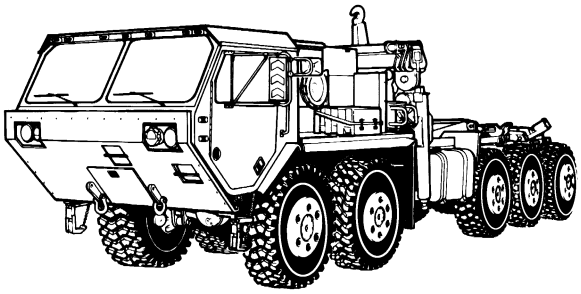
TM 9-2320-364-34-3

THIS MANUAL SUPERSEDES TM 9-2320-364-34-3 DATED 31 MAR 1994, INCLUDING ALL CHANGES.

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE VOLUME III

PALLETIZED LOAD SYSTEM



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MODEL M1074/M1075

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

DISTRIBUTION RESTRICTION
Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

AUGUST 1999

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

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

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

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

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

Sharp edges of exhaust pipe could cause injury to personnel.

WARNING

Sharp edges of exhaust tube could cause injury to personnel.

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

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

WARNING

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

WARNING

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

LIST OF EFFECTIVE PAGES Insert latest changed pages. Destroy superseded pages.

NOTE

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

Dates of issue for original and changed pages are:

Original ..... 0 ... 31 March 1994 Revision 1 .... 0 ..... 1 August 1999

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 1202 CONSISTING OF THE FOLLOWING:

Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
Title	0	C-36 Blank	0		
Blank	0	D-1 - D-7	0		
a - ar	0	D-8 Blank	0		
A	0	E-1 - E-18	0		
B Blank	0	F-1 - F-9	0		
i - iii	0	F-10 Blank	0		
iv Blank	0	Index 1 - Index 14	0		
13-1 - 13-80	0				
14-1 - 14-65	0				
14-66 Blank	0				
15-1 - 15-41	0				
15-42 Blank	0				
16-1 - 16-312	0				
17-1 - 17-118	0				
18-1 - 18-282	0				
19-1 - 19-14	0				
A-1 - A-2	0				
B-1 - B-7	0				
B-8 Blank	0				
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TECHNICAL MANUAL

No. 9-2320-364-34

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C. 01 August 1999

Direct Support and General Support Maintenance Manual

PALLETIZED LOAD SYSTEM

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

Current as of 01 August 1999

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

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

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* This manual supersedes TM 9-2320-364-34-3, 31 March 1994.

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HOW TO USE THIS MANUAL

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

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

Follow these guidelines when using this manual:

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

CHAPTER 13

FRAME MAINTENANCE

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13-1. DIRECT SUPPORT FRAME MAINTENANCE INTRODUCTION.

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

13-2. FRONT CAB SUPPORT REPLACEMENT.

This task covers:

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

INITIAL SETUP

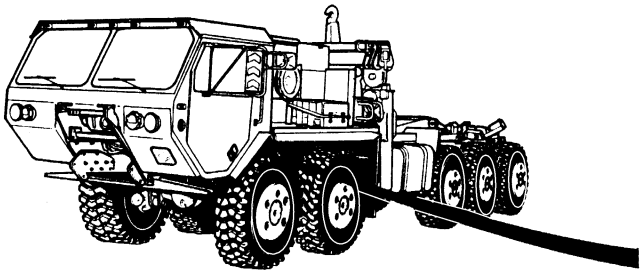
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Lifting Device, Minimum Capacity 1700 lbs
(772 kg)
Wooden Block (2) (Appendix C)

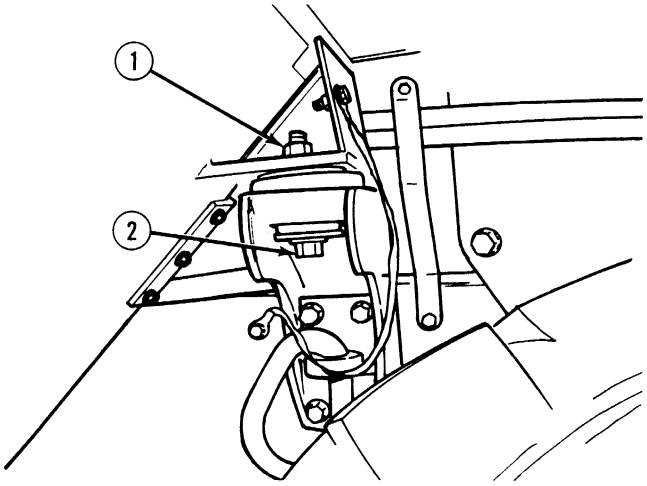
Materials/Parts
Solution, Soap (Item 67, Appendix B)
Locknut (24) (Item 166, Appendix E)
Locknut (8) (Item 168, Appendix E)
Locknut (2) (Item 188, Appendix E)

Personnel Required
Two

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

a. Removal.

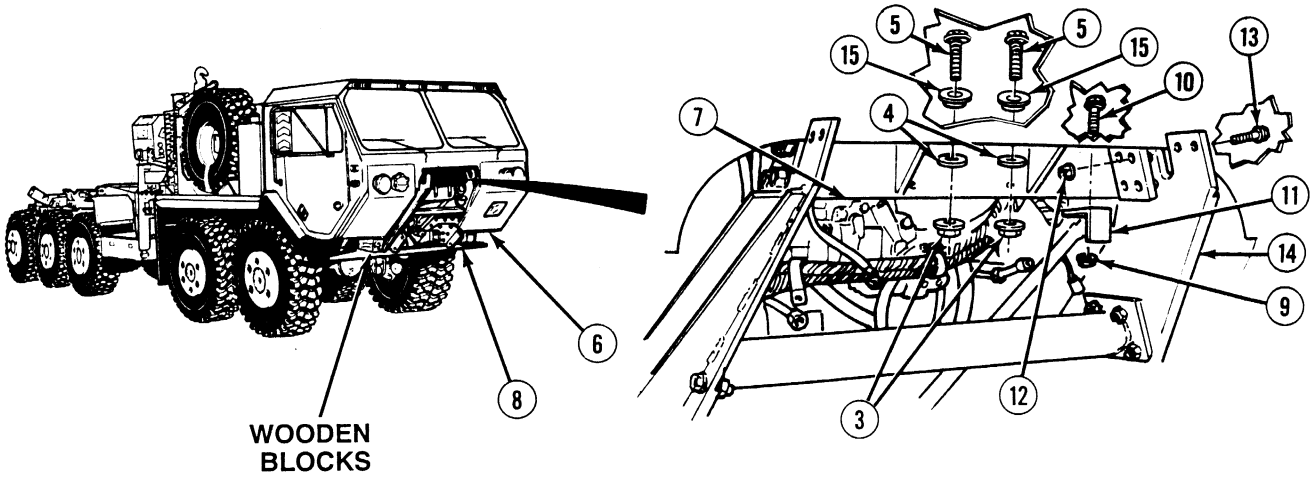




NOTE

Do not remove locknuts and screws from rear back mounts.

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



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

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

WARNING

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

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

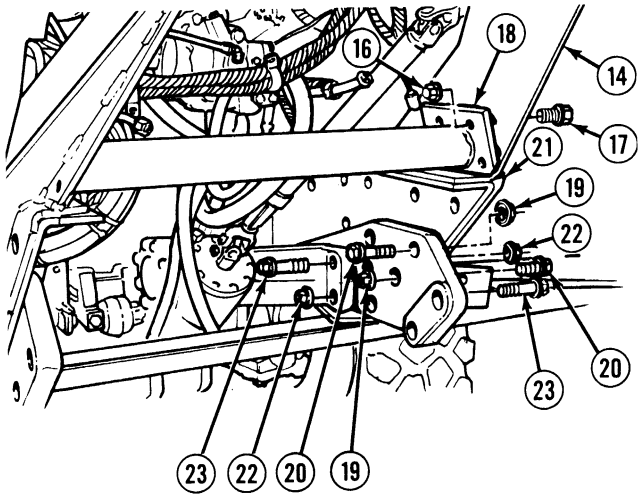
(5) Remove two locknuts (9), screws (10) and bracket (11) from cab mounting bracket (7). Discard locknuts.

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

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

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

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

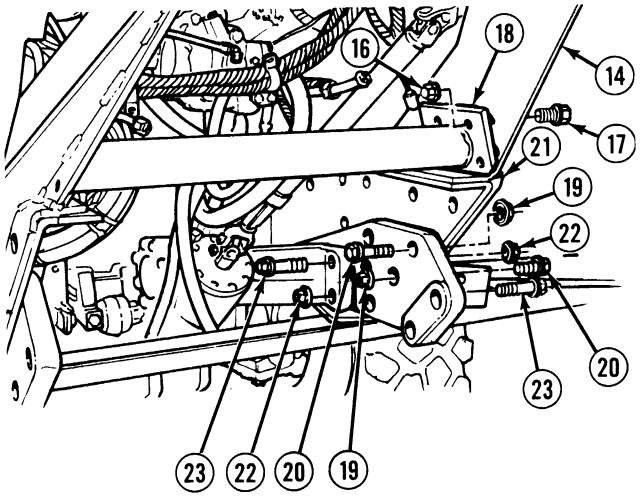


13-2. FRONT CAB SUPPORT REPLACEMENT (CONT).

NOTE

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

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



b. Installation.

NOTE

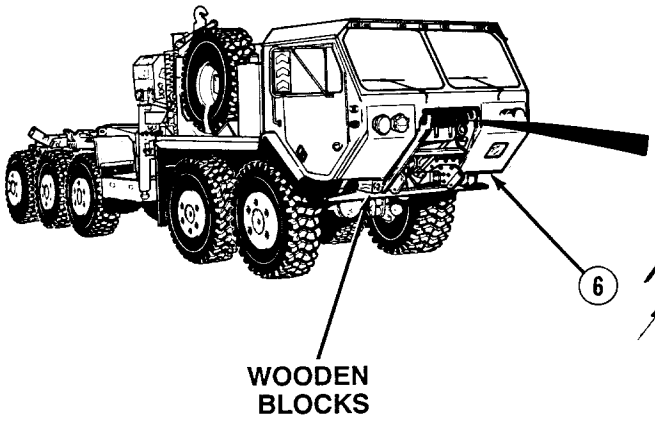
Cab may need to be shifted from side to side to install bottom screws from side brackets.

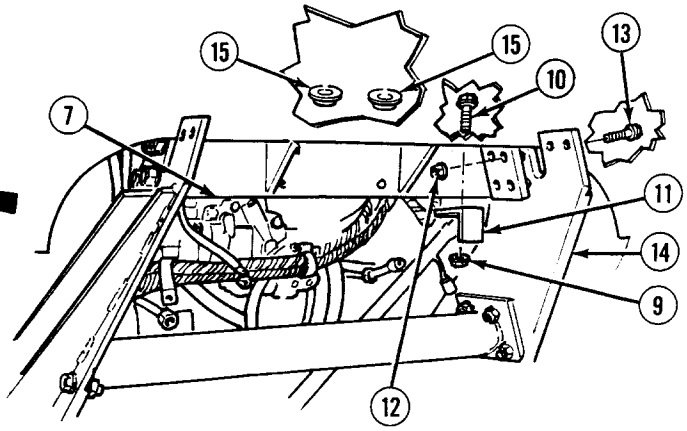
(1) With the aid of an assistant, position right and left side brackets (14) on frame (21) with four screws (23) and locknuts (22).

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

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

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

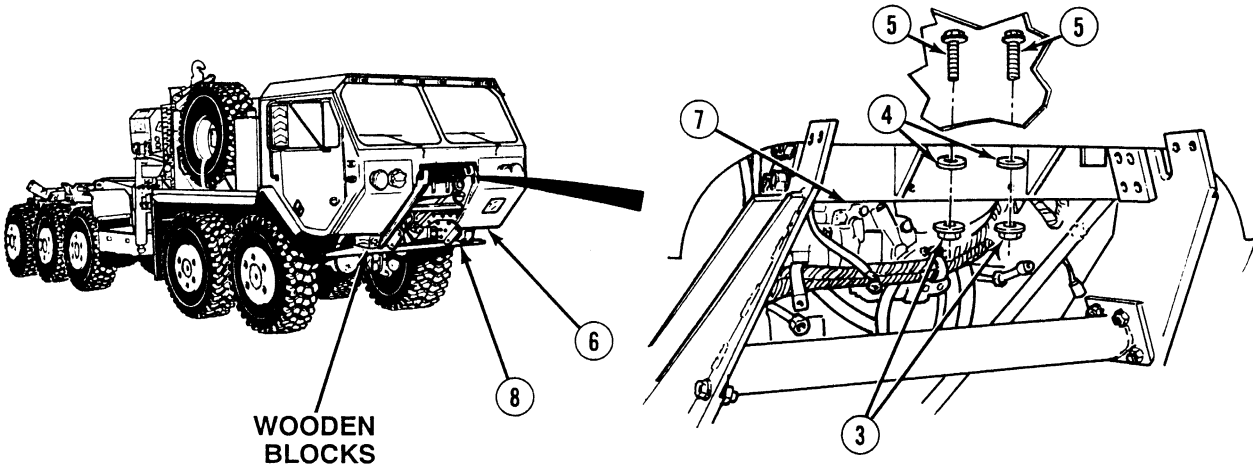




(5) Apply soap solution to two mounts (15) and install on cab mounting bracket (7).

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

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



WARNING

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

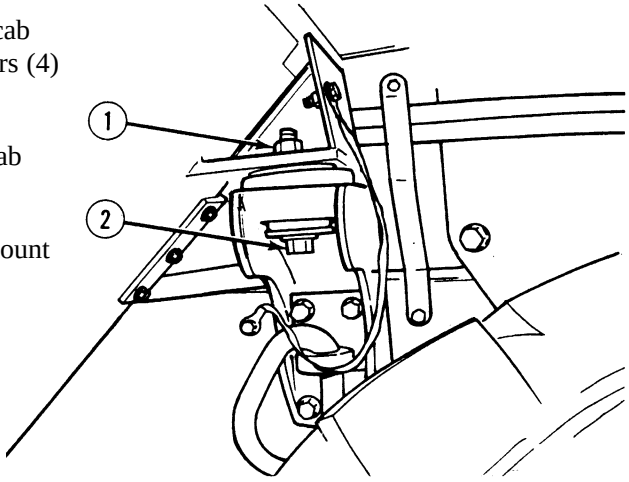
(8) Remove wooden blocks from between bottom of cab (6) and skid plate crossmember (8).

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

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

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

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



c. Follow-On Maintenance:

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

END OF TASK

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

This task covers:

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

INITIAL SETUP

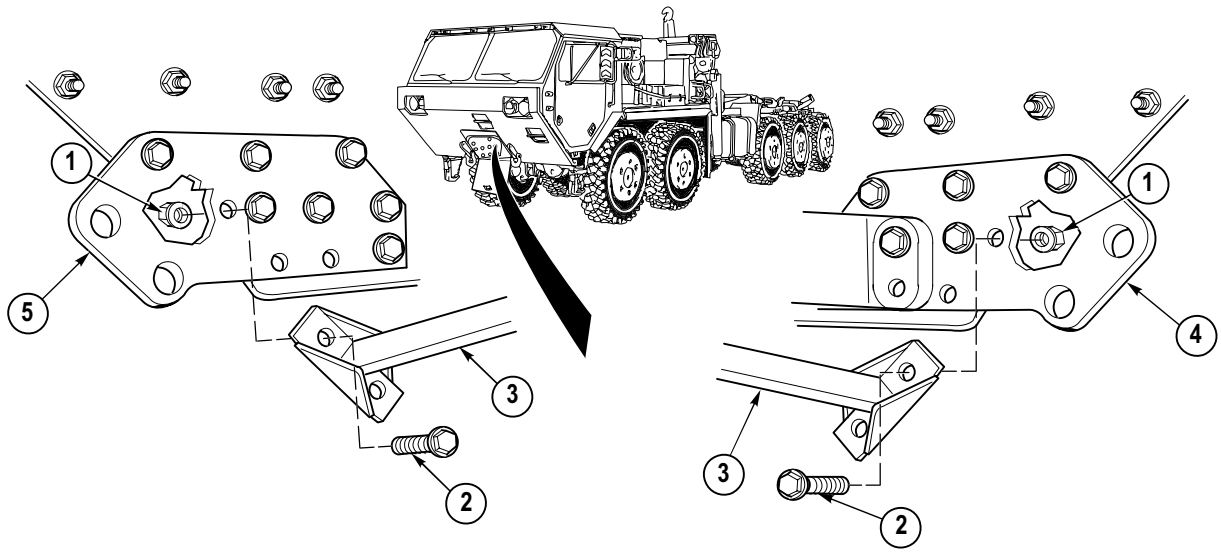
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Combination 1 1/8 in.
(Item 255, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)

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

Personnel Required
Two

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

a. Removal.



NOTE

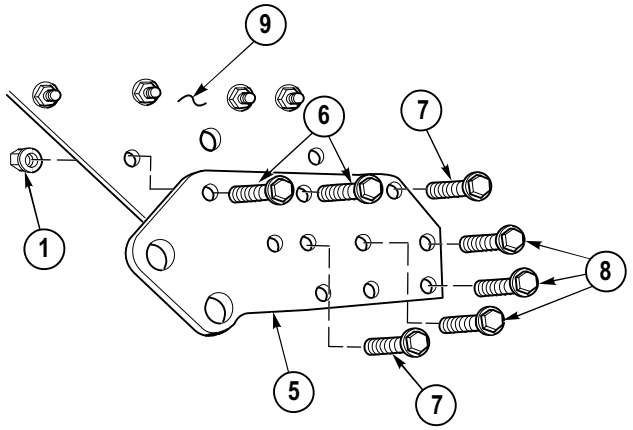
Tag and mark all screws prior to removal.

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

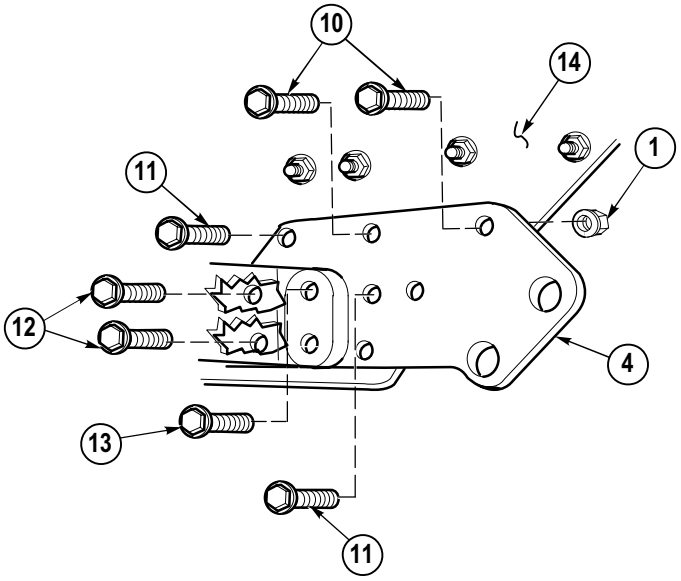
NOTE

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

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



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



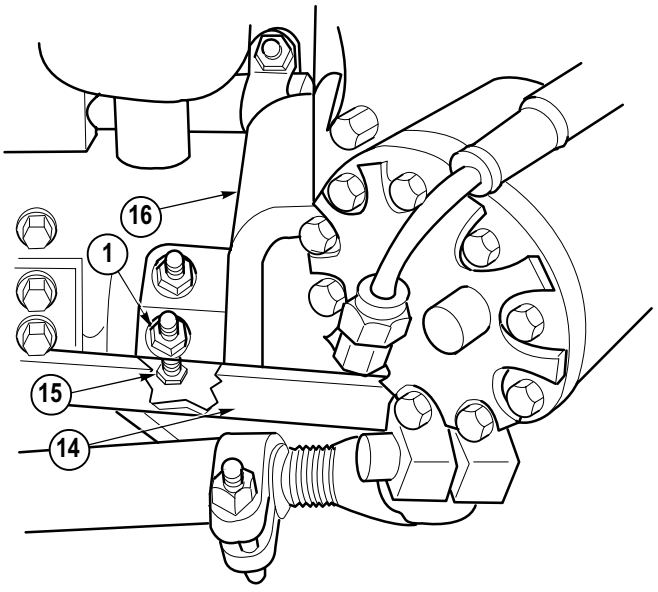
WARNING

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

NOTE

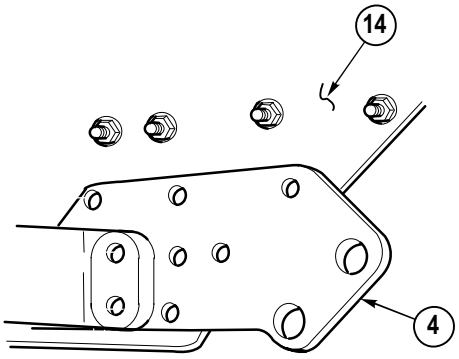
Loosening two nuts on steering gear mounting bracket is to relieve tension on left tow eye.

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



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

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



b. Installation.

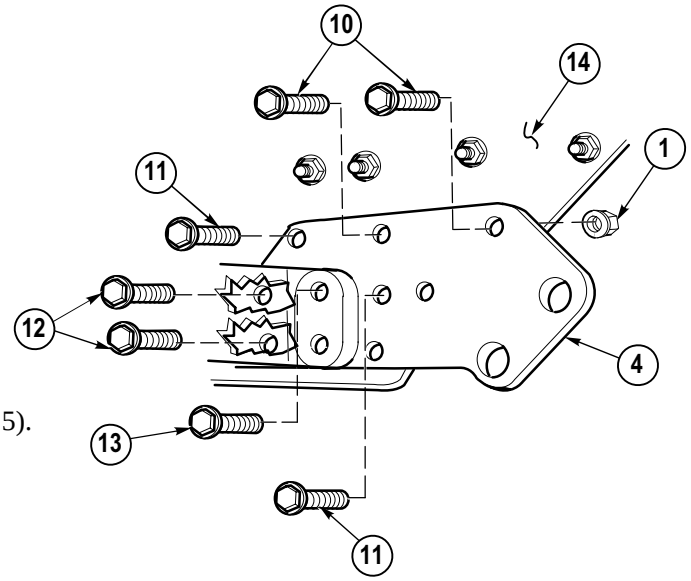
NOTE

All screws must be installed in original locations.

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

(2) Remove two locknuts (1) from screws (15). Discard locknuts.

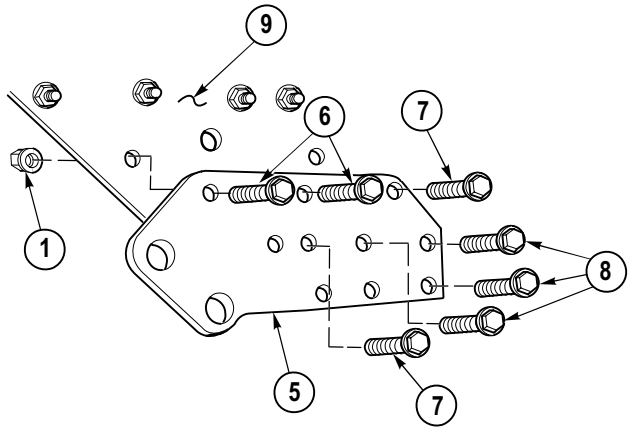
(3) Install two locknuts (1) on screws (15).

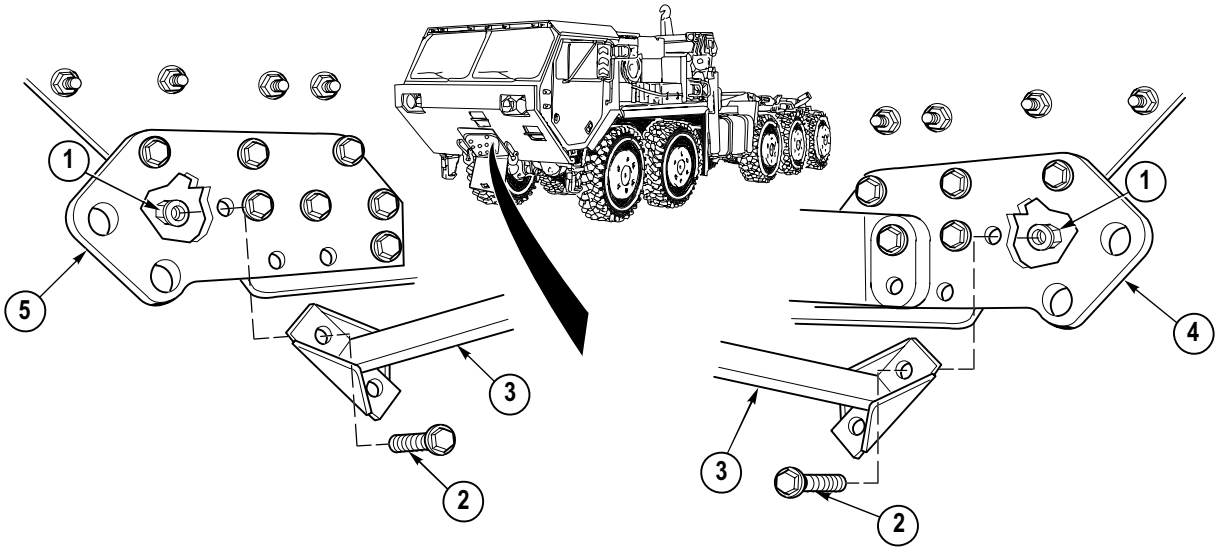


NOTE

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

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





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

c. Follow-On Maintenance.

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

END OF TASK

13-4. REAR CAB SUPPORT REPLACEMENT.

This task covers:

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

INITIAL SETUP

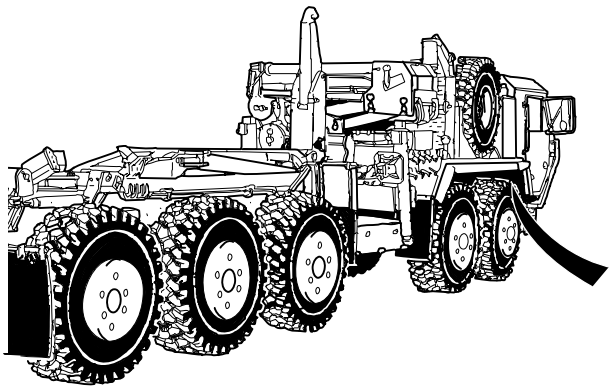
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Jack, Hydraulic, Hand (Item 128, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wooden Block (2) (Appendix C)

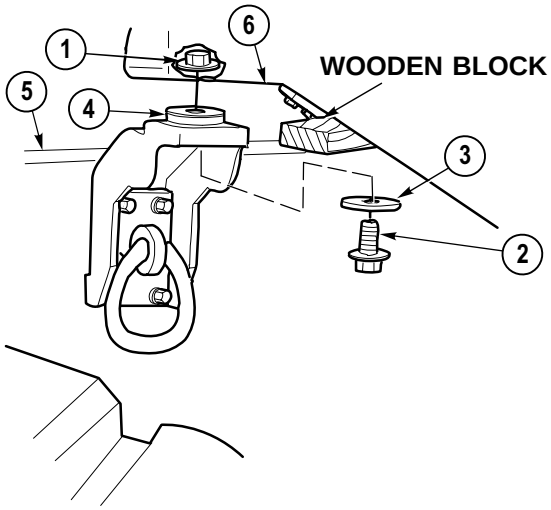
Materials/Parts
Solution, Soap (Item 67, Appendix B)
Locknut (8) (Item 166, Appendix E)
Locknut (2) (Item 188, Appendix E)

Personnel Required
Two

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

a. Removal.





NOTE

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

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

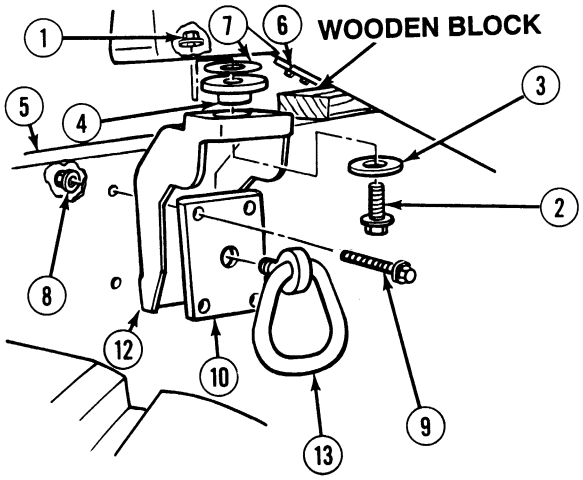
WARNING

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

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

NOTE

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



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

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

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

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

b. Installation.

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

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

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

NOTE

Install number of spacers as noted prior to removal.

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

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

WARNING

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

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

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

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

c. Follow-On Maintenance:

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

END OF TASK

13-5. FRONT CROSSMEMBER REPLACEMENT.

This task covers:

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

INITIAL SETUP

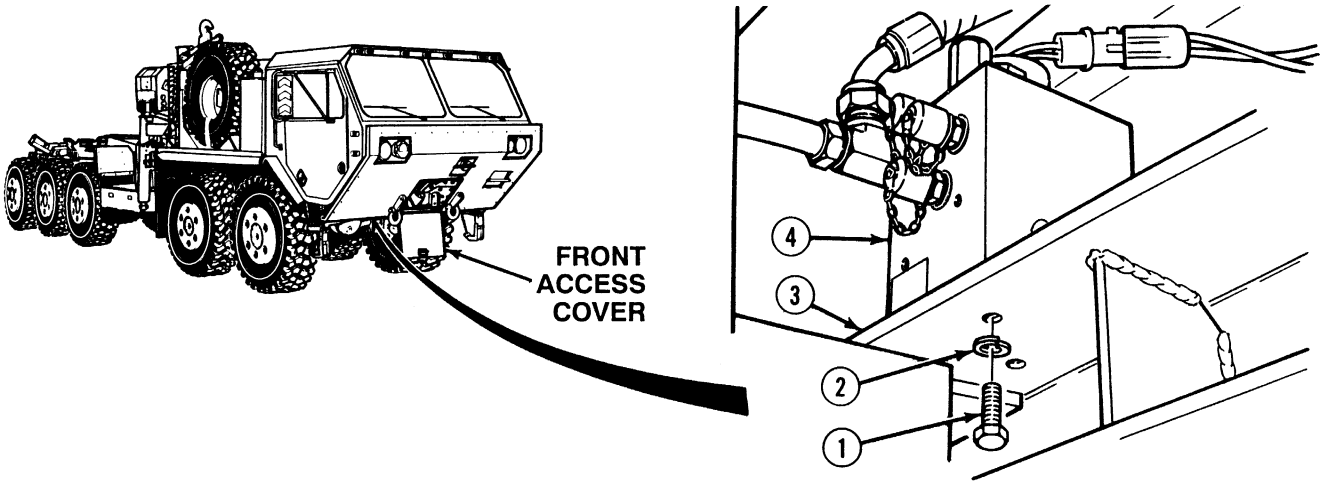
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)

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

Personnel Required
Two

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

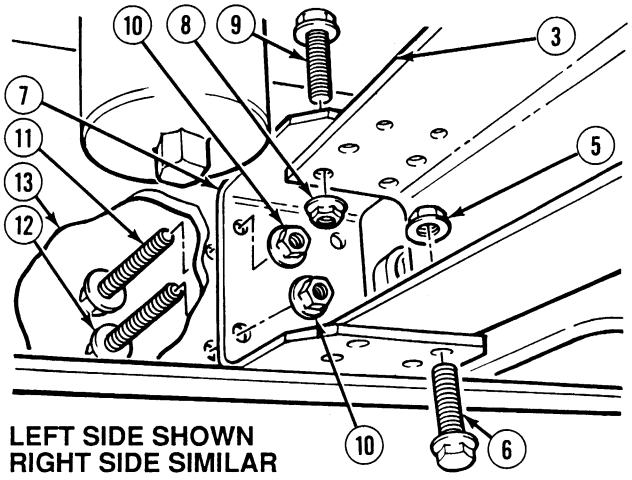
a. Removal.



(1) Open front access cover.

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

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



NOTE

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

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

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

b. Installation.

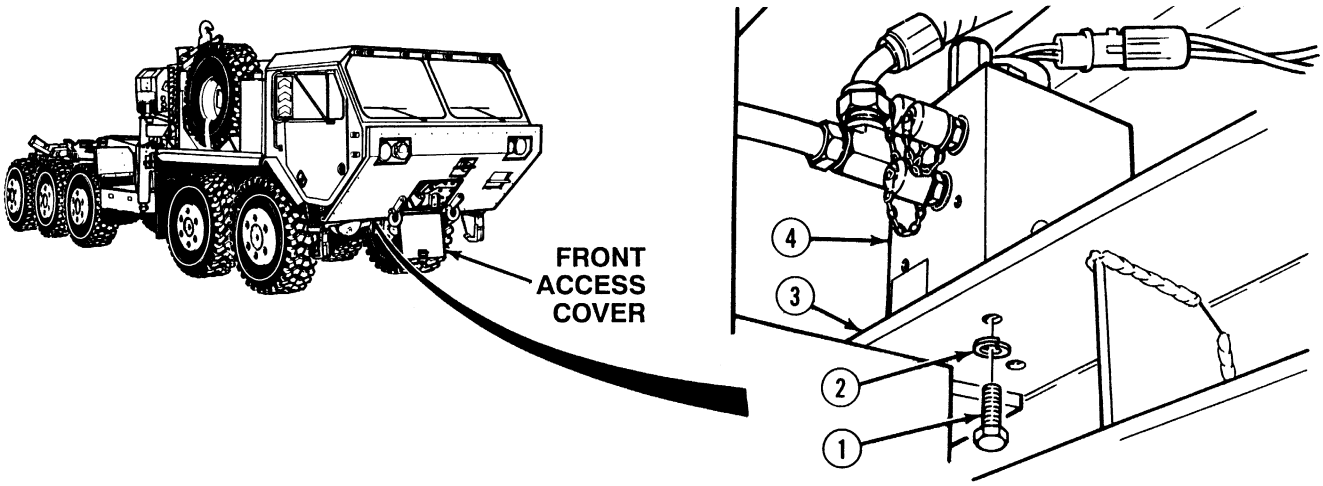
(1) Install front crossmember brackets (7) on frame (13) with four screws (11), four screws (12) and eight locknuts (10).

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

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

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

13-5. FRONT CROSSMEMBER REPLACEMENT (CONT).



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

(6) Close front access cover.

c. Follow-On Maintenance:

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

END OF TASK

13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT.

This task covers:

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

INITIAL SETUP

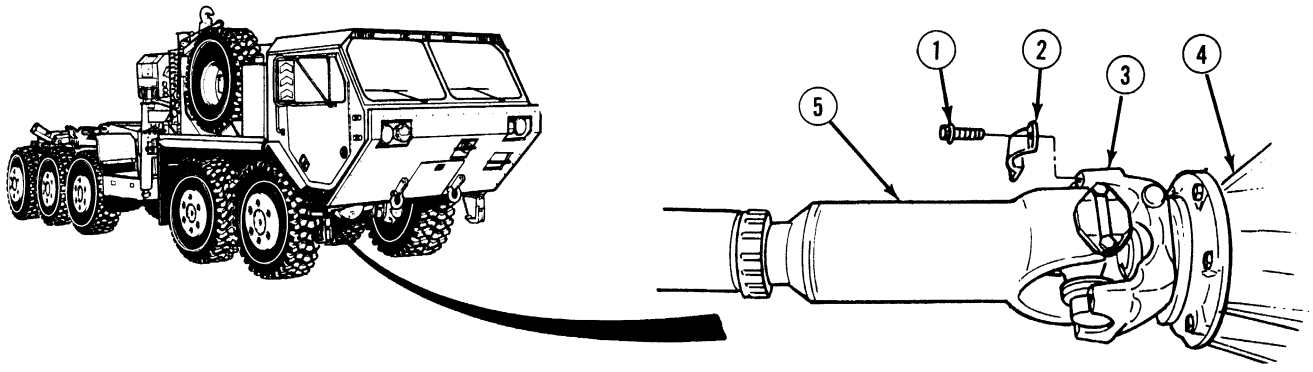
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 237, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 269, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 272, Appendix F)

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

Personnel Required
Two

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

a. Front Tandem Crossmember Removal.



SHOWN LOOKING UP.

NOTE

Tag and mark screws prior to removal.

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

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

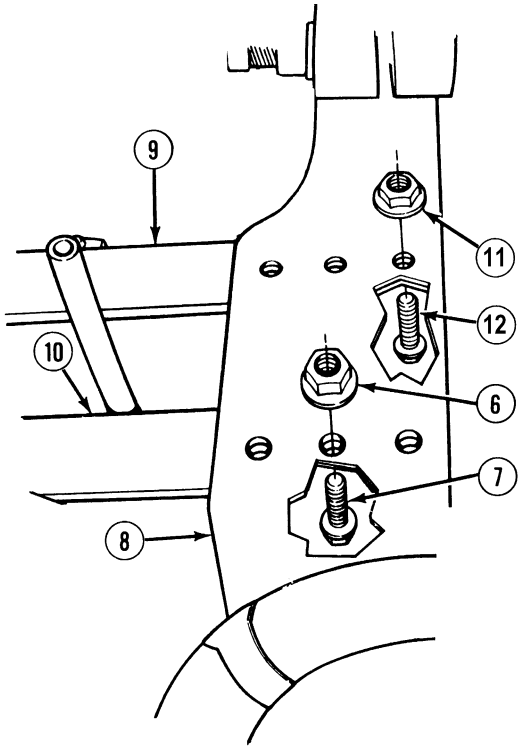
13-6. FRONT TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

NOTE

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

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

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



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

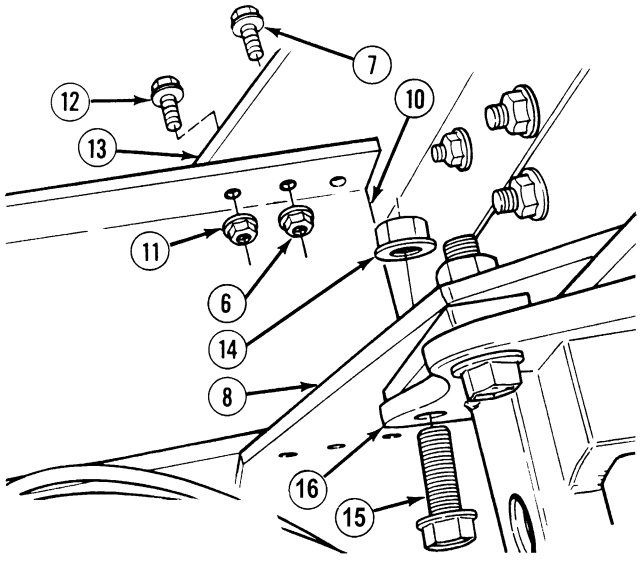
NOTE

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

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

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

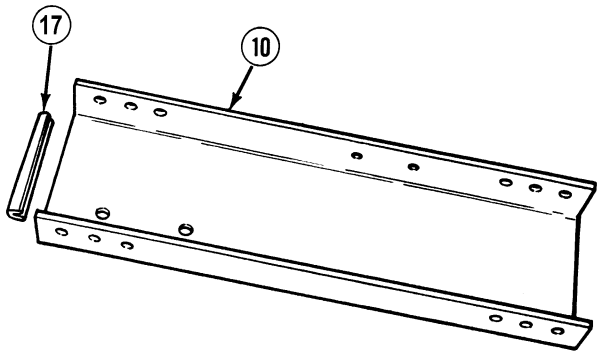
(8) Remove crossmember (10) from gussets (13) and (8).



NOTE

Perform Step (9) only if quickedge is damaged.

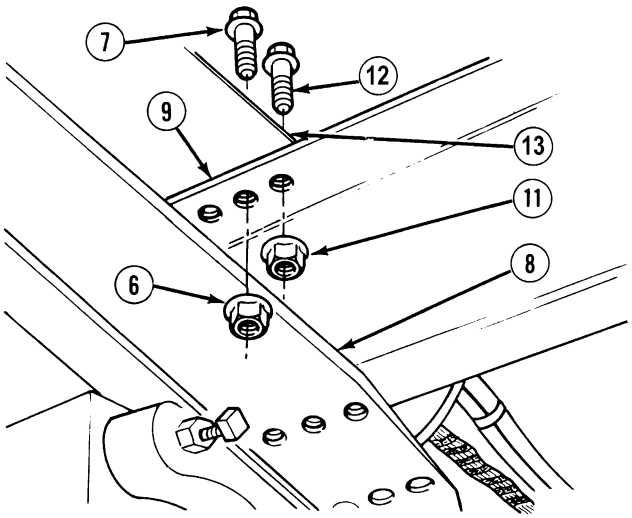
(9) Remove quickedge (17) from right side of crossmember (10).



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

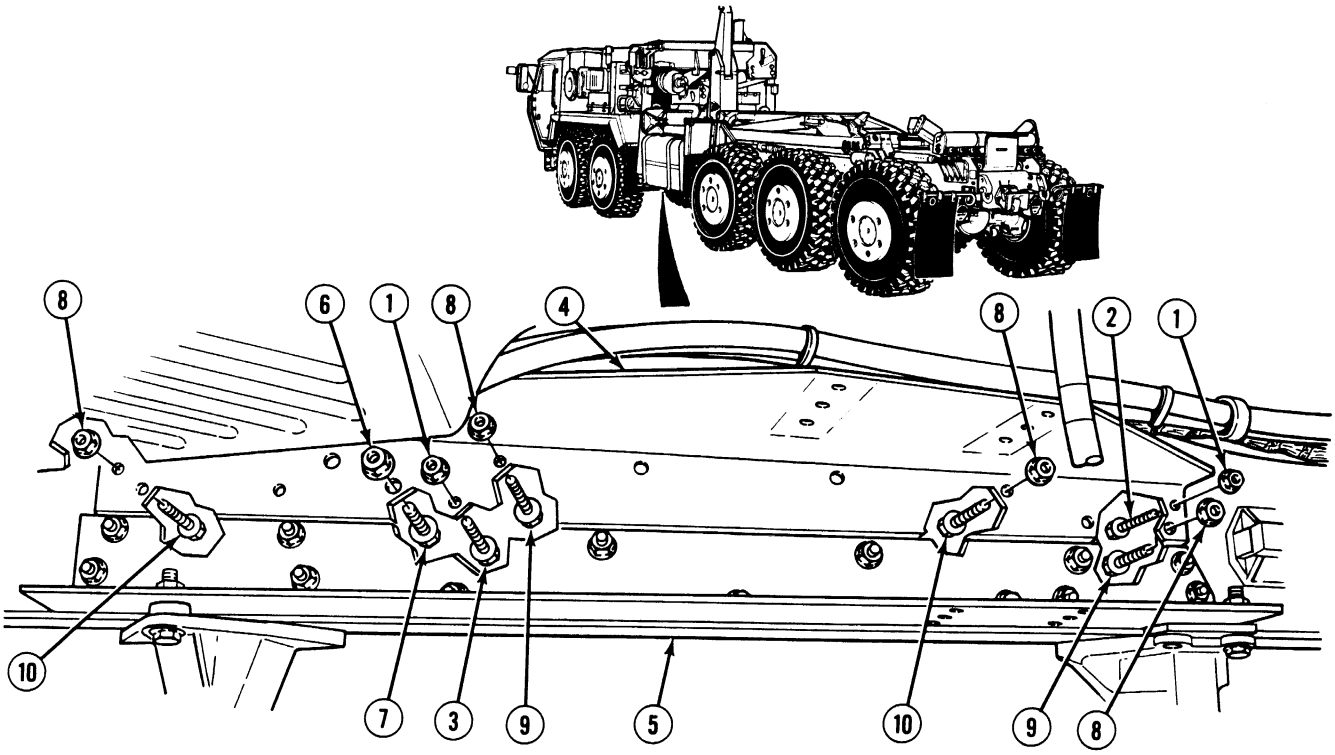
(11) With the aid of an assistant, remove four locknuts (11) and screws (12) from top gusset (13). Discard locknuts.

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



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

b. Upper Left Gusset Replacement.



(1) *Removal.*

CAUTION

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

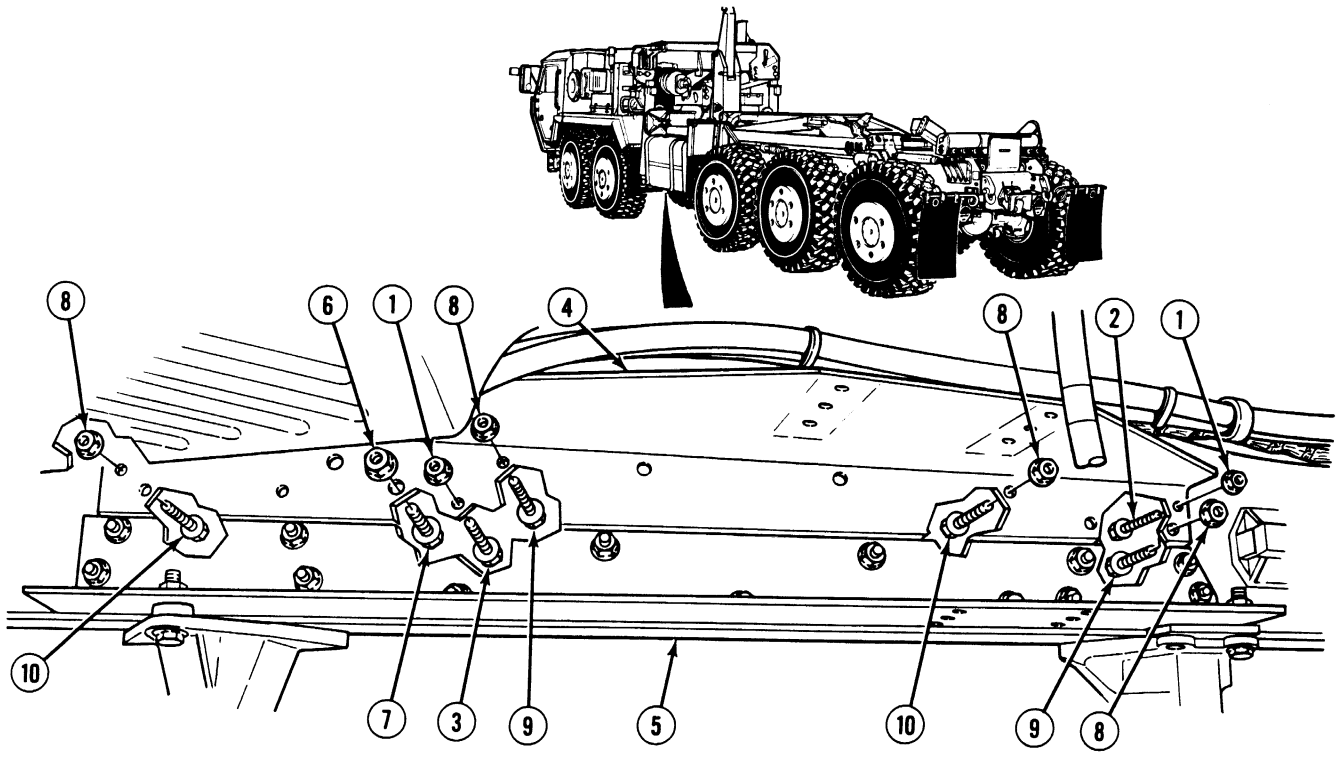
NOTE

Tag and mark all screws prior to removal.

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

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

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



(2) *Installation.*

NOTE

All screws must be installed in original location.

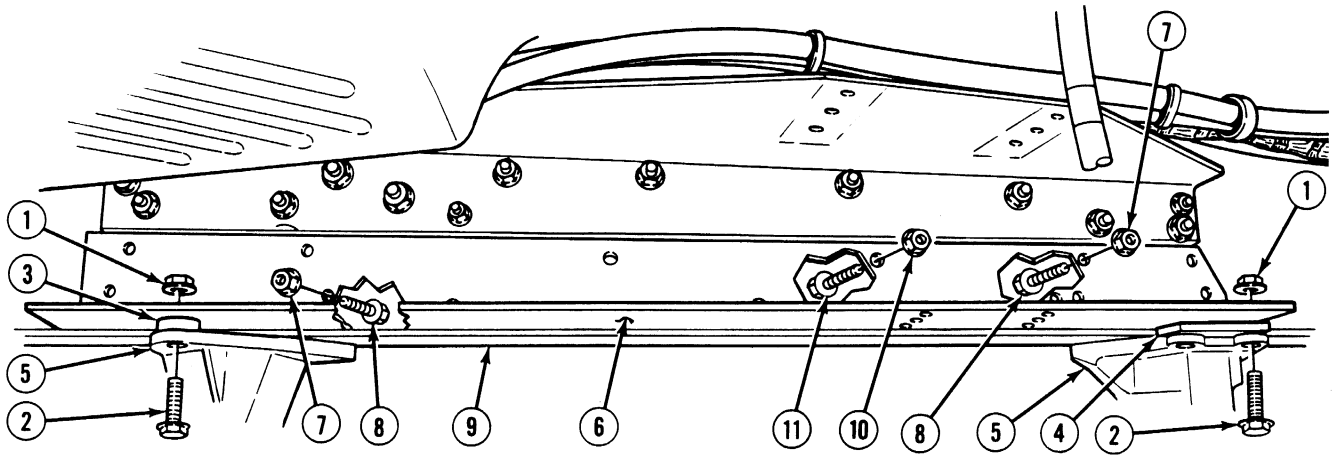
(a) With the aid of an assistant, position upper gusset (4) on frame (5) and install six screws (9) and three screws (10) with nine locknuts (8).

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

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

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

c. Lower Left Gusset Replacement.



(1) *Removal.*

CAUTION

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

NOTE

Tag and mark all screws prior to removal.

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

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

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

(2) *Installation.*

NOTE

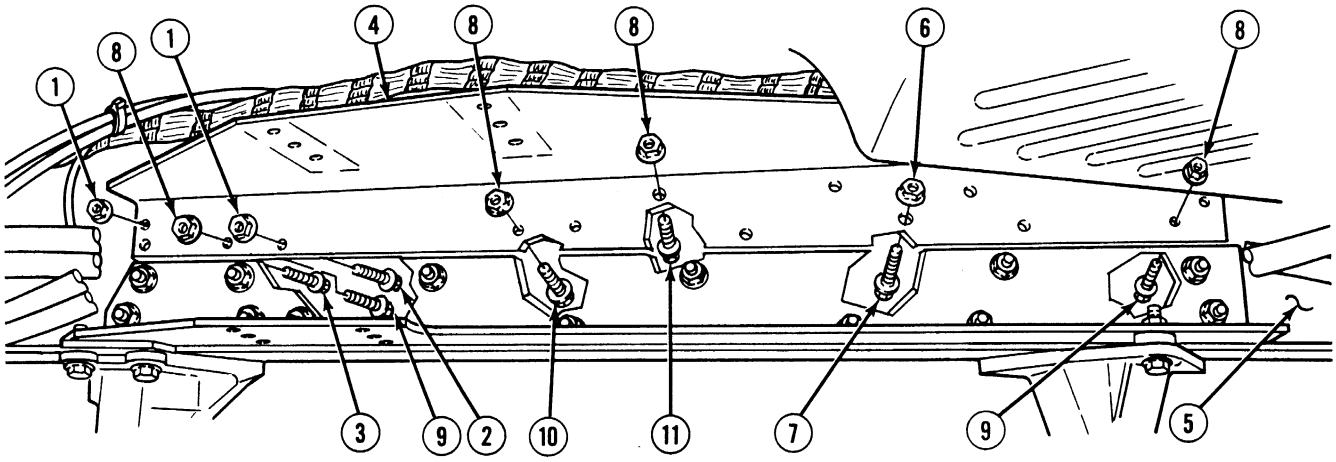
- Ensure all spacers are on top of spring mounts before installing lower gusset.
- All screws must be installed in original location.

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

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

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

d. Upper Right Gusset Replacement.



(1) *Removal.*

CAUTION

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

NOTE

Tag and mark all screws prior to removal.

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

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

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

(2) *Installation.*

NOTE

All screws must be installed in original locations.

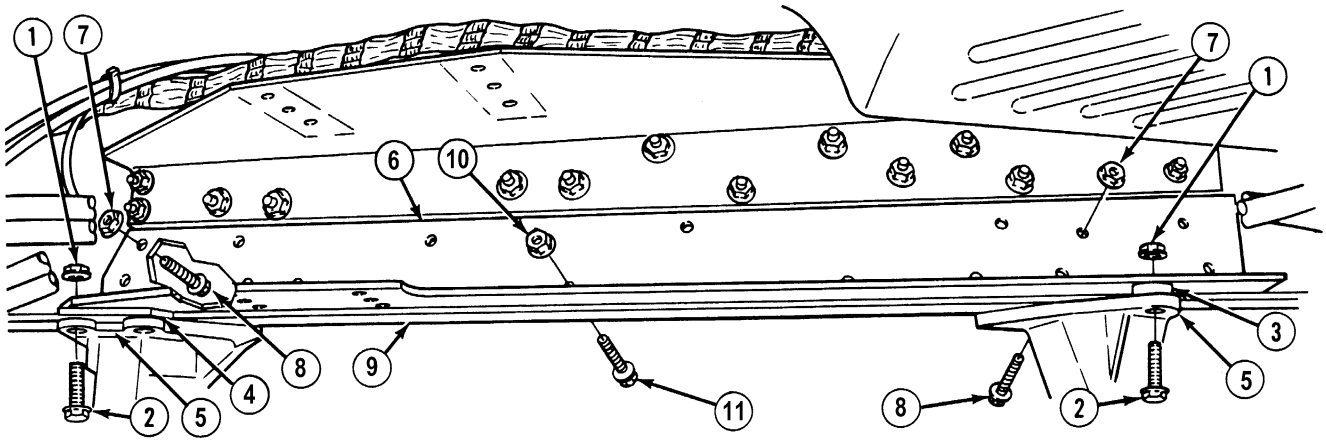
(a) With the aid of an assistant, position upper gusset (4) on frame (5) and install four screws (9), two screws (10) and three screws (11) with nine locknuts (8).

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

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

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

e. Lower Right Gusset Replacement.



(1) *Removal.*

CAUTION

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

NOTE

Tag and mark all screws prior to removal.

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

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

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

(2) *Installation.*

NOTE

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

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

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

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

f. Front Tandem Crossmember Installation.

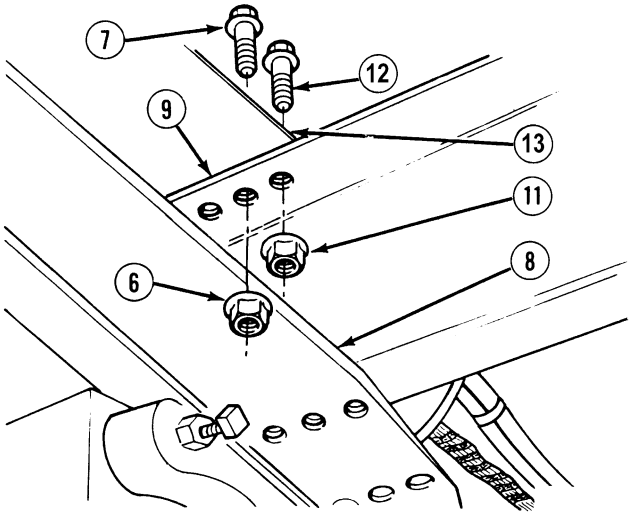
NOTE

All screws must be installed in original locations.

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

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

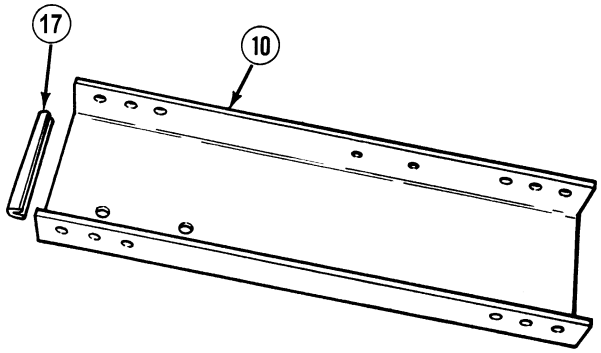
(3) With the aid of an assistant, install two screws (7) and locknut (6) in gusset (13), (8) and crossmember (9).



NOTE

Perform Step (4) if quickedge was removed.

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



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

NOTE

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

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

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

NOTE

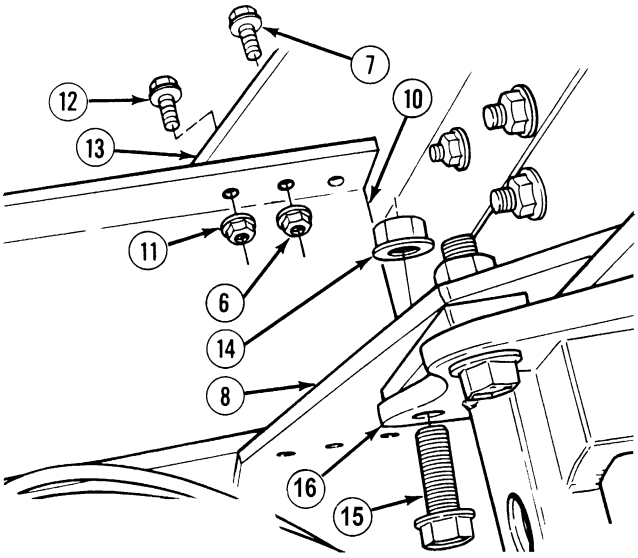
To install locknuts in top gusset and crossmember, position extension rod through holes in bottom gusset and crossmember.

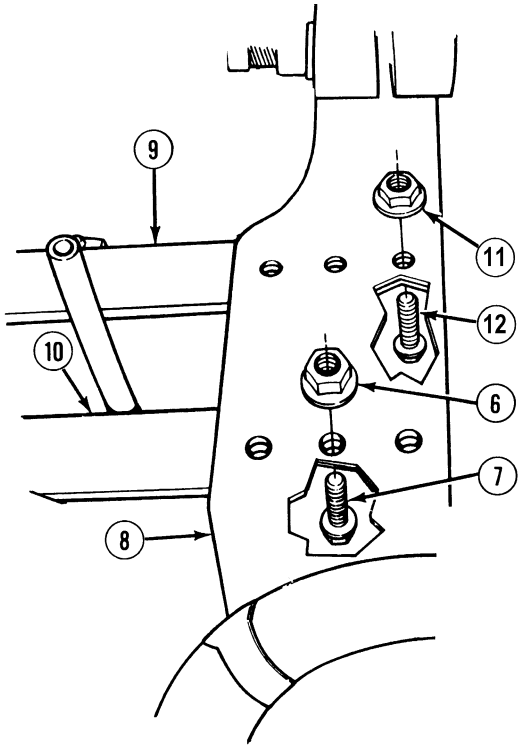
(7) With the aid of an assistant, install four screws (12) and locknuts (11) in top gusset (13) and crossmember (10).

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

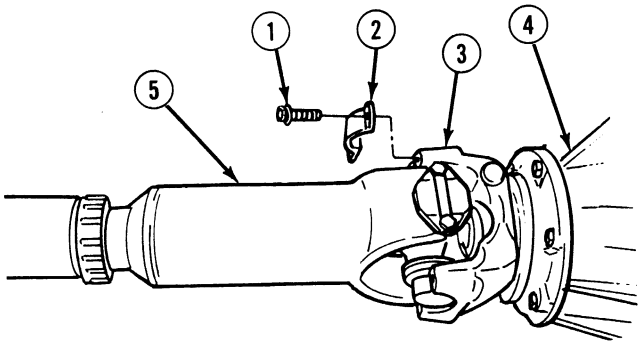
(9) With the aid of an assistant, install eight screws (12) and locknuts (11) in bottom gusset (8) and crossmembers (9) and (10).

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





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



WARNING

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

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

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

g. Follow-On Maintenance:

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

END OF TASK

13-7. INTERMEDIATE CROSSMEMBER NO. 1 REPLACEMENT.

This task covers:

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

INITIAL SETUP

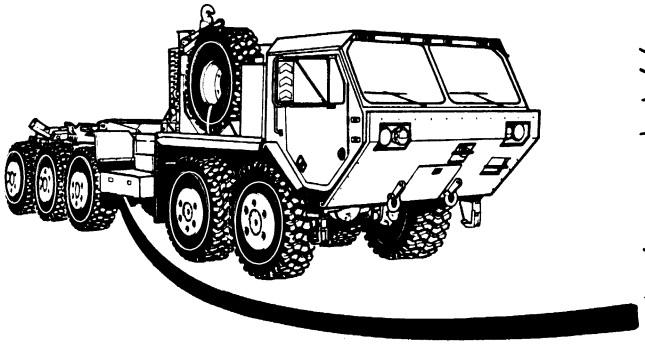
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

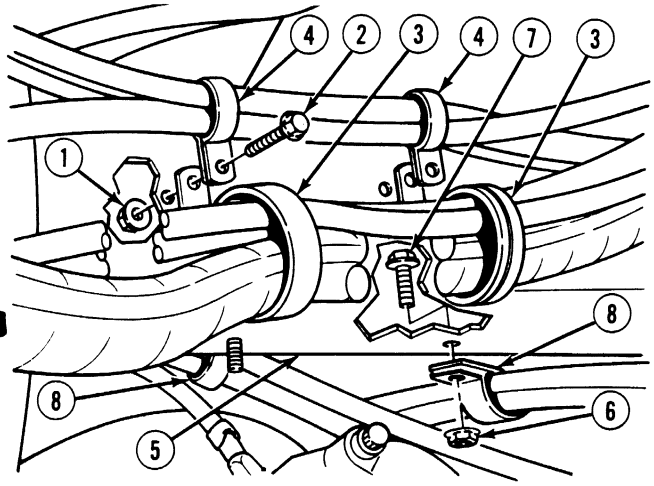
Materials/Parts
Cable Ties (Item 9, Appendix B)
Locknut (24) (Item 166, Appendix E)
Locknut (Item 167, Appendix E)
Locknut (7) (Item 176, Appendix E)
Locknut (2) (Item 177, Appendix E)

Personnel Required
Two

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

a. Removal.



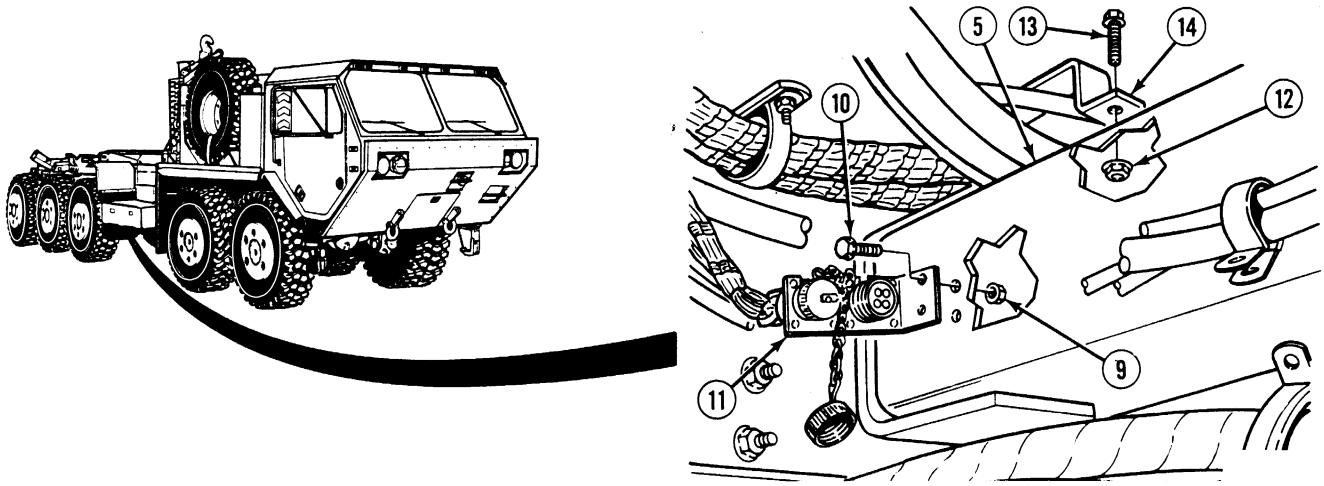


NOTE

Remove cable ties as required.

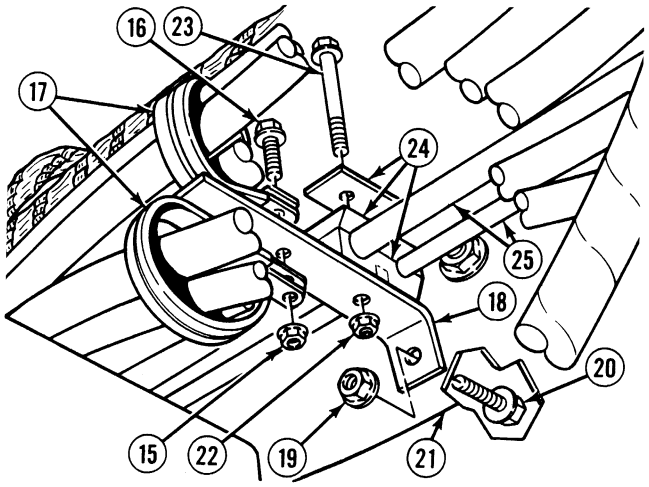
(1) Remove two locknuts (1), screws (2), cushion clips (3) and cushion clips (4) from crossmember (5). Discard locknuts.

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



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

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



NOTE

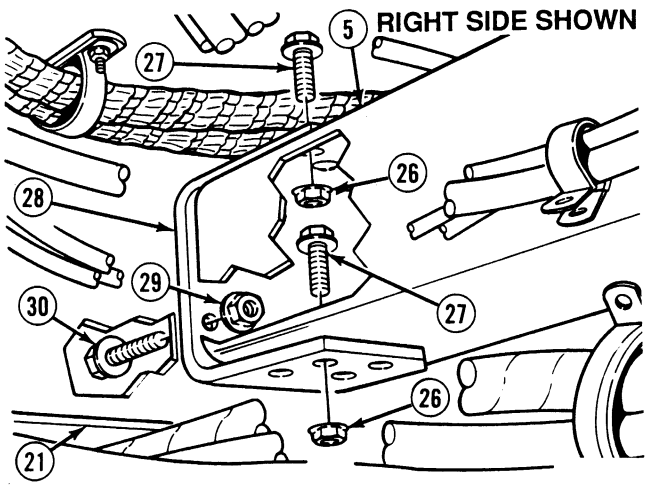
Trucks equipped with cranes use existing bracket mounting screws.

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

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

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

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



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

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

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

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

b. Installation.

NOTE

Install cable ties as required.

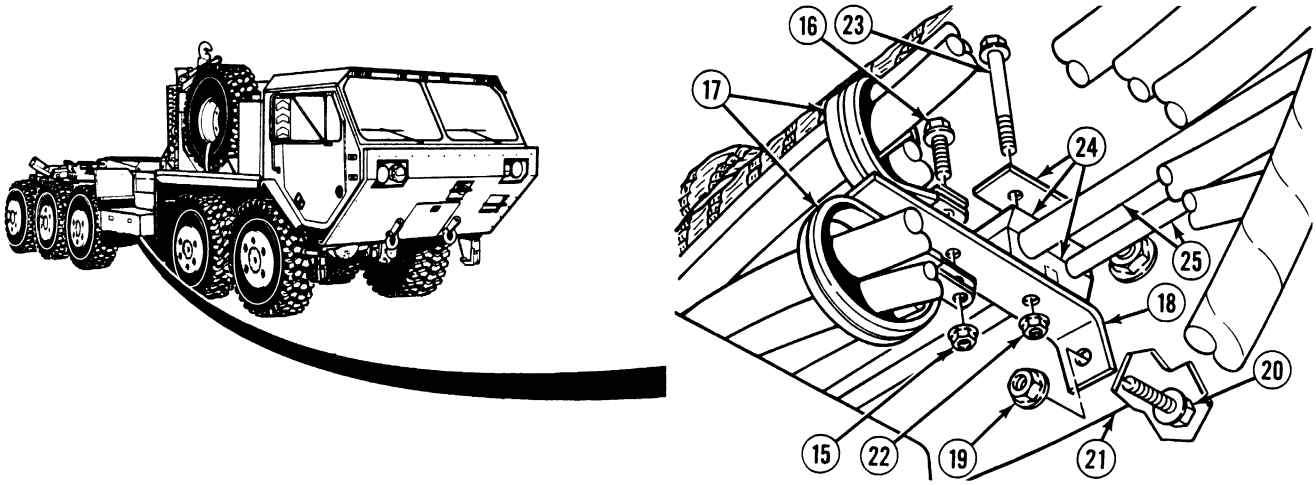
(1) With the aid of an assistant, install two brackets (28) on frame (21) with eight screws (30) and locknuts (29).

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

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

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

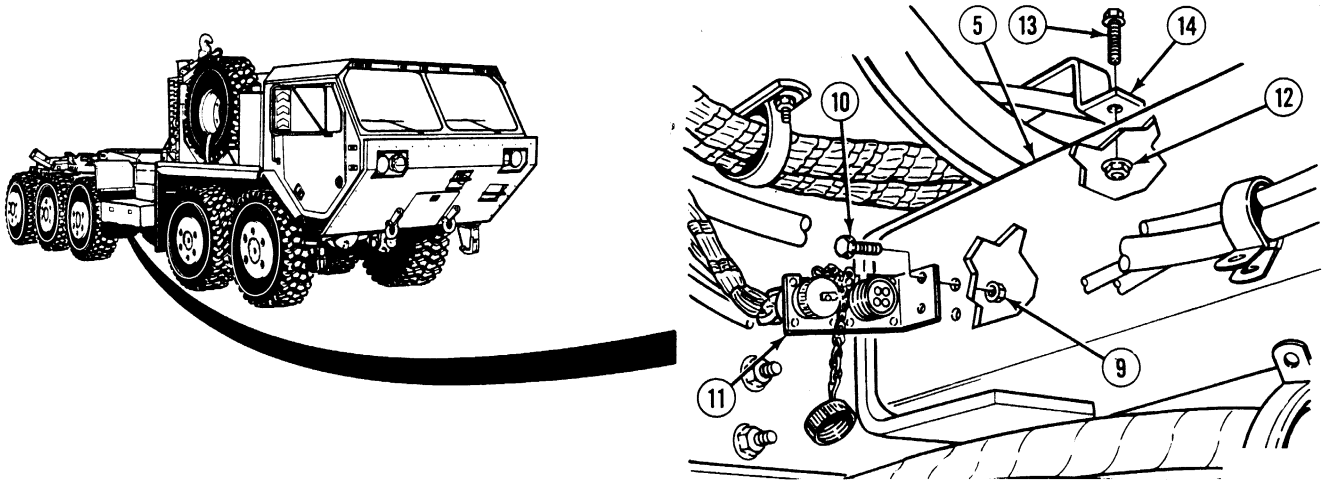
(5) Tighten eight locknuts (26) on screws (27) in top of two bracket (28).



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

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

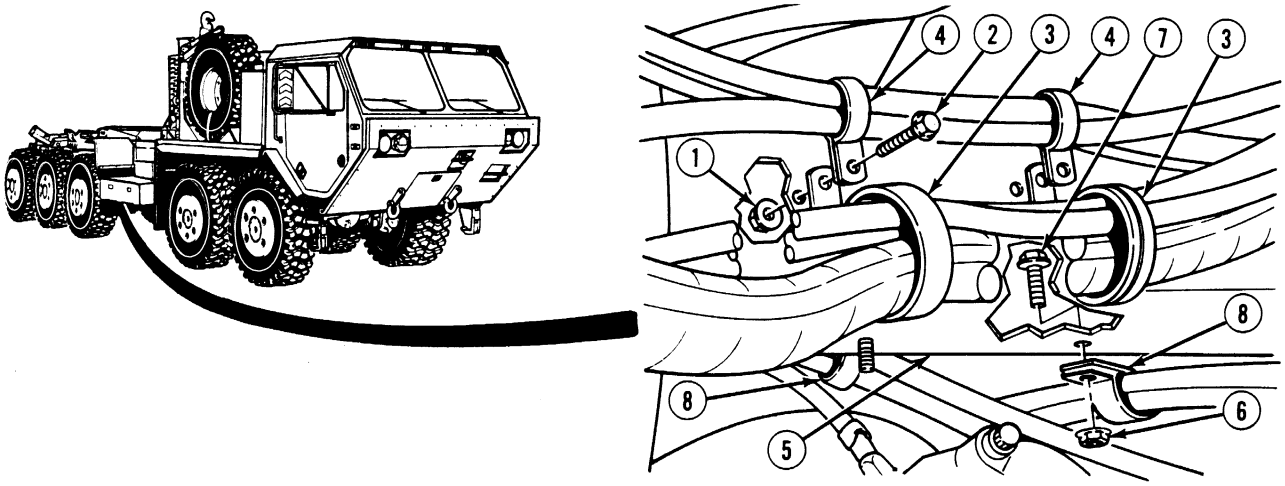
(8) Install two cushion clips (17) on bracket (18) with screw (16) and locknut (15).



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

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

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



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

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

c. Follow-On Maintenance:

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

END OF TASK

13-8. INTERMEDIATE CROSSMEMBER NO. 2 REPLACEMENT.

This task covers:

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

INITIAL SETUP

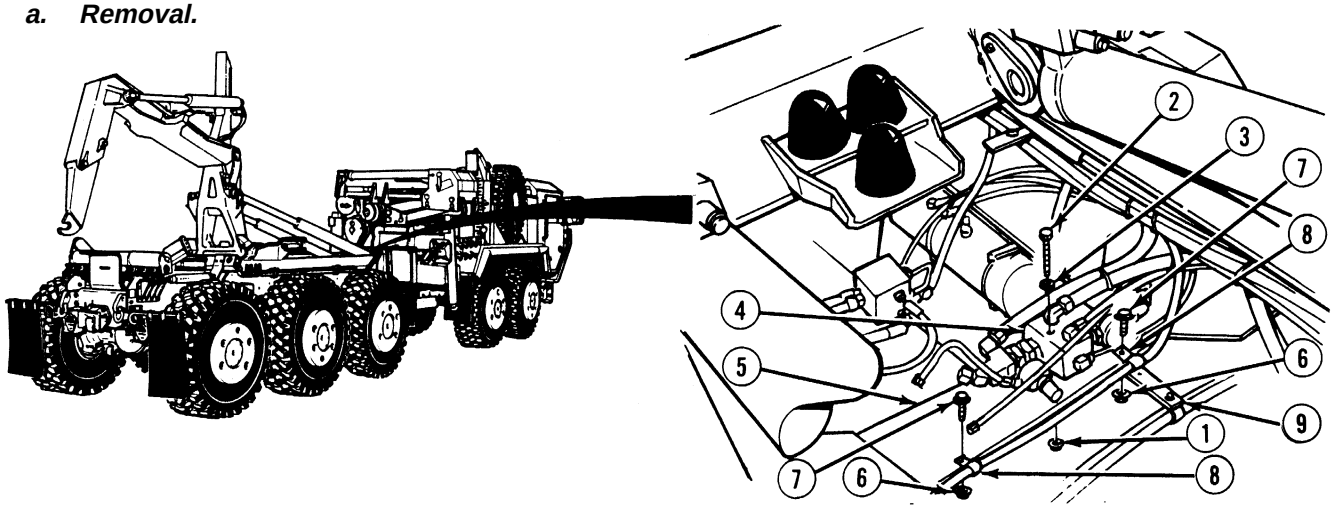
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

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

Personnel Required
Two

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

a. Removal.



NOTE

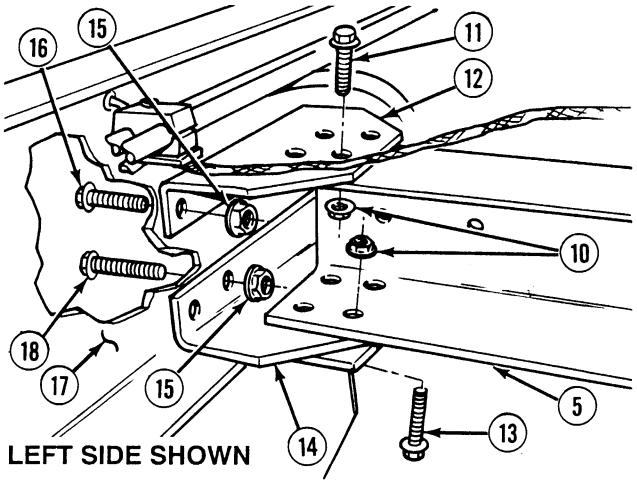
Remove cable ties as required.

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

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

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

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



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

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

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

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

NOTE

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

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

b. Installation.

NOTE

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

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

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

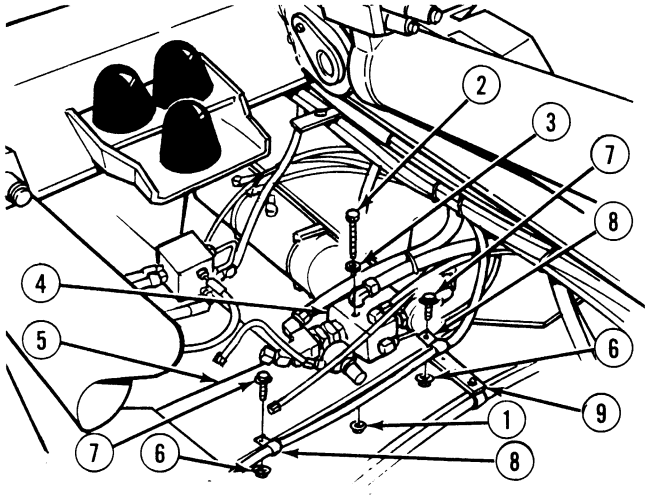
(3) With the aid of an assistant, position crossmember (5) in upper and lower brackets (12) and (14).

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

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

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

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



c. Follow-On Maintenance:

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

END OF TASK

13-9. INTERMEDIATE CROSSMEMBER NO. 3 REPLACEMENT.

This task covers:

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

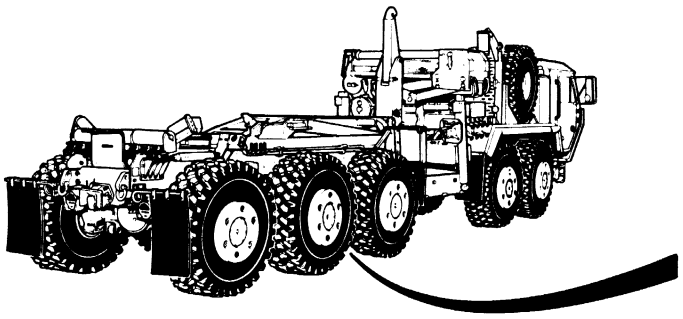
INITIAL SETUP

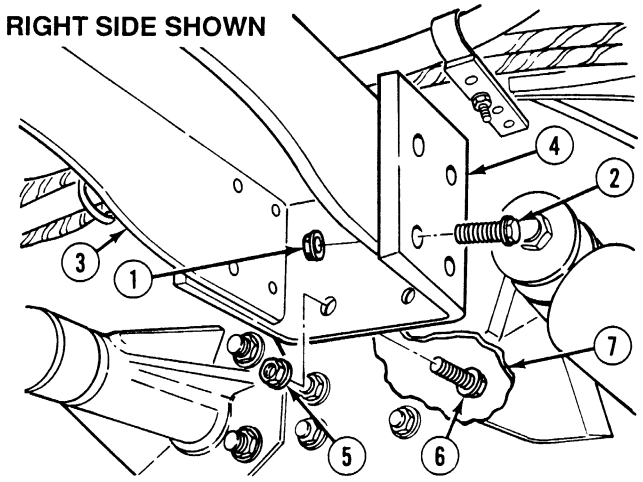
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

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

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

a. Removal.





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

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

b. Installation.

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

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

c. Follow-On Maintenance:

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

END OF TASK

13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT.

