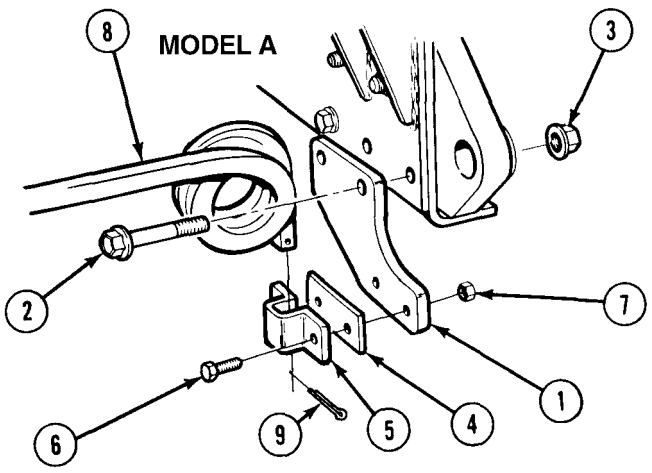


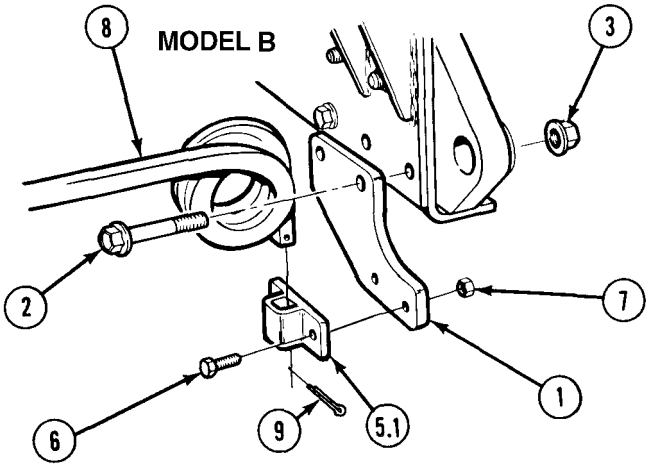
h. Rear Splash Guards, Mud Flaps, and Brackets Installation.

NOTE

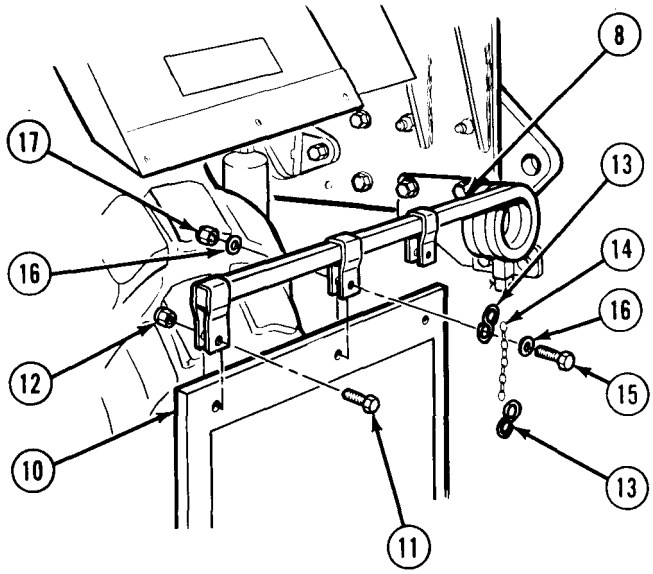
- Left and right splash guards, mud flaps, and brackets are installed the same way.
- Perform steps *(1 and 2)* and *(3)* through *(7)* for Model A.
- Perform steps *(1 and 2.1)* and *(3)* through *(7)* for Model B.

(1) Install mounting bracket (1) with two screws (2) and nuts (3).
(2) Install spacer plate (4) and support bracket (5) with two screws (6) and locknuts (7).
(2.1) Install support bracket (5.1) with two screws (6) and locknuts (7).
(3) Install mounting bar (8).
(4) Install cotter pin (9).

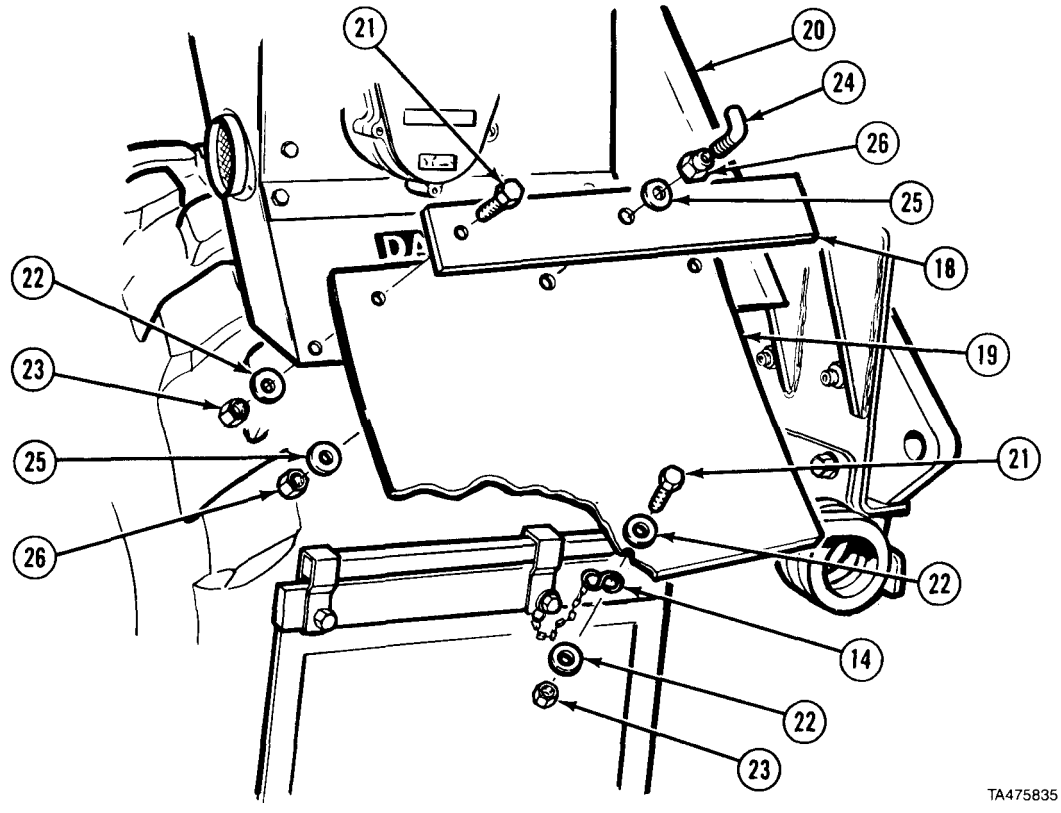




(5) Install mud flap (10) on mounting bar (8) with two screws (11) and locknuts (12).
(6) Install two hooks (13) on chain (14).
(7) Install chain (14) on mud flap (10) with screw (15), two washers (16), and locknut (17).



Cab and Body Maintenance Instructions (Cont)



(8) Install retaining plate (18) and splash guard (19) on fender (20) with two screws (21), washers (22) and locknuts (23).
(9) Install hook (24) with two washers (25) and two locknuts (26).
(10) Install chain (14) on splash guard (19) with screw (20), two washers (22) and locknut (23).

i. Follow-on Maintenance. Install ladder (TM 9-2320-279-10).

END OF TASK

16-23. CROWBAR STOWAGE BRACKETS REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-354-10	Crowbar removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

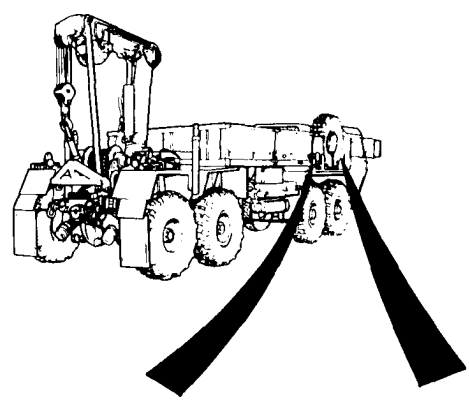
(1) Remove two nuts (1), lockwashers (2), screws (3), and stowage bracket (4).
(2) Remove two nuts (5), lockwashers (6), screws (7), and stowage bracket (8).

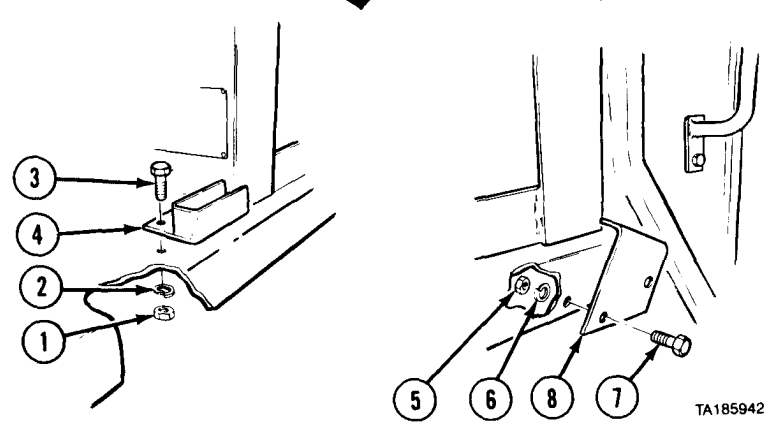
b. Installation.

(1) Install stowage bracket (8) with two screws (7), lockwashers (6), and nuts (5).
(2) Install stowage bracket (4) with two screws (3), lockwashers (2), and nuts (1).

c. Follow-on Maintenance.
Install crowbar (TM 9-2320-354-10).

END OF TASK





16-24. REAR FENDERS AND BRACKETS REMOVAL/INSTALLATION (M985E1).

This task covers:

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

INITIAL SETUP

Models
M985E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
Para 16-20	Rear mud flap removed.

Special Environmental Conditions
None

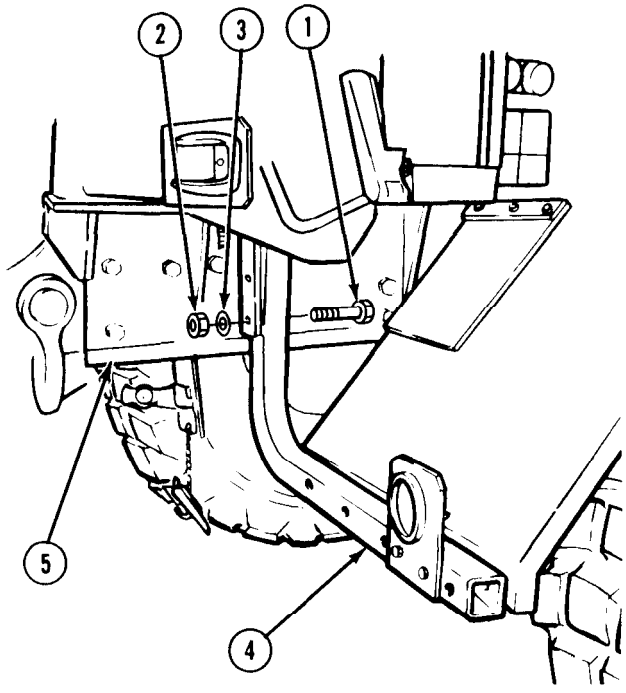
General Safety Instructions
None

a. Removal.

NOTE

Right and left fenders are removed the same way.

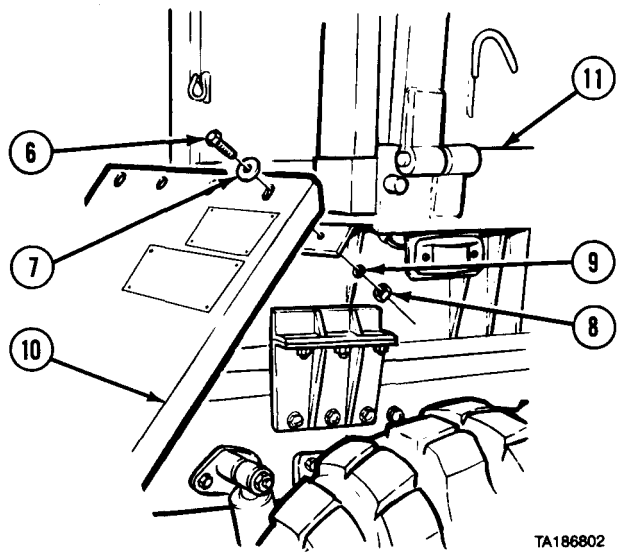
(1) Remove two screws (1), nuts (2), lockwashers (3), and bracket (4) from vehicle frame (5).



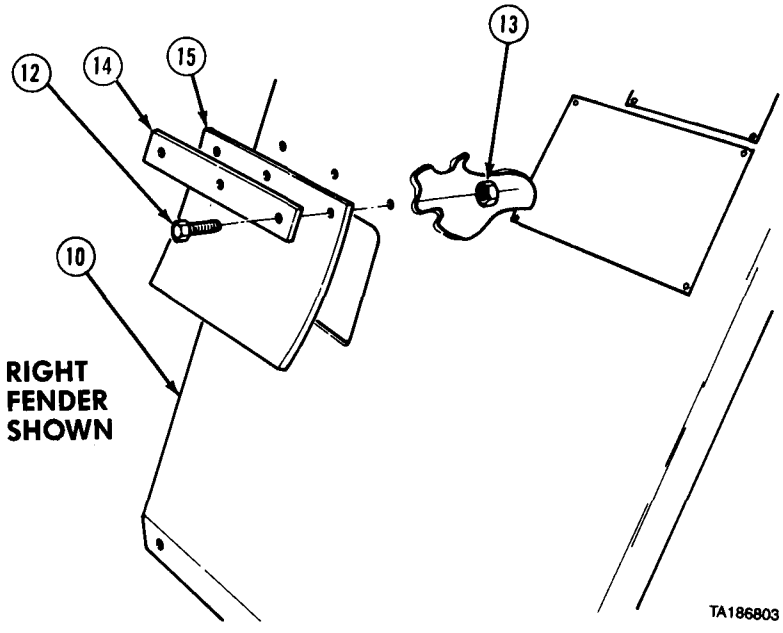
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Cab and Body Maintenance Instructions (Cont)

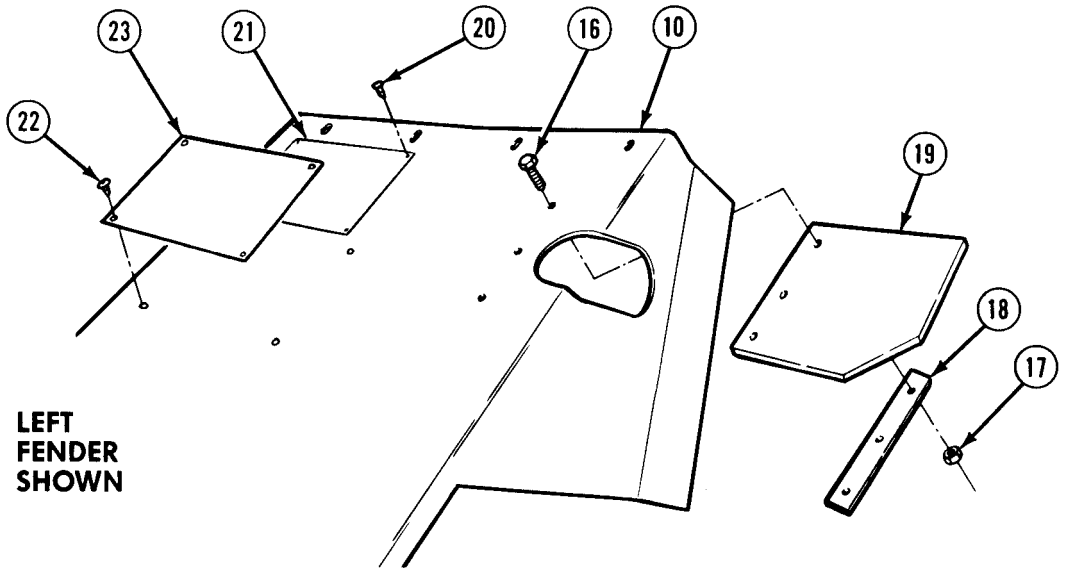
(2) Remove four screws (6), washers (7), nuts (8), lockwashers (9), and fender (10) from cargo body (11).



(3) Remove three screws (12), locknuts (13), holddown strap (14), and fender flap (15) from fender (10).



16-24. REAR FENDERS AND BRACKETS REMOVAL/INSTALLATION (M985E1) (CONT).

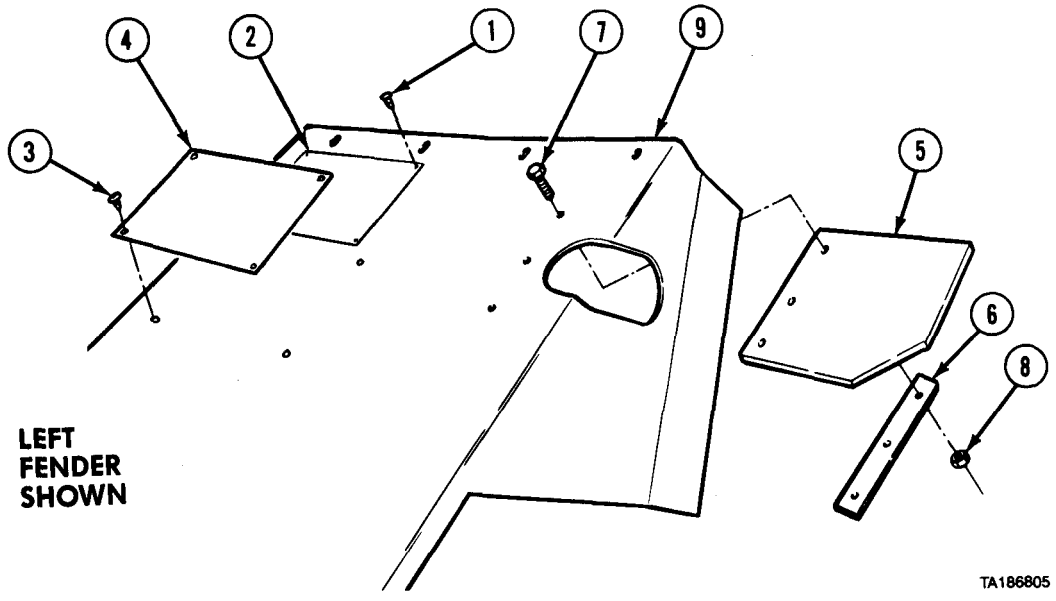


NOTE

Data plates are removed the same way on left and right fenders.

(4) Remove three screws (16), locknuts (17), holddown strap (18), and fender flap (19) from fender (10).
(5) Remove four screws ('20) and data plate (21).
(6) Remove four screws (22) and data plate (23).

b. Installation.

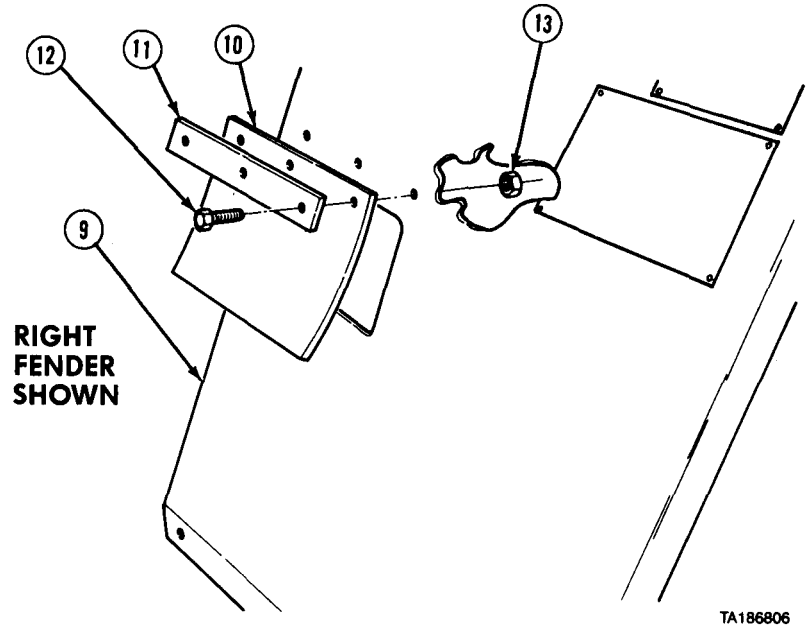


NOTE

Data plates are installed the same way on left and right fenders.

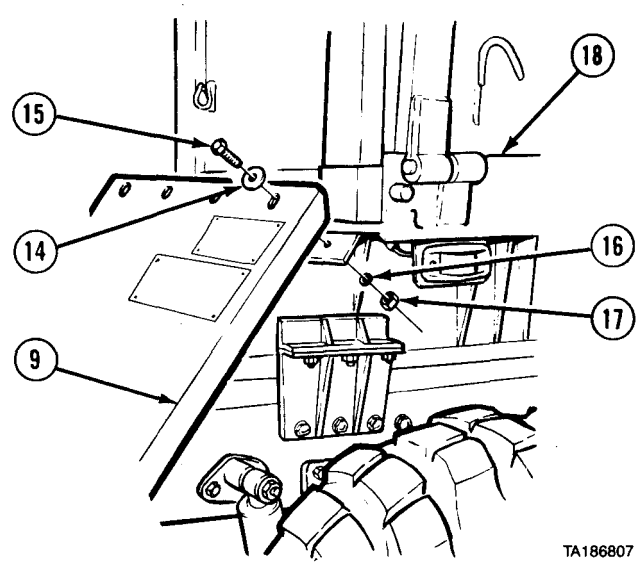
(1) Install four screws (1) and data plate (2).
(2) Install four screws (3) and data plate (4).
(3) Install fender flap (5) and holddown strap (6) with three screws (7) and locknuts (8) to fender (9).

(4) Install fender flap (10) and holddown strap (11) with three screws (12) and locknuts (13) to fender (9).



16-24. REAR FENDERS AND BRACKETS REMOVAL/INSTALLATION (M985E1) (CONT).

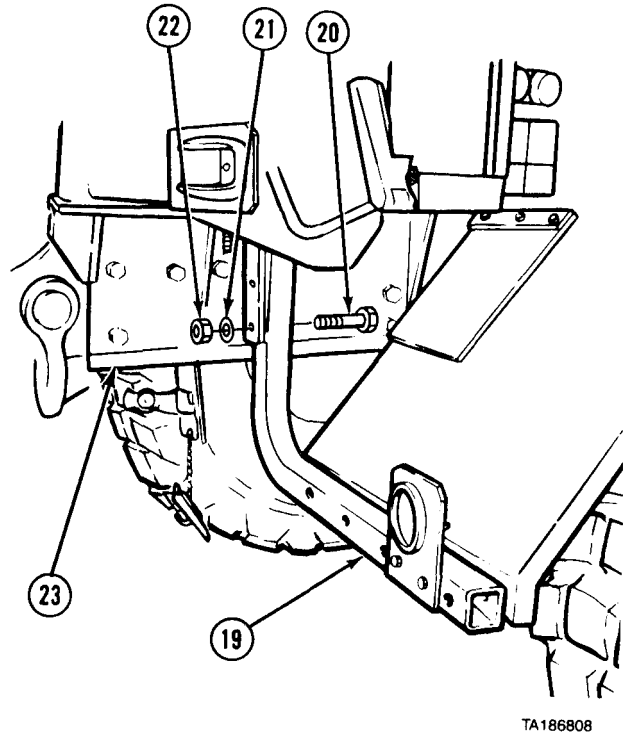
(5) Install fender (9) with four washers (14), screws (15), lockwashers (16), and nuts (17) to cargo body (18).



(6) Install bracket (19) with two screws (20), lockwashers (21), and nuts (22) to vehicle frame (23).

c. Follow-on Maintenance. Install rear mud flap (para 16-20).

END OF TASK



16-24.1. REAR FENDERS AND SUPPORTS REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

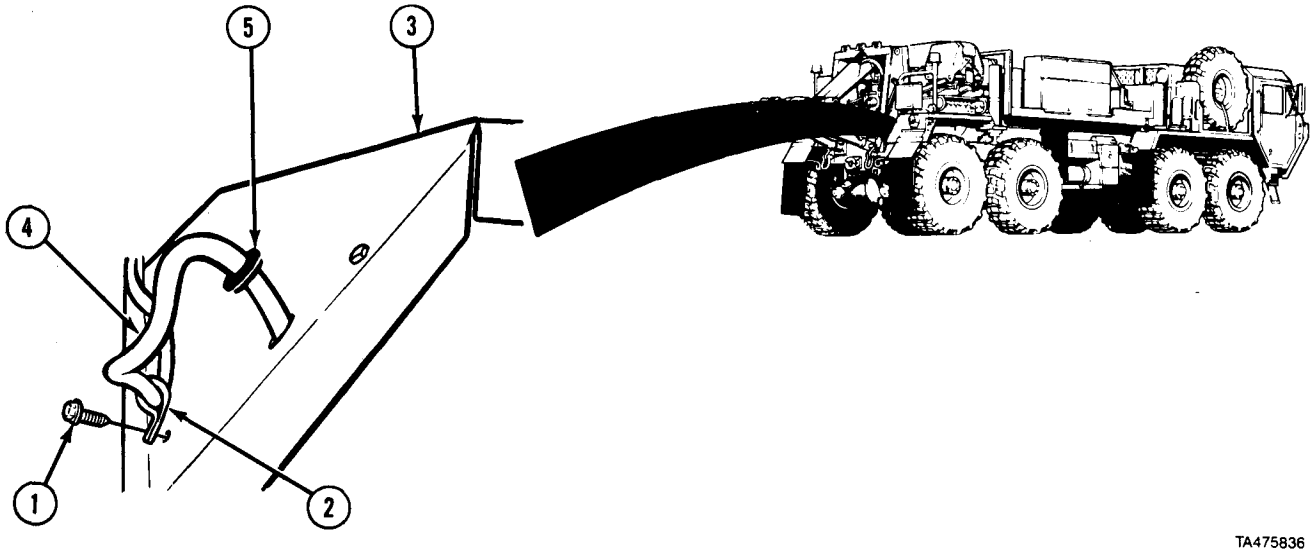
Equipment Condition

TM or Para	*Condition Description*
Para 18-12	Red reflectors removed.
Para 16-22.1	Rear mud flaps removed.
Para 7-62	Rear composite taillights removed.
Para 7-67.1	Rear side clearance lights removed (M984E1).

Special Environmental Conditions
None

General Safety Instruction-s
None

a. Removal.



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NOTE

Right and left rear fenders removed the same.

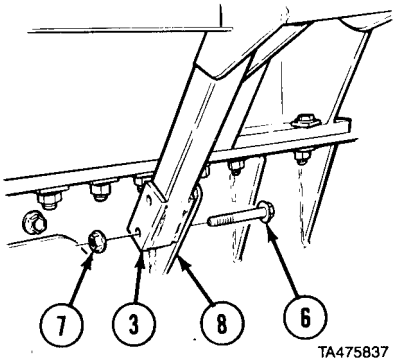
(1) Remove screw (1) and clamp (2) from fender (3).
(2) Remove wire harness (4) and grommet (5) from fender (3).

16-24.1. REAR FENDERS AND SUPPORTS REMOVAL/INSTALLATION (M984E1) (CONT).

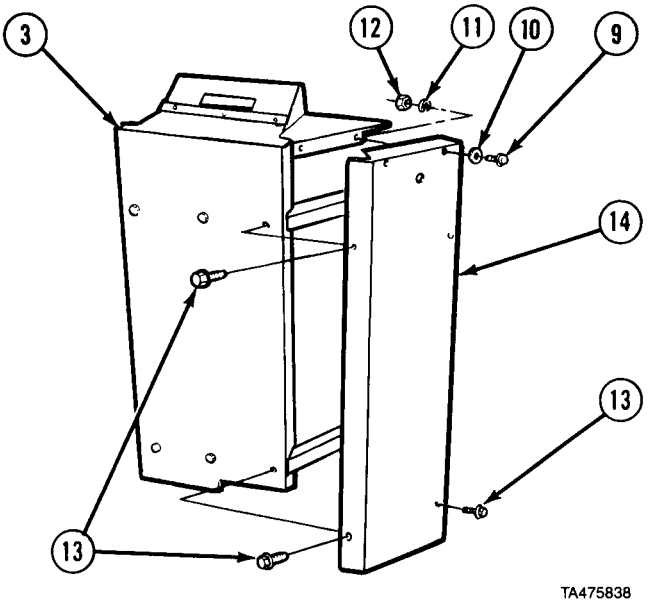
WARNING

Fender is heavy and will drop down when screws are removed.

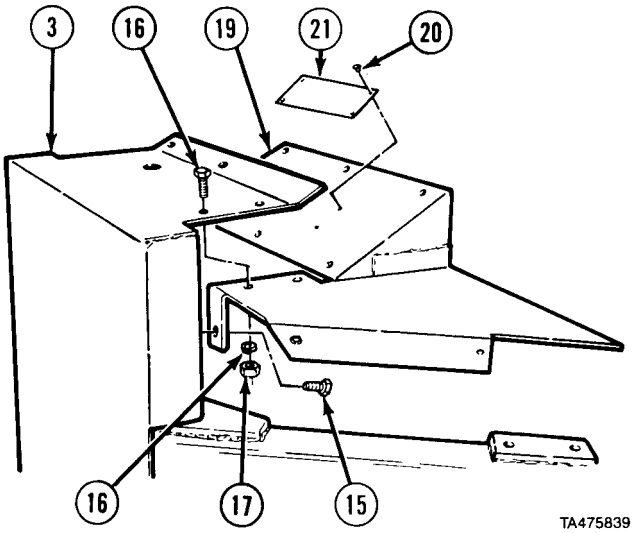
(3) Soldier A and Soldier B remove four screws (6), nuts (7), and fender (3) from vehicle (8).



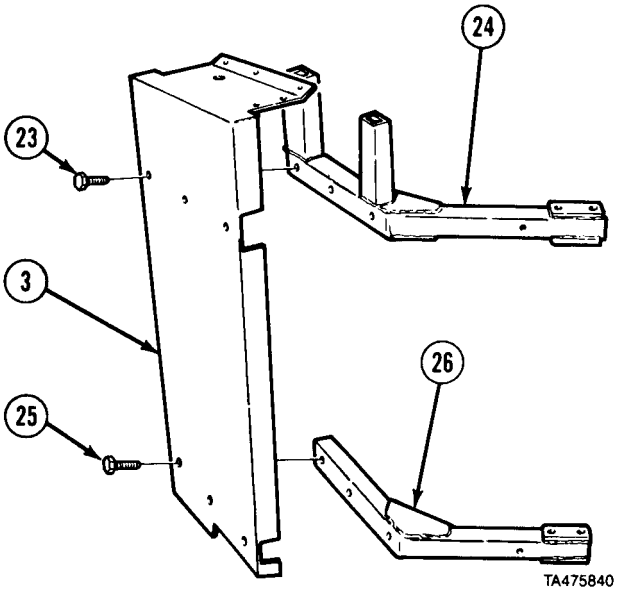
(4) Remove two screws (9), washers (10), lockwashers (11), and nuts (12).
(5) Remove three screws (13) and side panel (14) from fender (3).



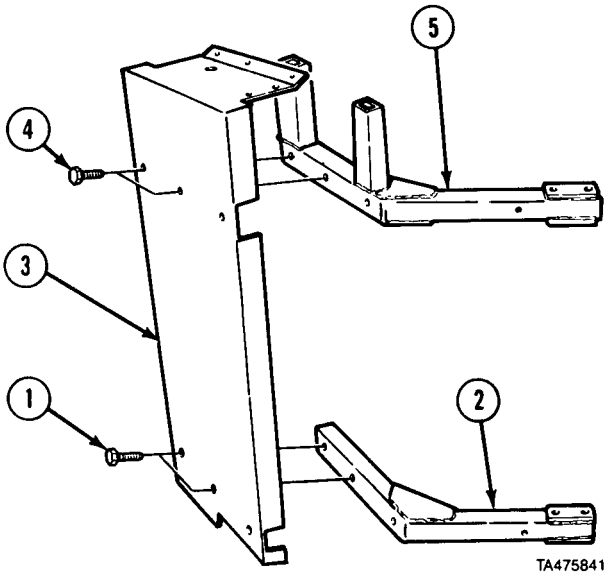
(6) Remove three screws (15).
(7) Remove four screws (16), lockwashers (17), nuts (18), and rear panel (19) from fender (3).
(8) Remove four rivets (20) and data plate (21) from rear panel (22).



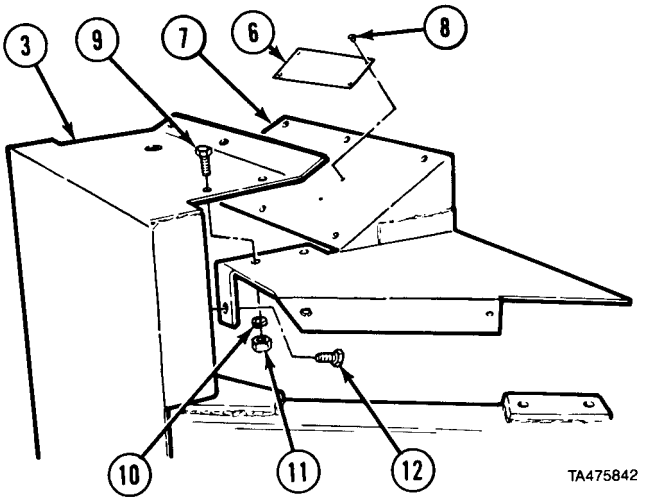
(9) Remove two screws (23) and brace (24) from fender (3).
(10) Remove two screws (25) and brace (26).



b. Installation.
(1) Install two screws (1) and brace (2) on fender (3).
(2) Install two screws (4) and brace (5) on fender (3).

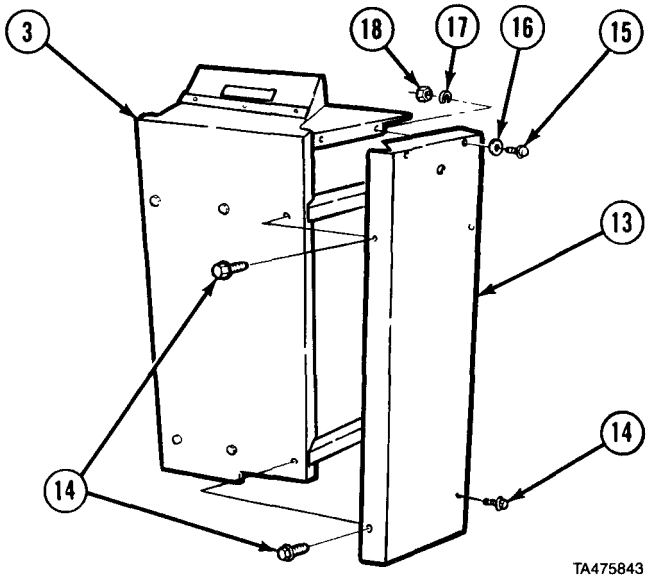


(3) Install data plate (6) on rear panel (7) with four rivets (8).
(4) Install rear panel (7) to fender (3) with four screws (9), washers (10), lockwashers (11), and nuts (12).
(5) Install three screws (13).

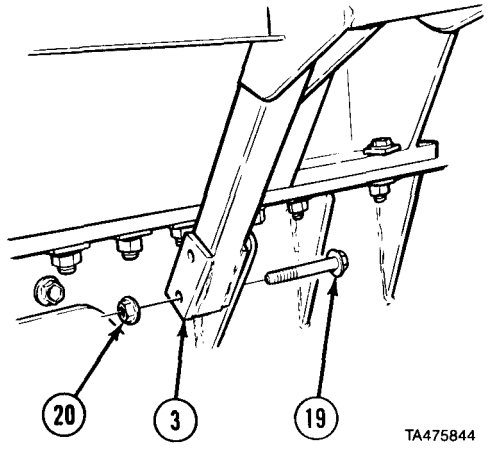


16-24.1. REAR FENDERS AND SUPPORTS REMOVAL/INSTALLATION (M984E1) (CONT).

(6) Install side panel (14) on fender (3) with three screws (15).
(7) Install two screws (16), lockwashers (17), and nuts (18).



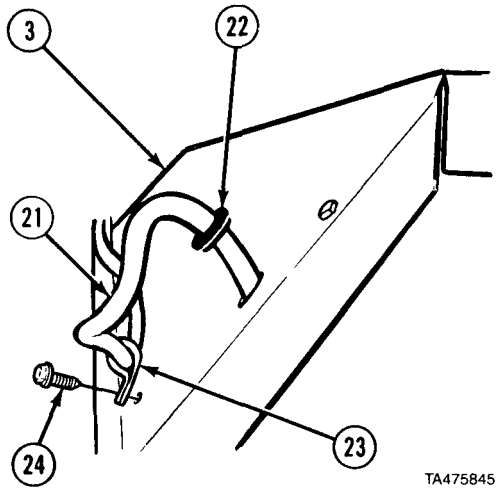
(8) Soldier A and Soldier B install fender (3) with four screws (19) and nuts (20).



(9) Install wire harness (21) and grommet (22) on fender (3).
(10) Install clamp (23) and screw (24).

c. Follow-on Maintenance.
(1) Install rear composite taillights (para 7-62)
(2) Install rear side clearance lights (para 7-67.1)
(3) Install rear mud flaps (para 16-22.1)
(4) Install red reflectors (para 18-12)

END OF TASK



Section IV. SEATS

16-25. SEAT CUSHION AND BACK COVER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

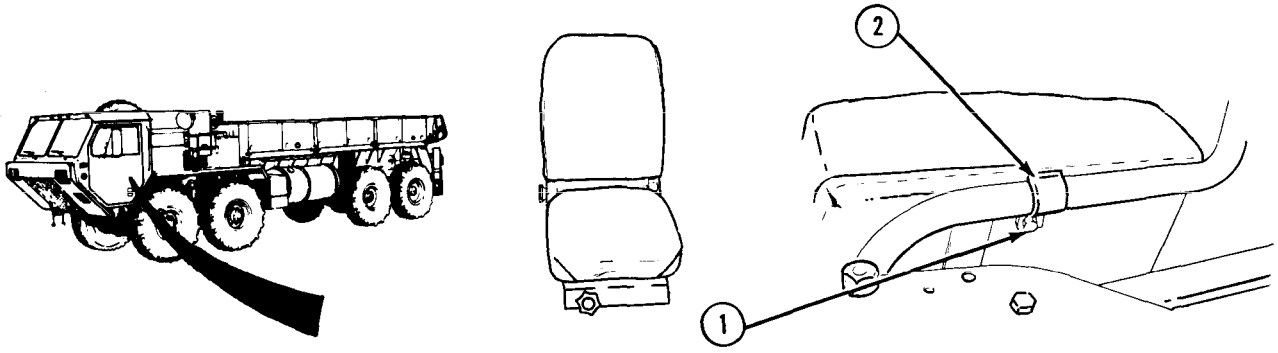
Equipment Condition

TM or Para	*Condition Description*
TM 0-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



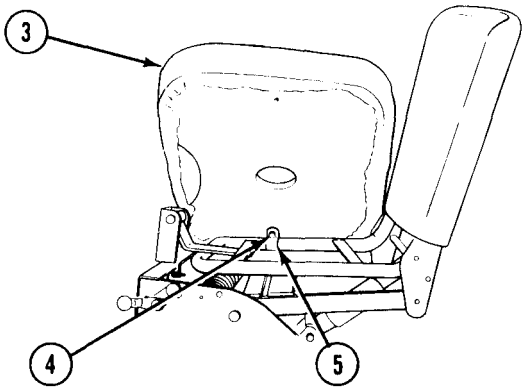
NOTE

There are two models of seat back and seat cushion material. Model A is colored olive drab and Model B is colored green.

(1) Remove screw (1) and clamp (2) on side nearest door.

Cab and Body Maintenance Instructions (Cont)

(2) Raise seat cushion (3) and remove screw (4) and clamp (5). Remove seat cushion.

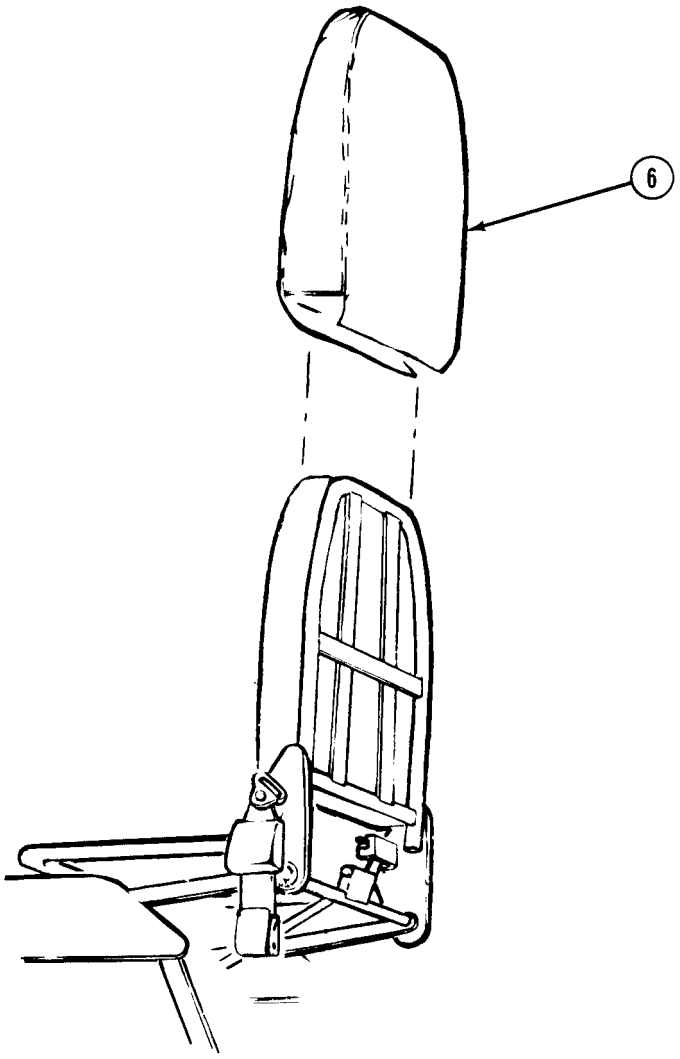


NOTE

- There are two types of seat back closures.
- Model A has hooks.
- Model B has a velcro closure.

(3) Pull velcro or hooks loose from back cover (6).

(4) Remove back cover (6).



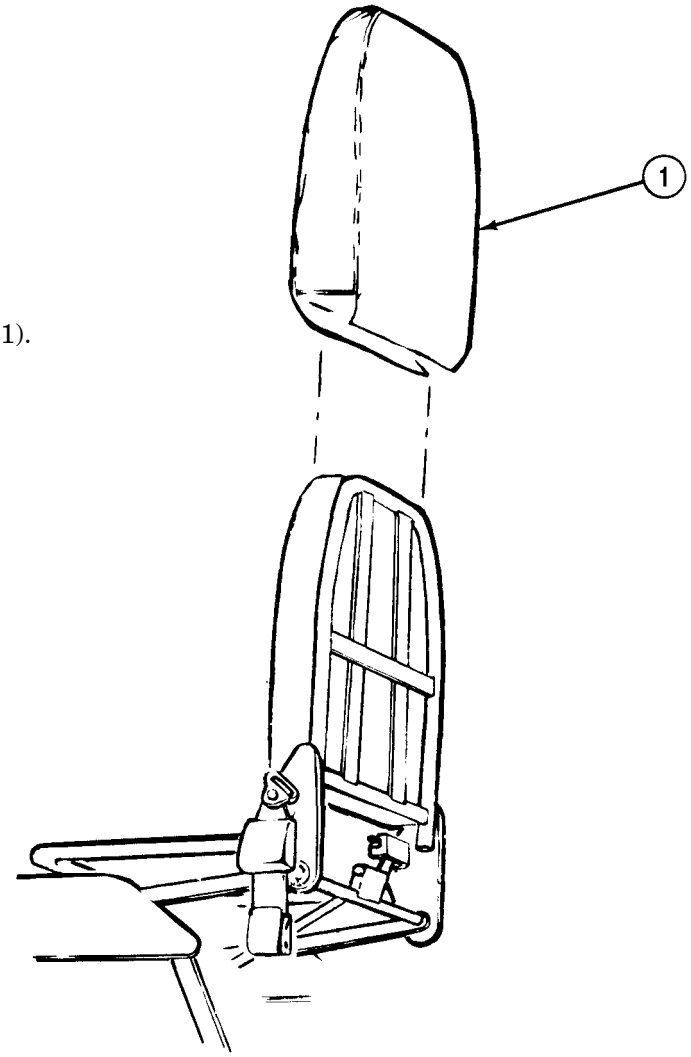
16-25. SEAT CUSHION AND BACK COVER REMOVAL/INSTALLATION (CONT).

b. Installation.

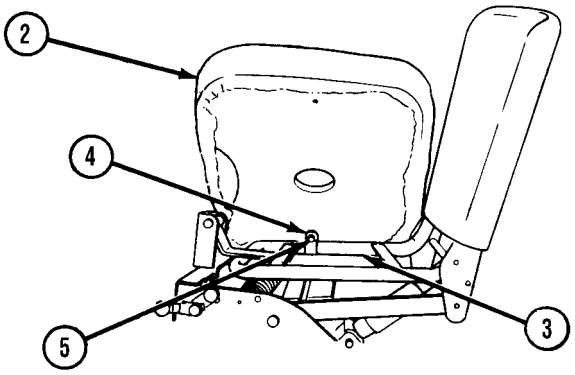
NOTE

- There are two types of seat back closures.
- Model A has hooks.
- Model B has a velcro closure.

(1) Install back cover (1).
(2) Fasten velcro or hooks on back cover (1).



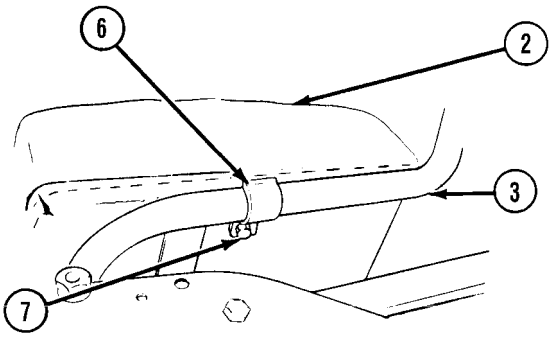
(3) Position seat cushion (2) on seat frame (3) tilted up.
(4) Install clamp (4) and screw (5).



(5) Lower seat cushion (2) until flat on seat frame (3).
(6) Install clamp (6) and screw (7).

c. Follow-on Maintenance. None.

END OF TASK



Section IV. SEATS

16-25.1. SEAT CUSHION AND BACK COVER (AIR-RIDE SEAT) REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

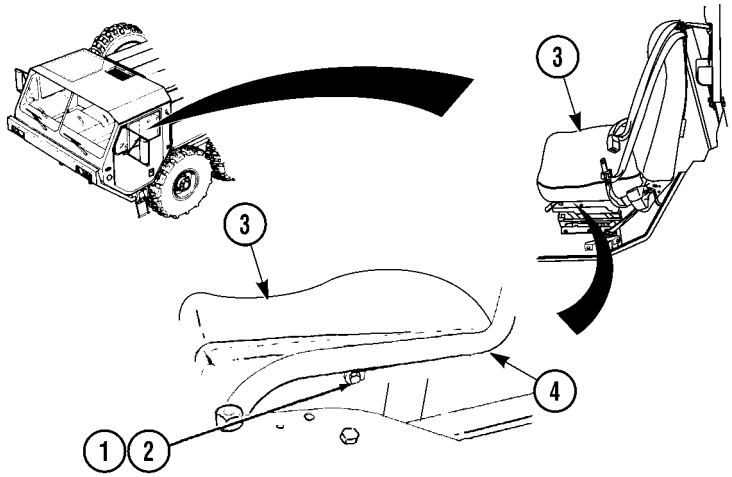
Equipment Condition

TM or Para	*Condition Description*
TM 0-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

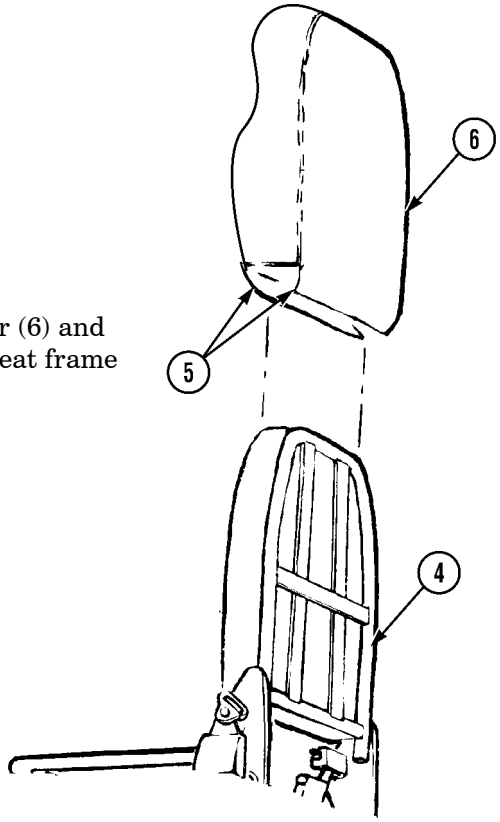
a. Removal.



NOTE
Both seat cushions and back covers removed same way.

(1) Remove two screws (1), washers (2), and seat cushion (3) from seat frame (4).

(2) Pull Velcro (5) loose from back cover (6) and lift back cover up over (6) up over seat frame (4).

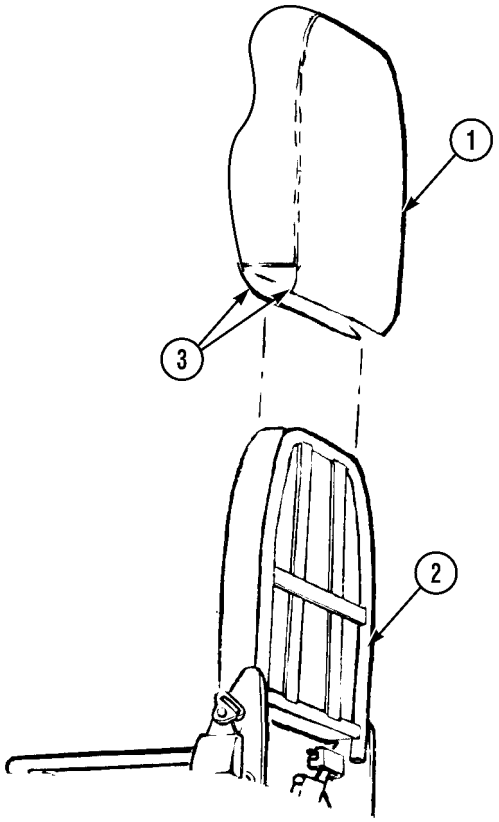


16-25.1. SEAT CUSHION AND BACK COVER (AIR-RIDE) REMOVAL/INSTALLATION (CONT).

b. Installation.

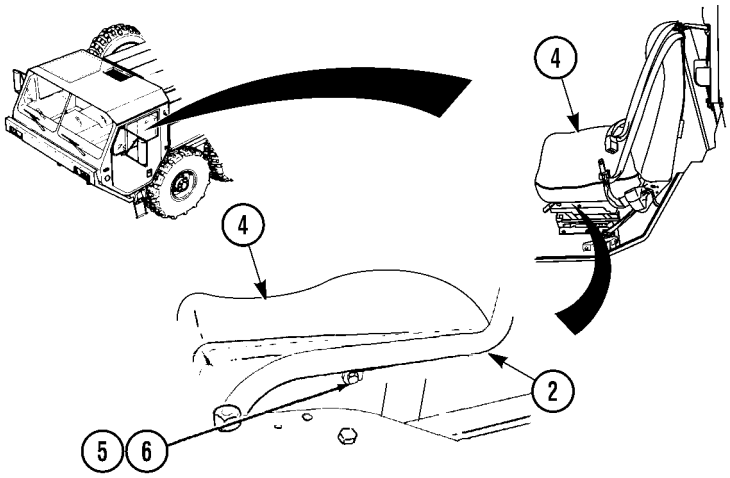
NOTE

Both seat cushions and back covers installed same way.



(1) Install back cover (1) on seat frame (2) and secure Velcro (3).

(2) Install seat cushion (4) on seat frame (2) with two washers (5) and screws (6).



c. Follow-on Maintenance. None

END OF TASK

16-26. SEAT AND SEAT FRAME REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

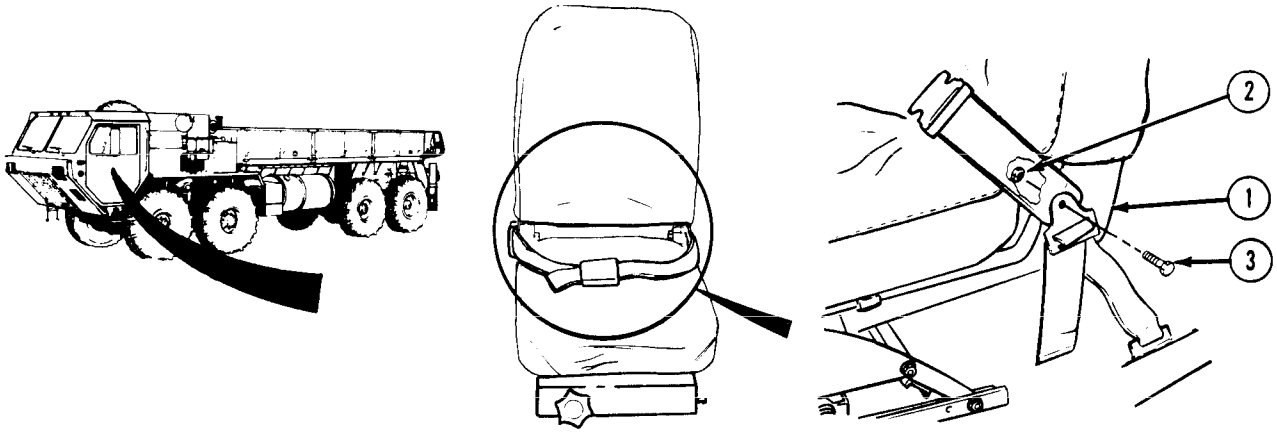
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

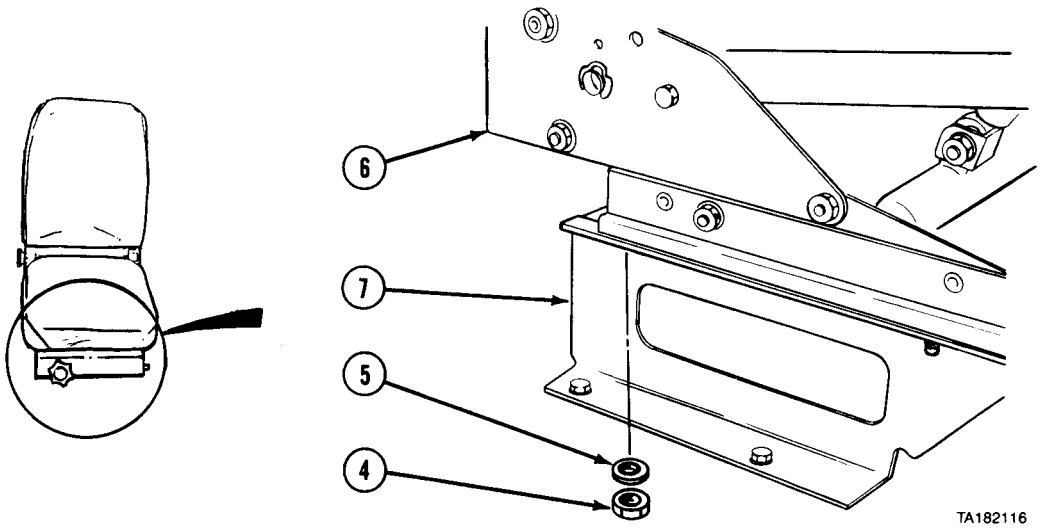
Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

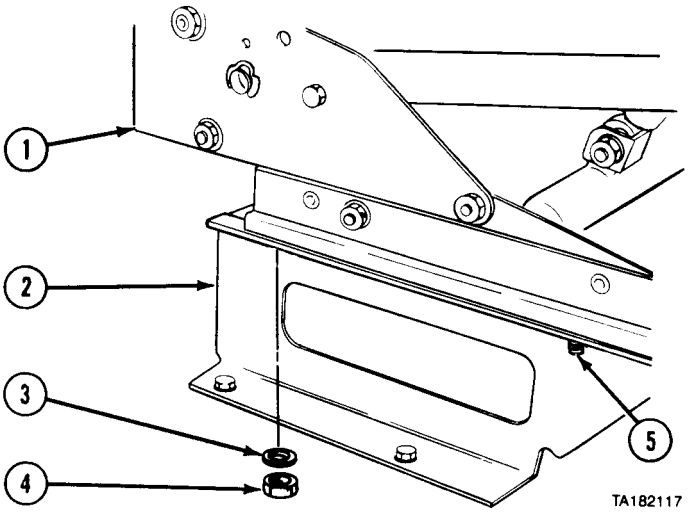


(1) Move seat (1) completely forward.
(2) Remove nut (2) and screw (3) from each side of seat (1).



(3) Remove two nuts (4) and washers (5) from each side of seat frame (6).
(4) Lift seat frame (6) off seat support (7).

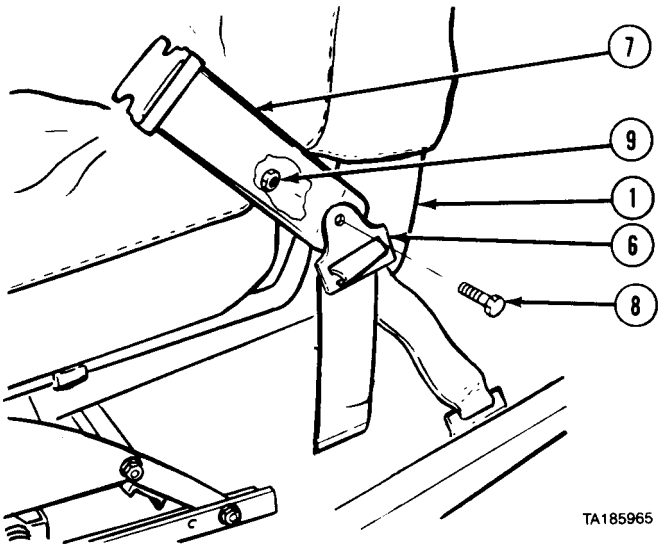
b. Installation.
(1) Place seat frame (1) on seat support (2).
(2) Install four washers (3) and nuts (4) on studs (5).



(3) Install anchor strap (6) and seatbelt (7) to seat frame (1) with screw (8) and nut (9).

c. Follow-on Maintenance. None.

END OF TASK



16-26.1. SEAT (AIR-RIDE) REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, Sealing, Pipe Thread (Item 18, Appendix C)

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-20	Drain air system.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

NOTE

- Both seats are removed the same way, left seat shown.
- Remove cable ties as required.
- Cap and plug disconnected airhoses.

(1) Move seat (1) completely forward.

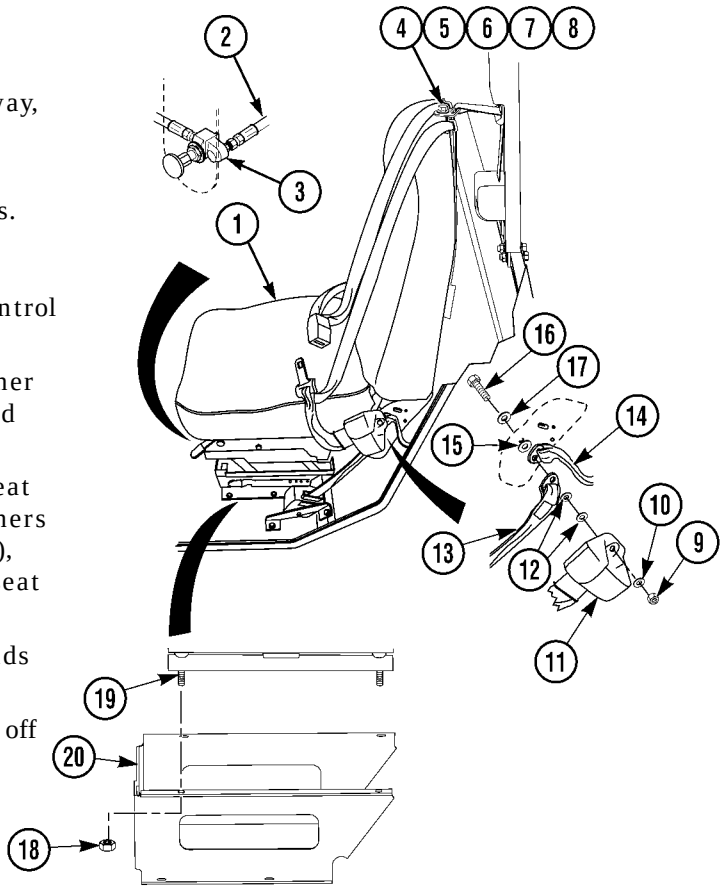
(2) Disconnect airhose (2) from ride control valve (3).

(3) Remove cap (4), screw (5), lockwasher (6), upper retractable tether (7), and retainer (8) from seat (1).

(4) Remove locknut (9), washer (10), seat belt (11), two washers (12), two tethers (13 and 14), washer (15), screw (16), and washer (17) from each side of seat (1).

(5) Remove four locknuts (18) from studs (19).

(6) Soldier A and Soldier B lift seat (1) off seat support (20).



16-26.1. SEAT (AIR-RIDE) REMOVAL/INSTALLATION (CONT).

b. Disassembly.

(1) Remove four screws (1) and two loops (2) from seat (3).

(2) Remove screw (4), washer (5), retractor (6), washer (7), and seatbelt (8) from seat (3).

WARNING

Pull out ride control valve knob to release pressure in air-ride system. Failure to comply may result in injury to personnel.

(3) Remove airhose (9) from ride control valve (10).

(4) Loosen screw (11) and remove knob (12) from ride control valve (10).

(6) Remove nut (13), lockwasher (14), and ride control valve (10) from seat frame (15).

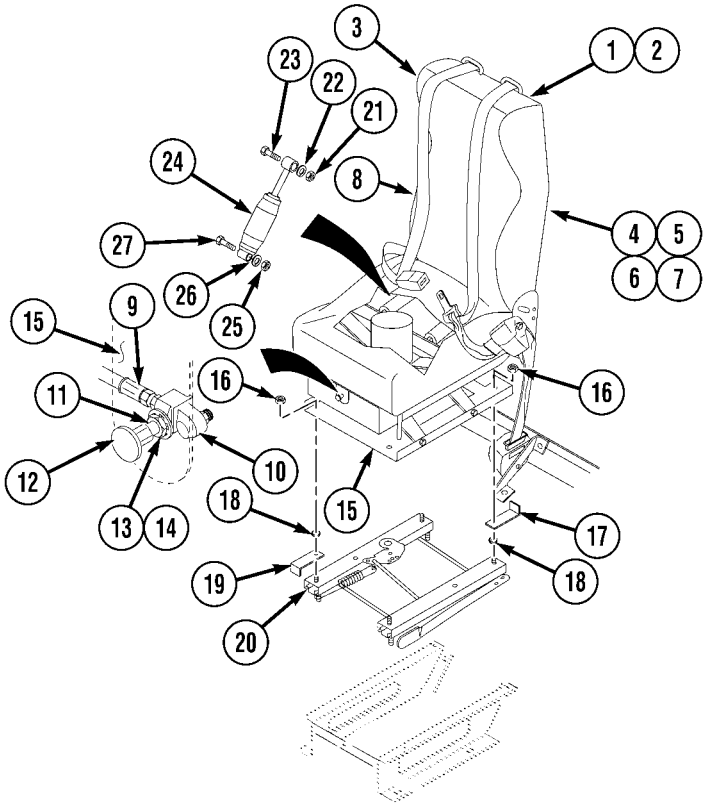
(7) Remove four locknuts (16), two stop brackets (17), four spacers (18), stop bracket (19), and tracks (20) from seat frame (15).

NOTE

There are two shock absorbers on each seat. Both are removed the same way.

(8) Remove nut (21), lockwasher (22), and screw (23) from shock absorber (24).

(9) Remove nut (25), lockwasher (26), and screw (27) and shock absorber (24) from seat frame (15).



c. Assembly.

NOTE

There are two shock absorbers on each seat. Both are installed the same way.

(1) Install shock absorber (1) in seat frame (2) with screw (3), lockwasher (4), and nut (5).

(2) Install shock absorber (1) with screw (6), lockwasher (7), and nut (8).

(3) Install tracks (9) on seat frame (2) with stop bracket (10), four spacers (11), two stop brackets (12), and four locknuts (13).

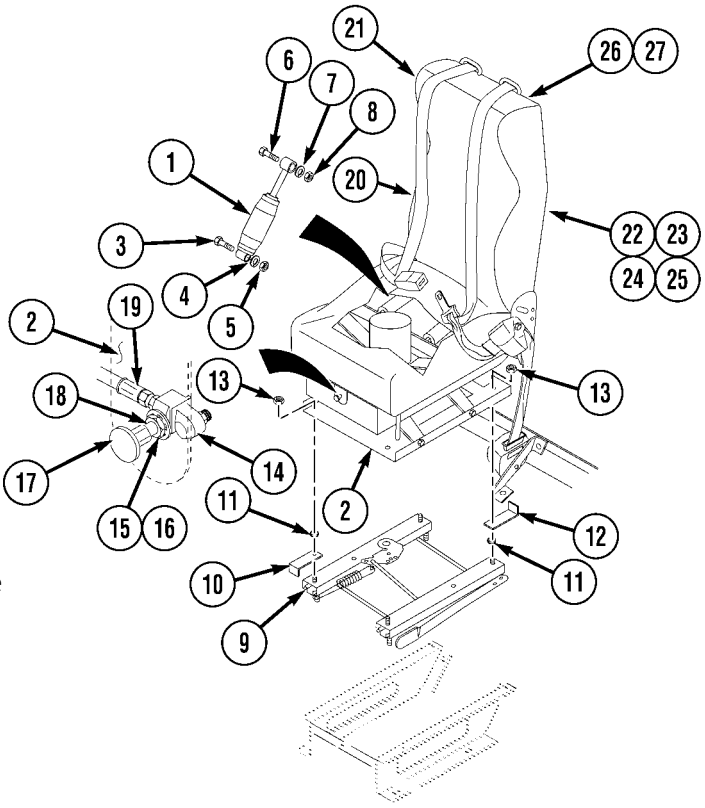
(4) Install ride control valve (14) in seat frame (2) with lockwasher (15) and nut (16).

(5) Install knob (17) on ride control valve (14) and tighten screw (18).

(6) Install airhose (19) on ride control valve (14).

(7) Position seatbelt (20) on seat (21) and install retractor (22) with washer (23), washer (24), and screw (25).

(8) Install two loops (26) on seat (21) with four screws (27).



16-26.1. SEAT (AIR-RIDE) REMOVAL/INSTALLATION (CONT).

d. Installation.

WARNING

Pull out ride control valve knob to release pressure in air-ride system. Failure to comply may result in injury to personnel.

NOTE

- Both seats are installed the same way, left seat shown.
- Release cable ties as required.
- Apply sealant to fittings as required.

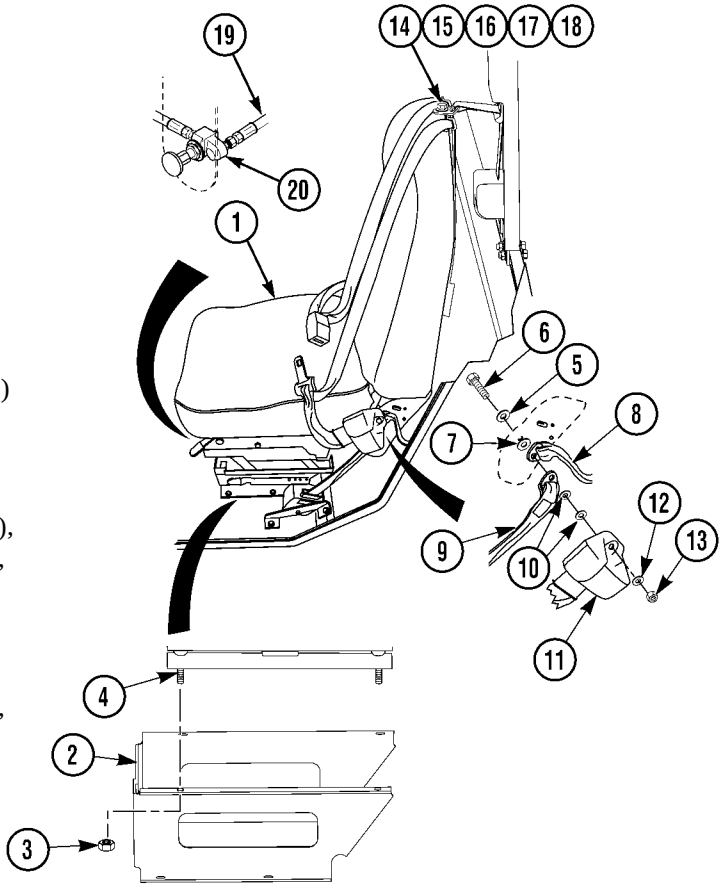
(1) Soldier A and Soldier B position seat (1) on seat support (2).

(2) Install four locknuts (3) on studs (4).

(3) Install washer (5), screw (6), washer (7), two tethers (8 and 9), two washers (10), seat belt (11), washer (12), and locknut (13) on each side of seat (1).

(4) Install retainer (14), upper retractable tether (15), lockwasher (16), screw (17), and cap (18) on seat (1).

(5) Connect airhose (19) to ride control valve (20).



d. Follow-on Maintenance. None

END OF TASK

16-27. SEAT SUPPORT AND FOOTREST REMOVAL/iNSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

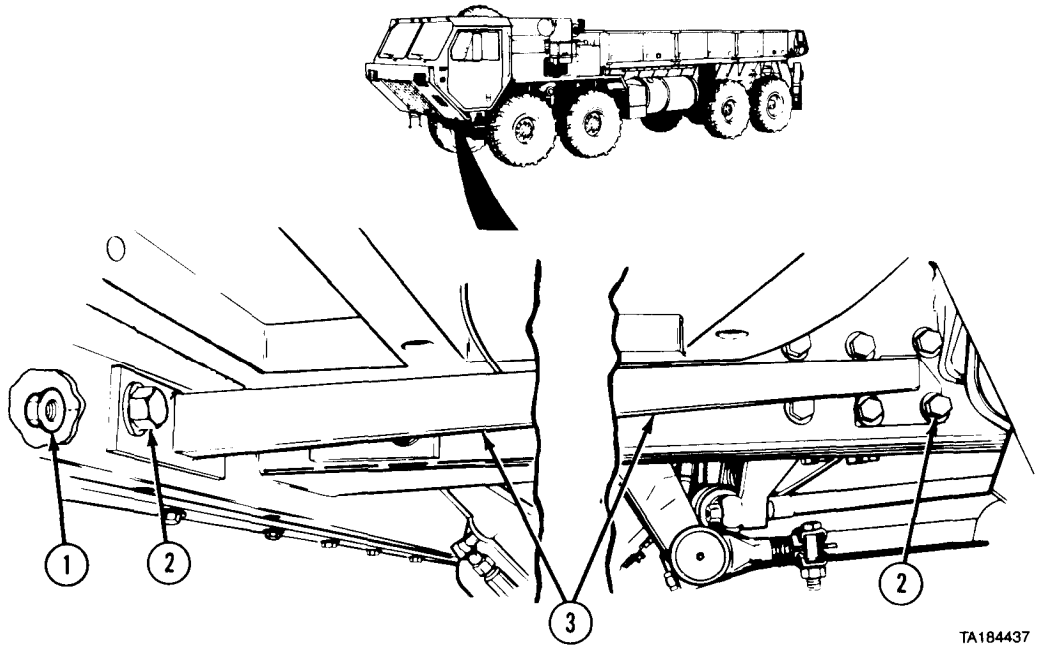
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-26	Seat removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

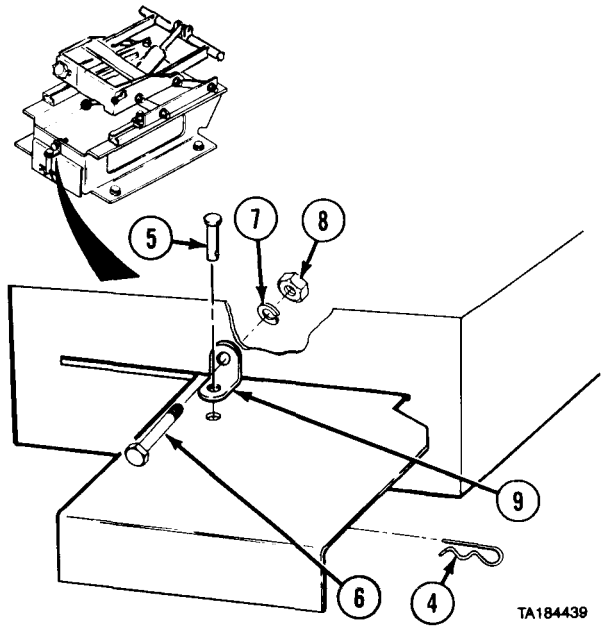


NOTE

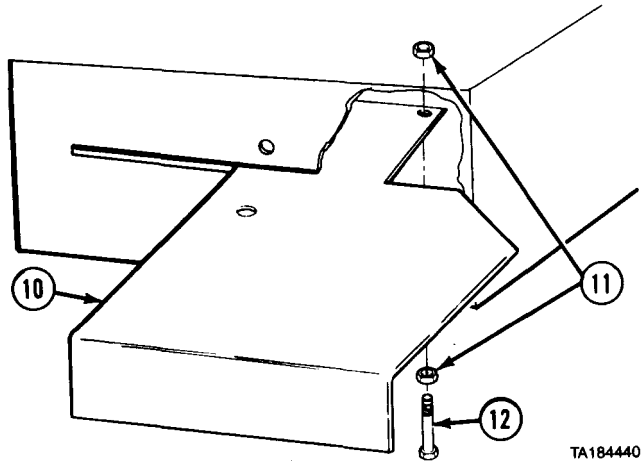
Brace is removed to uncover one screw access hole. Both seat supports are removed the same way.

(1) Remove four nuts (1), screws (2), and brace (3).

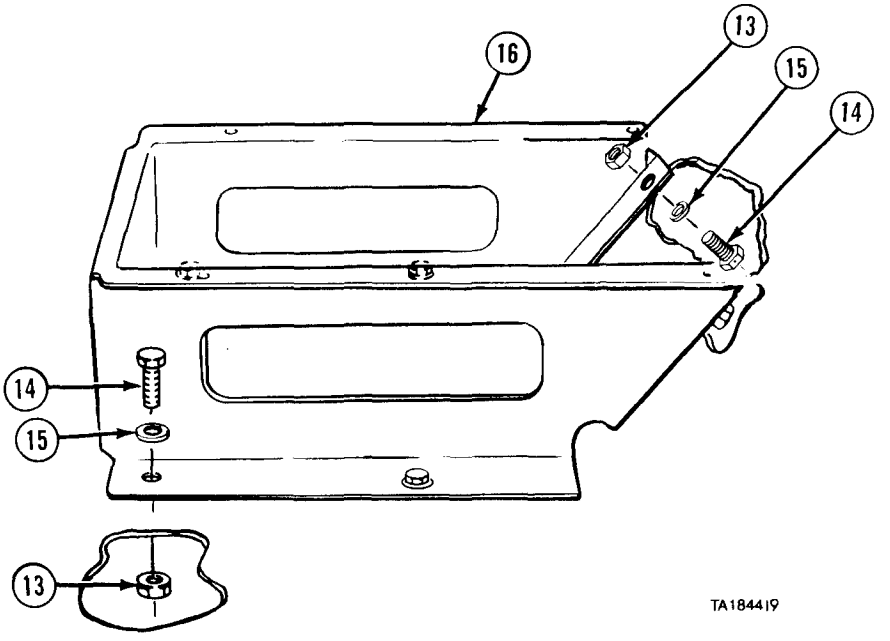
(2) Remove safety pin(4) and yoke pin(5).
(3) Remove screw (6), lockwasher (7), nut (8), and bracket (9).



(4) Pull footrest (10)forward and remove two jamnuts (11) and screw (12). Remove footrest.

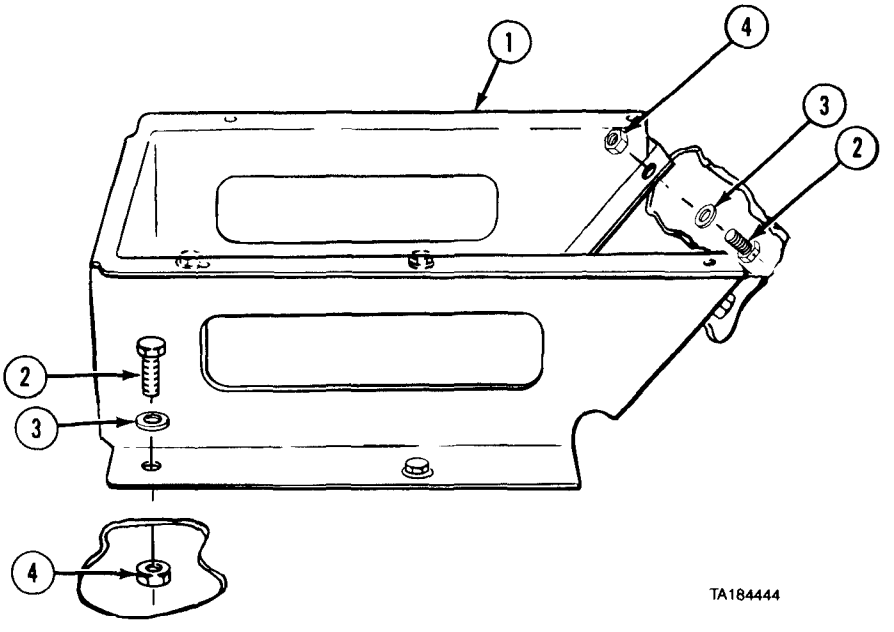


16-27. SEAT SUPPORT AND FOOTREST REMOVAL/INSTALLATION (CONT).



(5) Remove six nuts (13), screws (14), and washers (15).
(6) Remove seat support (16).

b. Installation.



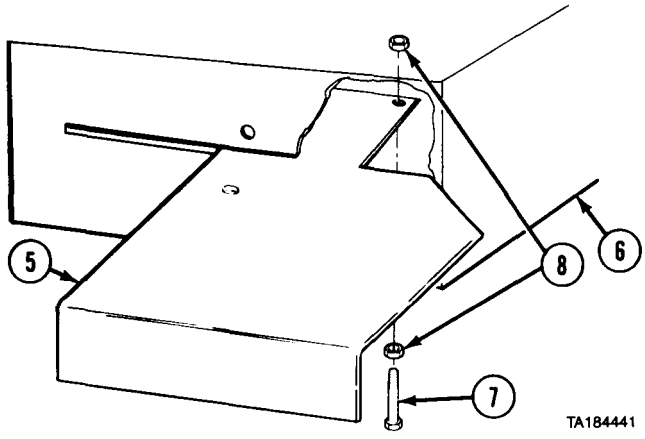
NOTE

Both seat supports are installed the same way.

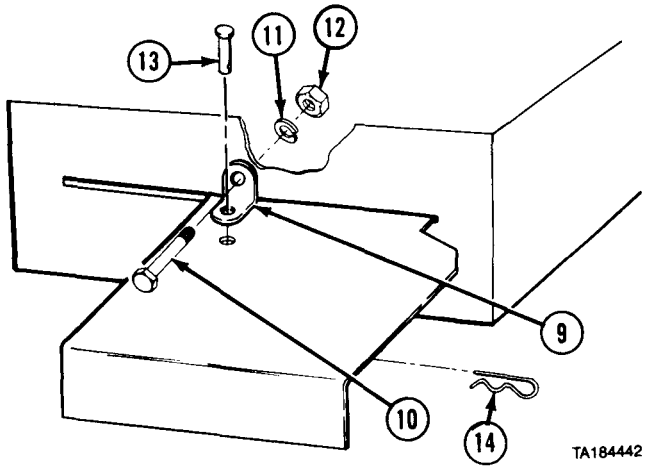
(1) Install seat support (1) with six screws (2), washers (3), and nuts (4).

Cab and Body Maintenance Instructions (Cont)

(2) Install footrest (5) in support (6) with screw (7) and two jamnuts (8).



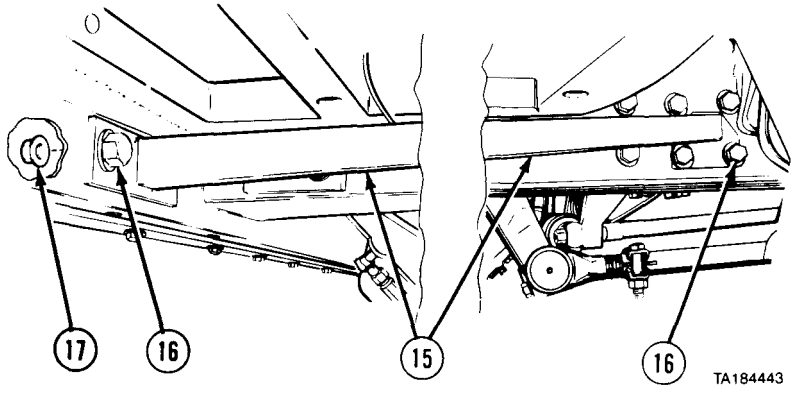
(3) Install bracket (9) with screw (10), lockwasher (11), and nut (12).
(4) Install yoke pin (13) and safety pin (14).



(5) Install brace (15) with four screws (16) and nuts (17).

c. Follow-on Maintenance. Install seat (para 16-26).

END OF TASK



16-28. SEAT SHOCK ABSORBER REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Seat height adjusted to highest point.
TM 9-2320-279-10	Driver's footrest installed.

Special Environmental Conditions
None

General Safety Instructions
None

16-28. SEAT SHOCK ABSORBER REMOVAL/INSTALLATION.

a. Removal.

(1) Remove nut (1), lockwasher (2), and screw (3) from each end of shock absorber (4).
(2) Remove shock absorber (4) from mounting brackets (5) under seat (6).
(3) Remove plastic bearing (7) and spacer bushing (8) from shock absorber (4).

b. Installation.

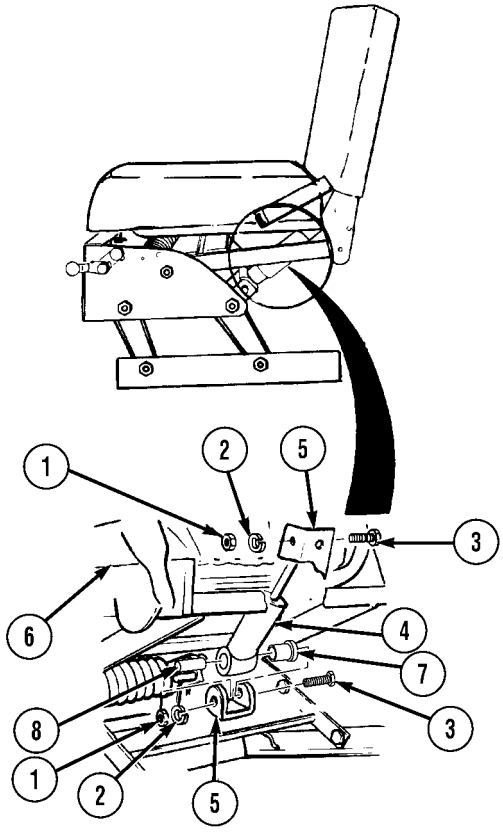
NOTE

Install shock absorber with rod up and ends centered in mounting brackets.

(1) Install spacer bushing (8) and plastic bearing (7) on shock absorber (4).
(1.1) Position shock absorber (4) under seat (6).
(2) Install screws (3) through both ends of mounting brackets (5) and shock absorber (4).
(3) Install lockwasher (2) and nut (1) on each screw (3).

c. Follow-on Maintenance.

(1) Adjust seat (TM 9-2320-279-10).
(2) Stow driver's footrest (TM 9-2320-279-10).



END OF TASK

16-29. SEAT SPRING REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

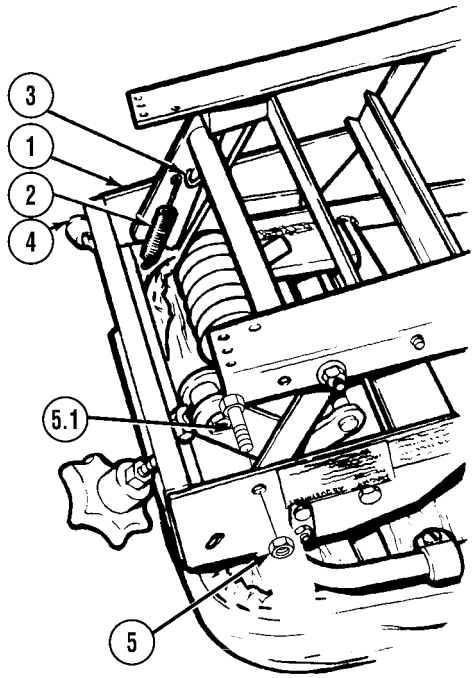
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-26	Seat and seat frame removed.

Special Environmental Conditions
None

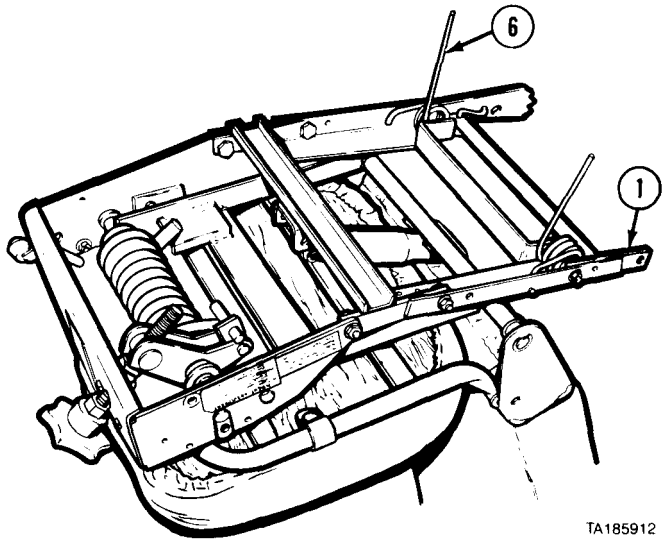
General Safety Instructions
None

a. Removal.

(1) Soldier A pushes down on seat frame (1) while Soldier B disconnects spring (2) from hook (3).
(2) Soldier A pushes down on seat frame (1) while Soldier B moves lever (4) down.
(3) Soldier A pushes down on seat frame (1) while Soldier B removes two locknuts (5) from screws (5.1).

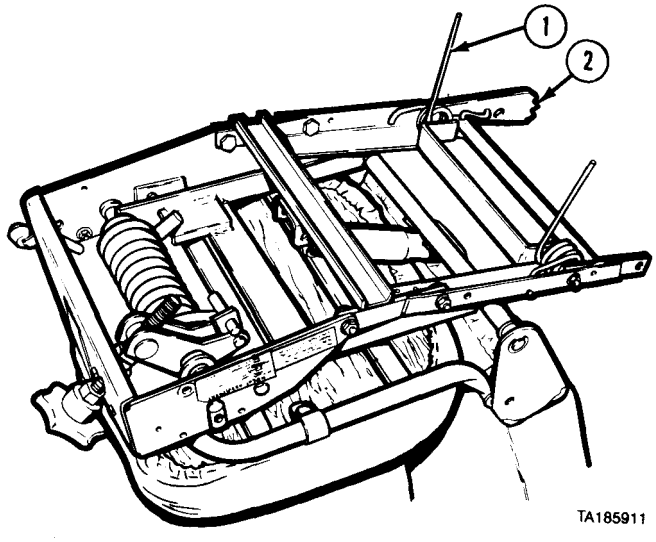


(4) Unfold seat frame (1) and remove two springs (6).



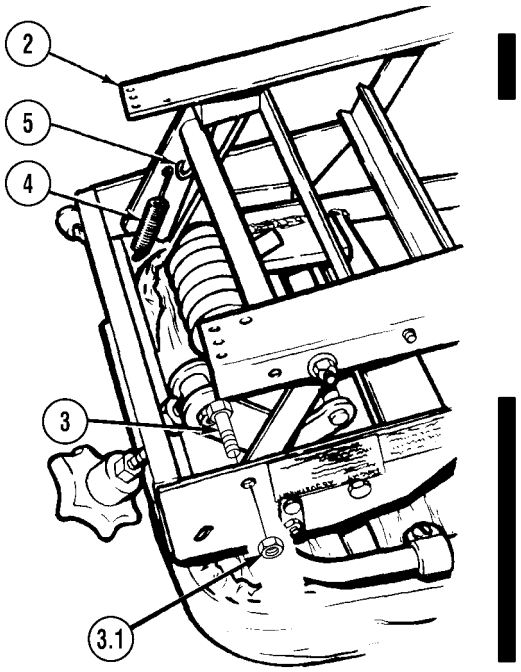
b. Installation.

(1) Install two springs (1) in seat frame (2).



(2) Soldier A folds down and holds seat frame (2) while Soldier B installs one screw (3) and locknut (3.1) on each side.

(3) Soldier A holds seat frame (2) while Soldier B connects spring (4) to hook (5).



c. Follow-on Maintenance. Install seat and seat frame (para 16-26).

END OF TASK

16-30. SLIDE ASSEMBLY REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-26	Seat and seat frame removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

NOTE

Move slide assembly forward and back to remove screws.

(1) Remove two screws (1) and washers (2) from each side of slide assembly (3).
(2) Remove two nuts (4) from screws (5) on each side of slide assembly (3) and seat support (6).
(3) Remove slide assembly (3).

b. Installation.

(1) Install slide assembly (3) on seat support (6) with four screws (5) and nuts (4).

NOTE

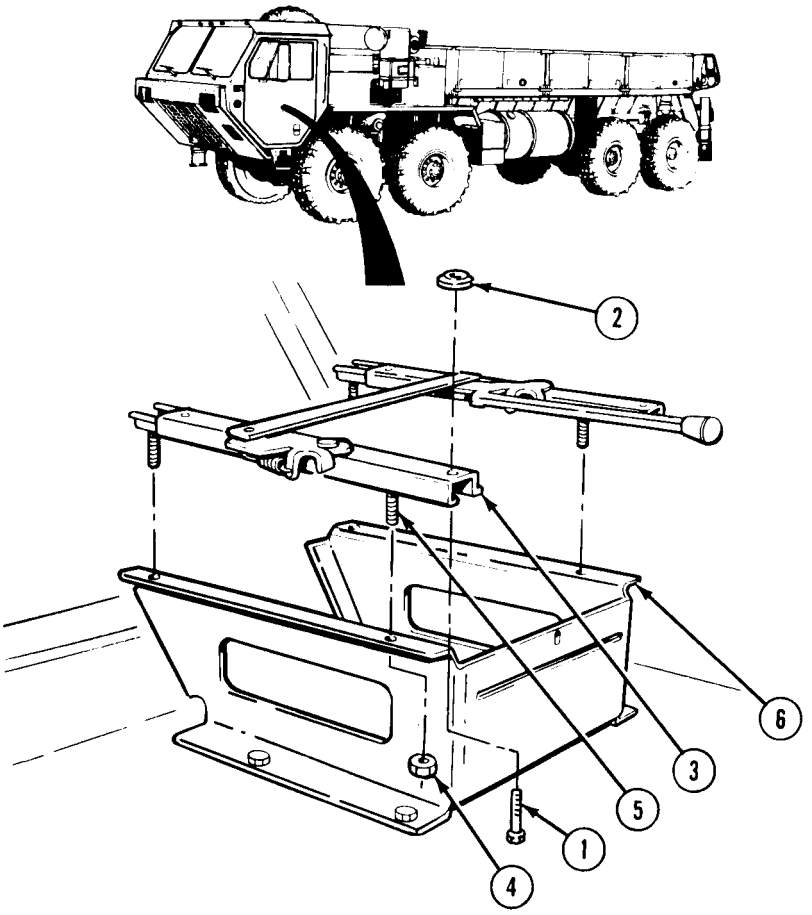
Move slide assembly forward and back to install screws.

(2) Install four screws (1) and washers (2) on slide assembly (3).

c. Follow-on Maintenance.

Install seat and seat frame (para 16-26).

END OF TASK



16-31. SUN VISOR REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

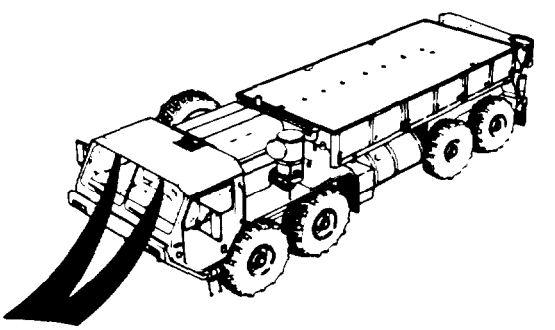
References
None

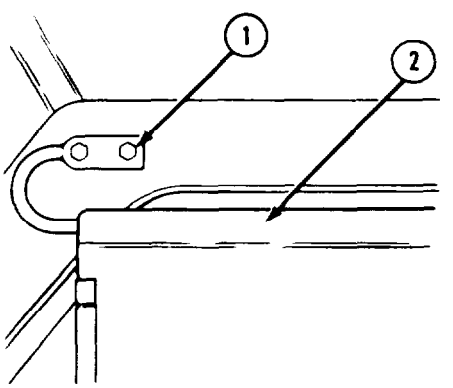
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Supply Instructions
None





TA182120

a. Removal. Remove two screws (1) and sun visor (2).

b. Installation. Install sun visor (2) with two screws (1).

c. Follow-on Maintenance. None.

END OF TASK

16-32. SEATBELT REMOVAL/INSTALLATION (WITHOUT SHOULDER HARNESS).

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Solvent, drycleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

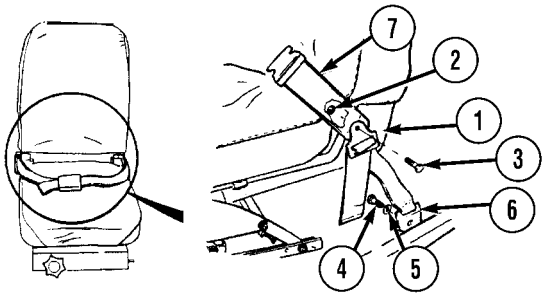
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

(1) Move seat (1) forward all the way.
(2) Remove nut (2) and screw (3) from each side of seat (1).
(3) Remove screws (4) and washers (5) from anchor straps (6). Remove seatbelts (7).



b. Cleaning/Inspection.

WARNING

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

(1) Clean metal surfaces with dry cleaning solvent.
(2) Check for cracked surfaces or broken parts and frayed or torn webbing.
(3) Replace all damaged parts.

c. Installation.

(1) Install seatbelt (7) and anchor strap (6) to cab with washer (5) and screw (4).
(2) Install anchor strap (6) and seatbelt (7) to seat (1) with screw (3) and nut (2).
(3) Pull loose end of anchor strap (6) to remove slack from anchor strap.

d. Follow-on Maintenance. None

END OF TASK

16-32.1 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL A).

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Solvent, drycleaning, Item 36, Appendix C

Personnel Required
MOS 63W, Wheel vehicle repairer

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

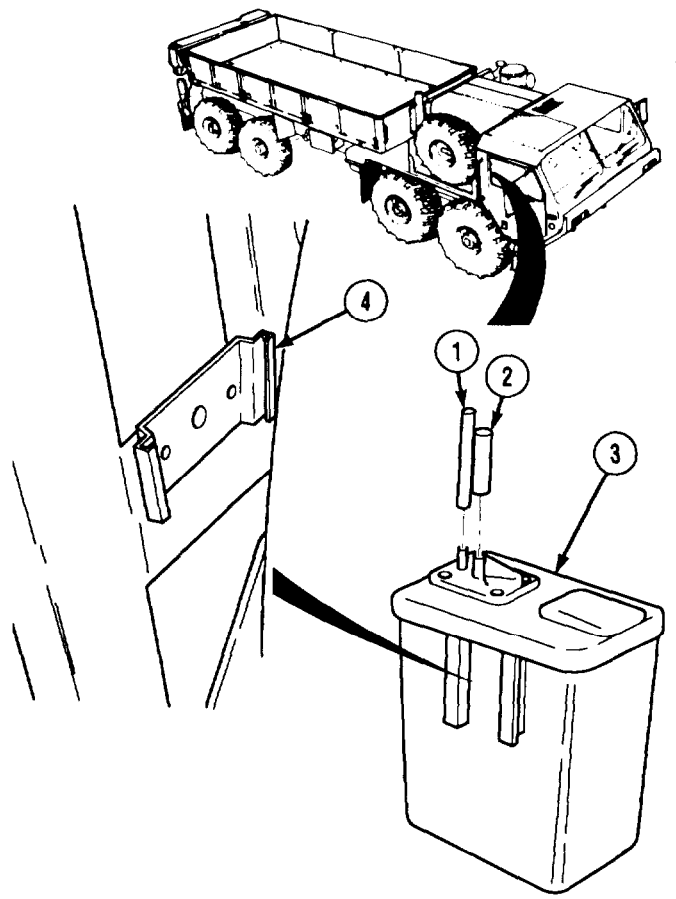
Level of Maintenance
General Support

a. Removal.

NOTE

- If windshield washer reservoir is installed behind passenger seat, perform steps *(1)* and *(2).*
- If windshield washer reservoir is not installed behind passenger seat, proceed to step *(3).*

(1) Remove air hose (1) and fluid hose (2) from windshield washer reservoir (3).
(2) Remove windshield washer reservoir (3) from bracket (4).



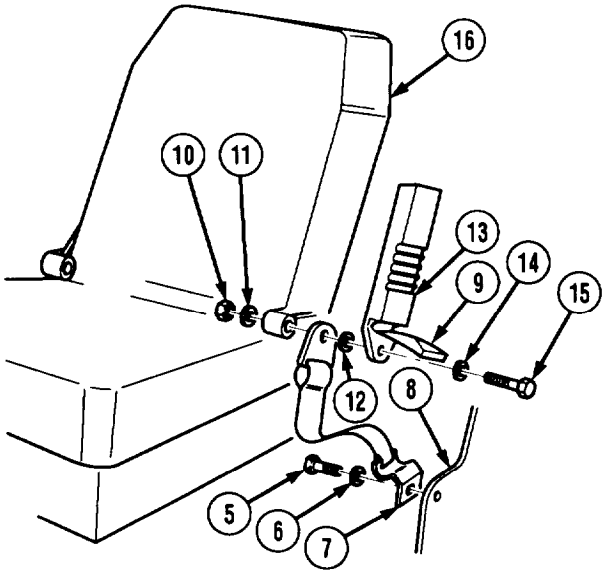
16-32.1 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL A) (CONT).

NOTE

Procedures for replacement of driver and passenger seats are similar. Passenger seat is shown.

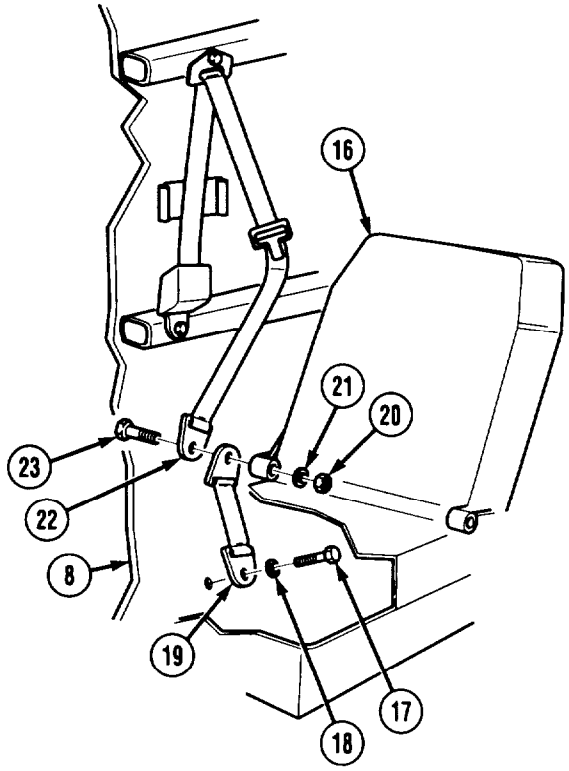
(3) Remove screw (5), washer (6), and tether (7) from cab (8).

(4) Open boot (9) and remove locknut (10), washer (11), tether (7), washer (12), interconnect (13), washer (14), and screw (15) from seat (16).



(5) Remove screw (17), washer (18), and tether (19) from cab (8).

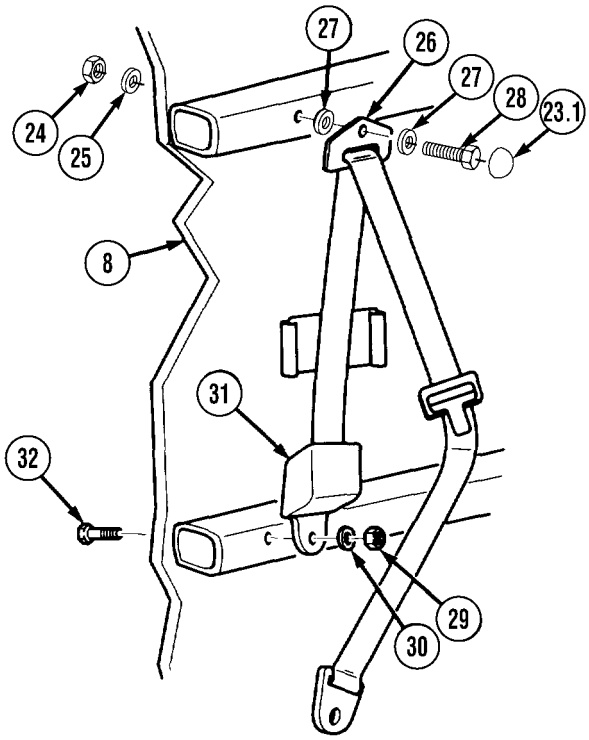
(6) Remove locknut (20), washer (21), tether (19), seat belt (22), and screw (23) from seat (16).



(7) Remove cap (23.1), locknut (24), washer (25), D-loop (26), two washers (27), and screw (28) from cab (8).

(8) Remove locknut (29), washer (30), retractor (31), and screw (32) from cab (8).

(9) Repeat steps *(3)* through *(8)* for driver's side seat.



b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Drycleaning Solvent is 100°F (38°C) and for Type II is 140°F (60°C). Failure to do so may result in injury or death to personnel.

- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean metal surfaces with drycleaning solvent.
(2) Check for cracked or broken parts and frayed or torn webbing.
(3) Replace all damaged parts.

16-32.1 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL A) (CONT).

c. Installation.

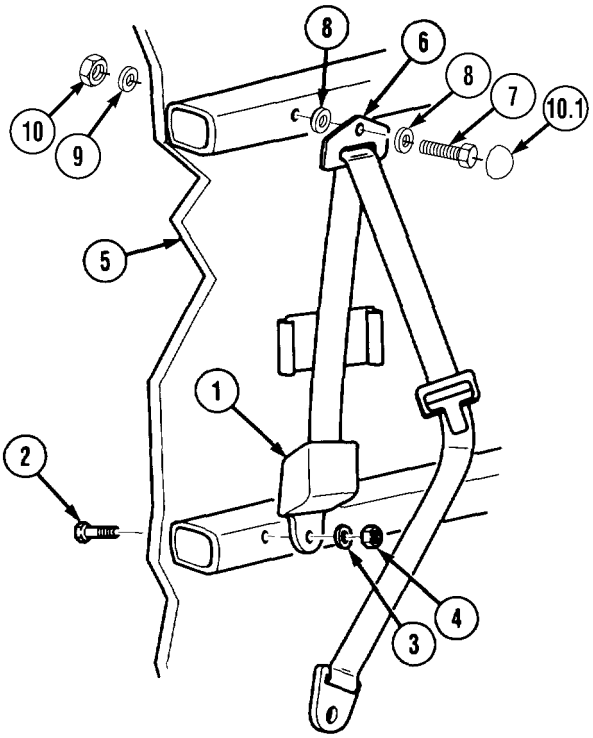
(1) Install retractor (1) with screw (2), washer (3), and locknut (4) to cab (5).

NOTE

- Make sure belt is not twisted and is centered in windshield washer bracket. Belt must move freely between bracket and installed windshield washer reservoir.
- Comfort latch must be mounted vertically in line with belt, hang directly below D-loop mounting, and remain rigid after tightening.
- D-loop and plastic washers must move freely after screw is tightened and when belt is removed and retracted.

(2) Install D-loop (6) with screw (7), two washers (8), washer (9), and locknut (10) to cab (5). Tighten to 70 to 75 lb-in (8 N•m).

(2.1) Install cap (10.1) on screw (7).

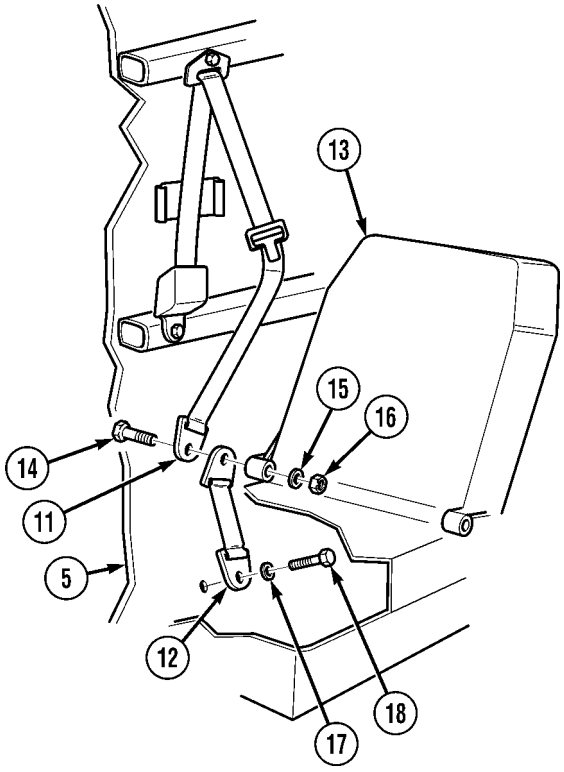


NOTE

- Belt end and tether must be just free to rotate after nut is tightened.
- Tether must be positioned 45° rearward and downward.

(3) Install belt end (11) and tether (12) on seat (13) with screw (14), washer (15), and locknut (16). Tighten to 40 lb-ft (54 N•m).

(4) Install other end of tether (12) with washer (17) and screw (18) to cab (5).



Cab and Body Maintenance Instructions (Cont)

16-32.1 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL A) (CONT).

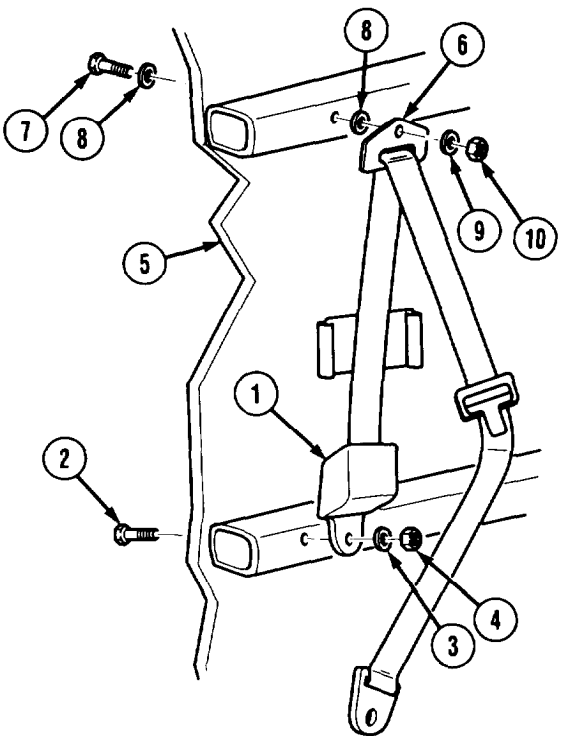
C. Installation.

(1) Install retractor (1) with screw (2), washer (3), and locknut (4) to cab (5).

NOTE

- Make sure belt is not twisted and is centered in windshield washer bracket. Belt must move freely between bracket and installed windshield washer reservoir.
- Comfort latch must be mounted vertically in line with belt, hang directly below D-loop mounting, and remain rigid after tightening.
- D-loop and plastic washers must move freely after screw is tightened and when belt is removed and retracted.

(2) Install D-loop (6) with screw (7), two washers (8), washer (9), and locknut (10) to cab (5). Tighten to 70 to 75 lb-in (8 N•m).

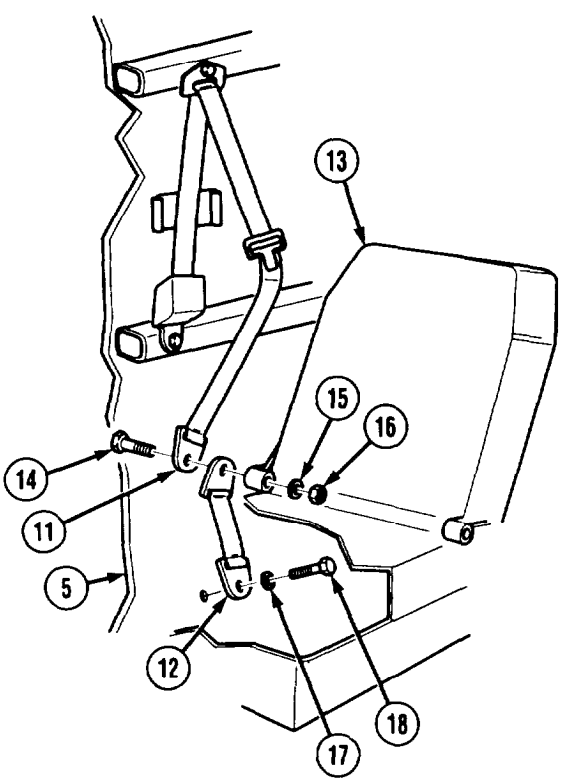


NOTE

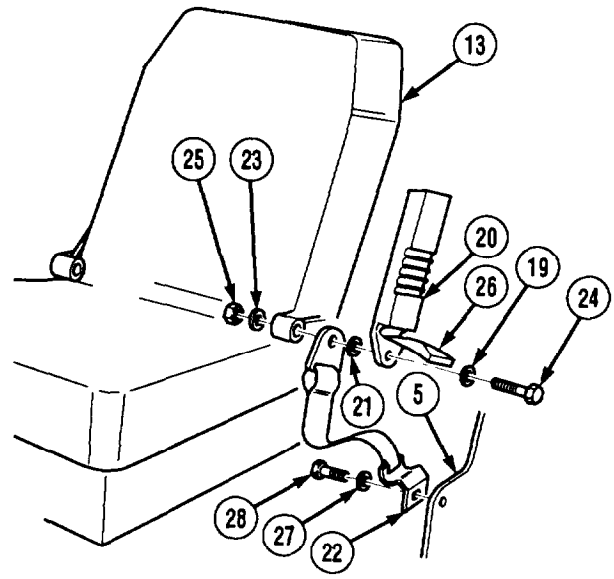
- Belt end and tether must be just free to rotate after nut is tightened.
- Tether must be positioned 45° rearward and downward.

(3) Install belt end (11) and tether (12) on seat (13) with screw (14), washer (15), and locknut (16). Tighten to 40 lb-ft (54 N°m).

(4) Install other end of tether (121 with washer (17) and screw (18) to cab (5).



Cab and Body Maintenance Instructions (Cont)

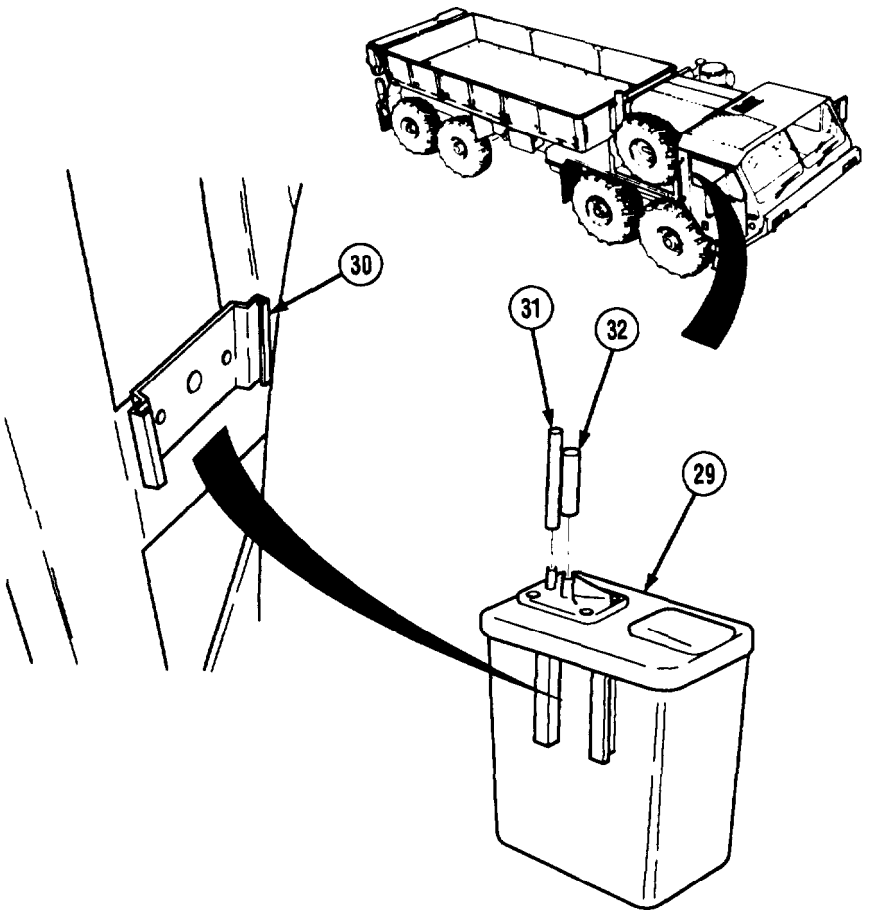


NOTE

- Interconnect and tether must be just free to rotate after nut is tightened.
- Interconnect must be positioned 45° frontward and upward.
- Tether must be positioned 45° rearward and downward.

(5) Install washer (19), interconnect (20), washer (21), tether (22), and washer (23) with screw (24) and locknut (25) to seat (13). Tighten to 40 lb-ft (54 N°m) and snap boot (26) shut.
(6) Install other end of tether (22) with washer (27) and screw (28) to cab (5).
(7) Perform steps *(1)* thru *(6)* for driver's side seat.

16-32.1 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL A) (CONT).



NOTE

If windshield washer reservoir is installed behind passenger seat do steps *(8)* and *(9).*

(8) Install reservoir (29) on bracket (30). Ensure seat belt strap moves freely.
(9) Install fluid hose (31) and air hose (32) on reservoir (29).

d. Follow-on Maintenance. Adjust seat belts (TM 9-2320-279-10).

END OF TASK

16-32.2 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL B).

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Solvent, drycleaning, Item 36, Appendix C

Personnel Required
MOS 63W, Wheel vehicle repairer

References
None

Equipment Condition

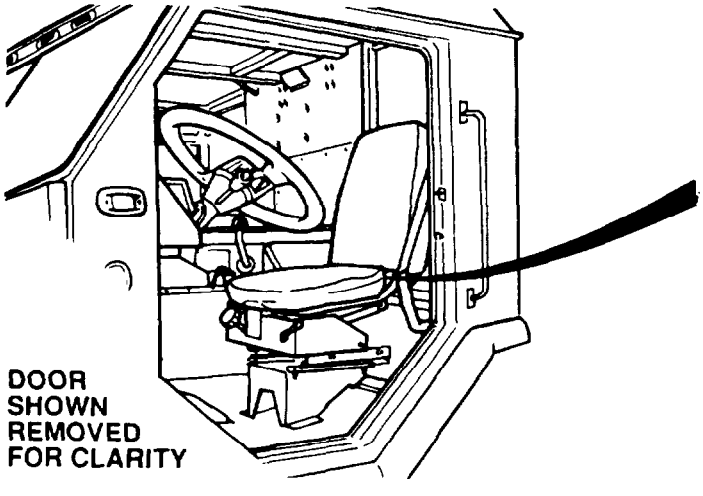
TM or Para	***Condition Description***
TM 9-2320-279-10	Shut off engine.

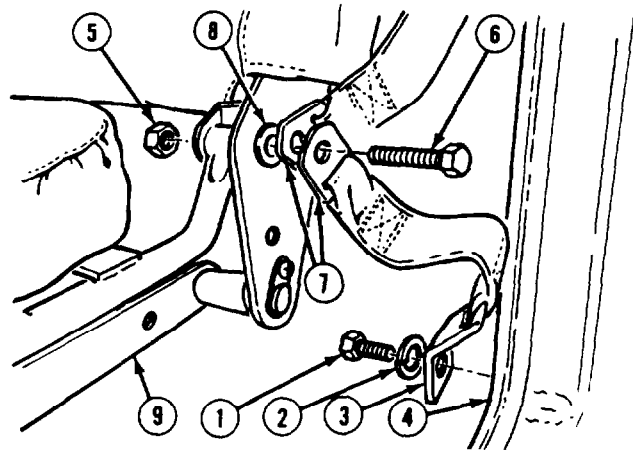
Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

Level of Maintenance
General Support

a. Removal.





NOTE
Both seat belts are removed the same way. Left seat is shown.

(1) Remove screw (1), lockwasher (2), and angled bracket (3) from cab assembly (4).
(2) Remove locknut (5), screw (6), two straps (7), and washer (8) from seat assembly (9).

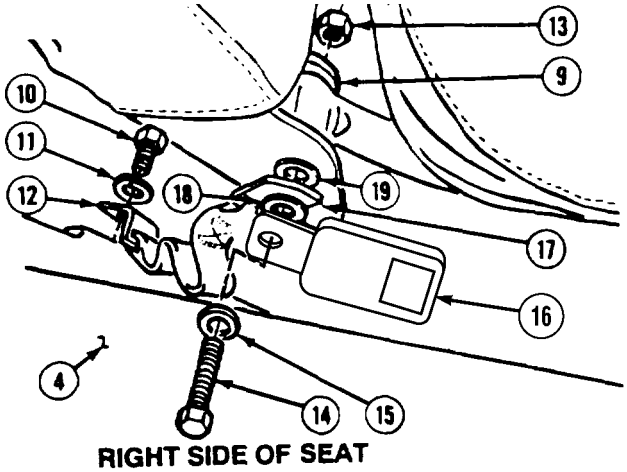
16-32.2 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL B) (CONT).

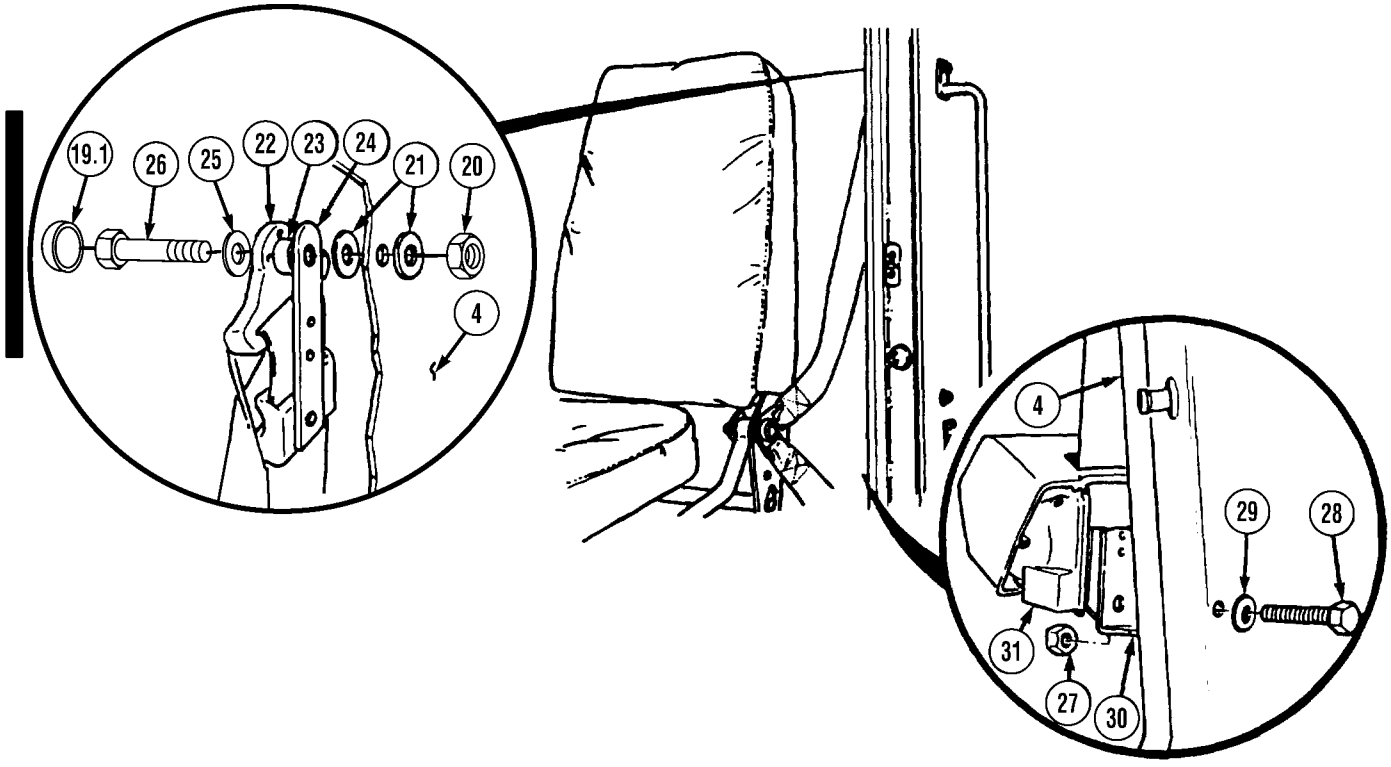
(3) Remove screw (10), lockwasher (11), and angled bracket (12) from cab assembly (4).

NOTE

There are two variations of seat belt brackets. One is mounted with coated wire rope, one is mounted with flat steel stock.

(4) Remove locknut (13), screw (14), hardened washer (15), seat belt bracket (16), tether bracket (17), hardened washer (18), and washer (19) from seat assembly (9).





(5) Remove cap (19.1), locknut (20), two hardened washers (21), D-ring (22), spacer (23), comfort latch (24), washer (25), and screw (26) from cab assembly (4).

(6) Remove locknut (27), screw (28), washer (29), L-bracket (30), and retractor unit (31) from cab assembly (4).

Cab and Body Maintenance Instructions (Cont)

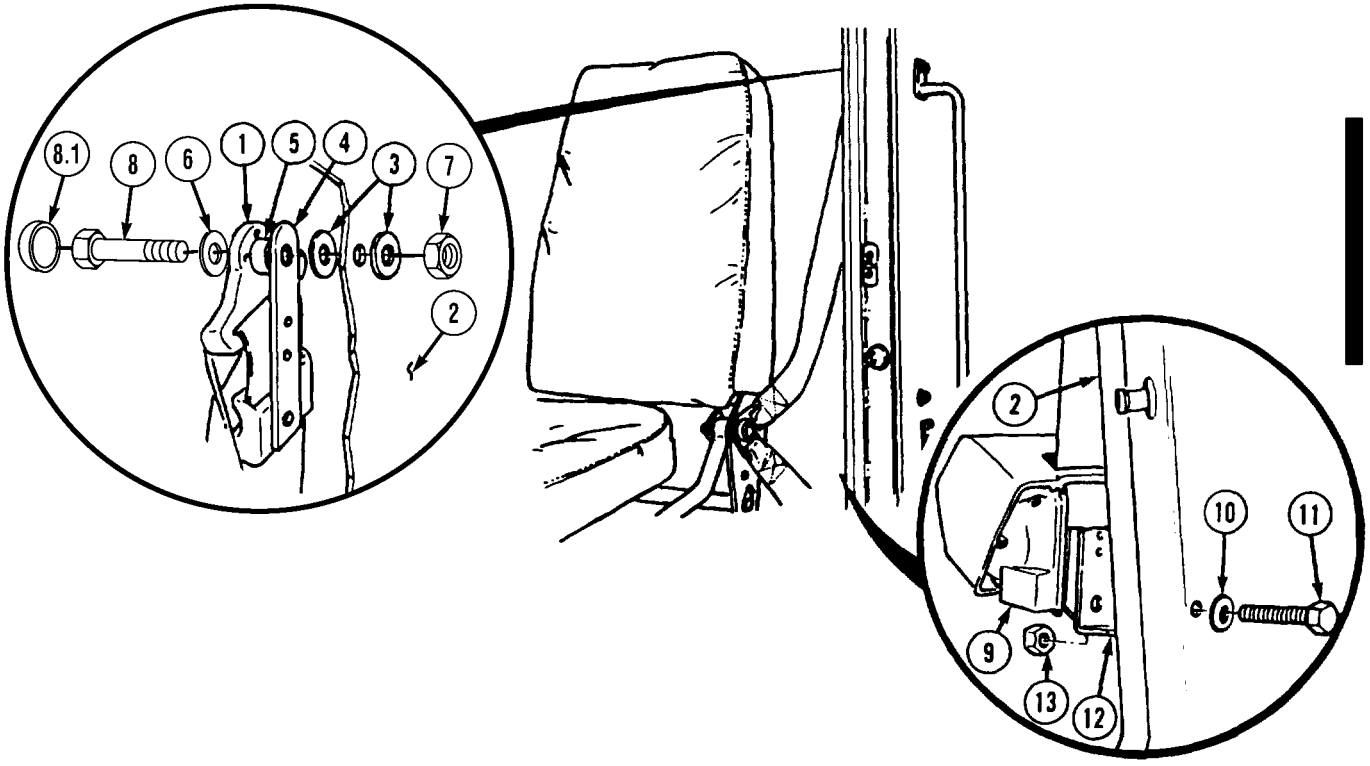
b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Drycleaning Solvent is 100°F (38°C) and for Type II is 140°F (60°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean metal surfaces with drycleaning solvent.
(2) Check for cracked or broken parts and frayed or torn webbing.
(3) Replace all damaged parts.

c. Installation.



NOTE

Procedure is identical for both seats. Left seat is shown.

(1) Position D-ring (1) in cab assembly (2) with two hardened washers (3), comfort latch (4), spacer (5), washer (6), locknut (7), and screw (8).
(2) Tighten locknut (7) to 70 to 75 lb-in (8 N•m).
(2.1) Install cap (8.1) on screw (8).
(3) Install retractor unit (9) to cab assembly (2) with washer (10), screw (11), L-bracket (12) and locknut (13).
(4) Tighten locknut (13) to 70 to 75 lb-in (8 N•m).

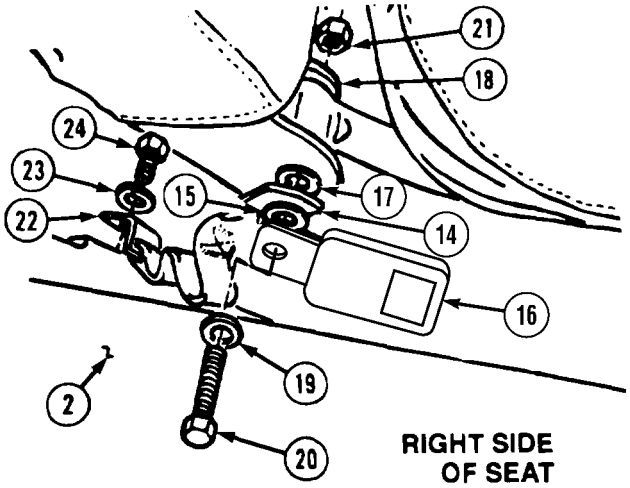
16-32.2 THREE-POINT SEATBELT REMOVAL/INSTALLATION (MODEL B) (CONT).

NOTE

There are two variations of seat belt brackets. One is mounted with coated wire rope, one is mounted with flat steel stock.

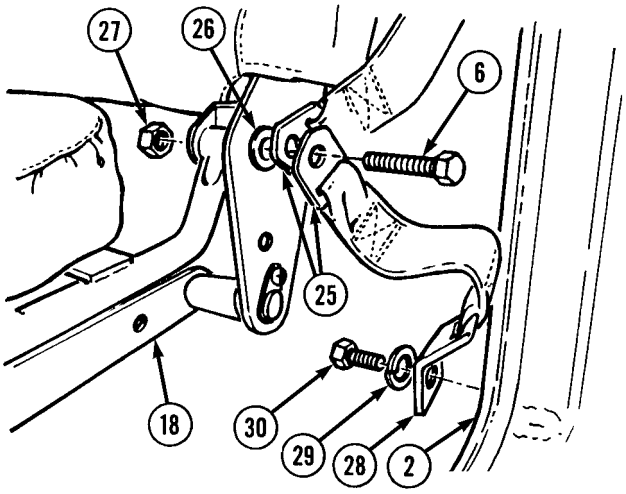
(5) Install tether bracket (14), hardened washer (15), seat belt bracket (16), and hardened washer (17) on seat assembly (18) with hardened washer (19), screw (20), and locknut (21). Tighten locknut until seat belt bracket can slowly rotate.

(6) Install angled bracket (22) on cab assembly (2) with lockwasher (23) and screw (24).



(7) Install two straps (25), on seat assembly (18) with hardened washer (26), screw (6) and locknut (27). Tighten locknut until buckle can slowly rotate.

(8) Install angled bracket (28) on cab assembly (2) with lockwasher (29) and screw (30).



d. Follow-on Maintenance.

(1) Adjust seat belts (TM 9-2320-279-10).

END OF TASK

16-32.3 FOUR-POINT SEATBELT REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Sealant, Sikaflex 221, Item 45.1.05, Appendix C
Solvent, drycleaning, Item 47, Appendix C

Personnel Required
MOS 63W, Wheel vehicle repairer

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Seat moved forward.

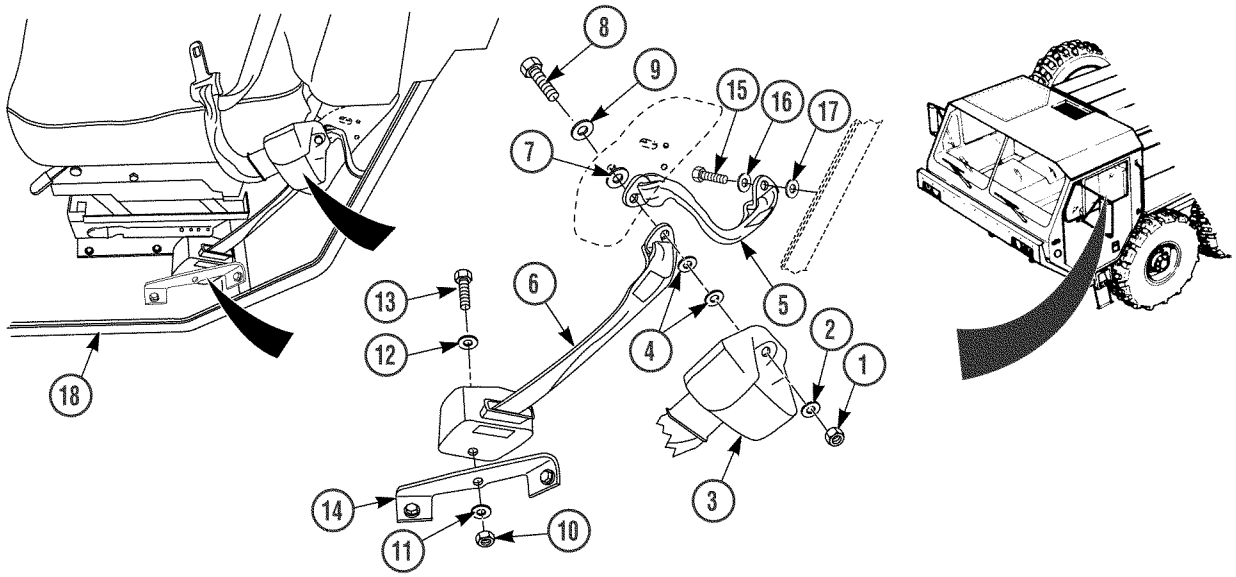
Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

Level of Maintenance
General Support

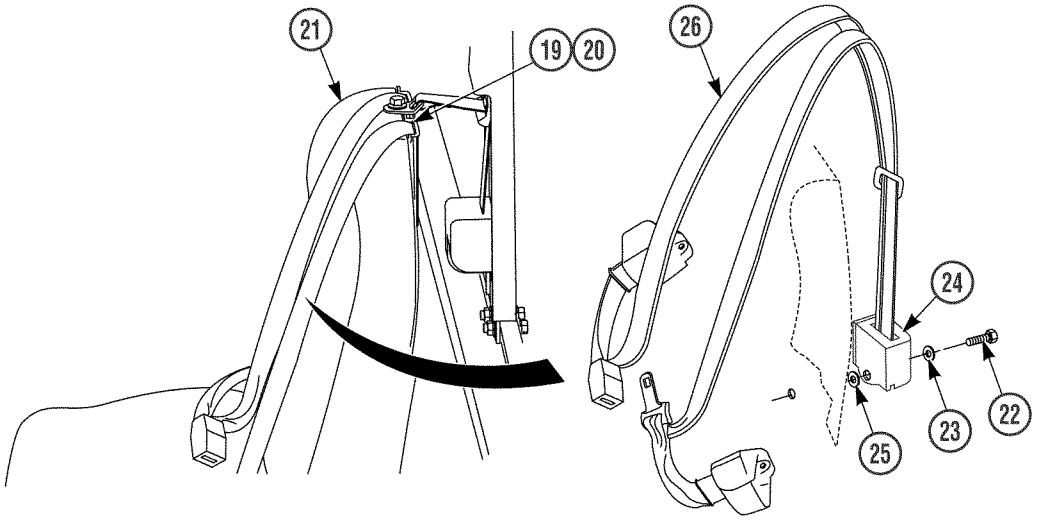
a. Removal.