This task covers:

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

INITIAL SETUP

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

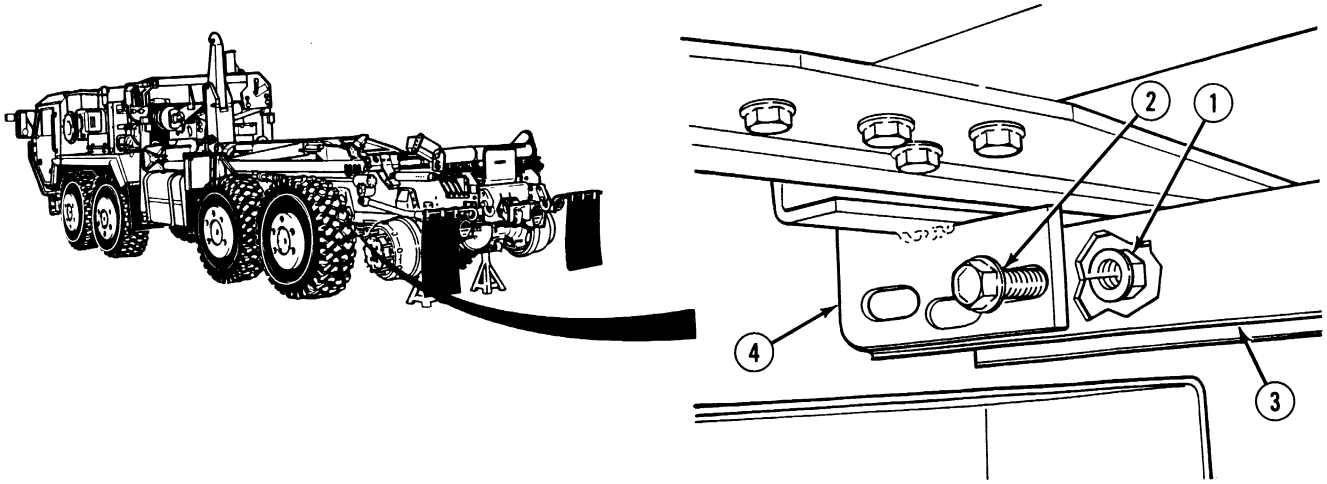
Materials/Parts
Adhesive (Item 1, Appendix B)
Cable Ties (Item 9, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (78) (Item 166, Appendix E)
Locknut (22) (Item 167, Appendix E)
Locknut (6) (Item 176, Appendix E)
Locknut (Item 210, Appendix E)
Quickedge Molding (Item 458, Appendix E)
Setscrew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

Personnel Required
Two

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

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

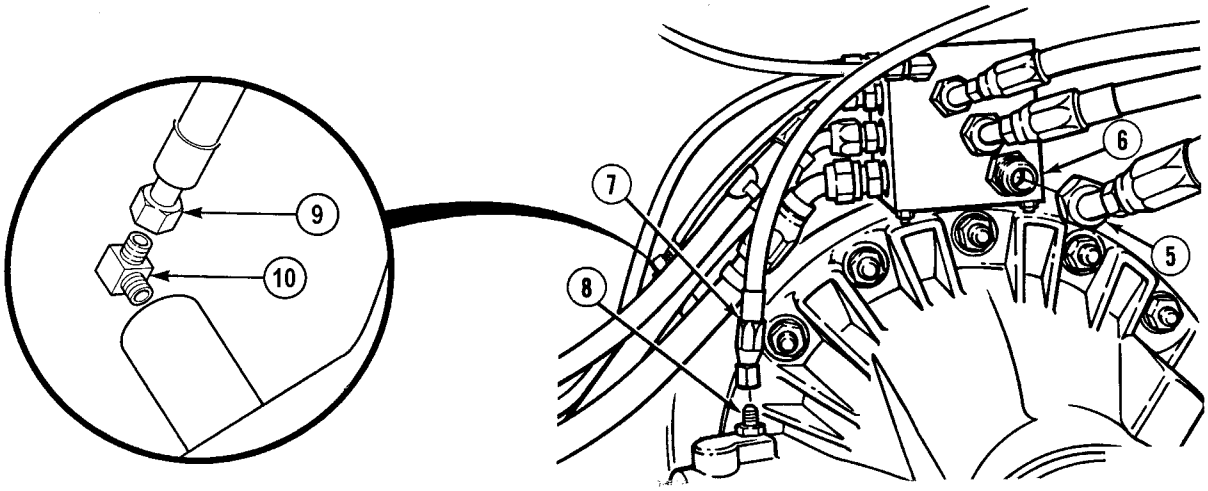
a. Rear Tandem Crossmember Removal.



NOTE

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

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

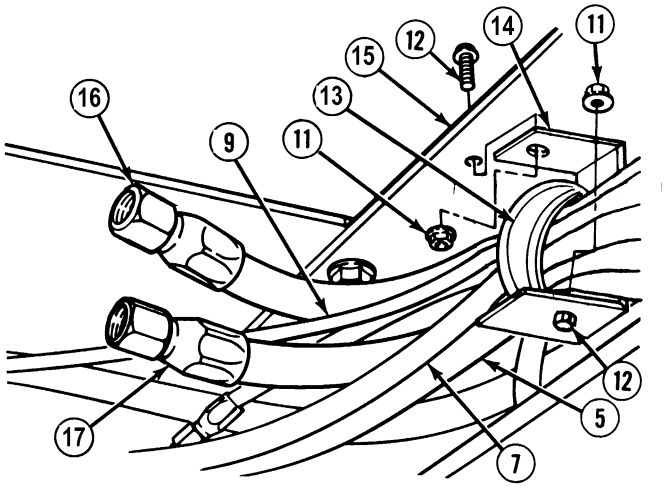


(2) Remove air line 2872 (5) from fitting (6), air line 2338 (7) from fitting (8) and vent line 2893 (9) from fitting (10).

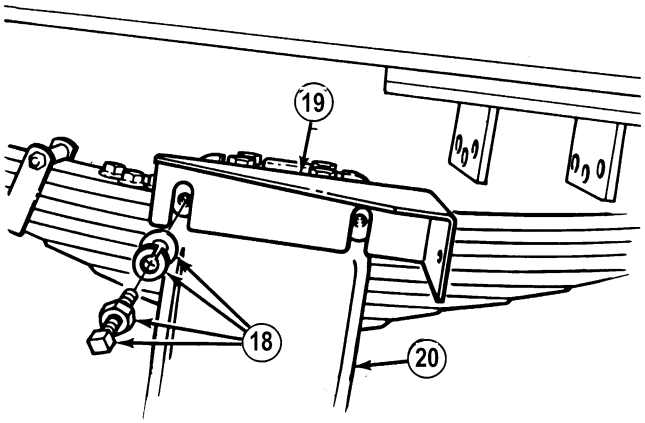
(3) Remove four locknuts (11), screws (12) and clips (13) from brackets (14) and rear tandem crossmember (15). Discard locknuts.

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

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



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

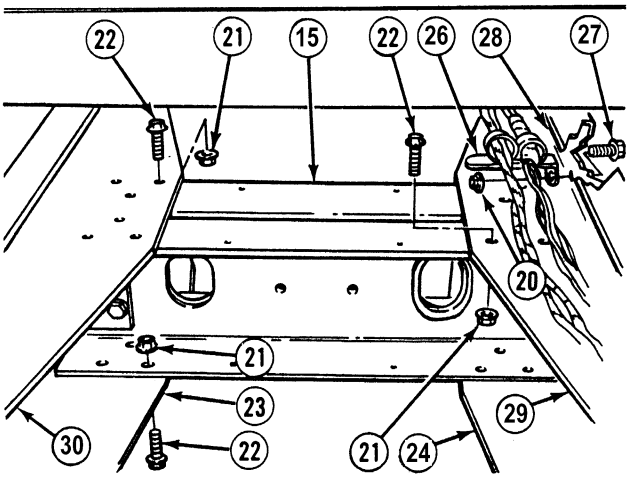


(7) With the aid of an assistant, remove twelve locknuts (21) and screws (22) from bottom of rear lower gussets (23) and (24) and rear tandem crossmember (15). Discard locknuts.

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

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

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



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

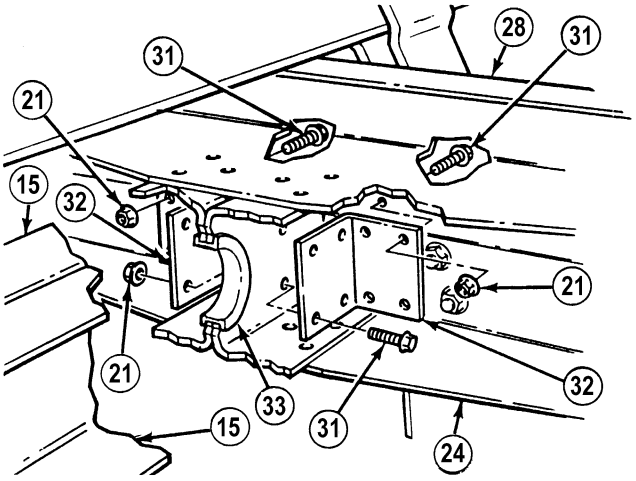
(11) With the aid of an assistant, remove four locknuts (21) and screws (31) from two angles (32) and rear tandem crossmember (15). Discard locknuts.

NOTE

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

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

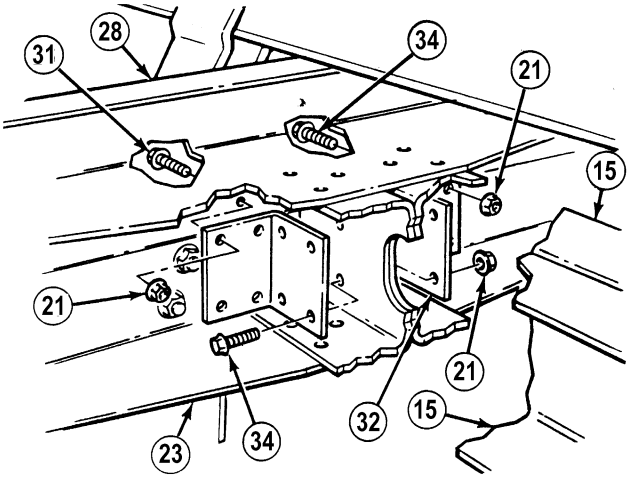
(13) Remove quick edge (33) from rear tandem crossmember (15). Discard quick edge.



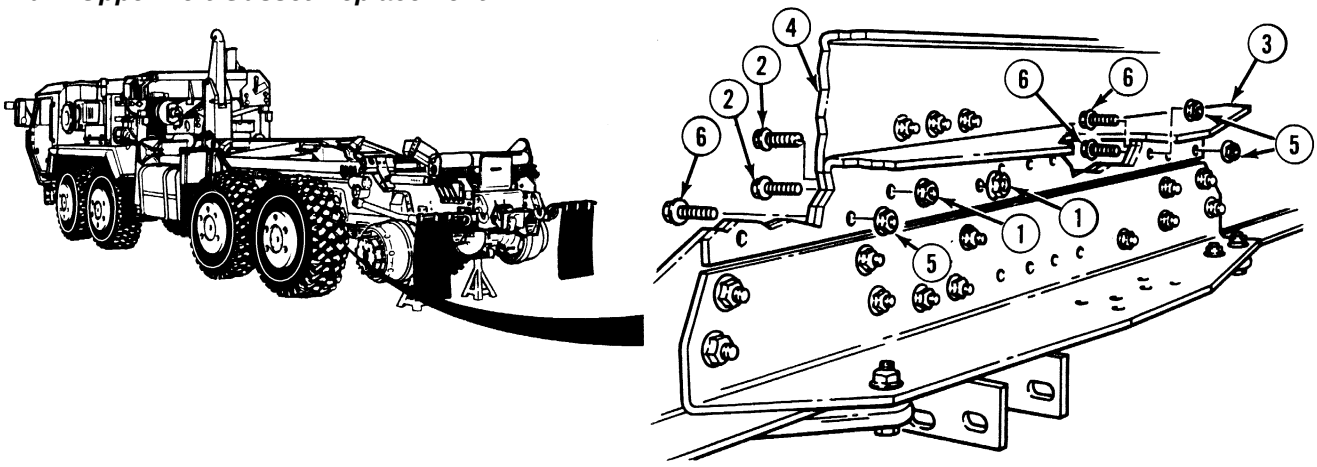
(14) With the aid of an assistant, remove four locknuts (21) and screws (34) from two angles (32) and rear tandem crossmember (15). Discard locknuts.

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

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



b. Upper Left Gusset Replacement.



(1) *Removal.*

CAUTION

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

NOTE

Tag and mark all screws prior to removal.

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

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

(2) *Installation.*

NOTE

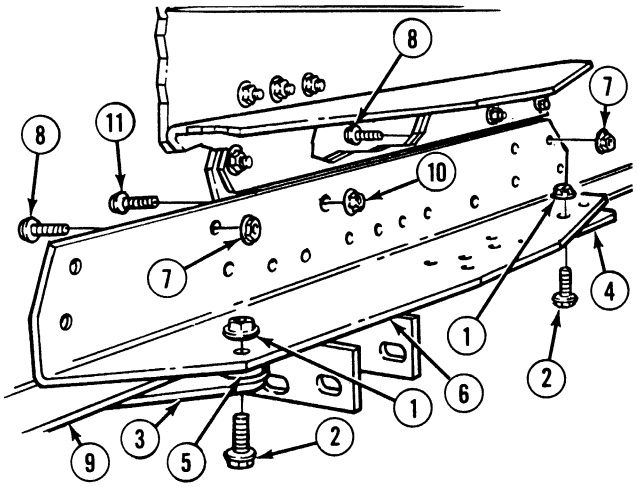
All screws must be installed in original locations.

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

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

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

c. Lower Left Gusset Replacement.



(1) *Removal.*

CAUTION

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

NOTE

Tag and mark all screws prior to removal.

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

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

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

(2) *Installation.*

NOTE

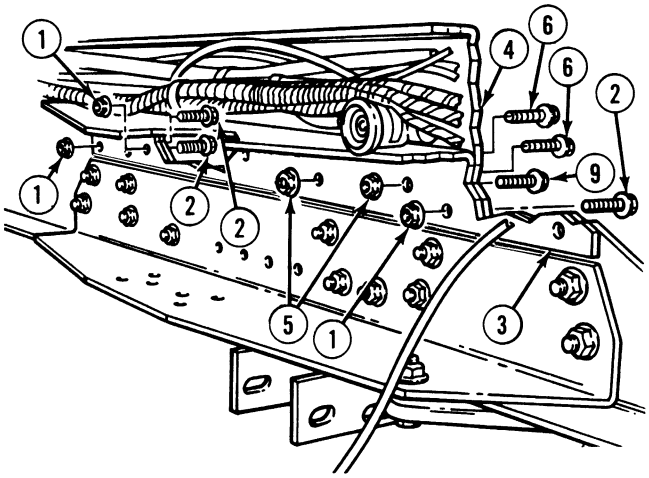
- Ensure all spacers are on top of spring mounts before installing lower gusset.
- All screws must be installed in original locations.

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

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

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

d. Upper Right Gusset Replacement.



(1) *Removal.*

CAUTION

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

NOTE

Tag and mark all screws prior to removal.

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

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

(2) *Installation.*

NOTE

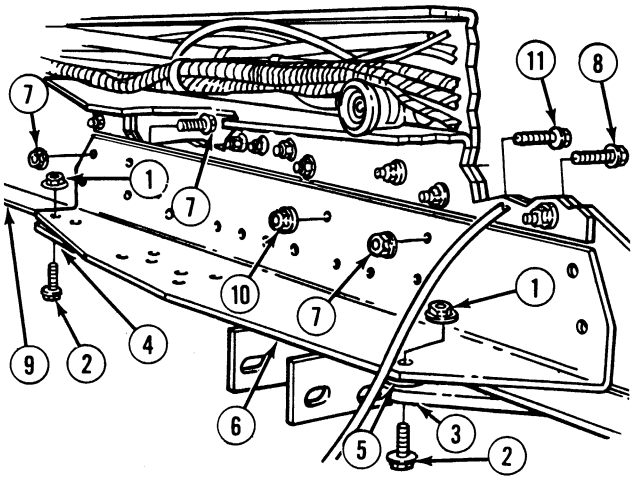
All screws must be installed in original locations.

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

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

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

e. Lower Right Gusset Replacement.



(1) *Removal.*

CAUTION

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

NOTE

Tag and mark all screws prior to removal.

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

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

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

(2) *Installation.*

NOTE

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

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

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

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

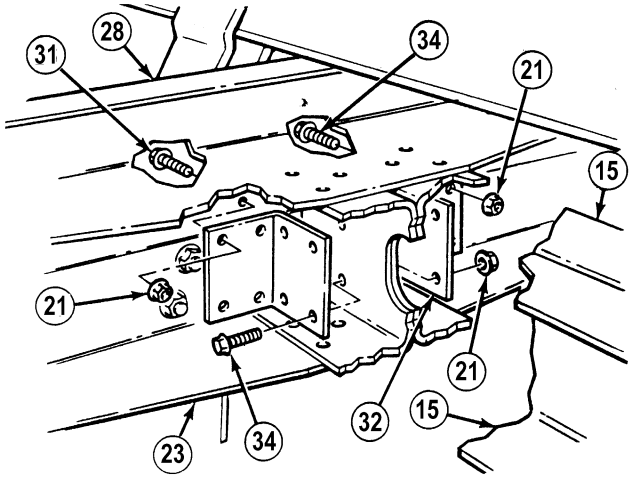
f. Rear Tandem Crossmember Installation.

NOTE

Install cable ties as required.

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

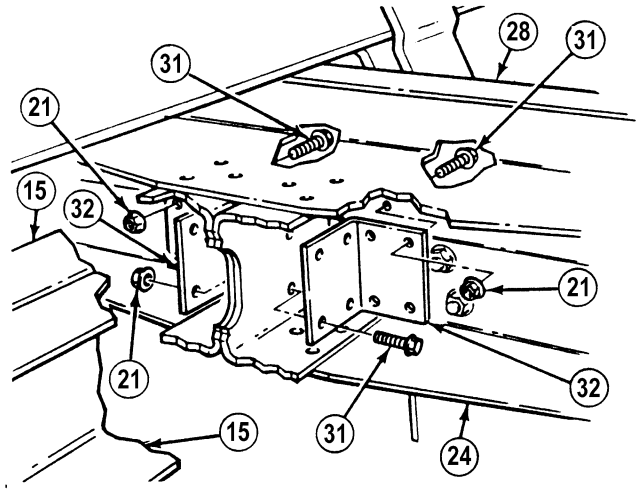
(2) With the aid of an assistant, install two left side angles (32) on rear tandem crossmember (15), left side gusset (23) and frame (28) with eight screws (34), two screws (31) with ten locknuts (21).



NOTE

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

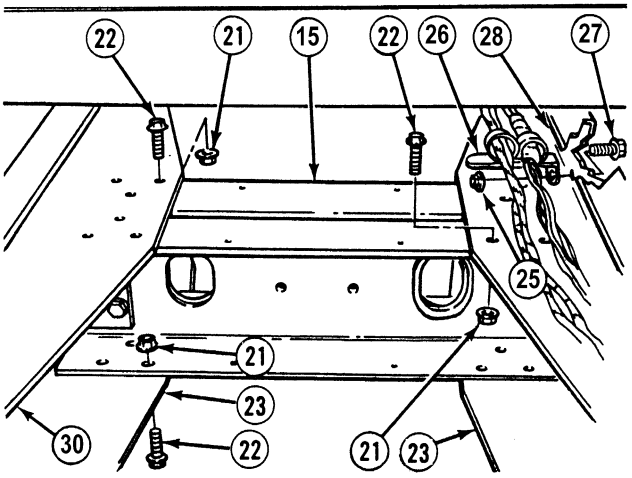
(3) With the aid of an assistant, install two right side angles (32), on rear tandem crossmember (15), right side gussets (24) and frame (28) with twelve screws (31) twelve locknuts (21).



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

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

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

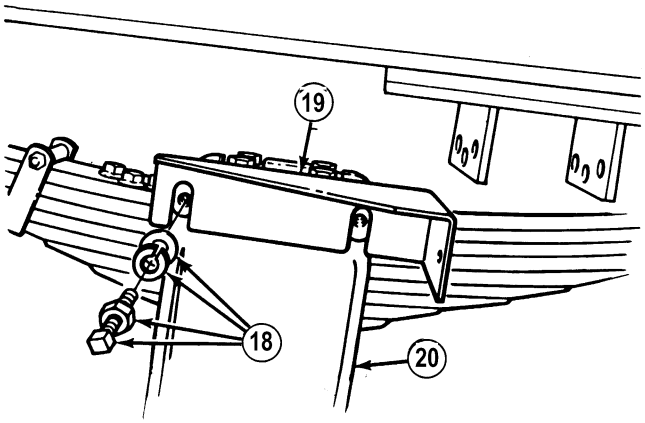


13-10. REAR TANDEM CROSSMEMBER/GUSSET REPLACEMENT (CONT).

NOTE

Ensure locknuts on setscrew assemblies are backed off.

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



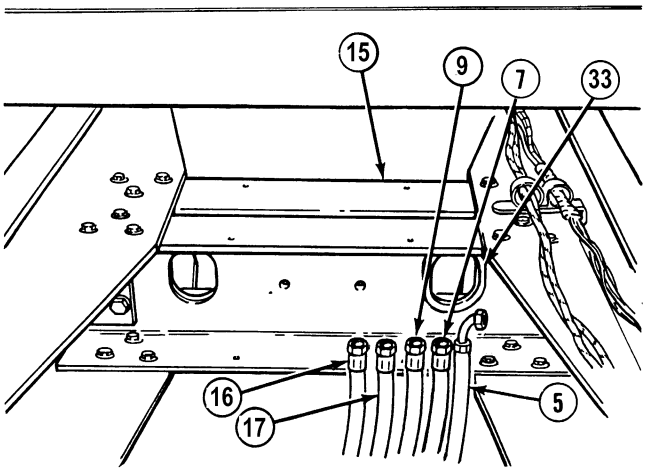
WARNING

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

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

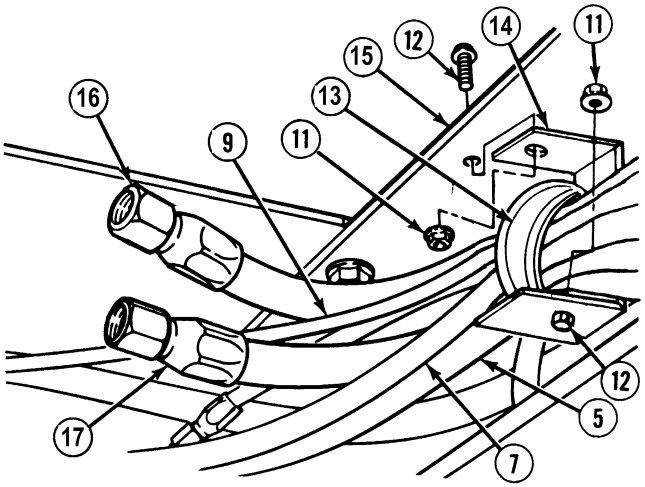
(9) Install quick edge (33) in right side of rear tandem crossmember (15).

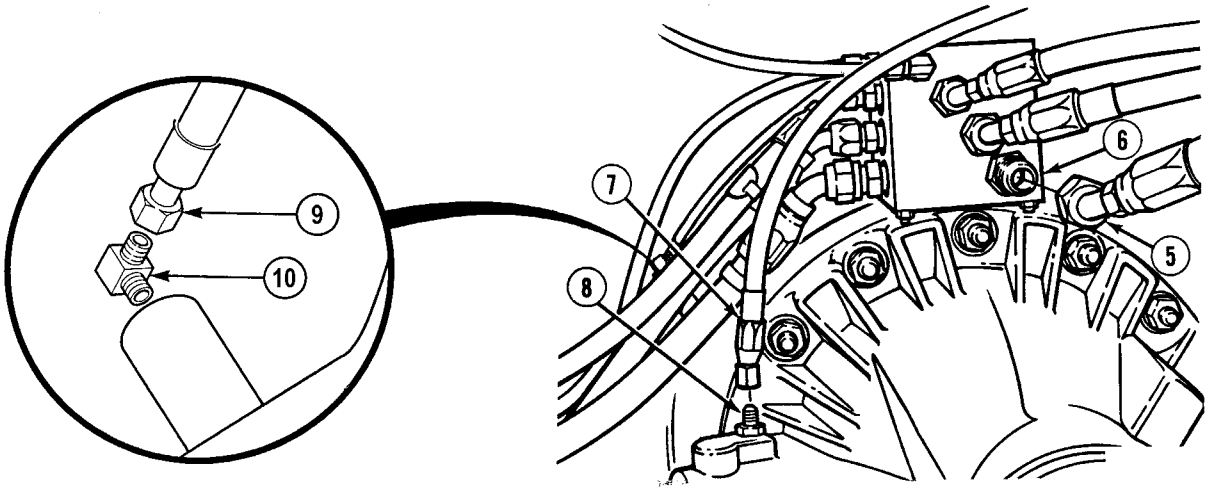
(10) Position air lines, 2338 (7), 2872 (5), 2144 (16), 2368 (17) and vent line 2893 (9) through quick edge of rear tandem crossmember (15).



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

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





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

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

NOTE

Center hard lift crossmember between hard lift brackets.

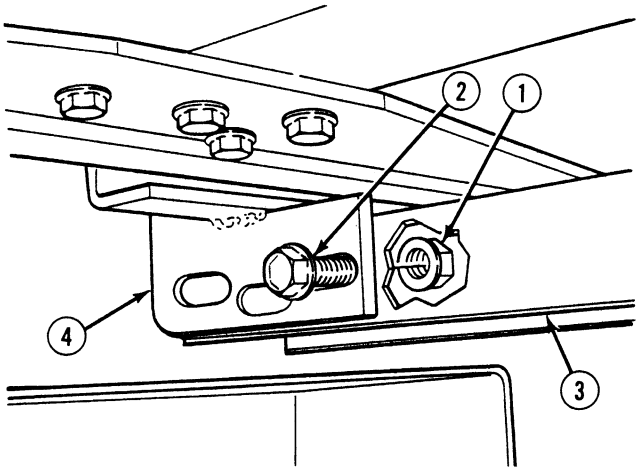
(14) Position hard lift crossmember (3) in each end of hard lift bracket (4).

NOTE

Tighten rear locknuts with an extension through front bracket holes.

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

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



g. Follow-on Maintenance:

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

END OF TASK

13-11. REAR CROSSMEMBER REPLACEMENT.

This task covers:

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

INITIAL SETUP

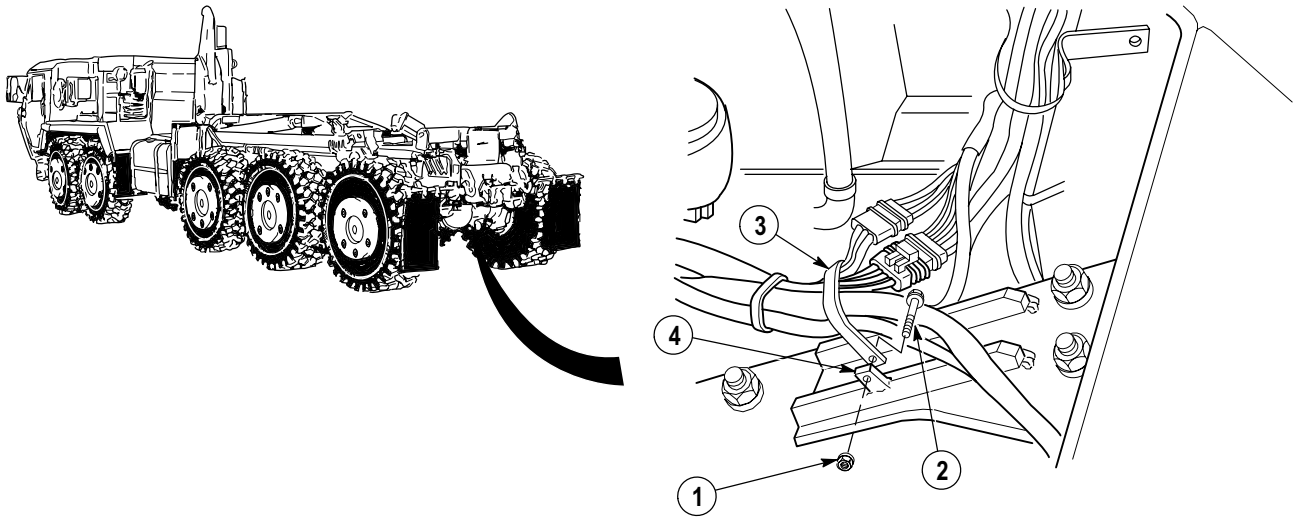
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 220 lbs
(100 kg)

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

Personnel Required
Two

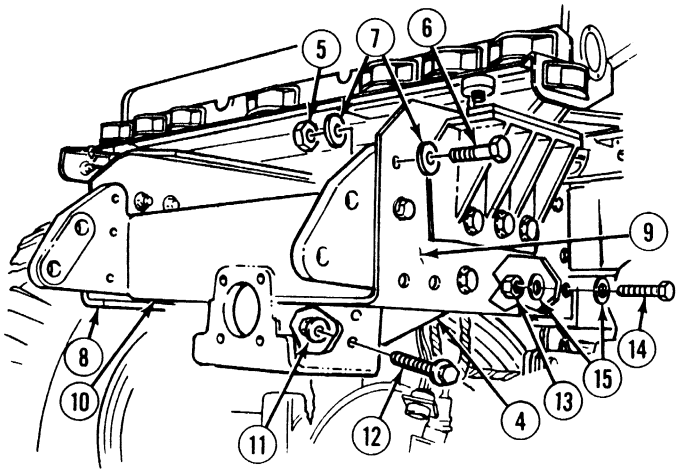
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Self guided coupler hitch removed,
(TM 9-2320-364-20)
Mud flap brackets removed,
(TM 9-2320-364-20)
Rear cable guide removed (if equipped),
(TM 9-2320-364-20)
Bumper stop bracket removed,
(TM 9-2320-364-20)
Back-up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

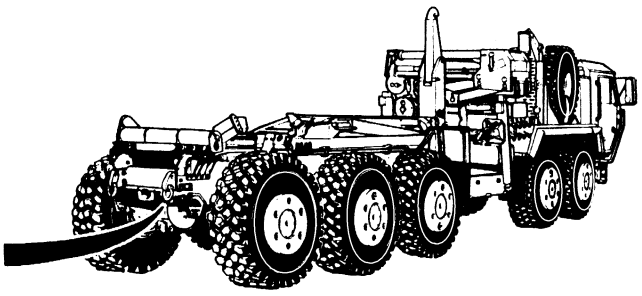
a. Removal.



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

13-11. REAR CROSSMEMBER REPLACEMENT (CONT).





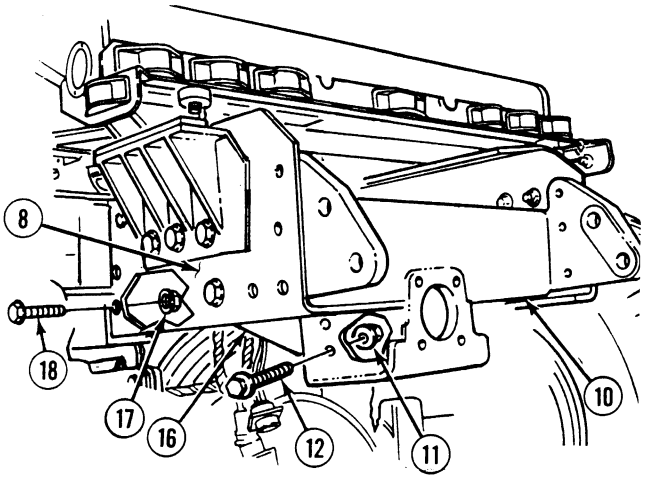
(2) With the aid of an assistant, remove four locknuts (5), screws (6) and eight washers (7) from left side of frame (8), right side of frame (9) and rear crossmember (10). Discard locknuts.

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

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

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

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



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

WARNING

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

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

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

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

b. Installation.

WARNING

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

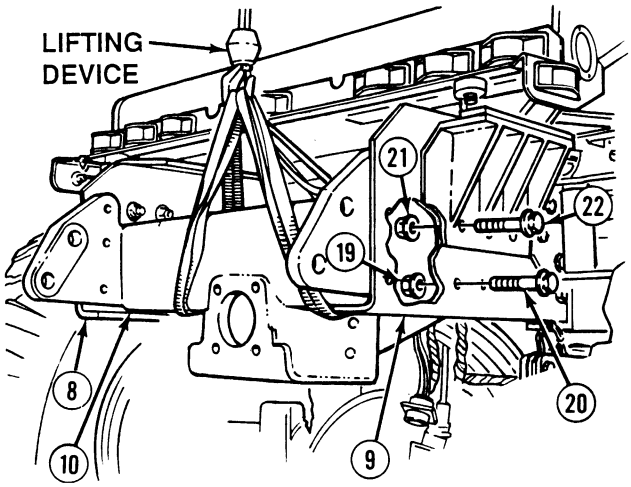
(1) Attach lifting device to rear crossmember (10).

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

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

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

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



13-11. REAR CROSSMEMBER REPLACEMENT (CONT).

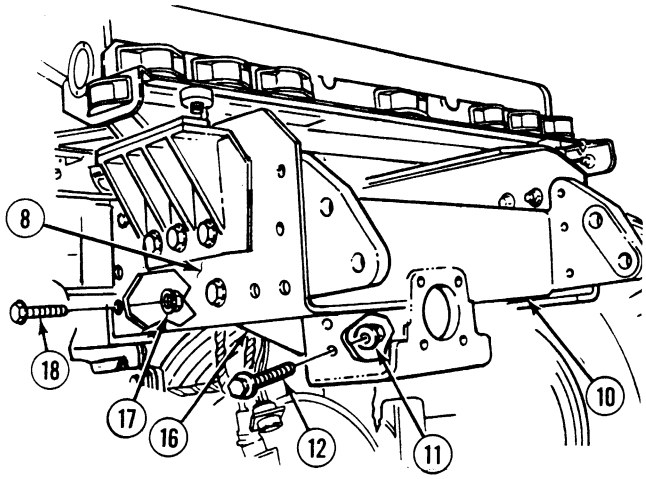
(6) Position left brace (16) on left side frame (8) with three screws (18) and locknuts (17).

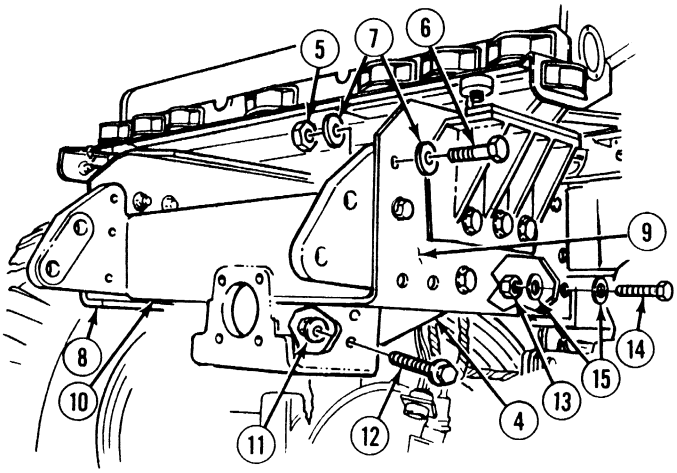
(7) Position left brace (16) on rear crossmember (10) with three screws (12) and locknuts (11).

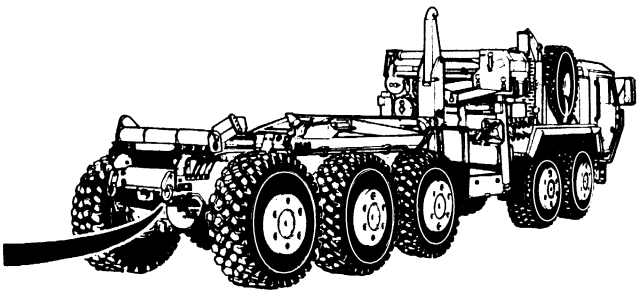
(8) Position right brace (4) on right side frame (9) with four washers (15), two screws (14) and locknuts (13).

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

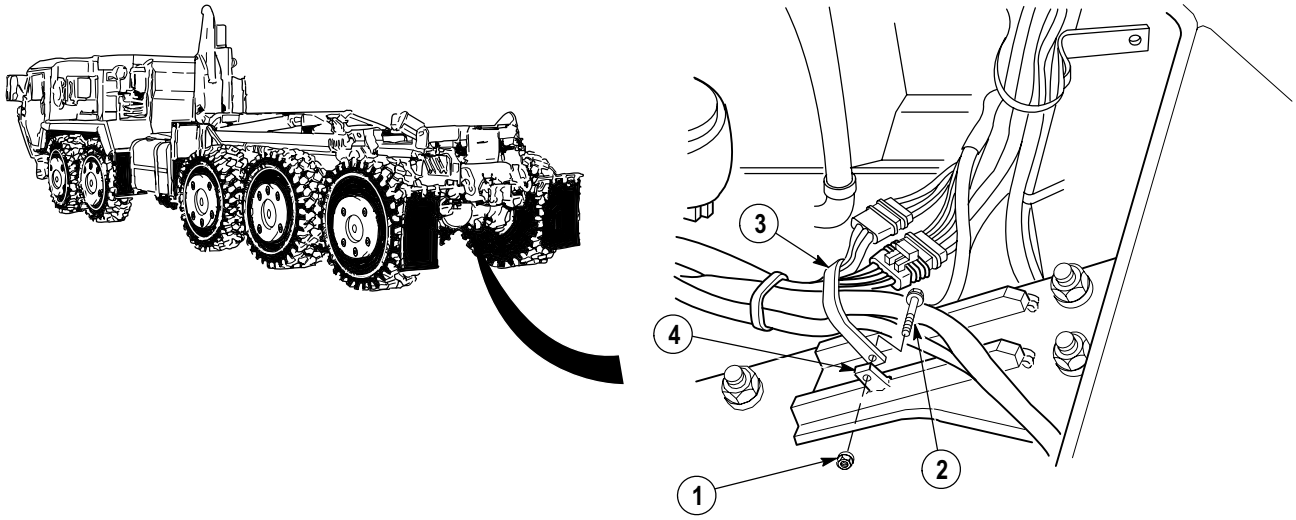
(10) Install eight washers (7), four screws (6) and locknuts (5) in left side frame (8), right side frame (9) and rear crossmember (10). Tighten to 300 lb-ft (407 N·m).







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



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

c. Follow-On Maintenance:

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

END OF TASK

13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT.

This task covers:

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

INITIAL SETUP

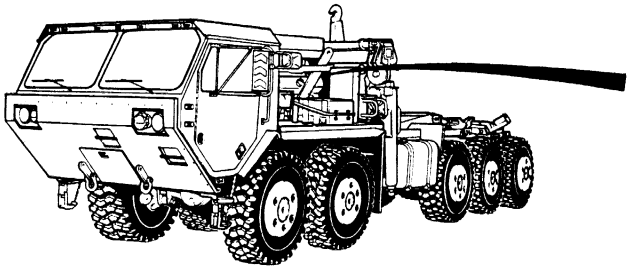
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum 300 lbs (136 kg)

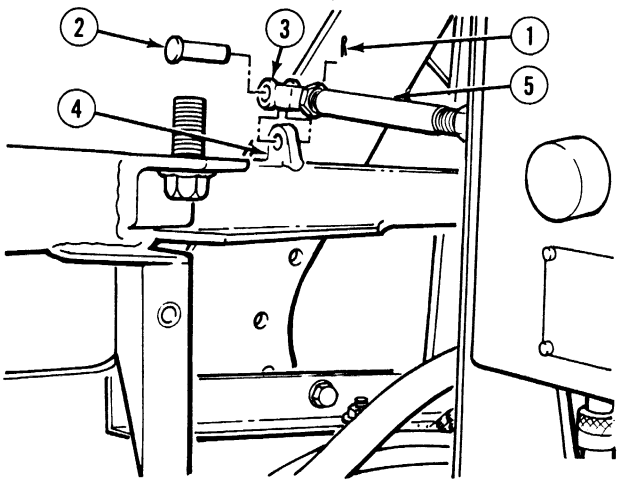
Materials/Parts
Cable Ties (Item 9, Appendix B)
Sealing Compound (Item 54, Appendix B)
Locknut (12) (Item 166, Appendix E)
Locknut (4) (Item 167, Appendix E)
Locknut (4) (Item 169, Appendix E)
Locknut (5) (Item 176, Appendix E)
Locknut (2) (Item 201, Appendix E)
Locknut (6) (Item 210, Appendix E)
Lockwasher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

Personnel Required
Two

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

a. Removal.



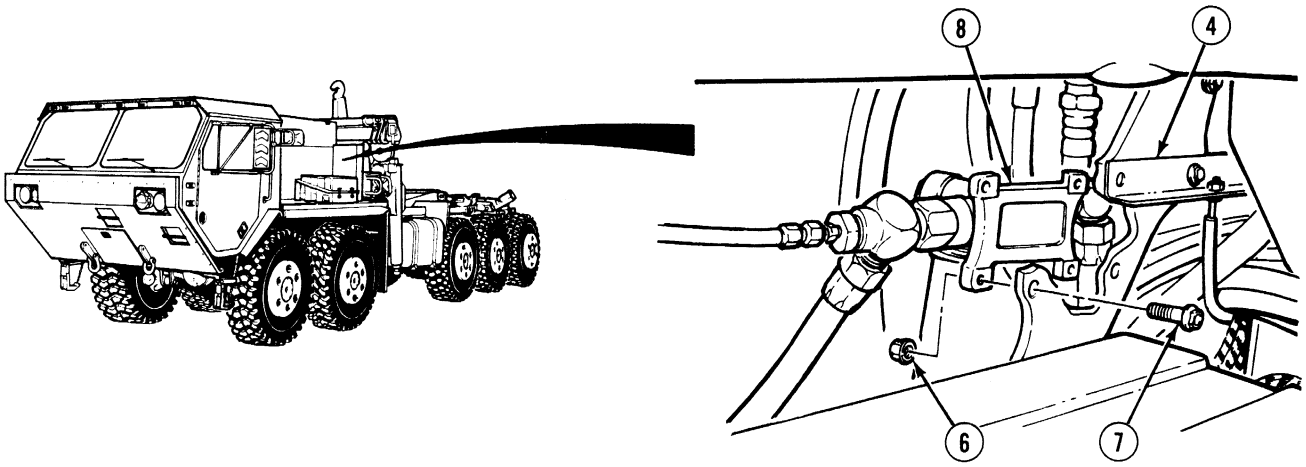


NOTE

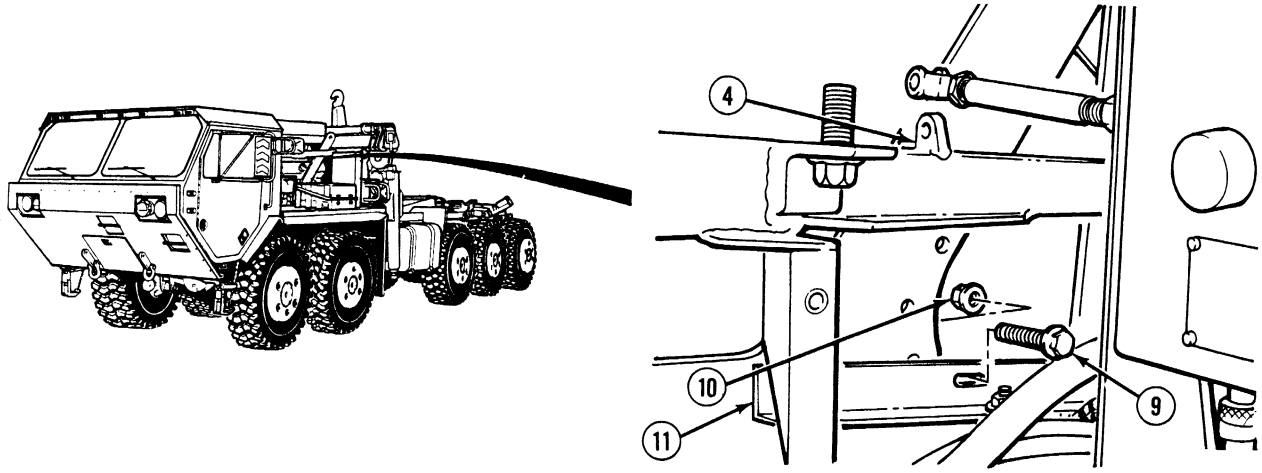
Note location of cable ties and remove as required.

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

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

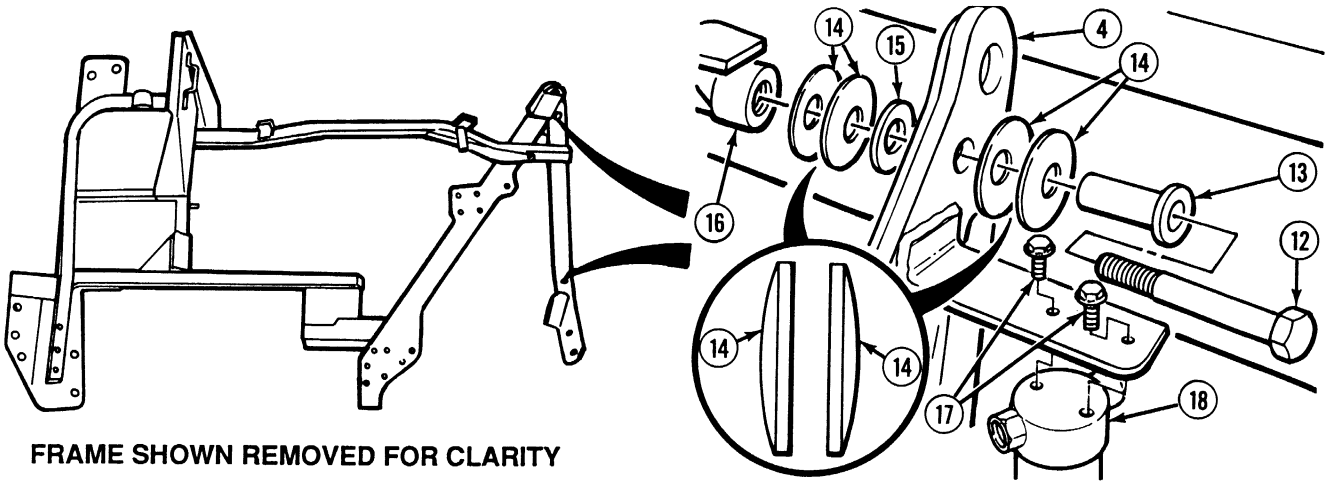


(3) Remove four locknuts (6), screws (7) and transmission filter assembly (8) from power module frame (4). Discard locknuts.



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

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



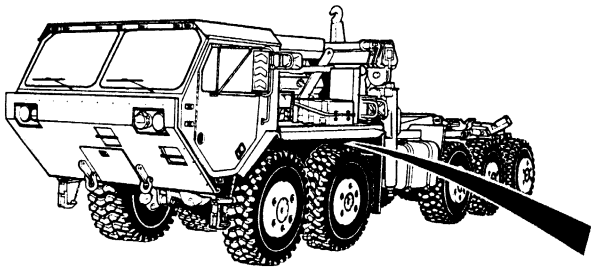
FRAME SHOWN REMOVED FOR CLARITY

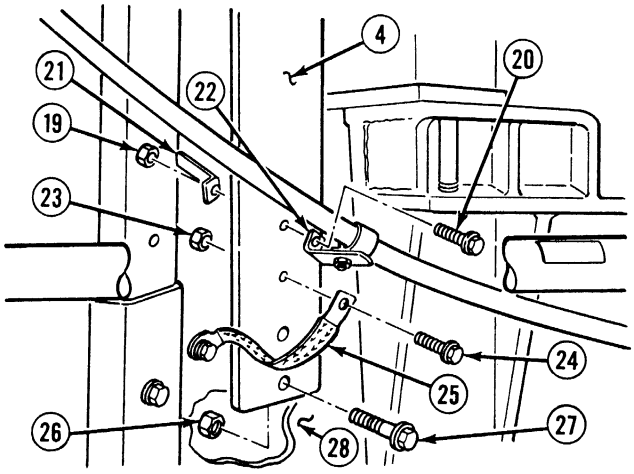
NOTE

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

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

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

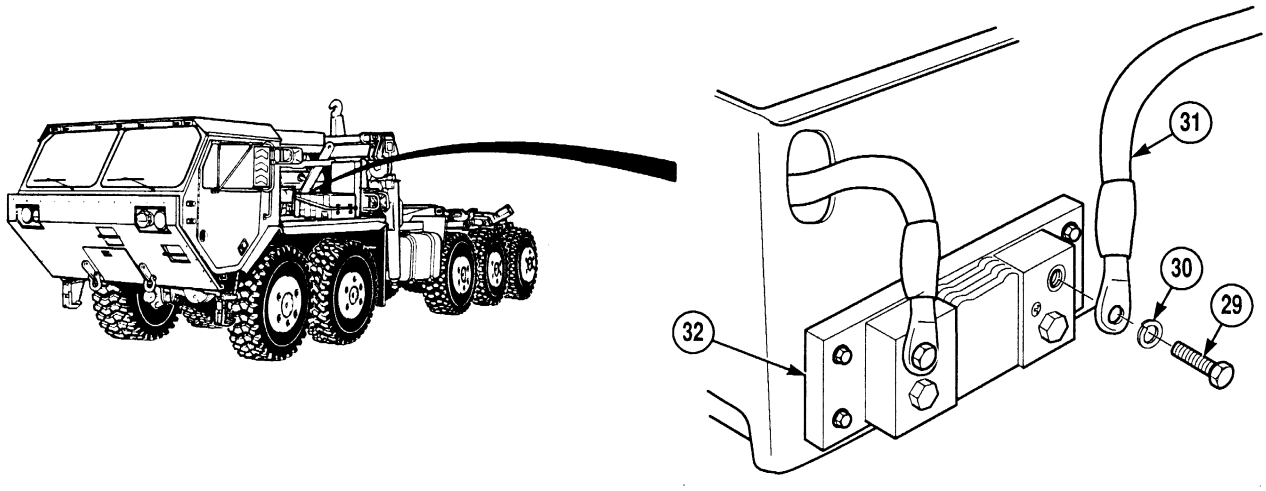




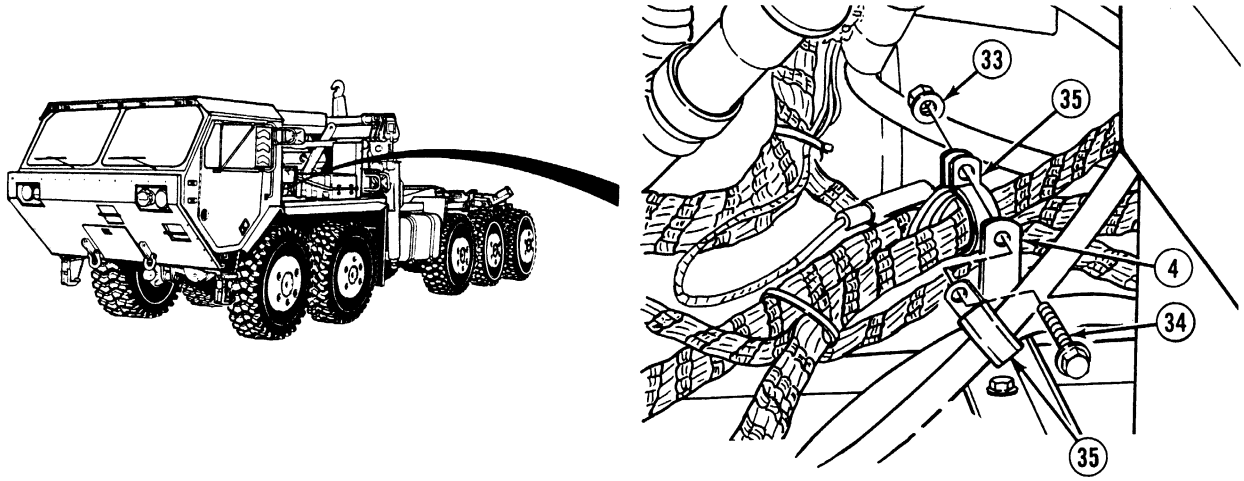
(7) Remove locknut (19) and screw (20) and position brackets (21) and (22) clear of power module frame (4). Discard locknut.

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

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



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

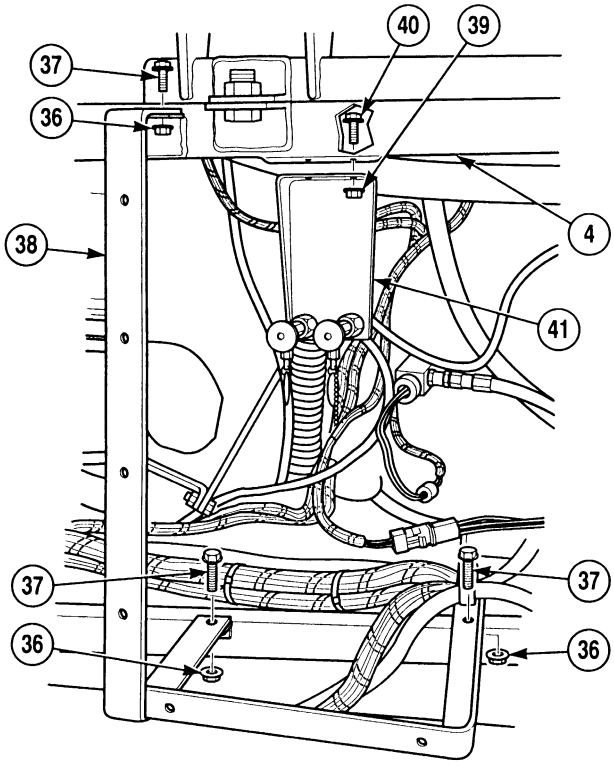


(11) Remove locknut (33) screw (34) and two cushion clips (35) from power module frame (4). Discard locknut.

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

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

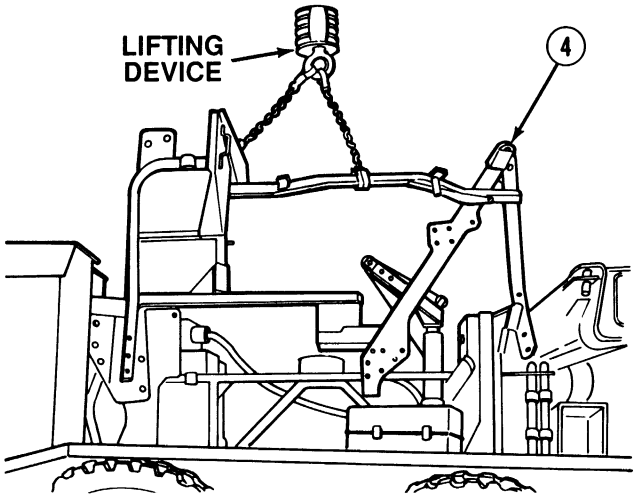
(13) Remove two locknuts (39), screws (40) and sampling valve bracket (41) from power module frame (4). Discard locknuts.

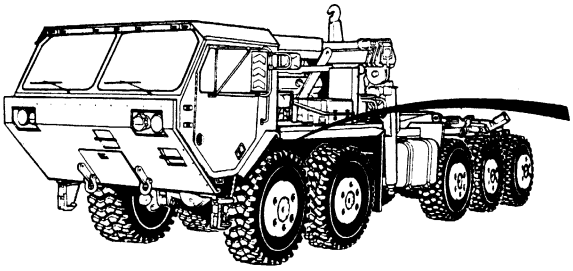


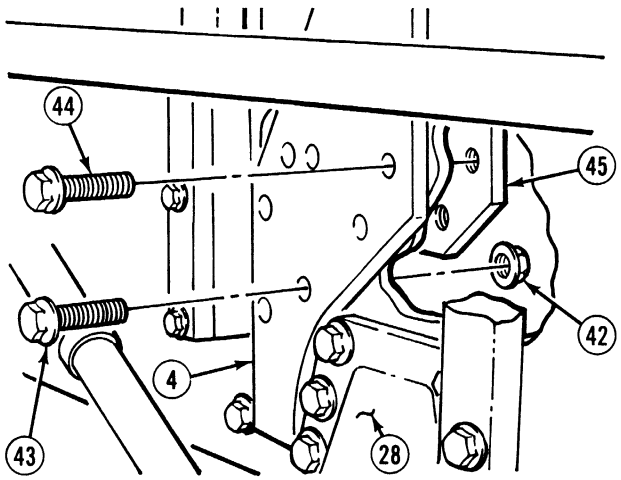
WARNING

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

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

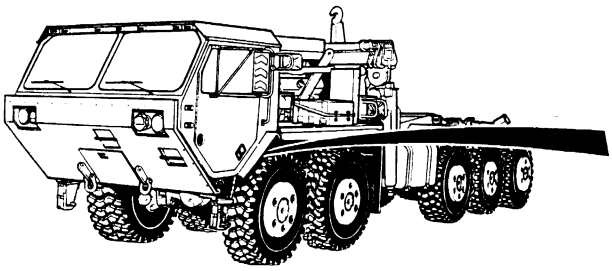


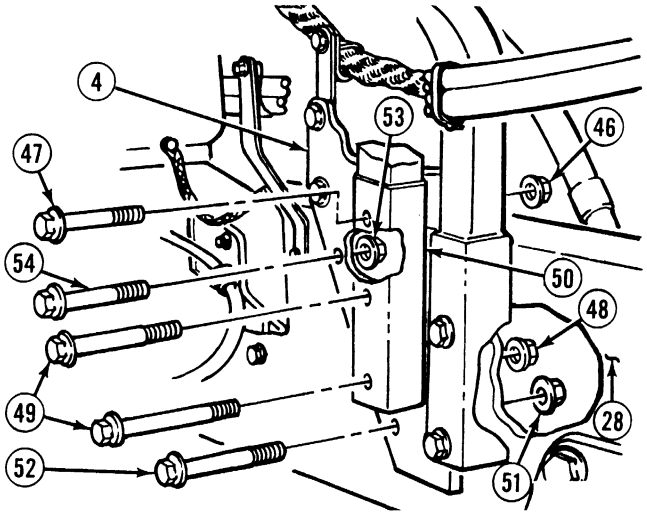




(15) With the aid of an assistant, remove two locknuts (42) and screws (43) from power module frame (4) and frame (28). Discard locknuts.

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





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

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

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

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

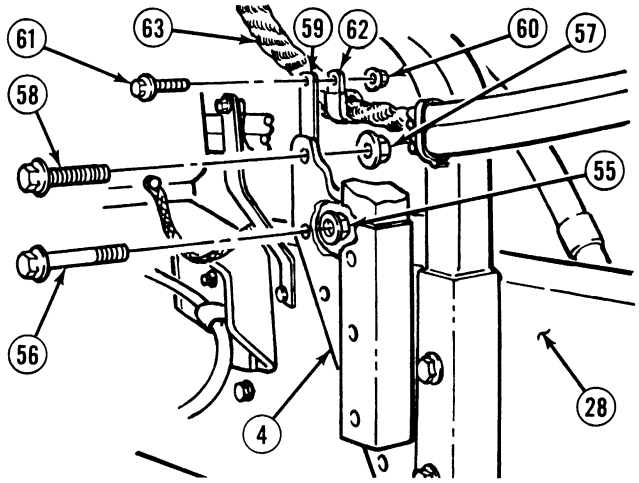
13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

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

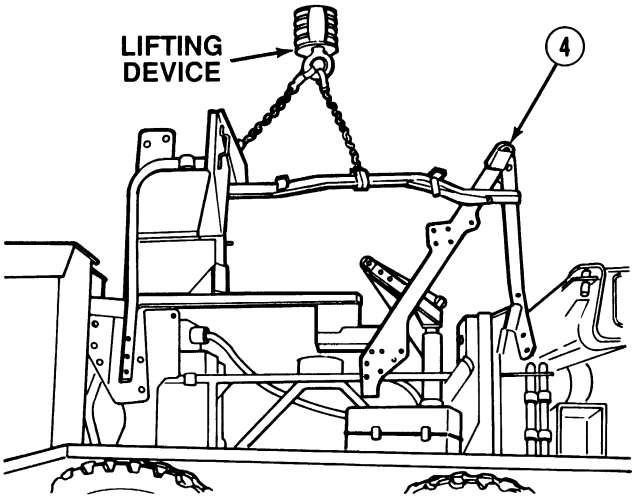
(22) Remove locknut (57), screw (58) and bracket (59) from power module frame (4). Discard locknut.

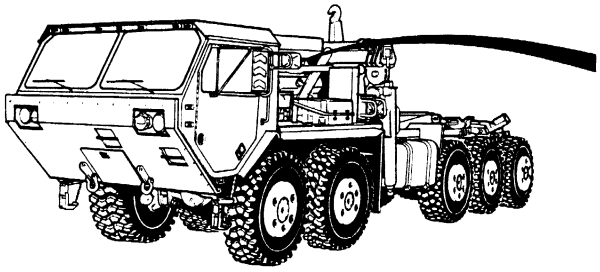
(23) Remove locknut (60), screw (61), cushion clip (62) and bracket (59) from wiring harness (63). Discard locknut.

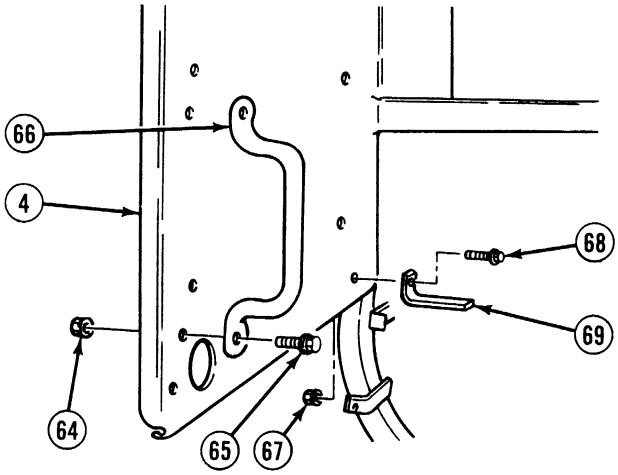
(24) Position wiring harness (63) clear of power module frame (4).



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







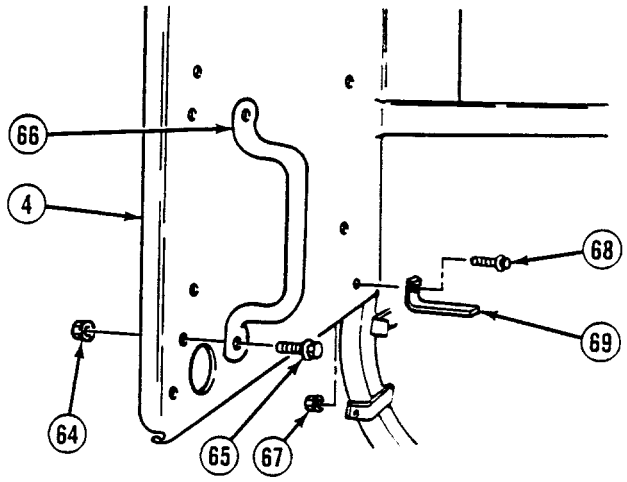
(26) Remove two locknuts (64) and screws (65) and handle (66) from power module frame (4). Discard locknuts.

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

b. Installation.

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

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

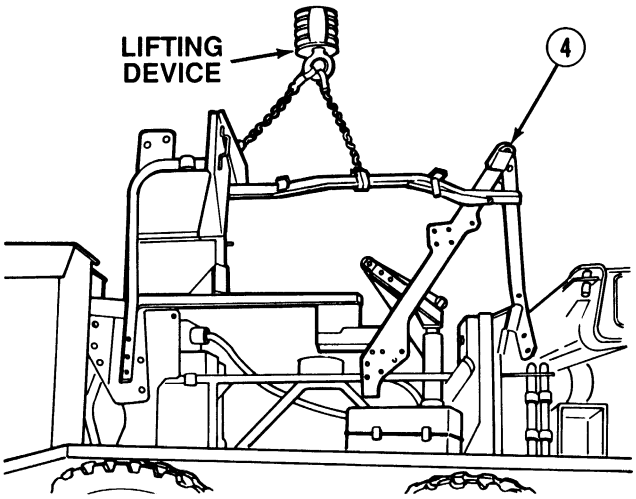


WARNING

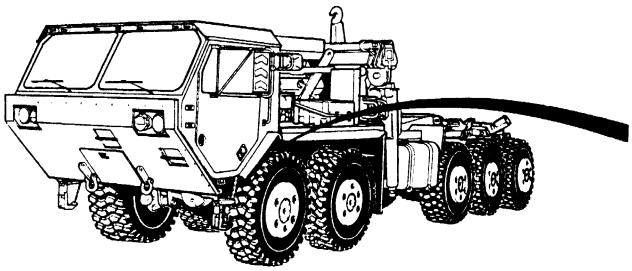
Power module frame weighs 275 lbs (125 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

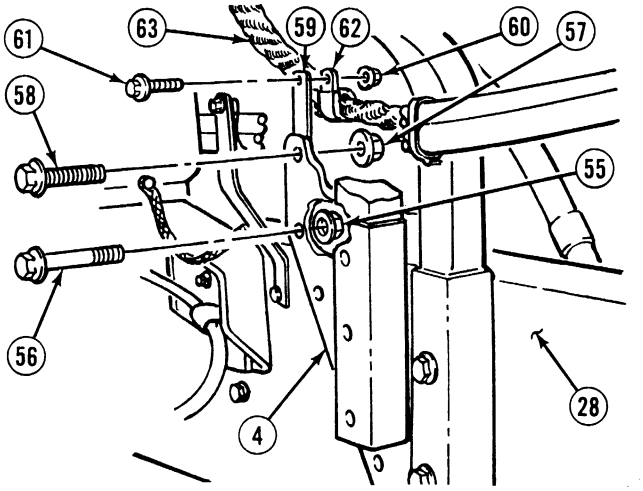
(3) Attach lifting device to power module frame (4).

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



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



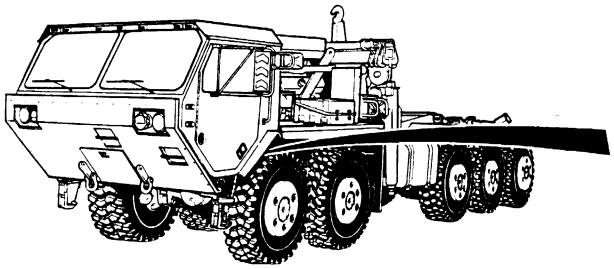


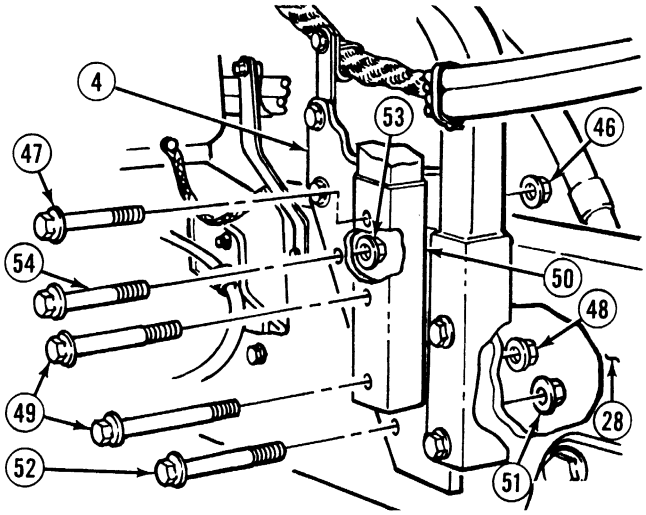
(5) Position three screws (56) and locknuts (55) to power module frame (4) and frame (28).

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

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

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



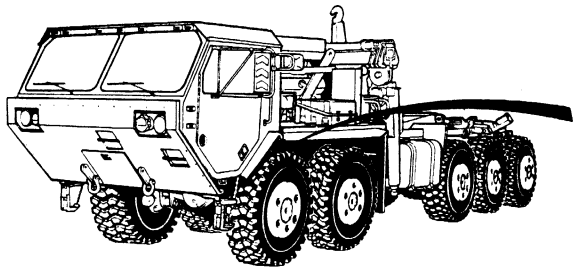


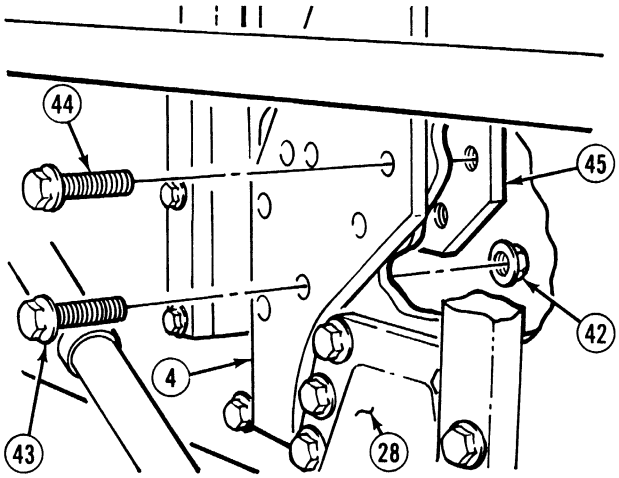
(9) Position three screws (54) and locknuts (53) to power module frame (4) and frame (28).

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

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

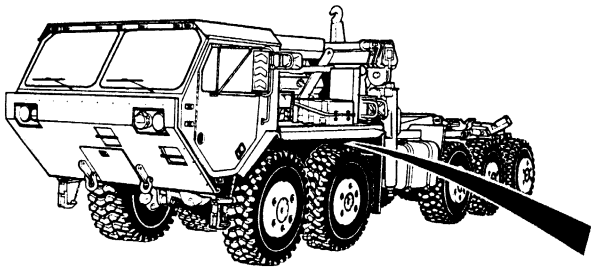
(12) Position screw (47) and locknut (46) to power module frame (4) and frame (28).

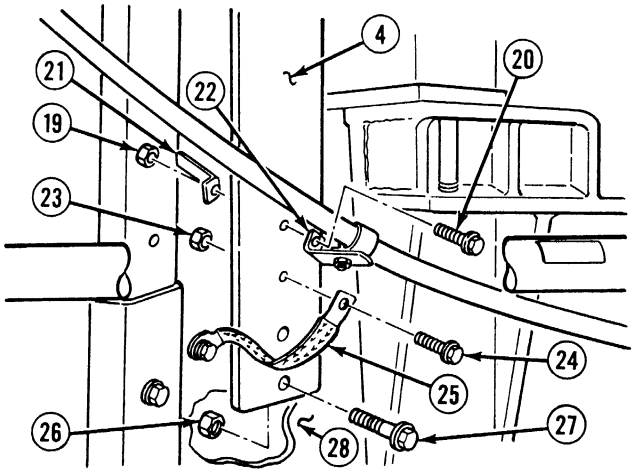




(13) Position five screws (44) and plate (45) to power module frame (4) and frame (28).

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



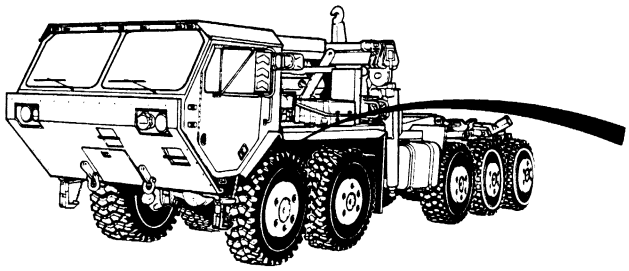


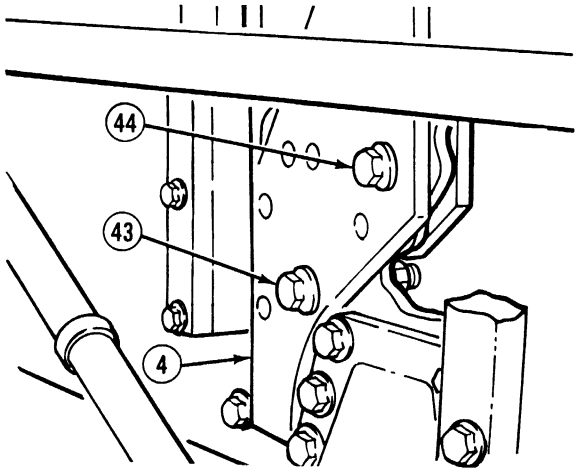
(15) Install two screws (27) and locknuts (26) to power module frame (4) and frame (28).

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

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

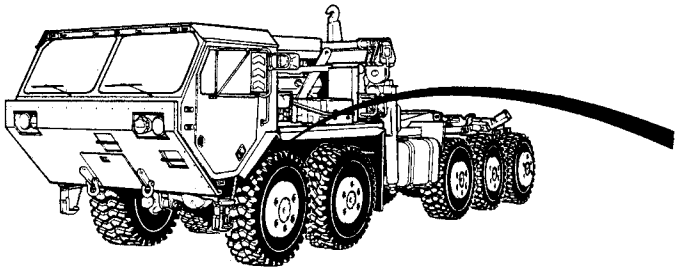
13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

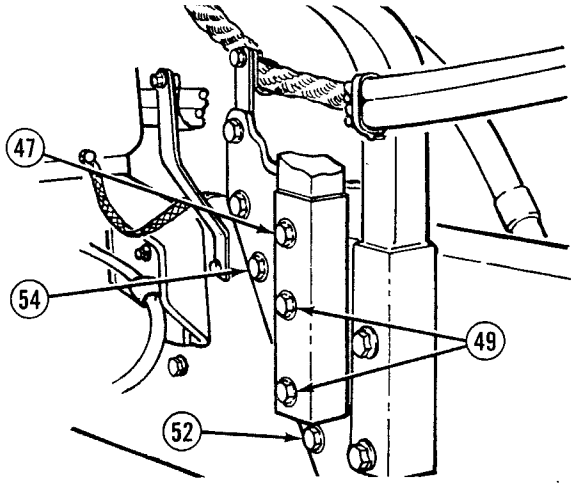




(18) Tighten five screws (44).

(19) Tighten two screws (43).



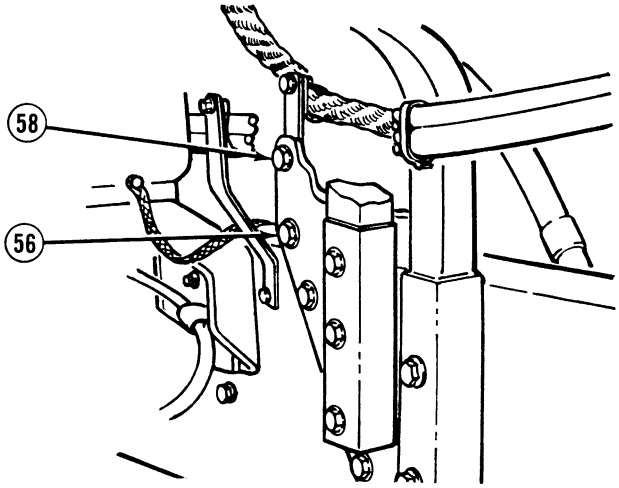


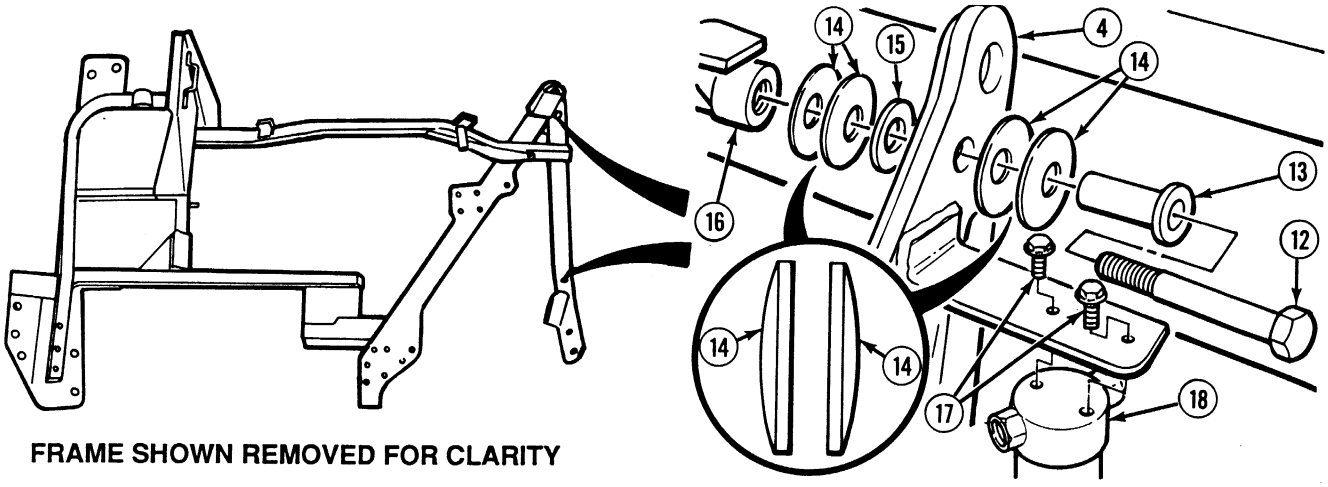
(20) Tighten two screws (49) and screw (47).

(21) Tighten two screws (52).

(22) Tighten three screws (54).

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





FRAME SHOWN REMOVED FOR CLARITY

WARNING

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

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

NOTE

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

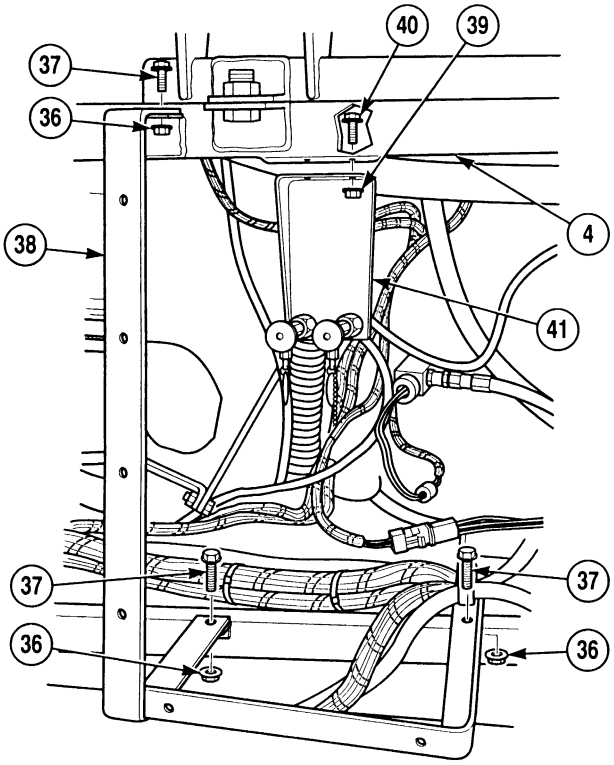
(25) Install lower spreader bar assembly (16) with four washers (14), washer (15), sleeve (13) and screw (12) to power module frame (4). Tighten to 128 lb-ft (174 N·m).

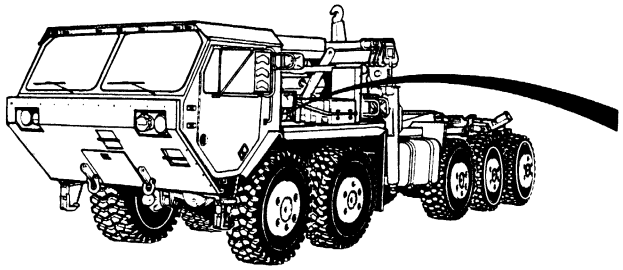
(26) Install steering filter assembly (18) on power module frame (4) with two screws (17).

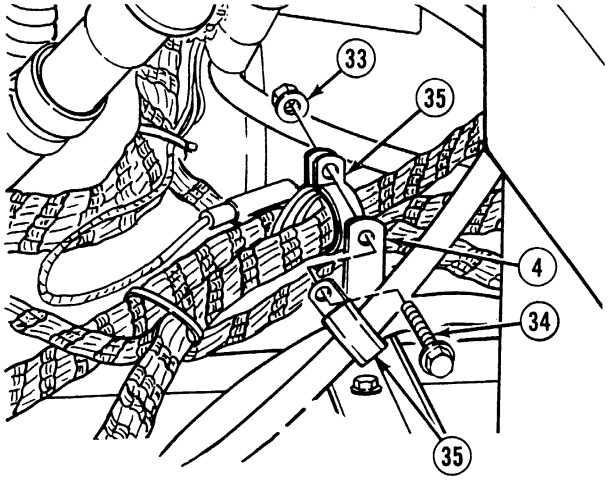
13-12. LEFT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

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

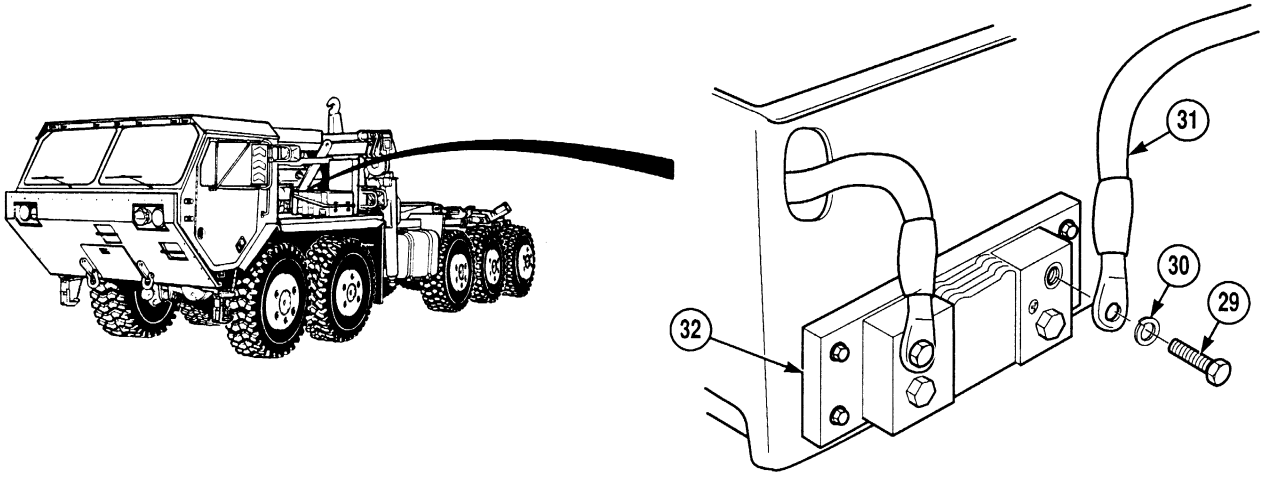
(28) Install side panel bracket (38) on power module frame (4) with three screws (37) and locknuts (36).



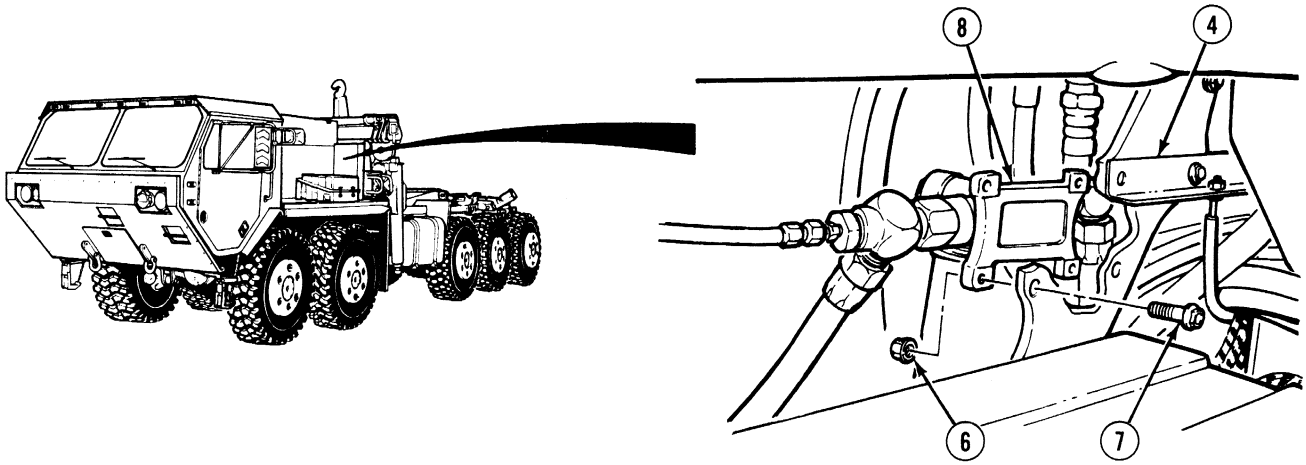




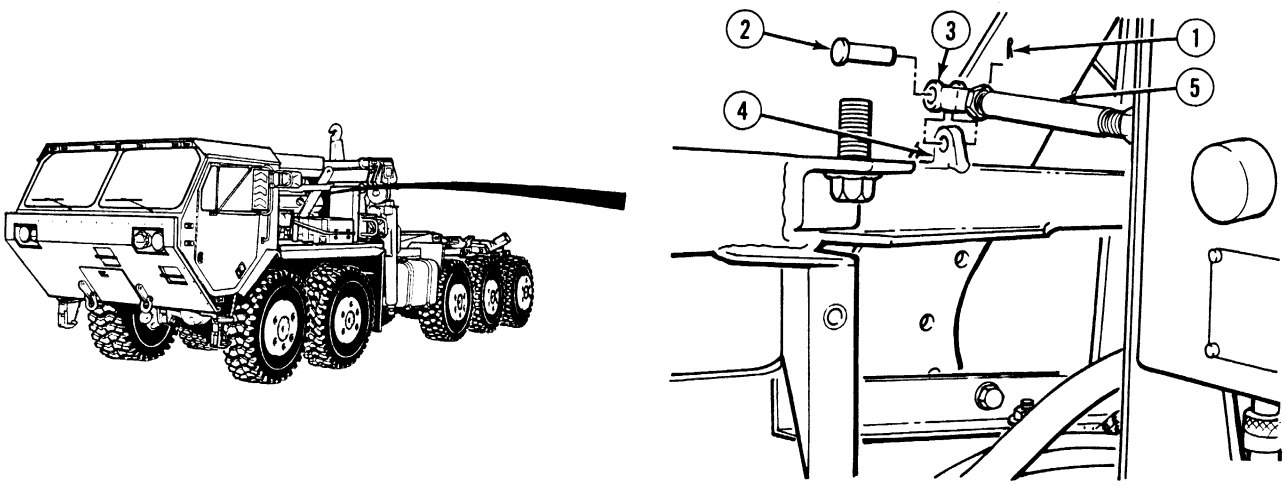
(29) Install two cushion clips (35) on power module frame (4) with screw (34) and locknut (33).



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



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



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

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

c. Follow-On Maintenance:

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

END OF TASK

13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT.

This task covers:

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

INITIAL SETUP

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

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

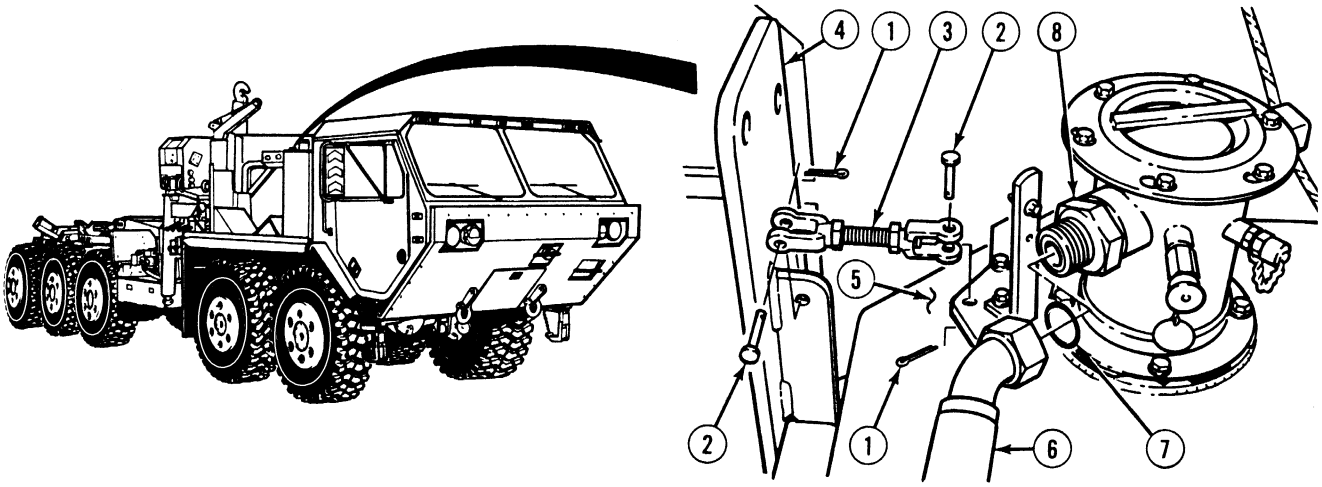
Materials/Parts - Continued
Locknut (Item 210, Appendix E)
Packing, Preformed (Item 363, Appendix E)
Packing, Preformed (2) (Item 387, Appendix E)
Pin, Cotter (4) (Item 420, Appendix E)

Personnel Required
Two

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

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

a. Removal.

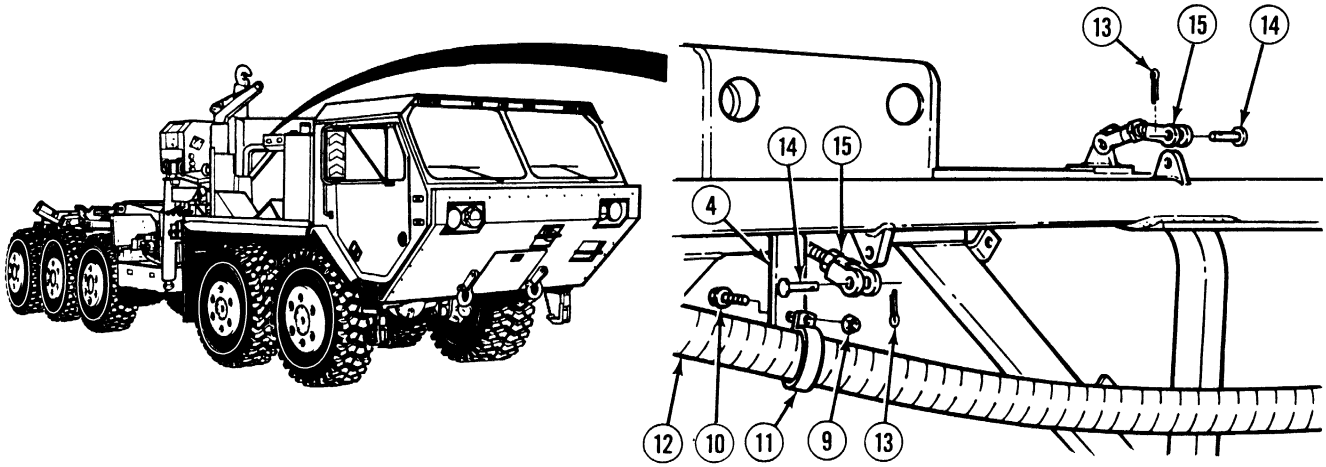


NOTE

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

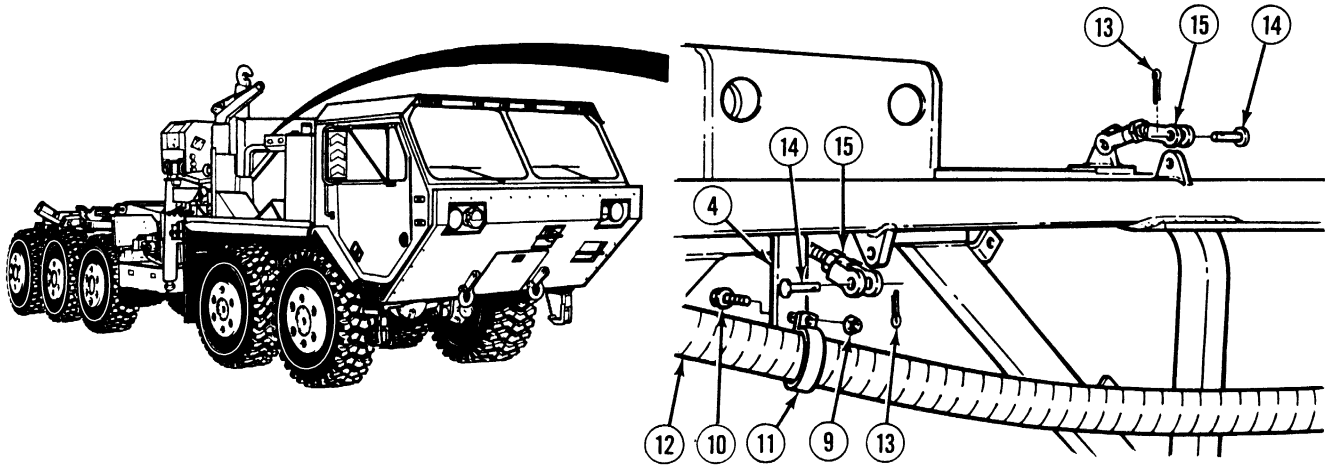
(1) Remove two cotter pins (1), pins (2) and clevis assembly (3) from power module frame (4) and hydraulic reservoir (5). Discard cotter pins.

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



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

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

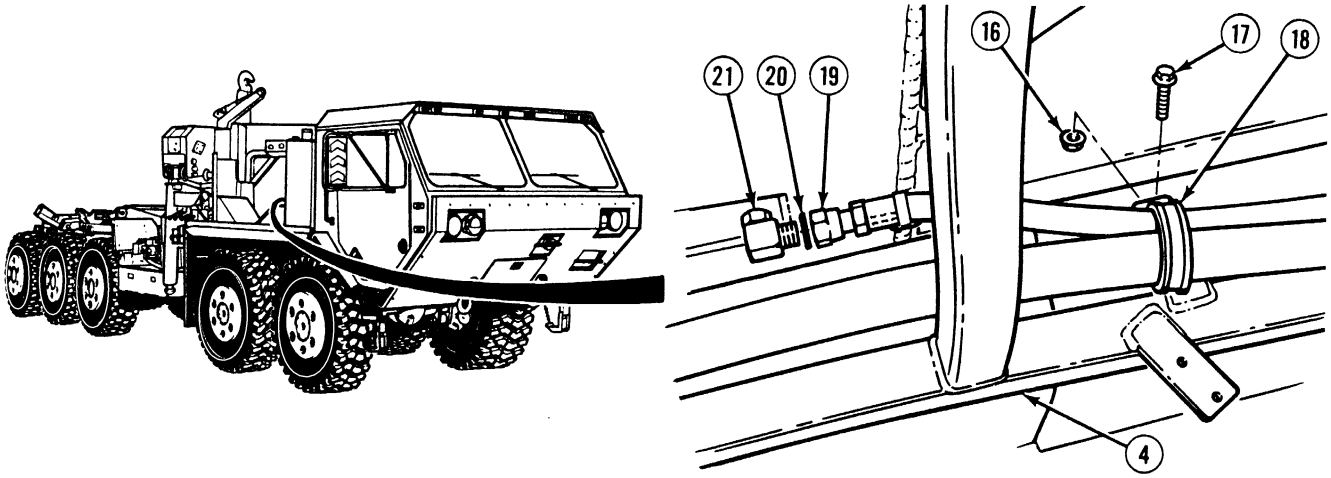


NOTE

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

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

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



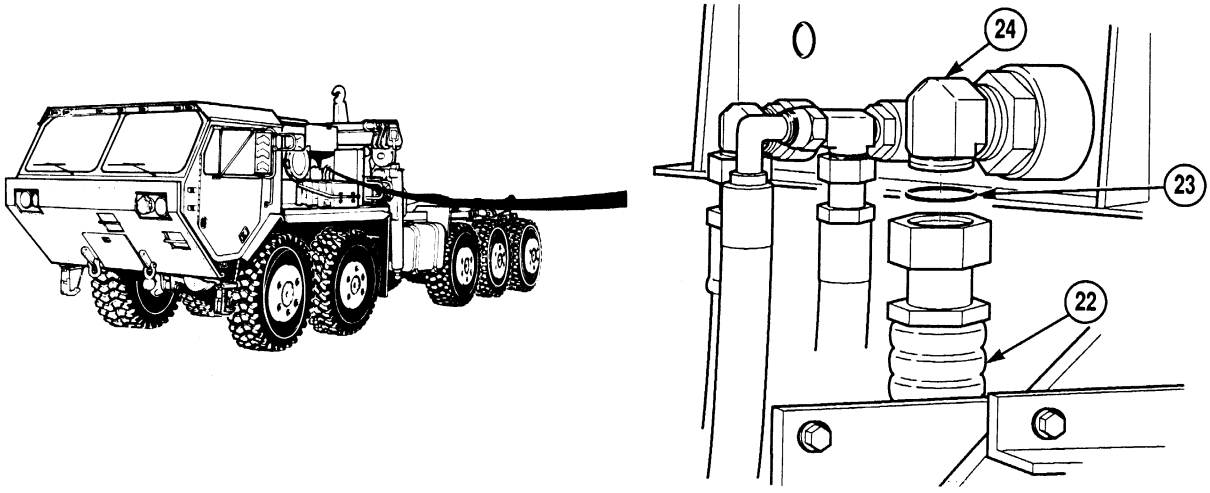
(7) Remove locknut (16), screw (17) and cushion clip (18) from power module frame (4). Discard locknut.

NOTE

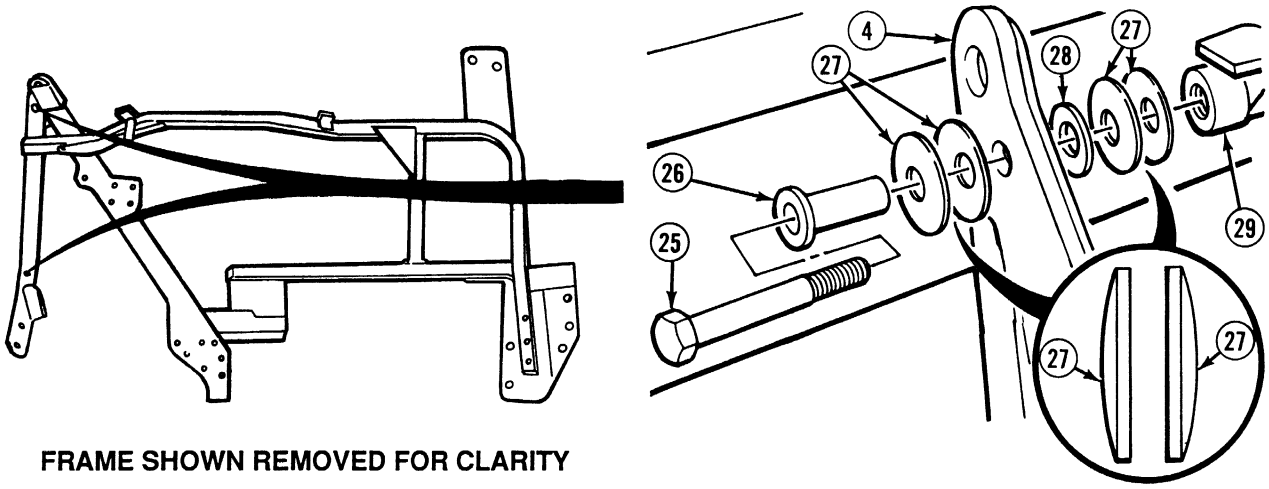
Step (8) is performed only when truck is equipped with crane. If truck is not equipped with crane, go on to Step (9).

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

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



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



FRAME SHOWN REMOVED FOR CLARITY

WARNING

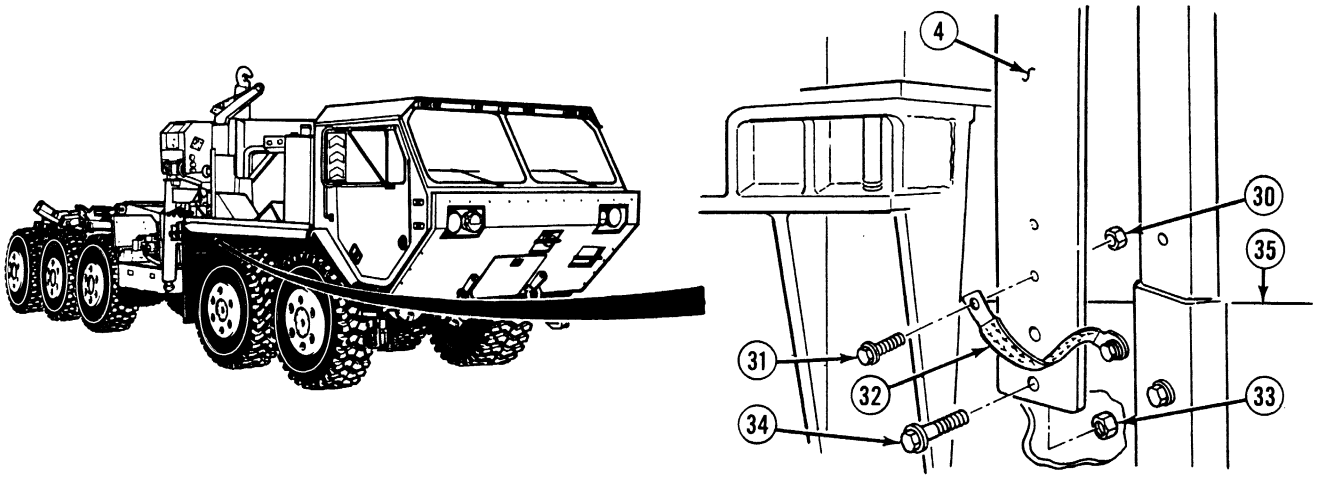
Power module frame weighs 275 lbs (125 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

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

NOTE

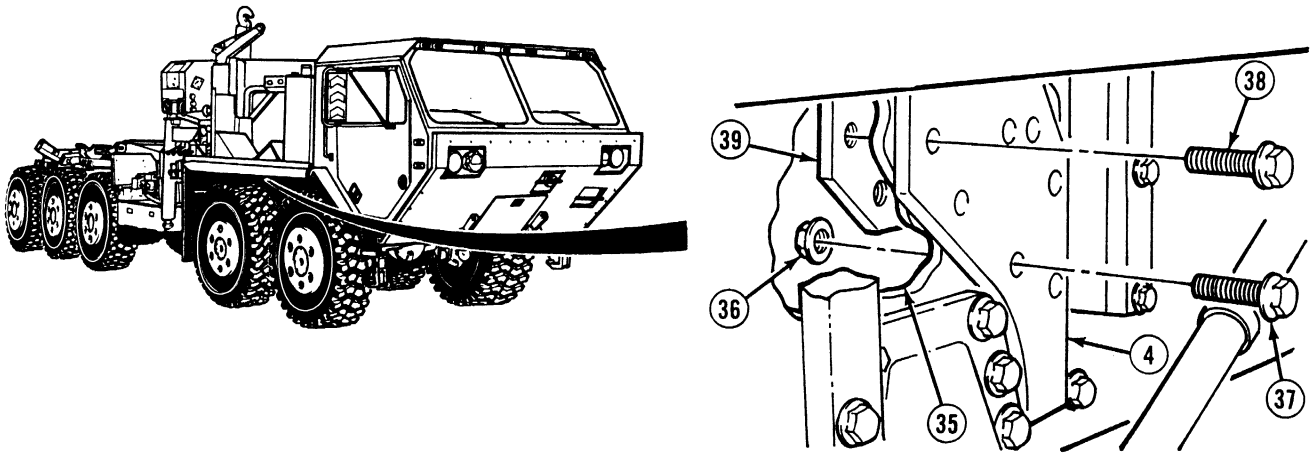
Lower and upper spreader bar assemblies are removed the same way. Upper one is shown.

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



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

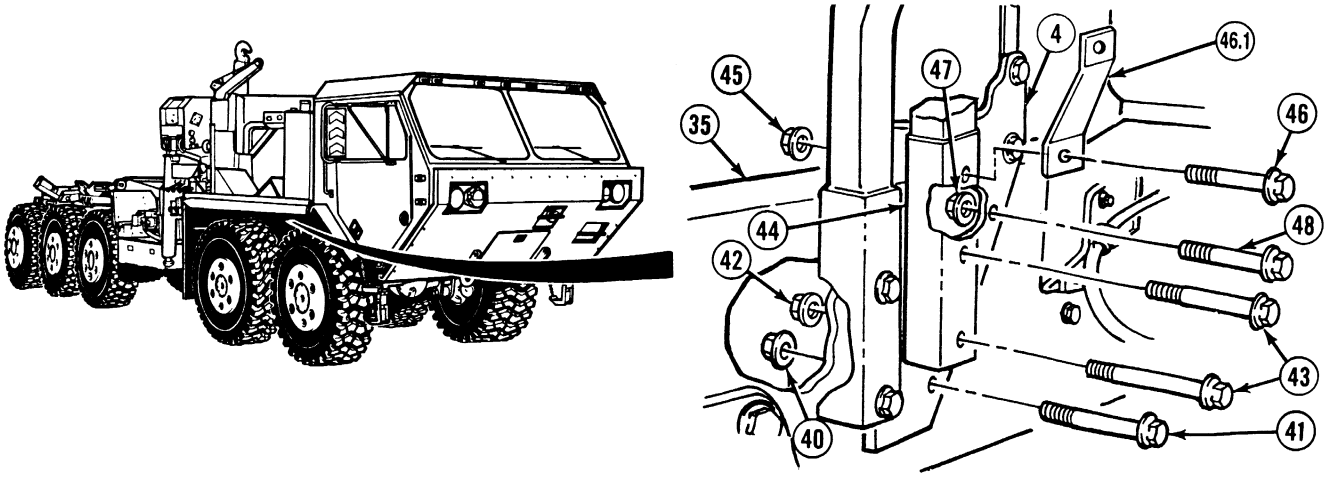
(13) Remove two locknuts (33) and screws (34) from power module frame (4) and truck frame (35). Discard locknuts.



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

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

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

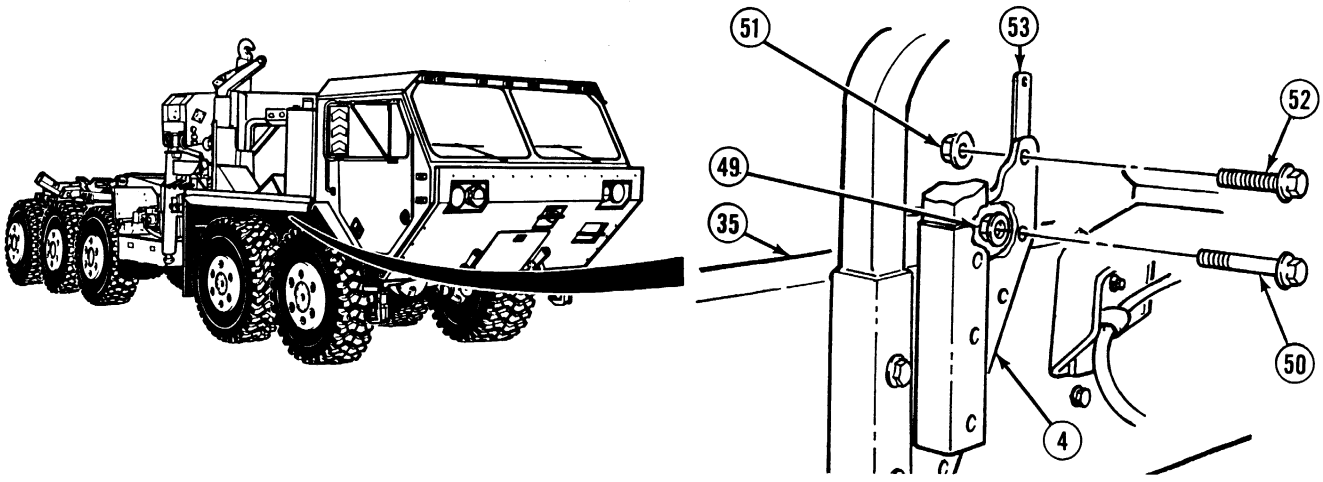


(16) Remove two locknuts (40) and screws (41) from power module frame (4) and truck frame (35). Discard locknuts.

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

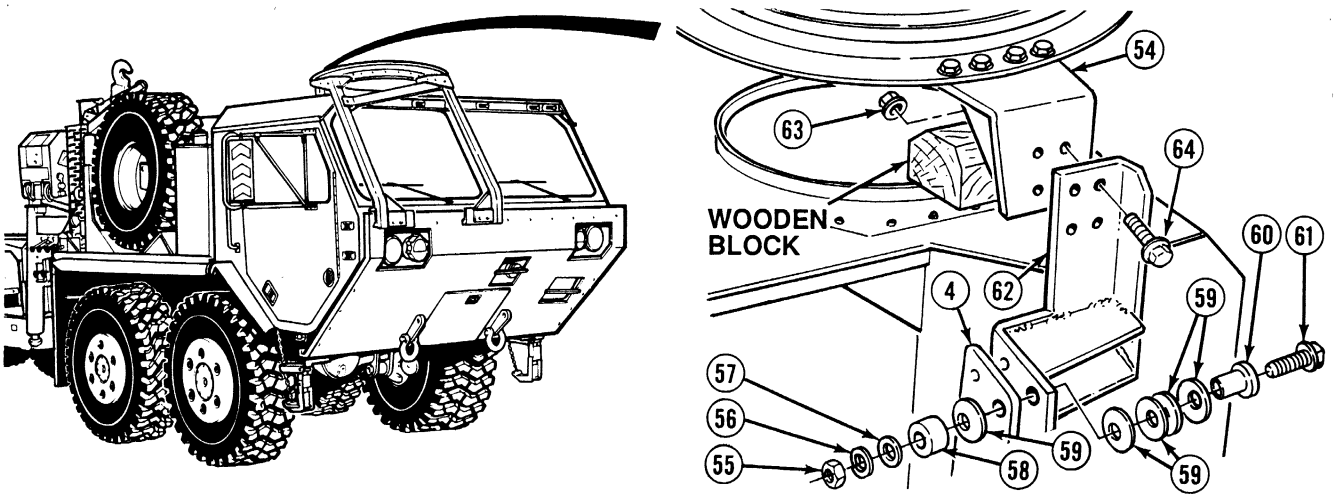
(18) Remove locknut (45), screw (46), bracket (46.1) and channel (44) from power module frame (4) and truck frame (35). Discard locknut.

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



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

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



NOTE

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

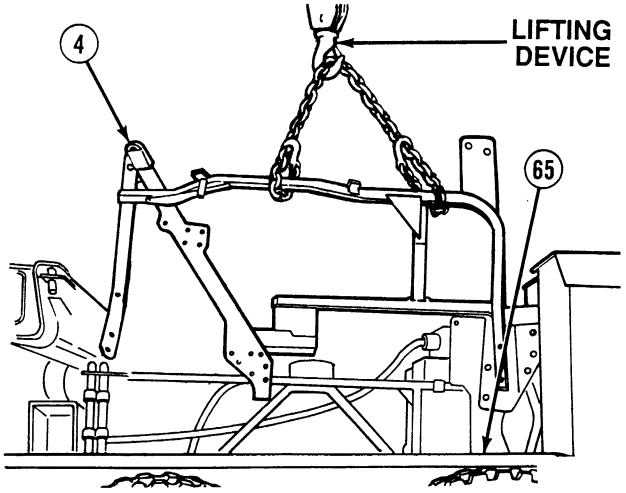
(22) Support rear of machine gun ring mount (54) with wooden block.

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

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

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

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

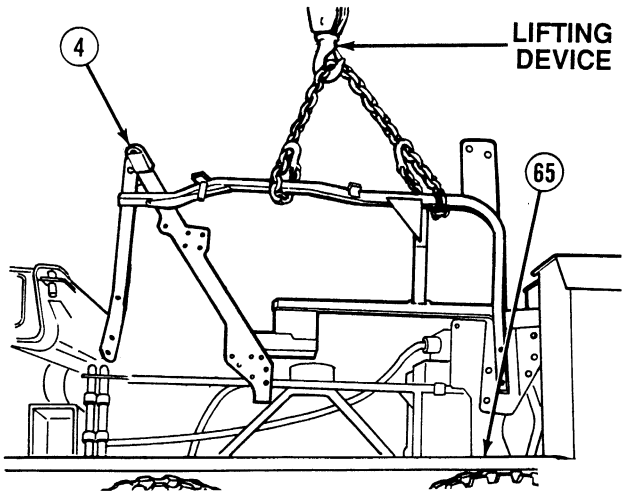


13-13. RIGHT SIDE POWER MODULE FRAME REPLACEMENT (CONT).

b. Installation.

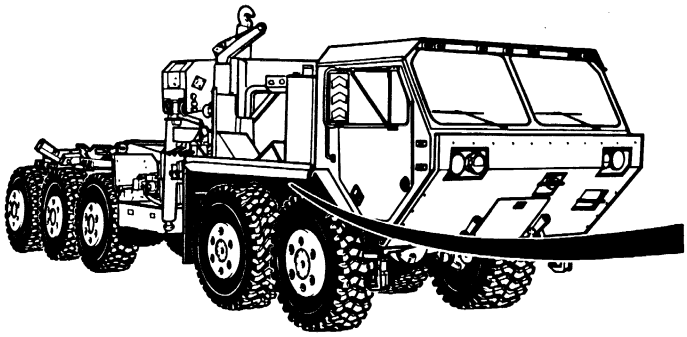
WARNING

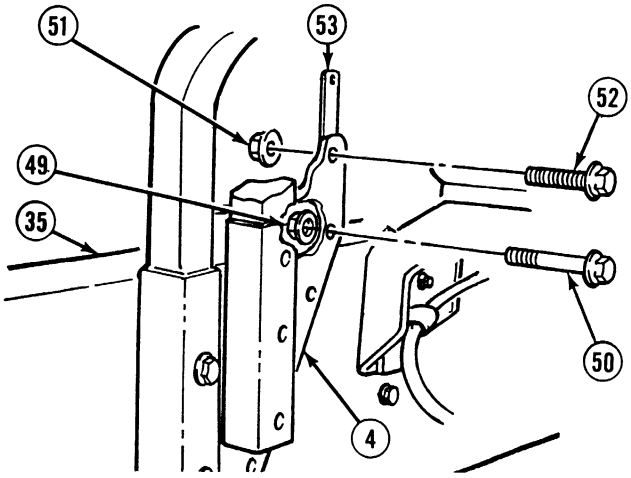
Power module frame weighs 275 lbs (125 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



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

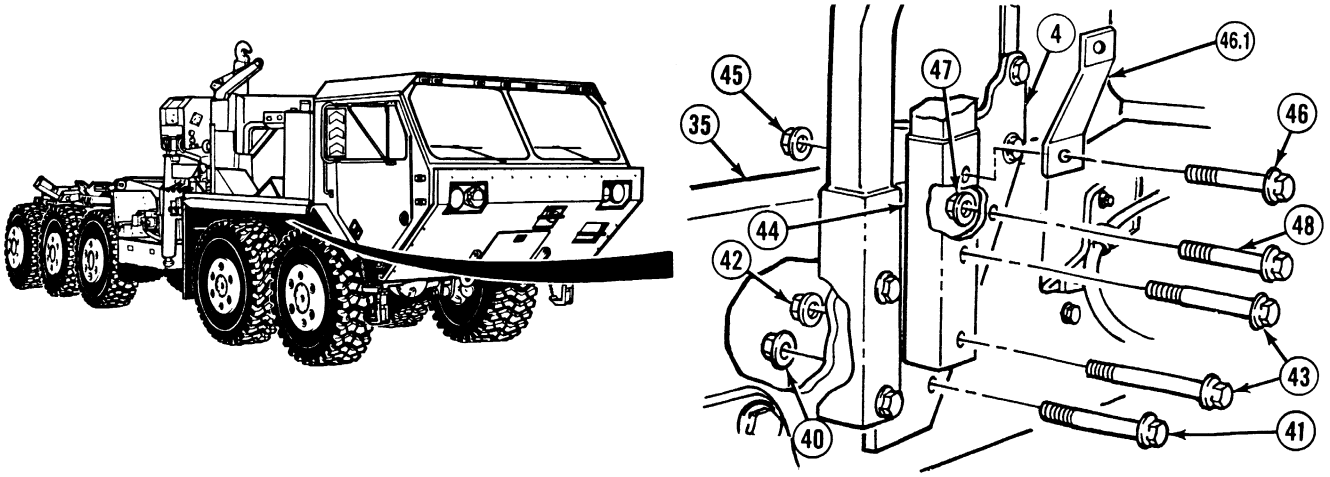
(2) With the aid of an assistant, position power module frame (4) on truck (65).





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

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

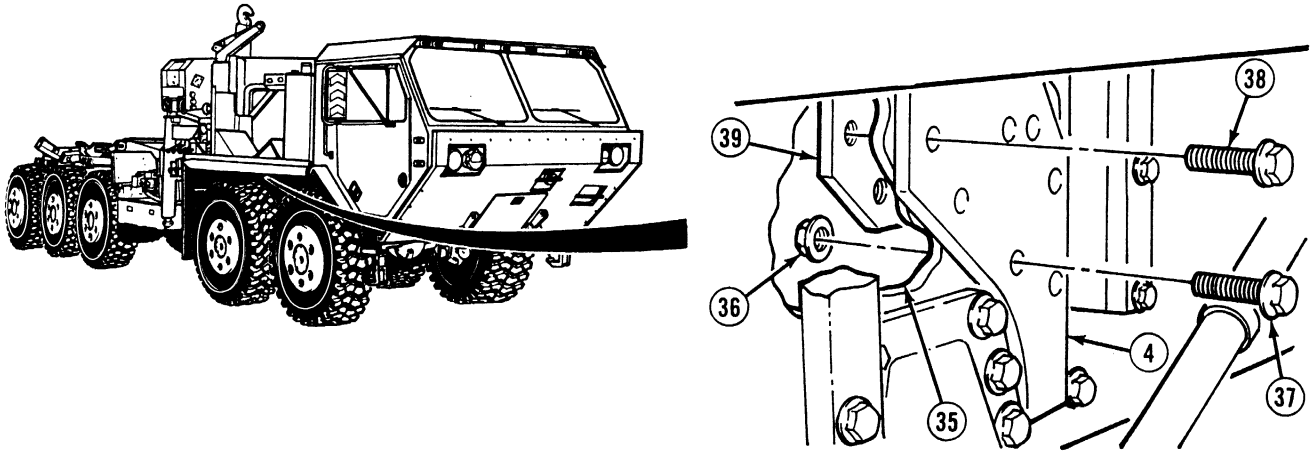


(5) Position three screws (48) and locknuts (47) in power module frame (4) and truck frame (35).

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

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

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



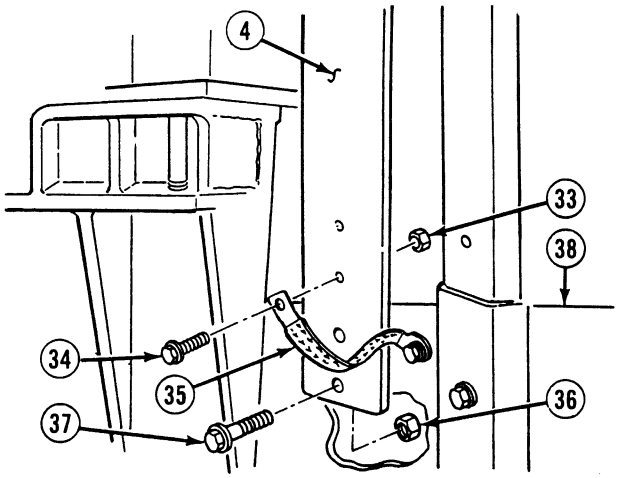
(9) Position plate (39) and five screws (38) in power module frame (4) and truck frame (35).

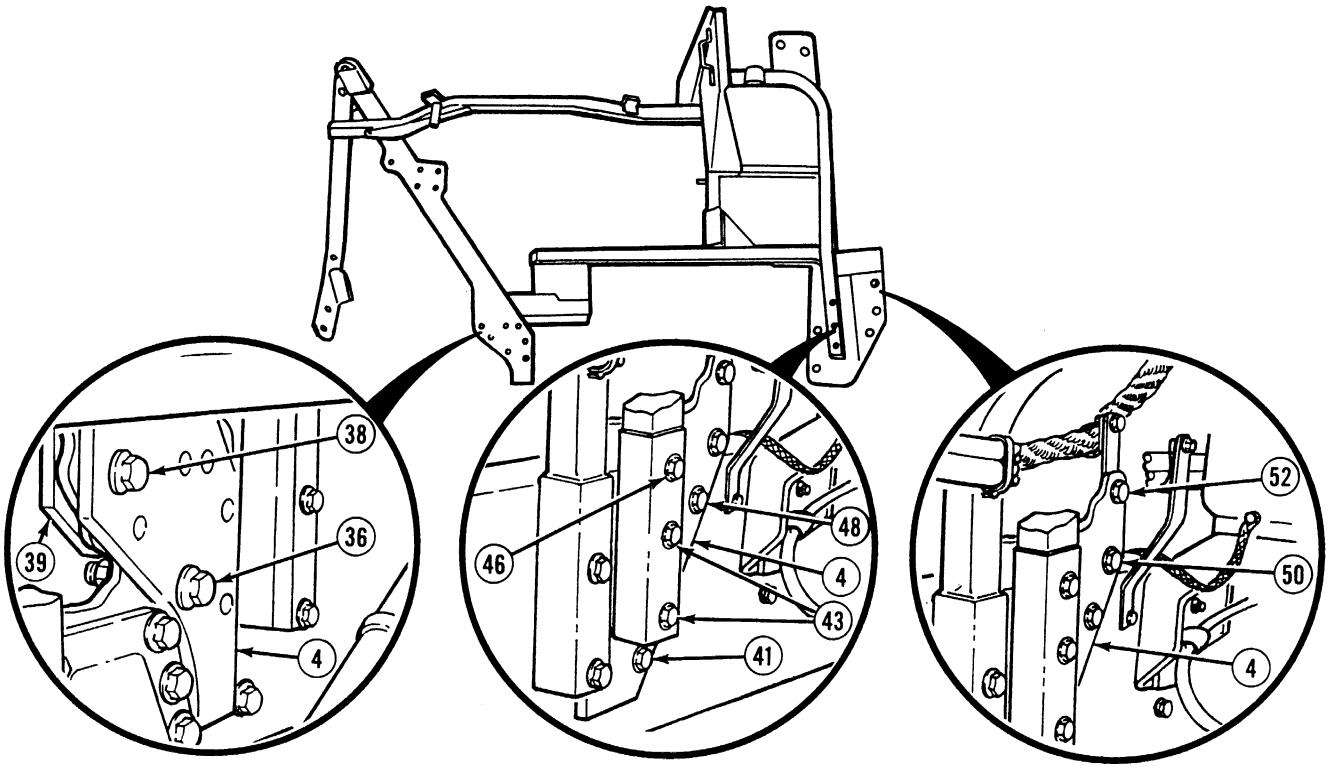
(10) Position two screws (37) and locknuts (36) in power module frame (4) and truck frame (35).

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

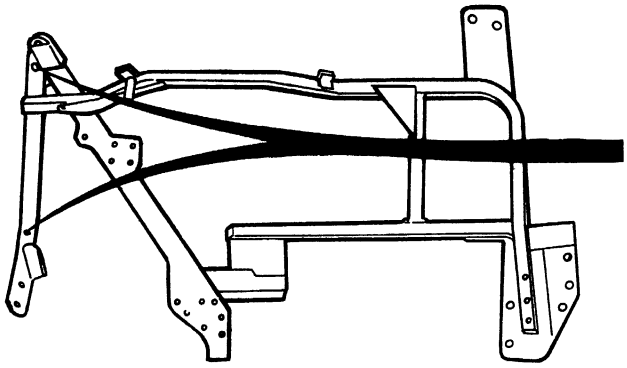
(11) With the aid of an assistant install two screws (34) and locknuts (33) in power module frame (4) and truck frame (35).

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

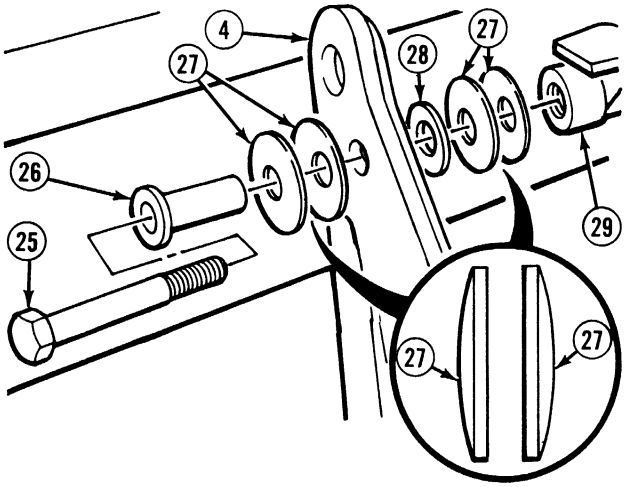




(13) With the aid of an assistant, tighten screws (36), (38), (41), (43), (46), (50) and (52) on plate (39) and power module frame (4).



FRAME SHOWN REMOVED FOR CLARITY



WARNING

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

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

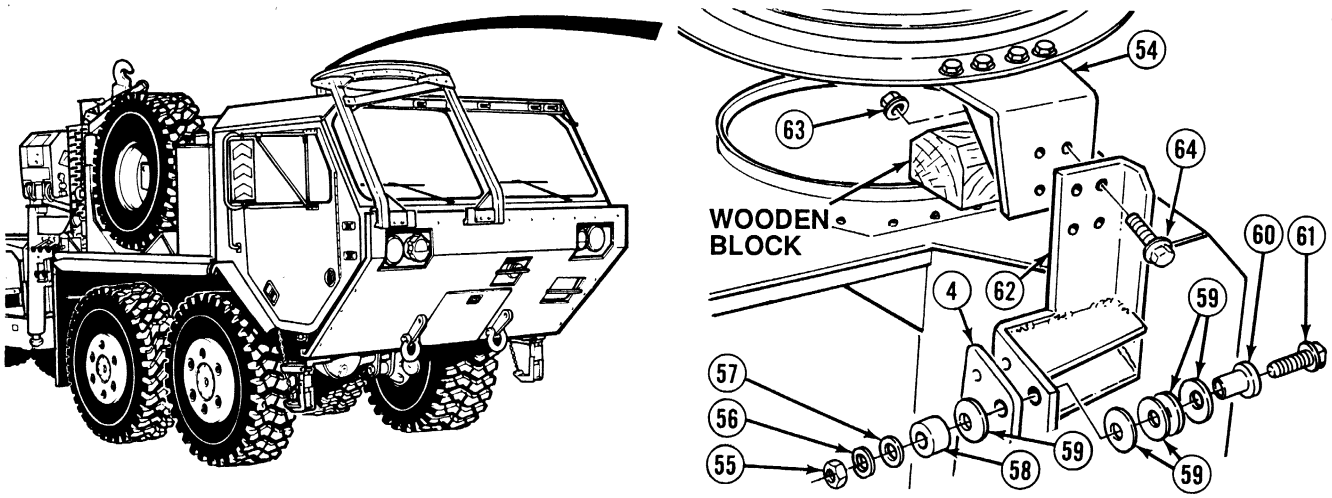
NOTE

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

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

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

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



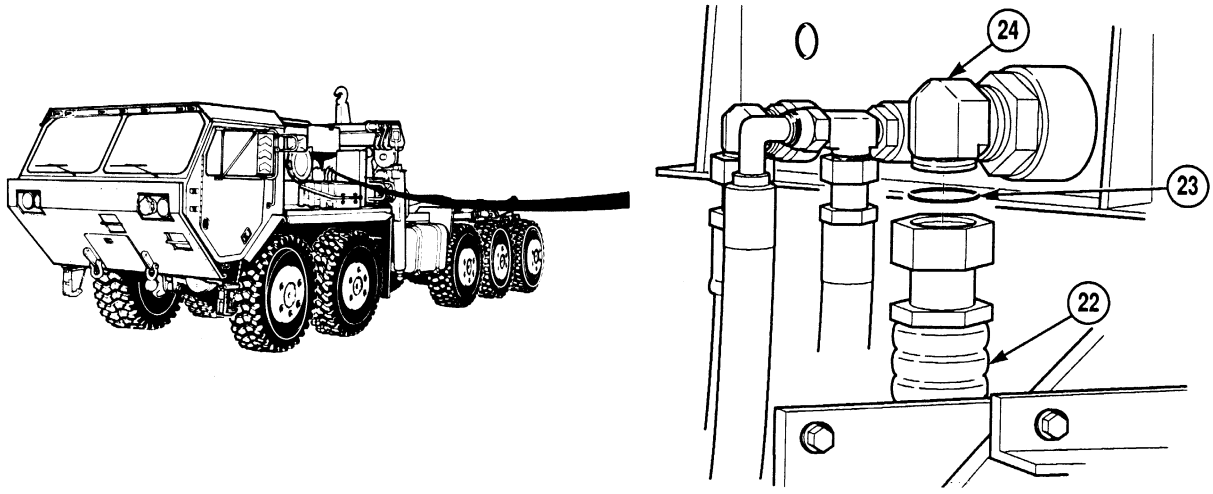
NOTE

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

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

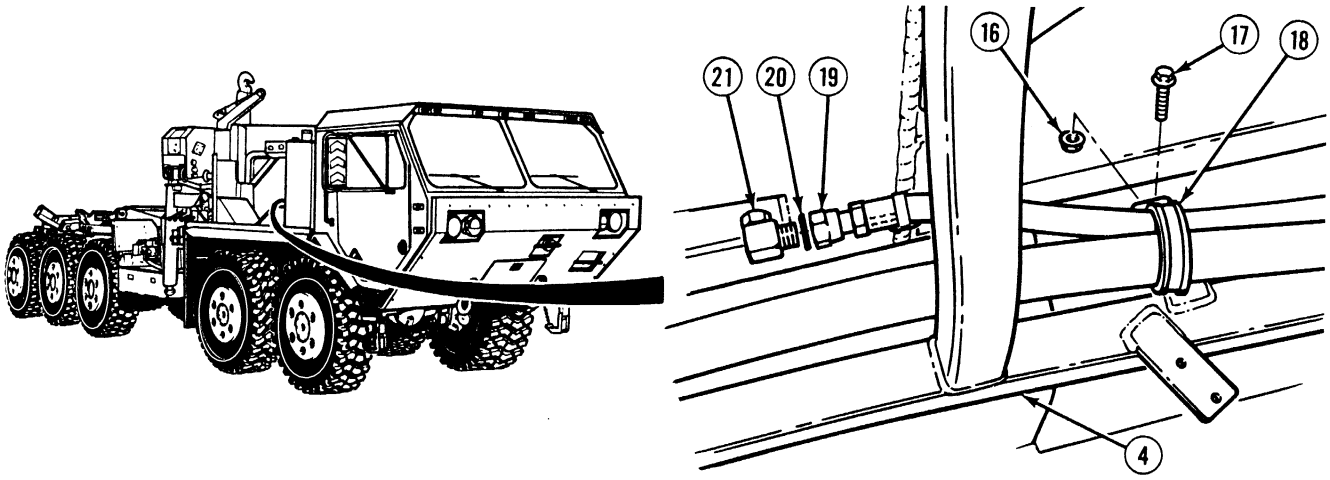
(18) Install screw (61), sleeve (60), six spring washers (59), spacers (58), washers (57), lockwashers (56) and nut (55) on power module frame (4). Tighten to 170 lb-ft (231 N·m).

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



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

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



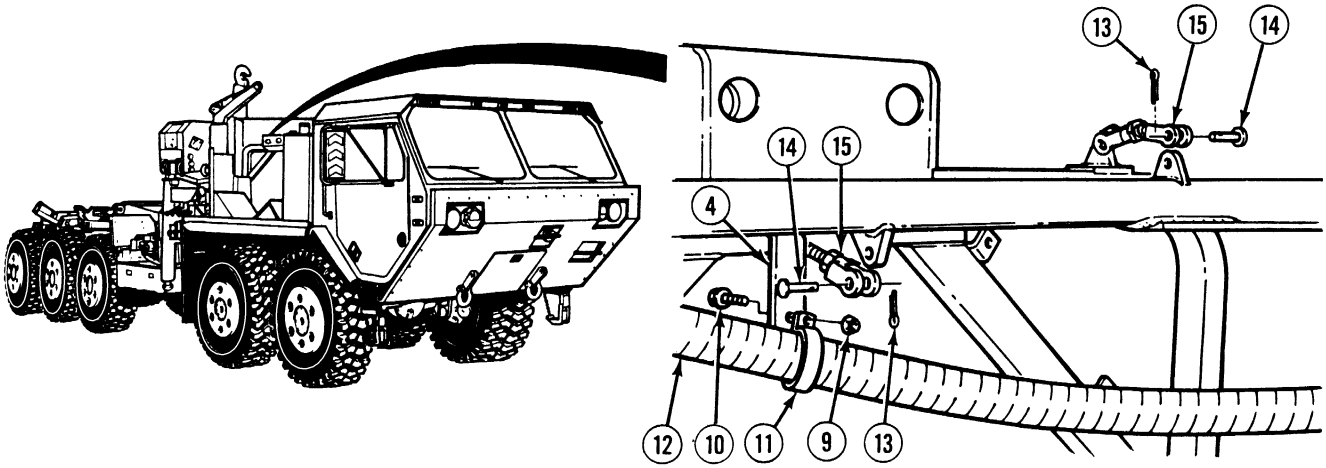
NOTE

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

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

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

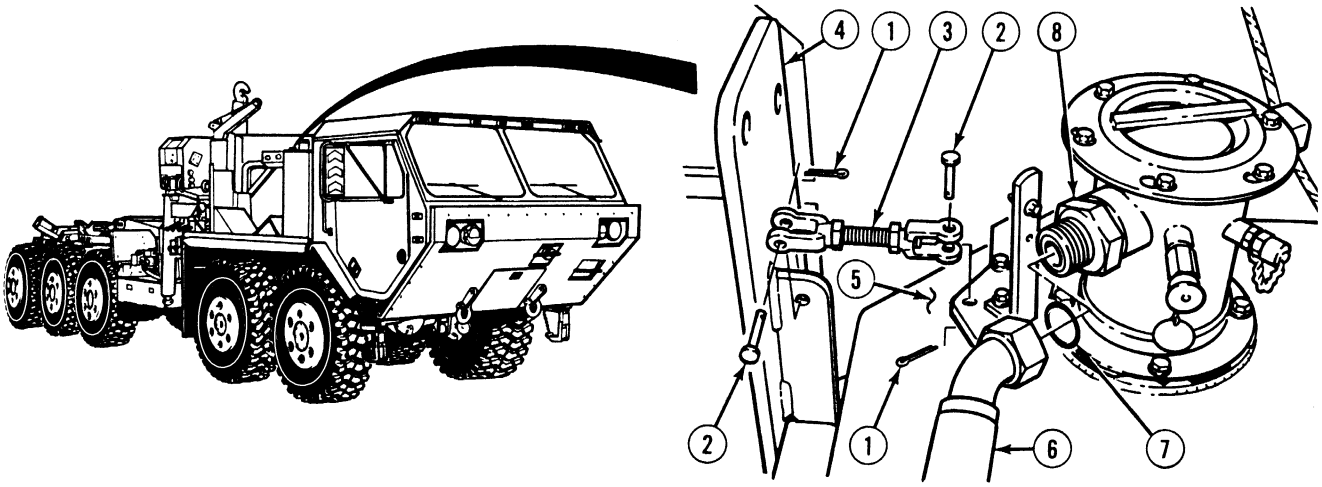
(24) Install screw (17), cushion clip (18) and locknut (16) on power module frame (4).



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

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

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



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

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

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

c. Follow-On Maintenance:

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

END OF TASK

CHAPTER 14

SPRINGS AND SHOCKS MAINTENANCE

Para	Contents	Page
14-1	Direct Support Springs And Shocks Maintenance Introduction	14-1
14-2	Tandem Spring Hanger Replacement	14-2
14-3	Front And Rear Spring Assembly Replacement	14-4
14-4	Axle No. 3 Air Bags Replacement	14-12
14-5	Front And Rear Tandem Equalizer Beam Repair	14-15
14-6	Axle No. 3 Air Suspension Beam Assembly Repair	14-25
14-7	Axle No. 3 Air Suspension Beam Mount Replacement/Adjustment	14-34
14-8	Lateral Torque Rod Replacement	14-40
14-9	Longitudinal Torque Rod Replacement	14-52

14-1. DIRECT SUPPORT SPRINGS AND SHOCKS MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing and servicing spring and shock components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

14-2. TANDEM SPRING HANGER REPLACEMENT.

This task covers:

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

INITIAL SETUP

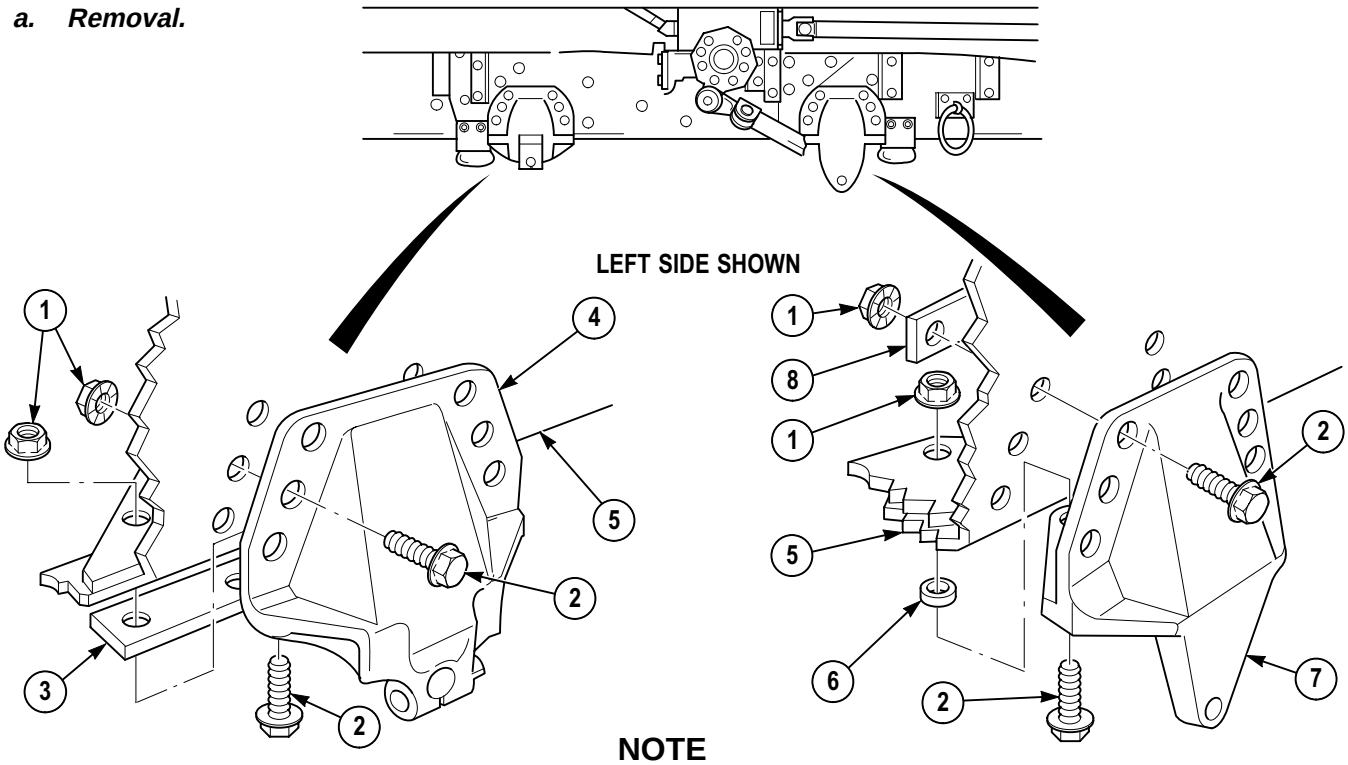
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Locknut (15) (Item 166, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Front and/or rear springs removed, (Para 14-3)

a. Removal.



NOTE

- Front and rear spring hangers are removed the same way. Front is shown.
- Bracket is located on front left rear spring hanger only.
- Two screws holding bracket are longer on front left rear spring hanger only.

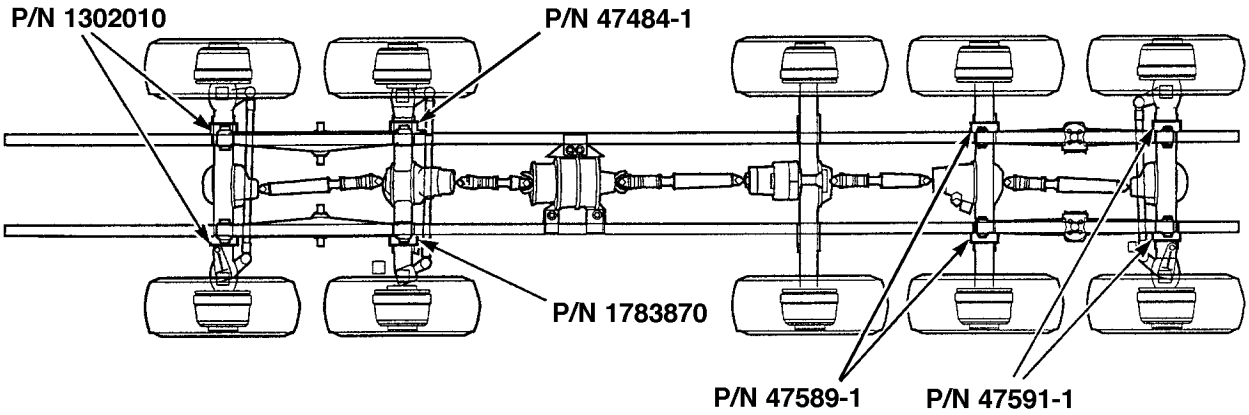
(1) Remove two locknuts (1), screws (2) and spacer plate (3) from bottom of front spring hanger (4) and frame (5). Discard locknuts.

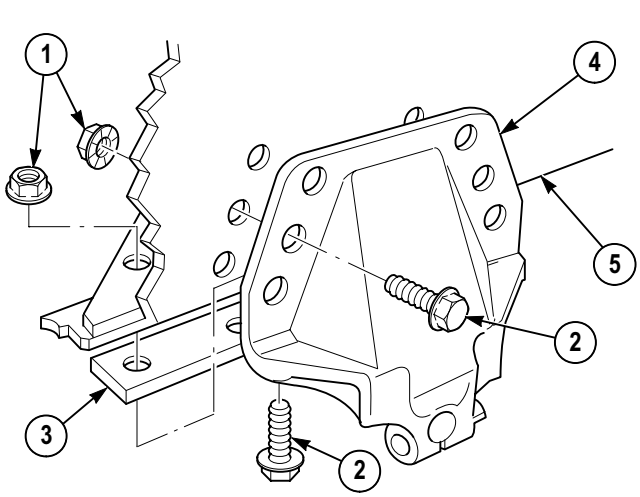
(2) With the aid of an assistant, remove six locknuts (1), screws (2) and front spring hanger (4) from frame (5). Discard locknuts.

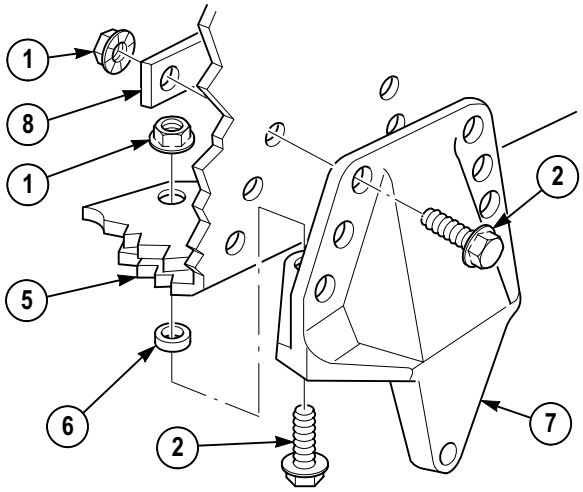
(3) Remove locknut (1), screw (2) and washer (6) from bottom of rear spring hanger (7) and frame (5). Discard locknut.

(4) With the aid of an assistant, remove six locknuts (1), screws (2), bracket (8) and rear spring hangers (7) from frame (5). Discard locknuts.

b. Installation.







NOTE

- Refer to above illustration for proper spring hanger identification.
- Bracket is located on front left rear spring hanger only.
- Two screws holding bracket are longer on front left rear spring hanger only.

(1) With the aid of an assistant, install rear spring hangers (7) and bracket (8) on frame (5) with six screws (2) and locknuts (1).

(2) Install washer (6) between frame (5) and rear spring hanger (7) with screw (2) and locknut (1).

(3) With the aid of an assistant, install front spring hangers (4) on frame (5) with six screws (2) and locknuts (1).

(4) Install spacer plate (3) between frame (5) and front spring hanger (4) with two screws (2) and locknuts (1).

c. Follow-On Maintenance:

- Install springs, (Para 14-3).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT.

This task covers:

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

INITIAL SETUP

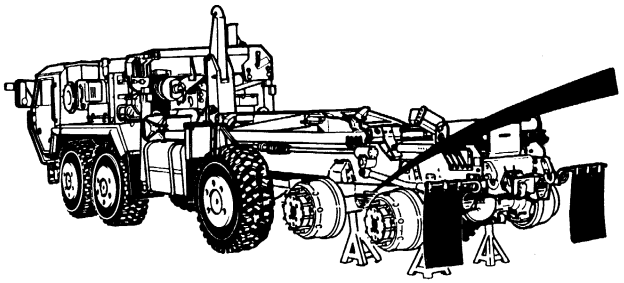
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Jack, Stabilizer (2)
(Item 130, Appendix F)
Jackstand (6) (Item 132, Appendix F)
Punch, Drift (Item 179, Appendix F)
Wrench, Combination 1-1/2 in.
(Item 260, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 208 lbs
(94 kg) for front spring assembly
Lifting Device, Minimum Capacity 175 lbs
(79 kg) for rear spring assembly
Lifting Device, Minimum Capacity 4 tons
(3632 kg) for raising equalizer beam

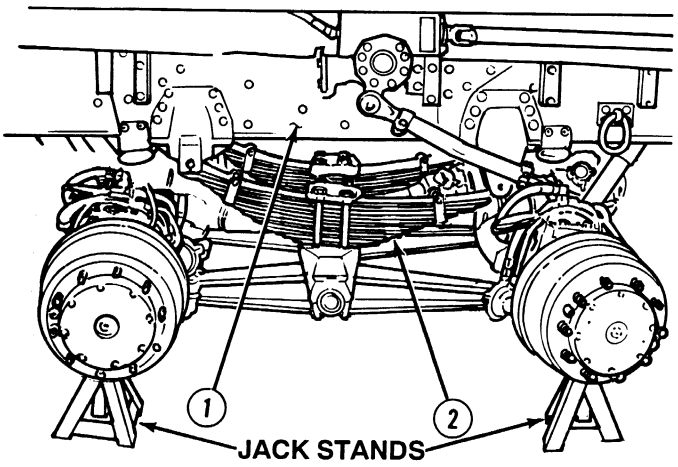
Materials/Parts
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)
Locknut (2) (Item 212, Appendix E)
Lockwasher (4) (Item 267, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Wheels/tires removed, (TM 9-2320-364-10)
Axle No. 4 shock absorbers disconnected
(rear springs only), (TM 9-2320-364-20)
Axle No. 5 lateral torque rod disconnected
(rear springs only), (Para 14-8)

a. Removal.





WARNING

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

NOTE

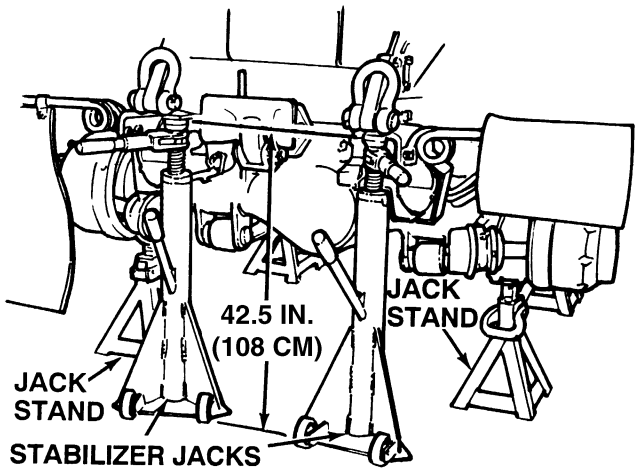
- Front and rear spring assemblies are removed in the same way, with some minor differences. These differences are noted in the text of this task.
- Left and right sides are removed in the same way. Left rear spring assembly is shown.
- Even if only one spring assembly is being replaced, both frame rails need to be raised evenly to the same height. Failure to raise both frame rails to the same height make installation of spring assembly very difficult.

(1) Using lifting device, raise each frame rail (1) until weight of truck is off spring assembly (2).

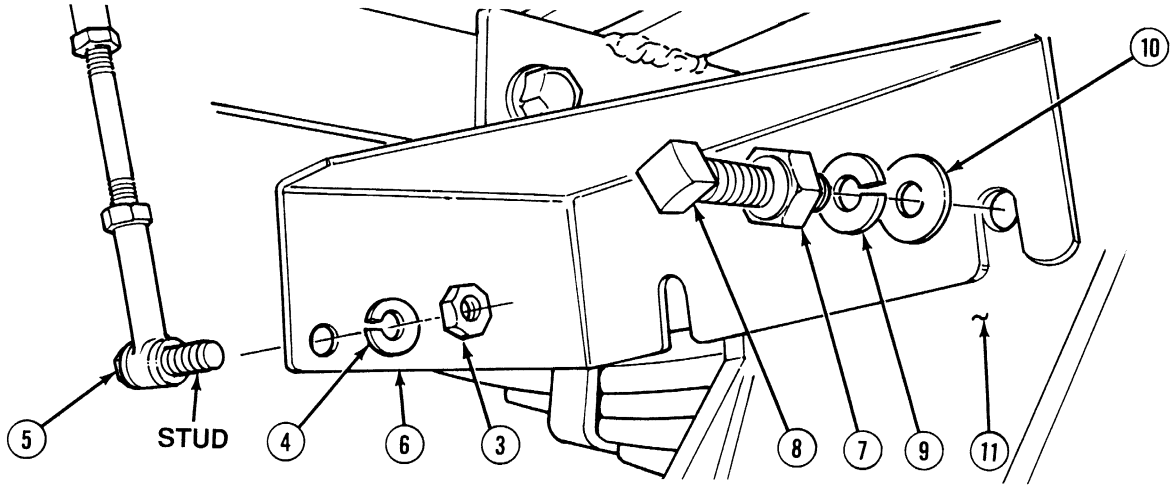
NOTE

Stabilizer jacks must be adjusted to 42-1/2 in. (108 cm) high.

(2) Position stabilizer jack under each frame rail (1) and lower frame rails onto stabilizer jacks.



14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT (CONT).



NOTE

Perform Steps (3) and (4) only when removing rear spring assembly.

(3) Remove nut (3) and lockwasher (4) from both studs of rod assemblies (5). Discard lockwasher.

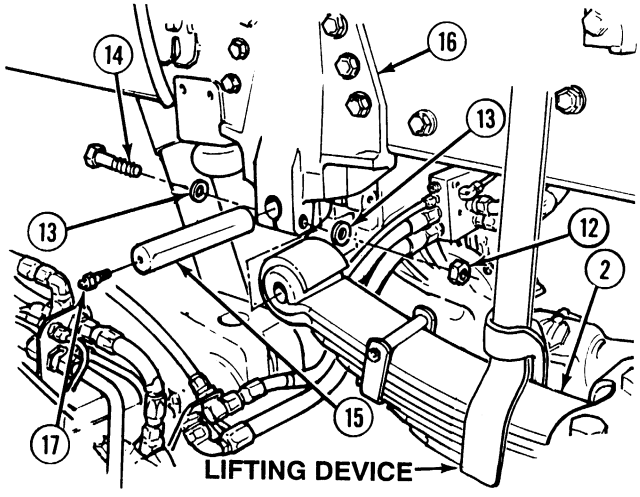
(4) Disconnect rod assemblies (5) from each bracket (6).

NOTE

Bracket and washers apply only when removing rear spring assembly.

(5) Loosen two nuts (7) and remove bracket (6), two screws (8), nuts (7), lockwashers (9) and washers (10) from bracket (11). Discard lockwashers.

(6) Remove two locknuts (12), four washers (13) and two screws (14) from spring assemblies (2). Discard locknuts.



WARNING

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

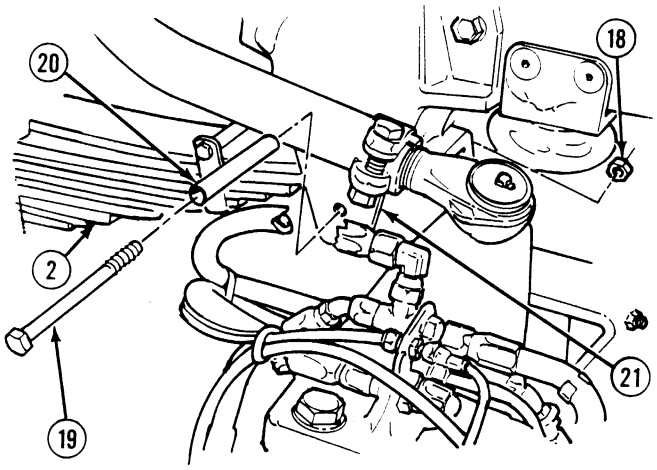
NOTE

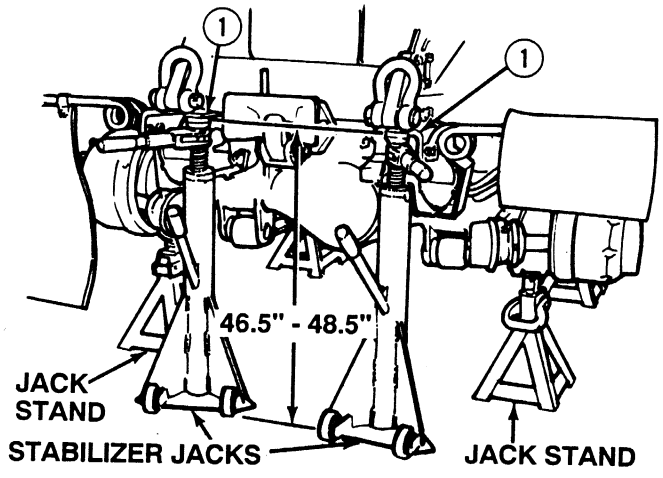
If pin is hard to remove, use lifting device to raise or lower equalizer beam as necessary to get weight of truck off spring assembly.

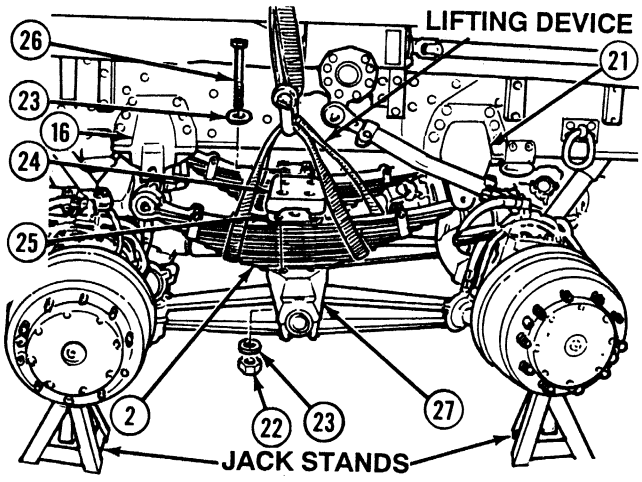
(7) Remove pins (15) from brackets (16).

(8) Remove grease fittings (17) from pins (15).

(9) Remove locknut (18), screw (19) and spacer (20) from brackets (21). Discard locknut.







(10) Using a lifting device, raise each frame rail (1) 4 to 6 in. (10 to 15 cm) to free each spring assembly (2) from brackets (16) and (21).

(11) Adjust stabilizer jack to support frame rails (1).

WARNING

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

(12) Attach lifting device to spring assembly (2).

(13) Remove four nuts (22), eight washers (23), saddle cap (24), liner (25) and four screws (26) from saddle (27).

(14) Using a lifting device, remove spring assembly (2) from saddle (27) and lower spring assembly to ground.

(15) Repeat Steps (1) through (15) for remaining spring.

14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT (CONT).

b. Installation.

WARNING

Front spring assembly weighs 208 lbs (94 kg). Rear spring assembly weighs 175 lbs (79 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

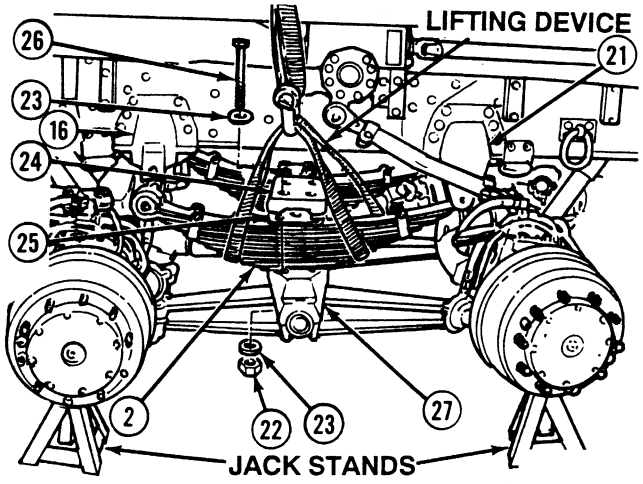
NOTE

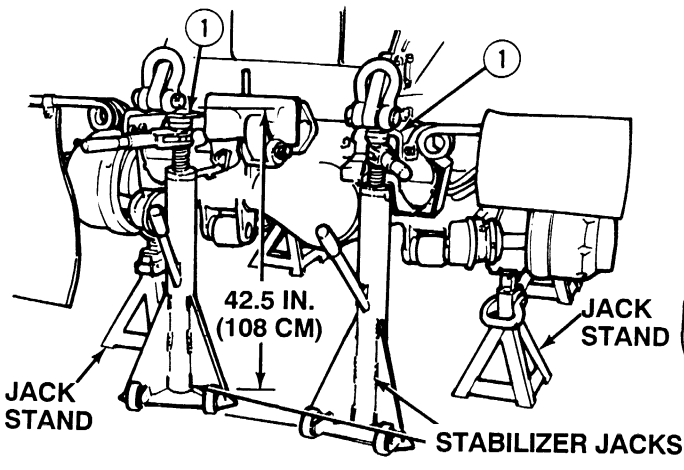
- Front and rear spring assemblies are installed in the same way.
- Left and right sides are installed in the same way. Left rear spring assembly is shown.

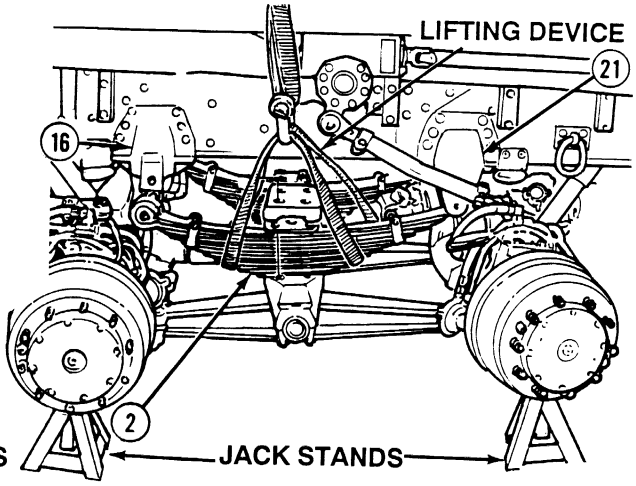
(1) Using a lifting device, position spring assembly (2) on saddle (27).

(2) Apply lubricating oil to threads of four screws (26).

(3) Position liner (25), saddle cap (24), four screws (26), eight washers (23) and four nuts (22) on spring assembly (2).







(4) Using a lifting device, raise each frame rail (1) and lower stabilizer jacks to 42-1/2 in. (108 cm).

(5) Using a lifting device, lower each frame rail (1) until both spring assemblies (2) are positioned in brackets (21) and (16).

(6) Raise stabilizer jacks to support frame rails (1).

(7) Apply grease to pins (15).

WARNING

Do not stick fingers in pin holes. Failure to comply may cause injury to personnel.

(8) Using drift punch, align spring assemblies (2) with brackets (16).

NOTE

- Screw slots in pin face down.
- Grease fitting hole faces outside of truck.

(9) Install pins (15) in brackets (16) and springs (2).

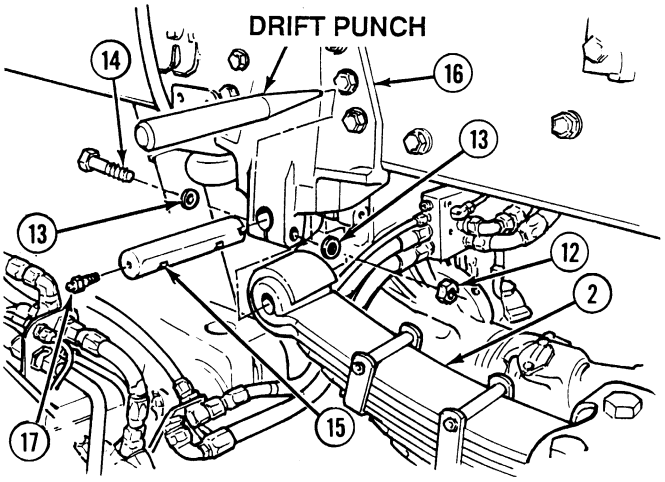
NOTE

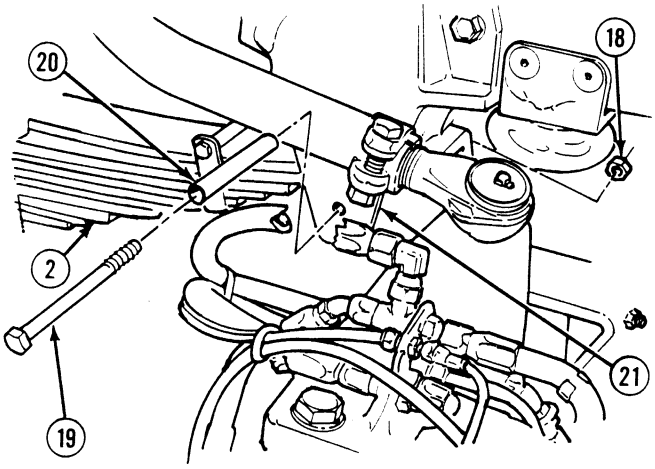
If screw slots do not line up with screw holes to allow installation of screws, use turn slot to turn pin and align screw slots with screw holes.

(10) Install two screws (14), four washers (13) and two locknuts (12) in spring assemblies (2) and bracket (16). Tighten locknuts to 45 to 63 lb-ft (61 to 85 N·m).

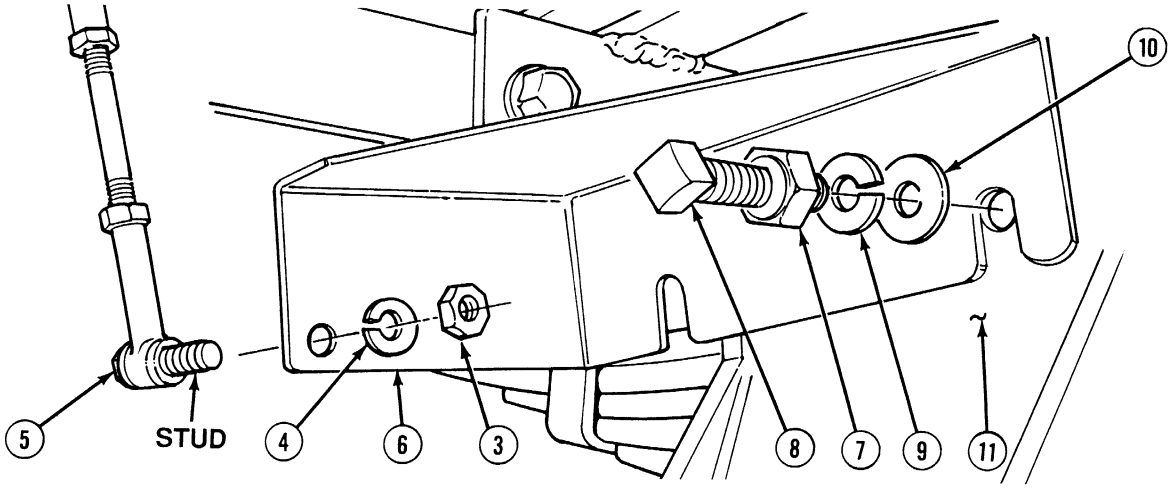
(11) Install grease fittings (17) to pins (15).