NOTE
Left side shown. Right side is removed the same way.

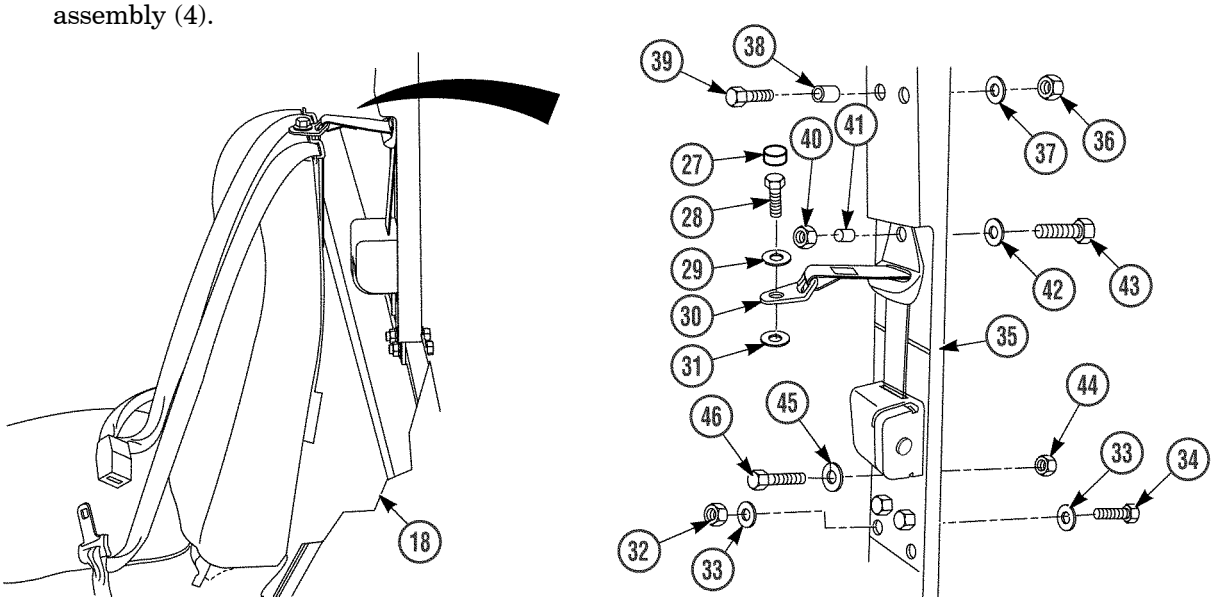


(1) Remove locknut (1), washer (2), belt retractor (3), two washers (4), tether (5), lower retractable tether (6), washer (7), screw (8), and washer (9).
(2) Remove locknut (10), washer (11), lower retractable tether (6), washer (12), and screw (13) from bracket (14).
(3) Remove screw (15), lockwasher (16), tether (5), and washer (17) from cab (18).

16-32.3 FOUR-POINT SEATBELT REMOVAL/INSTALLATION (CONT).



(4) Remove four screws (19) and two loops (20) from seat (21).
(5) Remove screw (22), washer (23), belt retractor (24), washer (25), and seatbelt (26) from seat (21).
(6) Remove cap (27), screw (28), lockwasher (29), upper retractable tether (30), and washer (31) from seat (1).
(7) Remove locknut (27), screw (28), washer (29), L-bracket (30), and retractor unit (31) from cab assembly (4).



(8) Remove two locknuts (32), four washers (33), and two screws (34) from bracket (35).
(9) Remove two locknuts (36), washers (37), spacers (38), screws (39), and bracket (35) from cab (18).
(10) Remove locknut (40), bushing (41), upper retractable tether (30), washer (42), and screw (43) from cab (18).
(11) Remove locknut (44), upper retractable tether (30), washer (45), and screw (46) from cab (19).

Cab and Body Maintenance Instructions (Cont)

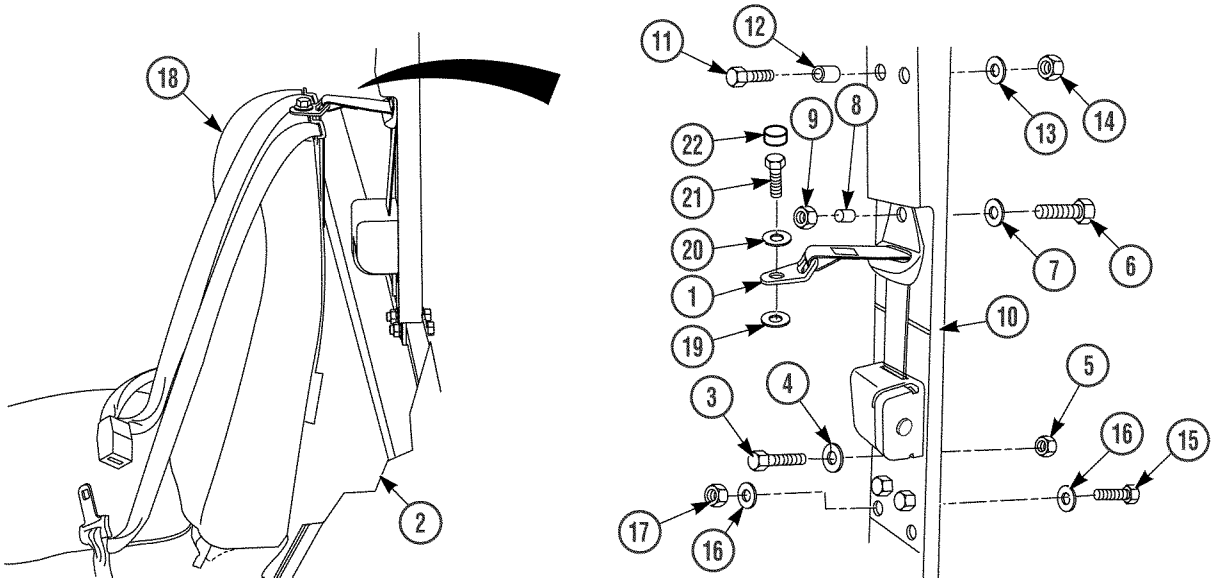
b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Drycleaning Solvent is 100°F (38°C) and for Type II is 140°F (60°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean metal surfaces with drycleaning solvent.
(2) Check for cracked or broken parts and frayed or torn webbing.
(3) Replace all damaged parts.

c. Installation.



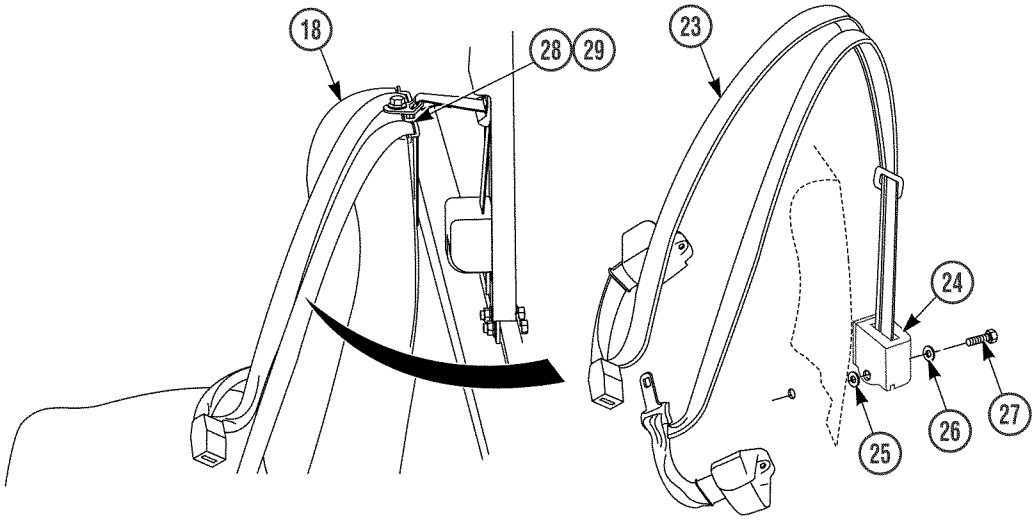
(1) Install upper retractable tether (1) in cab (2) with screw (3), washer (4), and locknut (5).
(2) Install upper retractable tether (1) in cab (2) with screw (6), washer (7), bushing (8), and locknut (9).

NOTE

Apply sealant to bracket screws on exterior of cab.

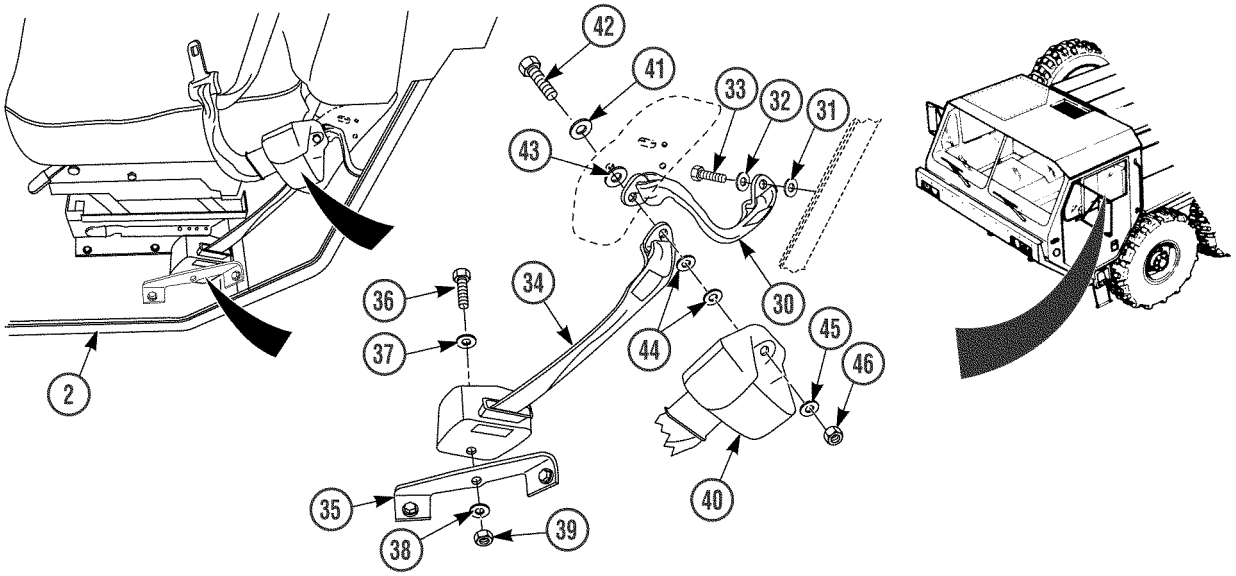
(3) Install bracket (10) in cab (2) with two screws (11), spacers (12), washers (13), and locknuts (14).
(4) Install two screws (15), four washers (16), and two locknuts (17) on bracket (10).
(5) Install upper retractable tether (1) on seat (18) with washer (19), lockwasher (20), screw (21), and cap (22).

16-32.3 FOUR-POINT SEATBELT REMOVAL/INSTALLATION (CONT).



(6) Position seatbelt (23) on seat (18) and install belt retractor (24) with washer (25), washer (26), and screw (27).

(7) Install two loops (28) on seat (18) with four screws (29).



NOTE

Apply sealant to bracket screws on exterior of cab.

(8) Install tether (30) in cab (2) with washer (31), lockwasher (32), and screw (33).

(9) Install lower retractabe tether (34) on bracket (35) with screw (36), washer (37), washer (38), and locknut (39).

(10) Install lower retractable tether (34), tether (30), and belt retractor (40) with washer (41), screw (42), washer (43), two washers (44), washer (45), and locknut (46).

d. Follow-on Maintenance.

(1) Adjust seat belts (TM 9-2320-279-10).

END OF TASK

Section V. STOWAGE BOXES

16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985, M1977-CBT).

This task covers:

a. Remote Control Stowage Box Removal
b. Remote Control Stowage Box Installation
c. Chain Sling Stowage Box Removal (M977 only)
d. Chain Sling Stowage Box Installation (M977 only)
e. Tool Stowage Box Removal
f. Tool Stowage Box Installation
g. Wheel Chock Stowage Box Removal
h. Wheel Chock Stowage Box Installation
i. Rear Stowage Box Removal
j. Rear Stowage Box Installation
k. Follow-on Maintenance

INITIAL SETUP

Models
M977, M985, M1977-CBT

Test Equipment
None

Special Tools
None

Supplies
Adhesive-sealant, silicon, Item 4, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	If equipped with self-recovery winch, cable must be removed from tie down ring when removing rear stowage box.

Special Environmental Conditions
None

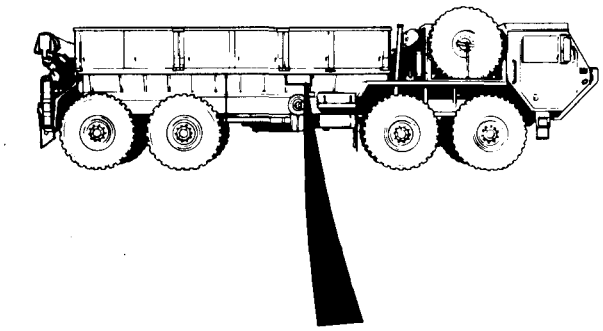
General Safety Instructions
None

16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985, M1977-CBT) (CONT).

a. Remote Control Stowage Box Removal.

WARNING

Support stowage box when removing from vehicle. Personal injury may result if stowage box falls.



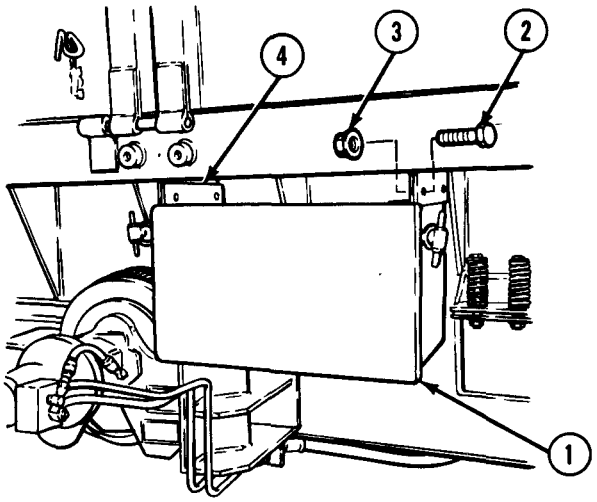
NOTE

Remote control stowage box is not used on M1977-CBT.

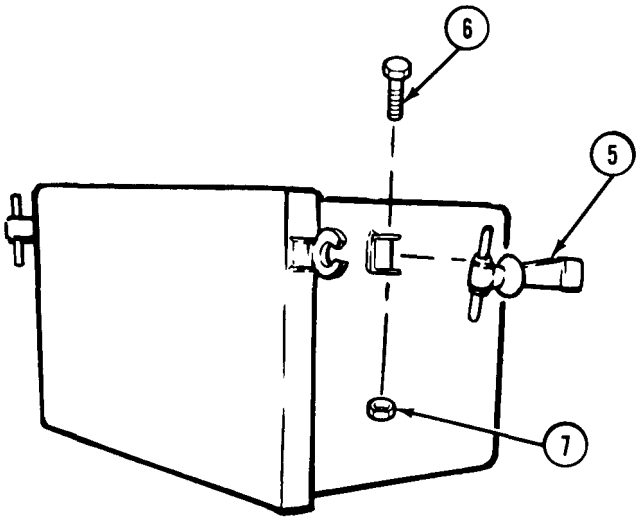
(1) Remove PVC matting from inside of stowage box.

(1.1) Soldier A supports stowage box (1) while Soldier B removes four screws (2) and nuts (3) from bracket (4).

(2) Lower stowage box (1).

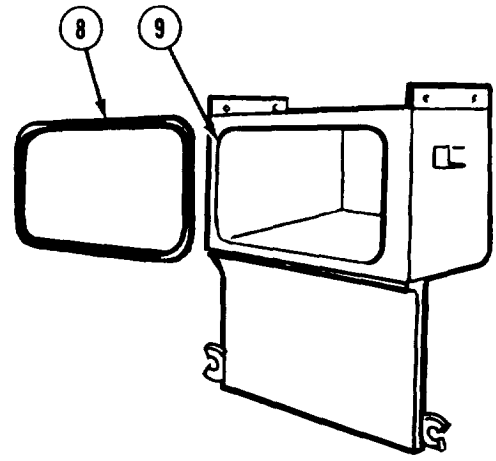


(3) Loosen two rubber hooks (5) and remove two screws (6) and locknuts (7).



Cab and Body Maintenance Instructions (Cont)

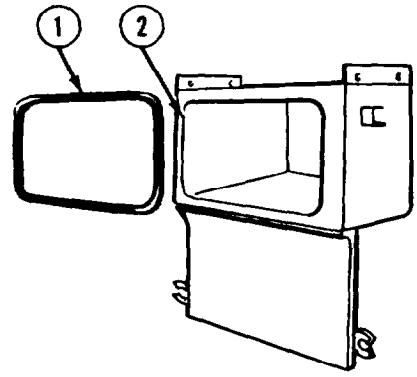
(4) Remove seal (8) from doorframe (9).



b. Remote Control Stowage Box Installation.

WARNING

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



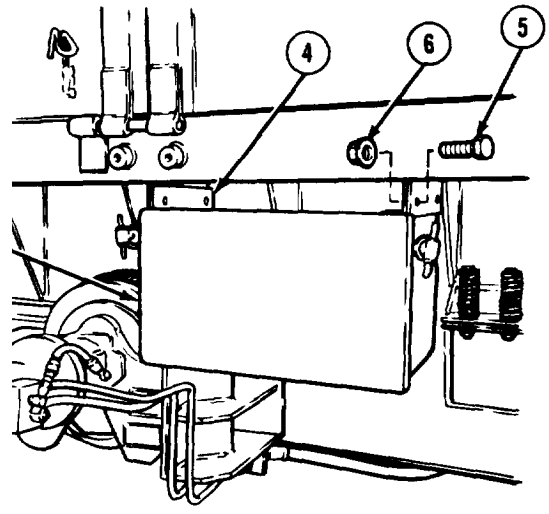
NOTE

Remote control stowage box is not used on M1977-CBT.

(1) Apply silicone adhesive-sealant and install seal (1) in doorframe.

(2) Soldier A and Soldier B position stowage box (3) on bracket (4).

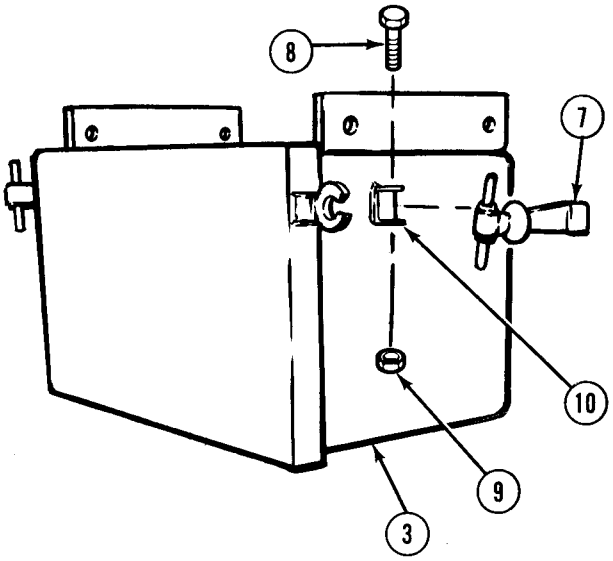
(3) Soldier A supports stowage box (3) while Soldier B installs four screws (5) and nuts (6).



16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985, M1977-CBT) (CONT).

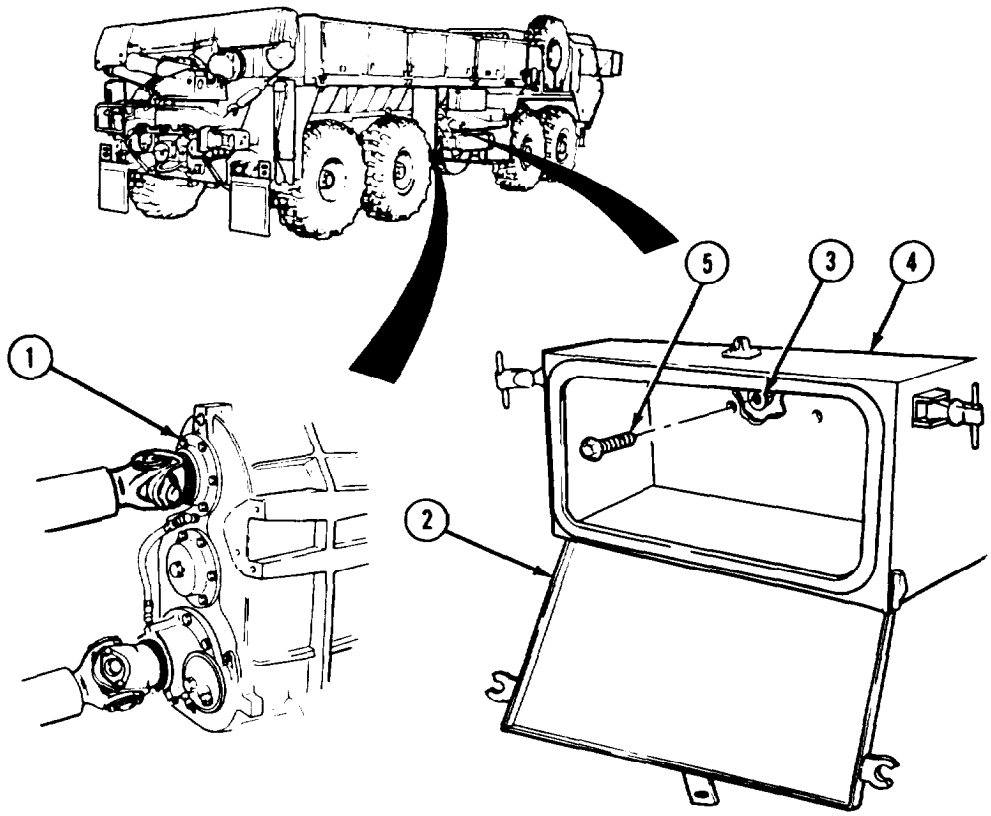
(4) Install two rubber hooks (7) on stowage box (3) with two screws (8), and locknuts (9). Tighten until locknuts contact bracket (10).

(5) Install PVC matting inside stowage box.



Cab and Body Maintenance Instructions (Cont)

c. Chain Sling Stowage Box Removal (M977 only).



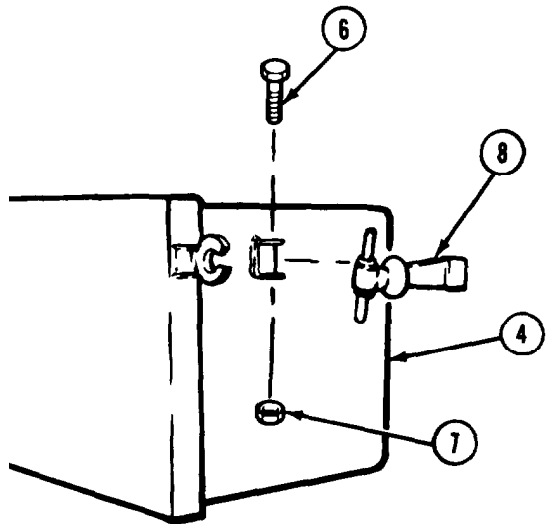
WARNING

Support transfer case and stowage box when removing stowage box from vehicle. Personal injury or death could result if transfer case falls.

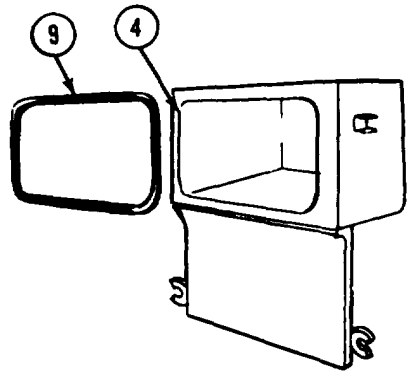
(1) Support transfer case (1) with suitable lifting device.
(2) Open stowage box cover (2)
(3) Soldier A removes four nuts (3) while Soldier B supports stowage box (4) and removes four screws (5).
(4) Soldier A and Soldier B remove stowage box (4) from vehicle.

16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985, M1977-CBT) (CONT).

(5) Remove two screws (6), locknuts (7), and rubber hooks (8) from stowage box (4).



(6) Remove seal (9) from stowage box (4).

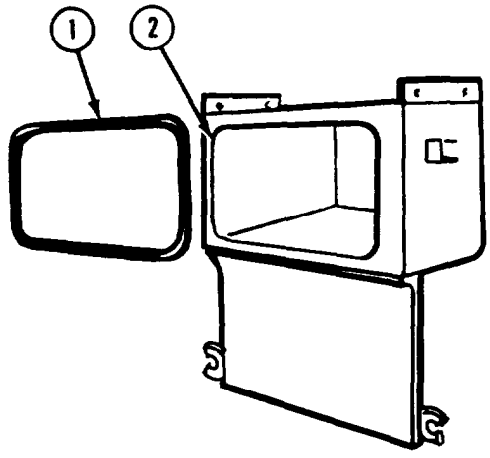


d. Chain Sling Stowage Box Installation (M977 only).

WARNING

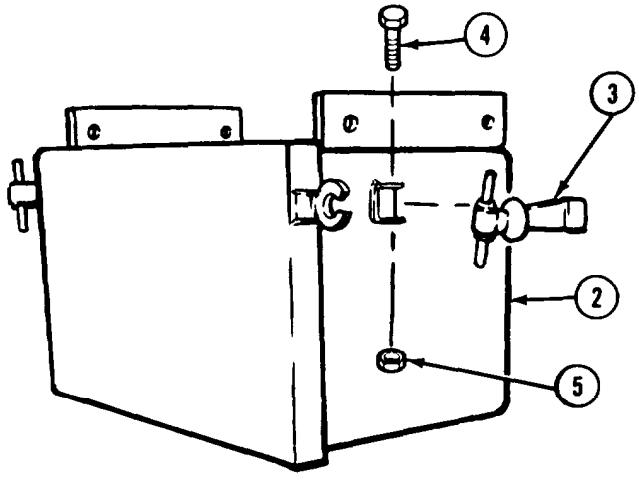
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(1) Apply silicone adhesive-sealant and install seal (1) in stowage box (2).

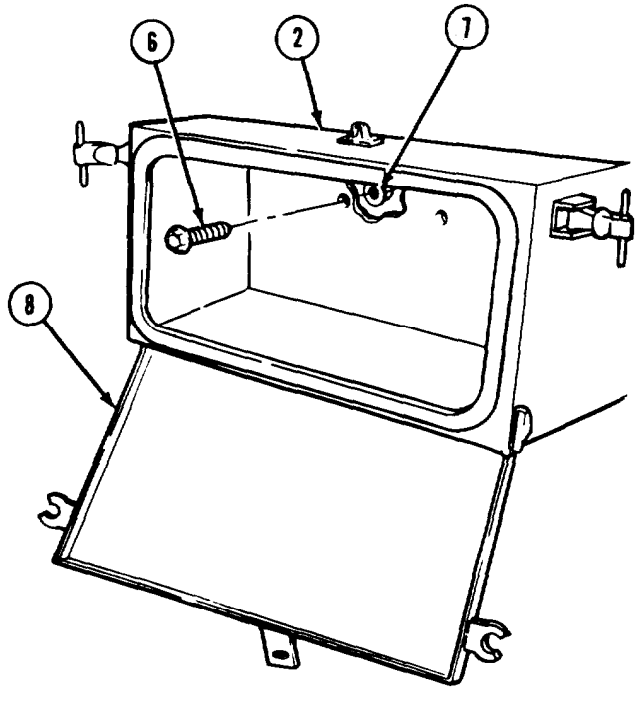


Cab and Body Maintenance Instructions (Cont)

(2) Install two rubber hooks (3) on stowage box (2) with two screws (4) and locknuts (5).



(3) Soldier A and Soldier B install stowage box (2) with four screws (6) and nuts (7).
(4) Close stowage box cover (8).
(5) Remove lifting device from transfer case.



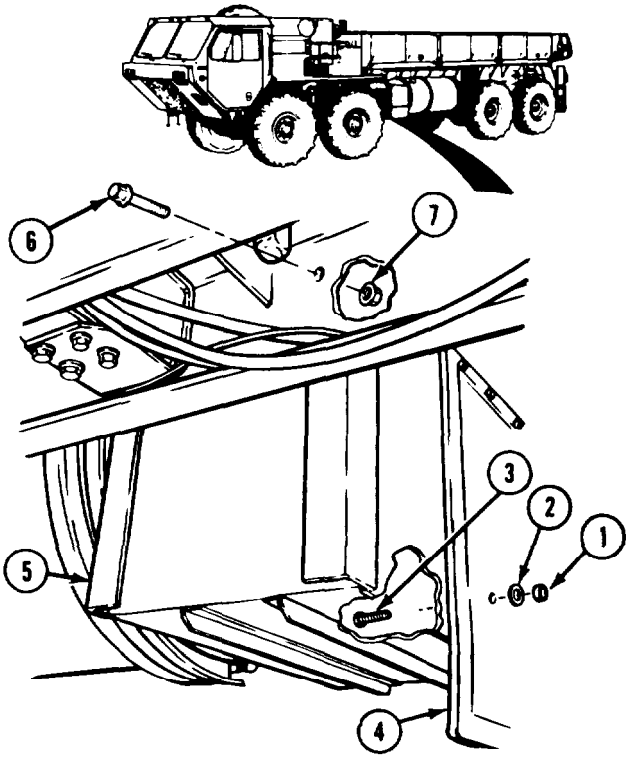
16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985, M1977-CBT) (CONT).

e. Tool Stowage Box Removal.

WARNING

Support stowage box when removing from vehicle. Personal injury may result if stowage box falls.

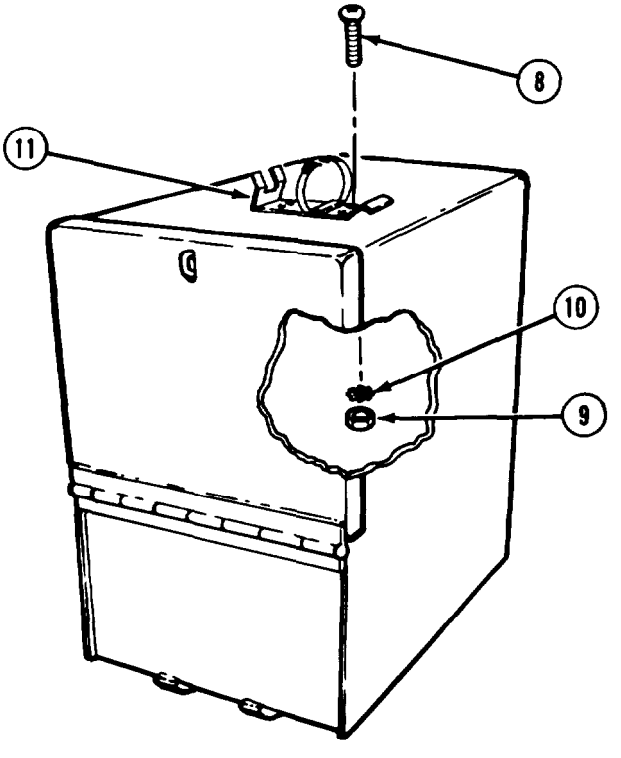
(1) Soldier A removes locknut (1), washer (2), and screw (3) from mud flap (4).
(2) Soldier A supports stowage box (5) with lifting device while Soldier B removes four screws (6) and locknuts (7).
(3) Remove stowage box (5) with lifting device.



NOTE

Step (4) is for M985 only.

(4) Remove four screws (8), nuts (9), and lockwasher (10) from fire extinguisher bracket (11).



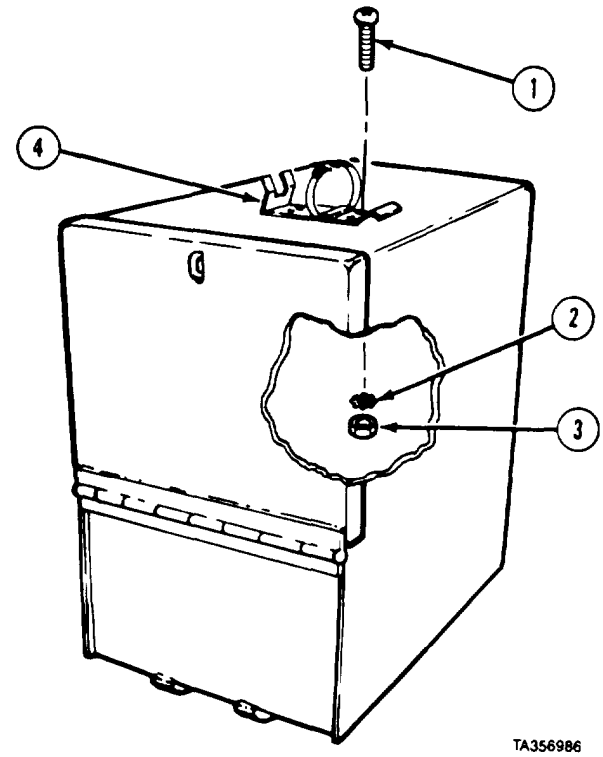
16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985) (CONT).

f. Tool Stowage Box Installation.

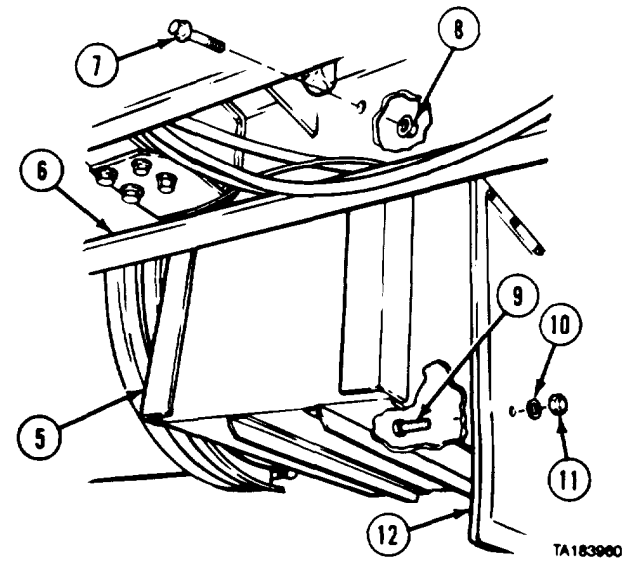
NOTE

Step *(1)* is for M985 only.

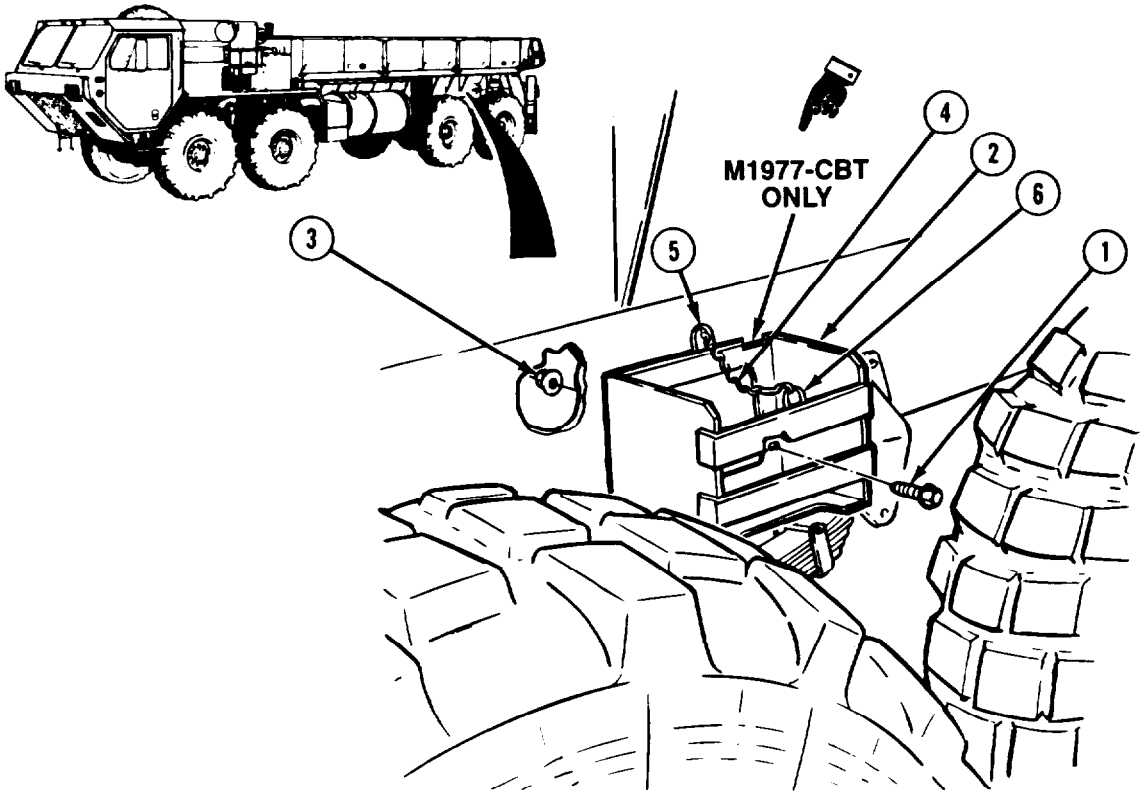
(1) Install four screws (1), lockwashers (2), and nuts (3) on fire extinguisher bracket (4).



(2) Soldier A positions stowage box (5) on frame rail (6) while Soldier B operates lifting device.
(3) Install four screws (7) and locknuts (8).
(4) Install screw (9), washer (10), and locknut (11) through mud flap (12) to stowage box (5).



16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985, M1977-CBT) (CONT).



g. Wheel Chock Stowage Box Removal.

NOTE

The chock stowage box on the M1977-CBT model has a notch on the upper right rear side. All other models do not.

(1) Soldier A removes two screws (1) and stowage box (2) while Soldier B removes two nuts (3).
(2) Remove chain (4) from bracket (5) and clip (6).

h.* Wheel Chock Stowage *Box Installation.

NOTE

The chock stowage box on the M1977-CBT model has a notch on the upper right rear side. All other models do not.

(1) Install chain (4) on bracket (5) and clip (6).
(2) Soldier A installs stowage box (2) and two screws (1) while Soldier B installs two nuts (3).

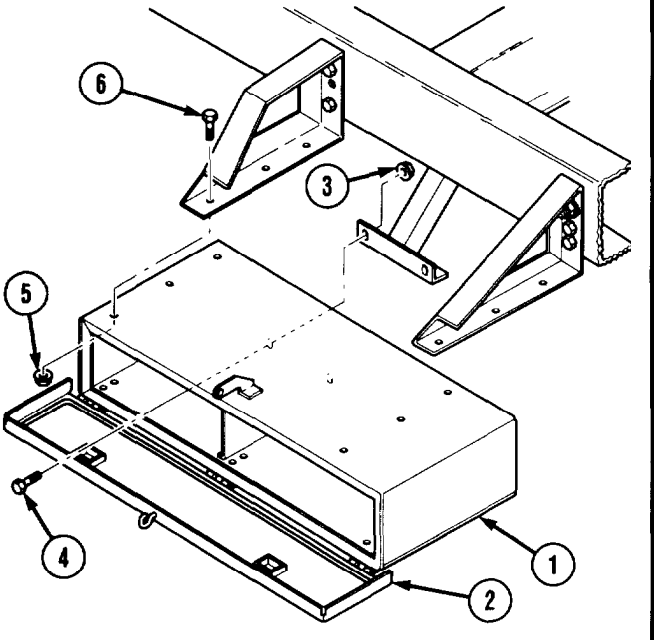
Cab and Body Maintenance Instructions (Cont)

*i. **Rear Stowage Box Removal.***

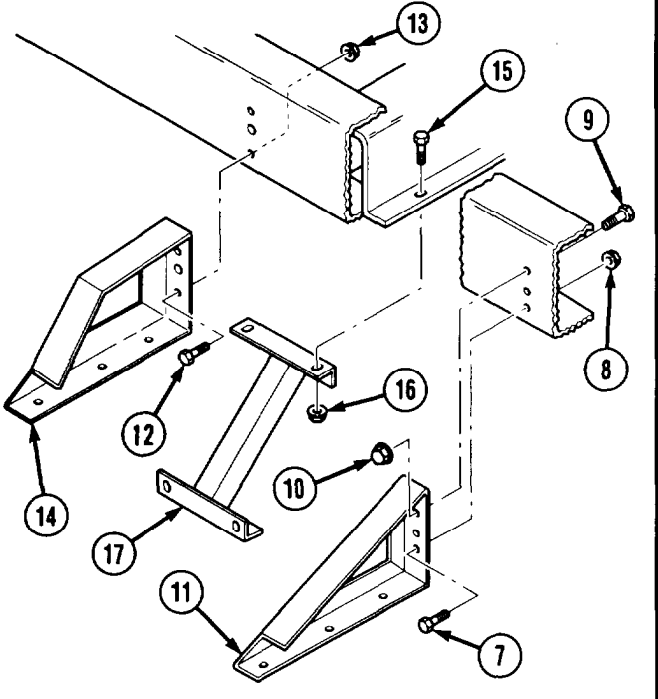
WARNING

Support stowage box when removing from vehicle. Personal injury may result if stowage box falls.

(1) Support stowage box (1) with suitable lifting device.
(2) Open stowage door panel (2).
(3) Soldier A removes two nuts (3) while Soldier B removes two screws (4).
(4) Soldier A removes six nuts (5) while Soldier B removes six screws (6).
(5) Soldier A and Soldier B remove stowage box (1) from vehicle.



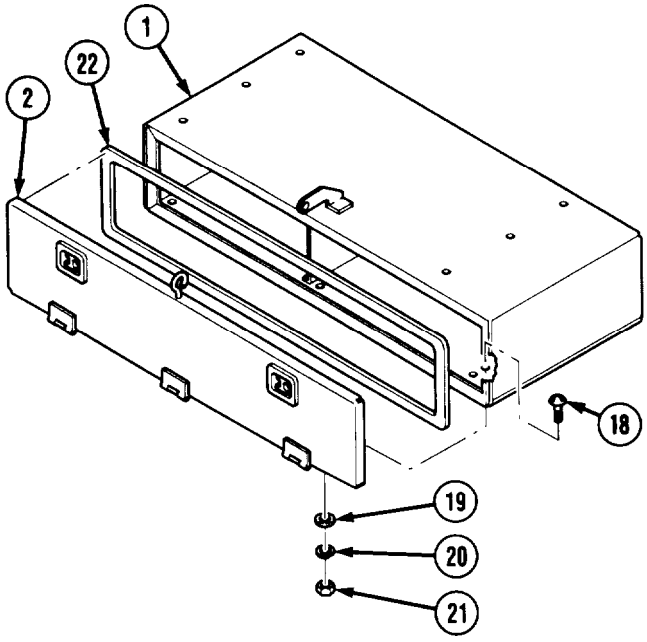
(6) Remove two screws (7), two nuts (8), screw (9), nut (10), and support (11).
(7) Remove two screws (12), nuts (13), and support (14).
(8) Remove screw (15), nut (16), and support (17).



16-33. STOWAGE BOX REMOVAL/INSTALLATION (M977, M985, M1977-CBT) (CONT).

(9) Remove twelve screws (18), washers (19), lockwashers (20), nuts (21), and door panel (2) from stowage box (1).

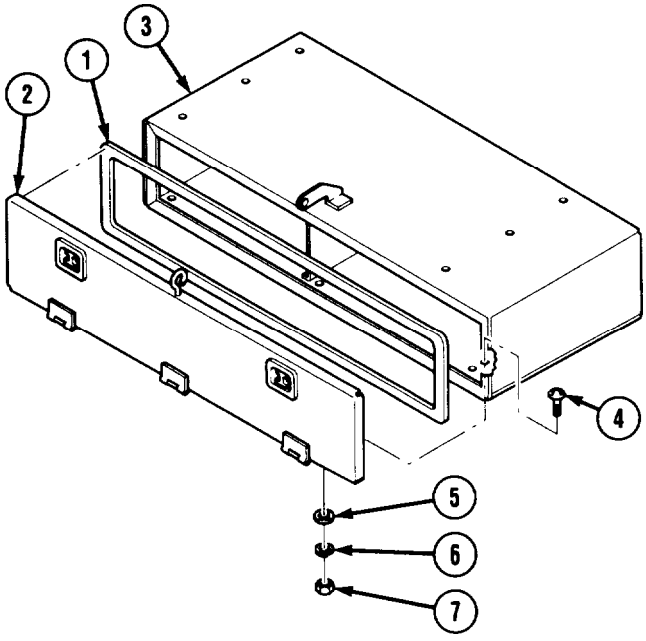
(10) If damaged, remove gasket (22) from door panel (2).



j . Rear Stowage Box /nstallation.

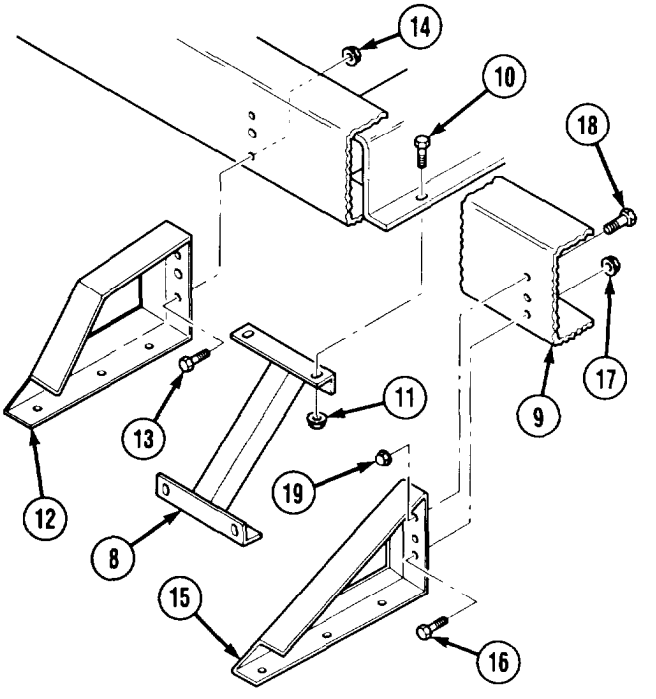
(1) If removed, install self-adhesive gasket (1) on door panel (2).

(2) Install door panel (2) on stowage box (3) with twelve screws (4), washers (5), lockwashers (6), and nuts (7).

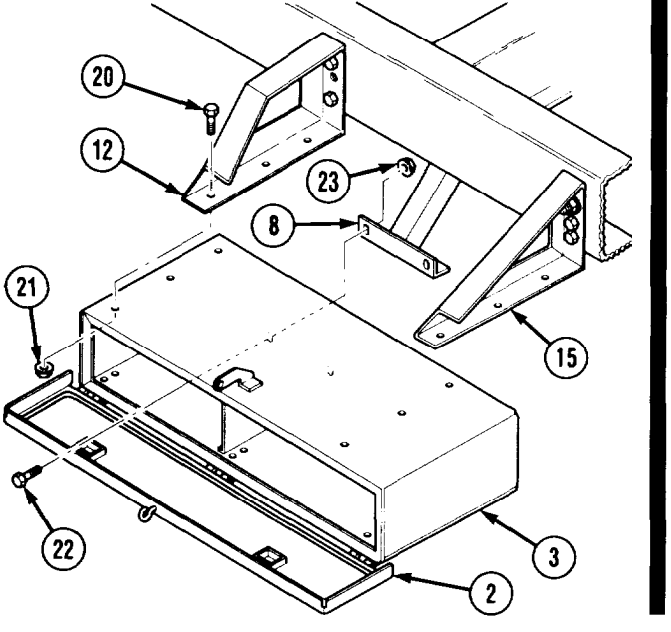


Cab and Body Maintenance Instructions (Cont)

(3) Install support (8) on frame (9) with screw (10) and nut (11).
(4) Install support (12) on frame (9) with two screws (13) and nuts (14).
(5) Install support (15) on frame (9) with two screws (16), two nuts (17), screw (18), and nut (19).



(6) Soldier A operates suitable lifting device while Soldier B positions stowage box (3) on supports (8, 12, and 15).
(7) Install six screws (20) and nuts (21) to secure stowage box (3) to supports (12 and 15).
(8) Install two screws (22) and nuts (23) to secure stowage box (3) to support (8).
(9) Close stowage box door panel (2).



k. Follow-on Maintenance. None.

END OF TASK

16-34. STOWAGE BOX REMOVAL/INSTALLATION (M978).

This task covers:

a. Tool Stowage Box Removal
b. Tool Stowage Box Installation
c. Fuel Can Stowage Box Removal
d. Fuel Can Stowage Box Installation
e. Wheel Chock Stowage Box Removal
f. Wheel Chock Stowage Box Installation
g. Nozzle Stowage Box Removal
h. Nozzle Stowage Box Installation
i. Rear Stowage Box Removal
j. Rear Stowage Box Installation
k. Follow-on Maintenance

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
Adhesive Sealant, Silicone RTV, General Purpose, Item 4, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	***Condition Description***
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	If vehicle is equipped with self-recovery winch, cable must be removed from tie down ring when removing rear stowage box.
Para 16-37	Stowage box fire extinguisher mount removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Tool and Stowage Box Removal.

(1) Remove locknut (1), washer (2), and screw (3) from mud flap (4) and stowage box (5).

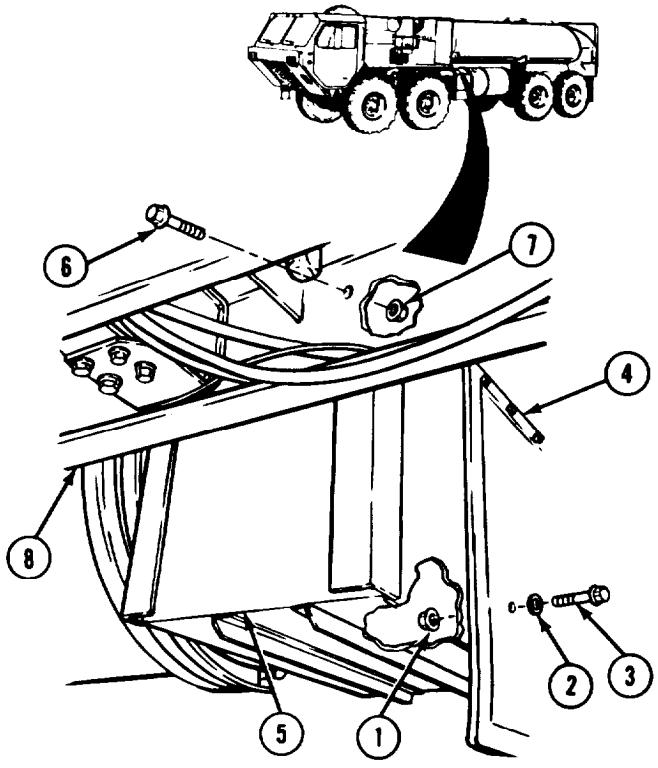
WARNING

Support stowage box when removing from vehicle. Personal injury may result if stowage box falls.

(2) Soldier A supports stowage box (5) with lifting device while Soldier B removes four screws (6) and locknuts (7) from stowage box and frame rail (8).
(3) Remove stowage box (5) with lifting device.

b. Tool Stowage Box Installation.

(1) Soldier A operates lifting device while Soldier B positions stowage box (5) on frame rail (8).
(2) Install four screws (6) and locknuts (7) on stowage box (5)
(3) Install screw (3), washer (2), and locknut (1) on mud flap (4).



16-34. STOWAGE BOX REMOVAL/INSTALLATION (M978) (CONT).

*c. **Fuel Can Stowage Box Removal.***

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep tire extinguisher within easy reach when working with fuel. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE.

NOTE

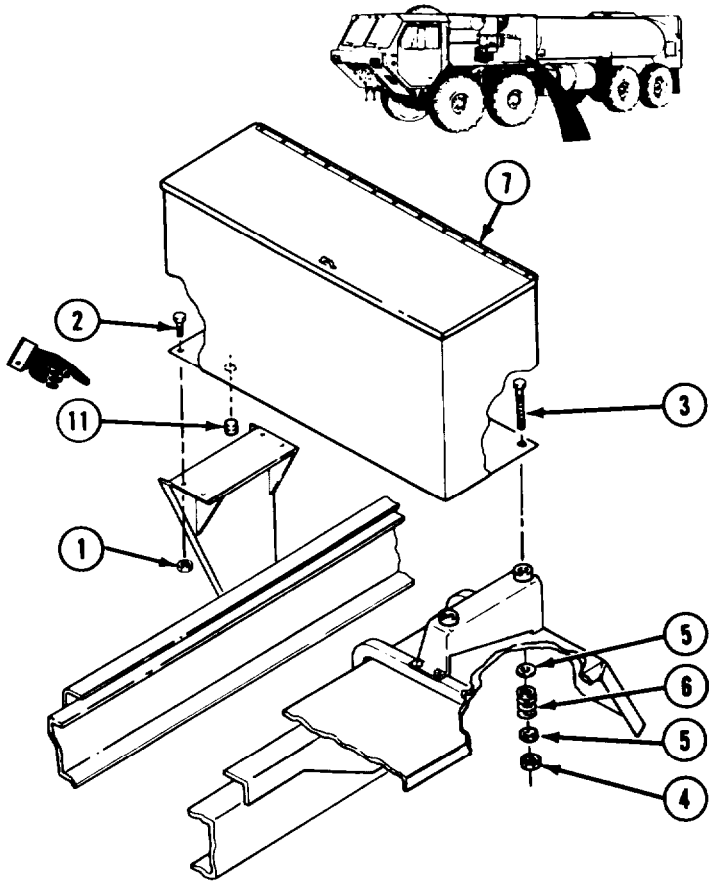
For trucks with plug, perform steps *(1)* through *(3).* For trucks without plug, perform steps *(1.1)* through *(3).*

(1) Remove plug (11) from stowage box (7) and drain fuel into suitable container.

(1.1) Soldier A removes four locknuts (1) while Soldier B removes four screws (2).

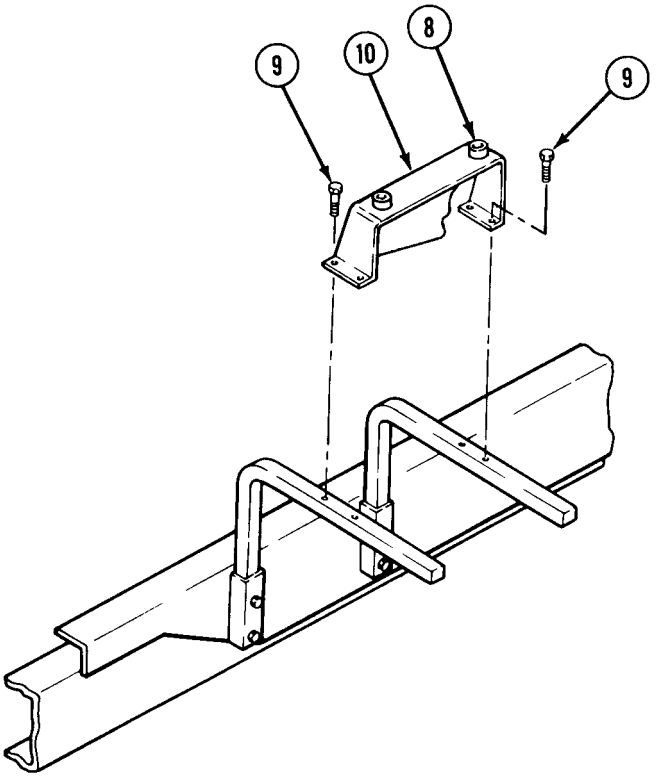
(2) Remove two screws (3), nuts (4), washers (5), and springs (6).

(3) Soldier A operates lifting device and removes stowage box (7) guided by Soldier B.

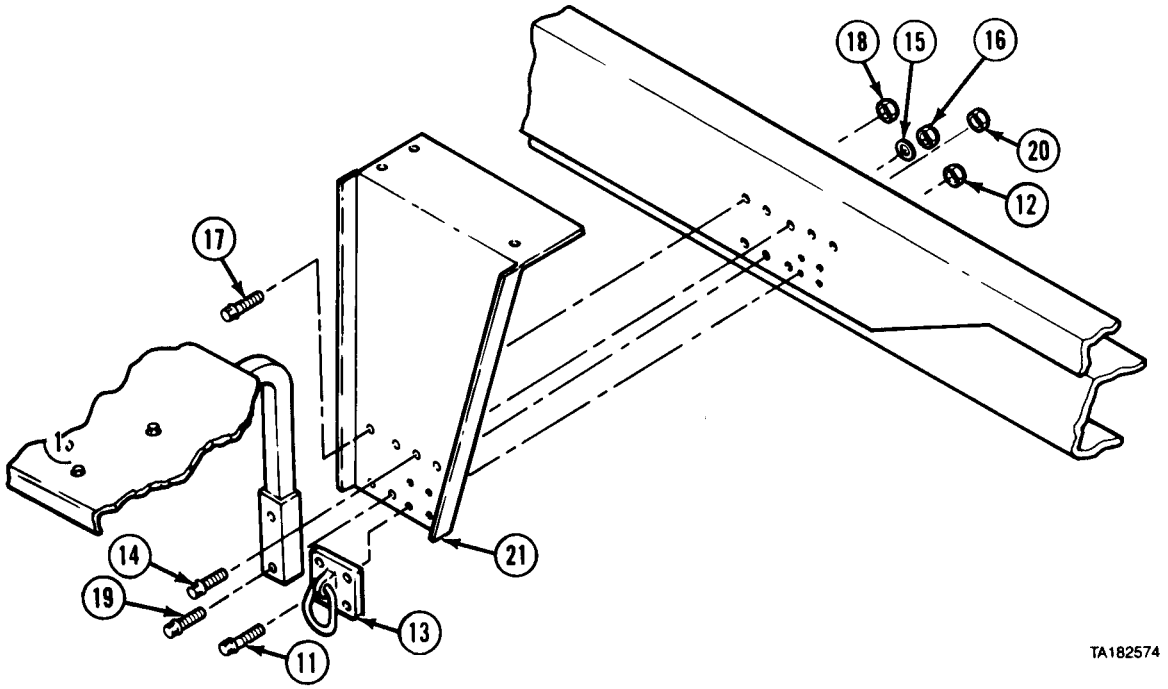


16-34. STOWAGE BOX REMOVAL/INSTALLATION (M978) (CONT).

(4) Remove two rubber mounts (8).
(5) Remove four screws (9) and bracket (10).



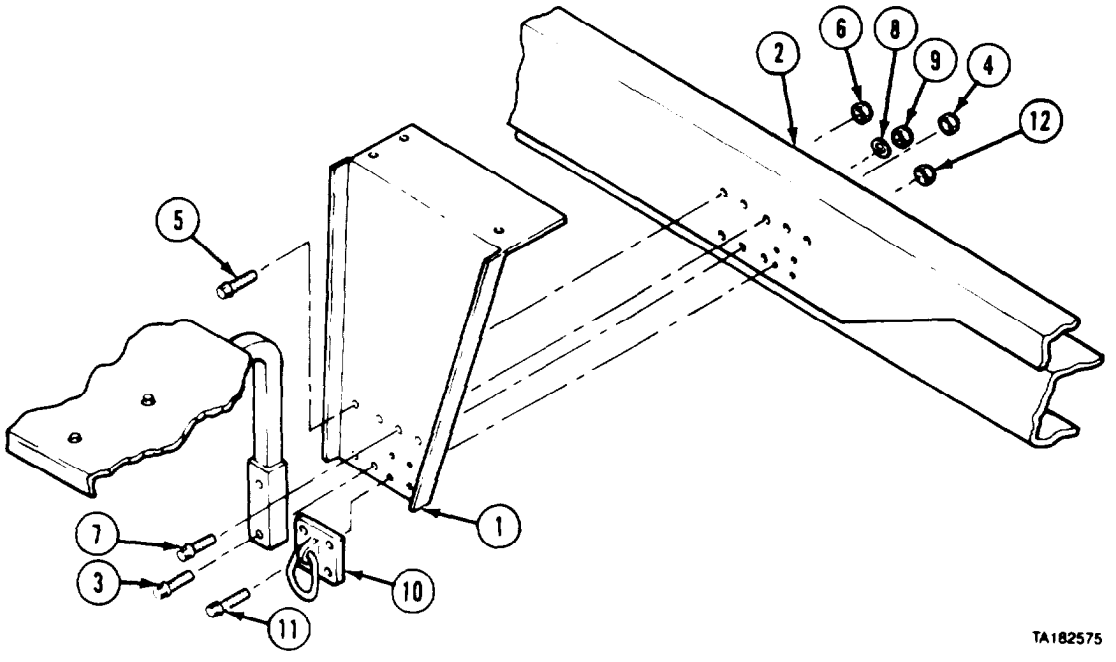
Cab and Body Maintenance Instructions (Cont)



(6) Remove four screws (11), locknuts (12), and tiedown (13).
(7) Remove two screws (14), lockwashers (15), and nuts (16).
(8) Remove three screws (17) and locknuts (18).
(9) Soldier A and Soldier B remove two screws (19), locknuts (20), and mounting bracket (21).

16-34. STOWAGE BOX REMOVAL/INSTALLATION (M978) (CONT).

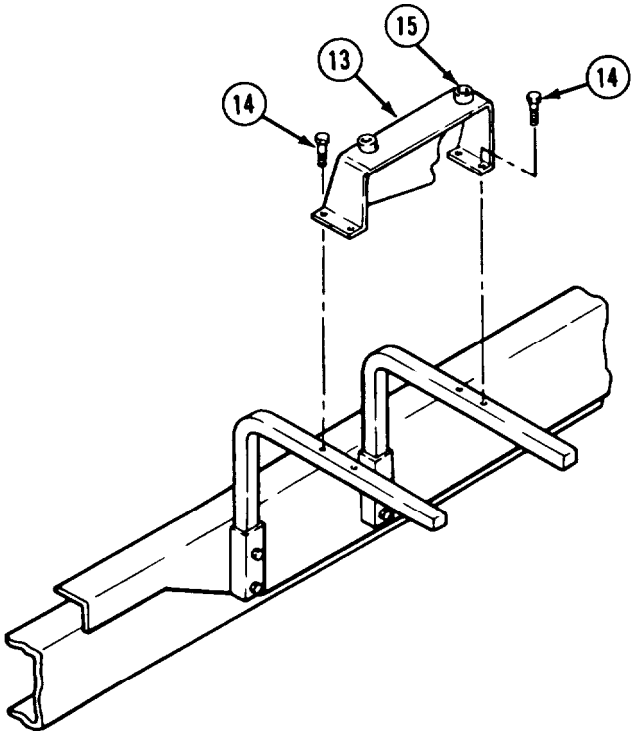
d. Fuel Can Stowage Box Installation.



(1) Soldier A and Soldier B position mounting bracket (1) on chassis (2).
(2) Install two screws (3) and locknuts (4). Do not tighten.
(3) Install three screws (5) and locknuts (6). Do not tighten.
(4) Install two screws (7), lockwashers (8), and nuts (9). Do not tighten.
(5) Install tiedown (10) with four screws (11) and locknuts (12).
(6) Tighten nuts (4, 6, and 9) and screws (3, 5, and 7).

16-34. STOWAGE BOX REMOVAL/INSTALLATION (M978) (CONT).

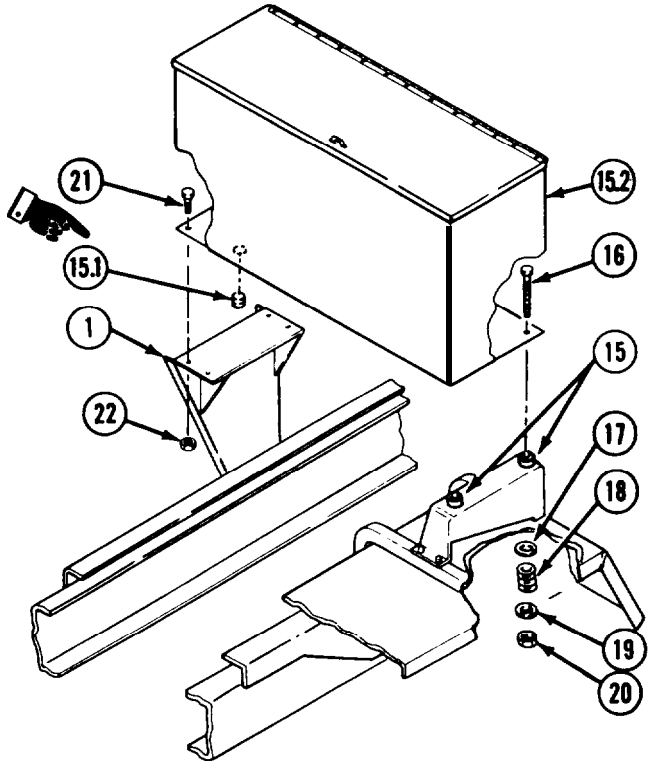
(7) Install bracket (13) with four screws (14).
(8) Install two rubber mounts (15).



NOTE

For trucks with plug, perform step *(8.1).*
For trucks without plug, go to step *(9).*

(8.1) Install plug (15.1) into stowage box (15.2).
(9) Soldier A operates lifting device while Soldier B alines mounting bracket (1) and rubber mounts (15).
(10) Install two screws (16, washers (17), springs (18), washers (19), and nuts (20).
(11) Soldier A installs four screws (21) while Soldier B installs four locknuts (22).



Cab and Body Maintenance Instructions (Cont)

e. Wheel Chock Stowage Box Removal.

(1) Remove two nuts (1), screws (2), and stowage box (3).

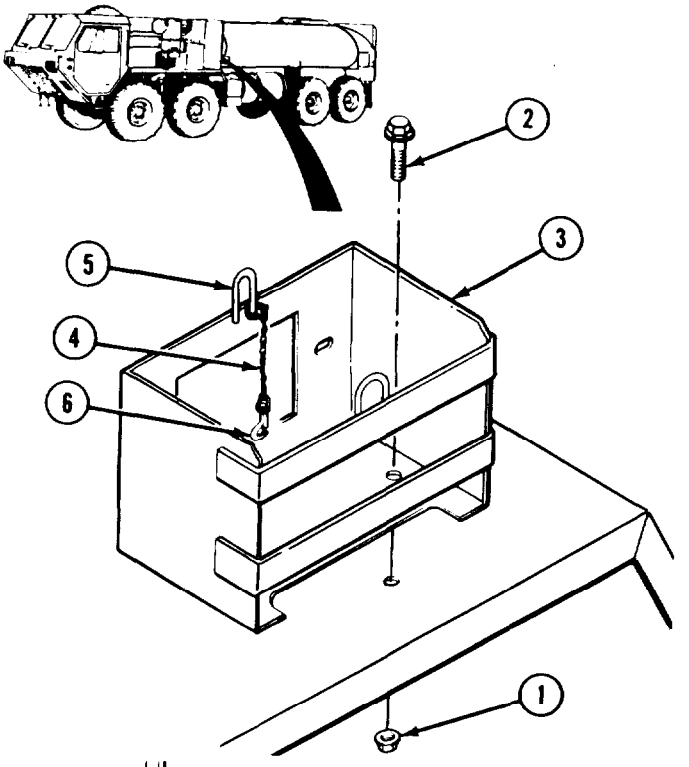
(2) Remove chain (4) from bracket (5) and clip (6).

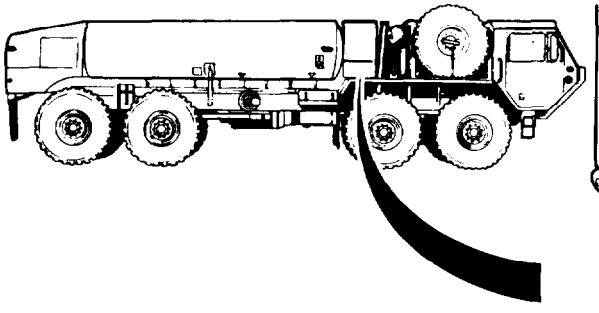
f. Wheel Chock Stowage Box Installation.

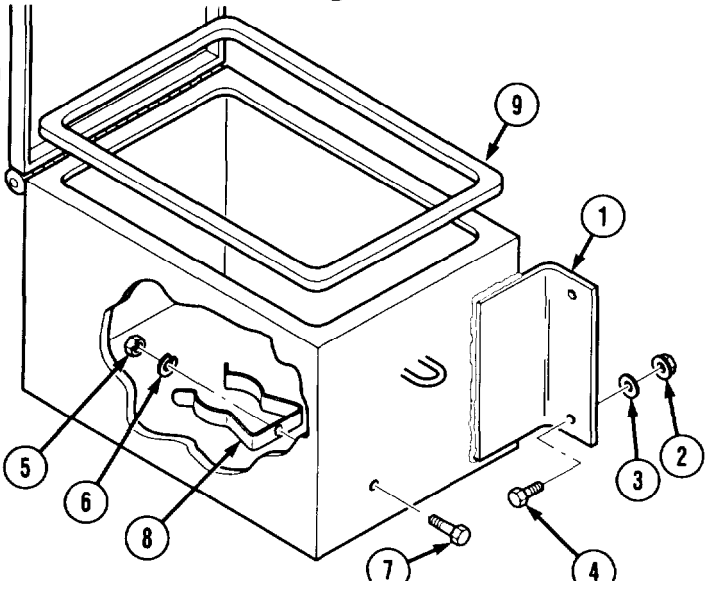
(1) Install chain (4) on bracket (5) and clip (6).

(2) Install stowage box (3) with two screws (2) and nuts (1).

g. ***Nozzle Stowage Box Removal.***







(1) Soldier A supports stowage box (1) while Soldier B removes four locknuts (2), and washers (3).

(2) Soldiers A and B remove stowage box (1), and four screws (4).

(3) Remove two nuts (5), lockwashers (6), screws (7), and spring clips (8).

(4) Remove seal (9) from stowage box (1).

h. Nozzle* Stowage *Box Installation.

(1) Apply silicone adhesive-sealant and install seal (9) in stowage box (1).

(2) Install two spring clips (8), screws (7), lockwashers (6), and nuts (5).

(3) Soldier A positions stowage box (1) while Soldier B installs four screws (4), washers (3), and locknuts (2).

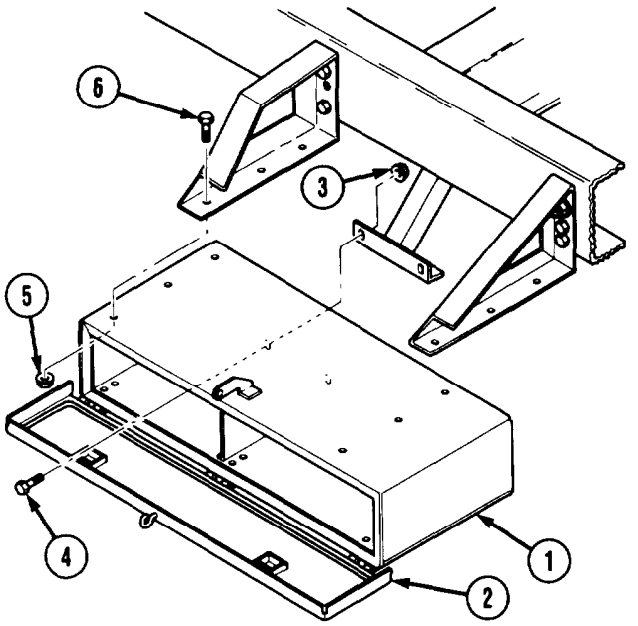
16-34. STOWAGE BOX REMOVAL/INSTALLATION (M978) (CONT).

*i. **Rear Stowage Box Removal.***

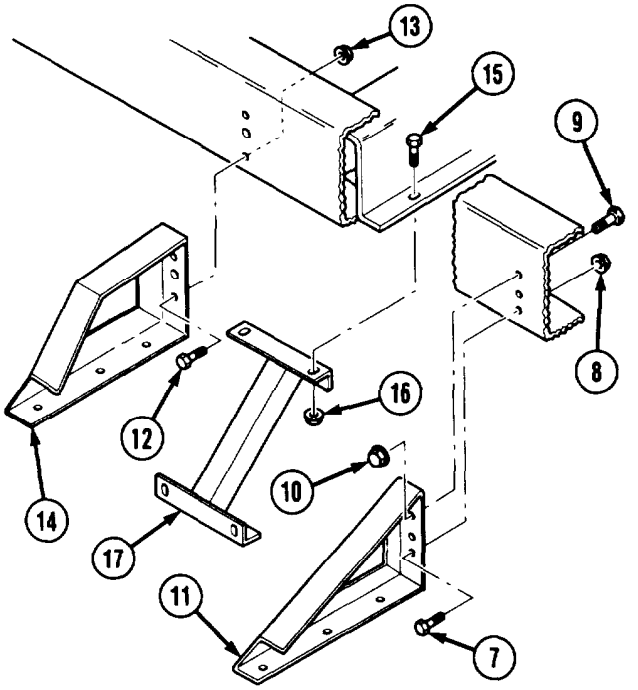
WARNING

Support stowage box when removing from vehicle. Personal injury may result if stowage box falls.

(1) Support stowage box (1) with suitable lifting device.
(2) Open stowage, door panel (2).
(3) Soldier A removes two nuts (3) while Soldier B removes two screws (4).
(4) Soldier A removes six nuts (5) while Soldier B removes six screws (6).
(5) Soldier A and Soldier B remove stowage box (1) from vehicle.



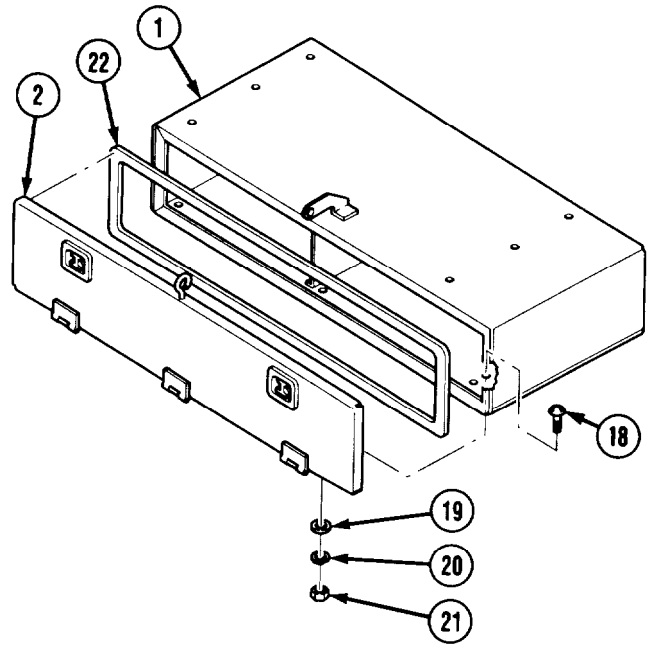
(6) Remove two screws (7), nuts (8), screw (9), nut (10), and support (11).
(7) Remove two screws (12), nuts (13), and support (14).
(8) Remove screw (15), nut (16), and support (17).



Cab and Body Maintenance Instructions (Cont)

(9) Remove twelve screws (18), washers (19), lockwashers (20), nuts (21), and door panel (2) from stowage box (1).

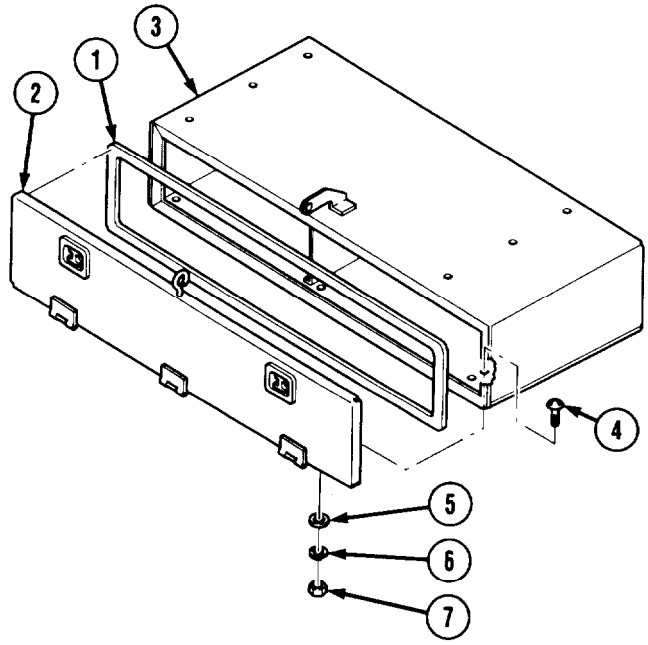
(10) If damaged, remove gasket (22) from door panel (2).



j . Rear Stowage Box Installation.

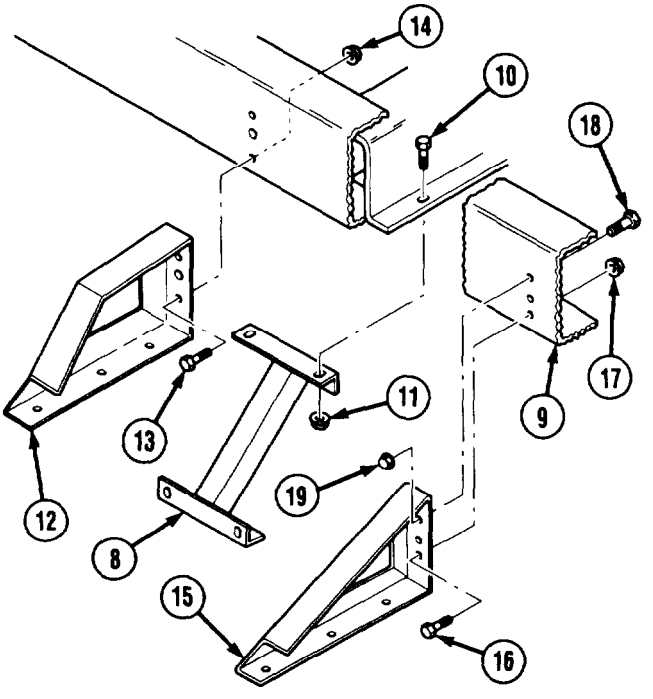
(1) If removed, install self-adhesive gasket (1) on door panel (2).

(2) Install door panel (2) on stowage box (3) with twelve screws (4), washers (5), lockwashers (6), and nuts (7).



16-34. STOWAGE BOX REMOVAL/INSTALLATION (M978) (CONT).

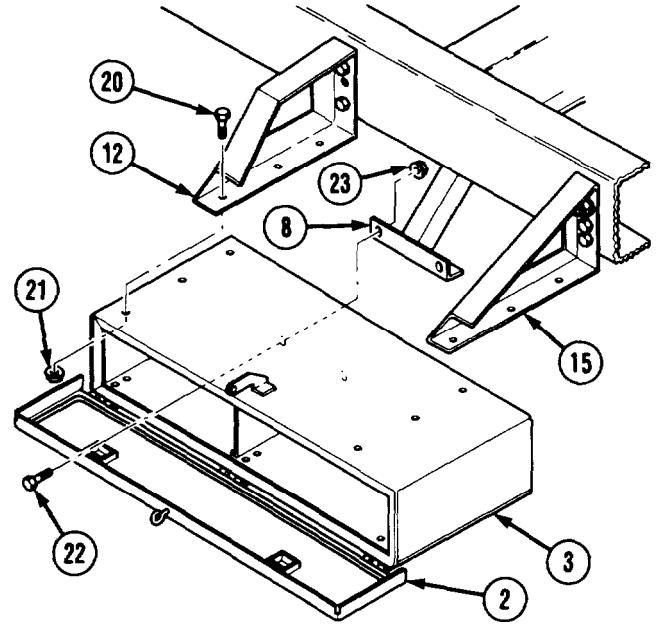
(3) Install support (8) on frame (9) with screw (10) and nut (11).
(4) Install support (12) on frame (9) with two screws (13) and nuts (14).
(5) Install support (15) on frame (9) with two screws (16), two nuts (17), screw (18), and nut (19).



(6) Soldier A operates suitable lifting device while Soldier B positions stowage box (3) on supports (8, 12, and 15).
(7) Install six screws (20) and nuts (21) to secure stowage box (3) to supports (12 and 15).
(8) Install two screws (22) and nuts (23) to secure stowage box (3) to support (8).
(9) Close stowage box door panel (2).

k. Follow-on Maintenance. Install stowage box fire extinguisher mount (para 16-37).

END OF TASK



16-35. STOWAGE BOX REMOVAL/INSTALLATION (M983).

This task covers:

a. Tool Stowage Box Removal (M983 with crane)
b. Tool Stowage Box Installation (M983 with crane)
c. Tool Stowage Box Removal (M983 without crane)
d. Tool Stowage Box Installation (M983 without crane)
e. Wheel Chock Stowage Box Removal
f. Wheel Chock Stowage Box Installation
g. Follow-on Maintenance

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-70	Slave cable support hooks removed.

Special Environmental Conditions
None

General Safety Instructions
None

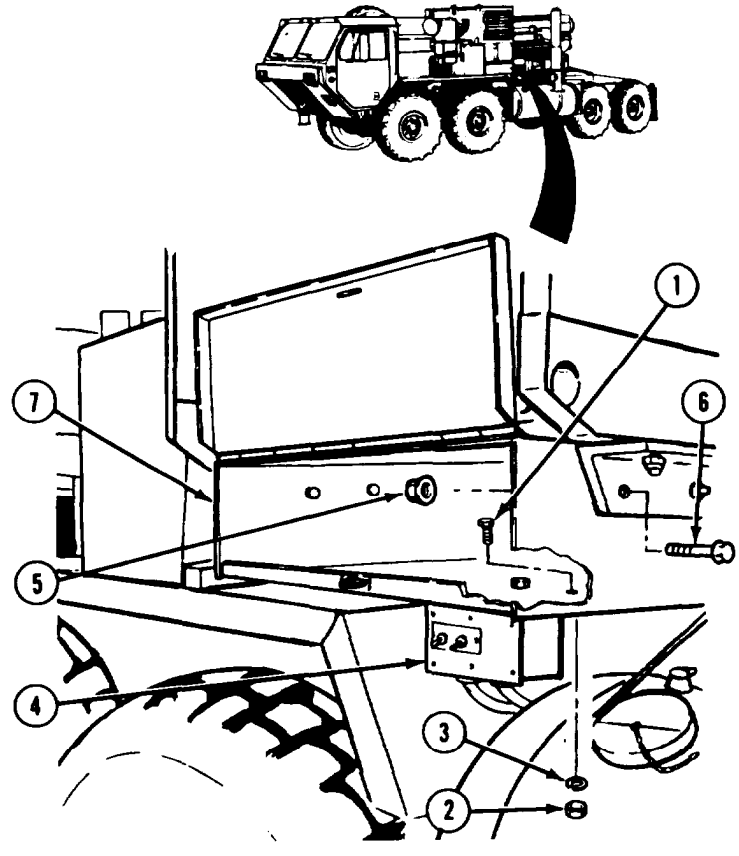
16-35. STOWAGE BOX REMOVAL/INSTALLATION (M983) (CONT).

a. Tool Stowage Box Removal (M983 without crane).

(1) Remove two screws (1), nuts (2), lockwashers (3), and move ENGINE HIGH IDLE box (4) out of way.
(2) Soldier A removes four nuts (5) and screws (6) while Soldier B supports stowage box (7).
(3) Soldier A and Soldier B remove stowage box (7).

b. Tool Stowage Box installation (M983 with crane).

(1) Soldier A and Soldier B position stowage box (7) on vehicle.
(2) Soldier A installs four screws (6) and nuts (5) while Soldier B supports stowage box (7).
(3) Position ENGINE HIGH IDLE box (4) and install two screws (1), lockwashers (3), and nuts (2).



Cab and Body Maintenance Instructions (Cont)

c. Tool Stowage Box Removal (M983 without crane).

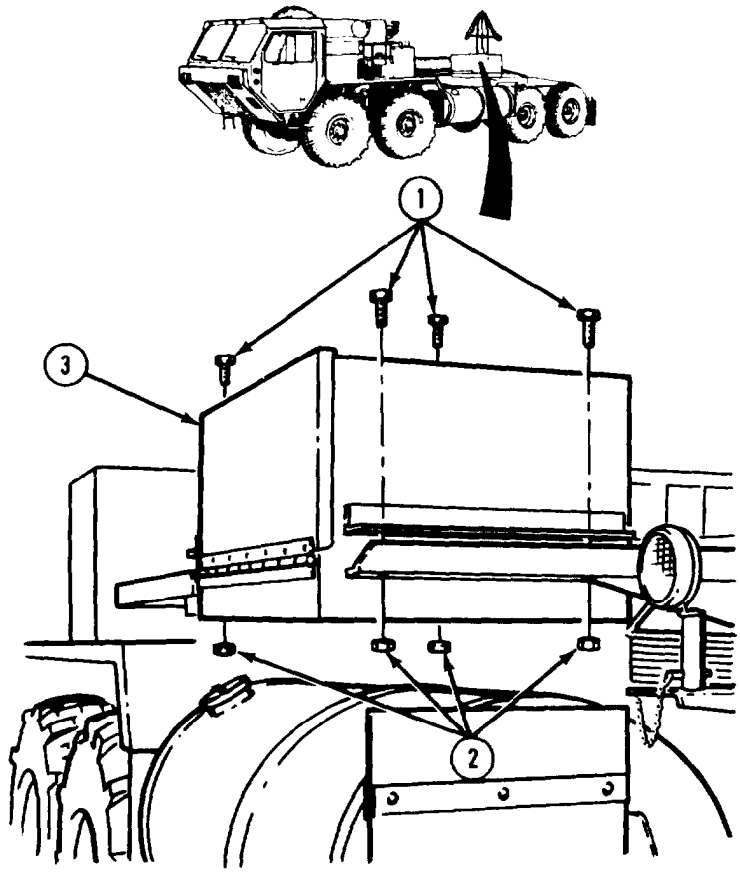
(1) Soldier A removes four screws (1) and nuts (2) while Soldier B supports stowage box (3).

(2) Soldier A and Soldier B remove stowage box (3).

***d. Tool Stowage Box* Installation (M983 without crane).**

(1) Soldier A and Soldier B position stowage box (3) on vehicle.

(2) Soldier A installs four screws (1) and nuts (2) while Soldier B supports stowage box (3).



16-35. STOWAGE BOX REMOVAL/INSTALLATION (M983) (CONT).

e. Wheel Chock Stowage Box Removal.

(1) Soldier A removes two screws (1), stowage box (2), and two spacers (3) while Soldier B removes two nuts (4).

(2) Remove chain (5) from bracket (6) and clip (7).

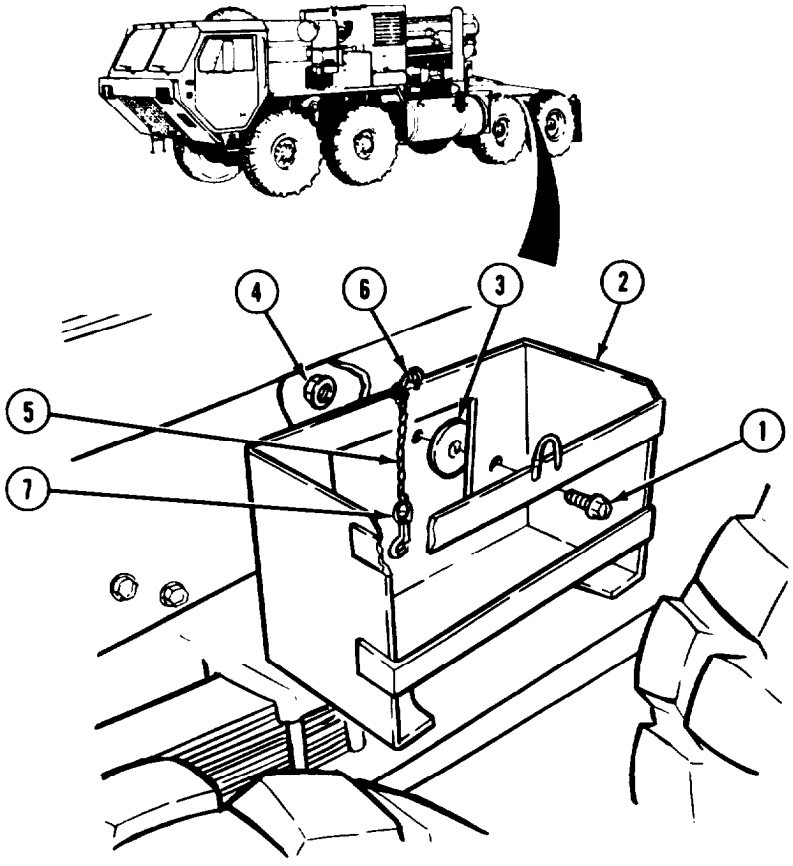
f. Wheel Chock Stowage box Installation.

(1) Install chain (5) on bracket (6) and clip (7).

(2) Soldier A installs stowage box (2) with two spacers (3) and two screws (1) while Soldier B installs two nuts (4).

g. Follow-on Maintenance. Install slave cable support hooks (para 16-70).

END OF TASK



16-36. STOWAGE BOX REMOVAL/INSTALLATION (M984).

This task covers:

a. Remote Control Stowage Box Removal
b. Remote Control Stowage Box Installation
c. Tool Stowage Box Removal
d. Tool Stowage Box Installation
e. Wheel Chock Stowage Box Removal
f. Wheel Chock Stowage Box Installation
g. Cargo Body Stowage Box Removal
h. Cargo Body Stowage Box Installation
i. Follow-on Maintenance

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
Adhesive-sealant, silicone, Item 4, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

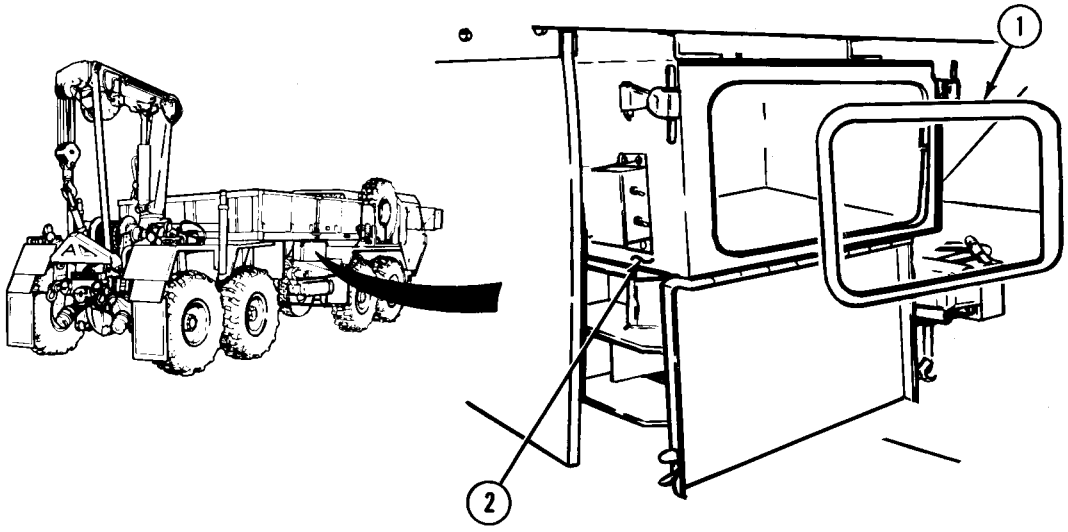
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-37	Stowage box fire extinguisher mount removed.

Special Environmental Conditions
None

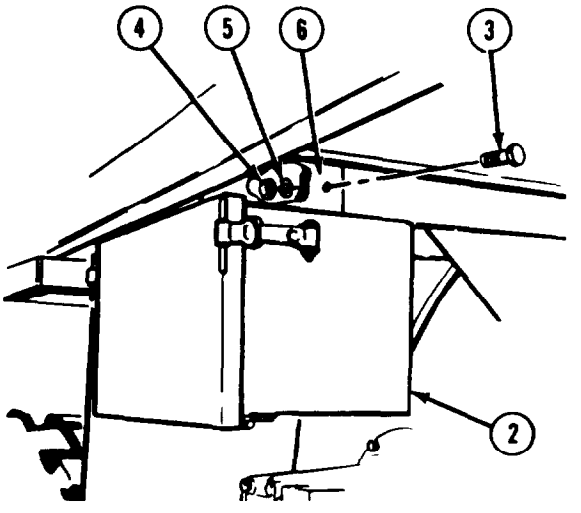
General Safety Instructions
None

a. Remote Control Stowage Box Removal.



(1) Remove PVC matting from inside of stowage box (2).
(1.1) Remove seal (1) from stowage box (2).

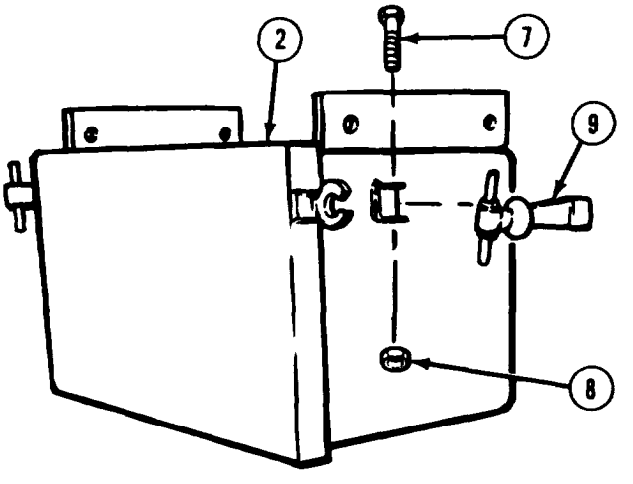
16-36. STOWAGE BOX REMOVAL/INSTALLATION (M964) (CONT).



(2) Soldier A supports stowage box (2) while Soldier B removes four screws (3), nuts (4), and lockwashers (5) from bracket (6).

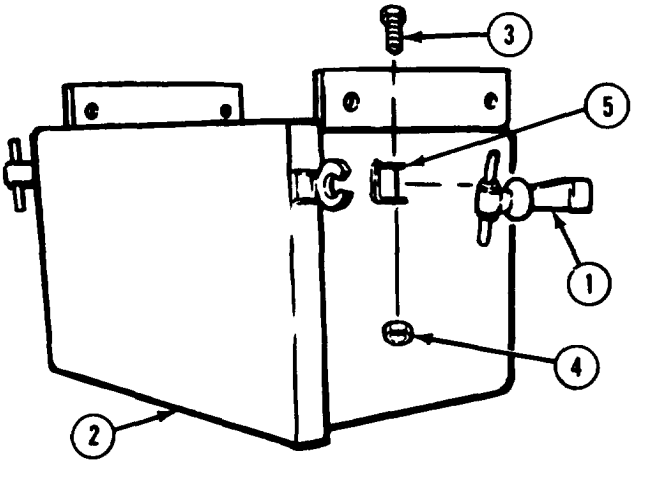
(3) Lower stowage box (2).

(4) Remove two screws (7), locknuts (8), and rubber hooks (9) from stowage box (2).

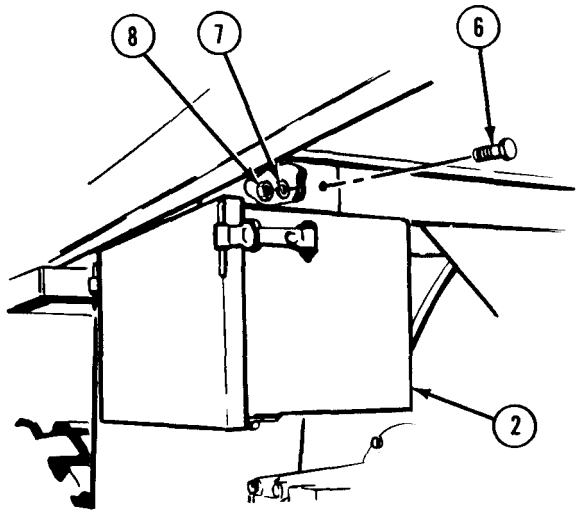


6. Remote Control Stowage Box Installation.

(1) Install two rubber hooks (1) to stowage box (2) with two screws (3) and locknuts (4). Tighten until locknuts contact bracket (5).



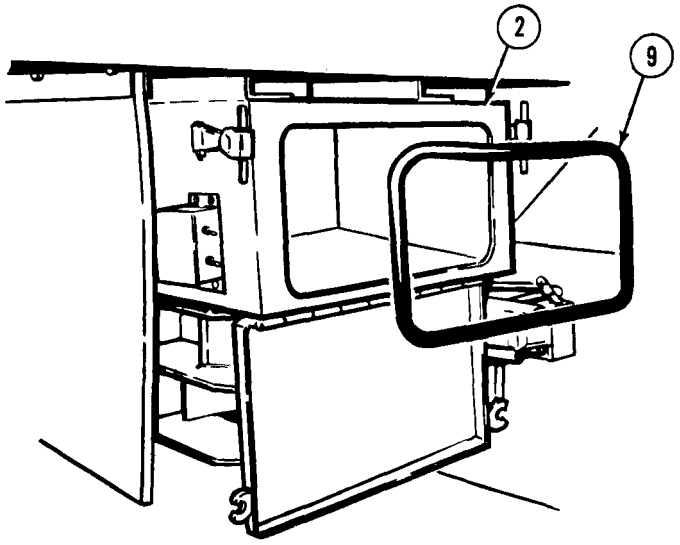
16-36. STOWAGE BOX REMOVAL/INSTALLATION (M984) (CONT).



(2) Soldier A support stowage box (2) while Soldier B installs four screws (6), lockwashers (7), and nuts (8).

WARNING

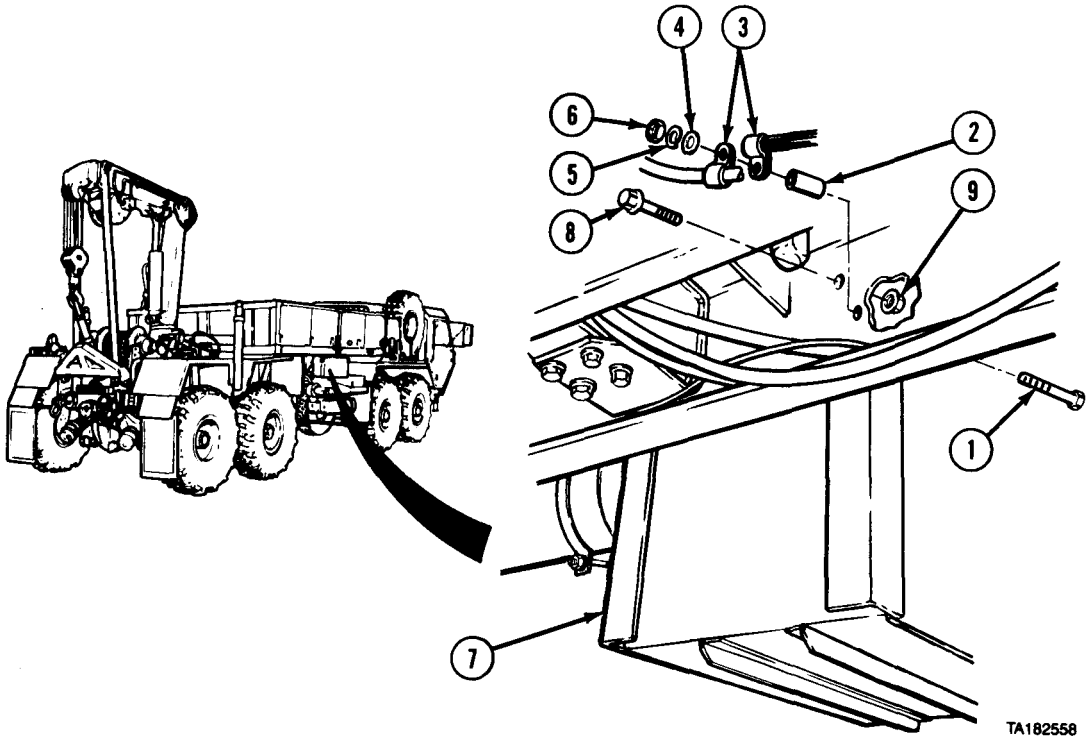
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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



(3) Using silicone adhesive-sealant, install seal (9) on stowage box (2).

(4) Install PVC matting inside stowage box (2).

c. Tool Stowage Box Removal.

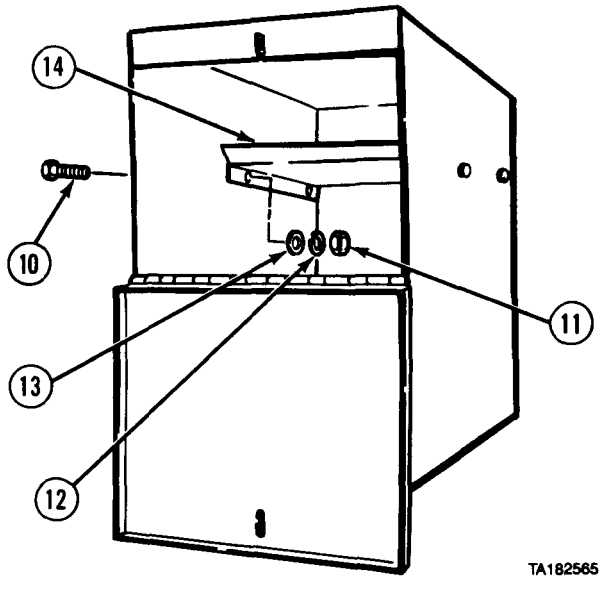


WARNING

Support stowage box when removing from vehicle. Personal injury may result if stowage box falls.

(1) Remove screw (1), spacer (2), two clamps (3), washer (4), lockwasher (5), and nut (6).

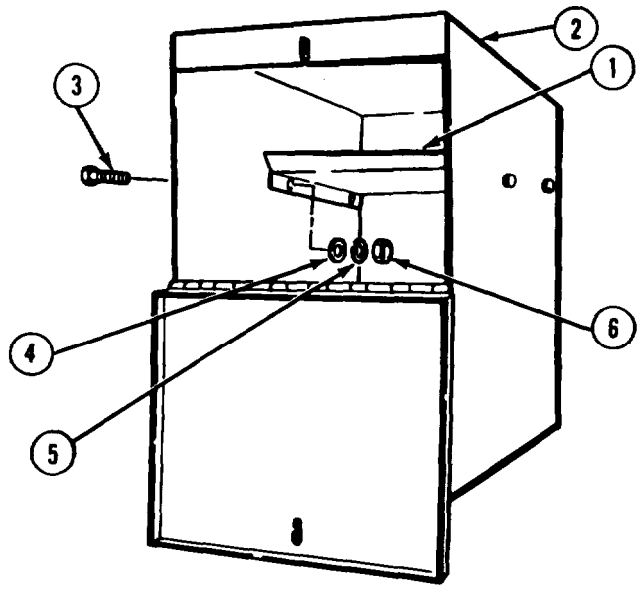
(2) Soldier A supports and removes stowage box (7) while Soldier B removes four screws (8) and locknuts (9). Remove four screws (10), nuts (11), lockwashers (12), washers (13), and shelf (14).



Cab and Body Maintenance Instructions (Cont)

d. Tool Stowage Box Installation.

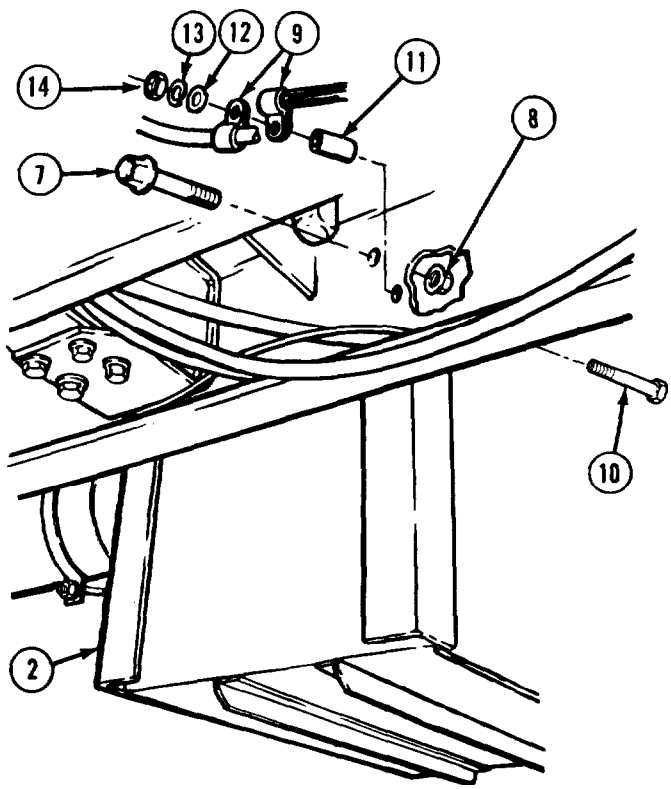
(1) Install shelf (1) in stowage box (2) with four screws (3), washers (4), lockwashers (5), and nuts (6).



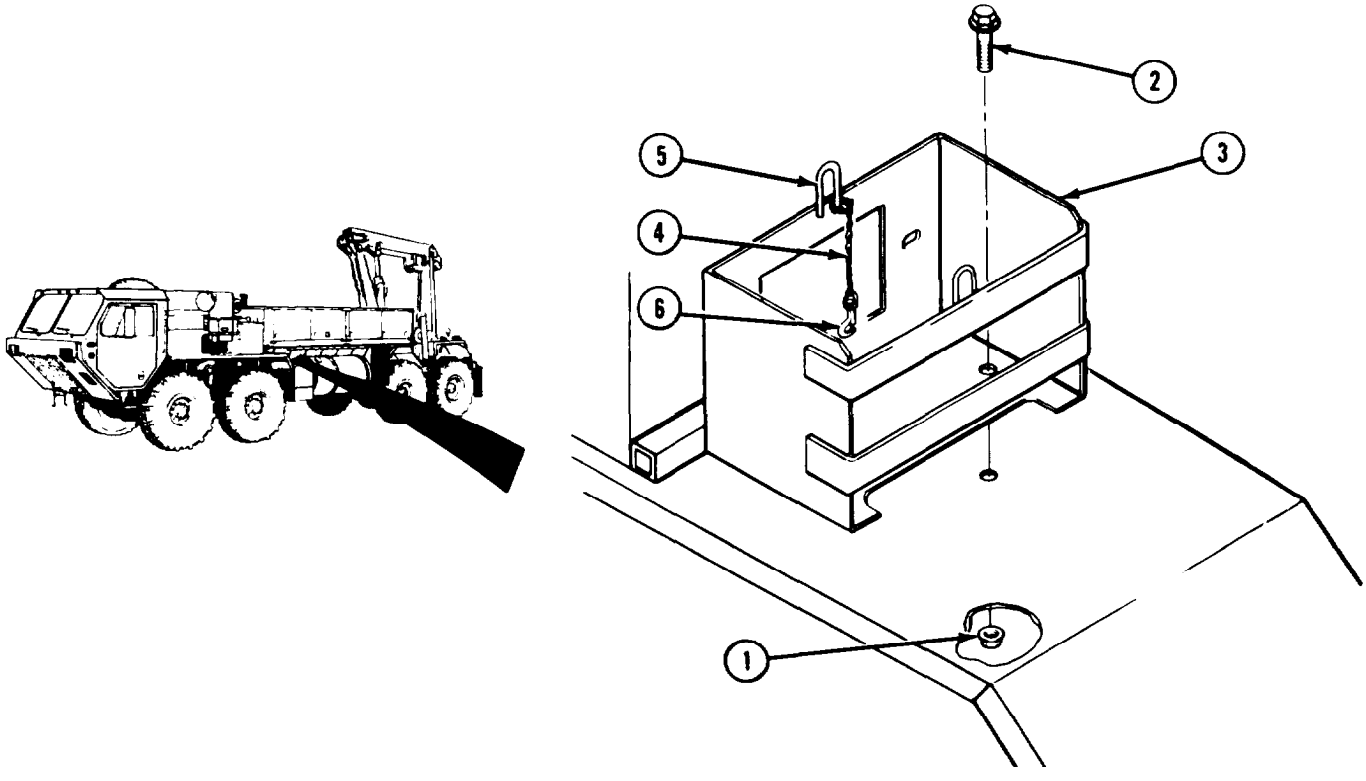
(2) Soldier A guides stowage box (2) into position while Soldier B operates lifting device.

(3) Install four screws (7) and locknuts (8).

(4) Install two clamps (9) with screw (10), spacer (11), washer (12), lockwasher (13), and nut (14).



16-36. STOWAGE BOX REM OVAL/INSTALLATION (M984) (CONT).



e. ***Wheel Chock Stowage Box Removal.***

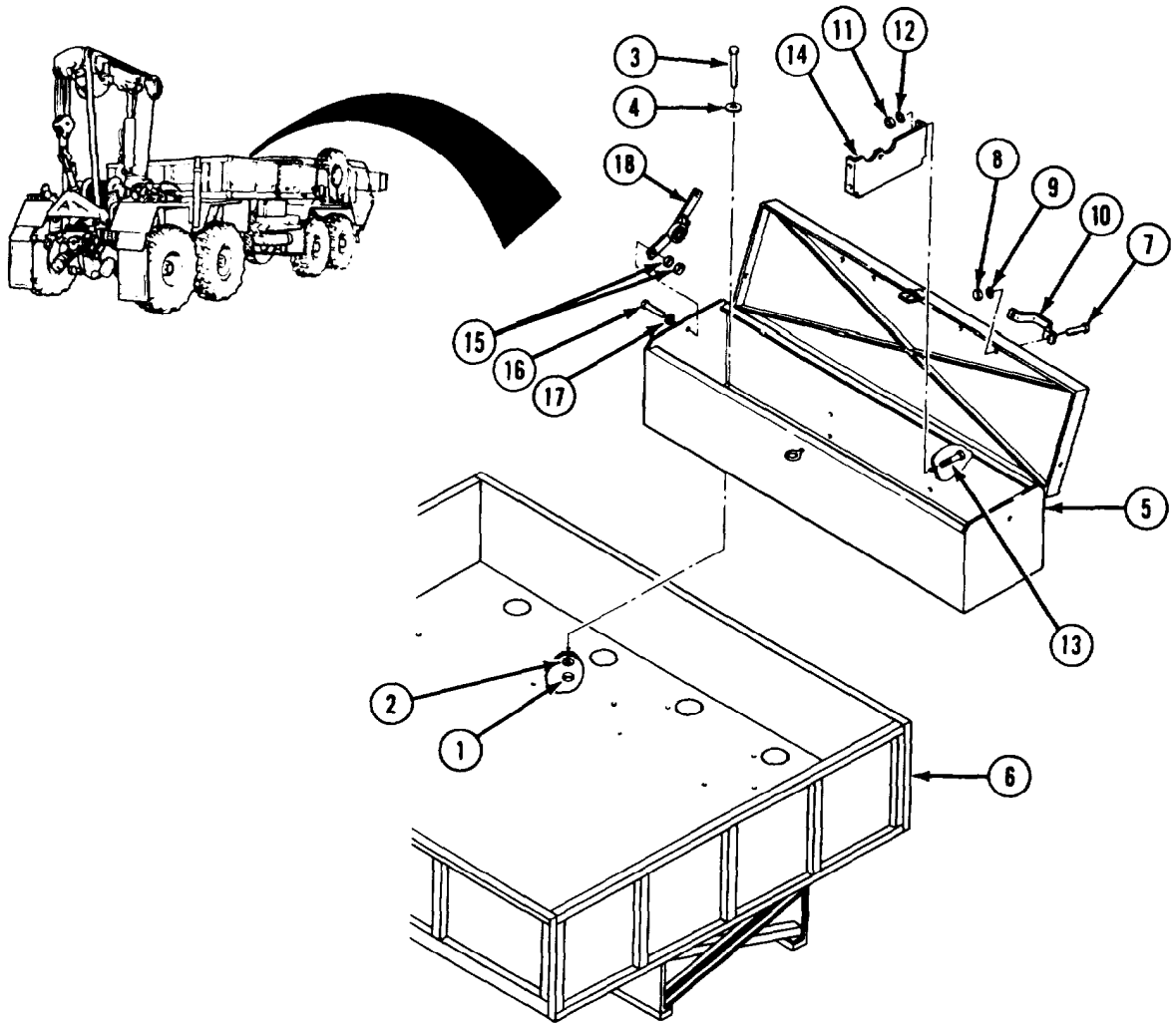
(1) Remove two nuts (1), screws (2), and stowage box (3).
(2) Remove chain (4) from bracket (5) and clip (6).

f. ***Wheel Chock Stowage Box Installation.***

(1) Install chain (4) on clip (6) and bracket (5).
(2) Install stowage box (3) with two screws (2) and nuts (1)

Cab and Body Maintenance Instructions (Cont)

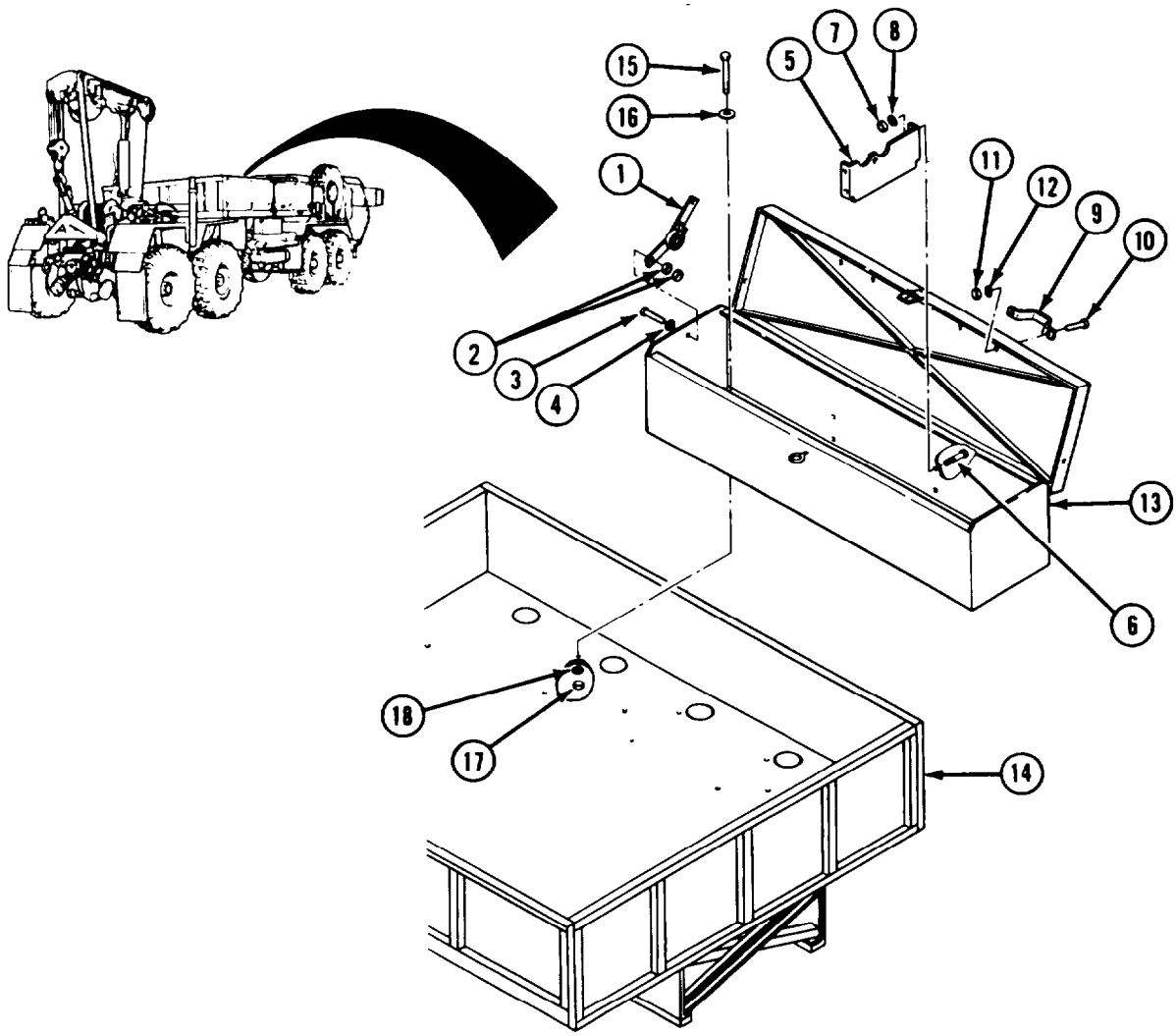
g . Cargo Body Stowage Box Removal.



(1) Soldier A removes eight nuts (1) and washers (2) while Soldier B holds screws (3).
(2) Remove eight screws (3) and washers (4).
(3) Soldier A and Soldier B remove stowage box (5) from cargo body (6).
(4) Remove four screws (7), nuts (8), lockwashers (9), and two grab handles (10).
(5) Remove eight locknuts (11), washers (12), screws (13), and two brackets (14).
(6) Remove eight nuts (15), four screws (16), washers (17), and two spring brackets (18).

16-36. STOWAGE BOX REMOVAL/INSTALLATION (M984) (CONT).

h. Cargo Body* Stowage *Box Installation.



(1) Install two spring brackets (1) with eight nuts (2), four screws (3), and washers (4).
(2) Install two brackets (5) with eight screws (6), locknuts (7), and washers (8).
(3) Install two grab handles (9) with four screws (10), nuts (11), and lockwashers (12).
(4) Soldier A and Soldier B place stowage box (13) onto cargo body (14).
(5) Install eight screws (15) and washers (16).
(6) Soldier A installs eight nuts (17) and washers (18) while Soldier B holds screws (15).

i. Follow-on Maintenance. Install stowage box fire extinguisher mount (para 16-37).

END OF TASK

16-36.1. TOOL STOWAGE BOX REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Shims. Item 44.1, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
Para 16-37	Stowage box fire extinguisher mount removed

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

WARNING

Support stowage box and transfer case when removing. Personal injury could result if box or transfer case falls.

CAUTION

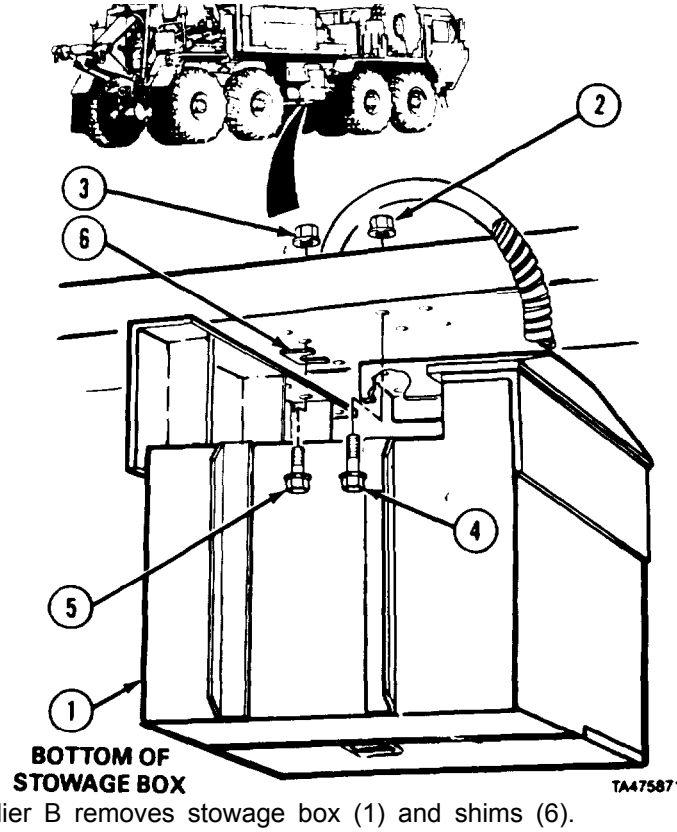
Support transfer case before removing stowage box. Transfer case may fall and cause damage to equipment.

(1) Attach suitable lifting device to box (1).

NOTE

- Some stowage boxes may have shims between box and frame. Note number and location of shims when removing.
- Four longer screws are located on left side of stowage box.

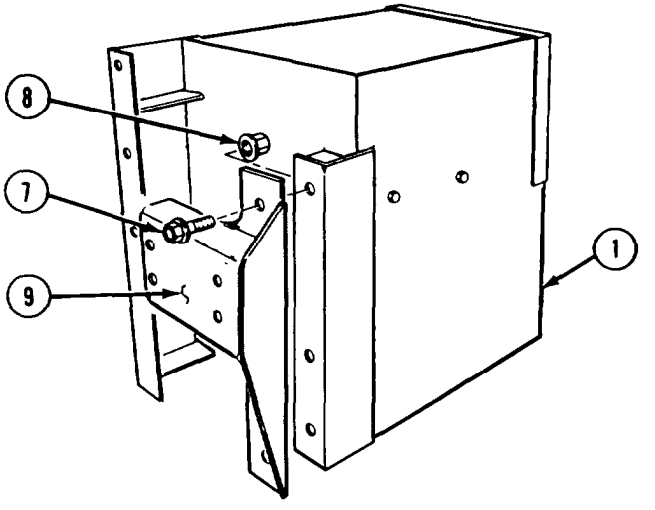
(2) Use lifting device to support stowage box (1).
(3) Soldier A removes four nuts (2) and three nuts (3) while Soldier B removes four screws (4) and three screws (5).



(4) Solder A operates lifting device while Soldier B removes stowage box (1) and shims (6).

16-36.1. TOOL STOWAGE BOX REMOVAL/INSTALLATION (M984E1) (CONT).

(5) Remove three screws (7), nuts (8), and bracket (9) from stowage box (1).



NOTE

Some vehicles have four nuts, lockwashers, washers, and screws. Others have four flanged nuts and screws.

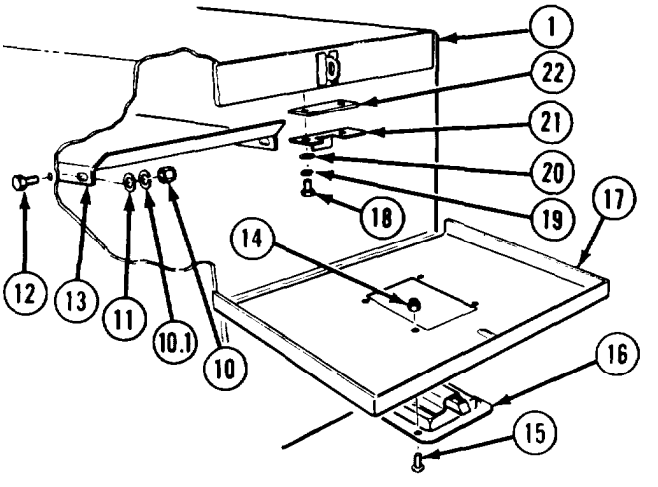
(6) Remove four nuts (10), lockwashers (10.1), washers (11), screws (12), and shelf (13) from stowage box (1).

(7) Remove four locknuts (14), screws (15), and latch (16) from door (17).

NOTE

Not all strikers have shims.

(8) Remove two screws (18), lockwashers (19), washers (20), striker (21), and shim (22) from stowage box (1).



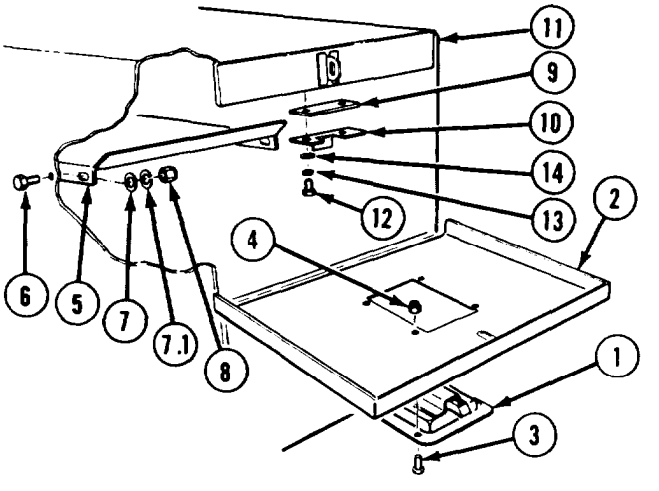
b. Installation.

(1) Install latch (1) on door (2) with four screws (3) and locknuts (4).

NOTE

Some vehicles have four nuts, lockwashers, washers, and screws. Others have four flanged nuts and screws.

(2) Install shelf (5) with four screws (6), washers (7), lockwashers (7.1), and nuts (8).



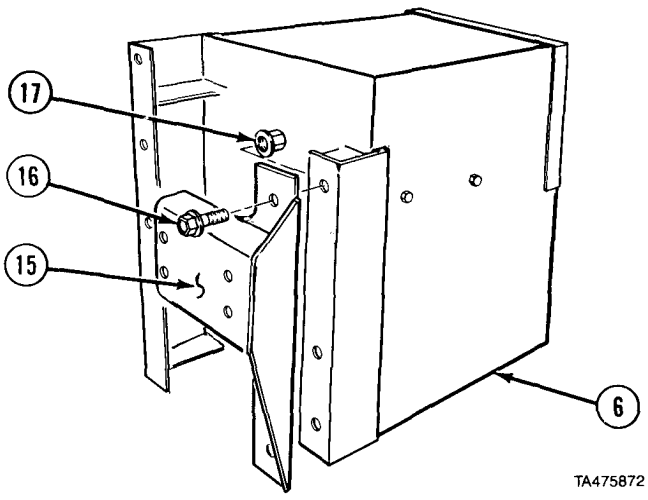
NOTE

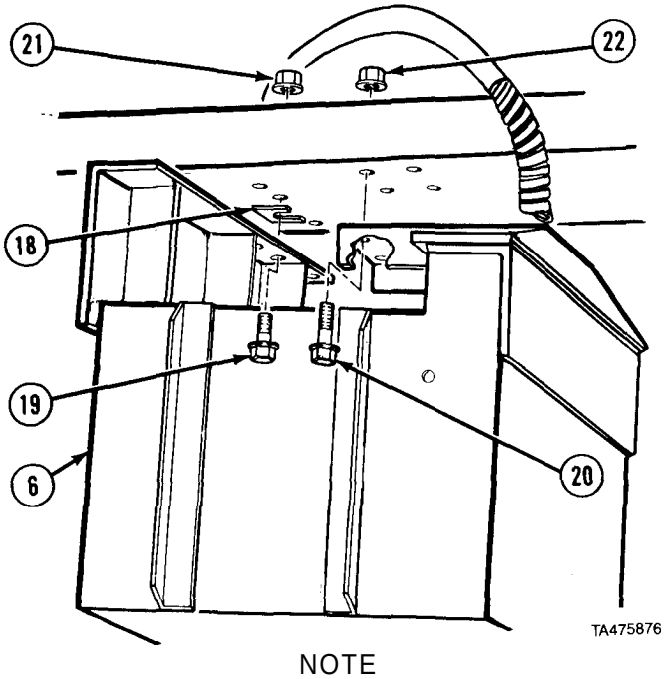
Not all strikers have shims. Shims are used for latch adjustment. Shims may have to be added or removed to obtain correct latch adjustment.

(3) Install shim (9) and striker (10) on stowage box (11) with two screws (12), lockwashers (13), and washers (14).

16-36.1. TOOL STOWAGE BOX REMOVAL/INSTALLATION (M984E1) (CONT).

(4) Install bracket (15) on stowage box (6) with three screws (16) and nuts (17).





NOTE

- It may be necessary to use shims between stowage box and frame.
- Four longer screws are located on left side of stowage box.

(5) Soldier A operates lifting device and guides stowage box (6) while Soldier B aligns stowage box (6) and installs shims (18).

(6) Soldier A installs three screws (19) and four screws (20) while Soldier B installs three nuts (21) and four nuts (22).

(7) Remove lifting device from stowage box (6) and supporting device from transfer case.

c. Follow-on Maintenance. Install stowage box fire extinguisher mount (para 16-37).

END OF TASK

16-37. FIRE EXTINGUISHER MOUNT REMOVAL/INSTALLATION.

This task covers:

a. Cab Fire Extinguisher Mount Removal
b. Cab Fire Extinguisher Mount Installation
c. Stowage Box Fire Extinguisher Mount Removal (M978, M984, M984E1)
d. Stowage Box Fire Extinguisher Mount Installation (M978, M984, M984E1)
e. Battery Box Fire Extinguisher Mount Removal (M978)
f. Battery Box Fire Extinguisher Mount Installation (M978)
g. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

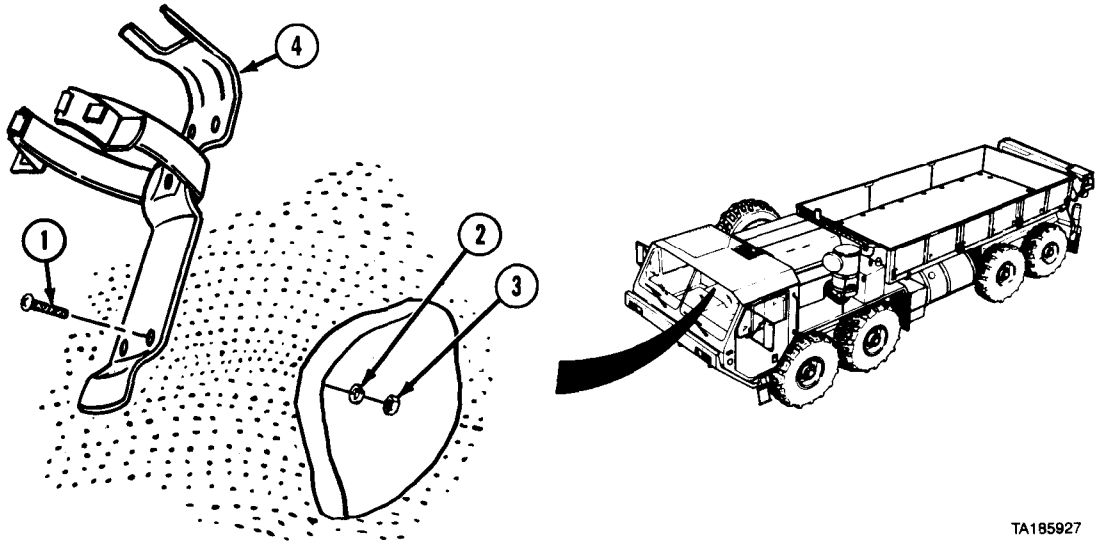
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Fire extinguishers removed (M977, M978, M983, M984E1, M985, M985E1).
TM 9-2320-354-10	Fire extinguisher removed (M984).
TM 9-2320-279-10	Stowage box cover opened.

Special Environmental Conditions
None

General Safety Instructions
None

a. Cab Fire Extinguisher Mount Removal.

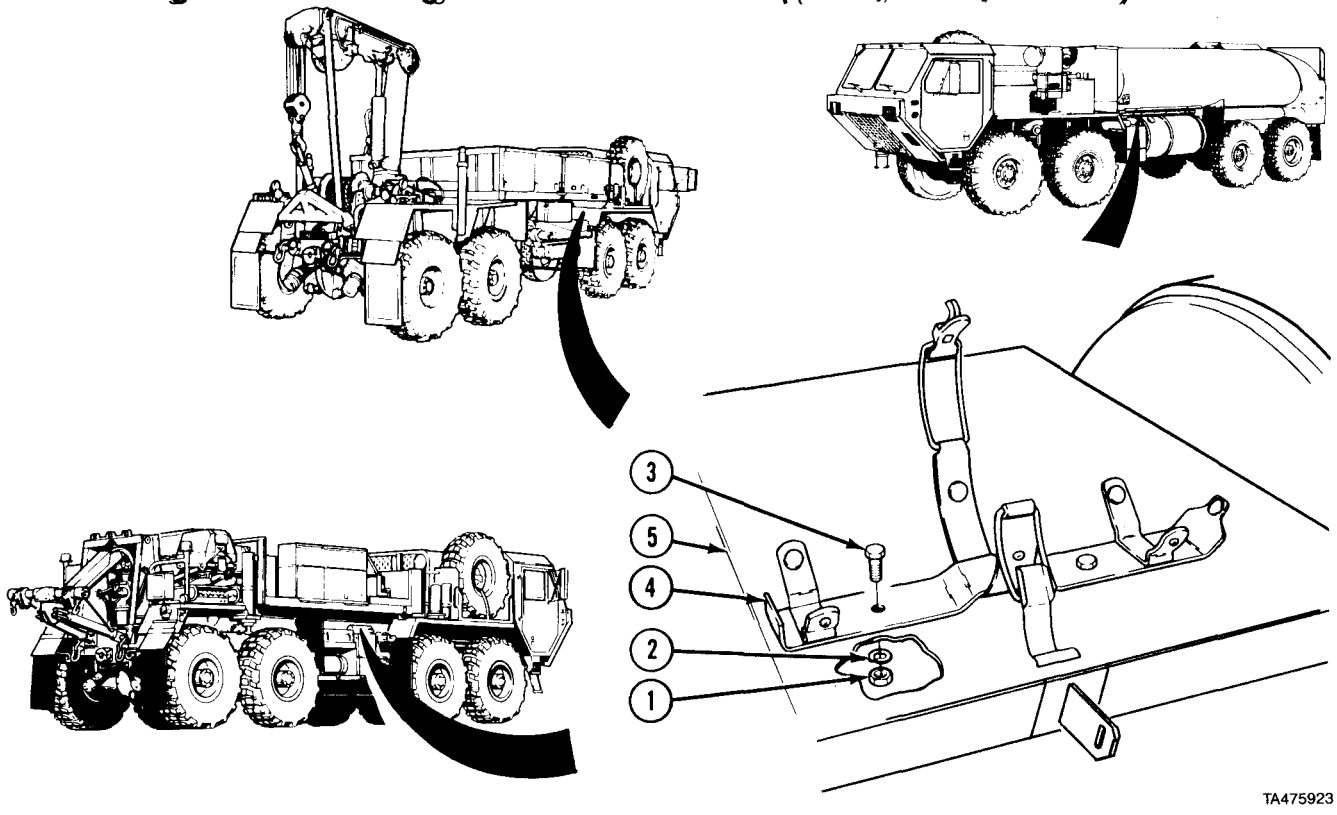


(1) Soldier A removes four screws (1) while Soldier B removes four lockwashers (2) and nuts (3).
(2) Remove fire extinguisher mount (4).

b. Cab Fire Extinguisher Mount Installation.
(1) Position fire extinguisher mount (4).
(2) Soldier A installs four screws (1) while Soldier B holds four lockwashers (2) and nuts (3).

16-37. FIRE EXTINGUISHER MOUNT REMOVAL/INSTALLATION (CONT).

c. Stowage Box Fire Extinguisher Mount Removal (M978, M984, M984E1).

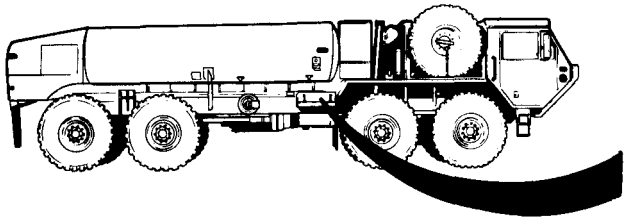


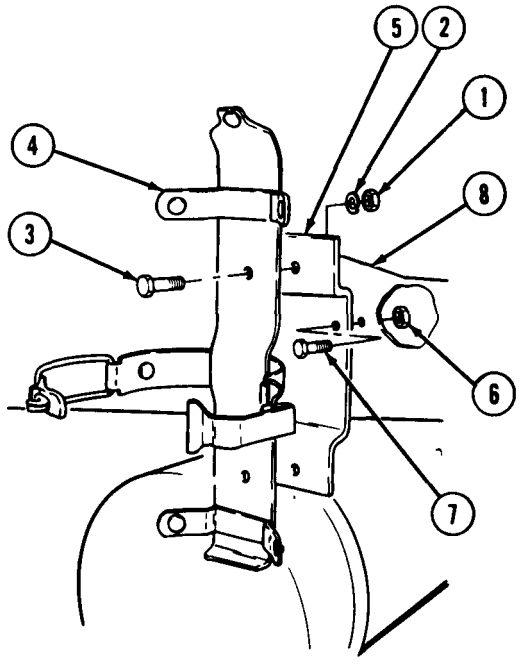
(1) Remove two nuts (1), lockwashers (2), and screws (3).
(2) Remove fire extinguisher mount (4) from stowage box (5).

d. Stowage Box Fire Extinguisher Mount Installation (M978, M984, M984E1).

(1) Position fire extinguisher; mount (4) on stowage box (5).
(2) Install two screws (3), lockwashers (2), and nuts (1).

e. Battery Box Fire Extinguisher Mount Removal (M978).





TA475924

(1) Remove two nuts (1), lockwashers (2), screws (3), and fire extinguisher mount (4) from fire extinguisher bracket (5).

NOTE

If battery box is equipped with insulation, insulation must be moved aside to remove locknuts.

(2) Remove three locknuts (6), screws (7), and fire extinguisher bracket (5) from battery box (8).

f. Battery Box Fire Extinguisher Mount Installation (M978).

NOTE

If battery box is equipped with insulation, insulation must be moved aside to install locknuts.

(1) Install fire extinguisher bracket (5) to battery box (8) with three screws (7) and locknuts (6).
(2) Install fire extinguisher mount (4) to fire extinguisher bracket (5) with two screws (3), lockwashers (2), and nuts (1).

g. Follow-on Maintenance.
(1) Install fire extinguishers (M977, M978, M983, M984E1, M985, M985E1) (TM 9-2320-279-10).
(2) Install fire extinguisher (M984) (TM 9-2320-354-10).
(3) Close stowage box cover (TM 9-2320-279-10).

END OF TASK

16-37.1. VISE, VISE MOUNT AND VISE SUPPORT REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

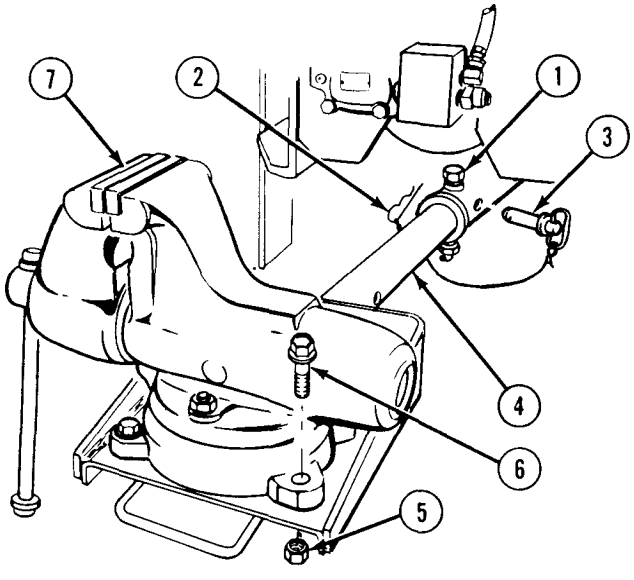
Equipment Condition

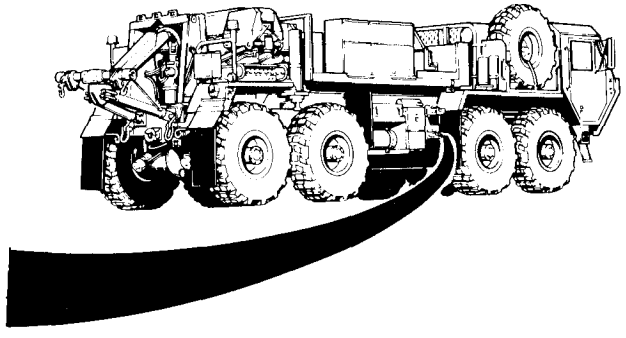
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

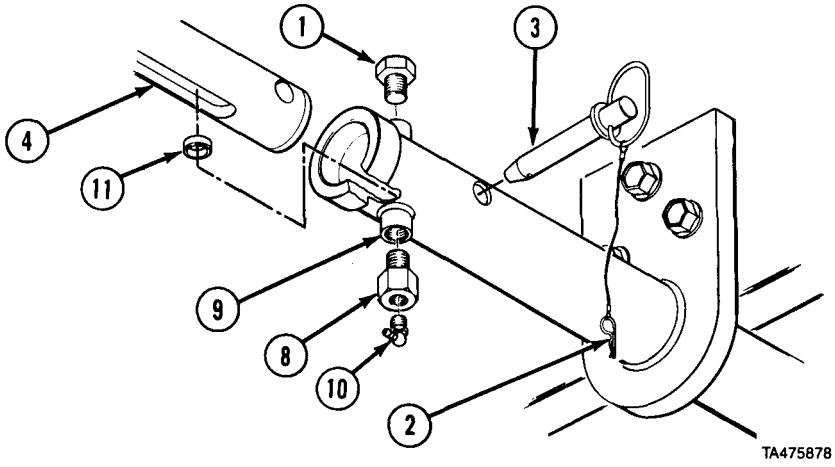




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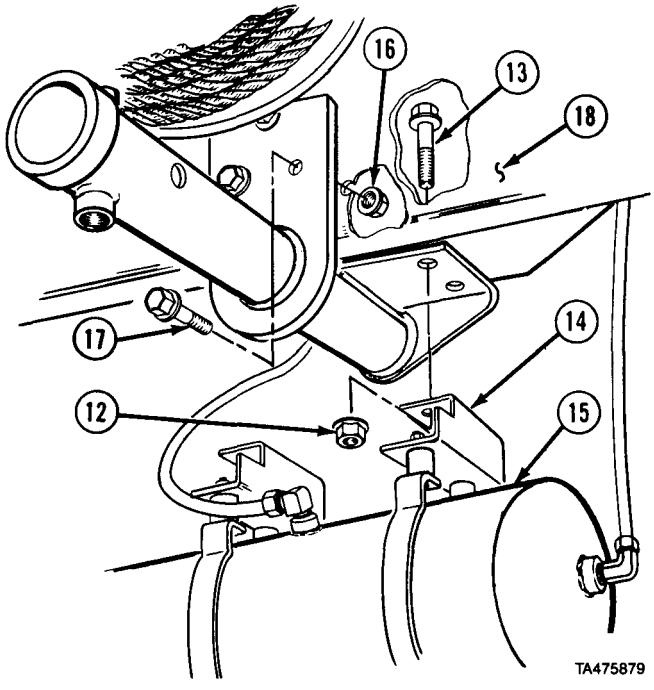
(1) Loosen screw (1).
(2) Remove lockpin (2) and pin (3).
(3) Pull vise arm (4) out to operational position.
(4) Install pin (3) with lockpin (2).
(5) Tighten screw (1).
(6) Remove four locknuts (5), screws (6), and vise (7) from vise arm (4).

Cab and Body Maintenance Instructions (Cont)



(7) Remove screw (1).
(8) Remove pin guide (8) from vise support (9).
(9) Remove grease fitting (10) from pin guide (8).
(10) Remove lockpin (2) and pin (3).
(11) Remove vise arm (4) from vise support (9).
(12) Remove roller (11) from vise arm (4).

(13) Remove four nuts (12) and screws (13) from two brackets (14).
(14) Lower air reservoir tank (15) out of way.
(15) Remove three nuts (16), screws (17), and vise support (9) from frame rail (18).

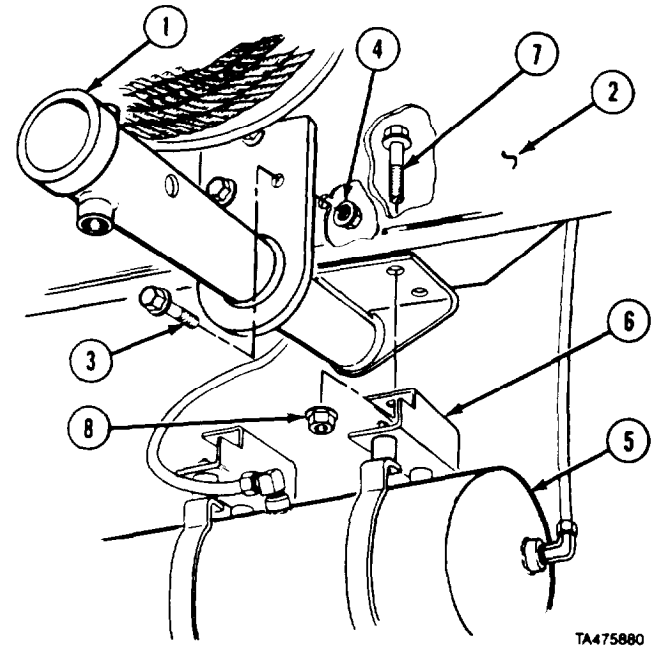


16-37.1. VISE, VISE MOUNT AND VISE SUPPORT REMOVAL/INSTALLATION (M984E1) (CONT).

b. Installation.

(1) Install vise support (1) on frame rail (2) with three screws (3) and nuts (4).

(2) Install air reservoir tank (5) vise support (1), and two brackets (6) with four screws (7) and nuts (8).



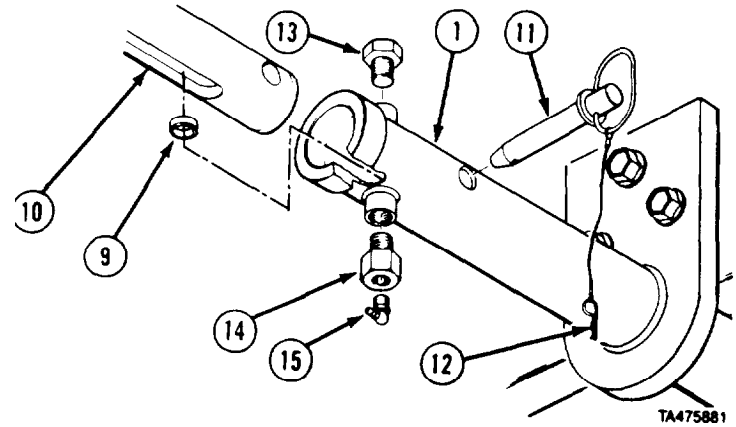
(3) Install roller (9) in vise arm (10).

(4) Install vise arm (10) in vise support with pin (11) and lockpin (12).

(5) Install screw (13).

(6) Aline pin guide (14) and install in roller (9) and vise arm (10).

(7) Install grease fitting (15) in pin guide (14).



(8) Install vise (16) on vise arm (10) with four screws (17) and locknuts (18).

(9) Loosen screw (13).

(10) Remove lockpin (12) and pin (11).

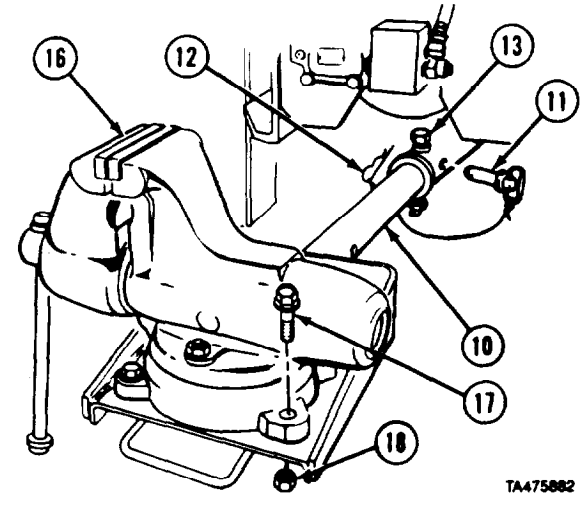
(11) Push vise arm (10) into stowed position.

(12) Install pin (11) and lockpin (12).

(13) Tighten screw (13).

c. follow-on Maintenance. None.

END OF TASK



Section VI. CABLE REELS AND HOSE REELS

16-38. STATIC GROUND REEL REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
Grease, electrical, Item 23.1, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

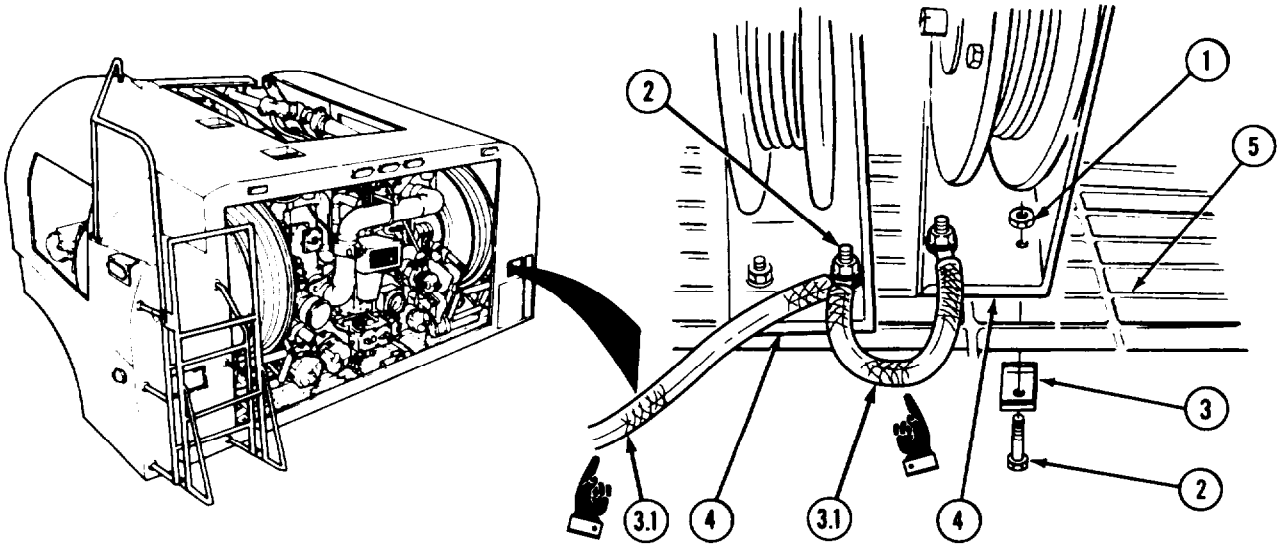
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Pump module rear access doors opened.
Para 16-48	Pump module right side access panel removed.
Para 16-20	Right rear mudflap and bracket removed.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

a. Removal.



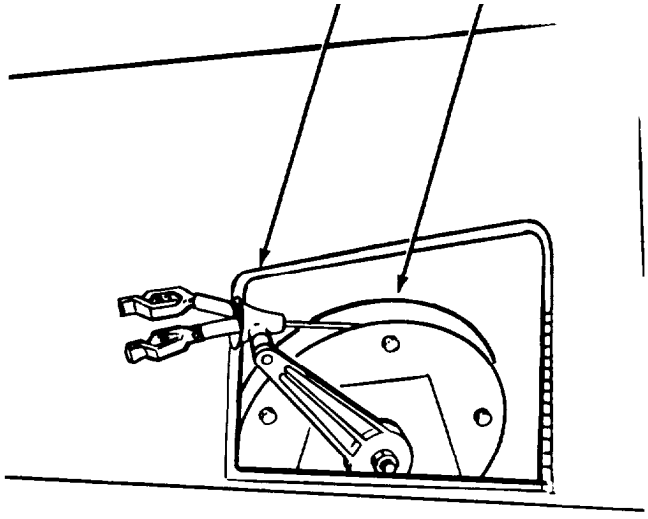
NOTE

Both cable reels are removed the same way. Mark position of reels.

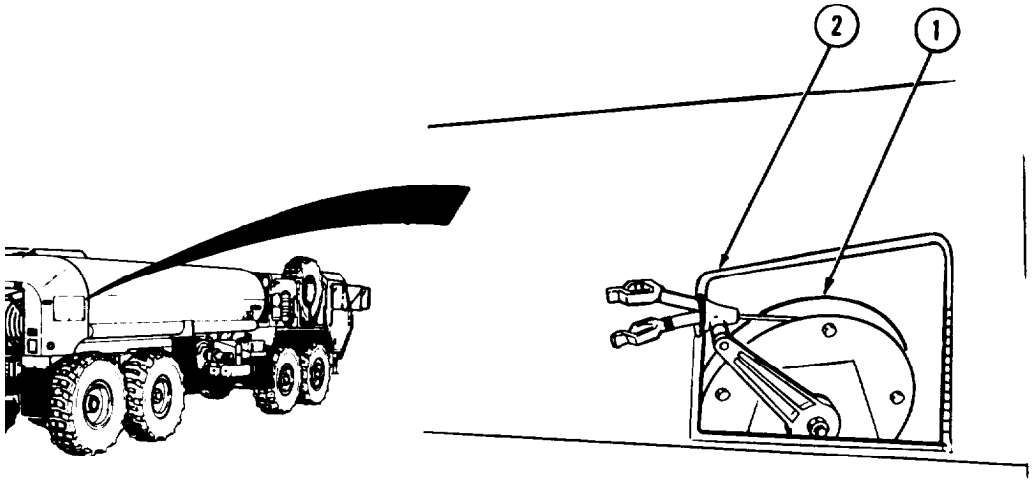
(1) Soldier A holds and removes four locknuts (1) while Soldier B removes four Screws (2) and mounting clamps (3) and two ground straps (3.1) from cable reel (4) and grating (5).

Cab and Body Maintenance Instructions (Cont)

(2) Remove cable reel (4) through right access hole (6).



b. Installation.



NOTE

- Both cable reels are installed the same way.
- Coat all ground strap mounting hardware with a nonconductive, noncorrosive grease.

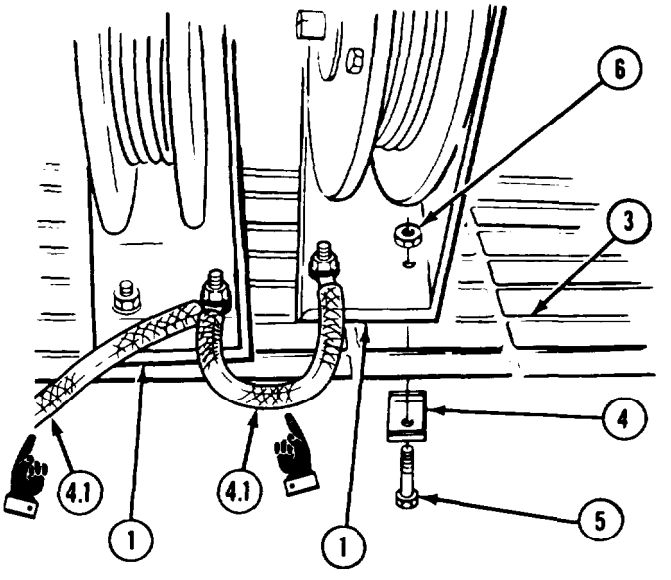
(1) Install cable reel (1) through right access hole (2).

16-38. STATIC GROUND REEL REMOVAL/INSTALLATION (M978) (CONT).

(2) Soldier A installs cable reel (1) on grating (3) with four mounting clamps (4), two ground straps (4.1), and four screws (5) while Soldier B holds and installs locknuts (6).

c. Follow-on Maintenance.

(1) Install pump module right side access panel (para 16-48).
(2) Install right rear mudflap and bracket (para 16-20).
(3) Check operation of static ground cables (TM 9-2320-279-10).
(4) Close pump module rear doors (TM 9-2320-279-10).



END OF TASK

16-39. HOSE REEL ROLLER ASSEMBLY REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Pump module rear access doors open.
Para 25-38	V2 valve dust cap removed.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

Cab and Body Maintenance Instructions (Cont)

a. Removal.

NOTE

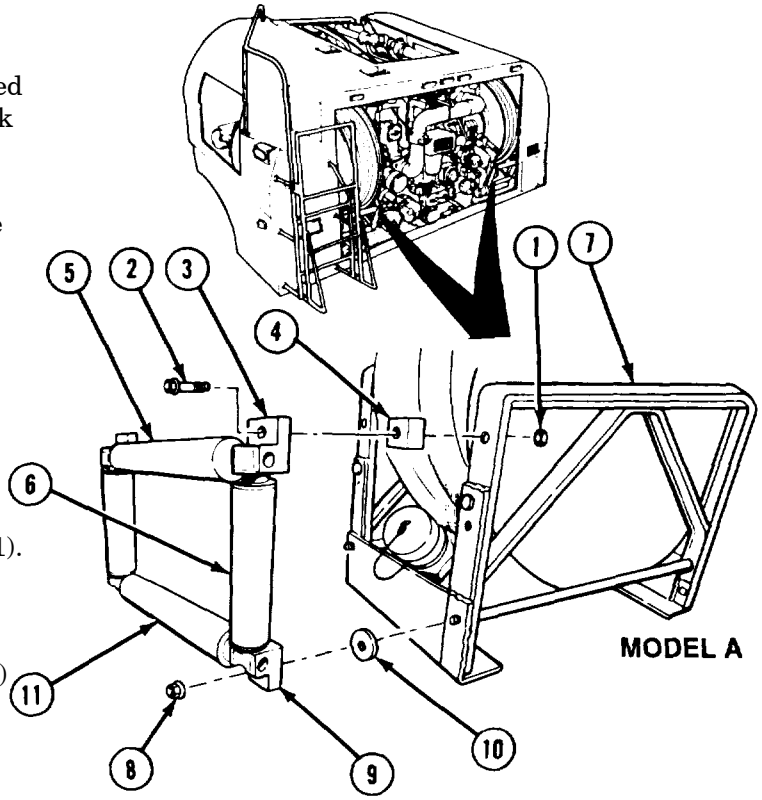
- Both roller assemblies are removed and installed the same way. Mark position of rollers and brackets.
- Model B has a rubber tiedown strap to secure fuel service nozzle in stowage position. Do steps *(1)* and *(2)* for Model A. Do steps *(1.1)*, *(1.2)*, and *(2)* for Model B.

(1) Remove two locknuts (1), screws (2), brackets (3), spacers (4), long roller (5), and two short rollers (6) from frame (7).

(1.1) Remove rubber tiedown strap (7.1).

(1.2) Remove two locknuts (7.2), nuts (7.2.1), eyebolts (7.3), brackets (3), spacers (4), long roller (5), and two short rollers (6) from frame (7).

(2) Remove two locknuts (8), brackets (9), washers (10), and long roller (11).



b. Installation.

NOTE

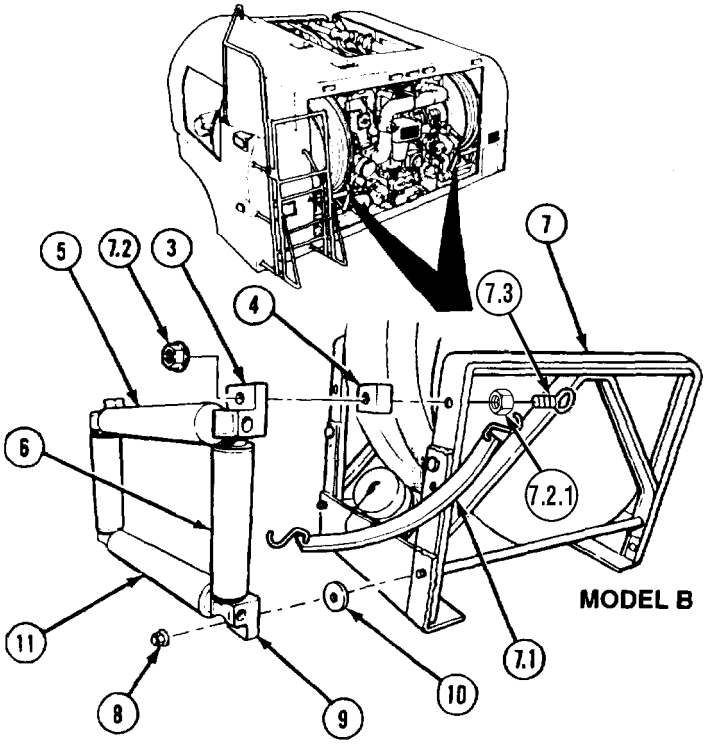
Do steps *(1)* and *(2)* for Model A. Do steps *(1)*, *(2.1)*, and *(2.2)* for Model B.

(1) Install two washers (10), long roller (11), and two brackets (9) on frame (7) with two locknuts (8).

(2) Install two spacers (4), two short rollers (6), long roller (5), and two brackets (3) with two screws (2) and locknuts (1).

(2.1) Install two spacers (4), two short rollers (6), long roller (5), and two brackets (3) with two eye bolts (7.3), nuts (7.2.1), and locknuts (7.2).

(2.2) Install rubber tiedown strap (7.1) between eye bolts (7.3) to secure fuel service nozzle in stowage position.



c. Follow-on Maintenance.

(1) Install V2 dust cap (para 25-38).

(2) Close pump module rear access doors (TM 9-2320-279-10).

END OF TASK

16-40. H1 AND H2 REELS REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
Solvent, drycleaning, Item 47, Appendix C
Adhesive-sealant, silicone, Item 4, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

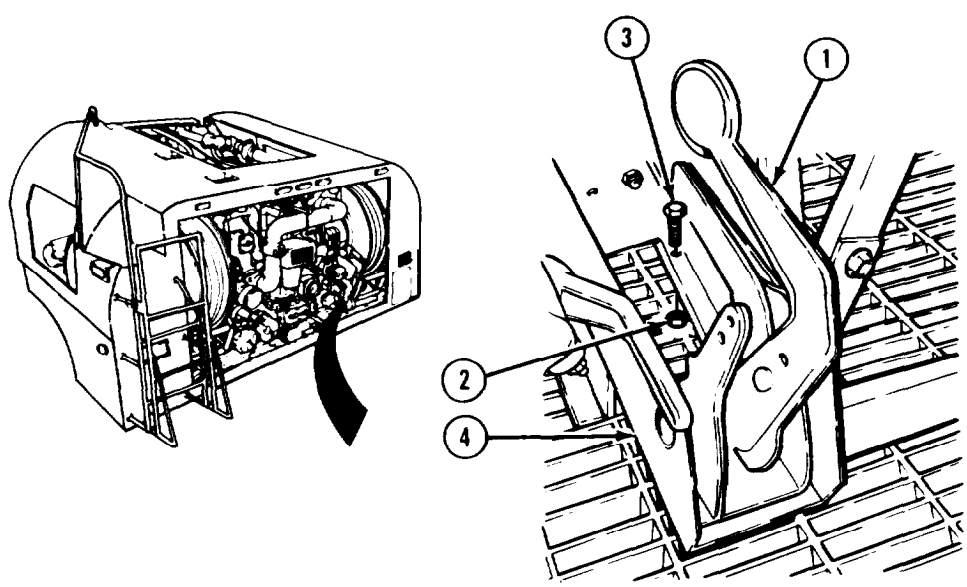
Equipment Condition

TM or Para	*Condition Description*
Para 18-15	Fuel transfer hose removed.
Para 16-39	Roller assembly removed.

Special Environmental Conditions
None

General Safely Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

a. Removal.

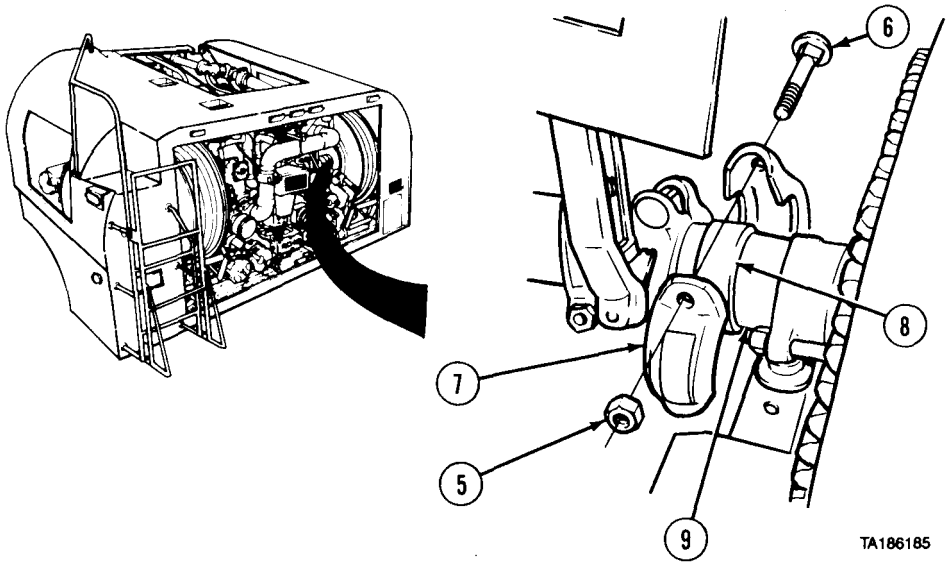


NOTE

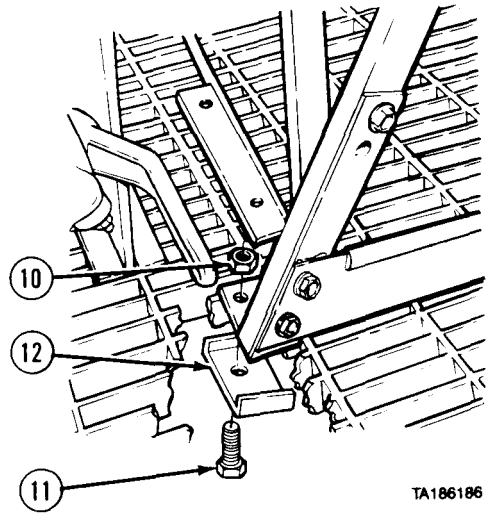
Both fuel hose reels are removed the same way. MC MANUAL CONTROL EM VALVE is on right side only.

(1) Make sure MC MANUAL CONTROL EM VALVE LEVER (1) is full forward and down.
(2) Remove two locknuts (2), screws (3), and move bracket (4) out of way.

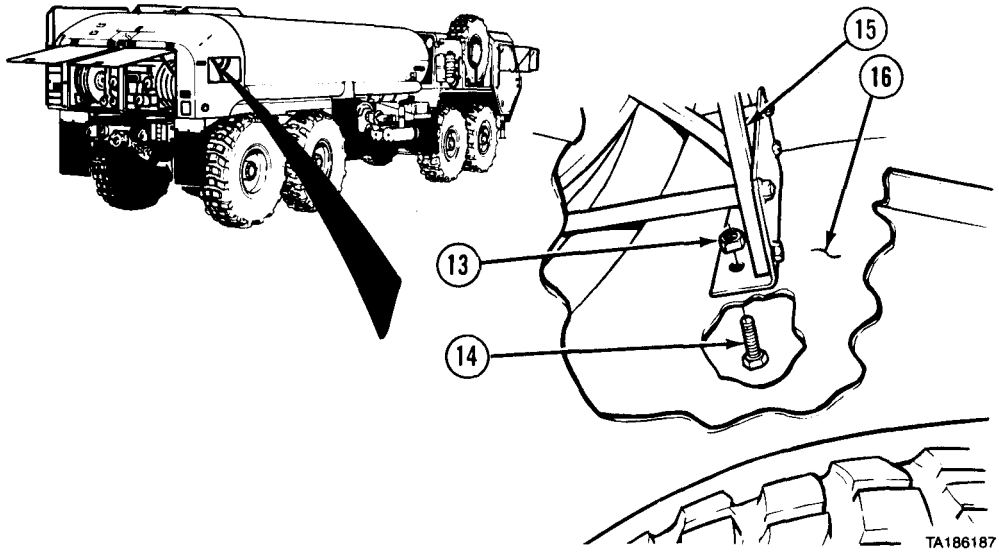
16-40. H1 AND H2 REELS REMOVAL/INSTALLATION (M978) (CONT).



(3) Remove two nuts (5), screws (6), and coupling halves (7).
(4) Push coupling gasket (8) back on pipe (9).



(5) Soldier A holds and removes two locknuts (10) while Soldier B removes two screws (11) and two mounting plates (12).



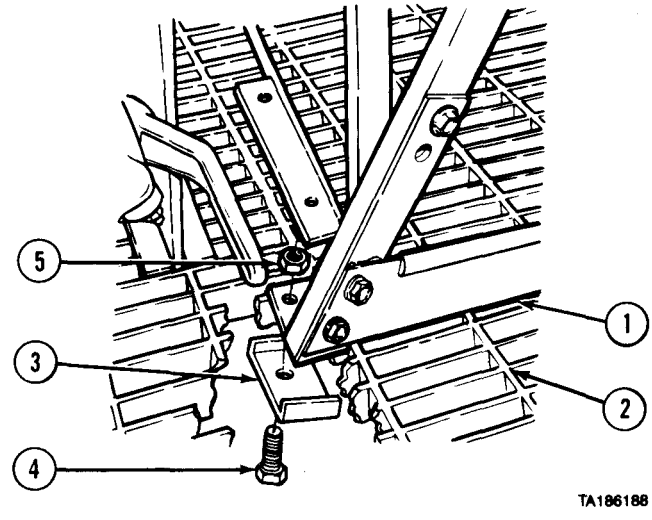
(6) Soldier A holds and removes two locknuts (13) while Soldier B removes two screws (14) from hose reel (15) and wheel well (16).
(7) Soldier A and Soldier B remove hose reel (15).

b. Installation.

NOTE

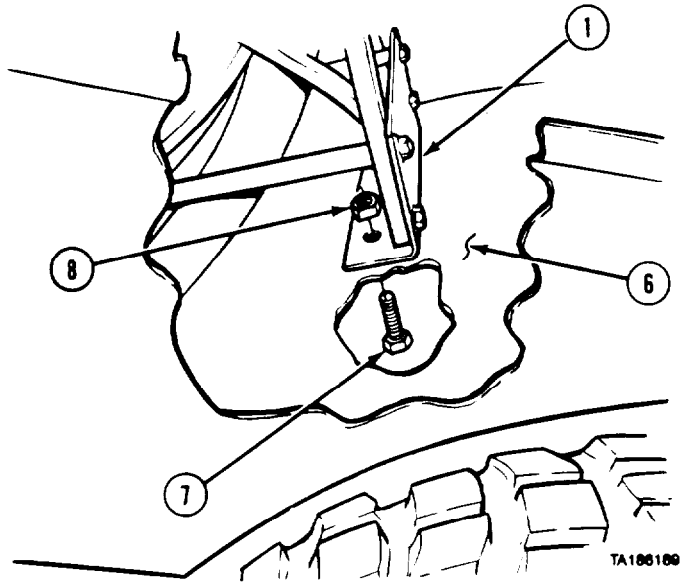
Both fuel hose reels are installed the same way. MC MANUAL CONTROL EM VALVE is on right side only.

(1) Soldier A and Soldier B position hose reel (1) in pump module (2).
(2) Install two mounting plates (3) with screws (4) and locknuts (5). Do not tighten.



16.40. H1 AND H2 REELS REMOVAL/INSTALLATION (M978) (CONT).

(3) Install rear of hose reel (1) in wheel well (6) with two screws (7) and locknuts (8). Do not tighten.

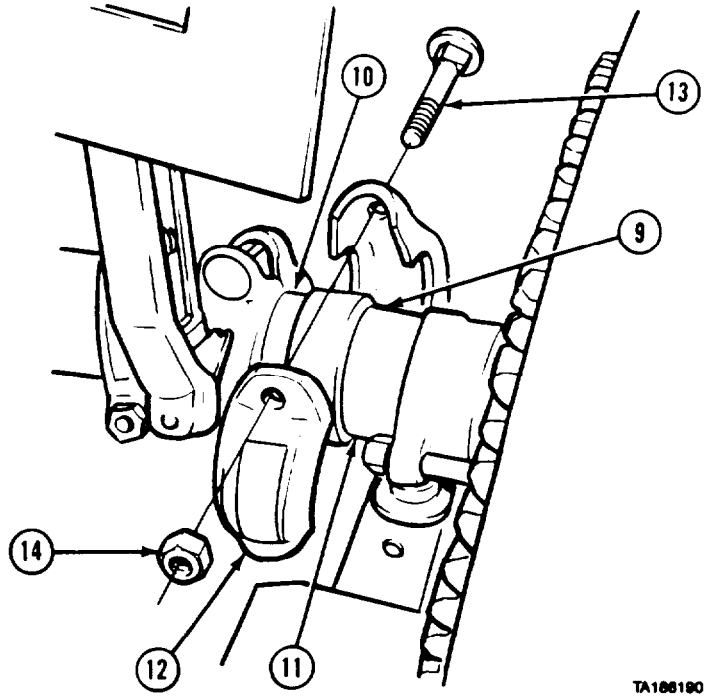


CAUTION

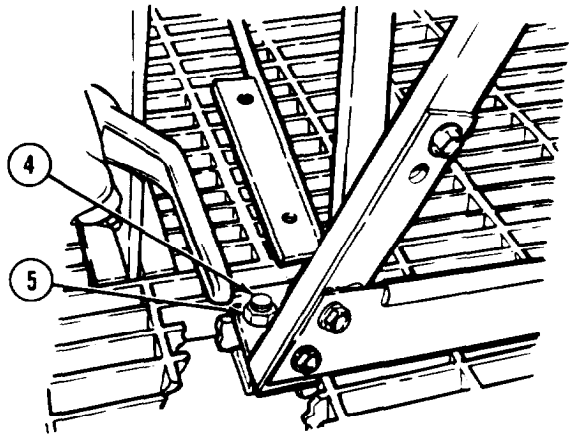
Do not pinch or pull coupling gaskets off-center while installing coupling halves. If coupling gaskets are damaged or moved out of position, piping connections will leak.

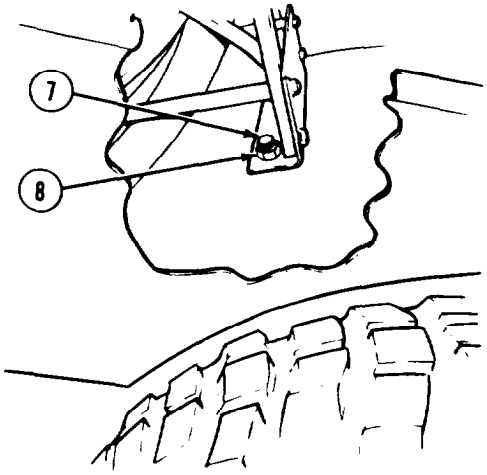
(4) Install coupling gasket (9) over pipes (10 and 11).

(5) Install coupling halves (12), two screws (13), and nuts (14).

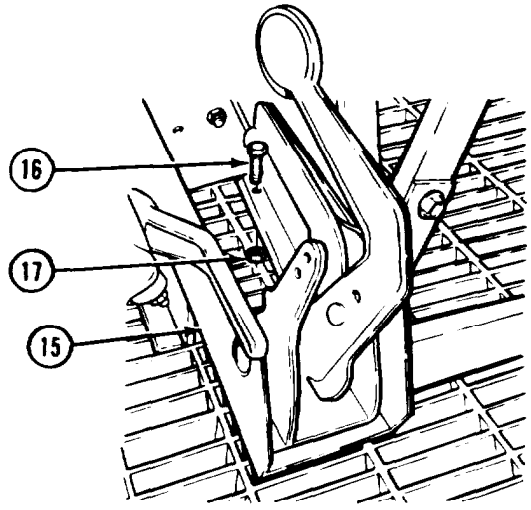


16-40. H1 AND H2 REELS REMOVAL/INSTALLATION (M978) (CONT).





(6) Tighten two screws (4 and 7) and locknuts (5 and 8) to 15 to 25 lb-ft (20.34 to 33.89 N•m).



(7) Install bracket (15) with two screws (16) and locknuts (17).

C. ***Follow-on Maintenance.***

(1) Install fuel transfer hose (para 18-15).
(2) Install roller assembly (para 16-39).
(3) Check fuel transfer hose and reel for proper operation and fuel leaks (TM 9-2320-279-10).

END OF TASK

16-41. HAV HAND ACTUATED CONTROL VALVE HOSE REEL INLET AIRHOSE REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, lubricating, Item 17, Appendix C
Ties, cable, plastic, Item 52, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

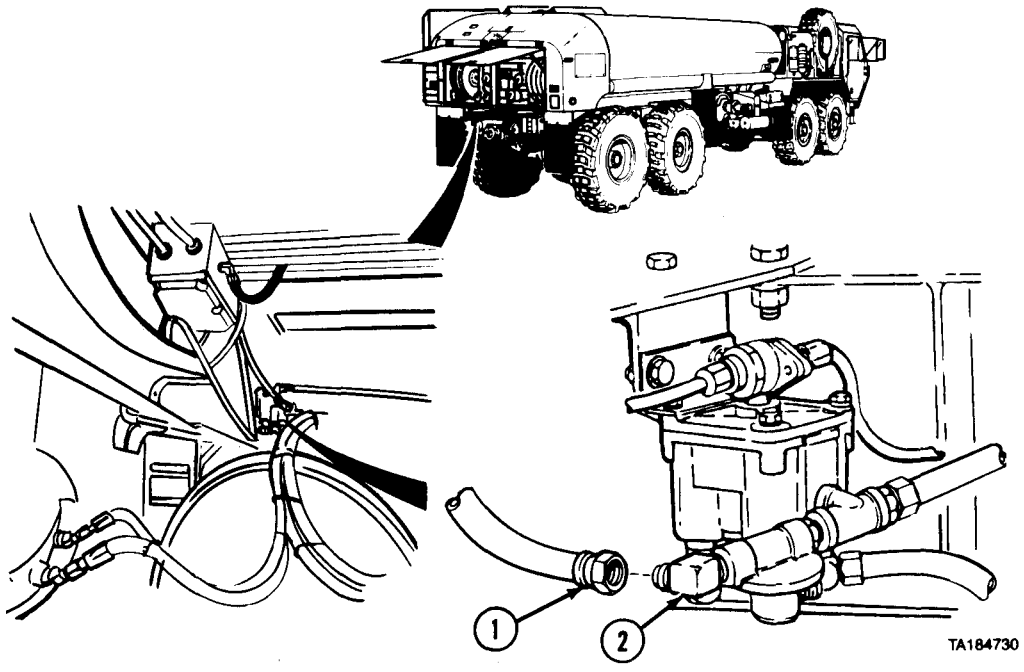
TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
TM 9-2320-279-10	Pump module rear access doors opened.
Para 16-48	Pump module left side access panel removed.
Para 16-20	Left rear mud flap bracket removed.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

Cab and Body Maintenance Instructions (Cont)

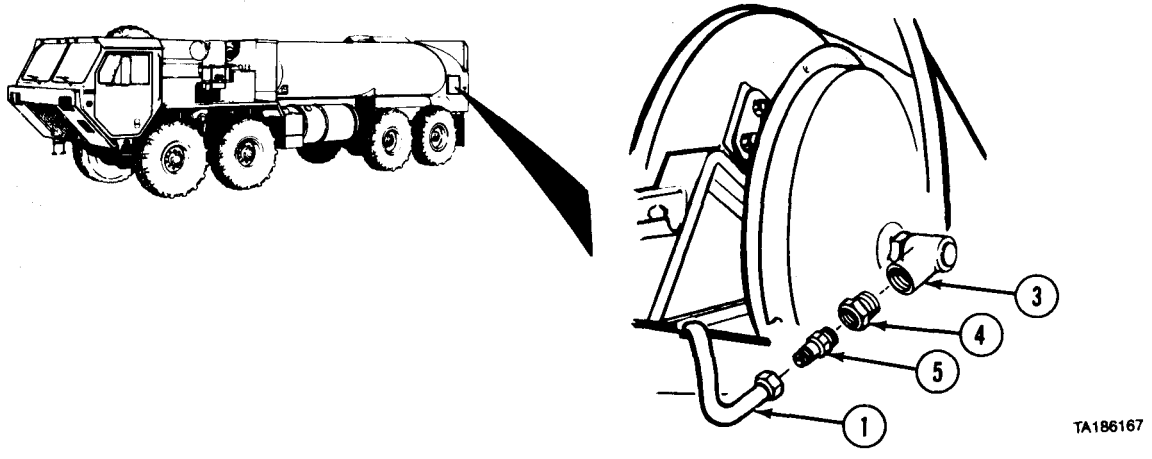
a. Removal.



NOTE

Tag and mark fittings before removal.

(1) Remove hose (1) from elbow (2).



NOTE

Remove all plastic cable ties as necessary.

(2) Remove hose (1) from swivel fitting (3).
(3) Remove fitting (4) and fitting (5) from hose (1).

16-41. HAV HAND ACTUATED CONTROL VALVE HOSE REEL INLET AIRHOSE REMOVAL/INSTALLATION (M978) (CONT).

b. Installation.

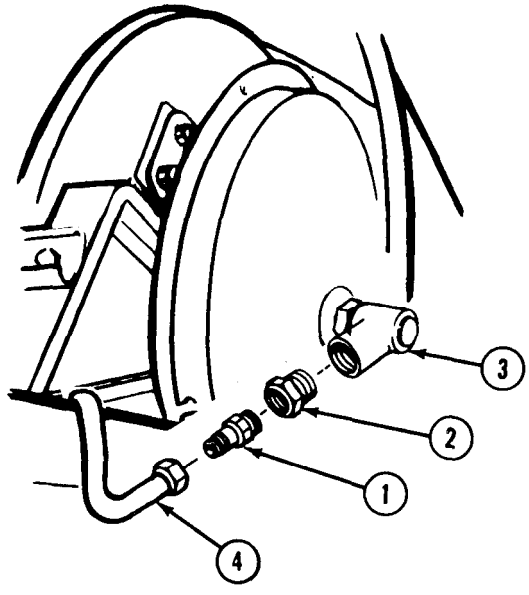
WARNING

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

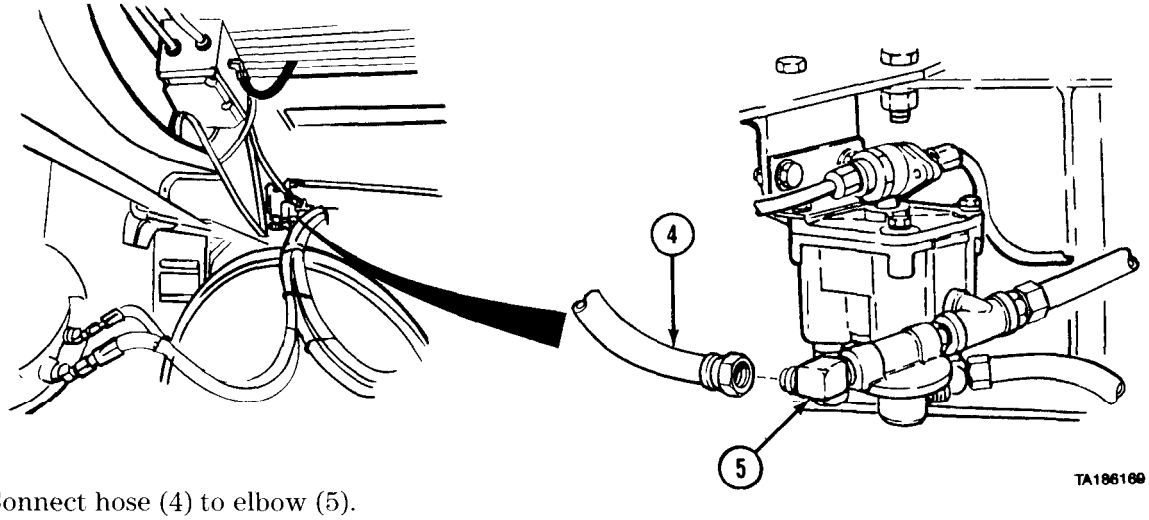
NOTE

Replace plastic cable ties as needed.

(1) Apply lubricating sealing compound to threads of fitting (1) and fitting (2) and install in swivel fitting (3).
(2) Connect hose (4) at swivel fitting (3).



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(3) Connect hose (4) to elbow (5).

c. Follow-on Maintenance.
(1) Start engine and build up air pressure (TM 9-2320-279-10).
(2) Prepare tanker for operation (TM 9-2320-279-10).
(3) Recirculate fuel (TM 9-2320-279-10).
(4) Inspect inlet hose for air leaks and proper operation.
(5) Install left rear mud flap bracket (para 16-20).
(6) Install left side pump module access panel (para 16-48).
(7) Close pump module rear access doors (TM 9-2320-279-10).

END OF TASK

16-42. HAV HAND ACTUATED CONTROL VALVE HOSE REEL OUTLET AIRHOSE REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, lubricating, Item 17, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

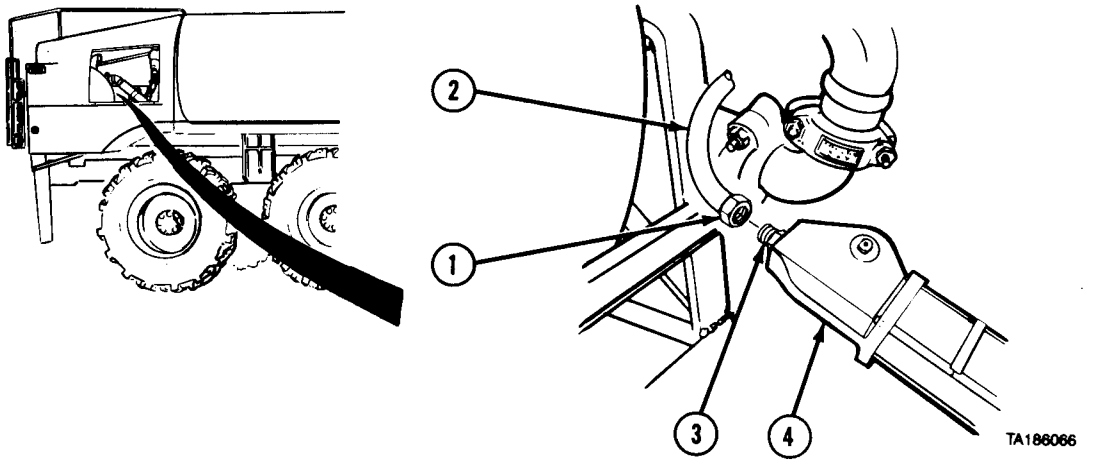
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Air system drained.
Para 16-48	Pump module side access panels removed.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

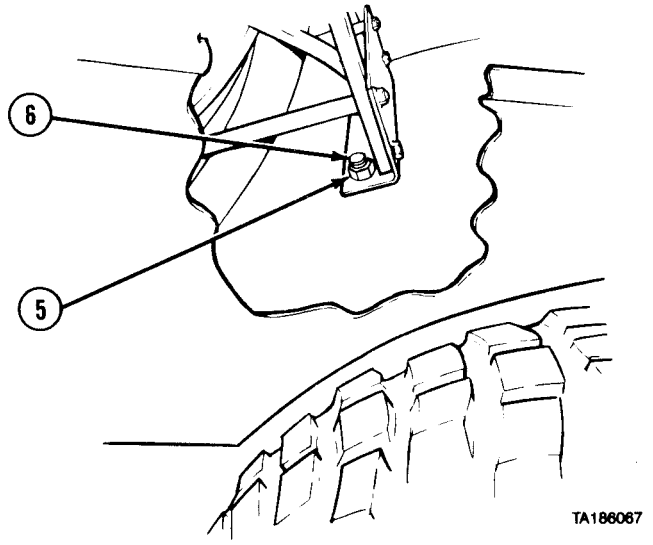
a. Removal.



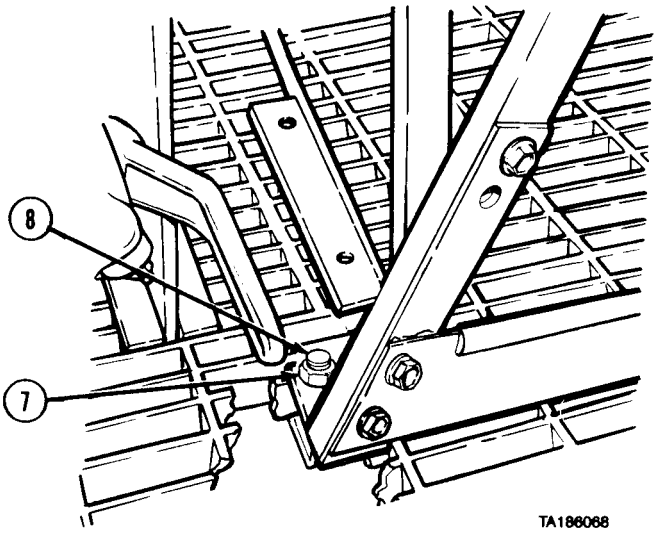
(1) Disconnect fitting (1) and remove hose (2) from fitting (3).
(2) Remove fitting (3) from pneumatic actuator (4).

16-42. HAV HAND ACTUATED CONTROL VALVE HOSE REEL OUTLET AIRHOSE REMOVAL/INSTALLATION (M978) (CONT).

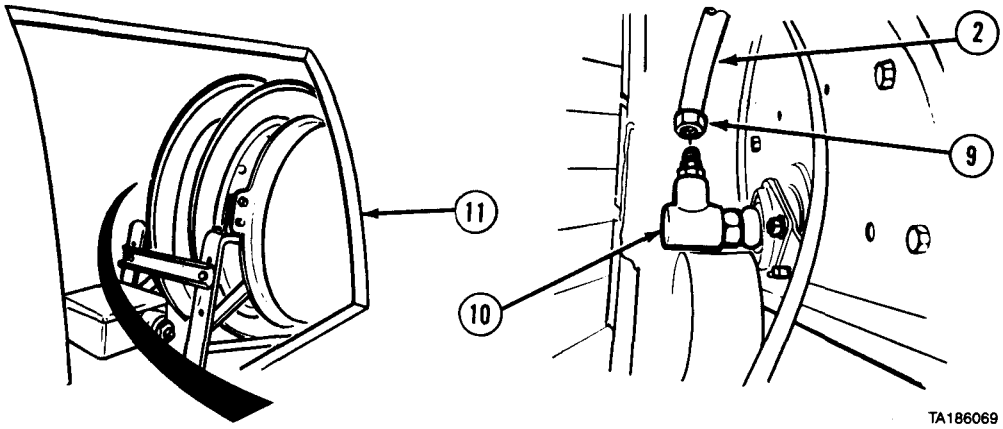
(3) Loosen two nuts (5) and screws (6).



(4) Loosen two nuts (7) and screws (8).

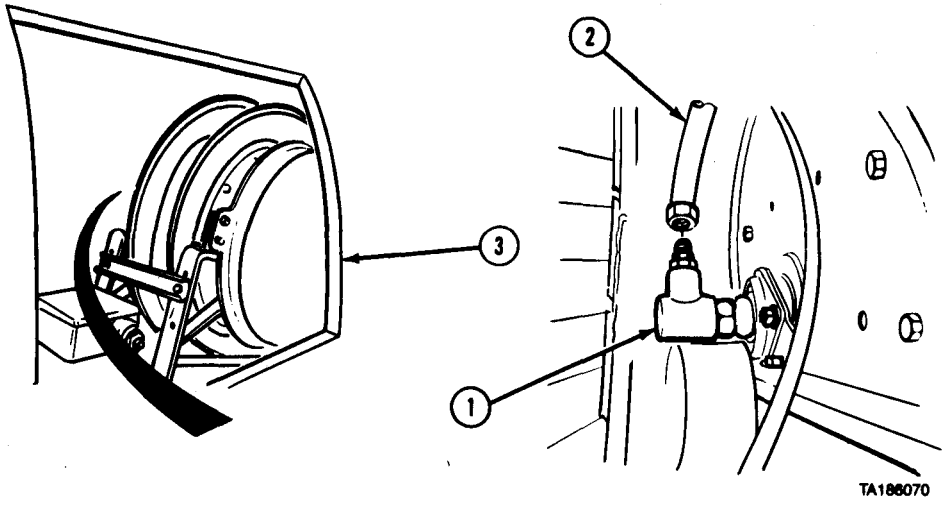


Cab and Body Maintenance Instructions (Cont)



(5) Disconnect fitting (9) and remove hose (2) from swivel fitting (10).
(6) Remove hose (2) from pump module (11).

b. Installation.



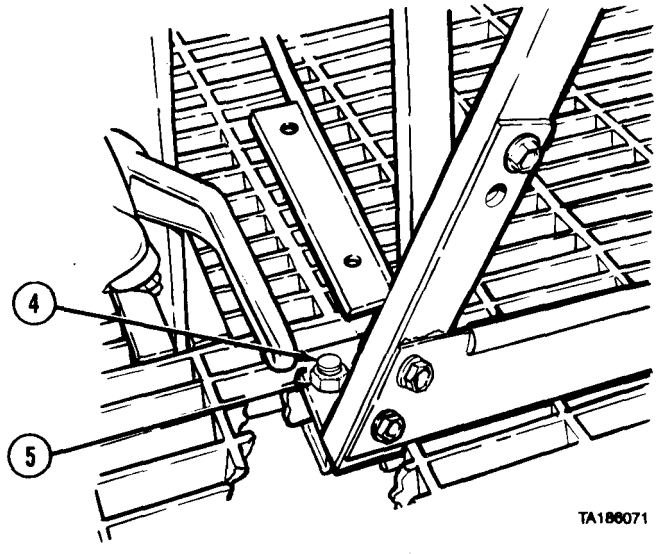
WARNING

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

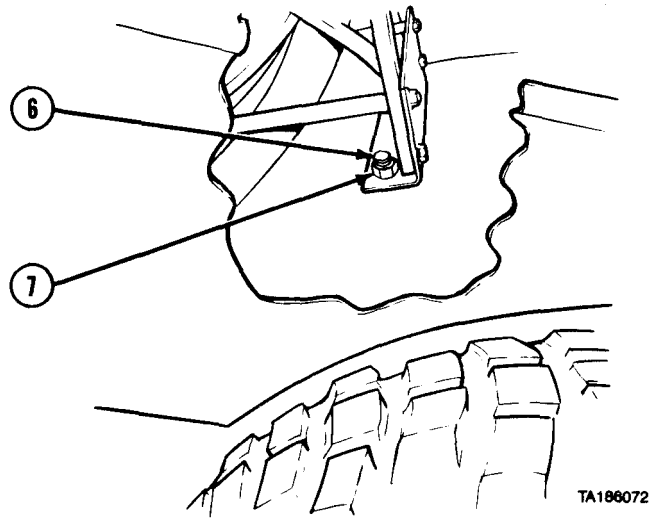
(1) Apply lubricating sealing compound to threads of swivel fitting (1).
(2) Position hose (2) on pump module (3) and connect at fitting (1).

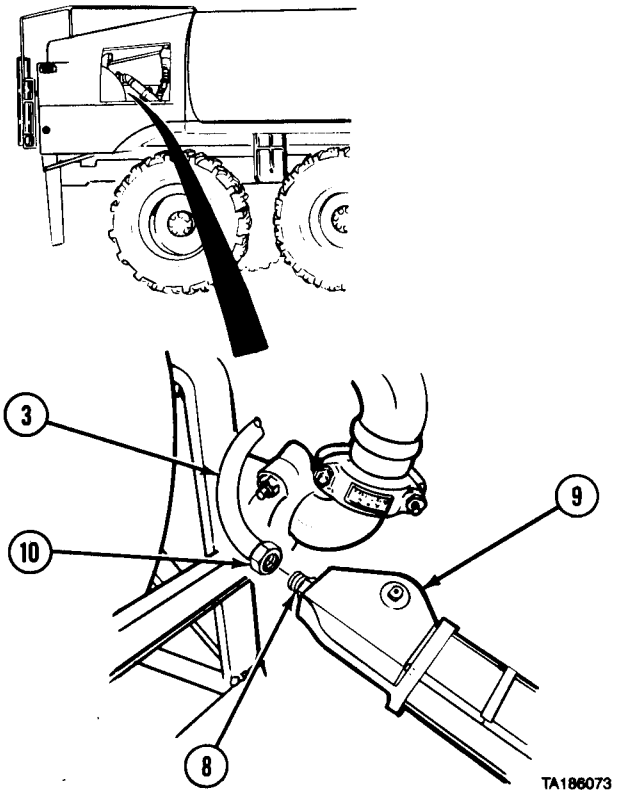
16-42. HAV HAND ACTUATED CONTROL VALVE HOSE REEL OUTLET AIRHOSE REMOVAL/INSTALLATION (M978) (CONT).

(3) Tighten two screws (4) and nuts (5).



(4) Tighten two screws (6) and nuts (7).





(5) Install fitting (8) on pneumatic actuator (9).
(6) Connect fitting (10) and hose (3) to fitting (8).

c. Follow-on Maintenance.

(1) Start engine and build up air supply (TM 9-2320-279-10).
(2) Prepare tanker for operation (TM 9-2320-279-10).
(3) Recirculate fuel (TM 9-2320-279-10).
(4) Inspect outlet hose for air leaks and proper operation.
(5) Install pump module side access panels (para 16-48).

END OF TASK

16-43. HAVR HAND ACTUATED CONTROL VALVE REEL REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

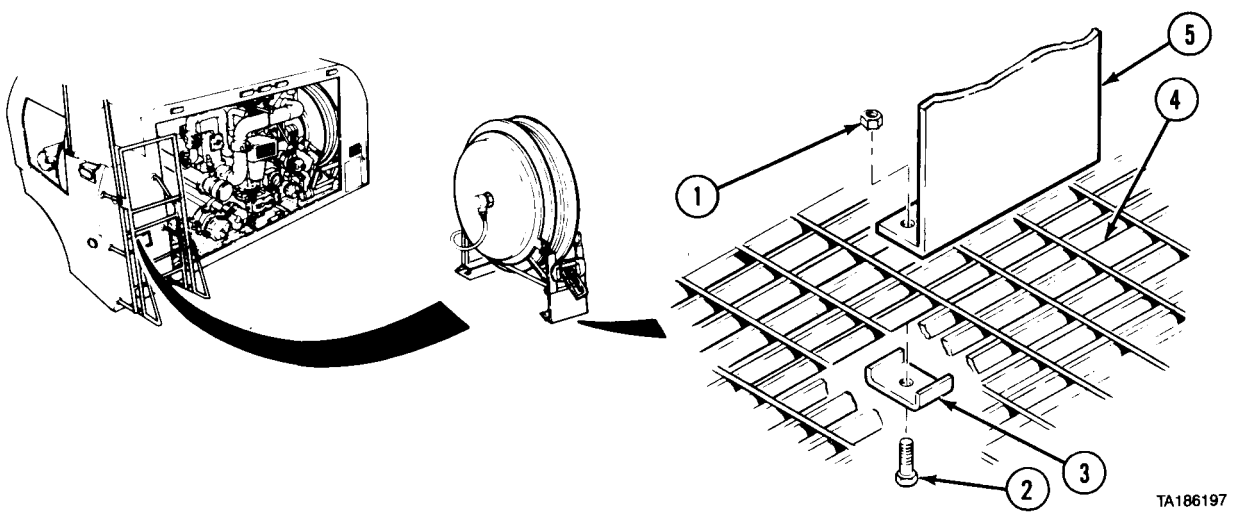
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Pump module rear doors open.
Para 18-16	HAV HAND ACTUATED CONTROL VALVE control hoses removed.
Para 16-41	HAV HAND ACTUATED CONTROL VALVE hose reel inlet airhose removed.
Para 16-42	HAV HAND ACTUATED CONTROL VALVE hose reel outlet airhose removed.
Para 16-40	H1 REEL removed.
Para 16-48	Side access panels removed.
Para 16-20	Left rear mud flap and bracket removed.

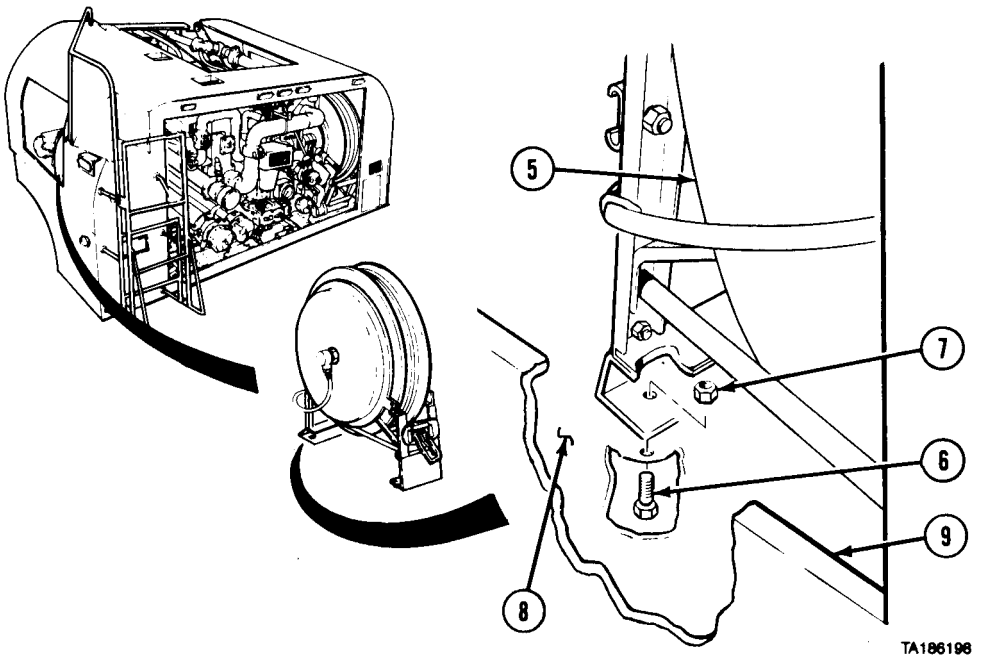
Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

a. Removal.

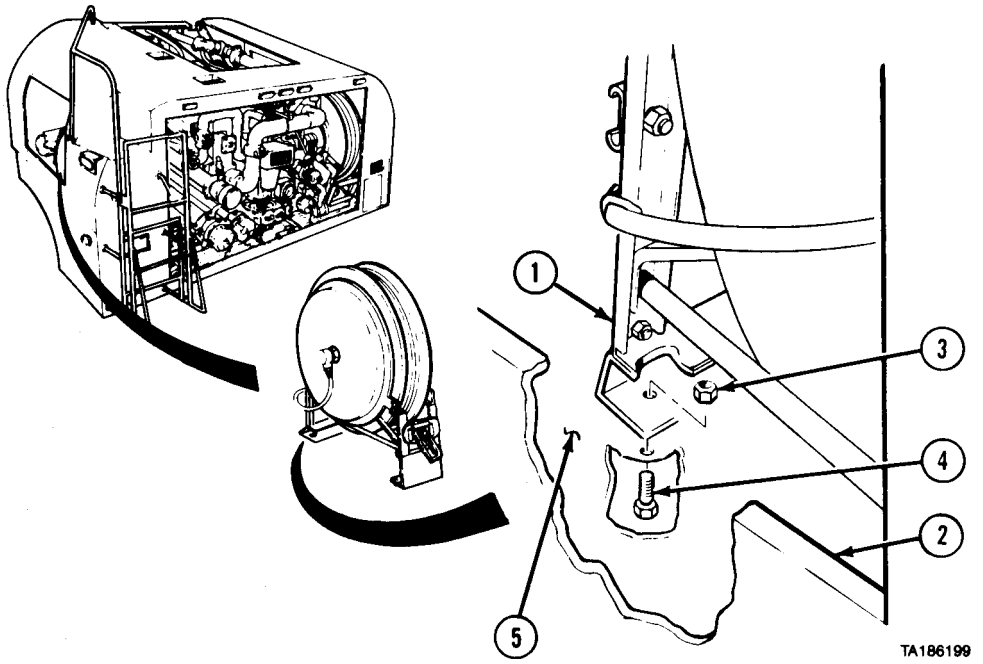


(1) Soldier A holds and removes two locknuts (1) while Soldier B removes two screws (2) and brackets (3) from grating (4) and hose reel (5).



(2) Soldier A holds and removes two screws (6) while Soldier B removes two locknuts (7) from module wheel well (8).
(3) Soldier A and Soldier B remove hose reel (5) from pump module (9).

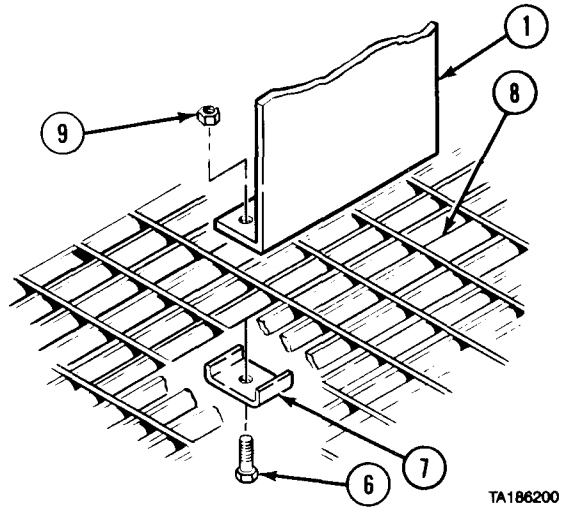
b. Installation.



(1) Position hose reel (1) in pump module (2).
(2) Soldier A holds and installs two locknuts (3) while Soldier B installs screws (4) in wheel well (5).

16-43. HAVR HAND ACTUATED CONTROL VALVE REEL REMOVAL/INSTALLATION (M978) (CONT).

(3) Soldier A holds and installs two screws (6) and brackets (7) on hose reel (1) and grating (8) while Soldier B installs two locknuts (9).

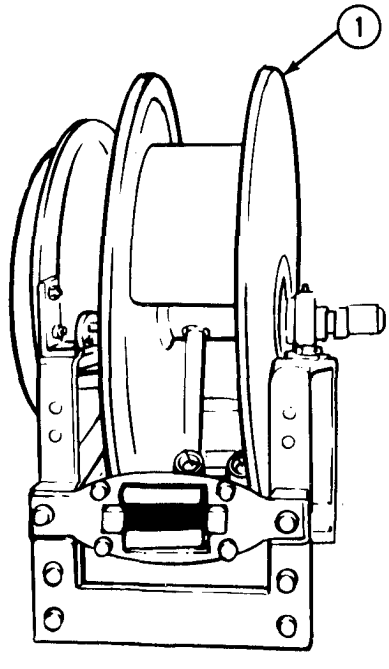


(4) Wind airhose reel (1) counterclockwise to apply spring tension.

c. Follow-on Maintenance.

(1) Install HAV HAND ACTUATED CONTROL VALVE air control hoses (para 18-16).
(2) Install HAV HAND ACTUATED CONTROL VALVE hose reel inlet (para 16-41).
(3) Install HAV HAND ACTUATED CONTROL VALVE hose reel outlet (para 16-42).
(4) Install H1 REEL (para 16-40).
(5) Recirculate fuel (TM 9-2320-279-10).
(6) Install left rear mud flap and bracket (para 16-20).
(7) Inspect HAVR HAND ACTUATED CONTROL VALVE reel for leaks and proper operation.
(8) Install side access panels (para 16-48).
(9) Close pump module rear doors (TM 9-2320-279-10).

END OF TASK



Section VII. CARGO BODY

16-44. MISSILE TIEDOWN AND POD RETAINER REMOVAL/INSTALLATION (M985).

This task covers:

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

INITIAL SETUP

Models
M985

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

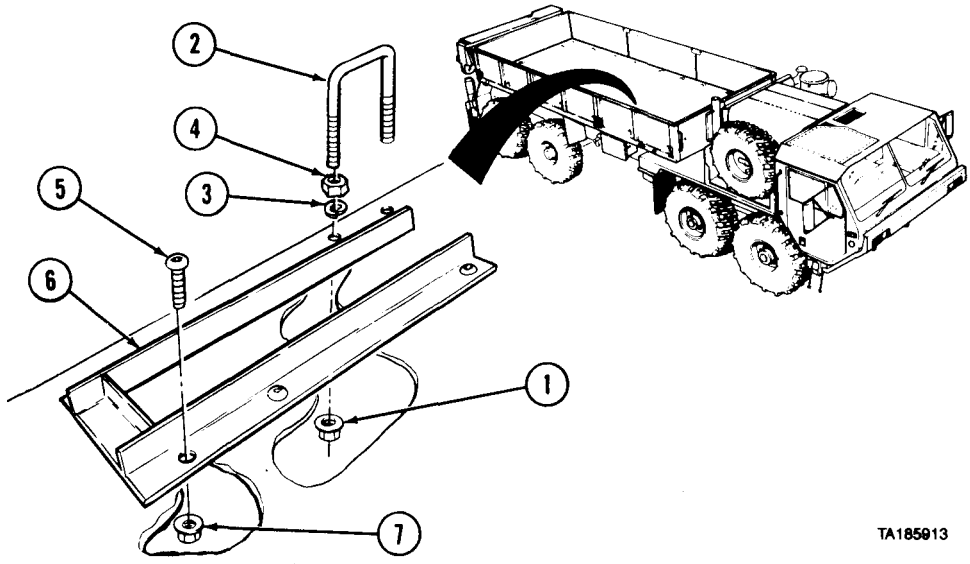
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

16-44. MISSILE TIEDOWN AND POD RETAINER REMOVAL/INSTALLATION (M985) (CONT).

a. Removal.



NOTE

All tiedown pod retainers are removed and installed the same way.

(1) Remove two nuts (1), missile tiedown (2), two lockwashers (3), and nuts (4).
(2) Soldier A removes six screws (5) and pod retainer (6) while Soldier B removes six nuts (7).

b. Installation.

(1) Soldier A installs pod retainer (6) and six screws (5) while Soldier B installs six nuts (7).
(2) Tighten six nuts (7) to 140 lb-ft (190 N·m).
(3) Install two nuts (4) and lockwashers (3) on missile tiedown (2) and install tiedown in cargo body floor.
(4) Install two nuts (1) on missile tiedown (2).

c. Follow-on Maintenance. None

END OF TASK

16-45. CARGO TIEDOWN REMOVAL/INSTALLATION (M977, M984, M985).

This task covers:

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

INITIAL SETUP

Models
M977, M984, M985

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-44	Missile pod retainers removed (M985).

Special Environmental Conditions
None

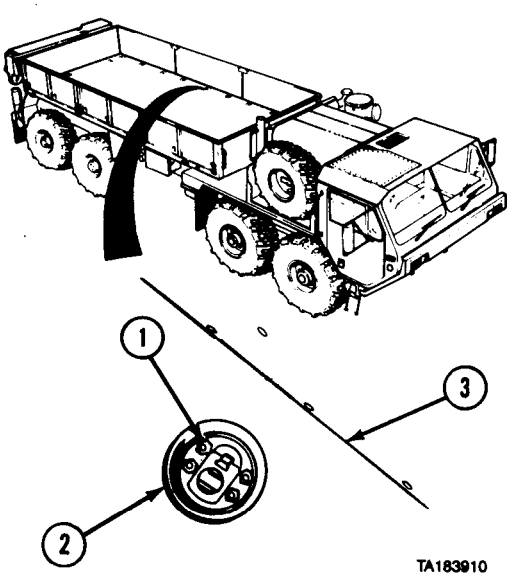
General Safety Instructions
None

a. Removal.
(1) Remove four nuts (1) from cargo tiedown (2).
(2) Remove cargo tiedown (2) from cargo body

b. Installation.
(1) Install cargo tiedown (2) on cargo body bed (3).
(2) Install and tighten four nuts (1).

c. Follow-on Maintenance. Install missile pod retainers (M985) (para 16-44).

END OF TASK



Cab and Body Maintenance Instructions (Cont)

Section VIII. TANKER BODY

16-46. STOWAGE TUBE REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

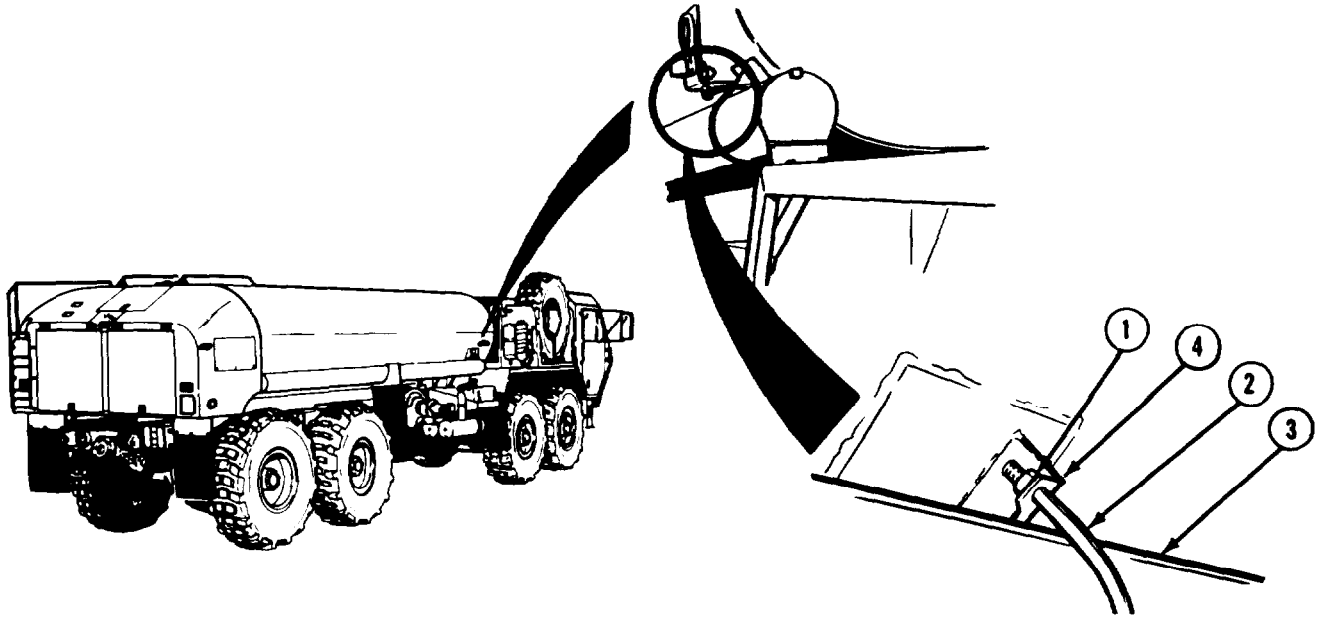
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Hose removed from stowage tube.

Special Environmental Conditions
None

General Safety Instructions
To prevent fire and explosion, no smoking flame, sparks, glowing or hot objects allowed within 50 ft (15 m) of vehicle.

a. Removal.

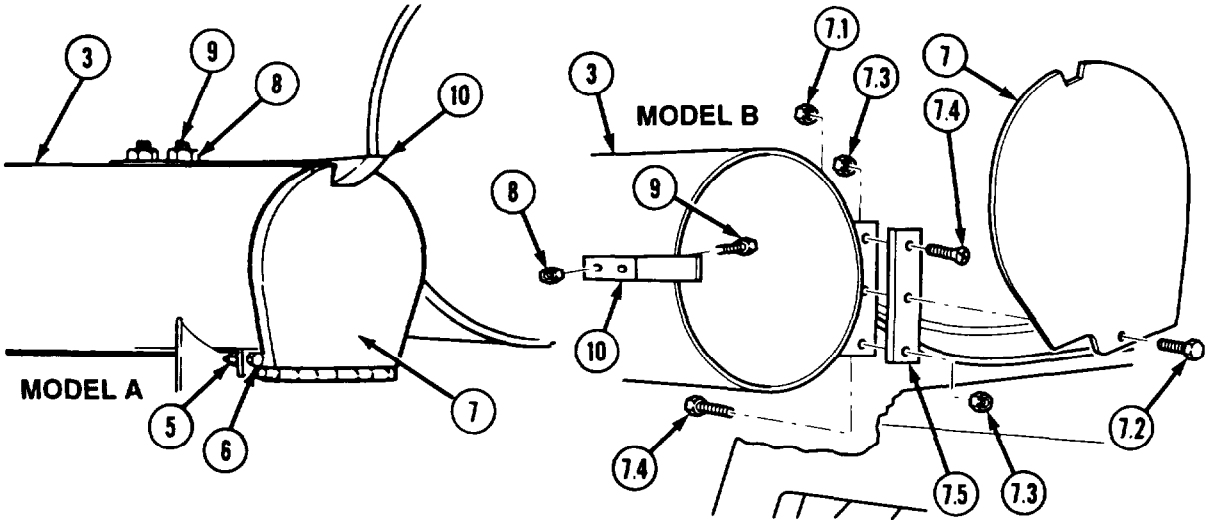


NOTE

- There are two models of covers: Model A and Model B.
- Do steps *(1), (2),* and *(3)* for Model A. Do steps *(1), (2.11, (2.2),* and *(3)* for Model B.

(1) Remove 10 locknuts (1), five U-bolts (2), and stowage tube (3) from tank mounting brackets (4).

16-46. STOWAGE TUBE REMOVAL/INSTALLATION (M978) (CONT).



(2) Remove three nuts (5), screws (6), and tube cover (7) from stowage tube (3).

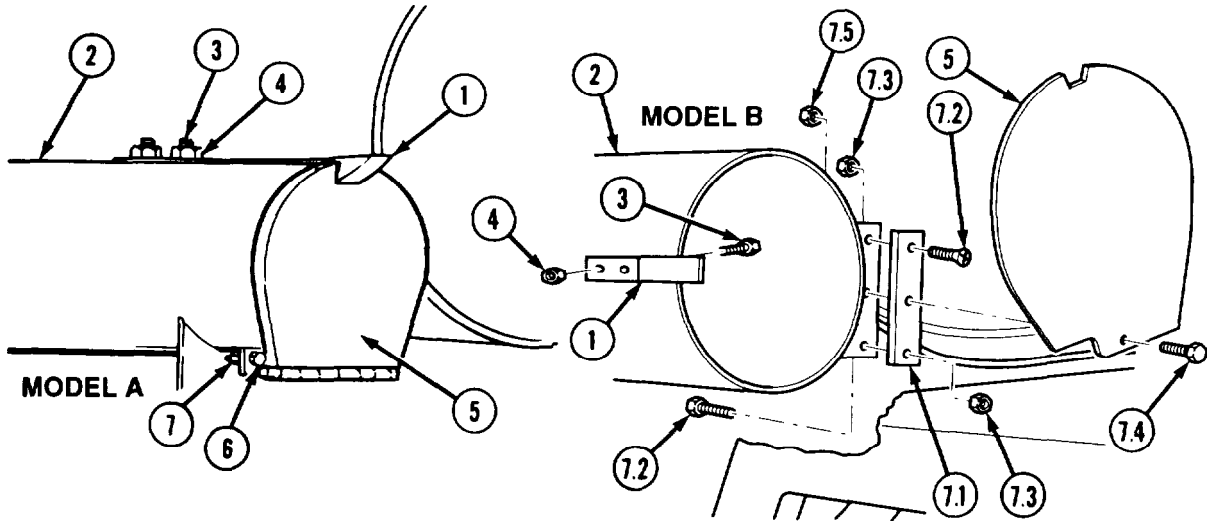
NOTE

Note and mark placement and direction of screws during removal.

(2.1) Remove nut (7.1), screw (7.2), and cover (7) from stowage tube (3).
(2.2) Remove two nuts (7.3), screws (7.4), and spacer (7.5) from stowage tube (3).
(3) Remove two nuts (8) and screws (9) to detach spring catch (10) from stowage tube (3).

Cab and Body Maintenance Instructions (Cont)

6. Installation.



NOTE

- There are two models of covers: Model A and Model B.
- Do steps (1), (2), (3), and (4) for Model A. Do steps (1), (2.1), (2.2), (3), and (4) for Model B.

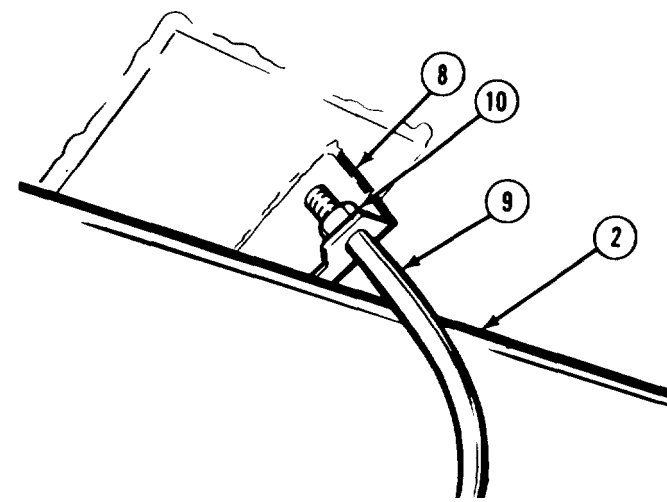
(1) Install spring catch (1) on stowage tube (2) with two screws (3) and nuts (4).
(2) Install tube cover (5) on stowage tube (2) with three screws (6) and nuts (7).

NOTE

Use placement and direction of screws as noted and marked during removal.

(2.1) Install spacer (7.1) with two screws (7.2) and nuts (7.3).
(2.2) Install cover (5) with screw (7.4) and nut (7.5).

(3) Position stowage tube (2) on tank mounting brackets (8).
(4) Install five U-bolts (9), ten locknuts (10), and stowage tube on tank mounting brackets (8).



Follow on Maintenance. Install hose in stowage tube (TM 9-2320-279-10).

END OF TASK

16-47. PUMP MODULE TOP AND REAR DOORS REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

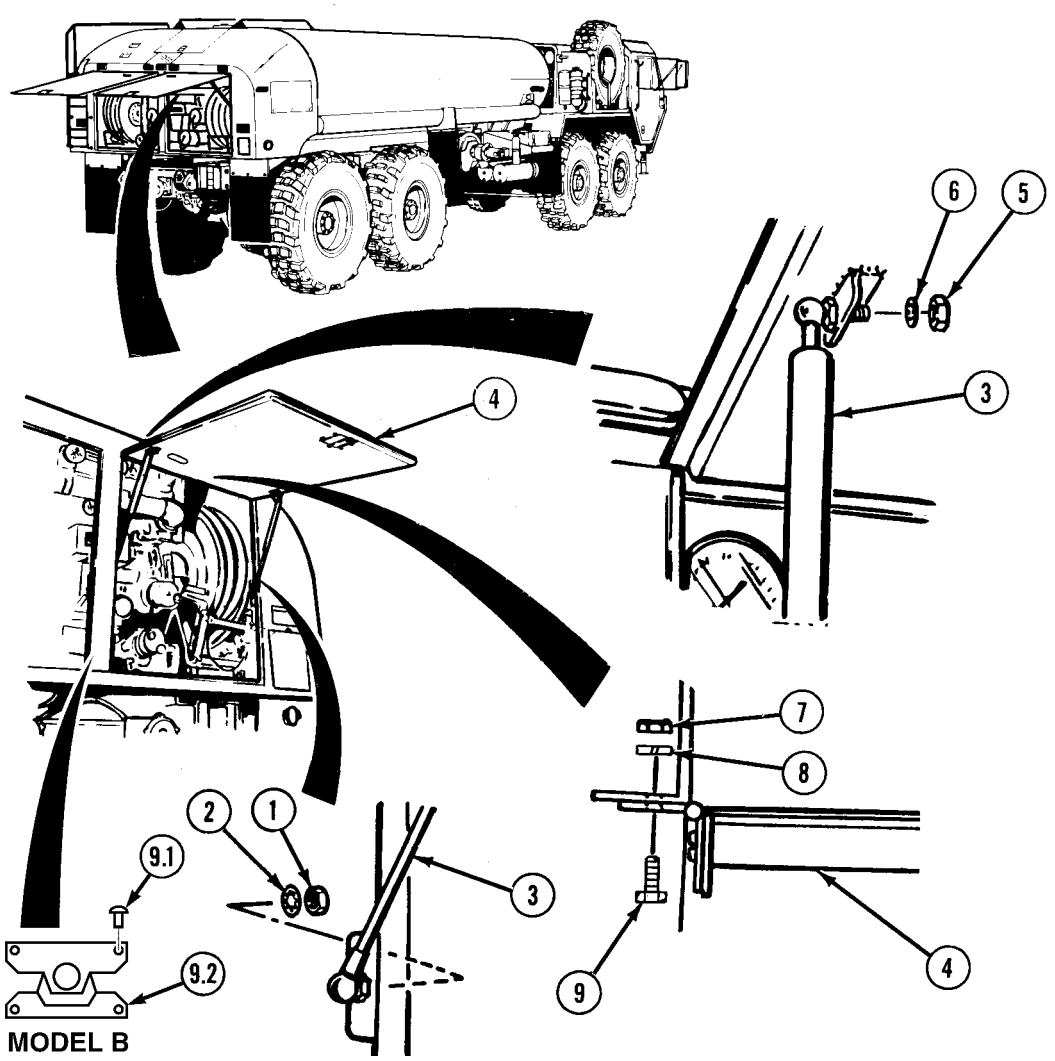
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Pump module rear doors opened.
Para 7-62.1	High mount stop lamps removed (if equipped).

Special Environmental Conditions
None

General Safety Instructions
To prevent fire and explosion, no smoking, flame, sparks, glowing or hot objects allowed within 50 ft (15 m) of vehicle.

16-47. PUMP MODULE AND REAR DOORS REMOVAL/INSTALLATION (M978) (CONT).

a. Removal.



WARNING

When door support rods are removed, door may slam shut and cause personal injury.

NOTE

- Remove cushion clip for high mount stop lamp harness as required.
- Pump module top door has only one push rod.

(1) Soldier A removes nuts (1) and lockwashers (2) from lower end of both push rods (3) while Soldier B supports door (4).

(2) Remove nuts (5) and lockwashers (6) from upper end of both push rods (3).

(3) Remove eight nuts (7), lockwashers (8), and screws (9). Remove door (4).

NOTE

Model B has a hasp and lock to secure rear doors. Do step *(3.1)* for Model B.

(3.1) Drill out four rivets (9.1) and remove staple (9.2) from center post.

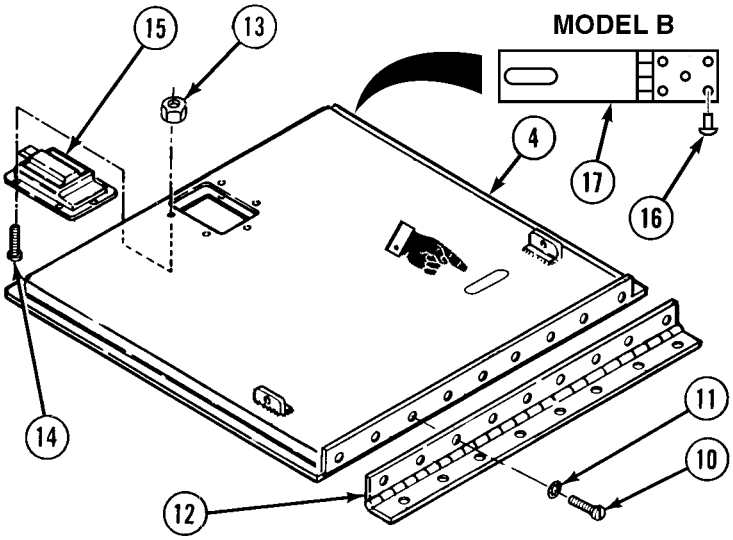
(4) Remove nine screws (10), lockwashers (11), and door hinge (12) from door (4).

(5) Remove five nuts (13) and screws (14). Remove door latch (15).

NOTE

Model B has a hasp on each door. Do step *(6)* for Model B.

(6) Drill out five rivets (16) and remove hasp (17).



b. Installation.

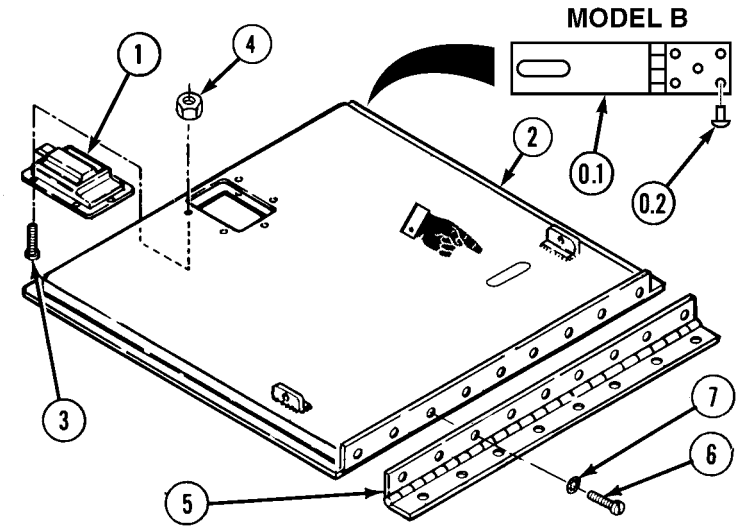
NOTE

Do step *(1.1)* for Model B.

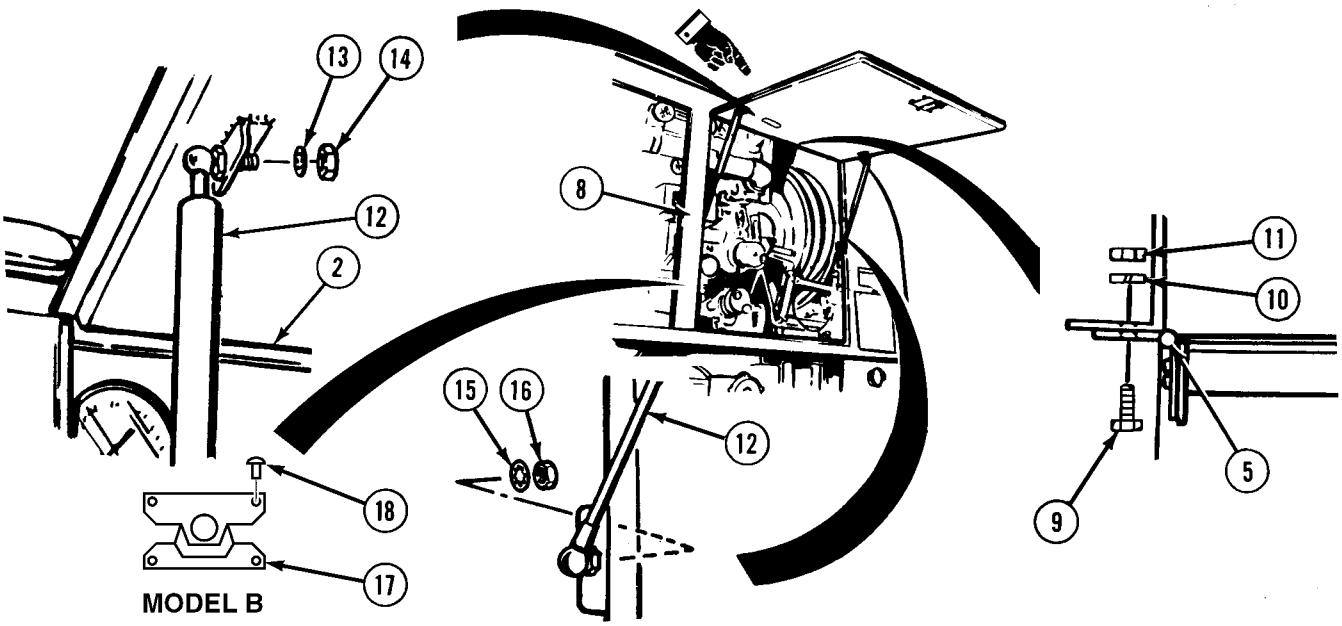
(1) Install hasp (0.1) with five rivets (0.2).

(1.1) Position door latch (1) on door (2) and install five screws (3) and nuts (4).

(2) Position door hinge (5) on door (2) and install nine screws (6) and lockwashers (7).



16-47. PUMP MODULE AND REAR DOORS REMOVAL/INSTALLATION (M978) (CONT).



(3) Position door (2) to doorframe (8).
(4) Install door hinge (5) on doorframe (8) with eight screws (9), lockwashers (10), and nuts (11).

NOTE

It may be necessary to redrill/relocate mounting holes on brackets when installing new push rods.

(5) Install upper end of both push rods (12) to door (2) with lockwashers (13) and nuts (14).
(6) Install lower end of both push rods (12) to doorframe (8) with lockwashers (15) and nuts (16).

NOTE

Model B has a hasp and lock to secure rear doors. Do step *(7)* for Model B.

(7) Install staple (17) with four rivets (18).

c. Follow-on Maintenance.

(1) Install high mount stop lamp (if equipped) (Para 7-62.1).
(1.1) If removed, install cushion clip for high mount stop lamp harness.
(1.2) Close pump module rear doors (TM 9-2320-279-10).
(2) Check door for alinement.

END OF TASK

16-48. PUMP MODULE TOP AND SIDE ACCESS PANEL REMOVAL/INSTALLATION
M978

This task covers:

a. Left and Right Side Access Panel Removal
b. Left and Right Side Access Panel Installation
c. Top Access Panel Removal
d. Top Access Panel Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition
TM or Para *Condition Description*
TM 9-2320-279-10 Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
To prevent fire and explosion, no smoking, flame, sparks, glowing or hot objects allowed within 50 ft (15 m) of vehicle.

16-48.PUMP MODULE TOP AND SIDE ACCESS PANEL REMOVAL/INSTALLATION (M978) (CONT).

a. Left and Right Side Access Panel Removal.

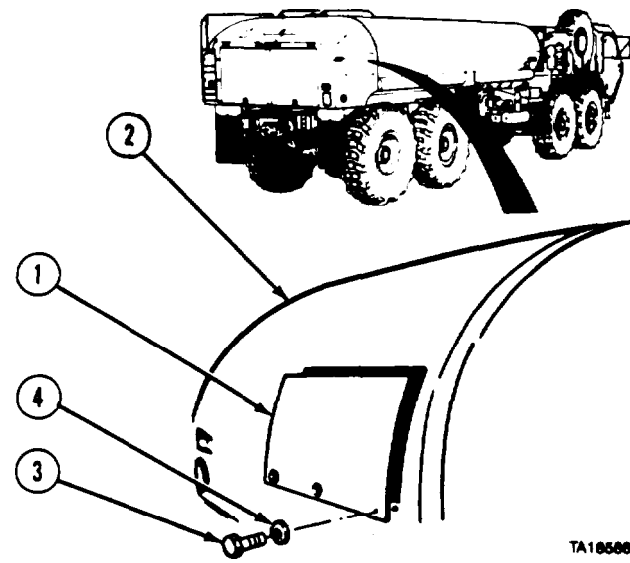
NOTE

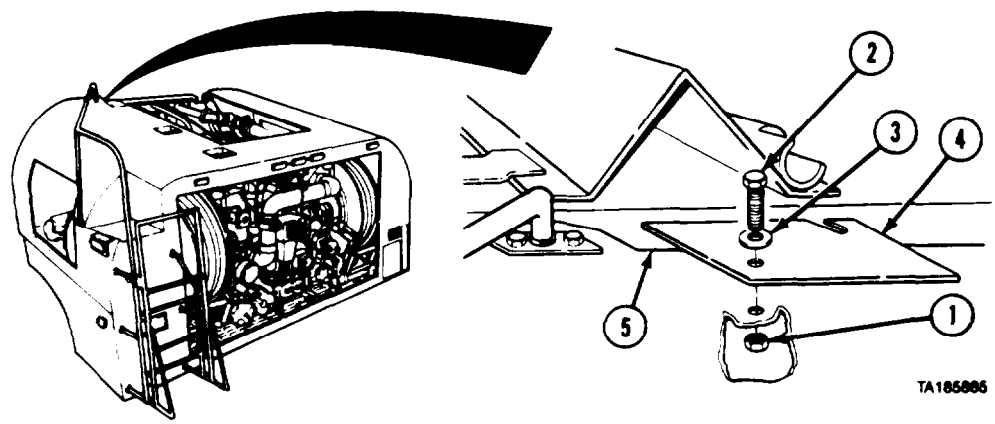
Both side access panels are removed and installed in the same manner.

(1) Hold access panel (1) against pump module (2).
(2) Remove three screws (3) and lockwashers (4).
(3) Remove access panel (1) from pump module (2).

b. Left and Right Side Access Panel Installation.

(1) Position access panel (1) on pump module (2).
(2) Install access panel (1) with three lockwashers (4) and screws (3).





c. Top Access Panel Removal. Remove two locknuts (l), screws (2) washers (3), and top access panel (4) from pump module (5).

d. Top Access Panel Installation. Install top access panel (4) on pump module (5) with two washers (3), screws (2), and locknuts (1).

e. Follow-on Maintenance. None.

END OF TASK

16-49. MANHOLE COVER REMOVAL/INSTALLATION (M978) (MODEL A).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

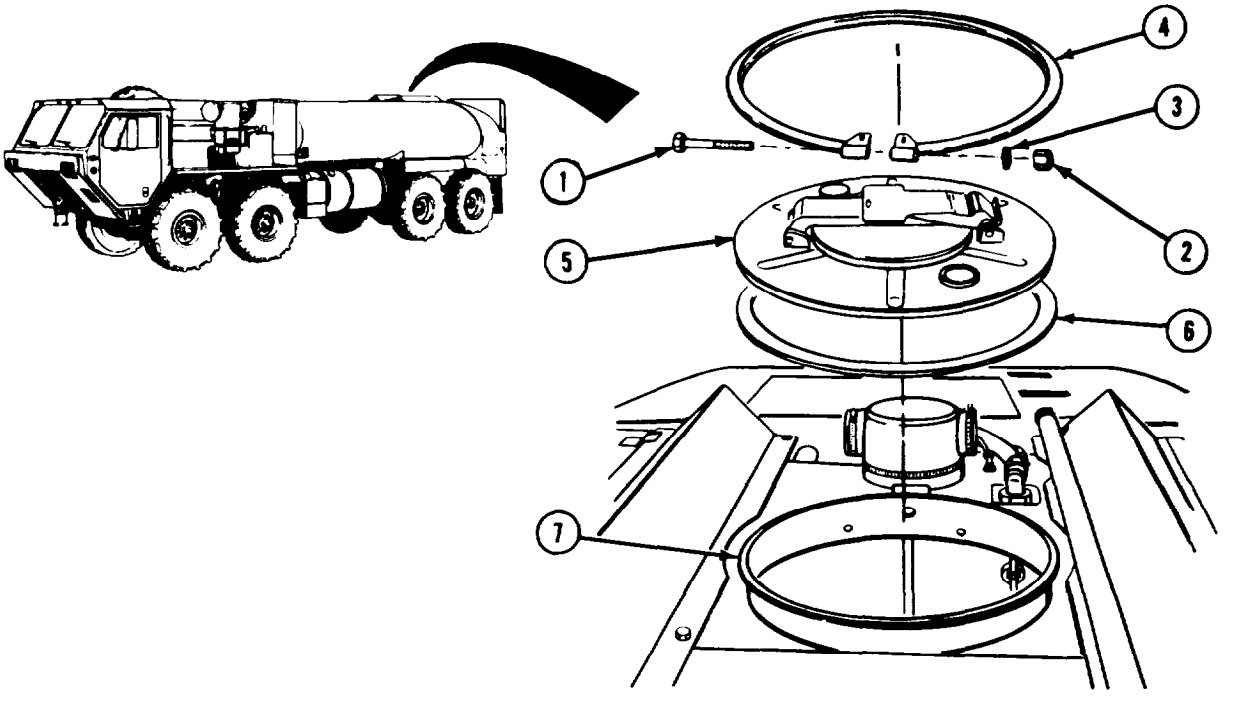
References
None

Equipment Condition
TM or Para Condition Description
TM 9-2320-279-10 Shut off engine.

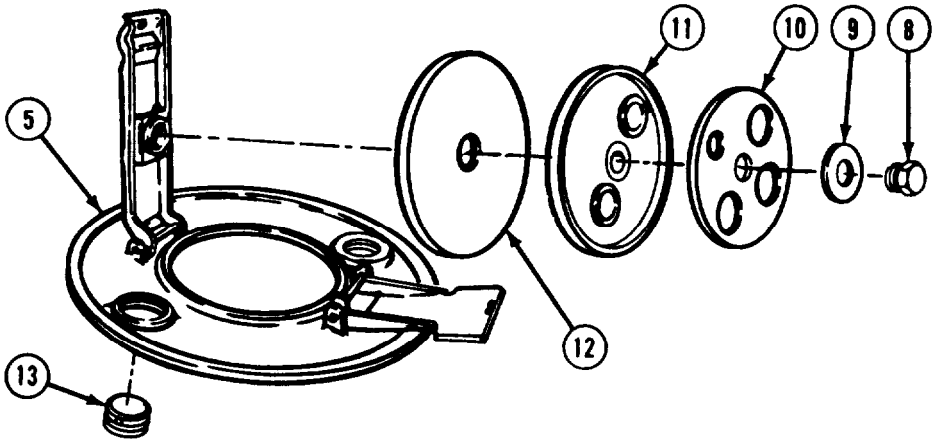
Special Environmental Conditions
None

General Safety Instructions
No smoking, flames, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

a. Removal.



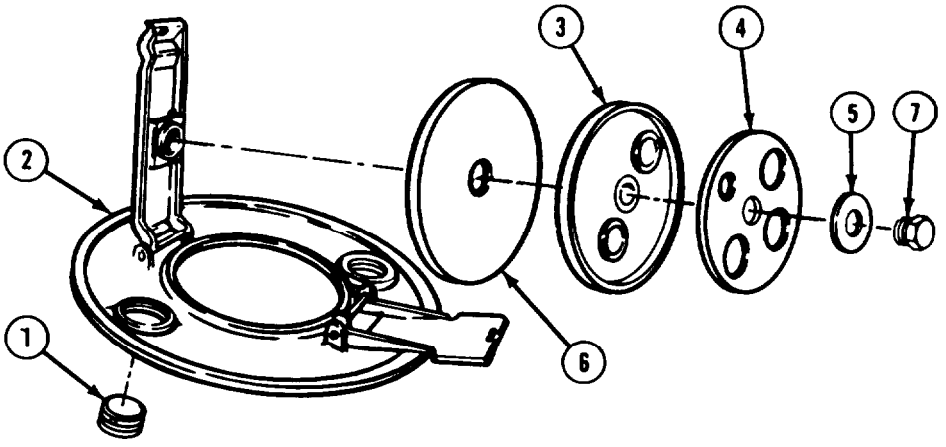
(1) Remove screw (1), nut (2), and washer (3) from ring (4).
(2) Remove ring (4) from manhole cover (5).
(3) Remove manhole cover (5) and gasket (6) from tank (7).



(4) Remove screw (8), washer (9), backing (10), seal (11), and hatch plate (12) from manhole cover (5).

(5) Remove two expansion plugs (13) from manhole cover (5).

b. Installation



WARNING

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

(1) Install two expansion plugs (1) in manhole cover (2) using pipe thread sealing compound.

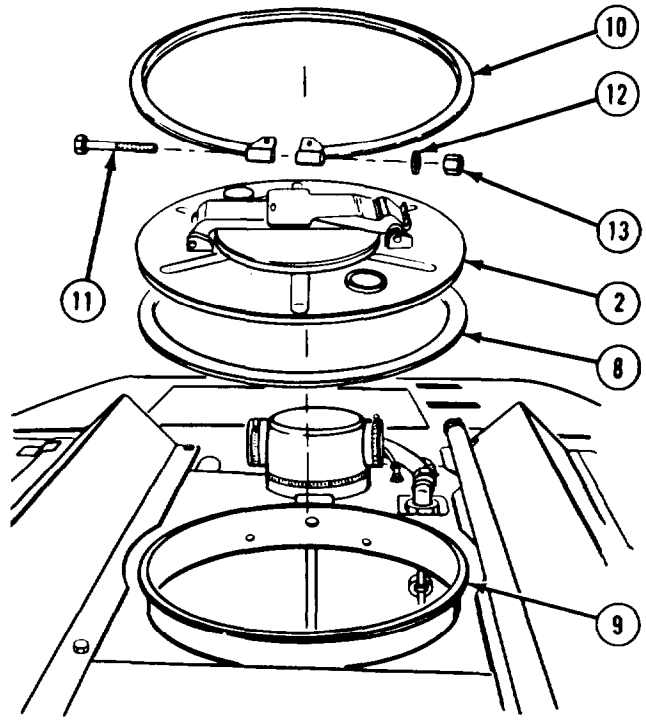
(2) Install seal (3), backing, (4), washer (5), and hatch plate (6) on manhole cover (2) with screw (7).

16-49. MANHOLE COVER REMOVAL/INSTALLATION (M978) (MODEL A) (CONT).

(3) Install gasket (8) with manhole cover (2) on tank (9).
(4) Install ring (10) on manhole cover (2) and tank (9).
(5) Install screw (11), washer (12), and nut (13) in ring (10).

C. *Follow-on Maintenance.* None.

END OF TASK



16-49.1 MANHOLE COVER REMOVAL/INSTALLATION (M978) (MODELS B AND C).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

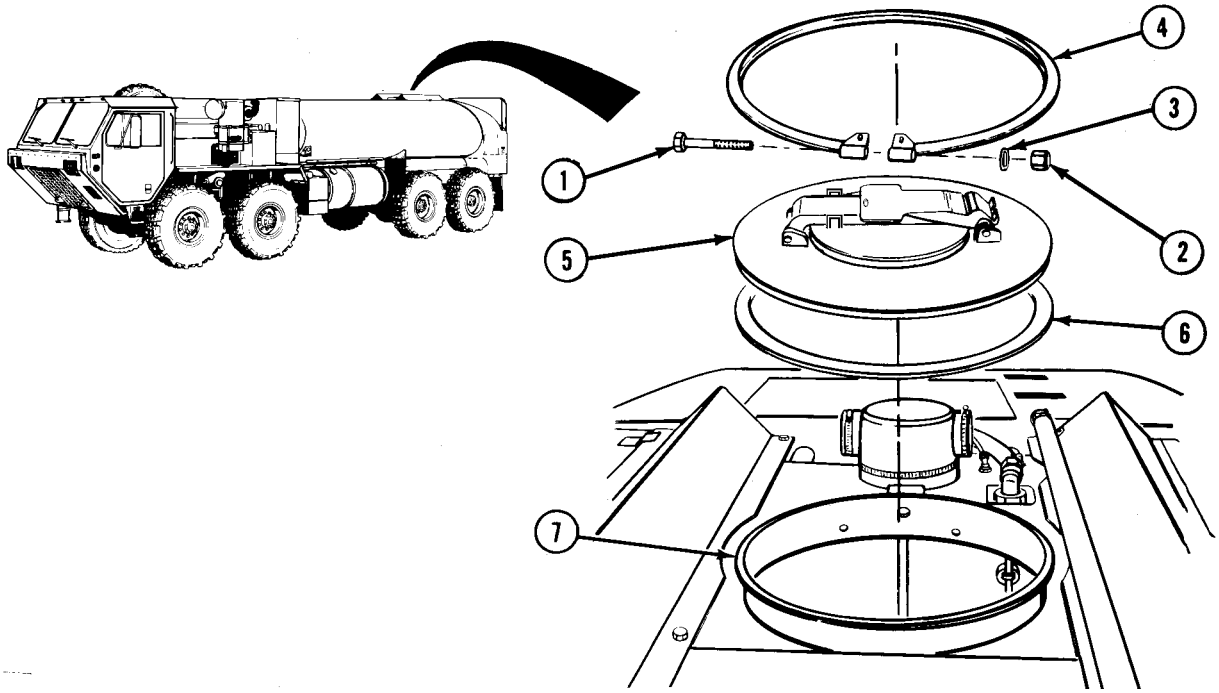
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flames, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

a. Removal.

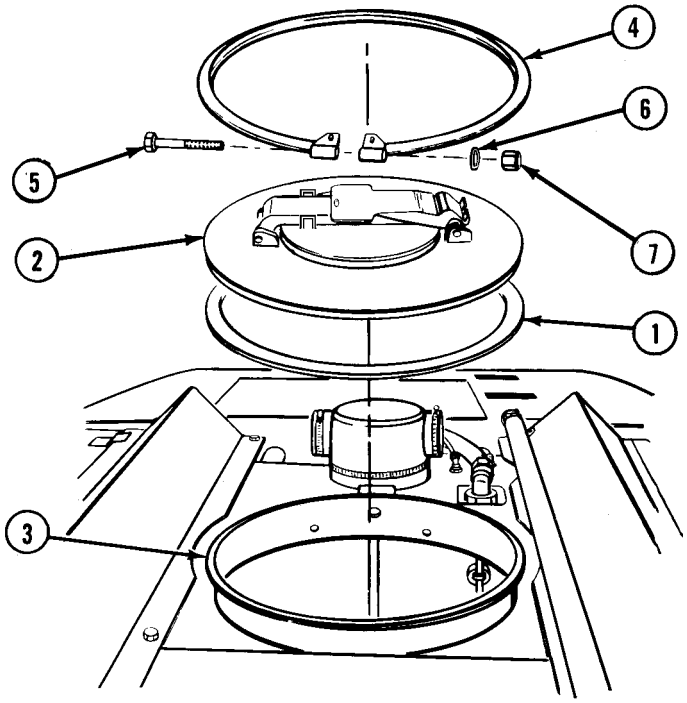


(1) Remove screw (1), nut (2), and washer (3) from ring (4).
(2) Remove ring (4) from manhole cover (5).
(3) Remove manhole cover (5) and gasket (6) from tank (7).

16-49.1 MANHOLE COVER REMOVAL/INSTALLATION (M978) (MODELS B AND C) (CONT).

b. Installation.

(1) Install gasket (1) with manhole cover (2) on tank (3).
(2) Install ring (4) on manhole cover (2) and tank (3).
(3) Install screw (5), washer (6), and nut (7) in ring (4).



c. Follow-on Maintenance. Adjust manhole cover pressure (para 16-49.2) (model B only).

END OF TASK

16-49.2. MANHOLE COVER PRESSURE ADJUSTMENT (M978) (MODEL B).

This task covers:

a. Clearance Check
b. Adjustment
c. Follow-on Maintenance

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

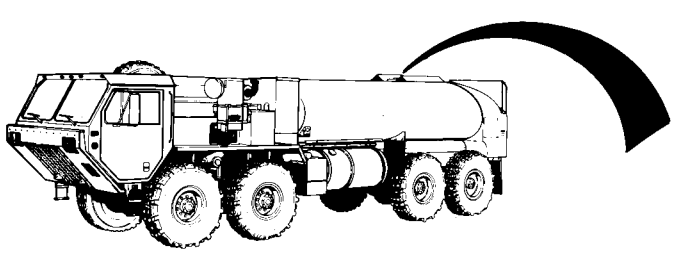
Equipment Condition

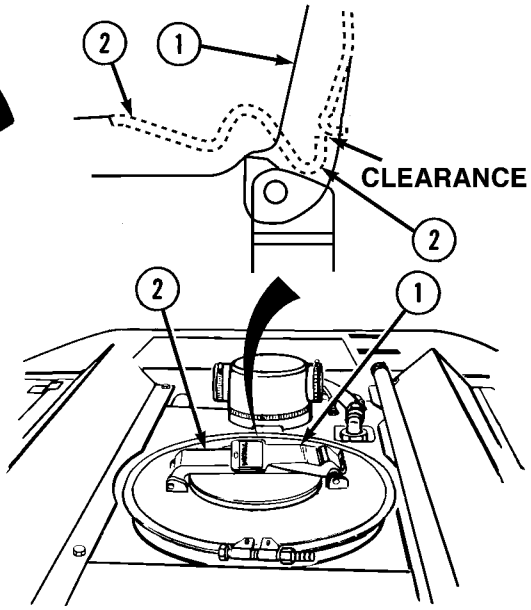
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

a. Clearance Check.





WARNING

Failure to relieve tank pressure may result in sudden, unexpected loss of pressure. Failure to comply may result in personal injury or death.

(1) Raise latch (1).
(2) With closure assembly (2) firmly closed, check clearance between latch (1) and closure assembly (2). If latch just touches closure assembly, adjustment is correct.

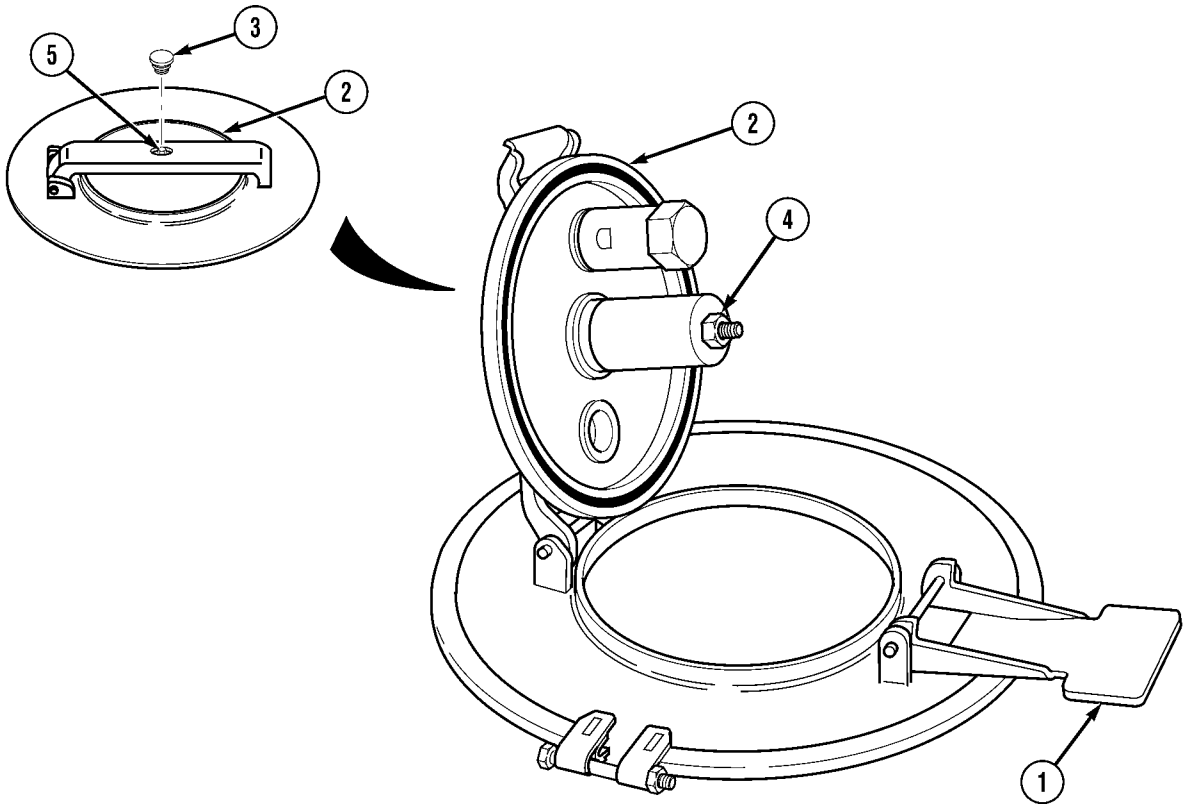
NOTE

If adjustment is correct, do Step *(3)*. If not correct, adjust.

(3) Lower latch (1) to horizontal closed position.

16-49.2 MANHOLE COVER PRESSURE ADJUSTMENT (M978) (MODEL B) (CONT).

b. Adjustment.



(1) Raise latch (1) and open closure assembly (2).
(2) Remove plug (3) from closure assembly (2).
(3) Loosen locking nut (4).
(4) Close closure assembly (2) and hold firmly closed. Latch (1) should be in vertical position.
(5) Adjust screw (5) until proper clearance between latch (1) and closure assembly (2) is obtained. Refer to clearance check.
(6) Open closure assembly (2) and tighten locking nut (4), making sure screw (5) does not turn.
(7) Recheck clearance and readjust if necessary.
(8) Install plug (3) in closure assembly (2).
(9) Close closure assembly (2) and lower latch (1).

c. Follow-on Maintenance. None.

16-49.3 TANK VENT DRAIN REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18.2, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

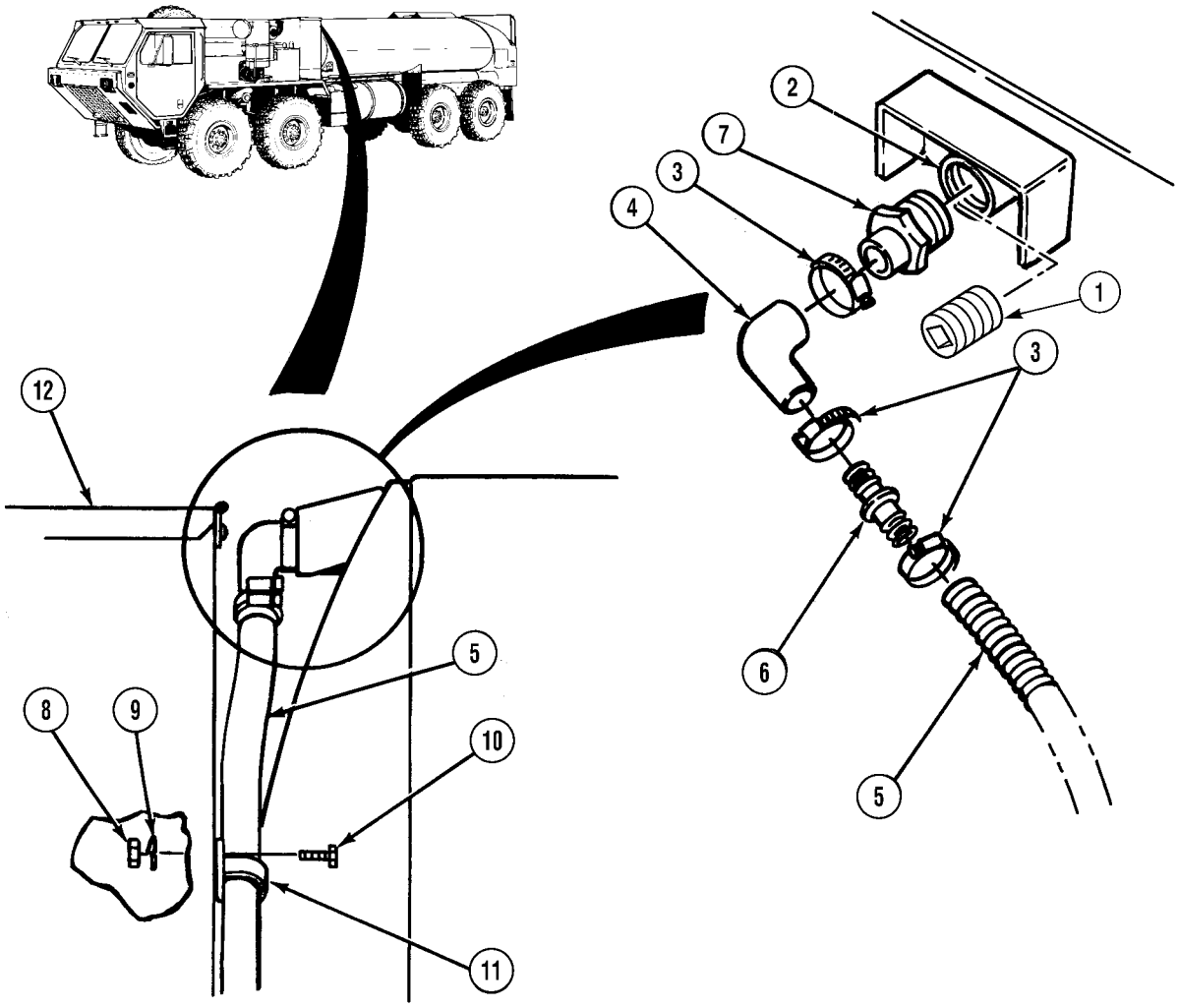
General Safety Instructions
No smoking, flames, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

NOTE

- There are two configurations of vents that may be installed on the tank.
  - Model A, vent valve and vent drain hose.
  - Model B, plug only.
- Note which configuration is removed to ensure same configuration is installed.
- For Model A, perform steps *(1.1)* through *(6)*.
- For Model B, perform step *(1)* only.

16-49.3 TANK VENT DRAIN REMOVAL/INSTALLATION (M978) (CONT).

a. Removal.



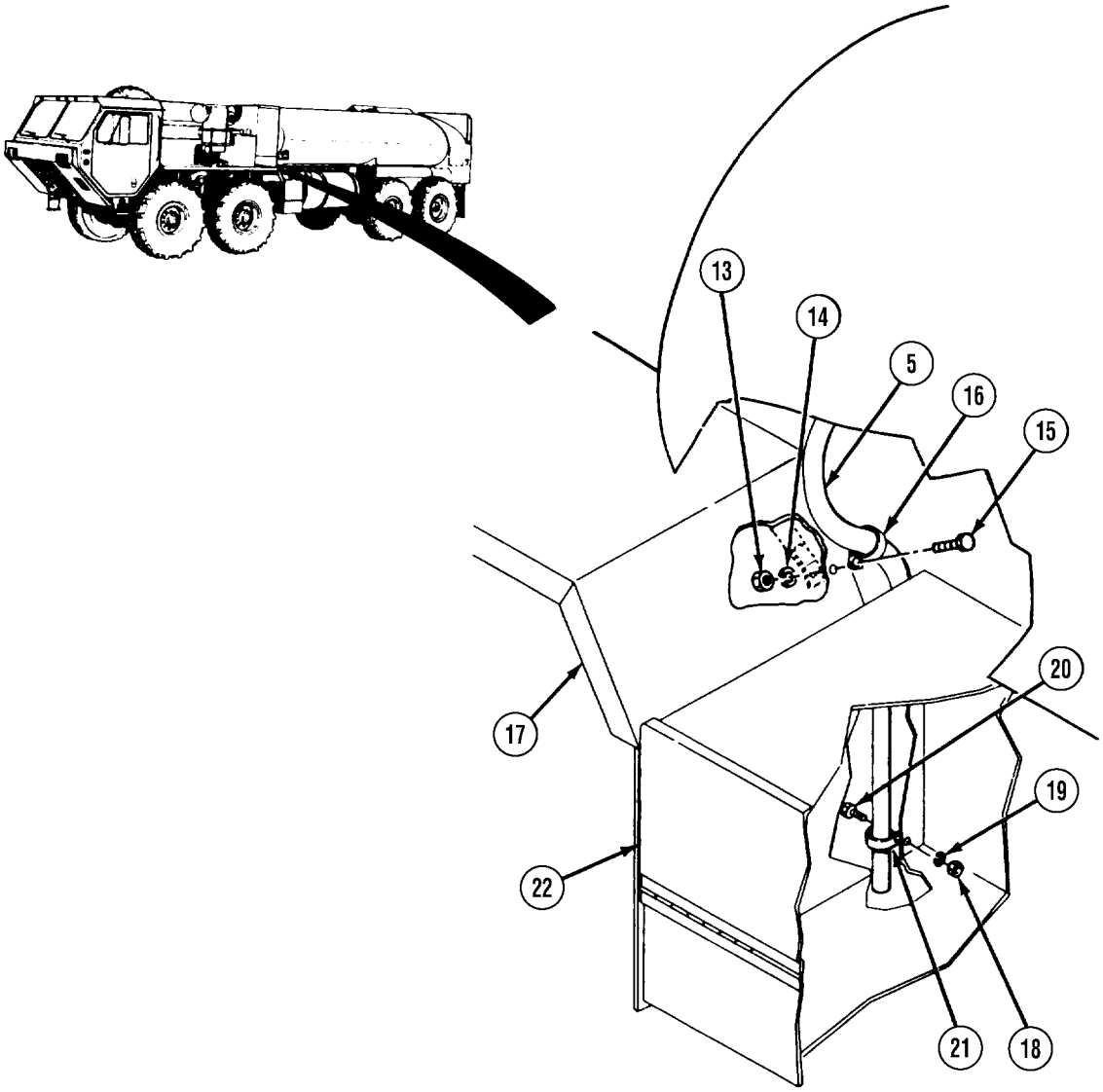
(1) Remove plug (1) from tank vent opening (2).
(1.1) Remove three clamps (3) from elbow (4) and vent hose (5).
(2) Remove vent hose (5), hose mender (6), and elbow (4) from reducer bushing (7).
(3) Remove reducer bushing (7) from tank vent opening (2).

NOTE

Lockwasher and nut are inside stowage box.

(4) Remove nut (8), lockwasher (9), screw (10), clip (11), and vent hose (5) from stowage box (12).

Cab and Body Maintenance Instructions (Cont)



(5) Remove nut (13), lockwasher (14), screw (15), clip (16), and vent hose (5) from fender (17).