(12) Install spacer (20), screw (19) and locknut (18) to brackets (21). Tighten locknut to 38 to 45 lb-ft (52 to 85 N·m).





14-3. FRONT AND REAR SPRING ASSEMBLY REPLACEMENT (CONT).



(13) Apply lubricating oil to threads of adjusting screws (8).

NOTE

- Steps (14) through (17) apply to installing the rear spring assembly only.
- Steps (18) through (20) apply to installing the front spring assembly only.

(14) Install two nuts (7), lockwashers (9) and washers (10) on adjusting screws (8).

(15) Position bracket (6) with two adjusting screws (8) on bracket (11). Tighten adjusting screws to 100 to 150 lb-ft (136 to 203 N·m).

(16) Tighten two nuts (7) on adjusting screws (8) to 100 to 150 lb-ft (136 to 203 N·m).

NOTE

Adjusting rod is being temporarily installed at this time.

(17) Connect adjusting rod (5) to bracket (6) with lockwasher (4) and old nut (3).

(18) Install two nuts (7) and lockwashers (9) on each screw (8).

(19) Install two adjusting screws (8) on bracket (11). Tighten adjusting screws to 100 to 150 lb-ft (136 to 203 N·m).

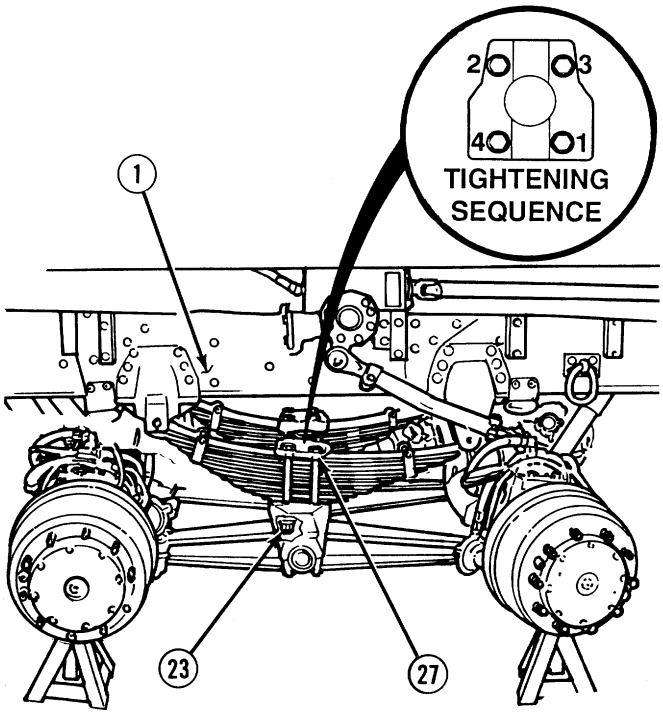
(20) Tighten two nuts (7) on adjusting screws (8).

(21) Repeat Steps (1) through (20) for remaining spring.

(22) Using a lifting device, raise truck enough to allow removal of stabilizer jacks from beneath frame rails (1).

(23) Lower frame rails (1) and remove lifting device.

(24) Tighten four screws (27) on nuts (23) to 275 to 300 lb-ft (373 to 407 N·m) in the sequence shown. Repeat tightening procedure a minimum of two times.



c. Follow-On Maintenance:

- Connect Axle No. 5 lateral torque rod, (Para 14-8).
- Connect Axle No. 4 shock absorbers, (TM 9-2320-364-20).
- Install wheel/tires, (TM 9-2320-364-10).
- Lubricate spring assembly, (TM 9-2320-364-20).
- Adjust load sensing valve (rear spring assembly only), (TM 9-2320-364-20).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-4. AXLE NO. 3 AIR BAGS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Sealing Compound (Item 53, Appendix B)
Tag, Identification (Item 72, Appendix B)
Bolt Kit, Air Spring (Item 18, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Air system drained, (TM 9-2320-364-10)

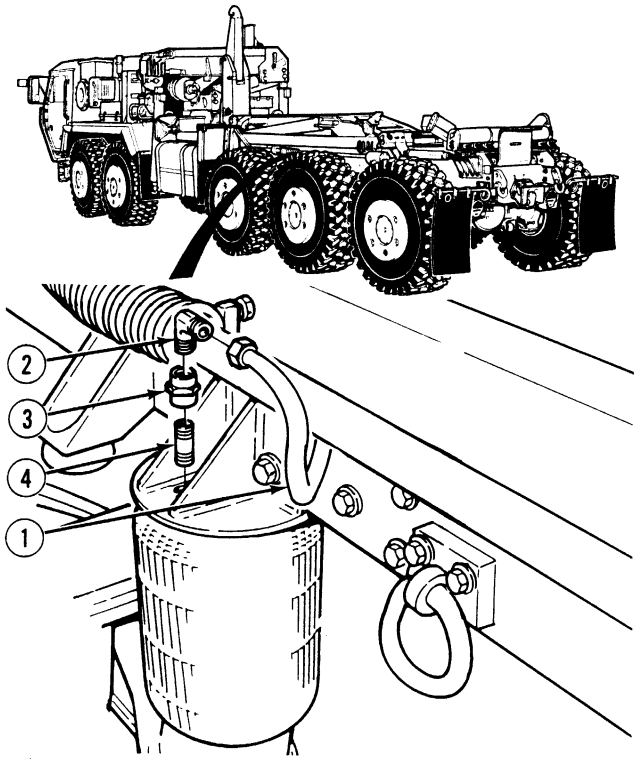
a. Removal.

WARNING

Air bags may still be pressurized even though air pressure gauge reads 0 psi. Remove air line slowly to allow air to escape. Failure to comply may result in air line blowing off causing serious injury to personnel.

NOTE

- Right and left air bags on Axle No. 3 are removed in the same way. The left side air bag is shown.
- Right side air bag air line is 2793. Left side air bag air line is 2794.



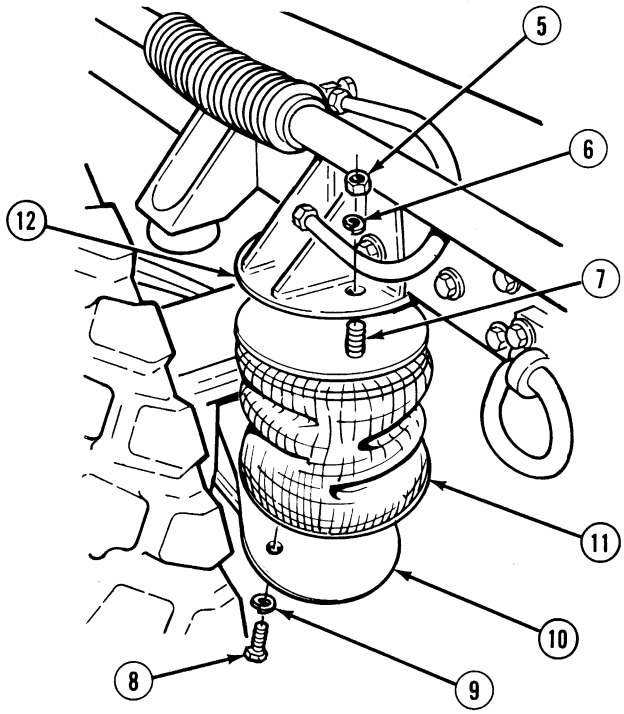
(1) Remove air line 2794 (1) from elbow (2).

(2) Remove elbow (2), fitting (3) and pipe nipple (4).

(3) Remove two nuts (5) and lockwashers (6) from studs (7). Discard lockwashers and nuts.

(4) Remove two screws (8) and lockwashers (9) from trailing beam (10). Discard lockwashers and screws.

(5) Compress air bag (11) and remove from bracket (12) and trailing beam (10).



b. Installation.

NOTE

Right and left air bags on this axle are installed in the same way. The left side air bag is shown.

(1) Stretch air bag (11) into position against bracket (12).

(2) Install two lockwashers (6) and nuts (5) on studs (7). Tighten nuts to 25 lb-ft (34 N·m).

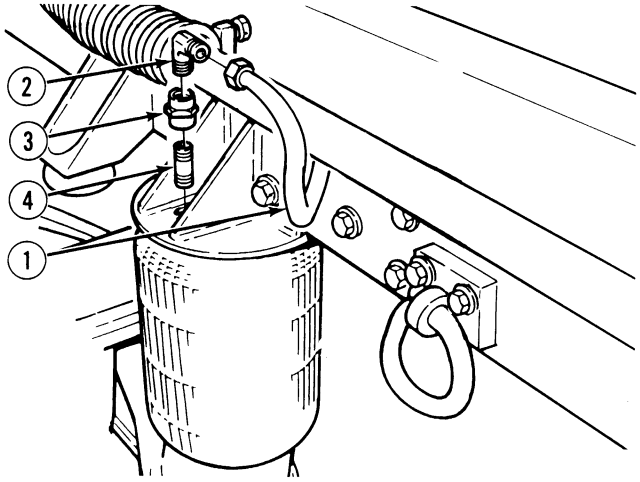
(3) Stretch air bag (11) into position against trailing beam (10).

(4) Install air bag (11) on trailing beam (10) using two lockwashers (9) and screws (8). Tighten screws to 55 lb-ft (75 N·m).

14-4. AXLE NO. 3 AIR BAGS REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use only in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(5) Coat threads of pipe nipple (4) and bottom threads of elbow (2) with sealing compound.

(6) Install pipe nipple (4), fitting (3) and elbow (2).

NOTE

Right side air bag air line is 2793. Left side air bag air line is 2794.

(7) Install air line 2794 (1) to elbow (2).

c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Build up air pressure to 125 psi, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for air leaks.
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Adapter, Press (Item 5, Appendix F)
Clamp (Item 31, Appendix F)
Clamp Plate (Item 33, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Inserter, Center Bushing, Front (Item 102, Appendix F)
Installer Tool, Center Bushing, Rear (Item 123, Appendix F)
Jack, Dolly Type (Item 127, Appendix F)
Jack, Stabilizer (2) (Item 130, Appendix F)
Jackstand (6) (Item 132, Appendix F)
Press Plate (Item 163, Appendix F)
Press, 60 Ton (Item 164, Appendix F)
Remover, Bushing, Beam End (Item 187, Appendix F)
Remover, Center Bushing, Front (Item 188, Appendix F)
Remover, Center Bushing, Rear (Item 189, Appendix F)
Wrench Set, Socket 3/4 In. Drive (Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 10 tons (9080 kg)
Lifting Device, Minimum Capacity 212 lbs (96 kg)

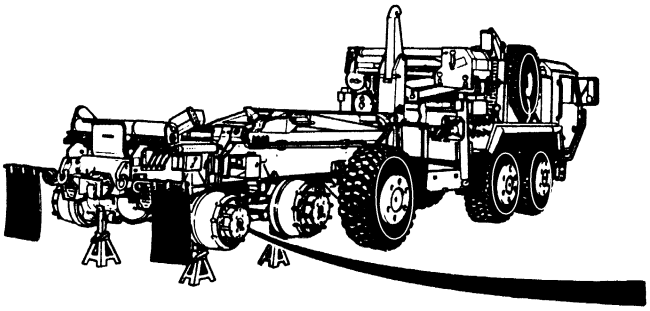
Materials/Parts
Cloth, Crocus (Item 12, Appendix B)
Compound, Corrosion Preventive (Item 15, Appendix B)
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Beam Center Bushing (Item 3, Appendix E) (Used on Front Tandem Only)
Beam Center Bushing (Item 4, Appendix E) (Used on Rear Tandem Only)
Beam End Bushing (Item 7, Appendix E) (Used on Front and Rear Tandem)
Locknut (2) (Item 182, Appendix E)
Locknut (4) (Item 212, Appendix E)

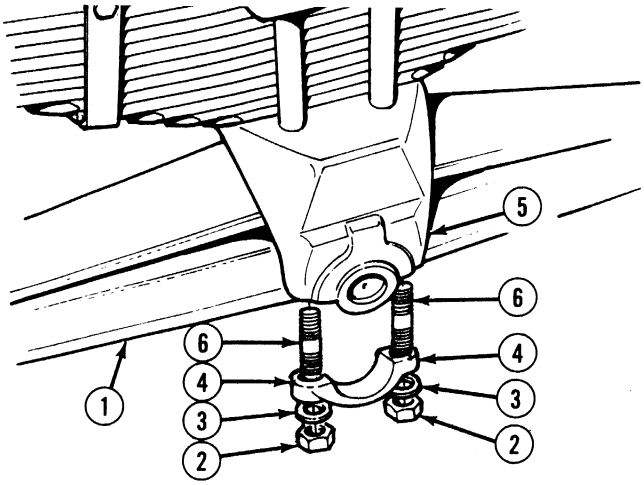
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Wheels/tires removed, (TM 9-2320-364-10)

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

a. Removal.





(1) Using a hydraulic jack, raise the equalizer beam (1).

WARNING

Ensure truck is securely supported before removing equalizer beams. If truck falls, serious personal injury or death may result.

NOTE

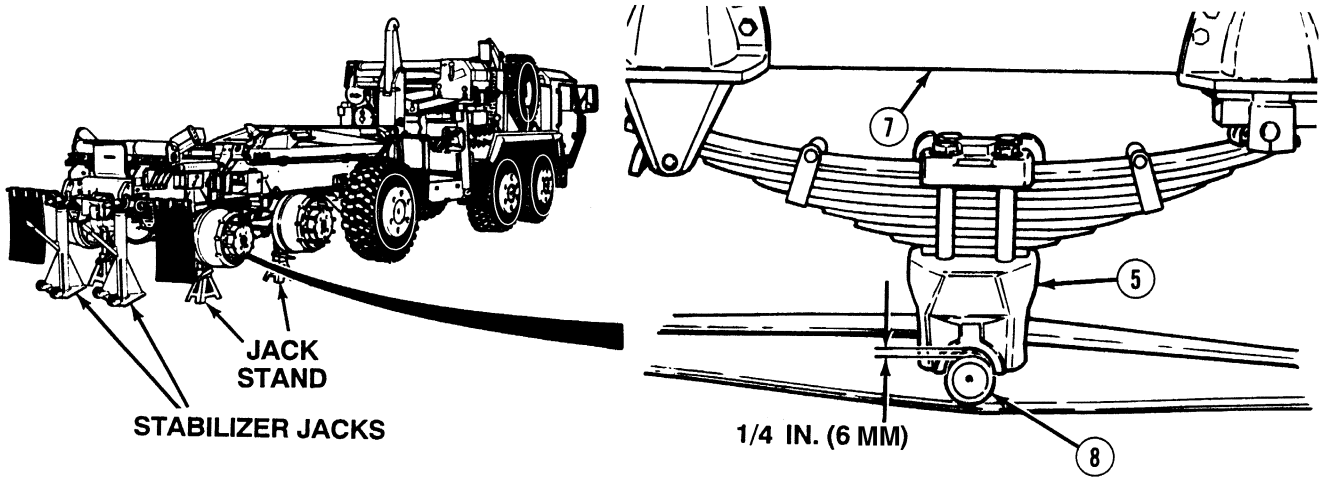
- Position jackstands under each axle, as shown.
- Front and rear equalizer beams are removed in the same way. The rear tandem is shown.
- Left and right equalizer beams are removed in the same way. Right side of rear tandem is shown.

(2) Remove four locknuts (2), washers (3) and two saddle caps (4) from each saddle (5). Discard locknuts.

NOTE

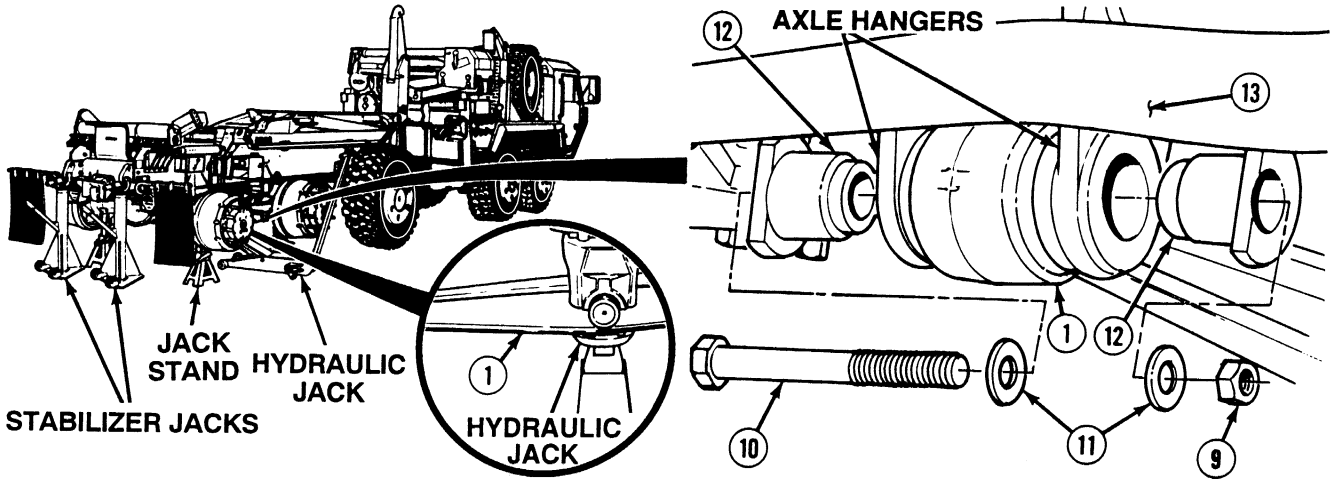
If studs are damaged, perform Step (3).

(3) Remove four studs (6) from each saddle (5).



(4) Raise each frame rail (7) with lifting device until a gap of approximately 1/4 in. (6 mm) between each saddle (5) and center bushing (8).

(5) Support frame rail (7), at height determined in Step (4), with stabilizer jacks.



WARNING

Two equalizer beams and cross tube weigh 445 lbs (202 kg) assembled. Each equalizer beam weighs 212 lbs (96 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

(6) Support each equalizer beam (1) with a hydraulic jack.

(7) Remove two locknuts (9), screws (10) and four washers (11) from each equalizer beam (1). Discard locknuts.

(8) Remove four adapters (12) from each equalizer beam (1).

(9) With two hydraulic jacks, lower and remove equalizer beams (1) from truck (13).

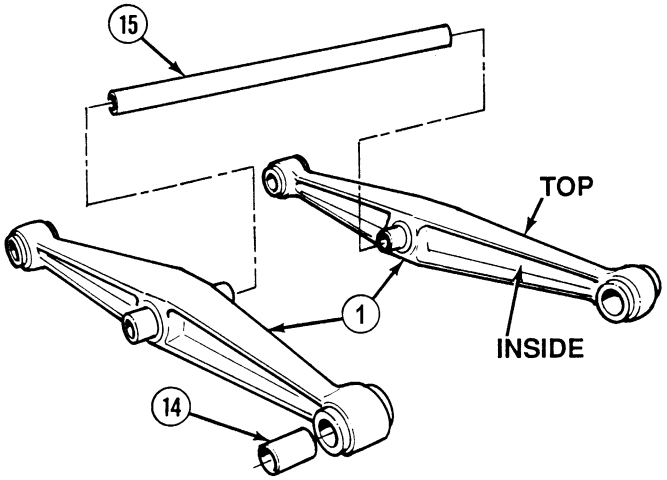
14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

(10) Remove two spacers (14) from each equalizer beam (1).

NOTE

Tag and mark TOP and INSIDE of equalizer beams before removing center cross tube.

(11) Remove center cross tube (15) from equalizer beams (1).



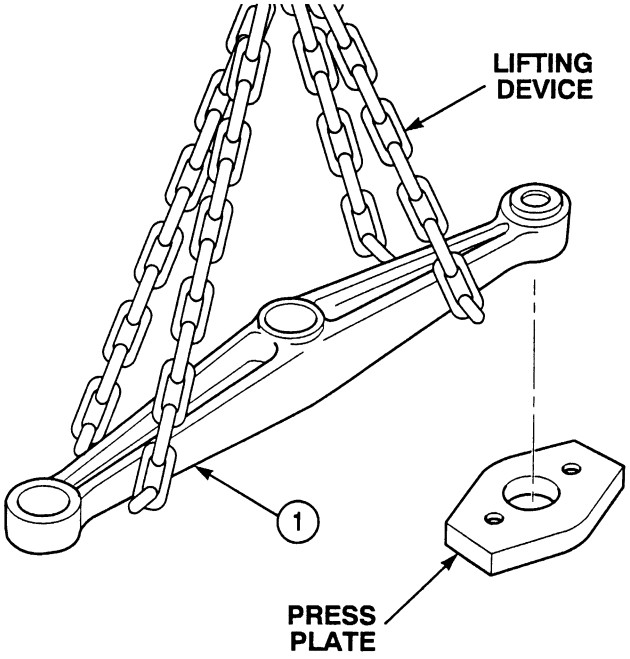
b. Disassembly.

(1) Position press plate on press.

WARNING

Equalizer beam weighs 212 lbs (96 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(2) Using a lifting device, position equalizer beam (1) on press plate.



WARNING

Force required to remove beam end bushings and beam center bushing may exceed 30 tons (27 metric tons). Use a press of 60-ton (54 metric tons) capacity or more to remove and install bushings. Use care when pressing out bushings to prevent serious personal injury or death. Always wear eye protection to prevent injury when operating press.

CAUTION

Ensure beam end bushing remover is correctly aligned on the bushing shell before attempting start pressing operation. Also check that equalizer beam is correctly aligned on press plate so that there is clearance for old beam end bushing to drop through.

(3) Using beam end bushing remover and press adapter, press beam end bushing (2) out of equalizer beam (1). Discard beam end bushing.

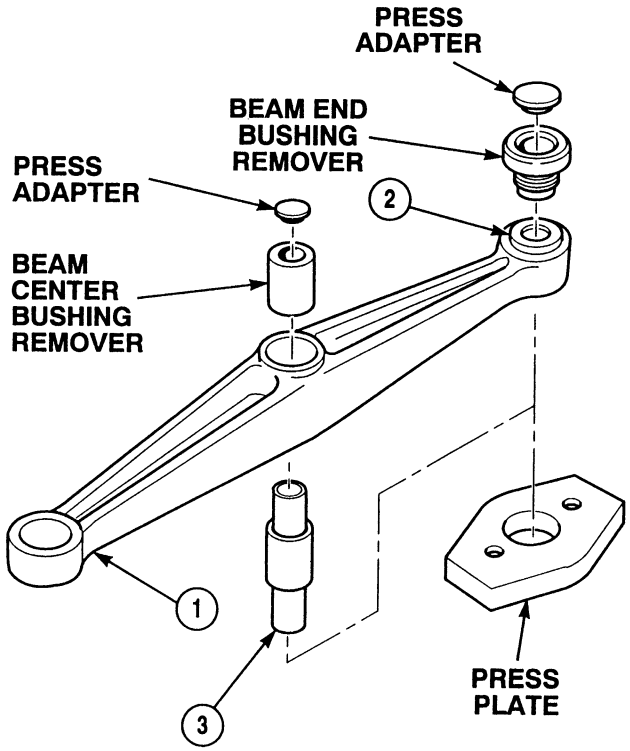
(4) Repeat Steps (1) through (3) for other beam end bushing (2).

(5) Inspect outer edge of beam center bushing (3). If outer edge of beam center bushing is "mushroomed" over face of equalizer beam (1), chisel or file mushroomed steel away.

NOTE

Center bushing remover tools for front and rear equalizer beams are very similar. Use larger diameter remover for rear beams and smaller diameter remover for front beams.

(6) Using beam center bushing remover and press adapter, press beam center bushing (3) out of equalizer beam (1). Discard beam center bushing.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean equalizer beam with drycleaning solvent.

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

(2) Clean equalizer beam bushing bores with crocus cloth to remove all scale, rust, and corrosion.

(3) Inspect equalizer beam for cracks, obvious wear, and damage. Replace if damaged.

d. Assembly.

(1) Coat two beam end bushings (2), beam center bushing (3) and three bores in equalizer beam (1) with grease.

(2) Place press plate on press.

(3) Position equalizer beam (1) on press plate.

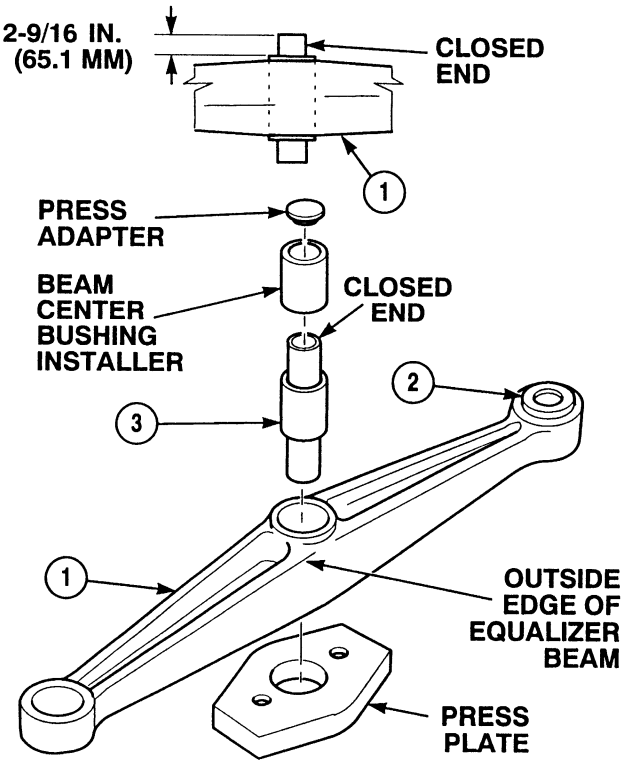
WARNING

Force required to remove beam end bushings and beam center bushing may exceed 30 tons (27 metric tons). Use a press of 60-ton (54 metric tons) capacity or more to remove and install bushings. Use care when pressing out bushings to prevent serious personal injury or death. Always wear eye protection to prevent injury when operating press.

NOTE

Center bushing remover tools for front and rear equalizer beams are very similar. Use larger diameter remover for rear beams and smaller diameter remover for front beams.

(4) Using beam center bushing installer and press adapter, press beam center bushing (3) into equalizer beam (1). Continue pressing until beam center bushing installer bottoms out against equalizer beam face. Ensure that closed end of beam center bushing extends 2-9/16 in. (65 mm) from face of equalizer beam.



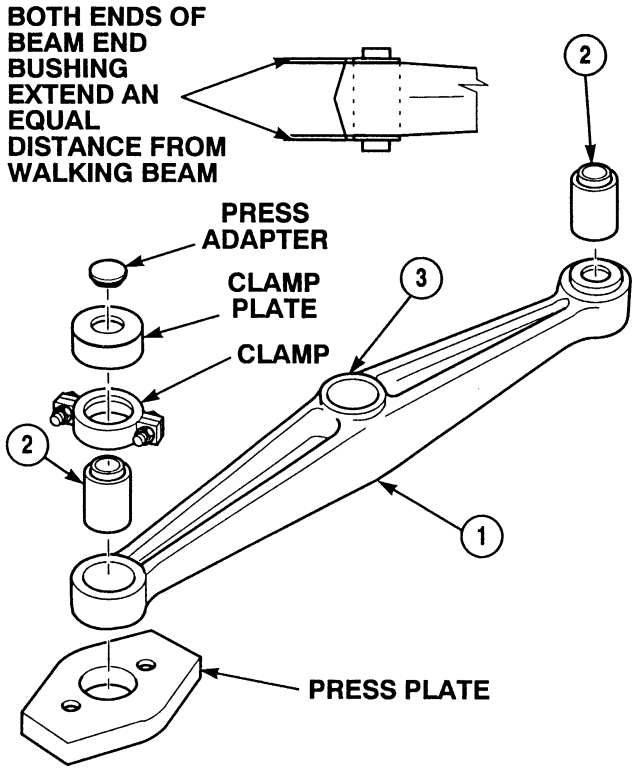
NOTE

Clamp compresses rubber between the inner and outer sleeve of beam end bushing to allow clamp plate to seat properly.

(5) Attach clamp onto beam end bushing (2). Tighten nuts of clamp.

(6) Using clamp, clamp plate and press adapter, press beam end bushing (2) into equalizer beam (1) so both ends of beam end bushing extend an equal distance from side of equalizer beam.

(7) Perform Steps (5) and (6) for other beam end bushing (2).



WARNING

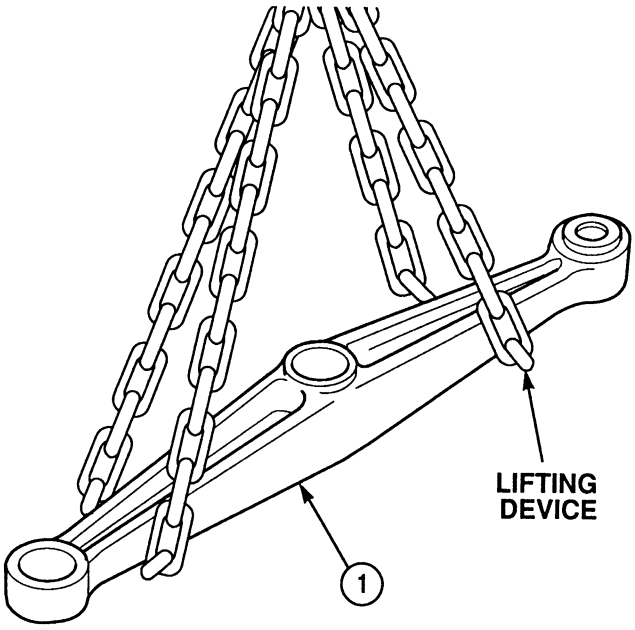
Corrosion compound contains alkali. Do not get in eyes. Wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(8) Coat both ends of beam center bushing (3) with corrosion preventive compound.

WARNING

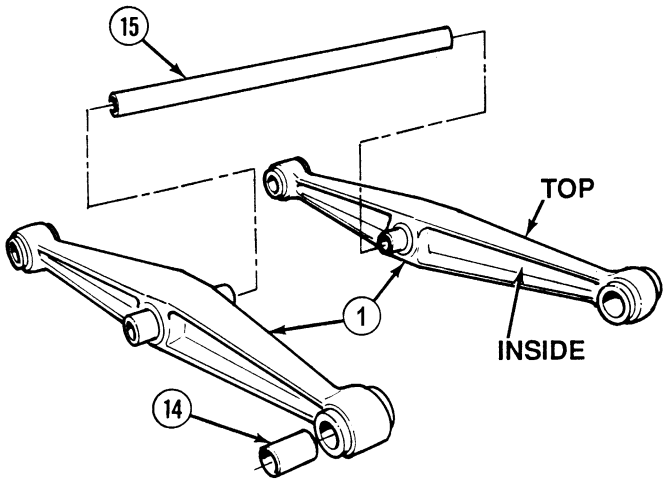
Equalizer beam weighs 212 lbs (96 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(9) Using a lifting device, remove equalizer beam (1) from press and lower to ground.



14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).

e. Installation.



WARNING

Rust preventive contains alkali. Do not get in eyes. Wear goggles/safety glasses when using rust preventive. Avoid contact with skin. In case of contact with rust preventive, immediately wash area with soap and water. If rust preventive contacts eyes, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

NOTE

- Front and rear tandem equalizer beams are installed in the same way. Rear tandem is shown.
- Left and right equalizer beams are installed in the same way. Left side of rear tandem is shown.

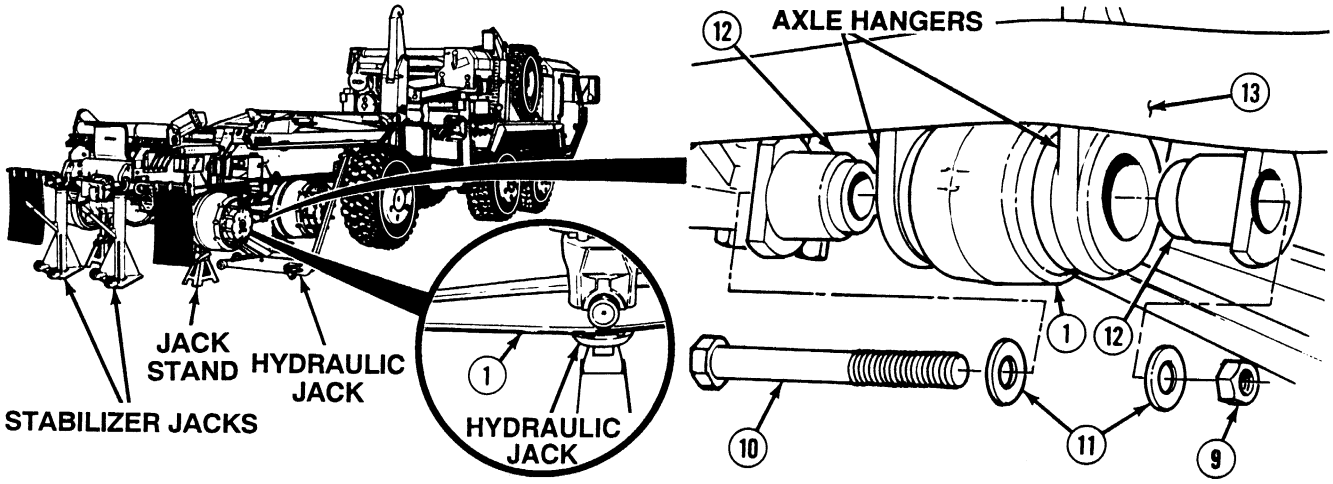
(1) Apply rust preventive to both ends of center cross tube (15) and four spacers (14).

NOTE

Ensure equalizer beams are assembled on cross tube correctly. Make sure markings TOP and INSIDE are aligned correctly.

(2) Install two equalizer beams (1) on center cross tube (15).

(3) Install two spacers (14) in each equalizer beam (1).



(4) Apply lubricating oil to outside diameters of eight adapters (12).

(5) With the aid of an assistant, raise and position assembled equalizer beams (1) on truck (13) with two hydraulic jacks.

NOTE

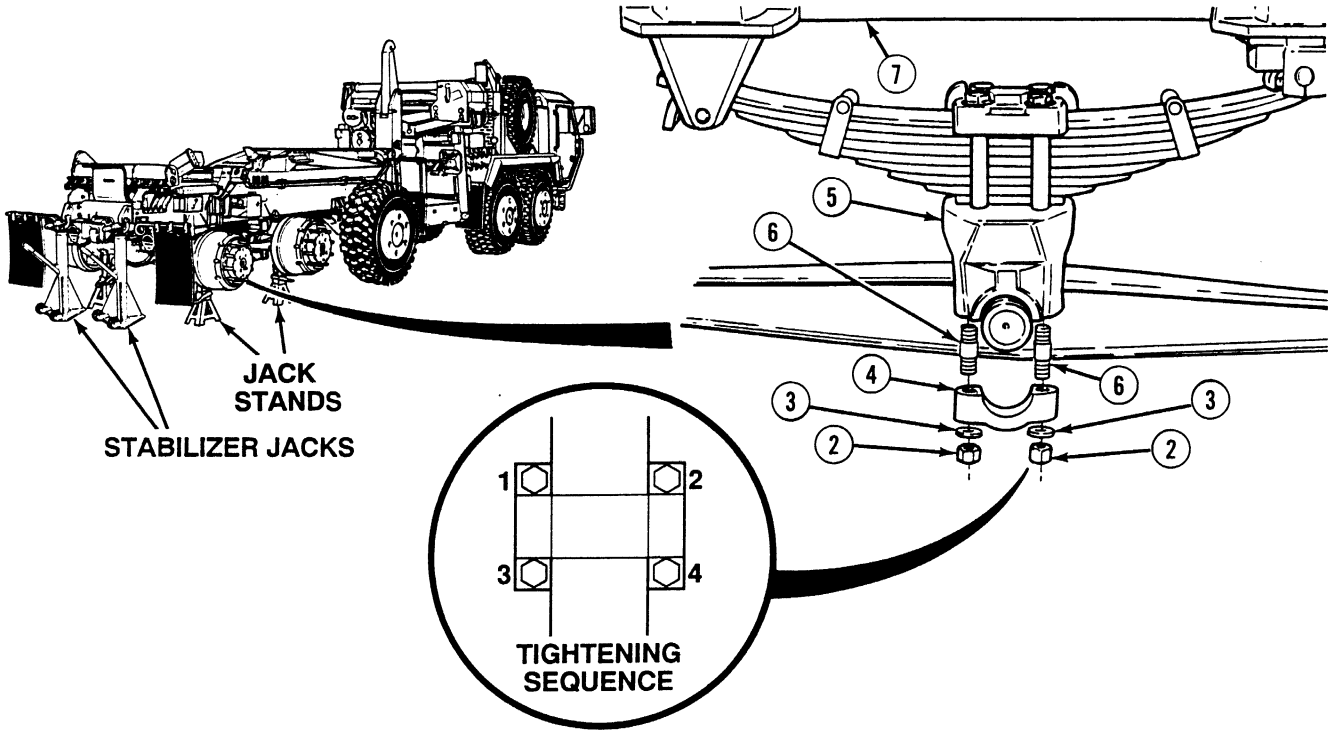
- Jacking up slightly under flange assembly of differential housing may help in aligning equalizer beams with axle hangers.
- Pushing or pulling on wheel hubs may help align equalizer beams with axle hangers. On rear tandem, air chambers would have to be caged before attempting this.

(6) With the aid of an assistant, align each equalizer beam (1) with axle hangers and install four adapters (12) in each equalizer beam (1).

(7) Apply a light coat of oil to threads of screws (10).

(8) Install two screws (10), four washers (11) and two locknuts (9) in each equalizer beam (1). With the aid of an assistant, tighten locknuts to 210 to 240 lb-ft (285 to 325 N·m).

14-5. FRONT AND REAR TANDEM EQUALIZER BEAM REPAIR (CONT).



NOTE

Perform Steps (9) and (10) only if studs were removed.

(9) Apply lubricating oil to threads of studs (6).

(10) Install four studs (6) in each saddle (5). Tighten studs to 55 to 65 lb-ft (75 to 88 N·m).

(11) Using stabilizer jacks, lower frame rails (7) to normal operating position and remove stabilizer jacks.

(12) Apply lubricating oil to threads of studs (6).

(13) Install two saddle caps (4), four washers (3) and nuts (2) on each saddle (5). Tighten nuts in sequence shown to 225 to 275 lb-ft (305 to 373 N·m). Repeat tightening procedure at least two times.

f. Follow-On Maintenance:

- Install wheels/tires, (TM 9-2320-364-10).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Adapter, Press (Item 5, Appendix F)
Clamp (Item 31, Appendix F)
Clamp Plate (Item 33, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Inserter, Center Bushing, Front (Item 102, Appendix F)
Jack, Dolly Type (Item 127, Appendix F)
Multiplier, Torque (Item 141, Appendix F)
Press 60 Ton (Item 164, Appendix F)
Remover, Bushing, Beam End (Item 187, Appendix F)
Socket 1-11/16 in. (Item 216, Appendix F)
Wrench, Combination 1-1/8 in. (Item 255, Appendix F)
Wrench, Combination 1-11/16 in. (Item 262, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0 to 814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 150 lbs (68 kg)
Lifting Device, Minimum Capacity 700 lbs (318 kg)
Wooden Block (Appendix C)

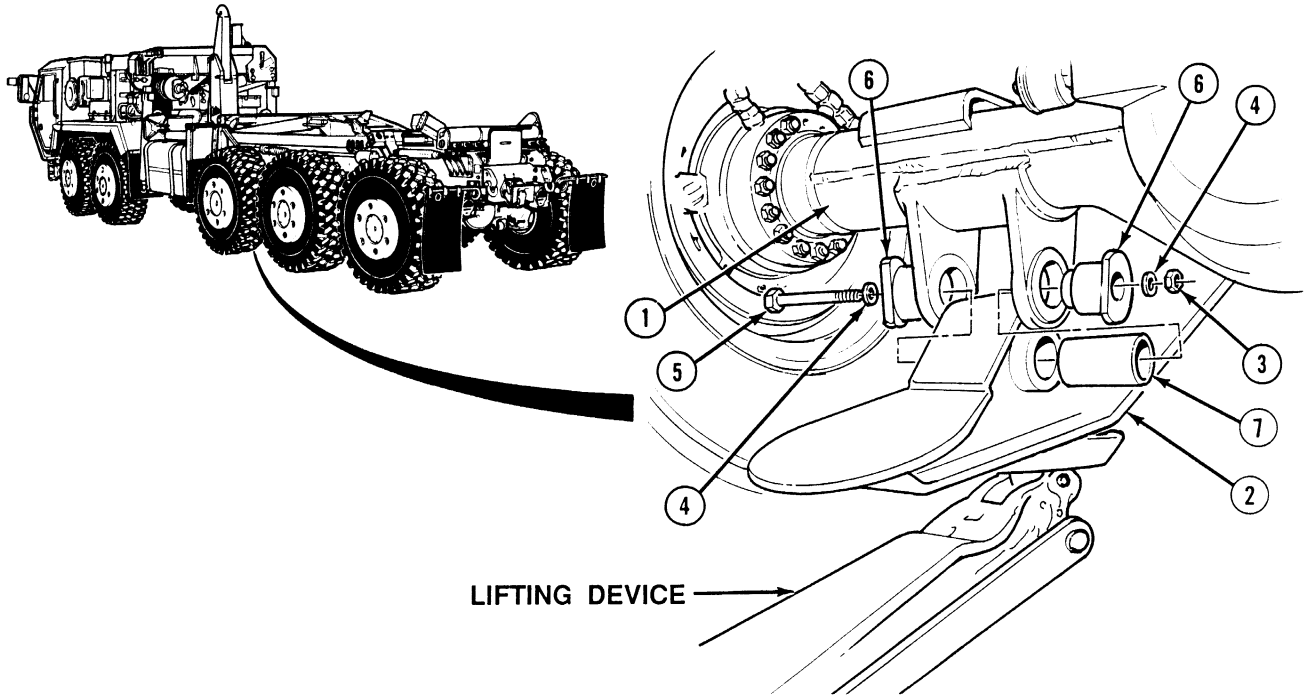
Materials/Parts
Cloth, Crocus (Item 12, Appendix B)
Compound, Corrosion Preventive (Item 15, Appendix B)
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Beam Center Bushing (Item 5, Appendix E)
Beam End Bushing (Item 6, Appendix E)
Bolt Set (Item 20, Appendix E)
Bushing, Plastic, Spacer (2) (Item 25, Appendix E)
Locknut (2) (Item 182, Appendix E)
Locknut (2) (Item 212, Appendix E)
Screw (Item 541, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Axle air bag removed, (Para 14-4)
Stowage box and stowage box bracket removed, (right trailing beam), (TM 9-2320-364-20)

14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

a. Removal.



WARNING

Trailing beam weighs 150 lbs (68 kg). Attach a suitable lifting device to axle end of trailing beam prior to removal to prevent possible injury to personnel.

NOTE

Left side of Axle No. 3 is shown. Right side is removed the same way.

(1) Support axle end (1) of trailing beam (2) with lifting device.

(2) Remove locknut (3), two washers (4) and screw (5) from trailing beam (2). Discard screw and locknut.

(3) Remove two adapters (6) from trailing beam (2).

(4) Using a lifting device, lower axle end of trailing beam (2) to ground.

(5) Remove spacer (7) from trailing beam (2).

NOTE

Perform Steps (6) through (9) only if removing left trailing beam.

(6) Remove two locknuts (8) and washers (9) from stud of each fuel tank strap (10). Discard locknuts.

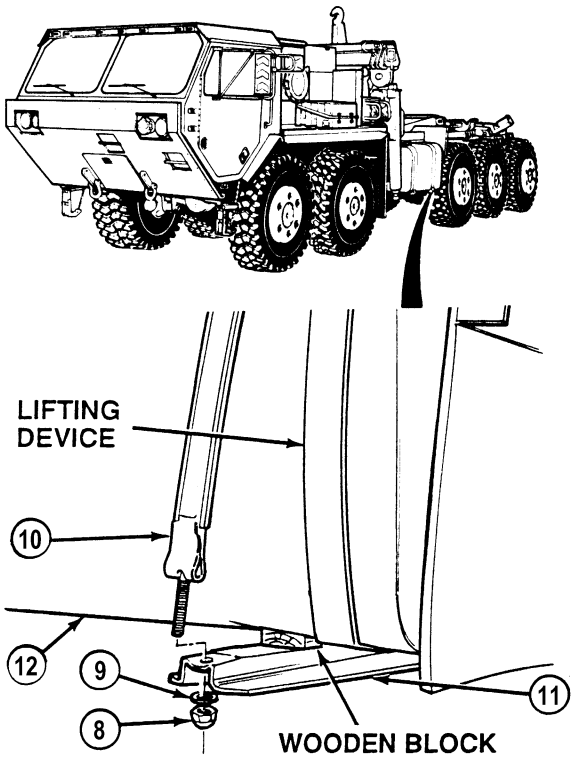
(7) Separate two fuel tank straps (10) from fuel tank bracket (11).

WARNING

Main fuel tank weighs 50 to 700 lbs (23 to 318 kg) depending on the quantity of fuel inside. Support main fuel tank with suitable lifting device prior to removing mounting hardware to prevent possible injury to personnel.

(8) Using a lifting device, lift right side of main fuel tank (12) upward approximately 3 in. (76 mm).

(9) Position wooden block on right fuel tank bracket (11). Lower right side of main fuel tank (12) onto the wooden block.



14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use hydraulic jack to support truck end of trailing beam prior to removal or installation to prevent possible injury to personnel.

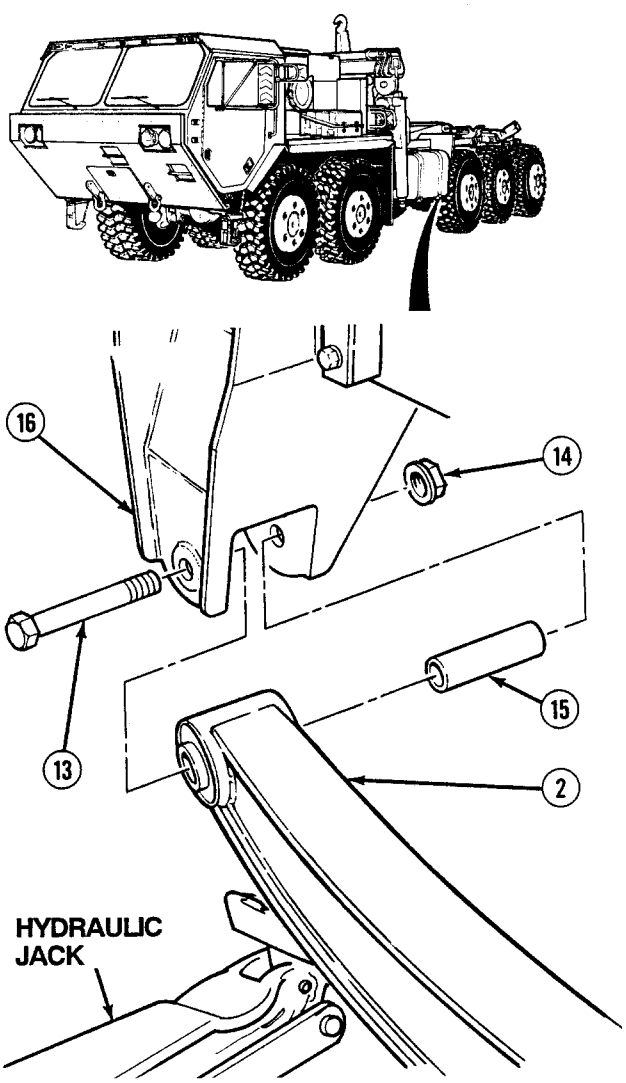
(10) Support truck end of trailing beam (2) with a lifting device.

(11) With the aid of an assistant, hold screw (13) and remove locknut (14) from trailing beam (2). Discard locknut.

(12) Remove screw (13). Discard screw.

(13) Using a hydraulic jack, remove truck end of trailing beam (2) from trailing beam mount (16) and lower to ground.

(14) Remove plastic bushing (15) from each trailing beam (2). Discard plastic bushing.



b. Disassembly.

WARNING

- Trailing beam weighs 150 lbs (68 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.
- Force required to remove beam end bushing and beam center bushing may exceed 30 tons (27 metric tons). Use of a press of 60 ton (54 metric tons) capacity or more is required to remove and install bushings. Use care when pressing out bushings to prevent serious injury or death to personnel. Always wear eye protection when operating press.

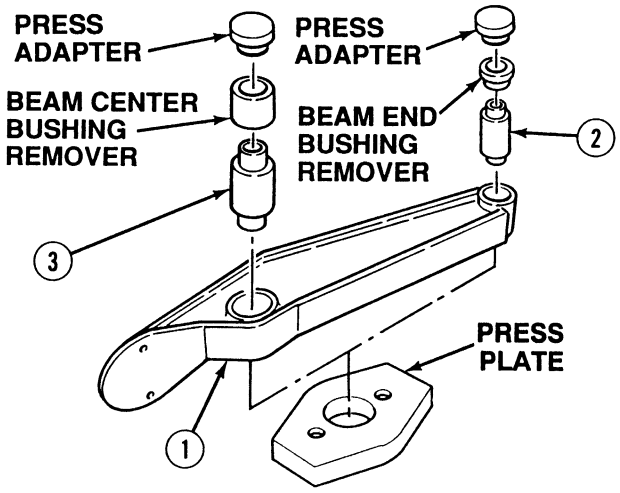
(1) Position press plate on press.

(2) Using a lifting device, position trailing beam (1) on press plate.

(3) Using beam end bushing remover and press adapter, press beam end bushing (2) out of trailing beam (1). Discard beam end bushing.

(4) Inspect outer edge of beam center bushing (3). If outer edge of beam center bushing is "mushroomed" over face of trailing beam (1), chisel or file mushroomed steel away.

(5) Using beam center bushing remover and press adapter, press beam center bushing (3) out of trailing beam (1). Discard beam center bushing.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean trailing beam with drycleaning solvent.

(2) Clean trailing beam bushing bores with crocus cloth to remove all scale, rust, and corrosion.

(3) Inspect trailing beam for cracks, obvious wear, and damage. Replace if damaged.

14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

d. Assembly.

(1) Coat beam end bushing (2), beam center bushing (3) and two bores in trailing beam (1) with grease.

WARNING

Trailing beam weighs 150 lbs (68 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

(2) Position press plate on press.

(3) Using a lifting device, position trailing beam (1) on press plate.

NOTE

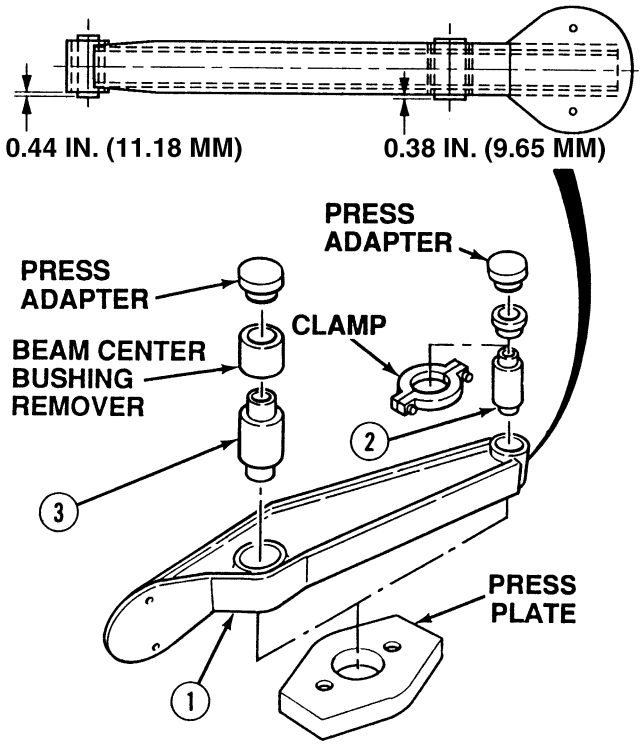
When beam center bushing is centered in trailing beam, each side of beam center bushing should extend 0.38 in. (9.65 mm) from trailing beam.

(4) Using beam center bushing installer and press adapter, press beam center bushing (3) into trailing beam (1) until beam center bushing is centered in trailing beam (1).

NOTE

Clamp compresses rubber between the inner and outer sleeve of beam end bushing to allow clamp plate to seat properly.

(5) Attach clamp onto beam end bushing (2). Tighten nuts of clamp.



NOTE

When beam end bushing is centered in trailing beam, each side of beam end bushing should extend 0.44 in. (11.18 mm) from trailing beam.

(6) Using clamp plate and press adapter, press beam end bushing (2) into trailing beam (1) so beam end bushing is centered in trailing beam.

(7) Remove clamp, clamp plate, and press adapter from trailing beam (1).

e. Installation.

WARNING

The trailing beam weighs 150 lbs (68 kg). Attach a suitable lifting device to truck end of trailing beam prior to removal or installation to prevent possible injury to personnel.

(1) Support truck end of trailing beam (2) with a hydraulic jack.

(2) Install plastic bushing (15) in each trailing beam (2).

NOTE

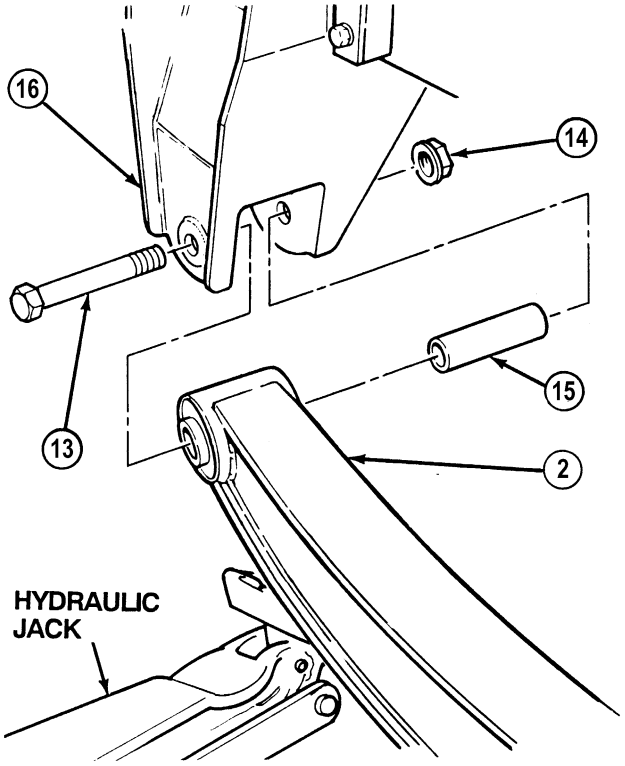
The following step may require use of a soft faced hammer to position trailing beam.

(3) Apply lubricating oil to threads of screw (13).

(4) With the aid of an assistant and a hydraulic jack, position end of trailing beam (2) in trailing beam mount (16).

(5) Install screw (13) and locknut (14) in trailing beam (2).

(6) With the aid of an assistant, hold screw (13) and tighten locknut to 600 lb-ft (814 N·m).



14-6. AXLE NO. 3 AIR SUSPENSION BEAM ASSEMBLY REPAIR (CONT).

WARNING

Main fuel tank weighs 50 to 700 lbs (23 to 318 kg) depending on the quantity of fuel inside. Support main fuel tank with suitable lifting device prior to removing wood block to prevent possible injury to personnel.

NOTE

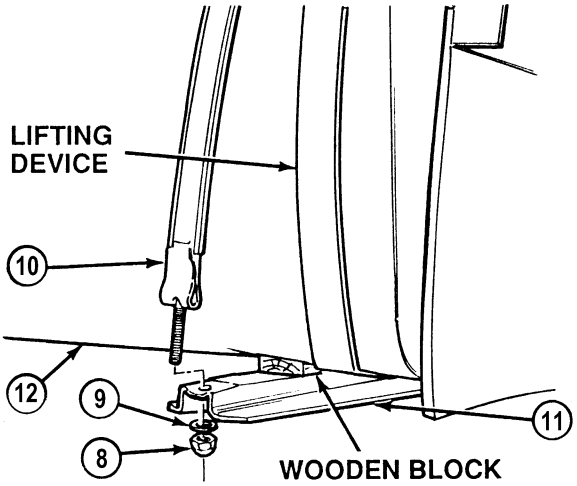
Steps (7) through (10) apply only when installing left trailing beam.

(7) Using a lifting device, raise right side of main fuel tank (12) upward slightly and remove wooden block.

(8) Lower main fuel tank (12) onto fuel tank bracket (11).

(9) Insert studs of two fuel tank straps (10) through fuel tank brackets (11).

(10) Position two washers (9) and locknuts (8).



WARNING

Corrosion preventive compound contains alkali. Do not get in eyes. Wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(11) Coat outside diameter of spacer (7) and two adapters (6) with corrosion preventive compound.

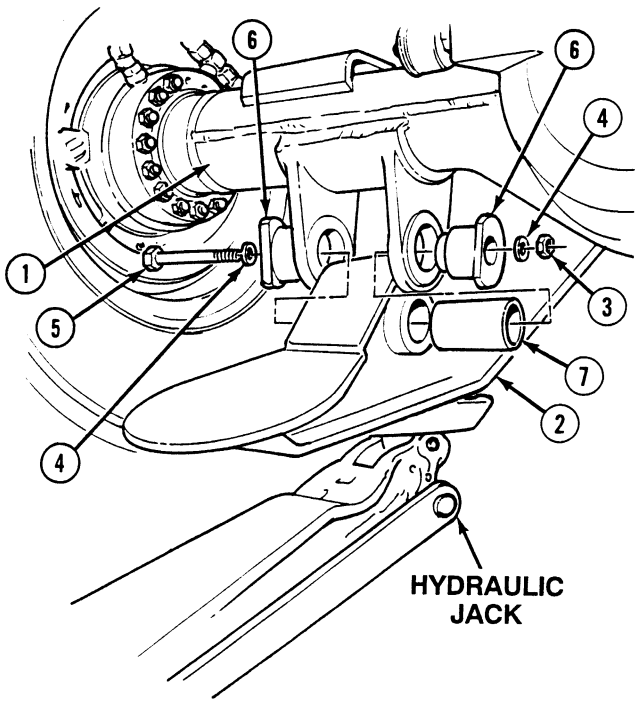
(12) Install spacer (7) in trailing beam (2).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use a hydraulic jack to support axle end of trailing beam prior to installation to prevent possible injury to personnel.

NOTE

The following step may require use of a soft faced hammer to position trailing beam.



(13) With the aid of an assistant and a hydraulic jack, position trailing beam (2) on axle end (1).

(14) Install two adapters (6) in trailing beam (2).

(15) Apply lubricating oil to threads of screw (5).

(16) With the aid of an assistant, install washer (4), screw (5), washer (4) and locknut (3) on trailing beam (2). Tighten locknut to 210 to 240 lb-ft (285 to 325 N·m).

(17) Remove hydraulic jack from trailing beam (2).

f. Follow-On Maintenance:

- Install axle air bag, (Para 14-4).
- Install stowage box and stowage box bracket, (TM 9-2320-364-20) (right trailing beam).
- Align/adjust steering system, (Para 12-8).
- Tighten fuel tank straps, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-7. AXLE NO. 3 AIR SUSPENSION BEAM MOUNT REPLACEMENT/ADJUSTMENT.

This task covers:

a. Removal
b. Installation
c. Trailing Beam Bracket Collar Adjustment
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Hammer, Hand, Soft Plastic (Item 88, Appendix F)
Jack, Dolly Type (Item 127, Appendix F)
Multiplier, Torque (Item 141, Appendix F)
Tape, Measuring (Item 235, Appendix F)
Welder, Arc (Item 251, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 83 lbs (38 kg)

Materials/Parts
Compound, Corrosion Preventive (Item 15, Appendix B)
Oil, Lubricating (Item 37, Appendix B)

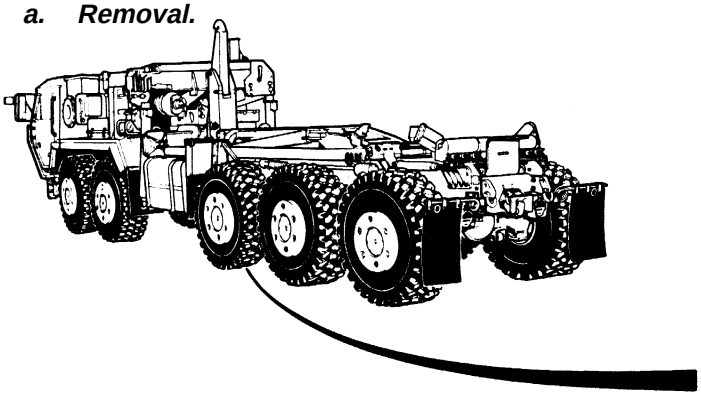
Materials/Parts - Continued
Collar, Adjustment (Item 32, Appendix E)
Locknut (10) (Item 166, Appendix E)
Locknut (4) (Item 167, Appendix E)

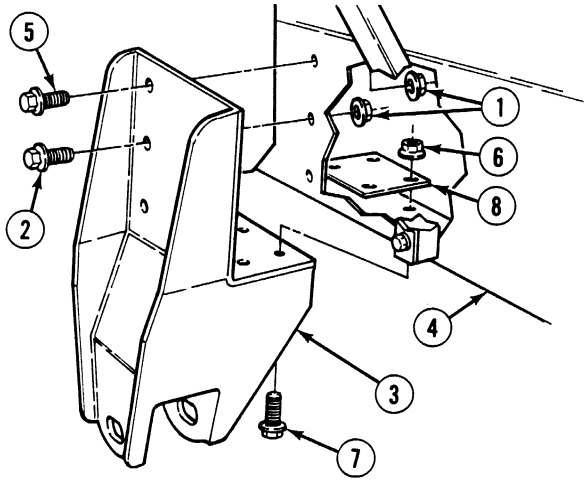
Personnel Required
Three

References
TC 9-237, Operator's Manual for Welding Theory and Application

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Axle No. 3 air suspension beam removed, (Para 14-6)
Inter-steering shaft removed (left side only), (Para 12-6)
Main fuel tank removed (left side only), (TM 9-2320-364-20)
Stowage box and bracket removed, (right side only), (TM 9-2320-364-20)
Perform welding preparation task, (Para 6-39)

a. Removal.





CAUTION

Trailing beam brackets can not be interchanged on trucks. The adjustment is different for each truck.

NOTE

Steps (1) and (2) apply to left trailing beam mount removal only. Steps (3) and (4) apply to right trailing beam mount removal only.

(1) With the aid of an assistant, remove four locknuts (1) and screws (2) from trailing beam bracket (3) and frame (4). Discard locknuts.

(2) With the aid of an assistant, remove two locknuts (1) and screws (5) from trailing beam bracket (3) and frame (4). Discard locknuts.

(3) With the aid of an assistant, remove three locknuts (1) and screws (2) from trailing beam bracket (3). Discard locknuts.

(4) With the aid of an assistant, remove locknut (1) and screw (5) from trailing beam bracket (3) and frame (4). Discard locknut.

WARNING

Trailing beam bracket weighs 83 lbs (38 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

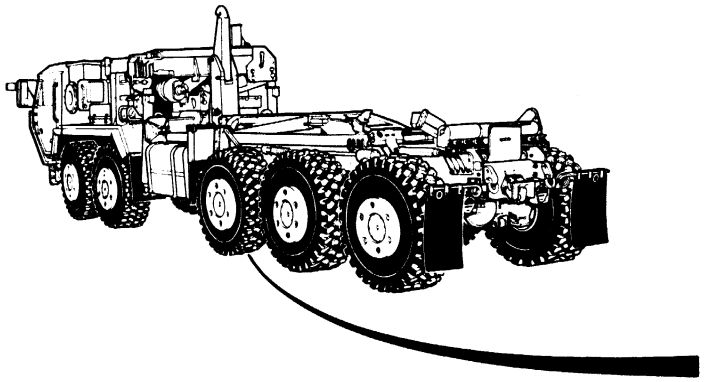
(5) With the aid of an assistant, support trailing beam bracket (3) with a lifting device.

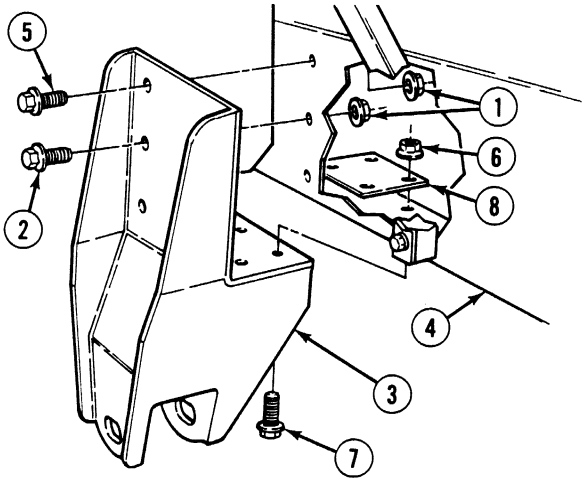
(6) With the aid of an assistant, remove four locknuts (6), screws (7) and plate (8) from frame (4). Discard locknuts.

(7) Using a lifting device, lower trailing beam bracket (3) to ground.

14-7. AXLE NO. 3 AIR SUSPENSION BEAM MOUNT REPLACEMENT/ ADJUSTMENT (CONT).

b. Installation.





WARNING

Trailing beam bracket weighs 83 lbs. (38 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Support trailing beam bracket (3) with a lifting device.

(2) Using a lifting device and the aid of an assistant, position trailing beam bracket (3) on frame (4).

(3) Position plate (8), four screws (7) and locknuts (6) on frame (4) and trailing beam bracket (3).

NOTE

Steps (4) and (5) apply to right trailing beam mount only. Steps (6) and (7) apply to left trailing beam mount only.

(4) Position screw (5) and locknut (1) in trailing beam bracket (3) and frame (4).

(5) Position three screws (2) and locknuts (1) in trailing beam bracket (3) and frame (4).

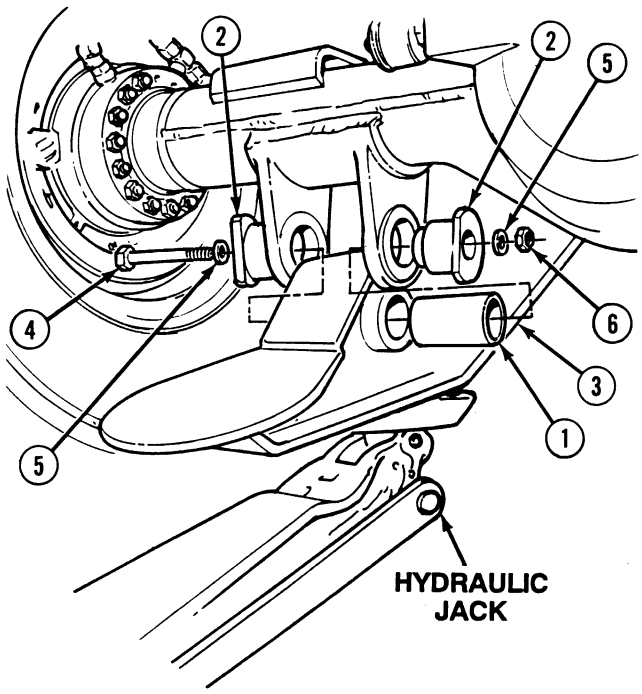
(6) Position two screws (5) and locknuts (1) in trailing beam bracket (3) and frame (4).

(7) Position four screws (2) and locknuts (1) in trailing beam bracket (3) and frame (4).

(8) With the aid of an assistant, tighten four locknuts (6) to 210 lb-ft (285 N·m).

(9) With the aid of an assistant, tighten locknuts (1) to 410 lb-ft (556 N·m).

c. Trailing Beam Bracket Collar Adjustment.



WARNING

Rust preventive contains alkali. Do not get in eyes. Wear goggles/safety glasses when using rust preventive. Avoid contact with skin. In case of contact with rust preventive, immediately wash area with soap and water. If rust preventive contacts eyes, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(1) Coat outside diameter of spacer (1) and two adapters (2) with rust preventive.

(2) Install spacer (1) in trailing beam (3).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use a hydraulic jack to support axle end of trailing beam prior to installation to prevent possible injury to personnel.

NOTE

The following step may require use of a soft faced hammer to position trailing beam.

(3) Using a hydraulic jack and the aid of an assistant, align axle end of trailing beam (3).

(4) Install two adapters (2) in trailing beam (3).

(5) Apply lubricating oil to threads of screw (4).

(6) Position screw (4), two washers (5) and locknut (6) on trailing beam (3).

(7) With the aid of an assistant, tighten locknut (6) to 210 to 240 lb-ft (285 to 356 N·m).

14-7. AXLE NO. 3 AIR SUSPENSION BEAM MOUNT REPLACEMENT/ ADJUSTMENT (CONT).

WARNING

The trailing beam weighs 150 lbs (68 kg). Use a hydraulic jack to support truck end of trailing beam prior to removal or installation to prevent possible injury to personnel.

NOTE

The left side of truck is shown. The right side of truck is similar.

(8) Position trailing beam (3) on hydraulic jack.

(9) Install plastic bushing (7) in trailing beam (3).

NOTE

The following step may require use of a soft faced hammer to position trailing beam.

(10) Using a lifting device and the aid of an assistant, position trailing beam (3) in trailing beam bracket (8).

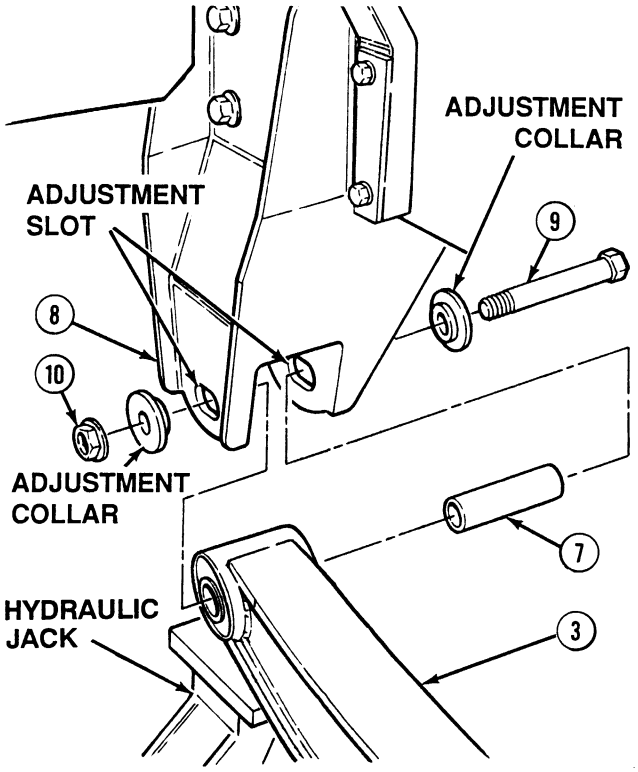
(11) Apply lubricating oil to threads of screw (9).

(12) Position one adjustment collar in adjustment slot of each trailing beam bracket (8).

NOTE

Tighten locknuts only tight enough so adjustment collars can not pop out of adjustment slots. Ensure trailing beam can slide back and forth in trailing beam bracket.

(13) Position screw (9) and locknut (10) in trailing beam (3).



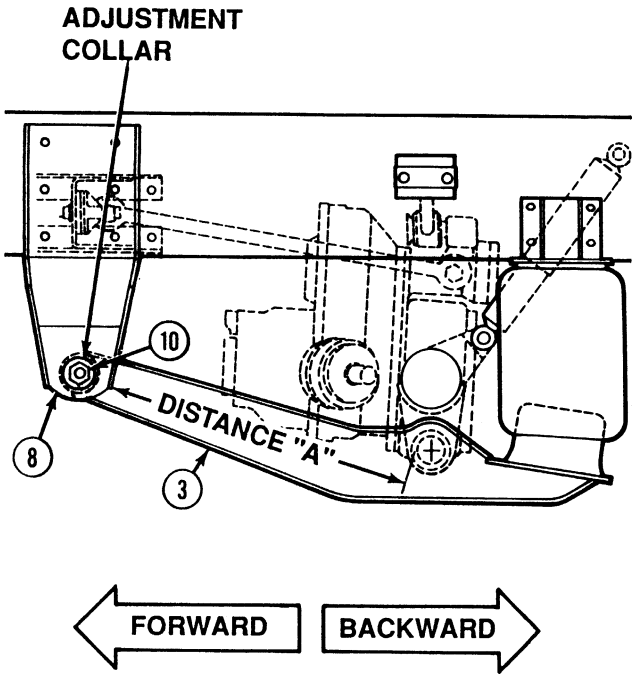
(14) With the aid of an assistant, slide trailing beam (3) forward or backward until distance "A" measures 32 1/2 in. ± 1/8 in. (90 ± 3.2 mm).

(15) When distance "A" is attained, with the aid of an assistant, tighten locknut (10) on trailing beam (3) to 800 lb-ft (814 N·m).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(16) Weld two adjustment collars to trailing beam bracket (8) in accordance with TC 9-237.



d. Follow-On Maintenance:

- Install inter-steering shaft, (Para 12-6) (left side only).
- Install main fuel tank, (TM 9-2320-364-20) (left side only).
- Install stowage box and stowage box bracket, (TM 9-2320-364-20) (right side only).
- Install Axle No. 3 air suspension beam, (Para 14-6).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-8. LATERAL TORQUE ROD REPLACEMENT.

This task covers:

a. Axle No. 1 Lateral Torque Rod Replacement
b Axle No. 2 Lateral Torque Rod Replacement
c. Axle No. 3 Lateral Torque Rod Replacement
d. Axle No. 4 Lateral Torque Rod Replacement
e. Axle No. 5 Lateral Torque Rod Replacement
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Hammer, Hand, Soft Plastic,
(Item 88, Appendix F)
Jack, Kit, Hydraulic, Hand
(Item 129, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)

Materials/Parts
Grease (Item 21, Appendix B)
Oil, Lubricating (Item 37, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Locknut (10) (Item 166, Appendix E)
Locknut (5) (Item 181, Appendix E)
Locknut (2) (Item 192, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
(Axles No. 3 and No. 4 only)
Rear hardlift assembly removed,
(TM 9-2320-364-20) (Axle No. 5 only)

a. Axle No. 1 Lateral Torque Rod Replacement.

(1) *Removal.*

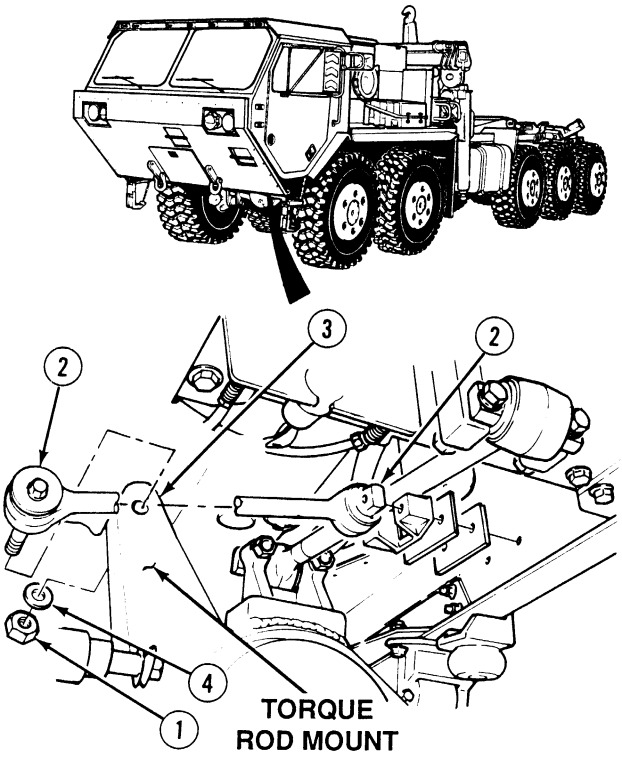
(a) Loosen locknut (1) until locknut is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from axle (3) while striking torque rod mount with soft faced hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.



NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), screws (6), torque rod (2), bracket (7) and spacers (8) from frame (9). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of taper shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

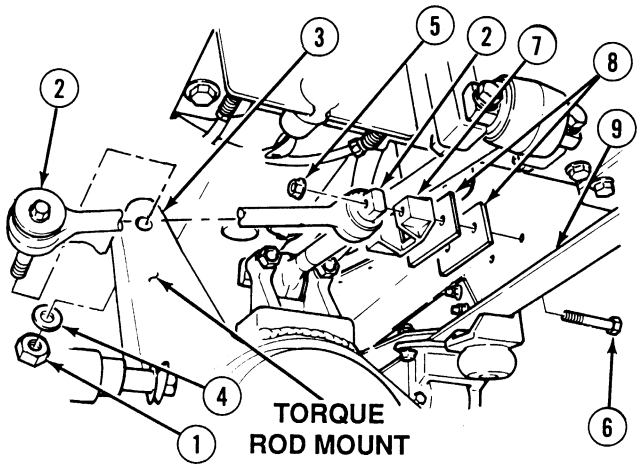
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (8), bracket (7), truck end of torque rod (2), two screws (6) and locknuts (5) on frame (9).

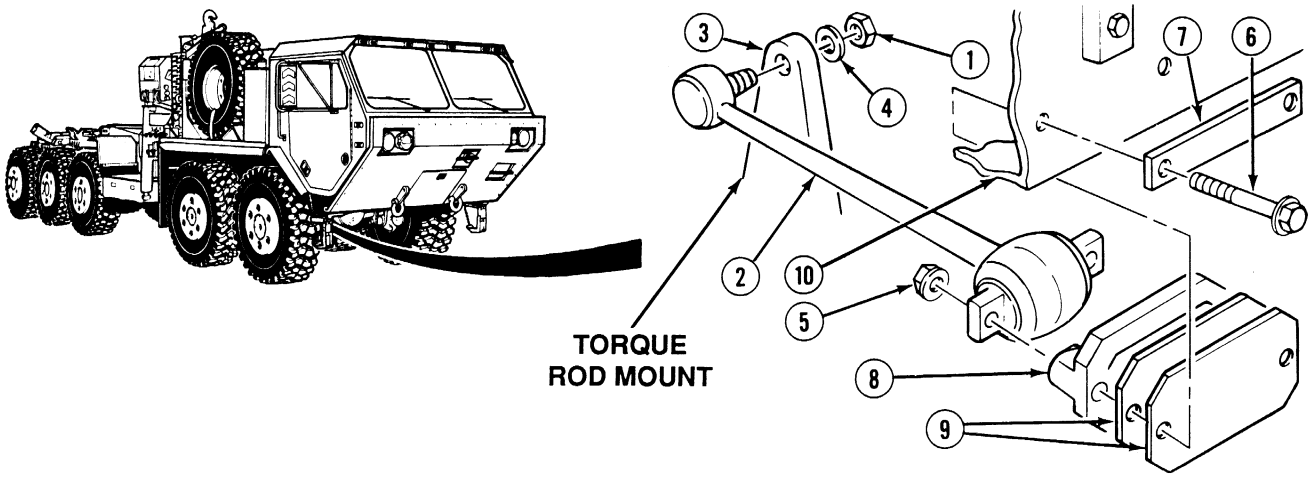
(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount of axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

b. Axle No. 2 Lateral Torque Rod Replacement.



(1) *Removal*.

(a) Loosen locknut (1) until locknut is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from torque rod mount of axle (3) while striking torque rod mount on axle with soft faced hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.

NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), torque rod (2), screws (6), plate (7), bracket (8) and spacers (9) from frame (10). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of tapered shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

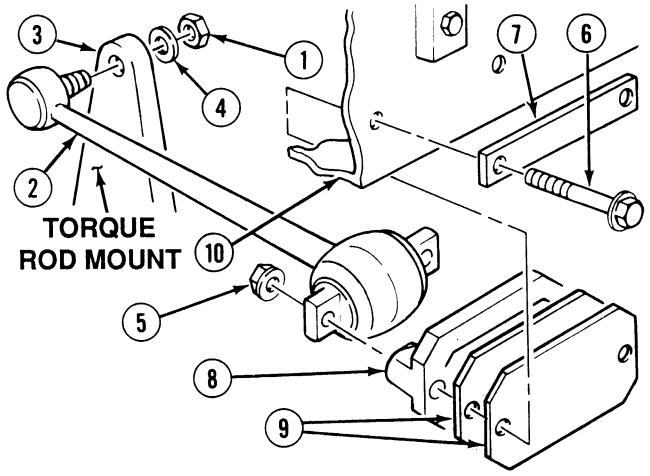
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install plate (7), spacers (9), bracket (8) and end of torque rod (2) with two screws (6) and locknuts (5) on frame (10).

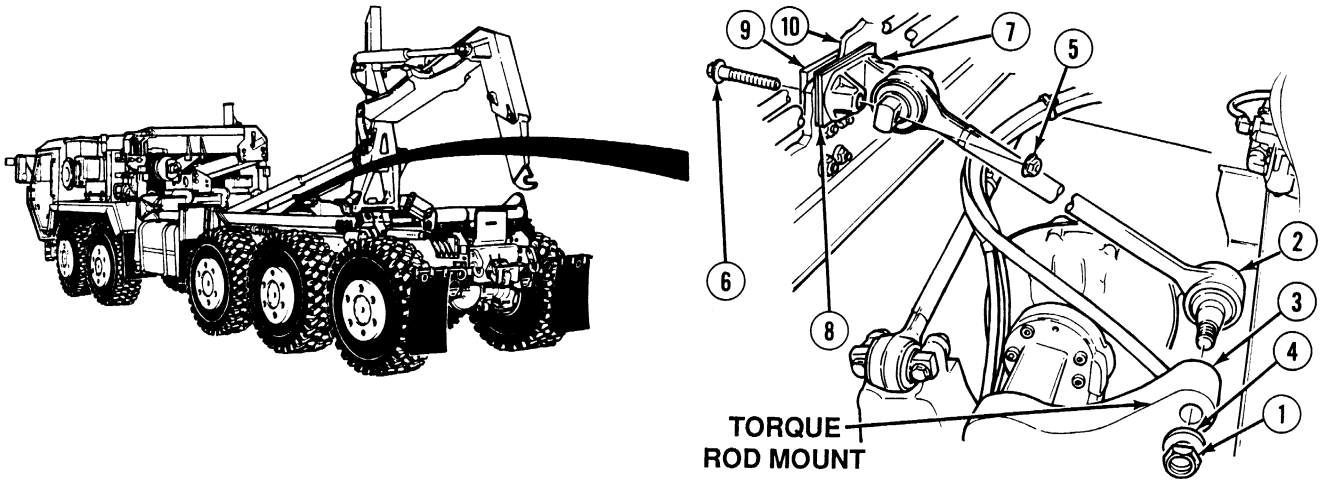
(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount on axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

c. Axle No. 3 Lateral Torque Rod Replacement.