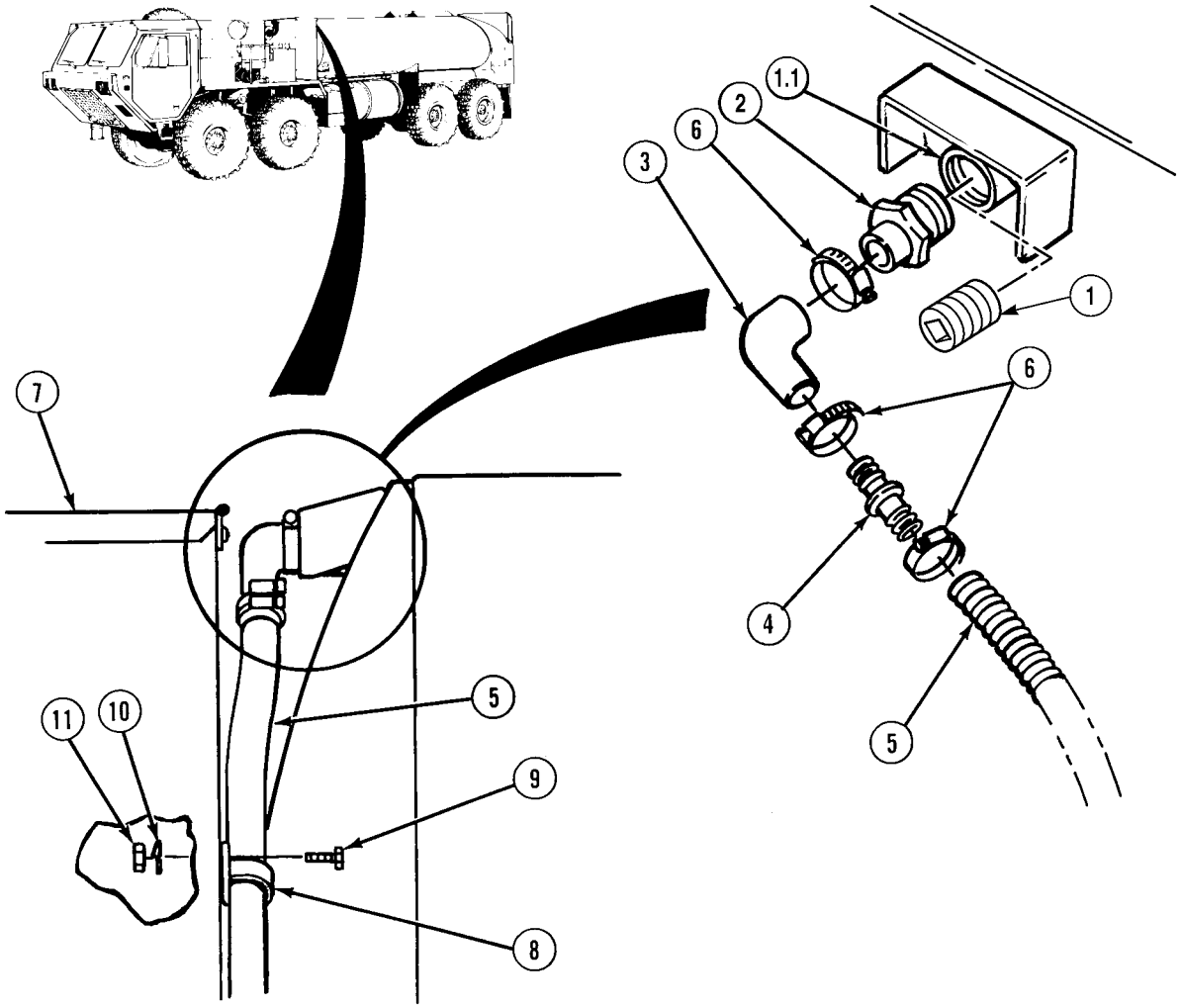
NOTE

Lockwasher and nut are inside stowage box.

(6) Remove nut (18), lockwasher (19), screw (20), clip (21), and vent hose (5) from stowage box (22).

16-49.3 TANK VENT DRAIN REMOVAL/INSTALLATION (M978) (CONT).

b. Installation.



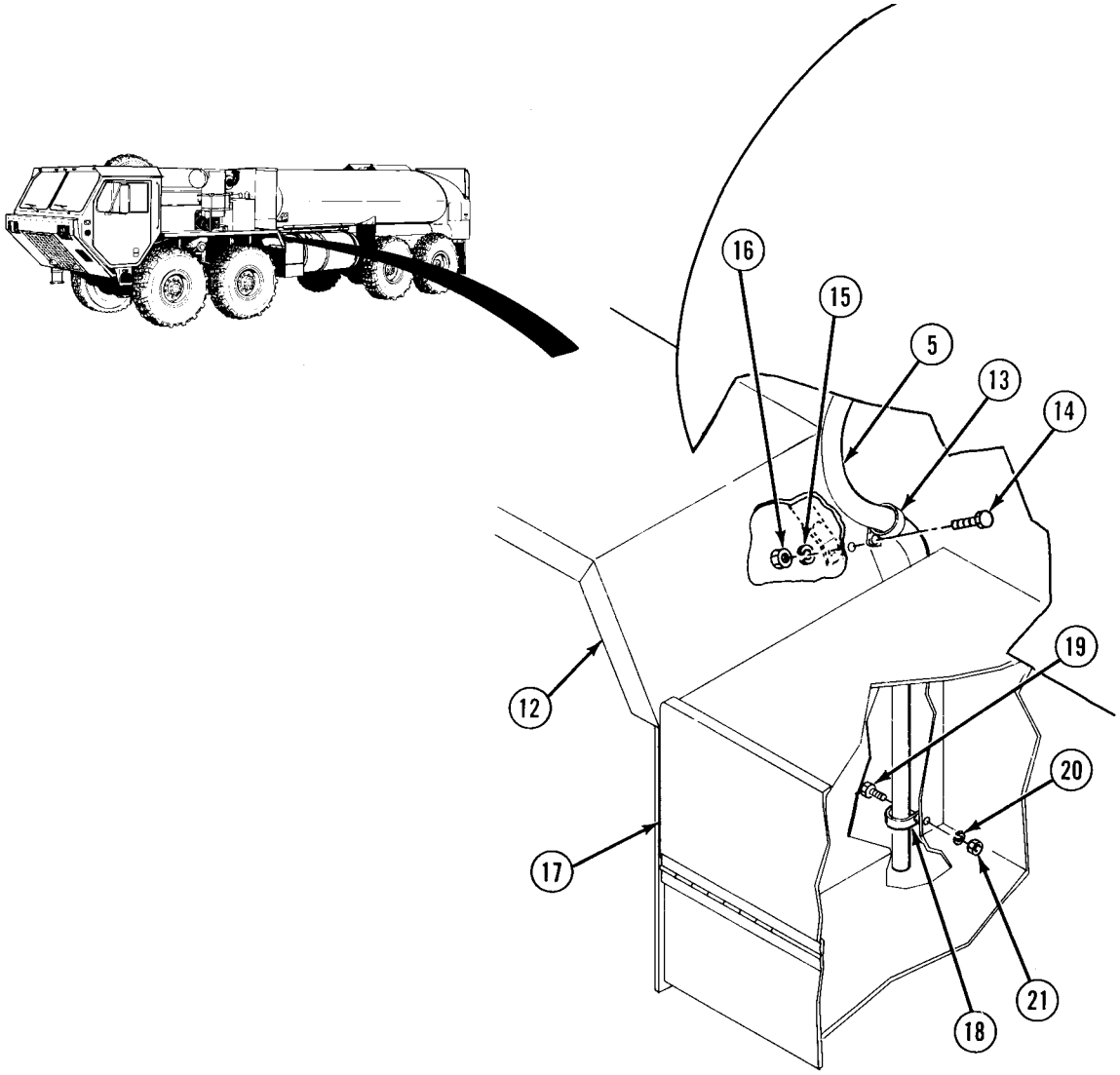
WARNING

Ensure that configuration as noted during removal is the same configuration installed. Incorrect pressurization of fuel tank may result in serious injury or death to personnel.

NOTE

- For Model A, perform steps *(1.1)* through *(6)*.
- For Model B, perform step *(1)*.

(1) Coat threads of plug (1) with pipe sealant and install plug (1) into tank vent opening (1.1).
(1.1) Coat threads of reducer bushing (2) with pipe sealant and install reducer bushing (2) into tank vent opening (1.1).
(2) Assemble elbow (3), hose mender (4), and vent hose (5). Secure with two clamps (6).
(3) Install elbow (3) to reducer bushing (2) with clamp (6).
(4) Install vent hose (5) to stowage box (7) with clip (8), screw (9), lockwasher (10), and nut (11).



(5) Install vent hose (5) to fender (12) with clip (13), screw (14), lockwasher (15), and nut (16).
(6) Install vent hose (5) to stowage box (17) with clip (18), screw (19), lockwasher (20), and nut (21).

c. Follow-on Maintenance. None.

END OF TASK

16-49.4. RELIEF VALVE PRESSURE ADJUSTMENT (M978) (MODEL C).

This task covers:

a. Adjustment
b. Follow-on Maintenance

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

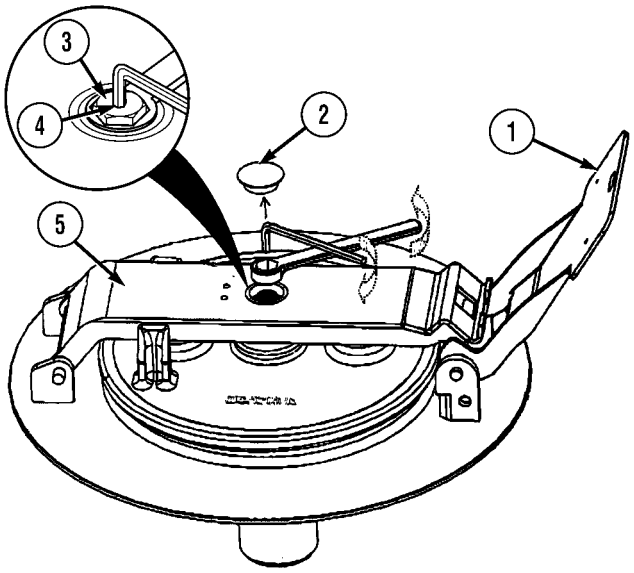
Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

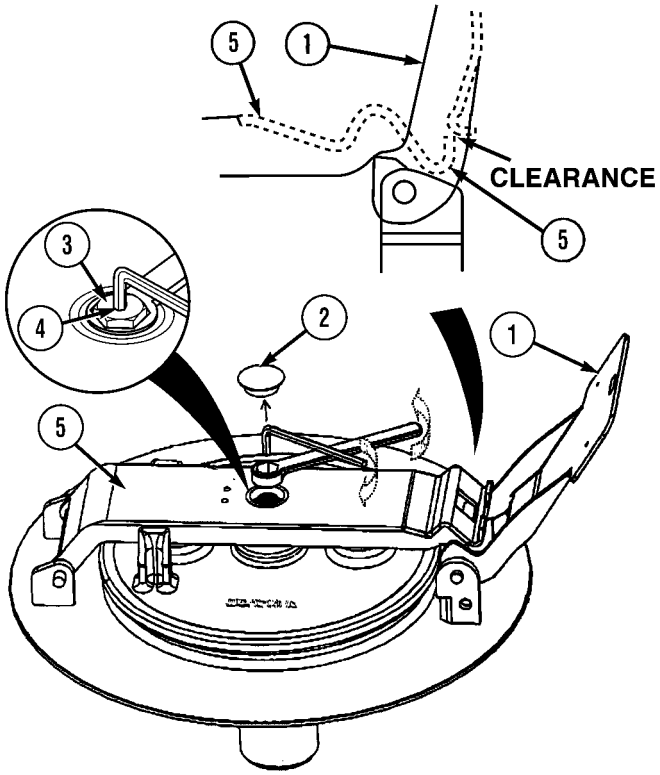
a. Adjustment.

WARNING

- Never adjust relief valve so that personnel must stand on strongback (5) to operate latch (1). If there is any residual pressure in tank when relief valve is open, personnel may lose their balance and fall. Failure to comply may result in injury or death to personnel.
- Failure to relieve tank pressure may result in sudden, unexpected loss of pressure. Failure to comply may result in injury or death to personnel.



(1) Relieve vapor pressure or vacuum from cargo tank.
(2) Open latch (1) to remove plastic plug (2).
(3) Place wrench over nut (3) and insert hex key into stem (4).
(4) Hold hex key stationary and turn wrench counterclockwise two full turns to loosen nut (3).
(5) Pressure may now be adjusted by rotating stem (4) with hex key.



NOTE

- Adjustment feature is sensitive so that one turn of stem (4) may increase set pressure significantly. Adjust stem (4) 1/4 turn at a time until desired setting is achieved.
- Stem (4) must fully engage threads of nut (3). Ensure that top of stem (4) is flush with or slightly protruding from top of nut (3) when nut (3) is tightened.
- Amount of adjustment in counterclockwise direction is limited by a shoulder stop on stem (4).

(6) To increase set pressure, turn stem (4) clockwise.
(7) To decrease set pressure, turn stem (4) counterclockwise.
(8) Once desired setting is obtained, insert hex key into stem (4) to hold stationary while tightening nut (3) with wrench.
(9) Insert plastic plug (2) and close latch (1).
(10) With closure assembly (5) firmly closed, check clearance between latch (1) and closure assembly (5). If latch (1) just touches closure assembly (5), adjustment is correct. If adjustment is not correct, adjust manhole cover per Para 16-49.2.

b. Follow-on Maintenance. None.

END OF TASK

16-50. DOOR PISTON REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

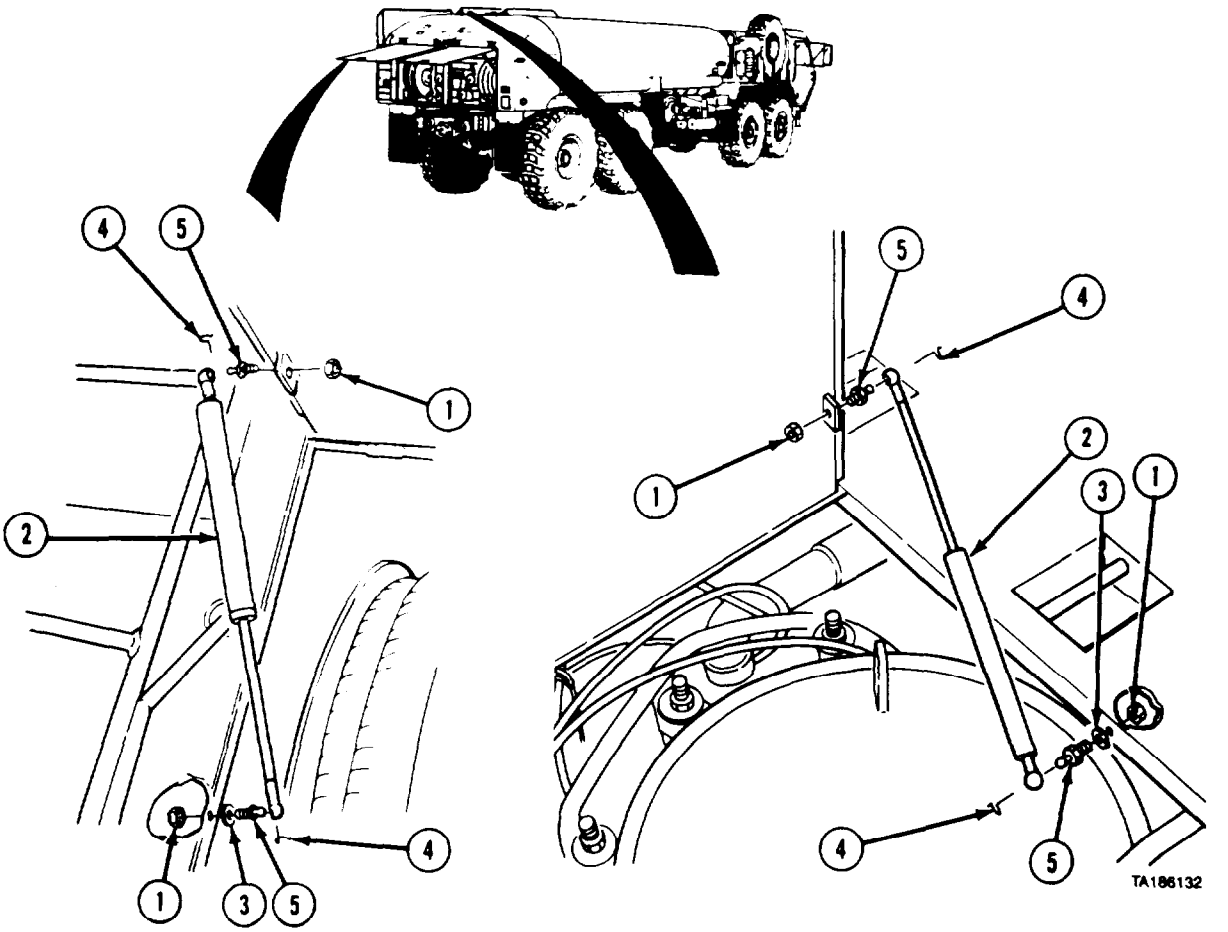
TM or Para	*Condition Description*
TM 9-2320-279-10	Pump module top and rear access doors opened.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flames, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

16-50. DOOR PISTON REMOVAL/INSTALLATION (M978) (CONT).

a. Removal.



(1) Soldier A removes two locknuts (1). door piston (2). and washer (3) while Soldier B holds door.
(2) Remove two clip (4) and studs (5) from door piston (2).

b. Installation.

(1) Install two studs (3) on door piston (2) with two clips (1).
(2) Soldier A installs washer (3). door piston (2). and two locknuts (1) while Soldier B holds door.

c. Follow-on Maintenance. Close pump module top and rear access doors (TM 9-2320-279-10).

END OF TASK

16-51. LADDER RAIL AND LADDER REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

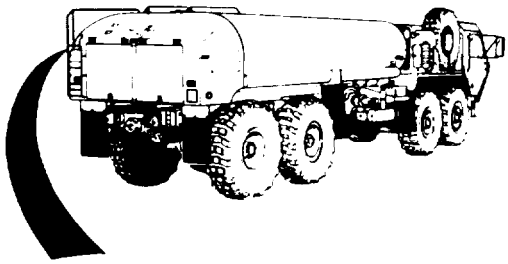
Equipment Condition

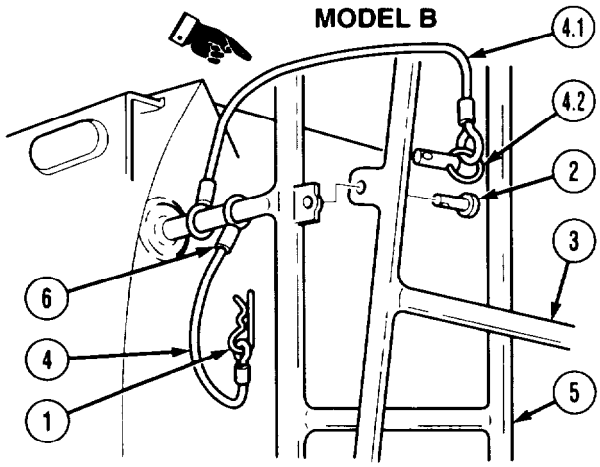
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-48	Pump module left side access panel removed.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

a. Removal.





(1) Remove safety pin (1) from pin (2) and remove pin.
(2) Lower ladder (3).
(3) Remove cable (4) from safety pin (1) and from fixed ladder (5) by removing two sleeves (6).

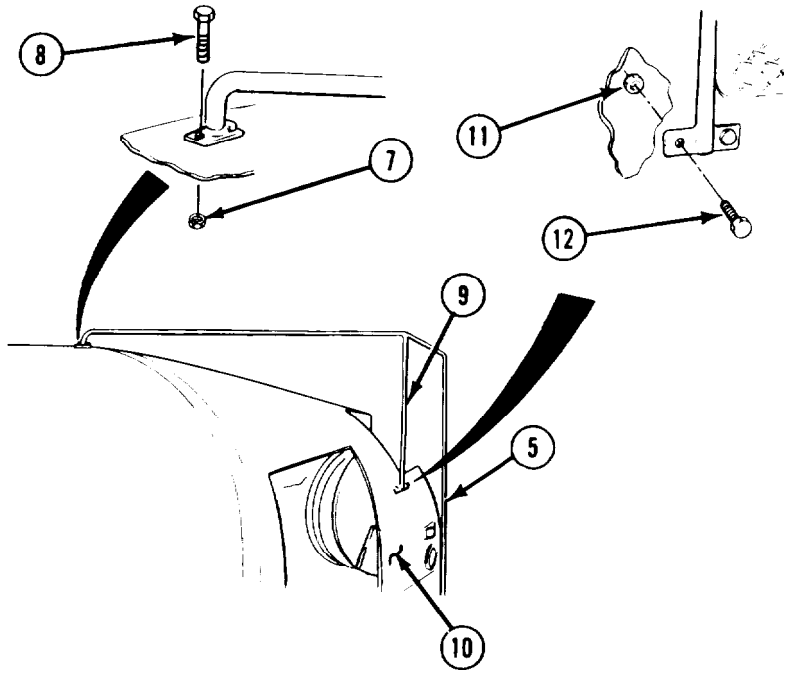
NOTE
Model B has an additional cable to secure pin. Do step (3.1) for Model B.

(3.1) Remove cable (4.1) from pin (4.2) and from fixed ladder (5) by removing two sleeves (6).

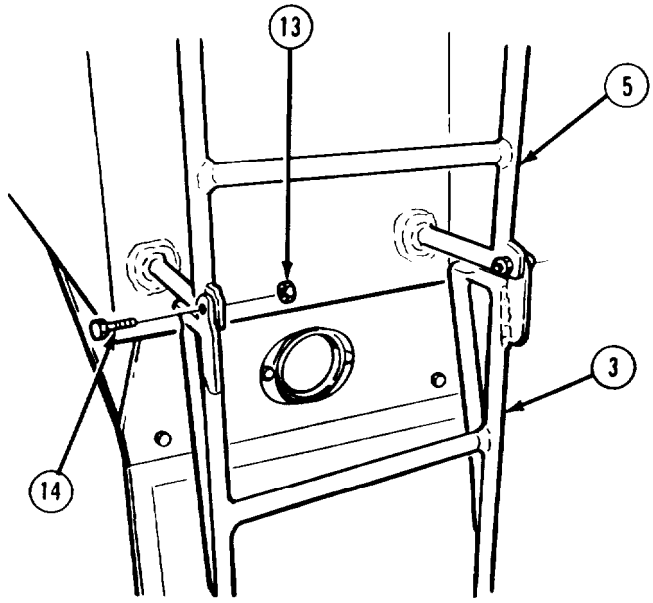
Cab and Body Maintenance Instructions (Cont)

(4) Remove two locknuts (7) and screws (8) from ladder rail (9) and pump module (10).

(5) Remove two locknuts (11), screws (12), and ladder rail (9) from pump module (10) and fixed ladder (5).



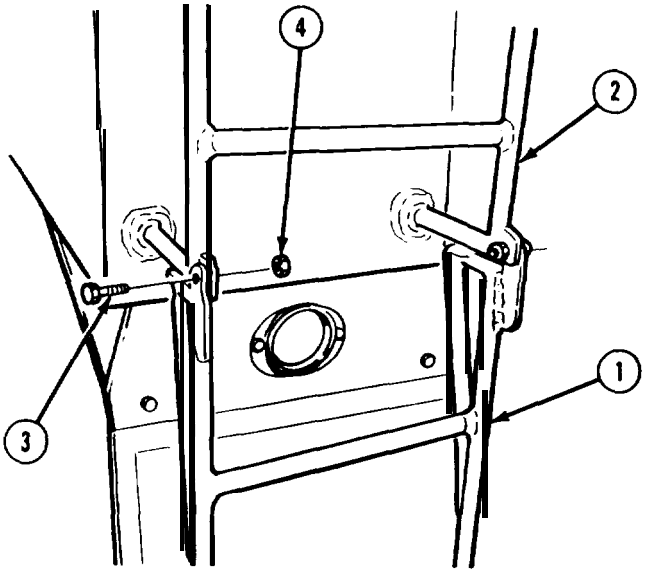
(6) Remove two locknuts (13), screws (14), and ladder (3) from fixed ladder (5).



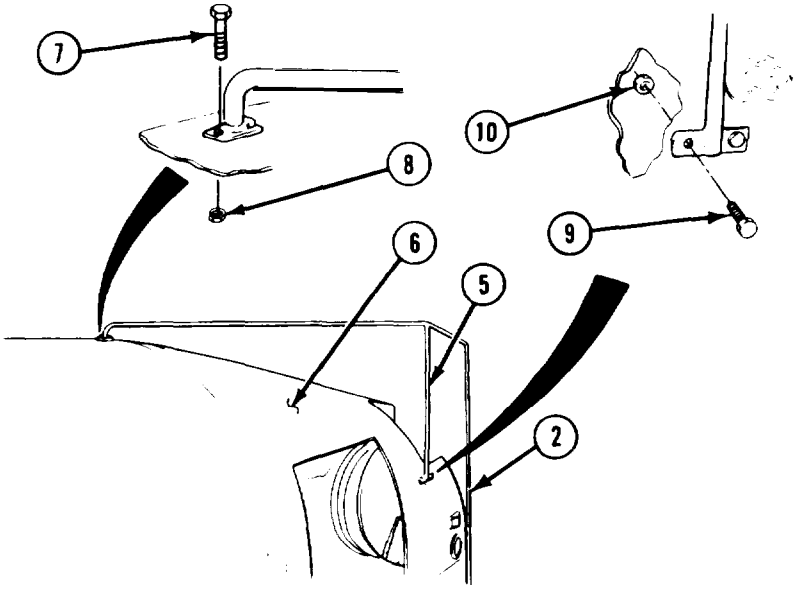
16-51. LADDER RAIL AND LADDER REMOVAL/INSTALLATION (M978) (CONT).

b. Installation.

(1) Position ladder (1) on fixed ladder (2) and install two screws (3) and locknuts (4).



(2) Position ladder rail (5) on fixed ladder (2) and pump module (6).
(3) Install ladder rail (5) with two screws (7) and locknuts (8).
(4) Install two screws (9) and locknuts (10).



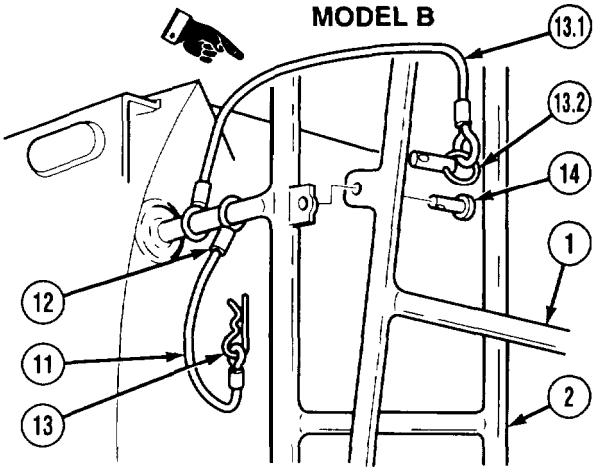
(5) Install cable (11) on fixed ladder (2) with sleeve (12) and install safety pin (13).

NOTE

Model B has an additional cable to secure pin. Do step *(5.1)* for Model B.

(5.1) Install cable (13.1) on fixed ladder (2) and pin (13.2) with two sleeves (12).

(6) Lift and install ladder rail (1) on fixed ladder (2) with pin (14) and safety pin (13).



c. ***Follow-on Maintenance.*** Install pump module left side access panel (para 16-48).

END OF TASK

16-52. DIPSTICK TUBE REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Model
M978

Test Equipment
None

Special Tools
None

Supplies
Ties, cable, plastic, Item 52, Appendix C

Pcrsonnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Dipstick removed.

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

16-52. DIPSTICK TUBE REMOVAL/INSTALLATION (M978) (CONT).

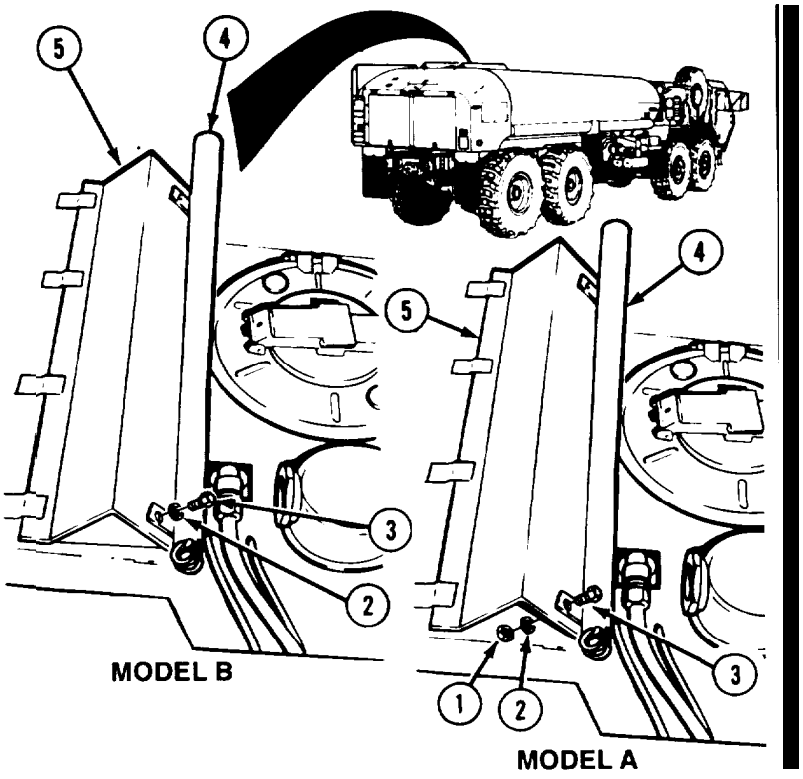
a. Removal.

NOTE

There are two types of fasteners for the dipstick storage tube, Model A and Model B. Model A uses a lockwasher and hex nut underneath the tank rollover rail. Model B does not use hex nuts and uses the lockwasher with the screw. Do step (1) for Model A and do step (1.1) for Model B.

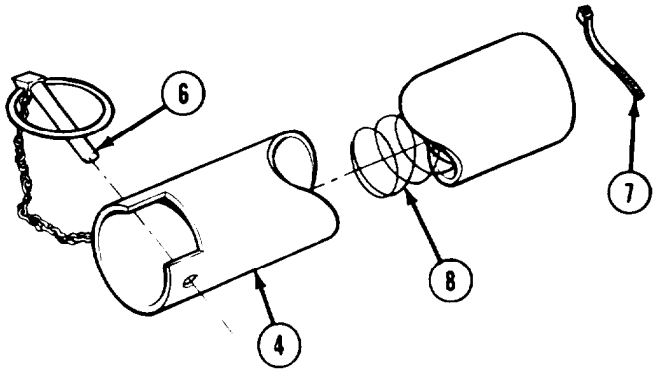
(1) Remove two nuts (1), lockwashers (2), screws (3), and dipstick tube (4) from left rollover rail (5).

(1.1) Remove two screws (3), lockwashers (2), and dipstick tube (4) from left rollover rail (5).



(2) Remove pin (6) from tube (4).

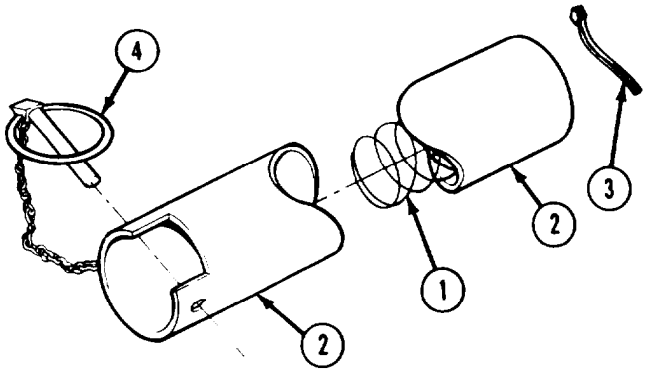
(3) Cut plastic cable tie (7) and remove spring (8) from tube (4).



6. Installation.

(1) Install spring (1) in dipstick tube (2) with plastic cable tie (3).

(2) Install pin (4) in tube (2).

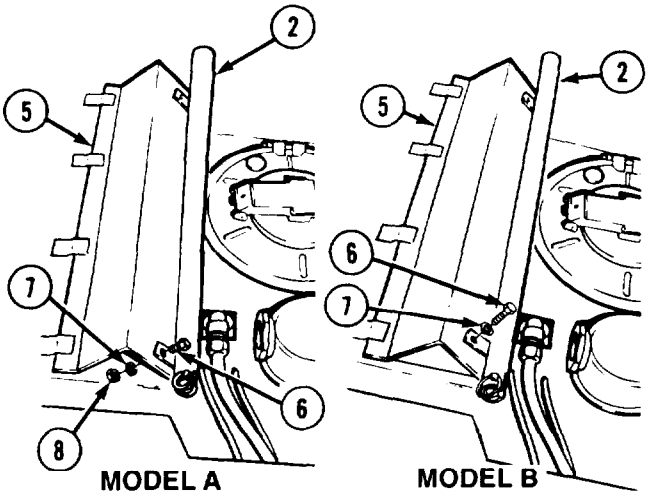


NOTE

There are two types of fasteners for the dipstick storage tube, Model A and Model B. Model A uses a lockwasher and hex nut underneath the tank rollover rail. Model B does not use hex nuts and uses the lockwasher with the screw. Do step (3) for Model A and do step (3.1) for Model B.

(3) Install dipstick tube (2) on left rollover rail (5) with two screws (6), lockwashers (7) and nuts (8).

(3.1) Install dipstick tube (2) on left rollover rail (5) with two screws (6) and lockwashers (7).



c. ***Follow-on Maintenance.*** Install dipstick TM 9-2320-279-10).

END OF TASK

16-52.1 HOSE COVER REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

Rcferences
None

Equipment Condition
TM or Para *Condition Description*
TM 9-2320-279-10 Shut off engine.

Special Environmental Conditions
None

General Safety Istructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

16-52.1 HOSE COVER REMOVAL/INSTALLATION (M978) (CONT).

a. Removal.

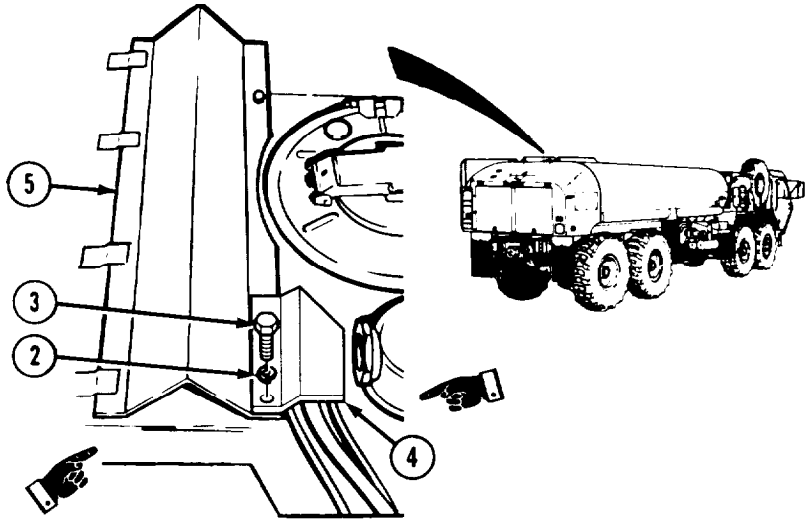
(1) Remove screw (3) and lockwasher (2).
(2) Remove hose cover (4) from left rollover rail (5).

b. Installation.

(1) Position hose cover (4) on left rollover rail (5).
(2) Install screw (3) and lockwasher (2).

C. Follow-on Maintenance. None.

END OF TASK



16-53. ROLLOVER RAIL REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

Reference
None

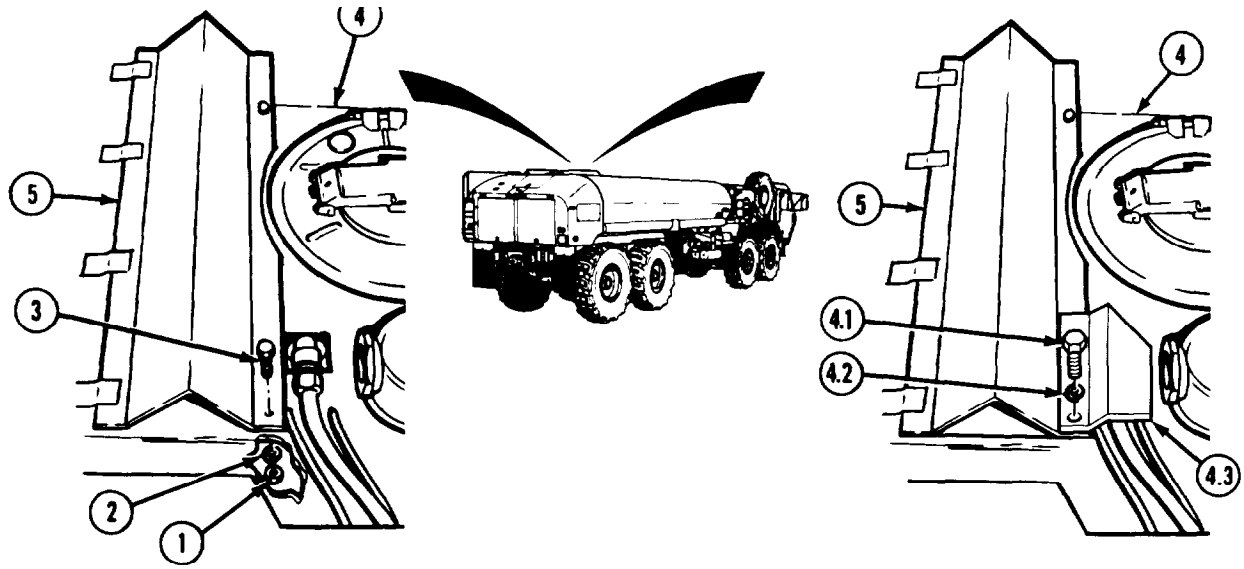
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-52	Dipstick stowage tube removed (for left side only).
Para 16-52.1	Hose cover removed (some models only).

Special Environmental Conditions
None

General Safety Instruction
No smoking, open flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

Cab and Body Maintenance Instructions (Cont)



MODEL A MODEL B

a. Removal.

NOTE

- Left and right rollover rails are removed and installed the same way.
- There are two models of rollover rail used. Perform step *(1)* for Model A and step *(1.1)* for Model B.

(1) Remove two nuts (1), lockwashers (2), and screws (3) from tank (4).
(1.1) Remove two screws (4.1), lockwashers (4.2), and hose cover (4.3) from tank (4).
(2) Remove rollover rail (5) from tank (4).

b. Installation.

(1) Position rollover rail (5) on tank (4).

NOTE

There are two models of rollover rail used. Perform step *(1.1)* for Model B and step (2) for Model A.

(1.1) Install hose cover (4.3) and rollover rail (5) on tank (4) with two screws (4.1) and lockwashers (4.2).
(2) Install rollover rail (5) on tank (4) with two screws (3), lockwashers (2), and nuts (1).

c Follow-on Maintenance. Install dipstick stowage tube (para 16-52).

END OF TASK

16-54. PUMP MODULE CENTER PANEL REMOVAL/INSTALLATION (M978).

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

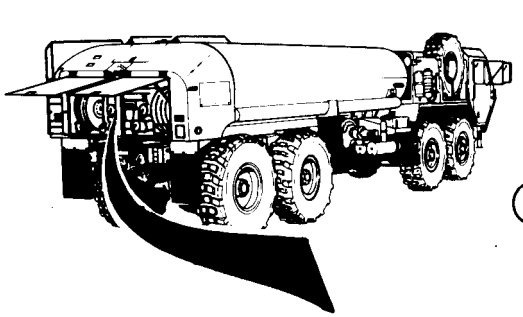
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Pump module rear access doors opened.

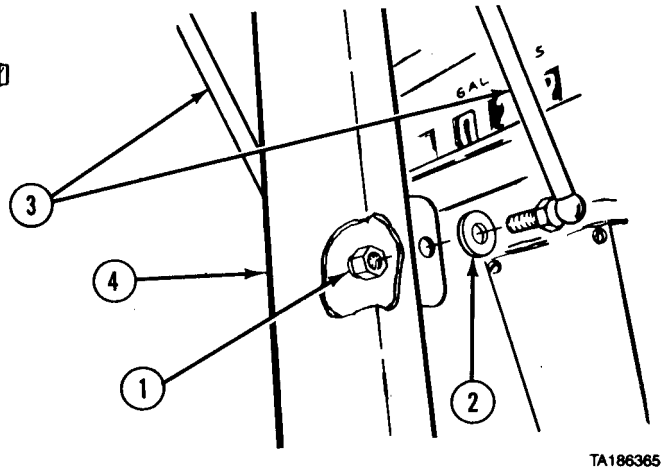
Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle.

16-54. PUMP MODULE CENTER PANEL REMOVAL/INSTALLATION (M978) (CONT).

a. Removal.





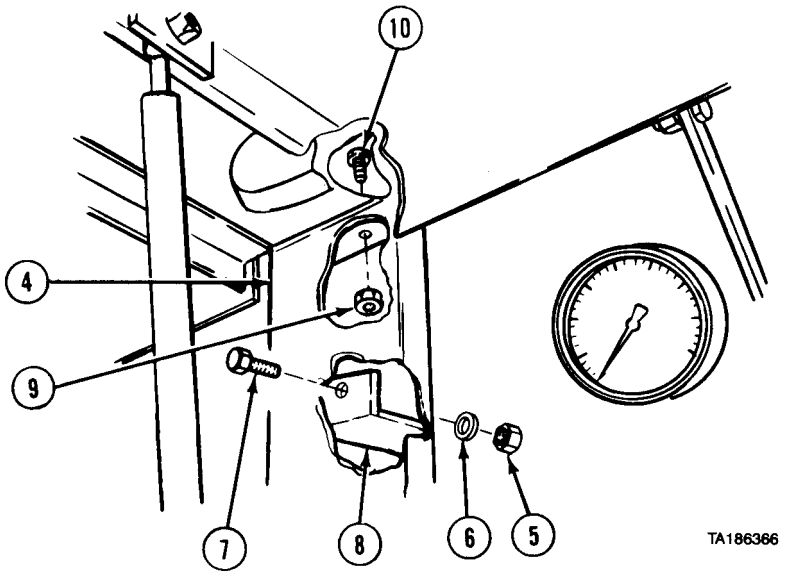
NOTE

Support pump module rear access doors before removing pistons and center panel.

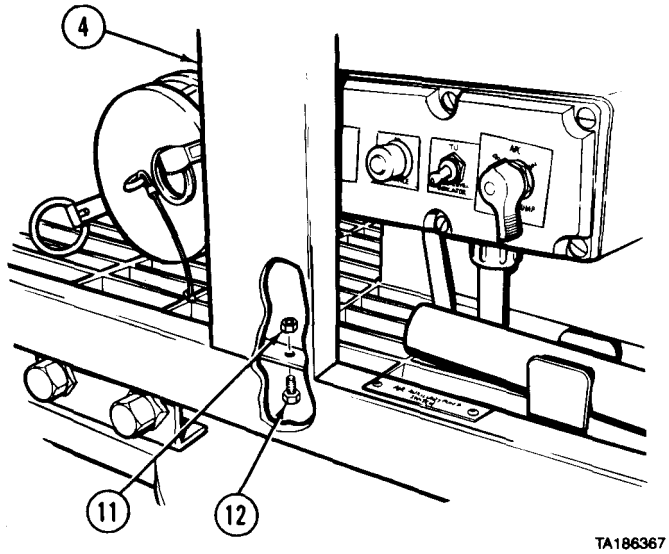
(1) Remove two locknuts (1), washers (2), and pistons (3) from center panel (4).

(2) Remove locknut (5), washer (6), and screw (7) from center panel (4) and bracket (8).

(3) Remove two locknuts (9) and screws (10) from center panel (4).



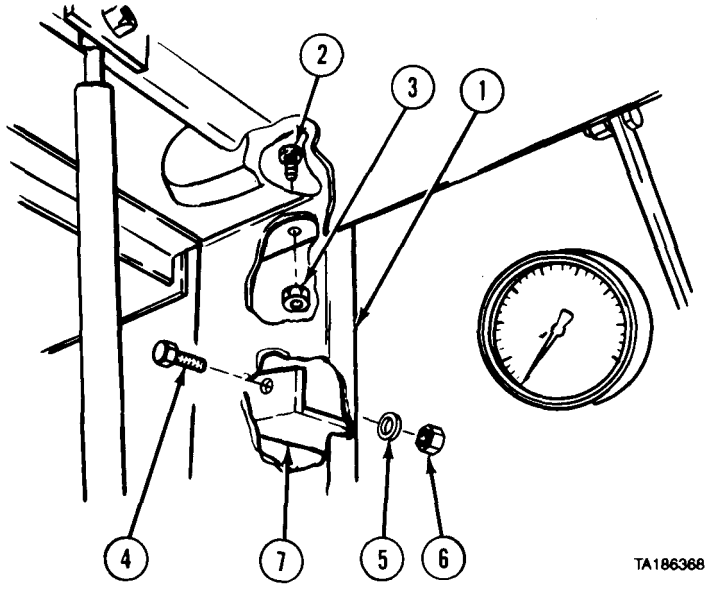
(4) Remove two locknuts (11), screws (12), and center panel (4).



b. Installation.

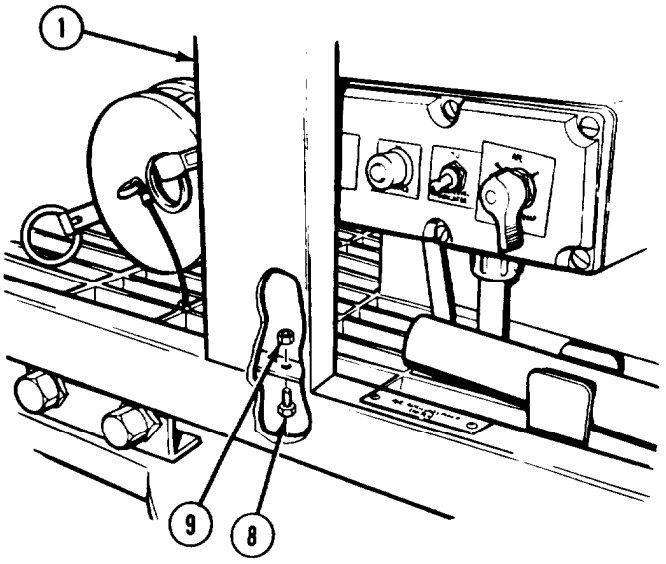
(1) Position center panel (1) and install two screws (2) and locknuts (3).

(2) Install screw (4), washer (5), and locknut (6) in center panel (1) and bracket (7).

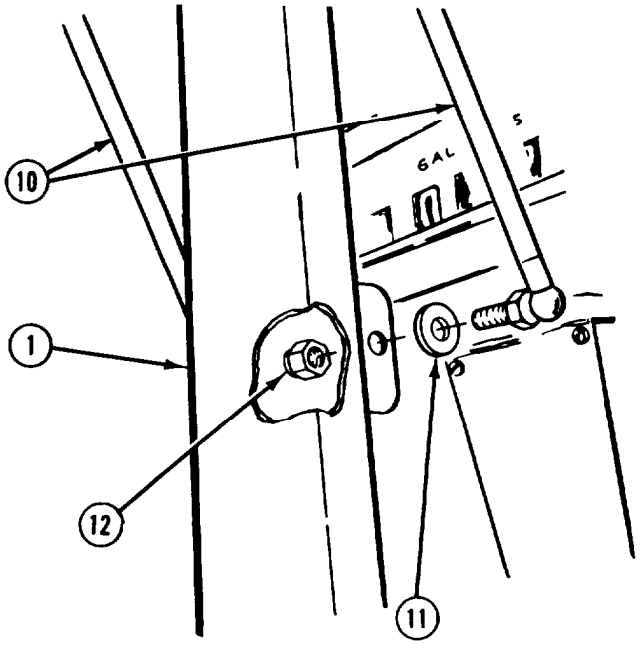


Cab and Body Maintenance Instructions (Cont)

(3) Install two screws (8) and nuts (9) in center panel (1).



(4) Install two door pistons (10) on center panel (1) with two washers (11) and locknuts (12).



Follow-on Maintenance. Close pump module rear access doors (TM 9-2320-279-10).

END OF TASK

16-54.1 TANK MOUNTING BOLT REPLACEMENT.

This task covers:

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

INITIAL SETUP

Models
M978

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Ladder removed (as required).
Para 4-7	Fuel tank removed (as required).

Equipment Condition

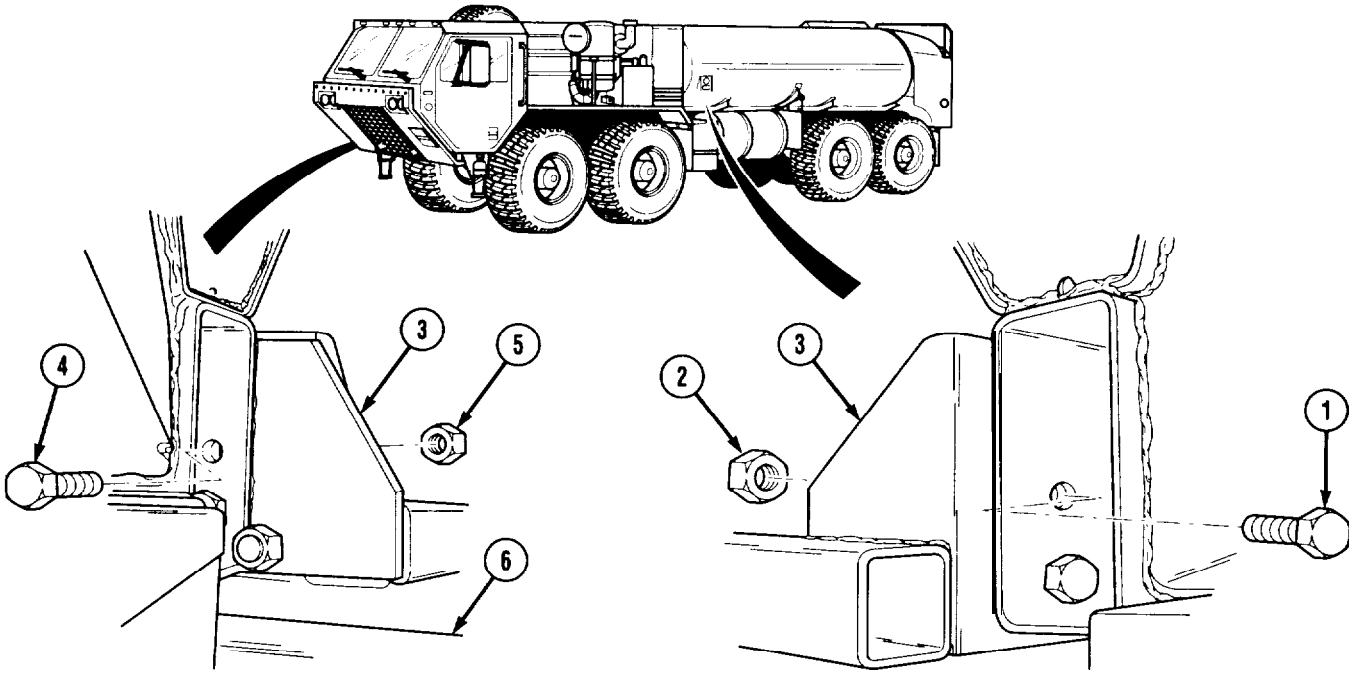
TM or Para	*Condition Description*
Para 4-28	Side clearance light wiring disconnected (as required).
Para 16-20	Center mud flaps removed (as required).
Para 16-34	Stowage box removed (as required.
Para 16-49.1	Tank vent drain disconnected (as required).

Special Environmental Conditions
None

General Safety Instructions
No smoking, flame, sparks, and hot or glowing objects within 50 ft (15 m) of vehicle. Work in well-ventilated area

Level of Maintenance
Organizational Support

a. Removal.



NOTE

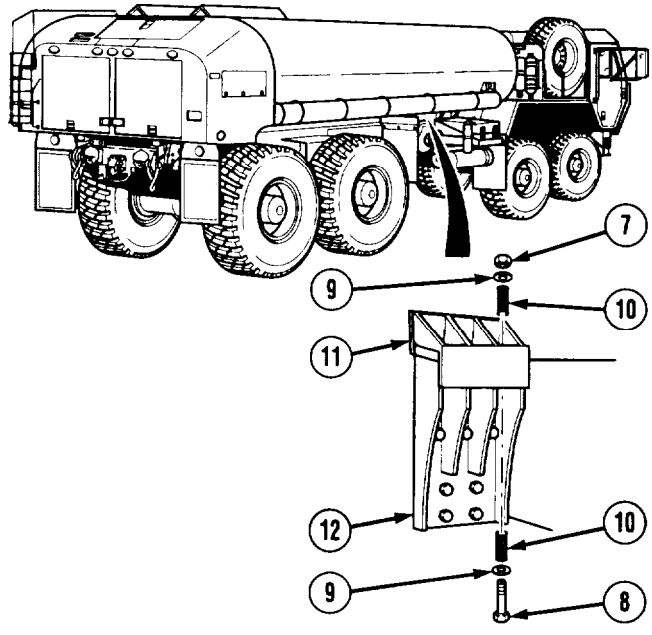
Screws are inside tank mounting rail.

(1) Remove two screws (1) and locknuts (2) from left side of tank front crossmember (3).
(2) Remove three screws (4) and locknuts (5) from right side of tank front crossmember (3).
(3) Remove tank front crossmember (3) from truck (6).

NOTE

Both left and right front tank mounts are removed the same way.

(4) Remove three locknuts (7), screws (8), six washers (9), and springs (10) from front tank mounting bracket (11) and frame mounting bracket (12).

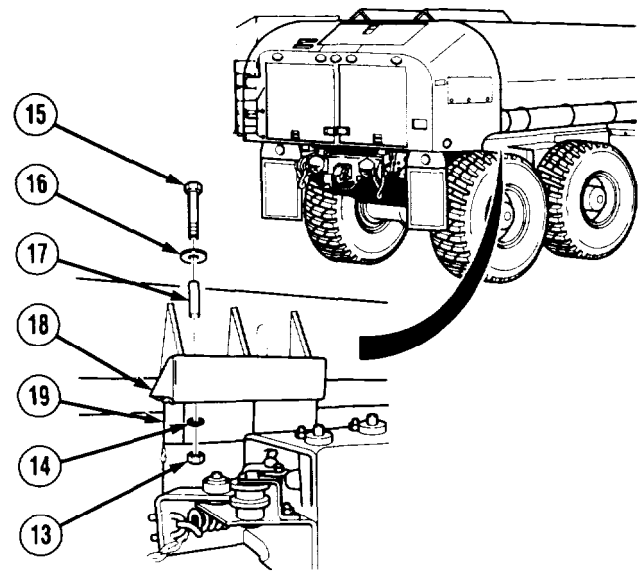


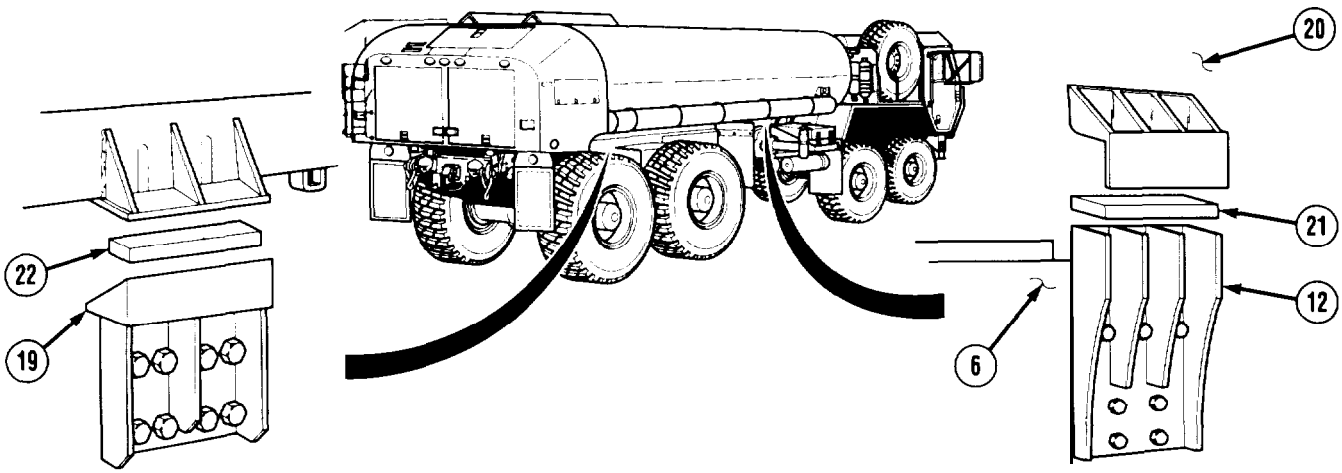
16-54.1 TANK MOUNTING BOLT REPLACEMENT.

NOTE

Both left and right rear tank mounts are removed the same way.

(5) Remove four locknuts (13), washers (14), screws (15), washers (16), and spacers (17) from rear tank mounting bracket (18) and frame mounting bracket (19).





WARNING

Do not get under tank while it is supported by lifting device. Tank could fall, causing personal injury or death.

CAUTION

Tank must be lifted slowly and carefully. Make sure no wires, hoses, or linkages are caught during lifting, or severe damage to tank and chassis will result.

NOTE

- Tank is lifted only as required to remove screws for replacement.
- Rubber pads may fall out of front mounting brackets when tank is lifted.

(6) Attach suitable lifting device and lifting straps to tank (20).
(7) Using a lifting device as required, raise tank (20) from truck (6).
(8) Remove four rubber pads (21 and 22) as required, from front and rear frame mounting brackets (12 and 19).

6. Installation.

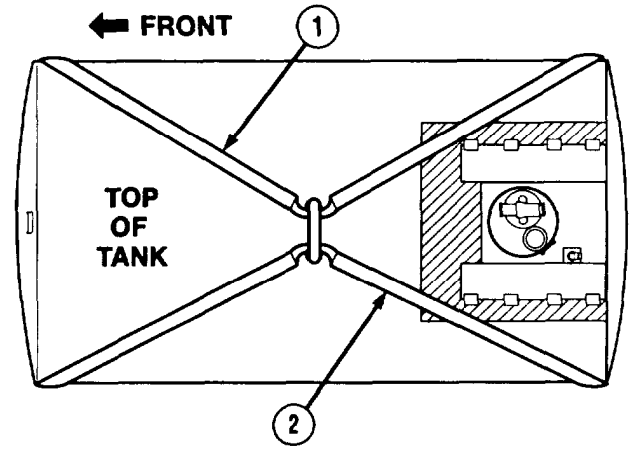
WARNING

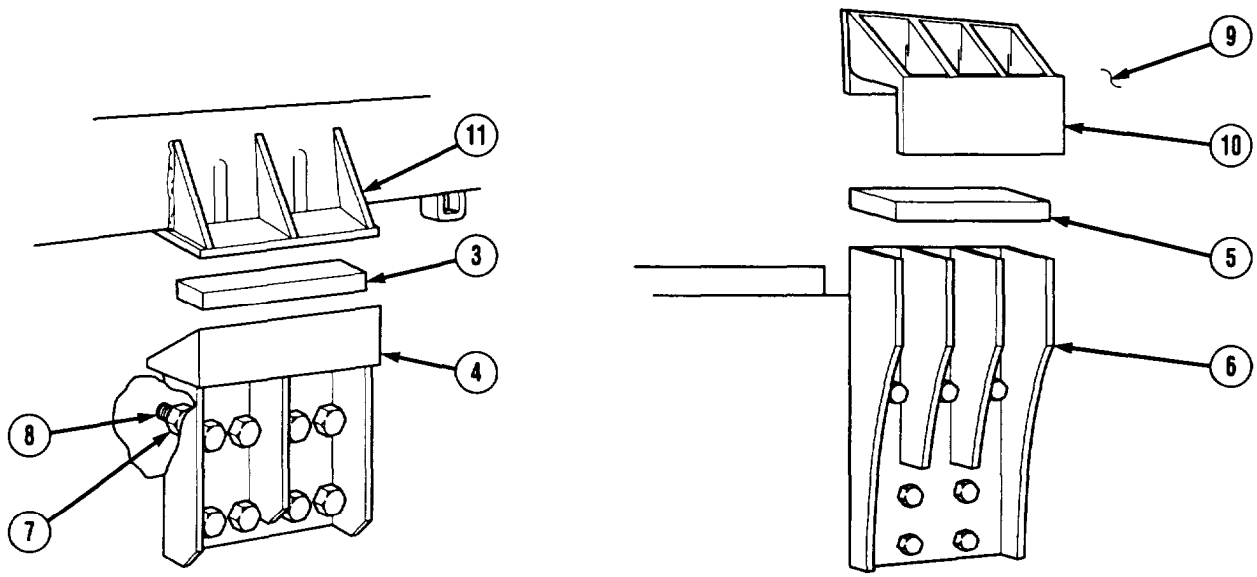
Do not get under tank while it is supported by lifting device. Tank could fall, causing personal injury or death.

NOTE

Use of lifting straps may be required to lift tank to aline mounting screw holes.

(1) Attach suitable lifting straps to each end (1 and 2).





(2) Install two rubber pads (3) on two rear frame mounting brackets (4).
(3) Install two rubber pads (5) on two front frame mounting brackets (6).
(4) Loosen eight nuts (7) and screws (8) on two rear frame mounting brackets (4).

CAUTION

Soldier A must lower tank slowly and carefully into place while Soldier B makes sure tank does not collide with module or other vehicle components, causing damage to tank, module, or other vehicle components.

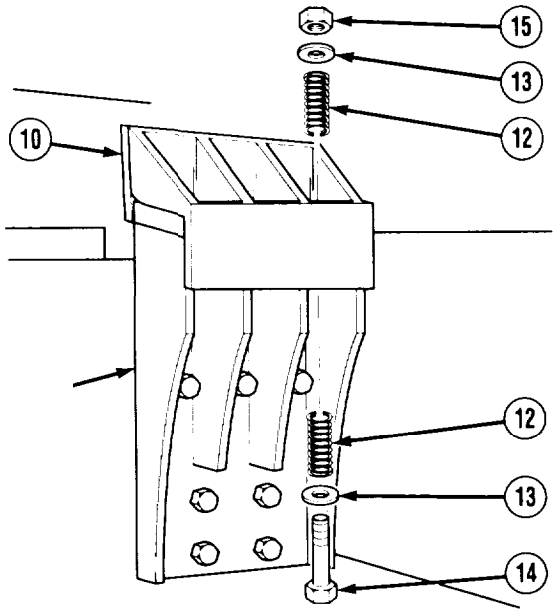
(5) Using suitable lifting device and lifting straps (1 and 2) raise tank (9).
(6) Using a lifting device, position tank (9) so front tank mounting brackets (10) and rubber pads (5) aline with front frame mounting brackets (6), and rear tank mounting bracket (11) and rubber pads (3) aline with rear frame mounting brackets (4).

16-54.1. TANK MOUNTING BOLT REPLACEMENT.

NOTE

Both left and right mounts are installed the same way.

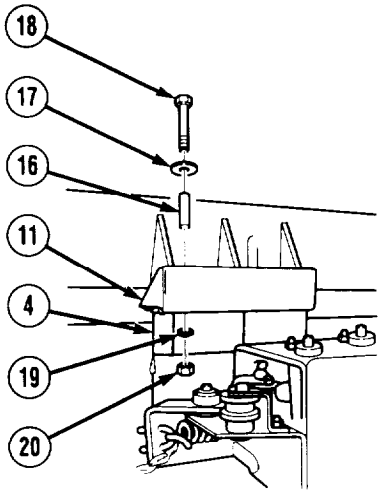
(7) Install six springs (12), washers (13), three screws (14), and locknuts (15) in each front tank mounting bracket (10) and each front frame mounting bracket (6).

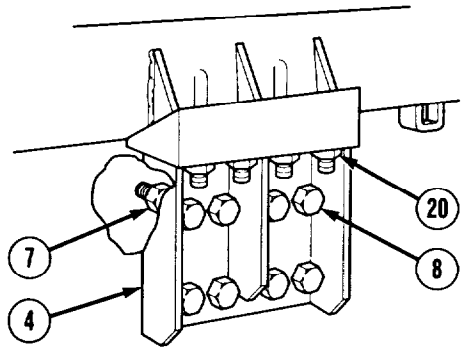


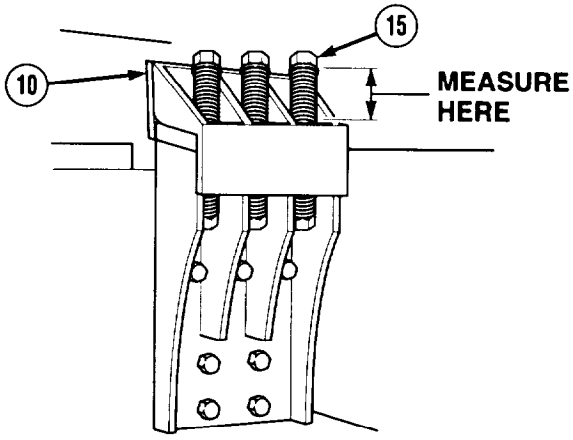
NOTE

Both left and right mounts are installed the same way.

(8) Install four spacers (16), washers (17), screws (18), washers (19), and locknuts (20) in each rear tank mounting bracket (11) and each rear frame mounting bracket (4). Do not tighten locknuts.



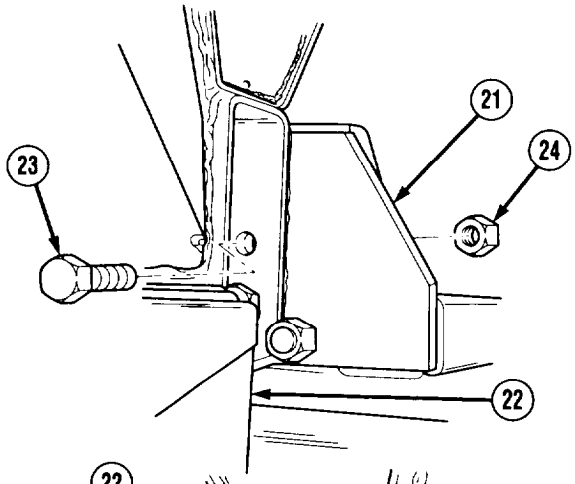




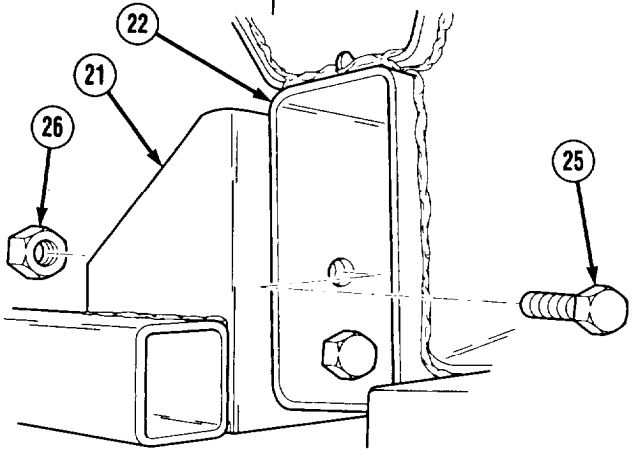
NOTE

Compress springs on both left and right front tank mounts to 3-1/2 in. to 3-3/4 in. (89 mm to 95 mm).

(9) Tighten three locknuts (15) on front tank mounting brackets (10).
(10) Tighten four locknuts (20) on rear frame mounting brackets (4).
(11) Tighten eight nuts (7) on eight screws (8) behind rear frame mounting bracket (4).
(12) Position tank front crossmember (21) on truck (22).
(13) Install right side of front crossmember (21) on truck (22) with three screws (23) and nuts (24). Tighten nuts.



(14) Install left side of front crossmember (21) on truck (22) with three screws (25) and nuts (26). Tighten nuts.



c. Follow-on Maintenance.

(1) Install stowage box (as required) (para 16-34).
(2) Install fuel tank (as required) (para 4-7).
(3) Install center mud flaps (as required) (para 16-20).
(4) Install ladder (TM 9-2320-279-20).
(5) Connect tank vent drain (para 16-49.1)
(6) Connect side clearance lights.

END OF TASK

Section IX. WRECKER BODY

16-55. TOW BAR MOUNTING BRACKETS REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

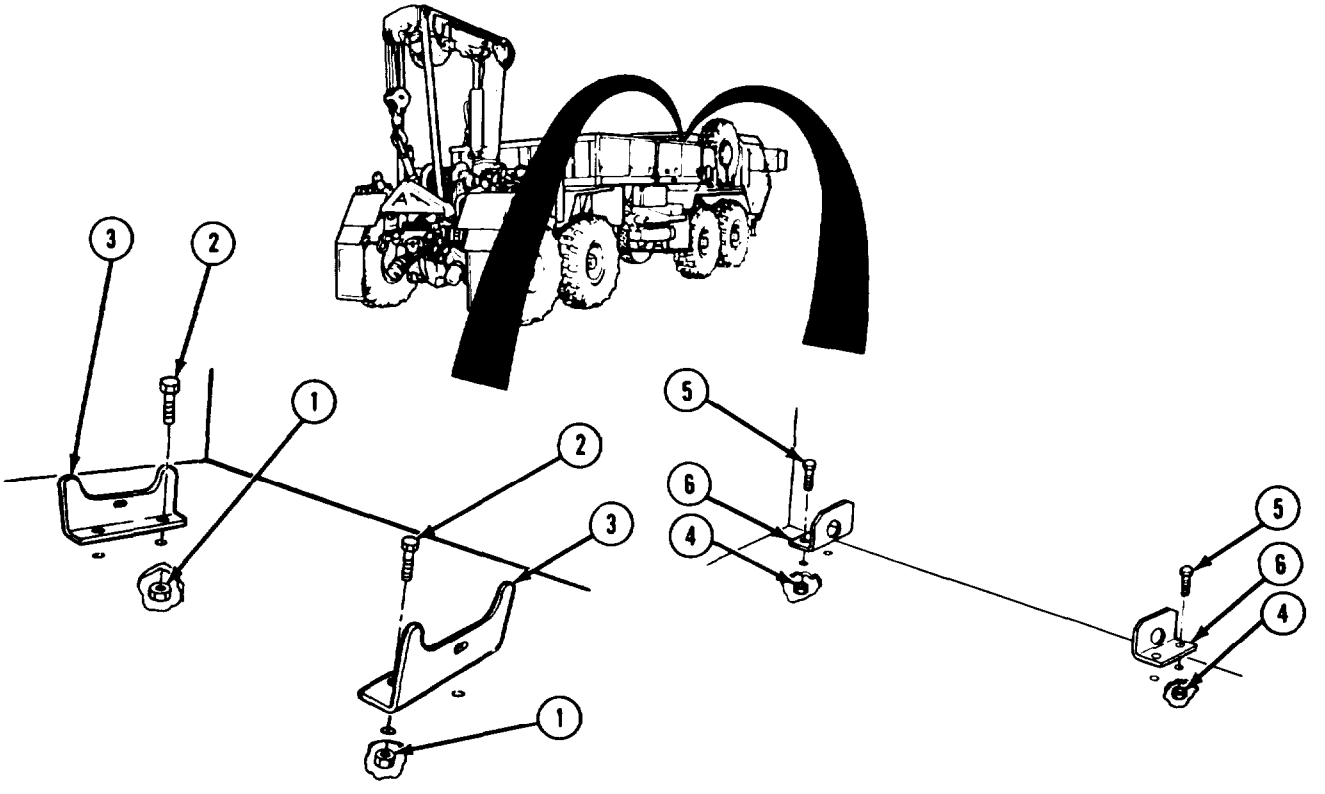
Equipment Condition

TM or Para	*Condition Description*
TM 9-3330-279- 10	Shut off engine.
TM 9-2320-354-10	Tow bar removed.
TM 9-2320-354-10	Tow bar cross frame removed.

Special Environmental Conditions
None

General Safety Instructions
None

Cab and Body Maintenance Instructions (Cont)



a. Removal.

(1) Soldier A removes four nuts (1) while Soldier B holds screws (2).
(2) Remove two brackets (3) and four screws (2).
(3) Soldier A removes four nuts (4) while Soldier B holds screws (5).
(4) Remove two brackets (6) and four screws (5).

b. Installation.

(1) Install two brackets (6) and four screws (5).
(2) Soldier A installs four nuts (4) while Soldier B holds screws (5).
(3) Install two brackets (3) and four screws (2).
(4) Soldier A installs four nuts (1) while Soldier B holds screws (2).

c. Follow-on Maintenance.

(1) Install tow bar cross frame (TM 9-2320-354-10).
(2) Install tow bar (TM 9-2320-354-10).

END OF TASK

Section IX. WRECKER BODY

16-55.1. SPADE TUBE MOUNTING BRACKETS REMOVAL/INSTALLATION (M964).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

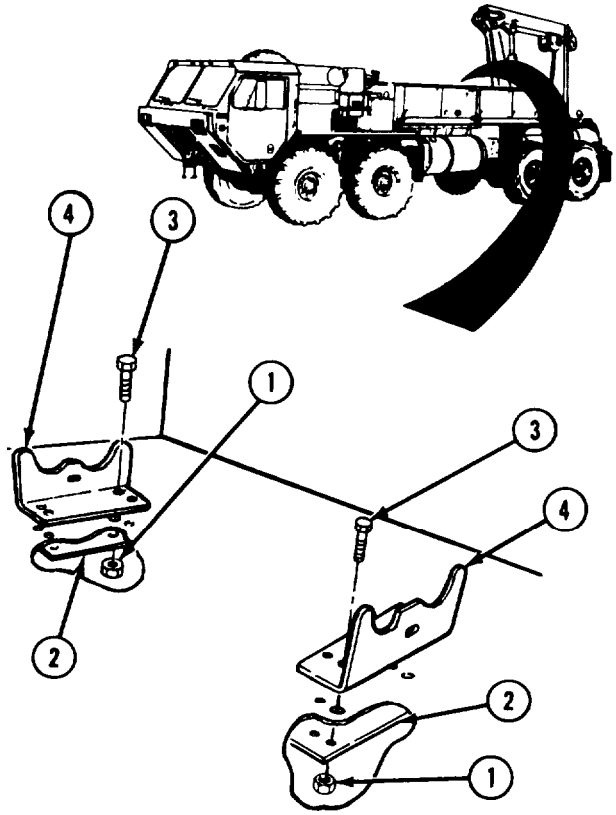
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-354-10	Tow bar removed.
TM 9-2320-354-10	Boom supports removed.
TM 9-2320-354-10	Spade poles removed.

Special Environmental Conditions
None

General Safety Instructions
None

Cab and Body Maintenance instructions (Cont)

a. Removal.



(1) Soldier A removes eight nuts (1) and two plates (2) while Soldier B holds screws (3).
(2) Remove two brackets (4) and eight screws (3).

b. Installation.

(1) Install two brackets (4) and eight screws (3).
(2) Soldier A installs two plates (2) and eight nuts (1) while Soldier B holds screws (3).

c. *Follow-on Maintenance.*

(1) Install spade poles (TM 9-2320-354-10).
(2) Install boom supports (TM 9-2320-354-10).
(3) Install tow bar (TM 9-2320-354-10).

END OF TASK

Cab and Body Maintenance Instructions (Cont)

16-56. SNATCH BLOCK MOUNTING ASSEMBLY REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-354-10	Snatch block removed.

Special Environmental Conditions
None

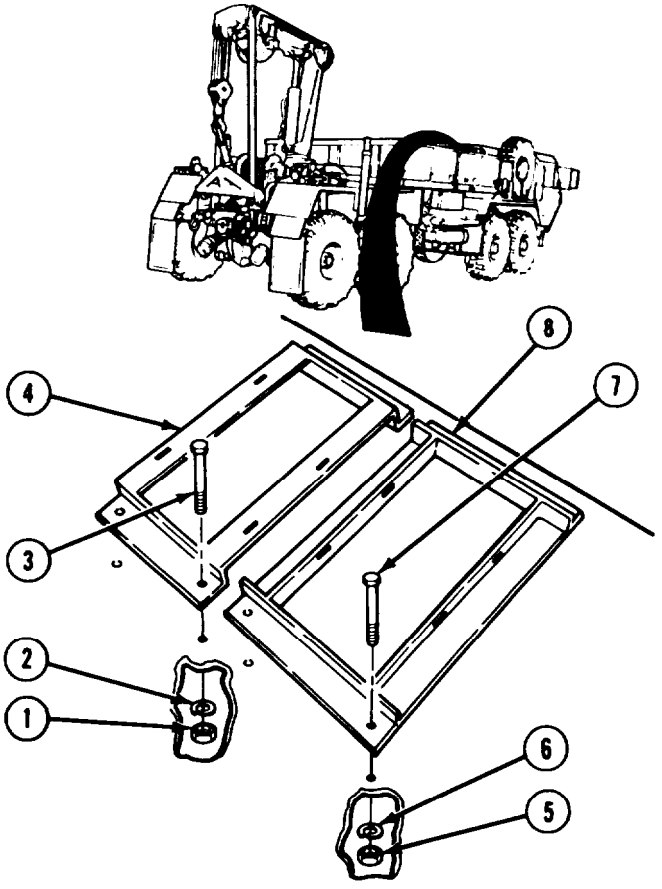
General Safety Instructions
None

a. Removal.

(1) Soldier A removes four nuts (1) and lockwashers (2) while Soldier B holds four screws (3).
(2) Remove left side bracket (4) and four screws (3).
(3) Soldier A removes four nuts (5) and lockwashers (6) while Soldier B holds four screws (7).
(4) Remove right side bracket (8) and four screws (7).

b. Installation.

(1) Install right side bracket (8) with four screws (7).
(2) Soldier A installs four lockwashers (6) and nuts (5) while Soldier B holds four screws (7).
(3) Install left side bracket (4) with four screws (3).
(4) Soldier A installs four lockwashers (2) and nuts (1) while Soldier B holds four screws (3).



c. **Follow-on Maintenance.** Install snatch block (TM 9-2320-354-10).

END OF TASK

16-57. OXYGEN BOTTLE MOUNTING BRACKETS REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

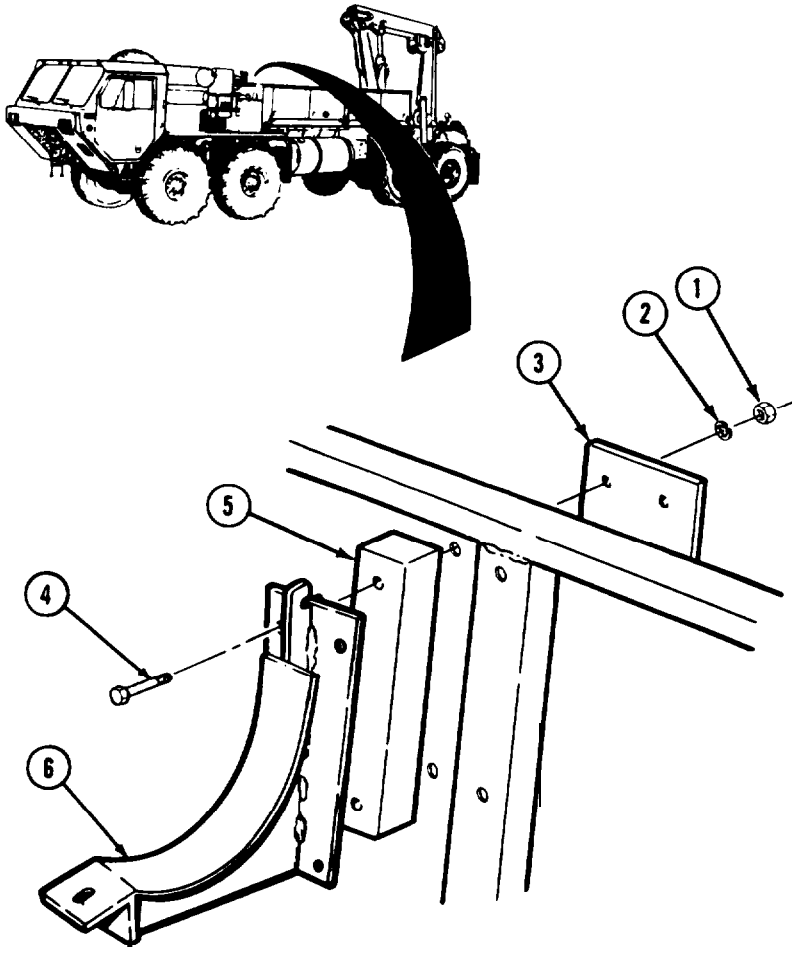
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-354-10	Oxygen bottle and straps removed.

Special Environmental Conditions
None

General Safety Instructions
None

16-57. OXYGEN BOTTLE MOUNTING BRACKETS REMOVAL/INSTALLATION (M964)



NOTE

Both mounting brackets are removed and installed the same way.

a. Removal. Remove four nuts (1), lockwashers (2), plate (3), four screws (4), spacer (5), and mounting bracket (6).

b. Installation. Install mounting bracket (6), spacer (5), plate (3), four screws (4), lockwashers (2), and nuts (1).

c. Follow-on Maintenance. Install oxygen bottle and straps (TM 9-2320-354-10).

END OF TASK

16-57.1 TOW SPADE HOLDER REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Specia1 Tools
None

Supplies
None

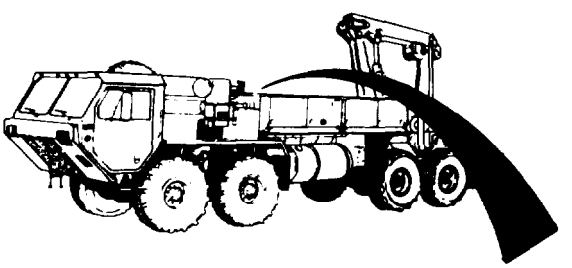
Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

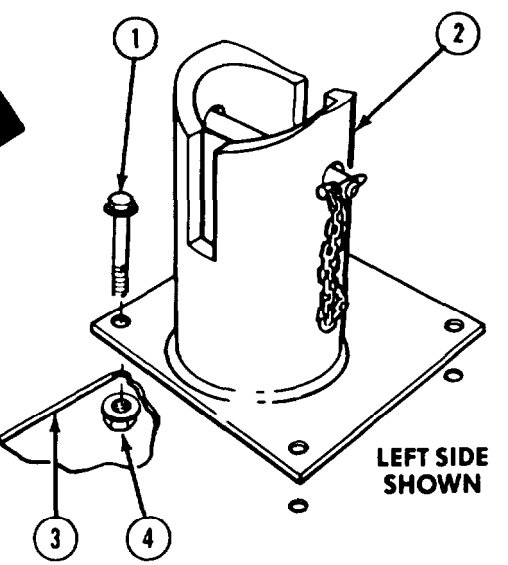
References
None

Equipment Condition
TM or Para Condition Description
TM 9-2320-354-10 Tow spades removed.

Special Environmental Conditions
None

General Safety Instructions
None





NOTE
Both tow spade holders are removed and installed the same way.

a. Removal. Soldier A removes four screws (1) and tow spade holder (2) from body floor (3), while Soldier B removes nuts (4).

b. Installation. Soldier A installs tow spade holder (2) on body floor (3) with four screws (l), while Soldier B installs four nuts (4).

C. Follow-on Maintenance. Install tow spades (TM 9-2320-354-10).

END OF TASK

16-58. ACETYLENE TANK MOUNT ASSEMBLY REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

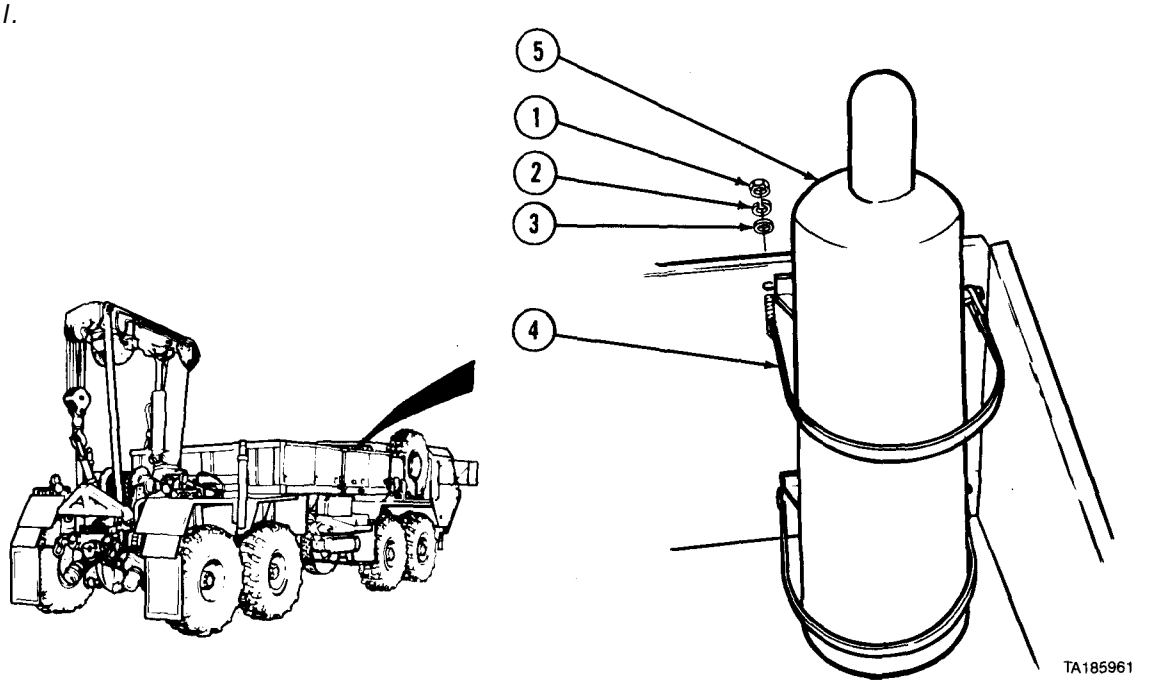
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

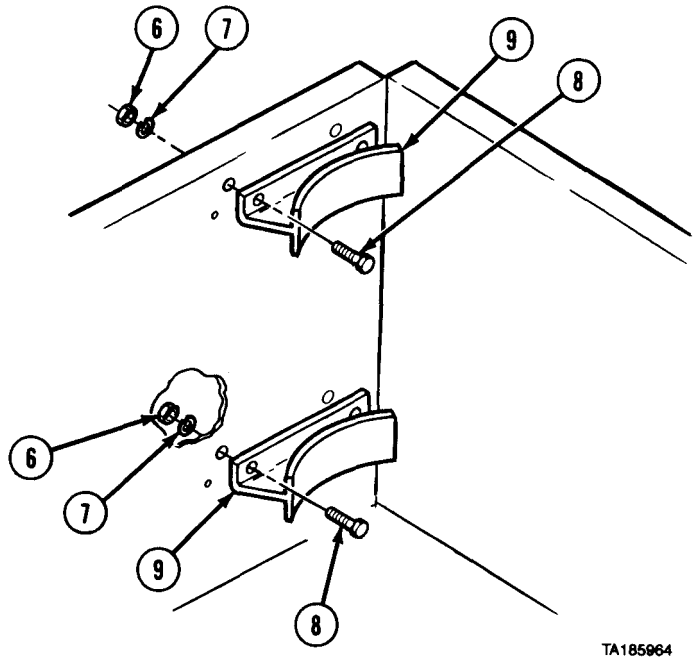
General Safety Instructions
None

a. Removal.



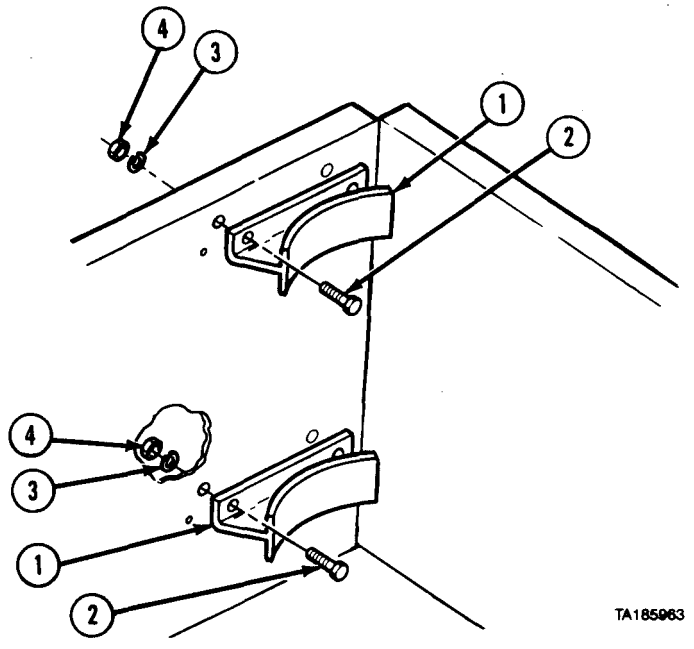
(1) Remove two nuts (1), lockwashers (2), washers (3), and two straps (4).
(2) Remove acetylene bottle (5).

(3) Remove four nuts (6), lockwashers (7), screws (8), and two mount assemblies (9).



b. Installation.

(1) Install two mount assemblies (1) with four screws (2), lockwashers (3), and nuts (4).

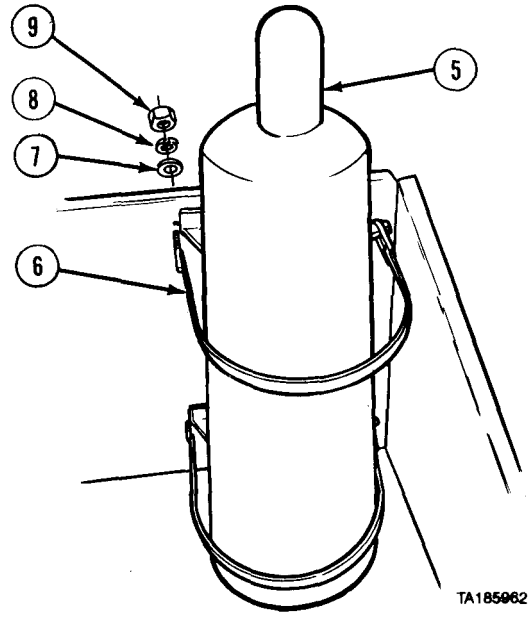


16-58. ACETYLENE TANK MOUNT ASSEMBLY REMOVAL/INSTALLATION (M984) (CONT).

(2) Install acetylene bottle (5).
(3) Install two straps (6) with two washers (7), lockwashers (8), and nuts (9).

c. Follow-on Maintenance. None.

END OF TASK



16-59. HEAVY-DUTY WINCH SCREEN AND BRACKETS REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

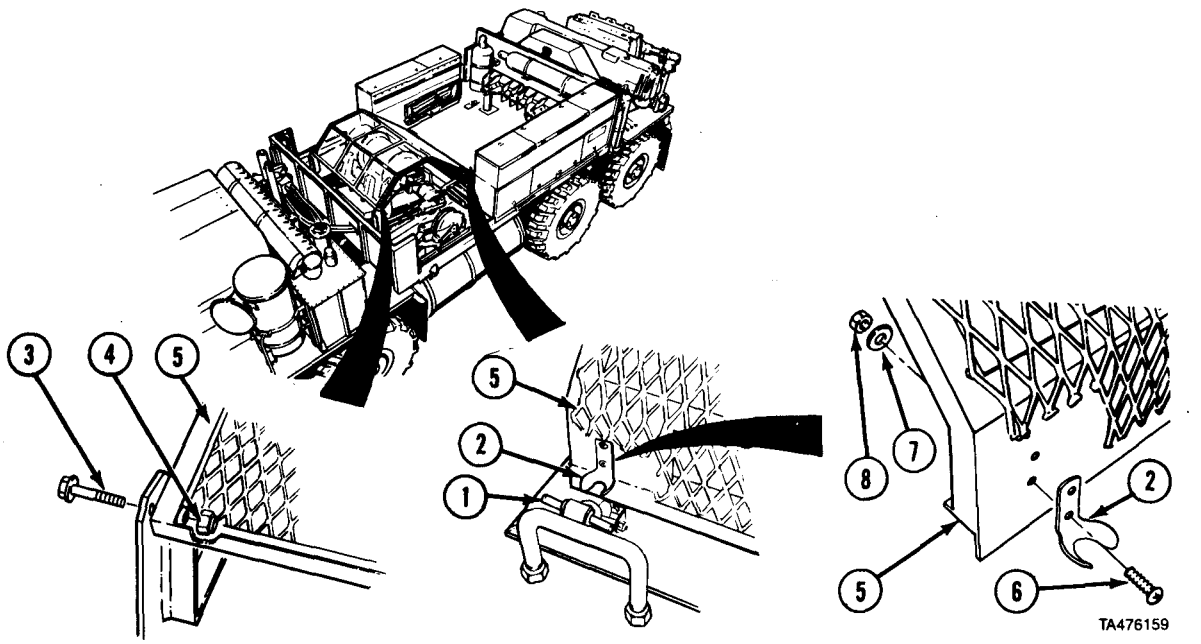
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Tow spade extensions removed.

Special Environmental Conditions
None

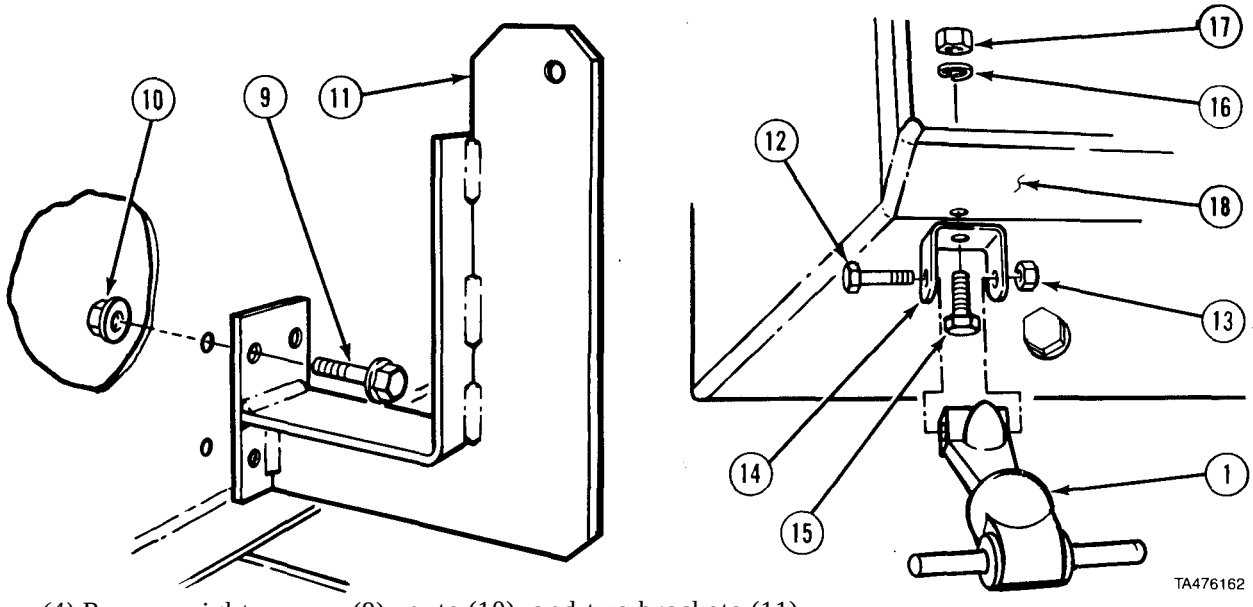
General Safety Instructions
None

a. Removal.



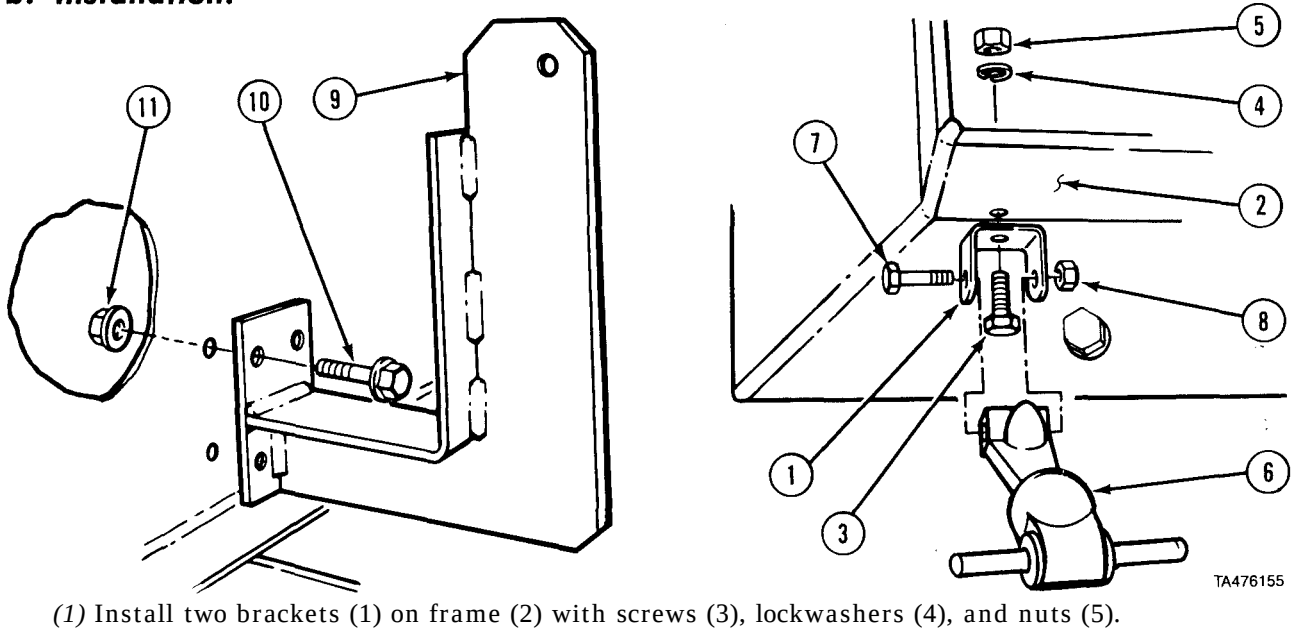
(1) Unhook two rubber hooks (1) from hook brackets (2).
(2) Remove two screws (3), locknuts (4) and screen (5).
(3) Remove four screws (6), washers (7), locknuts (8), and two hook brackets (2) from screen (5).

16-59. HEAVY-DUTY WINCH SCREEN AND BRACKETS REMOVAL/INSTALLATION (M984E1) (CONT).

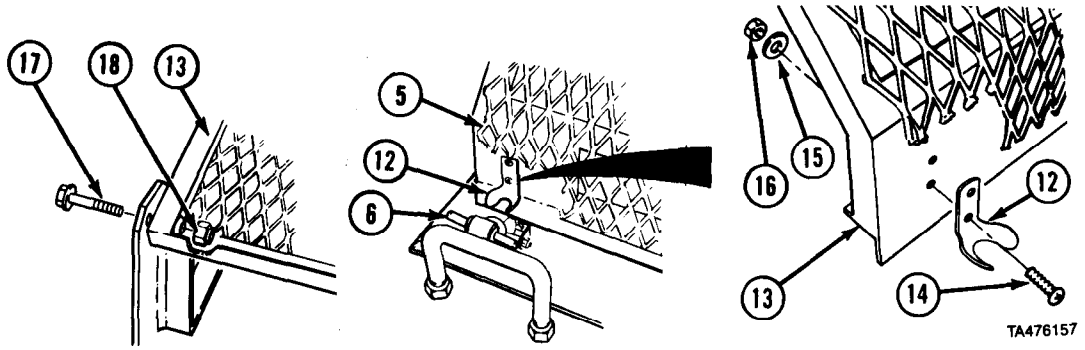


(4) Remove eight screws (9), nuts (10), and two brackets (11).
(5) Remove two screws (12), locknuts (13), and rubber hooks (1) from brackets (14).
(6) Remove two screws (15), lockwashers (16), nuts (17), and brackets (14) from frame (18).

b. Installation.



(1) Install two brackets (1) on frame (2) with screws (3), lockwashers (4), and nuts (5).
(2) Install two rubber hooks (6) on brackets (1) with screws (7) and locknuts (8).
(3) Install two brackets (9) with eight screws (10) and nuts (11).



(4) Install two hook brackets (12) on screen (13) with four screws (14), washers (15), and locknuts (16).
(5) Install screen (13) with two screws (17) and nuts (18).
(6) Hook two rubber hooks (6) on hook brackets (12).

c. Follow-on Maintenance. Install tow spade extensions (TM 9-2320-279-10).

END OF TASK

16-60. ACETYLENE TANK STRAPS AND MOUNT ASSEMBLY REMOVAI/NSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

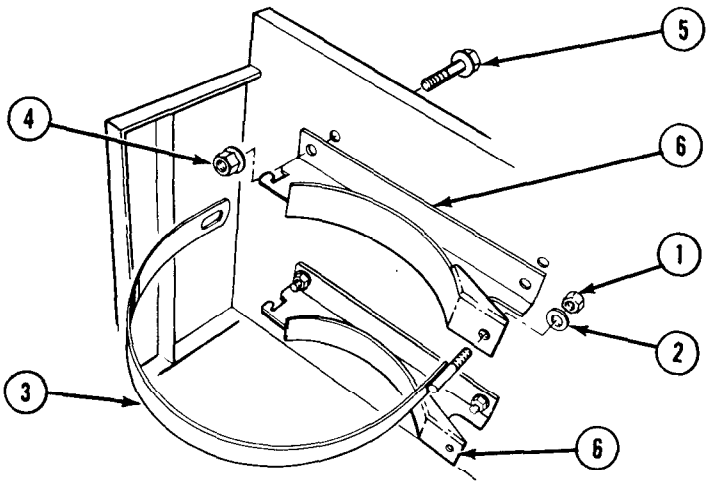
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Acetylene tank removed.

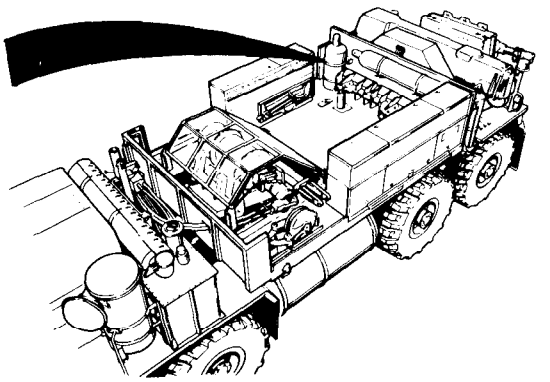
Special Environmental Conditions
None

General Safety Instructions
None

16-60. ACETYLENE TANK STRAPS AND MOUNT ASSEMBLY REMOVAL/INSTALLATION (M984E1) (CONT).

a. Removal.





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(1) Remove two nuts (1), washers (2), and straps (3).
(2) Remove four nuts (4), screws (5), and two mount assemblies (6).

b. Installation.

(1) Install two mount assemblies (6) with four screws (5), and nuts (4).
(2) Install two straps (3) with two washers (2), and nuts (1).

c. Follow-on Maintenance. Install acetylene tank (TM 9-2320-279-10).

END OF TASK

16-61. OXYGEN TANK STRAPS AND MOUNTING BRACKETS REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS *63S*, Heavy wheel vehicle mechanic

References
None

Equipment Condition

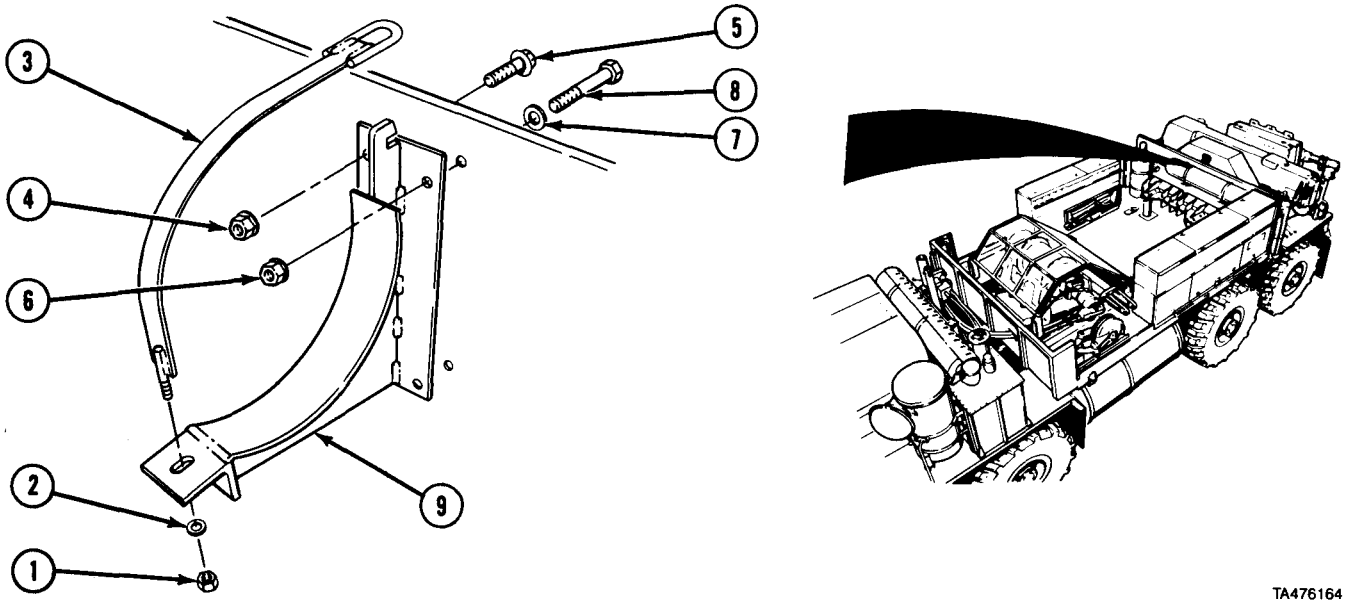
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Oxygen tank removed.

Special Environrnental Conditions
None

General Safety Instructions
None

Cab and Body Maintenance Instructions (Cont)

a. Removal.



NOTE

Both straps and mounting brackets are removed and installed the same way.

(1) Remove nut (1), washer (2), and strap (3).
(2) Remove two nuts (4) and screws (5).
(3) Remove two nuts (6), washers (7), screws (8), and bracket (9).

b. Installation.
(1) Install bracket (9) with two screws (8), washers (7), and nuts (6).
(2) Install two screws (5) and nuts (4).
(3) Install strap (3) with washer (2) and nut (1).

c. Follow-on Maintenance. Install oxygen tank (TM 9-2320-279-10)

END OF TASK

16-62. RETRIEVER ADAPTER AND TOW SPADE HOLDERS REMOVAL/INSTALLATION (M984E1).

This task covers:

a. Retriever Adapter Holder Removal
b. Retriever Adapter Holder Installation
c. Tow Spade Holder Removal
d. Tow Spade Holder Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

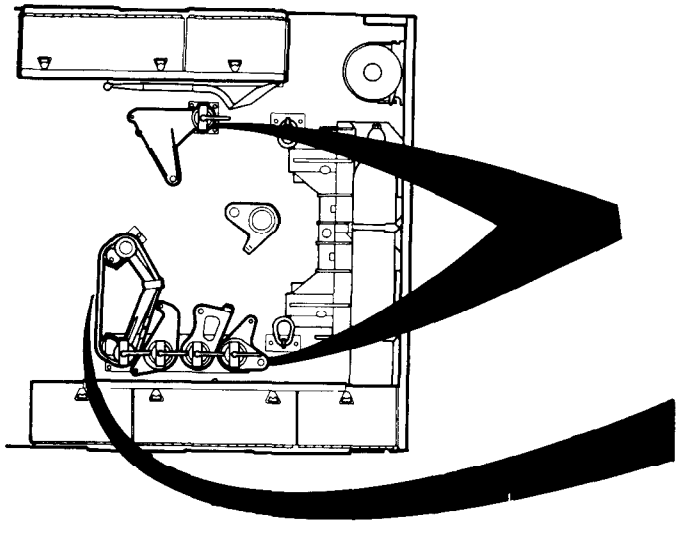
Equipment Condition

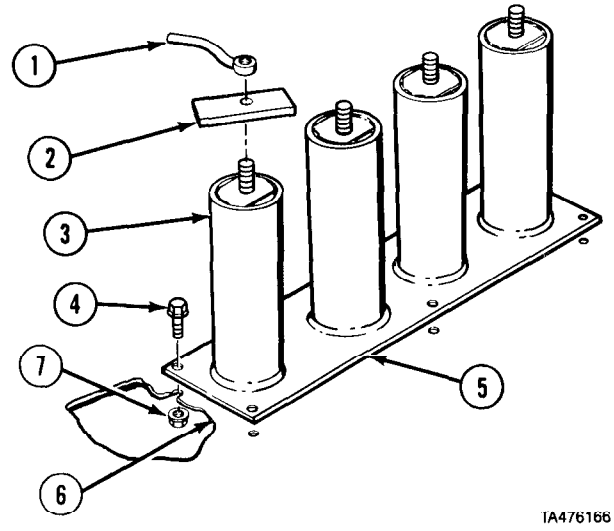
TM or Para	*Condition Description*
TM 9-2320-279-10	Retriever adapters and tow spades removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Retriever Adapter Holder Removal.





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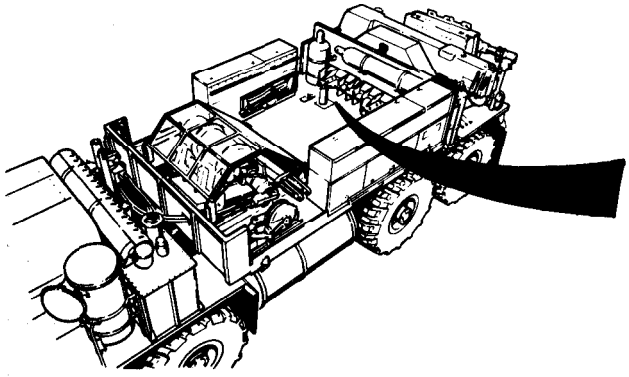
NOTE

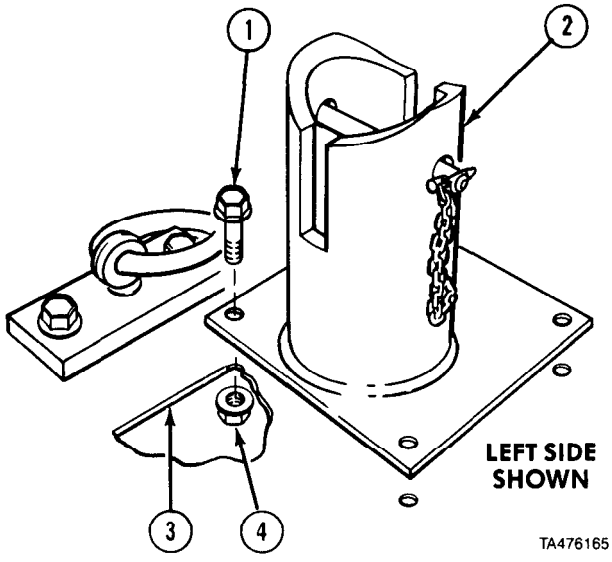
All three adapter holders are removed and installed the same. Two have 4 screws and nuts and one does not have handles and brackets.

(1) Remove four handles (1) and brackets (2) from adapter holders (3).
(2) Soldier A removes six screws (4) and adapter holder assembly (5) from wrecker body floor (6) while soldier B removes six nuts (7).

b. Retriever Adapter Holder Installation.

(1) Soldier A installs adapter holder assembly (5) on wrecker body floor (6) with six screws (4) while Soldier B installs six nuts (7).
(2) Install three brackets (2) and handles (1) on adapter holder (3).





NOTE

Left and right tow spade holders are removed and installed the same way.

c. Tow Spade Holder Removal. Soldier A removes four screws (1) and tow spade holder (2) from wrecker body floor (3) while Soldier B removes nuts (4).

d. Tow Spade Holder Installation. Soldier A installs tow spade holder (2) on wrecker body floor (3) with four screws (1) while Soldier B installs four nuts (4).

e. Follow-on Maintenance. Install retriever adapters and tow spades (TM 9-2320-279-10).

END OF TASK

16-63. 60-TON TACKLE BLOCK HOLDDOWN AND FRAME REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

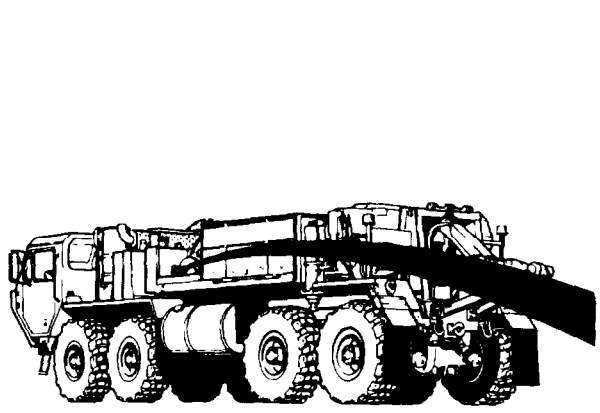
TM or Para	*Condition Description*
TM 9-2320-279-10	60-Ton tackle block removed.

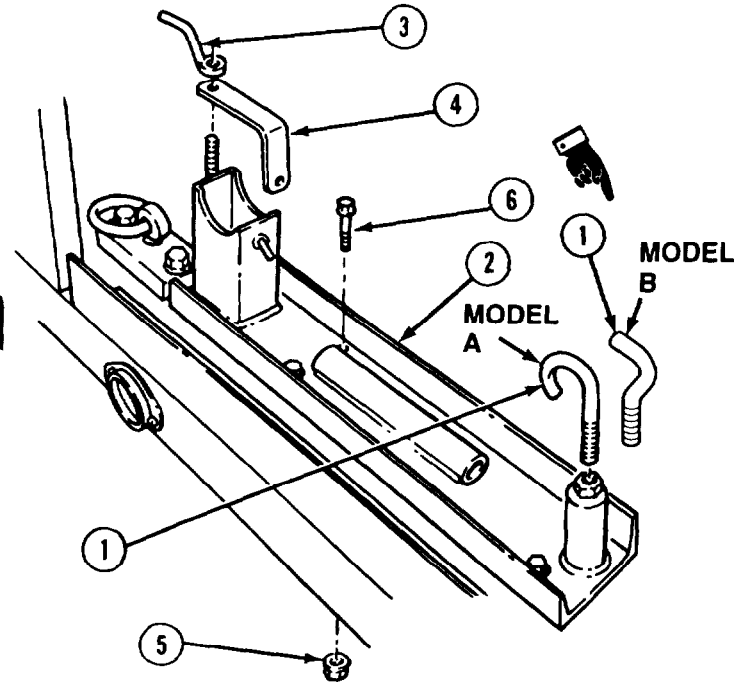
Special Environmental Conditions
None

General Safety Instructions
None

Cab and Body Maintenance Instructions (Cont)

a. Removal.





NOTE

There are two models of hooks. Model A and Model B hooks are removed and installed the same way.

(1) Remove hook (1) from frame (2).
(2) Remove handle (3) and bracket (4) from frame (2).
(3) Remove four nuts (5), screws (6), and frame (2) from wrecker body floor.

b. Installion.

(1) Install frame (2) on wrecker body floor with four screws (6) and nuts (5).
(2) Install bracket (4) and handle (3) on frame (2).
(3) Install hook (1) in frame (2).

c. Follow-on Maintenance. Install 60-ton tackle block (TM 9-2320-279-10).

END OF TASK

16-64. WRECKER BODY TIEDOWNS REMOVAL/INSTALLATION (M984E1).

This task covers:

a. MLRS Tiedown Removal
b. MLRS Tiedown Installation
c. Swivel Ring Bolt Removal
d. Swivel Ring Bolt Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic (2).

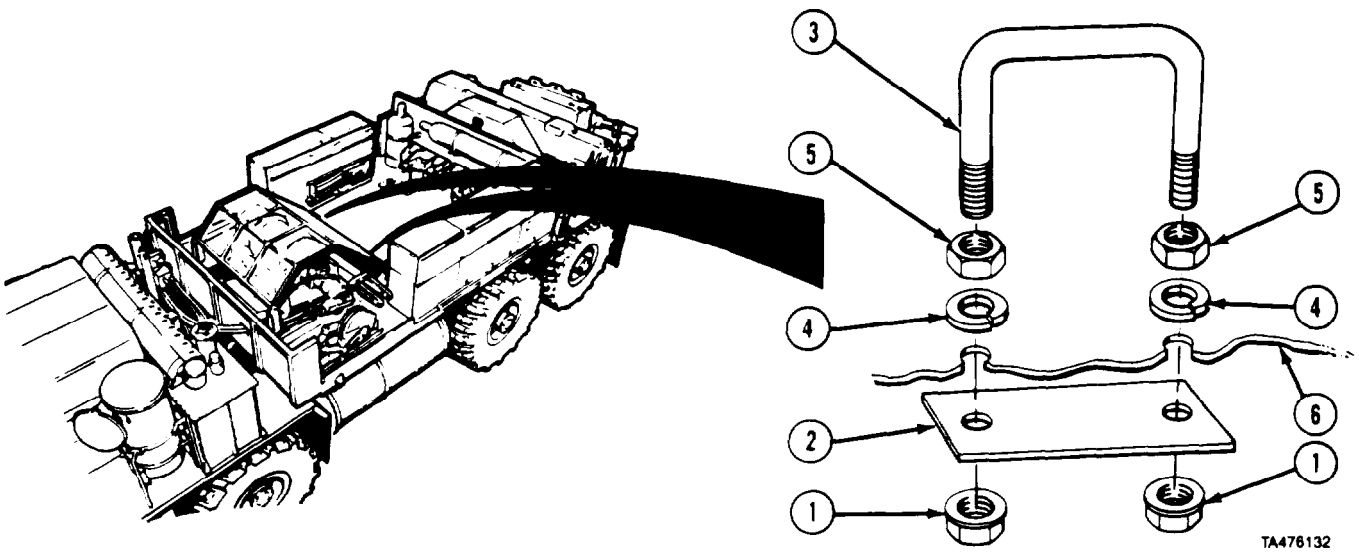
References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Insructions
None



NOTE

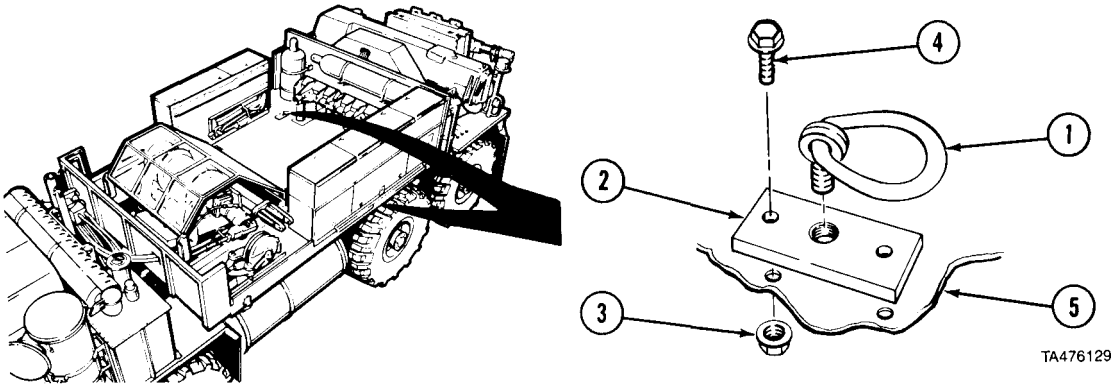
Both tiedowns are removed and installed the same way.

a. MLRS Tiedown Removal. Soldier A removes two nuts (1), and plate (2), while Soldier B removes tiedown (3), lockwashers (4), and nuts (5) from wrecker body floor (6).

b. MLRS Tiedown Installation. Soldier A installs two nuts (5). and lockwashers (4) on tiedown (3), and installs tiedown (3) in wrecker body floor (6) while Soldier B installs plate (2) and two nuts (1) on tiedown (3).

16-64. WRECKER BODY TIEDOWNS REMOVAL/INSTALLATION (M984E1) (CONT).

c. Swivel Ring Bolt Removal.



NOTE

All four swivel ring bolts and plates are removed and installed the same way.

(1) Remove swivel ring bolt (1) from plate (2).
(2) Soldier A removes two nuts (3) while Soldier B removes two screws (4) and plate (2) from wrecker body floor (5).

d. Swivel Ring Bolt Installation.

(1) Soldier A installs plate (2) to wrecker body floor (5) with two screws (4) while Soldier B installs two nuts (3).
(2) Install swivel ring bolt (1) in plate (2).

e. Follow-on Maintenance. None.

END OF TASK

16-65. WRECKER BODY STOWAGE BOXES REMOVAL/REPAIR/iNSTALLATION (M984E1).

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-On Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Sealant, metal, Item 45.1, Appendix C
Protective coating, Item 9.1, Appendix C
Adhesive-sealant, silicone, Item 4, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
Welding theory and application (TM 9-237)

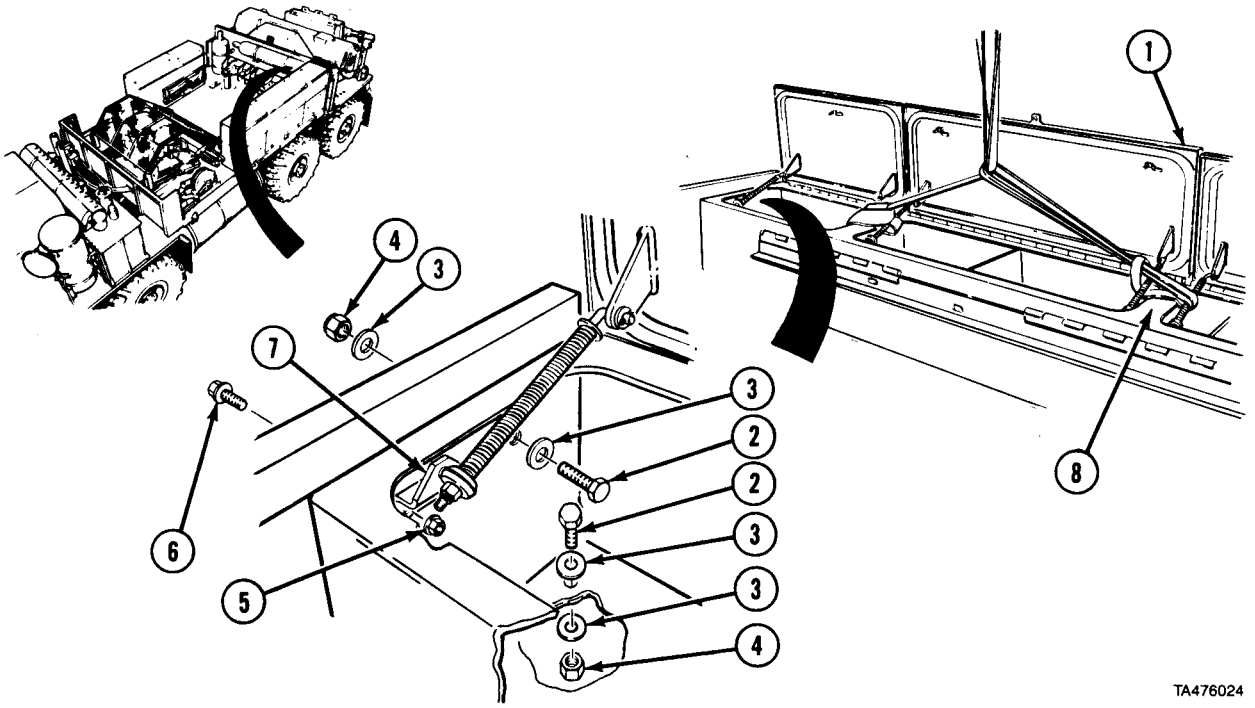
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Ladder removed.
TM 9-2320-279-10	Unlock and lower two wrecker body lockbars.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



NOTE

- Left and right upper boxes are removed the same way.
- Right upper box has six screws.
- Do step (3) only on left side.
- All doors open the same way.

(1) Open all storage doors (1).
(2) Soldier A removes 10 screws (2) and washer (3) while Soldier B removes 10 washers (3) and locknuts (4).
(3) Remove two nuts (5) and screws (6) from rear bracket (7).
(4) Attach suitable lifting device to upper box (8).

16-65. WRECKER BODY STOWAGE BOXES REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

NOTE

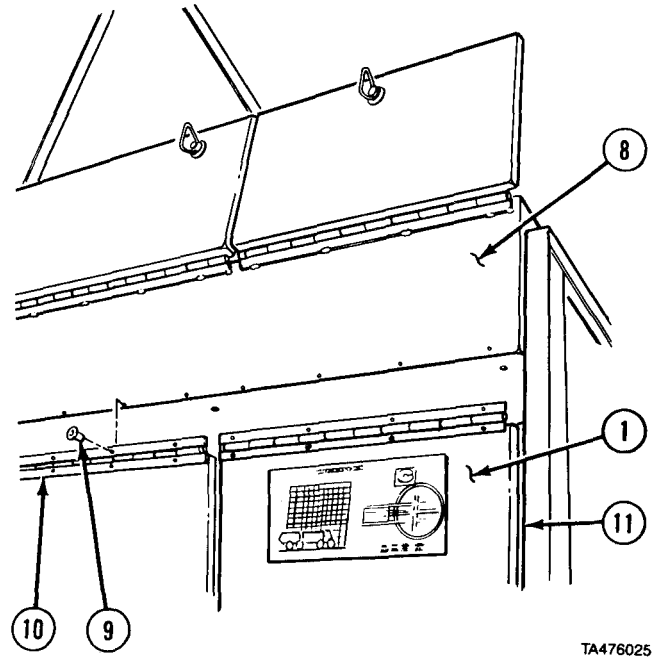
Right lower box has only ten rivets.

(5) Close lower box doors (1).
(6) Remove 14 rivets (9) from hinges (10).

CAUTION

Upper and lower boxes are sealed together and may be difficult to separate. Use lifting device carefully to prevent damage to stowage boxes.

(7) Remove upper box (8) from lower box (11).



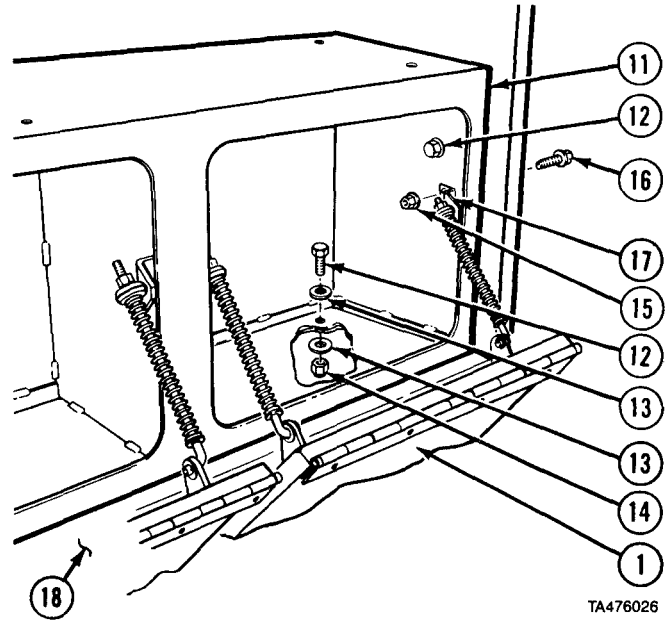
WARNING

Open lower doors carefully. They are not attached and may cause injury.

NOTE

- Left and right lower boxes are removed the same way.
- Right lower box has six screws.
- Do step (10) only on left side.
- All doors open the same way.

(8) Open lower doors (1).
(9) Soldier A removes 10 screws (12) and washers (13) while Soldier B removes 10 washers (13) and locknuts (14).
(10) Remove two nuts (15) and screws (16) from rear bracket (17).



CAUTION

Upper and lower boxes are sealed together and may be difficult to separate. Use lifting device carefully to prevent damage to stowage boxes.

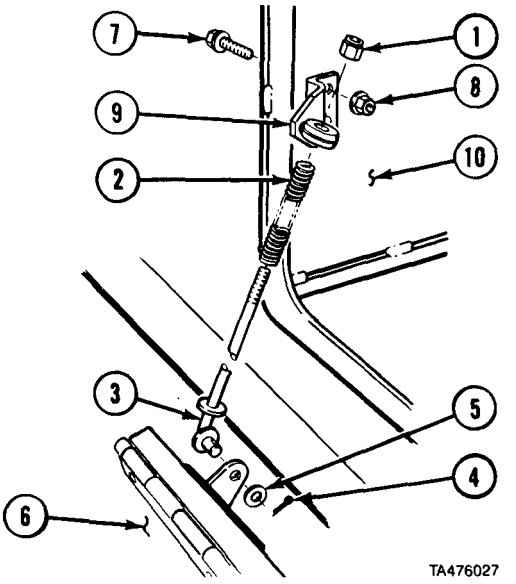
(11) Remove lower box (11) from wrecker body floor (18).

b. Disassembly.

NOTE

- All rods and brackets are removed the same way.
- All lower doors are removed the same way.
- Upper doors are welded. Refer to TM 9-237 for removal.

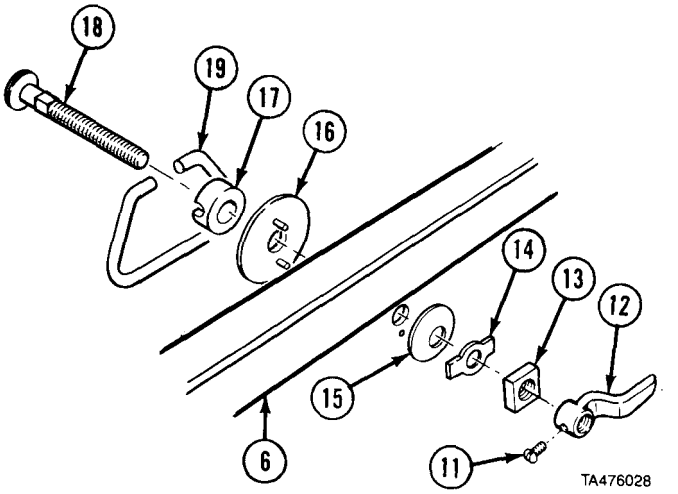
(1) Remove locknut (1) and spring (2) from rod (3).
(2) Remove cotter pin (4), washer (5), and rod (3) from lower door (6).
(3) Remove lower door (6).
(4) Remove two screws (7), nuts (8), and bracket (9) from lower box (10).



NOTE

- All latches are removed the same way.
- Bend down tabs on tab washer to remove.
- Note position of spring washer.

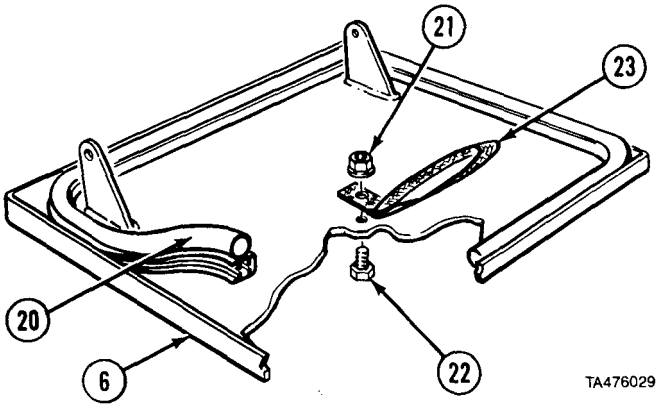
(5) Remove screw (11), pawl (12), nut (13), tab washer (14), spring washer (15), plate (16), stop washer (17), screw (18), and handle (19) from door (6).



NOTE

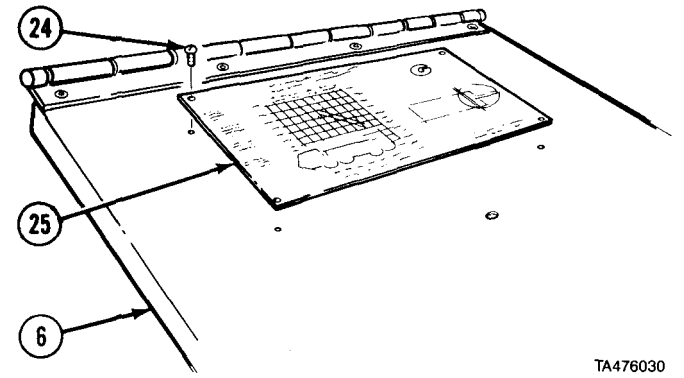
All gaskets are removed the same way.

(6) Remove gasket (20) from door (6).
(7) Remove nut (21), screw (22), and strap (23) from door (6).



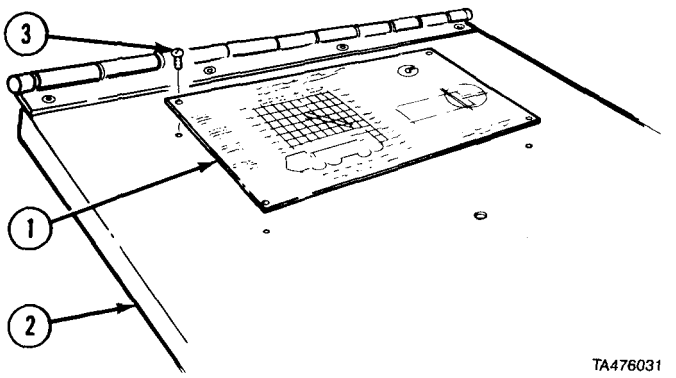
16-65. WRECKER BODY STOWAGE BOXES REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

(8) Remove four screws (24) and data plate (25) from door (6).



c. Assembly.

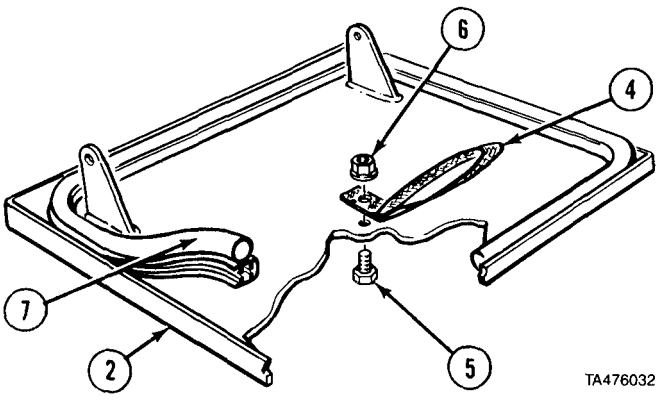
(1) Install data plate (1) on door (2) with four screws (3).



(2) Install strap (4) on door (2) with screw (5) and nut (6).

WARNING

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



NOTE

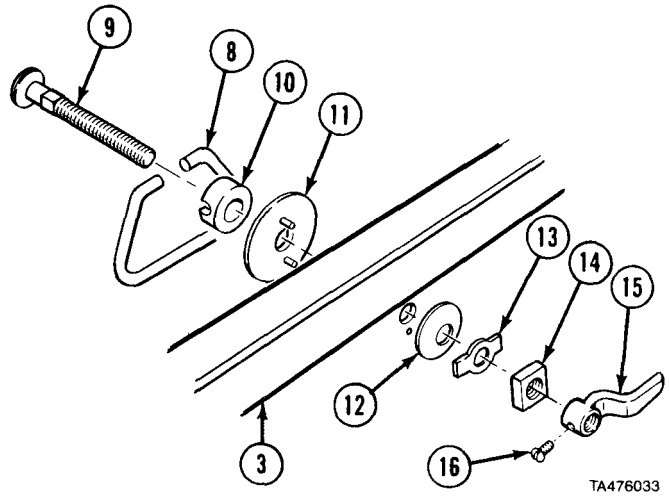
All gaskets are installed the same way.

(3) Coat bottom of gasket (7) with silicone adhesive-sealant and install on door (2).
(4) Coat ends of gasket (7) with silicone adhesive-sealant to seal gap.

NOTE

- All latches are installed the same way.
- Bend tabs on tab washer against sides of nut.

(5) Install handle (8) and shaft (9) in door (2) with stop washer (10), plate (11), spring washer (12), tab washer (13), nut (14), pawl (15), and screw (16).



NOTE

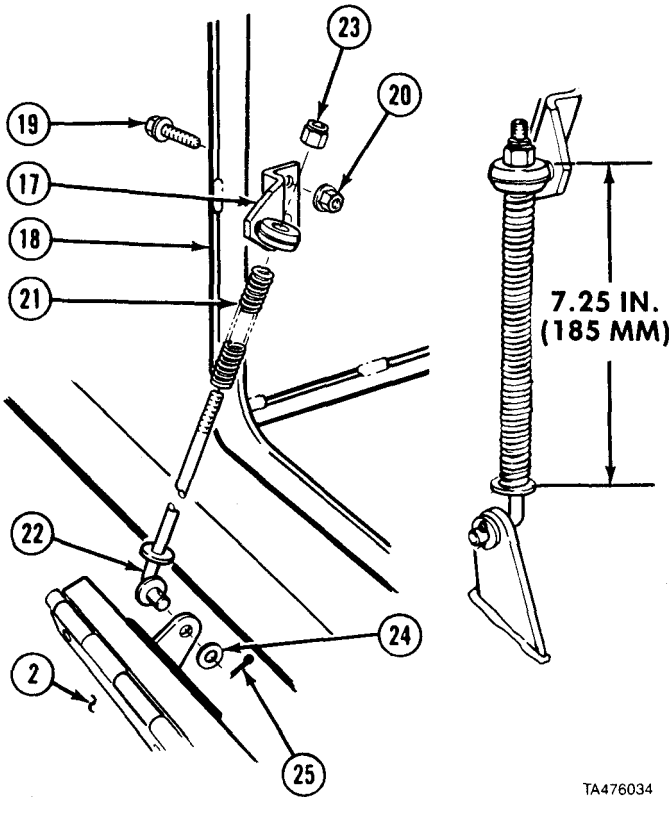
Do not install rear bracket in upper and lower box.

(6) Install bracket (17) in lower box (18) with two screws (19) and nuts (20).

NOTE

- When installing locknut on rod, tighten locknut until the distance between collar on rod and locknut measures approximately 7.25 in. (185 mm).
- All lower doors are installed the same way.
- Upper doors are welded. Refer to TM 9-237 for welding instructions.

(7) Install spring (21) on rod (22) through bracket (17) with locknut (23).
(8) Install rod (22) on door (2) with washer (24) and cotter pin (25).



16-65. WRECKER BODY STOWAGE BOXES REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

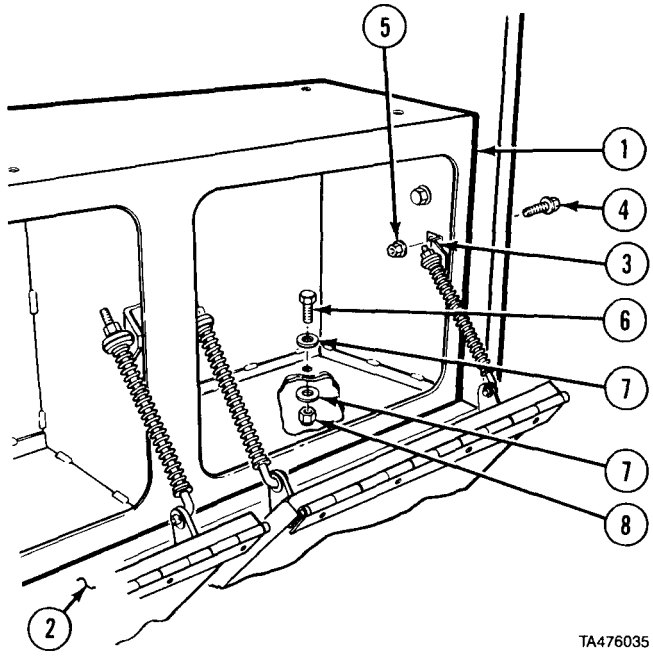
d. Installation.

WARNING

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

NOTE

- Left and right lower boxes are installed the same way.
- Before applying protective coating clean all old adhesive from lower boxes and mating surface of wrecker body.
- Coat bottom of lower box with protective coating and allow to dry.
- Coat rear side of left lower box with protective coating and allow to dry.



(1) Install lower box (1) on wrecker body floor (2).

NOTE

- Do step (2) only on left side.
- Right lower box has six screws.

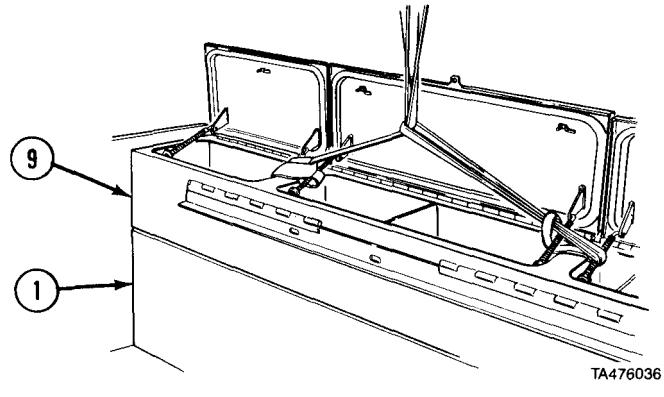
(2) Install rear bracket (3) on lower box (1) with two screws (4) and locknuts (5).

(3) Soldier A installs 10 screws (6) and washers (7) in lower box (1) while Soldier B installs washers (7) and locknuts (8).

NOTE

- Before applying protective coating clean all old sealant and protective coating from upper box and mating surface of lower boxes and wrecker body.
- Coat rear side of left upper box with protective coating and allow to dry.
- App1y adhesive sealant around screw holes on top of lower box.

(4) Attach suitable lifting device and install upper box (9) on lower box (1).



NOTE

Do step *(5)* only on left side.

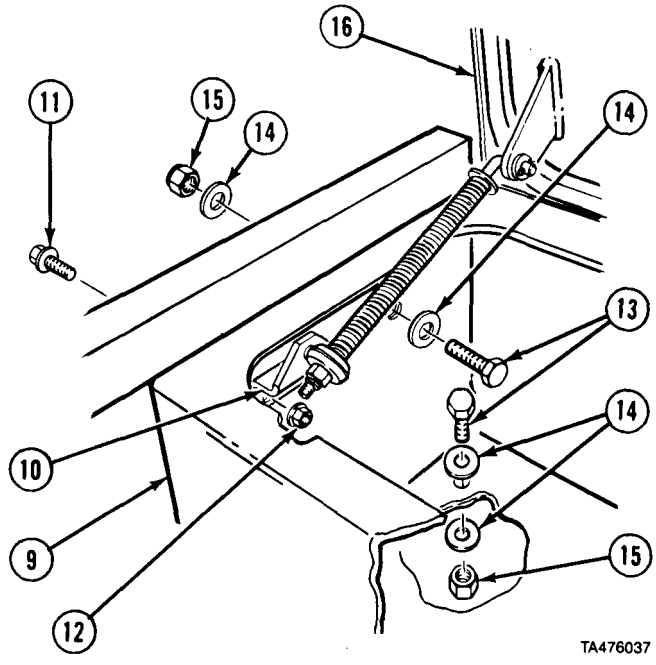
(5) Install rear bracket (10) on upper box (9) with two screws (11) and nuts (12).

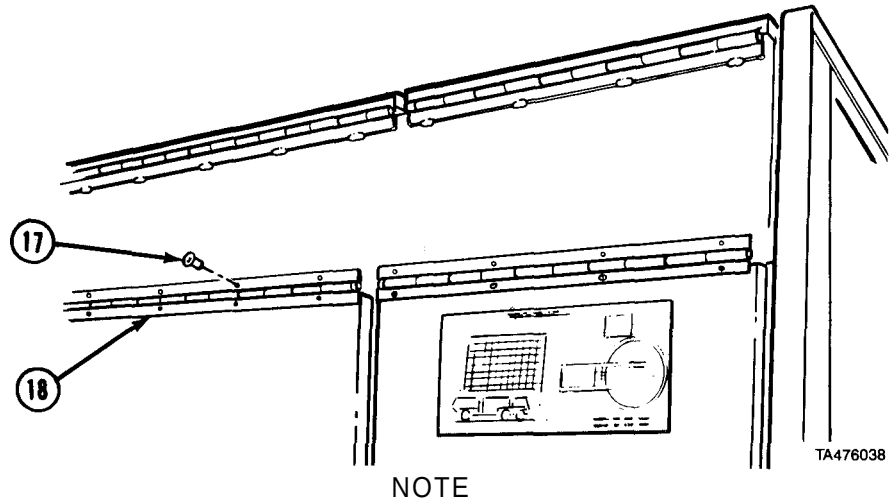
NOTE

Right upper box has six screws.

(6) Soldier A installs 10 screws (13) and washers (14) in upper box (9) while Soldier B installs washers (14) and locknuts (15).

(7) Close doors (16).





NOTE

Right box has ten rivets.

(8) Install 14 rivets (17) on hinges (18).

e. Follow-on Maintenance.

(1) Raise and lock two wrecker body lockbars (TM 9-2320-279-10).

(2) Install ladder (TM 9-2320-279-10).

END OF TASK

16-66. LADDER BRACKET REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

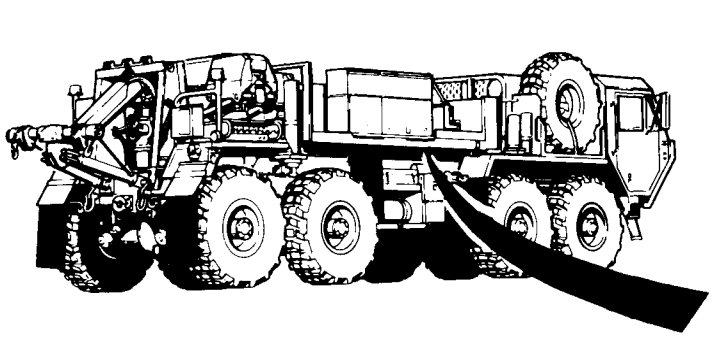
References
None

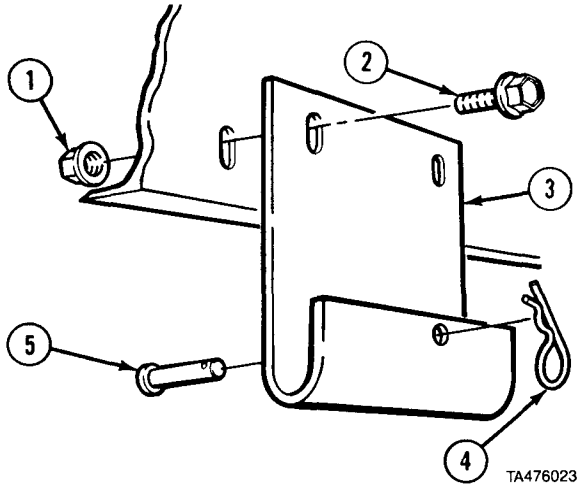
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Ladder removed.

Special Environmental Conditions
None

General Safety Instructions
None





a. *Removal.*
   (1) Remove two nuts (1), screws (2) and bracket (3).
   (2) Remove cotter pin (4) and pin (5) from bracket (3).

b. *Installation.*
   (1) Install pin (5) with cotter pin (4) in bracket (3).
   (2) Install bracket (3) with two screws (2) and nuts (1).

c. *Follow-on Maintenance.* Install ladder (TM 9-2320-279-10).

END OF TASK

16-67. WRECKER BODY SUPPORTS (BODY-MOUNTED) REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63W, Wheel vehicle repairer

References
None

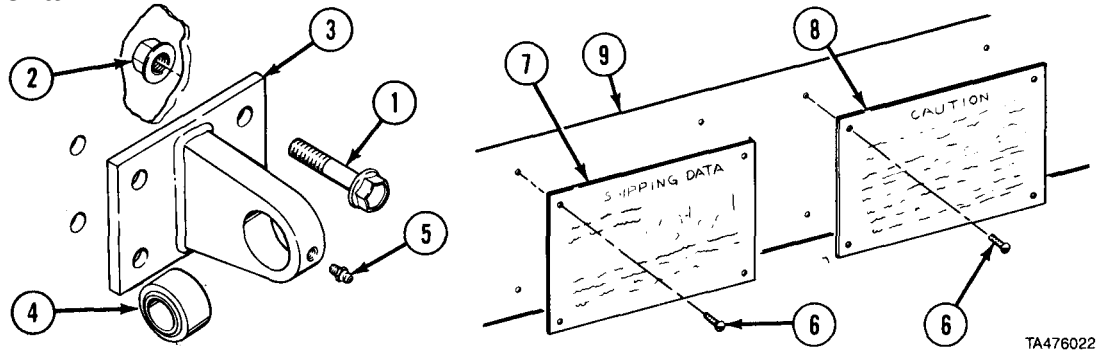
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Ladder removed.
Para 16-22.1	Center mud flaps and brackets removed.
TM 9-2320-279-10	Wrecker body removed.

Special Environmental Conditions
None

General Safety Instructions
Wheels chocked.

a. Removal.



NOTE

Left and right supports are removed the same way. Right side shown.

(1) Remove four screws (1), nuts (2), and support (3).
(2) Remove bearing (4) and grease fitting (5).
(3) Remove eight screws (6) and two data plates (7) and (8).

b. Installation.

NOTE

Left and right supports are installed the same way. Right side shown.

(1) Install two data plates (7 and 8) on wrecker body (9) with eight screws (6).
(2) Install grease fitting (5) and bearing (4).
(3) Install support (3), four nuts (2), and screws (1).

c. Follow-on Maintenance.

(1) Install wrecker body (TM 9-2320-279-10).
(2) Install center mud flaps and brackets (para 16-22.1).
(3) Install ladder (TM 9-2320-279-10).

END OF TASK

16-68. WRECKER BODY SUPPORTS (FRAME-MOUNTED) REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S. Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Wrecker body removed.
Para 4-7	Fuel tank removed.

Special Environmental Conditions
None

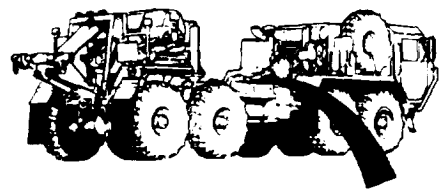
General Safety Instructions
None

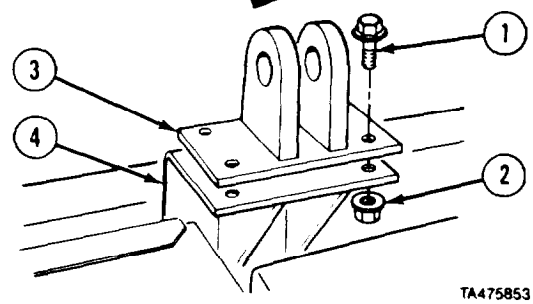
a. Removal.

NOTE

Left and right front wrecker body supports are removed the same way. Right front shown.

(1) Remove four screws (1) and locknuts (2).
(2) Remove pivot support (3) from support (4).



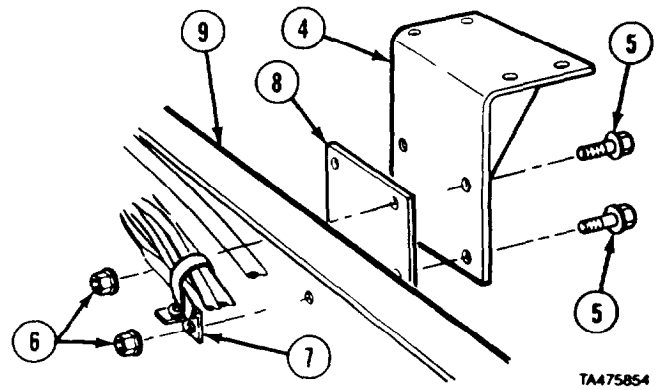


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NOTE

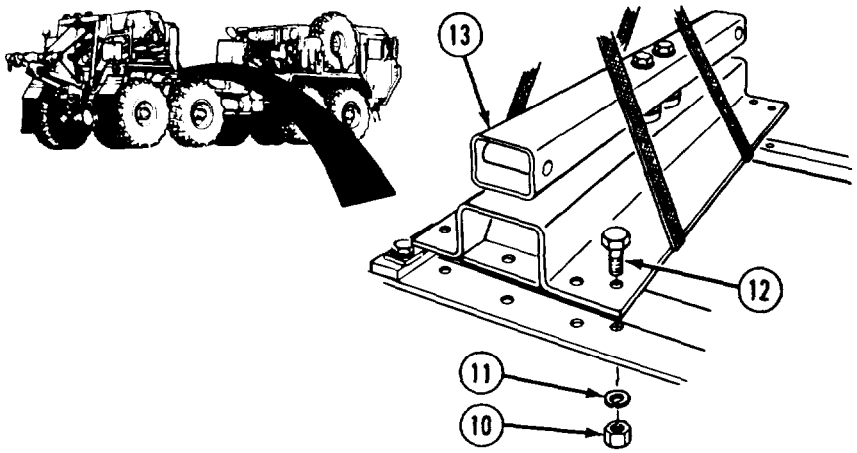
Left side does not have clamp bracket.

(3) Remove four screws (5) and locknuts (6). Move clamp bracket (7) aside.
(4) Remove support (4) and spacer (8) from frame (9).



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16-68. WRECKER BODY SUPPORTS (FRAME-MOUNTED) REMOVAL/INSTALLATION (M984E1).



(5) Attach suitable lifting device and remove eight nuts (10), lockwashers (11), screws (12), and rear wrecker body support assembly (13).

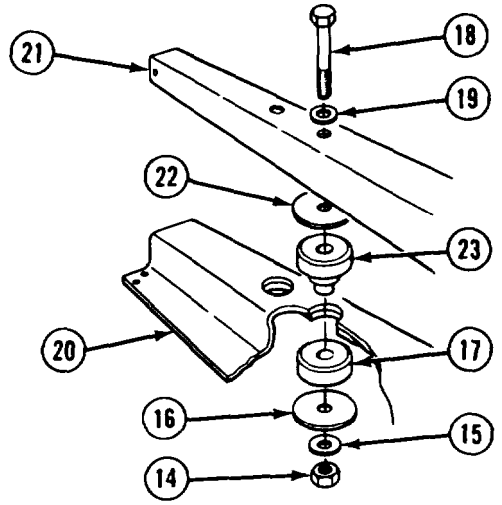
NOTE

Note position of biscuits.

(6) Remove two locknuts (14), washers (15), washers (16), biscuits (17), screws (18), and washers (19) from two supports (20 and 21).

(7) Remove support (21).

(8) Remove two washers (22) and biscuits (23) from support (20).



b. Installation

NOTE

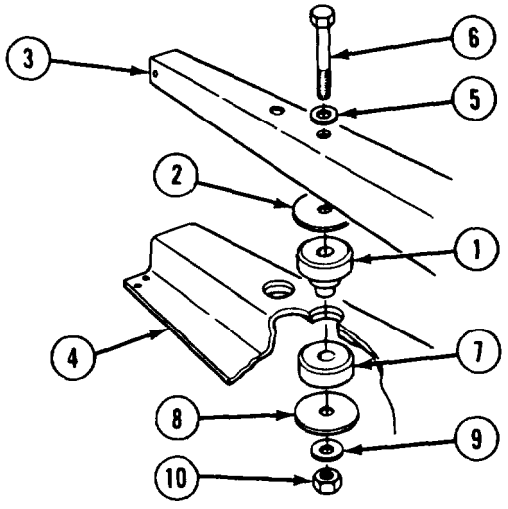
Position biscuits in proper location.

(1) Install two biscuits (1), two washers (2), and support (3) on support (4).

(2) Install two washers (5) and screws (6) through supports (3 and 4).

(3) Install two biscuits (7), washers (8), washers (9), and locknuts (10).

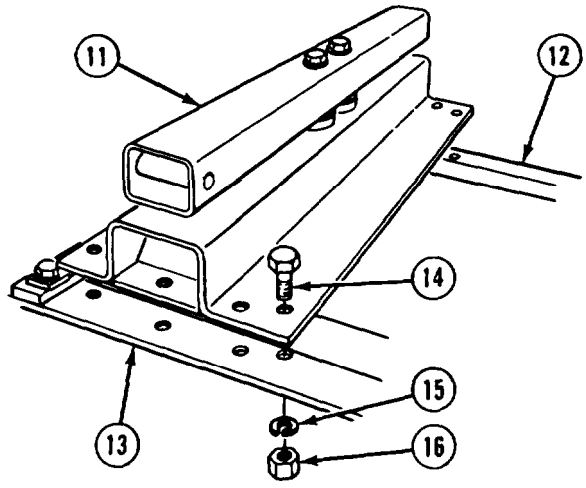
(4) Tighten locknuts (10) to 275 lb-ft (373 N•m).



Cab and Body Maintenance Instructions (Cont)

(5) Install rear wrecker body support assembly (11) on two frame rails (12 and 13).

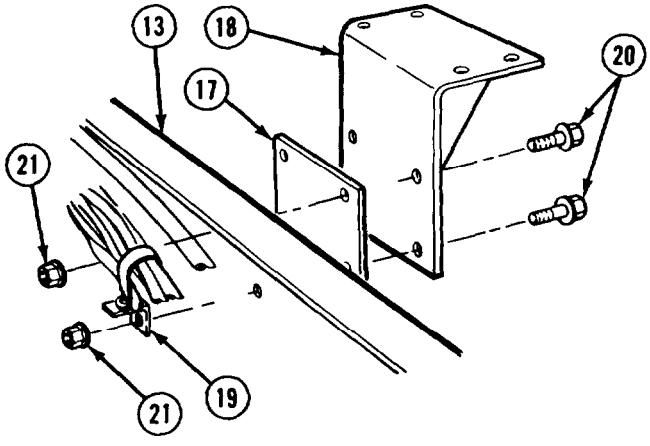
(6) Install eight screws (14), lockwashers (15), and nuts (16).



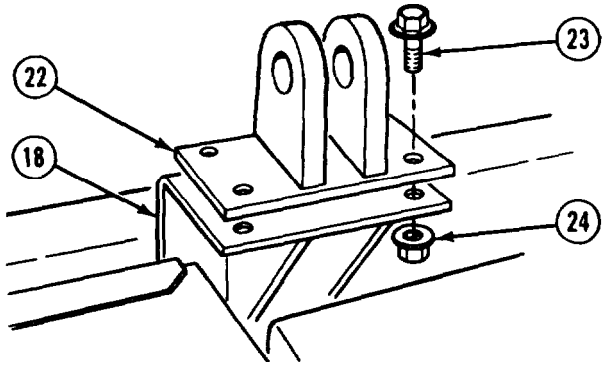
NOTE

- Left and right front wrecker body supports are installed the same way.
- Left side does not have clamp bracket.

(7) Install spacer (17), support (18), and clamp bracket (19) on frame rail (13) with four screws (20) and locknuts (21).



(8) Install pivot support (22) on support (18) with four screws (23) and locknuts (24).



c. Follow-on Maintenance.

(1) Install wrecker body (TM 9-2320-279-10).

(2) Install fuel tank (para 4-7).

END OF TASK

16-69. HEEL REST REMOVAL/INSTALLATION

This task covers:

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

INITIAL SETUP

Models
M977, M978, M983, M985, M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, walking, Item 54, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

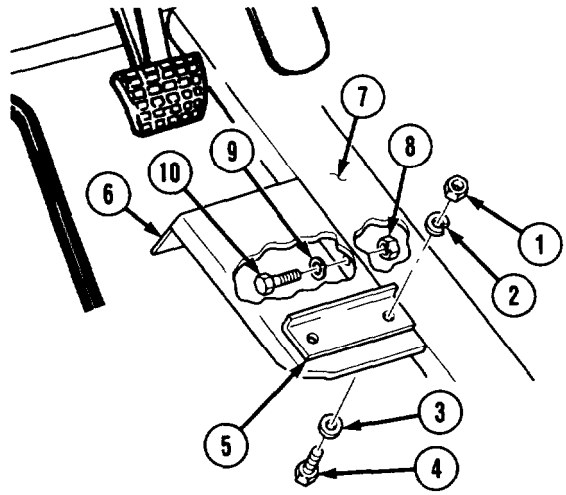
Equipment Condition
TM or Pam *Condition Description*
TM 9-2320-279-10 Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

(1) Remove two nuts (1), lockwashers (2), washers (3), and screws (4).
(2) Remove heel rest angle (5) from heel rest bracket (6) and foot rest plate (7).
(3) Remove two locknuts (8), washers (9), and screws (10).
(4) Remove heel rest bracket (6) from foot rest plate (7).



b. Installation.

(1) Apply walking compound to contact surface of heel rest bracket (6).
(2) Install heel rest bracket (6) on foot rest plate (7) with two screws (10), washers (9), and locknuts (8).
(3) Install heel rest angle (5) on foot rest plate (7) and heel rest bracket (6) with two screws (4), washers (3), lockwashers (2), and nuts (1).

***c. Follow-on* Maintenance.** None.

END OF TASK

16-70. SLAVE CABLE SUPPORT HOOK REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Took
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

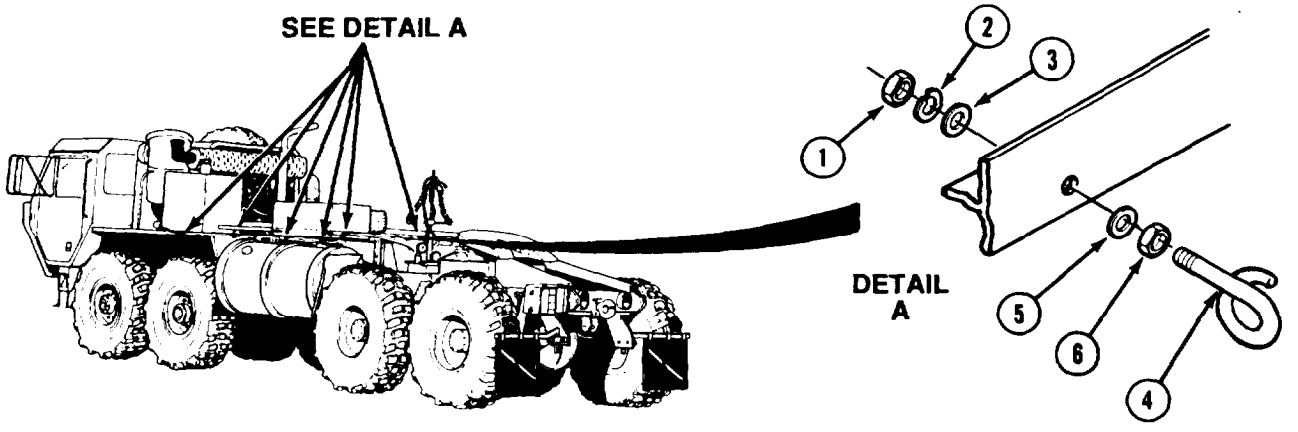
References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None



NOTE
All six support hooks are removed and installed the same way.

a. Removal.

(1) Remove nut (1), lockwasher (2), and washer (3).
(2) Remove support hook (4).
(3) Remove washer (5) and nut (6).

b. Installation

(1) Install nut (6) and washer (5) on support hook (4).
(2) Hold support hook in place and install washer (3), lockwasher (2), and nut (1).

c. Follow-on Maintenance. None.

END OF TASK

16-71. DRAIN PLUG REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
M977, M978, M983, M985, M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

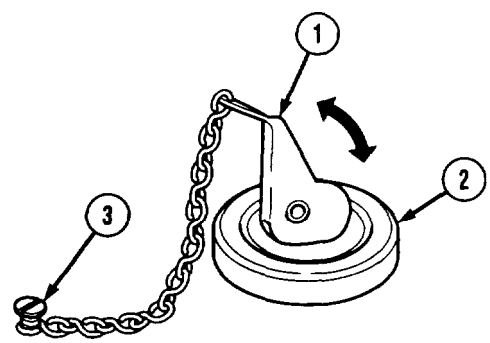
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

NOTE
A drain plug is located under operator and crew seat on newer vehicles. They are removed the same way.



a. Removal.

(1) Pull up on lever (1) and remove drain plug (2) from opening in cab floor.
(2) Remove screw (3) and drain plug (2).

b. Installation.

(1) Install drain plug (2) on cab floor with screw (3).
(2) Push drain plug (2) in opening of cab floor and secure by pressing down on lever (1).

c. Follow-on Maintenance. None.

END OF TASK

CHAPTER 17

WINCHES, CRANES, AND POWER TAKEOFF (PTO) MAINTENANCE

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Section I. INTRODUCTION

17-1. GENERAL. This chapter contains maintenance instructions for repairing, replacing, installing, and servicing winch, crane, and power takeoffcomponents authorized by the Maintenance Allocation Chart (MAC) at the organizational maintenance level.

Section II. CABLE TENSIONERS AND GUIDES

Winches, Cranes, and Power Takeoff (PTO) Maintenance Instructions (Cont)

17-2. FRONT CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All (with self-recovery winch)

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
TM 5-725

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
Para 16-13	Splash guard removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

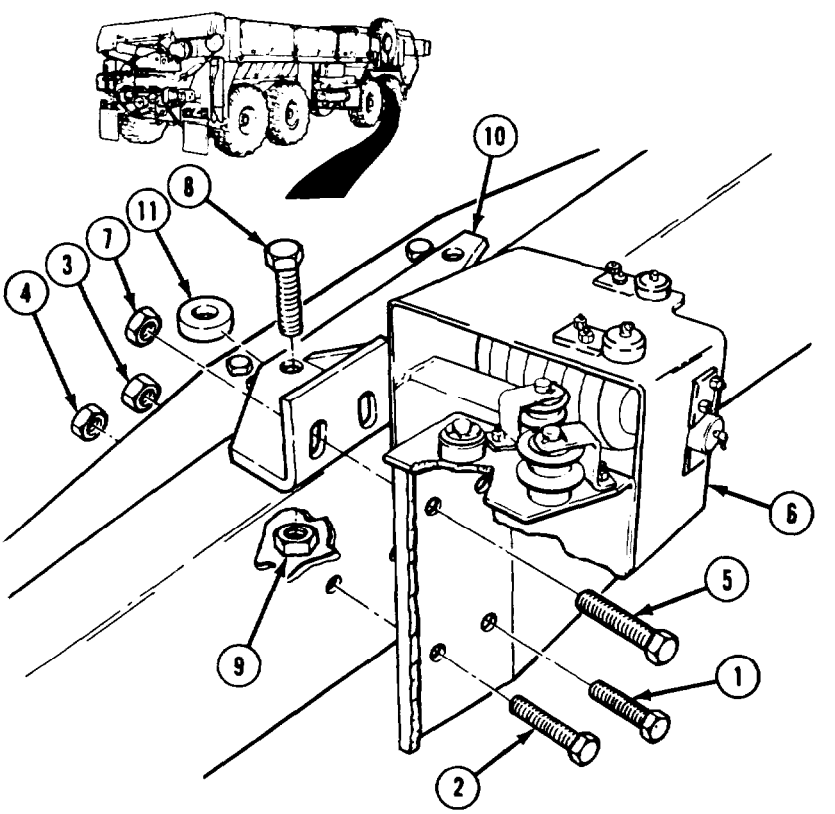
(1) Soldier A removes two screws (1 and 2) while Soldier B removes nuts (3 and 4).

NOTE

Support cable tensioner when removing screws.

(2) Soldier A removes two screws (5) and cable tensioner (6) while Soldier B removes nuts (7).

(3) Remove two screws (8), nuts (9), bracket (10), and two spacers (11).

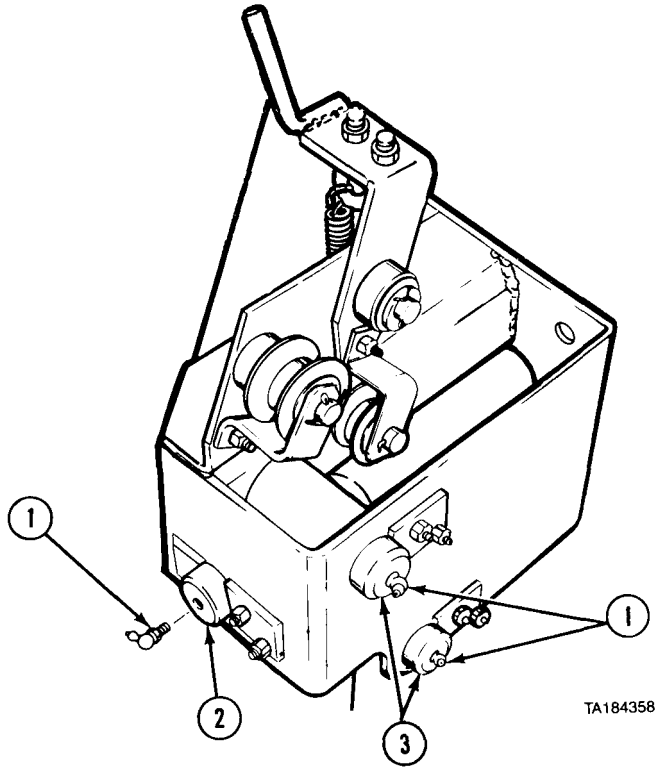


b. Disassembly.

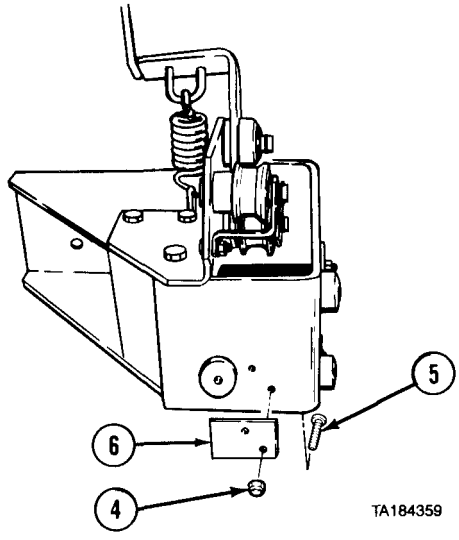
NOTE

Tag and mark pins before removal.

(1) Remove three grease fittings (1) from pins (2 and 3).

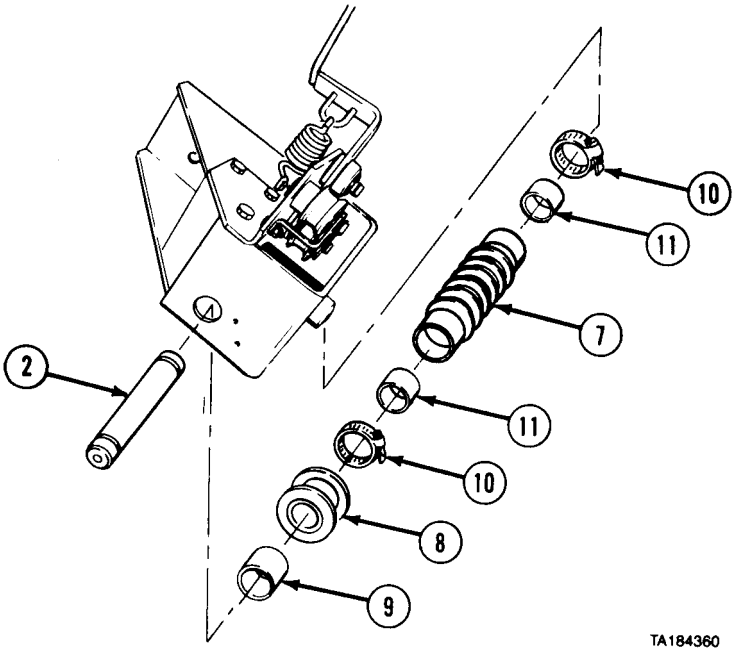


(2) Remove two locknuts (4), screws (5), and lockplate (6).

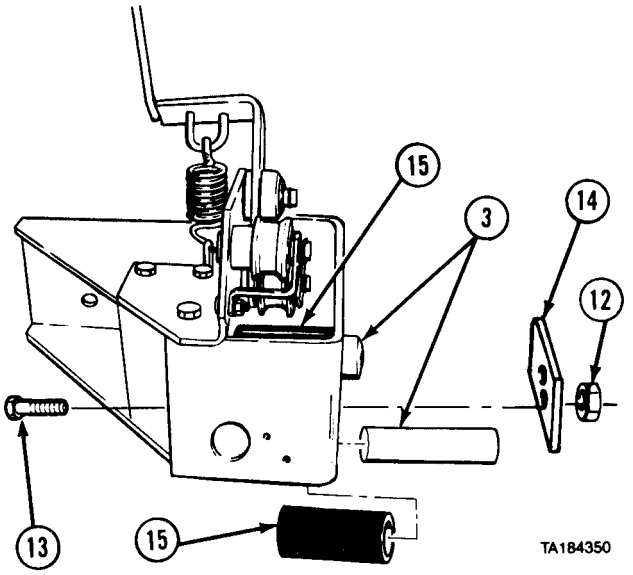


17-2. FRONT CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

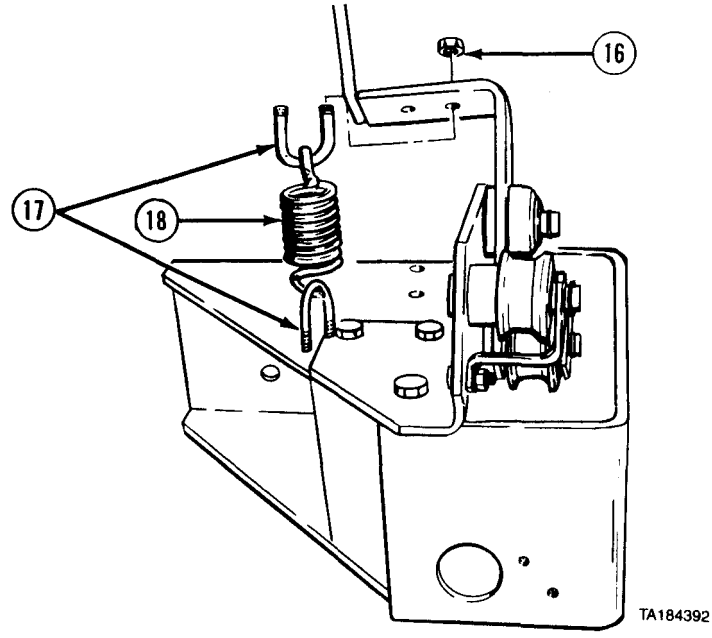
(3) Remove pin (2), bellows (7), sheave (8), and spacer (9).
(4) Remove two clamps (10) and sleeves (11) from bellows (7).



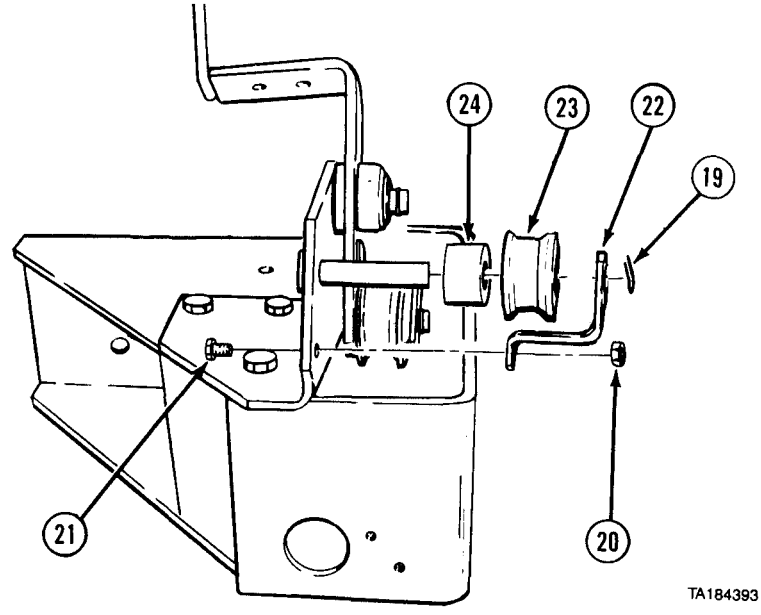
(5) Remove four locknuts (12), screws (13), and two lockplates (14).
(6) Remove two pins (3) and two rollers (15).



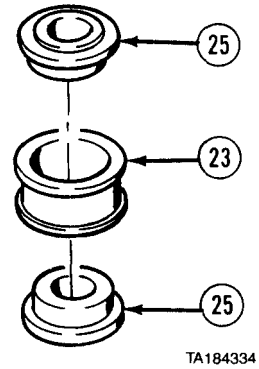
(7) Remove four locknuts (16), two U-bolts (17), and spring (18). Remove U-bolts from spring.



(8) Remove cotter pin (19), nut (20), screw (21), S-bracket (22), roller (23), and spacer (24).

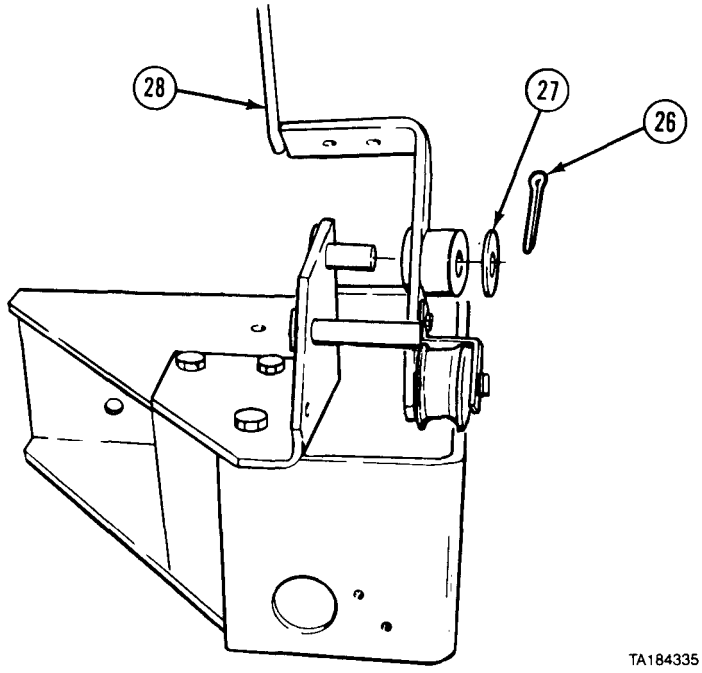


(9) Remove two bearings (25) from roller (23).

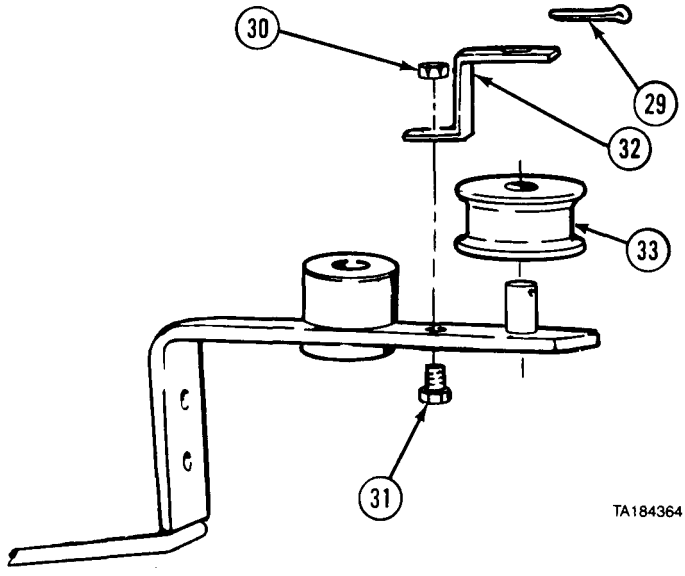


17-2. FRONT CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

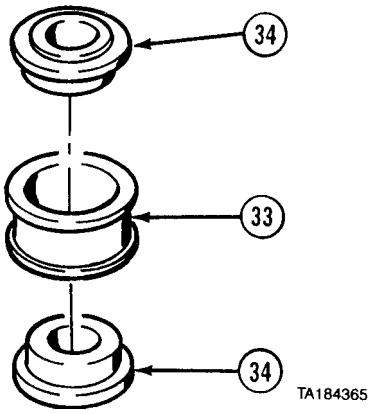
(10) Remove cotter pin (26), washer (27), and pivot bracket (28)



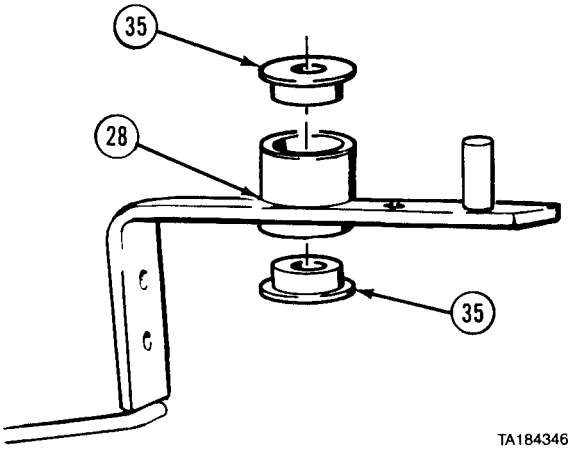
(11) Remove cotter pin (29), locknut (30), screw (31), S-bracket (32), and roller (33).



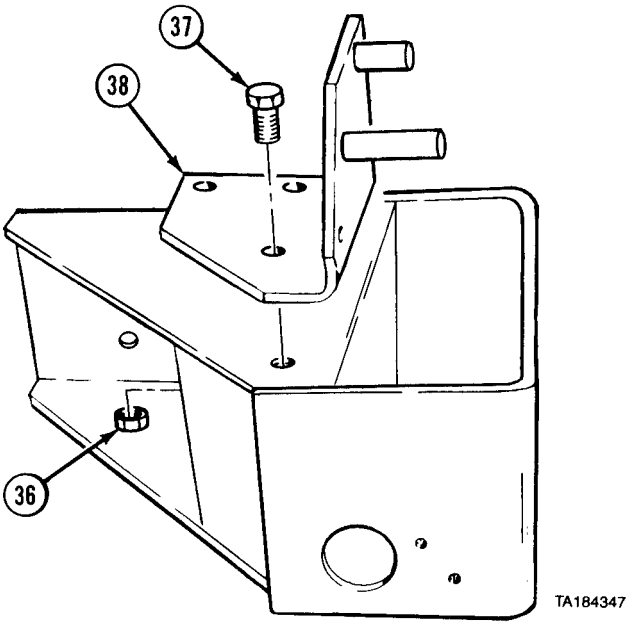
(12) Remove two bearings (34) from roller (33).



(13) Remove two bearings (35) from pivot bracket (28).



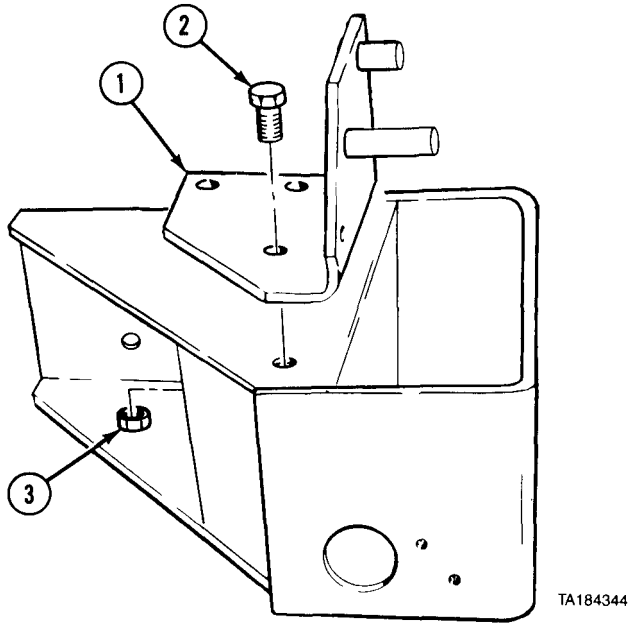
(14) Remove three nuts (36), screws (37), and bracket (38).



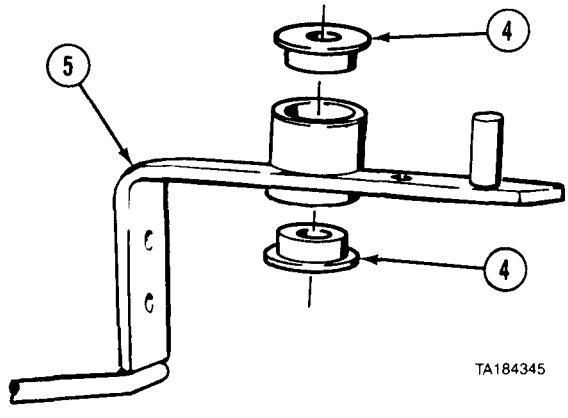
17-2. FRONT CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

c. Assembly.

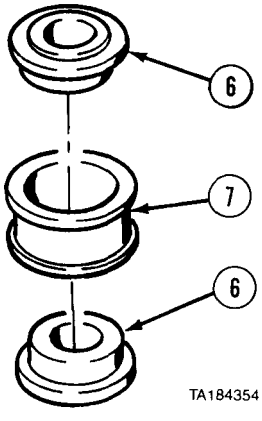
(1) Install bracket (1) with three screws (2) and nuts (3).



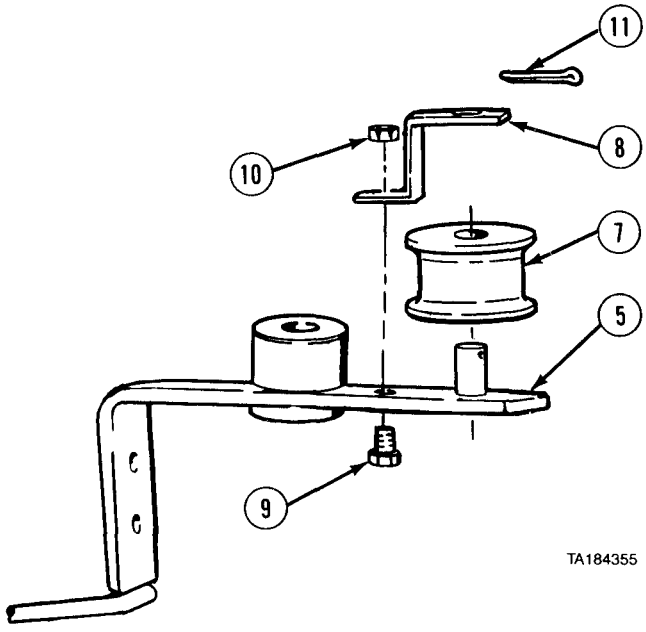
(2) Install two bearings (4) in pivot bracket (5).



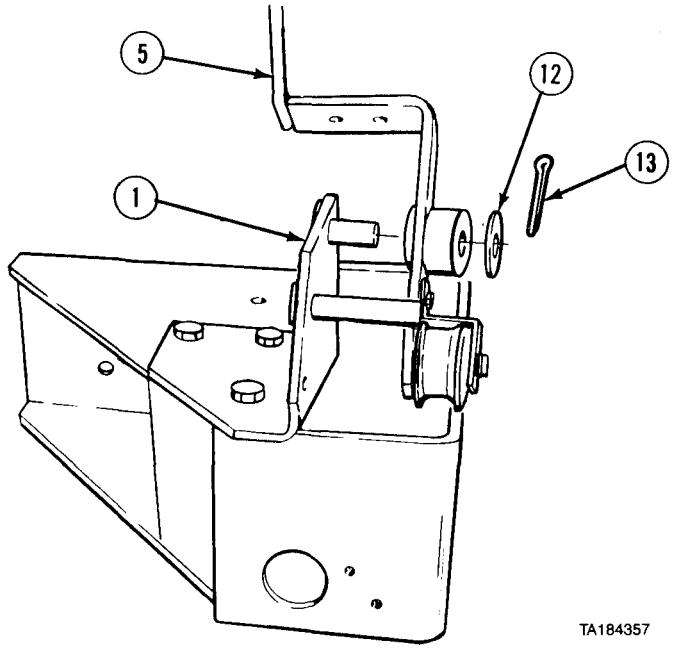
(3) Install two bearings (6) in roller (7).



(4) Install roller (7) and S-bracket (8) on pivot bracket (5) with screw (9), locknut (10), and cotter pin (11).

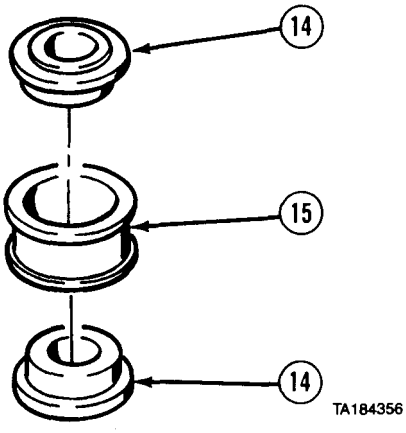


(5) Install pivot bracket (5) on bracket (1) with washer (12) and cotter pin (13).

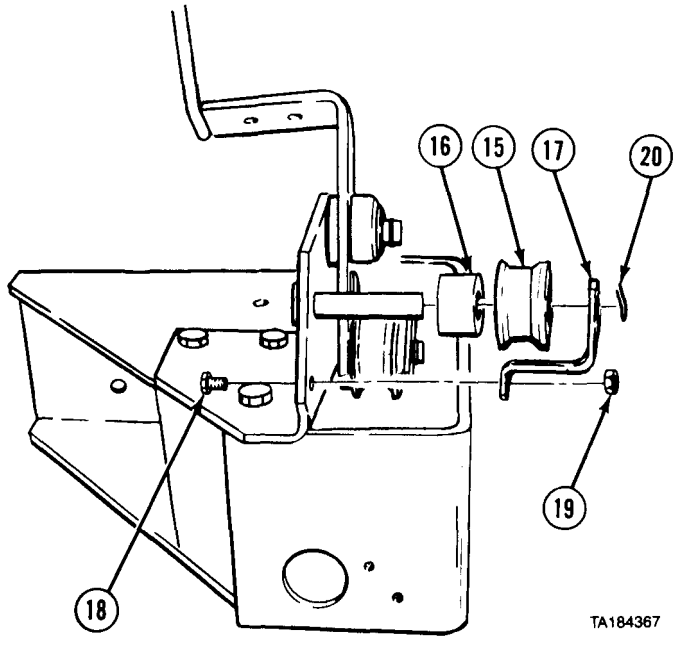


17-2. FRONT CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

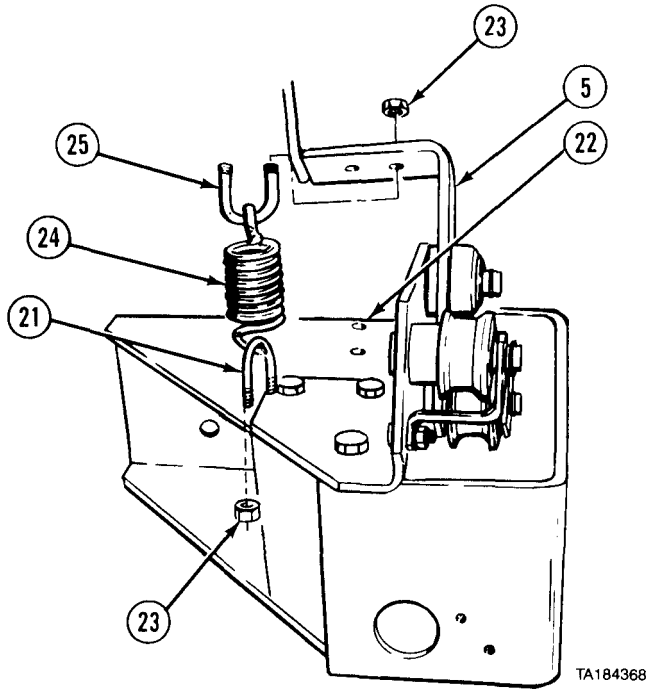
(6) Install two bearings (14) in roller (15).



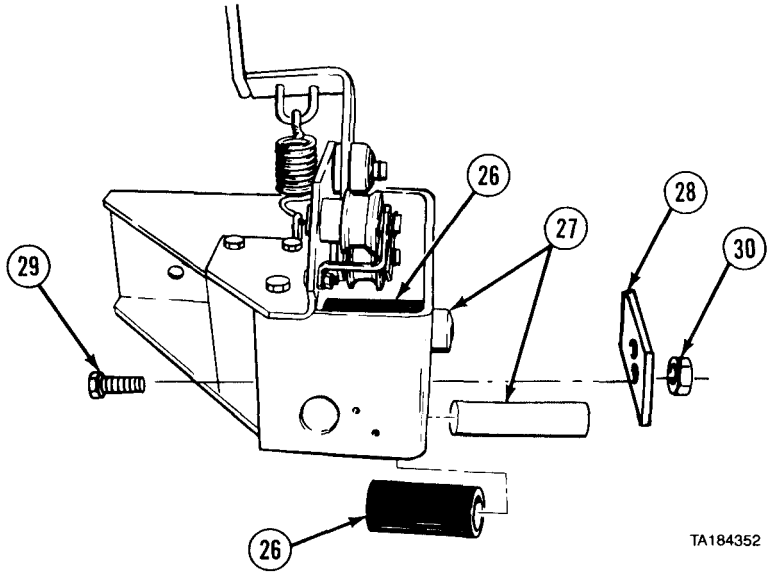
(7) Install spacer (16), roller (15), and S-bracket (17) with screw (18), nut (19), and cotter pin (20).



(8) Install one U-bolt (21) in tensioner (22) with two locknuts (23). Do not tighten.
(9) Install spring (24) on U-bolt (21) and U-bolt (25) and install U-bolt (25) in pivot bracket (5) with two locknuts (23).
(10) Tighten four locknuts (23).

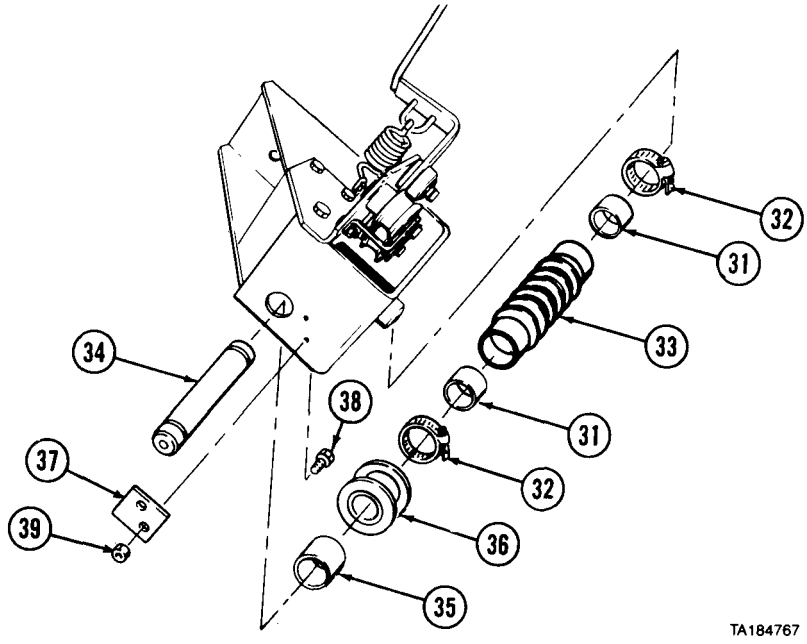


(11) Install two rollers (26) and two pins (27) with two lockplates (28), four screws (29), and locknuts (30).

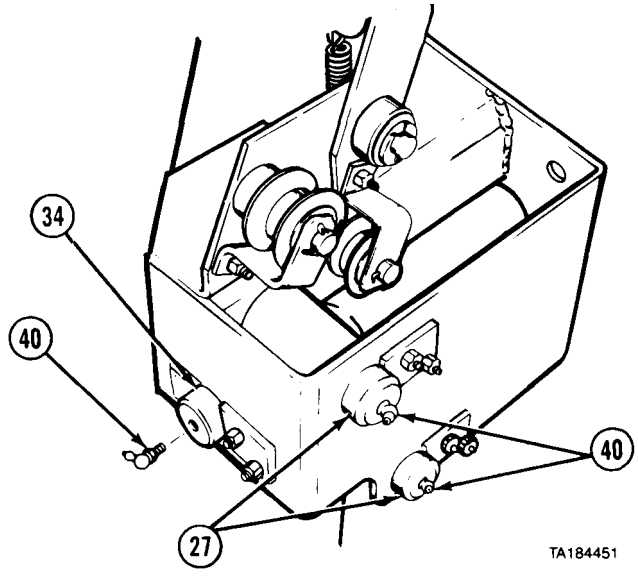


17-2. FRONT CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

(12) Install two bellow sleeves (31) and clamps (32) on bellows (33).
(13) Start pin (34) and install spacer (35), sheave (36), and bellows (33).
(14) Install pin (34) with lockplate (37), two screws (38), and locknuts (39).



(15) Install three grease fittings (40) in pins (27 and 34).



d. Installation.

(1) Install two spacers (1) and bracket (2) with two screws (3) and nuts (4).

(2) Soldier A installs cable tensioner (5) with two screws (6) while Soldier B installs two nuts (7). Do not tighten nuts or screws.

(3) Soldier A installs two screws (8 and 9) while Soldier B installs nuts (10 and 11).

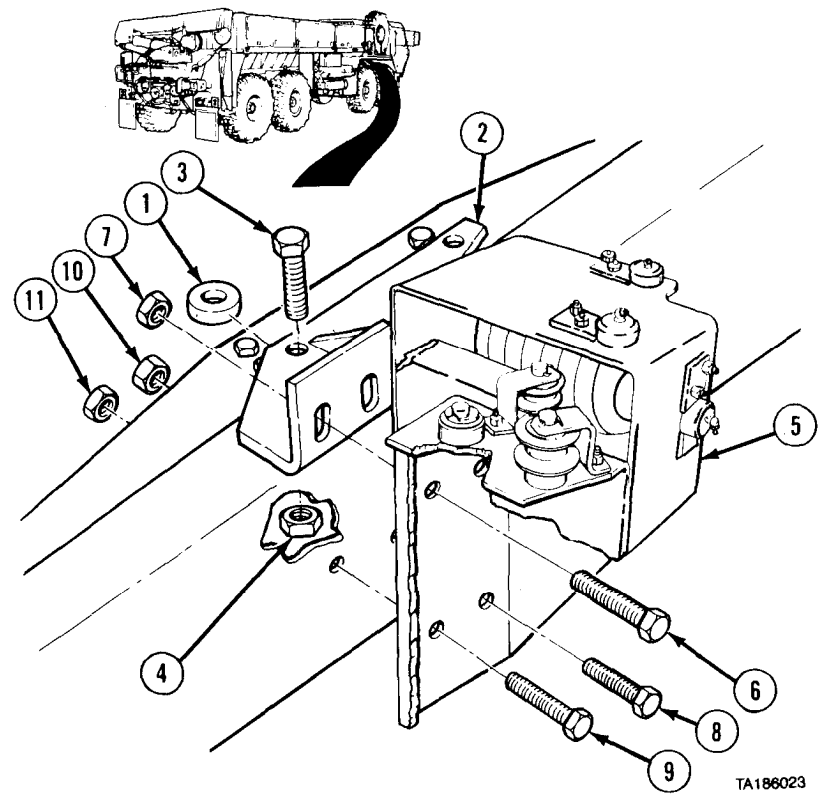
(4) Tighten screws (6) and nuts (7).

e. Follow-on Maintenance.

(1) Lubricate front cable tensioner (LO 9-2320-279-12).

(2) Install splash guard (para 16-13).

END OF TASK



17-3. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All (with self-recovery winch)

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, gear, Item 28, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

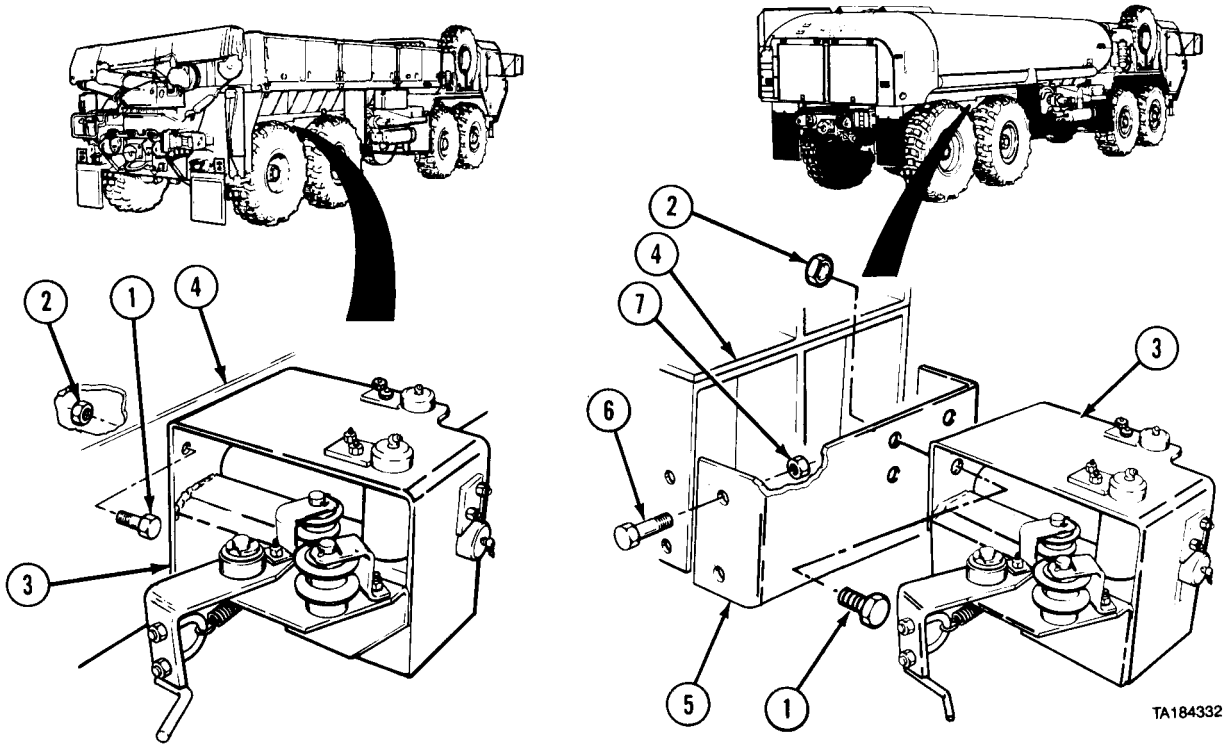
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

17-3. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

a. Removal.



NOTE

Do steps *(3)* through *(5)* for M978 vehicles only.

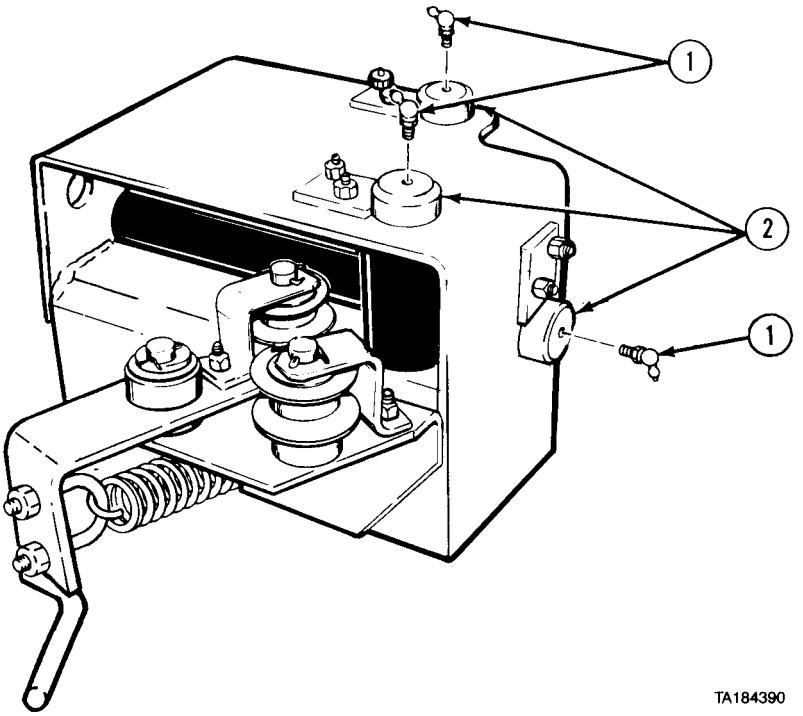
(1) Soldier A removes five screws (1) while Soldier B holds nuts (2).
(2) Soldier A and Soldier B remove tensioner (3) from frame (4).
(3) Soldier A removes four screws (1) while Soldier B holds nuts (2).
(4) Soldier A and Soldier B remove tensioner (3) and bracket (5).
(5) Remove four screws (6), nuts (7), and bracket (5) from frame (4).

b. Disassembly.

NOTE

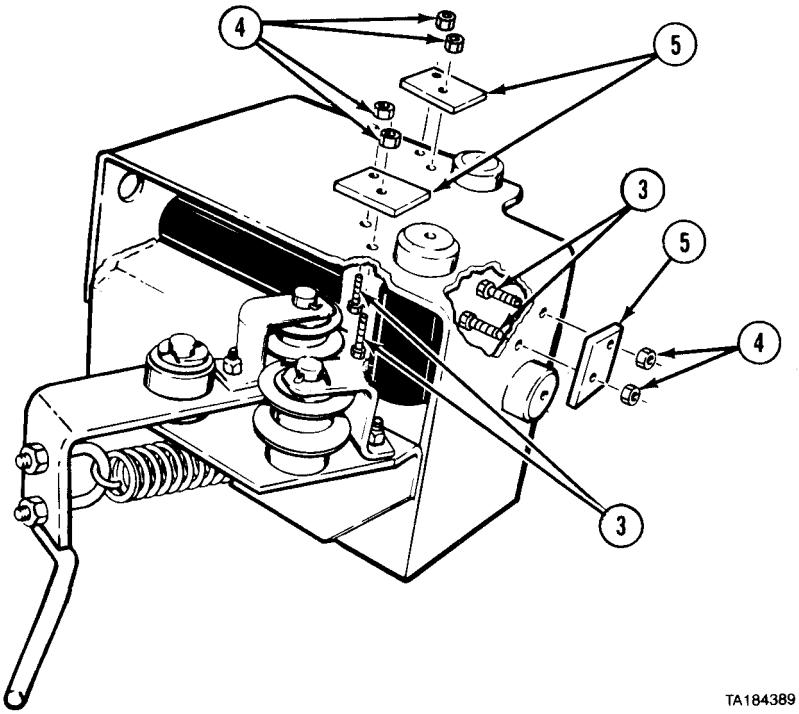
Tag and mark pins before removing.

(1) Remove three grease fittings (1) from three pins (2).



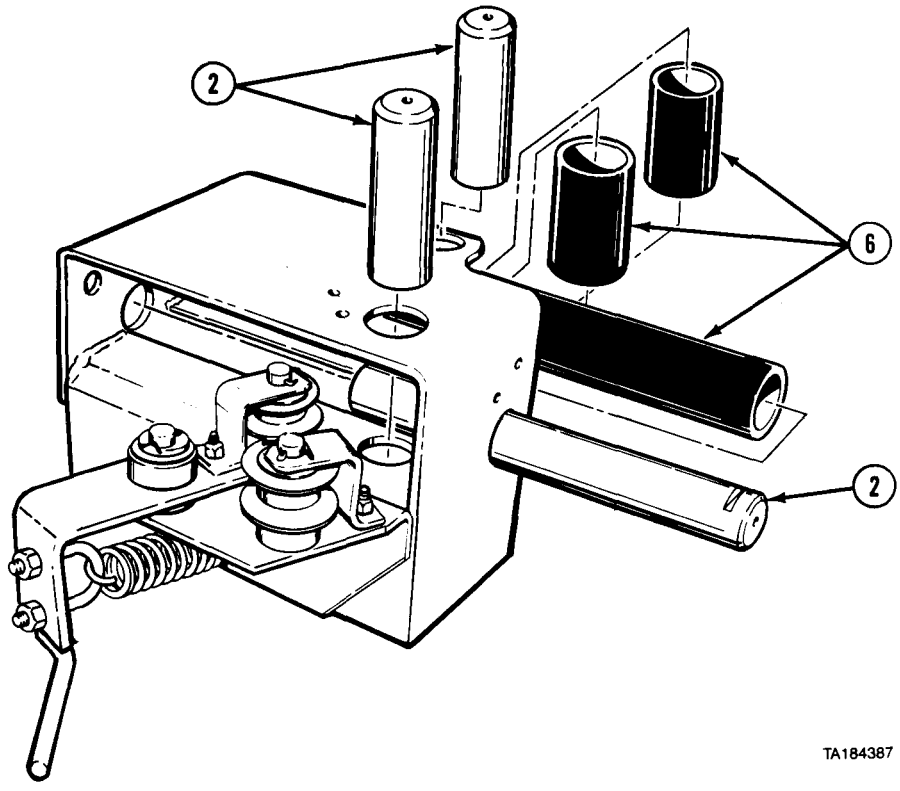
TA184390

(2) Remove six screws (3), locknuts (4), and three lockplates (5) from three pins (2).

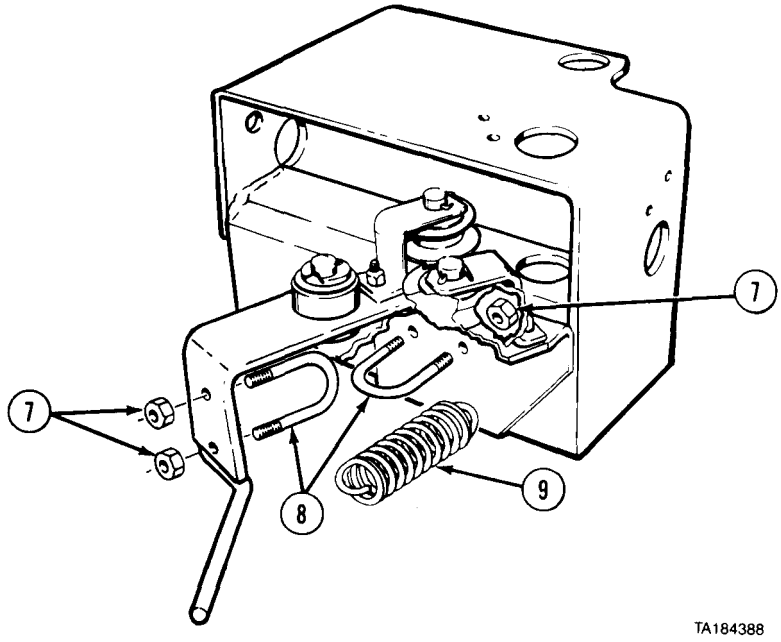


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17-3. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

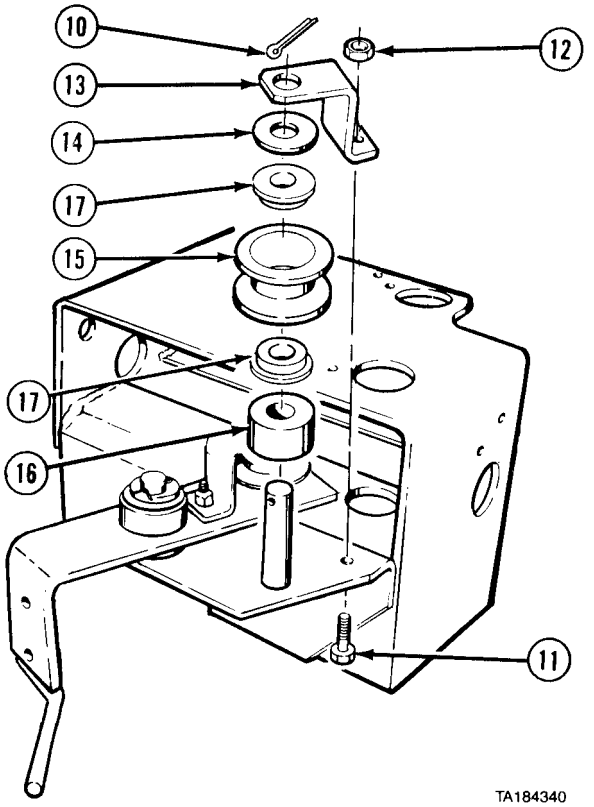


(3) Remove three pins (2) and three rollers (6).



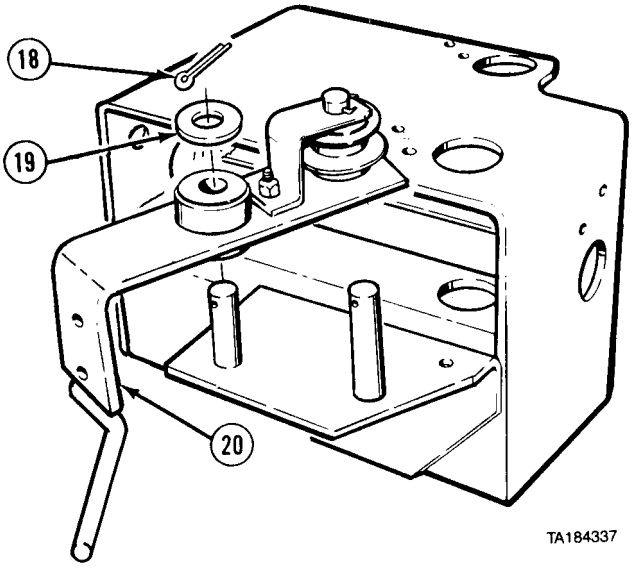
(4) Remove four locknuts (7), two U-bolts (8), and spring (9). Remove U-bolts from spring.

(5) Remove cotter pin (10), screw (11), locknut (12), S-bracket (13), washer (14), roller (15), and spacer (16).
(6) Remove two bearings (17) from roller (15).



TA184340

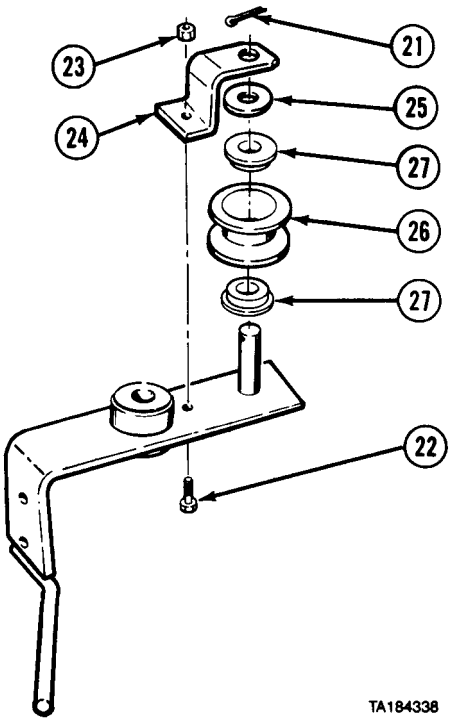
(7) Remove cotter pin (18), washer (19), and pivot assembly (20).



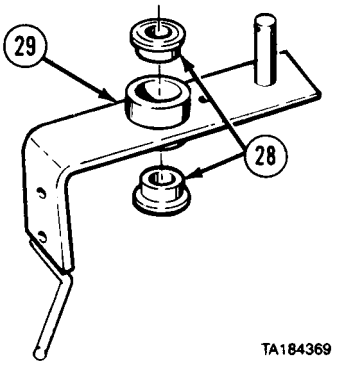
TA184337

17-3. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

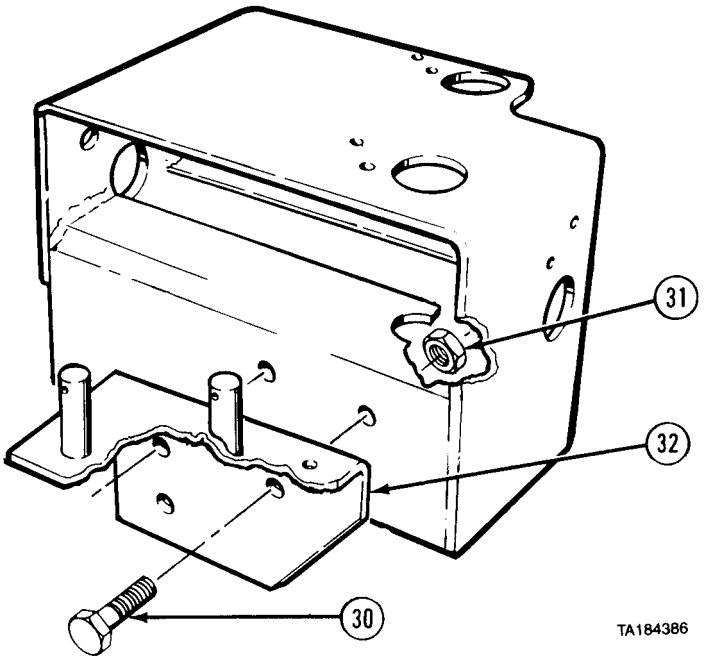
(8) Remove cotter pin (21), screw (22), locknut (23), S-bracket (24), washer (25), and roller (26).
(9) Remove two bearings (27) from roller (26).



(10) Remove two bearings (28) from pivot bracket (29).

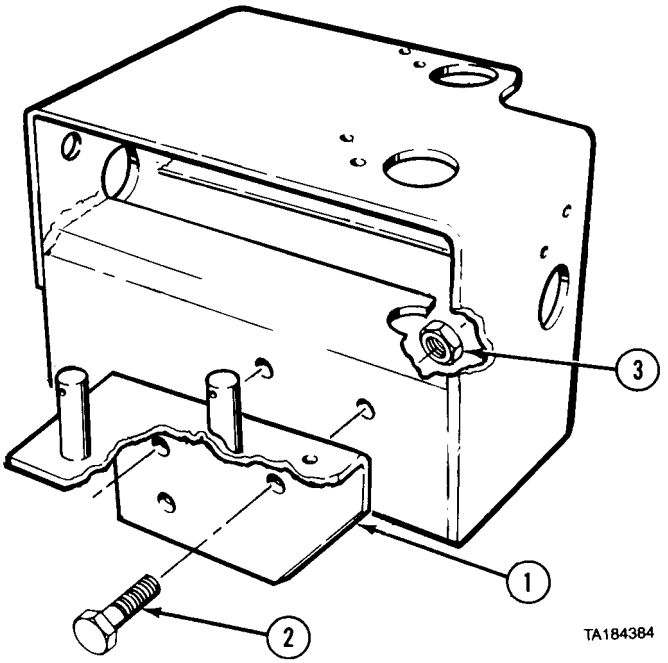


(11) Remove three screws (30), nuts (31), and plate (32).



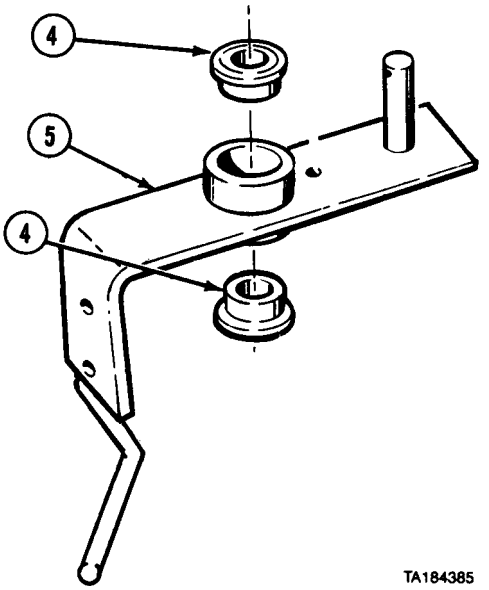
c. Assembly.

(1) Install plate (1) with three screws (2) and nuts (3).

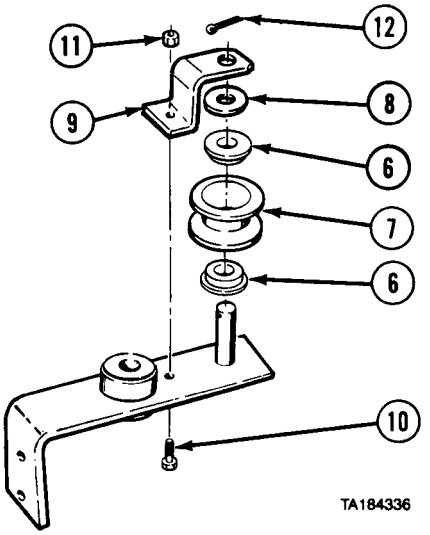


17-3. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (CONT).

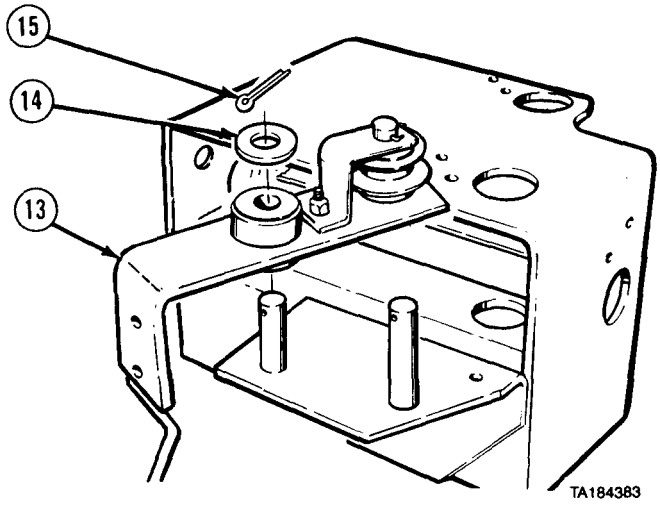
(2) Install two bearings (4) in pivot bracket (5).



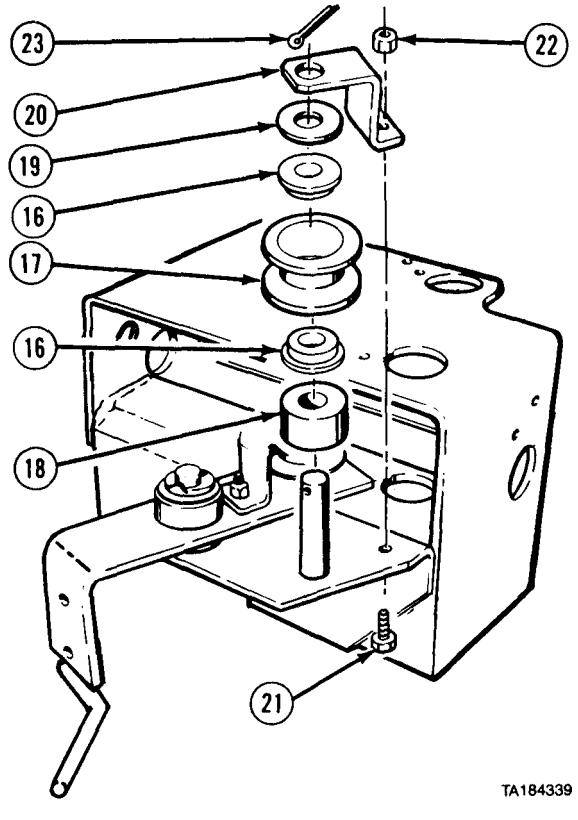
(3) Install two bearings (6) in roller (7).
(4) Install roller (7) and washer (8).
(5) Install S-bracket (9) with screw (10) and locknut (11).
(6) Install cotter pin (12).



(7) Install pivot assembly (13), washer (14), and cotter pin (15).

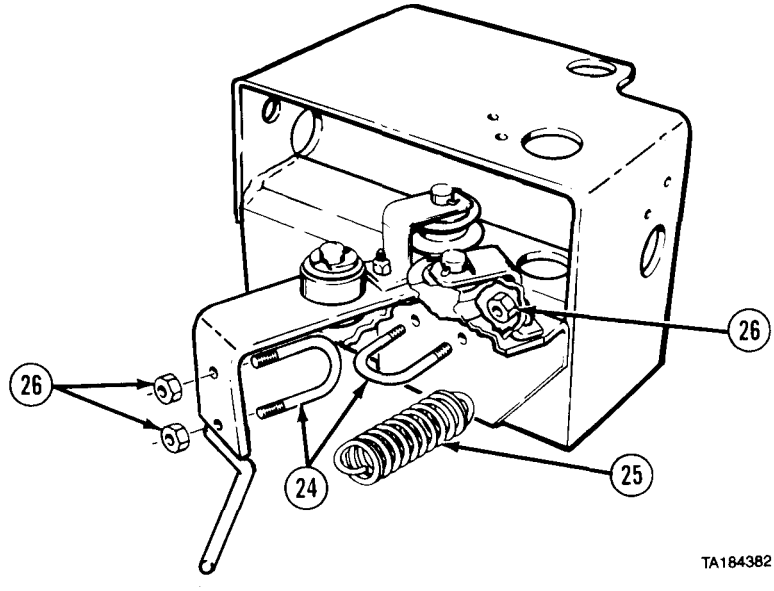


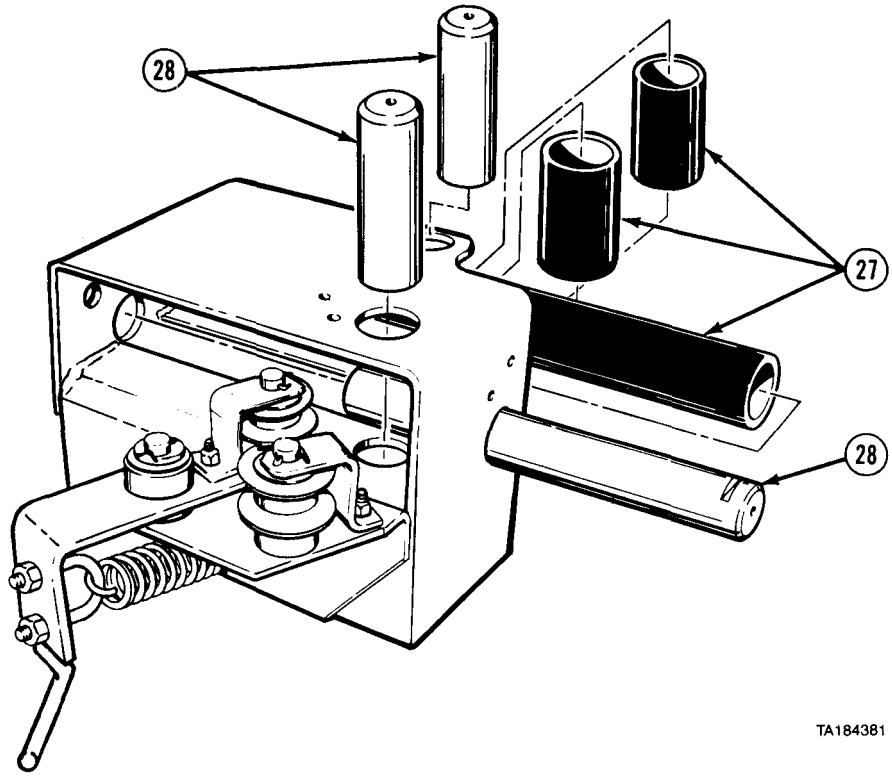
(8) Install two bearings (16) in roller (17).
(9) Install spacer (18), roller (17), and washer (19).
(10) Install S-bracket (20) with screw (21) and locknut (22).
(11) Install cotter pin (23).



17-3. REAR CABLE TENSIONER REMOVAL/REPAIR/iNSTALLATION (CONT).

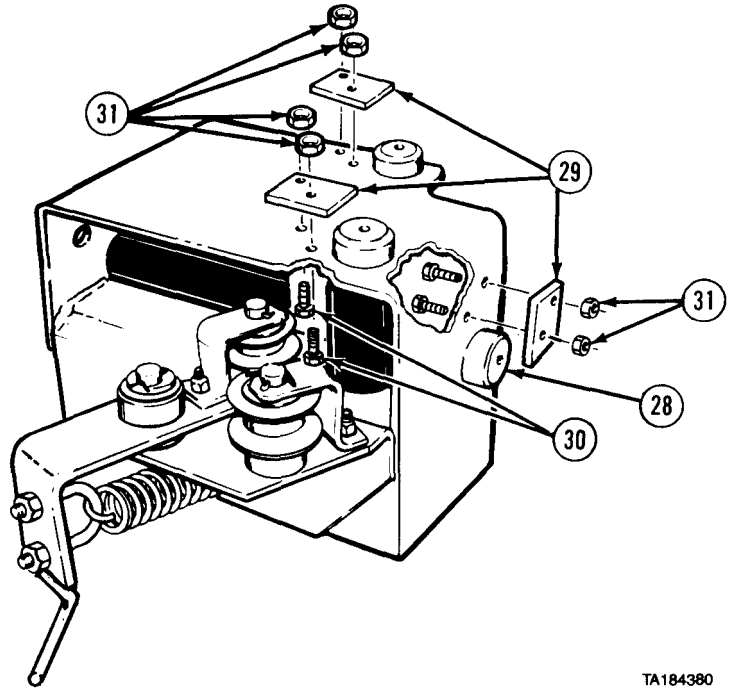
(12) Install two U-bolts (24) on spring (25). Install spring and U-bolts with four locknuts (26).





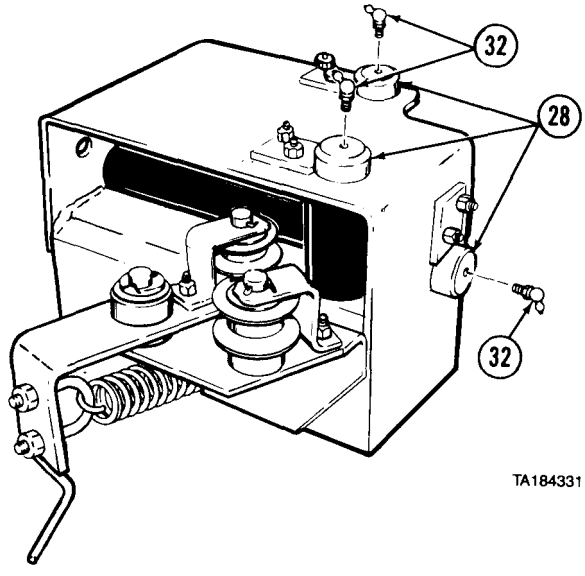
(13) Install three rollers (27) with three pins (28).

(14) Install three lockplates (29) in three pins (28) with six screws (30) and locknuts (31).



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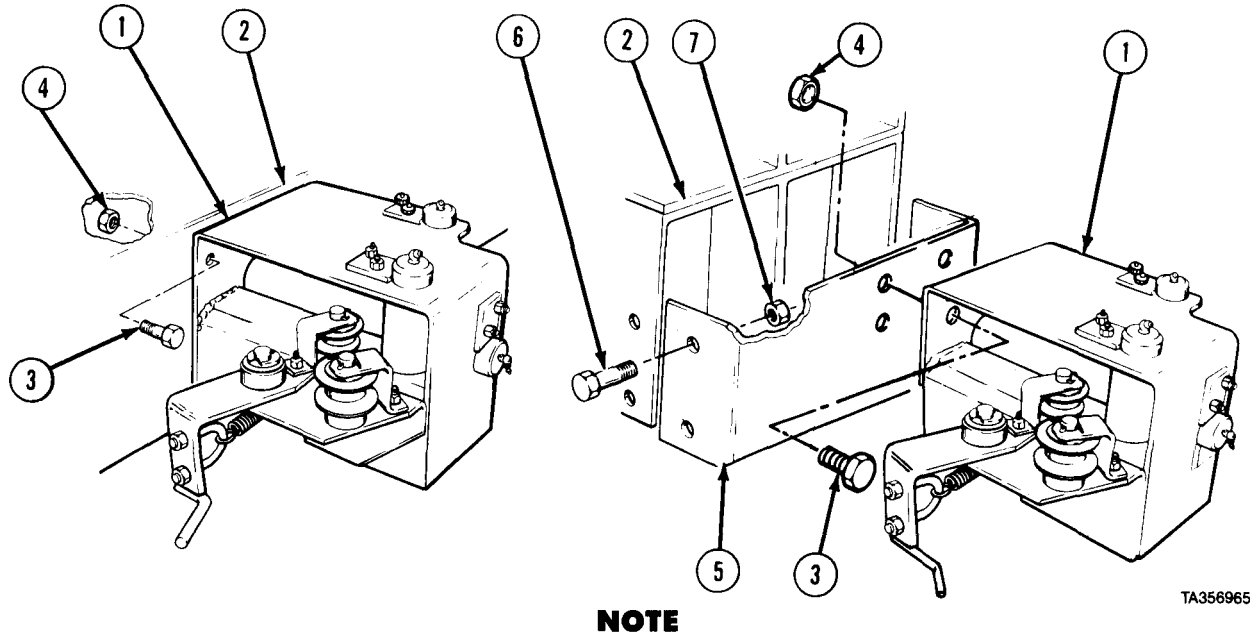
(15) Install three grease fittings (32) in three pins (28).



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17-3. REAR CABLE TENSIONER REMOVAL/REPAIR/iNSTALLATION (CONT).

d. Installation.



NOTE

Do steps *(3)* through *(6)* for M978 vehicles only,

(1) Soldier A and Soldier B install tensioner (1) on frame (2).
(2) Soldier A installs five screws (3) while Soldier B holds nuts (4).
(3) Soldier A and Soldier B install bracket (5) on frame (2).
(4) SoIdier A installs four screws (6) while Soldier B holds nuts (7).
(5) Soldier A installs tensioner (1) on bracket (5).
(6) Soldier A installs four screws (3) while Soldier B holds nuts (4).

e. Follow-on Maintenance. Lubricate rear cable tensioner (LO 9-2320-279-12).

END OF TASK

17-4. FRONT CABLE GUIDE REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

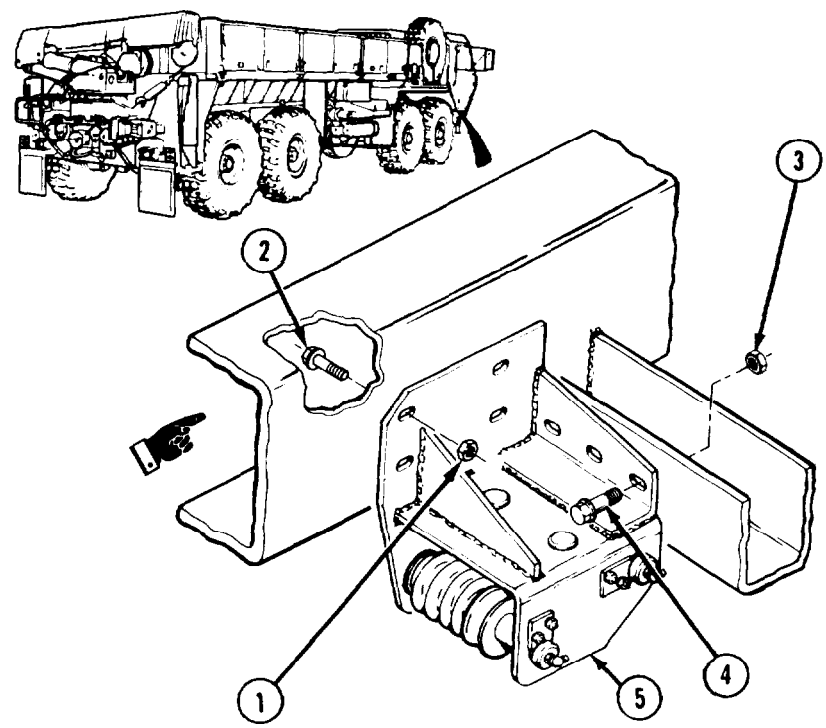
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

(1) Remove four nuts (1) and screws (2).
(2) Remove three nuts (3) and screws (4).
(3) Soldier A and Soldier B remove guide (5).



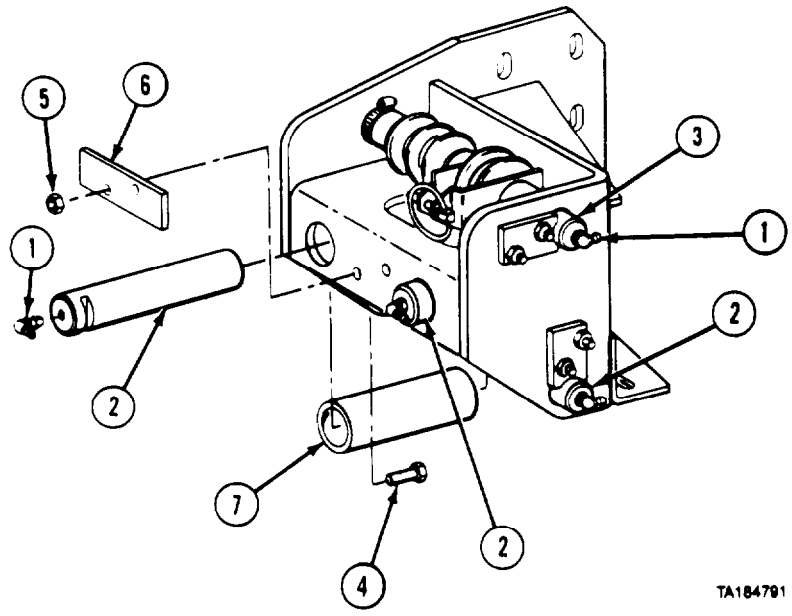
17-4. FRONT CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (CONT).

b. Disassembly.

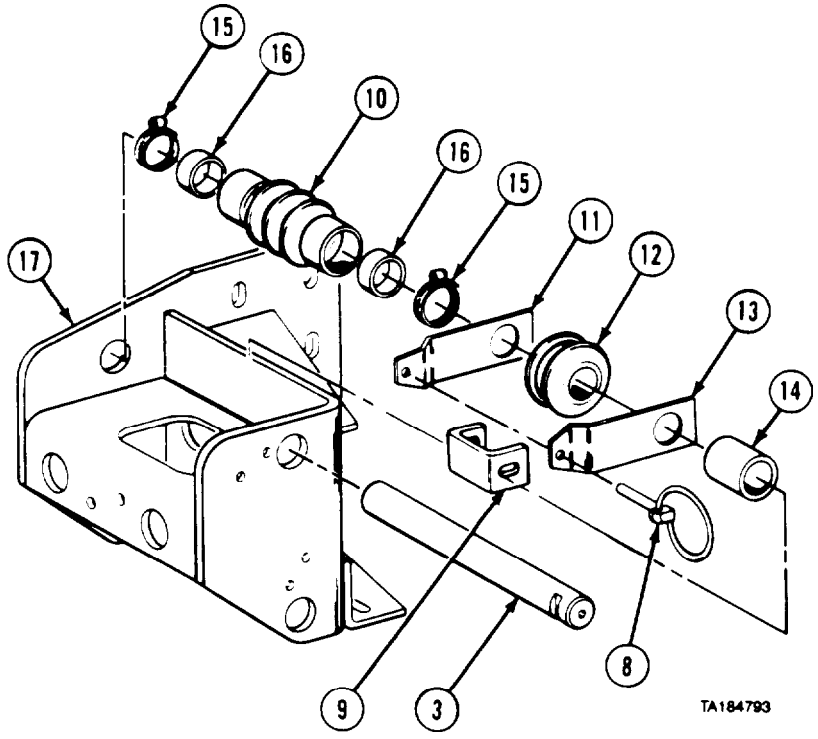
NOTE

Tag and mark pins before removing.

(1) Remove four grease fittings (1) from three pins (2) and pin (3).
(2) Remove six screws (4), Locknuts (5) and three lockplates (6) from three pins (2) and pin (3).
(3) Remove three pins (2) and rollers (7).



(4) Remove quick release pin (8) and bracket (9).
(5) Remove pin (3), bellows (10). cable guide bracket (11). sheave (12), cable guide bracket (13), and sheave spacer (14).
(6) Remove two clamps (15) and two bellows sleeves (16) from cable guide (17).

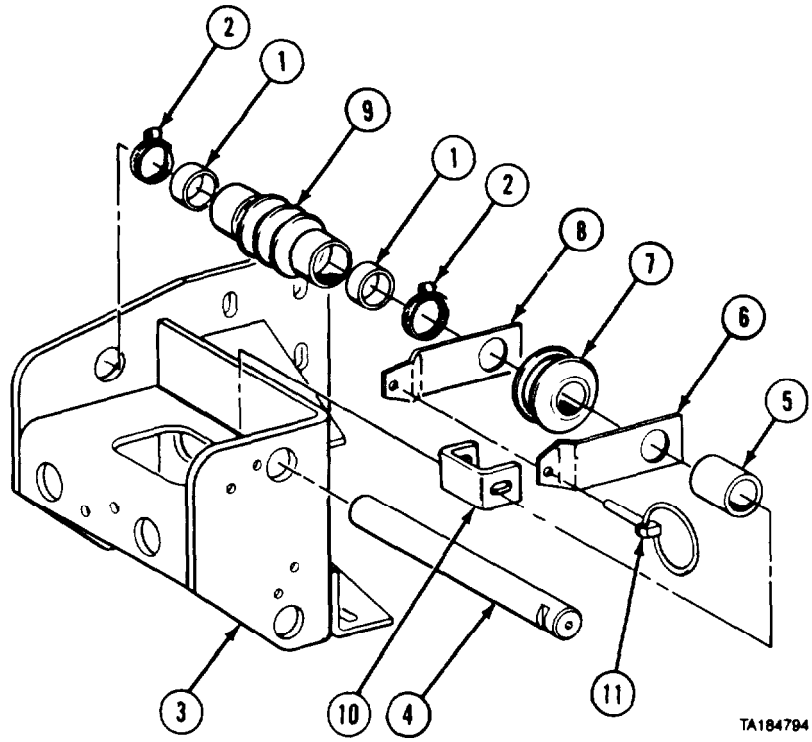


c. Assemblv.

(1) Install-two bellows sleeves (1) and two clamps (2) in cable guide (3).

(2) Start pin (4) and install sheave spacer (5), cable guide bracket (6), sheave (7), cable guide bracket (8), and bellows (9).

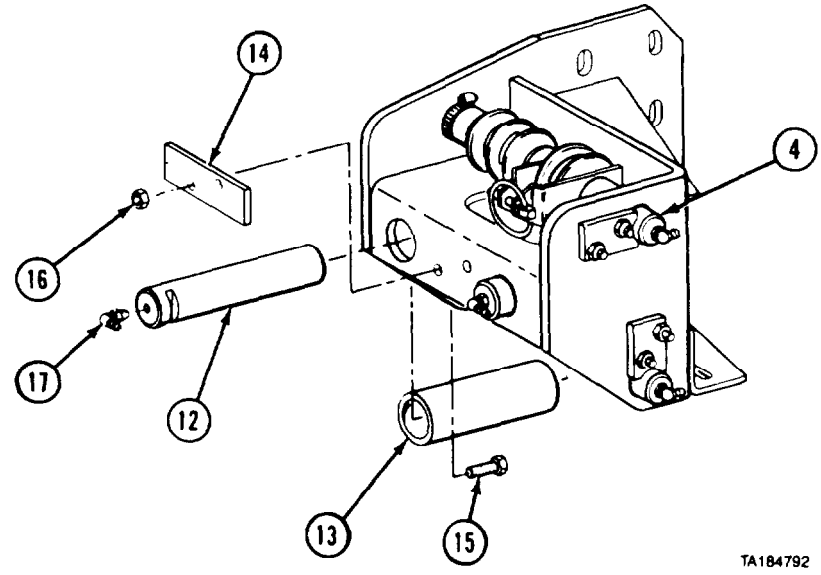
(3) Install bracket (10) and quick release pin (11).



(4) Install three pins (12) and rollers (19).

(5) Install three lockplates (14), six screws (15), and locknuts (16).

(6) Install four grease fittings (17) in pins (4 and 12).



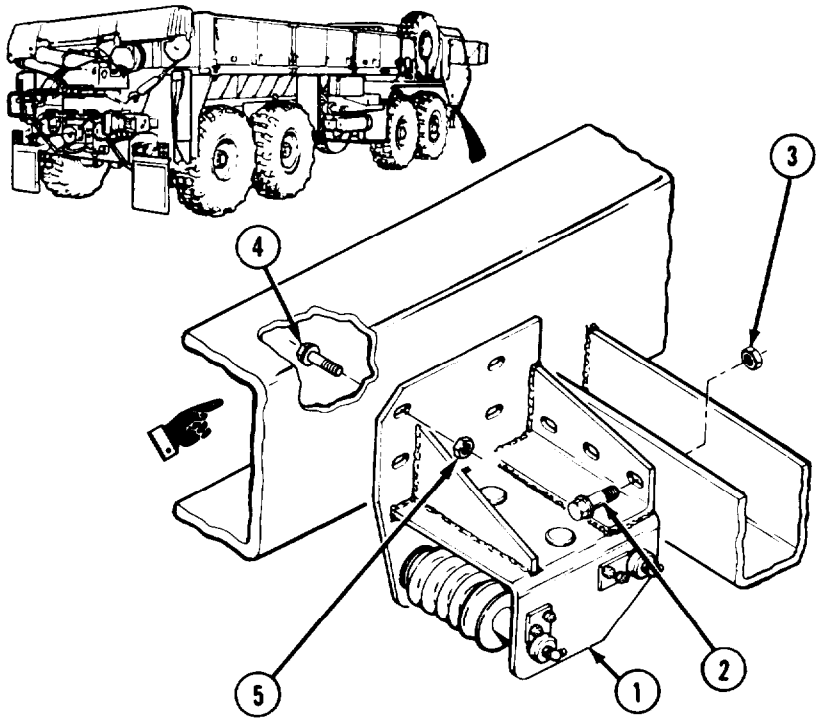
17-4. CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (CONT).

d. Installation.

(1) Soldier A and Soldier B install guide (1).
(2) Install three screws (2) and nuts (3).
(3) Install four screws (4) and nuts (5).

e. Follow-on Maintenance. Lubricate front cable guide (LO 9-2320-279-12).

END OF TASK



17-5. SMALL REAR CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (M978, M983, M984).

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M978, M983, M984

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

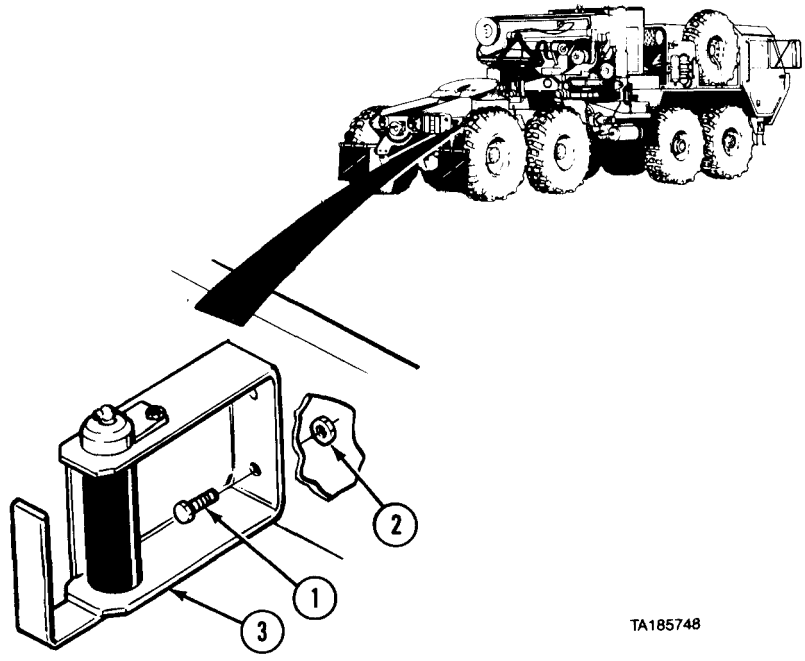
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.

(1) Soldier A removes two screws (1) while Soldier B holds nuts (2).
(2) Remove guide (3).

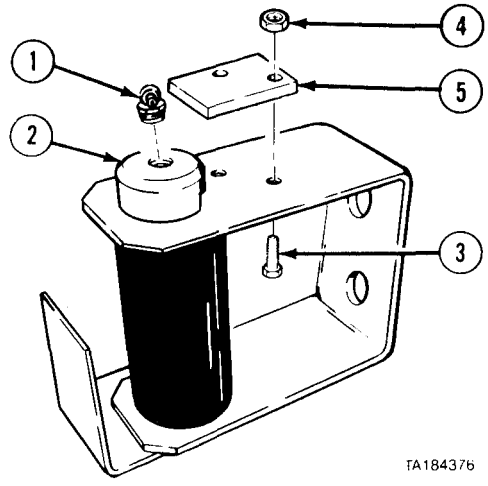


b. Disassemble.

NOTE

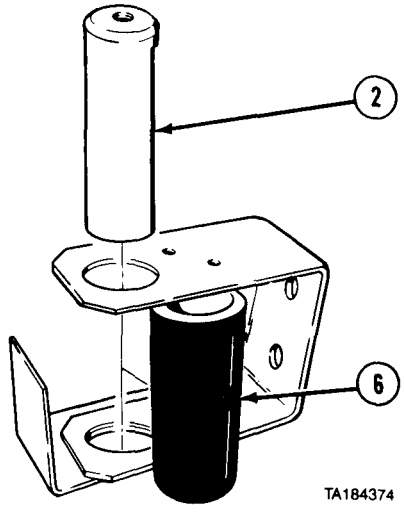
Tag and mark pins before removal.

(1) Remove grease fitting (1) from pin (2).
(2) Remove two screws (3), locknuts (4), and lockplate (5) from pin (2).



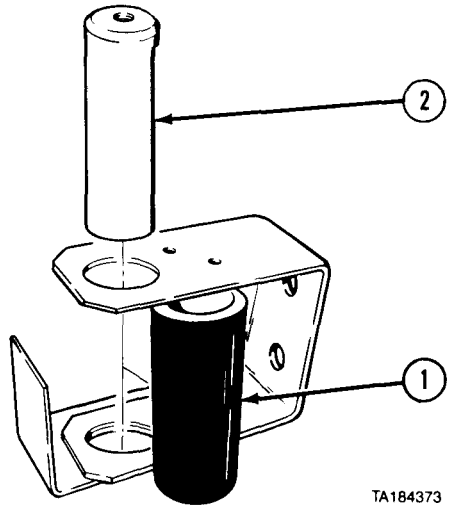
17-5. SMALL REAR CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (M978, M983, M984) (CONT).

(3) Remove pin (2) and roller (6).



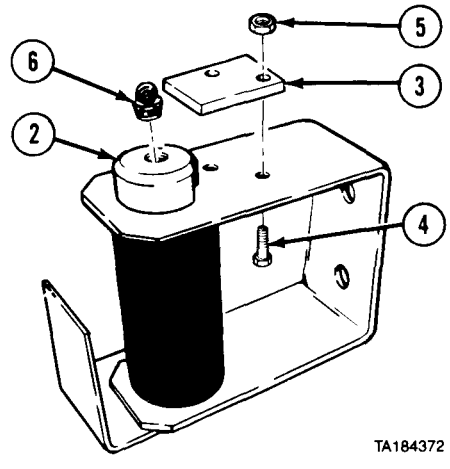
c. Assemblv.

(1) Install roller (1) with pin (2).



(2) Install lockplate (3) in pin (2) with two screws (4) and locknuts (5).

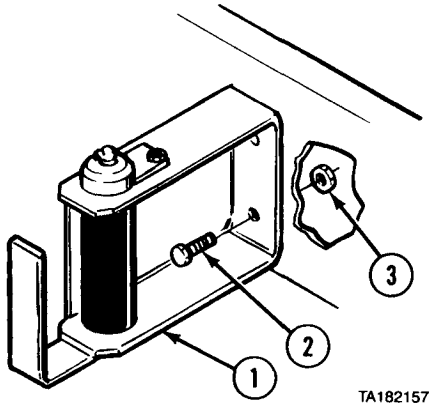
(3) Install grease fitting (6).



d. Installation. Soldier A installs guide (1) and two screws (2) while Soldier B holds nuts (3).

e. Follow-on Maintenance. Lubricate cable guide (LO 9-2320-279-12).

END OF TASK



17-6. REAR CABLE GUIDE REMOVAL/REPAIR/INSTALLATION.

This task covers:

a. Removal (M977, M985)
b. Removal (M978, M983)
c. Removal (M984)
d. Disassembly
e. Assembly
f. Installation (M977, M985)
g. Installation (M978, M983)
h. Installation (M984)
i. Follow-on Maintenance

INITIAL SETUP

Models
All (with self-recovery winch)

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

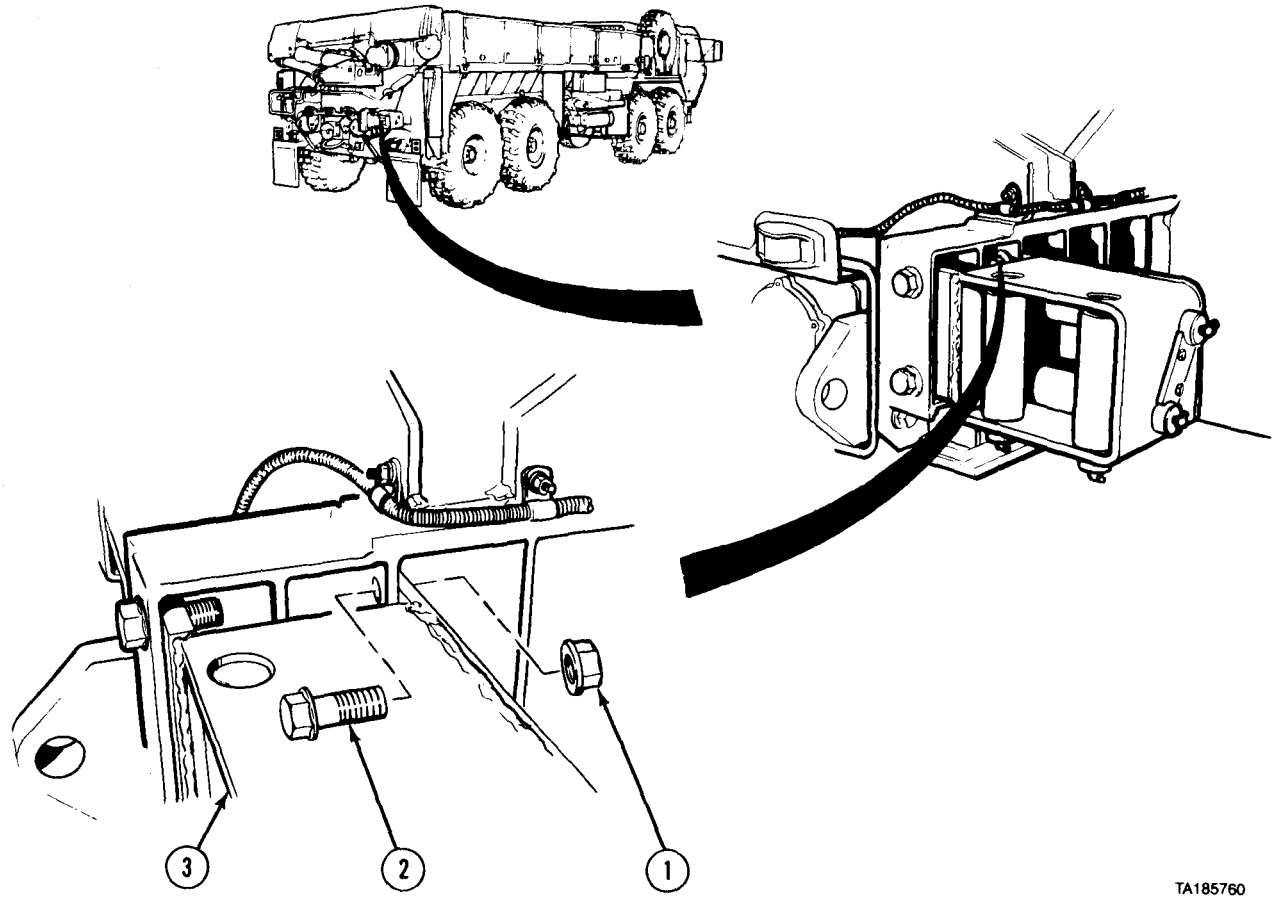
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-354-10	Tow bar removed (M984).

Special Environmental Conditions
None

General Safety Instructions
None

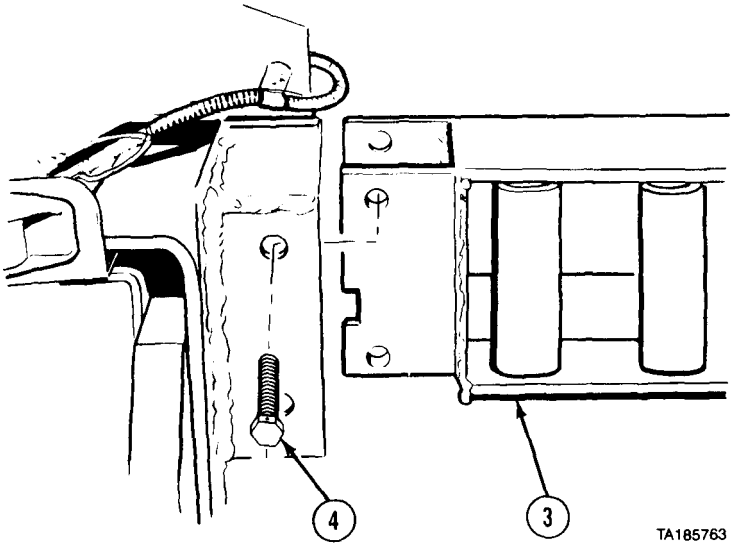
17-6. REAR CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (CONT).

a. Removal (M977, M985).

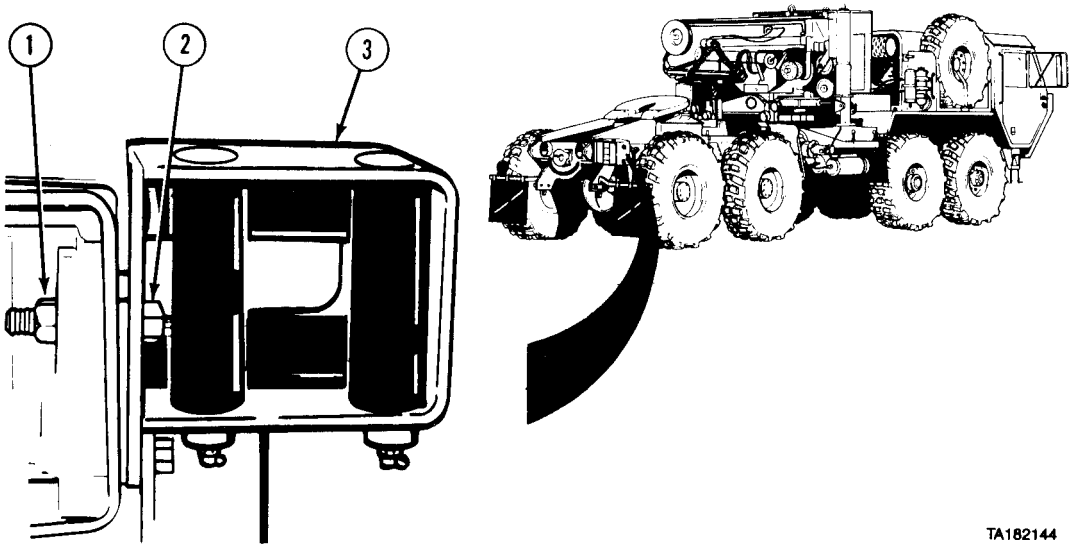


(1) Remove two nuts (1) and screws (2) from cable guide (3).

(2) Remove two screws (4) and cable guide (3).



b. Removal (M978, M983).



NOTE

Right rear mud flap bracket will come off when cable guide is removed from M983.

(1) Soldier A removes four nuts (1) while Soldier B holds screws (2).
(2) Remove guide (3).

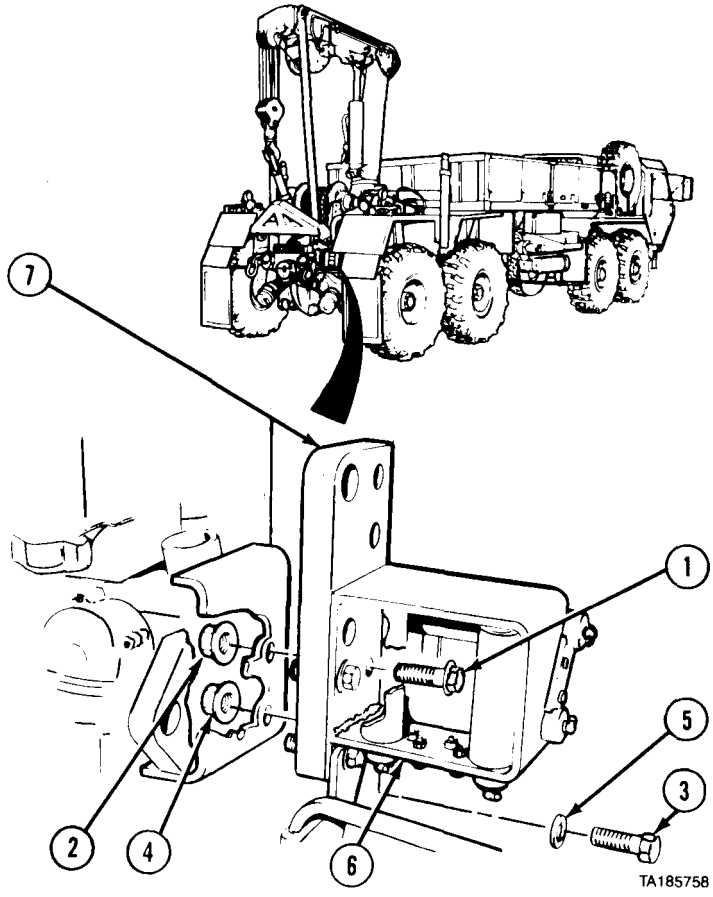
17-6. REAR CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (CONT).

c. Removal (M984).

NOTE

Only front screws are removed from cable guide in this task.

(1) Soldier A holds two screws (1) while Soldier B removes nuts (2). Soldier A removes front screw.
(2) Soldier A holds two screws (3) while Soldier B removes nuts (4). Soldier A removes front screw and washer (5).
(3) Soldier A and Soldier B remove cable guide (6) and tow bar mount (7).

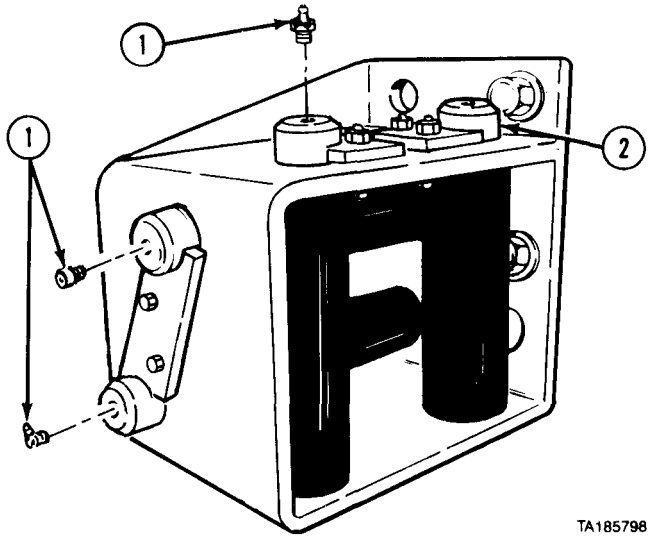


d. Disassembly.

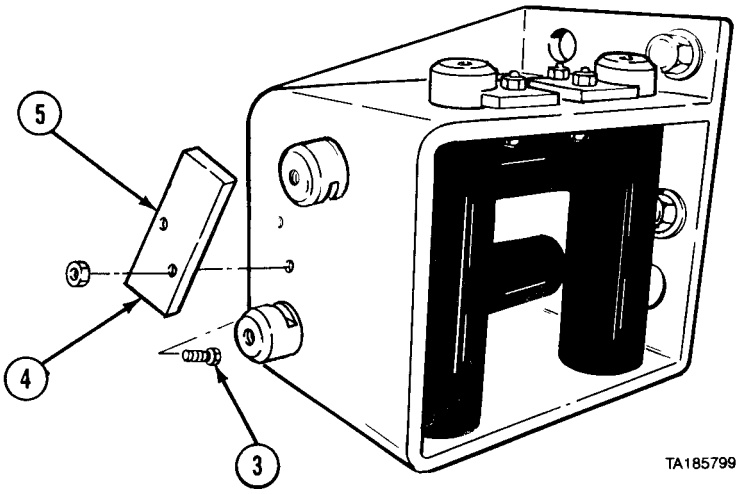
NOTE

Tag and mark pins before removal.

(1) Remove four grease fittings (1) from four pins (2).



(2) Remove six screws (3), locknuts (4), and three lockplates (5).