(1) *Removal*.

(a) Loosen locknut (1) until it is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from torque rod mount on axle (3) while striking torque rod mount with soft faced hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.

NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), screws (6), torque rod (2), bracket (7), spacers (8) and plate (9) from frame (10). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of tapered shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

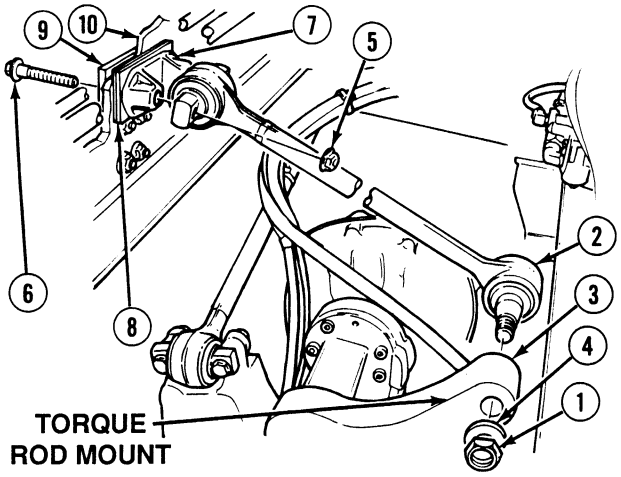
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (8), bracket (7), truck end of torque rod (2), plate (9), two screws (6) and locknuts (5) on frame (10).

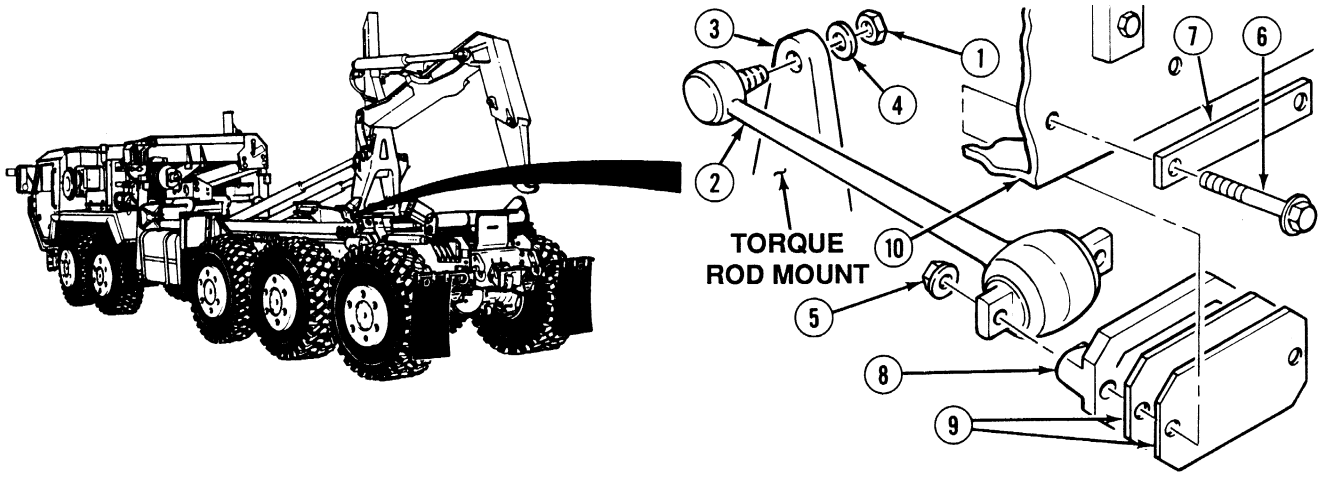
(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount on axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

d. Axle No. 4 Lateral Torque Rod Replacement.



(1) *Removal*.

(a) Loosen locknut (1) until locknut is even with threaded end of torque rod (2).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(b) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (2) from toque rod mount of axle (3) while striking torque rod mount of axle with hammer.

(c) Remove locknut (1) and washer (4) from torque rod (2). Discard locknut.

NOTE

Tag and note number and size of spacers for installation.

(d) With the aid of an assistant, remove two locknuts (5), screws (6), plate (7), torque rod (2), bracket (8) and spacers (9) from frame (10). Discard locknuts.

(2) *Installation.*

(a) Apply lubricating oil to threads of tapered shaft on torque rod (2).

(b) Position tapered shaft of torque rod (2) in torque rod mount of axle (3).

(c) Position washer (4) and locknut (1) on torque rod (2). Tighten locknut until outer face of nut is even with threaded end of torque rod (2).

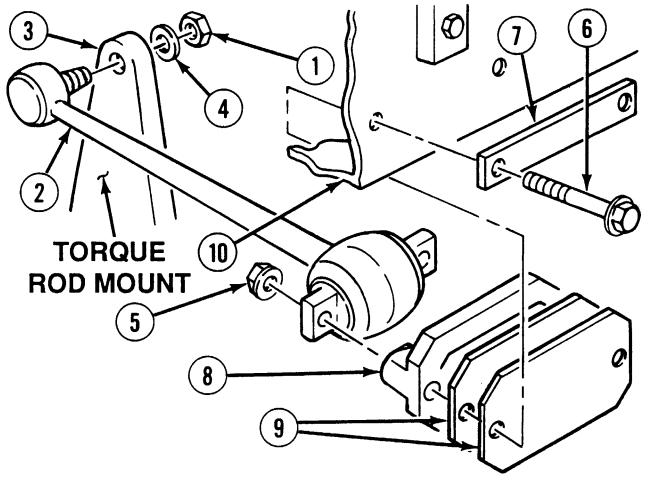
NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (9), bracket (8), truck end of torque rod (2), plate (7), screws (6) and locknuts (5) on frame (10).

(e) Tighten locknut (1) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, retighten locknut (1) to 175 to 225 lb-ft (237-305 N·m) while striking torque rod mount of axle (3) with hammer.



14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

e. Axle No. 5 Lateral Torque Rod Replacement.

(1) *Removal*.

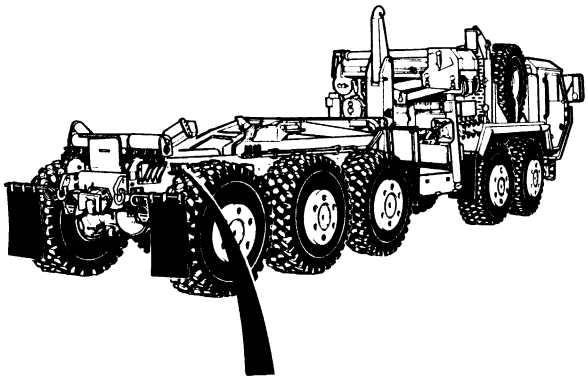
NOTE

- Perform Steps (a) through (c) only when truck is equipped with self-recovery winch.
- Self-recovery winch bracket looks different for trucks equipped with container handling unit but procedures are the same.

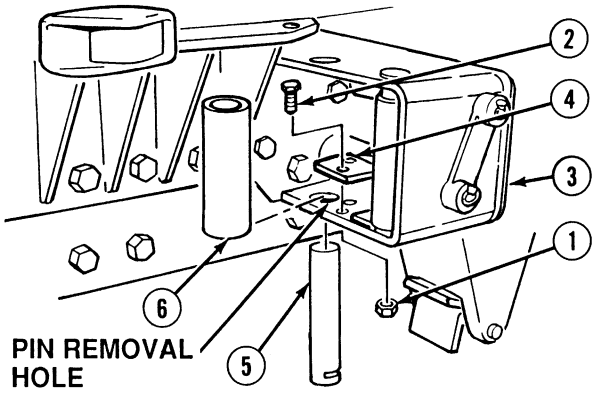
(a) Remove two locknuts (1) and screws (2) from self-recovery winch bracket (3). Discard locknuts.

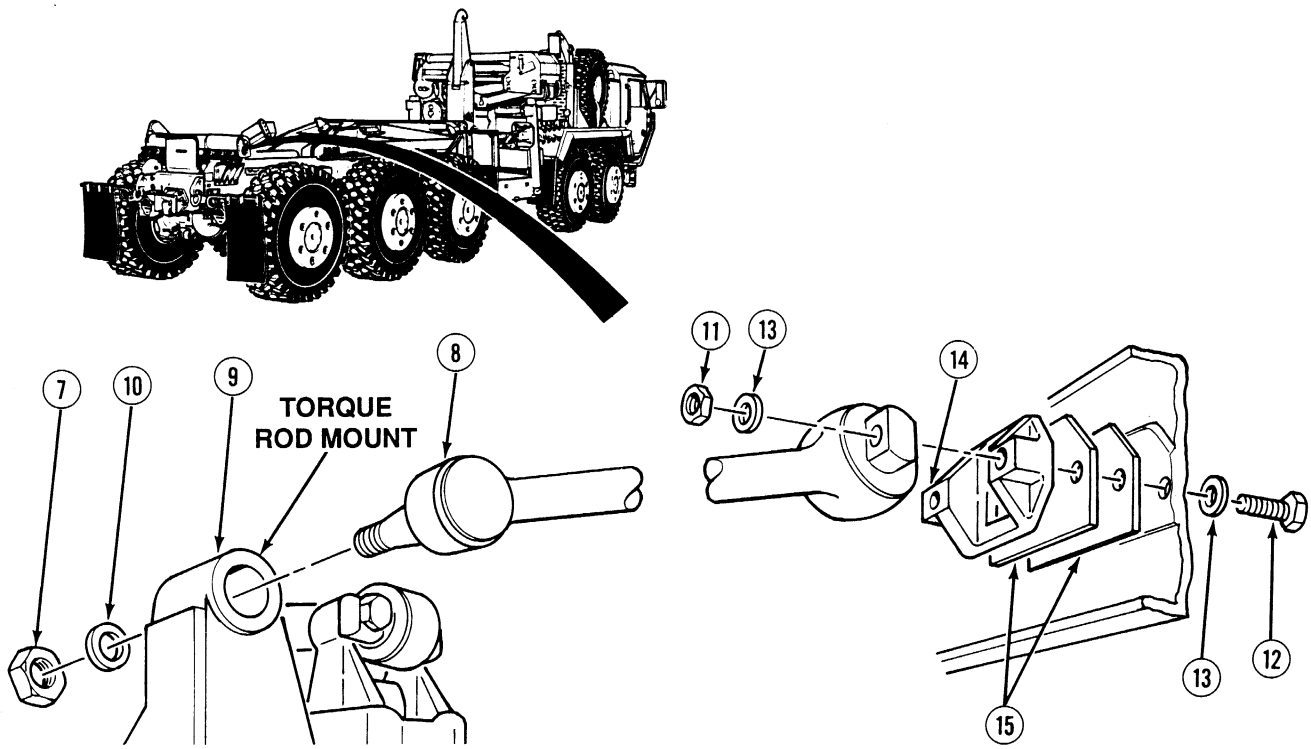
(b) Remove locking plate (4) and catch pin (5) from self-recovery winch bracket (3).

(c) Remove roller (6) from self-recovery winch bracket (3).



ON TRUCKS WHICH HAVE SELF-RECOVERY WINCH ONLY





(d) Loosen locknut (7) until locknut is even with threaded end of torque rod (8).

WARNING

Torque rod is under extreme pressure when being pressed from axle. Torque rod can be dangerous when it breaks loose and could cause injury to personnel.

(e) With the aid of an assistant and use of a hand jack kit, press tapered end of torque rod (8) from torque rod mount of axle (9) while striking torque rod mount of axle with soft faced hammer.

(f) Remove locknut (7) and washer (10) from torque rod (8). Discard locknut.

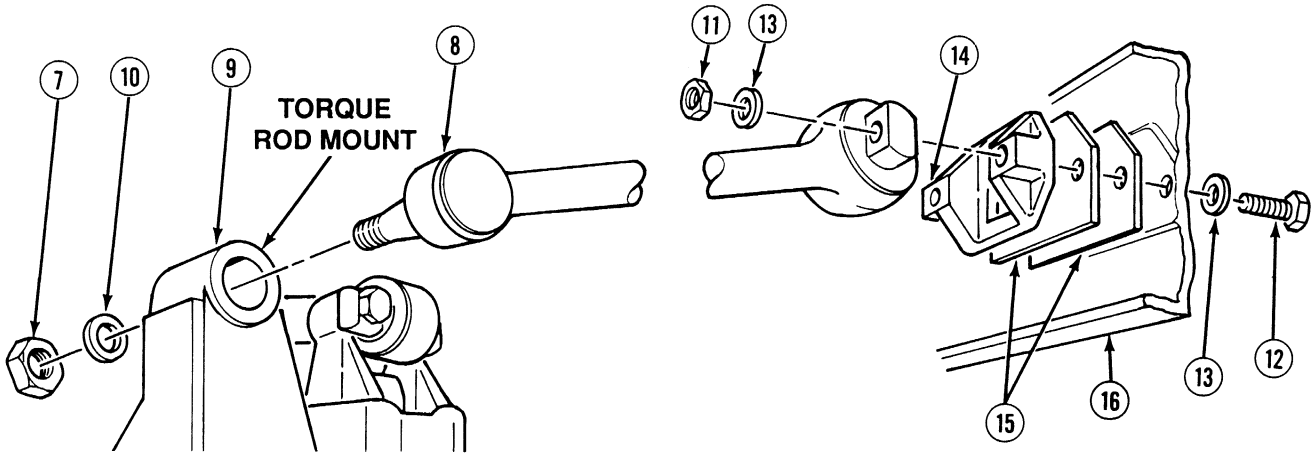
NOTE

Tag and note number and size of spacers for installation.

(g) With the aid of an assistant, remove two locknuts (11), screws (12), four washers (13), torque rod (8), bracket (14) and spacers (15) from frame (16). Discard locknuts.

14-8. LATERAL TORQUE ROD REPLACEMENT (CONT).

(2) *Installation.*



(a) Apply lubricating oil to threads of tapered shaft on torque rod (8).

(b) Position tapered shaft of torque rod (8) in torque rod mount of axle (9).

(c) Position washer (10) and locknut (7) on torque rod (8). Tighten locknut until outer face of nut is even with threaded end of torque rod (8).

NOTE

Install same number and size spacers removed during removal.

(d) With the aid of an assistant, install spacers (15), bracket (14), truck end of torque rod (8), two screws (12), four washers (13) and two locknuts (11) on frame (16).

(e) Tighten locknut (7) to 175 to 225 lb-ft (237 to 305 N·m).

(f) With the aid of an assistant, tighten locknut (7) to 175 to 225 lb-ft (237 to 305 N·m) while striking torque rod mount of axle (9) with hammer.

NOTE

- Perform Steps (g) through (j) only if truck is equipped with self-recovery winch.
- Self-recovery winch bracket looks different for trucks equipped with container handling unit but procedures are the same.

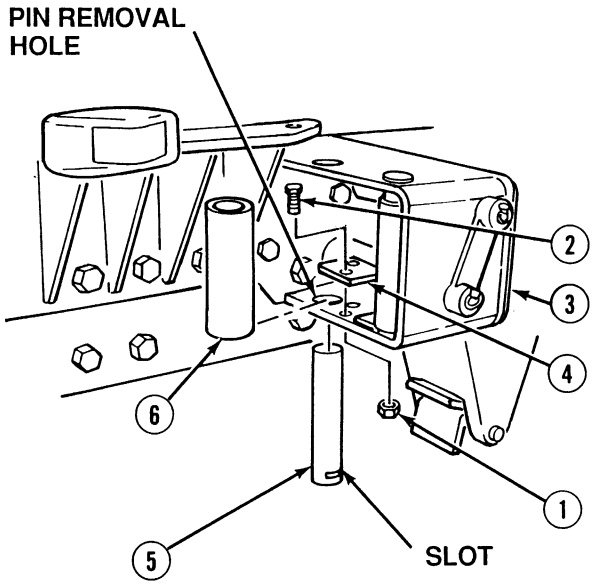
(g) Apply grease to push pin (5).

(h) Position roller (6) on self-recovery winch bracket (3).

(i) Install push pin (5) and locking plate (4) in self-recovery winch bracket (3).

(j) Install two screws (2) and locknuts (1) in self-recovery winch bracket (3).

ON TRUCKS WHICH HAVE SELF-RECOVERY WINCH ONLY



f. Follow-On Maintenance:

- LHS in transit position, (TM 9-2320-364-10) (Axle No. 3 and 4 only).
- Install rear hard lift, (TM 9-2320-364-20) (Axle No. 5 only).
- Align/adjust steering system, (Para 12-8).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT.

This task covers:

a. Axle No. 1 Longitudinal Torque Rod Replacement
b Axle No. 2 Longitudinal Torque Rod Replacement
c. Axle No. 3 Longitudinal Torque Rod Replacement
d. Axle No. 4 Longitudinal Torque Rod Replacement
e. Axle No. 5 Longitudinal Torque Rod Replacement
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Protractor, Magnetic
(Item 170, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Steel Plate (Appendix C)

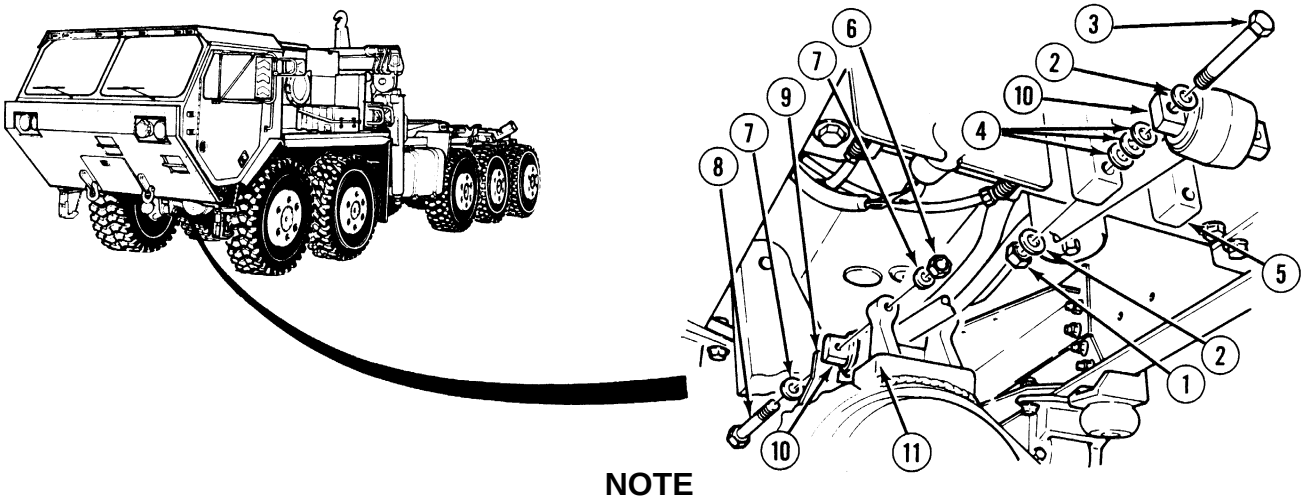
Materials/Parts
Tags, Identification (Item 72, Appendix B)
Locknut (2) (Item 166, Appendix E)

Materials/Parts - Continued
Locknut (18) (Item 188, Appendix E)
Lockwasher (4) (Item 283, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
(Axles No. 3 and No. 4 only)
Rear hardlift assembly removed,
(TM 9-2320-364-20) (Axle No. 5 only)
Driveshafts removed, (TM 9-2320-364-20)

a. Axle No. 1 Longitudinal Torque Rod Replacement.



NOTE

Tag and note number and size of spacers during removal.

(1) *Removal.*

(a) With the aid of an assistant, remove two locknuts (1), four washers (2), two screws (3) and spacers (4) from crossmember (5). Discard locknuts.

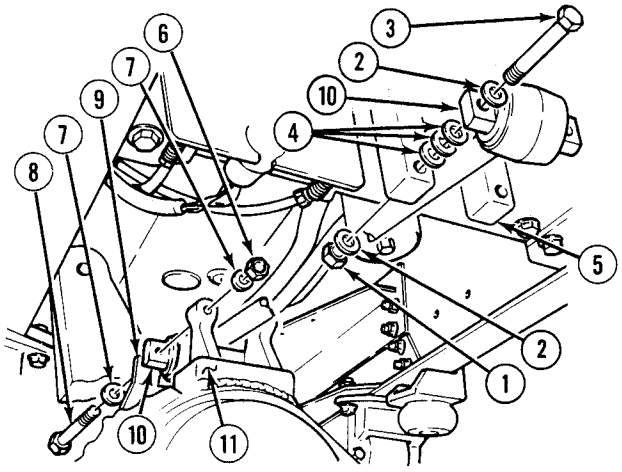
(b) With the aid of an assistant, remove two locknuts (6), four washers (7), two screws (8), bracket (9) and torque rod (10) from axle (11). Discard locknuts.

(2) *Installation.*

(a) With the aid of an assistant, position torque rod (10) and bracket (9) on axle (11) with two screws (8), four washers (7) and two locknuts (6).

NOTE

Install same number and size of spacers as noted during removal.

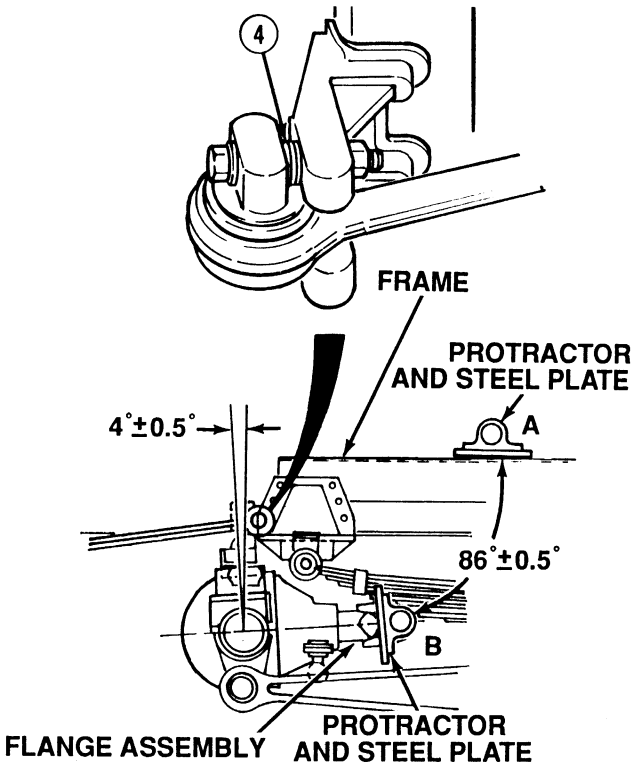


(b) With the aid of an assistant, install spacers (4), truck end of torque rod (10), two screws (3), four washers (2) and two locknuts (1) on crossmember (5).

(c) With the aid of an assistant, tighten two locknuts (6) on screws (8).

NOTE

- Equalizer beams and frame must be level to perform adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from the flange assembly measurement.
- Axle flange assembly measurement of 86 ± 0.5 degrees equals axle camber of four degrees ± 0.5 (90 degrees ÷ 86 degrees = 4 degrees).



(d) Measure the angle (in degrees) that flange assembly is cambered.

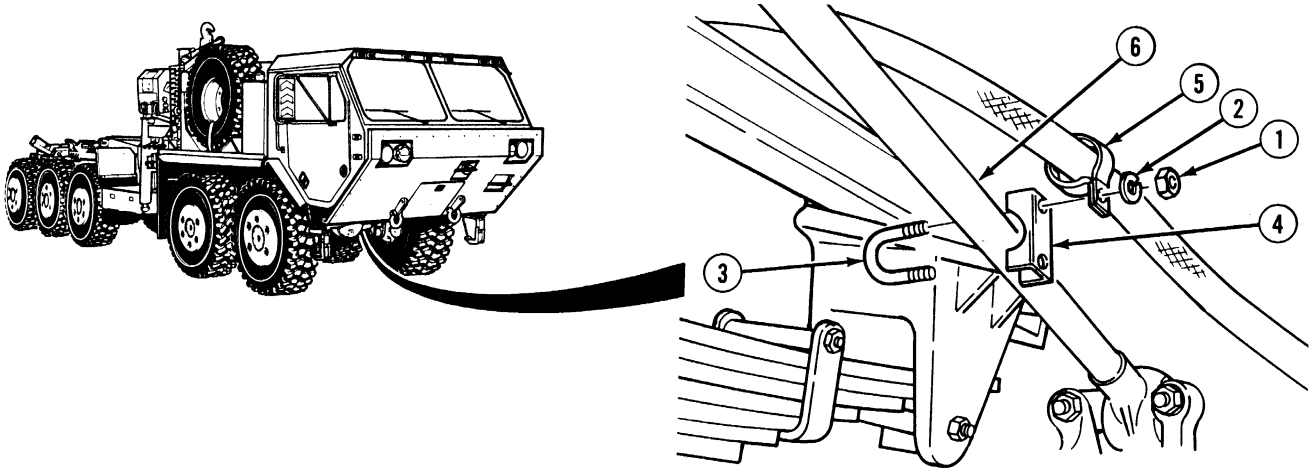
1 Position protractor and steel plate on frame at point A. Adjust protractor to zero degrees.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 86 degrees ± 0.5 degrees.

(e) If axle camber is not four degrees ± 0.5 degrees, add or subtract spacers (4) until correct axle camber is achieved.

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

b. Axle No. 2 Longitudinal Torque Rod Replacement.

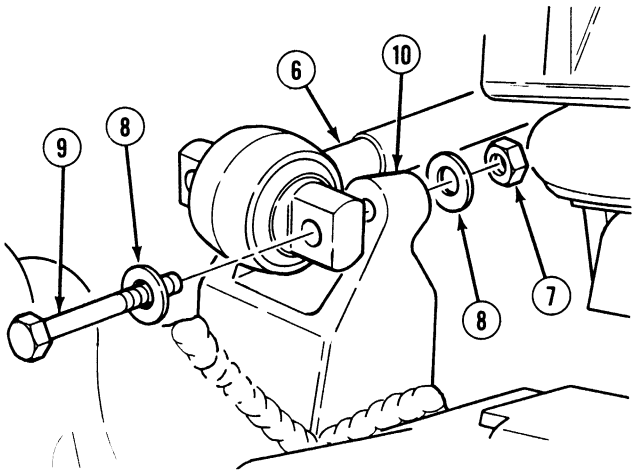


(1) *Removal.*

(a) Remove two nuts (1), lockwashers (2), U-bolt (3), clamp half (4) and cushion clip (5) from torque rod (6). Discard lockwashers.

(b) With the aid of an assistant, remove two locknuts (7), four washers (8) and two screws (9) from axle (10). Discard locknuts.

(c) With the aid of an assistant, remove two locknuts (11), washers (12) and plate (13) from screw (14). Discard locknuts.



NOTE

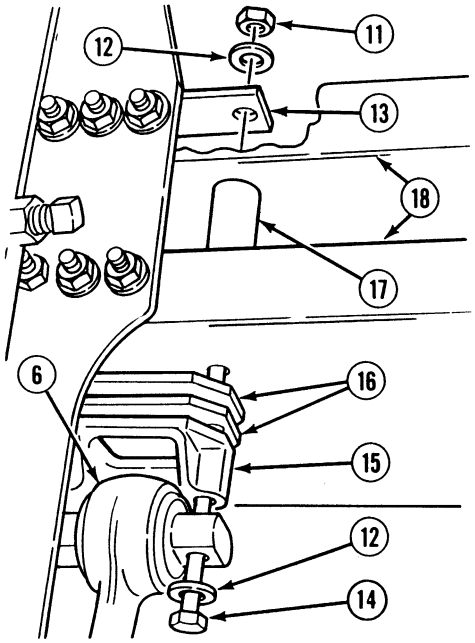
Tag and note number and size of spacers during removal.

(d) With the aid of an assistant, remove two screws (14), washers (12), torque rod (6), bracket (15) and spacers (16) from crossmember (18).

NOTE

Perform Step (e) if spacers are damaged.

(e) Remove two spacers (17) from between crossmember (18).



(2) *Installation.*

NOTE

Perform Step (a) if spacers were removed.

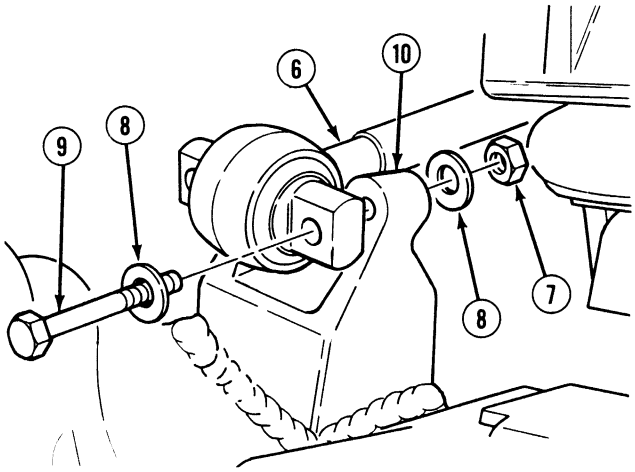
(a) Install two spacers (17) between crossmember (18).

NOTE

Install same number and size of spacers as noted during removal.

(b) With the aid of an assistant, install spacers (16), bracket (15) and truck end of torque rod (6) on crossmember (18) with two screws (14), four washers (12), plate (13) and two locknuts (11).

(c) With the aid of an assistant, install axle end of torque rod (6) on axle (10) with two screws (9), four washers (8) and two locknuts (7).



14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

NOTE

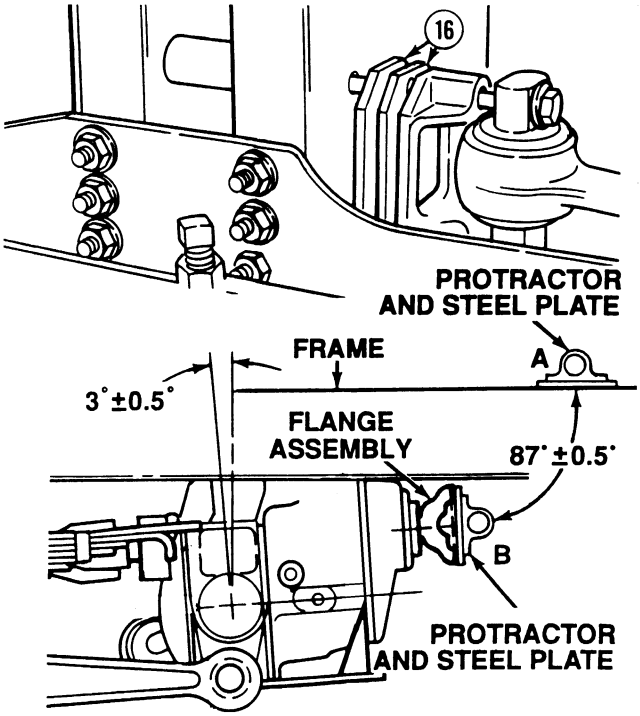
- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from flange assembly measurement.
- Axle flange assembly measurement of 87 ± 0.5 degrees equals axle camber of three degrees ± 0.5 (90 degrees – 87 degrees = 3 degrees).

(d) Measure the angle (in degrees) that flange assembly is cambered.

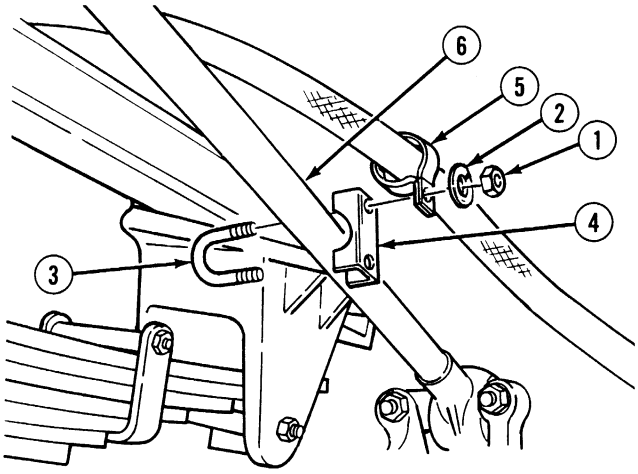
1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 87 degrees ± 0.5 degrees.

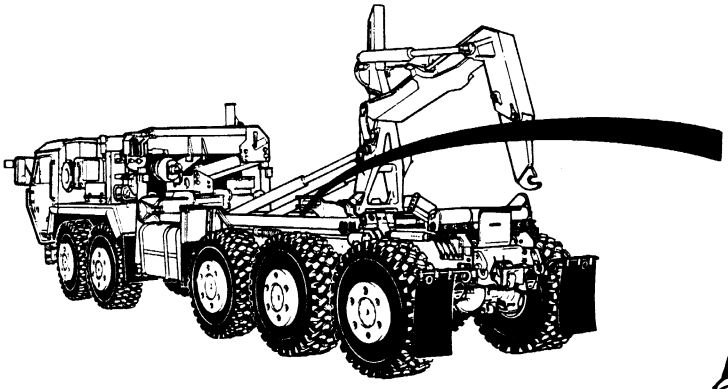
(e) If axle camber is not three degrees ± 0.5 degrees, add or subtract spacers (16) until correct axle camber is achieved.

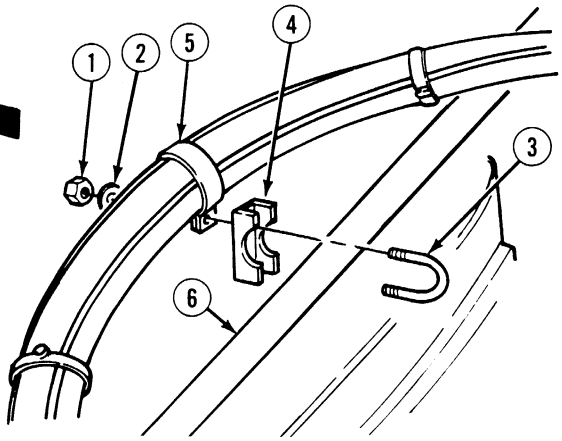


(f) Install clamp half (4), U-bolt (3) and cushion clip (5) on torque rod (6) using two lockwashers (2) and nuts (1).



c. Axle No. 3 Longitudinal Torque Rod Replacement.





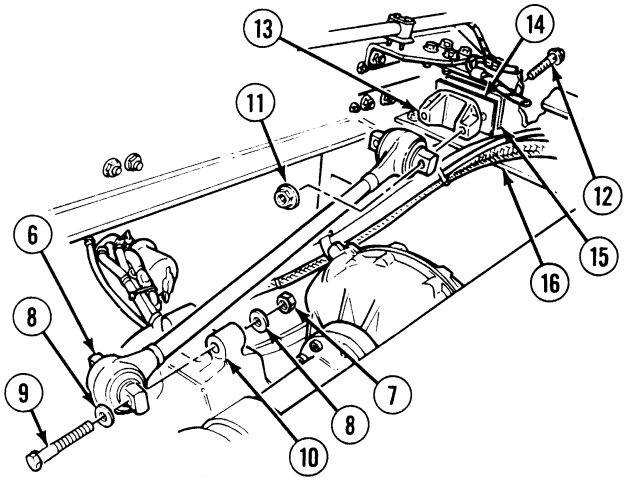
(1) *Removal.*

(a) Remove two nuts (1), lockwashers (2), U-bolt (3), clamp half (4) and cushion clip (5) from torque rod (6). Discard lockwashers.

(b) With the aid of an assistant, remove two locknuts (7), four washers (8) and two screws (9) from axle (10). Discard locknuts.

NOTE

Tag and note number and size of spacers during removal.



(c) With the aid of an assistant, remove two locknuts (11), screws (12), torque rod (6), bracket (13), spacers (14) and plate (15) from crossmember (16). Discard locknuts.

(2) *Installation.*

(a) With the aid of an assistant, position axle end of torque rod (6) on axle (10) with two screws (9), four washers (8) and two locknuts (7).

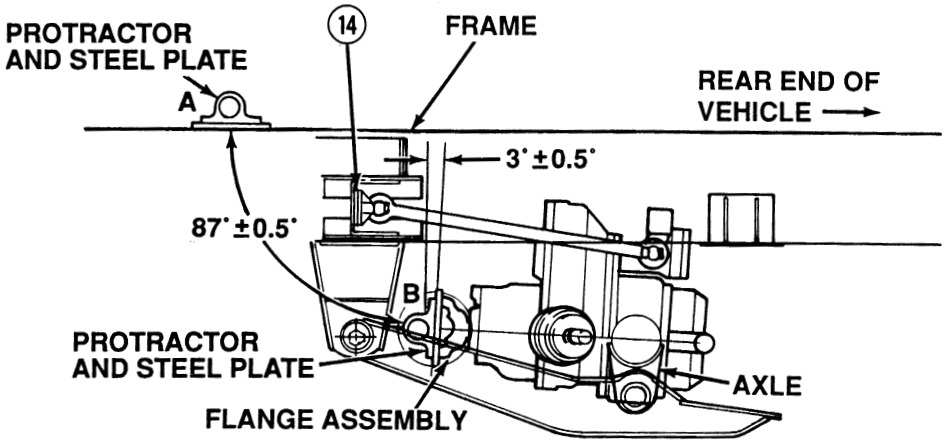
NOTE

Install same number and size of spacers as noted during removal.

(b) With the aid of an assistant, install plate (15), spacers (14), bracket (13) and torque rod (6) on crossmember (16) with two screws (12) and locknuts (11).

(c) Tighten locknuts (7) on screws (9).

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).



NOTE

- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from flange assembly measurement.
- Axle flange measurement of 87 ± 0.5 degrees equals axle camber of three degrees ± 0.5 (90 degrees – 87 degrees = 3 degrees).

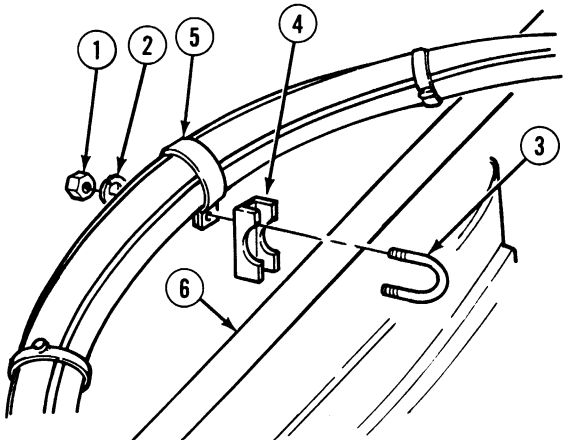
(d) Measure the angle (in degrees) that flange assembly is cambered.

1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

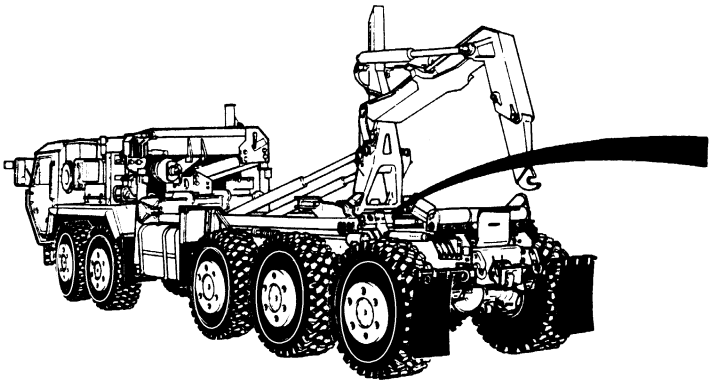
2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 87 degrees ± 0.5 degrees.

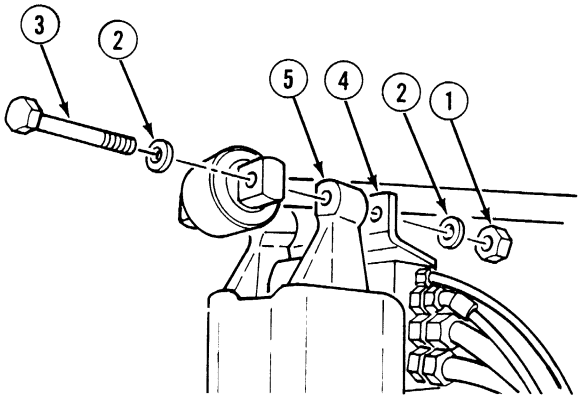
(e) If axle camber is not three degrees ± 0.5 degrees, add or subtract spacers (14) until correct axle camber is achieved.

(f) Install cushion clip (5), clamp half (4) and U-bolt (3) on torque rod (6) with two lockwashers (2) and nuts (1).



d. Axle No. 4 Longitudinal Torque Rod Replacement.





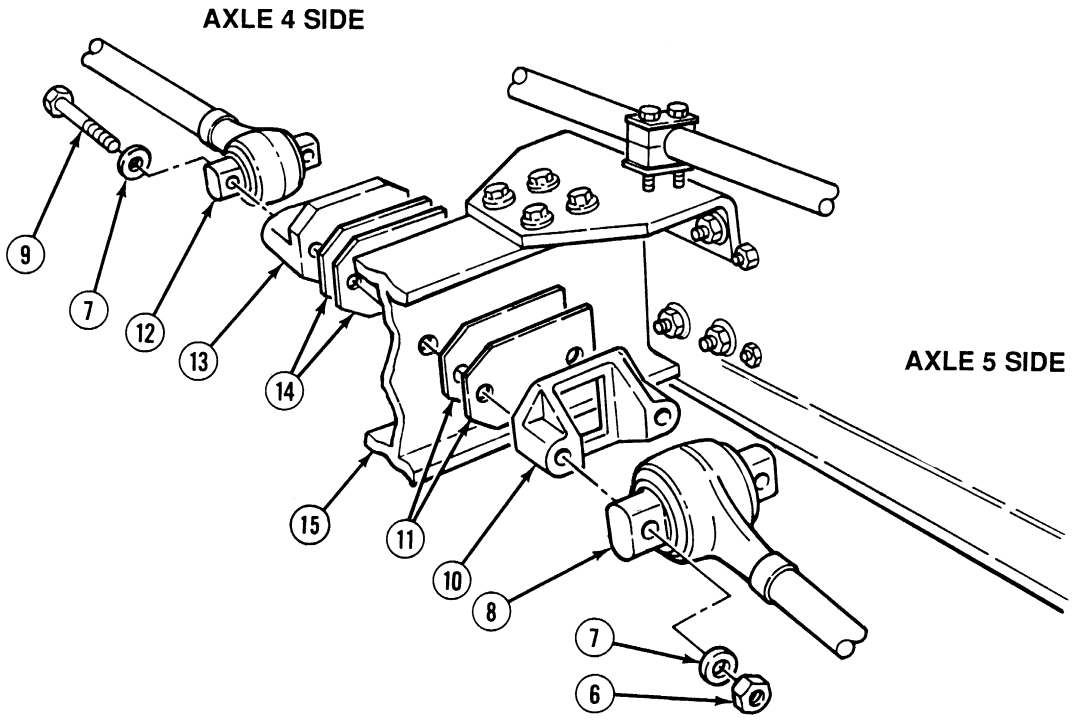
(1) *Removal.*

NOTE

Axles No. 4 and No. 5 longitudinal torque rods share mounting hardware.

(a) With the aid of an assistant, remove two locknuts (1), four washers (2), two screws (3) and air manifold bracket (4) from axle (5). Discard locknuts.

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).



NOTE

Screws may need to be partially pulled out to move torque rod.

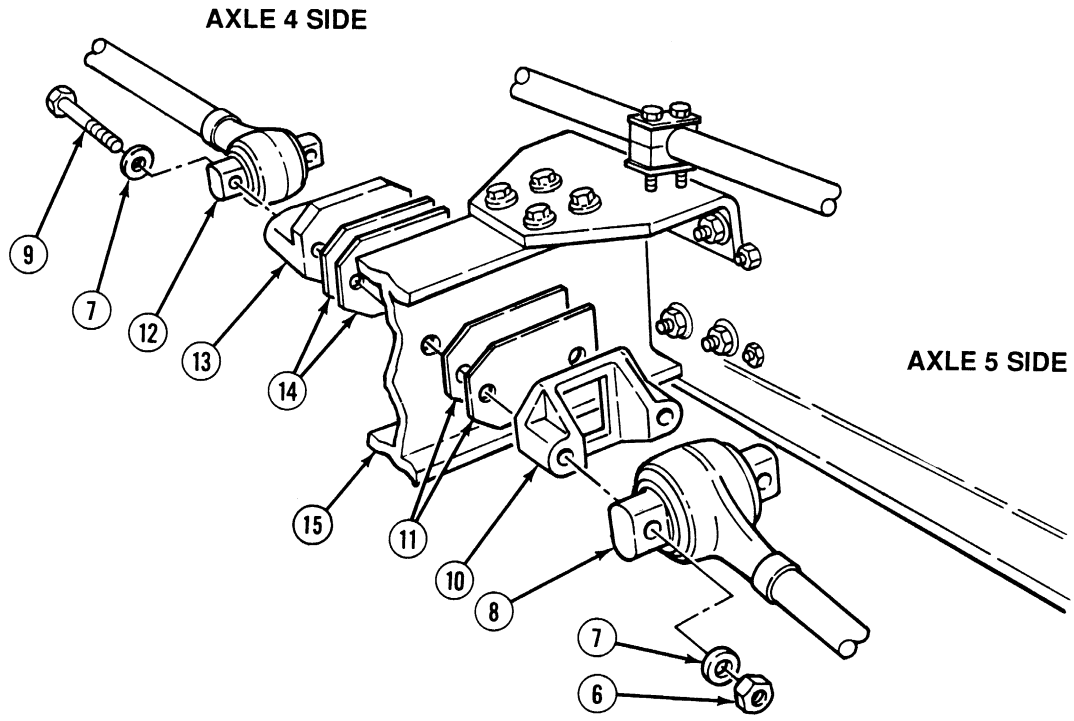
(b) With the aid of an assistant, remove two locknuts (6) and washers (7) from screws (9) and push torque rod (8) out of way. Discard locknuts.

NOTE

Tag and note number and size of spacers on each torque rod during removal.

(c) Remove two screws (9), washers (7), bracket (10), spacers (11), torque rod (12), bracket (13) and spacers (14) from crossmember (15).

(2) *Installation.*



NOTE

Install same number and size spacers as noted during removal.

(a) Position spacers (14), bracket (13), torque rod (12), two washers (7) and screws (9) on crossmember (15).

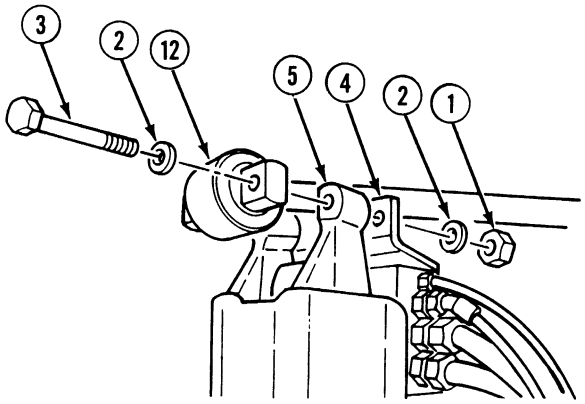
NOTE

Install same number and size spacers removed during removal.

(b) With the aid of an assistant, install spacers (11), bracket (10), torque rod (8), two washers (7) and locknuts (6) on crossmember (15).

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

(c) With the aid of an assistant, install torque rod (12) and air manifold bracket (4) on axle (5) with two screws (3), four washers (2) and two locknuts (1).



NOTE

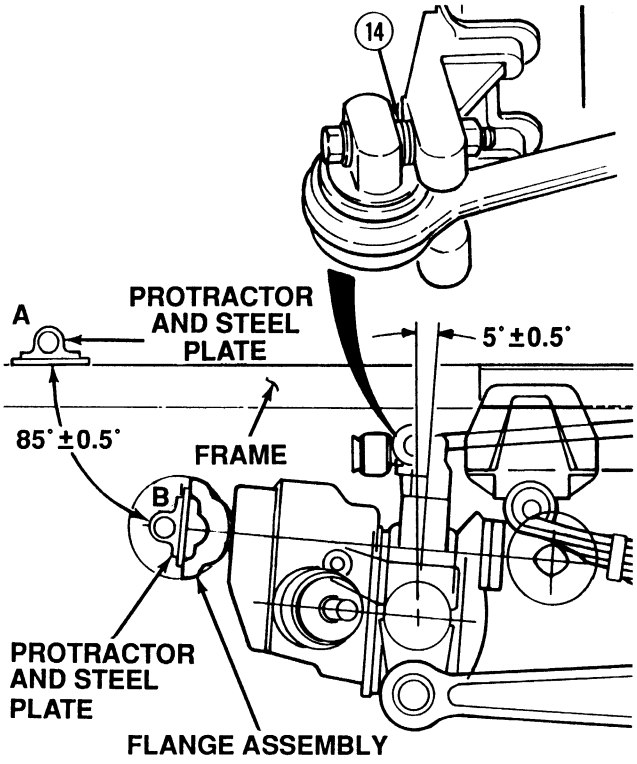
- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from the flange assembly measurement.
- Axle flange measurement of 85 ± 0.5 degrees equals axle camber of five degrees ± 0.5 (90 degrees – 85 degrees = 5 degrees).

(d) Measure the angle (in degrees) that flange assembly is cambered.

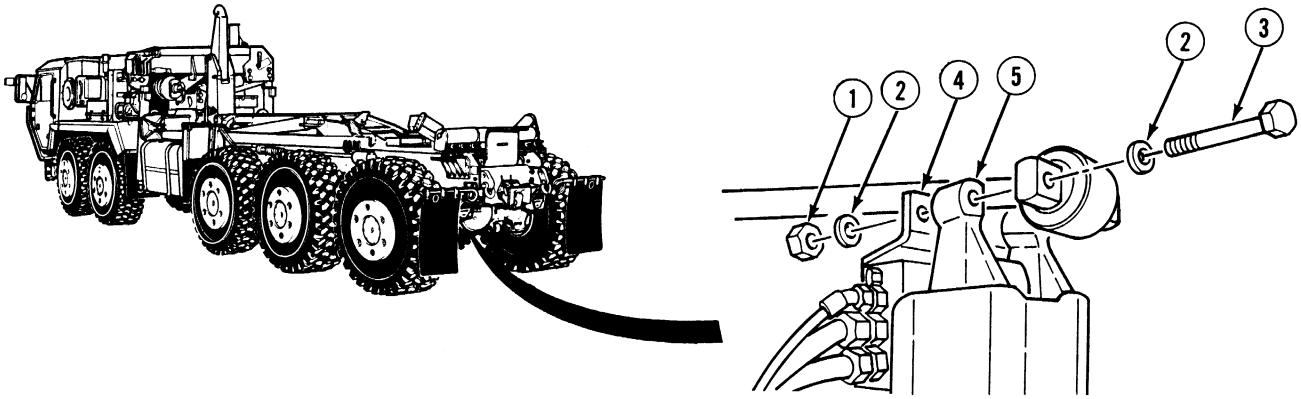
1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 85 degrees ± 0.5 degrees.

(e) If axle camber is not three degrees ± 0.5 degrees, add or subtract spacers (14) until correct axle camber is achieved.



e. No. 5 Longitudinal Torque Rod Replacement.

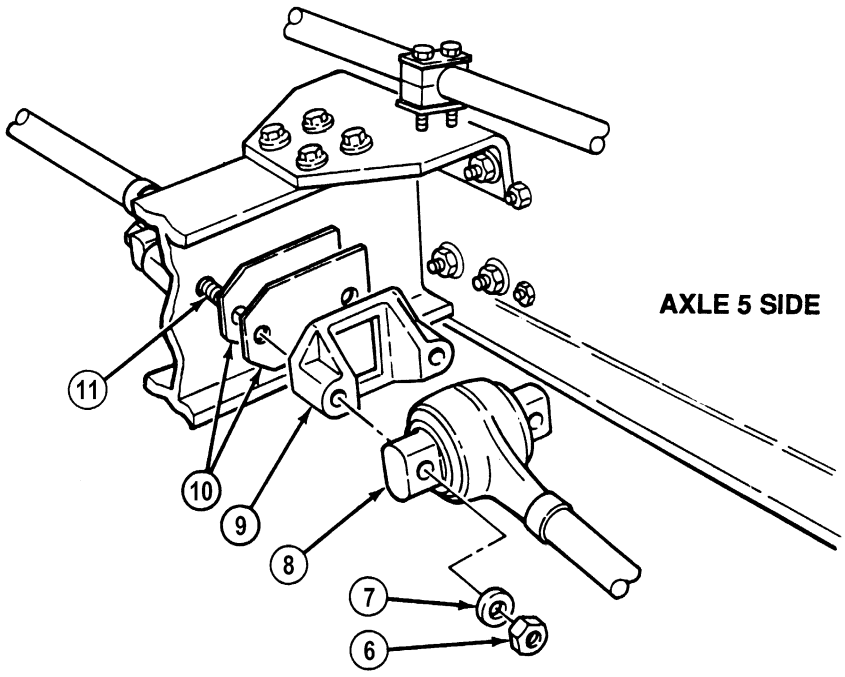


(1) *Removal*.

NOTE

Axles No. 4 and No. 5 longitudinal torque rods share mounting hardware.

(a) With the aid of an assistant, remove two locknuts (1), four washers (2), two screws (3) and air manifold bracket (4) from axle (5). Discard locknuts.



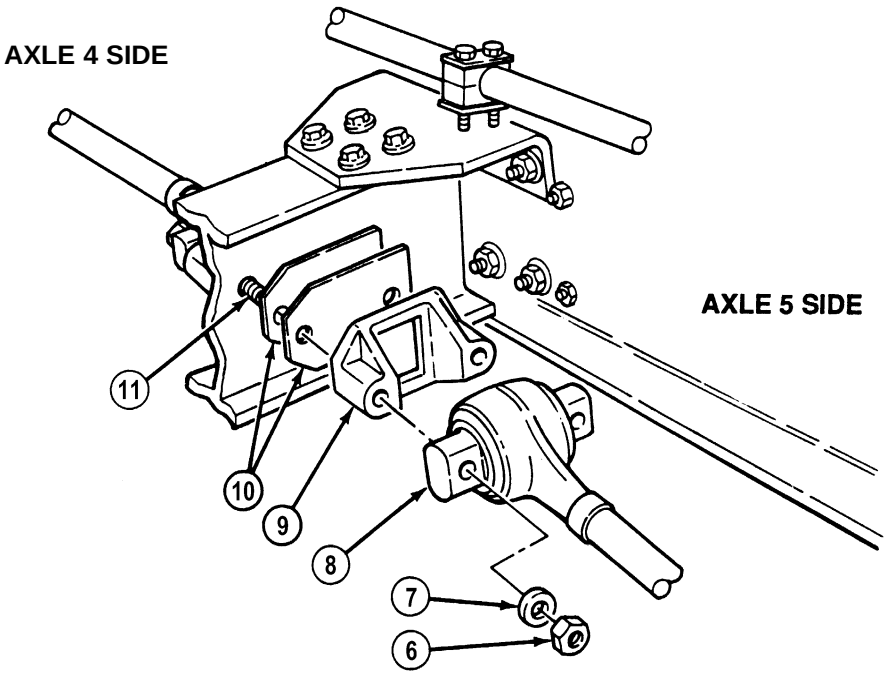
NOTE

Tag and note number and size of spacers on each torque rod during removal.

(b) With the aid of an assistant, remove two locknuts (6), washers (7), torque rod (8), bracket (9) and spacers (10) from screws (11). Discard locknuts.

14-9. LONGITUDINAL TORQUE ROD REPLACEMENT (CONT).

(2) Installation.

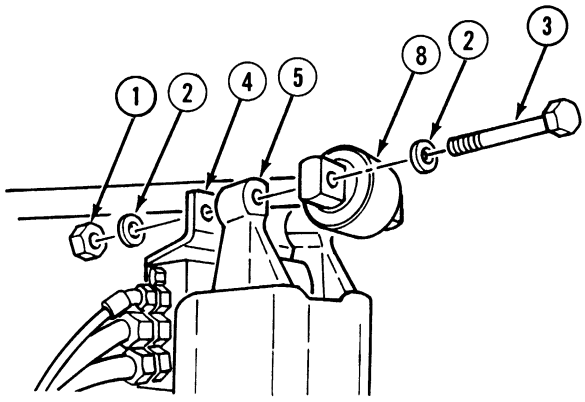


NOTE

Install same number and size spacers as noted during removal.

(a) With the aid of an assistant, install spacers (10), bracket (9), torque rod (8), two washers (7) and locknuts (6) on screws (11).

(b) With the aid of an assistant, install torque rod (8) and air manifold bracket (4) on axle (5) using two screws (3), four washers (2) and two locknuts (1).



NOTE

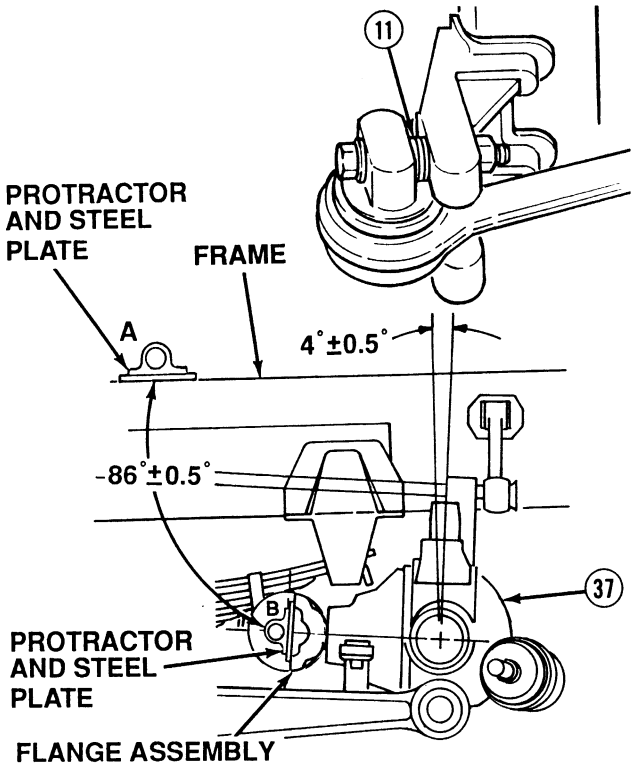
- Frame must be level to perform axle camber adjustment properly.
- Axle camber angle measurements must be taken with relationship to frame. If frame is not level, the angle the frame is inclined must be added or subtracted from flange assembly measurement.
- Axle flange measurement of 86 ± 0.5 degrees equals axle camber of four degrees ± 0.5 (90 degrees – 86 degrees = four degrees).

(c) Measure the angle (in degrees) that flange assembly is cambered.

1 Position protractor and steel plate on frame at point A. Adjust protractor to zero.

2 Position protractor and steel plate on machined surface of the flange assembly and record measurement. This is point B. Measurement should read 86 degrees ± 0.5 degrees.

(d) If axle camber is not four degrees ± 0.5 degrees, add or subtract spacers (11) until correct axle camber is achieved.



f. Follow-On Maintenance:

- LHS in transit position, (TM 9-2320-364-10) (Axles No. 3 and No. 4 only).
- Install rear hardlift assembly, (TM 9-2320-364-20) (Axle No. 5 only).
- Install driveshafts, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 15

CAB ACCESSORY MAINTENANCE

Para **Contents** **Page**

15-1 Direct Support Cab Accessory Maintenance Introduction 15-1
15-2 Cab Assembly Replacement 15-2
15-3 Windshield Glass Replacement 15-27
15-4 Right Fender Replacement 15-29
15-5 Left Fender Replacement 15-34

15-1. DIRECT SUPPORT CAB ACCESSORY MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing and servicing cab accessory components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

15-2. CAB ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

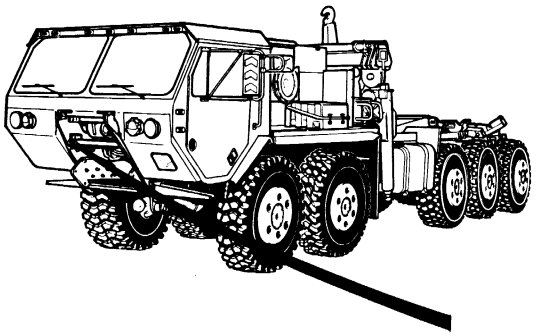
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Appendix 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wooden Blocks (2) (Appendix C)
Lifting Device, Minimum Capacity 2000 lbs
(908 kg)

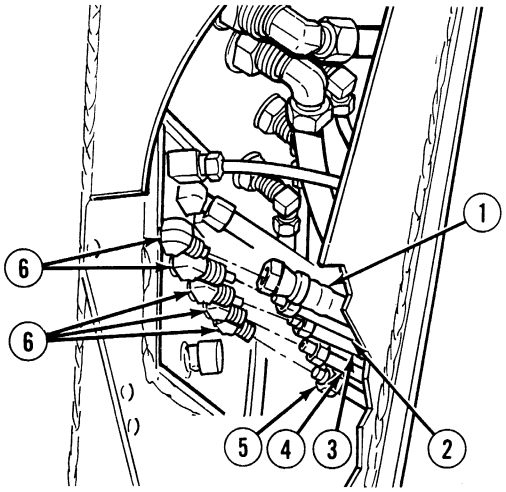
Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Preventive
(Item 15, Appendix B)
Rope, 3/4 in. thick, 20 ft. (2)
(Item 48, Appendix B)
Solution, Soap (Item 67, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (4) (Item 166, Appendix E)
Locknut (4) (Item 171, Appendix E)
Locknut (Item 174, Appendix E)
Locknut (4) (Item 176, Appendix E)
Locknut (2) (Item 201, Appendix E)
Locknut (3) (Item 210, Appendix E)
Locknut (Item 213, Appendix E)
Lockwasher (4) (Item 271, Appendix E)
Lockwasher (4) (Item 270, Appendix E)
Lockwasher (3) (Item 283, Appendix E)
Pin, Cotter (Item 416, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
OFF/HEAT lever in OFF position,
(TM 9-2320-364-10)
Parking brake set, (TM 9-2320-364-10)
Air system drained, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Electronic Control Box (ECB) cover removed,
(TM 9-2320-364-20)
Heater control box cover removed,
(TM 9-2320-364-20)
Side access panel removed,
(TM 9-2320-364-20)
Cab engine access panel removed,
(TM 9-2320-364-20)
Skid plate structure removed,
(TM 9-2320-364-20)
Machine gun ring rear support removed
(if equipped), (TM 9-2320-364-20)
Gas particulate filter kit removed (if equipped),
(TM 9-2320-364-20)
Chemical alarm kit removed (if equipped),
(Para 19-3)

a. Removal.



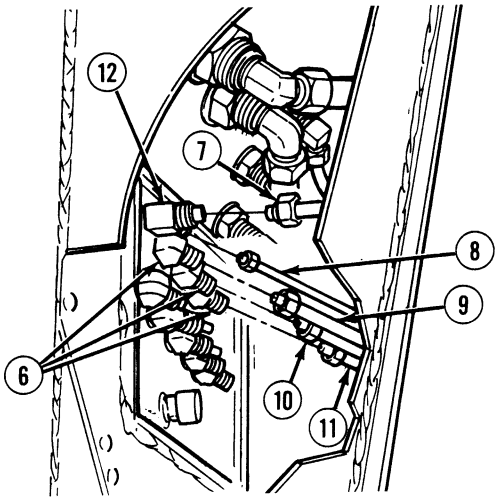


NOTE

Tag and mark all air lines prior to removal.

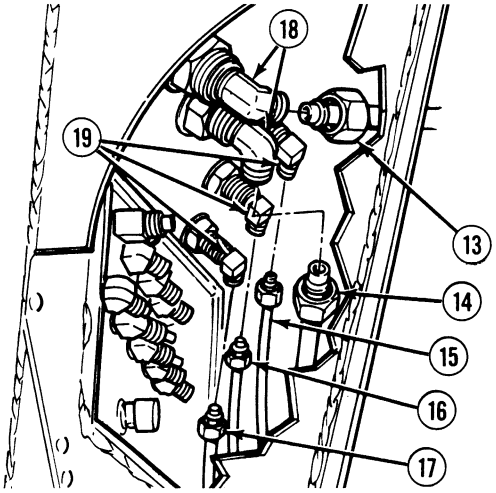
(1) Remove air line 2381 (1), air line 2623 (2), air line 2665 (3), air line 2489 (4) and air line 2663 (5) from elbows (6).

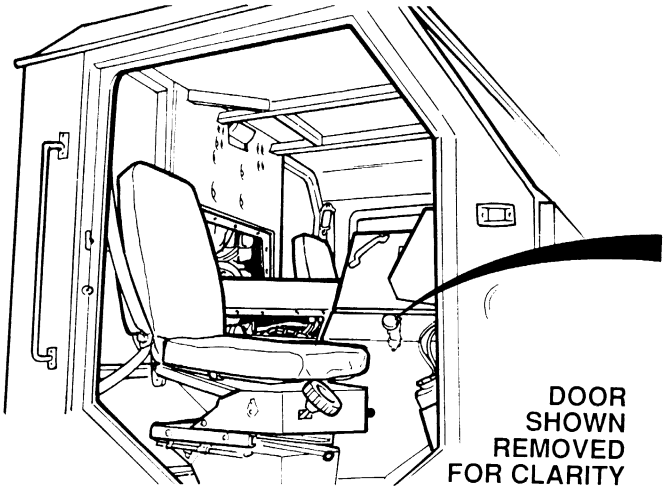
(2) Remove air line 2074 (7), air line 2074 (8), air line 2612 (9), air line 2488 (10) and air line 2662 (11) from tee (12) and elbows (6).

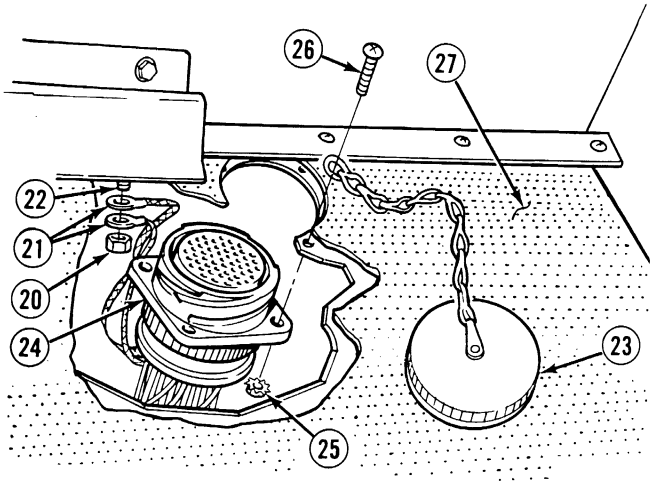


15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(3) Remove air line 2005 (13), air line 2619 (14), air line 2923 (15), air line 2412 (16) and air line 2069 (17) from two elbows (18) and three elbows (19).







(4) Remove locknut (20) and two ground straps (21) from stud (22). Discard locknut.

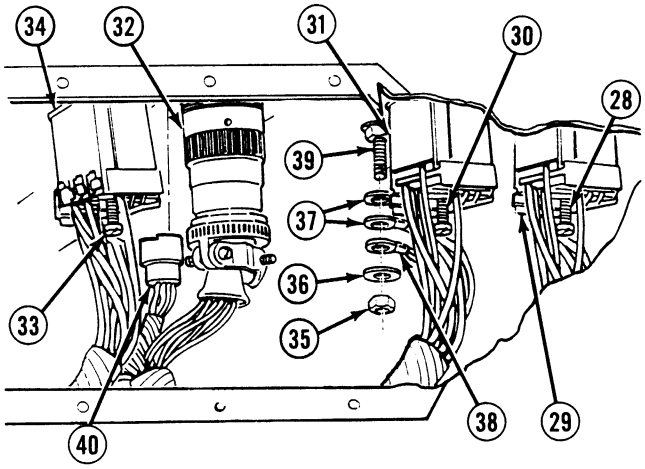
(5) Remove cap (23) from MC39 connector (24).

(6) Remove four locknuts (25), screws (26) and cap and chain (23) from cab wall (27). Discard locknuts.

(7) Pull MC39 connector (24) from cab wall (27).

NOTE

- Tag and mark wires and cables prior to removal.
- Remove cable ties as required.



(8) Loosen screw (28) and disconnect MC21 connector (29).

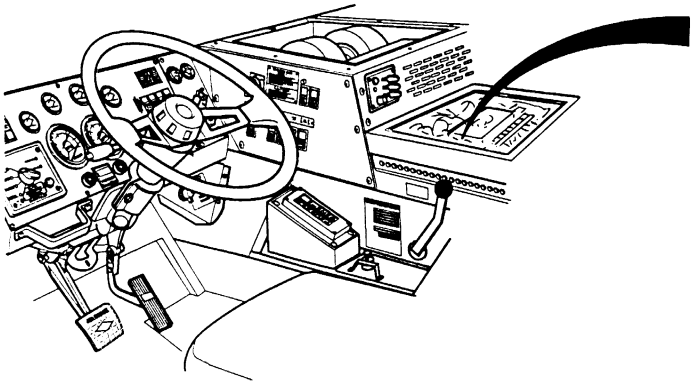
(9) Loosen screw (30) and disconnect MC3 connector (31).

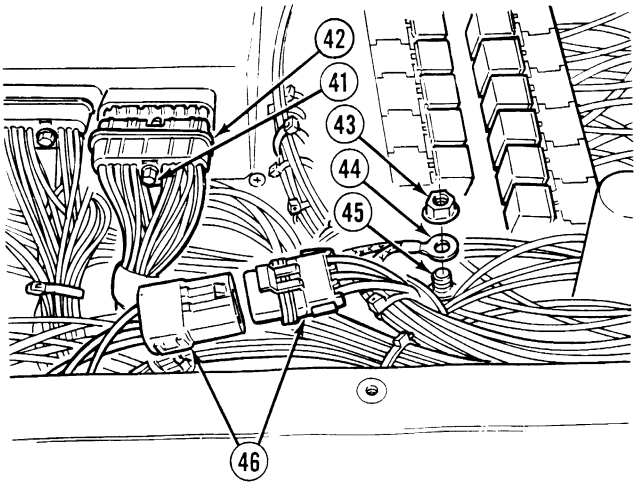
(10) Disconnect MC11 connector (32).

(11) Loosen screw (33) and disconnect MC25 connector (34).

(12) Remove locknut (35), washer (36) and two ground straps (37) and wire 1435 (38) from stud (39). Discard locknut.

(13) Disconnect MC44 connector (40).





(14) Loosen screw (41). Disconnect MC10 connector (42).

(15) Remove locknut (43) and double braided ground wire (44) from stud (45). Discard locknut.

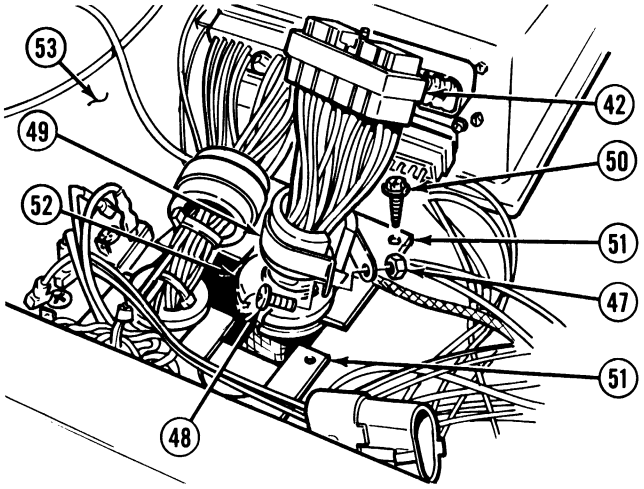
(16) Disconnect MC36 connector (46).

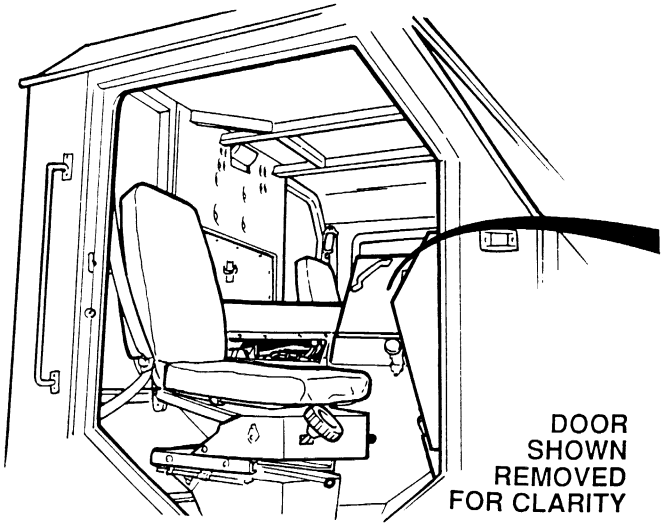
15-2. CAB ASSEMBLY REPLACEMENT (CONT).

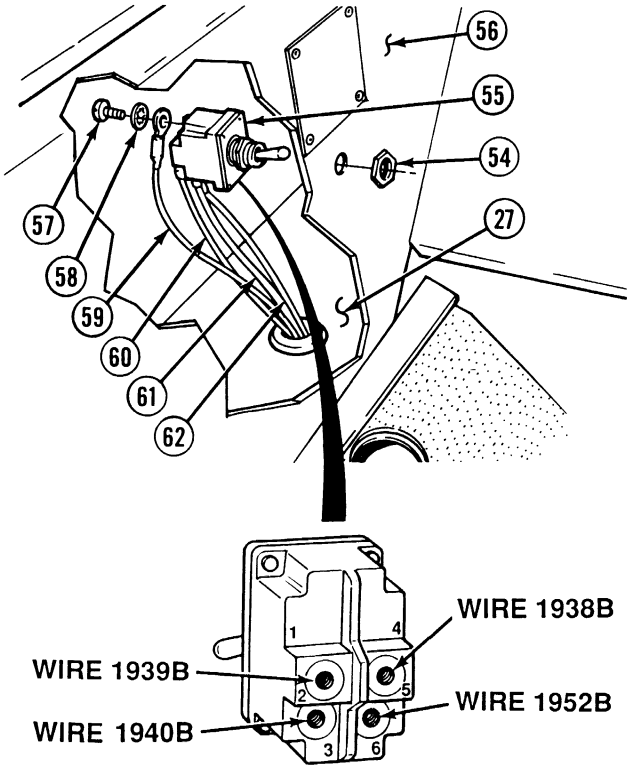
(17) Remove locknut (47), screw (48) and clamp (49) from MC10 connector (42). Discard locknut.

(18) Remove four screws (50), plates (51) and rubber grommet (52) from electronic control box (53).

(19) Push MC10 connector (42) through ECB (53).



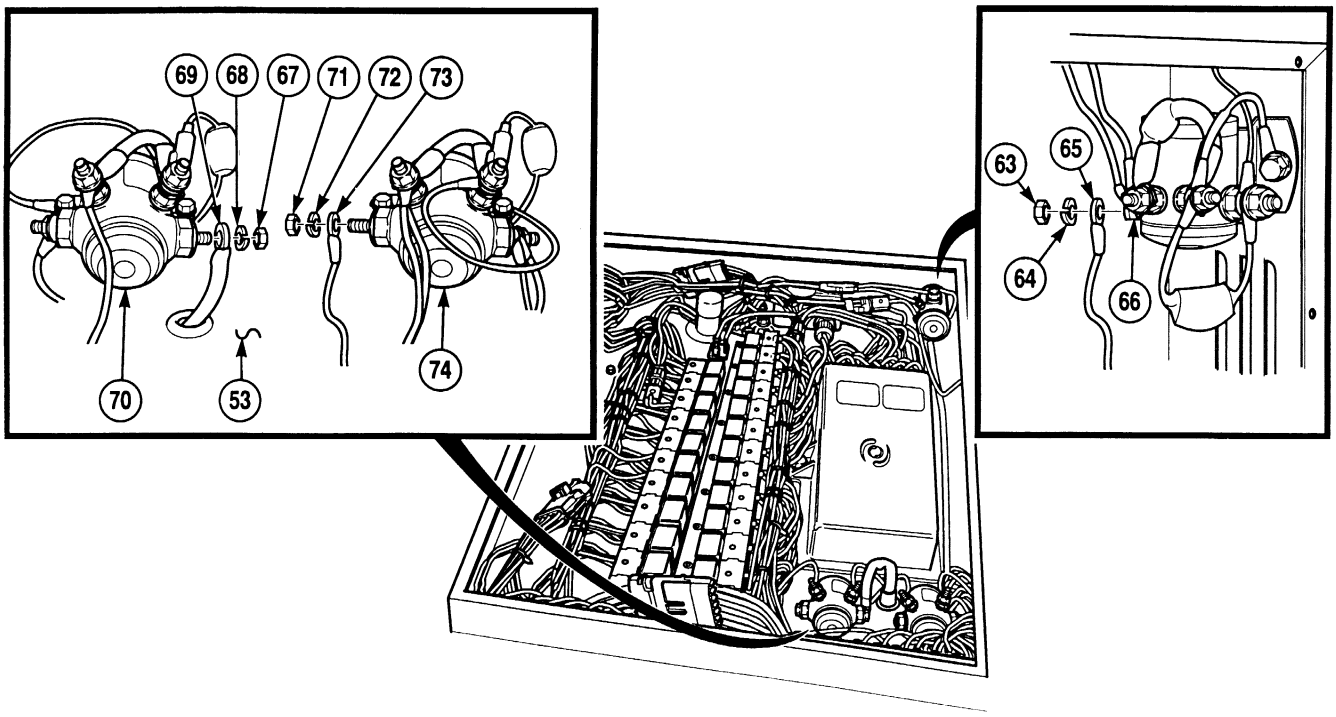




(20) Remove nut (54) and pull STE/ICE-R switch (55) from dash (56).

(21) Remove four screws (57), lockwashers (58) and wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) from STE/ICE-R switch (55). Discard lockwashers.

(22) Pull wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) through cab wall (27).

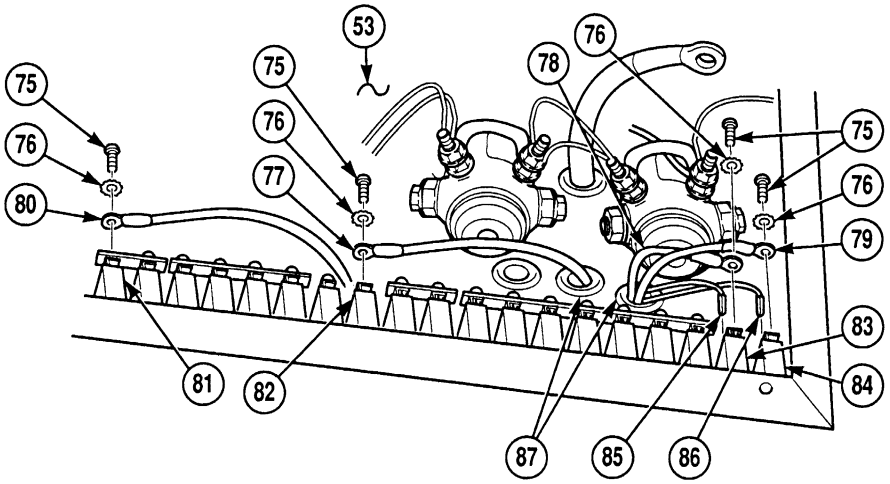


(23) Remove nut (63), lockwasher (64) and wire 1075 (65) from relay (66). Discard lockwasher.

(24) Remove nut (67), lockwasher (68) and wire 1430 (69) from relay (70). Discard lockwasher.

(25) Remove nut (71), lockwasher (72) and wire 1281 (73) from relay (74). Discard lockwasher.

(26) Pull wires 1075 (65), 1430 (69) and 1281 (73) through ECB (53).

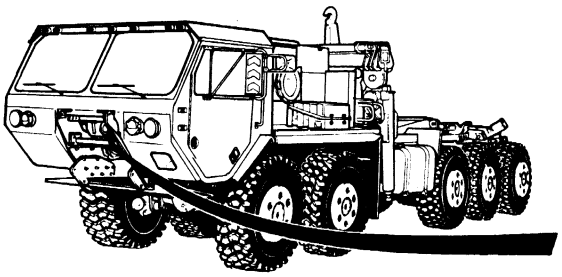


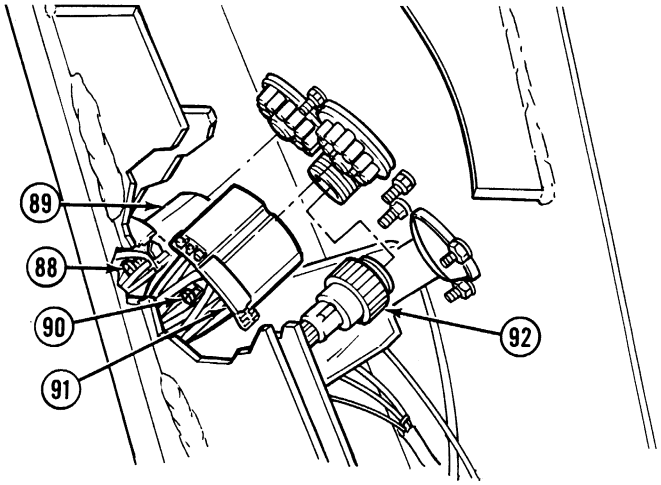
(27) Remove four screws (75), lockwashers (76) and wire 1866 (77), wire 241 (78), wire 240 (79) and wire 1079 (80) from four circuit breakers CB5 (81), CB12 (82), CB22 (83) and CB23 (84). Discard lockwashers.