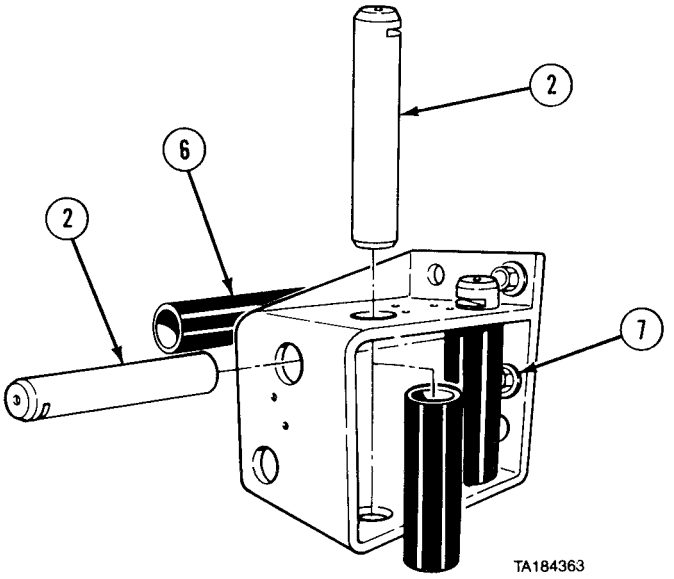


(3) Remove four pins (2) and four rollers (6).

NOTE

M984 will have washer on top screw.

(4) Remove two screws (7).



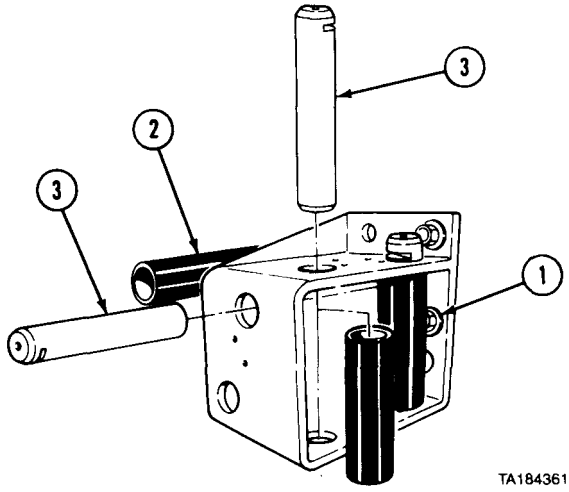
17-6. REAR CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (CONT).

e. Assembly.

NOTE

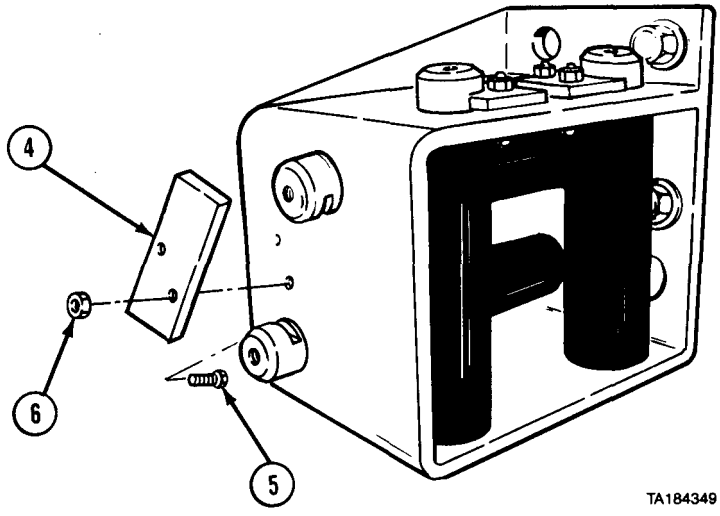
M984 will have washer on top screw.

(1) Install two screws (1).
(2) Install four rollers (2) with four pins (3).



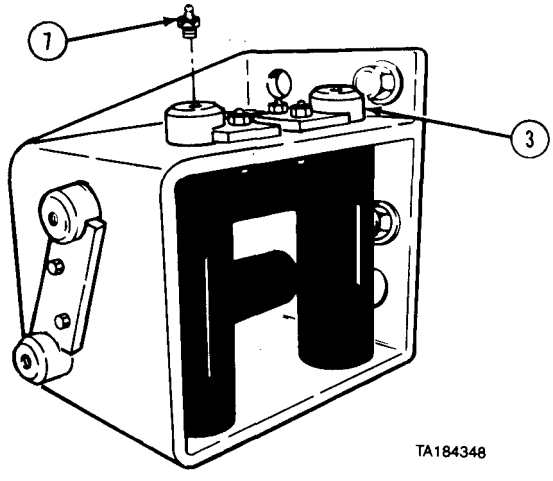
TA184361

(3) Install three lockplates (4) with six screws (5) and locknuts (6).



TA184349

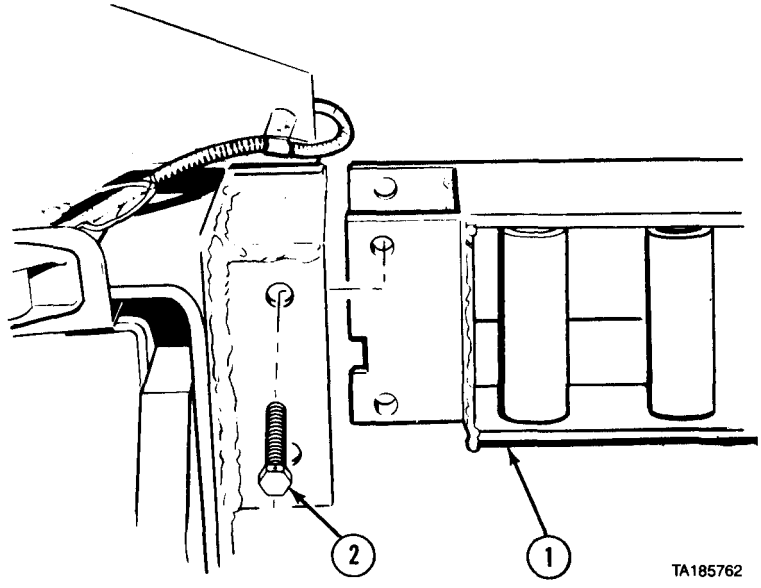
(4) Install four grease fittings (7) in four pins (3).



TA184348

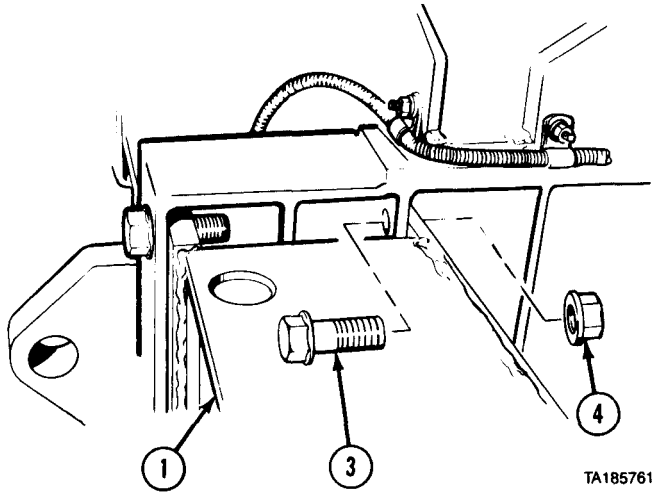
f. Installation (M977, M985).

(1) Install cable guide (1) with two screws (2). Do not tighten.



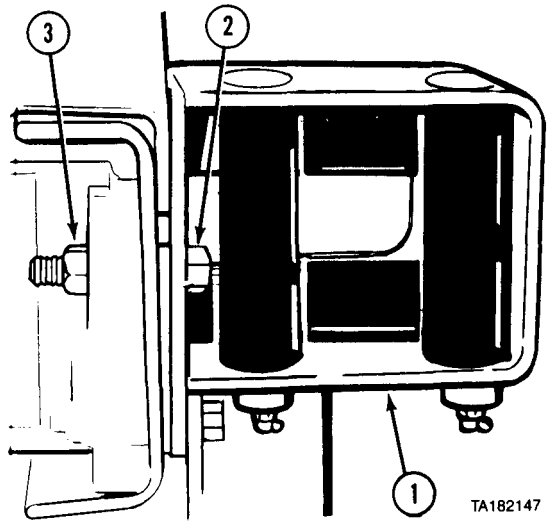
(2) Install two screws (3) and nuts (4) in cable guide (1).

(3) Tighten two screws (2).



17-6. REAR CABLE GUIDE REMOVAL/REPAIR/INSTALLATION (CONT)

g. Installation (M978, M983). Soldier A installs cable guide (1) with four screws (2) while Soldier B tightens nuts (3).



h. Installation (M984).

(1) Soldier A installs cable guide (1) while Soldier B holds tow bar mount (2) in position.

(2) Soldier A installs front screw (3) and front screw (4) with washer (5).

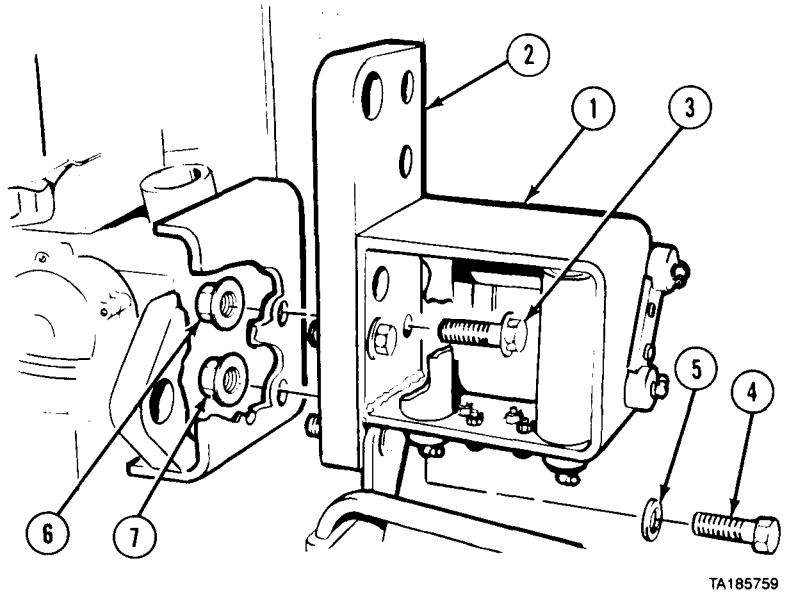
(3) Soldier A holds two screws (3) while Soldier B installs nuts (6).

(4) Soldier A holds two screws (4) while Soldier B installs nuts (7).

f. Follow-on Maintenance.

(1) Lubricate rear cable guide (LO 9-2320-279-12).

(2) Install tow bar (M984) (TM 9-2320-354-10).



END OF TASK

17-7. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (M984).

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, gear, Item 29, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

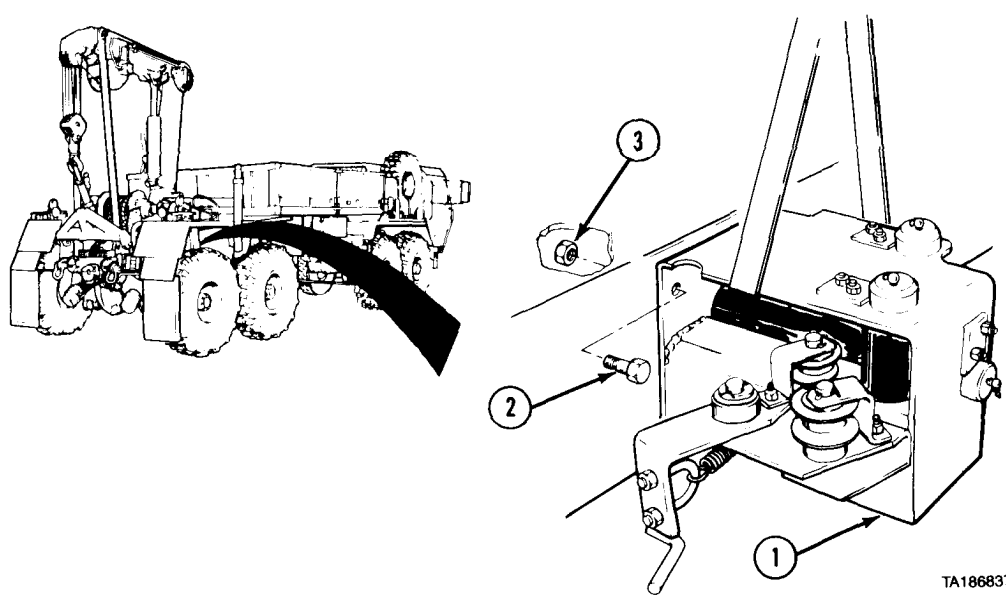
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Attach suitable lifting device to tensioner (1).
(2) Soldier A removes four screws (2) while Soldier B holds four nuts (3).
(3) Soldier A and Soldier B remove tensioner (1).

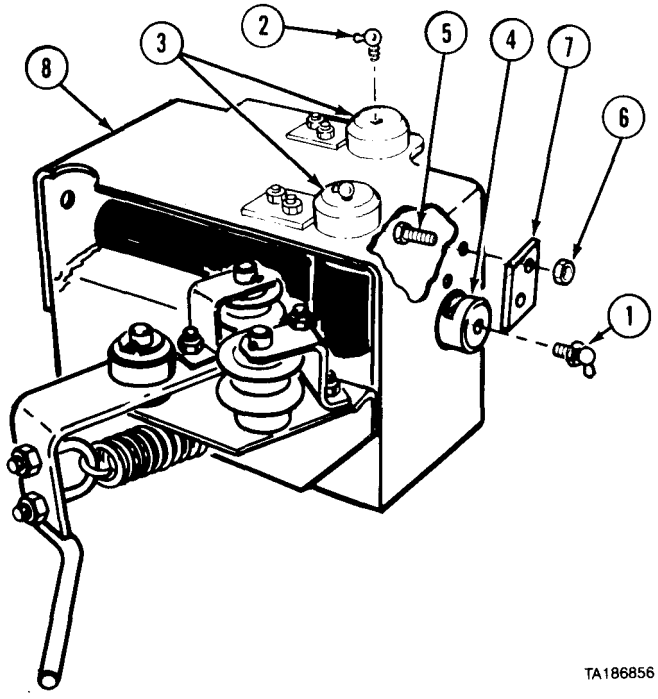
17-7. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (M984) (CONT).

b. Disassembly.

NOTE

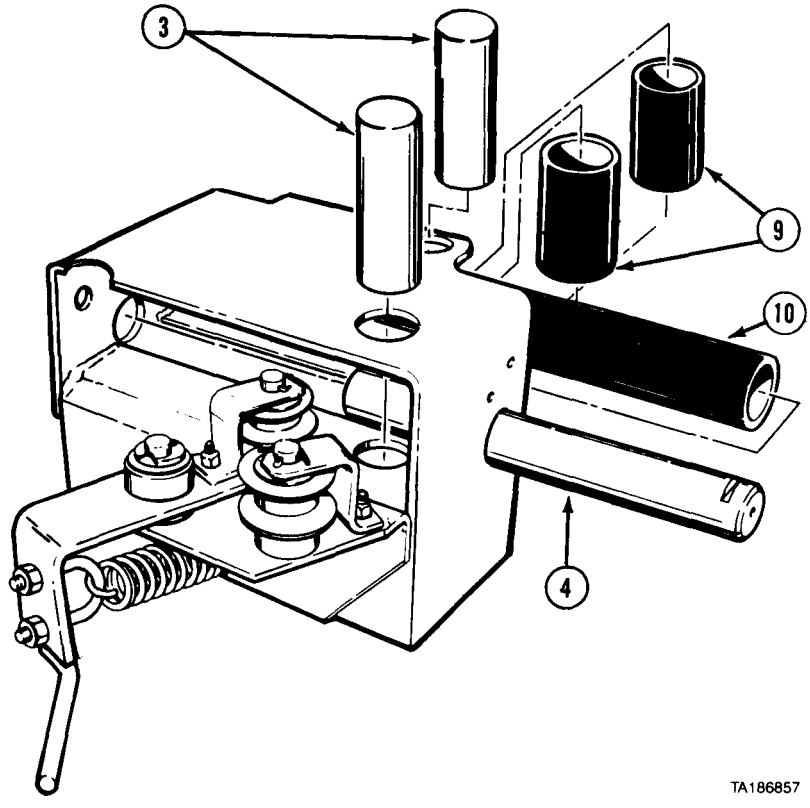
Tag and mark pins before removing.

(1) Remove grease fitting (1) and two grease fittings (2) from two pins (3) and pin (4).
(2) Remove six screws (5), locknuts (6), and three lockplates (7) from tensioner (8).



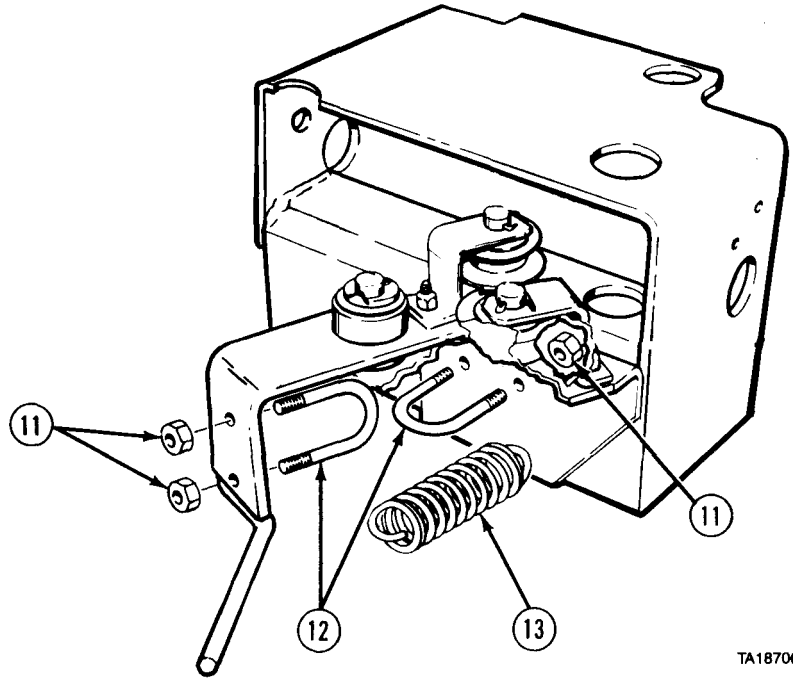
TA186856

(3) Remove two pins (3), pin (4), two rollers (9), and roller (10).



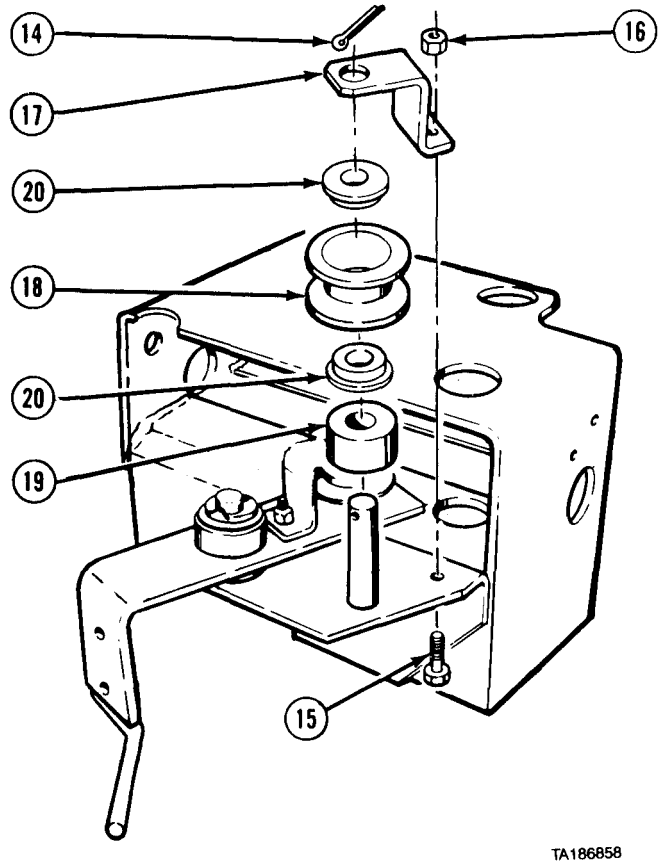
TA186857

(4) Remove four locknuts (11), two U-bolts (12), and spring (13). Remove U-bolts from spring.



TA187006

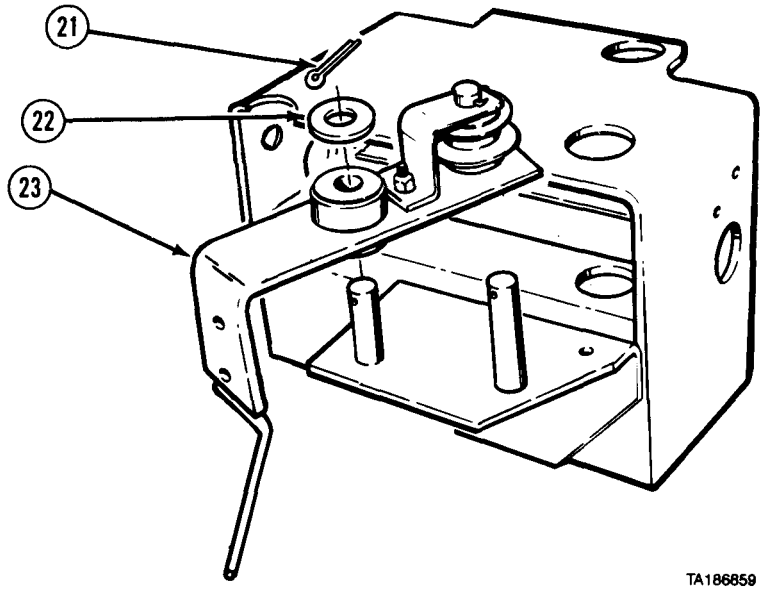
(5) Remove cotter pin (14), screw (15), locknut (16), bracket (17), roller (18), and spacer (19).
(6) Remove two bearings (20) from roller (18).



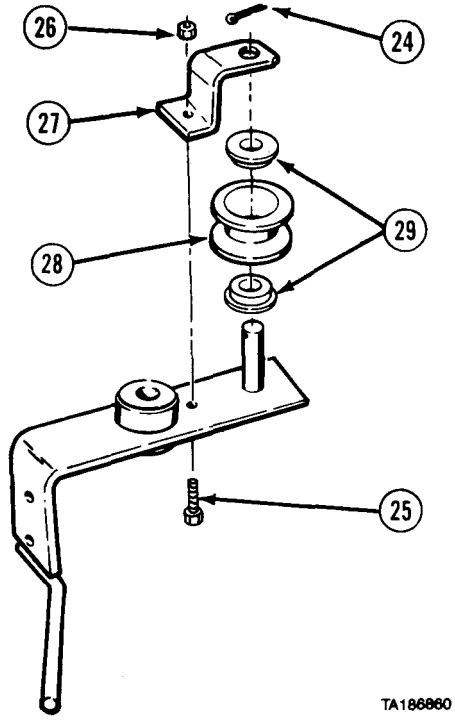
TA186858

17-7. REAR CABLE TENSIONER REMOVAL/REPAIR/iNSTALLATION, (M984) (CONT).

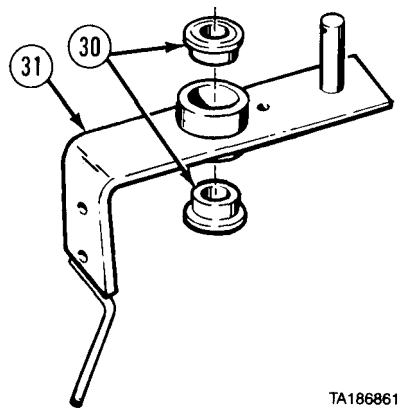
(7) Remove cotter pin (21), washer (22), and pivot assembly (23).



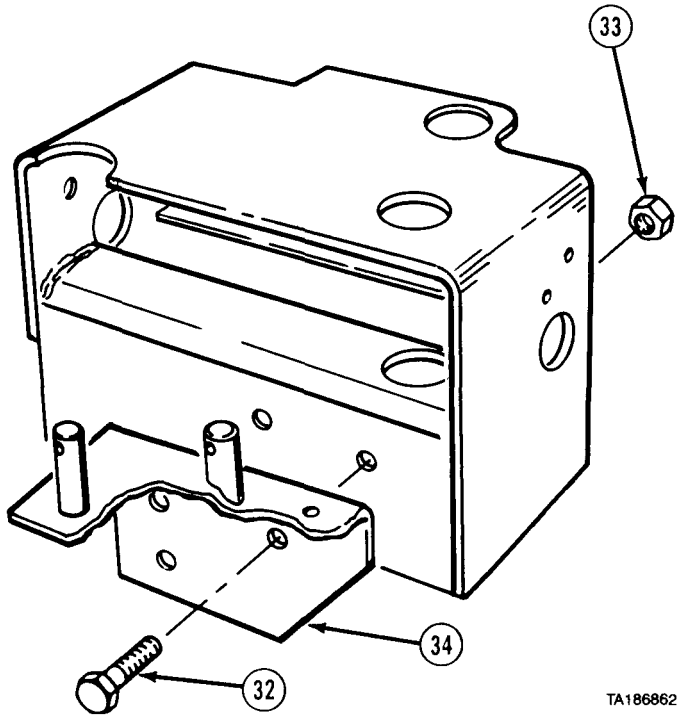
(8) Remove cotter pin (24), screw (25), locknut (26), bracket (27), and roller (28),
(9) Remove two bearings (29) from roller (28).



(10) Remove two bearings (30) from pivot bracket (31).



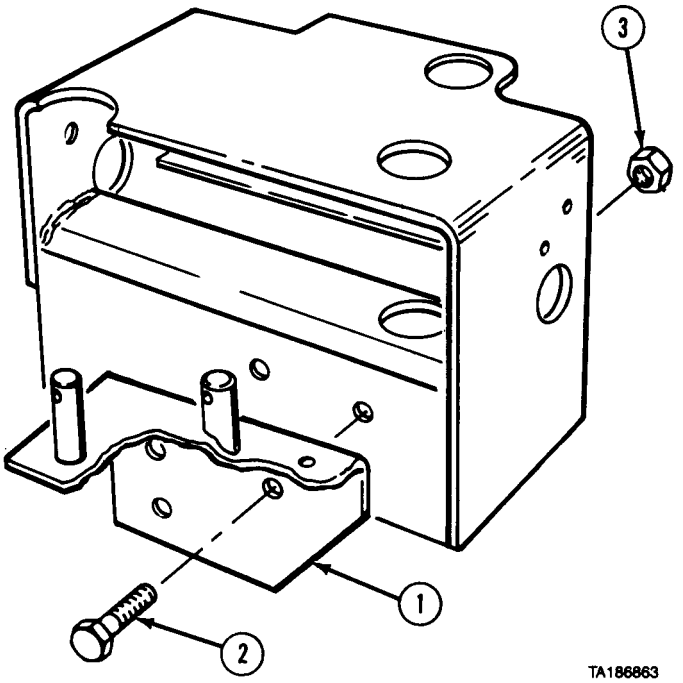
(11) Remove three screws (32), locknuts (33), and bracket (34).



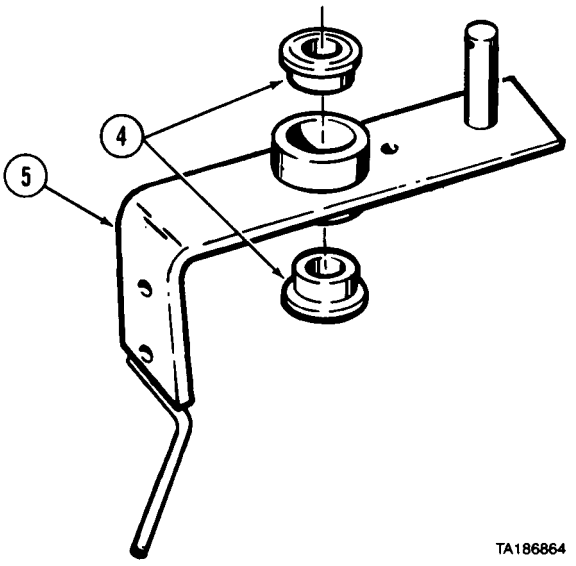
17-7. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (M984) (CONT).

c. Assembly.

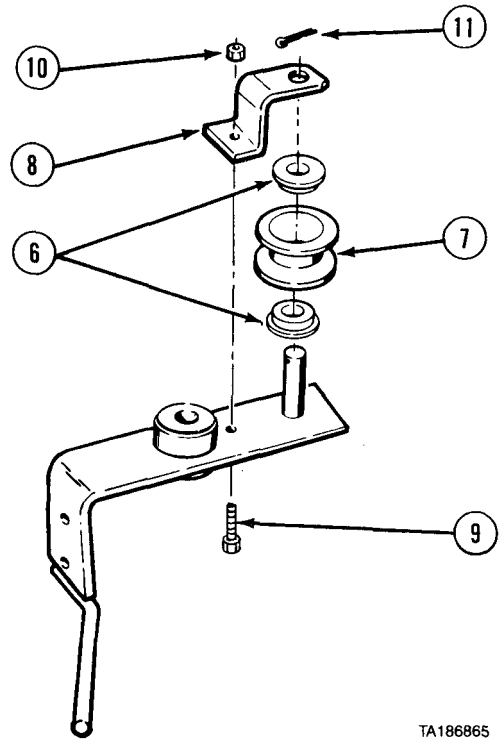
(1) Install bracket (1) with three screws (2) and locknuts (3).



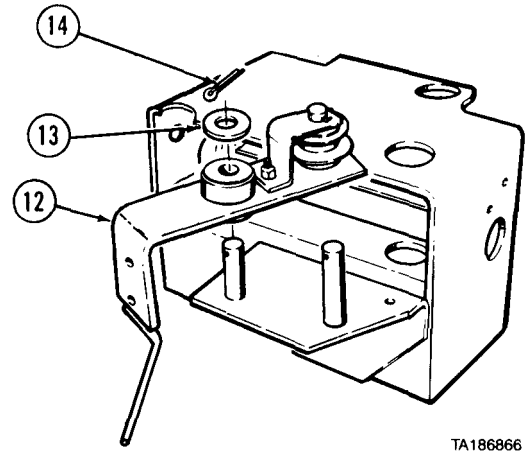
(2) Install two bearings (4) in pivot bracket (5).



(3) Install two bearings (6) in roller (7).
(4) Install roller (7).
(5) Install bracket (8) with screw (9) and locknut (10).
(6) Install cotter pin (11).

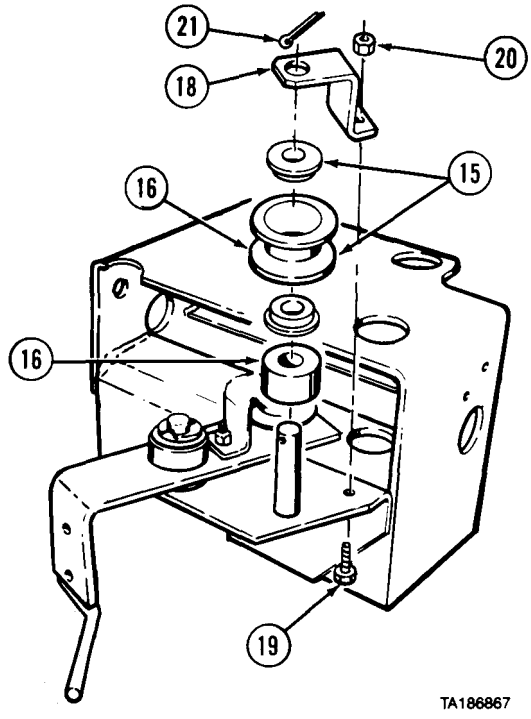


(7) Install pivot assembly (12), washer (13), and cotter pin (14).

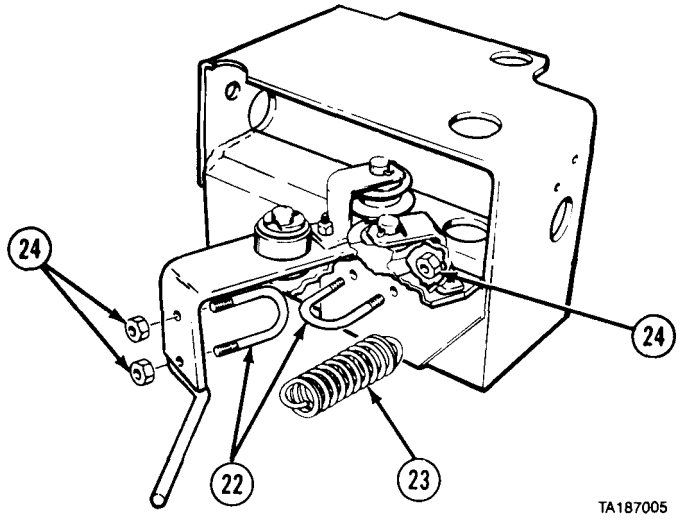


17-7. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (M984) (CONT).

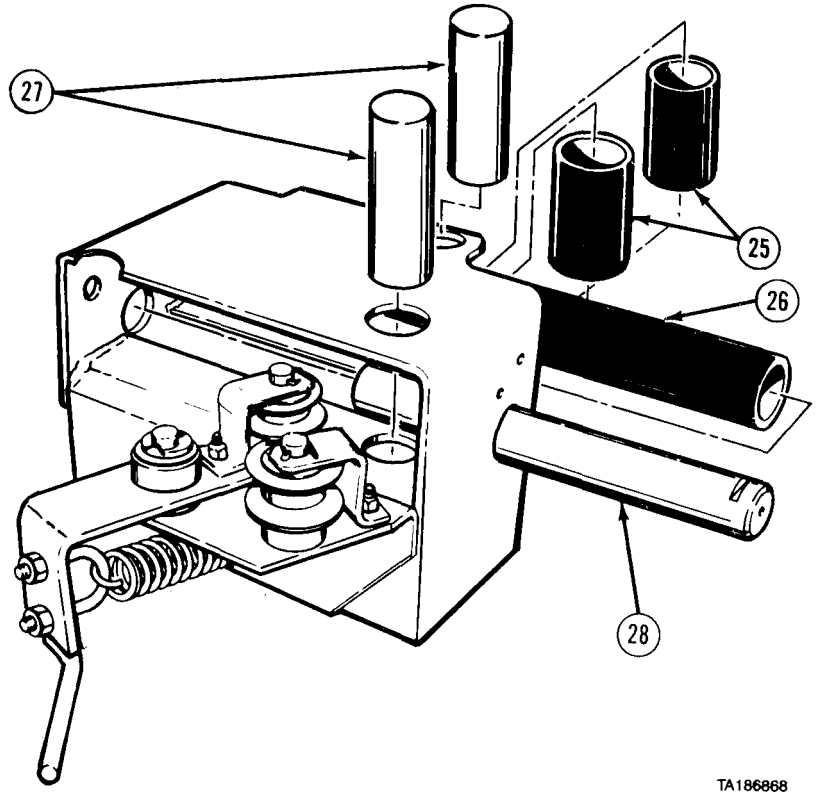
(8) Install two bearings (15) in roller (16).
(9) Install spacer (17) and roller (16).
(10) Install bracket (18) with screw (19) and locknut (20).
(11) Install cotter pin (21).



(12) Install two U-bolts (22) on spring (23). Install spring and U-bolts with four locknuts (24).



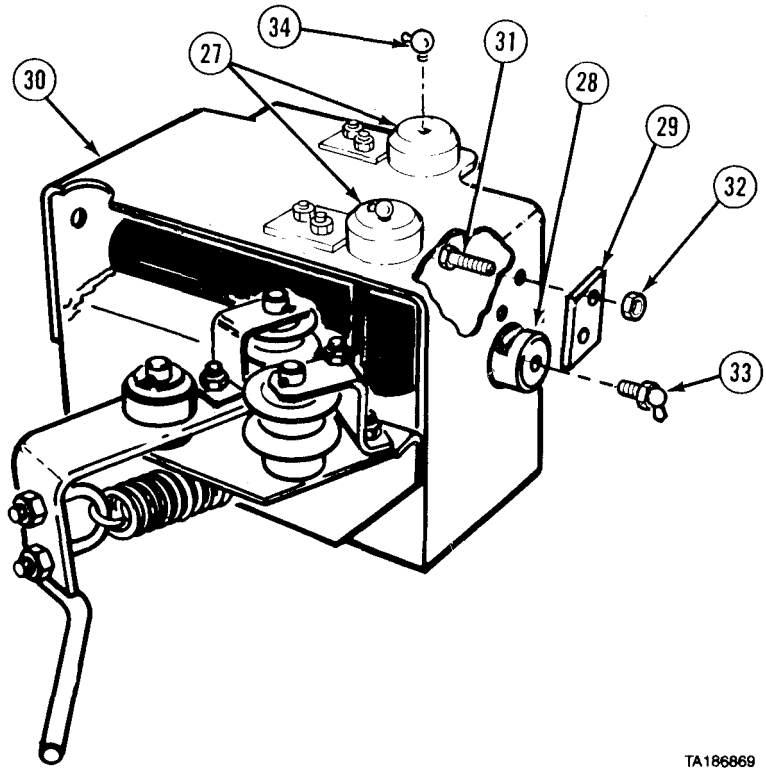
(13) Install two rollers (25) and roller (26) with two pins (27) and pin (28).



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(14) Install three lockplates (29) on tensioner (30) with six screws (31) and locknuts (32).

(15) Install grease fitting (33) and two grease fittings (34) in two pins (27) and pin (28).



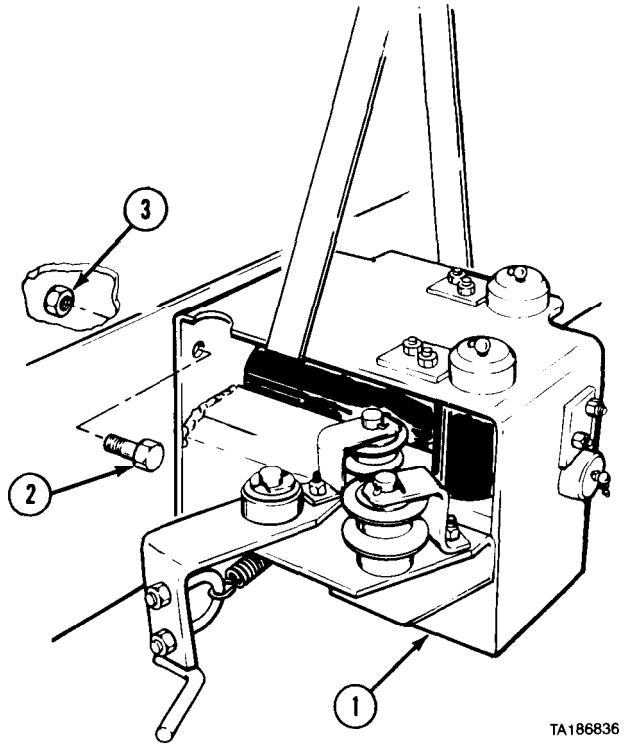
TA186869

'17-7. REAR CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (M984) (CONT).

d. Installation.
(1) Soldier A and Soldier B install tensioner (1).
(2) Soldier A installs four screws (2) while Soldier B holds four nuts (3).

e. Follow-on Maintenance. Lubricate rear cable tensioner (LO 9-2320-279-12).

END OF TASK



Section III. WINCHES

17-8. SELF-RECOVERY WINCH CABLE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All (with self-recovery winch)

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

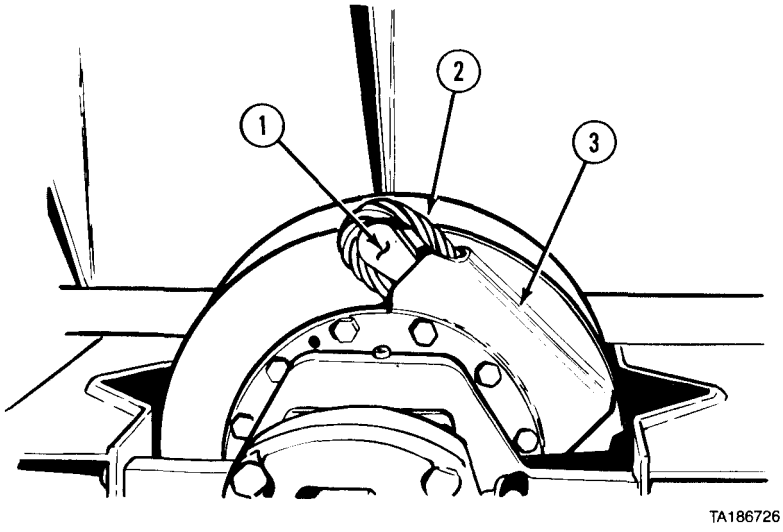
Equipment Condition

TM or Para	*Conditions Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Unwind winch cable.

Special Environmental Conditions
None

General Safety Instructions
Wear heavy gloves when handling cable.

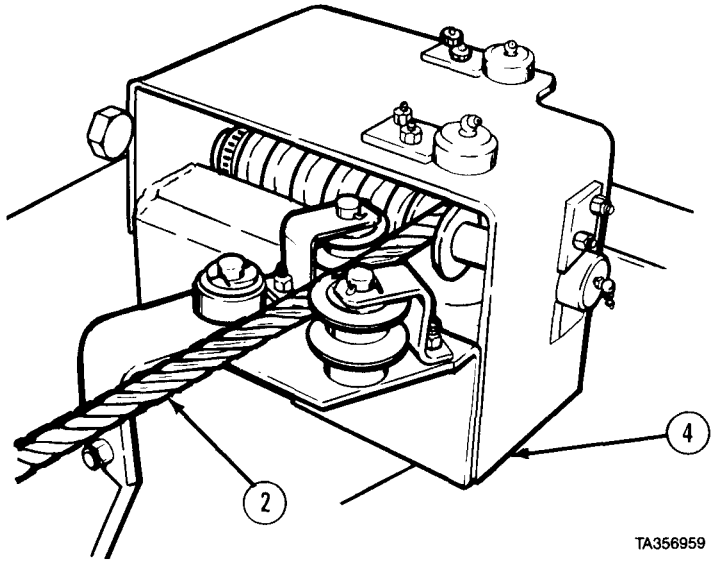
a. Removal.



WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cable may cut hands severely.

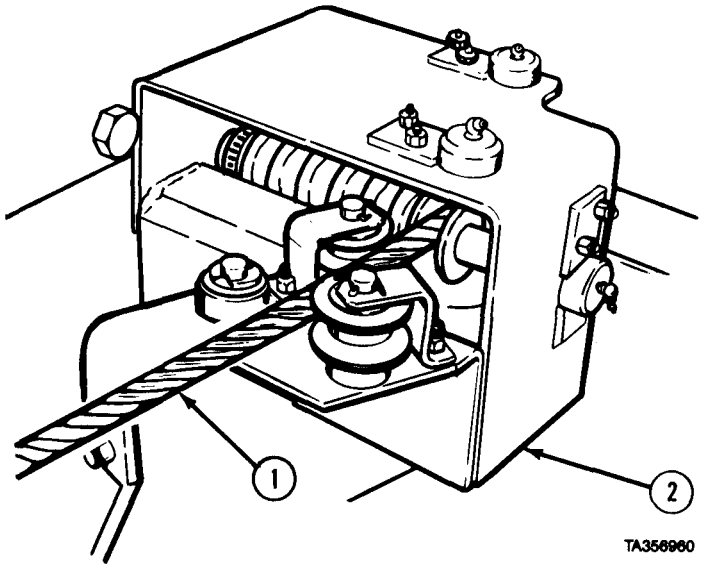
(1) Remove cable anchor (1).
(2) Pull cable (2) from cable holder (3).



(3) Remove cable (2) from cable tensioner guide (4).

17-8. SELF-RECOVERY WINCH CABLE REMOVAL/INSTALLATION (CONT).

b. Installation.



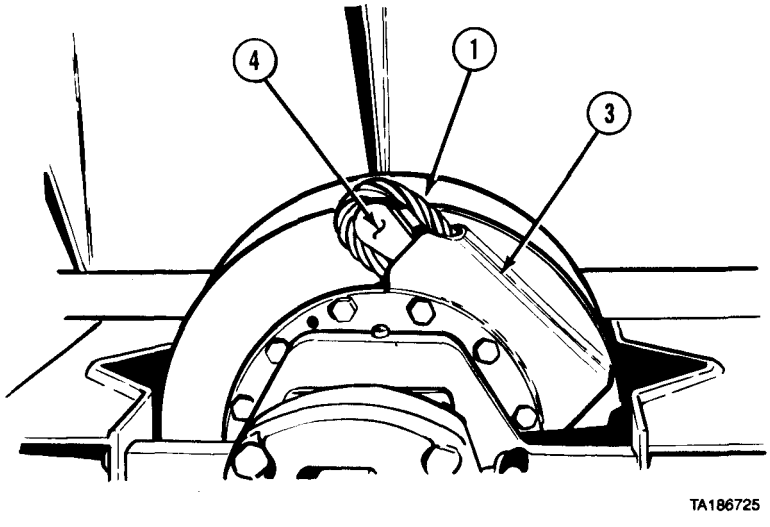
WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cable may cut hands severely.

CAUTION

Cable must be removed from tensioner before shackle reaches tensioner.

(1) Guide cable (1) into cable tensioner guide (2).



(2) Soldier A installs cable (1) in cable holder (3) while Soldier B installs cable anchor (4).

c. Follow-on Maintenance. Wind winch cable on drum (TM 9-2320-279-10).

END OF TASK

17-9. SELF-RECOVERY WINCH HYDRAULIC TUBES REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All (with self-recovery winch)

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

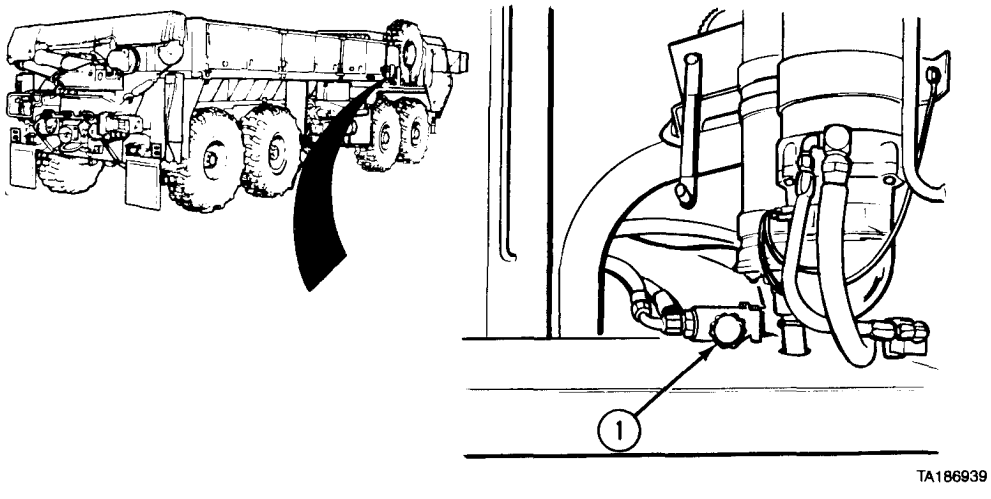
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Push selector valve control (1) in.

17-9. SELF-RECOVERY WINCH HYDRAULIC TUBES REMOVAL/INSTALLATION (CONT).

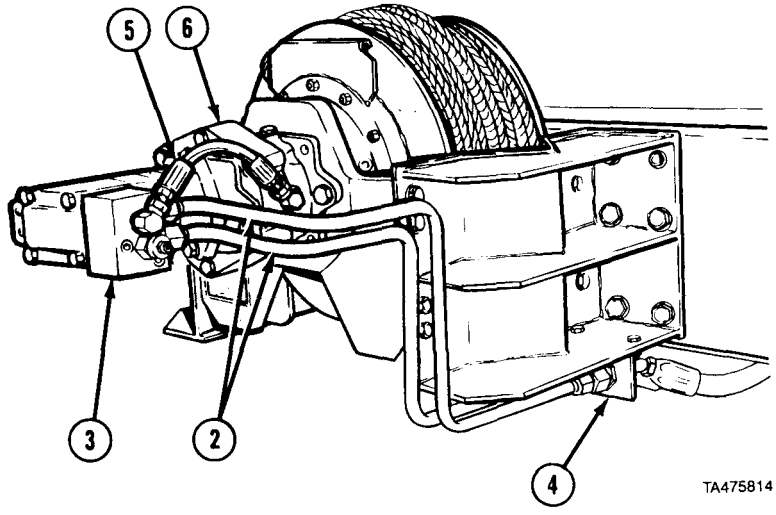
WARNING

Avoid contact with hydraulic fluid. Hydraulic fluid may spray out when tubes are removed. Hydraulic fluid may injure eyes.

NOTE

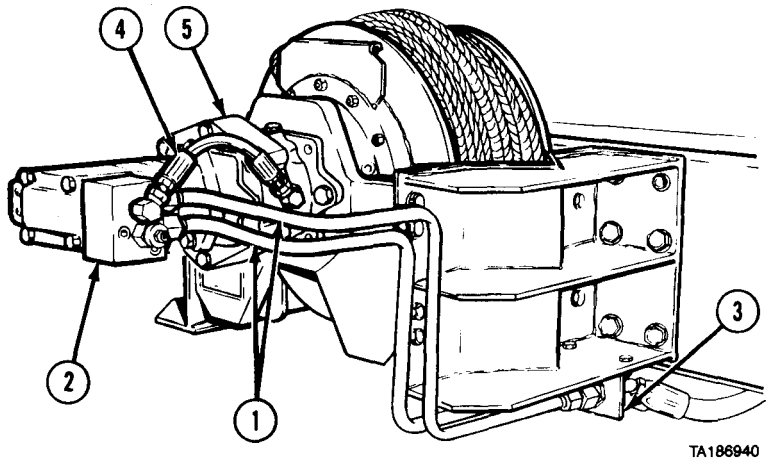
Tag and mark hydraulic tube assemblies before disconnecting,

(2) Disconnect two hydraulic tube assemblies (2) from counterbalance valve (3) and bracket (4).
(3) Remove hose adapter (5) from counterbalance valve (3) and self-recovery winch brake (6).



b. Installation.

(1) Connect two hydraulic tube assemblies (1) to counterbalance valve (2) and bracket (3).
(2) Install hose adapter (4) on counterbalance valve (2) and self-recovery winch brake (5).



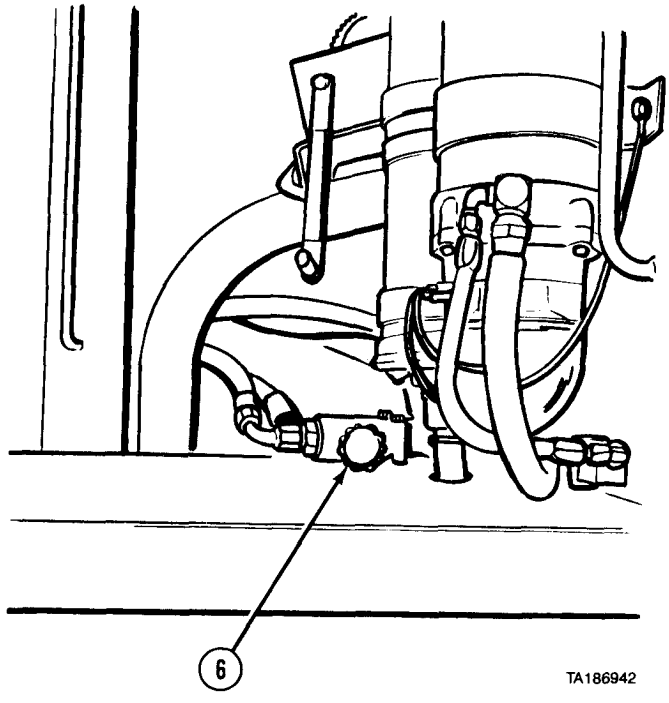
(3) Pull selector valve control (6) out.

c. Follow-on Maintenance.

(1) Start engine and check for leaks (TM 9-2320-279-10).

(2) Shut off engine (TM 9-2320-279-10).

END OF TASK



17-10. SELF-RECOVERY WINCH AND BRACKETS REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All (with self-recovery winch)

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
Para 17-8	Self-recovery winch cable removed.
Para 17-9	Self-recovery winch hydraulic tubes removed.

Special Environmental Conditions
None

General Safety Instruct ions
None

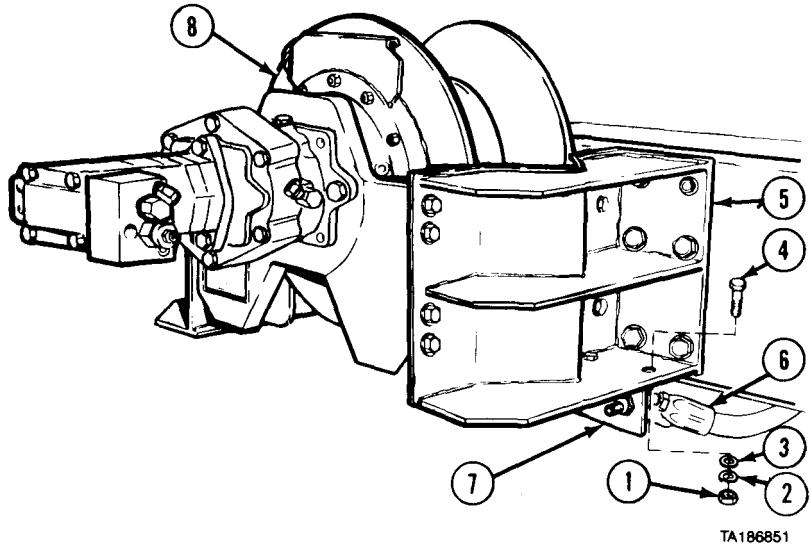
17-10. SELF-RECOVERY WINCH AND BRACKETS REMOVAL/INSTALLATION (CONT).

a. Removal.

(1) Remove two nuts (1), lockwashers (2), washers (3), and screws (4) from winch mounting bracket (5).

(2) Move two hoses (6) and bracket (7) aside.

(3) Support self-recovery winch (8) with suitable lifting device.



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(4) Soldier A removes four screws (9) while Soldier B holds and removes four nuts (10).

NOTE

ON M984E1, the eight screws are installed so that the nut is on the outside of frame. These screws do not need to be removed unless replacement is necessary.

(5) Soldier A removes eight screws (11) while Soldier B holds and removes eight nuts (12).

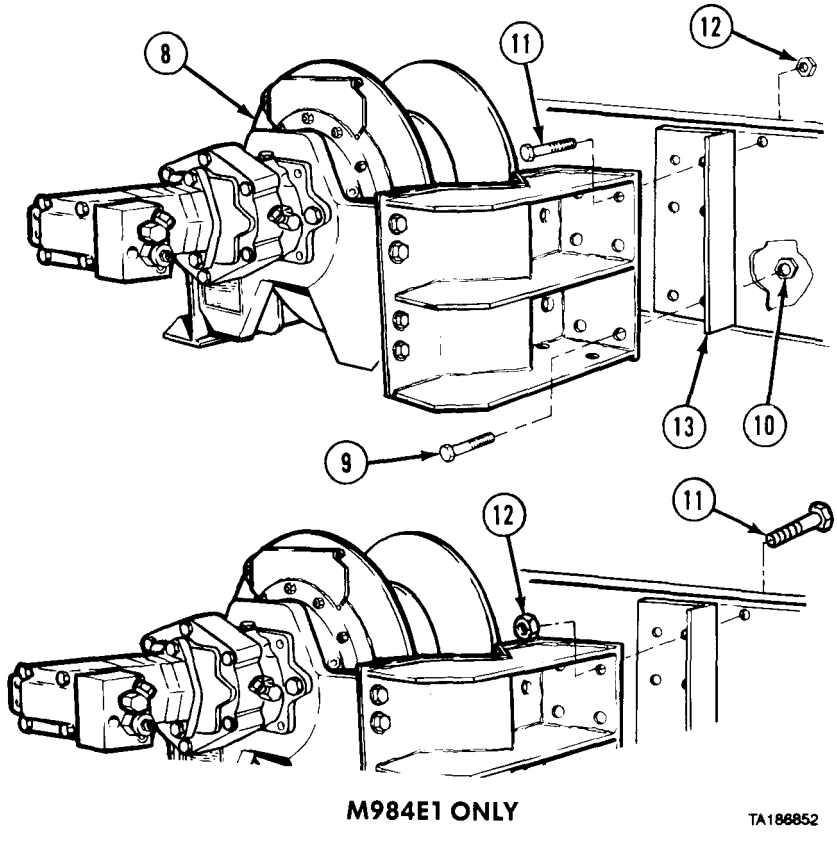
NOTE

Do step *(6)* for M984 and M983 (without crane) only.

(6) Soldier A and Soldier B remove self-recovery winch (8) and two brackets (13).

NOTE

Do step *(7)* for models M977, M978, M983 (with crane), M984E1, and M985.

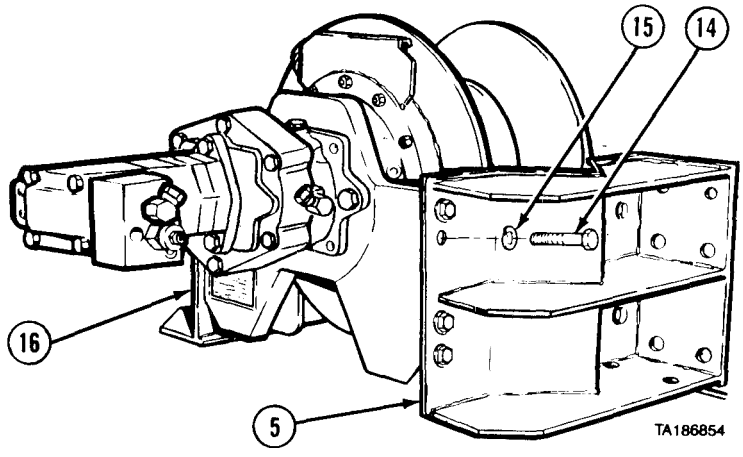


M984E1 ONLY

TA186852

(7) Soldier A and Soldier B remove self-recovery winch (8).

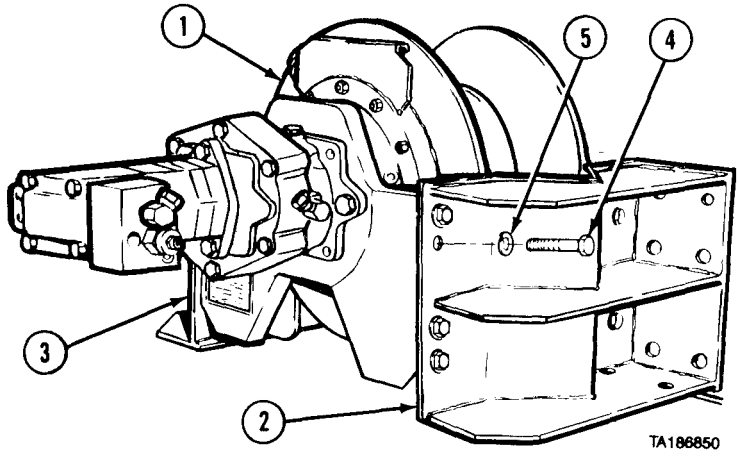
(8) Remove 16 screws (14), lockwashers (15), and right and left mounting brackets (5 and 16).



b. Installation.

(1) Support self-recovery winch (1) with suitable lifting device.

(2) Install right and left mounting brackets (2 and 3) with 16 screws (4) and lockwashers (5).



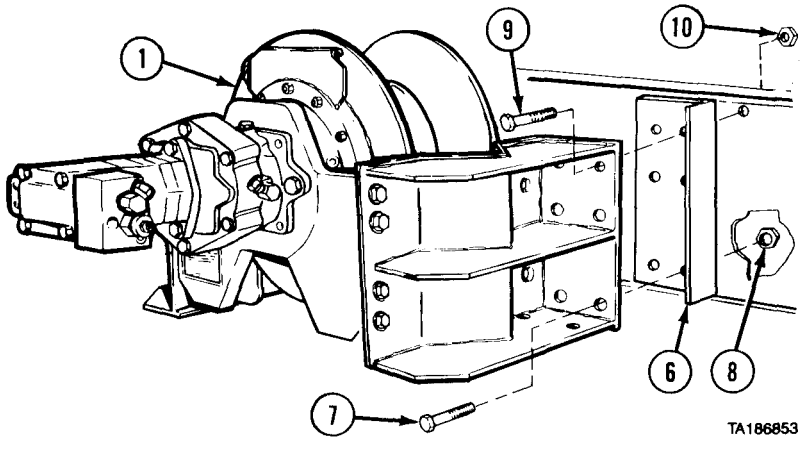
NOTE

Do step *(3)* for M984 and M983 (without crane) only.

(3) Soldier A and Soldier B position self-recovery winch (1) and two brackets (6) against vehicle so holes align, and install eight screws (7).

NOTE

- Do step *(4)* for models M977, M978, M983 (with crane), M984E1, and M985.
- If removed, eight screws on M984E1 only should be installed from inside of frame.



(4) Soldier A and Soldier B position self-recovery winch (1) against vehicle so holes align, and install eight screws (7).

(5) Soldier A holds each of eight screws (7) while Soldier B installs eight nuts (8).

(6) Soldier A installs and holds four screws (9) while Soldier B installs four nuts (10).

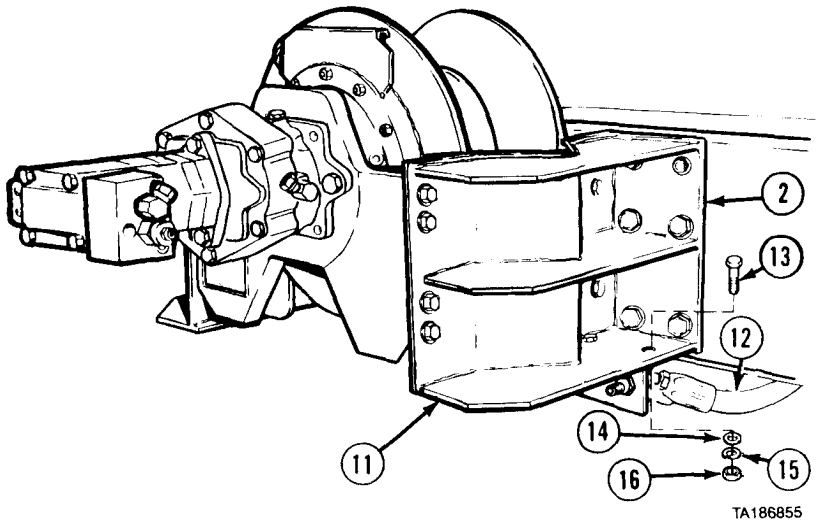
17-10. SELF-RECOVERY WINCH AND BRACKETS REMOVAL/INSTALLATION (CONT).

(7) Install bracket (11) with two hoses (12) on winch mounting bracket (2) with two screws (13), washers (14), lockwashers (15), and nuts (16).

c. Follow-on Maintenance.

(1) Install self-recovery winch hydraulic tubes (para 17-9).

(2) Install self-recovery winch cable (para 17-8).



END OF TASK

17-11. HEAVY-DUTY WINCH CABLE REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Wind out heavy-duty winch cable.

Special Environmental Conditions
None

General Safety Instructions
Wear heavy gloves when handling cable.

a. Removal.

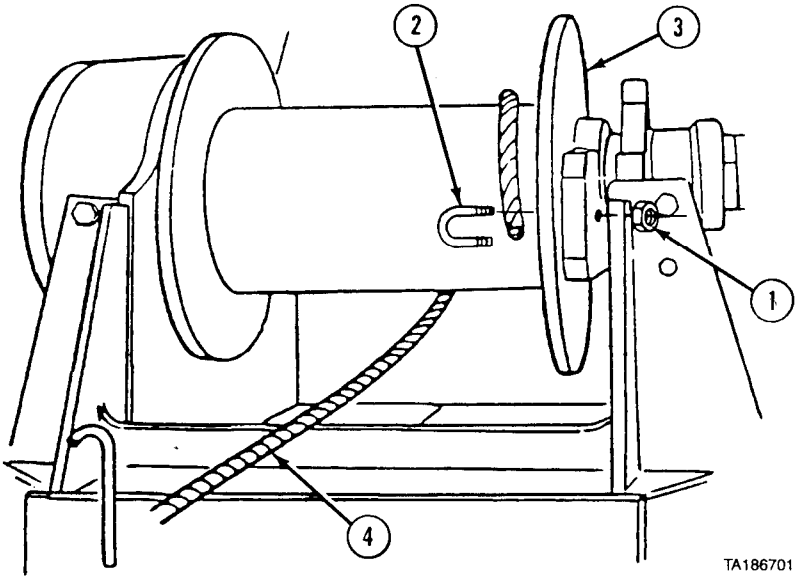
WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cable may cut hands severely.

(1) Remove two nuts (1) and U-bolt (2) from drum hub (3).
(2) Remove cable (4) from drum hub (3).

CAUTION

Cable must be installed around drum in the exact position shown to avoid possible damage to equipment.



b. Installation. Install cable (4) on drum hub (3) with U-bolt (2) and two nuts (1).

c. Follow-on Maintenance. Wind up heavy-duty winch cable (TM 9-2320-279-10).

END OF TASK

17-11.1. HEAVY-DUTY WINCH CABLE REMOVAL/INSTALLATION (M984E1).	
This task covers: a. Removal b. Installation	c. New Cable Break-in d. Follow-on Maintenance
INITIAL SETUP *Models* M984E1 *Test Equipment* None *Special Tools* None *Supplies* None *Personnel Required* MOS 63S, Heavy wheel vehicle mechanic (2)	*References* TM 5-725 *Equipment Condition* *TM or Para* — *Condition Description* TM 9-2320-279-10 — Raise heavy-duty winch protective screen. TM 9-2320-279-10 — Wind out heavy-duty winch cable. *Special Environmental Conditions* None *General Safety Instructions* None

17-11.1. HEAVY-DUTY WINCH CABLE REMOVAL/INSTALLATION (M984E1) (CONT).

a. Removal.

WARNING

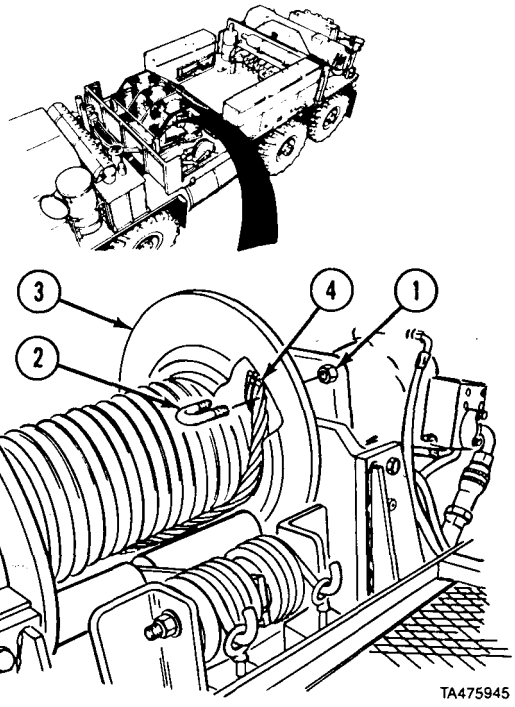
Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cable can cut hands severely.

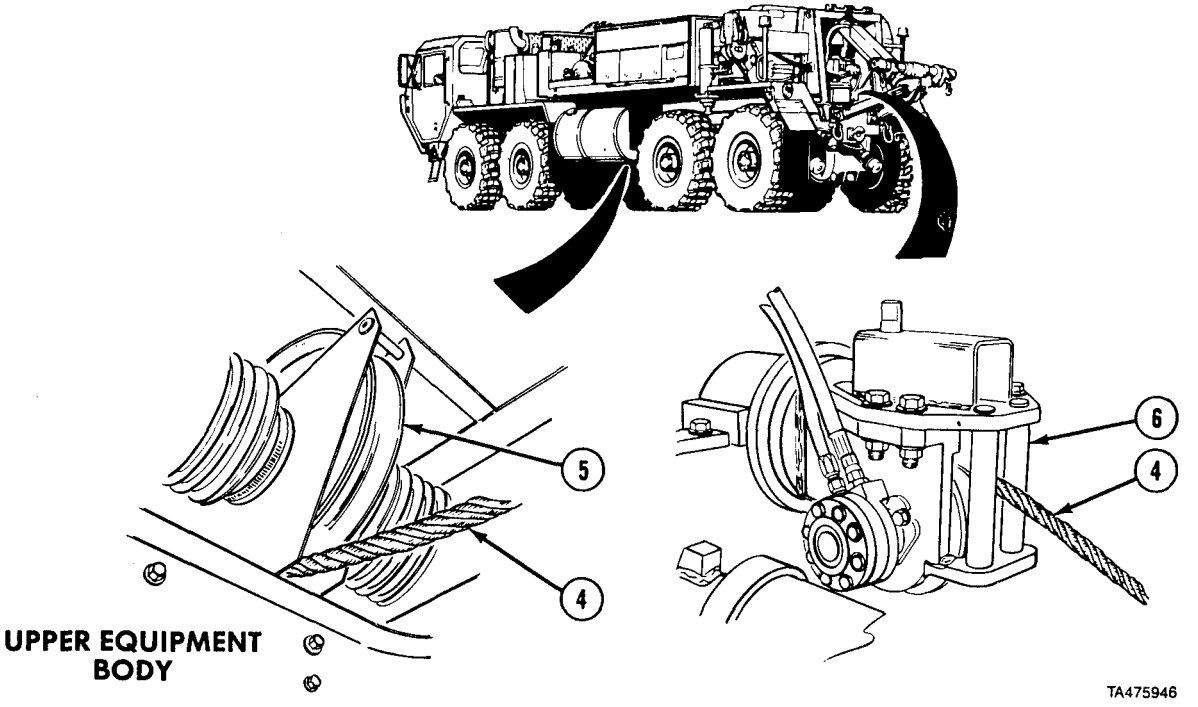
(1) Remove two nuts (1) and U-bolt (2) from drum hub (3).

WARNING

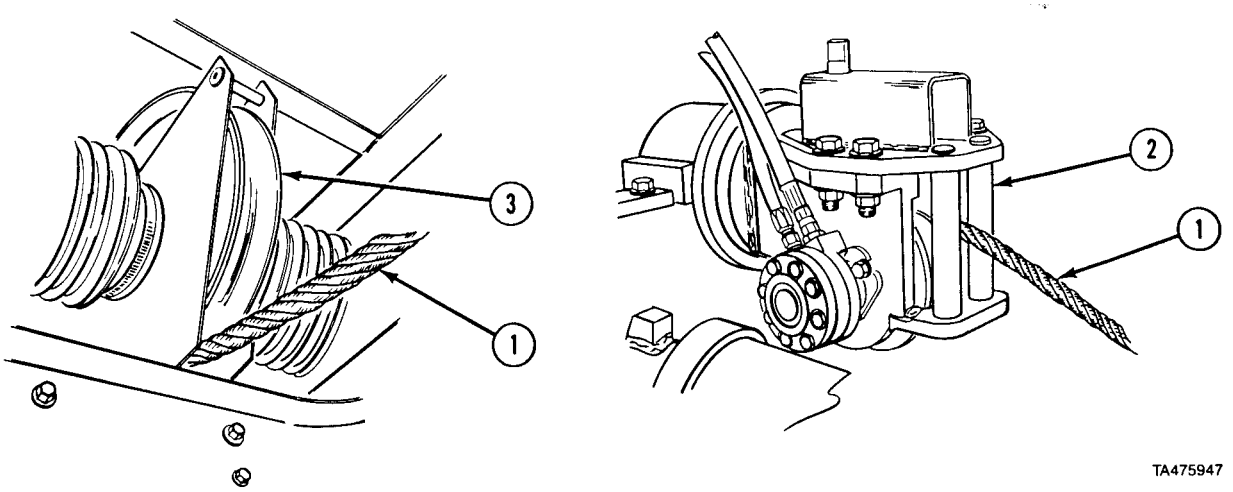
End of cable is under tension. Use care when removing from drum. End of cable can jump out causing personal injury.

(2) Remove cable (4) from drum hub (3).





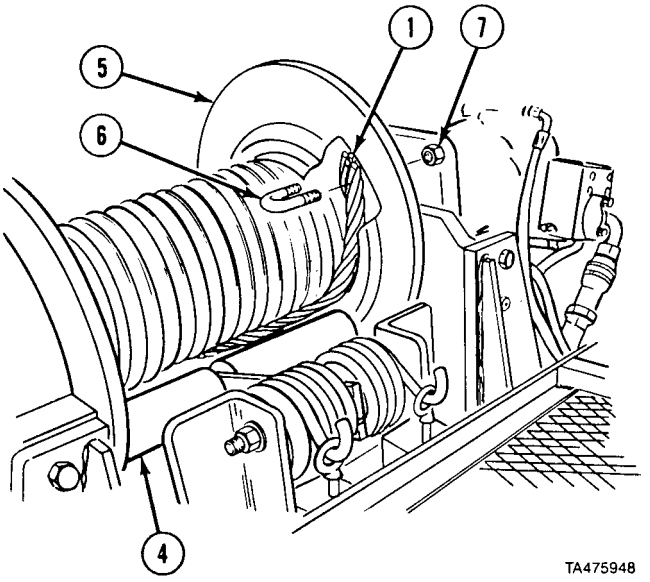
(3) Remove cable (4) from sheave (5).
(4) Remove cable (4) from fairlead (6).



b. Installation.

(1) Install cable (1) through fairlead (2).

(2) Install cable (1) on sheave (3).



CAUTION

Cable must be installed around drum in the exact position shown to avoid possible damage to equipment. Hold tension roller down as close to center as possible to prevent damage to roller.

NOTE

Until U-bolt is seated around cable, as one nut is tightened, the other will loosen slightly.

(3) Hold tension roller (4) down and install cable (1) on drum hub (5) with U-bolt (6) and two nuts (7). Tighten nuts alternately and evenly until both nuts are tight.

(4) If a new cable was installed, go to c: New Cable Break-in, otherwise go to d: Follow-on Maintenance.

17-11.1. HEAVY-DUTY WINCH CABLE REMOVAL/INSTALLATION (M984E1) (CONT).

c. New Cable Break-in.

NOTE

If a new cable was installed, it must be wrapped on the drum under tension using another vehicle as a load source. The load source vehicle must have a driver at the controls, who is in full control of the vehicle (brakes and steering) at all times. The winching vehicle and the load source vehicle must be on level ground. The load source vehicle must be directly behind the winching vehicle.

(1) Position load source vehicle.
(2) Connect heavy-duty winch cable to load source vehicle.

CAUTION

All winching performed in this procedure must be with the engine of the winching vehicle at low idle. Failure to do so could result in damage to equipment.

(3) While Soldier A winds in heavy-duty winch cable (TM 9-2320-279-10-2) Soldier B keeps cable suspended slightly above the ground.
(4) Disconnect heavy-duty winch cable from the load source vehicle.
(5) Repeat Steps 1 thru 4 three times or until cable is tight to the drum.
(6) Lower heavy-duty winch screen (TM 9-2320-279-10-2).

d. Follow-on Maintenance

(1) Wind in heavy-duty winch cable (TM 9-2320-279-10).
(2) Lower heavy-duty winch protective screen (TM 9-2320-279-10).

END OF TASK

17-11.2. HEAVY-DUTY WINCH CABLE TENSIONER REMOVAL/REPAIR/iNSTALLATION (M984E1).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tool.s
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

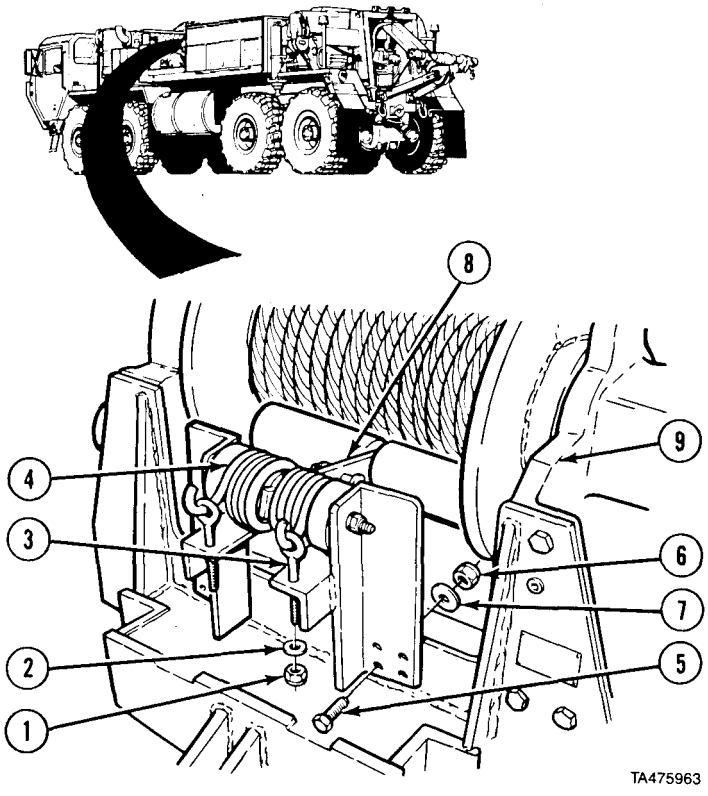
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

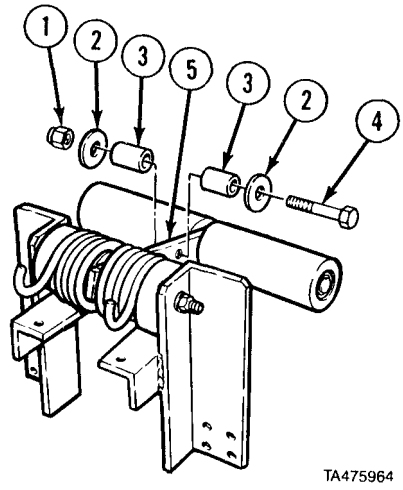
a. Removal.

(1) Remove two locknuts (1), washers (2), and eye bolts (3) from springs (4).
(2) Remove eight screws (5), locknuts (6), washers (7), and tensioner (8) from winch (9).



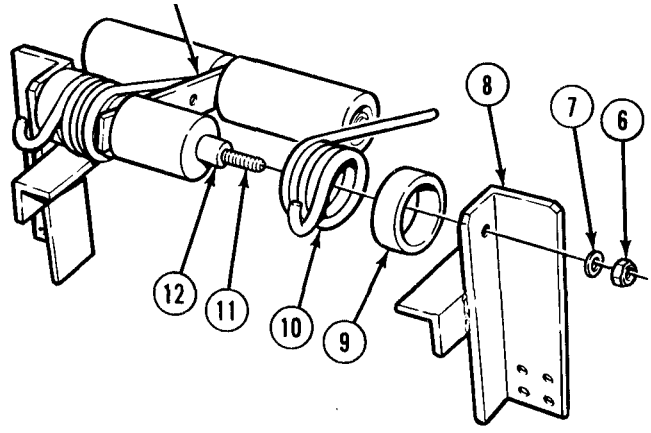
b. Disassembly.

(1) Remove locknut (1), washer (2), spacer (3), screw (4), spacer (3) and washer (2) from tensioner (5).



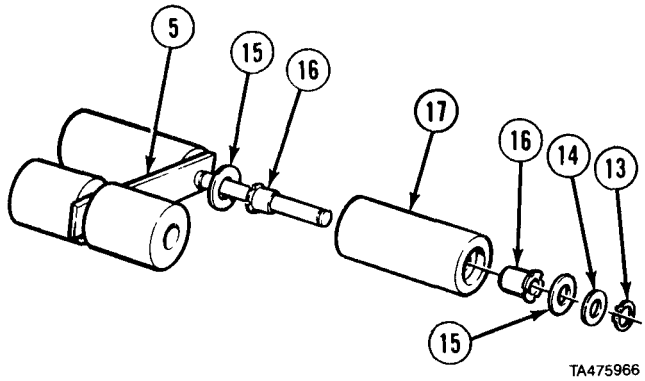
TA475964

(2) Remove locknut (6), washer (7), bracket (8), spacer (9), and spring (10).
(3) Repeat step (2) for other side.
(4) Remove rod (11) and sleeve (12) from tensioner (5).



TA475965

(5) Remove snap ring (13), spacer (14), washer (15), sleeve (16), roller (17), sleeve (16), and washer (15) from tensioner (5).
(6) Repeat step (5) for other side.



TA475966

c. Cleaning/Inspection.

WARNING

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

(1) Clean all metal parts in dry cleaning solvent.
(2) Inspect all parts for damage.
(3) Replace damaged parts.

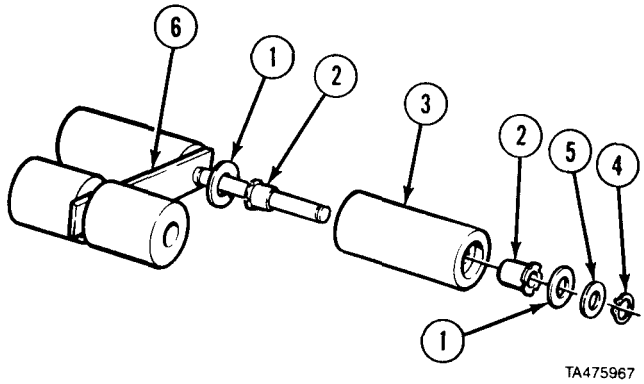
17-11.2. HEAVY-DUTY WINCH CABLE TENSIONER REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

d. Assembly.

NOTE

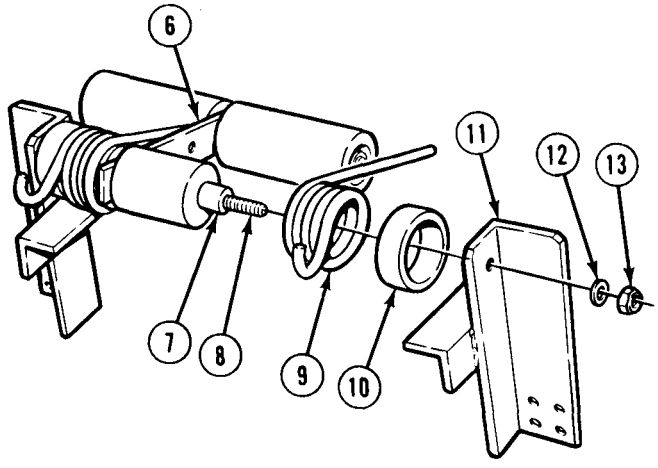
Install spacer and snap ring so sharp edge of each faces outward on shaft.

(1) Install washer (1), sleeve (2), roller (3), sleeve (2), washer (1), spacer (5), and snap ring (4) on tensioner (6).
(2) Repeat step (1) for other side.



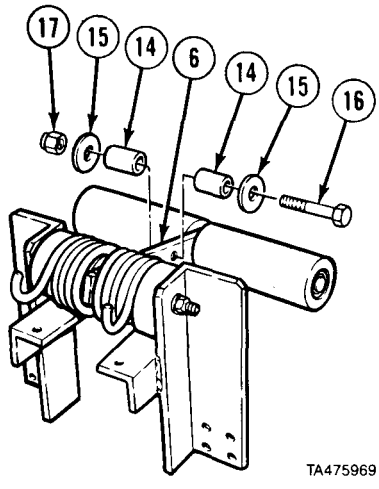
TA475967

(3) Install sleeve (7) and rod (8) in tensioner (6).
(4) Install spring (9), spacer (10), bracket (11), washer (12), and locknut (13).
(5) Repeat step (4) for other side.



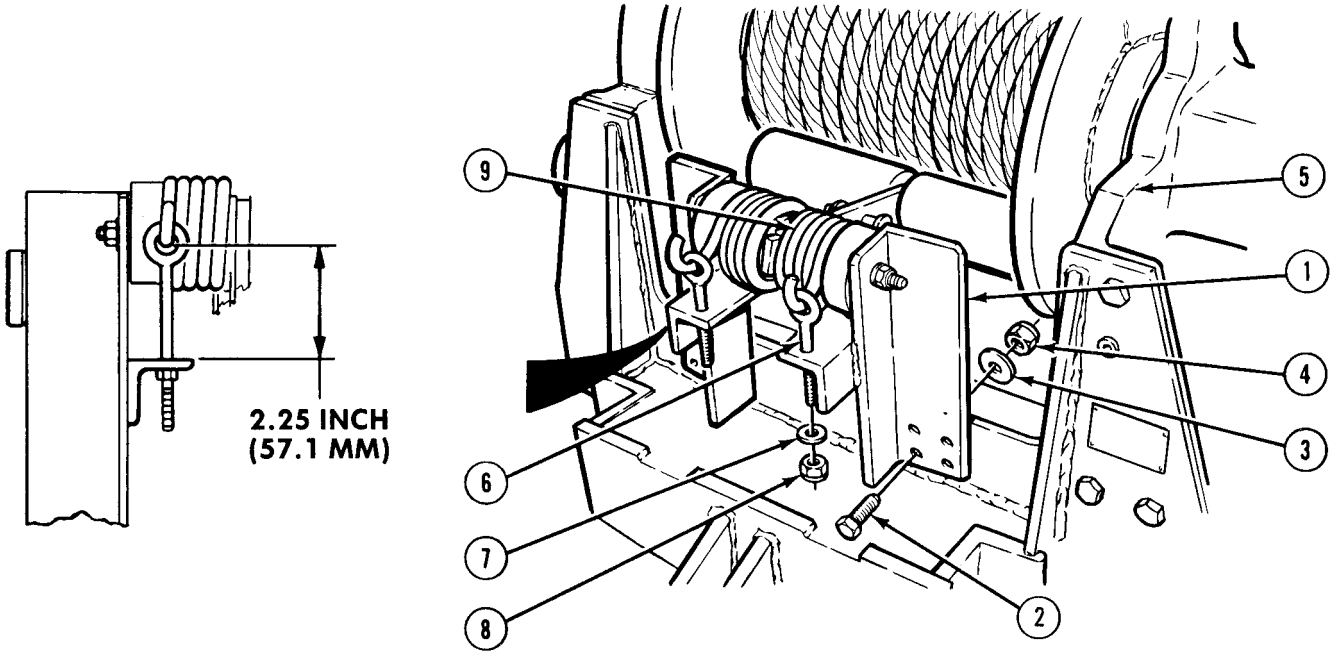
TA475968

(6) Install spacer (14), washer (15), screw (16), spacer (14), washer (15), and nut (17) in tensioner (6).



TA475969

e. Installation.



(1) Install tensioner (1) with eight screws (2), washers (3), and locknuts (4) on winch (5).
(2) Install two eye bolts (6), washers (7), and locknuts (8), on springs (9).
(3) Tighten locknut (8) until 2.25 inch (57.1 mm) measurement is obtained.

f. Follow-on Maintenance. None.

END OF TASK

17-12. HEAVY-DUTY WINCH HYDRAULIC TUBES REMOVAL/INSTALLATION (M984).

This task covers:

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

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

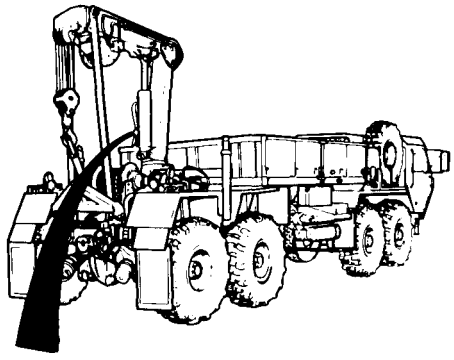
TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.

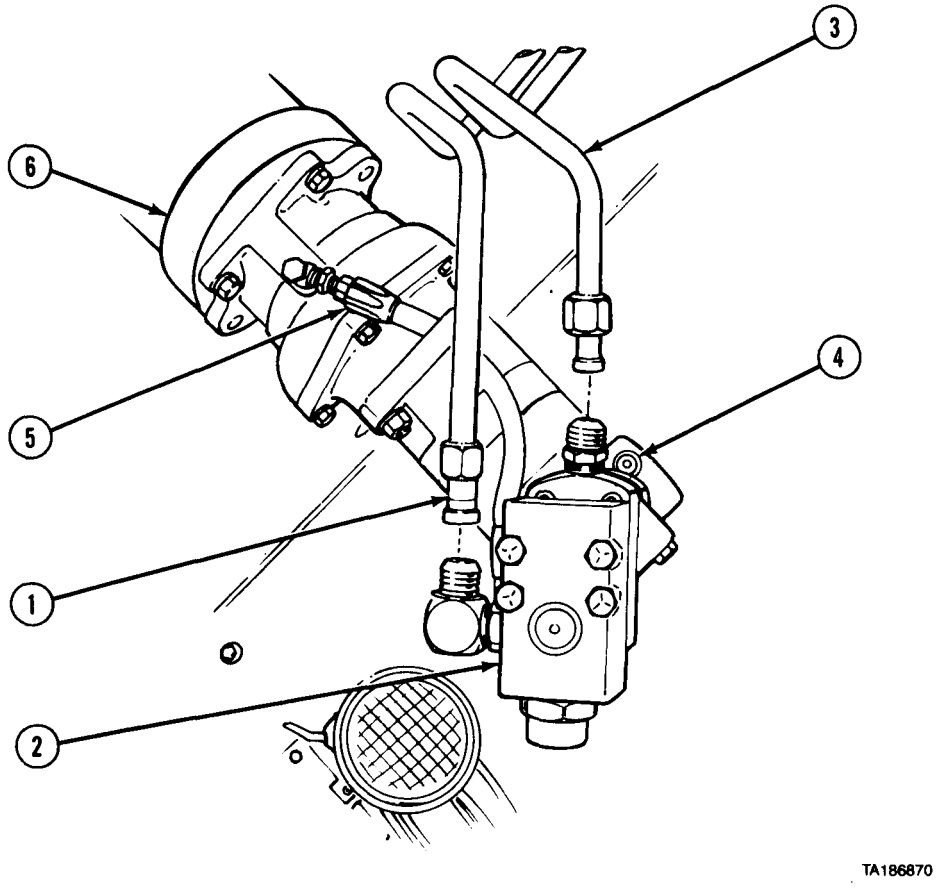
Special Environmental Conditions
None

General Safety Instructions
None

17-12. HEAVY-DUTY WINCH HYDRAULIC TUBES REMOVAL/INSTALLATION (M984) (CONT).

a. Removal.



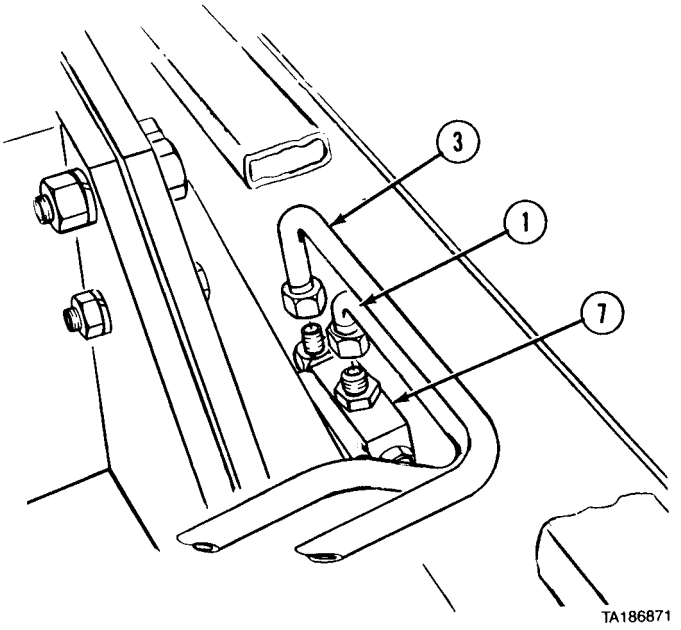


NOTE

Tag and mark hoses before removal.

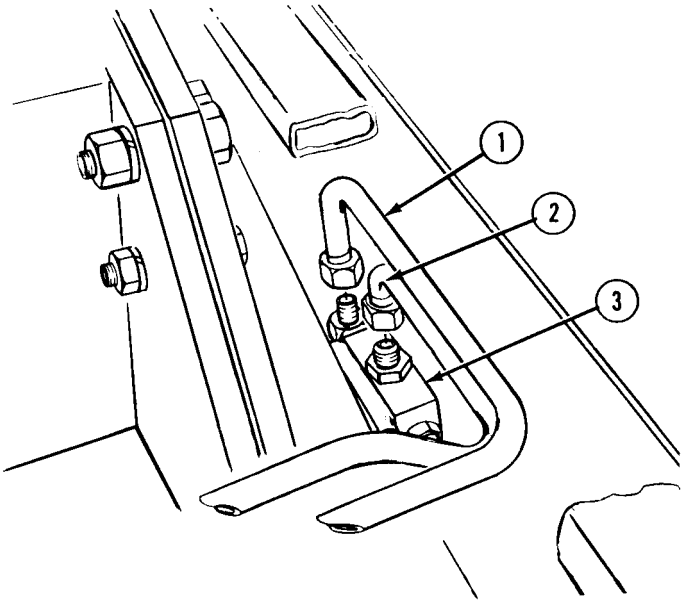
(1) Disconnect hydraulic tube (1) from counterbalance valve (2).
(2) Disconnect hydraulic tube (3) from valve body adapter (4).
(3) Remove crossover hose (5) from valve body adapter (4) and winch brake (6).

(4) Remove hydraulic tubes (1 and 3) from relief valve (7).



b. Installation.

(1) Install hydraulic tubes (1 and 2) on relief valve (3).

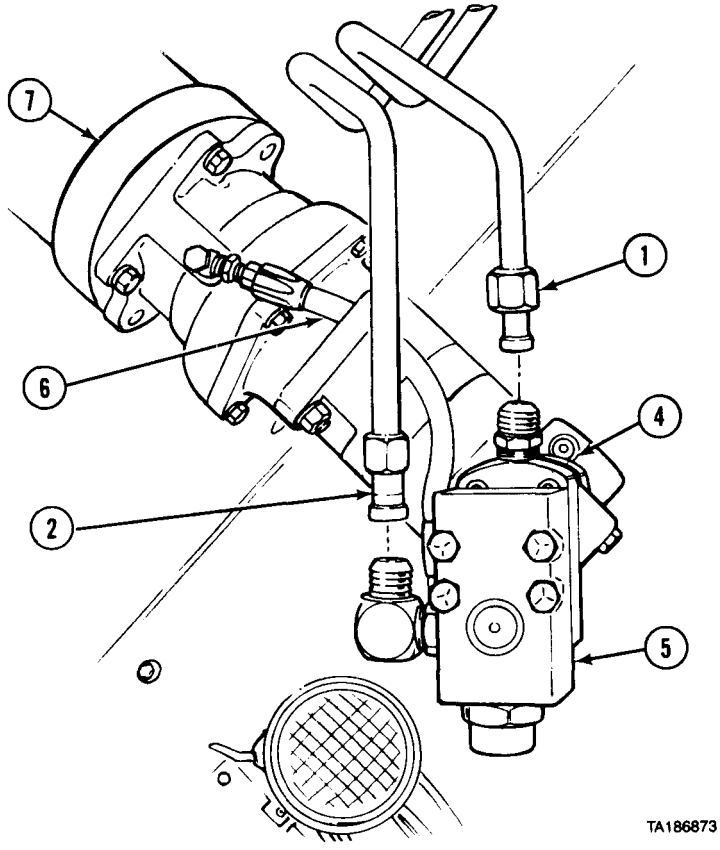


17-12. HEAVY-DUTY WINCH HYDRAULIC TUBES REMOVAL/INSTALLATION (M984) (CONT).

(2) Connect hydraulic tube (1) to valve body adapter (4).
(3) Connect hydraulic tube (2) to counterbalance valve (5).
(4) Install crossover hose (6) on valve body adapter (4) and winch brake (7).

c. Follow-on Maintenance. Fill hydraulic reservoir (LO 9-2320-279-12).

END OF TASK



17-13. SELF-RECOVERY WINCH BREATHER REMOVAL/INSTALLATION.

This task covers:

a. Removal
b. Cleaning
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
All (with self-recovery winch)

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

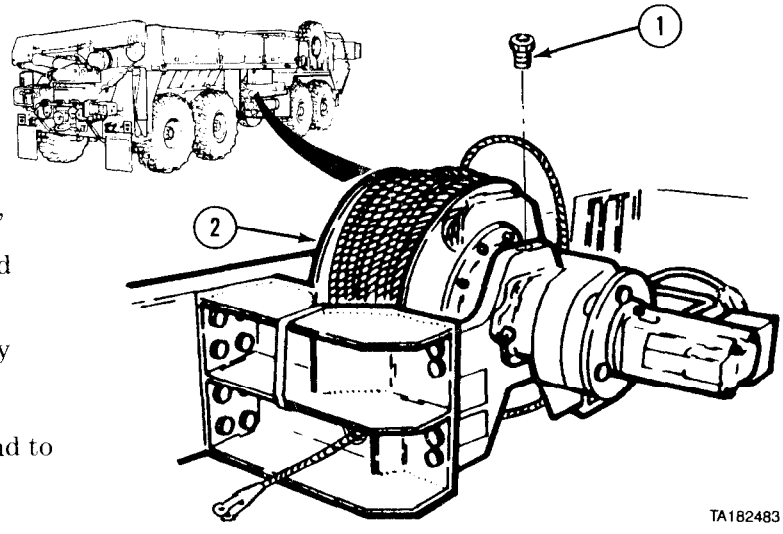
Special *Environmental Conditions*
None

General Safety Instructions
None

a. Removal.
(1) Remove breather (1) from winch (2).

WARNING

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



b. Cleaning. Clean breather (1) with dry cleaning solvent and brush.

c. Installation.
(1) Apply pipe thread sealing compound to threads of breather (1).
(2) Install breather (1) in winch (2).

d. Follow-on Maintenance. None.

END OF TASK

17-14. HEAVY-DUTY WINCH BREATHER REMOVAL/INSTALLATION (M984).

This task covers:

a. Removal
b. Cleaning
c. Installation
d. Follow-on Maintenance

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

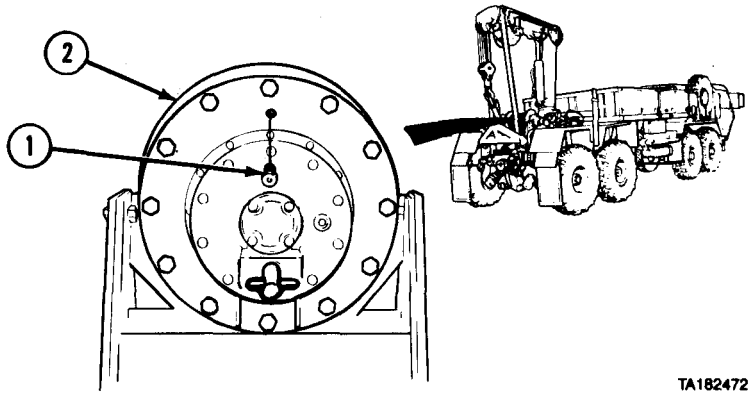
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

17-14. HEAVY-DUTY WINCH BREATHER REMOVAL/INSTALLATION (M984) (CONT).

a. Removal. Remove breather (1) from winch (2).



WARNING

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

b. Cleaning. Clean breather (1) with dry cleaning solvent and brush.

c. Installation.
(1) Apply pipe thread sealing compound to threads of breather (1).
(2) Install breather (1) in winch (2).

d. Follow-on Maintenance. None.

END OF TASK

Section IV. CRANES

17-15. CRANE HOOK BLOCK, HOOK, AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M985).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M985

Test Equipment
None

Special *Tools*
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C
Oil, lubricating, Item 33, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

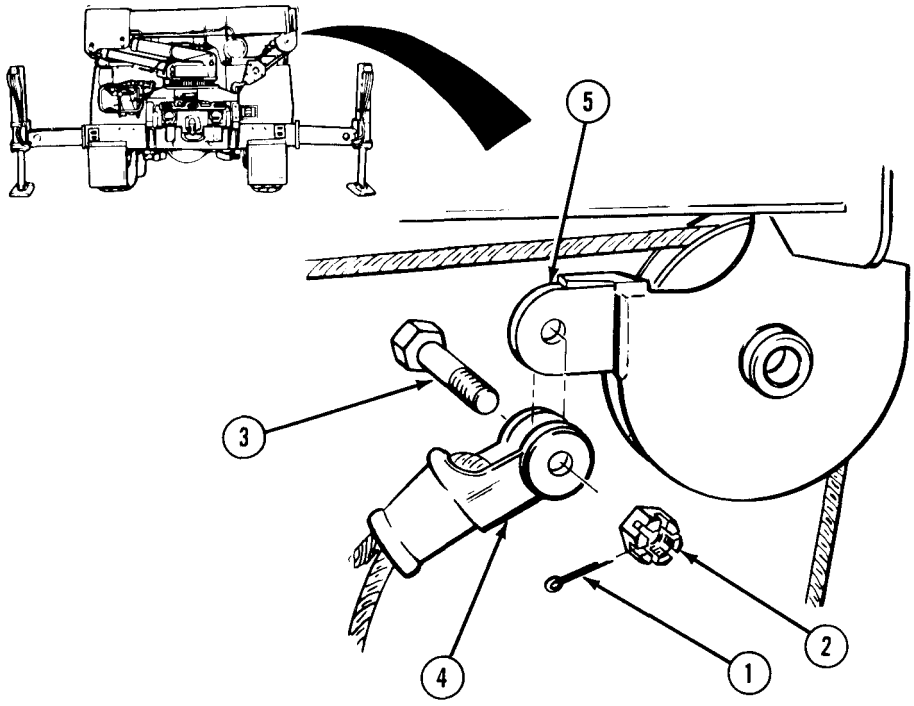
TM or Para	*Condition Description*
TM 9-2320-279-10	Prepare crane for use.
TM 9-2320-279-10	Hook block lowered to ground.

Special Environmental Conditions
None

General Safety Instructions
Wear heavy gloves when handling cable.

17-15. CRANE HOOK BLOCK, HOOK, AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M985) (CONT).

a. Removal.

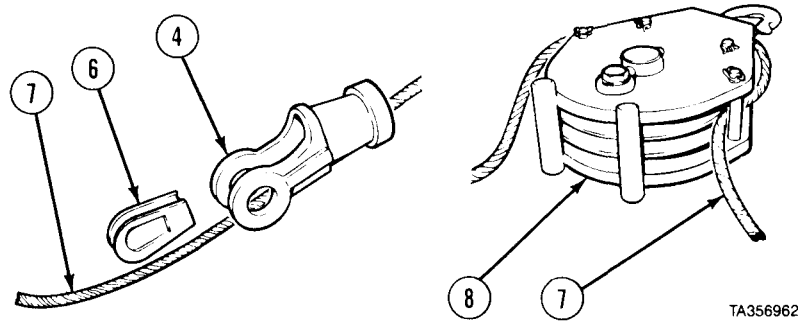


WARNING

Always wear heavy gloves when handling hoist cable to prevent injury to hands.

(1) Remove cotter pin (1), nut (2), and screw (3) from clevis (4).
(2) Remove clevis (4) from boom nose (5).

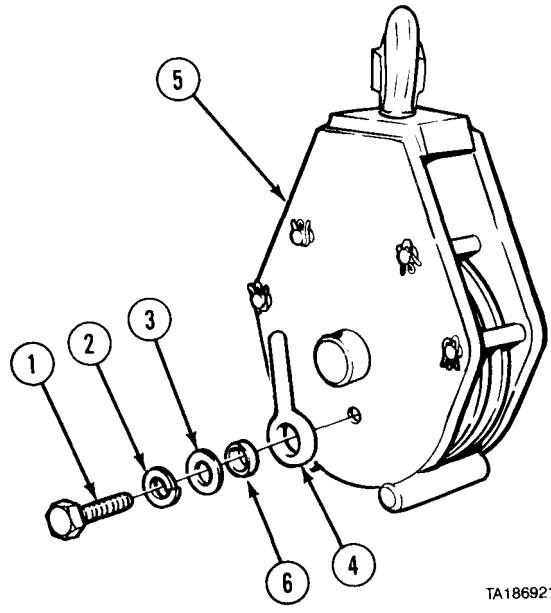
(3) Drive out wedge (6), straighten cable (7), and remove from clevis (4).
(4) Remove cable (7) from hook block (8).



b. Disassembly.

(1) Remove screw (1), lockwasher (2), washer (3), and pin (4) from hook block (5).

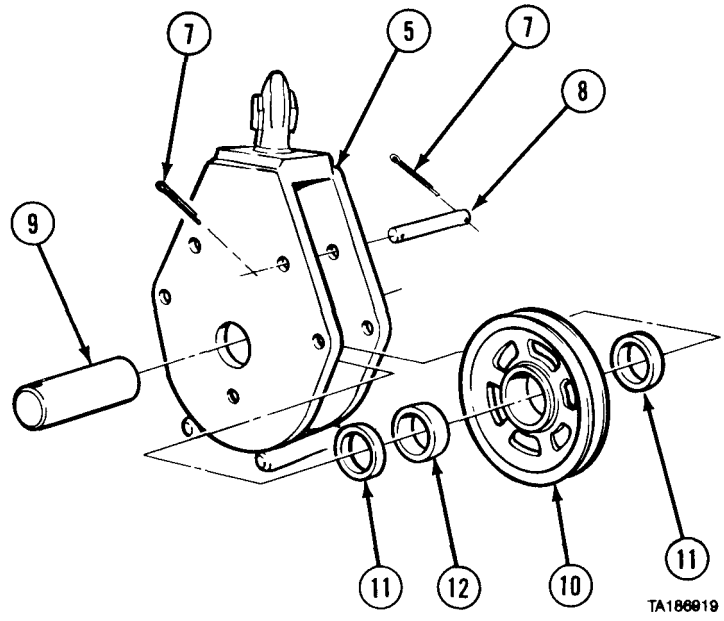
(2) Remove bushing (6) from pin (4).



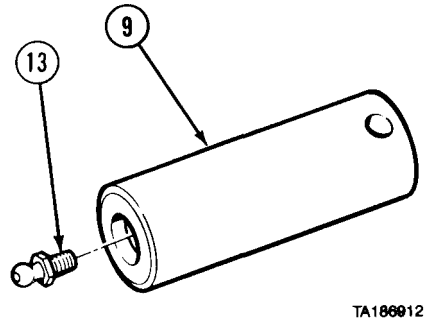
(3) Remove eight cotter pins (7) and four pins (8) from hook block (5).

(4) Remove pin (9), sheave (10), and two spacers (11) from hook block (5).

(5) Remove bushing (12) from sheave (10).



(6) Remove grease fitting (13) from pin (9).

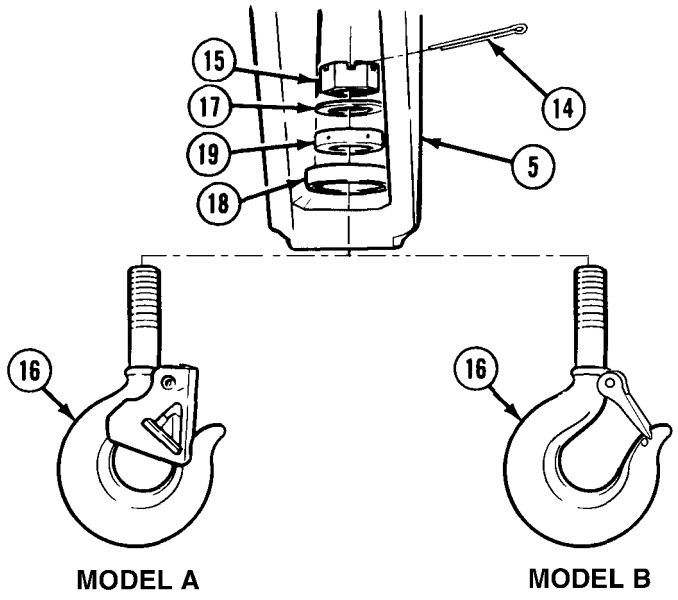


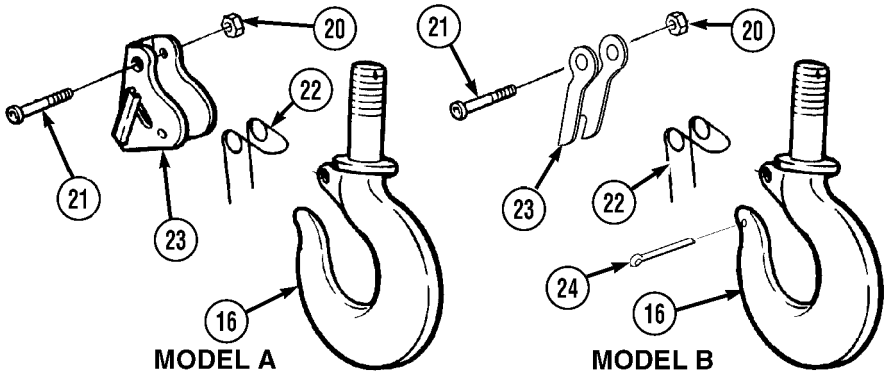
17-15. CRANE HOOK BLOCK, HOOK, AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M985) (CONT).

NOTE

- There are two models of hook and latch that may be installed on crane.
- Model A does not have cotter pin on end of hook.
- Model B does have cotter pin on end of hook.
- Perform step *(11)* for Model A.
- Perform steps *(11 and 12)* for Model B.

(7) Remove cotter pin (14) and nut (15) from hook (16).
(8) Remove washer (17) and shield (18).
(9) Remove bearing (19) from shield (18).
(10) Remove hook (16) from block (5).
(11) Remove nut (20), screw (21), spring (22), and latch (23) from hook (16).
(12) Remove cotter pin (24) from hook (16).





c. Cleaning/Inspection.

WARNING

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

(1) Clean all metal parts with dry cleaning solvent.
(2) Allow bearing to air dry, then coat with lubricating oil.

WARNING

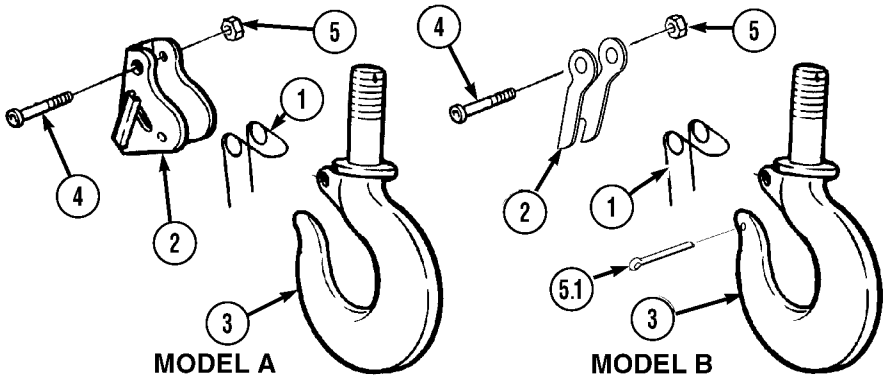
Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment, goggles, shield and gloves.

(3) Dry metal parts with compressed air.
(4) Inspect metal parts for breaks, cracks, and sharp edges.
(5) Inspect bushing for cuts or nicks.
(6) Inspect bearing for loose rollers or cracked and broken races.
(7) Replace all damaged parts.

d. Assembly.

NOTE

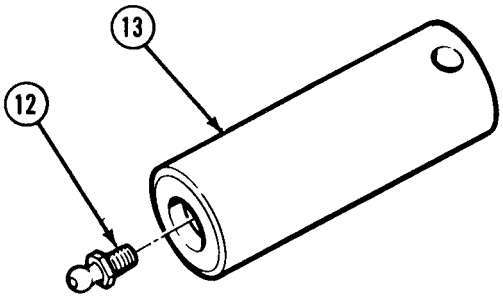
- Perform steps *(1 and 2)* for Model A.
- Perform steps *(1)* through *(2.1)* for Model B.
- Place legs of spring behind latch.

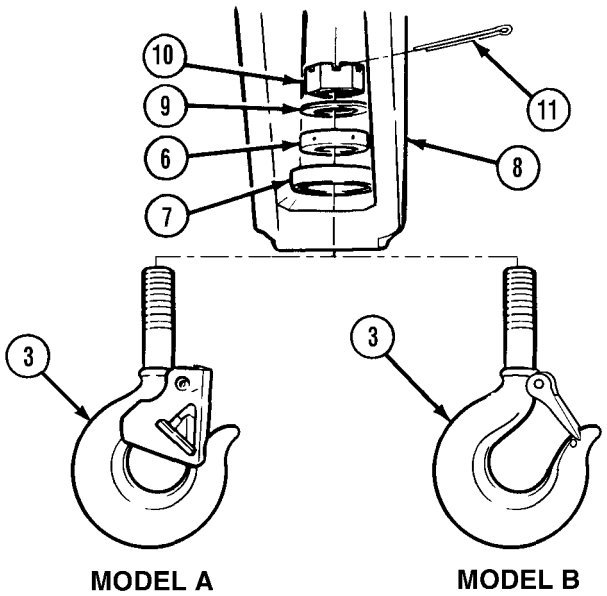


(1) Install spring (1) in latch (2).
(2) Install latch (2) on hook (3) with screw (4) and nut (5).
(2.1) Push latch (2) to rear of hook (3) and install cotter pin (5.1).

(3) Apply grease to bearing (6).
(4) Install shield (7) on bearing (6).
(5) Install hook (3) in block (8) with shield (7), washer (9), nut (10), and cotter pin (11).

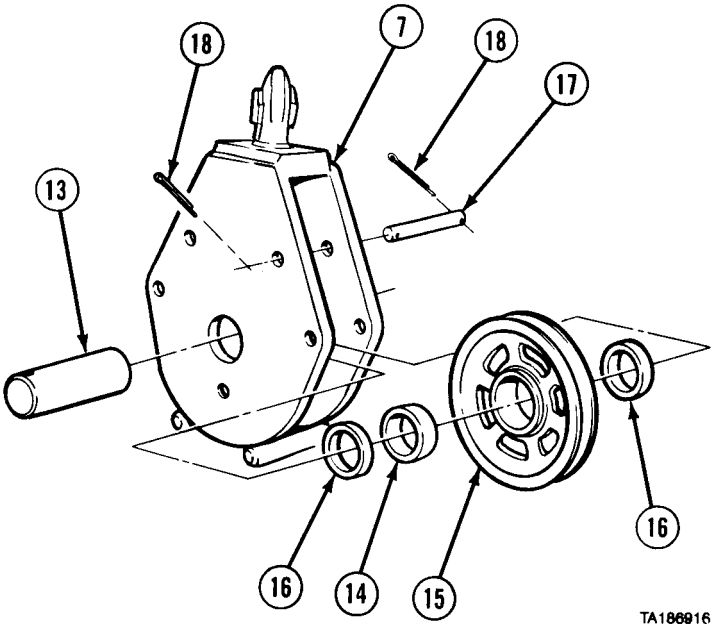
(6) Install grease fitting (12) in pin (13).





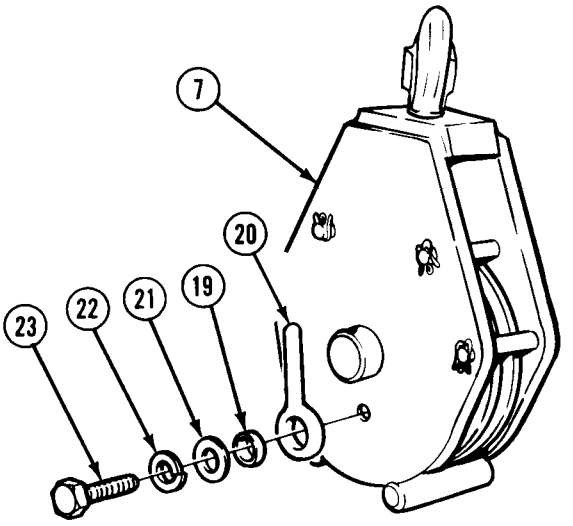
17-15. CRANE HOOK BLOCK, HOOK, AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M985) (CONT).

(7) Apply grease to bushing (14) and install in sheave (15).
(8) Install sheave (15) in hook block (7) with two spacers (16) and pin (13).
(9) Install four pins (17) in hook block (7) with eight cotter pins (18).



TA186916

(10) Install bushing (19) in pin (20).
(11) Install pin (20) in hook block (7) with washer (21), lockwasher (22), and screw (23).



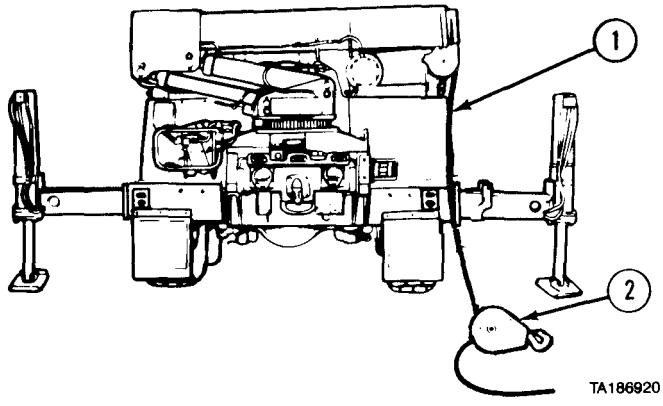
TA186913

e. Installation.

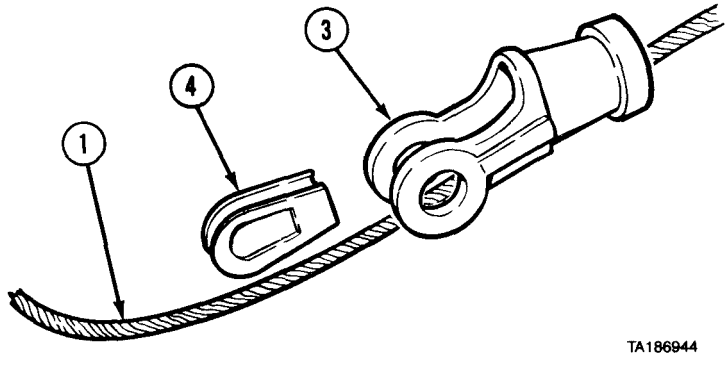
WARNING

Always wear heavy gloves when handling hoist cable to prevent injury to hands.

(1) Put cable (1) through hook block (2).



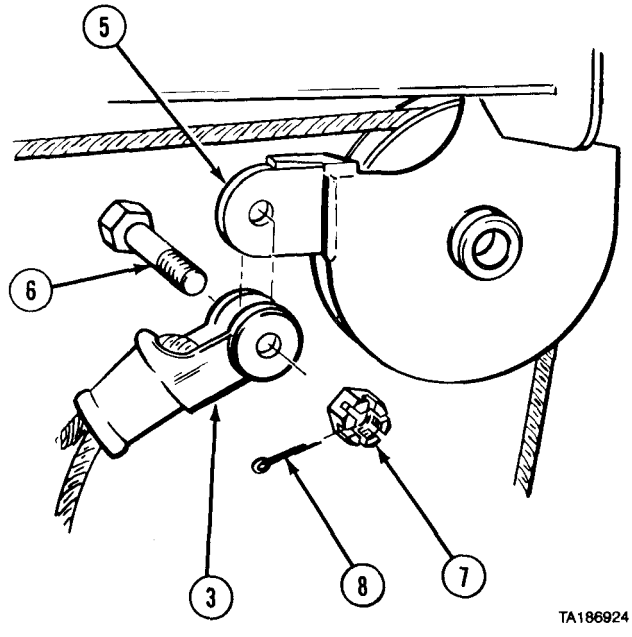
(2) Put cable (1) through hole in clevis (3).
(3) Make loop in cable (1) and put free end of cable through second hole in clevis (3).
(4) Install wedge (4) in cable loop. Drive wedge and cable loop into clevis (3).



(5) Install clevis (3) on boom nose (5) with screw (6), nut (7), and cotter pin (8).

f. Follow-on Maintenance. Return crane to stowed position (TM 9-2320-279-10).

END OF TASK



17-16. CRANE HOOK BLOCK AND HOOK REMOVAL/REPAIR/INSTALLATION (M983).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M983 with crane

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

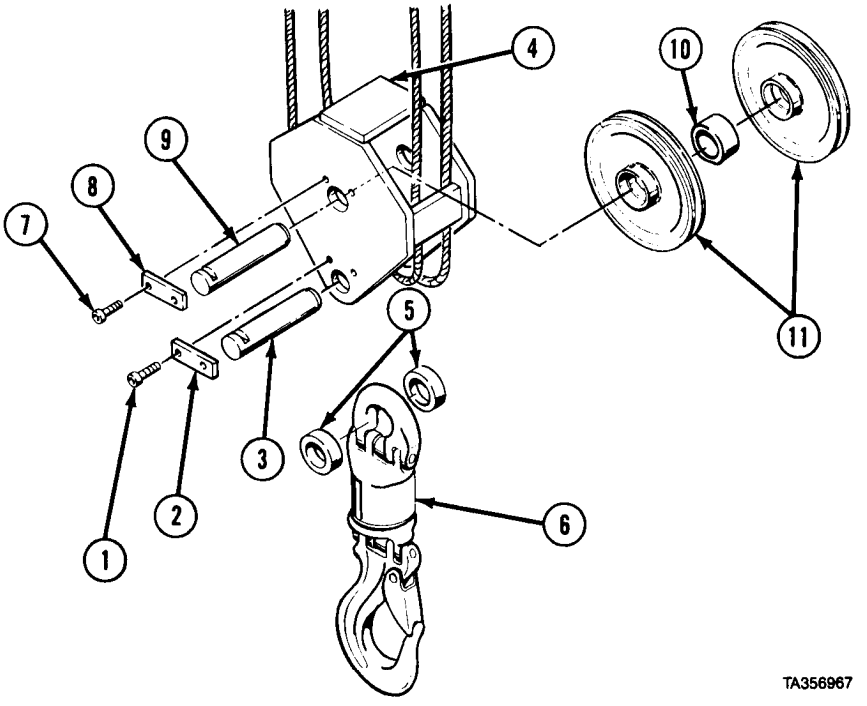
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Prepare crane for use.
TM 9-2320-279-10	Hook block lowered to ground.

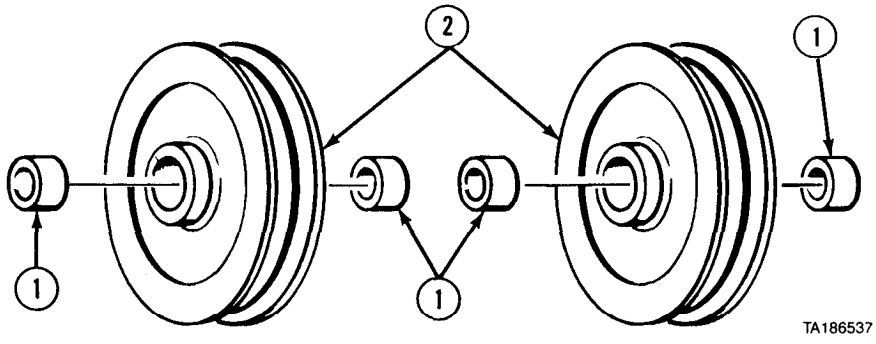
Special Environmental Conditions
None

General Safety Instructions
Wear heavy gloves when handling cables.

a. Removal.



(1) Remove two screws (1), locking plate (2), and pin (3) from hook block (4).
(2) Remove two spacers (5) and hook (6).
(3) Remove two screws (7), locking plate (8), and pin (9) from hook block (4).
(4) Remove spacer (10) and two pulleys (11).
(5) Remove hoist cable (para 17-20) and hook block housing (4).



b. Disassembly. Remove two bushings (1) from each pulley (2).

c. Cleaning/Inspection.

WARNING

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

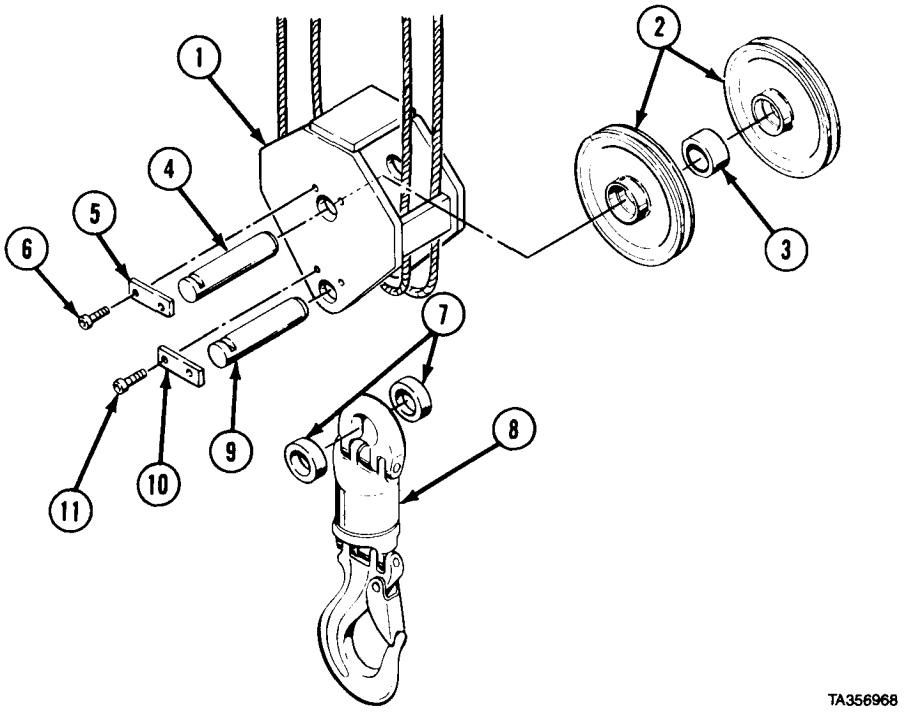
(1) Clean all parts in dry cleaning solvent.
(2) Inspect each part for damage.
(3) Replace damaged parts.

d. Assembly.

(1) Coat bushings (1) with grease.
(2) Press two bushings (1) into each pulley (2).

17-16. CRANE HOOK BLOCK AND HOOK REMOVAL/REPAIR/INSTALLATION (M983) (CONT).

e. Installation.



(1) Install hook block housing (1) on hoist cable (para 17-20).
(2) Install pulleys (2) and spacer (3) in hook block (1).
(3) Install pin (4) through hook block (1).
(4) Install locking pin (5) and two screws (6).

NOTE

Install beveled end of spacer toward hook.

(5) Install two spacers (7) and hook (8) in hook block (1) with pin (9).
(6) Install locking plate (10) and two screws (11).

f. Follow-on Maintenance. Return crane to stowed position (TM 9-2320-279-10).

END OF TASK

17-17. CRANE HOOK BLOCK, HOOK, AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M977).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M977

Test Equipment
None

Special Tools
None

Supplies
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

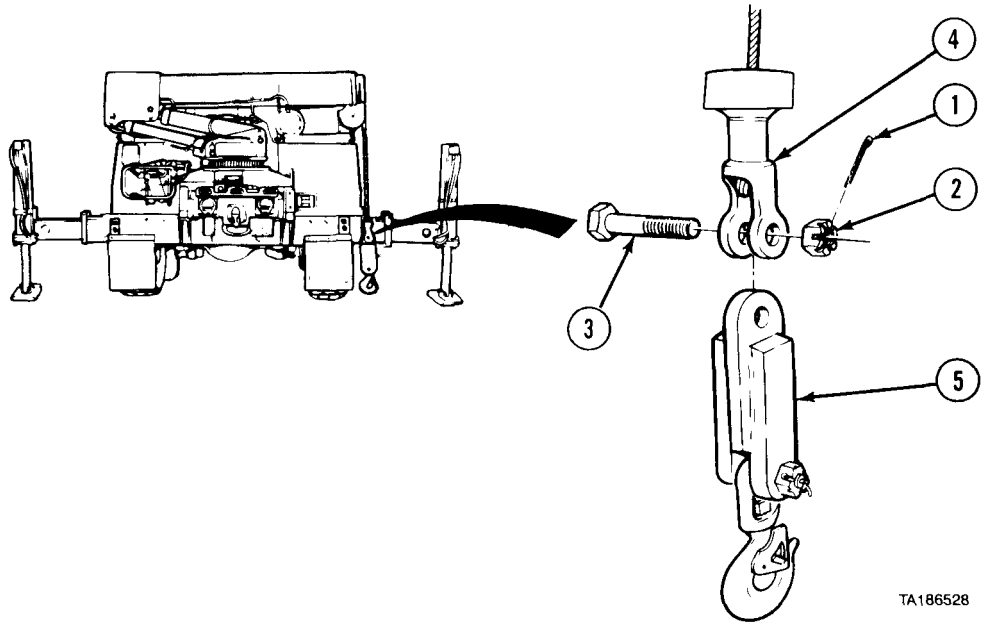
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Prepare crane for use.
TM 9-2320-279-10	Hook block lowered to ground.

Special Environmental Conditions
None

General Safety Instructions
Wear heavy gloves when handling cable.

a. Removal.



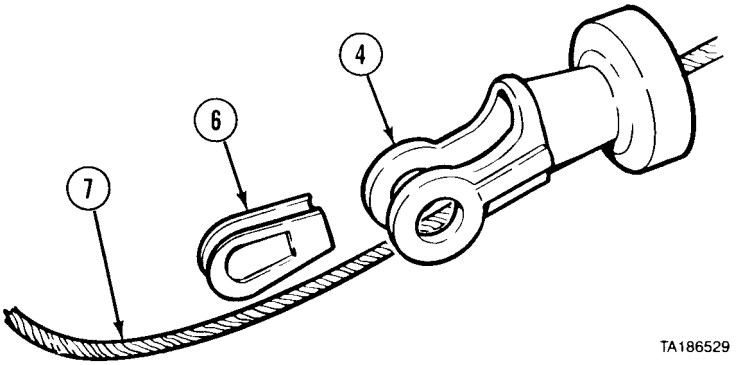
(1) Remove cotter pin (1), nut (2), and screw (3) from clevis (4).
(2) Remove hook block (5) from clevis (4).

17-17. CRANE HOOK BLOCK, HOOK, AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M977) (CONT).

WARNING

Always wear heavy gloves when handling hoist cable to prevent injury to hands.

(3) Drive out wedge (6), straighten cable (7), and remove cable from clevis (4).

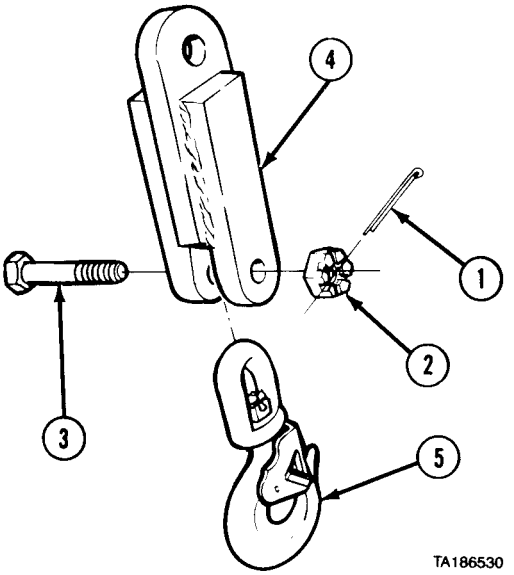


TA186529

b. Disassemble.

(1) Remove cotter pin (1), nut (2), and screw (3) from hook block (4).

(2) Remove swivel hook (5) from hook block (4).



TA186530

(3) Remove nut (6), screw (7), and spring (8) from latch (9).

(4) Remove latch (9) from swivel hook (5).

c. Cleaning/Inspection.

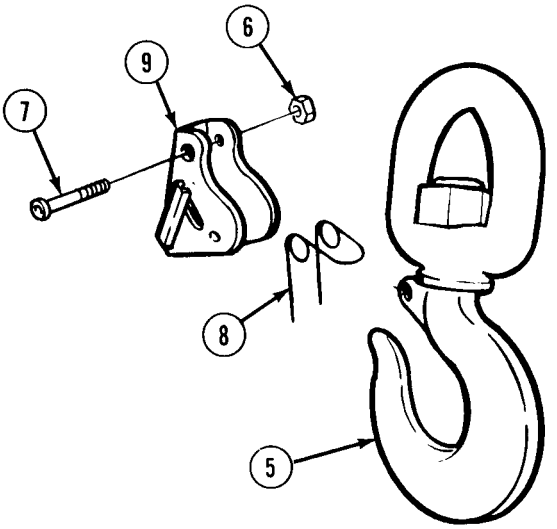
WARNING

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

(1) Clean all parts in dry cleaning solvent.

(2) Inspect each part for damage.

(3) Replace damaged parts.



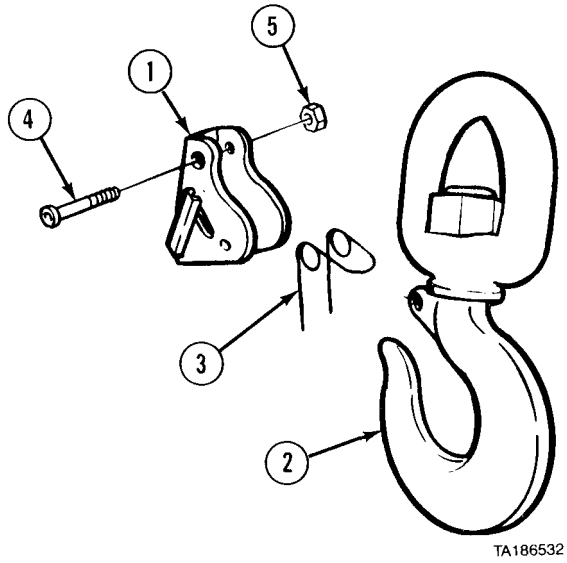
TA186531

d. Assembly.

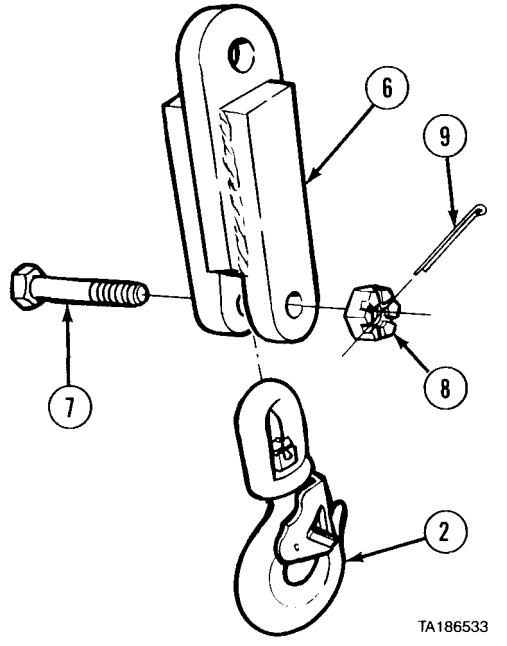
NOTE

Place legs of spring behind latch.

(1) Install latch (1) on swivel hook (2) with spring (3), screw (4), and nut (5).



(2) Install swivel hook (2) in hook block (6) with screw (7), nut (8), and cotter pin (9).

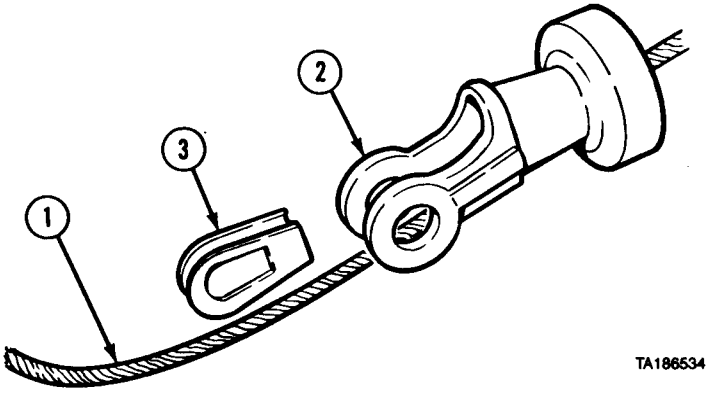


17-17. CRANE HOOK BLOCK, HOOK, AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M977) (CONT).

e. Installation.

WARNING

Always wear heavy gloves when handling hoist cable to prevent injury to hands.

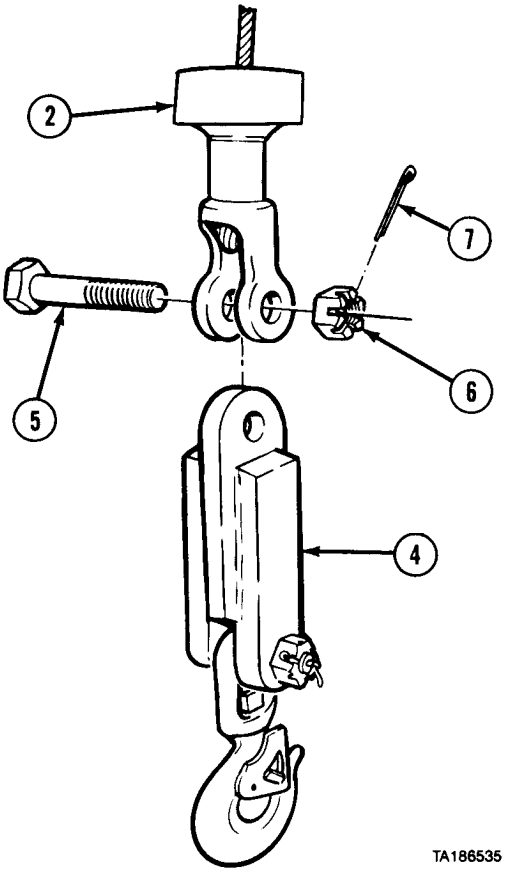


(1) Put cable (1) through hole in clevis (2).
(2) Make loop in cable (1) and put free end of cable back through hole in clevis (2).
(3) Install wedge (3) in cable loop (1). Drive wedge and cable loop up into clevis (2).

(4) Install hook block (4) in clevis (2) with screw (5), nut (6), and cotter pin (7).

f. Follow-on Maintenance. Return crane to stowed position (TM 9-2320-279-10).

END OF TASK



17-17.1. CRANE HOOK BLOCK, HOOK AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M984E1).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 28, Appendix C
Oil, lubricating, Item 32, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
TM 5-725

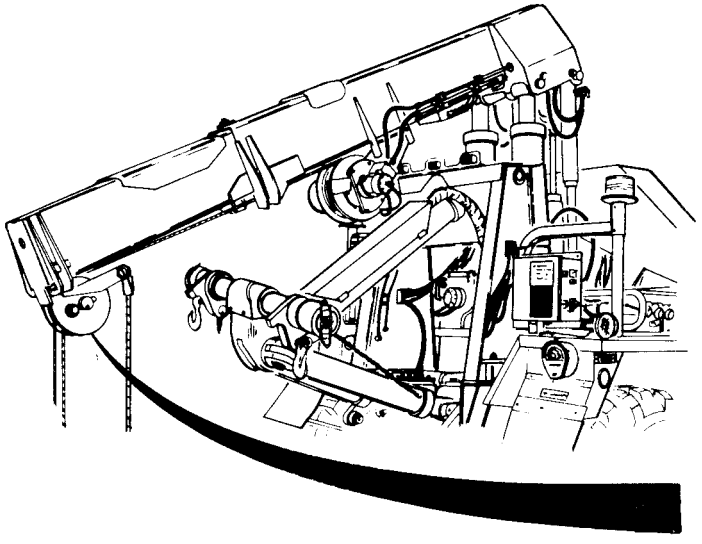
Equipment Condition

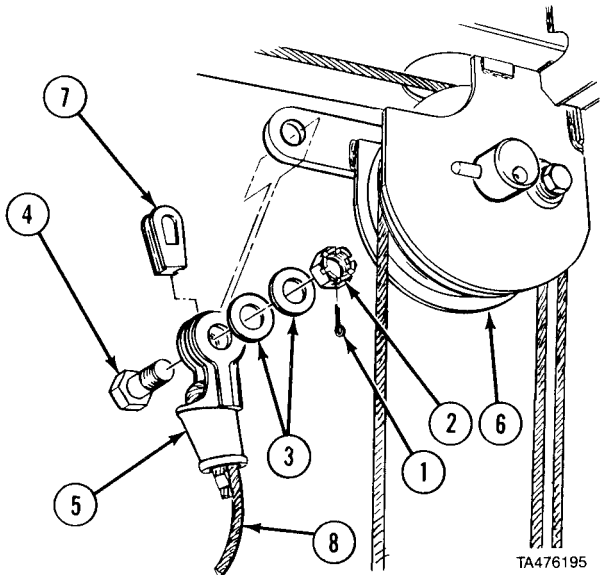
TM or Para	*Condition Description*
TM 9-2320-279-10	Prepare crane for use.
TM 9-2320-279-10	Hook block lowered to ground.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



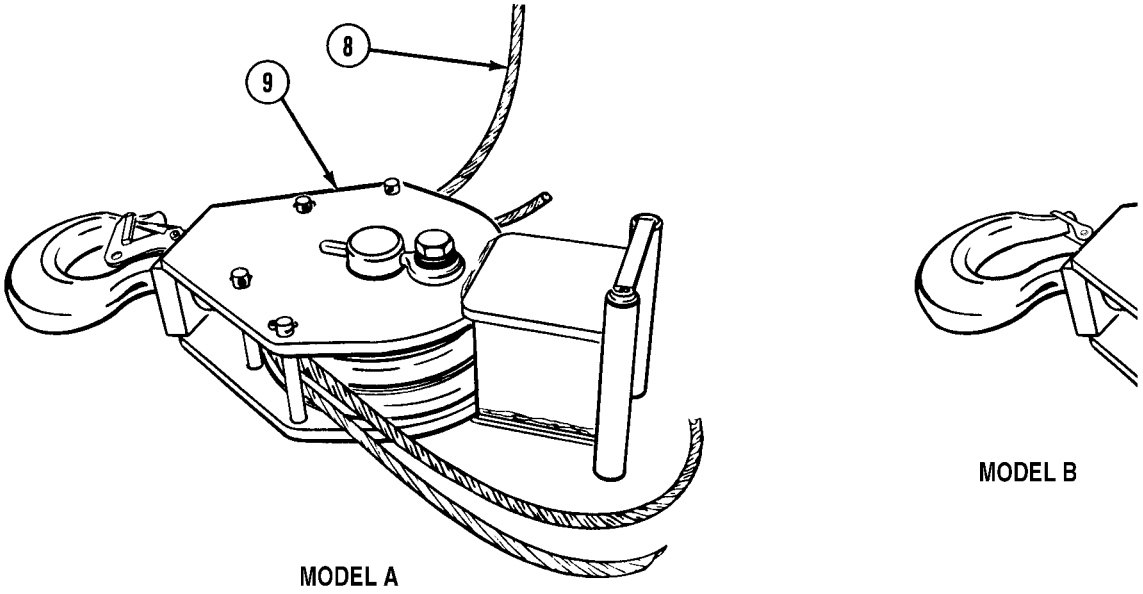


WARNING

Always wear gloves when handling hoist cable to prevent injury to hands.

(1) Remove cotter pin (1), nut (2), two washers (3), and screw (4) from clevis (5).
(2) Remove clevis (5) from boom (6).
(3) Drive out wedge (7), straighten cable (8) and remove from clevis (5).

17-71.1. CRANE HOOK, BLOCK, HOOK AND CLEVIS REMOVAL/REPAIR/ INSTALLATION (M984E1) (CONT).

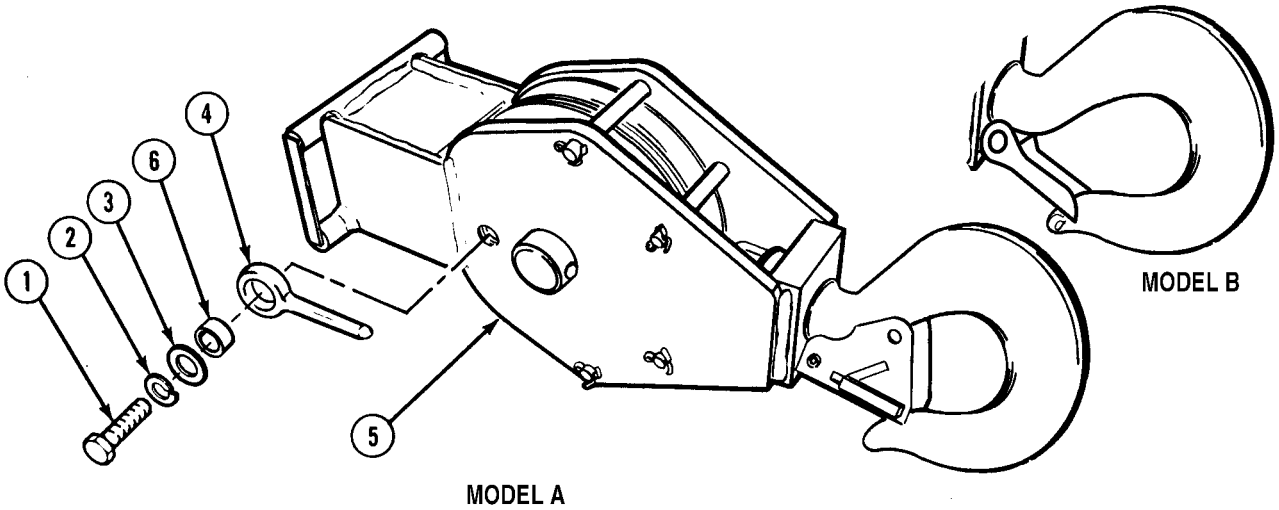


NOTE

- There are two models of hook and latch that may be installed on crane.
- Model A does not have cotter pin on end of hook.
- Model B does does have cotter pin on end of hook.
- Note position of cable in sheaves before removing.

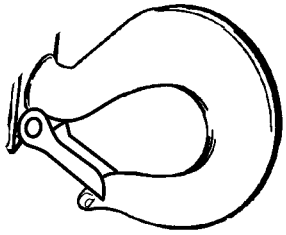
(4) Remove cable (8) from hook block (9).

b. Disassembly.

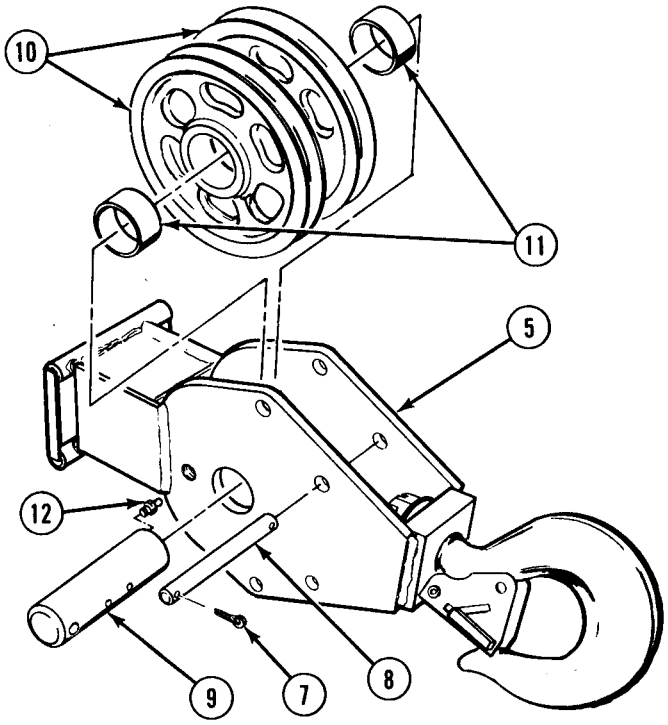


(1) Remove screw (1), lockwasher (2), washer (3), and pin (4) from hook block (5).
(2) Remove spacer (6) from pin (4).

(3) Remove eight cotter pins (7) and four pins (8) from hook block (5).
(4) Remove pin (9) and two sheaves (10) from hook block (5).
(5) Remove two bushings (11) from sheaves (10).
(6) Remove two grease fittings (12) from pin (9).



MODEL B



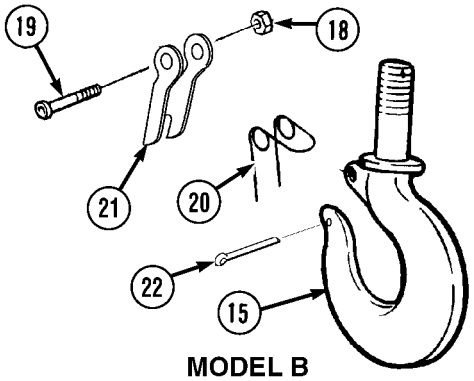
MODEL A

(7) Remove cotter pin (13) and nut (14) from hook (15).
(8) Remove washer (16) and bearing (17).
(9) Remove hook (15) from hook block (5).

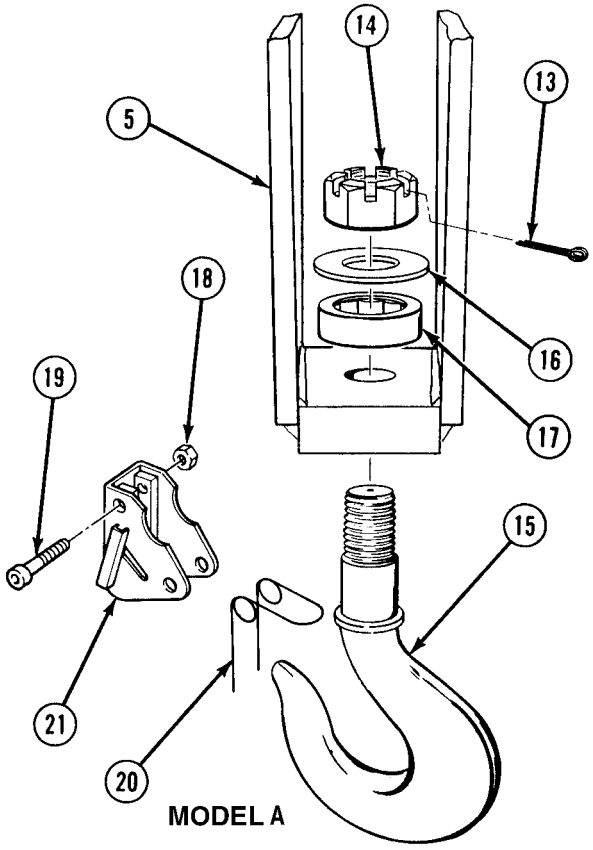
NOTE

- Perform step *(10)* for Model A and Model B.
- Perform step *(11)* for Model B.

(10) Remove locknut (18), screw (19), spring (20), and latch (21) from hook (15).
(11) Remove cotter pin (22).



MODEL B



MODEL A

17-71.1. CRANE HOOK, BLOCK, HOOK AND CLEVIS REMOVAL/REPAIR/ INSTALLATION (M984E1) (CONT).

c. Cleaning/Inspection.

WARNING

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

(1) Clean all metal parts with dry cleaning solvent.
(2) Allow bearings to air dry, then coat with lubricating oil.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment, goggles, shield and gloves.

(3) Dry metal parts with compressed air.
(4) Inspect metal parts for breaks, cracks, and sharp edges.
(5) Inspect bushing diameter. Diameter must not exceed 2.010 in. (51.05 mm).
(6) Inspect bearing for loose rollers or cracked and broken races.
(7) Replace all damaged parts.

d. Assembly.

NOTE

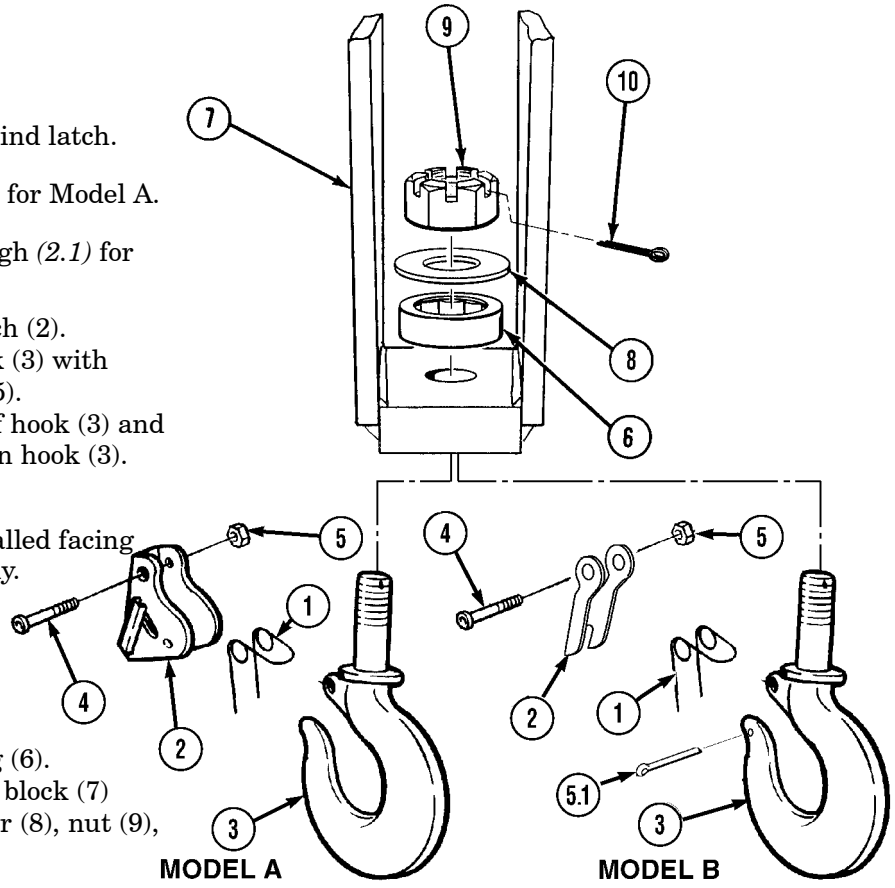
- Place legs of spring behind latch.
- Perform steps *(1 and 2)* for Model A.
- Perform steps *(1)* through *(2.1)* for Model B.

(1) Install spring (1) in latch (2).
(2) Install latch (2) on hook (3) with screw (4) and locknut (5).
(2.1) Push latch (2) to rear of hook (3) and install cotter key (5.1) in hook (3).

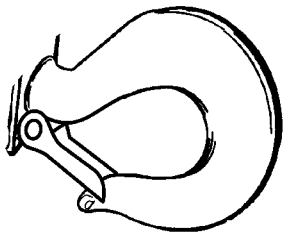
NOTE

Curved side of bearing is installed facing up. Be sure hook rotates freely.

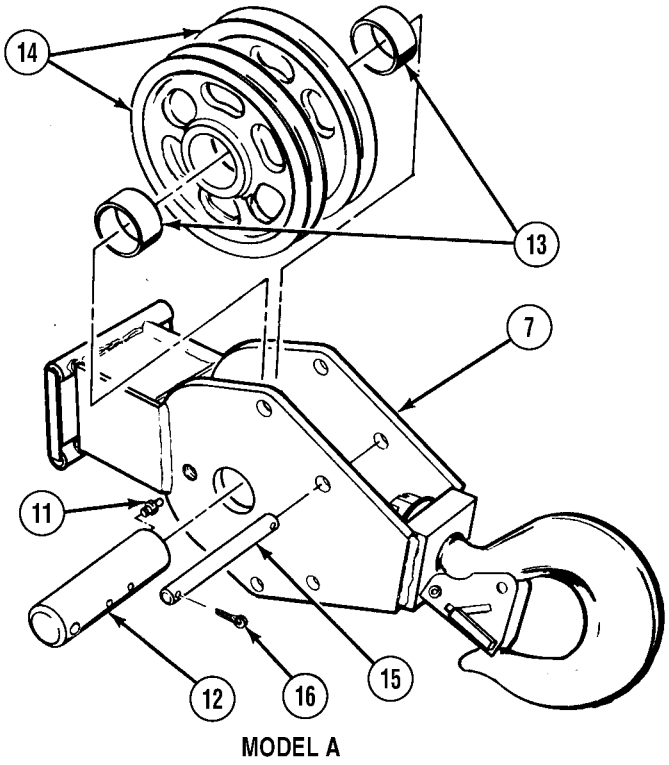
(3) Apply grease to bearing (6).
(4) Install hook (3) in hook block (7) with bearing (6), washer (8), nut (9), and cotter pin (10).



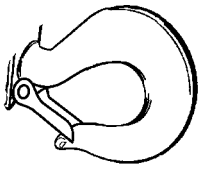
(5) Install two grease fittings (11) in pin (12).
(6) Apply grease to two bushings (13) and install in sheaves (14).
(7) Install two sheaves (14) in hook block (7) with pin (12).
(8) Install four pins (15) in hook block (7) with eight cotter pins (16).



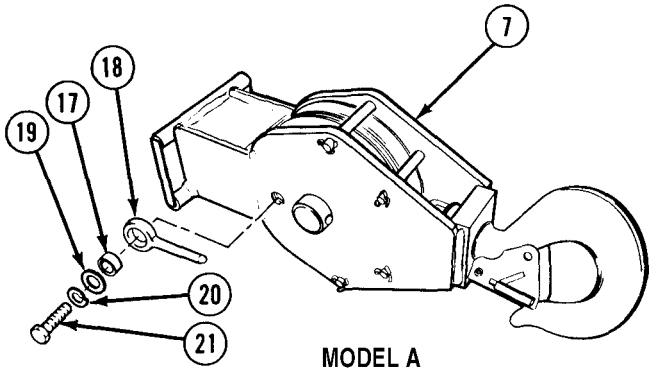
MODEL B



MODEL A



MODEL B



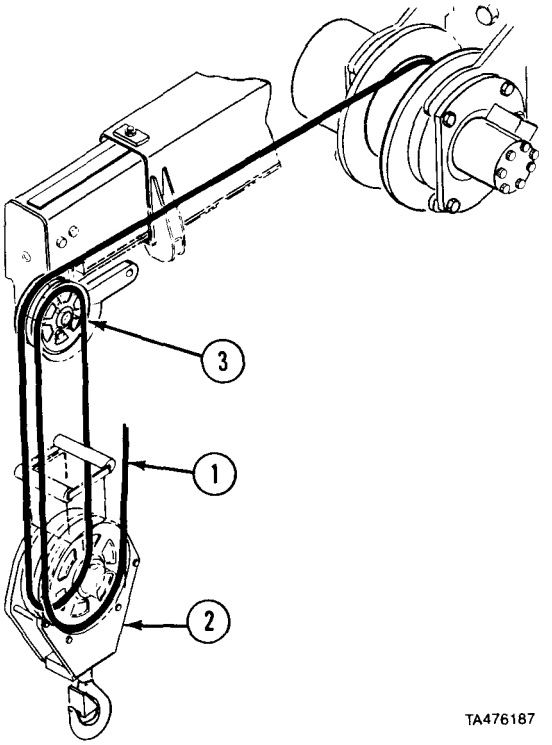
MODEL A

(9) Install spacer (17) in pin (18).
(10) Install pin (18) in hook block (7) with washer (19), lockwasher (20), and screw (21).

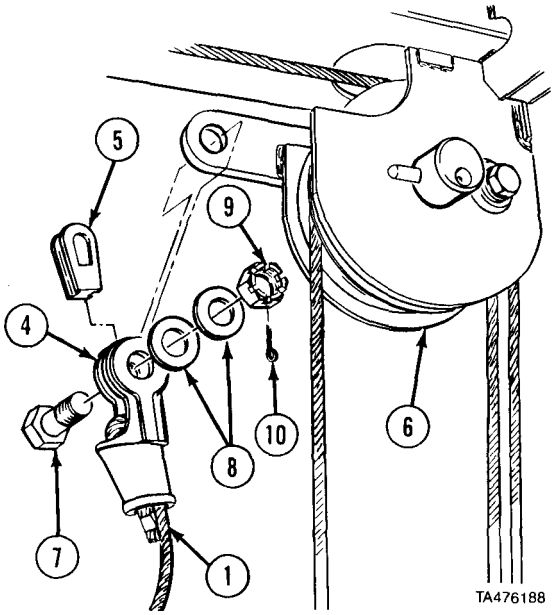
17-17.1. CRANE HOOK BLOCK, HOOK AND CLEVIS REMOVAL/REPAIR/INSTALLATION (M984E1) (CONT).

e. Installation.

(1) Position cable (1) through hook block (2) and sheave (3).



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(2) Position cable (1) through hole in clevis (4).

(3) Make loop in cable (1) and position free end of cable through hole in clevis (4).

(4) Install wedge (5) in cable loop. Drive wedge (5) in cable loop. Drive wedge and cable loop into clevis (4).

(5) Install clevis (4) on boom (6) with screw (7), two washers (8), nut (9), and cotter pin (10).

f. Follow-on Maintenance. Return crane to stowed position (TM 9-2320-279-10).

END OF TASK

17-17.2 CRANE HOOK BLOCK STOWAGE GUIDE REMOVAL/INSTALLATION (M984E1)

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

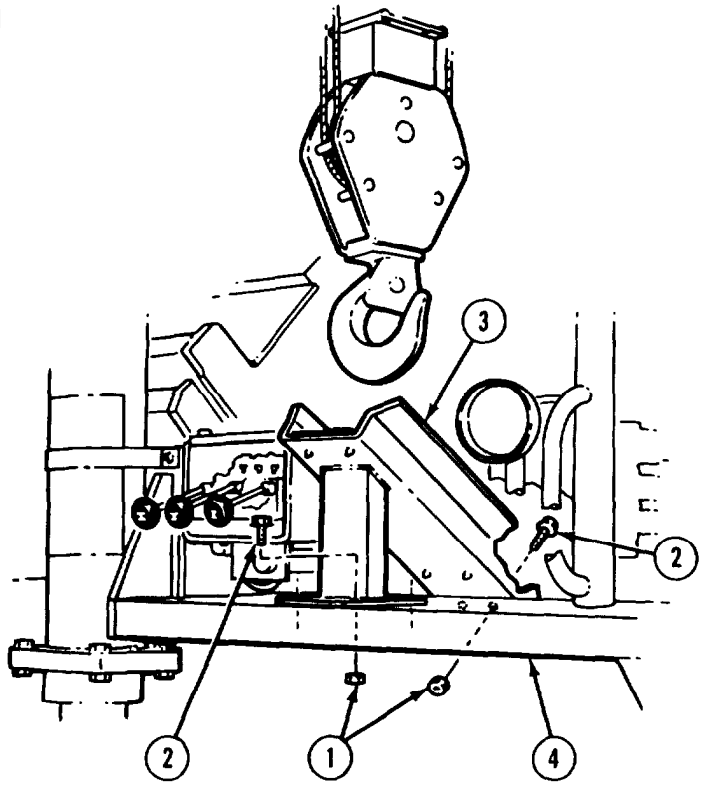
Equipment Condition
TM or Para *Condition Description*
TM 9-2320-279-10 Prepare crane for use.

Special Environmental Conditions
None

General Safety *Instructions*
None

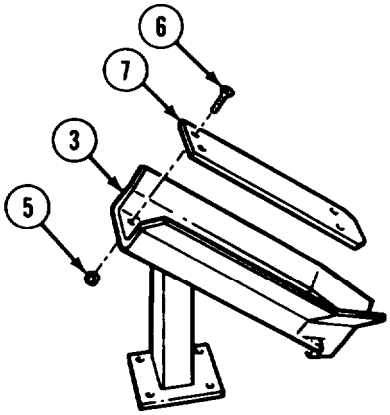
a. Removal.

(1) Remove six locknuts (1), screws (2), and hook block stowage guide (3) from fender (4).



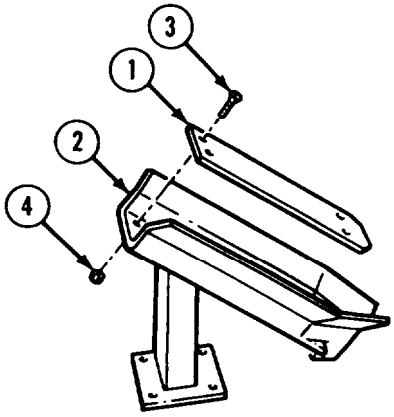
17-17.2. CRANE HOOK BLOCK STOWAGE GUIDE REMOVAL/INSTALLATION (M984E1) (CONT).

(2) Remove four locknuts (5), screws (6), and plate (7) from hook block stowage guide (3).



b. Installation.

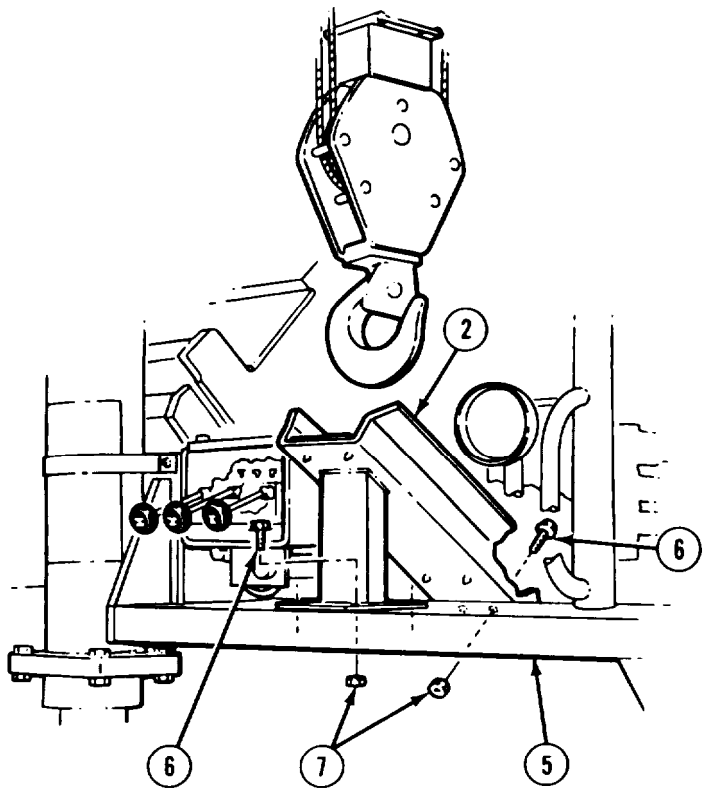
(1) Install plate (1) on hook block stowage guide (2) with four screws (3) and locknuts (4).



(2) Install hook block stowage guide (2) on fender (5) with six screws (6) and locknuts (7).

Follow-on Maintenance. Return crane to stowed position (TM 9-2320-279-10).

END OF TASK



17-18. CRANE HOIST CABLE REMOVAL/INSTALLATION (M977, M984E1, M985).

This task covers:

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

INITIAL SETUP

Models
M977, M984E1, M985

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, Item 33, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
TM 5-725

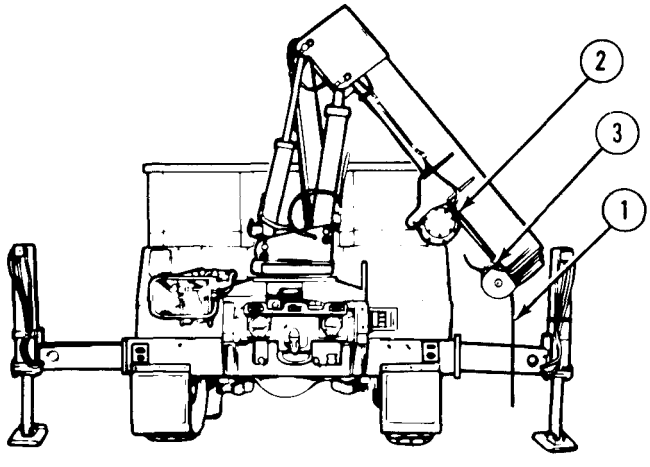
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Parking brake on.
TM 9-2320-279-10	Prepare crane for use.
TM 9-2320-279-10	End of boom at working level.
Para 17-15	Crane hook block, hook, and clevis removed (M985).
Para 17-17	Crane hook block and hook removed (M977).
Para 17-17.1	Crane hook block, hook, and clevis removed (M984E1).

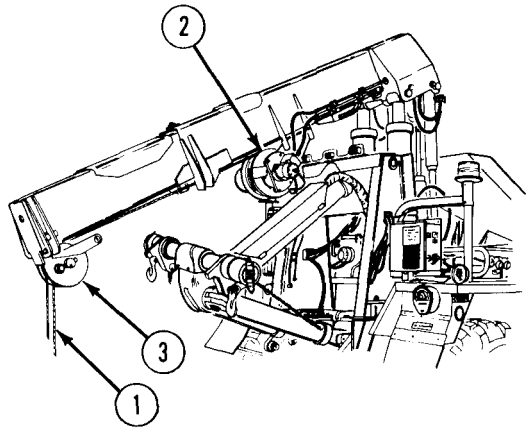
Special Environmental Conditions
None

General Safety Instructions
Wear heavy gloves when handling cable.

a. Removal.



(M977, M985)



(M984E1)

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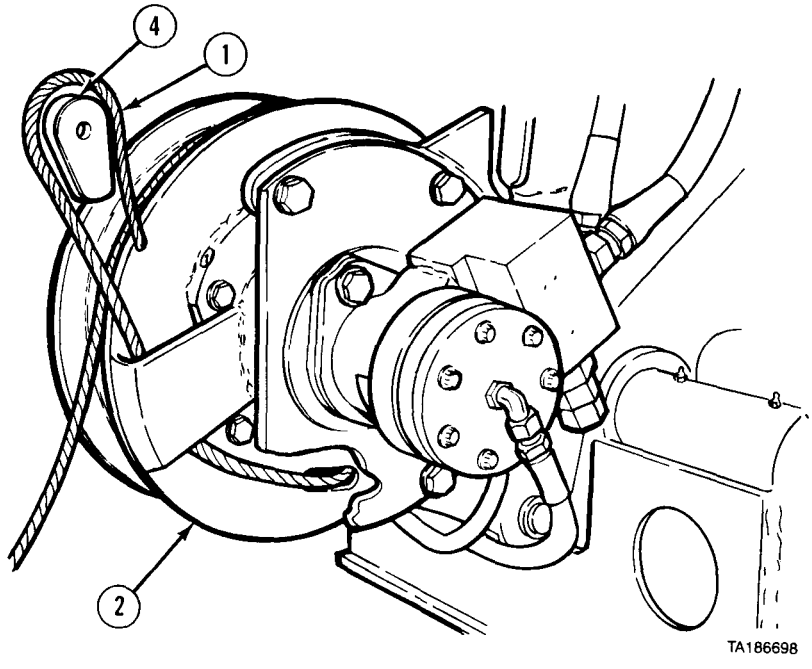
WARNING

Always wear heavy gloves when handling hoist cable to prevent injury to hands.

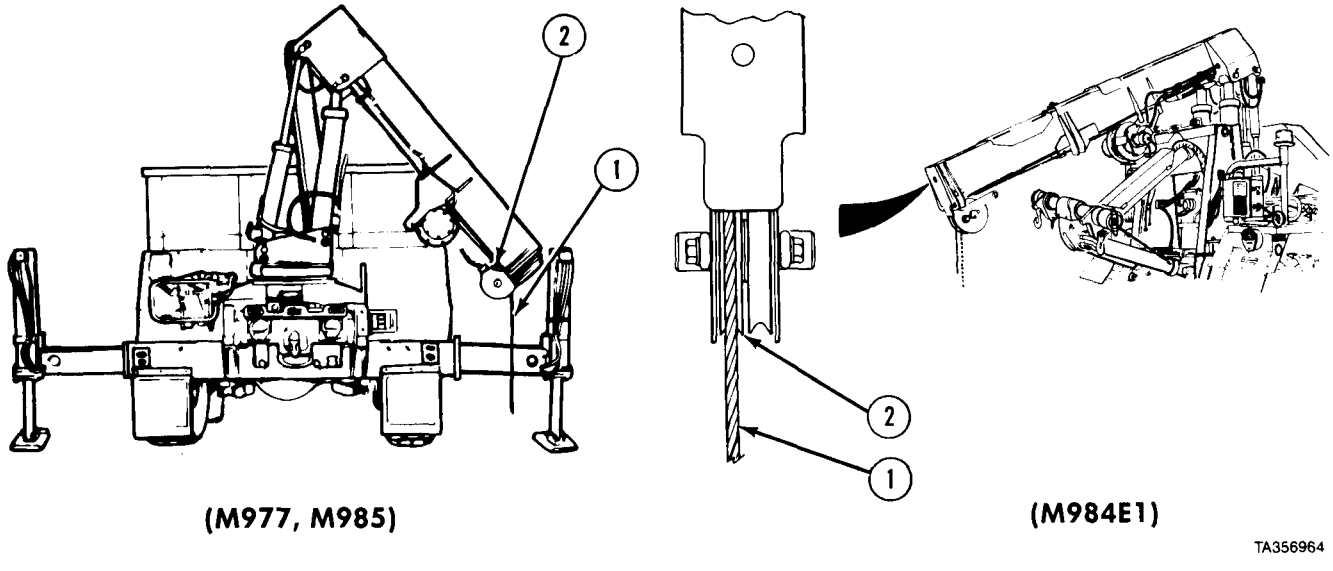
(1) Soldier A operates winch while Soldier B pulls cable (1) from drum (2) and boom nose (3).

17-18. CRANE HOIST CABLE REMOVAL/INSTALLATION (M977, M984E1, M985) (CONT).

(2) Remove wedge (4), straighten cable (1), and remove from drum (2).

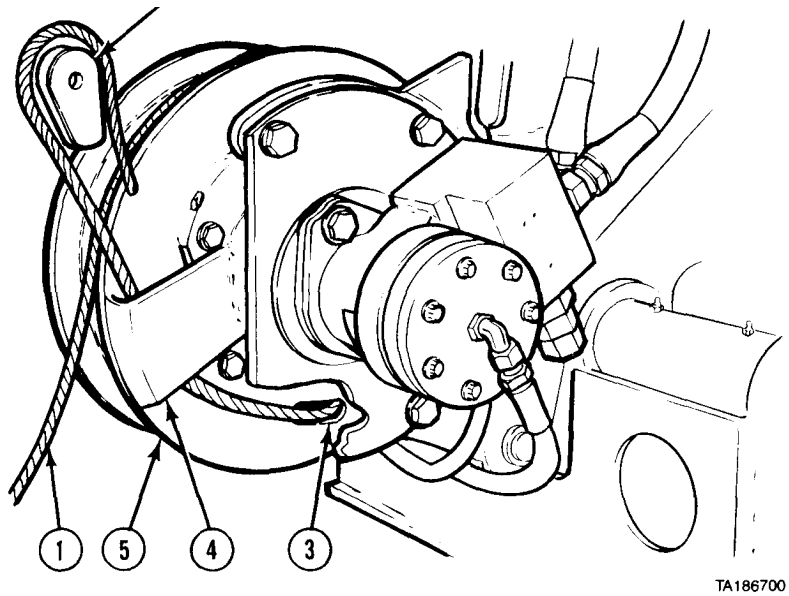


b. Installation.



(1) Put cable (1) through boom sheave (2).

(2) Put cable (1) through slot (3) and cable guide (4) in drum (5).
(3) Make loop in cable (1) approximately 6 in. (152 mm) from cable end. Install wedge (6) in cable loop. Push free end of cable back through guide (4).
(4) Pull free end of cable (1) to seat cable loop and wedge (6) in slot of drum (5).
(5) Lubricate cable (1) with lubricating oil.
(6) Soldier A operates winch and winds cable (1) on drum evenly while Soldier B maintains tension on cable (1).



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c. Follow-on Maintenance.
(1) Install crane hook block, hook, and clevis (M985) (para 17-15).
(2) Install crane hook block and hook (M977) (para 17-17).
(3) Install crane hook block, hook, and clevis (M984E1) (para 17-17.1).

END OF TASK

17-19. CRANE HOIST SHEAVE PULLEY REMOVAL/REPAIR/INSTALLATION (M983).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description.*
TM 9-2320-279-10	Prepare crane for use with manual controls.
TM 9-2320-279-10	End of boom lowered to working level, hook block on ground.

Special Environmental Conditions
None

General Safety Instructions
Wear heavy gloves when handling cable.

17-19. CRANE HOIST SHEAVE PULLEY REMOVAL/REPAIR/INSTALLATION (M983) (CONT).

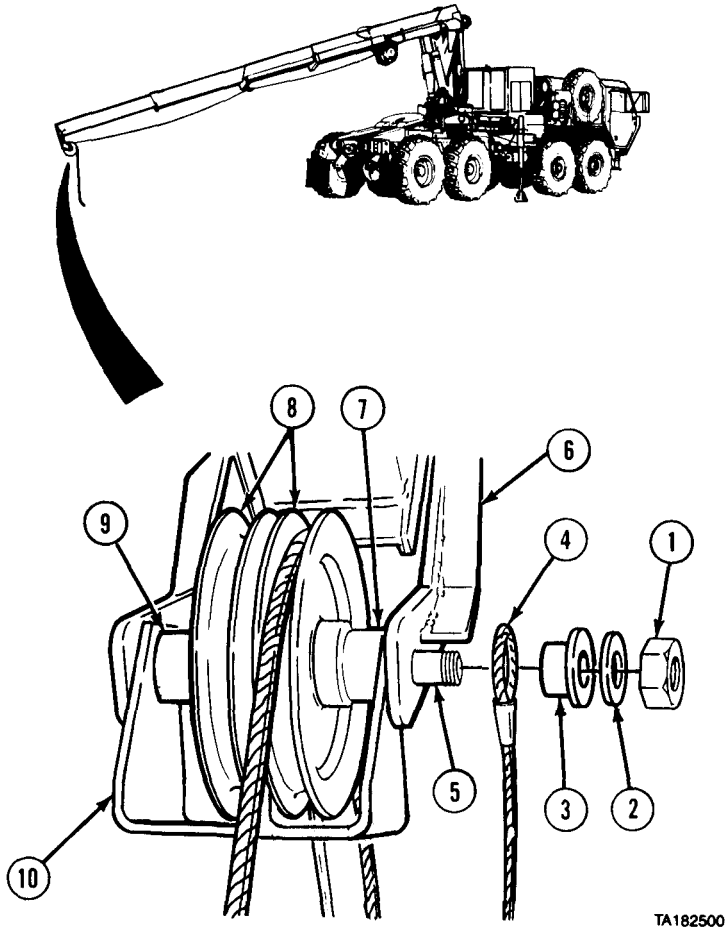
a. Removal.

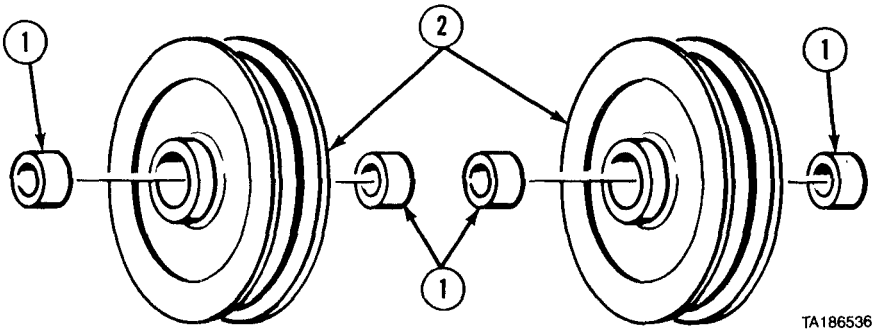
(1) Remove locknut (1), washer (2), bushing (3), and cable loop (4) from shaft (5).

NOTE

Note position of cable in hook block and hoist sheaves before removing shaft.

(2) While removing shaft (5) from boom (6), remove short spacer (7), sheaves (8), long spacer (9), and bracket (10).





b. Disassembly. Remove two bushings (1) from each pulley (2).

c. Cleaning/Inspection.

WARNING

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

(1) Clean all parts with dry cleaning solvent.
(2) Check each part for damage or cracks.
(3) Replace damaged parts.

d. Assembly.

(1) Coat bushings (1) with grease.
(2) Press two bushings (1) into each pulley (2).

17-19. CRANE HOIST SHEAVE PULLEY REMOVAL/REPAIR/iNSTALLATION (M983) (CONT).

e. Installation.

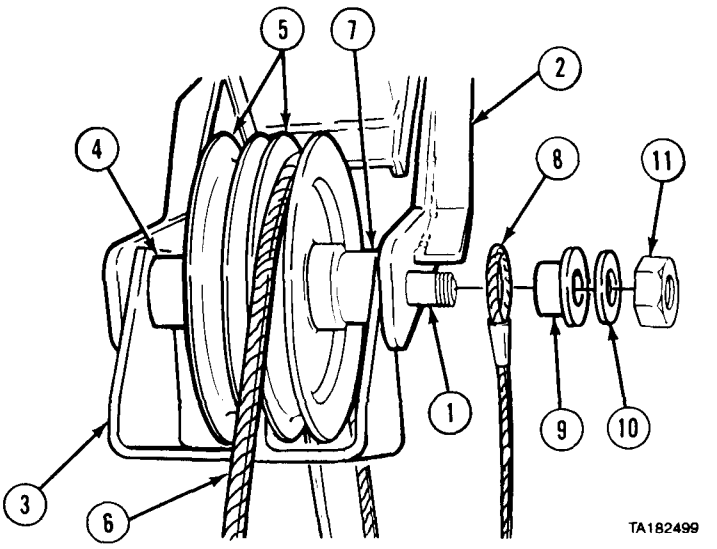
(1) Install shaft (1) through end of boom (2) and install bracket (3), long spacer (4), and sheaves (5).

(2) Position cable (6) on sheaves (5) and hook block. Install short spacer (7).

(3) Install shaft (1) in boom (2) and install cable loop (8), bushing (9), washer (10), and locknut (11).

f. Follow-on Maintenance. Return crane to stowed position (TM 9-2320-279-10).

END OF TASK



17-20. CRANE HOIST CABLE REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
Oil, lubricating, Item 33, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Prepare crane for use.
TM 9-2320-279-10	End of boom lowered to working level.
Para 17-16	Crane hook block removed (except hook block housing).
Para 17-19	Boom sheave pulleys removed.

Special Environmental Conditions
None

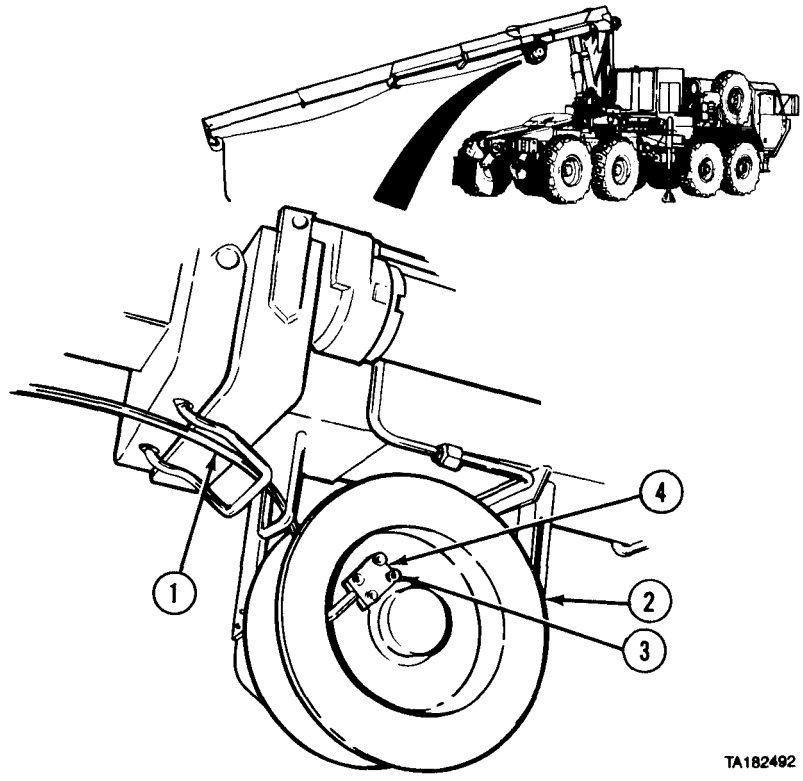
General Safety Instructions
Wear heavy gloves when handling cable.

a. Removal.

WARNING

Always wear heavy gloves when handling hoist cable to prevent injury to hands.

(1) Soldier A operates winch while Soldier B pulls cable (1) from drum (2).
(2) Remove four screws (3) and retaining plate (4).
(3) Remove cable (1) from drum (2).



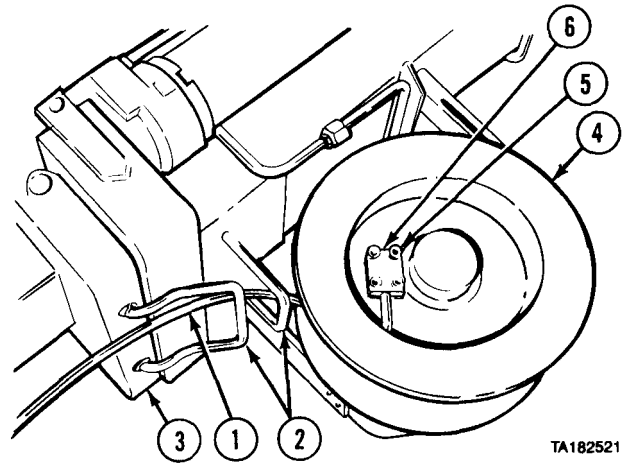
b. Installation.

(1) Install cable (1) through guide (2) on boom (3).
(2) Install cable (1) through slot in drum (4).
(3) Install cable (1) on drum (4) with four screws (5) and retaining plate (6).
(4) Lubricate cable (1).
(5) Soldier A operates winch while Soldier B maintains tension on cable (1).

c. Follow-on Maintenance.

(1) Install sheave pulleys (para 17-19).
(2) Install hook block (para 17-16).
(3) Return crane to stowed position (TM 9-2320-279-10).

END OF TASK



17-21. CRANE BOOM REPAIR (M977, M985).

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Models
M977, M985

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

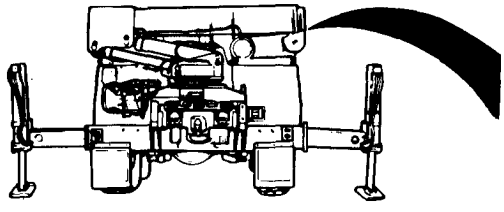
Equipment Condition

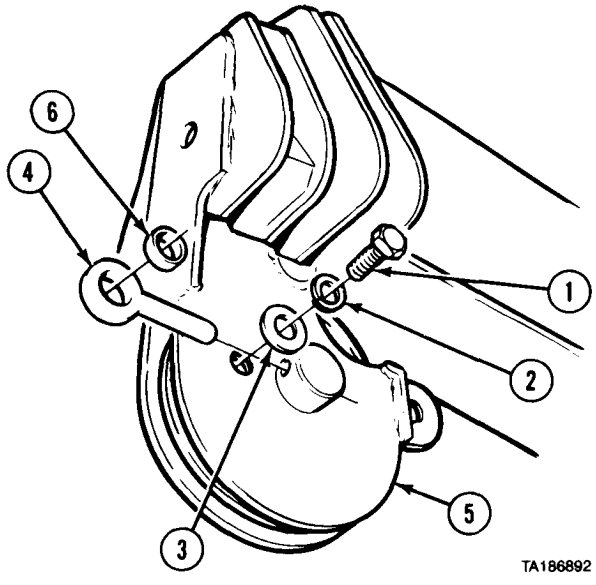
TM or Para	*Condition Description*
Para 17-18	Crane hoist cable removed.
TM 9-2320-279-10	Outrigger jack cylinders lowered.

Special Environmental Conditions
None

General Safety Instructions
None

a. Disassembly.





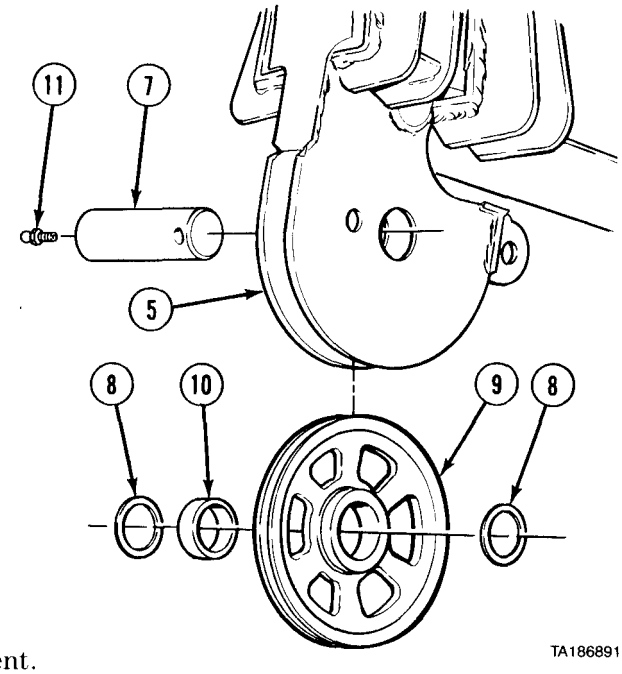
(1) Remove screw (1), lockwasher (2), washer (3), and pin (4) from boom (5).
(2) Remove bushing (6) from pin (4).

(3) Remove pin (7), two spacers (8), and sheave (9) from boom (5).
(4) Remove bushing (10) from sheave (9).
(5) Remove grease fitting (11) from pin (7).

b. Cleaning/Inspection.

WARNING

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



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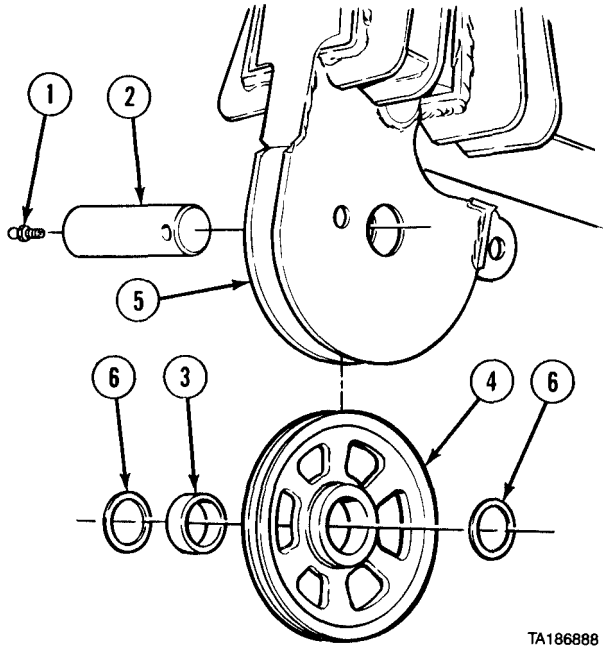
(1) Clean all metal parts with dry cleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

(2) Dry metal parts with compressed air.
(3) Inspect metal parts for breaks, cracks, and sharp edges.
(4) Inspect bushing for cuts or nicks.
(5) Replace all damaged parts.

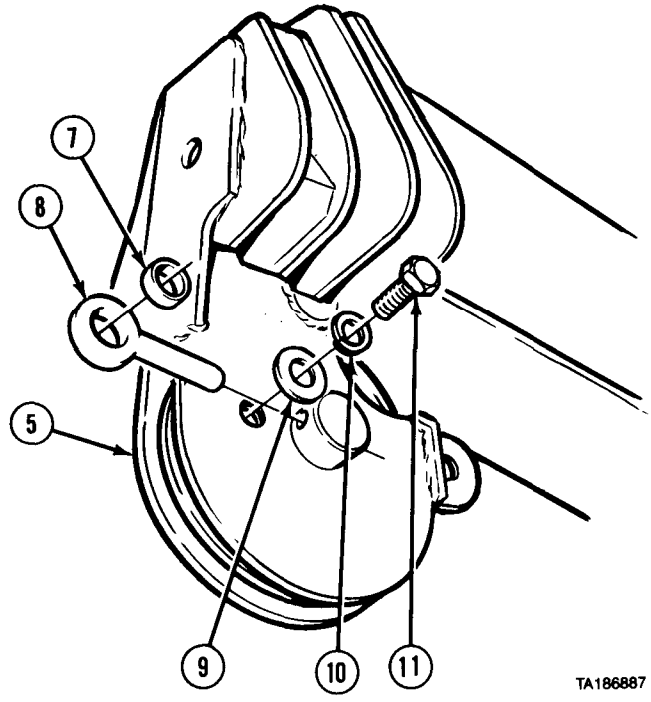
c. Assembly.
(1) Install grease fitting (1) in pin (2).
(2) Apply grease to bushing (3) and install in sheave (4).
(3) Install sheave (4) in boom (5) with two spacers (6) and pin (2).



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17-21. CRANE BOOM REPAIR (M977, M985) (CONT).

(4) Install bushing (7) in pin (8).
(5) Install pin (8) in boom (5) with washer (9), lockwasher (10), and screw (11).



d. Follow-on Maintenance.
(1) Install crane hoist cable (para 17-18).
(2) Stow outriggers (TM 9-2320-279-10).

END OF TASK

17-21.1. CRANE BOOM REPAIR (M984E1).

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Grease, automotive and artillery, Item 23, Appendix C
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic (2)

References
None

Equipment Condition

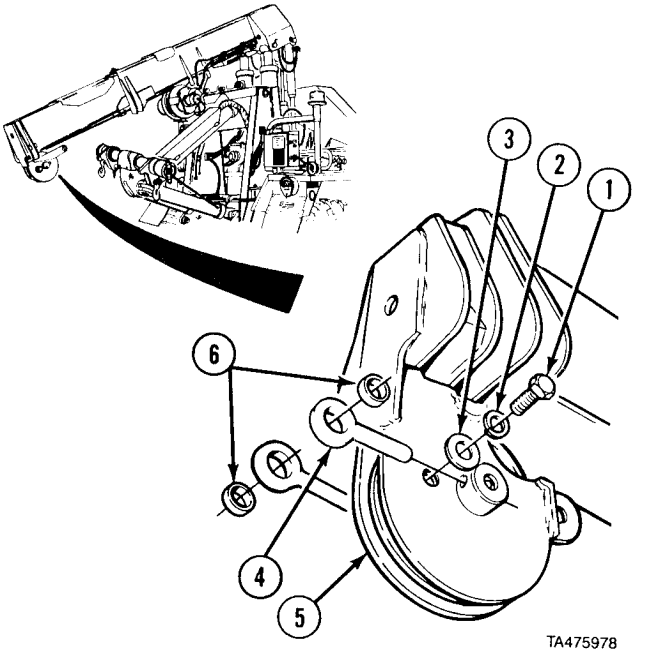
TM or Para	*Condition Description*
Para 17-18	Crane hoist cable removed.

Special Environmental Conditions
None

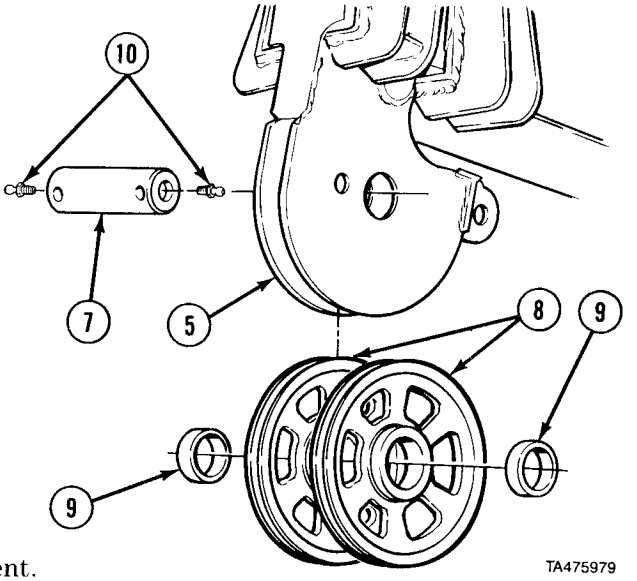
General Safety Instructions
None

a. Disassembly.

(1) Remove to screws (1), lockwashers (2), washers (3), and pins (4) from boom (5).
(2) Remove two spacers (6) from pins (4).



(3) Soldier A and Soldier B remove pin (7) and two sheaves (8) from boom (5).
(4) Remove two bushings (9) from sheaves (8).
(5) Remove two grease fittings (10) from pin (7).



b. Cleaning/Inspection.

WARNING

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

(1) Clean all metal parts with dry cleaning solvent.

WARNING

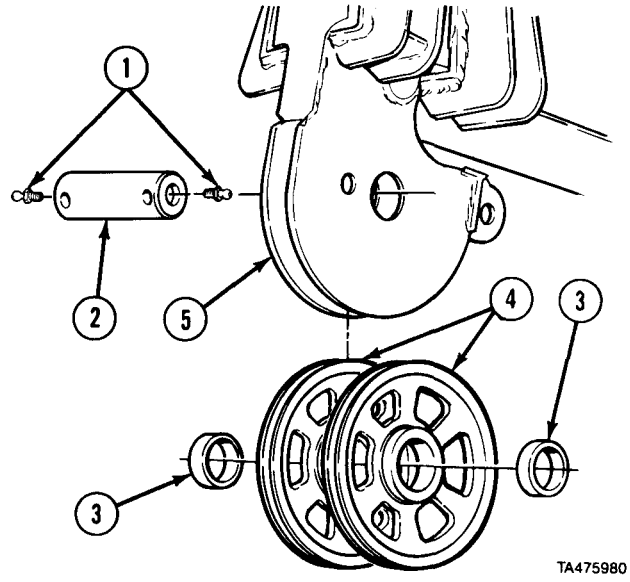
Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

(2) Dry metal parts with compressed air.
(3) Inspect metal parts for breaks, cracks and sharp edges.
(4) Inspect bushing diameter. Bushing diameter must not exceed 2.010 in. (51.05 mm).
(5) Replace all damaged parts.

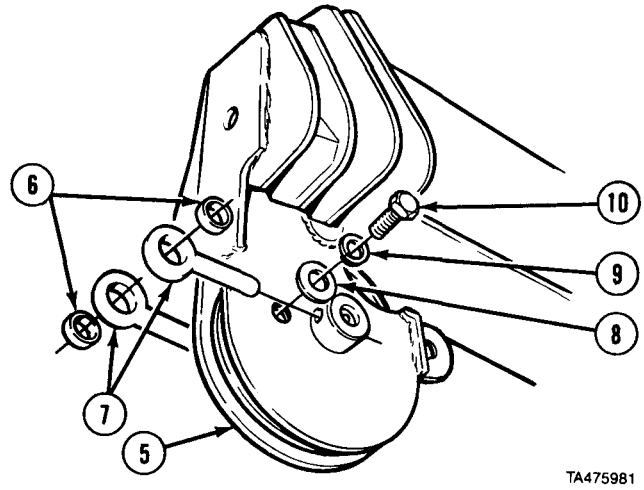
17-21.1. CRANE BOOM REPAIR (CONT).

c. Assembly.

(1) Install two grease fittings (1) in pin (2).
(2) Apply grease to two bushings (3) and install in sheaves (4).
(3) Soldier A and Soldier B install two sheaves (4) in boom (5) with pin (2).



(4) Install two spacers (6) in pins (7).
(5) Install two pins (7) in boom (5) with two washers (8), lockwashers (9), and screws (10).



d. Follow-on Maintenance. Crane hoist cable installed (para 17-18).

END OF TASK

17-22. BOOM HOSE REEL REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	End of boom at working level.

Special Environmental Conditions
None

General Safety Instructions
None

17-22. BOOM HOSE REEL REMOVAL/INSTALLATION (M983) (CONT).

a. Removal.

(1) Support hose reel (1) with suitable lifting device.

NOTE

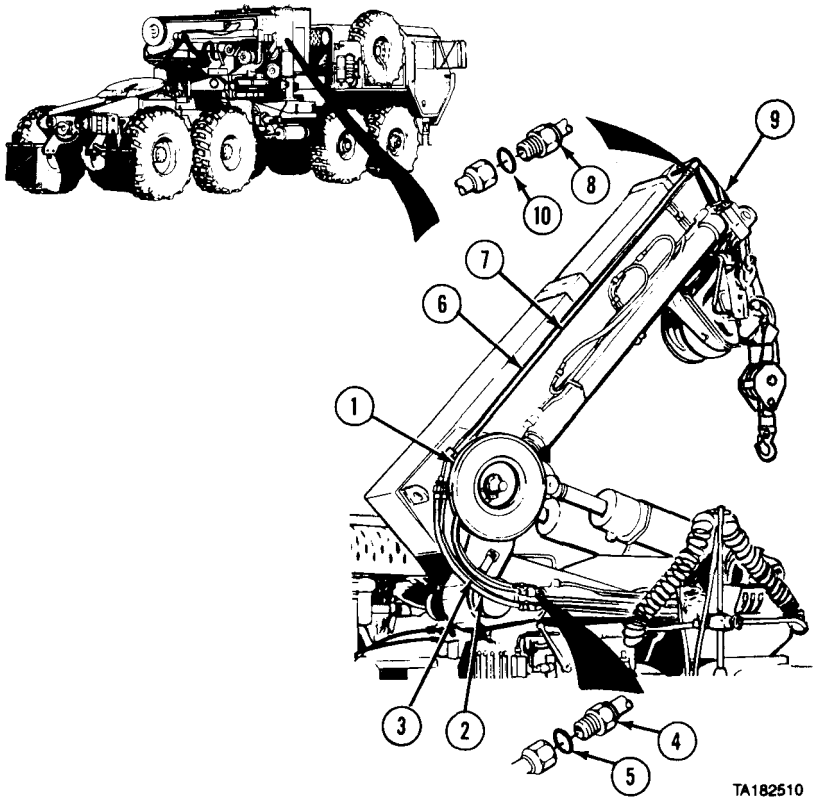
- Plug hoses as they are disconnected to prevent dirt from entering hydraulic system.
- Tag and mark all hoses before removal.

(2) Disconnect hoses (2 and 3) at lower hose couplings (4). Remove preformed packings (5) from couplings.

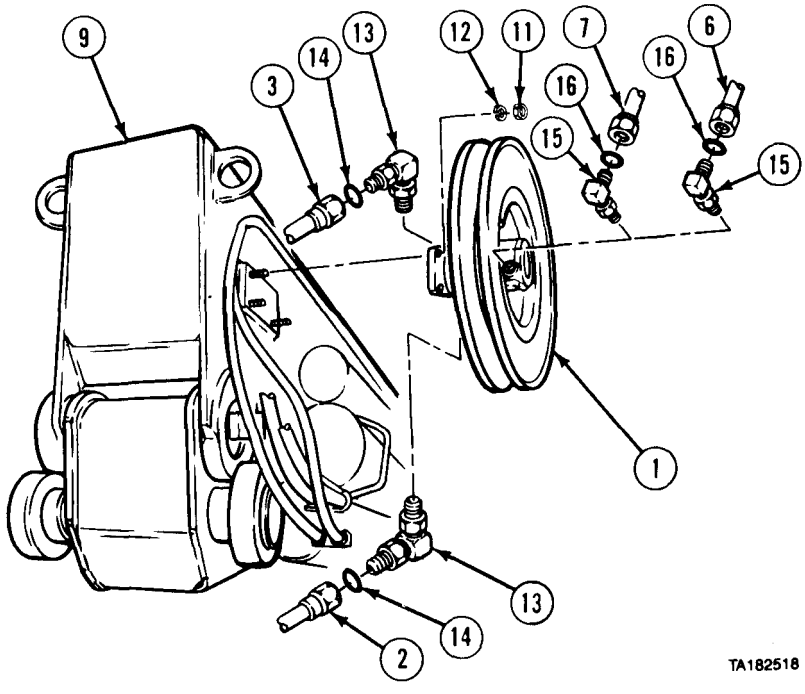
WARNING

Release tension slowly after hoses are disconnected from boom. Hose reel drum is spring loaded and may cause serious injury.

(3) Disconnect hoses (6 and 7) from hose couplings (8) at top of boom (9). Remove preformed packings (10) from couplings.

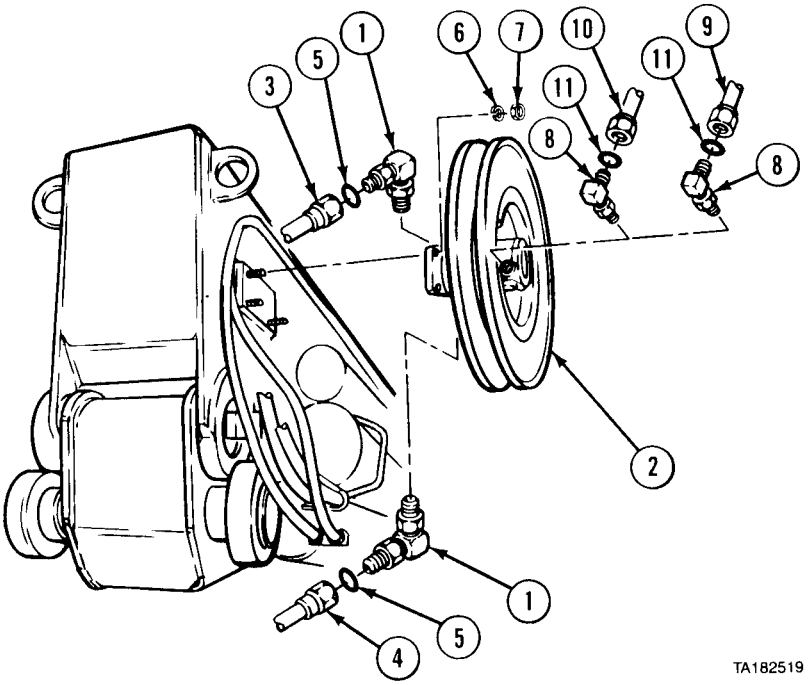


(4) Remove three nuts (11) and lockwashers (12).
(5) Remove hose reel (1) from boom (9).
(6) Remove two hoses (2 and 3) from elbow fittings (13). Remove preformed packings (14) from elbow fittings.
(7) Remove two elbow fittings (13) from hose reel (1).
(8) Remove two hoses (6 and 7) from two fittings (15) on hose reel (1). Remove preformed packings (16) from fittings.
(9) Remove two fittings (15) from hose reel (1).



b. Installation.

(1) Install two elbow fittings (1) in hose reel (2).
(2) Install two hoses (3 and 4) and preformed packings (5) in elbow fittings (1).
(3) Install hose reel (2) with three lockwashers (6) and nuts (7).
(4) Install two fittings (8) on hose reel (2).
(5) Install two hoses (9 and 10) and preformed packings (11) in fittings (8) on hose reel (2).
(6) Wind hoses (9 and 10) on reel (2).



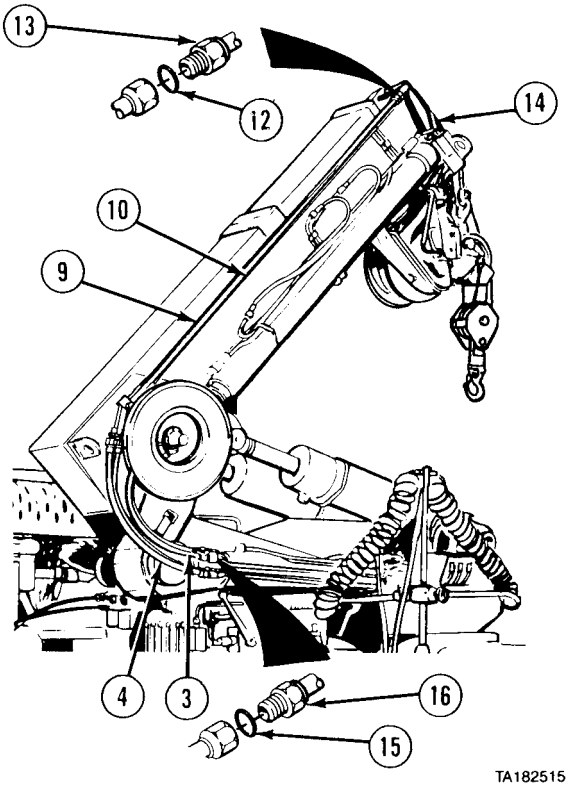
TA182519

(7) Install two hoses (9 and 10) and preformed packings (12) in couplings (13) at top of boom (14).
(8) Install two hoses (3 and 4) and preformed packings (15) in lower hose couplings (16).

c. Follow on Maintenance.

(1) Check operation of hose reel (TM 9-2320-279-10).
(2) Check for leaks.
(3) Return crane to stowed position (TM 9-2320-279-10).

END OF TASK



TA182515

Section V. WINCH AND CRANE CONTROLS

17-23. REMOTE CONTROL UNIT STRAP, CONTROL KNOBS, ASSEMBLY, AND LEVERS REMOVAL/REPAIR/INSTALLATION (M977, M984E1, M985).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M977, M984E1 , M985

Test Equipment
None

Special Tools
None

Supplies
Solvent, dry cleaning, Item 47, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Remote control unit removed from remote control stowage box.

Special Environmental Conditions
None

General Safety Instructions
None

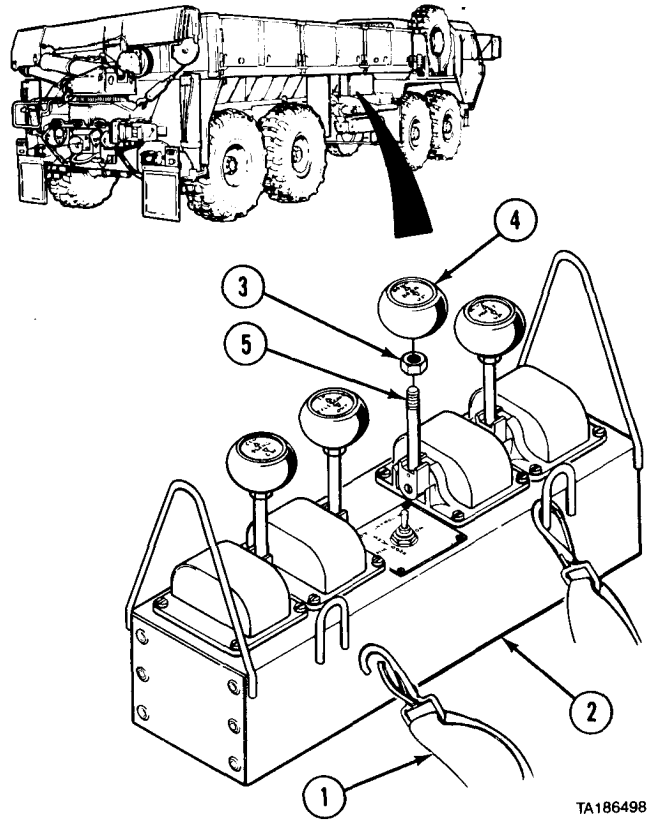
a. Removal.

(1) Remove strap (1) from remote control unit (2).

NOTE

All controls are removed in the same manner.

(2) Turn nut (3) clockwise to loosen knob.
(3) Remove knob (4) from handle (5).
(4) Turn nut (3) counterclockwise and remove from handle (5).

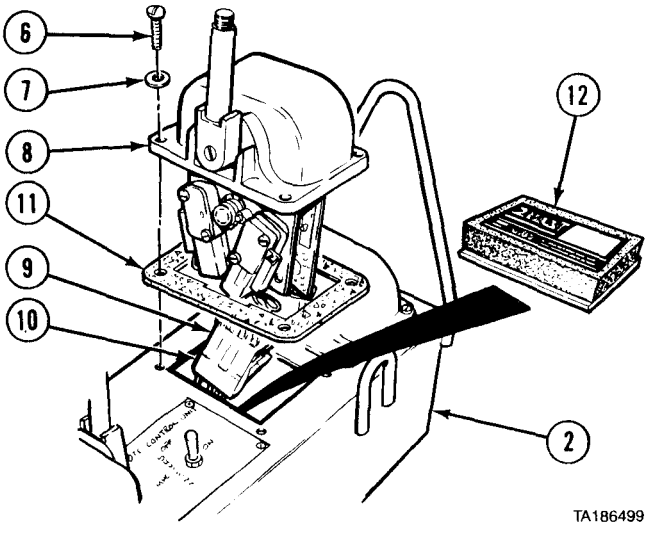


(5) Remove four screws (6), washer (7), and remote controller assembly (8) from remote control box (2).

NOTE

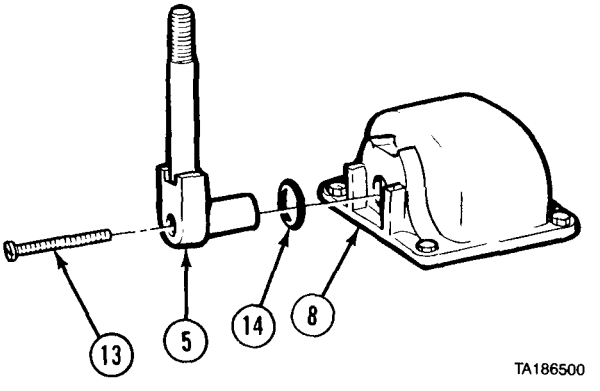
Tag and mark all connectors and wires.

(6) Disconnect connector (9) from connector (10).
(7) Remove remote controller assembly (8) and gasket (11) from remote control unit (2).
(8) Remove rust vapor capsule (12) from remote control unit (2).



TA186499

(9) Remove screw (13) from handle (5).
(10) Remove handle (5) and preformed packing (14) from remote controller assembly (8).



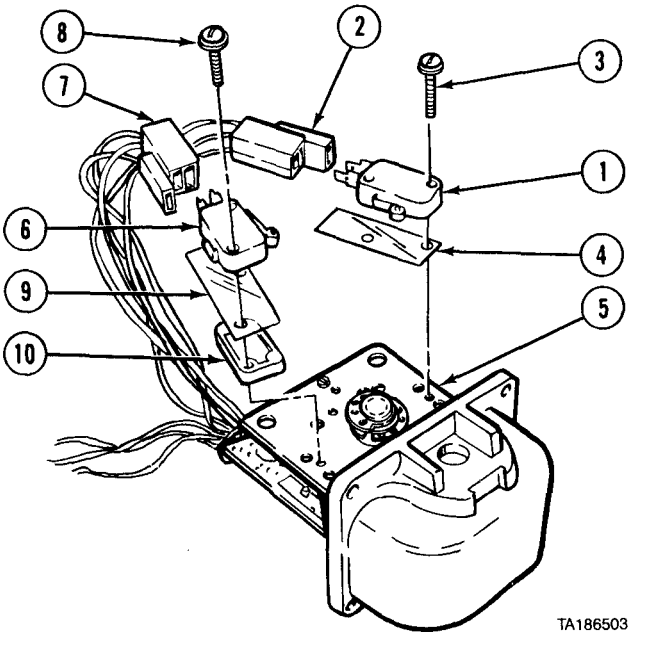
TA186500

b. Disassembly.

NOTE

Tag and mark all connectors, switches, and wires before removing.

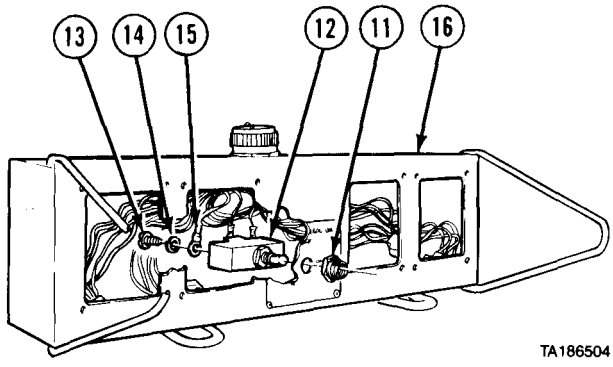
(1) Disconnect switch (1) from connector (2).
(2) Remove two screws (3), switch (1), and insulator (4) from controller assembly (5).
(3) Disconnect switch (6) from connector (7).
(4) Remove two screws (8), switch (6), insulator (9), and spacer (10).



TA186503

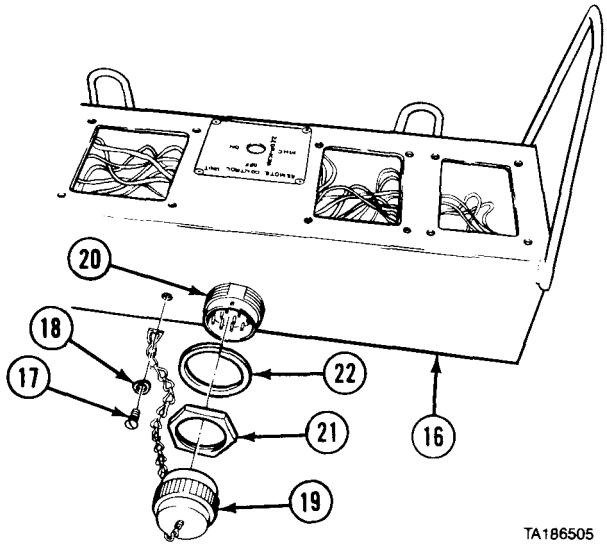
17-23. REMOTE CONTROL UNIT STRAP, CONTROL KNOBS, ASSEMBLY, AND LEVERS REMOVAL/REPAIR/INSTALLATION (M977, M984E1, M985) (CONT).

(5) Remove switch boot (11) from power switch (12).
(6) Remove three screws (13), lockwashers (14), and wires (15).
(7) Remove power switch (12) from remote control box (16).



TA186504

(8) Remove screw (17) and lockwasher (18) from remote control box (16).
(9) Remove cap and chain (19) from connector (20).
(10) Remove nut (21) and lockwasher (22) from remote control box (16).



TA186505

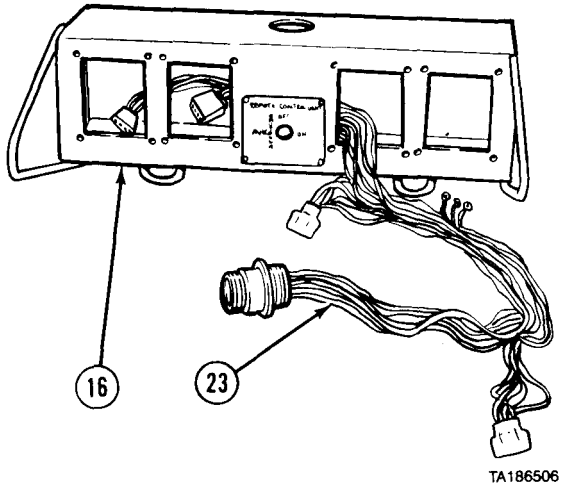
(11) Remove wiring harness (23) from remote control box (16).

c. Cleaning/Inspection.

WARNING

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

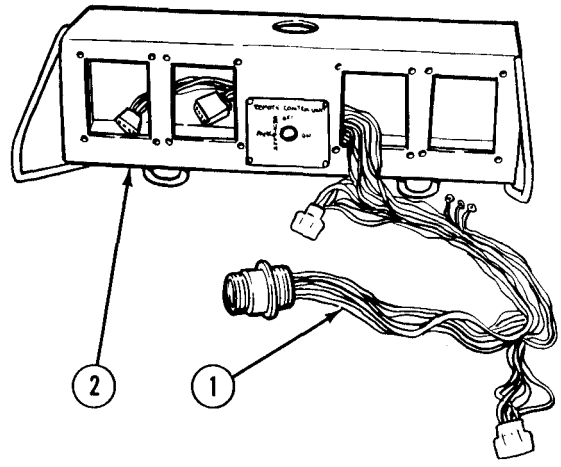
(1) Clean all metal parts in dry cleaning solvent.
(2) Inspect each part for damage.
(3) Inspect wires for cracks or breaks.
(4) Replace damaged parts or wires.



TA186506

d. Assembly.

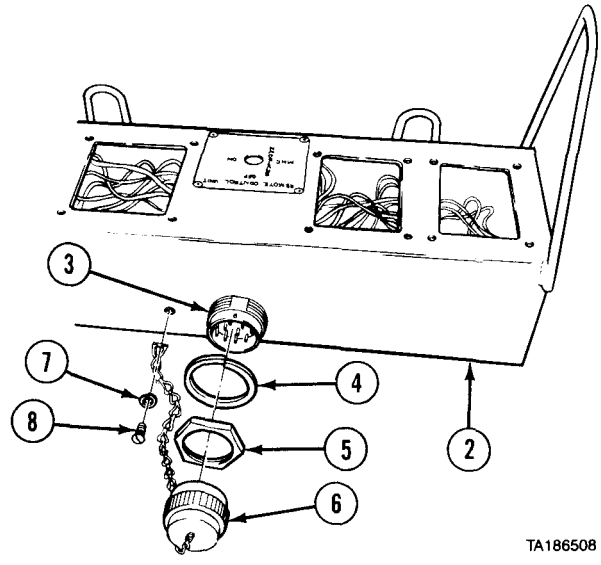
(1) Install wiring harness (1) in remote control box (2).



TA186507

(2) Install connector (3) with lockwasher (4) and nut (5).

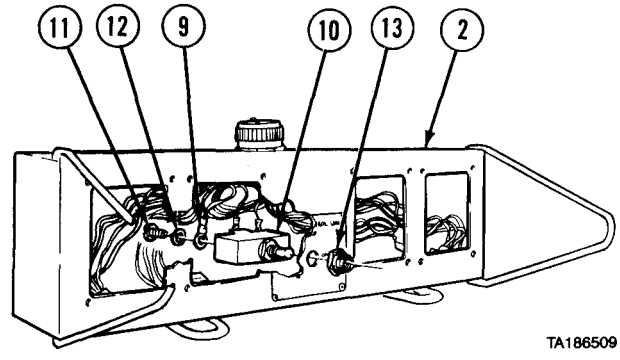
(3) Install cap and chain (6) on connector (3) and secure to remote control box (2) with lockwasher (7) and screw (8).



TA186508

(4) Install three wires (9) on power switch (10) with three screws (11) and lockwashers (12),

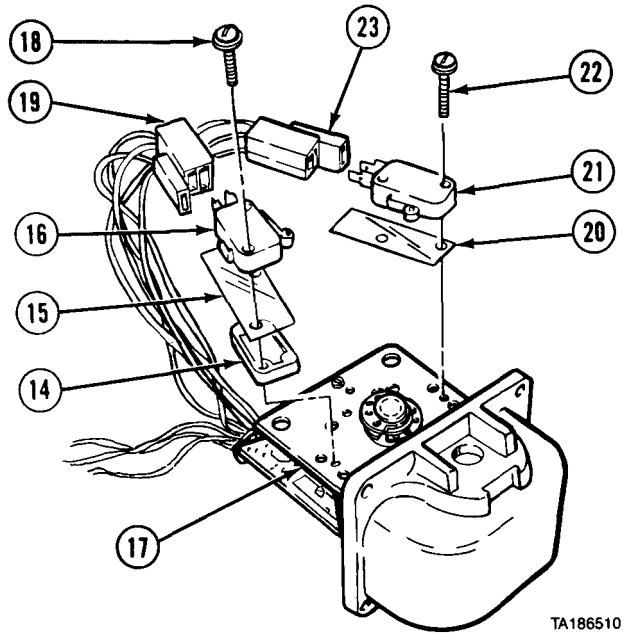
(5) Install power switch (10) in remote control box (2) with switch boot (13).



TA186509

17-23. REMOTE CONTROL UNIT STRAP, CONTROL KNOBS, ASSEMBLY, AND LEVERS REMOVAL/REPAIR/INSTALLATION (M977, M984E1, M985) (CONT).

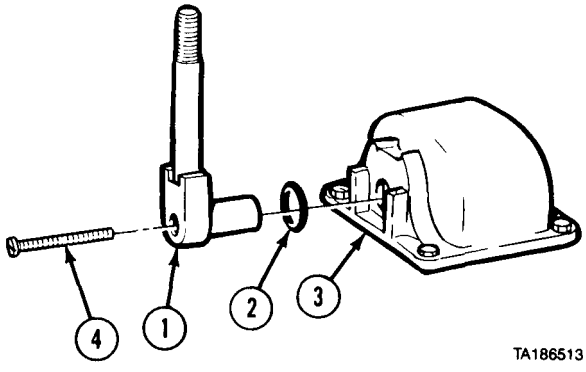
(6) Install spacer (14), insulator (15), and switch (16) on remote controller assembly (17) with two screws (18).
(7) Connect switch (16) and connector (19).
(8) Install insulator (20) and switch (21) on remote controller assembly (17) with two screws (22).
(9) Connect switch (21) and connector (23).



TA186510

e. Installation.

(1) Install handle (1) and preformed packing (2) in remote controller assembly (3) with screw (4).

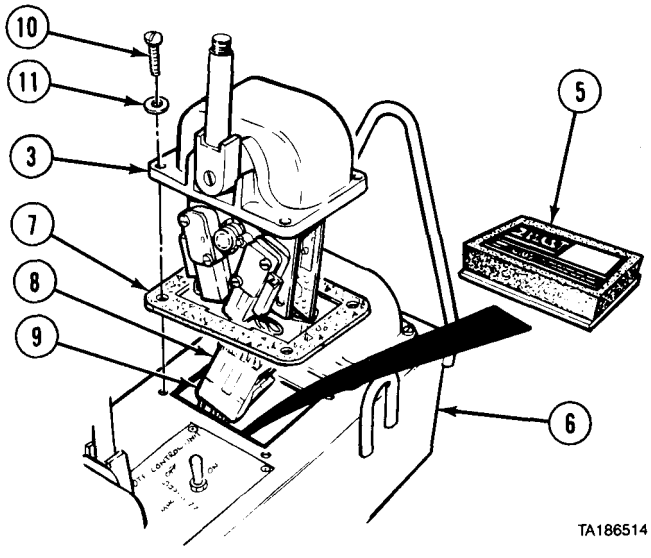


TA186513

NOTE

Replace rust vapor capsule with a new one any time remote control unit is opened.

(2) Install rust vapor capsule (5) in remote control box (6),
(3) Install gasket (7) on remote control box (6).
(4) Connect connector (8) and connector (9).
(5) Install remote controller assembly (3) in remote control box (6) with four screws (10) and washers (11).



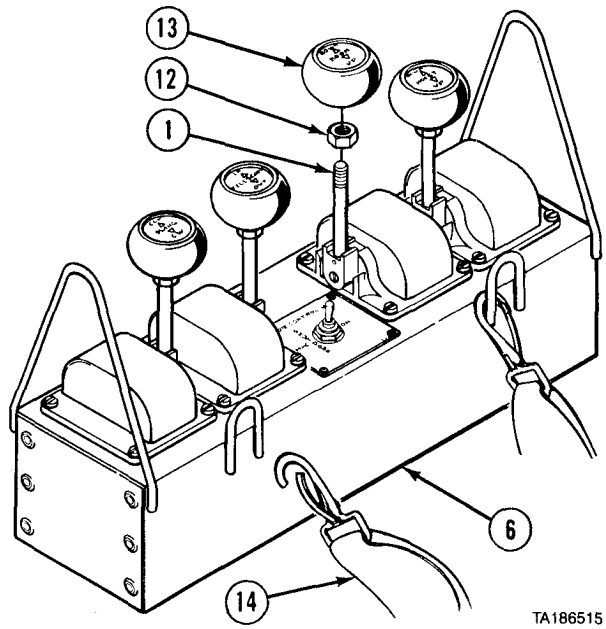
TA186514

(6) Install nut (12) on handle (1).
(7) Install knob (13) on handle (1).

WARNING

Make sure directions on knob are right side up before tightening nut. Injury to personnel could result from operation of crane in wrong direction.

(8) Tighten nut (12) against knob (13).
(9) Install strap (14) on remote control box (6).



f. Follow-on Maintenance.
(1) Check operation of remote control box (TM 9-2320-279-10).
(2) Stow remote control unit in remote control stowage box (TM 9-2320-279-10).

END OF TASK

17-23.1. CRANE REMOTE CONTROL CABLE REPAIR (M977, M984E1, M985).

This task covers:
a. Disassembly
b. Assembly
c. Follow-on Maintenance

INITIAL SETUP

Models
M977, M984E1 , M985

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

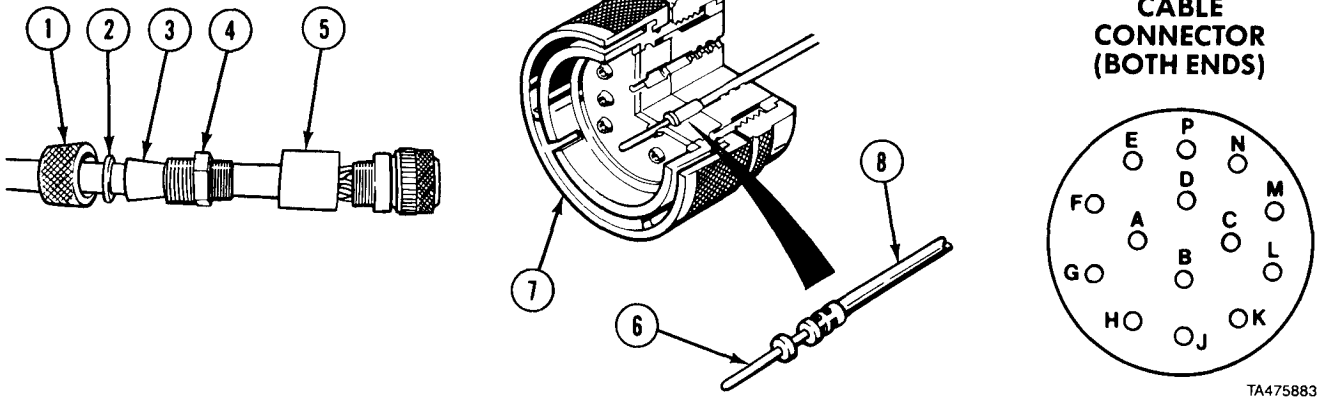
TM or Para	*Condition Description*
TM 9-2320-279-10	Crane remote control cable removed from stowage box.

Special Environmental Conditions
None

General Safety Instructions
None

'17-23.1. CRANE REMOTE CONTROL CABLE REPAIR (M977, M984E1, M985) (CONT).

a. Disassembly.



(1) Remove cap (1), ring (2), seal (3), fitting (4), and sleeve (5).
(2) Remove pin (6) from connector (7).
(3) Remove wire (8) from pin (6).

b. Assembly.

(1) Install pin (6) to wire (8).
(2) Install pin (6) in connector (7).
(3) Check each wire in cable for zero ohms between both ends of cable.
(4) Install sleeve (5), fitting (4), seal (3), ring (2), and cap (1).

c. Follow-on Maintenance.

(1) Check operation of crane remote control (TM 9-2320-279-10).
(2) Stow remote control cable in remote control stowage box (TM 9-2320-279-10).

END OF TASK

17-23.2. CRANE REMOTE CONTROL STATION CABLE AND CONNECTOR REMOVAL/REPAIR/INSTALLATION (M984E1).

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

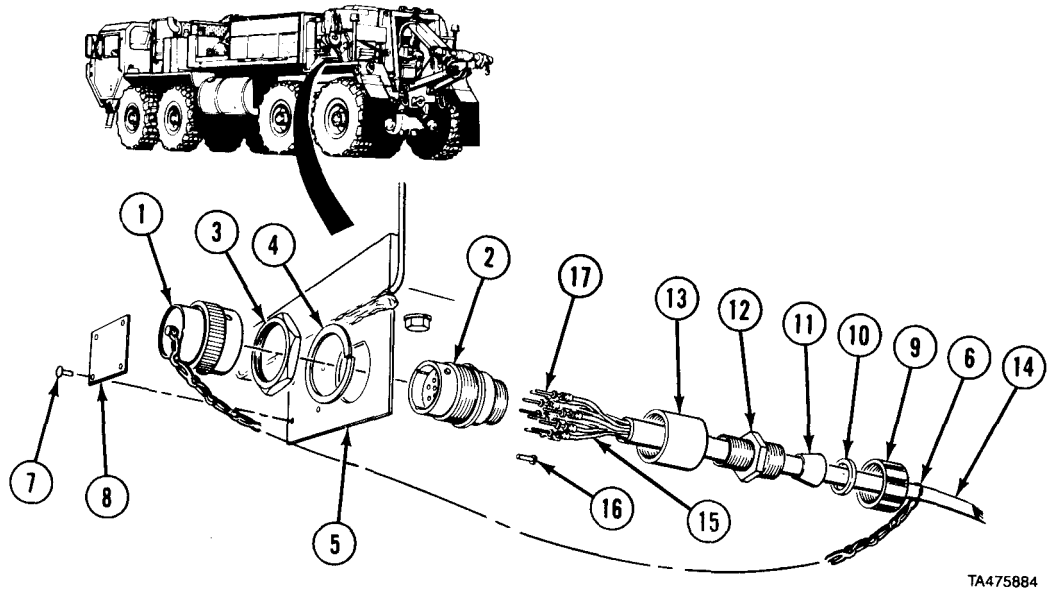
Equipment Condition

TM or Para	*Condition Description*
Para 7-91	Disconnect batteries.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



(1) Remove cap (1) from connector (2).
(2) Remove nut (3) and lockwasher (4) from connector (2).
(3) Remove connector (2) from mounting plate (5).
(4) Remove cap and chain (1) from ring (6).
(5) Remove four rivets (7) and data plate (8) from mounting plate (5).

b. Disassembly.

(1) Remove cap (9), ring (10), grommet (11), adapter (12), from sleeve (13).
(2) Remove sleeve (13) from connector (2) and slide down wiring harness (14).

NOTE

Note position of wires in connector.

(3) Remove 12 wires (15) and two plugs (16) from connector (2).
(4) Remove 12 pins (17) from wires (15).
(5) Remove sleeve (13), adapter (12), grommet (11), ring (10), cap (9), and ring (6) from wiring harness (14).

c. Assembly.

(1) Install ring (6), cap (9), ring (10), grommet (11), adapter (12), and sleeve (13), on wiring harness (14).
(2) Install 12 pins (17) on wires (15).
(3) Install 12 wires (15) and two plugs (16) in connector (2).
(4) Install sleeve (13), adapter (12), grommet (11), ring (10), and cap (9) on connector (2).

d. Installation.

(1) Install cap and chain (1) on ring (6).
(2) Install connector (2) in mounting plate (5) with lockwasher (4) and nut (3).
(3) Install cap (1) on connector (2).
(4) Install data plate (8) on mounting plate (5) with four rivets (7).

e. Follow-on Maintenance.

(1) Connect batteries (para 7-91)
(2) Check operation of remote control unit at remote control station (TM 9-2320-279-10).

END OF TASK

17-24. HEAVY-DUTY WINCH REMOTE CONTROL BOX AND PLUG REPAIR (M984).

This task covers:

a. Disassembly
b. Assembly
c. Follow-on Maintenance

INITIAL SETUP

Models
M984

Test Equipment
None

Special Tools
None

Supplies
Connectors, electrical, butt, Item 19, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

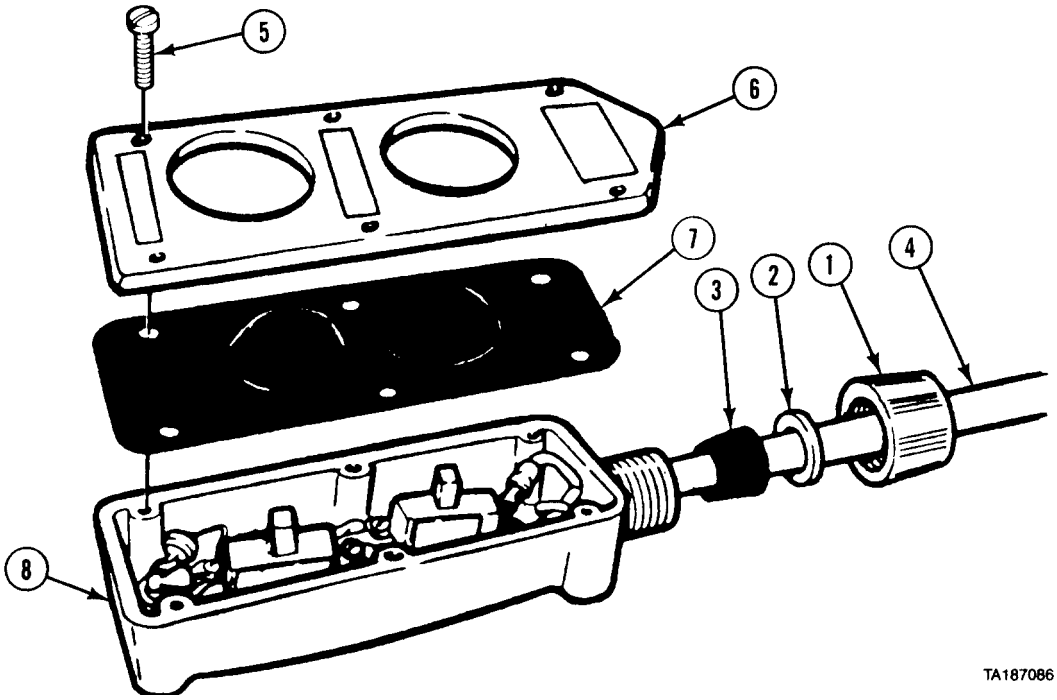
TM or Para	*Condition Description*
TM 9-2320-354-10	Remote control box removed from stowage box.

Special Environmental Conditions
None

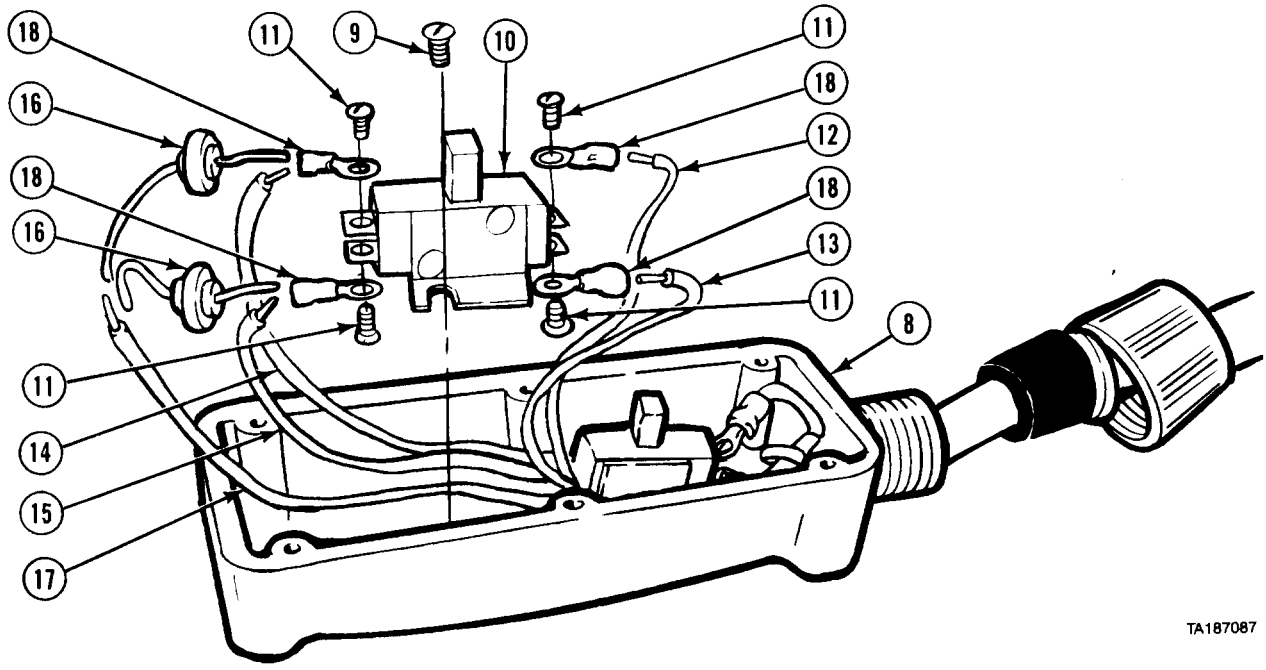
General Safety Instructions
None

17-24. HEAVY-DUTY WINCH REMOTE CONTROL BOX AND PLUG REPAIR (M984) (CONT).

a. Disassembly.



(1) Loosen and slide cap (1), ring (2), and seal (3) down wire harness (4).
(2) Remove six screws (5), cover (6), and gasket (7) from control box (8).

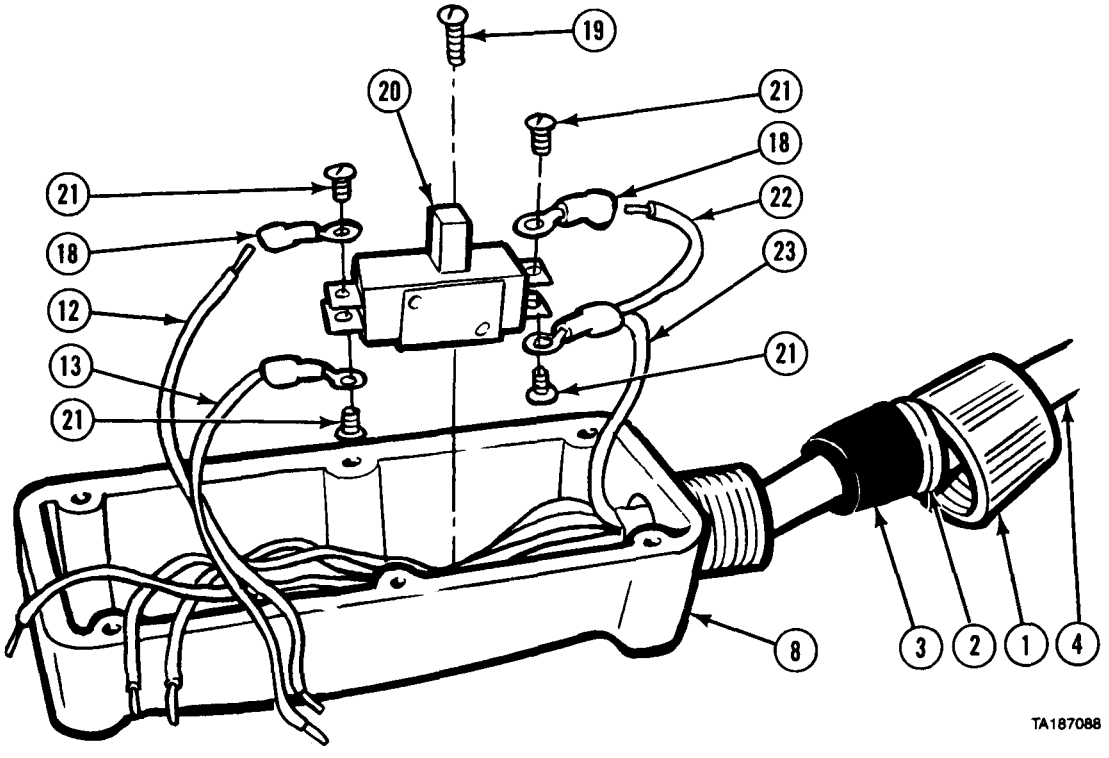


(3) Remove screw (9) and pull switch (10) from control box (8).

NOTE

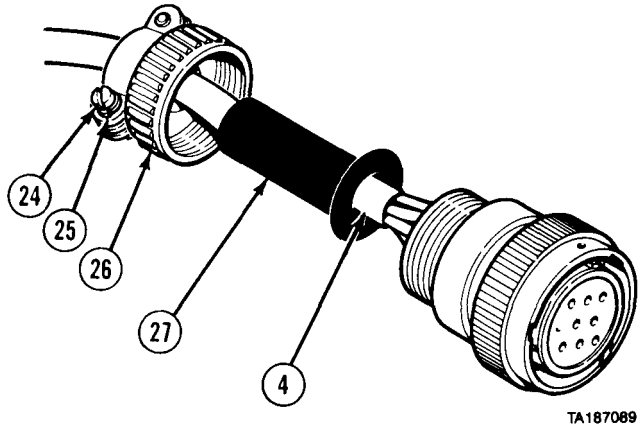
Tag and mark all wires.

(4) Remove four screws (11) and wires (12, 13, 14, and 15).
(5) Remove two diodes (16) from wires (14 and 15).
(6) Remove wire (17) from two diodes (16).
(7) Remove four connectors (18) from wires (12, 13, 14, and 15).



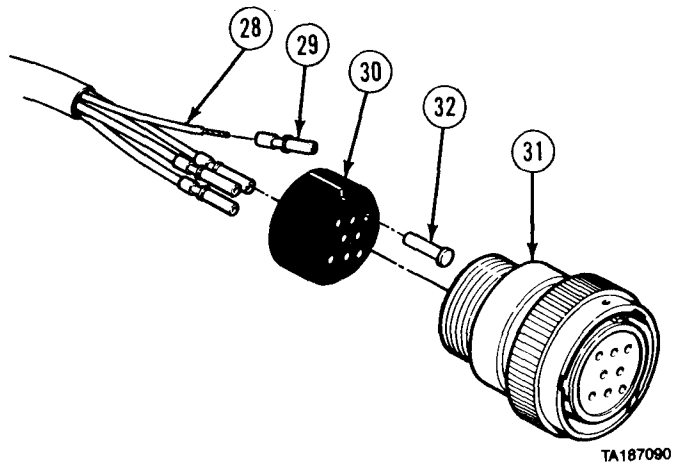
(8) Remove screw (19) and pull switch (20) from control box (8).
(9) Remove four screws (21) and wires (12, 13, 22, and 23).
(10) Remove four connectors (18) from wires (12, 13, 22, and 23).
(11) Remove wire harness (4) from control box (8).
(12) Remove seal (3), ring (2), and cap (1) from wire harness (4).

(13) Loosen two screws (24) and lockwashers (25).
(14) Loosen shell (26) and slide shell and sleeve (27) down wire harness (4).

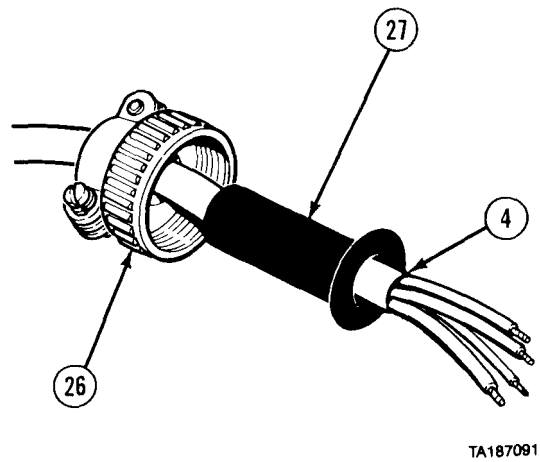


17-24. HEAVY-DUTY WINCH REMOTE CONTROL BOX AND PLUG REPAIR (M984) (CONT).

(15) Remove four wires (28), pins (29), and rubber bushing (30) from plug (31).
(16) Remove four pins (29) from wires (28).
(17) Remove four plugs (32) from bushing (30).

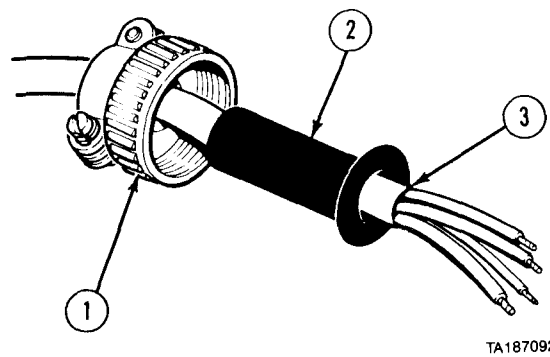


(18) Remove sleeve (27) and shell (26) from wire harness (4).

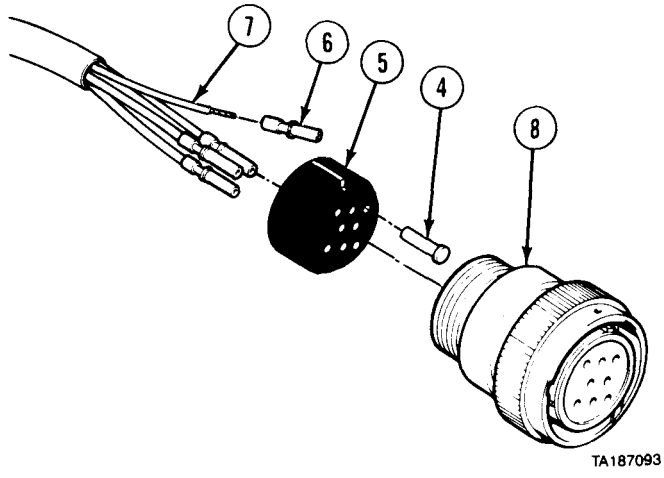


b. Assembly.

(1) Slide shell (1) and sleeve (2) on wire harness (3).

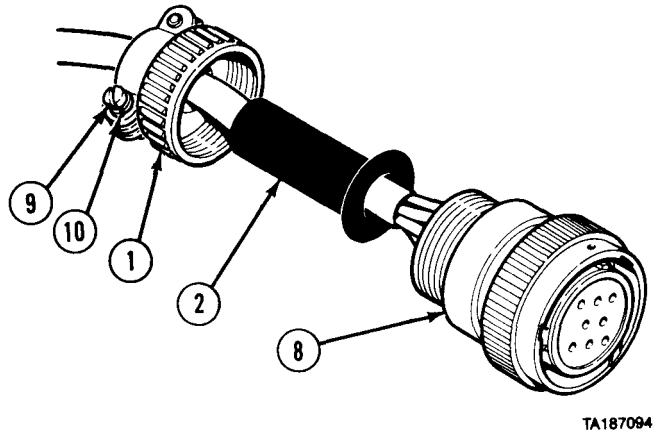


(2) Install four plugs (4) in rubber bushing (5).
(3) Install four pins (6) on wires (7).
(4) Align holes in bushing (5) with holes in plug (8) and install.
(5) Install four pins (6) through bushing (5) and plug (8).



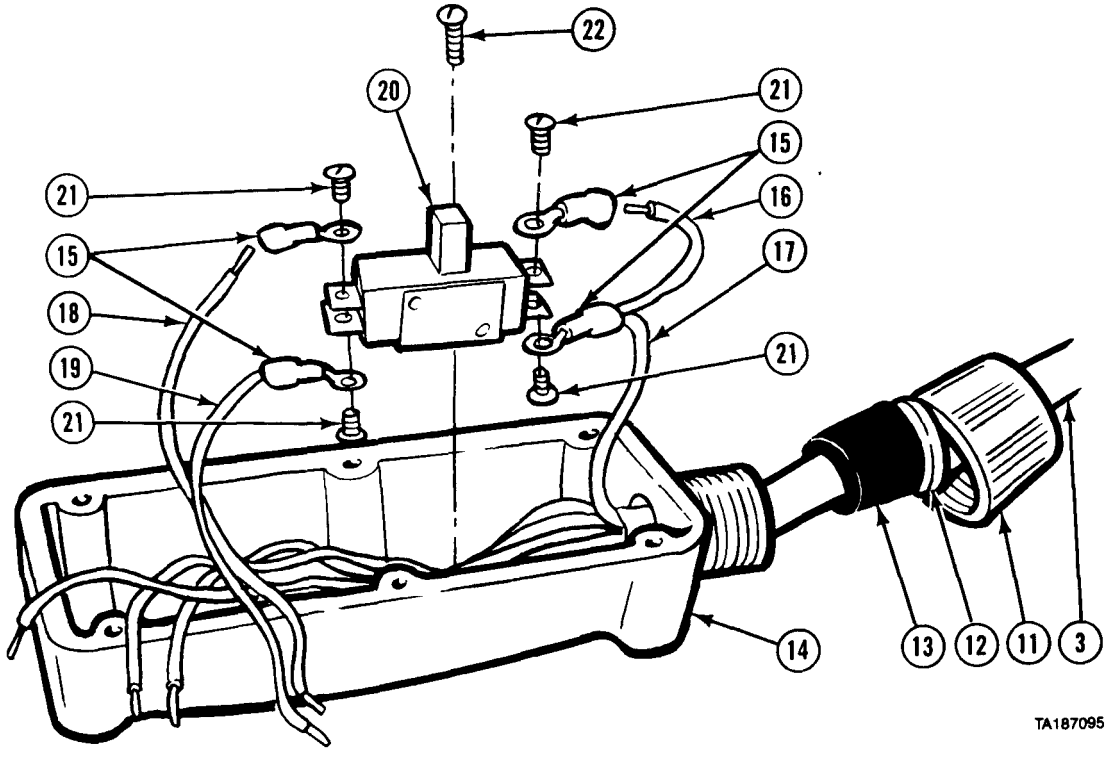
TA187093

(6) Install sleeve (2) and shell (1) on plug (8).
(7) Tighten two screws (9) and lockwashers (10).

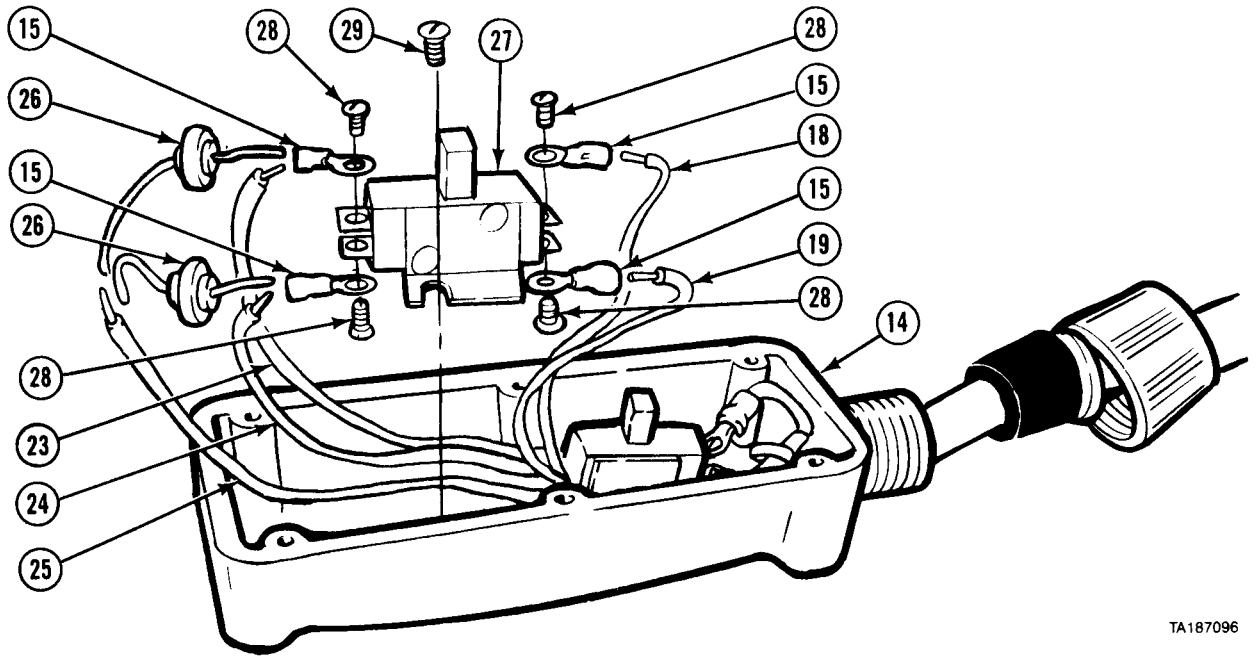


TA187094

17-24. HEAVY-DUTY WINCH REMOTE CONTROL BOX AND PLUG REPAIR (M984) (CONT).

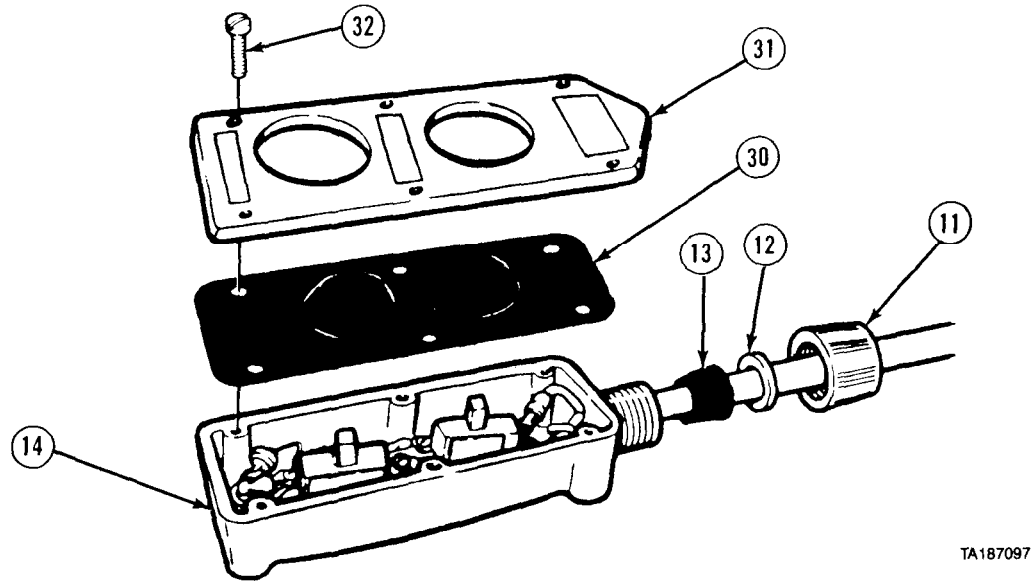


(8) Install cap (11), ring (12), and seal (13) on wire harness (3).
(9) Install wire harness (3) in control box (14).
(10) Install four connectors (15) on wires (16, 17, 18, and 19).
(11) Install four wires (16, 17, 18, and 19) on switch (20) with four screws (21).
(12) Install switch (19) in control box (14) with screw (22).



(13) Install four connectors (15) on wires (18, 19, 23, and 24).
(14) Install wire (25) on two diodes (26).
(15) Install two diodes (26) on wires (23 and 24).
(16) Install four wires (18, 19, 23, and 24) on switch (27) with four screws (28).
(17) Install switch (27) in control box (14) with screw (29).

17-24. HEAVY-DUTY WINCH REMOTE CONTROL BOX AND PLUG REPAIR (M984) (CONT).



(18) Install gasket (30) and cover (31) on control box (14) with six screws (32).
(19) Install seal (13), ring (12), and cap (11) in control box (14).

c. Follow-on Maintenance.
(1) Check operation of remote control box (TM 9-2320-354-10).
(2) Install remote control box in stowage box (TM 9-2320-354-10).

END OF TASK

17-24.1. HEAVY-DUTY WINCH REMOTE CONTROL UNIT REPAIR (M984E1).

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Solvent, dry cleaning, Item 47, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Remote control unit removed from stowage.

Special Environmental Conditions
None

General Safety Instructions
None

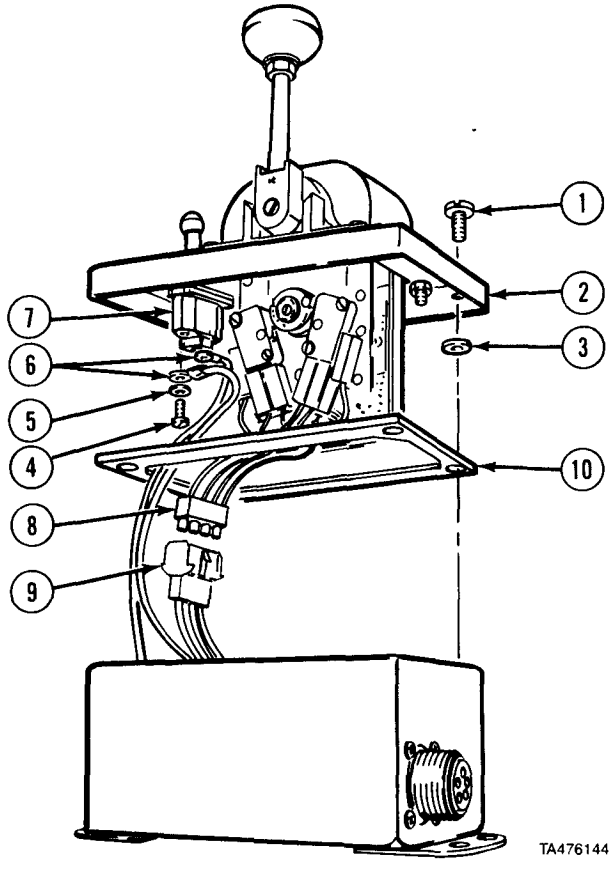
a. Removal.

(1) Loosen four screws (1), lift cover (2), remove four washers (3), and screws from cover.

NOTE

Tag and mark all wires and connectors before removal.

(2) Remove two screws (4), washers (5), and wires (6) from switch (7).
(3) Disconnect connector (8) from wiring harness (9).
(4) Remove gasket (10).

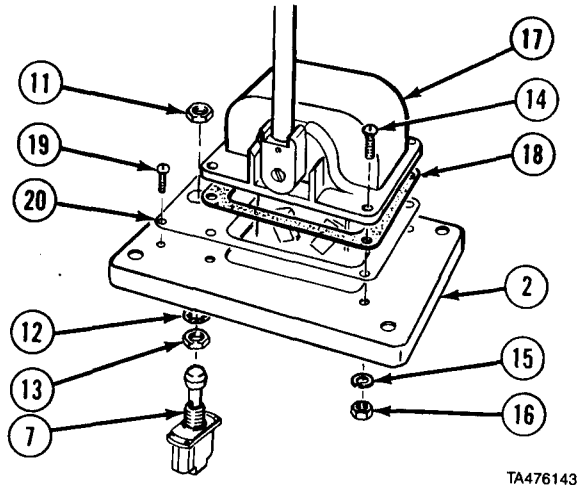


17-24.1. HEAVY-DUTY WINCH REMOTE CONTROL UNIT REPAIR (M984E1) (CONT).

NOTE

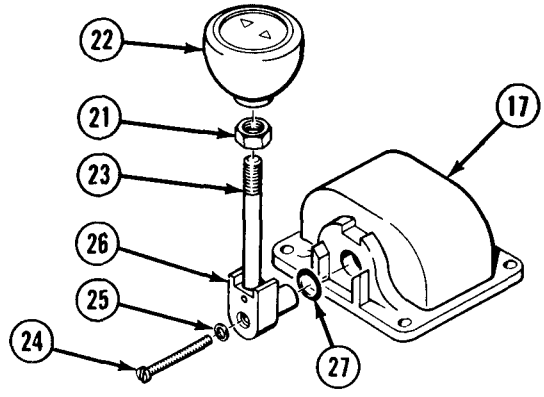
Note position of switch.

(5) Remove nut (11) and switch (7) from cover (2).
(6) Remove lockwasher (12) and nut (13) from switch (7).
(7) Remove four screws (14), lockwashers (15), nuts (16), controller assembly (17) from cover (2).
(8) Remove gasket (18).
(9) Remove two screws (19) and data plate (20).



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(10) Turn nut (21) clockwise and remove knob (22).
(11) Remove nut (21) from lever (23).
(12) Remove screw (24) and washer (25) from clevis (26).
(13) Remove clevis (26) and preformed packing (27) from controller assembly (17).



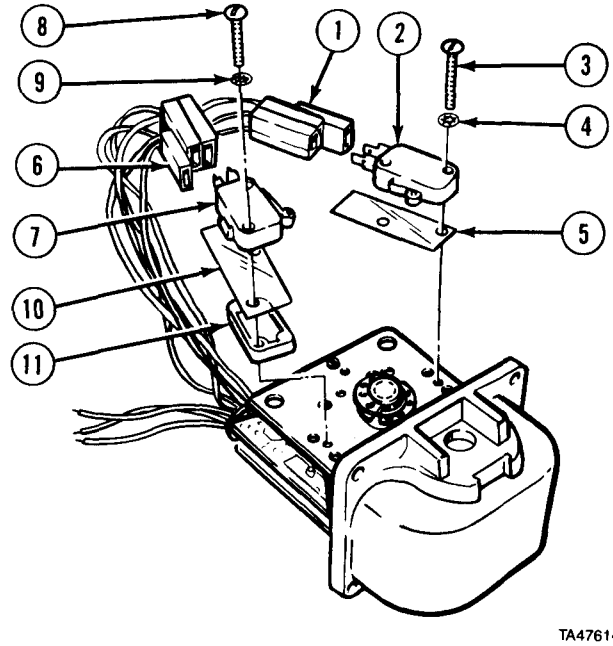
TA476141

b. Disassembly.

NOTE

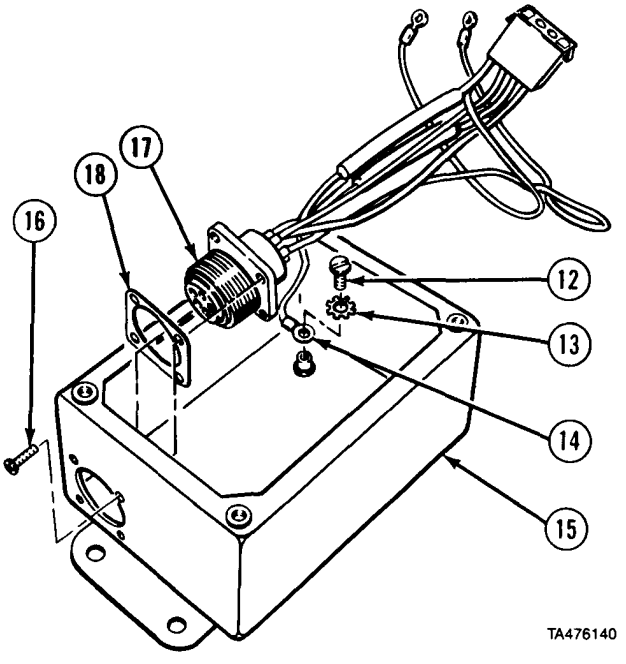
Tag and mark all connectors, switches, and wires before removing.

(1) Disconnect connector (1) from switch (2).
(2) Remove two screws (3), lockwashers (4) and insulator (5) from switch (2).
(3) Disconnect connector (6) from switch (7).
(4) Remove two screws (8), lockwashers (9), insulator (10), and spacer (11) from switch (7).

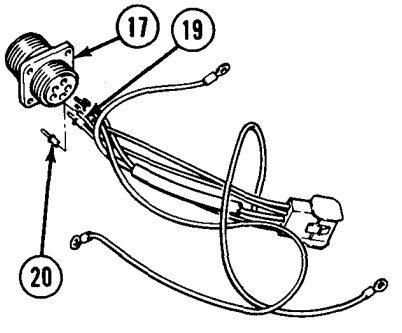


TA476142

(5) Remove screw (12), lockwasher (13), and ground wire (14) from remote control box (15).
(6) Remove four screws (16), connector (17), and gasket (18) from remote control box (15).
(7) Remove gasket (18) from connector (17).