(28) Disconnect wire 241 (85) and wire 240 (86) from circuit breakers CB22 (83) and CB23 (84).

(29) Pull wire 1866 (77), wire 241 (78), wire 240 (79), wire 1079 (80) wire 241 (85) and wire 240 (86) through ECB (53) and remove two grommets (87).

15-2. CAB ASSEMBLY REPLACEMENT (CONT).

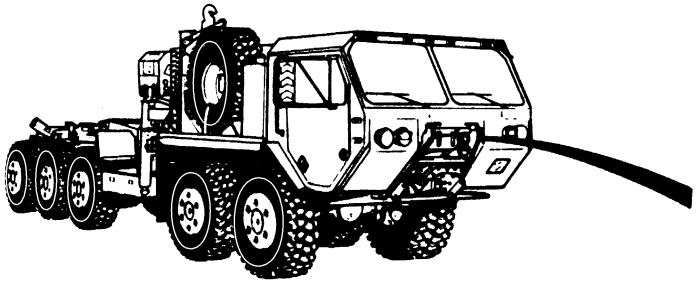


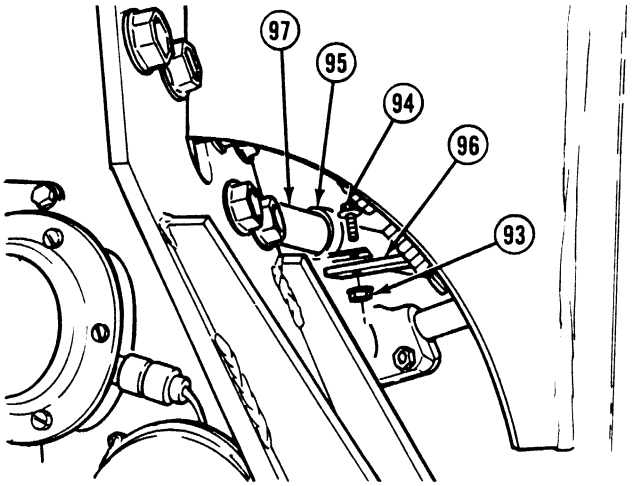


(30) Loosen screw (88) and remove MC32 connector (89).

(31) Loosen screw (90) and remove MC31 connector (91).

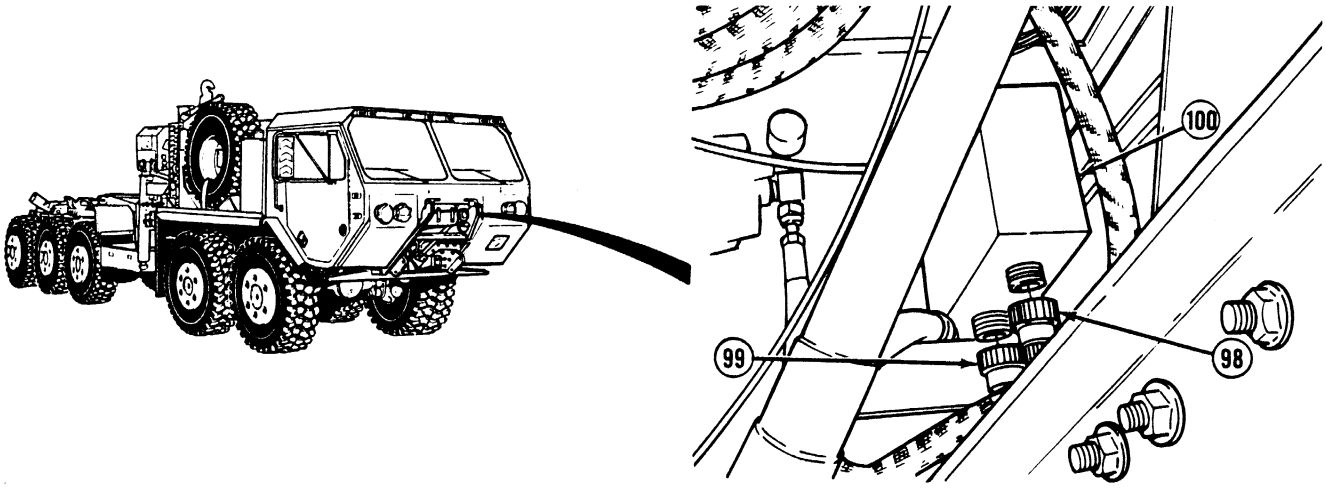
(32) Disconnect MC34 connector (92).





(33) Remove locknut (93), screw (94) and cushion clip (95) from bracket (96). Discard locknut.

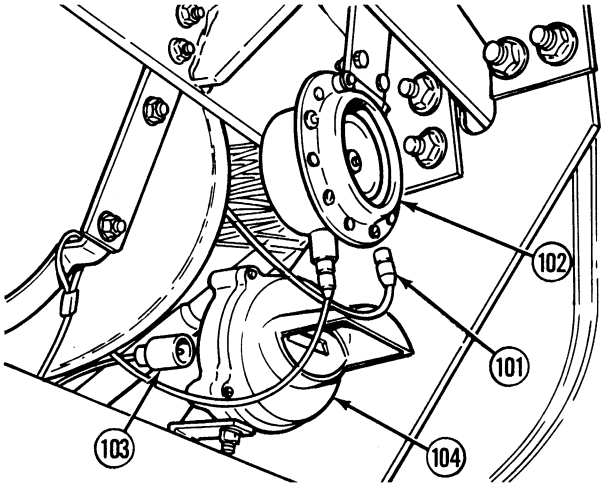
(34) Push wire harness (97) out of way.

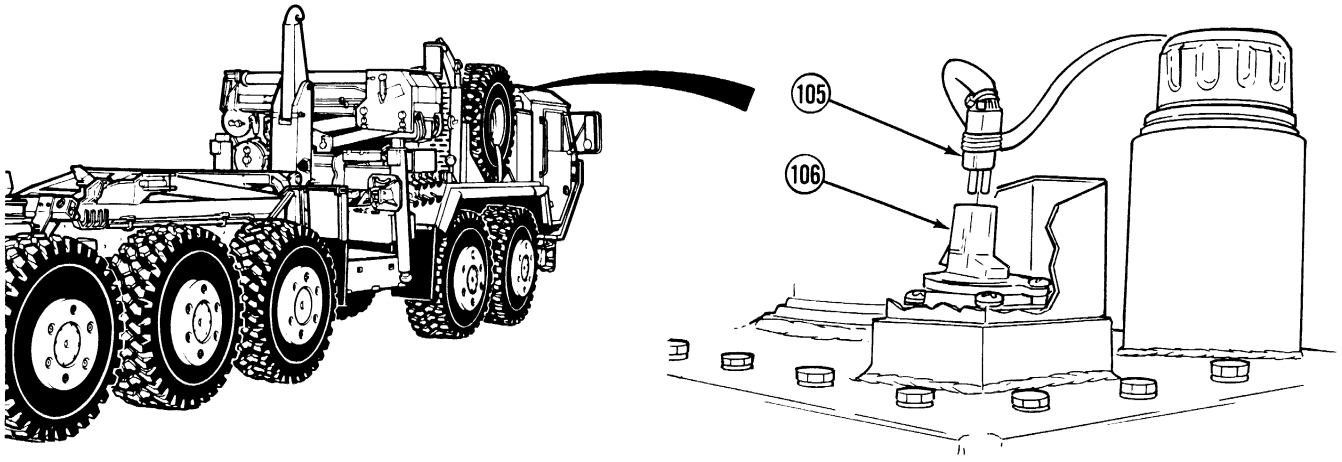


(35) Disconnect MC83 connectors (98) and MC94 (99) from LHS control box (100).

(36) Disconnect wire 1168 (101) from horn (102).

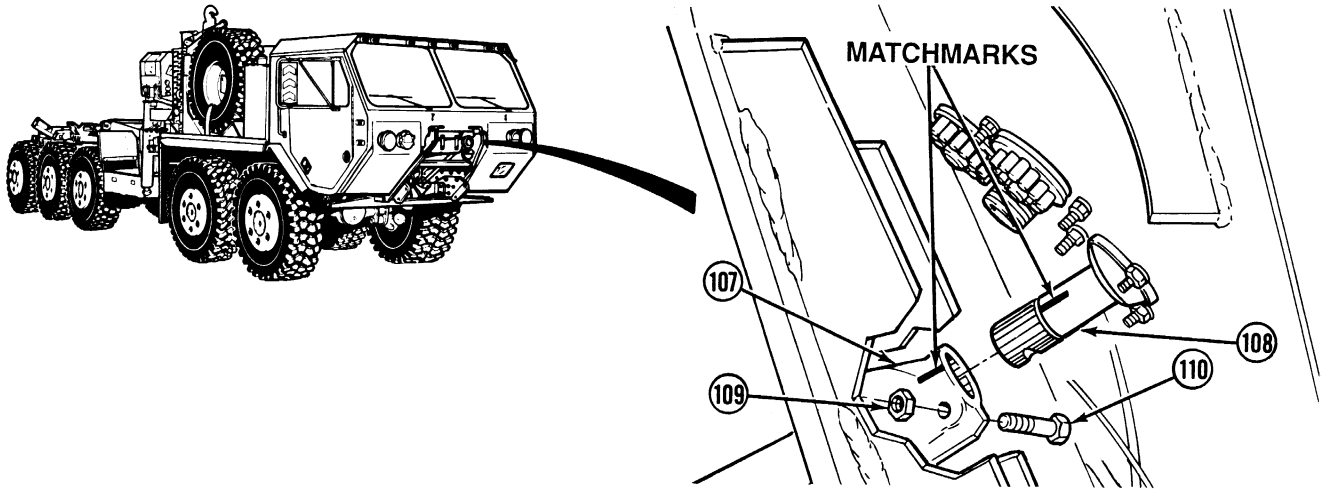
(37) Disconnect wire 1679 (103) from blackout light (104).





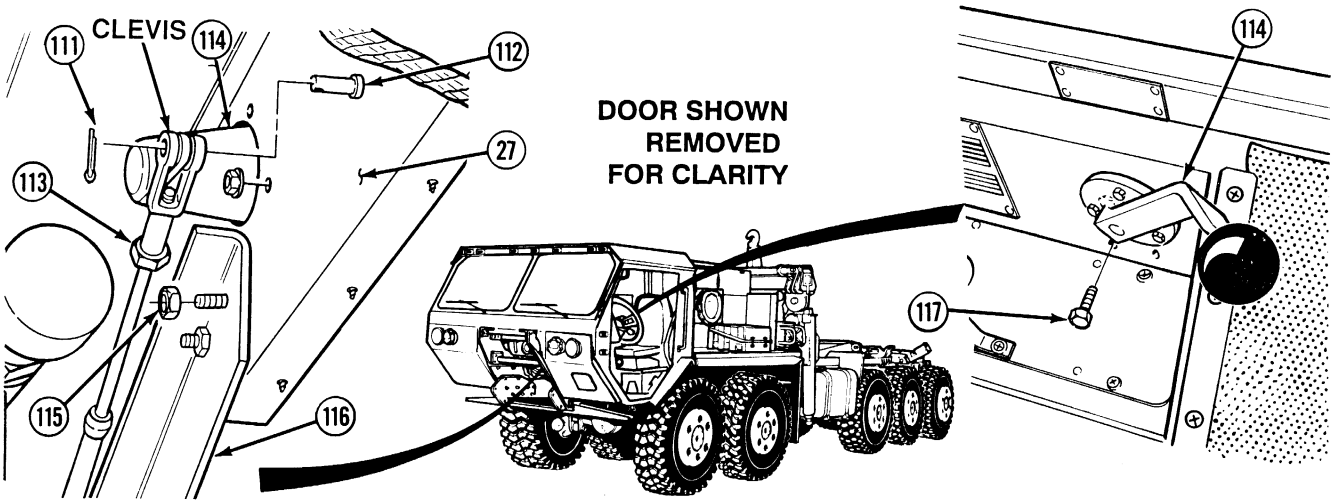
(38) Disconnect MC96 connector (105) from sending unit (106).

15-2. CAB ASSEMBLY REPLACEMENT (CONT).



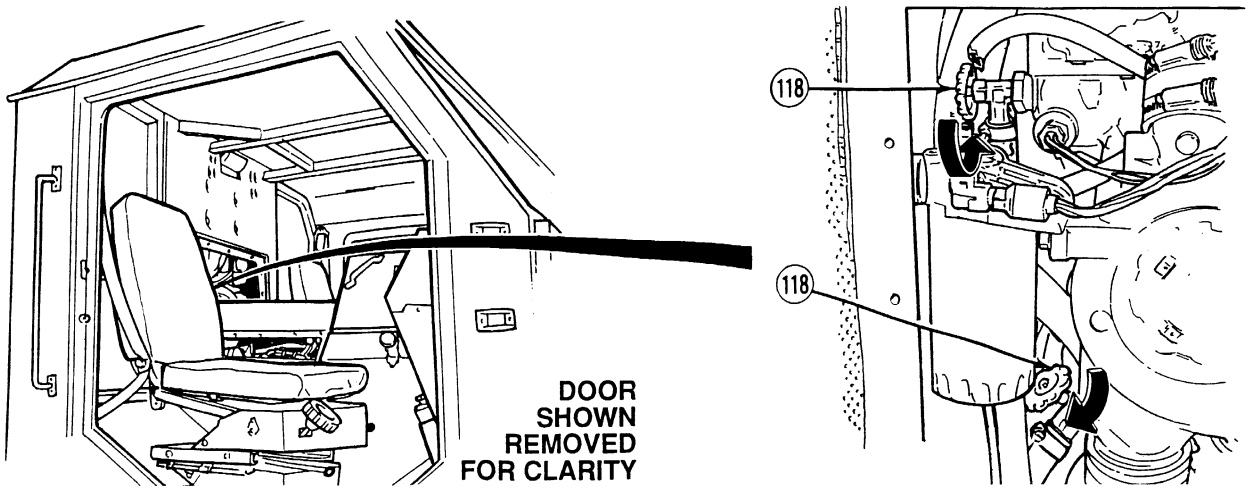
(39) Matchmark steering shaft (107) to steering shaft (108).

(40) Remove locknut (109), screw (110) and pull steering shaft (107) from steering shaft (108). Discard locknut.

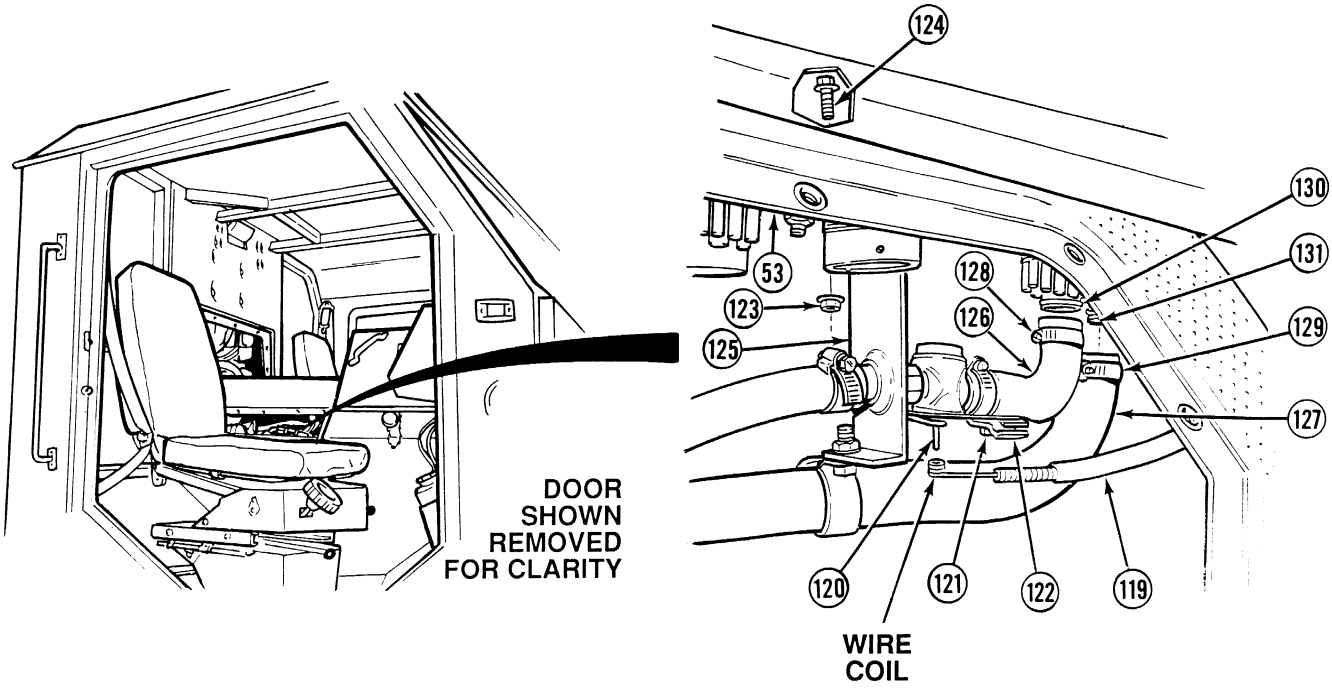


(41) Remove cotter pin (111), yoke pin (112) and clevis of shift cable (113) from shift assembly (114). Discard cotter pin.

(42) With the aid of an assistant, remove two locknuts (115), bracket assembly (116) and two screws (117) from cab wall (27). Discard locknuts.



(43) Close two shut-off valves (118) by turning in a clockwise direction.



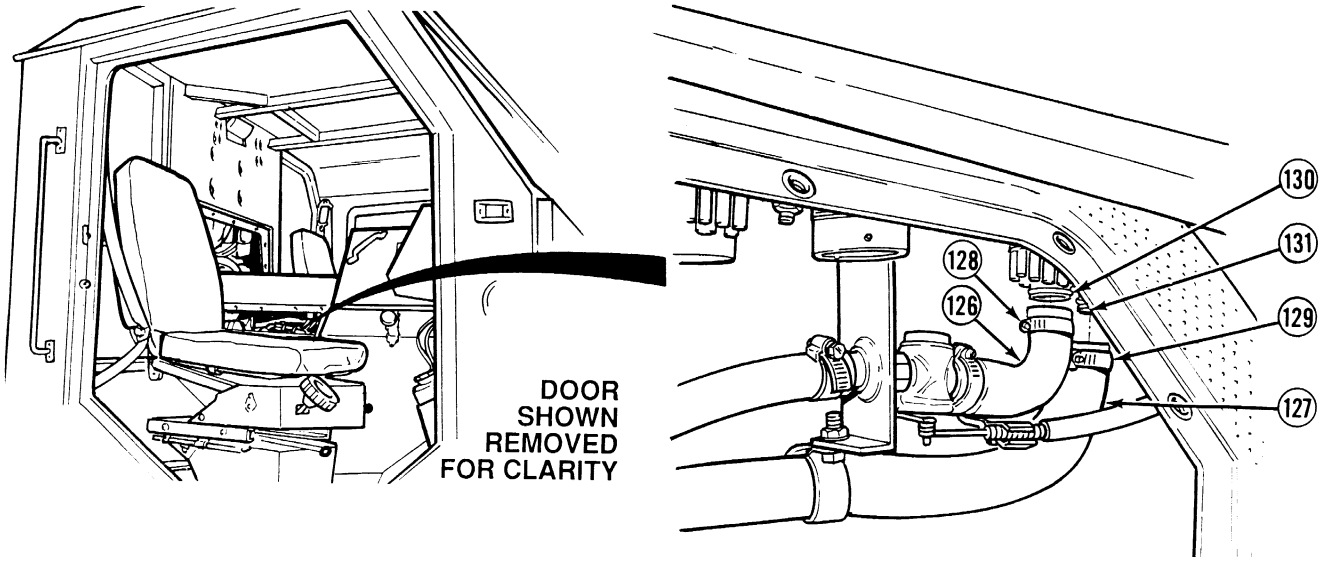
(44) Slide wire coil of control cable (119) off of stud (120).

(45) Loosen screw (121) and remove control cable (119) from clamp (122).

(46) Remove two locknuts (123), two screws (124) and bracket (125) from ECB (53). Discard locknuts.

(47) Position drain pan under hoses (126) and (127).

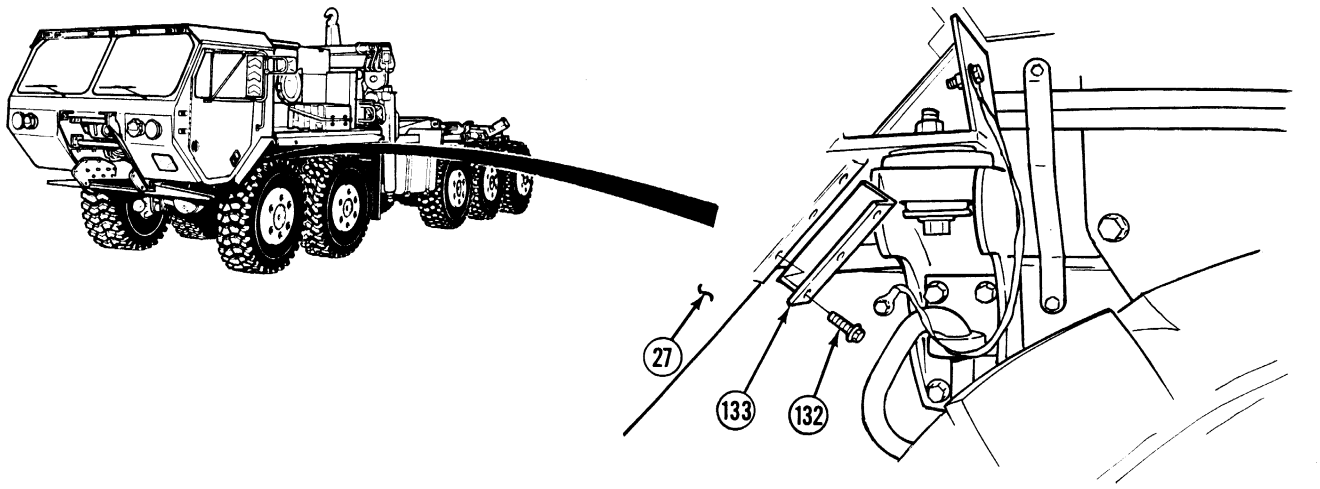
15-2. CAB ASSEMBLY REPLACEMENT (CONT).



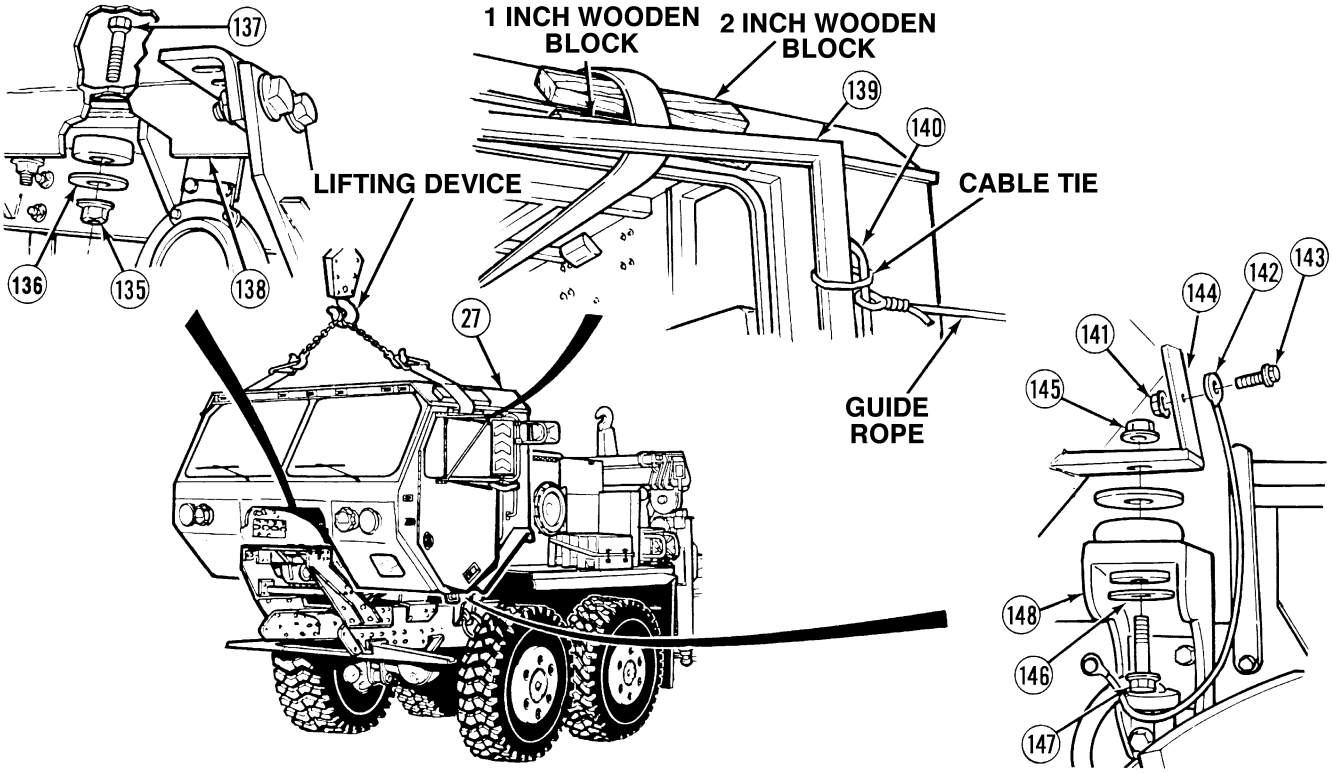
WARNING

Do not drain coolant if water temperature gage reads above 180 degrees F (82 degrees C). Contact with steam or hot coolant will result in serious injury to personnel.

(48) Loosen hose clamps (128) and (129) and remove hoses (126) and (127) from tubes (130) and (131).



(49) Remove three screws (132) from each side of cross brace (133) and cab (27) and let cross brace lay on truck frame.



WARNING

Cab weighs 1,700 lbs (772 kg). Attach a suitable lifting device prior to removal to prevent possible injury to personnel.

(50) With the aid of an assistant, attach lifting device and straps to cab (27). Position wooden blocks against cab above door frame and below roof line to protect cab.

(51) Raise lifting device to take slack out of straps.

(52) With the aid of an assistant, remove two locknuts (135), washers (136) and screws (137) from front mount bracket (138). Discard locknuts.

(53) Using cable ties, strap doors (139) to grab handles (140) and attach guide rope to left and right grab handles (140).

NOTE

Step (54) applies to left side of truck only.

(54) Remove locknut (141), ground strap (142) and screw (143) from bracket (144). Discard locknut.

(55) Remove locknut (145), washer (146) and screw (147) from each side of rear mount (148). Discard locknut.

WARNING

All personnel must stay clear of cab when lifting is in progress. Failure to comply may result in injury or death to personnel.

(56) With the aid of an assistant and using lifting device, raise cab (27) up slightly. If cab tilts forward or backward, lower cab back down.

(57) Adjust straps to level cab (27).

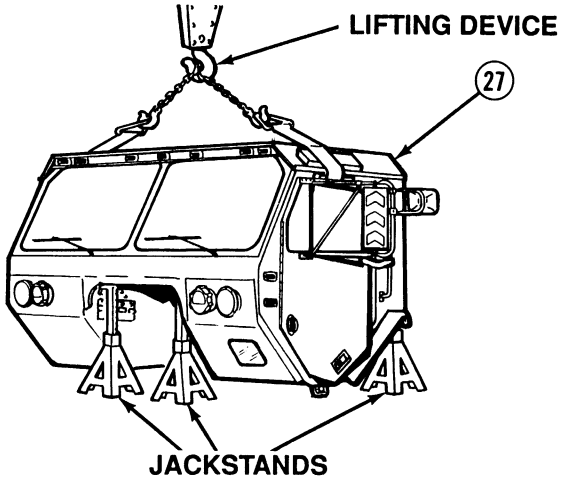
15-2. CAB ASSEMBLY REPLACEMENT (CONT).

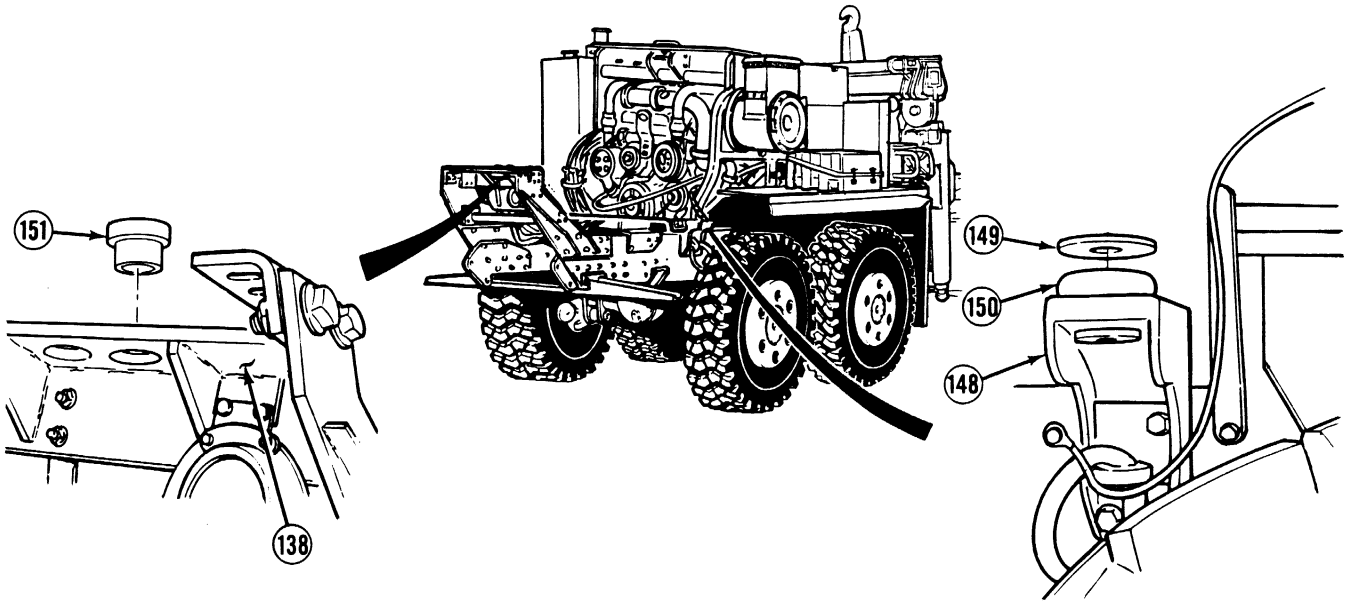
CAUTION

Ensure air lines and electrical wires do not tangle with the cab.

(58) With the aid of an assistant and using lifting device, slowly raise cab (27).

(59) With the aid of an assistant using lifting device and guide rope, remove cab (27) from truck and position on four jackstands.





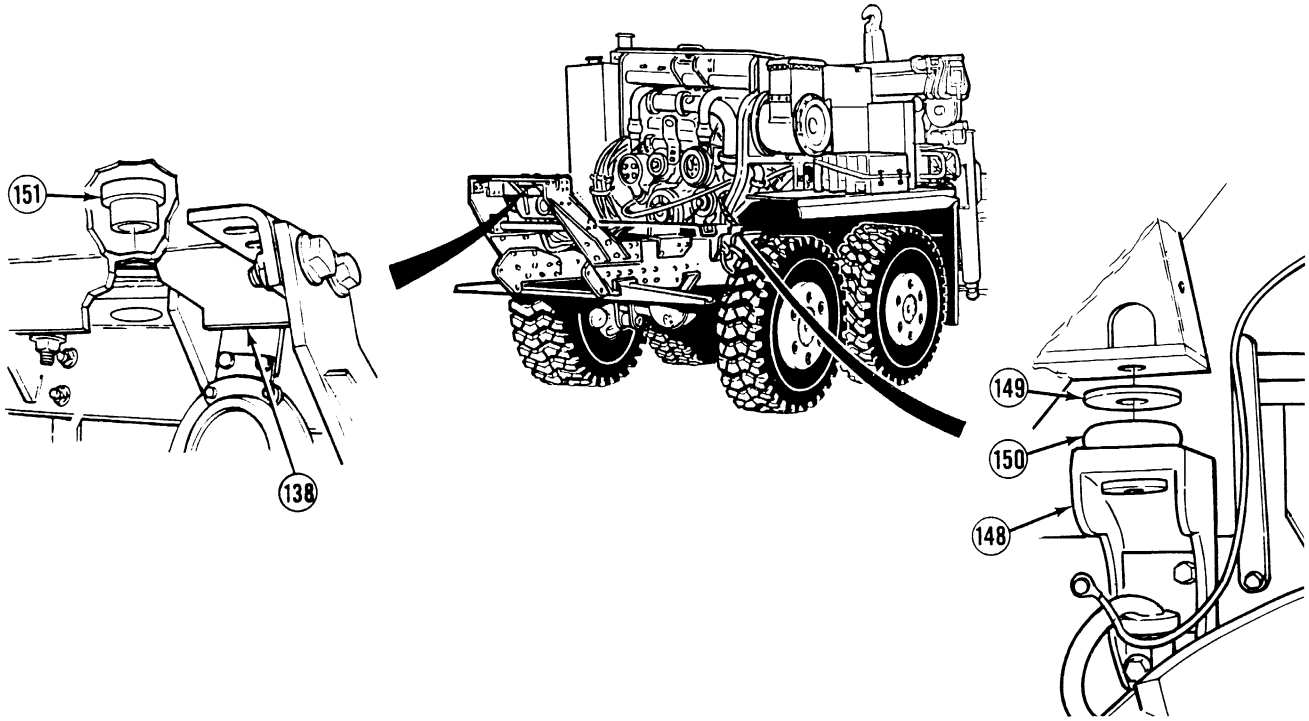
NOTE

Perform Steps (60) and (61) only if mounts are damaged.

(60) Remove two washers (149) and mounts (150) from rear mounts (148).

(61) Remove two mounts (151) from mounting bracket (138).

b. Installation.



NOTE

Perform Steps (1) and (2) only if mounts were removed.

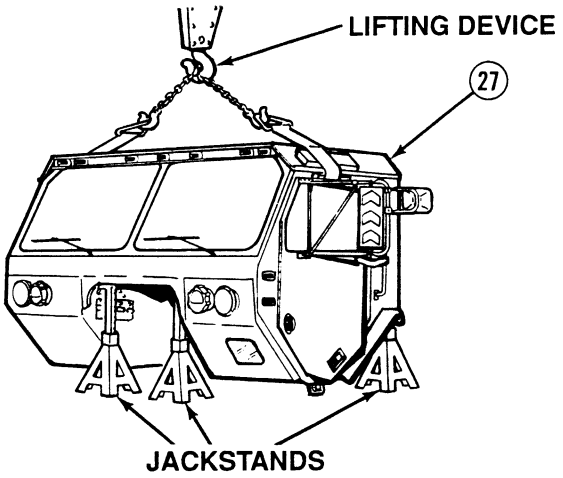
(1) Apply soap solution to mounts and install two mounts (151) in front mounting bracket (138).

(2) Apply soap solution to mounts and install two mounts (150) and washers (149) on each rear mount (148).

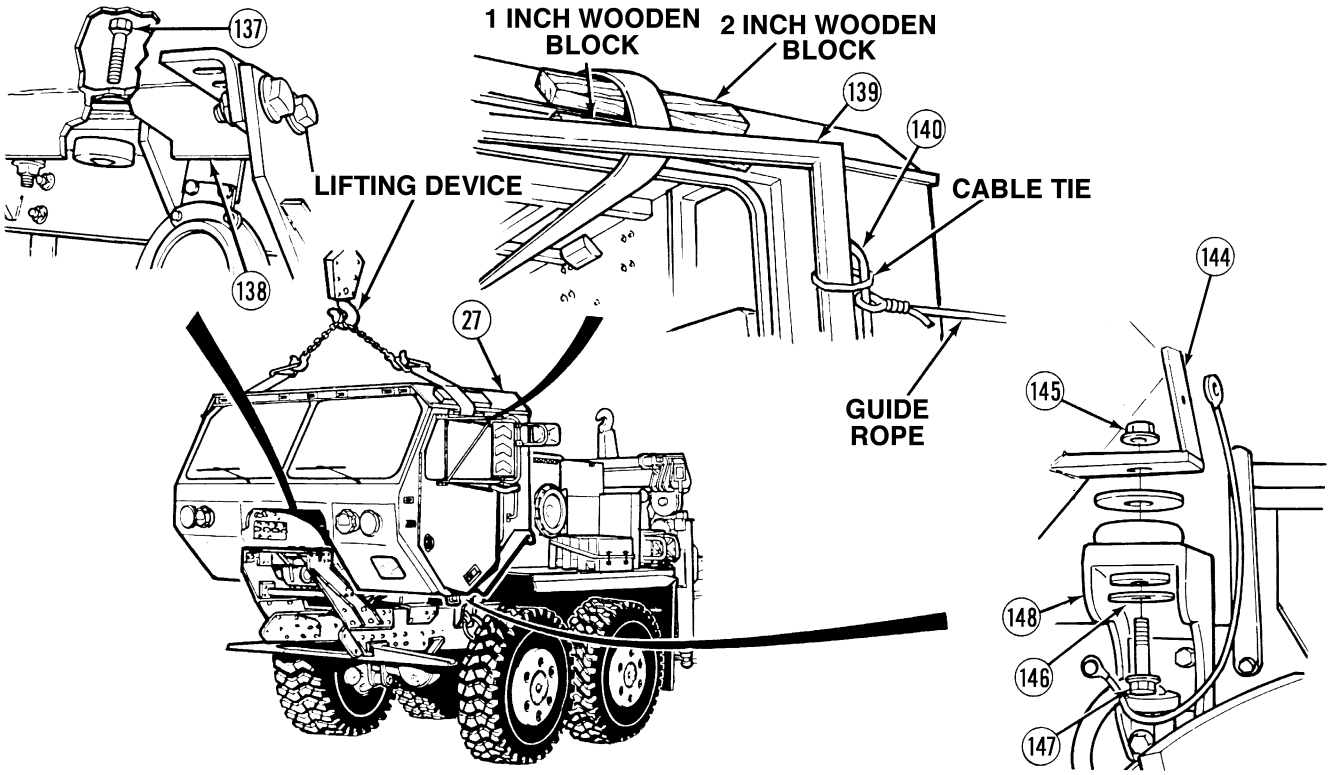
WARNING

Cab weighs 1,700 lbs (772 kg). Attach a suitable lifting device prior to installation to prevent possible injury to personnel.

(3) Attach lifting device and straps to cab (27) and position wooden blocks against cab above door frame and below roof line to protect cab (27).



15-2. CAB ASSEMBLY REPLACEMENT (CONT).



WARNING

All personnel must stay clear of cab when lifting is in progress. Failure to comply may result in injury or death to personnel.

(4) With the aid of an assistant and using lifting device, raise cab (27) up slightly. If cab tilts forward or backward, lower cab back down.

(5) Adjust straps to level cab (27).

(6) Repeat Steps (4) and (5) until cab (27) no longer tilts when lifted.

CAUTION

Ensure air lines and electrical wires do not get tangled with the cab.

(7) With the aid of an assistant and using lifting device and guide ropes, raise cab (27) onto front and rear cab mounts (138) and (148).

NOTE

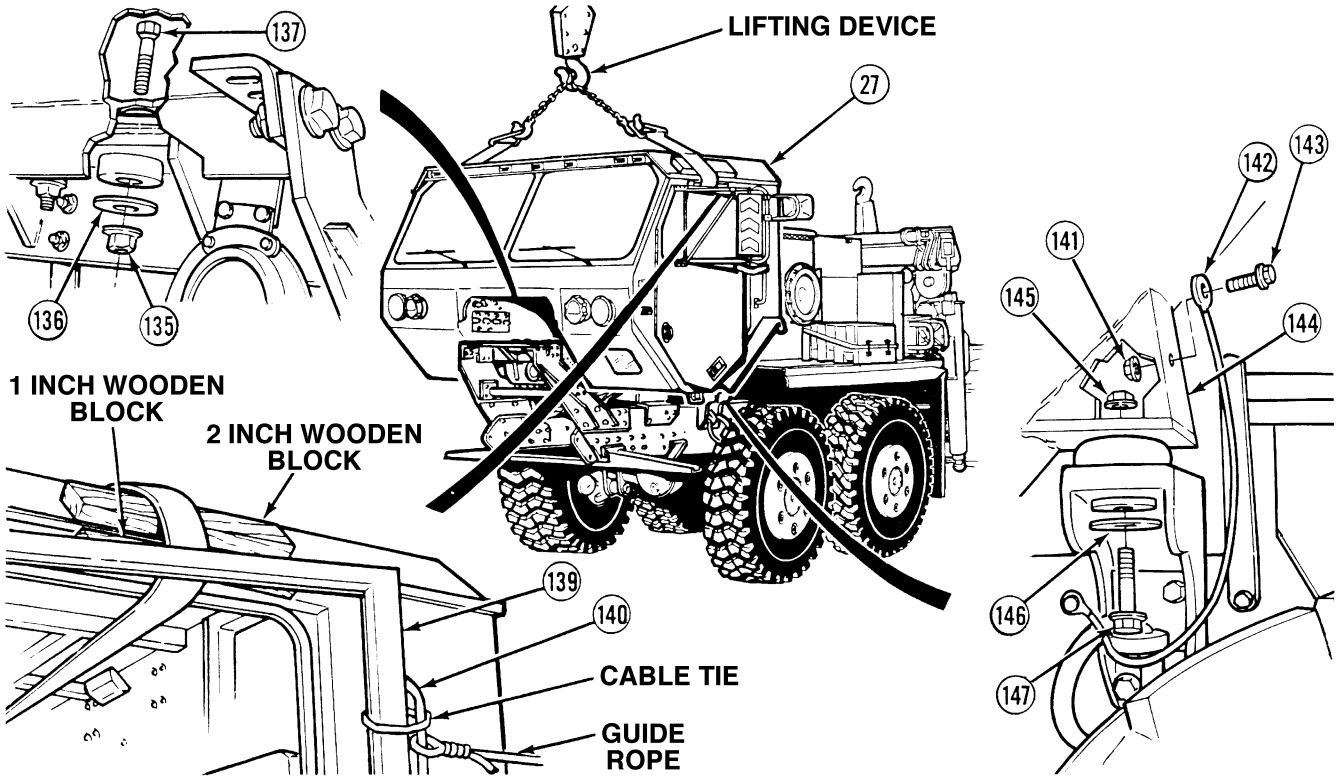
Position locknut only so that it is started on the first three or four threads of screw. Otherwise installation of front screws will be difficult.

(8) Position screw (147), washer (146) bracket (144) and locknut (145) on each side of cab (27).

NOTE

Ensure flats on screw are positioned against anti-rotation plate in cab.

(9) With the aid of an assistant and using lifting device, raise cab slightly and position two screws (137) from inside of cab (27).



(10) With the aid of an assistant and using lifting device, lower cab (27) and position two washers (136) and locknuts (135) on screws (137).

(11) Remove wooden blocks, lifting device, guide rope and cable ties from cab (27), doors (139) and grab handles (140).

(12) With the aid of an assistant, install two screws (137) with locknuts (135).

(13) With the aid of an assistant, install two screws (147) with locknuts (145).

NOTE

Step (14) applies to left side of truck only.

(14) Install ground strap (142) on cab (27) with screw (143) and locknut (141).

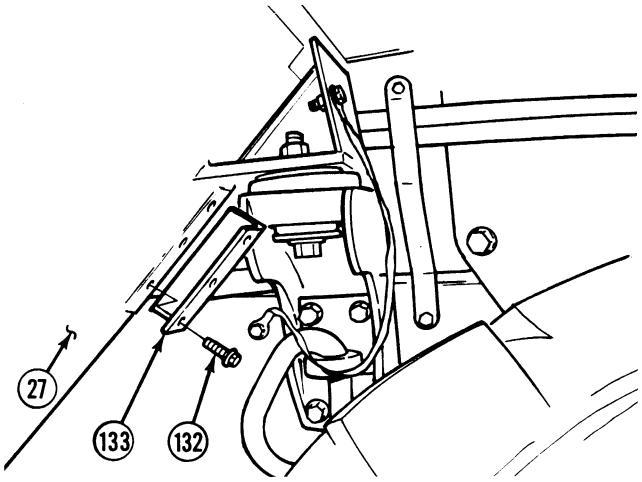
WARNING

Rust preventive contains alkali. Do not get in eyes. Wear goggles/safety glasses when using rust preventive. Avoid contact with skin. In case of contact with rust preventive, immediately wash area with soap and water. If rust preventive contacts eyes, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(15) Coat connection at ground strap (142), with corrosion preventive compound.

15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(16) Install cross brace (133) with three screws (132) on cab (27).



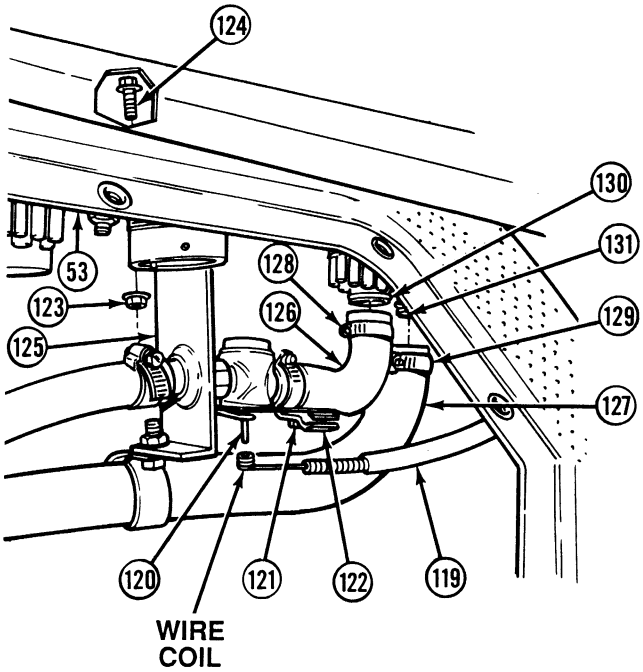
(17) Install hose (127) on tube (131) with hose clamp (129). Tighten hose clamp to 40 lb-in (5 N·m).

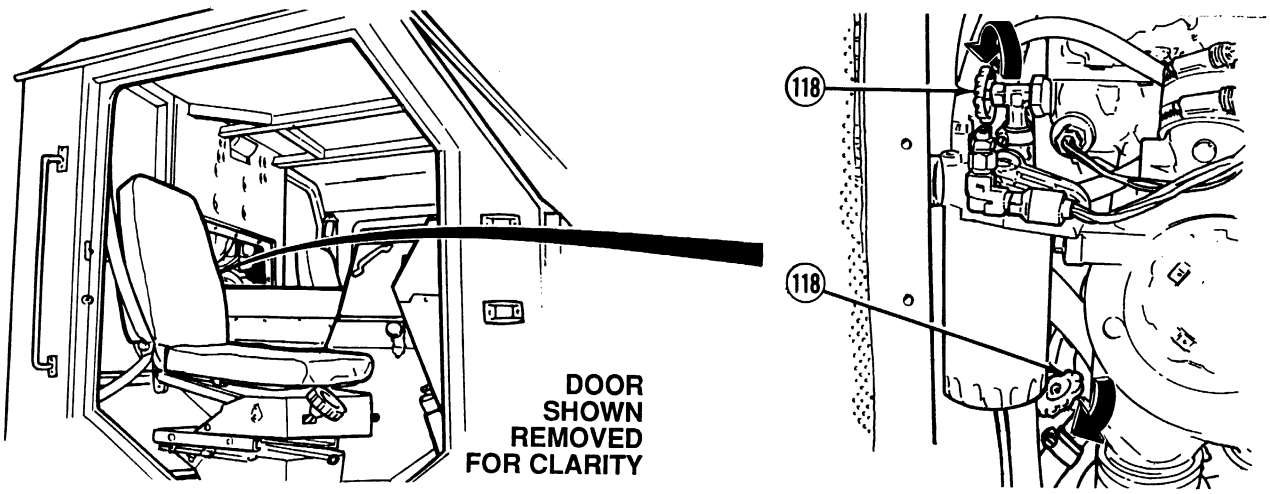
(18) Install hose (126) on tube (130) with hose clamp (128). Tighten hose clamp to 40 lb-in (5 N·m).

(19) Install bracket (125) on electronic control box (53) with screw (124) and locknut (123).

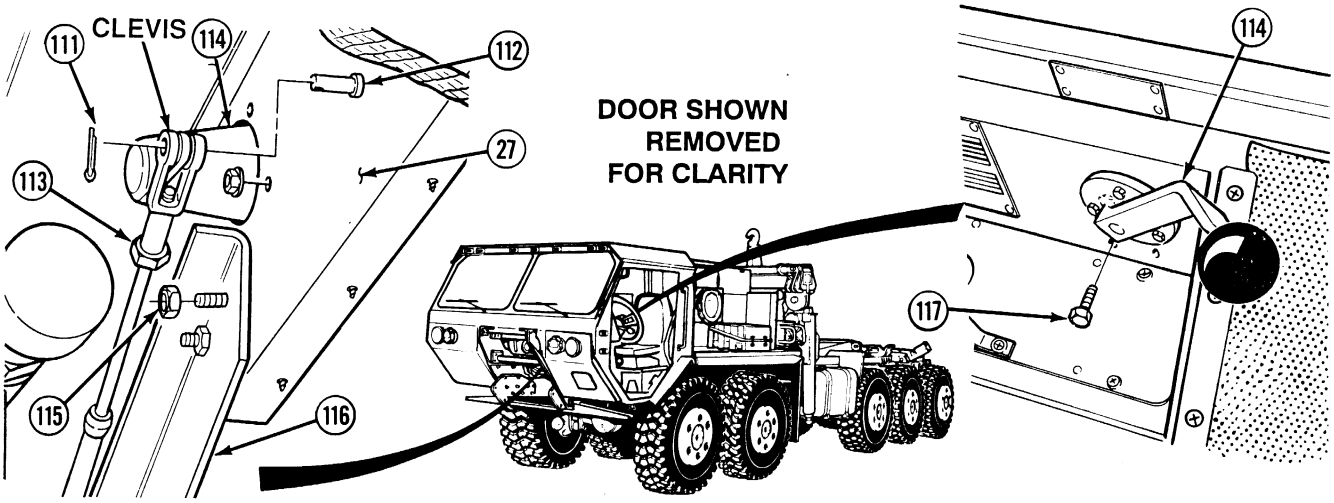
(20) Slide wire coil of control cable (119) on stud (120).

(21) Position control cable (119) in clamp (122) and tighten screw (121).





(22) Open two shut-off valves (118).



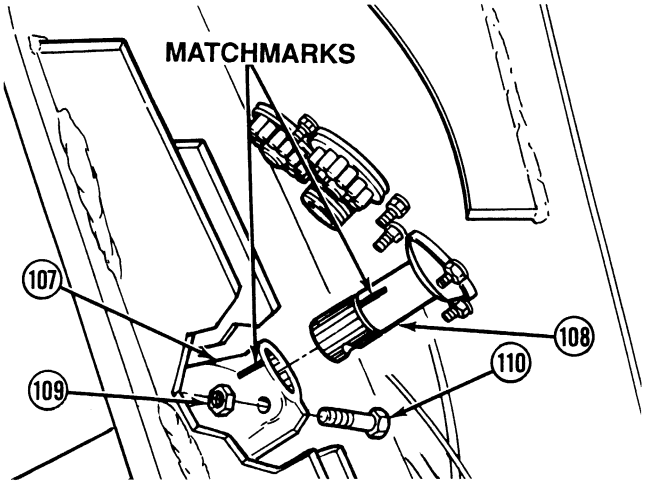
(23) With the aid of an assistant, install two screws (117) and bracket assembly (114) in cab wall (116) with two locknuts (115).

(24) With the aid of an assistant, hold shift assembly (114) in neutral position and install clevis of shift cable (113) on shift assembly (114) with yoke pin (112) and cotter pin (111).

15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(25) Align matchmarks and install steering shaft (107) on steering shaft (108).

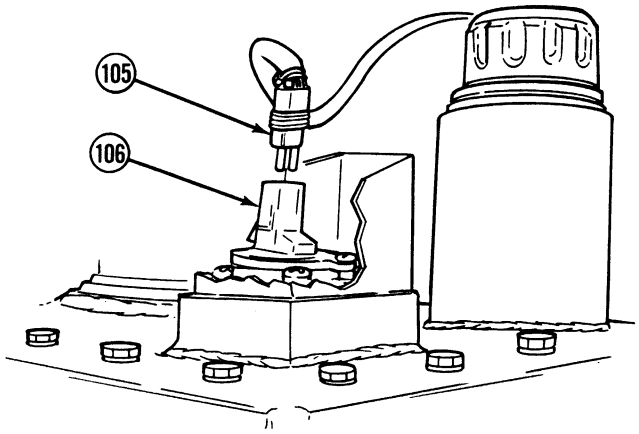
(26) Install screw (110) and locknut (109).



NOTE

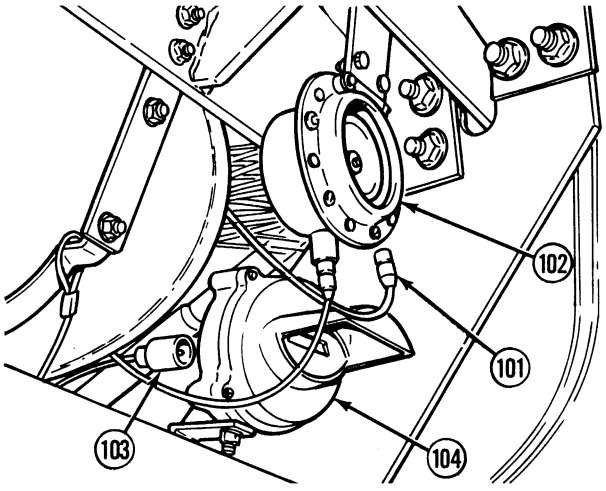
Install cable ties as required.

(27) Connect MC96 connector (105) to sending unit (106).

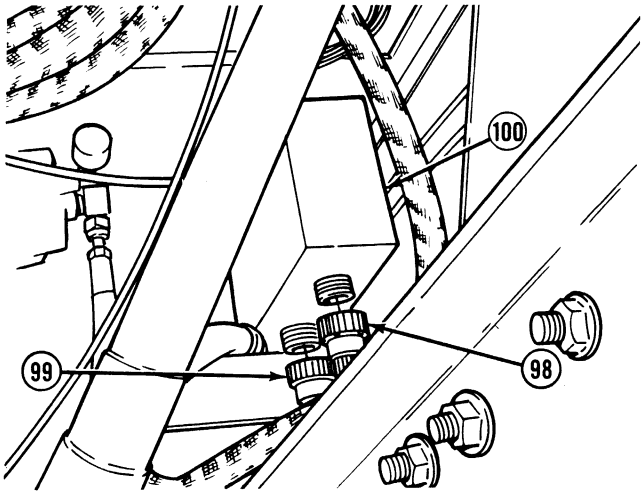


(28) Connect wire 1679 (103) to blackout light (104).

(29) Connect wire 1168 (101) to horn (102).

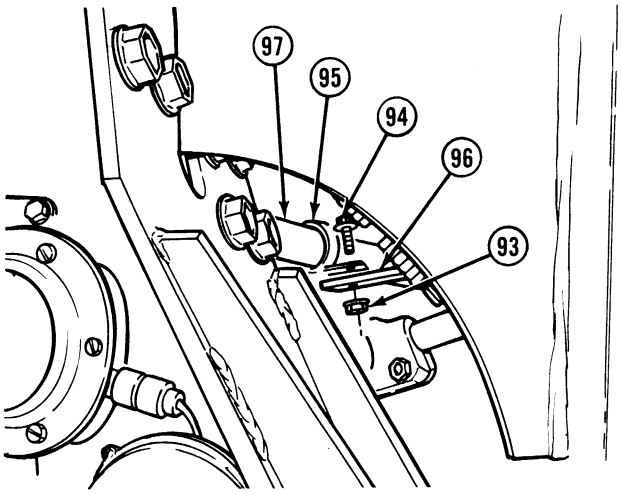


(30) Install MC83 connectors (98) and MC94 (99) on LHS control box (100).



(31) Install cushion clip (95) on wire harness (97).

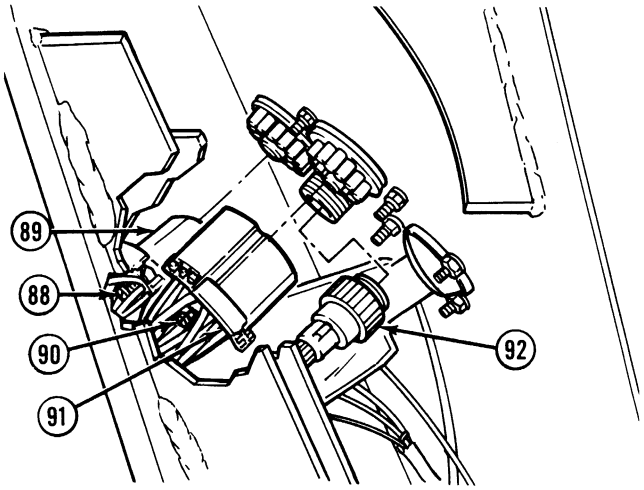
(32) Install cushion clip (95) on bracket (96) with screw (94) and locknut (93).



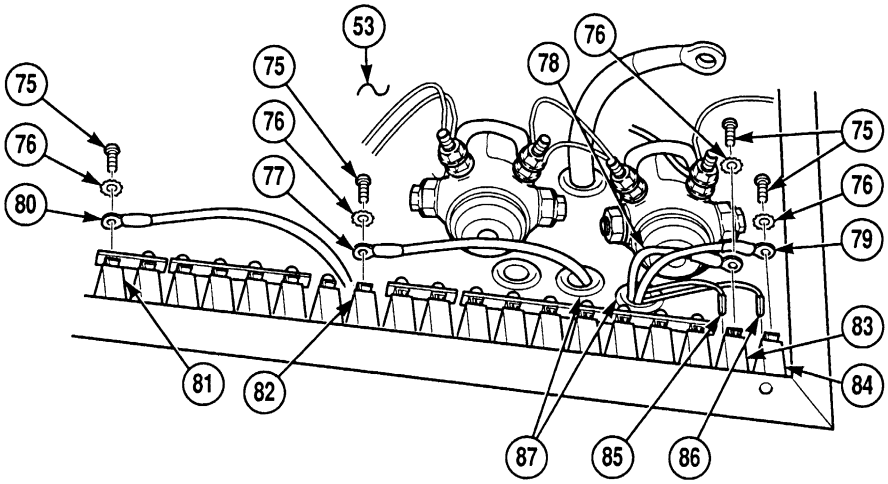
(33) Connect MC34 connector (92).

(34) Connect MC31 connector (91) and tighten screw (90).

(35) Connect MC32 connector (89) and tighten screw (88).



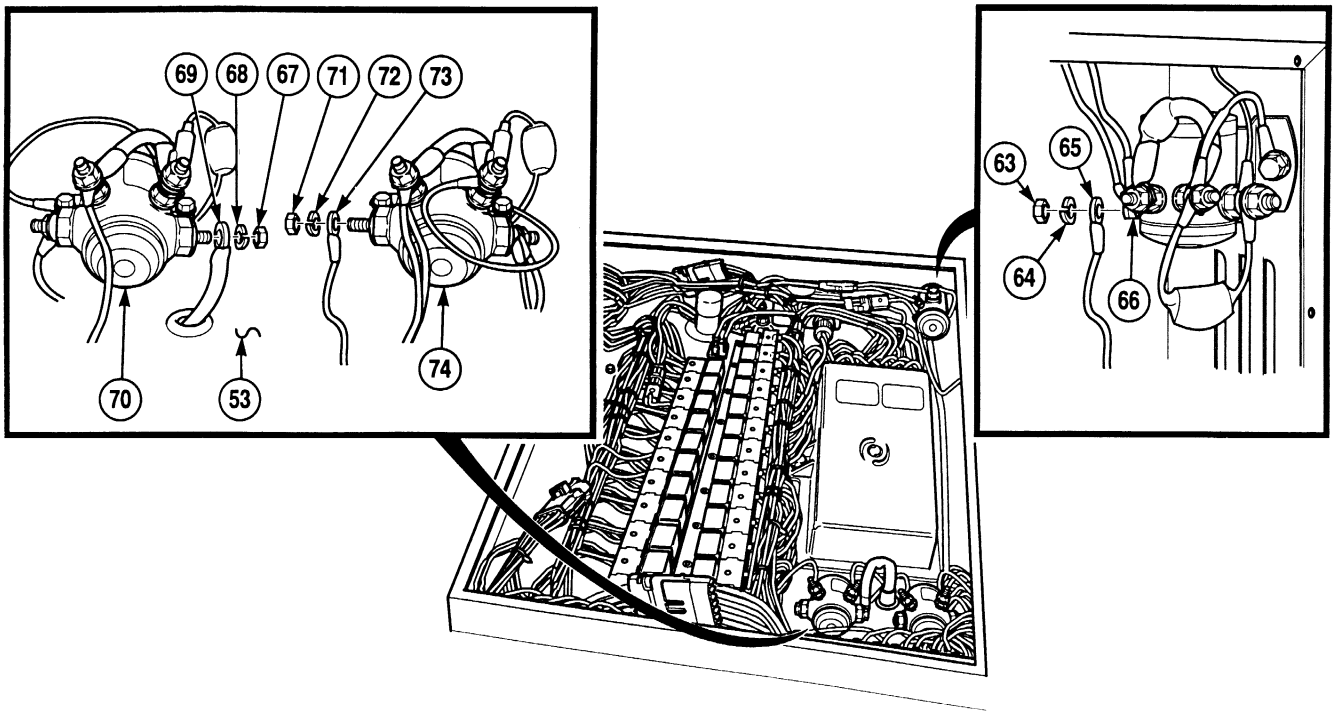
15-2. CAB ASSEMBLY REPLACEMENT (CONT).



(36) Position wire 1866 (77), wire 241 (78), wire 240 (79) and wire 1079 (80) and two grommets (87) in ECB (53).

(37) Install wire 241 (85) and wire 240 (86) on circuit breakers CB22 (83) and CB23 (84).

(38) Install wire 1866 (77), wire 241 (78), wire 240 (79) and wire 1079 (80) on circuit breakers CB5 (81), CB12 (82), CB22 (83) and CB23 (84) with four lockwashers (76) and screws (75).



(39) Position wire 1075 (65), wire 1430 (69) and wire 1281 (73) through electronic control box (53).

(40) Install wire 1281 (73) to relay (74) with lockwasher (72) and nut (71).

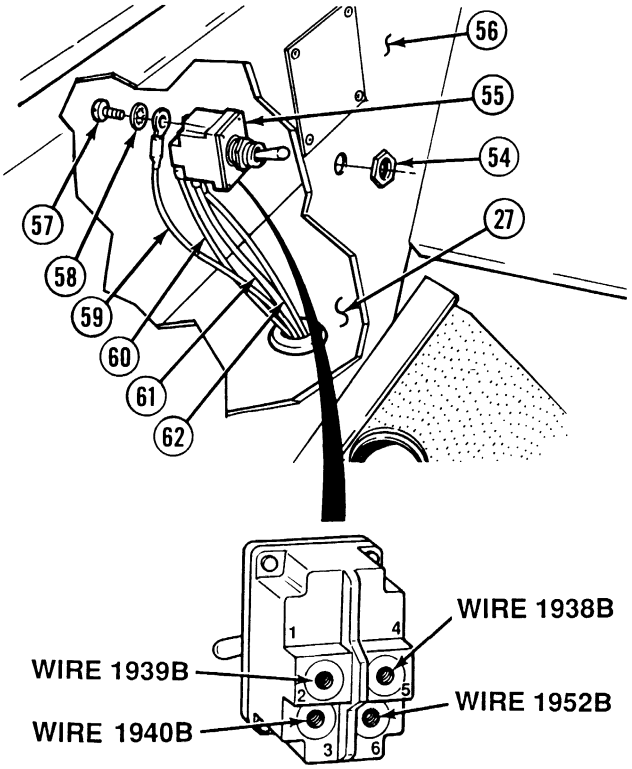
(41) Install wire 1430 (69) to relay (70) with lockwasher (68) and nut (67).

(42) Install wire 1075 (65) washer (64) to relay (66) with nut (63).

(43) Position wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) through cab wall (27).

(44) Install wire 1939B (59), wire 1940B (60), wire 1938B (61) and wire 1952B (62) on STE/ICE-R switch (55) with four lockwashers (58) and screws (57).

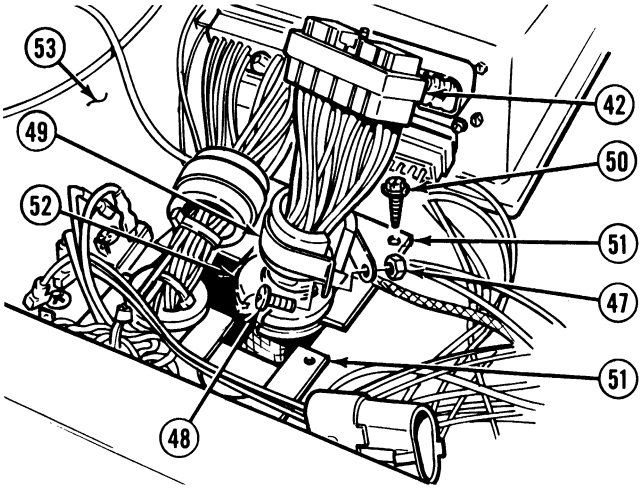
(45) Install STE/ICE-R switch (55) on dash (56) with nut (54).



(46) Position MC10 connector (42) through ECB (53).

(47) Install rubber grommet (52), plates (51) and four screws (50) on ECB (53).

(48) Install clamp (49) on connector (42) with screw (48) and locknut (47).

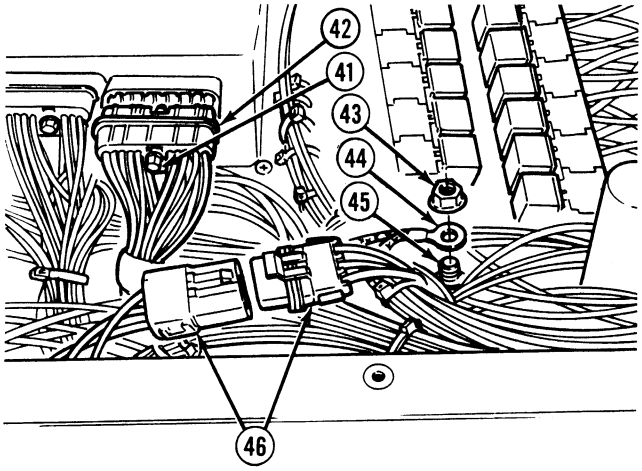


15-2. CAB ASSEMBLY REPLACEMENT (CONT).

(49) Connect MC36 connector (46).

(50) Install double braided ground wire (44) on stud (45) with locknut (43).

(51) Connect MC10 connector (42) and tighten screw (41).



(52) Connect MC44 connector (40).

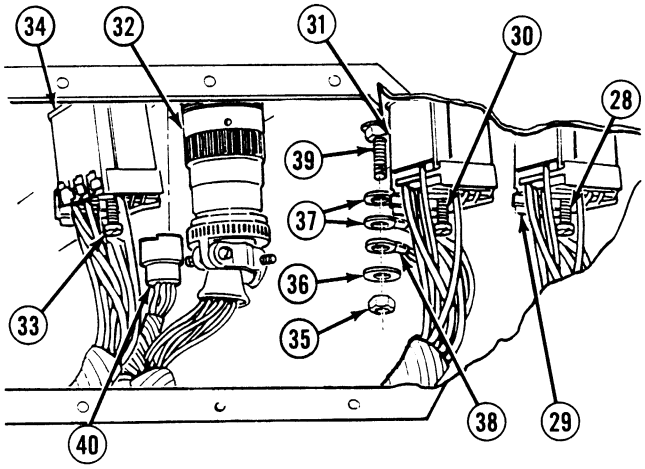
(53) Install two ground straps (37) and wire 1435 (38) on stud (39) with washer (36) and locknut (35).

(54) Connect MC25 connector (34) and tighten screw (33).

(55) Connect MC11 connector (32).

(56) Connect MC3 connector (31) and tighten screw (30).

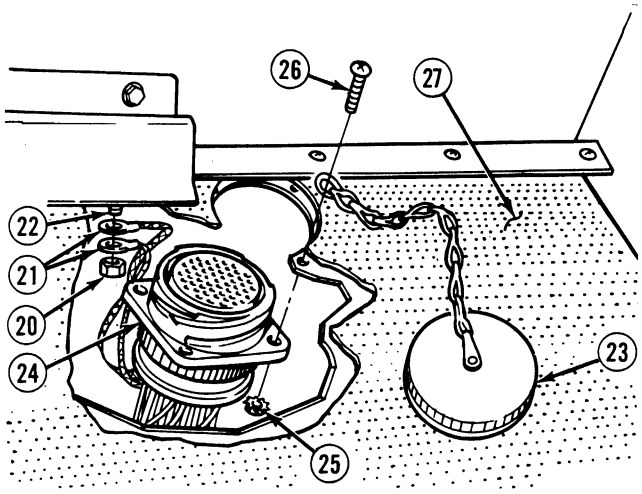
(57) Connect MC21 connector (29) and tighten screw (28).



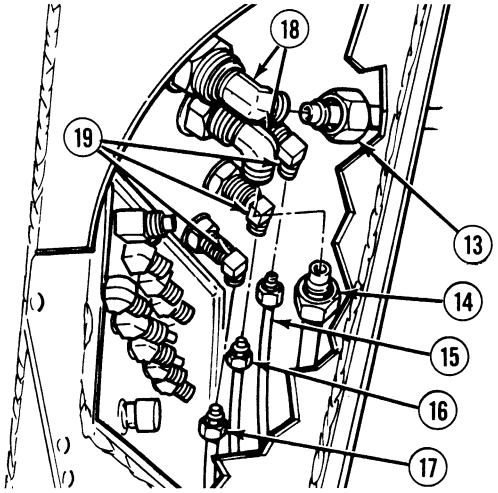
(58) Install MC39 connector (24) on cab wall (27) with four screws (26) and locknuts (25).

(59) Install cap and chain (23) on MC39 connector (24).

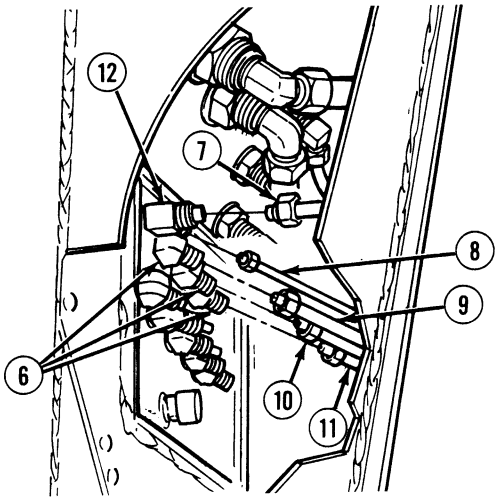
(60) Install two ground straps (21) on stud (22) with locknut (20).



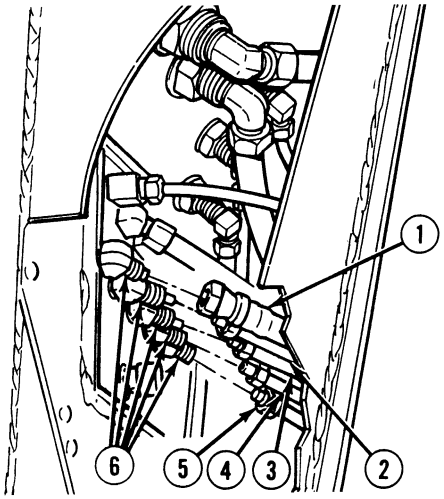
(61) Install air line 2005 (13), air line 2619 (14), air line 2923 (15), air line 2412 (16) and air line 2069 (17) on two elbows (18) and three elbows (19).



(62) Install air line 2074 (7), air line 2074 (8), air line 2612 (9), air line 2488 (10) and air line 2662 (11) on tee (12) and three elbows (6).



(63) Install air line 2381 (1), air line 2623 (2), air line 2665 (3), air line 2489 (4) and air line 2663 (5) on elbows (6).



15-2. CAB ASSEMBLY REPLACEMENT (CONT).

c. Follow-On Maintenance:

- Install chemical alarm kit (if equipped), (Para 19-3).
- Install gas particulate filter (if equipped), (TM 9-2320-364-20).
- Install machine gun mount (if equipped), (TM 9-2320-364-20).
- Install skid plate structure, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Install side access panel, (TM 9-2320-364-20).
- Install heater control box cover, (TM 9-2320-364-20).
- Install Electric Control Box (ECB) cover, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Build air pressure up to 125 psi (862 kPa), (TM 9-2320-364-10).
- Check for air leaks, (TM 9-2320-364-10).
- Check coolant level, (TM 9-2320-364-10).
- Check for coolant leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

15-3. WINDSHIELD GLASS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Adhesive (Item 3, Appendix B)
Cloth, Cleaning (Item 11, Appendix B)
Primer (Item 45, Appendix B)
Sealer, Automotive (Item 51, Appendix B)
Solution, Soap (Item 67, Appendix B)
Windshield Seal/Locking Strip
(Item 706, Appendix E)

Personnel Required
Two

Equipment Condition
Engine shut OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Light bar removed, (TM 9-2320-364-20)
Wiper arm assembly removed (as required),
(TM 9-2320-364-20)
Vehicle weight classification data plate removed
(right side only), (TM 9-2320-364-20)
Gun mount removed (right side only -
if equipped), (TM 9-2320-364-20)

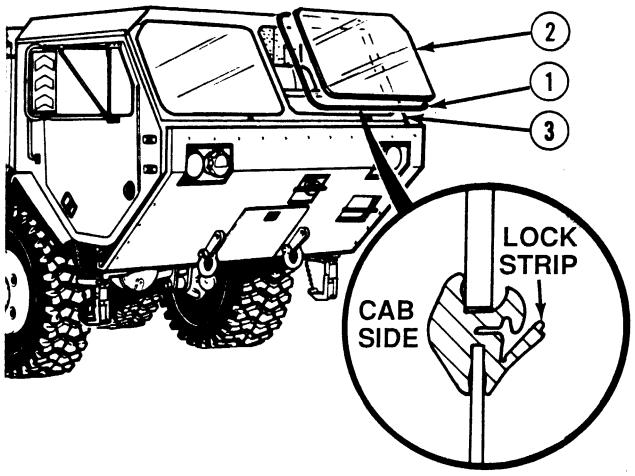
a. Removal.

WARNING

Always wear eye protection and protective clothing when handling glass. Failure to comply may result in injury to personnel.

NOTE

Left and right windshields are replaced the same way.



(1) Coat windshield seal/locking strip (1) with soap solution.

(2) Disengage windshield seal/locking strip (1).

(3) With the aid of an assistant, push windshield (2) from inside the cab (3) to remove from windshield seal/locking strip (1).

NOTE

Perform Step (4) if windshield seal/locking strip is damaged.

(4) Remove windshield seal/locking strip (1) from cab (3).

15-3. WINDSHIELD GLASS REPLACEMENT (CONT).

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- If new windshield seal/locking strip is installed, cut two inches longer than original to insure proper length and perform Steps (1) through (3).
- Cut excess windshield seal/locking strip after installation to ensure proper fit.

(1) Install windshield seal/locking strip (1) in opening of cab (3).

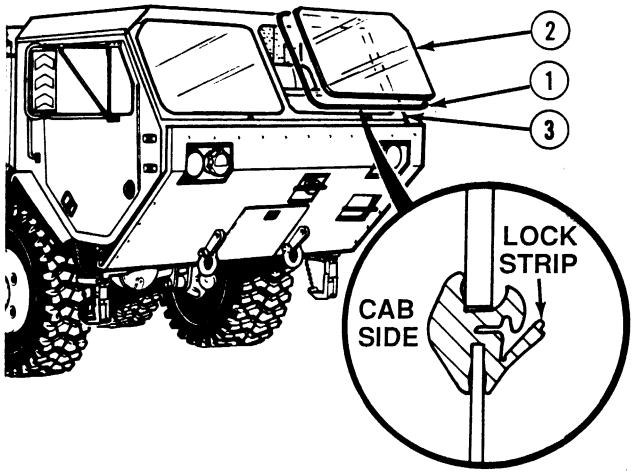
(2) Apply primer to ends of windshield seal/locking strip ends (1).

(3) Apply adhesive to ends of windshield seal/locking strip ends (1).

(4) Coat windshield seal/locking strip (1) with soapy water.

(5) With aid of assistant, install windshield (2) in windshield seal/locking strip (1).

(6) Engage windshield seal/locking strip (1).



c. Follow-On Maintenance:

- Install gun mount (right side only if equipped), (TM 9-2320-364-20).
- Install vehicle weight classification data plate (right side only), (TM 9-2320-364-20).
- Install wiper arm assembly (as required), (TM 9-2320-364-20).
- Install light bar assembly, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

15-4. RIGHT FENDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

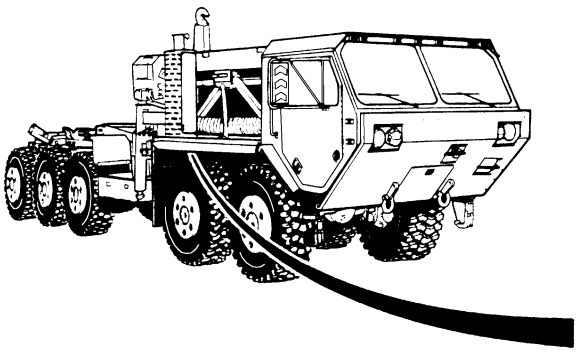
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

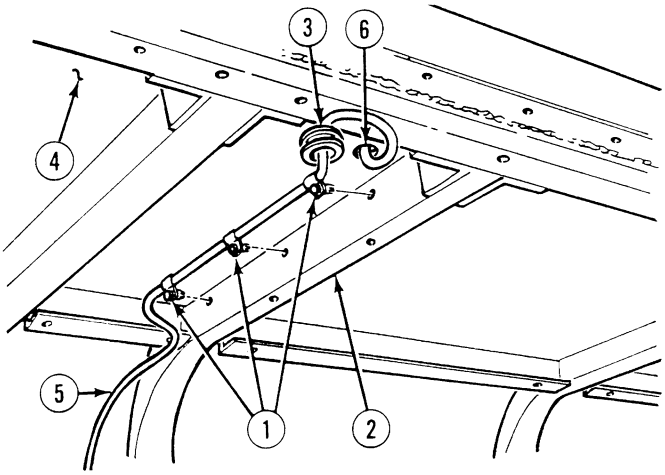
Materials/Parts
Locknut (10) (Item 165, Appendix E)
Locknut (Item 167, Appendix E)
Locknut (Item 201, Appendix E)
Locknut (2) (Item 202, Appendix E)
Locknut (9) (Item 210, Appendix E)
Push Clips (3) (Item 457, Appendix E)
Screw, Self-Tapping (2) (Item 557, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Work lamp removed, (TM 9-2320-364-20)
Spare tire carrier and davit removed, (TM 9-2320-364-20)
Right engine noise panel removed, (TM 9-2320-364-20)
Hydraulic reservoir removed, (TM 9-2320-364-20)
Right mud flap removed, (TM 9-2320-364-20)
Right fender front and rear skirt removed, (TM 9-2320-364-20)
Spare tire carrier winch removed, (TM 9-2320-364-20)
Rubber fender edging removed, (TM 9-2320-364-20)

a. Removal.





NOTE

Push clips are removed by pulling out lock button, then removing clip.

(1) Remove and discard three push clips (1) from fender support arm (2).

(2) Remove rubber grommet (3) from fender (4).

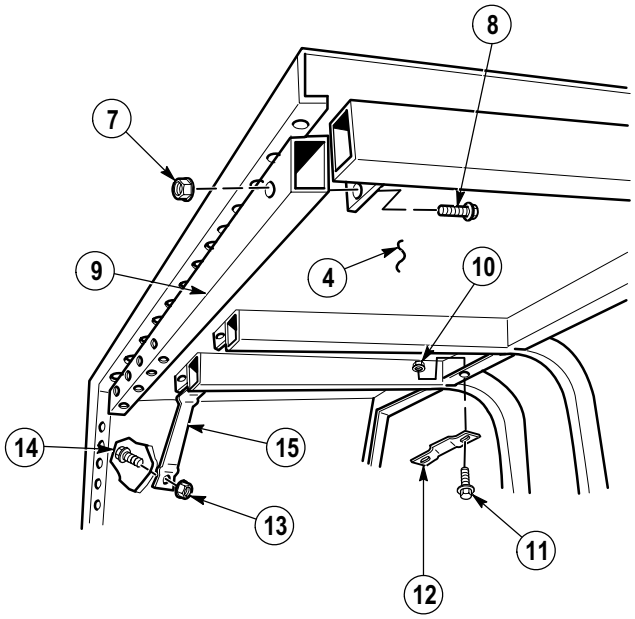
(3) Thread work lamp wiring harness (5) through wiring harness hole (6) and move wiring harness out of way.

15-4. RIGHT FENDER REPLACEMENT (CONT).

(4) Remove four locknuts (7) and screws (8) from fender support tube (9) and remove fender support tube. Discard locknuts.

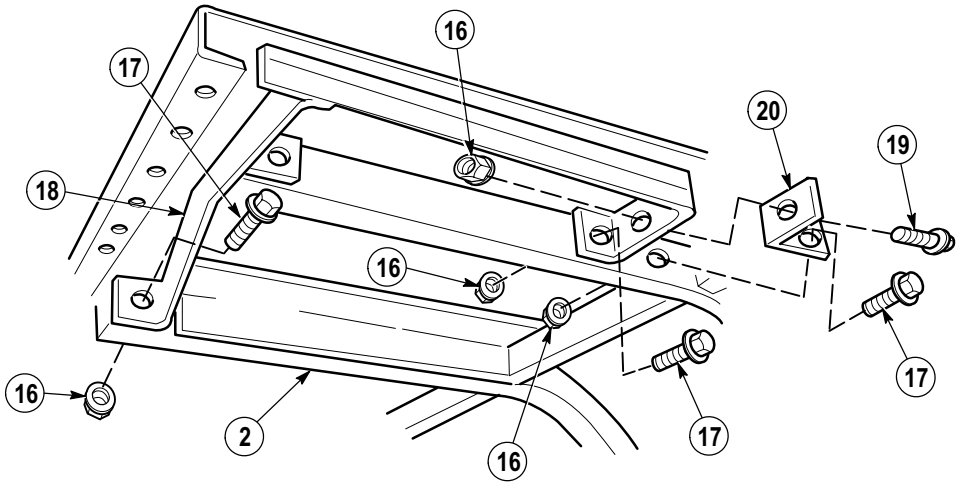
(5) Remove two locknuts (10), screws (11) and strap (12) from fender (4). Discard locknuts.

(6) Remove locknut (13) and screw (14) from fender brace (15) and remove fender brace. Discard locknut.

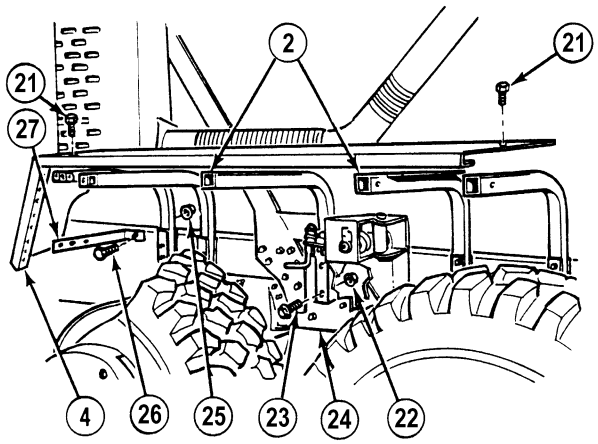


(7) Remove four locknuts (16), screws (17), and fender support bracket (18) from two fender support arms (2). Discard locknuts.

(8) Remove locknut (16), screw (19) and angle (20) from fender support bracket (18). Discard locknut.



(9) Remove and discard two self-tapping screws (21) from right fender (4).



WARNING

Fender weighs 74 lbs (34 kg). Use an assistant to remove to prevent possible injury to personnel.

(10) With the aid of an assistant, remove right fender (4) from fender support arms (2).

NOTE

All five fender support arms are removed the same way.

(11) With the aid of an assistant, remove two locknuts (22), screws (23) and fender support arm (2) from truck frame (24). Discard locknuts.

(12) With the aid of an assistant, remove locknut (25), screw (26) and rear fender support (27) from truck frame (24). Discard locknut.

b. Installation.

(1) With the aid of an assistant, install rear fender support (27), screw (26) and locknut (25) on truck frame (24).

NOTE

All five fender support arms are installed the same way.

(2) With the aid of an assistant, install fender support arm (2), two screws (23) and locknuts (22) on truck frame (24).

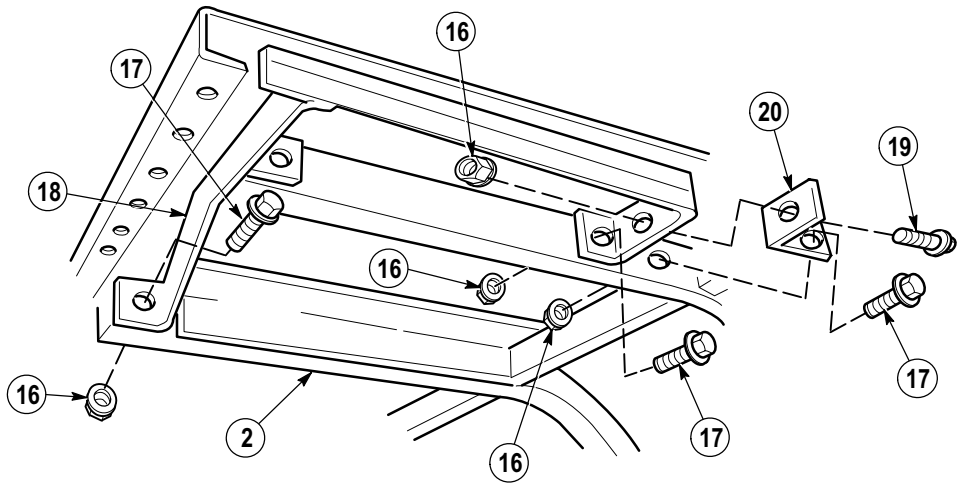
WARNING

Fender weighs 74 lbs (34 kg). Use an assistant to install fender to prevent possible injury to personnel.

(3) With the aid of an assistant, position fender (4) on fender support arms (2).

(4) Install two self-tapping screws (21) in fender (4).

15-4. RIGHT FENDER REPLACEMENT (CONT).



(5) Install angle (20) on fender support bracket (18) with screw (19) and locknut (16).

(6) Install fender support bracket (18), on two fender support arms (2), with four screws (17) and locknuts (16).

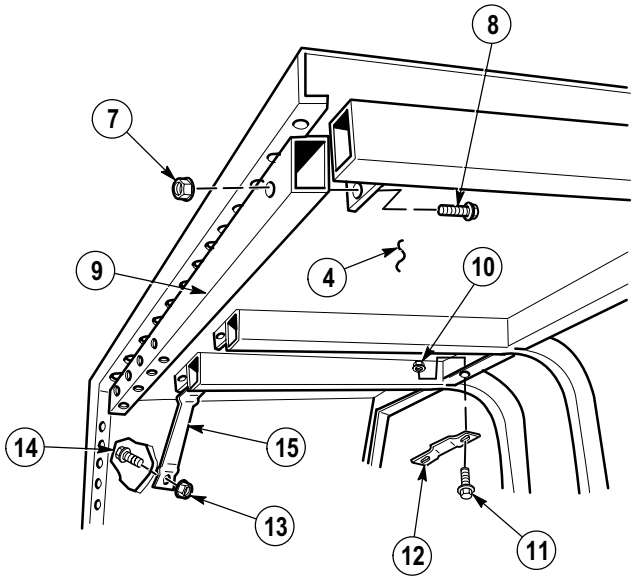
(6) Install fender brace (15), screw (14) and locknut (13) on fender (4).

(7) Install strap (12), screw (11) and locknut (10) on fender (4).

(7) Install fender support tube (9), four screws (8) and locknuts (7) on fender support arms (2).

(8) Thread work lamp wiring harness (5) through wiring harness hole (6).

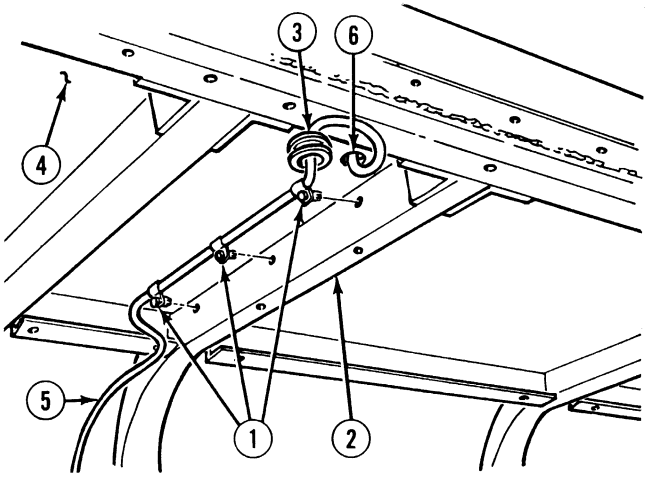
(9) Install rubber grommet (3) in fender (4).



NOTE

Push clips are properly installed when lock button is pushed in after installation.

(10) Install three push clips (1) in fender support arm (2).



c. Follow-On Maintenance:

- Install rubber fender edging, (TM 9-2320-364-20).
- Install right fender front and rear skirt, (TM 9-2320-364-20).
- Install right mud flap, (TM 9-2320-364-20).
- Install hydraulic reservoir, (TM 9-2320-364-20).
- Install right engine noise panel, (TM 9-2320-364-20).
- Install spare tire carrier and davit, (TM 9-2320-364-20).
- Install spare tire carrier winch, (TM 9-2320-364-20).
- Install work lamp, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

15-5. LEFT FENDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

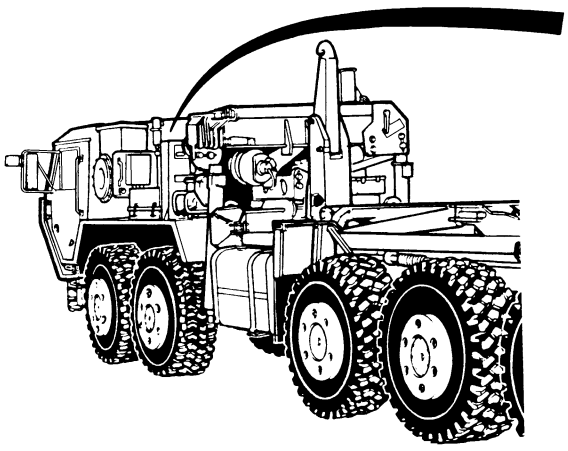
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 237, Appendix F)
Lifting Device (minimum capacity 200 lbs
[91 kg])

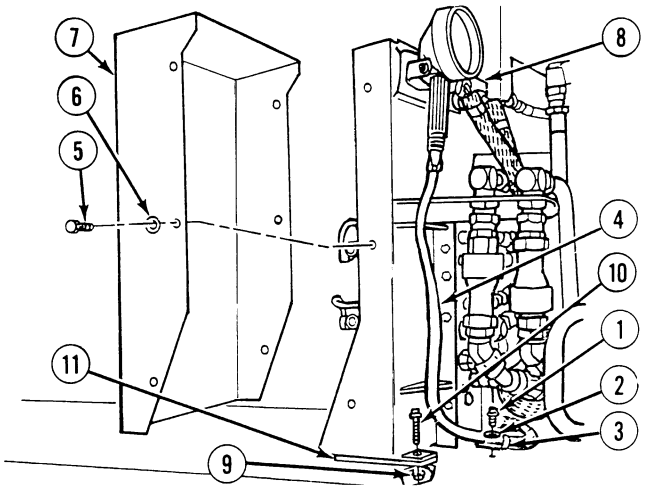
Materials/Parts
Locknut (24) (Item 165, Appendix E)
Locknut (4) (Item 176, Appendix E)
Locknut (2) (Item 201, Appendix E)
Locknut (6) (Item 210, Appendix E)
Lockwasher (Item 255, Appendix E)
Lockwasher (4) (Item 266, Appendix E)
Screw, Self-Tapping (5) (Item 557, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Battery box removed, (TM 9-2320-364-20)
Arctic kit battery box removed, (if equipped)
(TM 9-2320-364-20)
Left side noise panel removed,
(TM 9-2320-364-20)
Work lamp removed, (TM 9-2320-364-20)
Left fender front and rear skirt removed,
(TM 9-2320-364-20)
Left front mud flaps removed,
(TM 9-2320-364-20)
Rubber fender edging removed,
(TM 9-2320-364-20)
Battery disconnect switch removed,
(if equipped) (TM 9-2320-364-20)

a. Removal.





(1) Remove self-tapping screw (1), washer (2) and cushion clamp (3) from work lamp wiring harness (4). Position work lamp wiring harness (4) out of the way. Discard self-tapping screw.

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (5), lockwashers (6) and LHS control box cover (7) from LHS control box (8). Discard lockwashers.

NOTE

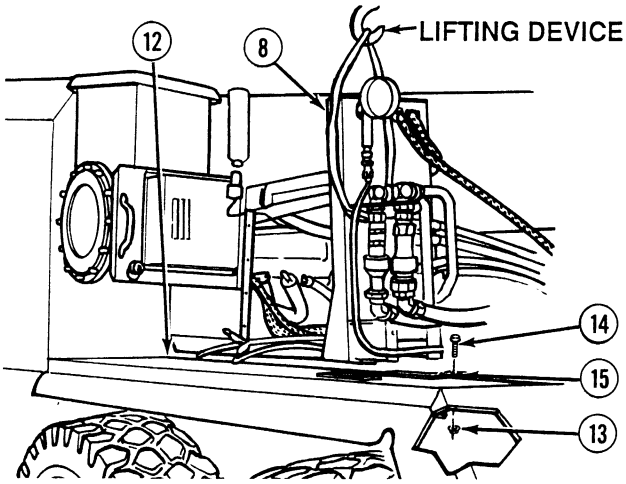
Spacer is under left side of LHS control box.

(3) Remove four locknuts (9), screws (10) and spacer (11) from LHS control box (8). Discard locknuts.

15-5. LEFT FENDER REPLACEMENT (CONT).

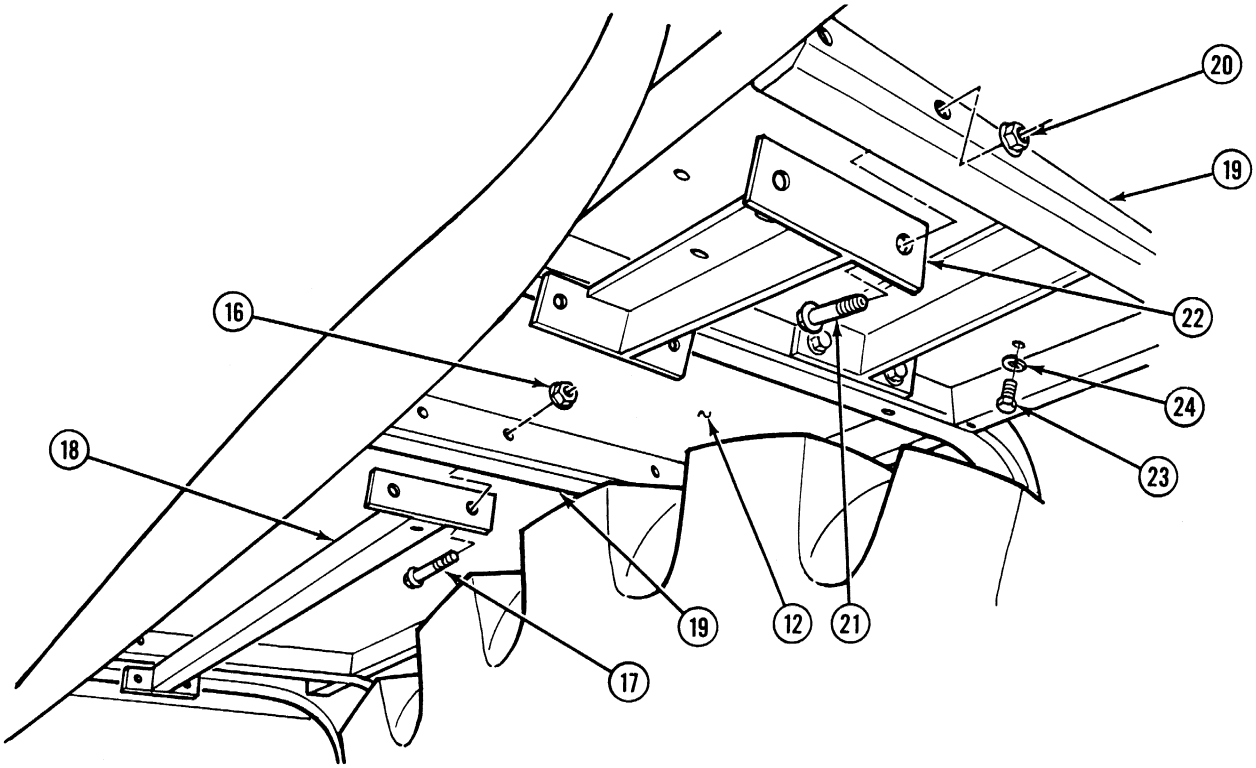
WARNING

LHS control box weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



(4) Using lifting device, lift LHS control box (8) off fender (12) just enough to allow fender to slide out from under LHS control box (8).

(5) Remove two locknuts (13) and screws (14) from multifunction manifold mount (15). Discard locknuts.

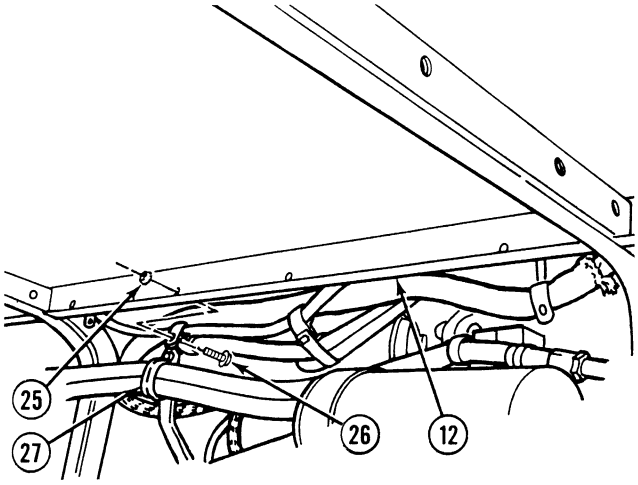


(6) Remove eight locknuts (16), screws (17) and two support braces (18) from fender support arms (19). Discard locknuts.

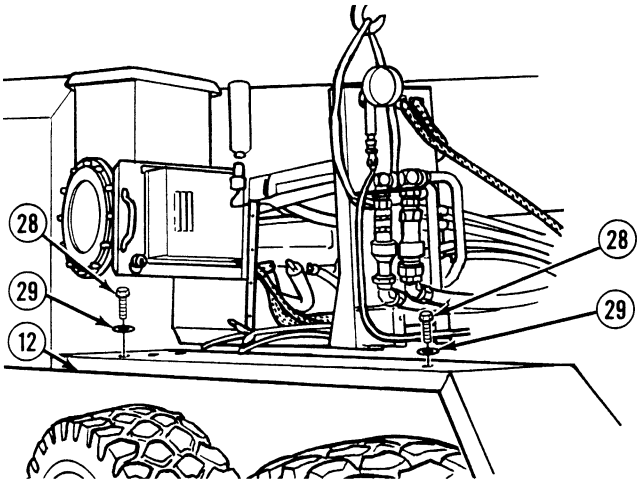
(7) Remove eight locknuts (20), screws (21) and two support braces (22) from fender support arms (19). Discard locknuts.

(8) Remove screw (23) and lockwasher (24) from fender (12). Discard lockwasher.

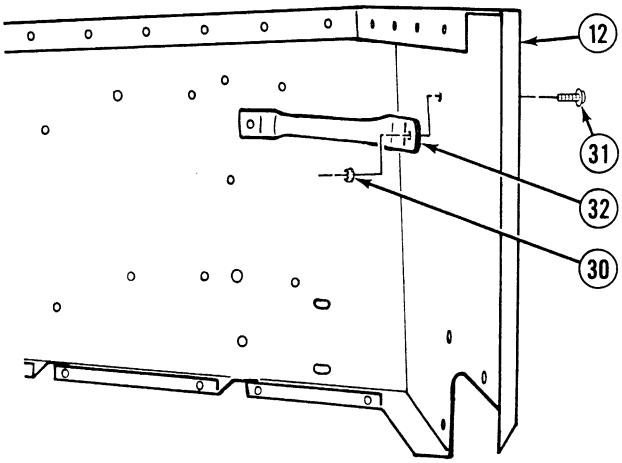
(9) Remove four locknuts (25), screws (26) and cushion clamps (27) from inside edge of fender (12). Discard locknuts.



(10) Remove four self-tapping screws (28) and washers (29) from fender (12). Discard self-tapping screws.



(11) Remove two locknuts (30), screws (31) and fender brace (32) from fender (12). Discard locknuts.



15-5. LEFT FENDER REPLACEMENT (CONT).

WARNING

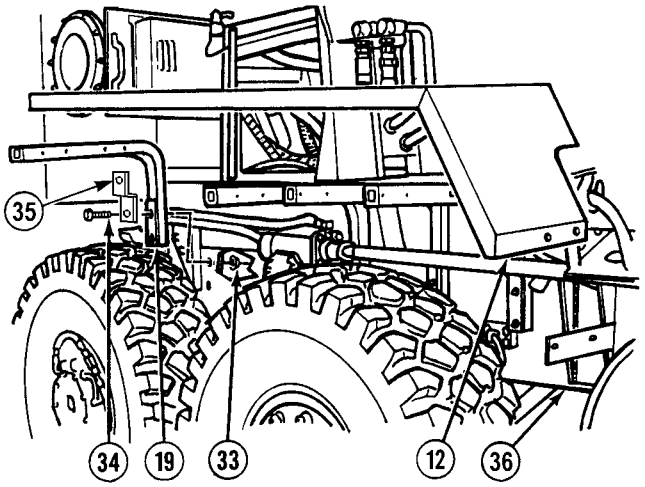
Fender weighs 74 lbs (34 kg). Use an assistant to remove fender to prevent possible injury to personnel.

(12) With the aid of an assistant, remove fender (12) from fender support arms (19).

NOTE

All four fender support arms are removed the same way.

(13) With the aid of an assistant, remove two locknuts (33), screws (34,) fender support arms (19) and three skirt brackets (35) from truck frame (36). Discard locknuts.



b. Installation.

NOTE

All four fender support arms are installed the same way.

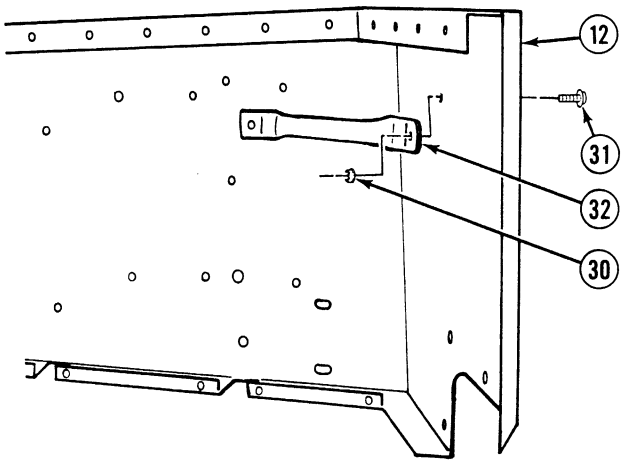
(1) With the aid of an assistant, install fender support arm (19) and three skirt brackets (35) on truck frame (36) with two screws (34) and locknuts (33).

WARNING

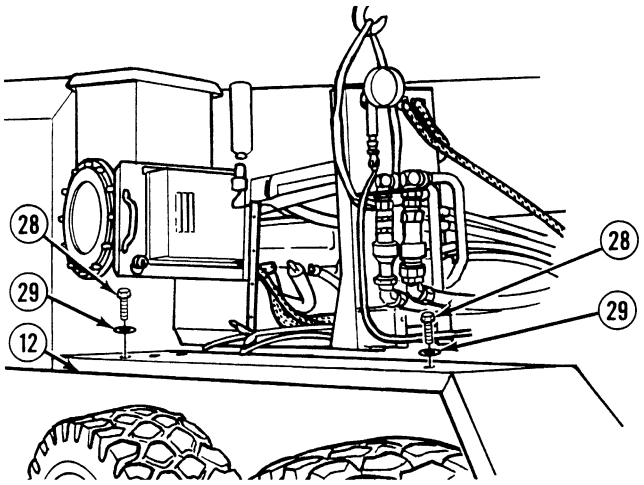
Fender weighs 74 lbs (34 kg). Use an assistant upon installation to prevent possible injury to personnel.

(2) With the aid of an assistant, position fender (12) on fender support arms (19).

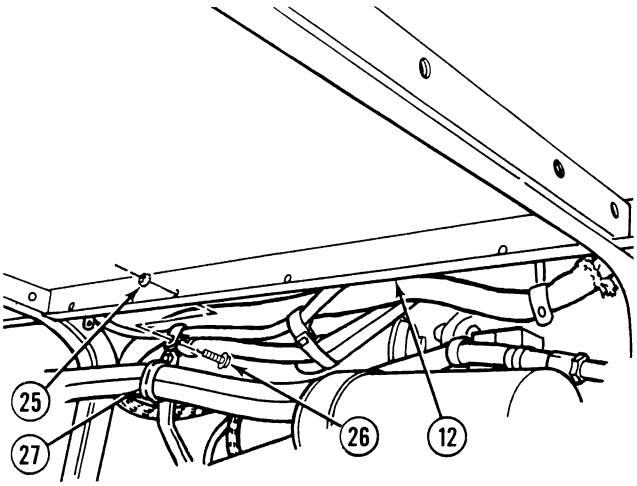
(3) Install fender brace (32), two screws (31) and locknuts (30) on fender (12).



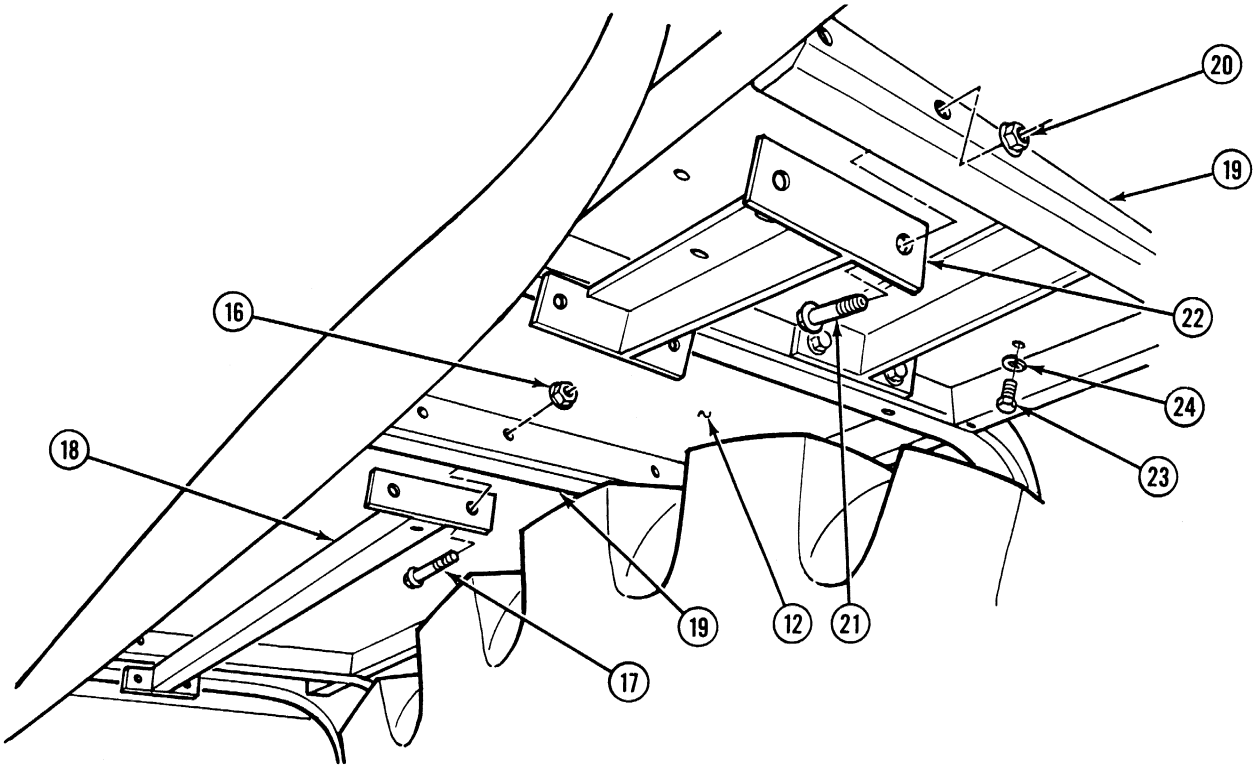
(4) Install four self-tapping screws (28) and washers (29) in fender (12).



(5) Install four cushion clamps (27), screws (26) and locknuts (25) on inside edge of fender (12).



15-5. LEFT FENDER REPLACEMENT (CONT).



(6) Install lockwasher (24) and screw (23) on fender (12).

(7) Install two support braces (22), eight screws (21) and locknuts (20) on fender support arms (19).

(8) Install two support braces (18), eight screws (17) and locknuts (16) on fender support arms (19).

(9) Position two screws (14) and locknuts (13) in multifunction manifold mount (15).

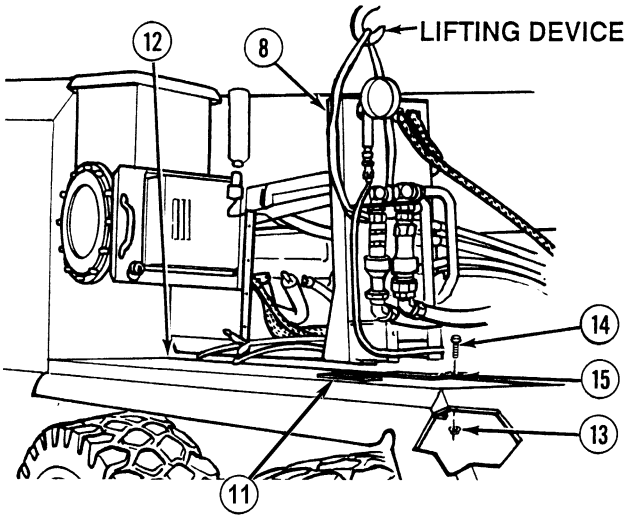
NOTE

Spacer is under left side of LHS control box.

(10) Position spacer (11) on fender (12) and align mounting holes.

WARNING

LHS control box weighs 200 lbs (91 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



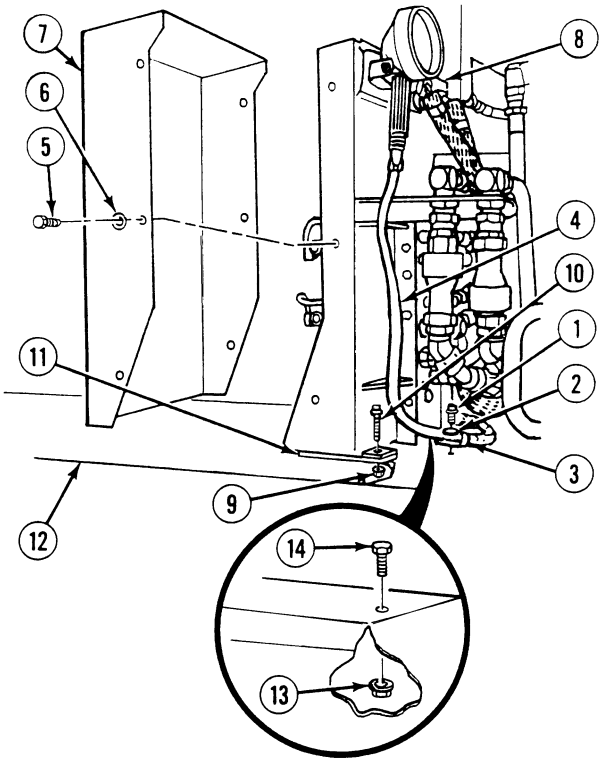
(11) Using lifting device, lower LHS control box (8) back down on fender (12).

(12) Install four screws (10) and locknuts (9) in spacer (11), LHS control box (8) and fender (12).

(13) Tighten two locknuts (13) on screws (14).

(14) Install LHS control box cover (7), four lockwashers (6) and screws (5) on LHS control box (8).

(15) Install cushion clamp (3), washer (2) and self-tapping screw (1) on work lamp wiring harness (4).



c. Follow-On Maintenance:

- Install rubber fender edging, (TM 9-2320-364-20).
- Install left front mud flap, (TM 9-2320-364-20).
- Install left fender front and rear skirt, (TM 9-2320-364-20).
- Install work lamp, (TM 9-2320-364-20).
- Install left engine noise panel, (TM 9-2320-364-20).
- Install arctic kit battery box (if equipped), (TM 9-2320-364-20).
- Install battery box, (TM 9-2320-364-20).
- Install battery disconnect switch, (if equipped) (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 16

MATERIAL HANDLING CRANE, SELF-RECOVERY WINCH, LOAD HANDLING SYSTEM AND CONTAINER HANDLING UNIT MAINTENANCE

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Section I. INTRODUCTION

16-1. DIRECT SUPPORT MATERIAL HANDLING CRANE (MHC), SELF-RECOVERY WINCH (SRW) AND LOAD HANDLING SYSTEM (LHS) MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing, and servicing the Material Handling Crane (MHC), Self-Recovery Winch (SRW) and Load Handling System (LHS) components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

Section II. MATERIAL HANDLING CRANE (MHC) MAINTENANCE

16-2. CRANE ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

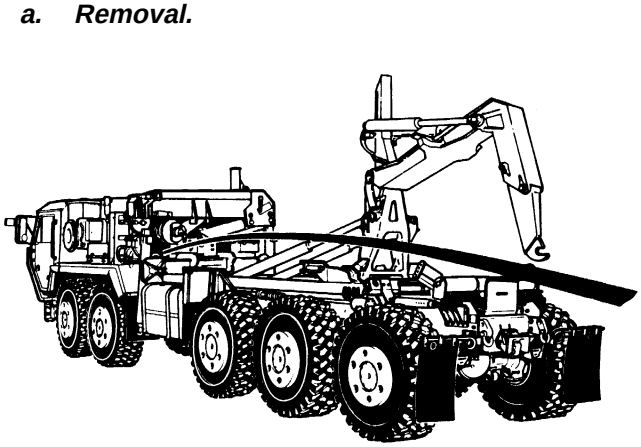
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Jackstand (4) (Item 132, Appendix F)
Pan, Drain 6 gal (Item 145, Appendix F)
Wrench, Combination, 1-3/8 in.
(Item 258, Appendix F)
Wrench, Combination, 1-1/2 in.
(Item 260, Appendix F)
Wrench, Combination, 1-5/8 in.
(Item 261, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 5000 lbs
(2270 kg)
Wooden Blocks (4) (Appendix C)

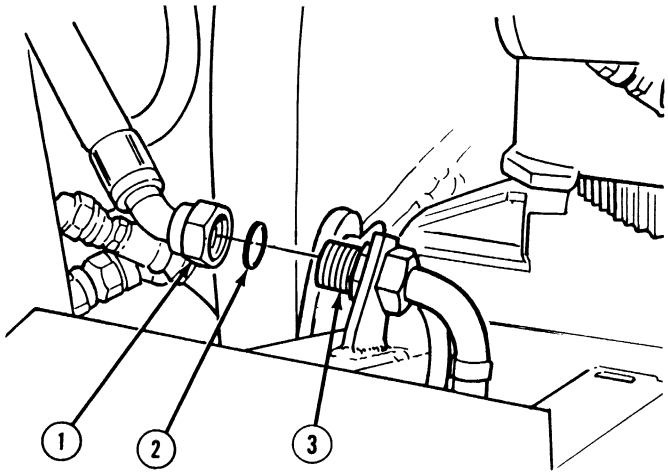
Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (12) (Item 211, Appendix E)
Packing, Preformed (4) (Item 340, Appendix E)

Personnel Required
Two

Equipment Condition
LHS fully extended,
(TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





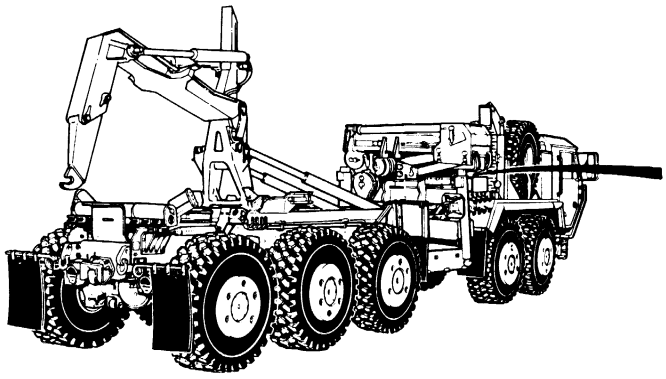
WARNING

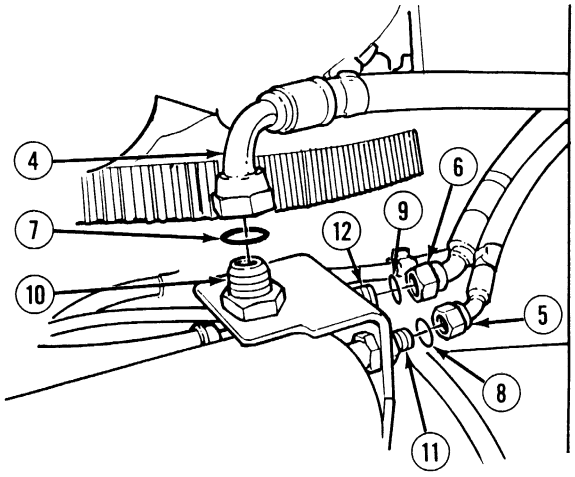
The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses, wires and connectors before removal.
- Place drain pan under truck.
- Cap and plug hydraulic hoses and fittings after disconnecting.
- Remove cable ties as required to remove wires and hydraulic hoses.

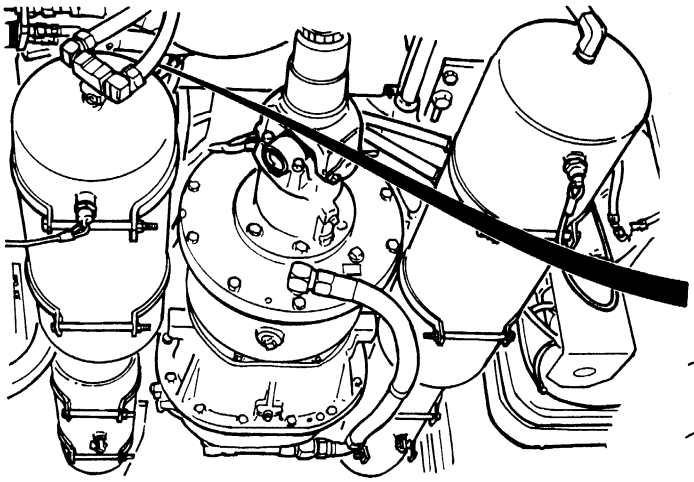
(1) Remove hose 2724 (1) and preformed packing (2) from fitting (3). Discard preformed packing.

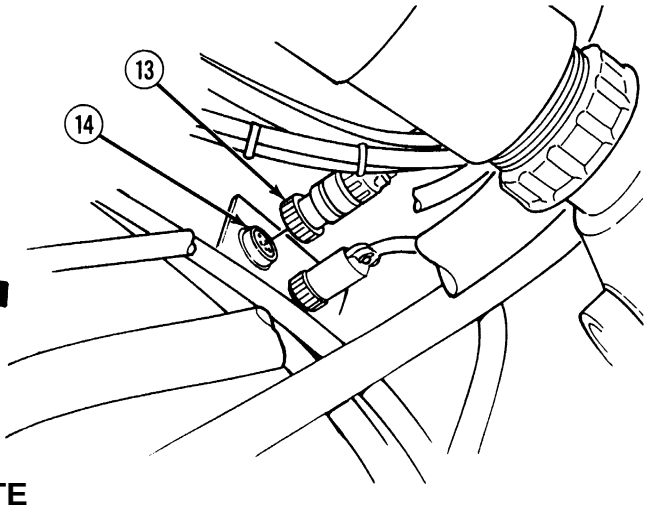




(2) Remove hoses 2902 (4), 2776 (5) and 2694 (6) and preformed packings (7), (8) and (9) from fittings (10), (11) and (12). Discard preformed packings.

16-2. CRANE ASSEMBLY REPLACEMENT (CONT).





NOTE

- Tag and mark connector prior to removal.
- Cable connector is located above Air reservoir No. 2.

(3) Disconnect connector (13) from MC29 connector (14).

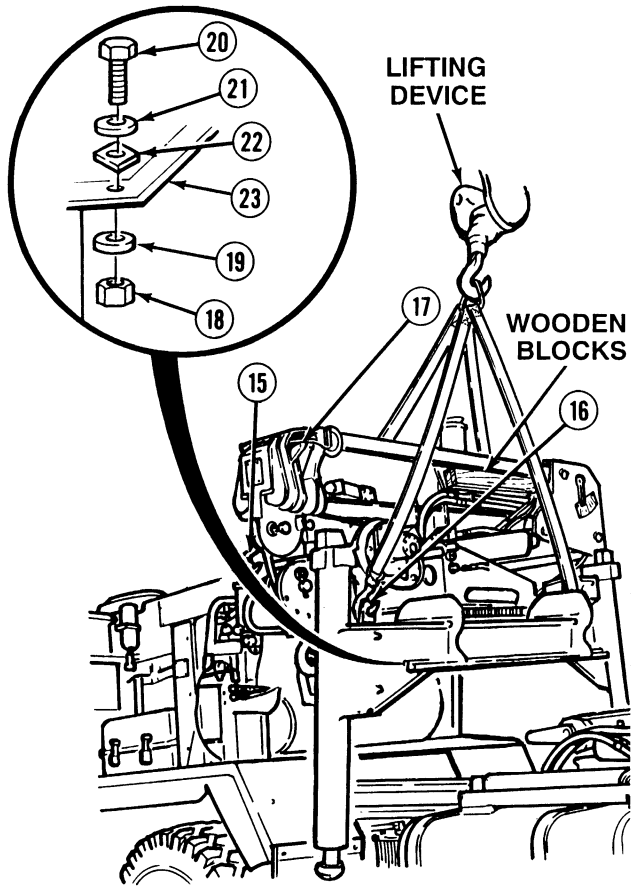
WARNING

Crane weighs 4,700 lbs (2,134 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(4) Attach lifting device to two forward lifting brackets (15) and two rear lifting brackets (16) on crane (17).

(5) Position two wooden blocks between lifting device and crane (17)

(6) With the aid of an assistant, remove 12 locknuts (18), washers (19), screws (20), washers (21) and spacers (22) from left and right crane mounts (23). Discard locknuts.



CAUTION

Move hydraulic tubes and hoses out of way before removing crane from truck. Failure to comply may result in damage to equipment.

(7) With the aid of an assistant, raise crane (17) approximately 2 in. (51 mm) and ensure load is balanced.

(8) Position two wooden blocks on jackstands and, with the aid of an assistant, guide crane (17) from truck and position on jackstands and wooden blocks.

(9) Remove lifting device and wooden blocks from two forward lifting brackets (15) and two rear lifting brackets (16).

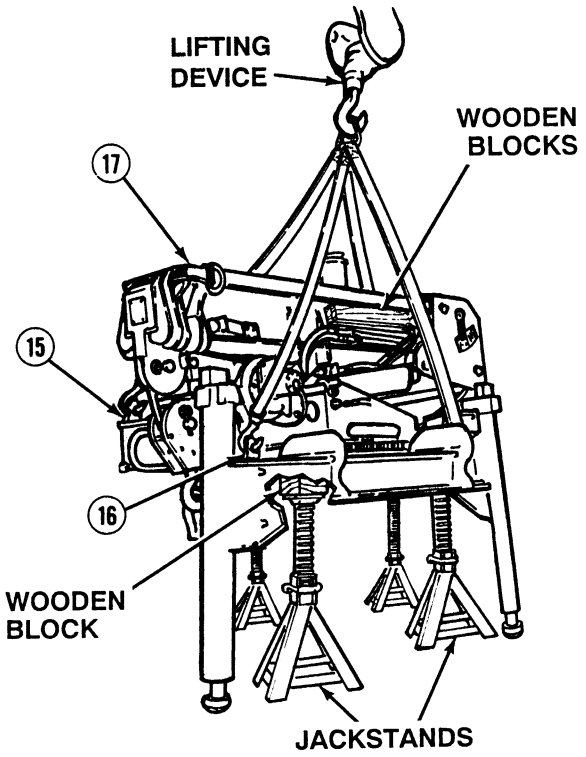
b. Installation.

WARNING

Crane weighs 4,700 lbs (2,134 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to two forward lifting brackets (15) and two rear lifting brackets (16) on crane (17).

(2) Position wooden blocks between lifting device and crane (17).

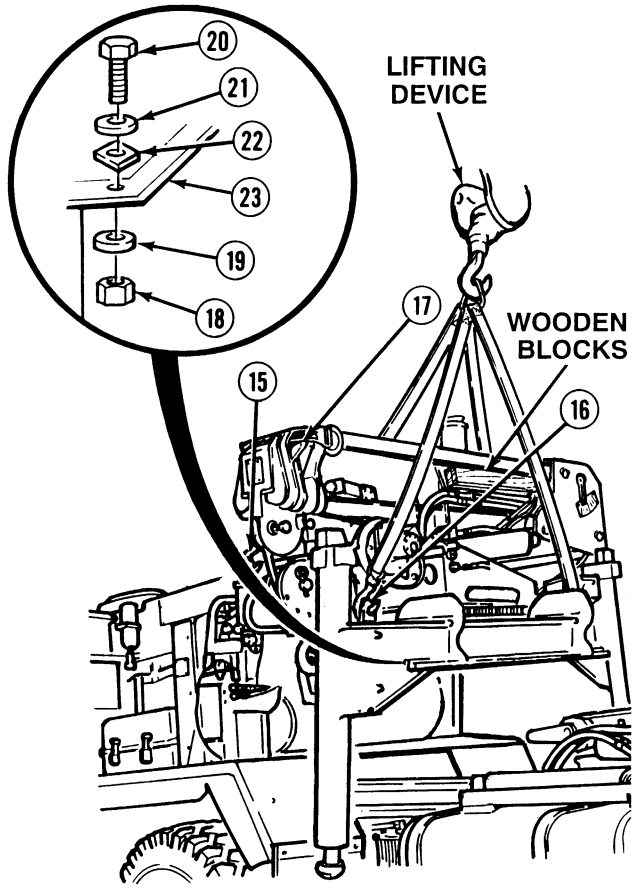


16-2. CRANE ASSEMBLY REPLACEMENT (CONT).

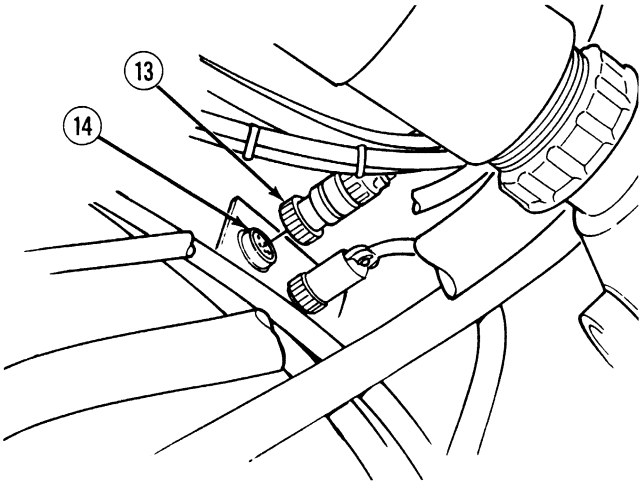
(3) With the aid of an assistant, align crane (17) on left and right crane mounts (23).

(4) With the aid of an assistant, install twelve screws (20), washers (21), spacers (22), washers (19) and locknuts (18). Tighten nuts to 370 lb-ft (502 N·m).

(5) Remove lifting device and wooden blocks from two forward lifting brackets (15) and rear lifting brackets (16).

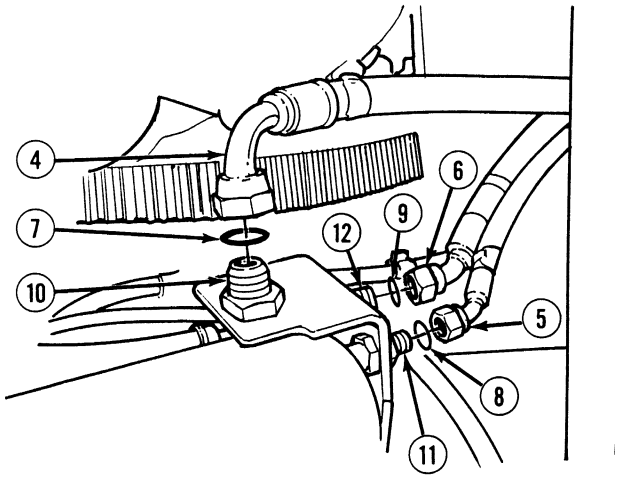


(6) Install connector (13) on MC29 connector (14).



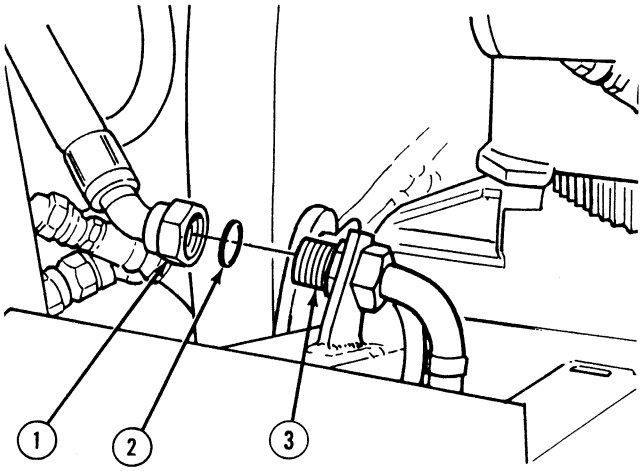
(7) Apply hydraulic oil to preformed packings (7), (8) and (9).

(8) Install preformed packings (7), (8) and (9) on fittings (10), (11) and (12) and connect hoses 2902 (4), 2776 (5) and 2694 (6).



(9) Apply hydraulic oil to preformed packing (2).

(10) Install preformed packing (2) and connect hose 2724 (1) on fitting (3).



c. Follow-On Maintenance:

- LHS in transit position, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-20).
- Check operation of crane, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-3. BOOM ASSEMBLY REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gage Set, Feeler (Item 67, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Rivet Gun (Item 196, Appendix F)
Torch, Propane (Item 247, Appendix F)
Wrench Set, Socket 3/8 in. drive (Item 273, Appendix F)
Wrench, Torque (0 to 60 N·m) (Item 276, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
Lifting Device, Minimum Capacity 2500 lb (1135 kg)
Wooden Block (4) (Appendix C)
Wooden Block (2) (Appendix C)

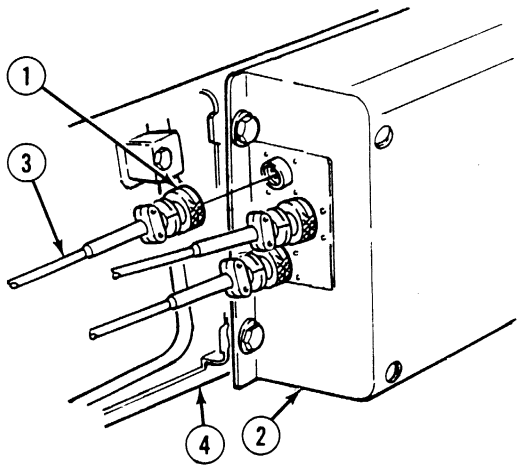
Materials/Parts
Cable Ties (Item 9, Appendix B)
Cloth, Cleaning (Item 12, Appendix B)
Compound, Antiseize (Item 14, Appendix B)
Grease (Item 21, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Sealant, Adhesive (Item 49, Appendix B)
Sealing Compound (Item 52, Appendix B)
Sealing Compound (Item 56, Appendix B)

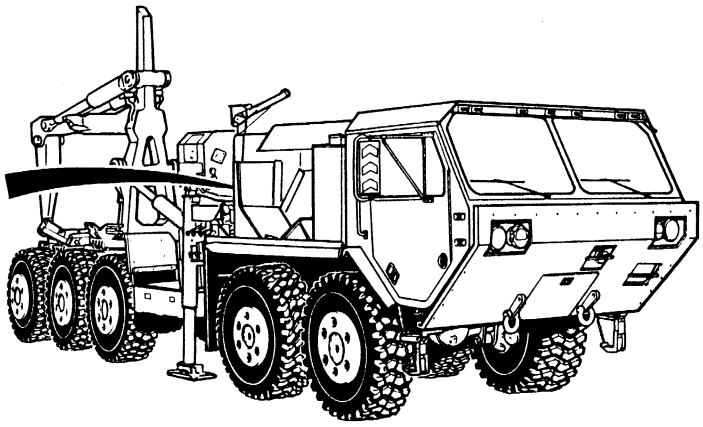
Materials/Parts - Continued
Sealing Compound (Item 63, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (2) (Item 175, Appendix E)
Lockwasher (Item 272, Appendix E)
Lockwasher (8) (Item 283, Appendix E)
Packing, Preformed (5) (Item 373, Appendix E)
Pin, Cotter (12) (Item 417, Appendix E)
Shim (Item 629, Appendix E)
Shim (Item 630, Appendix E)
Shim (Item 631, Appendix E)
Wear Pads (Item 702, Appendix E)
Wear Pads (Item 703, Appendix E)
Wear Pads (Item 704, Appendix E)
Wear Pads (Item 705, Appendix E)

Personnel Required
Three

Equipment Condition
Outrigger Jacks extended and set, (TM 9-2320-364-10)
Boom assembly retracted, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Muffler removed, (TM 9-2320-364-20)
Hook block removed, (TM 9-2320-364-20)
Telescope cylinder removed, (Para 16-10)

a. Removal.



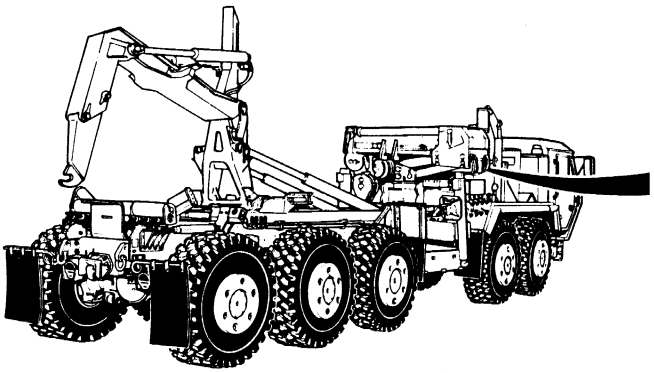


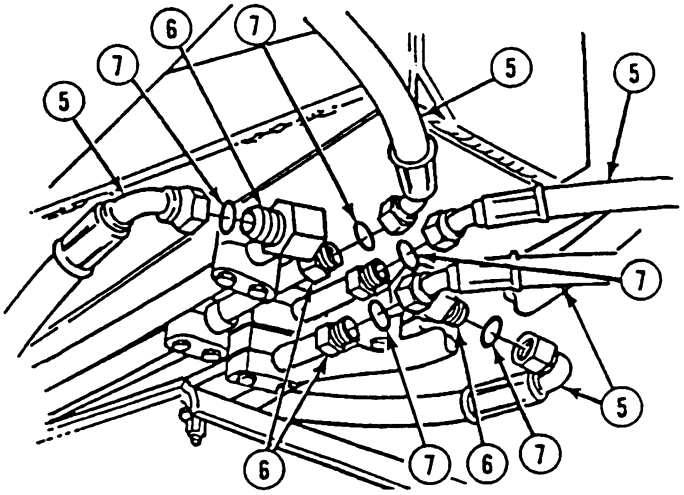
NOTE

- Tag and mark wires and connectors before removal.
- Remove cable ties as needed to remove wires and hydraulic hoses.
- Ensure wires are free from boom before removing boom from truck.

(1) Disconnect connector (1) from overload shutdown box (2) and remove wire harness (3) from boom assembly (4).

16-3. BOOM ASSEMBLY REPAIR (CONT).





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap hydraulic hoses and fittings after removal.

(2) Position drain pan under crane.

(3) Disconnect five hoses (5) from fittings (6) and remove five preformed packings (7). Discard preformed packings.

WARNING

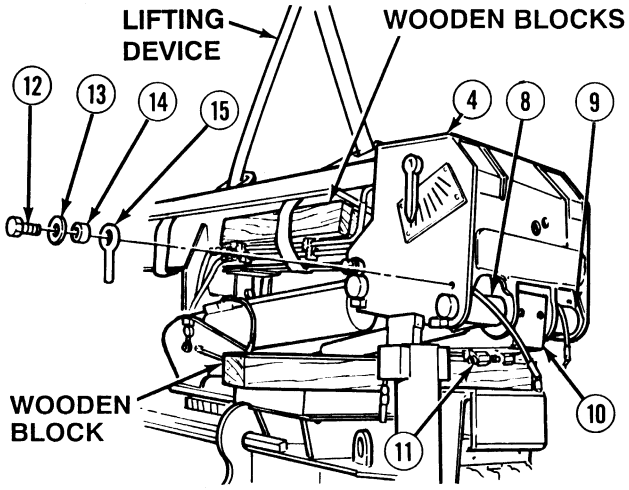
Boom weighs 2,100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(4) Position two wooden blocks on both sides of boom assembly (4)

(5) Install lifting device over blocks on boom assembly (4).

(6) Position wooden block under tension cylinder (8) and erection cylinder (9), between mast (10) and mast valve base mount (11).

(7) Remove two screws (12), washers (13), bushings (14) and lock pins (15) from boom assembly (4).

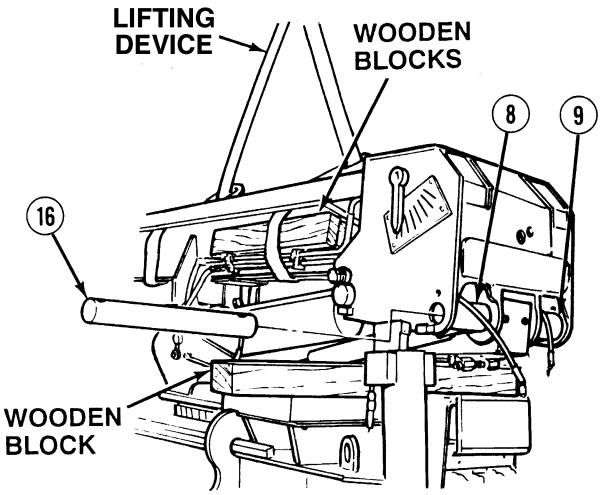


(8) Remove pin (16) from boom assembly (4).

NOTE

Tension and erection cylinders may have to be driven from boom.

(9) Position tension cylinder (8) and erection cylinder (9) down on wooden block.



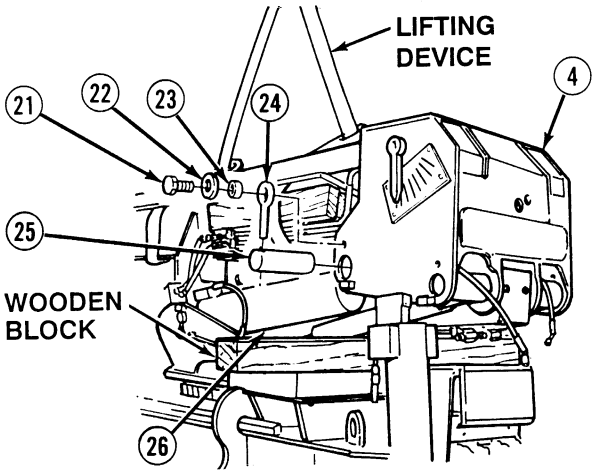
(10) Remove screw (21), washer (22), bushing (23) and lock pin (24) from boom assembly (4).

NOTE

Lift cylinders may have to be driven from boom.

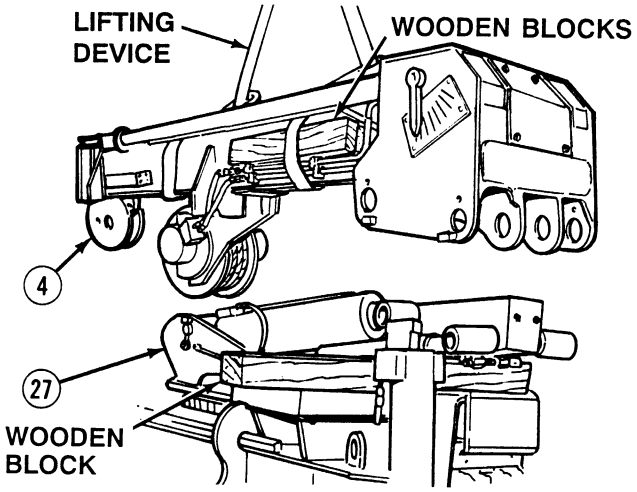
(11) Remove pin (25) from boom assembly (4). Position lift cylinder (26) on wooden block.

(12) Repeat Steps (11) and (12) for other lift cylinder.

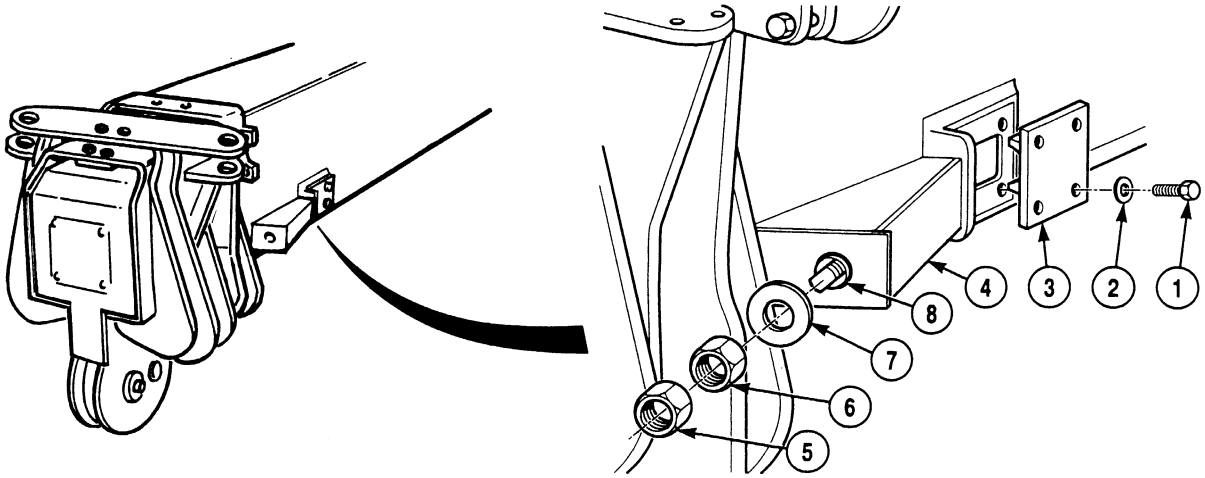


16-3. BOOM ASSEMBLY REPAIR (CONT).

(13) With the aid of an assistant, remove boom assembly (4) from subframe assembly (27).



b. Disassembly.



(1) Remove four screws (1), washers (2) and cable retainer plate (3) from base section (4).

NOTE

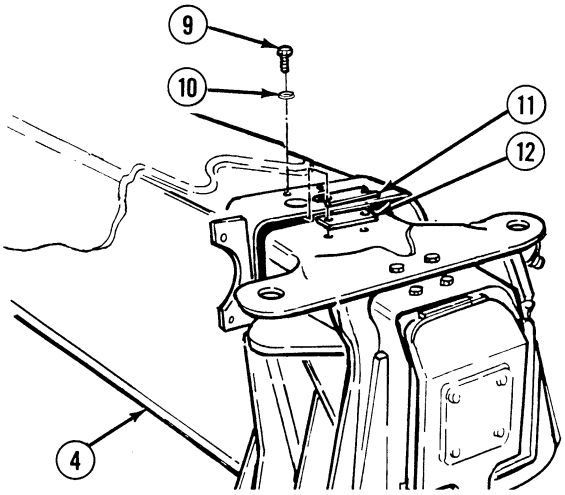
If cable is held while removing nut and locknut, note flat places on threaded rod for wrench.

(2) Remove nut (5), locknut (6) and washer (7) from boom extraction cable end (8). Discard locknut.

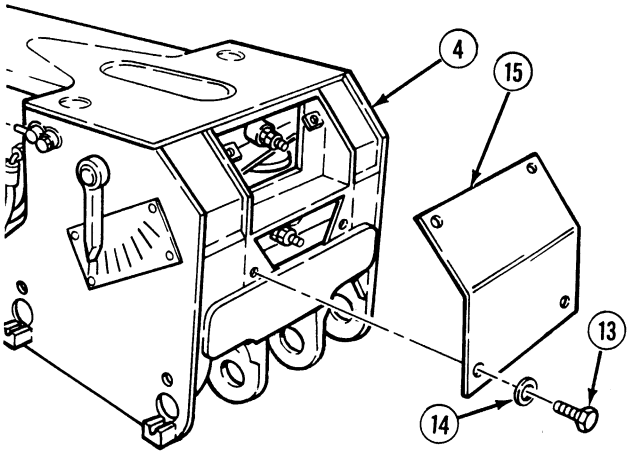
NOTE

Note location and quantity of shims.

(3) Remove two screws (9), washers (10), shims (11) and wear pad (12) from base section (4). Discard wear pad.

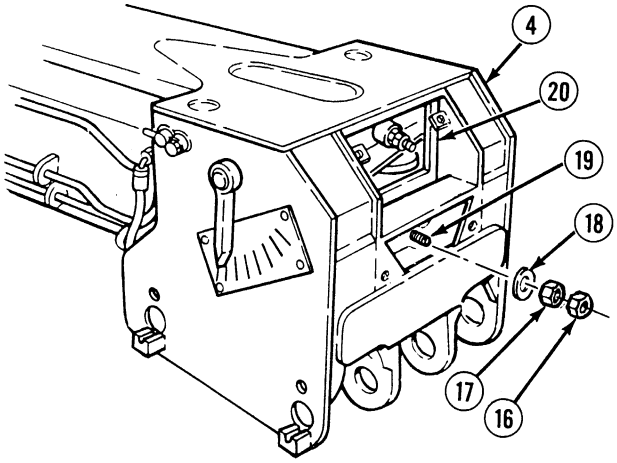


(4) Remove four screws (13), washers (14) and cover plate (15) from opposite end of base section (4).



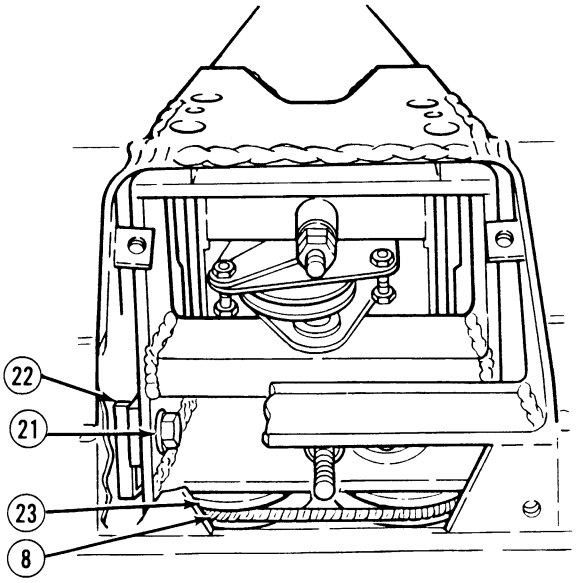
(5) Remove jam nut (16), nut (17) and washer (18) from equalizer link weldment end (19).

(6) Move inner-mid section (20) forward in base section (4) approximately 10 in. (25.4 cm).



16-3. BOOM ASSEMBLY REPAIR (CONT).

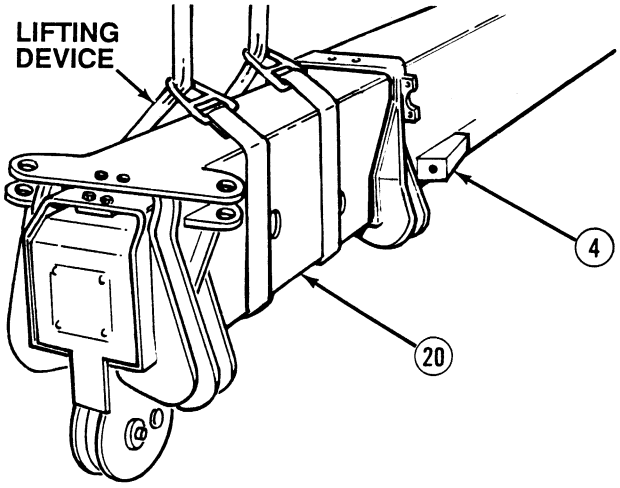
(7) Loosen screw (21) and move cable keeper (22) up away from cable (8) and roller guide (23).



WARNING

Inner-mid section weighs 1,000 lbs (454 kg). Attach suitable lifting device prior to removal to prevent injury to personnel.

(8) Attach lifting device on inner-mid section (20).



NOTE

- Move boom extension slowly.
- Reposition lifting device as required to keep inner-mid section centered.

(9) With the aid of an assistant, guide inner-mid section (20) two ft (61 cm) out of base section (4).

WARNING

Do not stick fingers under section to remove wear pads, or injury to hands may result.

NOTE

Tag wear pads as to side and extension. Note location, quantity and size of any shims.

(10) Lift up on inner-mid section (20) and remove wear pads (24) from front of base section (4).

NOTE

Perform Step (11) if wear pad has shim and screw.

(11) Remove screw (25) and shim (26) from wear pad (24). Discard wear pads.

NOTE

Move inner-mid section slowly to just past base section.

(12) Remove inner-mid section (20) from base section (4). Reposition lifting device as required to balance inner-mid section.

(13) Remove cable (8) from base section (4).

NOTE

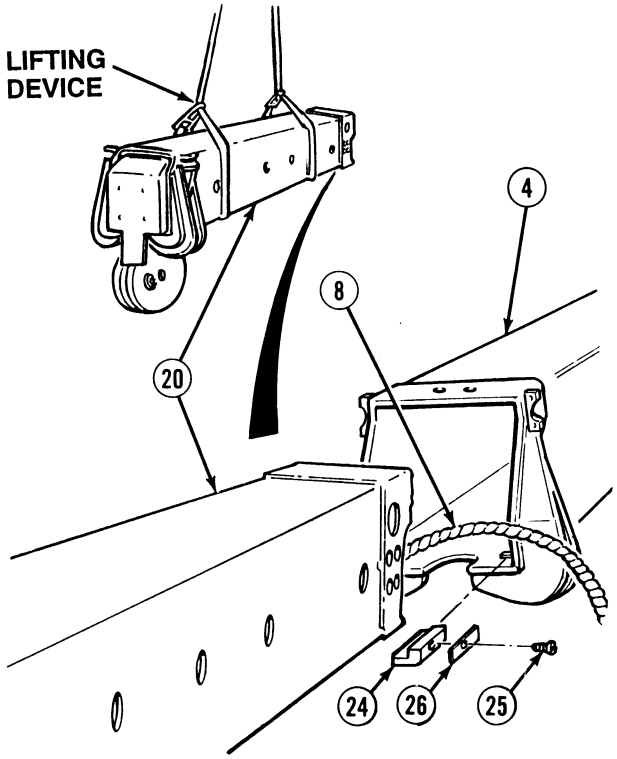
Tag wear pads as to side and extension. Note location, quantity and size of any shims.

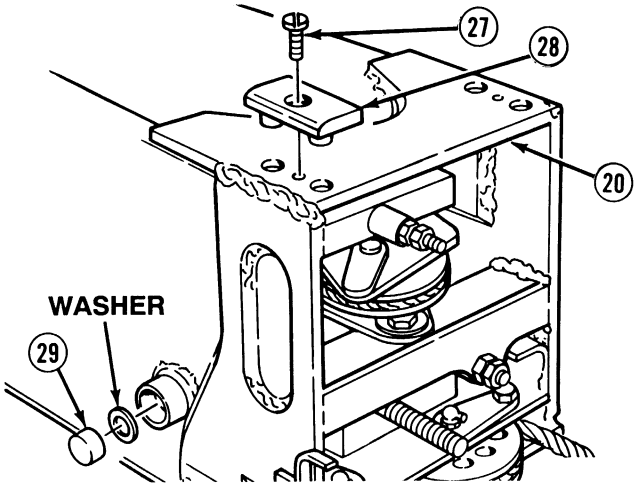
(14) Remove two screws (27) and upper wear pads (28) from upper rear section of inner-mid section (20).

NOTE

There may be a washer behind wear pad. Tag and mark after removal.

(15) Remove side wear pads (29) and washer from inner-mid section (20). Discard wear pads.





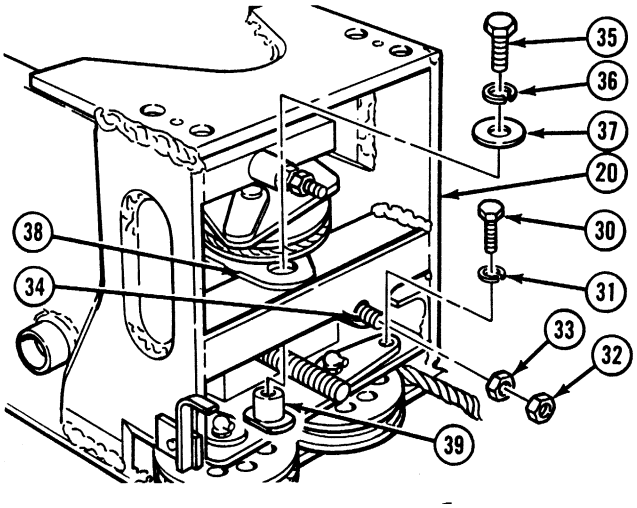
16-3. BOOM ASSEMBLY REPAIR (CONT).

(16) Remove screw (30) and lockwasher (31) from inner-mid section (20). Discard lockwasher.

(17) Remove jam nut (32) and swivel nut (33) from cable (34), at rear of inner-mid section (20).

(18) Remove screw (35), lockwasher (36) and washer (37) from cable guide (38). Discard lockwasher.

(19) Remove pin (39) from inner-midsection (20).

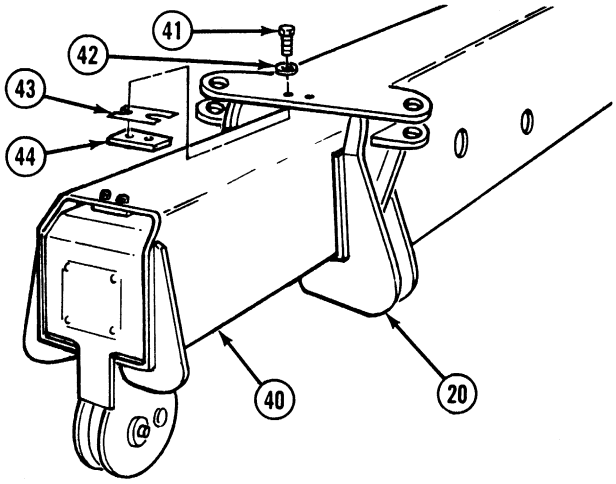


(20) Pull outer-mid section (40) out from inner-mid section (20) approximately one ft (31 cm).

NOTE

Note location and quantity of shims.

(21) Remove two screws (41), washers (42), shim (43) and wear pad (44) from inner-mid section (20). Discard wear pad.



WARNING

Outer-mid section weighs 800 lbs (363 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(22) Attach lifting device on outer-mid section (40).

NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(23) Lift up on outer-mid section (40) and remove wear pads (45).

NOTE

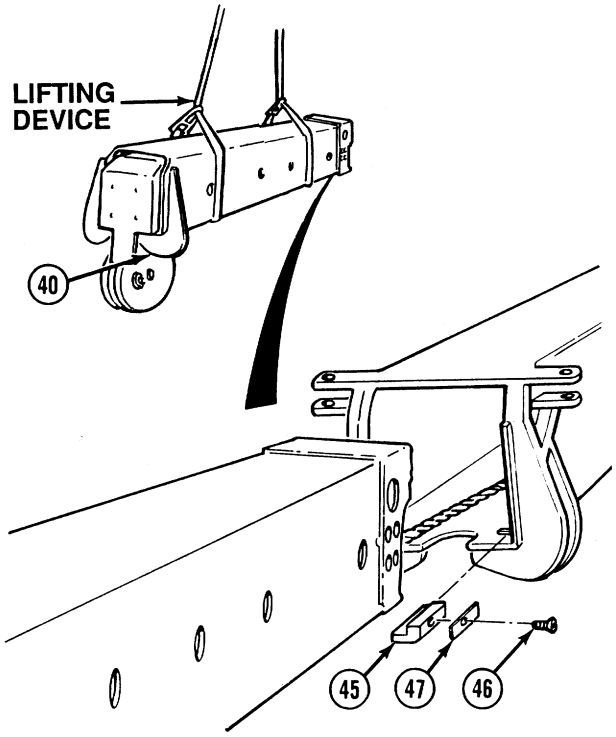
Perform Step (24) if wear pad has shim and screw.

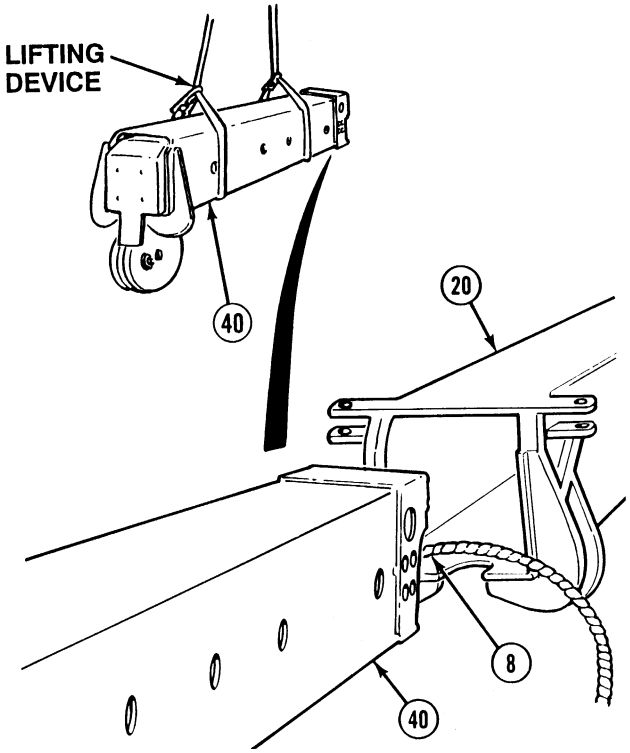
(24) Remove screw (46) and shim (47) from wear pads (45). Discard wear pads.

NOTE

- Move boom extension slowly.
- Cable may become caught on inner-mid section.
- Reposition lifting device as needed to balance outer-mid section.

(25) Remove outer-mid section (40) with cable (8) from inner-mid section (20).



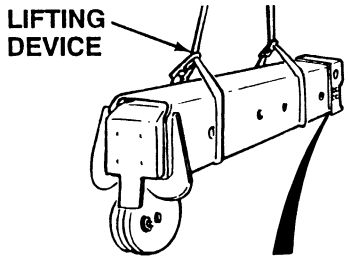


16-3. BOOM ASSEMBLY REPAIR (CONT).

(26) Remove screw (21), lockwasher (48) and cable keeper (22) from inner-mid section (20). Discard lockwasher.

NOTE

One screw and lockwasher were removed when cable was removed.



(27) Remove screw (49), lockwasher (50) and two pin supports (51) from inner-mid section (20). Discard lockwasher.

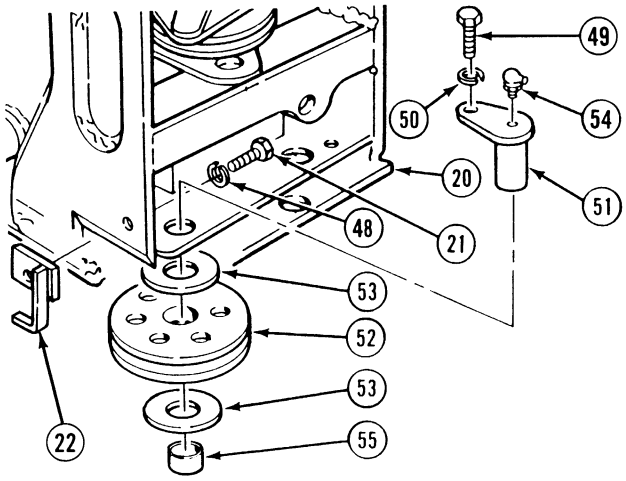
(28) Remove two sheaves (52) and four thrust washers (53).

(29) Remove two grease fittings (54) from pin supports (51).

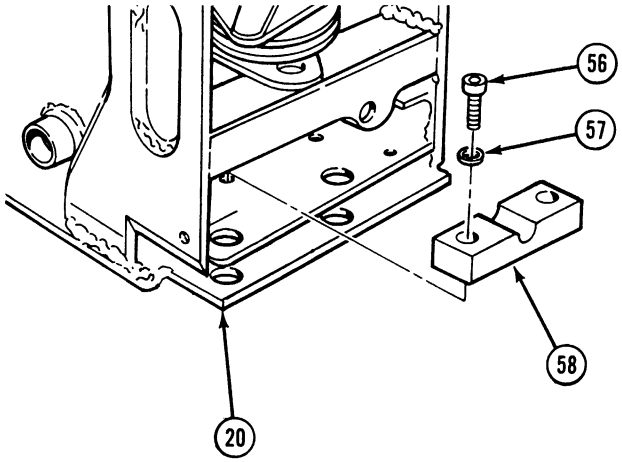
NOTE

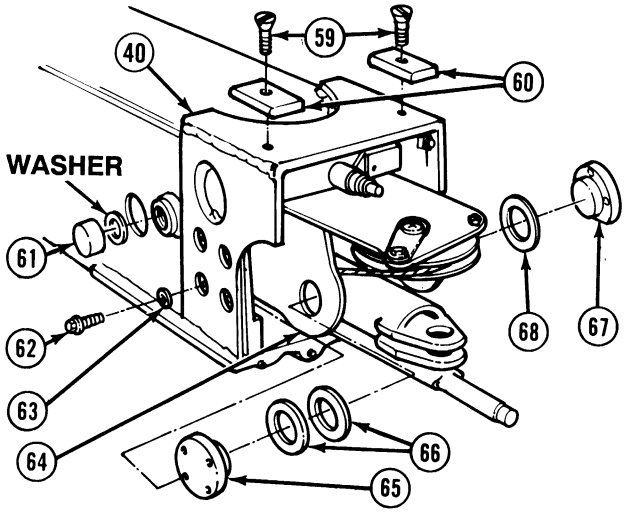
Perform Step (30) if bushings are damaged.