(8) Remove five wires (19) from connector (17).
(9) Remove five pins (20) from wires (19).



c. Cleaning/Inspection.

WARNING

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

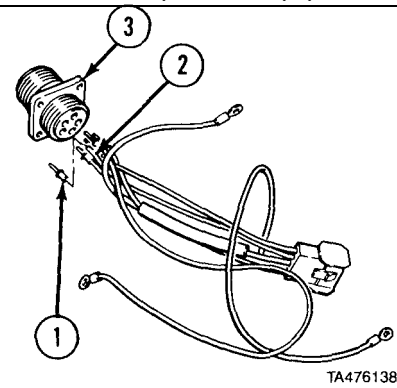
(1) Clean all metal parts in dry cleaning solvent.
(2) Inspect each part for damage.
(3) Inspect wires for cracks or breaks.
(4) Replace damaged parts or wires.

17-24.1. HEAVY-DUTY WINCH REMOTE CONTROL UNIT REPAIR (M984E1) (CONT).

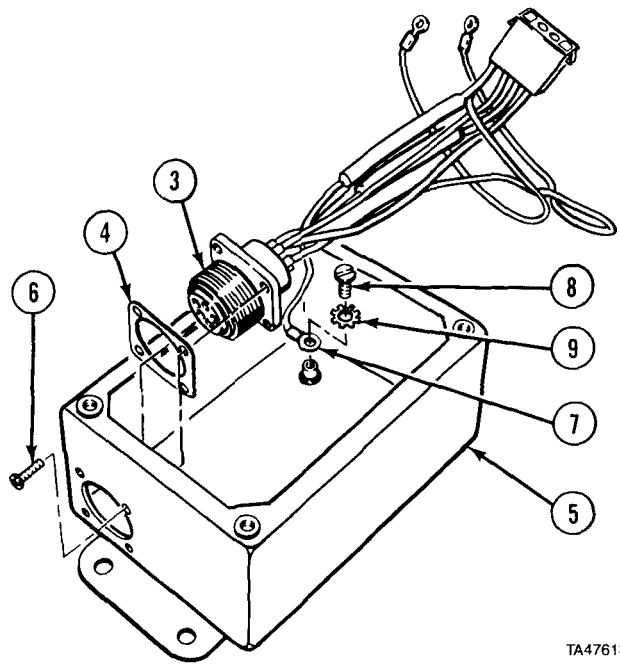
d. Assembly.

(1) Install five pins (1) on wires (2).

(2) Install five wires (2) in connector (3).



TA476138



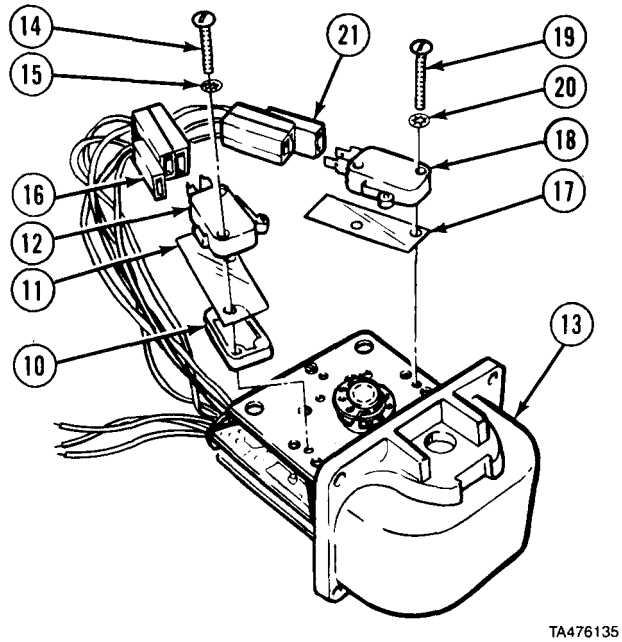
TA476137

(3) Install gasket (4) on connector (3).

(4) Install connector (3) in remote control box (5) with four screws (6).

(5) Install ground wire (7) in remote control box (5) with screw (8) and lockwasher (9).

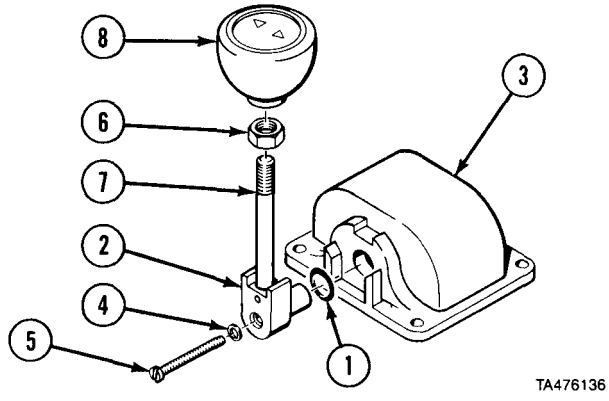
(6) Install spacer (10), insulator (11), and switch (12) on remote controller assembly (13) with two screws (14) and lockwashers (15).
(7) Connect connector (16) to switch (12).
(8) Install insulator (17) and switch (18) with two screws (19) and lockwasher (20).
(9) Connect connector (21) to switch (18).



TA476135

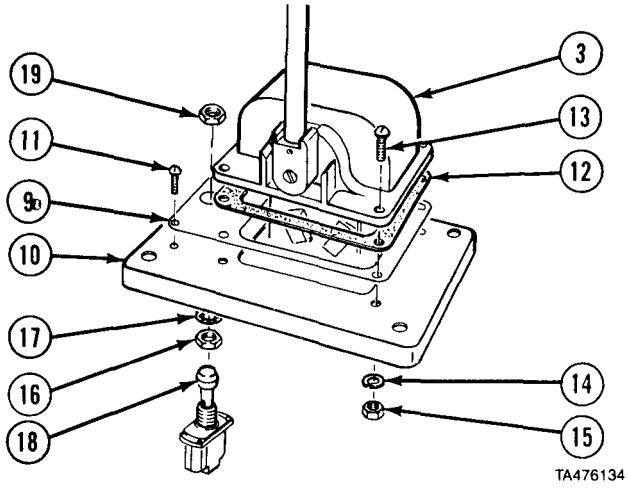
e. Installation.

(1) Install preformed packing (1) and clevis (2) in controller assembly (3) with washer (4) and screw (5).
(2) Install nut (6) on lever (7).
(3) Install knob (8) on lever (7) and tighten nut (6) against knob.



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(4) Install data plate (9) on cover (10) with two screws (11).
(5) Install gasket (12) and controller assembly (3) on cover (10) with four screws (13), lockwashers (14) and nuts (15).
(6) Install nut (16) and lockwasher (17) on switch (18).
(7) Install switch (18) on cover (10) with nut (19).



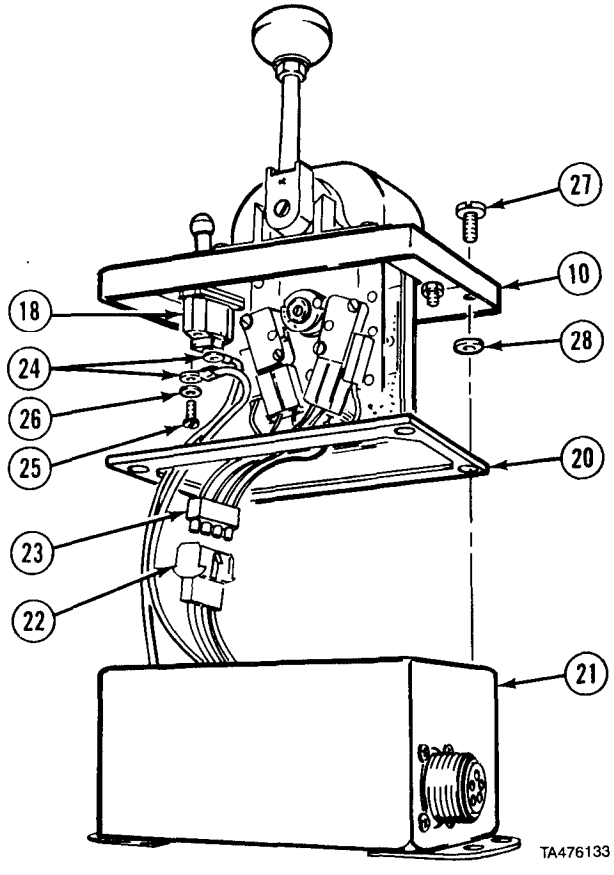
TA476134

17-24.1. HEAVY-DUTY WINCH REMOTE CONTROL UNIT REPAIR (M984E1) (CONT).

(8) Install gasket (20) on control box (21).
(9) Connect wiring harness (22) to connector (23).
(10) Install two wires (24) on switch (18) with two screws (25) and washers (26).
(11) Install four screws (27) in cover (10) with washers (28).
(12) Install cover (10) on control box (21) with four screws (27).

f. Follow-on Maintenance.
(1) Check operation of heavy-duty winch remote control unit (TM 9-2320-279-10).
(2) Stow remote control unit (TM 9-2320-279-10).

END OF TASK



17-24.2. HEAVY-DUTY WINCH REMOTE CONTROL CABLE REPAIR (M984E1).

This task covers:
a. Disassembly
b. Assembly
c. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

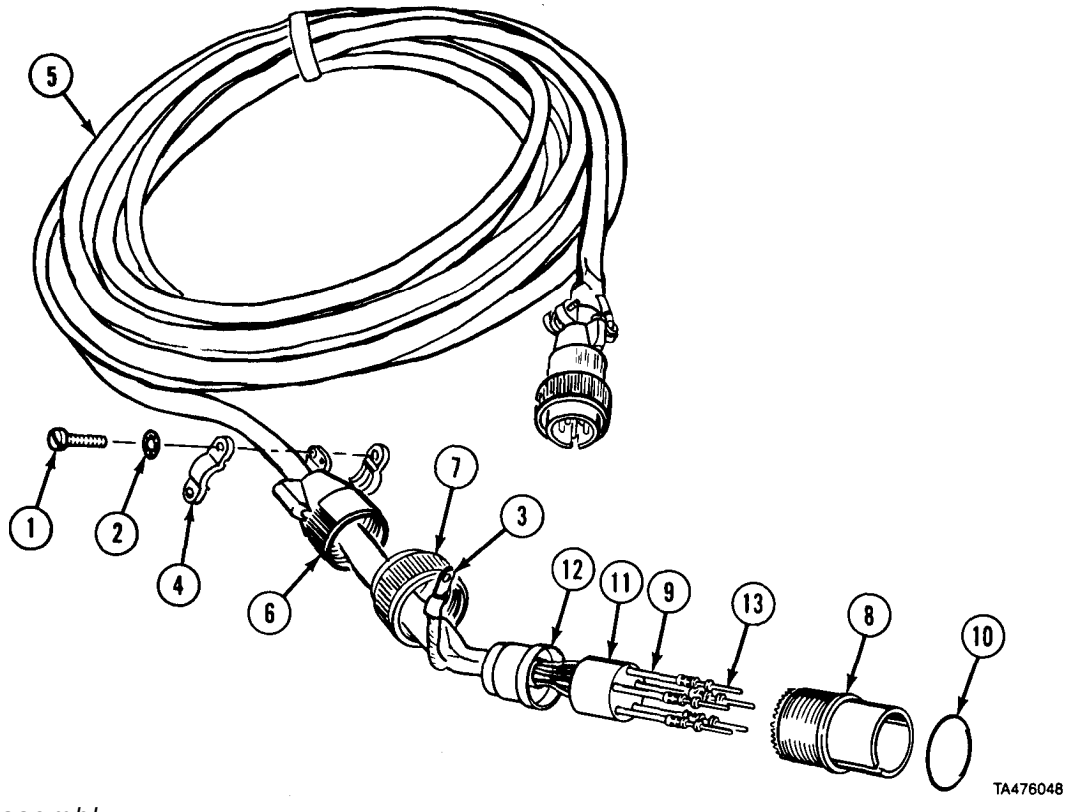
References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Remote control cable removed from remote control stowage box.

Special Environmental Conditions
None

General Safety Instructions
None



a. Disassembly.

NOTE

Both connectors are disassembled the same way.

(1) Remove two screws (1), lockwashers (2), ground wire (3), and two clamps (4) from cable (5).
(2) Remove socket (6) and ring (7) from connector (8).
(3) Slide socket (6) and ring (7) down cable (5).

NOTE

Note position of wires in grommet.

(4) Remove five wires (9) from connector (8).
(5) Remove preformed packing (10), grommet (11), and sleeve (12) from connector (8).
(6) Remove five pins (13) from wires (9).
(7) Remove ring (7) and socket (6) from cable (5).

b. Assembly.

(1) Install socket (6), ring (7), and sleeve (12) on cable (5).
(2) Install five pins (13) on wires (9).
(3) Install grommet (11) in connector (8).
(4) Install five wires (9) in grommet (11).
(5) Install connector (8) on sleeve (12).
(6) Install preformed packing (10) on connector (8).
(7) Install ring (7) and socket (6) on connector (8) with two clamps (4), ground wire (3), two screws (1) and lockwashers (2).
(8) Check continuity between pins on both ends of remote control cable. If no continuity between same wires, repair cable.

c. Follow-on Maintenance. Stow remote control cable (TM 9-2320-279-10).

END OF TASK

17-25. REMOTE CONTROL UNIT STRAP HANDLES REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983 (with crane)

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Remove remote control unit from stowage box.

Special Environmental Conditions
None

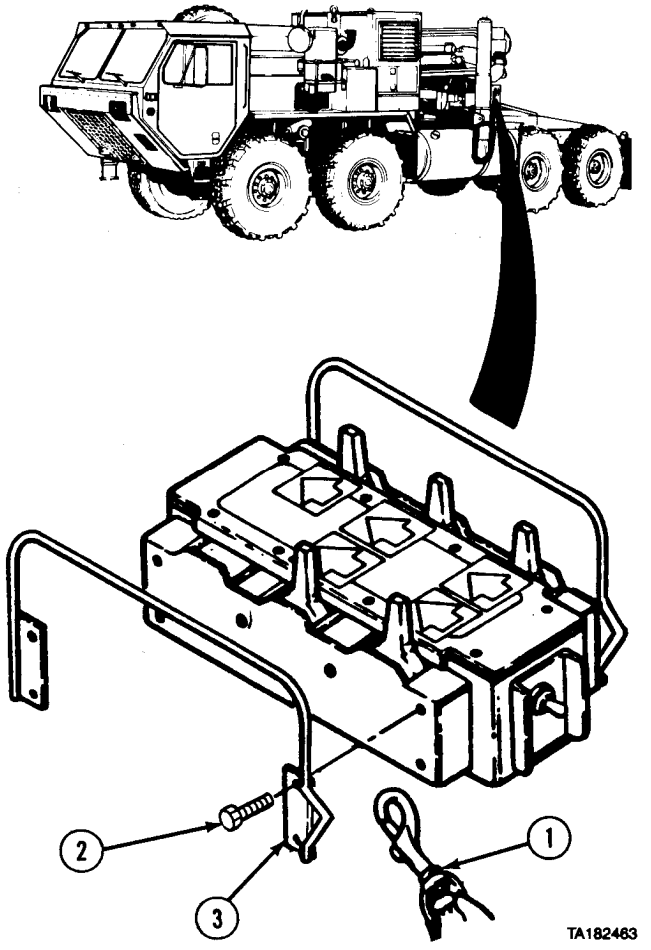
General Safety Instructions
None

a. Removal.
(1) Remove strap (1).
(2) Remove eight screws (2) and two handles (3).

b. Installation.
(1) Install two handles (3) with eight screws (2).
(2) Install strap (1).

c. Follow-on Maintenance. Return remote control unit to stowage box.

END OF TASK



17-26. REMOTE CONTROL INTERCONNECT CABLE REMOVAL/INSTALLATION (M983).

This task covers:

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

INITIAL SETUP

Models
M983 with crane

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

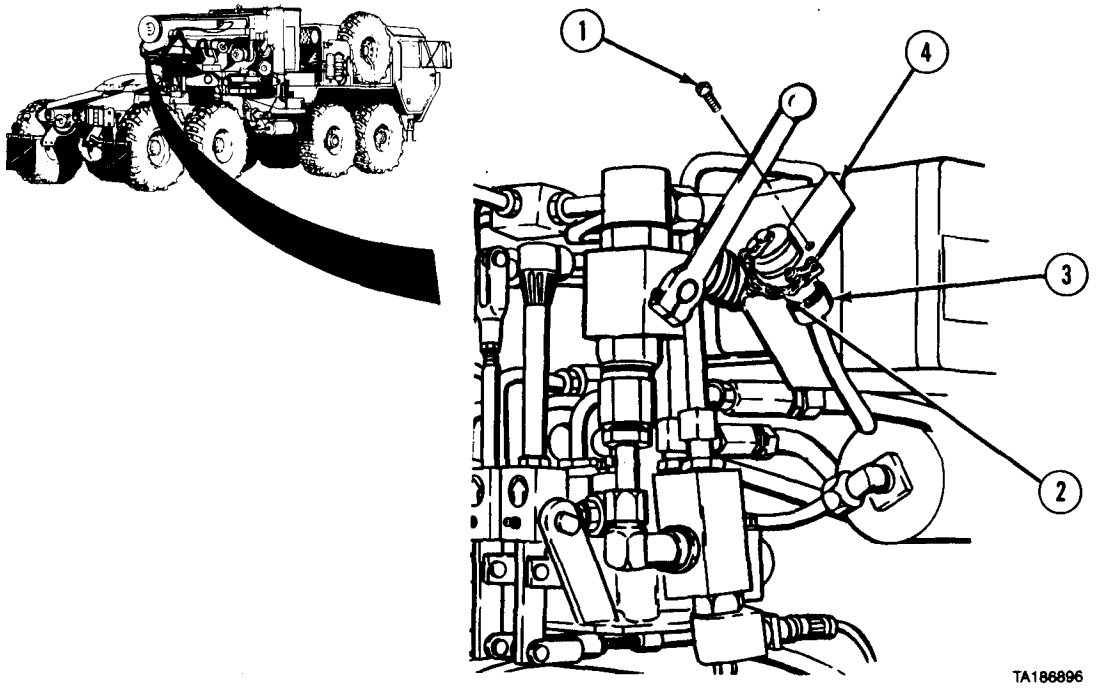
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

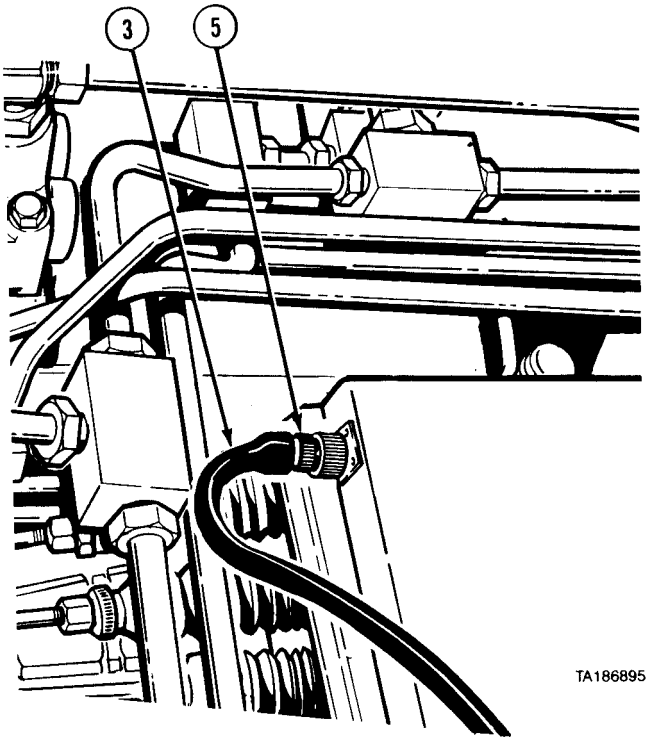
General Safety Instructions
None

a. *Removal.*



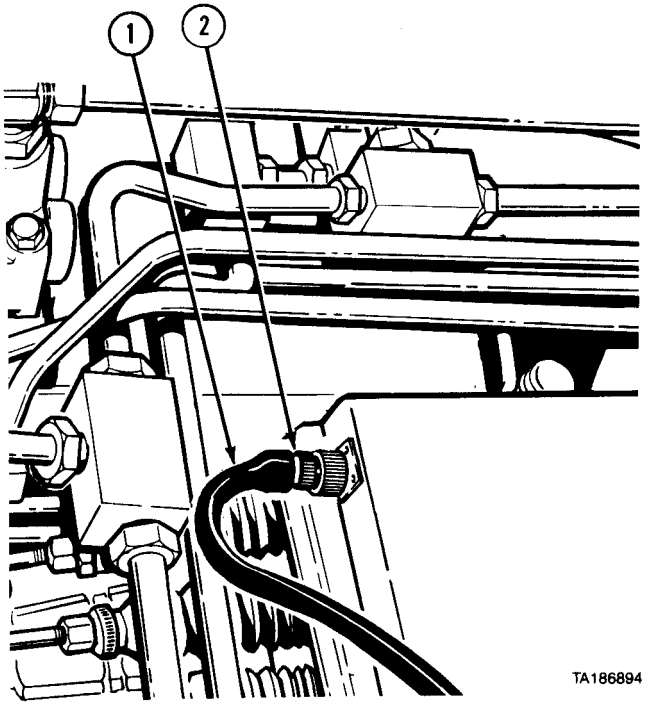
(1) Remove four screws (1) and chain (2).
(2) Remove interconnect cable (3) from bracket (4).

(3) Disconnect interconnect cable (3) from connector (5) and remove cable.



b. Installation.

(1) Install interconnect cable (1) to connector (2).

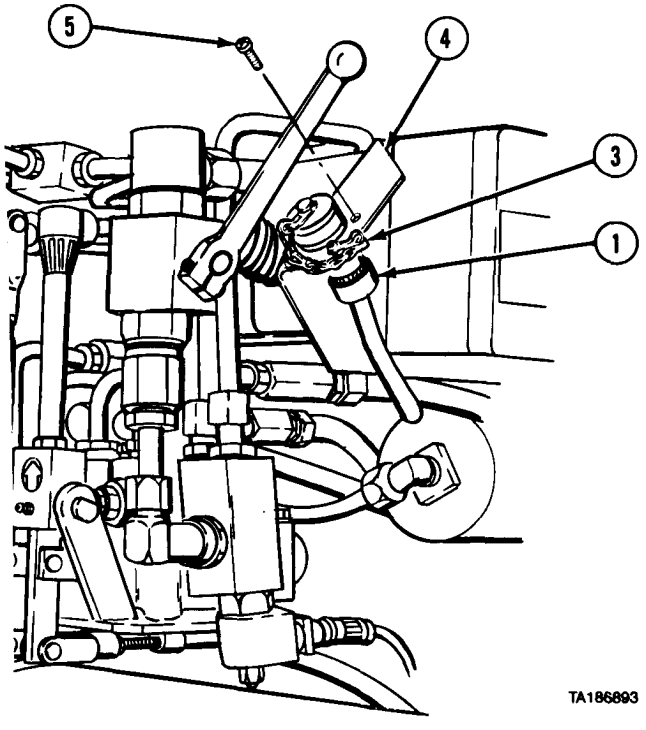


17-26. REMOTE CONTROL INTERCONNECT CABLE REMOVAL/INSTALLATION (M983) (CONT).

(2) Install interconnect cable (1) and chain (3) on bracket (4) with four screws (5).

c. Follow-on Maintenance. None.

END OF TASK



17-27. CRANE CONTROLS REMOVAL/INSTALLATION (M977, M984E1, M985).

This task covers:

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

INITIAL SETUP

Models
M977, M984E1, M985

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

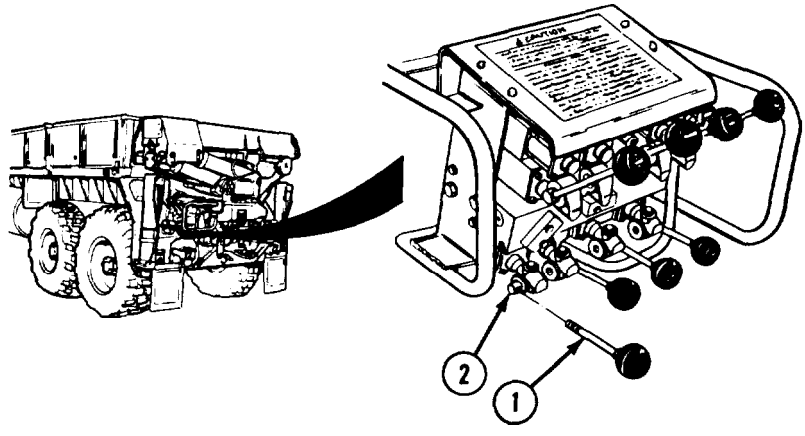
Special Environmental Conditions
None

General Safety Instructions
None

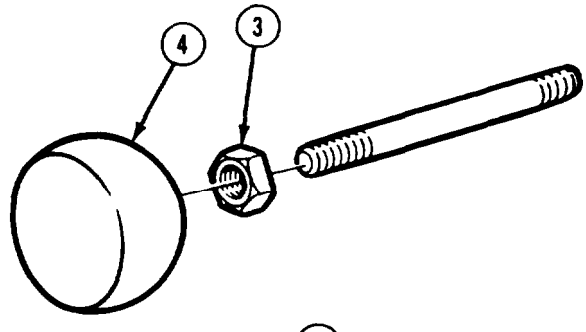
a. Removal.

NOTE
All crane controls are removed the same way.

(1) Remove control lever (1) from control (2).

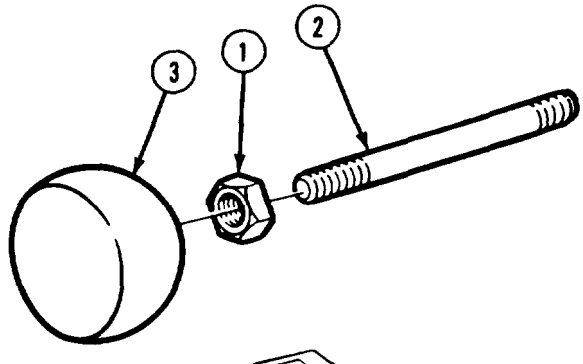


(2) Turn nut (3) clockwise to loosen knob (4).
(3) Remove knob (4).
(4) Turn nut (3) counterclockwise and remove.



b. Installation.

(1) Install nut (1) on lever (2).
(2) Install knob (3) on lever (2).



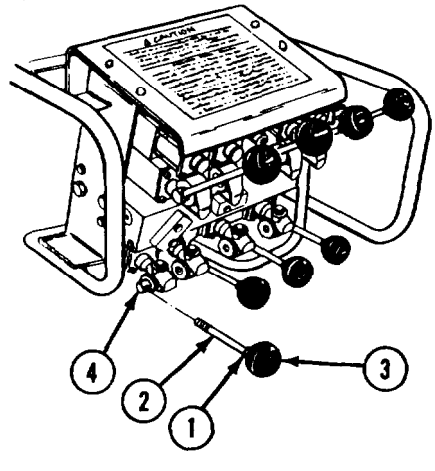
NOTE
All crane controls are installed the same way.

(3) Install lever (2) in control (4).

WARNING

Make sure directions on knob are right side up before tightening nut. Injury to personnel could result from operation of crane in wrong direction.

(4) Tighten nut (1) against knob (3).



c. Follow-on Maintenance. None.

END OF TASK

17-27.1 HOSE SUPPORT REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

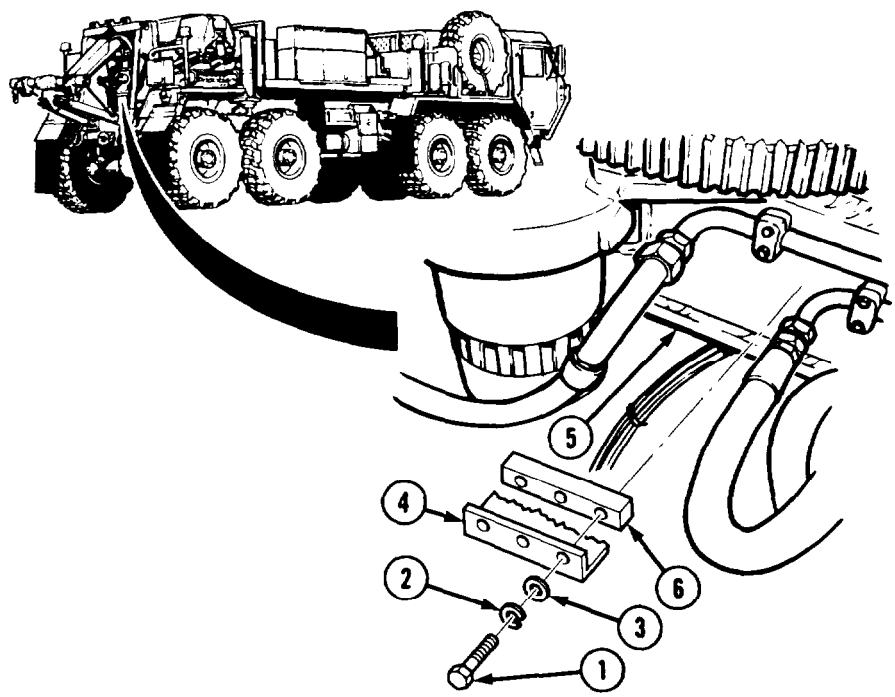
References
None

Equipment Condition
TM or Para *Condition Description*
TM 9-2320-279-10 Shut off engine.

Special Environmental Conditions
None

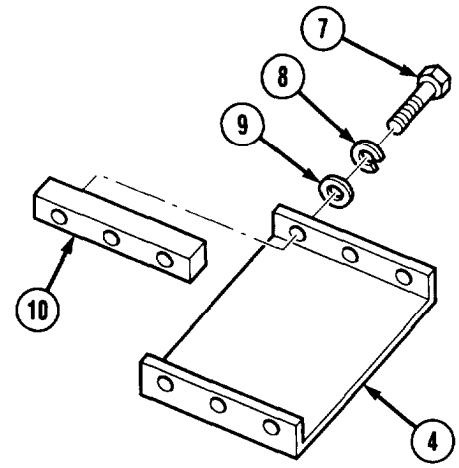
General Safety Instructions
Wheels chocked.

a. Removal.



(1) Remove three screws (1), lockwashers (2), and washers (3).
(2) Pull hose support (4) downward from crane subframe (5) and remove mounting bar (6).
(3) Push hose support (4) towards front of vehicle until other end of hose support drops from subframe (5).

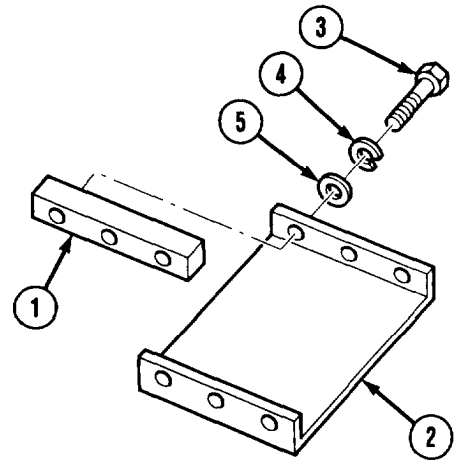
(4) Remove three screws (7), lockwashers (8), washers (9), and mounting bar (10) from hose support (4).

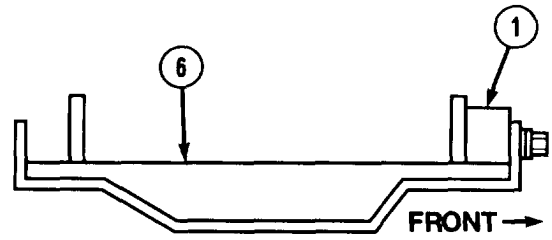


b. Installation.

(1) Install mounting bar (1) on hose support (2) with three screws (3), lockwashers (4), and washers (5).

(2) Install hose support (2) underneath subframe (6) so that mounting bar (1) rests on outer lip of subframe.



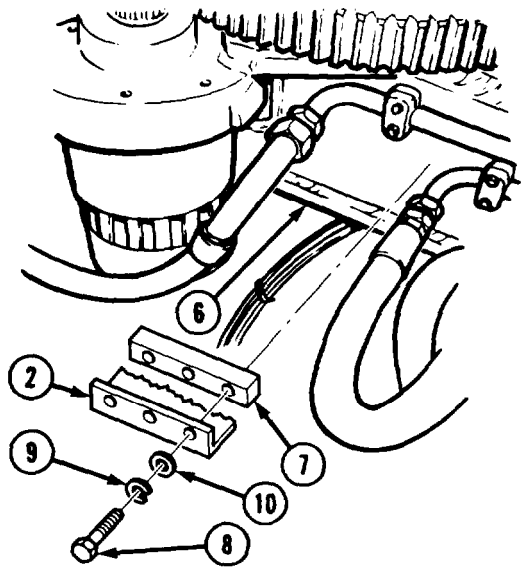


(3) Pull hose support (2) downward and position mounting bar (7) between hose support and subframe (6).

(4) Install three screws (8), lockwashers (9), and washers (10).

c. Follow-on Maintenance. None.

END OF TASK



Section VI. POWER TAKEOFF

17-28. HYDRAULIC PUMP AND POWER TAKEOFF (PTO) REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All except M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound. sealing, pipe thread. Item 18, Appendix C
Grease, automotive and artillery, Item 23, Appendix C
Tags, identification, Item 48. Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

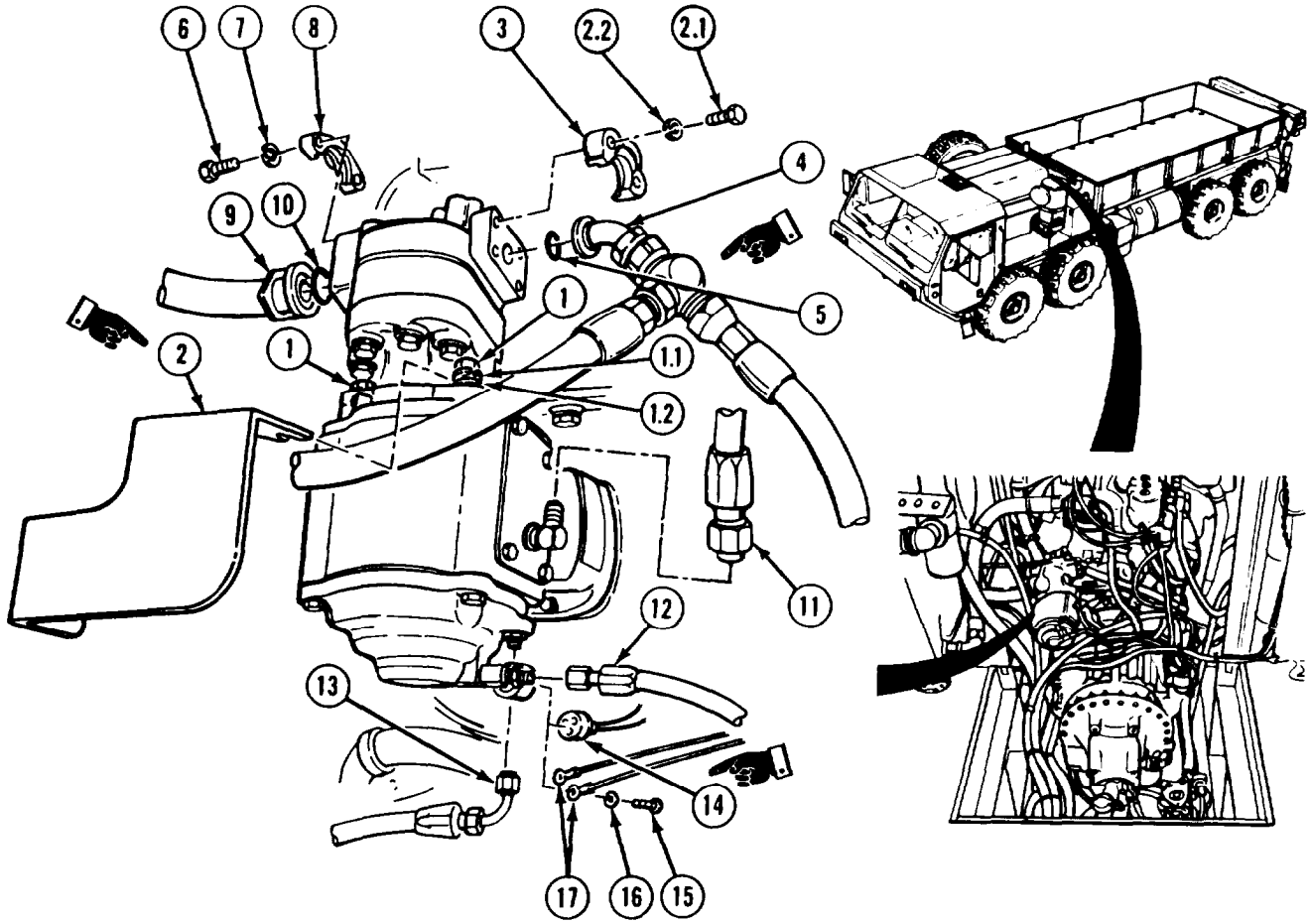
Equipment Condition

TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.
TM 9-2320-279-10	Front cargo panel removed (M977 M985).
Para 16-34	Stowage box removed (M978).
Para 5-2	Muffler removed (M983 with crane).

Special Environmental Condition
None

General Safety Instructions
None

a. Removal.



NOTE

- Trucks with guard, perform steps (1) through (6). Trucks without guard, perform steps *(1.1)* through (6).
- Loosen screws enough to remove guard.
- Tag and mark hose before disconnecting.

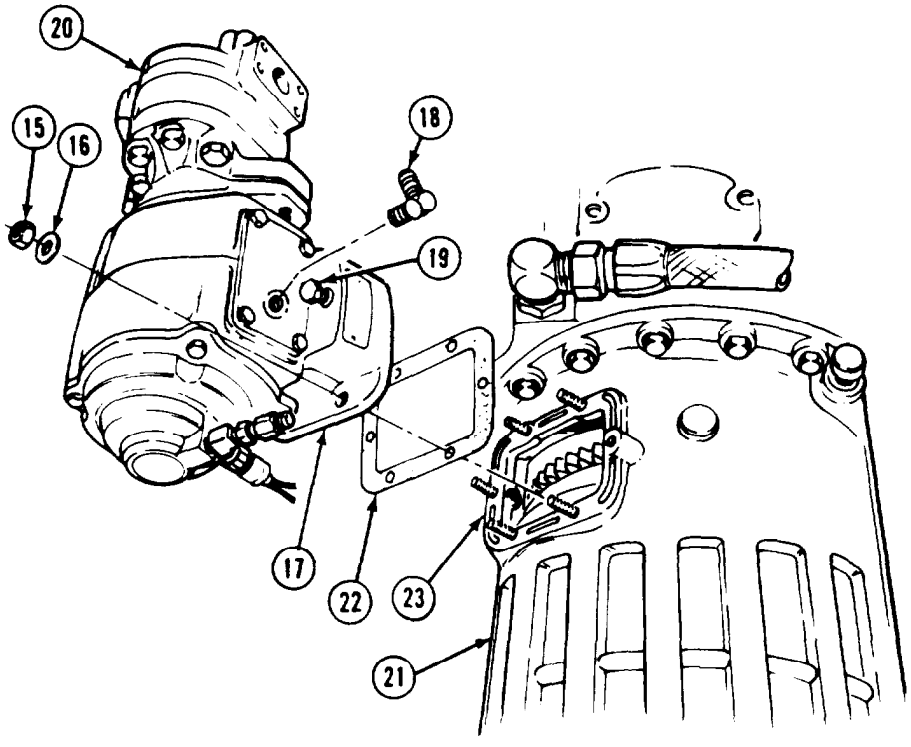
(1) Loosen two screws (1), lockwashers (1.11, and washers (1.2) and remove guard (2).
(1.1) Remove four screws (2.11, lockwashers (2.21, two plates (3), and hose (4).
(2) Remove preformed packing (5) from hose (4).
(3) Remove four screws (6), lockwashers (7), two plates (8), and hose (9).
(4) Remove preformed packing (10) from hose (9).
(5) Disconnect three hoses (11, 12, and 13).

NOTE

On some models, electrical leads are connected by an electrical plug and on others by electrical terminals, lockwashers, and screws. If connected by an electrical plug, perform step (6). If connected by terminals, lockwashers, and screws, perform step *(6.1).*

(6) Disconnect electrical plug (14).
(6.1) Remove two screws (15), lockwashers (16), and wires (17).

17-28. HYDRAULIC PUMP AND POWER TAKEOFF (PTO) REMOVAL/INSTALLATION (CONT).



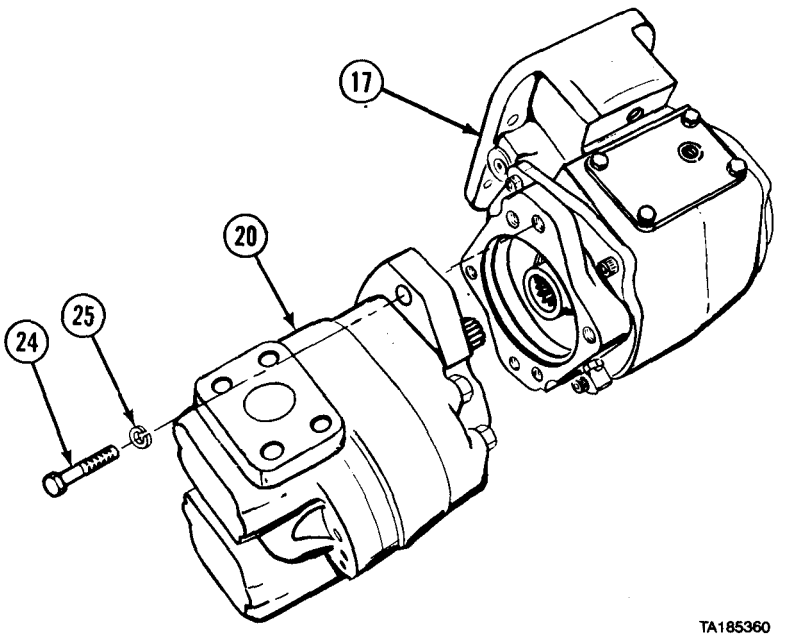
(7) Remove five nuts (15) and washers (16) from base of PTO (17).
(8) Remove elbow (18).
(9) Remove screw (19).

CAUTION

After removing PTO and gasket, be sure to cover access hole in transmission housing. Dirt or foreign objects in transmission may cause damage to parts.

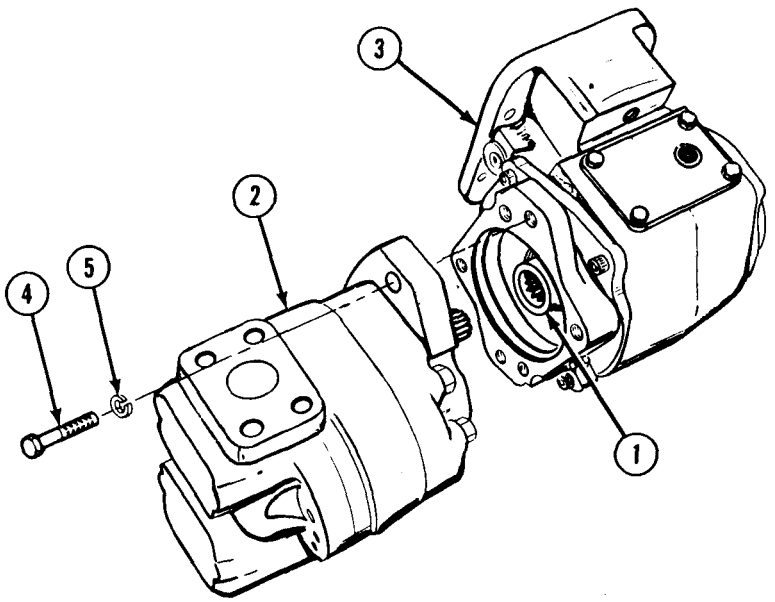
(10) Remove PTO (17) and hydraulic pump (20) from transmission housing (21).
(11) Remove gasket (22) from transmission access hole (23).

(12) Remove two screws (24) and lockwashers (25).
(13) Remove hydraulic pump (20) from PTO (17).



TA185360

b. Installation.
(1) Fill PTO shaft spline cavity (1) with grease.
(2) Install hydraulic pump (2) to PTO (3) with two screws (4) and lockwashers (5).



TA185361

17-28. HYDRAULIC PUMP AND POWER TAKEOFF (PTO) REMOVAL/INSTALLATION (CONT).

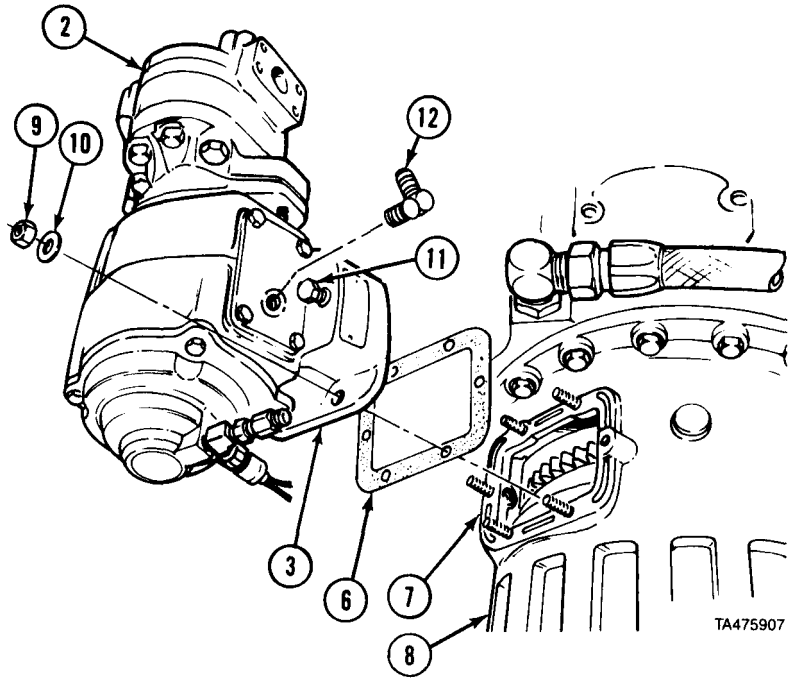
NOTE

Uncover access hole before doing step (3).

(3) Install gasket (6) to transmission access hole (7).

(4) Install hydraulic pump (2) and PTO (3) to transmission housing (8) with five nuts (9), washers (10), and screw (11).

(5) Tighten nuts (9) and screw (11) to 30 to 35 lb-ft (41 to 47.5 N·m).



WARNING

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

(6) Apply pipe thread sealing compound to threads of elbow (12) and install.

(7) Remove four screws (13) and cover plate (14) from PTO (3).

NOTE

Gear should move when pressure is applied. If gear moves, backlash is OK. If gear does not move, correct backlash.

(8) Check backlash on gear (15) by applying pressure to gear. If gear moves, continue with step (14). If gear does not move, continue with step (9).

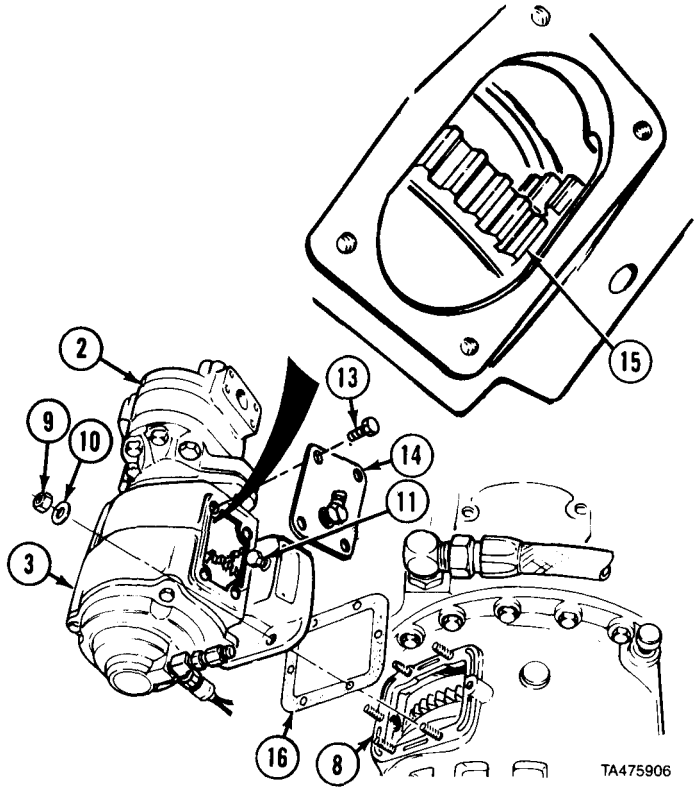
(9) Remove five nuts (9), washers (10), and screw (11).

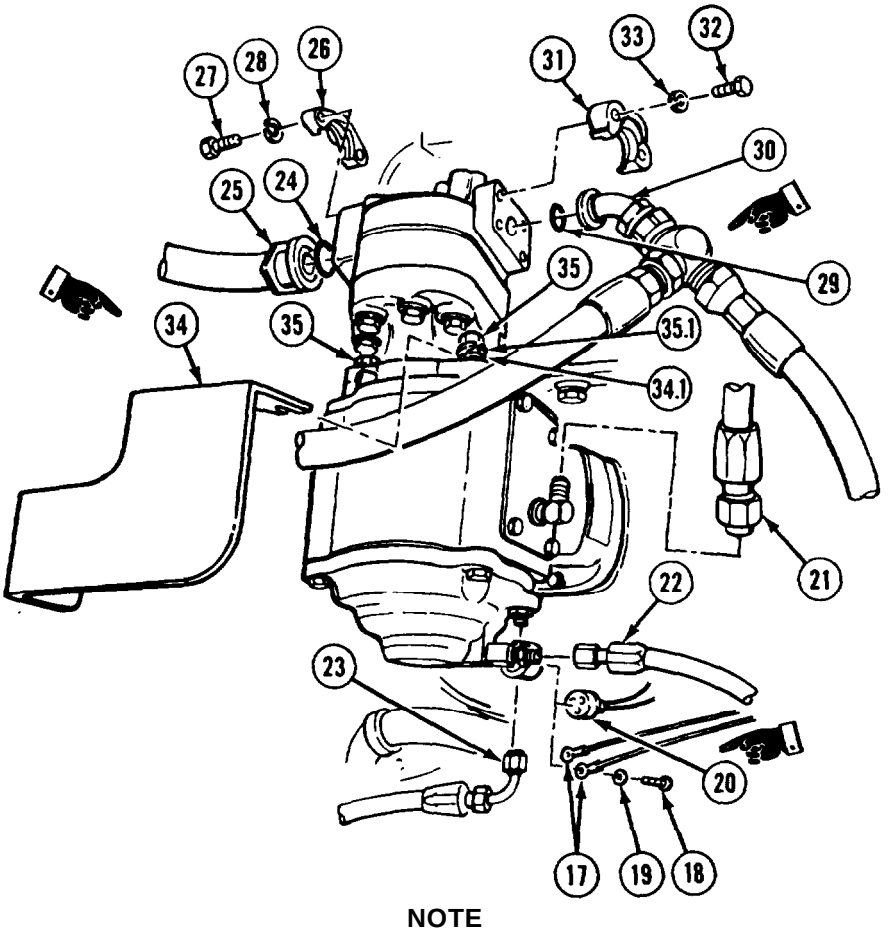
(10) Remove hydraulic pump (2) and PTO (3) from transmission housing (8).

(11) Install a second gasket (16) on transmission housing (8).

(12) Repeat steps *(4)* and *(5)* then continue with step *(8)* and recheck backlash.

(13) Install cover plate (14) on PTO (3) with four screws (13).





NOTE

On some models, electrical leads are connected by an electrical plug and on others by electrical terminals, lockwashers, and screws. If connected by electrical terminals, perform steps *(14)* and *(16)* thru *(18).* If connected by an electrical plug perform steps *(15)* thru *(18).*

(14) Install two wires (17), screws (17), and lockwashers (19).
(15) Connect electrical plug (20).
(16) Connect three hoses (21, 22, and 23).
(17) Install preformed packing (24), hose (25), two plates (26), four screws (27), and lockwashers (28).
(18) Install preformed packing (29), hose (30), two plates (31), four screws (32), and lockwashers (33).

NOTE

. Trucks with guard, perform step *(19).*
. Trucks with guard, ensure guard is fully seated under flat washers.

(19) Install guard (34) under two flat washers (34.1), and tighten two screws (35) and lockwashers (35.1).

c. Follow-on Maintenance.

(1) Fill hydraulic reservoir (LO 9-2320-279-12).
(2) Install muffler (M983 with crane) (para 5-2).
(3) Check operation of hydraulic pump and PTO (TM 9-2320-279-10).
(4) Install front cargo panel (M977, M985) (TM 9-2320-279-10).
(5) Install stowage box (M978) (para 16-34).

END OF TASK

17-28.1 HYDRAULIC PUMP REMOVAL/INSTALLATION (M984E1).

This task covers:

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

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

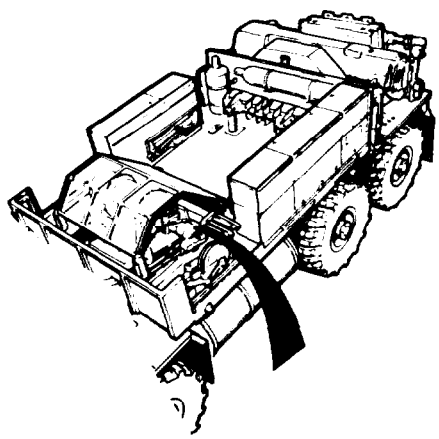
Equipment Condition

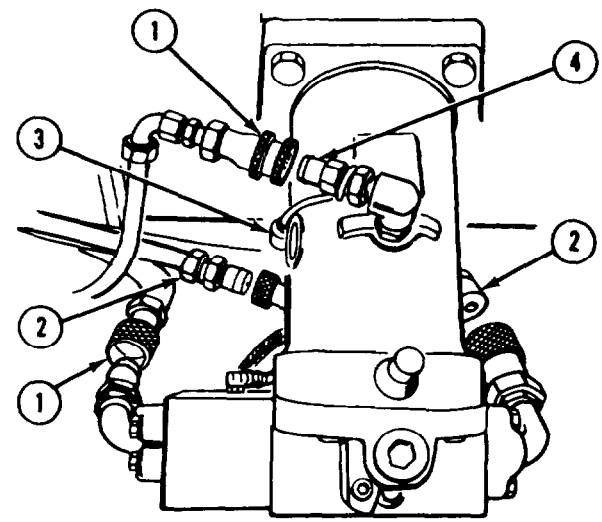
TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.

Special Environmental Conditions
None

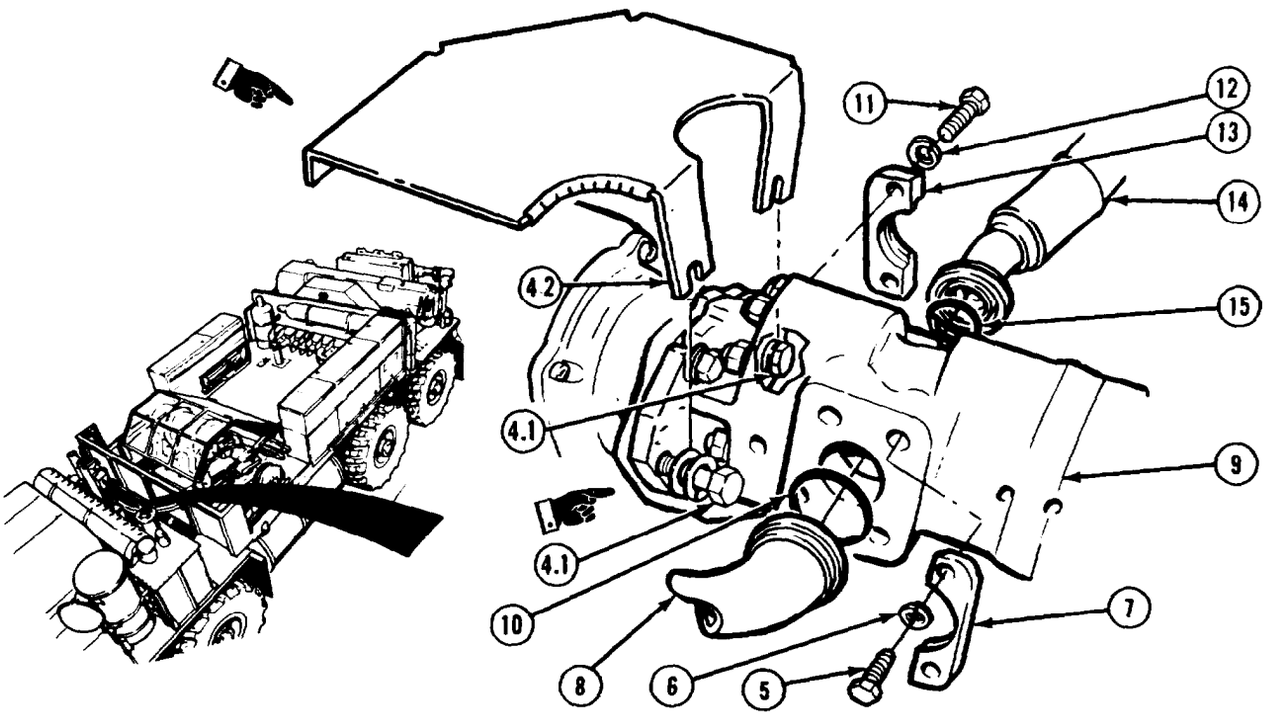
General Safety Instructions
None

a. Removal.





(1) Disconnect two hydraulic hoses (1) and two hydraulic hoses (2) and pull towards vehicle engine through hole in wrecker body.
(2) Connect hydraulic hoses (1 and 2) together.
(3) Install dust cap (3) on fitting (4).



NOTE

- Trucks with guard, perform steps *(3.1)* and *(4)* through *(11).* Trucks without guard, perform steps *(4)* through *(11).*
- Loosen screws enough to remove guard.

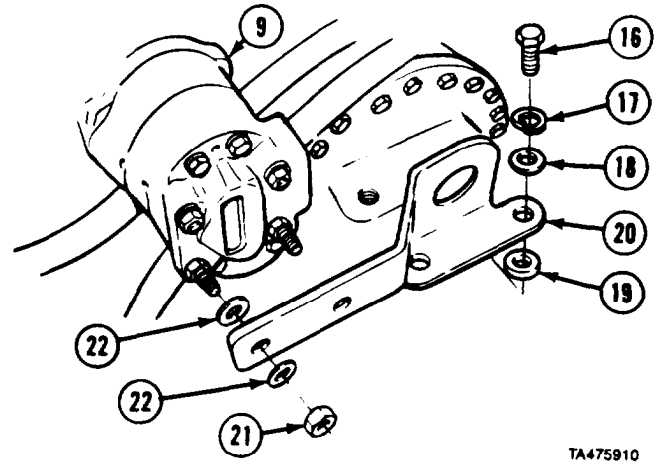
(3.1) Loosen two screws (4.1) and remove guard (4.2).

NOTE

Tag and mark hoses before removing.

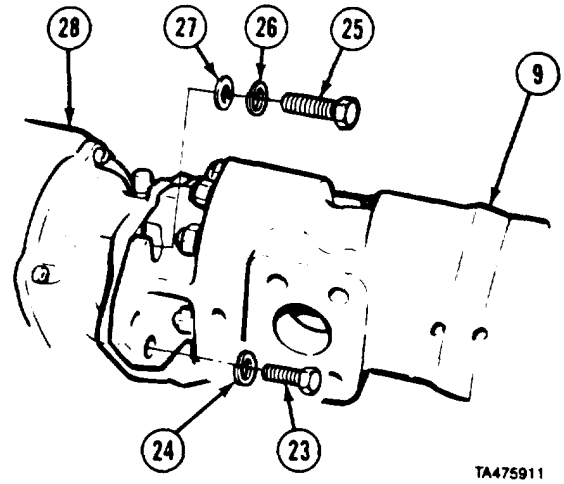
(4) Remove four screws (5), lockwashers (6), two clamp halves (7), and hose (8) from pump (9)
(5) Remove preformed packing (10) from hose (8).
(6) Remove eight screws (11), lockwashers (12), four clamp halves (13), and two hoses (14) from pump (9).
(7) Remove two preformed packings (15) from two hoses (14).

(8) Remove two screws (16) lockwashers (17) washers (18) and spacers (19) from bracket (20).
(9) Remove two nuts (21) two washers (22) bracket (20) and two washers (22) from pump (9).



TA475910

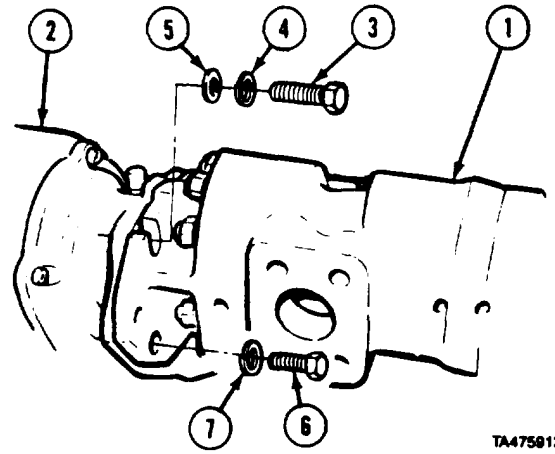
(10) Remove two screws (23) and lockwashers (24) from pump (9).
(11) Remove two screws (25) Jockwashers (26), and washers (27) and pump (9) from PTO (28).



TA475911

b. Installation.

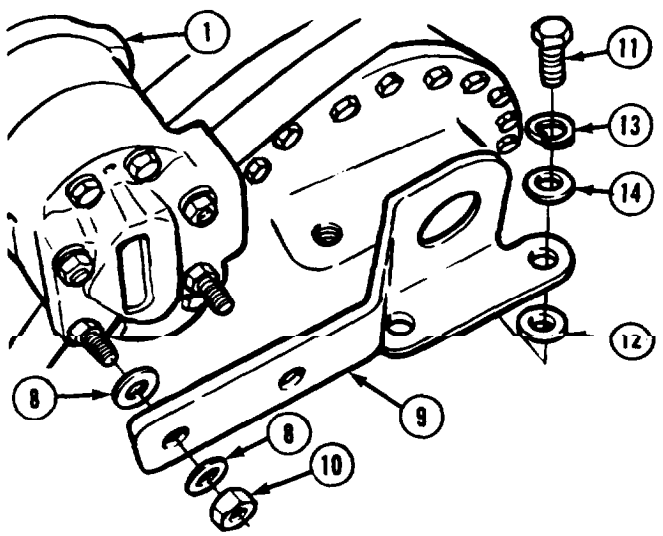
(1) Install pump (1) on PTO (2) with two screws (3) lockwashers (4) and washers (5).
(2) Install two screws (6) and lockwashers (7).



TA475912

17-28.1 HYDRAULIC PUMP REMOVAL/INSTALLATION (M984E1) (CONT).

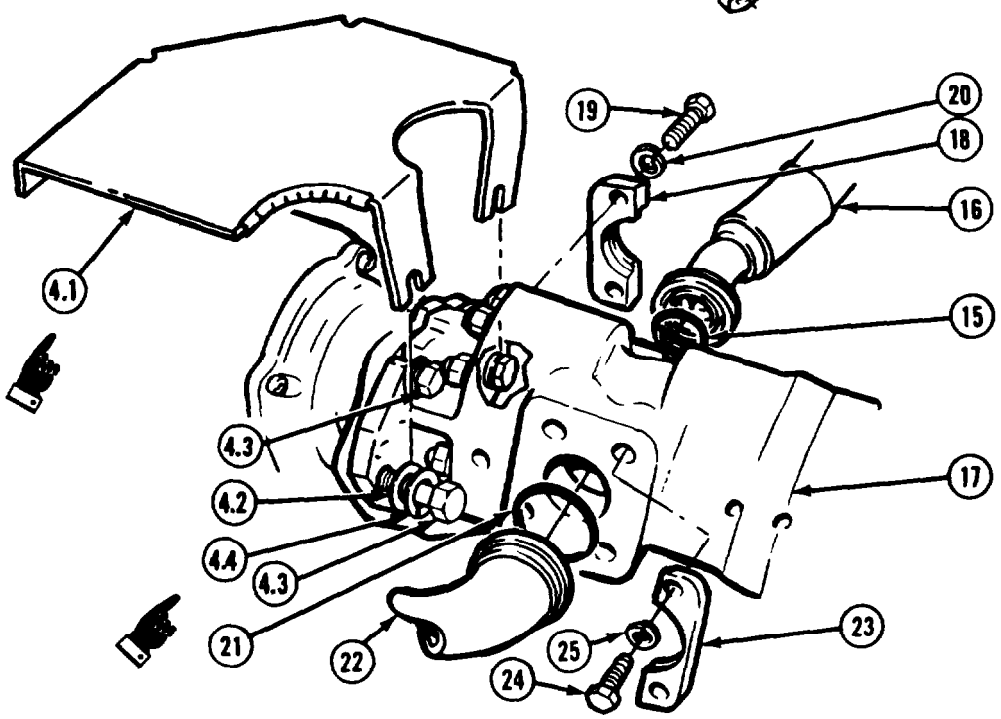
(3) Install two washers (8), bracket washers (8), and nuts (10) on pump (1).



NOTE

Trucks with guard, perform steps (4) and *(4.1)* through *(11).* Trucks without guard, perform steps *(4)* and *(5)* through *(11).*

(4) Install two screws (11), spacers (12), lockwashers (13), and washers (14) on bracket (9).



NOTE

Trucks with guard, ensure guard is fully seated under flat washers.

(4.1) Install guard (4.1) under two flat washers (4.2) and tighten two screws (4.3) and lockwashers (4.4).

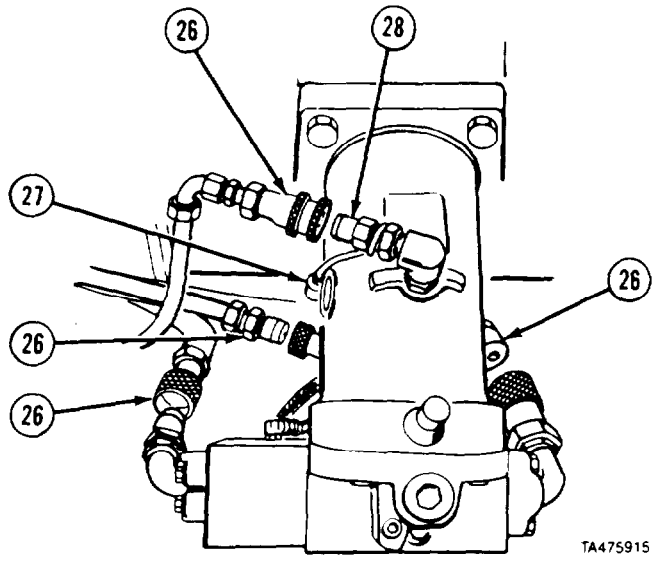
(5) Install two preformed packings (15) in hoses (16).

(6) Install two hoses (16) on pump (17) with four clamp halves (18), screws (19), and lockwashers (20).

(7) Install preformed packing (21) in hose (22).

(6) Install hose (22) on pump (17) with two clamp halves (23), four screws (24), and lockwashers (25).

(9) Disconnect four heavy-duty winch hydraulic hoses (26) from each other and pull through hole in wrecker body.
(10) Remove dust cap (27) from fitting (28).
(11) Connect four heavy-duty winch hydraulic hoses (26).



c. Follow-on Maintenance.
(1) Fill hydraulic reservoir (LO 9-2320-279 12).
(2) Operate crane and heavy-duty winch (TM 9-2320-279-10) to check operation of hydraulic pump and check for leaks.

END OF TASK

17-28.2. POWER TAKE OFF REMOVAL/INSTALLATION (M984E1).

This task covers:
a. Removal
b. Installation
c. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C
Grease, automotive and artillery, Item 23, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

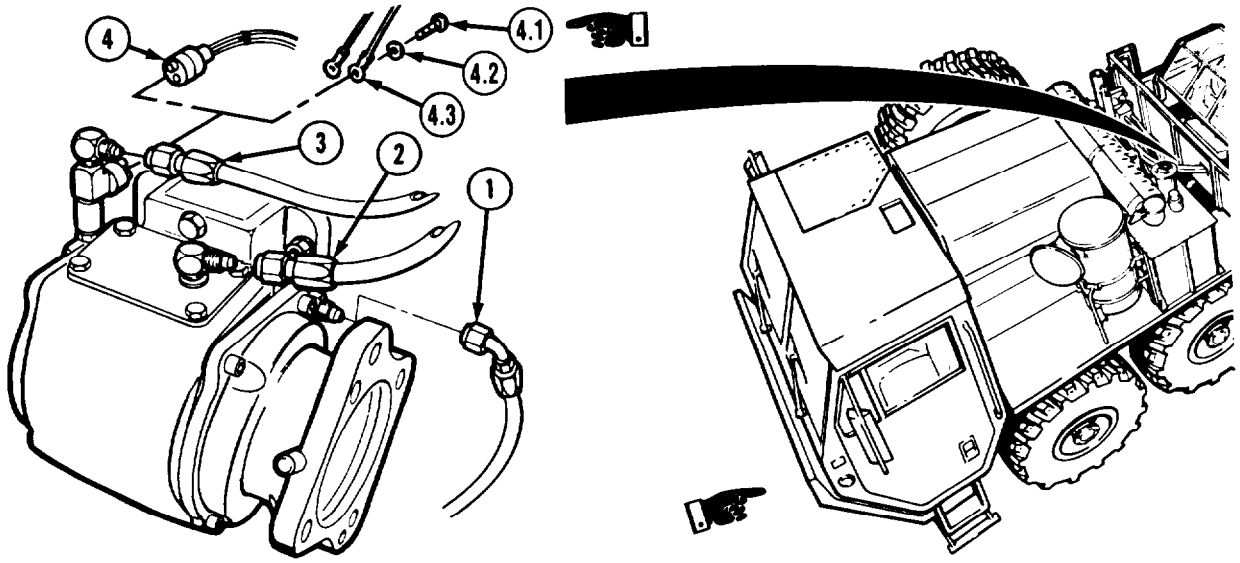
TM or Para	*Condition Description*
LO 9-2320-279-12	Hydraulic reservoir drained.
Para 17-28.1	Hydraulic pump removed.

Special Environmental Conditions
None

General Safety Instructions
None

17-28.2 POWER TAKEOFF REMOVAL/INSTALLATION (M984E1) (CONT).

a. ***Removal.***



NOTE

Tag and mark hoses before disconnecting.

(1) Disconnect three hoses (1, 2, and 3).

NOTE

Some models electrical leads are connected by electrical plug and some are connected by electrical terminals, lockwashers, and screws. If connected by electrical plug, perform step (2). If connected by terminals, lockwashers, and screws, perform step *(2.1).*

(2) Disconnect connector (4).

(2.1) Remove two screws (4.1), lockwashers (4.2), and wires (4.3).

(3) Remove five nuts (5) and washers (6) from studs (7).

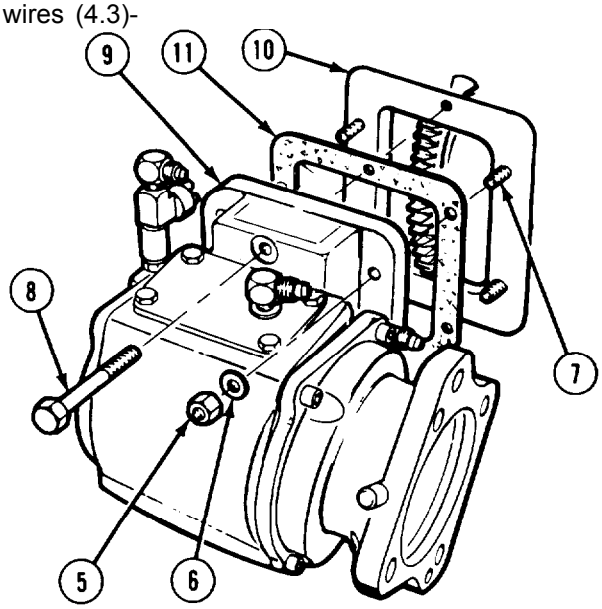
(4) Remove screw (8).

CAUTION

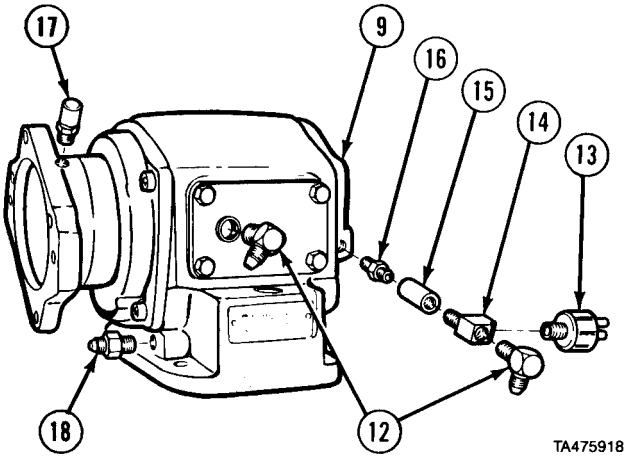
After removing PTO and gasket, be sure to cover access hole in transmission housing. Dirt or foreign objects in transmission can cause damage to parts.

(5) Remove PTO (9) from transmission housing (10).

(6) Remove gasket (11) from transmission housing (10).



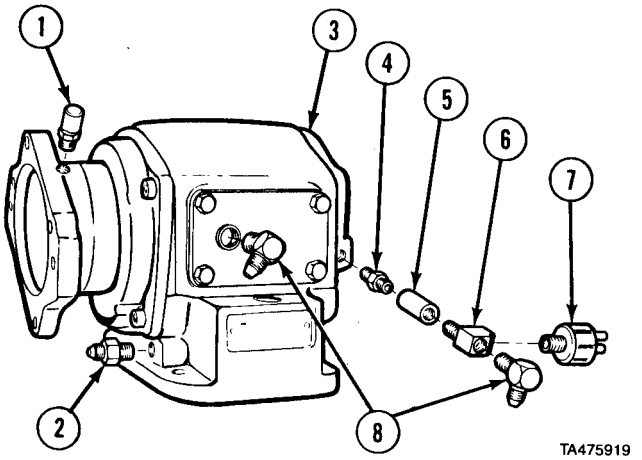
(7) Remove two elbows (12) from PTO (9).
(8) Remove switch (13) from tee (14).
(9) Remove tee (14), coupling (15), and nipple (16) from PTO (9).
(10) Remove breather (17) and adapter (18).



b. Installation.

WARNING

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

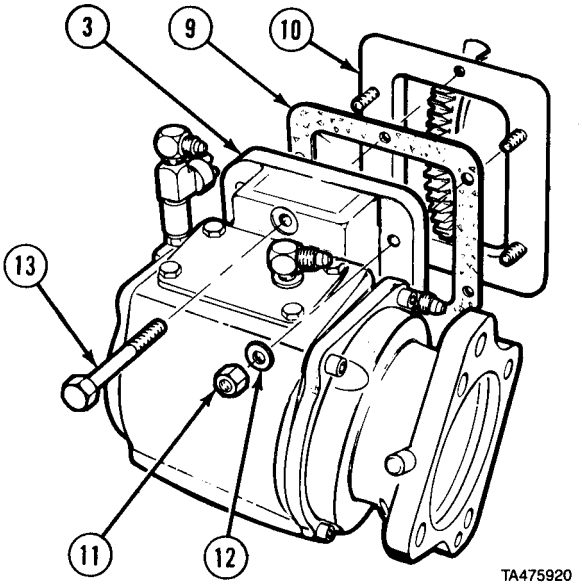


(1) Apply pipe thread sealing compound and install breather (1) and adapter (2) in PTO (3).
(2) Apply pipe thread sealing compound and install nipple (4), coupling (5), and tee (6) in PTO (3).
(3) Apply pipe thread sealing compound and install switch (7) in tee (6).
(4) Apply pipe thread sealing compound and install two elbows (8).

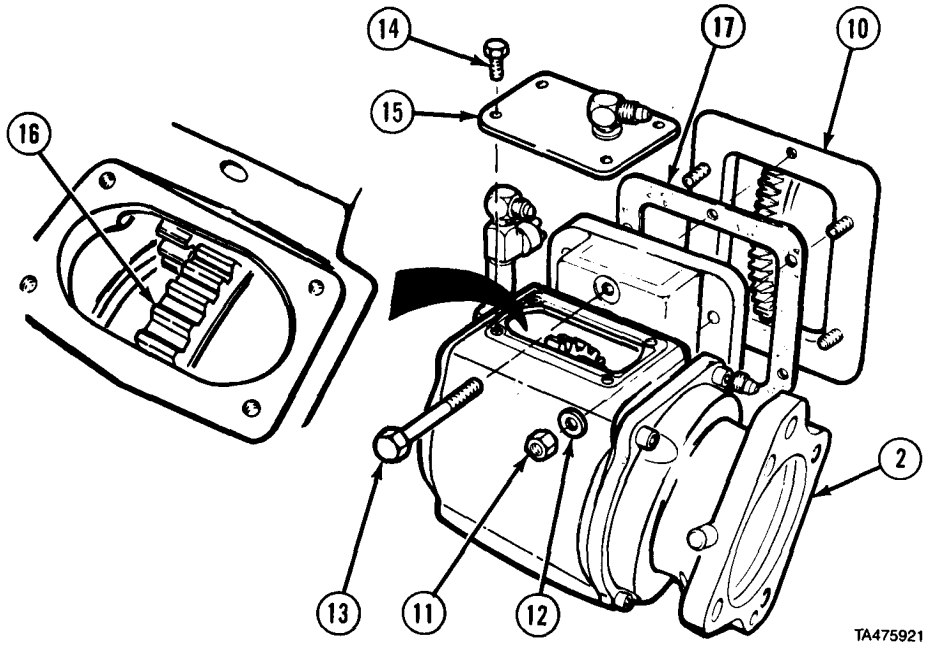
NOTE

Uncover access hole before doing step (5).

(5) Install gasket (9) on transmission housing (10).
(6) Install PTO (3) to transmission housing (10) with five nuts (11) and washers (12).
(7) Install screw (13).
(8) Tighten nuts (11) and screw (13) to 30 to 35 lb-ft (41 to 47.5 N·m).



17-28.2. POWER TAKE OFF REMOVAL/INSTALLATION (M984E1) (CONT).



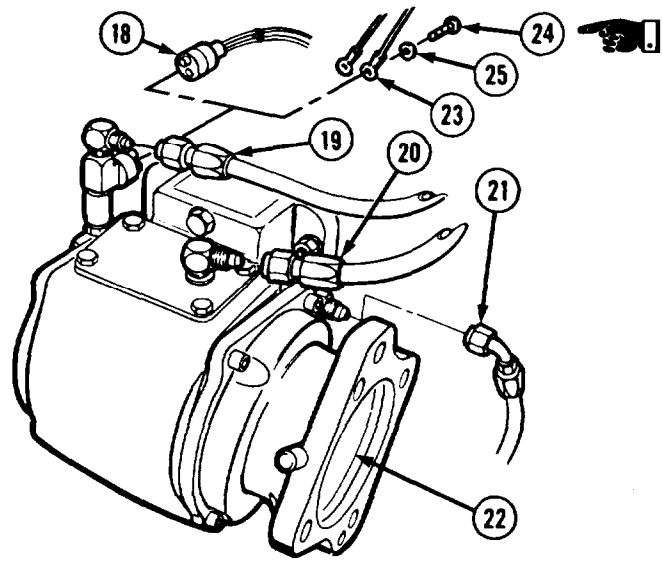
(9) Remove four screws (14) and cover plate (15) from PTO (2).

NOTE

Gear should move when pressure is applied. If gear moves, backlash is OK. If gear does not move, correct backlash.

(10) Check backlash on gear (16) by applying pressure to gear. If gear moves, continue with step (15). If gear does not move, continue with step *(11)*.
(11) Remove five nuts (11) and washers (12).
(12) Remove screw (13).
(13) Install a second gasket (17) on transmission housing (10).
(14) Repeat steps *(6)* through *(8)* then go to step *(10)* and recheck backlash.
(15) Install cover plate (15) on PTO (2) with four screws (14).

Winches, Cranes, and Power Takeoff (PTO) Maintenance instructions (Cont)



NOTE

Some models electrical leads are connected by electrical plug and some are connected by electrical terminals, lockwashers, and screws. If connected by electrical plug, perform step *(16).* If connected by terminals, lockwashers, and screws, perform step *(16.1).*

(16) Connect connector (18).
(16.1) Connect two wires (23) with screws (24) and lockwashers (25).
(17) Connect three hoses (19, 20, and 21).
(18) Fill PTO shaft spline cavity (22) with grease.

c. Follow-on Maintenance.

(1) Install hydraulic pump (para 17-28.1).
(2) Fill hydraulic reservoir (LO 9-2320-279-12).
(3) Check operation of power takeoff (TM 9-2320-279-10).

END OF TASK

17-29. PTO PRESSURE SWITCH, SCREEN ADAPTER, AND TEE REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, pipe thread, Item 18, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

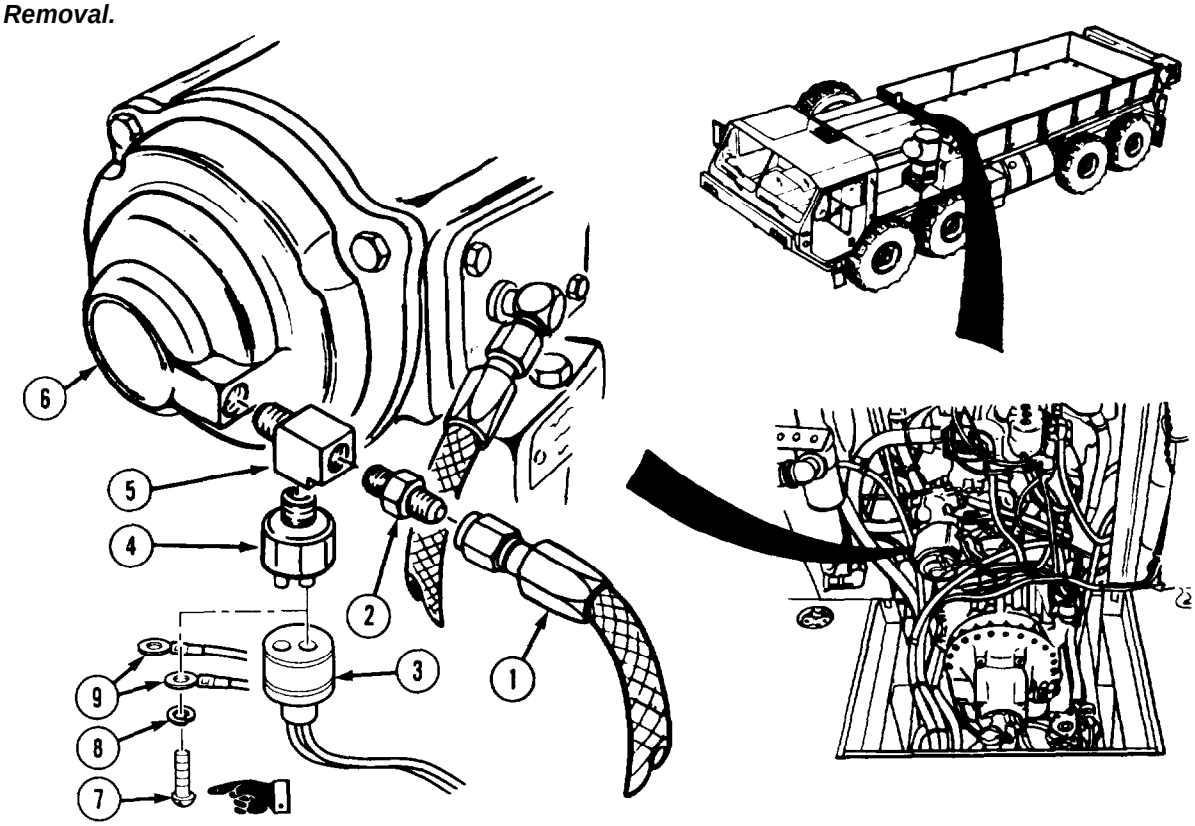
Equipment Condition

TM or Para	Condition Description
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Removal.



Winches, Cranes, and Power Takeoff (PTO) Maintenance Instructions (Cont)

(1) Disconnect hose (1) from screen adapter (2).

NOTE

Some models electrical leads are connected by electrical plug and some are connected by electrical terminals, lockwashers, and screws. If connected by electrical plug, perform step (2). If connected by terminals, lockwashers, and screws, perform step (2.1).

(2) Disconnect connector (3) from PTO pressure switch (4).
(2.1) Remove two screws (7), lockwashers (8), and wires (9).
(3) Remove PTO pressure switch (4) from tee (5).
(4) Remove screen adapter (2) from tee (5).
(5) Remove tee (5) from PTO unit (6).

b. Installation.

WARNING

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

(1) Coat all threads with pipe thread sealing compound.
(2) Install tee (5) in PTO unit (6).
(3) Install screen adapter (2) in tee (5).
(4) Install PTO pressure switch (4) in tee (5).
(5) Connect hose (1) to screen adapter (2).

NOTE

Some models of electrical leads are connected by electrical plug and some are connected by electrical terminals, lockwashers, and screws. If connected by electrical plug, perform step (6). If connected by terminals, lockwashers, and screws, perform step (7).

(6) Install connector (3) on PTO pressure switch (4).
(7) Connect two wires (9) with screws (7) and lockwashers (8).

c. Follow-on Maintenance.

(1) Start engine (TM 9-2320-279-10).
(2) Check operation of PTO unit and check for leaks (TM 9-2320-279-10).
(3) Shut off engine (TM 9-2320-279-10).

END OF TASK

17-30. PTO SOLENOID REMOVAL/INSTALLATION.

This task covers:

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

INITIAL SETUP

Models
All

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing, piping thread, Item 18, Appendix C
Connector, electrical, butt, Item 19, Appendix C
Tags, identification, Item 48, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Front cargo box panel removed (M977 and M985).

Special Environmental Conditions
None

General Safety Instructions
None

17-30. PTO SOLENOID REMOVAL/INSTALLATION (CONT).

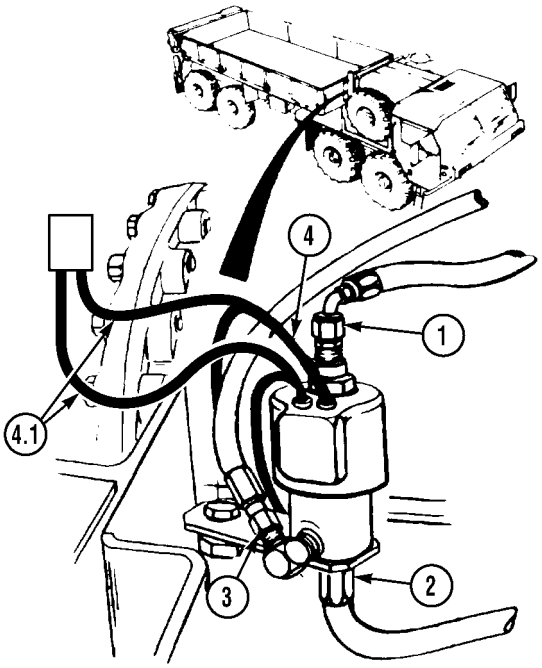
a. Removal.

NOTE
Tag and mark all hoses before disconnecting.

(1) Disconnect three hoses (1, 2, and 3).

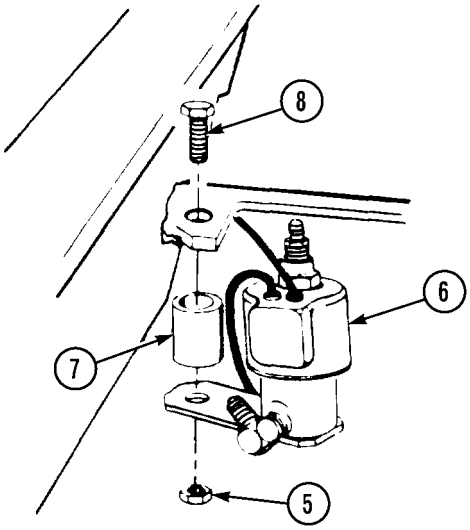
NOTE
Only M1977 CBT model vehicles contain a diode spliced to wires on PTO solenoid.

(2) Cut wire (4) and diode leads (4.1).

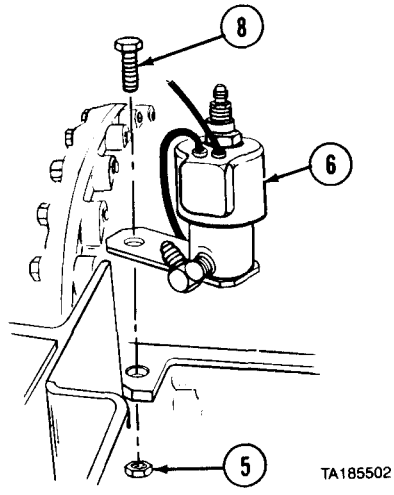


NOTE
Step *(3)* is for M983 only.

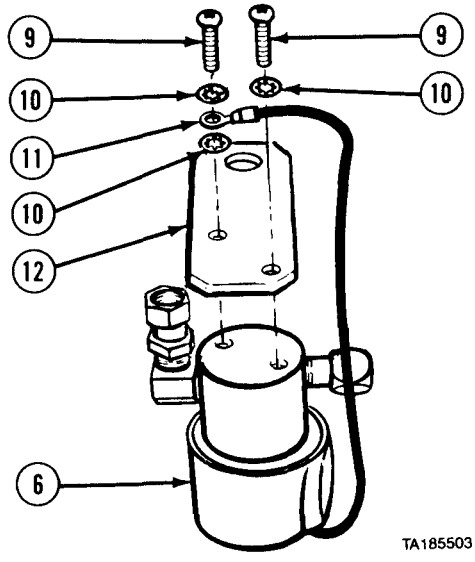
(3) Remove nut (5), solenoid assembly (6), spacer (7), and screw (8).



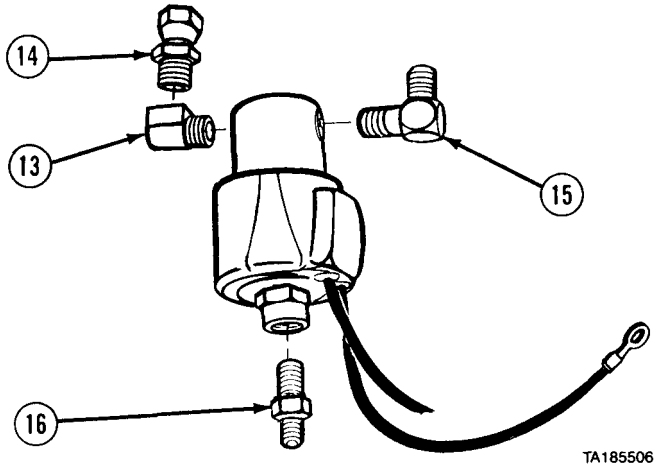
(4) Remove nut (5), screw (8), and solenoid assembly (6).



(5) Remove two screws (9), two lockwashers (10), ground wire (11), lockwasher (10), and mounting bracket (12) from solenoid assembly (6).

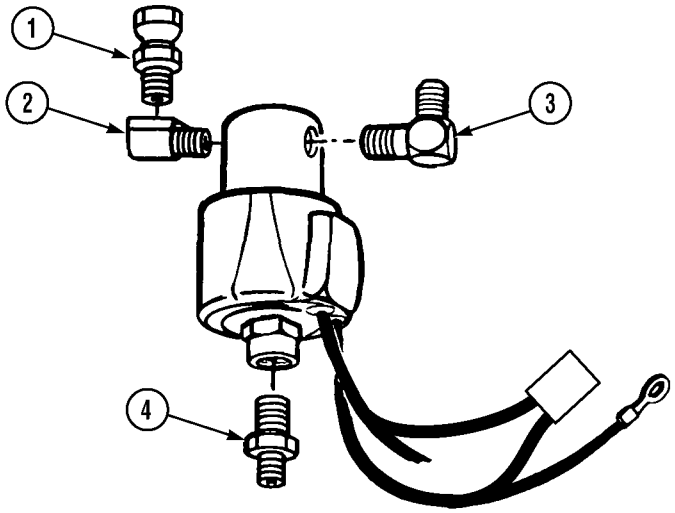


(6) Remove elbow (13) and adapter (14).
(7) Remove adapter (14) from elbow (13).
(8) Remove elbow (15).
(9) Remove fitting (16).



17-30. PTO SOLENOID REMOVAL/INSTALLATION (CONT).

b. Installation.

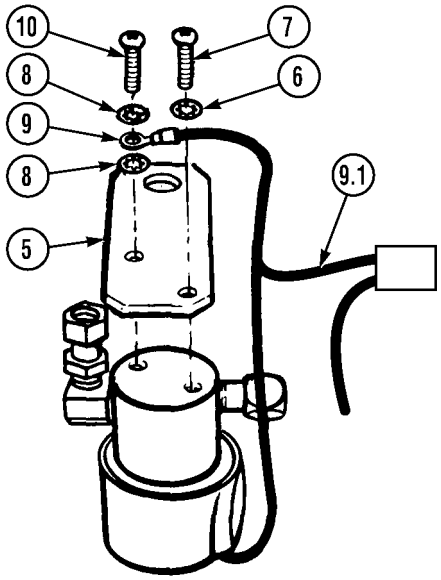


WARNING

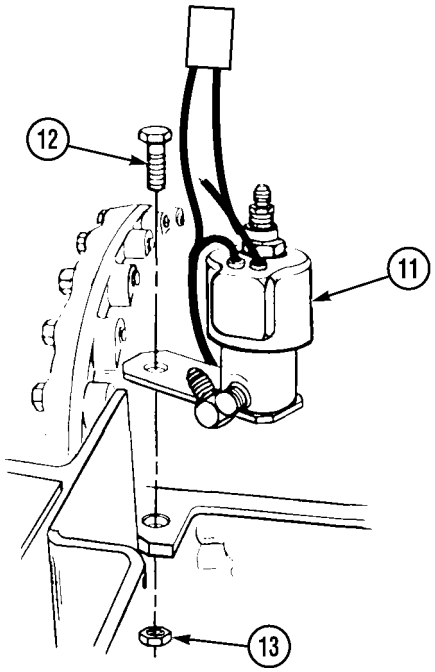
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

(1) Apply pipe thread sealing compound to threads and install adapter (1) on elbow (2).
(2) Apply pipe thread sealing compound to threads of elbow (2) and install.
(3) Apply pipe thread sealing compound to threads of elbow (3) and install elbow.
(4) Apply pipe thread sealing compound to threads of fitting (4) and install fitting.

(5) Install mounting bracket (5), lockwasher (6), and screw (7).
(6) Install lockwasher (8), ground wire (9), diode lead (9.1), lockwasher (8), and screw (10).



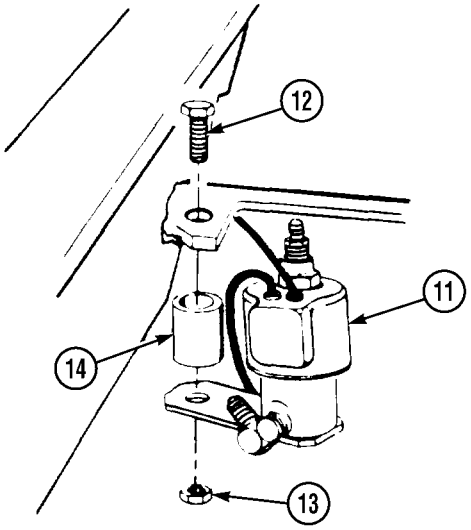
(7) Install solenoid assembly (11) with screw (12) and nut (13).



NOTE

Step *(8)* is for M983 only.

(8) Install solenoid assembly (11) with screw (12), spacer (14), and nut (13).



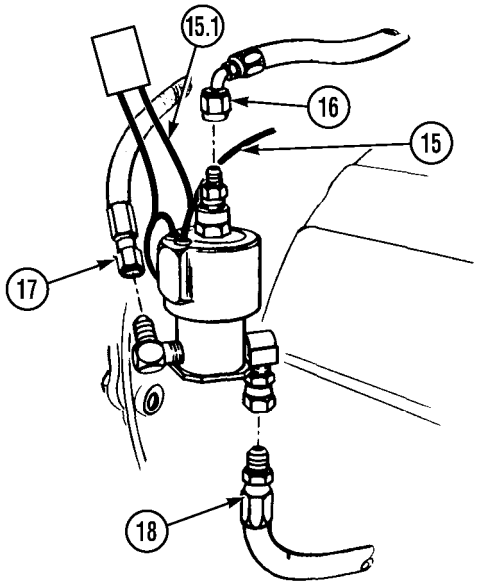
17-30. PTO SOLENOID REMOVAL/INSTALLATION (CONT).

(9) Attach wire (15) and diode lead (15.1) with electrical butt connector.
(10) Connect three hoses (16, 17, and 18).

c. Follow-on Maintenance.

(1) Start engine (TM 9–2320–279–10).
(2) Check operation of PTO unit and check for leaks (TM 9–2320–279–10).
(3) Shut off engine (TM 9–2320–279–10).
(4) Install front cargo box panel (M977 and M985) (TM 9–2320–279–10).

END OF TASK



Section VII. OUTRIGGERS AND OUTRIGGER CONTROLS

17-31. CRANE LEFT AND RIGHT OUTRIGGER CONTROL LEVERS REMOVAL/INSTALLATION (M983).

This task covers:

a. Right Side Outrigger Controls Removal
b. Right Side Outrigger Controls Installation
c. Left Side Outrigger Controls Removal
d. Left Side Outrigger Controls Installation
e. Follow-on Maintenance

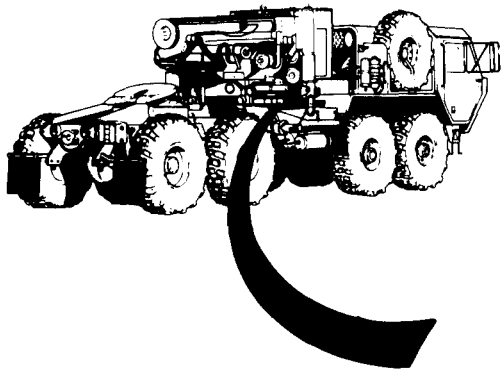
INITIAL SETUP

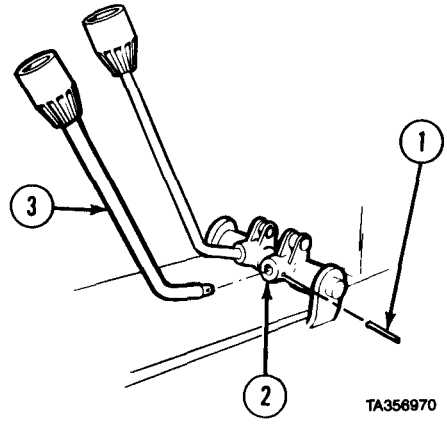
Models
M983
Test Equipment
None
Special Tools
None
Supplies
None
Personnel Required
MOS 63S, Heavy wheel vehicle mechanic
References
None
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.
TM 9-2320-279-10	Outrigger legs down.

Special Environmental Conditions
None
General Safety Instructions
None

a. Right Side Outrigger Controls Removal.



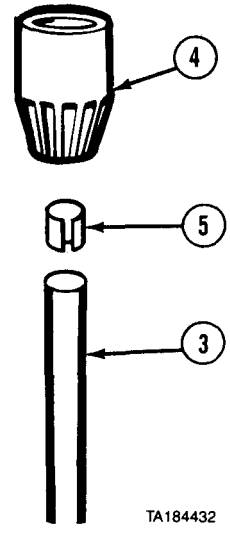


NOTE

Both right outrigger controls are removed the same way.

(1) Remove pin (1) from coupling (2) and lever (3).
(2) Remove lever (3) from coupling (2).

(3) Remove knob (4) from lever (3).
(4) Remove sleeve (5) from knob (4).



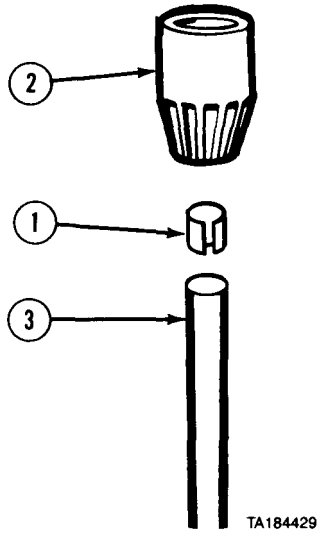
17-31. CRANE LEFT AND RIGHT OUTRIGGER CONTROL LEVERS REMOVAL/INSTALLATION (M983) (CONT).

b. Right Side Outrigger Controls Installation.

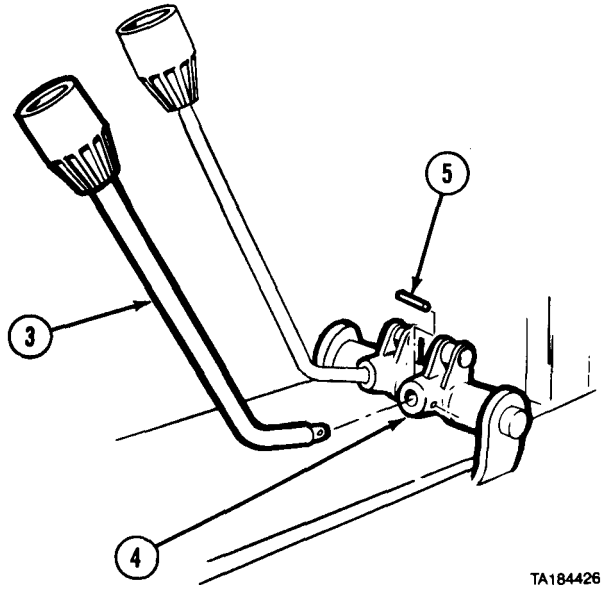
NOTE

Both right outrigger controls are installed the same way.

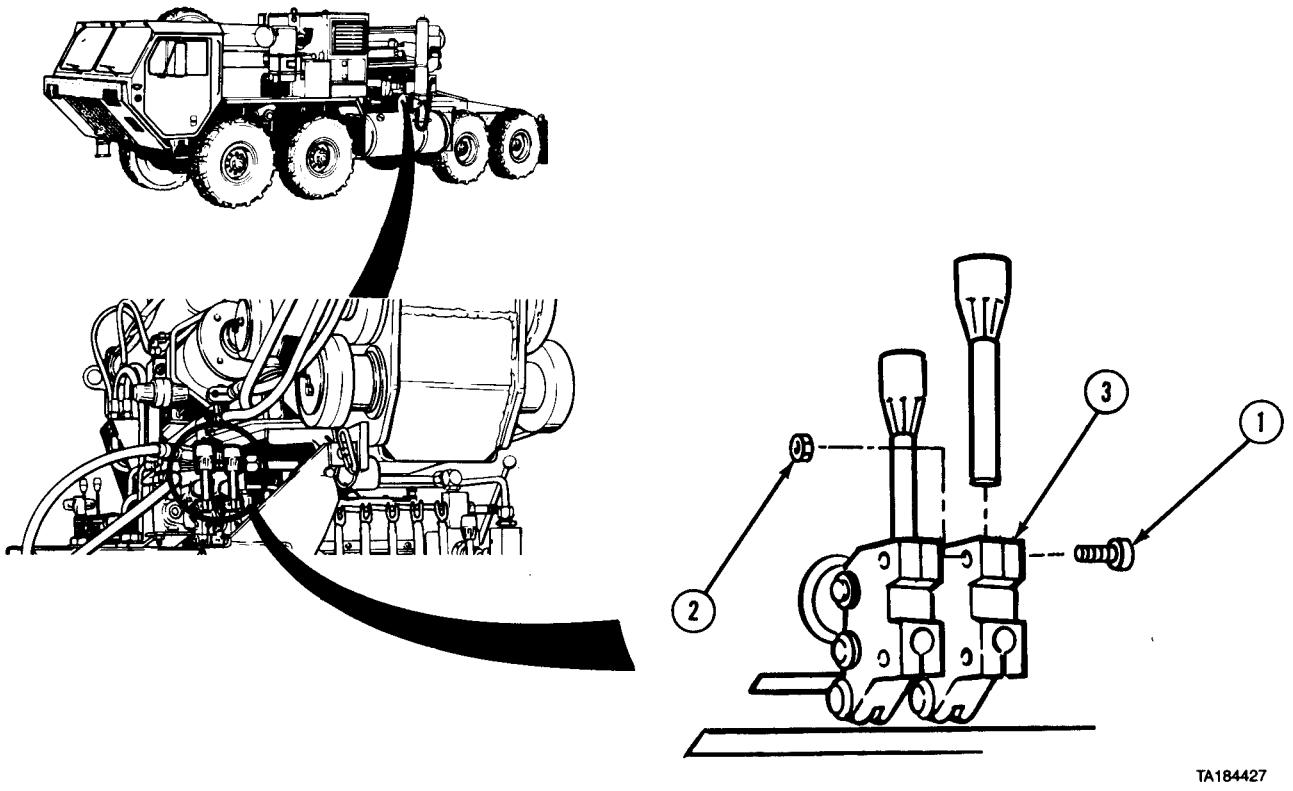
(1) Install sleeve (1) in knob (2).
(2) Install knob (2) on lever (3).



(3) Install lever (3) in coupling (4).
(4) Install pin (5) in coupling (4) and lever (3).



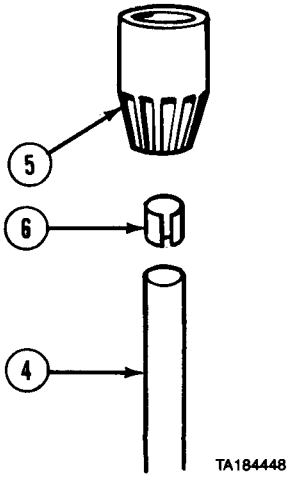
c. Left Side Outrigger Controls Removal.



NOTE

Both left outrigger controls are removed the same way.

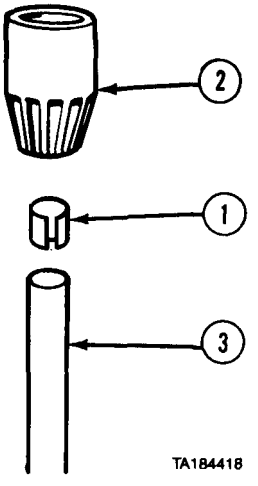
(1) Remove screw (1) and nut (2) from coupling (3).
(2) Remove lever (4) from coupling (3).



(3) Remove knob (5) from lever (4).
(4) Remove sleeve (6) from knob (5).

17-31. CRANE LEFT AND RIGHT OUTRIGGER CONTROL LEVERS REMOVAL/INSTALLATION (M983) (CONT).

d. Left Side Outrigger Controls Installation.

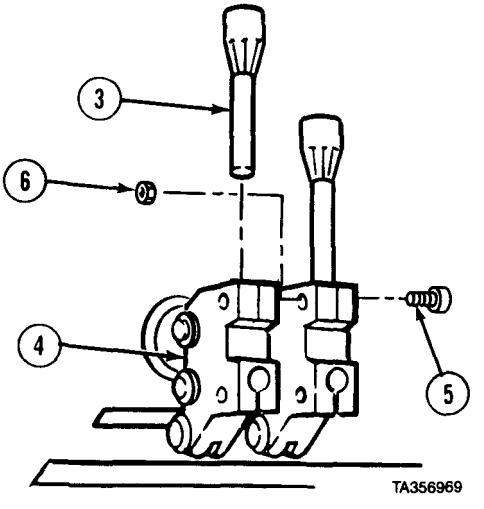


NOTE

Both left outrigger controls are removed the same way.

(1) Install sleeve (1) in knob (2).
(2) Install knob (2) on lever (3).

(3) Install lever (3) in coupling (4).
(4) Install screw (5) and nut (6) in coupling (4).



e. Follow-on Maintenance. Stow outriggers (TM 9-2320-279-10).

END OF TASK

17-32. OUTRIGGER PADS AND SAFETY CHAIN REPAIR (M977, M984E1, M985).

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Models
M977, M984E1 , M985

Test Equipment
None

Special Tools
None

Supplies
Solvent, dry cleaning, Item 47, Appendix C

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

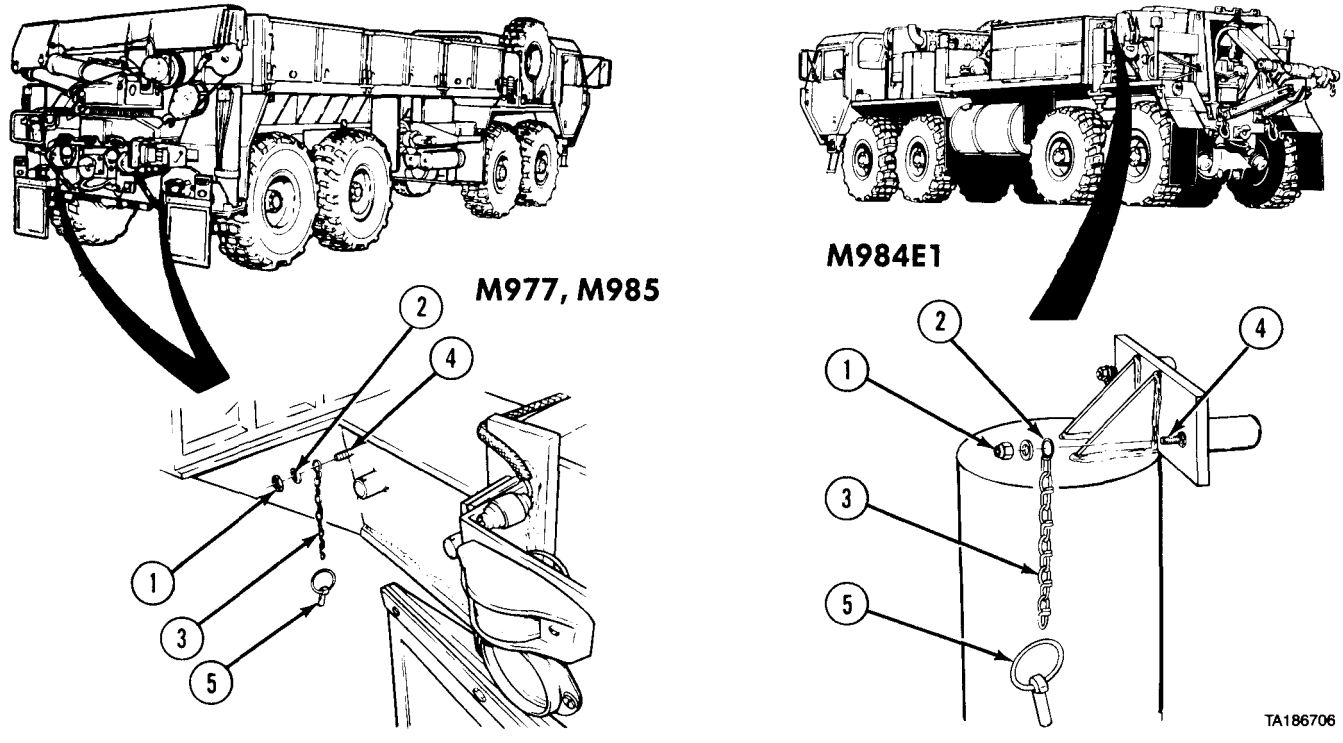
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Outrigger pads removed.

Special Environmental Conditions
None

General Safety Instructions
None

a. Disassembly.



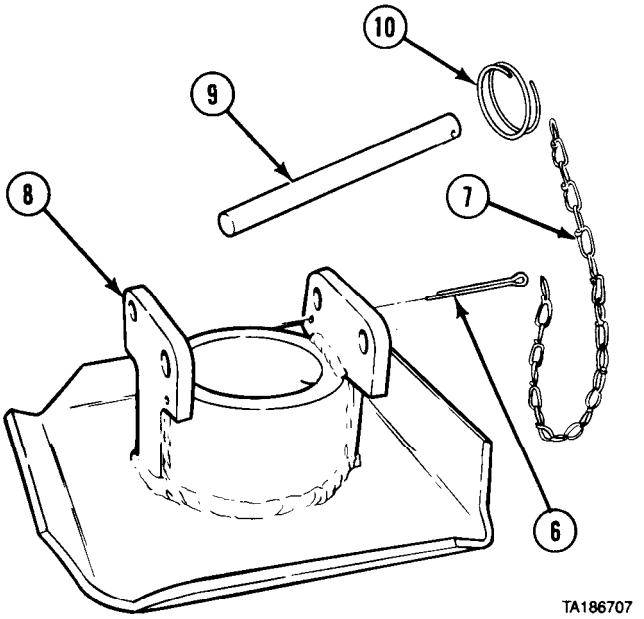
NOTE

Right and left pads and retaining pins are repaired in the same manner.

(1) Remove two nuts (1), washers (2), and chains (3) from studs (4).
(2) Remove two chains (3) from quick pins *(5).*

17-32. OUTRIGGER PADS AND SAFETY CHAIN REPAIR (M977, M984E1, M985) (CONT).

(3) Remove two cotter pins (6) and chains (7) from outrigger pad plate (8).
(4) Remove two retaining pins (9).
(5) Remove two chains (7) from cotter pins (6) and rings (10).
(6) Remove two rings (10) from retaining pins (9).



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b. Cleaning/Inspection.

WARNING

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

(1) Clean all metal parts with dry cleaning solvent.

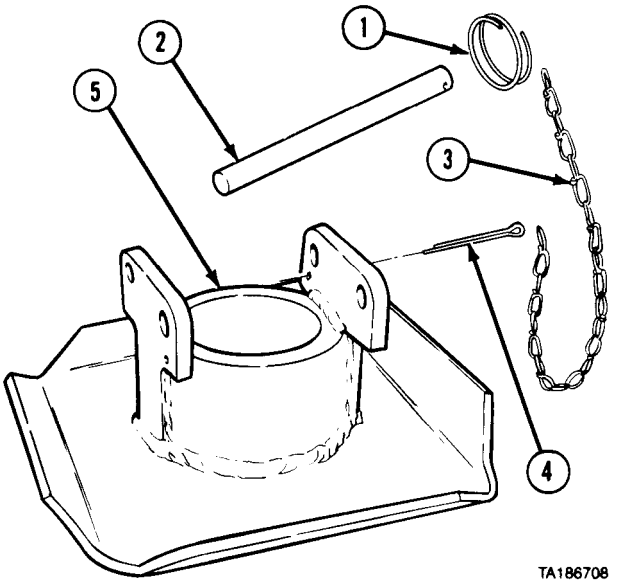
WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

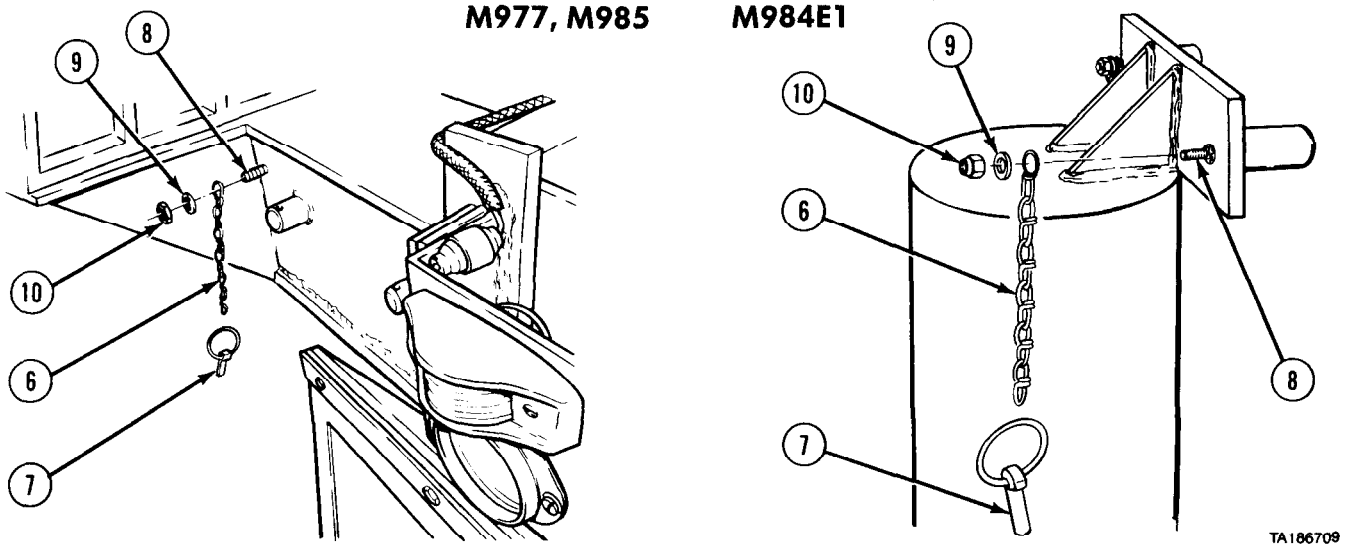
(2) Dry metal parts with compressed air.
(3) Inspect metal parts for breaks, cracks, and sharp edges.
(4) Replace all damaged parts.

c. Assembly.

(1) Install two rings (1) on retaining pins (2).
(2) Install two chains (3) on rings (1) and cotter pins (4).
(3) Install two cotter pins (4) in outrigger pad (5).
(4) Install two retaining pins (2) in outrigger pad (5).



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(5) Install two chains (6) on quick pins (7).
(6) Install two chains (6) on studs (8) with two washers (9) and nuts (10).

d. Follow-on Maintenance. Install outrigger pads (TM 9-2320-279-10).

END OF TASK

17-33. OUTRIGGER BEAM ASSEMBLY COVER REMOVAL/INSTALLATION.

This task covers:
a. Removal
b. Installation
c. Follow-on Maintenance

INITIAL SETUP

Models
M984E1

Test Equipment
None

Special Tools
None

Supplies
None

Personnel Required
MOS 63S, Heavy wheel vehicle mechanic

References
None

Equipment Condition

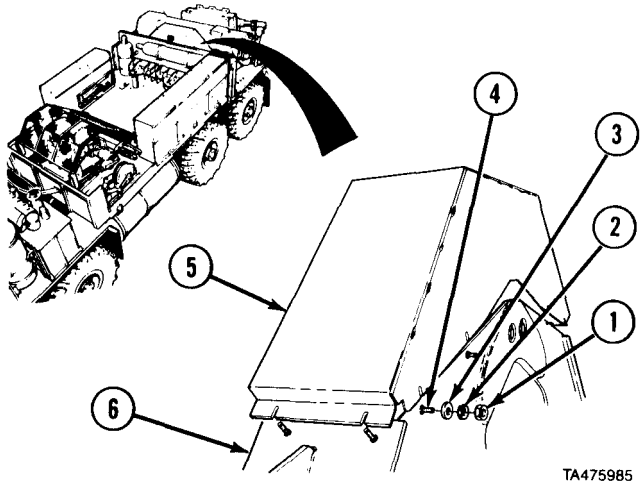
TM or Para	*Condition Description*
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General *Safety Instructions*
None

17-33. OUTRIGGER BEAM ASSEMBLY COVER REMOVAL/INSTALLATION (CONT).

a. Removal.



(1) Remove 12 nuts (1), lockwashers (2), and washers (3) from studs (4).
(2) Remove outrigger cover (5) from outrigger beam assembly (6).

b. Installation.
(1) Install outrigger cover (5) on outrigger beam assembly (6).
(2) Install 12 washers (3), lockwashers (2) and nuts (1) on studs (4).

c. Follow-on Maintenance. None.

END OF TASK

17-34. TURNTABLE BEARING SCREW TIGHTENING (M977, M985, M984E1).

This task covers:

a. Inner Turntable Screws
b. Outer Turntable Screws (M977, M985)
c. Outer Turntable Screws (M984E1)
d. Follow-on Maintenance

INITIAL SETUP

Models
M977, M985, M984E1

Test Equipment
None

Special Tools
None

Supplies
Compound, sealing and thread locking, Item 17.1, Appendix C

Personnel Required
MOS 63W, Wheeled vehicle repairer

References
None

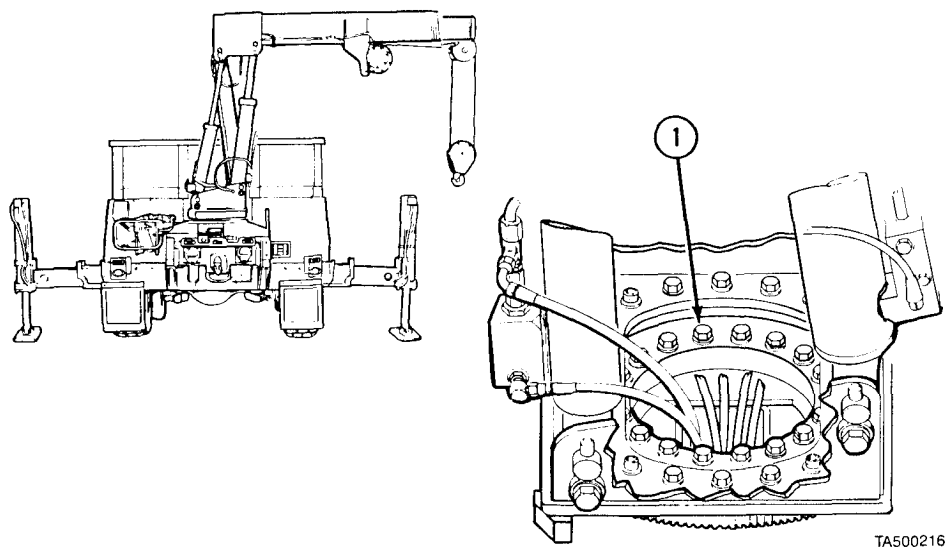
Equipment Condition

TM or Para	*Condition Description*
TM 9-2320-279-10	Crane in operating position
TM 9-2320-279-10	Shut off engine.

Special Environmental Conditions
None

General Safety Instructions
None

a. Inner Turntable Screws.



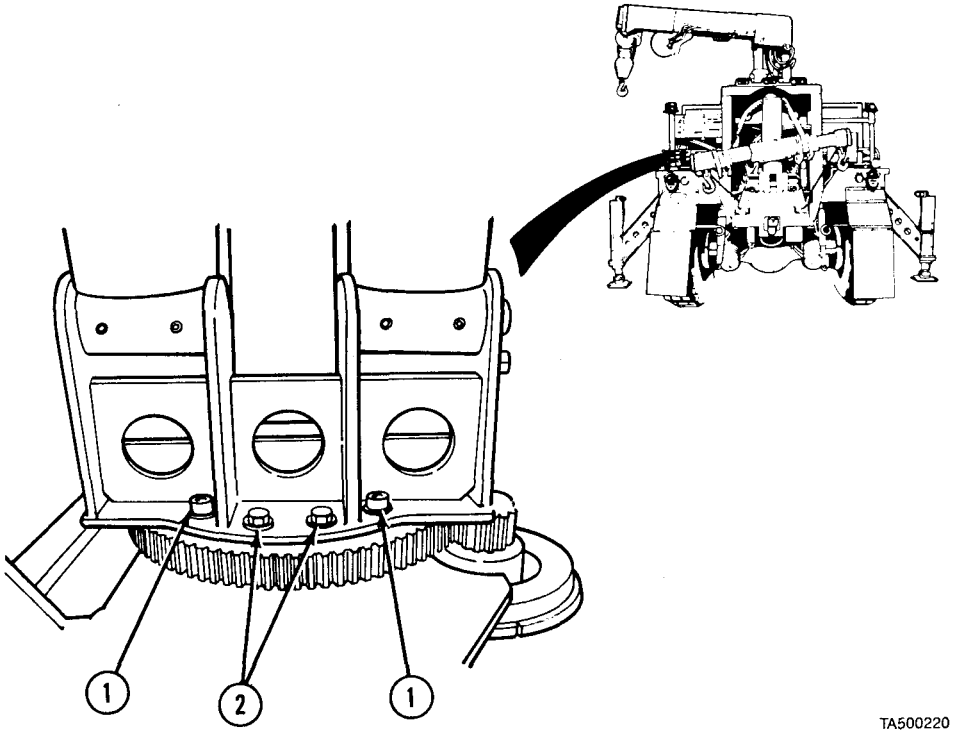
NOTE

It may be necessary to rotate crane to access all screws.

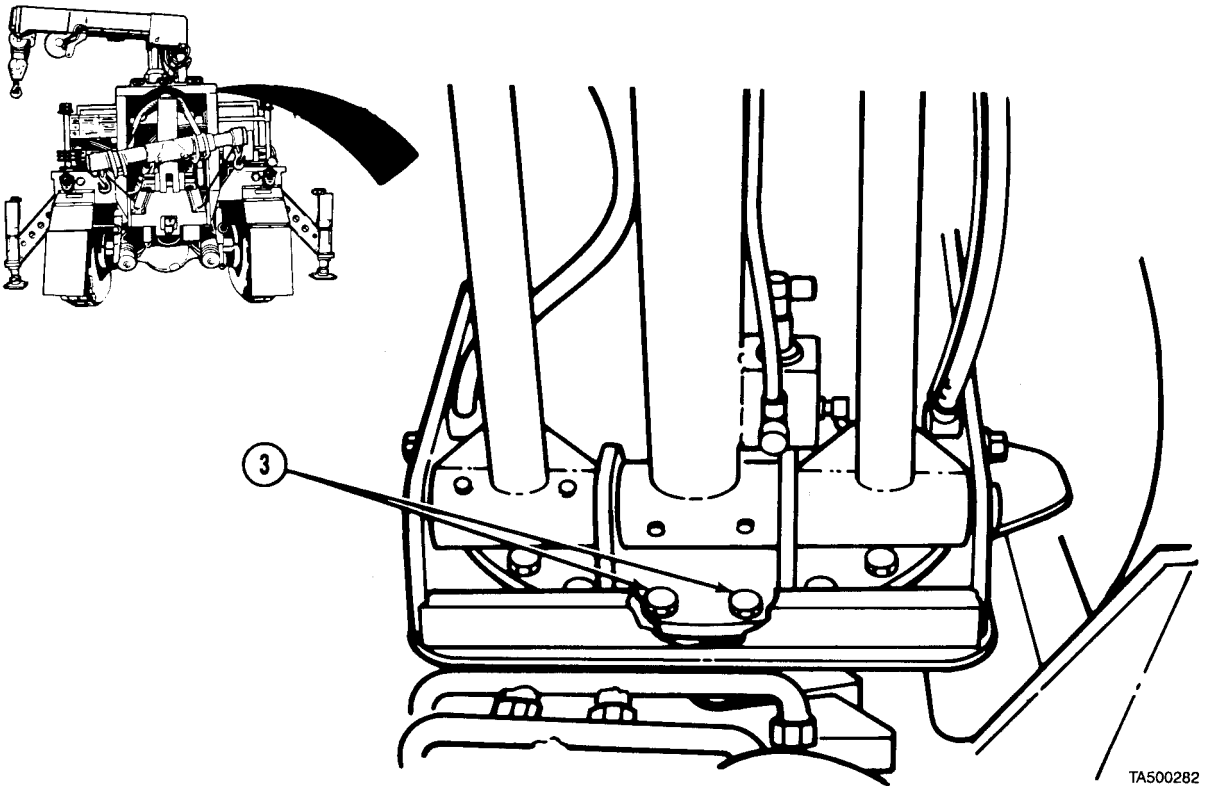
(1) Tighten inner turntable screws (1) to 370 lb-ft (502 N·m).

17-34. TURNTABLE BEARING SCREW TIGHTENING (M977, M985, M984E1) (CONT).

c. Outer Turntable Screws (M984E1).

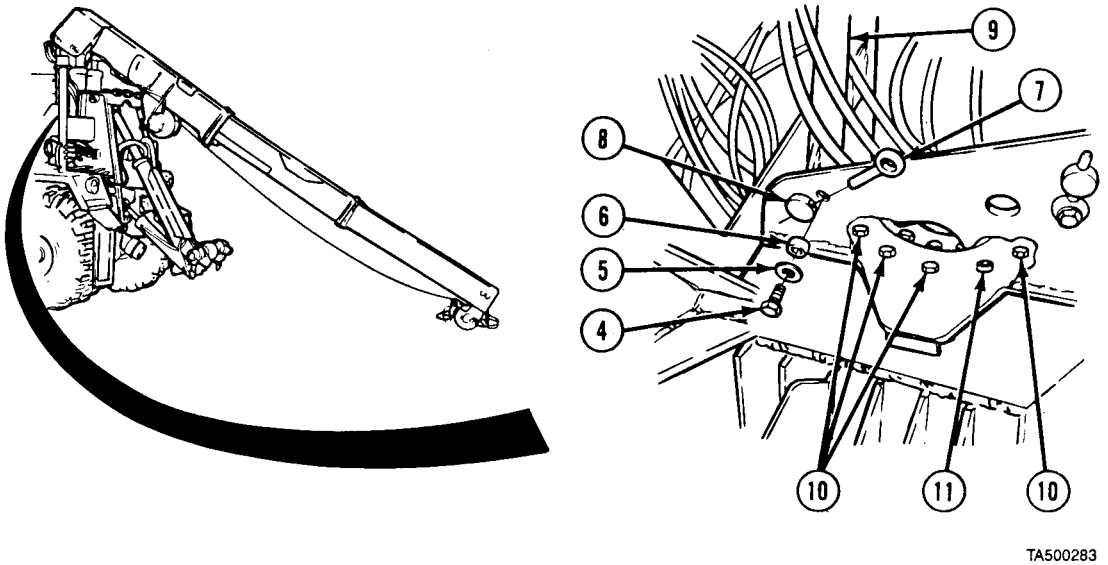


(1) Tighten two screws (1) and two screws (2) to 370 lb-ft (502 N·m).



(2) Tighten two screws (3) to 370 lb-ft (502 N·m).
(3) Rotate crane to rear of vehicle, fully extend boom and lower boom tip to ground (TM 9-2320-279-10).

17-34. TURNTABLE BEARING SCREW TIGHTENING (M977, M985, M984E1) (CONT).



(4) Remove screw (4), washer (5), spacer (6), and lockpin (7), from both ends of pin (8).

WARNING

Do not drive pin out of erection cylinder. Injury or death could result.

(5) Drive pin (8) in far enough to clear tension cylinder (9).
(6) Move tension cylinder (9) aside and tighten four screws (10) and screw (11) to 370 lb-ft (502 N.m).
(7) Align tension cylinder (9) and drive pin (8) back thru cylinder.
(8) Repeat Steps 4 thru 7 for opposite side.
(9) Install lockpin (7) and spacer (6) to both ends of pin (8).

WARNING

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

(10) Apply sealing and thread locking compound, and install washer (5) and screw (4) to both ends of pin (8).

d. Follow-on Maintenance. Return crane to stowed position (TM 9-2320-279-10).

END OF TASK

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By Order of the Secretary of the Amy:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-38-R, Truck, Cargo, 10-ton 8x8, Heavy Expanded Mobility Tactical Truck, HEMTT, M977, M978, M983, M984, M985.

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TM 9-2320-279-20	7 APRIL 1987	ORGANIZATIONAL MAINTENANCE MANUAL M977 Series Vehicles

BE EXACT...PINPOINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.
2-66	NA	NA	2-9

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Step (2) says:

Check water temperature gage for pump overheating.

Step (2) should say:

Check water temperature gage for engine overheating.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

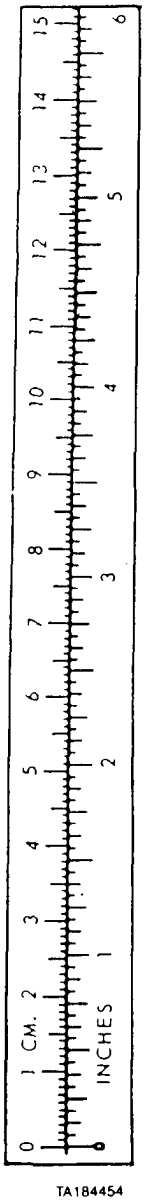
TEMPERATURE

$5/9\,(^{0}F - 32) = {}^{0}C$
212^{0} Fahrenheit is equivalent to 100^{0} Celsius
90^{0} Fahrenheit is equivalent to 32.2^{0} Celsius
32^{0} Fahrenheit is equivalent to 0^{0} Celsius
$9/5\,C^{0} + 32 = F^{0}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square 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 Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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