(30) Remove two bushings (55) from sheaves (52).



(31) Remove two screws (56), washers (57) and wear plate (58) from inside inner-mid section (20). Discard wear plate.





NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(32) Remove two screws (59) and upper rear wear pads (60) from outer-mid section (40). Discard wear pads.

NOTE

There may be a washer behind wear pad. Tag and mark after removal.

(33) Remove side wear pads (61) and washer from outer-mid section (40). Discard wear pads.

CAUTION

Do not pull fly assembly out more than four in. (102 mm) to remove trunnion, or damage to equipment may result.

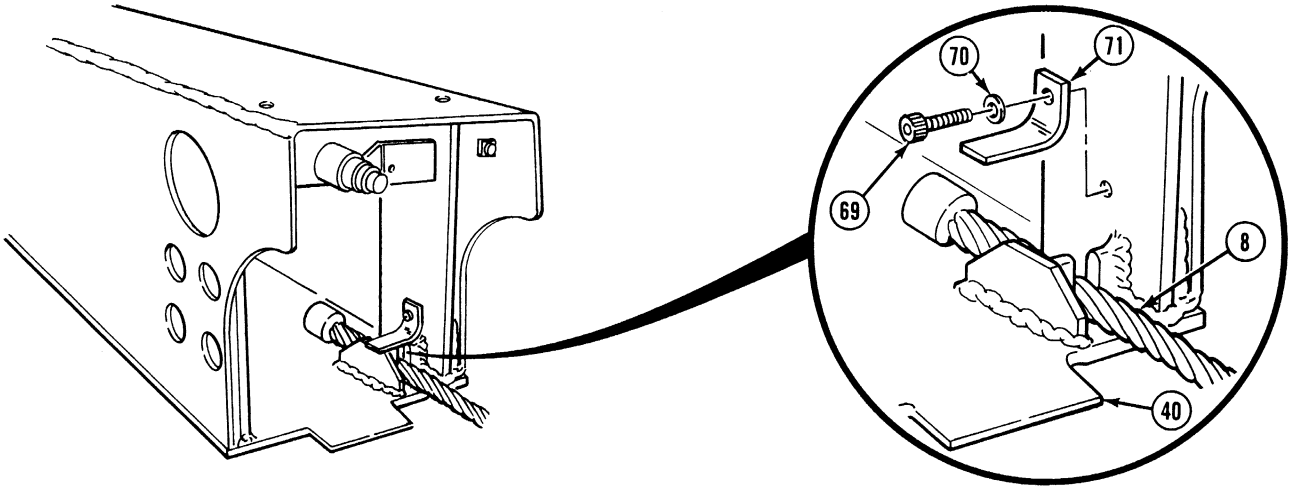
NOTE

- Trunnion on right side has milled surface to provide clearance.
- There are two washers on left side and one on right side.

(34) Remove eight screws (62) and washers (63) from outer-mid section (40).

(35) Pull fly assembly (64) back and remove left trunnion plate (65), two washers (66), right trunnion plate (67) and washer (68) from fly assembly (64).

16-3. BOOM ASSEMBLY REPAIR (CONT).

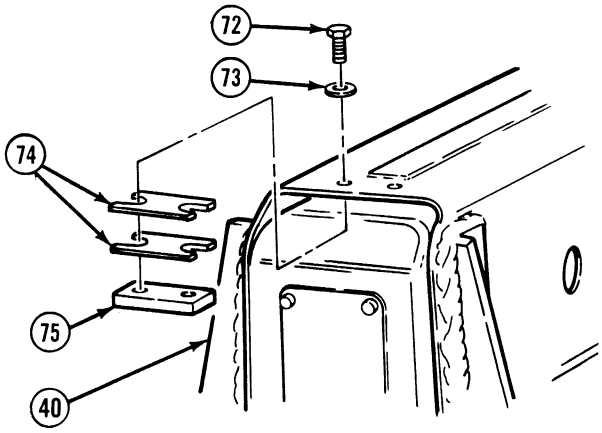


(36) Remove screw (69), washer (70), cable hold-down (71) and cable (8) from outer-mid section (40).

NOTE

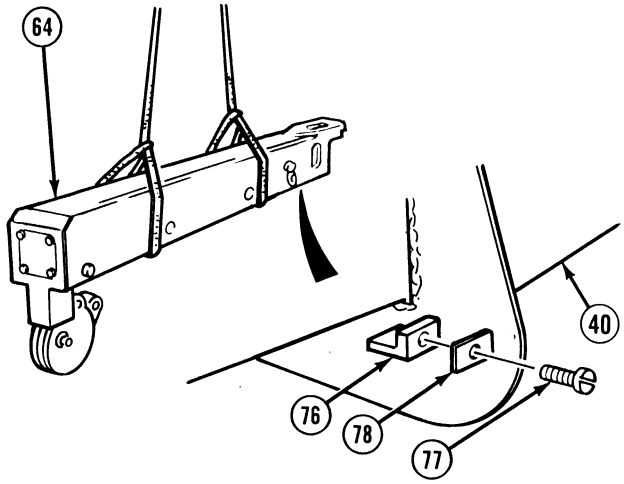
Note location, quantity and size of shims.

(37) Remove two screws (72), washers (73), shims (74) and wear pad (75) from front of outer-mid section (40). Discard wear pad.



WARNING

- Fly section weighs 450 lbs (204 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.
- Keep fly section level or structural section will fall out. Move fly section slowly. Keep assembly as level as possible during removal. Failure to comply may cause injury to personnel.



(38) Attach lifting device to fly section (64).

WARNING

Do not stick fingers under section to remove wear pads, or injury to hands may result.

NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(39) Lift up on fly section (64) and remove wear pads (76) from front of outer-mid section (40).

NOTE

Perform Step (40) if wear pad has shim and screw.

(40) Remove screw (77) and shim (78) from wear pads (76). Discard wear pads.

16-3. BOOM ASSEMBLY REPAIR (CONT).

(41) With the aid of an assistant, guide fly section (64) from outer-mid section (40).

NOTE

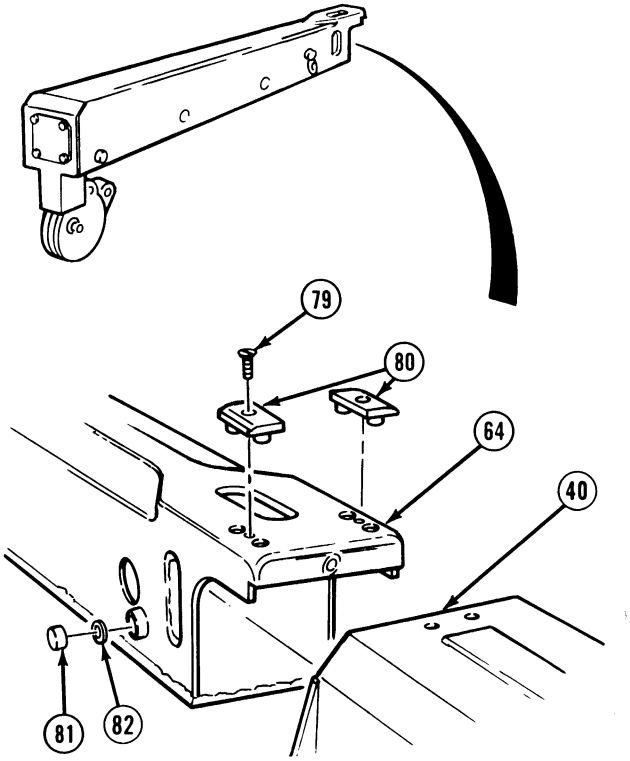
Tag wear pads as to side and extension. Note location and quantity of any shims.

(42) Remove two screws (79) and wear pads (80) from upper rear of fly section (64). Discard wear pads.

NOTE

There may be a washer behind wear pad. Tag and mark after removal.

(43) Remove two wear pads (81) and washers (82) from each side of fly section (64). Discard wear pads.

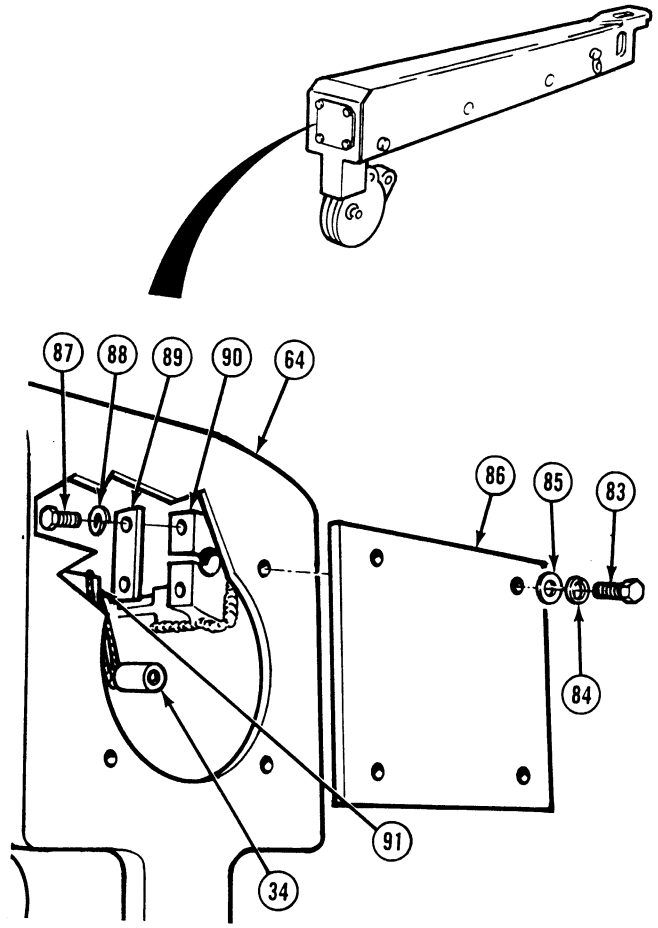


(44) Remove four screws (83), washers (84) and plate (85) from end of fly section (64).

(45) Remove two screws (87), lockwashers (88) and cable retainer (89) from cable retainer weldment (90). Discard lockwashers.

(46) Remove cable (34) from cable retainer weldment (90).

(47) Secure cable (34) to front of structural section (91) with cable tie.



(48) Remove two nuts (92), washer (93) and spacer (94) from chain clevis (95).

(49) Remove chain clevis (95) from fly section (64).

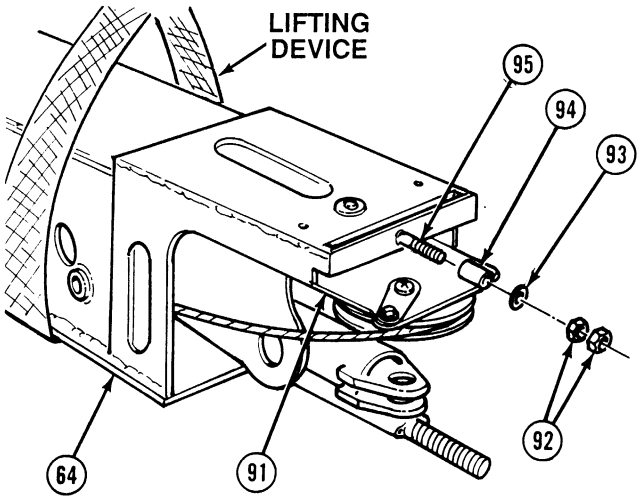
WARNING

Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(50) Attach lifting device to structural section (91).

NOTE

- Reposition lifting device as required to keep structural section centered.
- Move structural section slowly.



(51) With the aid of an assistant, guide structural section (91) two ft (61 cm) out of fly section.

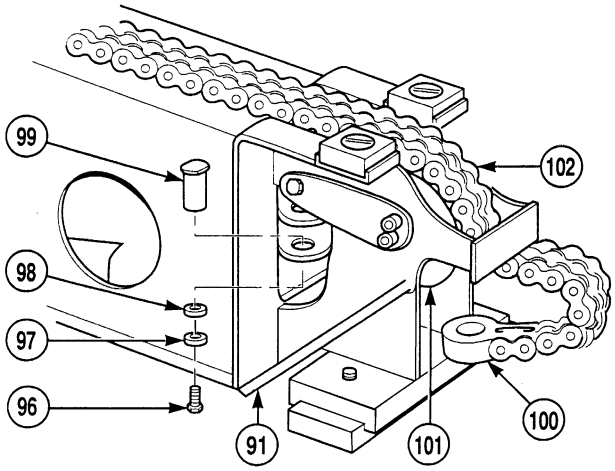
16-3. BOOM ASSEMBLY REPAIR (CONT).

(52) Remove screw (96), washer (97), washer (98) and retaining pin (99) from chain clevis (100).

NOTE

Keep chain clean. Place chain on clean surface.

(53) Pull clevis (100) past roller (101) and carefully pull chain assembly (102) back along the top of structural section (91).

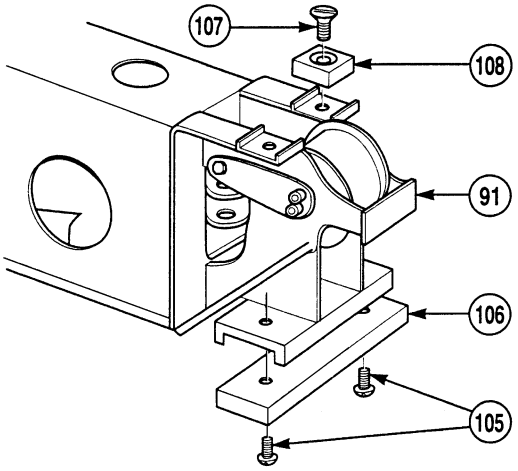


NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(54) Remove two screws (105) and wear pad (106) from bottom of structural section (91).

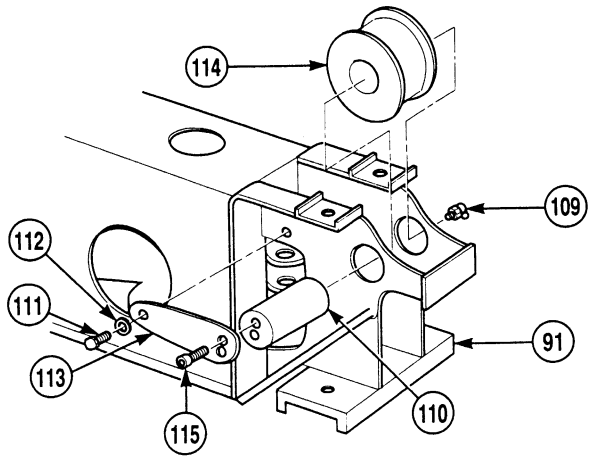
(55) Remove two screws (107) and wear pads (108) from top of structural section (91). Discard wear pads.



(56) Remove grease fitting (109) from pin (110).

(57) Remove screw (111), washer (112), pin support plate (113) and roller (114) from structural section (91).

(58) Remove two screws (115) and support plate (113) from pin (110).



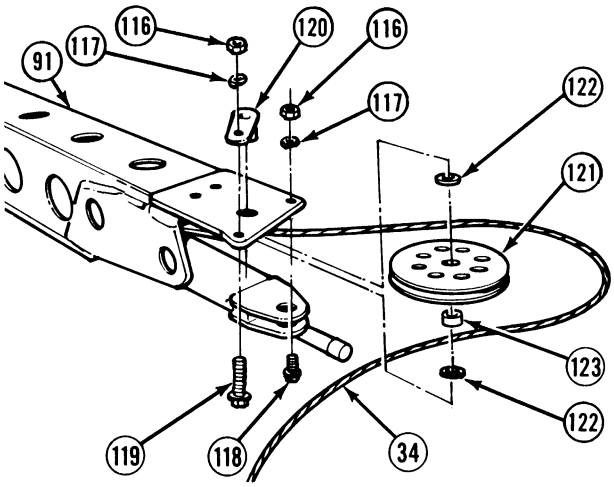
(59) Remove two nuts (116), lockwashers (117), screws (118) and (119) and pin weldment (120) from opposite end of structural section (91). Discard lockwashers.

(60) Remove cable tie from cable (34) and remove sheave (121) and two thrust washers (122) from structural section (91).

NOTE

Perform Step (61) if bearing is damaged.

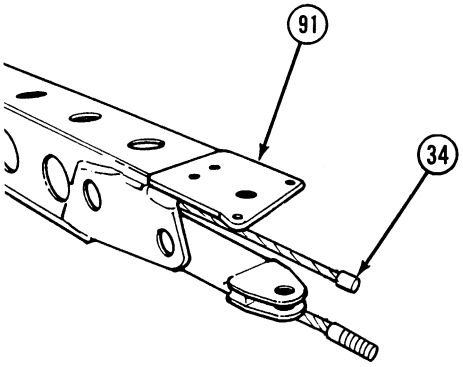
(61) Remove bearing (123) from sheave (121).



NOTE

- Keep cable straight. Do not let cable fall to side.
- Leave chains connected at this time.
- Pull cable from bottom until top end falls into structural section, then stop. Pull both top and bottom ends of cable out even.

(62) Remove cable (34) from structural section (91).



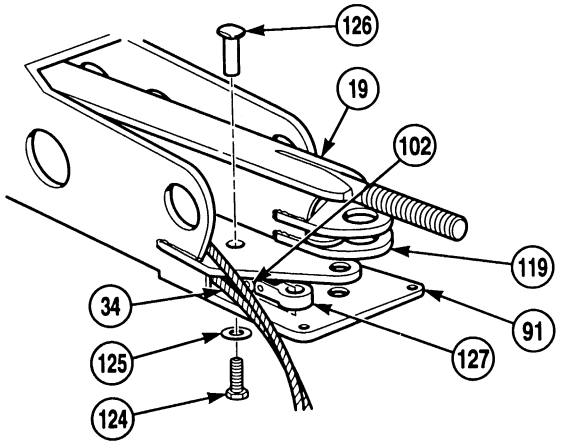
16-3. BOOM ASSEMBLY REPAIR (CONT).

(63) With the aid of an assistant, position structural section (91) on opposite side.

(64) Remove two screws (124) and washers (125) from bottom of chain clevis pins (126).

(65) Remove two pins (126) and clevis (127) from structural section (91).

(66) With the aid of an assistant, remove equalizer link weldment (19), tube weldment (128), chain assembly (102) and cable (34) from structural section (91).



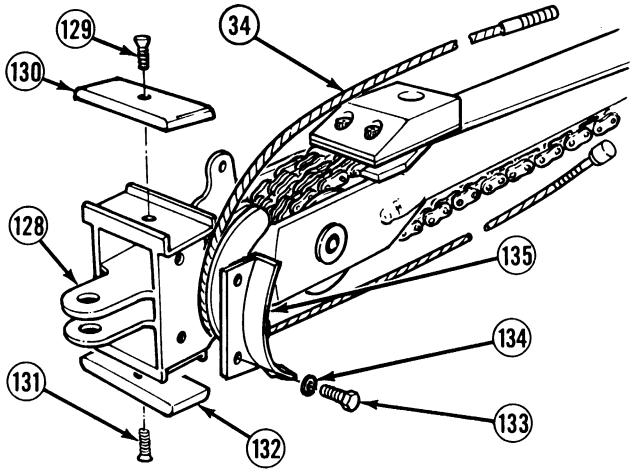
NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(67) Remove screw (129) and remove top wear pad (130) from tube weldment (128). Discard wear pad.

(68) Remove screw (131) and bottom wear pad (132) from tube weldment (128).

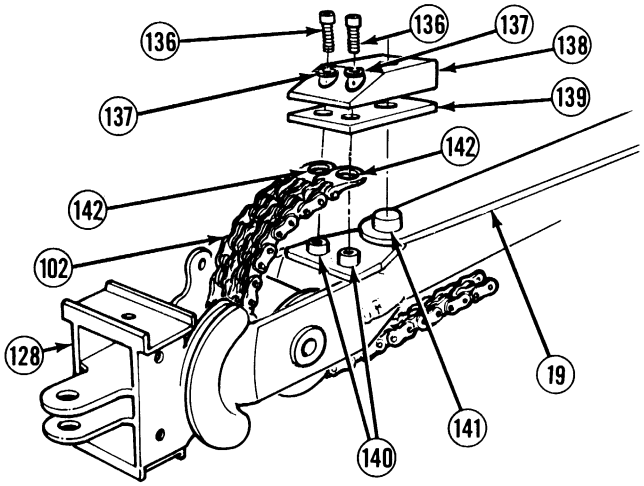
(69) Remove two screws (133), washers (134), cable keeper plate (135) and cable (34) from tube weldment (128).



NOTE

Tag wear pads as to side and extension. Note location and quantity of any shims.

(70) Remove three screws (136), washers (137), wear pad (138), shim (139), pins (140) and (141), clevis (142) and chain assembly (102) from tube weldment (128) and equalizer link weldment (19). Discard wear pad.



(71) Remove screw (143) and washer (144) from tube weldment (128).

WARNING

- Unsafe torching practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to heat metals. Protective clothing, gloves, and goggles must be worn; adequate protective equipment used; and a suitable fire extinguisher kept nearby. Failure to comply may result in severe injury to personnel.
- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:
  - ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
  - DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
  - DO NOT use CARC paint without adequate ventilation.
  - NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
  - BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

CAUTION

Screws will need to be heated prior to removal. Screws have sealing compound and torque applied.

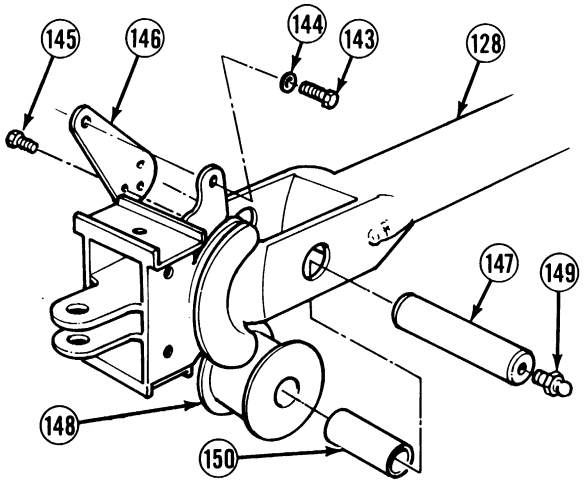
(72) Remove three screws (145), pin support plate (146), pin (147) and roller (148) from tube weldment (128).

(73) Remove grease fitting (149) from pin (148).

NOTE

Perform Step (74) if bushing is damaged.

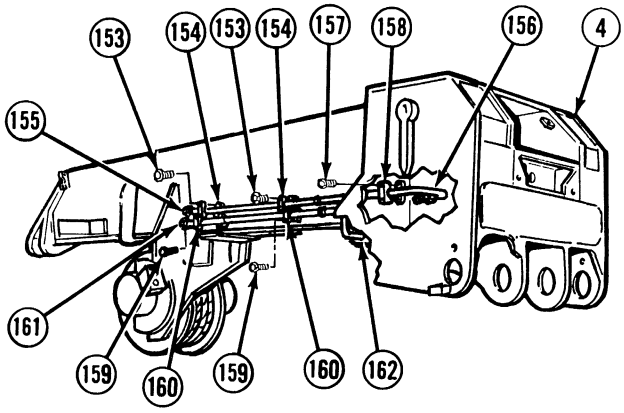
(74) Remove bushing (150) from roller (148).



16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

- Perform Steps (77) through (90) if boom base section is damaged.
- Position drain pan under tubes and hoses.
- Tag and mark hoses and tubes prior to removal.
- Cap hoses and tubes after removal.



(75) Remove four screws (153) and two clamps (154) from boom base section (4).

(76) Disconnect tube (155) from tube (156).

(77) Remove two screws (157) and clamp (158) from boom base section (4).

(78) Disconnect tube (156) from boom base section (4).

(79) Remove four screws (159) and two clamps (160) from boom base section (4).

(80) Disconnect tube (161) from tube (162).

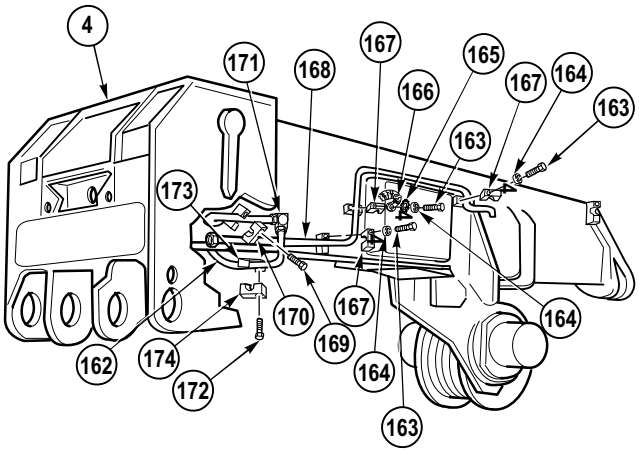
(81) Remove three screws (163), spacers (164), lockwasher (165), ground strap (166) and three clamps (167) from front of boom base section (4). Discard lockwasher.

(82) Disconnect tube (168) from boom base section (4).

(83) Remove two screws (169) and clamp (170) from boom base section (4).

(84) Remove tube (171) from tube (162).

(85) Remove two screws (172) retainer (173), clamp (174) and tube (162) from boom base section (4).

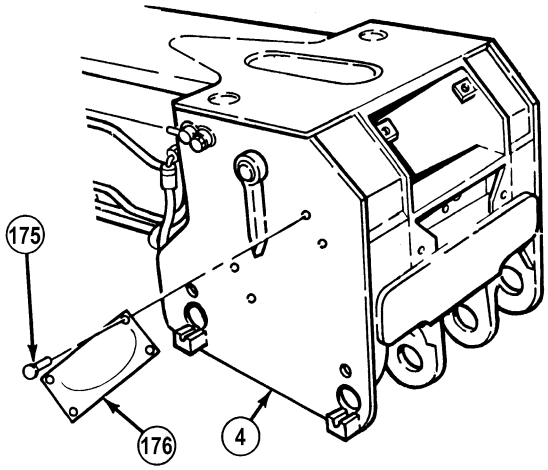


NOTE

Perform Steps (86) and (87) if data plates are damaged.

(86) Remove four rivets (175) and angle data plate (176) from boom base section (4).

(87) Repeat Step (86) for remaining angle data plate.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean metal parts in drycleaning solvent and inspect for cracks or wear.

(2) Clean sheave assemblies and roller assemblies in drycleaning solvent.

(3) Inspect brass bushings inside each assembly.

16-3. BOOM ASSEMBLY REPAIR (CONT).

(4) Clean metal wear pads, spacers, and shims in dry cleaning solvent.

(5) Clean chains and cable in drycleaning solvent and inspect for broken lines or wear.

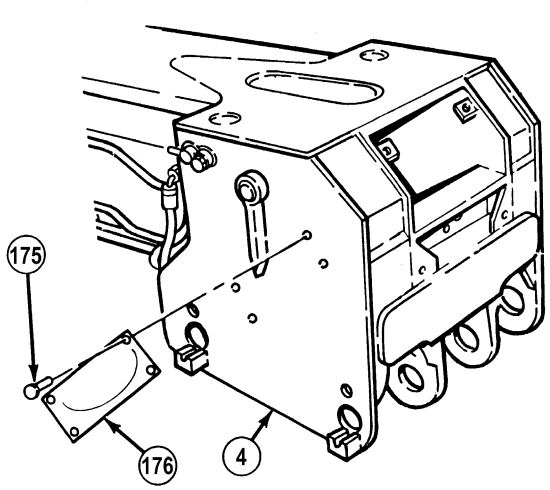
(6) Dry all parts with clean cloth.

(7) Replace damaged or worn parts.

d. Assembly.

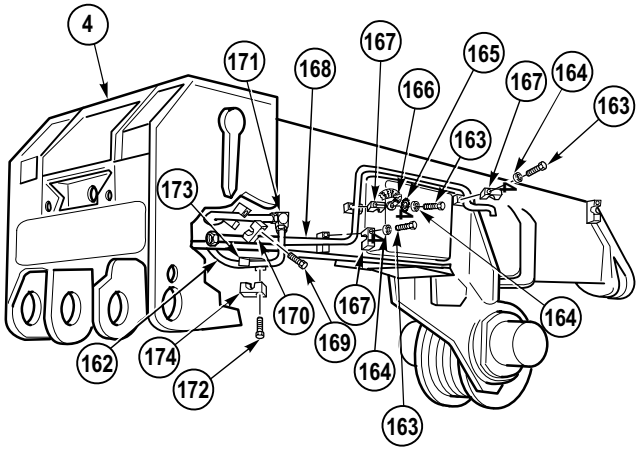
NOTE

Perform Steps (1) through (8) only if boom base section was disassembled. Otherwise, go to Step (9).



(1) Install angle data plate (176) on boom base section (4) with four rivets (175).

(2) Repeat Step (1) for remaining angle data plate.



(3) Install clamp (174), tube (162) and retainer (173) on front of boom base section (4) with two screws (172). Tighten screws to 72 lb-in (8 N·m).

(4) Connect tube (171) to tube (162).

(5) Install clamp (170) on tube (171) with screw (169). Tighten screws to 72 lb-in (8 N·m).

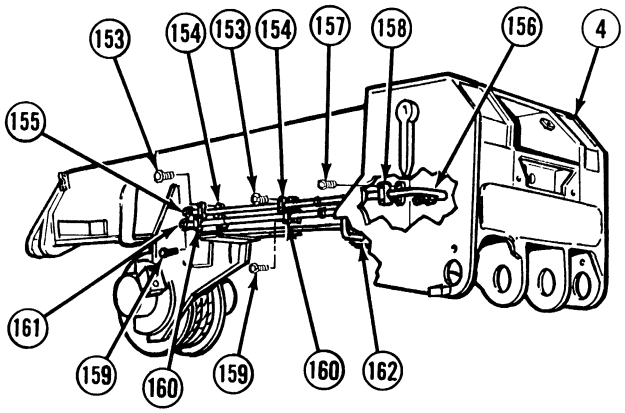
(6) Install tube (168), three clamps (167), spacers (164) and ground strap (166) on boom base section (4) with lockwasher (165) and three screws (163). Tighten screws to 72 lb-in (8 N·m).

(7) Install two clamps (160) on tube (161) with four screws (159). Tighten screws to 72 lb-in (8 N·m).

(8) Install tube (156) and clamp (158) on boom base section (4) with two screws (157). Tighten screws to 72 lb-in (8 N·m).

(9) Connect tube (155) to tube (156).

(10) Install two clamps (154) on tube (155) with four screws (153). Tighten screws to 72 lb-in (8 N·m).



NOTE

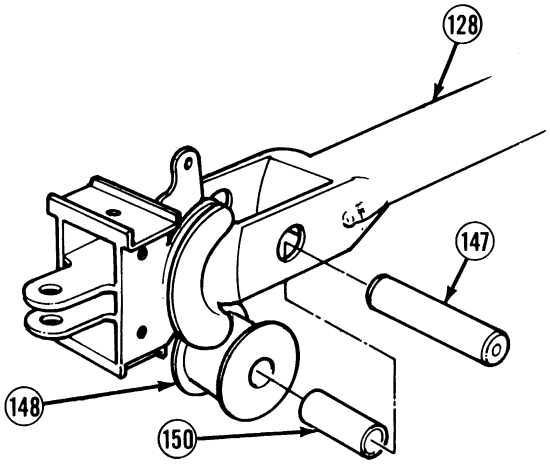
Perform Step (11) if bushing was removed.

(11) Install bushing (150) in roller (148).

NOTE

When installing pin, position grease hole in vertical, top-to-bottom position.

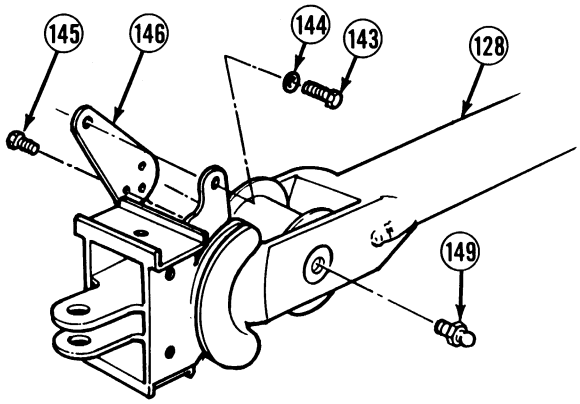
(12) Install roller assembly (148) and pin (147) in tube weldment (128).



16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(13) Apply adhesive sealant to threads of four screws (145) and (143).

(14) Install pin support plate (146) in tube weldment (128) with washer (144) and four screws (143) and (145). Tighten screws to 20 lb-ft (27.1 N·m).

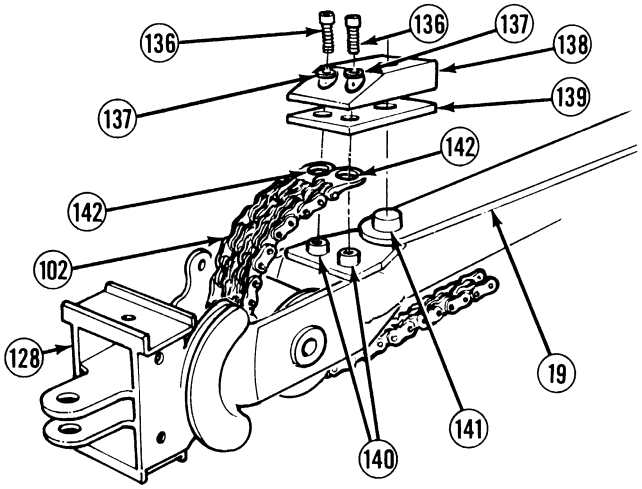
NOTE

Grease fitting must be installed to face toward rear of tube weldment.

(15) Install grease fitting (149) in pin (147).

NOTE

Chain installation is done with tube weldment upside down.



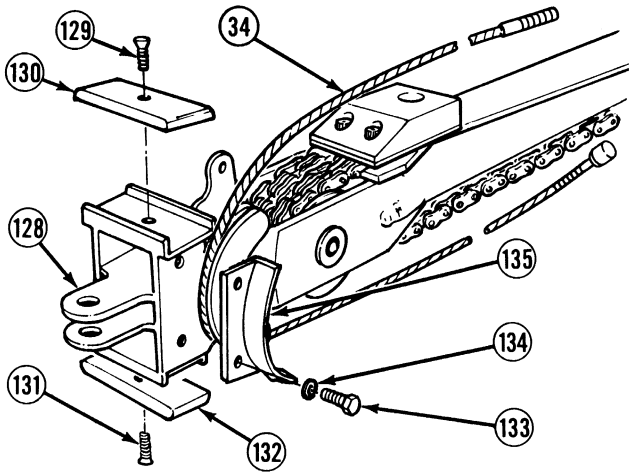
(16) Align chain assembly (102) through tube weldment (128).

(17) Apply sealing compound to threads of three screws (136).

(18) Install clevis (142), shim (139) and wear pad (138) on tube weldment (128) with three pins (140) and (141), washers (137) and screws (136). Tighten screws to 168 lb-in (19 N·m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



NOTE

Ensure to position wear pad with long side over grease fitting.

(19) Apply sealing compound to threads of screw (131).

(20) Install bottom wear pad (132) on tube weldment (128) with screw (131).

(21) Apply sealing compound to threads of screw (129).

(22) Install top wear pad (130) on tube weldment (128) with screw (129).

NOTE

Ensure correct end of cable is installed.

(23) Apply sealing compound to threads of two screws (133).

(24) Install cable (34) and cable keeper plate (135) on tube weldment (128) with two washers (134) and screws (133). Tighten screws to 28 lb-ft (38 N·m).

16-3. BOOM ASSEMBLY REPAIR (CONT).

(25) Apply grease to inside top and bottom of structural section (91).

WARNING

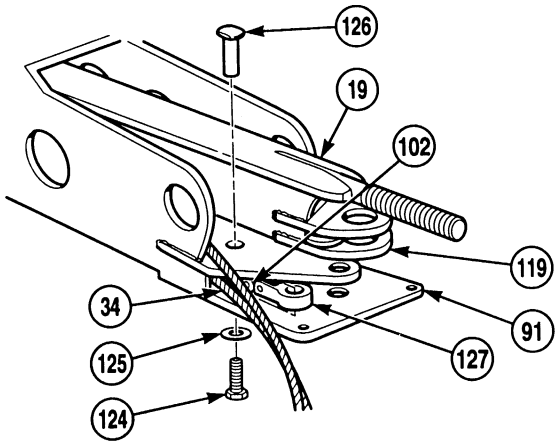
Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(26) Using lifting device, position structural section (91) on opposite side.

NOTE

Cable must be held, paying out long part and evening cable at rear. Cable must pay out completely during installation and become level under weldment.

(27) With the aid of an assistant, hold cable (34) and install chain assembly (102), cable, equalizer link weldment (19) and tube weldment (128) into structural section (91).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(28) Apply sealing compound to threads of two screws (124).

NOTE

Screws do not fit up tight against frame.

(29) Install chain clevis (127) on structural section (91) with two pins (126), washers (125) and screws (124).

NOTE

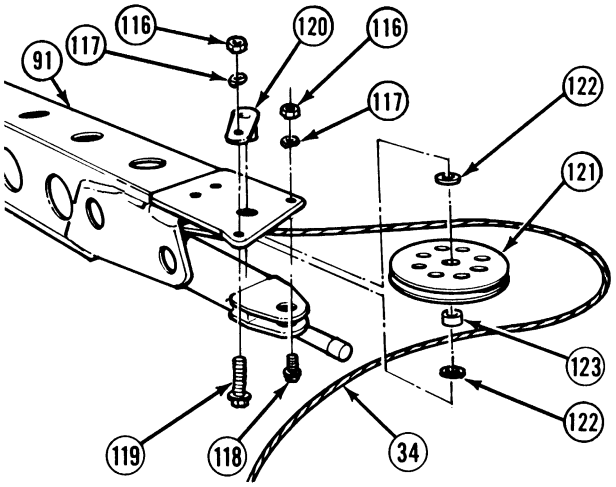
Perform Steps (30) and (31) if bearing was removed.

(30) Apply grease to bearing (123).

(31) Install bearing (123) in sheave (121).

(32) Apply grease to two thrust washers (122).

(33) Position washers (122) on sheave (121).



WARNING

Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(34) Using lifting device, position structural section (91) on opposite side.

(35) Install sheave (121) in structural section (91).

WARNING

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.

(36) Install cable (34) on sheave (121).

(37) Apply sealing compound to threads of two screws (118) and (119).

CAUTION

Ensure screws are not overtightened on sheave assembly. Screw head should just touch sheave. Sheave should move freely, or crane may not operate correctly.

NOTE

Longer screw goes on pin weldment.

(38) Install pin weldment (120) on structural section (91) with two screws (118) and (119), lockwashers (117) and nuts (116).

NOTE

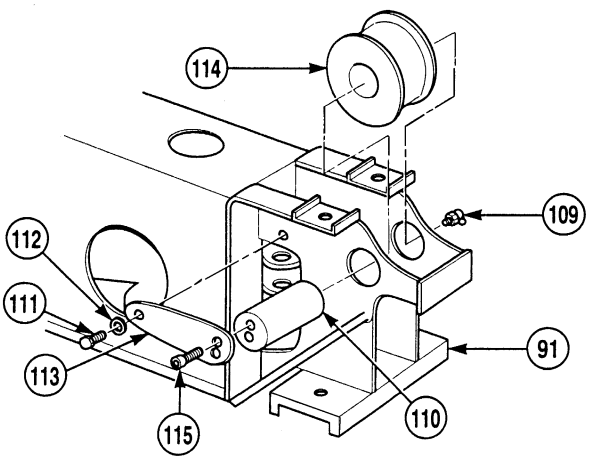
Do not attach cable to roller hole.

(39) Tie cable (34) to both ends of structural section (91) with cable tie.

16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

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.



(40) Apply sealing compound to threads of two screws (115).

(41) Install pin support plate (113) on pin (110) with two screws (115). Tighten screw to 28 lb-ft (38 N·m).

(42) Apply sealing compound to threads of screw (111).

(43) Install roller (114) and pin support plate (115) on structural section (91) with washer (112) and screw (111). Tighten screw to 20 lb-ft (27 N·m).

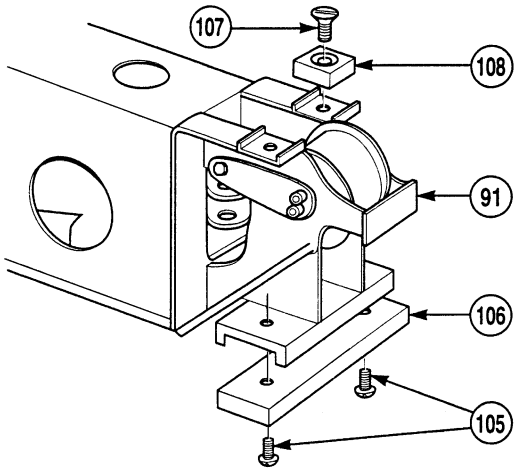
NOTE

Ensure grease fitting is facing straight out.

(44) Install grease fitting (109) in pin (110).

WARNING

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.



(45) Apply sealing compound to threads of two screws (107).

(46) Install two wear pads (108) on top of structural section (91) with screws (107).

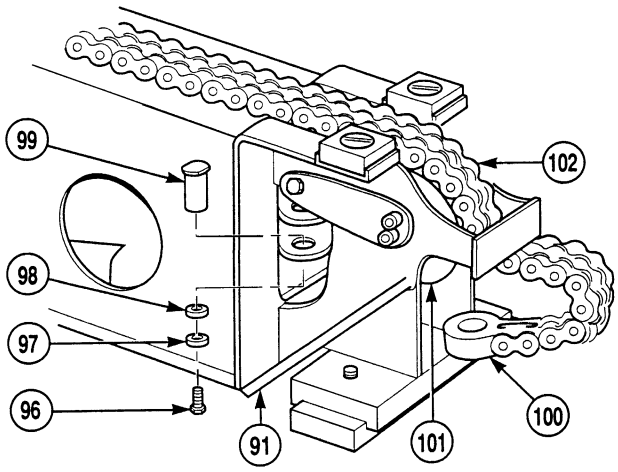
(47) Apply sealing compound to threads of two screws (105).

(48) Install wear pad (106) on bottom of structural section (91) with two screws (105).

(49) Apply grease to upper and lower wear pads (108) and (106).

NOTE

Ensure chain lays flat.



(50) Position chain assembly (102) along structural section (91).

(51) Apply sealing compound to threads of screw (96).

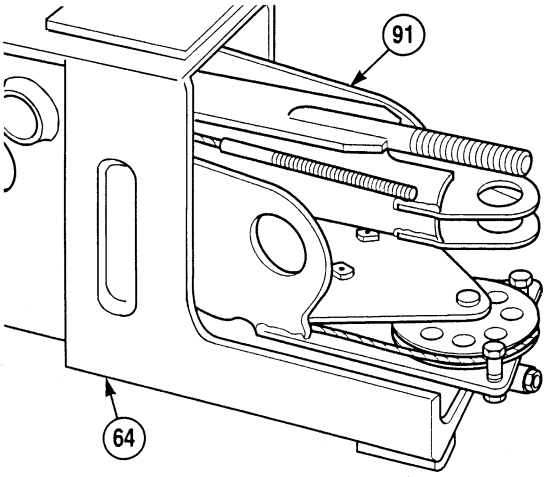
(52) Pull chain assembly (102) around roller (101) and install clevis (100) with pin (99), washer (98), washer (97) and screw (96). Tighten screw to 16 lb-ft (22 N·m).

16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Structural section weighs 175 lbs (79 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(53) Using lifting device, position structural section (91) on opposite side.



NOTE

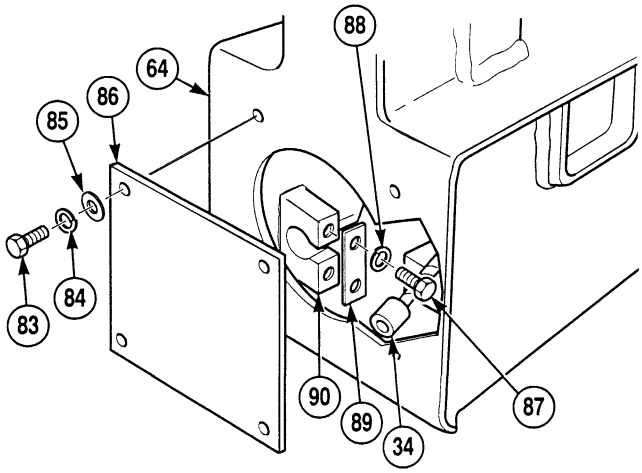
Ensure chain and cable are straight and not binding.

(54) With the aid of an assistant, guide structural section (91) into fly section (64).

(55) Remove cable tie in fly section (64) and position cable (34) in cable retainer (90).

WARNING

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.



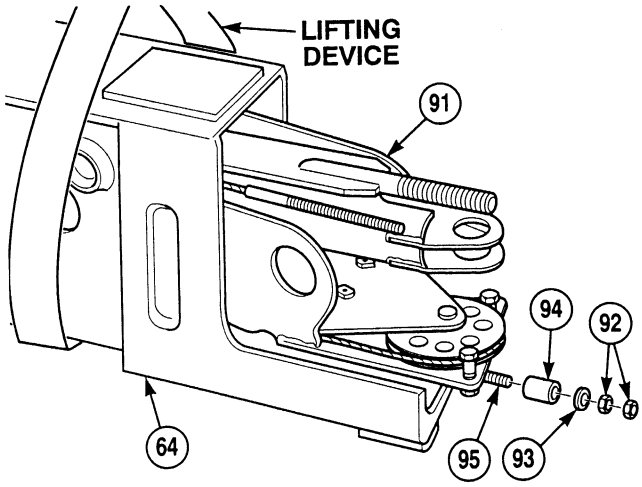
(56) Apply sealing compound to threads of two screws (83).

(57) Install cable retainer (89) in cable retainer weldment (90) with two lockwashers (88) and screws (87). Tighten screws to 108 lb-in (12 N·m).

(58) Install plate (86) in fly section (64) with four washers (85), lockwashers (84) and screws (83). Tighten screws to 72 lb-in (8 N·m).

(59) Position chain clevis (95) through end of fly section (64).

(60) Install spacer (94), washer (93) and two nuts (92) on chain clevis (95).

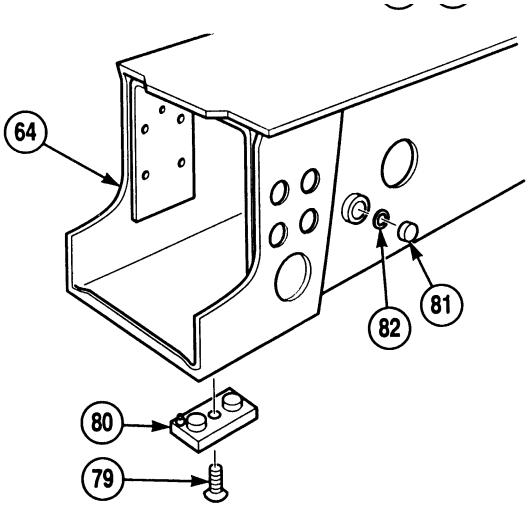


NOTE

- Wear pads are installed on end of fly section positioned in outer-mid section.
- Install washers as noted during removal.

(61) Install two washers (82) and wear pads (81) in sides of fly section (64).

(62) Apply grease to two wear pads (81).



WARNING

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NOTE

Wear pads are installed with taper to outside.

(63) Apply sealing compound to threads of two screws (79).

(64) Install upper rear wear pads (81) on fly section (64) with two screws (79)

(65) Apply grease to two wear pads (80).

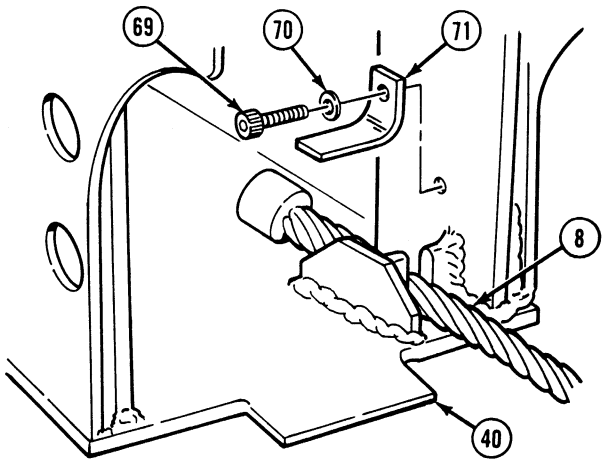
16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(66) Apply sealing compound to threads of screw (69).

(67) Install end of cable (8) in outer-mid section (40) with cable hold-down (71), washer (70) and screw (69). Tighten screw to 168 lb-in (18 N·m).



WARNING

Fly section weighs 450 lbs (204 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(68) Attach lifting device to fly section (64).

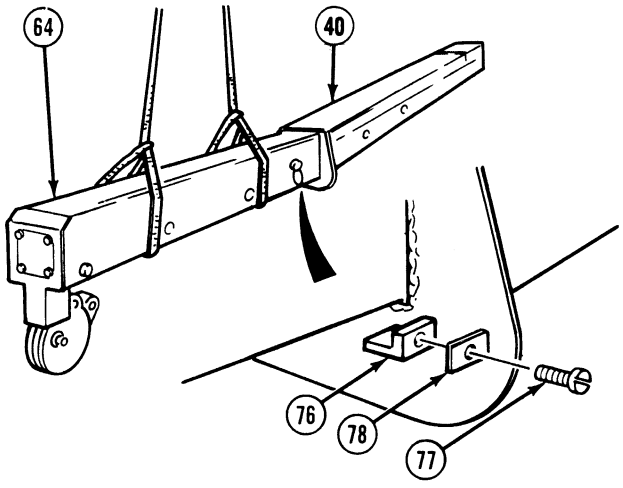
(69) With the aid of two assistants, install fly section (64) in outer-mid section (40).

(70) Apply sealing compound to threads of screw (77).

NOTE

Perform Step (74) if wear pad had shim and screw.

(71) Install shim (78) on wear pad (76) with screw (77).



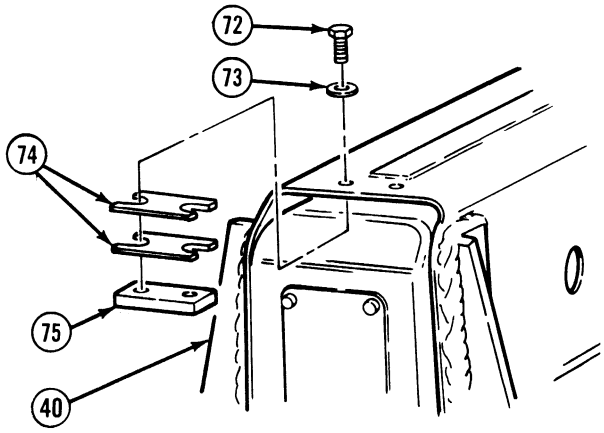
WARNING

Do not stick fingers under section when installing wear pads, or injury to hands may result.

(72) Lift end of fly section (64) and install wear pads (76) on front of outer-mid section (40).

(73) Apply grease to two wear pads (76).

(74) Position shims (74) and wear pad (75) on outer-mid section (40).



WARNING

At least 0.06 in. (1.5 mm) of clearance is required between highest spot on fly section and bottom of wear pad or section may not operate properly. Damage to equipment may result.

(75) Check clearance between high point of fly section (64) and wear pad (75). Add or subtract shim (74) as required.

WARNING

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.

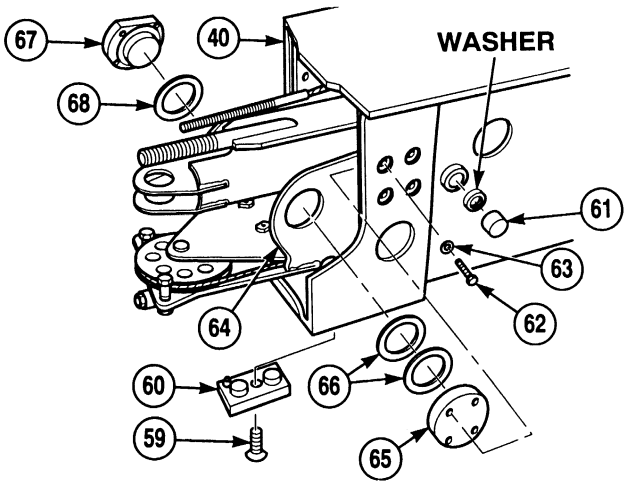
(76) Apply sealing compound to threads of two screws (72).

(77) Install wear pad (75) and shims (74) on upper front of outer-mid section (40) with two washers (73) and screws (72). Tighten screws to 31 lb-ft (42 N·m).

16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(78) Apply sealing compound to threads of four screws (62).

(79) Install right trunnion plate (67) and washer (68) in fly section (64) with four washers (63) and screws (62). Tighten screws to 25 lb-ft (34 N·m).

(80) Apply sealing compound to threads of four screws (62).

(81) Install left trunnion plate (65) and two washers (66) in fly section (64) with four washers (63) and screws (62). Tighten screws to 25 lb-ft (34 N·m).

NOTE

Install washers as noted during removal.

(82) Install washers and side wear pads (61) in outer-mid section (40).

(83) Apply grease to two wear pads (61).

NOTE

Wear pads are installed with taper to outside.

(84) Apply sealing compound to threads of two screws (59).

(85) Install two upper rear wear pads (60) on outer-mid section (40) with two screws (59)

(86) Apply grease to two wear pads (60).

WARNING

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(87) Apply sealing compound to threads of two screws (56).

(88) Install wear plate (58) inside inner-mid section (20) with two washers (57) and screws (56). Tighten screws to 120 lb-in (13 N·m).

(89) Apply grease to wear plate (58).

NOTE

Perform Step (90) if bushings were removed.

(90) Install two bushings (55) in sheaves (52).

(91) Apply grease to four thrust washers (53).

(92) Install four thrust washers (53) on two sheaves (52).

(93) Install two sheaves (52) on inner mid-section (20) with two pin supports (51).

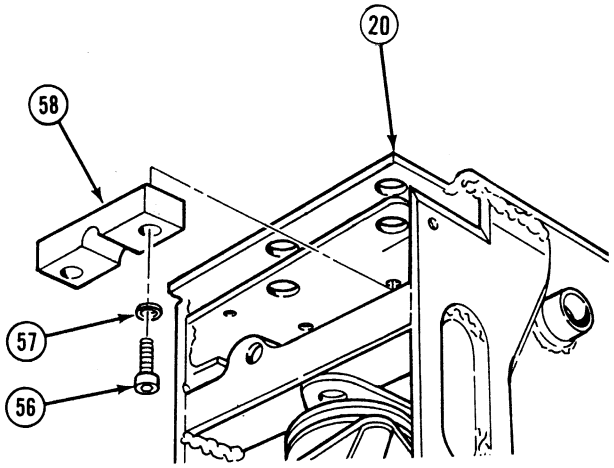
(94) Apply sealing compound to threads of two screws (49).

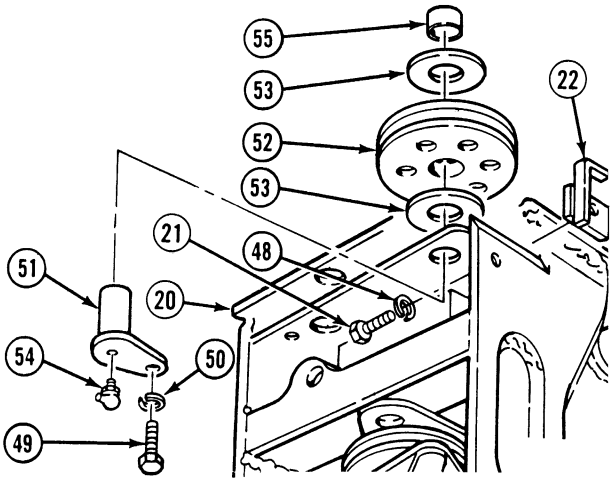
(95) Install two lockwashers (50) and screws (49) in pin supports (51). Tighten screw to 18 lb-ft (24 N·m).

(96) Install two grease fittings (54) on pin supports (51).

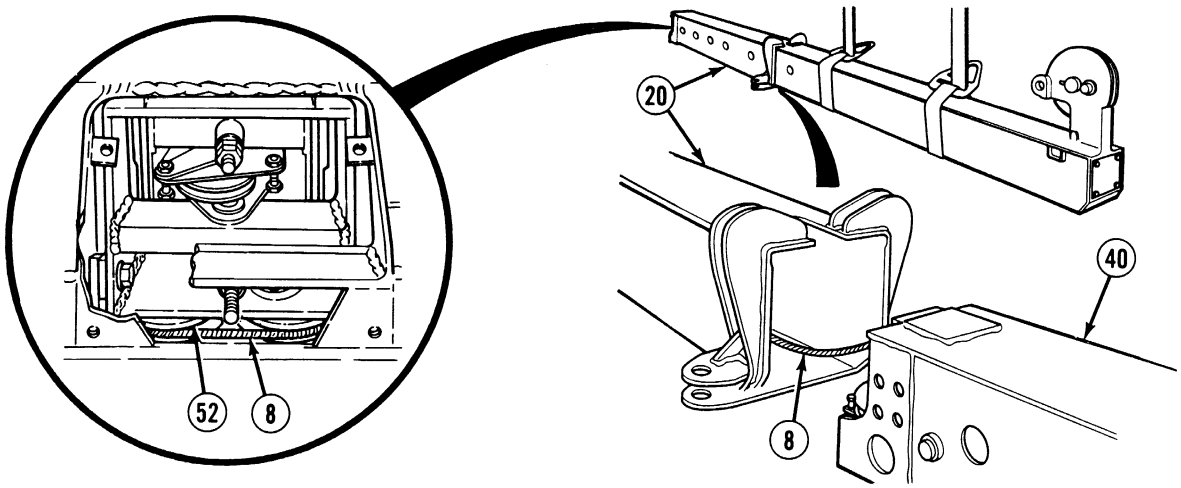
(97) Apply sealing compound to threads of screw (21).

(98) Position cable keeper (22) on inner-mid section (20) with lockwasher (48) and screw (21).





16-3. BOOM ASSEMBLY REPAIR (CONT).



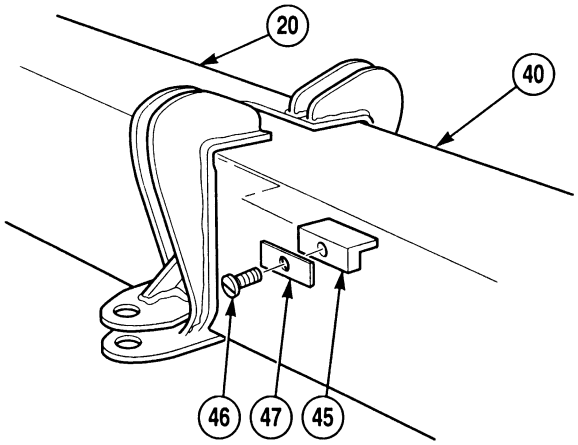
WARNING

Outer-mid section weighs 800 lbs (363 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(99) Attach lifting device to inner-mid section (20).

(100) With the aid of two assistants, route cable (8) through inner-mid section (20) while slowly installing outer-mid section (40) into inner-mid section (20).

(101) As cable (8) gets close to rear of inner-mid section (20), pull cable (8) through and route around sheaves (52). Pull cable (8) and slowly slide into outer-mid section (40) until section is half installed.



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Perform Steps (102) and (103) if wear pad has shim and screw.

(102) Apply sealing compound to threads of screw (46).

NOTE

Shims are installed on sides of boom wear pads to locate each section on center of its mating surface. Shim thicknesses should be selected to provide a maximum of 0.125 in. (3.1 mm) total side clearance between boom bottom plate edge and wear pad.

(103) Install shim (47) on wear pad (45) with screw (46).

WARNING

Do not stick fingers under section to install wear pads, or injury to hands may result.

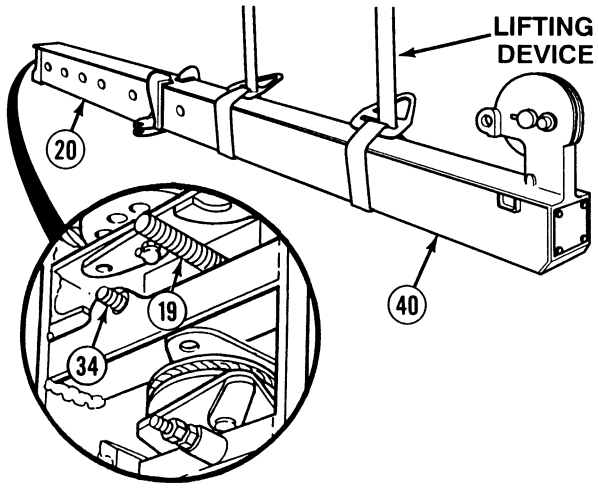
(104) Lift outer-mid section (40) and install two wear pads (45) in inner-mid section (20).

(105) Apply grease to two wear pads (45).

16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

- Ensure equalizer link and tube weldment clear rear of outer-mid section.
- If cable was tied to equalizer link weldment, tie must be removed.



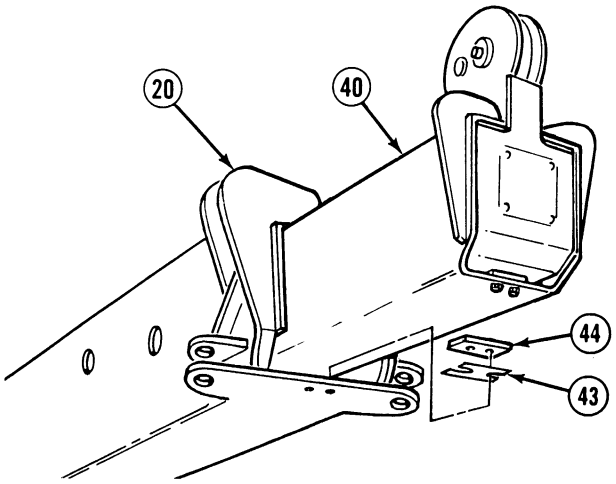
(106) With the aid of an assistant, hold equalizer link (19) and push outer-mid section (40) further into inner-mid section (20). Route cable (34) end through hole in rear of inner-mid section.

(107) Position inner-mid section (20) over on opposite side.

(108) Position shims (43) and wear pad (44) on inner-mid section (20).

WARNING

At least 0.06 inches (1.5 mm) of clearance required between highest spot on fly section and bottom of wear pads or section may not operate properly and damage to equipment may result.



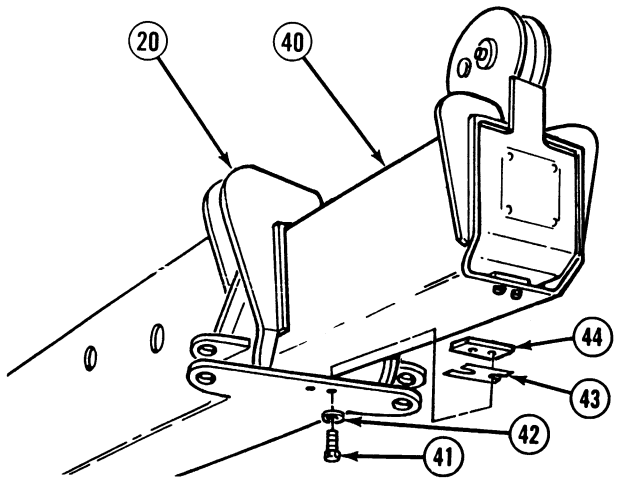
(109) Check clearance between outer-mid section (40) and wear pad (44). Add or subtract shims (43) as required.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(110) Apply sealing compound to threads of two screws (41).

(111) Install wear pad (44) and shims (43) on upper front of inner-mid section (20) with washers (42) and screws (41). Tighten screws to 31 lb-ft (42 N·m).

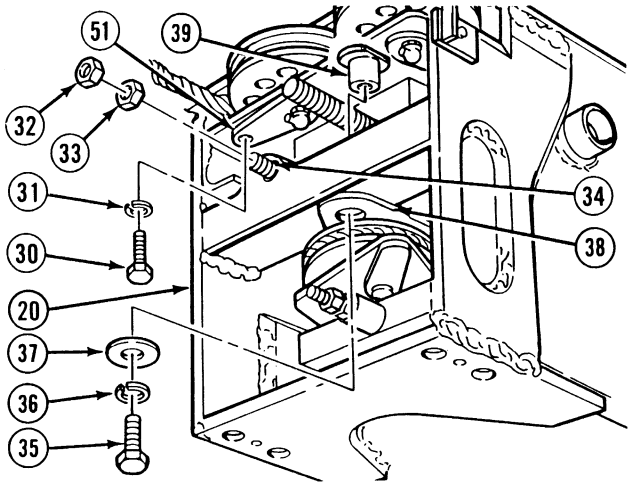


16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

Cable can be held with pliers to help position in hole.

(112) Position cable (34) through hole in inner-mid section (20), swivel nut (33) on cable.



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Ensure grease fittings on sheave pins face rear.
- Leverage may need to be applied to cable guide in order to align holes.

(113) Apply sealing compound to threads of screw (35).

(114) Align cable guide (38) and inner-mid section (20) and install pin (39), washer (37), lockwasher (36) and screw (35). Tighten screw to 120 lb-in (14 N·m).

(115) Pull cable (34) and tighten swivel nut (33) on cable (34).

(116) Install jam nut (32) on cable (34). Leave 1/4 in. (6.4 mm) of thread exposed.

NOTE

Ensure cable is on sheave side of screw.

(117) Apply sealing compound to threads of screw (30).

(118) Install lockwasher (31) and screw (30) on support pin (51). Tighten screw to 120 lb-in (14 N·m).

(119) Using lifting device, position inner-mid section (20) on opposite side.

NOTE

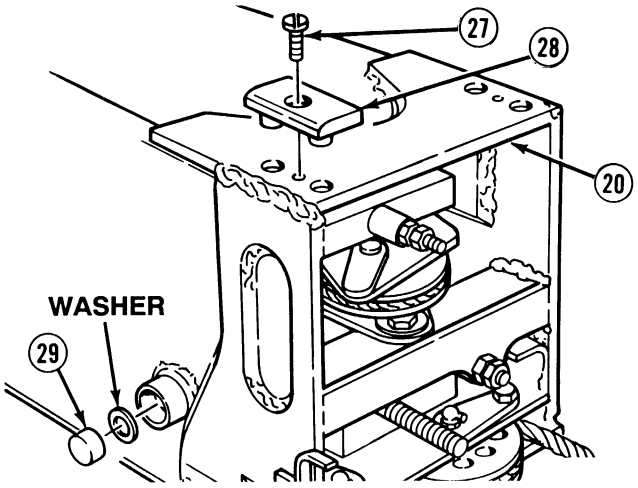
Install washer as noted during removal.

(120) Position two side wear pads (29) and washers on inner-mid section (20).

(121) Apply grease to two wear pads (29).

WARNING

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

Wear pads are installed with taper to outside.

(122) Apply sealing compound to threads of screws (27).

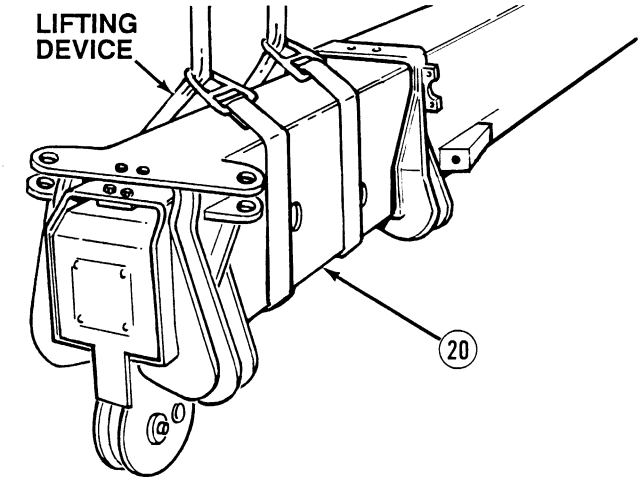
(123) Install two rear wear pads (28) with screws (27).

(124) Apply grease to two wear pads (28).

WARNING

Inner-mid section weighs 1000 lbs (454 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(125) Attach lifting device on inner-mid section (20).

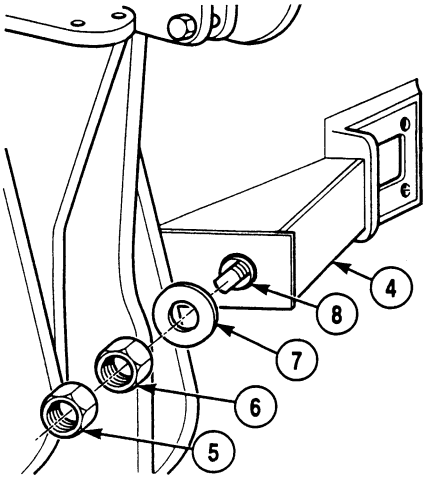


16-3. BOOM ASSEMBLY REPAIR (CONT).

NOTE

Cable may be held with pliers to tighten locknut.

(126) Pull cable (8) through base section (4) and install washer (7), locknut (6) and nut (5) on cable.



WARNING

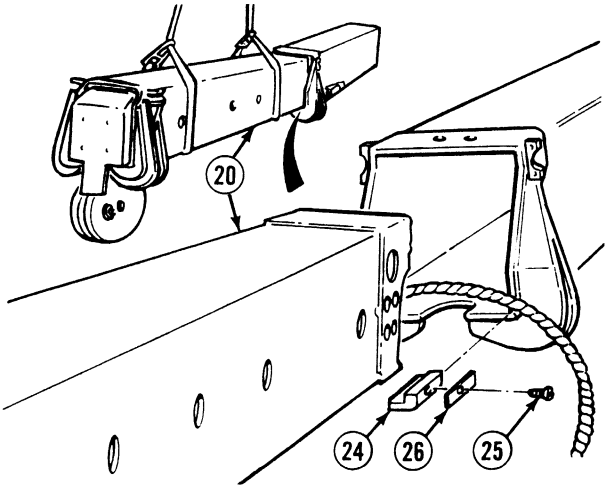
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Perform Steps (127) and (128) if wear pad has a shim and screw.

(127) Apply sealing compound to threads of screw (25).

(128) Install shim (26) on wear pad (24) with screw (25).



WARNING

Do not stick fingers under section to install wear pads, or injury to hands may result.

(129) Lift front of inner-mid section (20) and install wear pads (24) on inner-mid section.

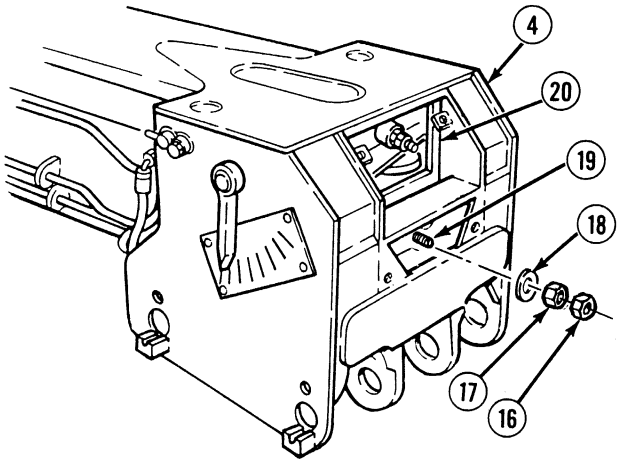
(130) Apply grease to two wear pads (24).

NOTE

- If outer-mid section fit is tight, install C-clamp on outer-mid section and base section and use clamp to push outer-mid section inward.
- Ensure equalizer link weldment is properly installed.

(131) With the aid of an assistant, push inner-mid section (20) and base section (4) completely together while routing end of equalizer link weldment (19) from inner-mid section (20) through hole in rear of base section (4).

(132) Install washer (18), nut (17) and jam nut (16) on equalizer link weldment (19).

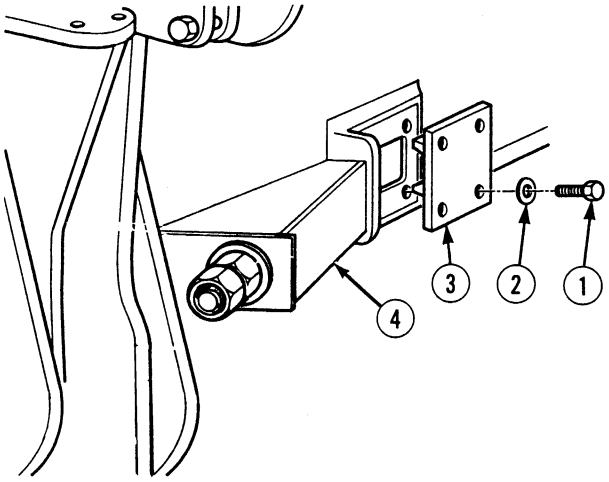


WARNING

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.

(133) Apply sealing compound to threads of four screws (1).

(134) Install cable guide (3) with four washers (2) and screws (1). Tighten screws to 16 lb-ft (22 N·m).

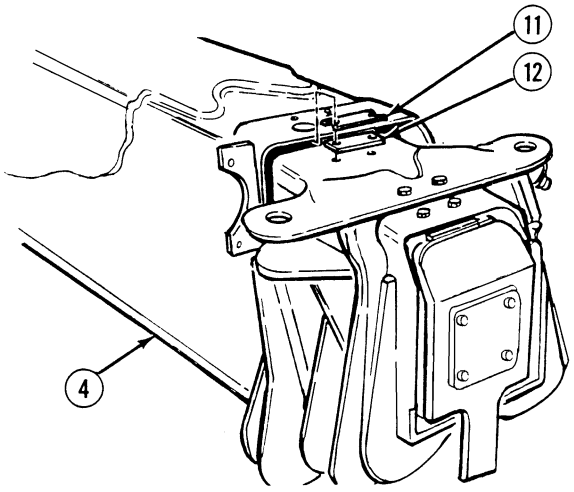


(135) Position shims (11) and wear pad (12) on base section (4).

CAUTION

At least 0.06 in. (1.5 mm) of clearance is required between highest spot on inner-mid section and bottom of wear pads or section may not operate properly or damage to equipment may result.

(136) Check clearance between base section (4) and wear pad (12) and add or subtract shims (11) as required.



16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

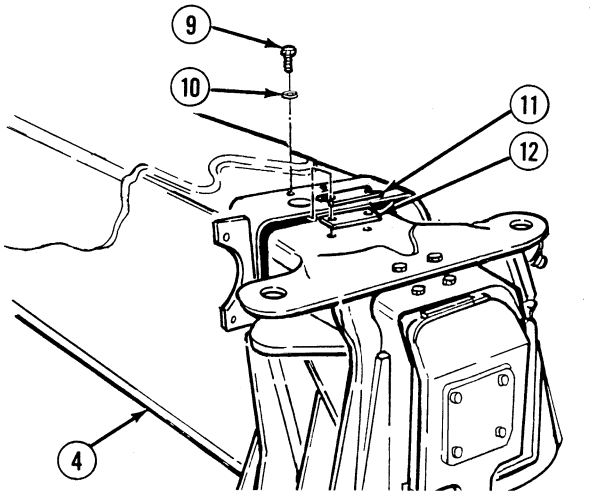
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

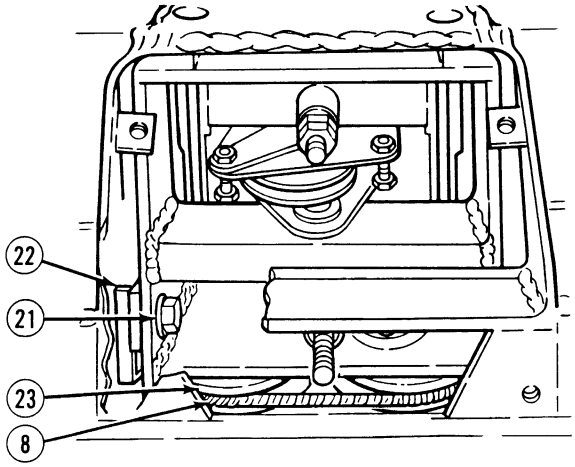
(137) Apply sealing compound to threads of two screws (9).

(138) Install wear pad (12) and shims (11) on base section (4) with two washers (10) and screws (9). Tighten screws to 31 lb-ft (42 N·m).

(139) Apply grease to wear pad (12).

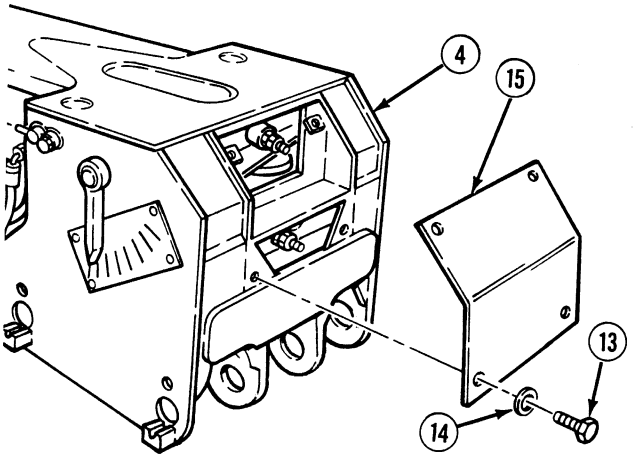
(140) Reach through access hole in rear of base section (4) and install cable keeper (22) over cable (8) and roller guide (23) and tighten screw (21) to 108 lb-in (12 N·m).





WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(141) Apply sealing compound to threads of four screws (13).

(142) Install cover plate (15) on base section (4) with four washers (14) and screws (13). Tighten screws to 17 lb-ft (23 N·m).

e. Installation.

WARNING

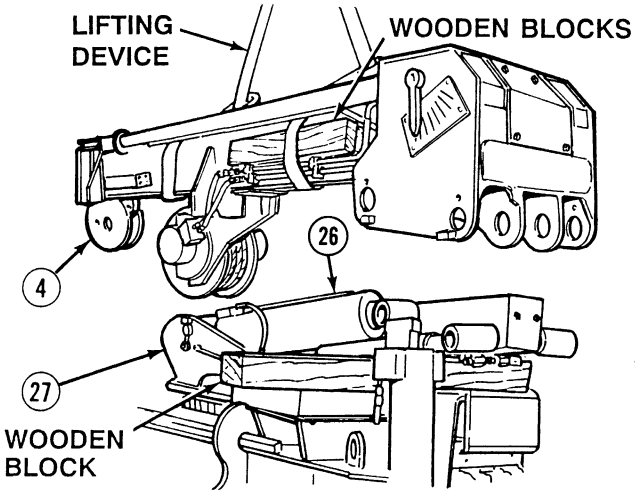
Boom weighs 2,100 lbs (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to boom assembly (4).

CAUTION

Take care not to crush or damage hoses during boom assembly installation.

(2) With the aid of an assistant, raise boom assembly (4) up and slowly position boom on crane (27). Lower boom slowly and align lift cylinders (26) with holes in boom.



16-3. BOOM ASSEMBLY REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure hole in pin is straight up and down.

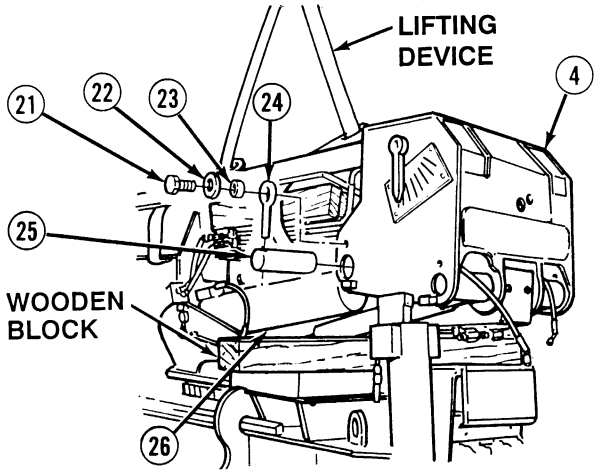
(3) Coat pin (25) with anti-seize compound.

(4) Install pin (25) in right lift cylinder (26).

(5) Apply sealing compound to threads of screw (21).

(6) Install lock pin (24) and bushing (23) with washer (22) and screw (21). Tighten screw to 135 lb-ft (183 N·m).

(7) Repeat Steps (3) through (6) for other lift cylinder.



(8) Align tension cylinder (8) with holes in boom assembly (4).

(9) Coat pin (16) with anti-seize compound.

NOTE

Ensure hole in pin is straight up and down.

(10) Install pin (16) in mast valve base mount (11).

(11) Align mast valve base mount (11) with holes in boom assembly (4).

(12) Continue installing pin (16) just up to erection cylinder (9).

NOTE

Ensure hole in pin aligns straight up and down.

(13) Lift end of erection cylinder (9) and align with hole in boom assembly (4).

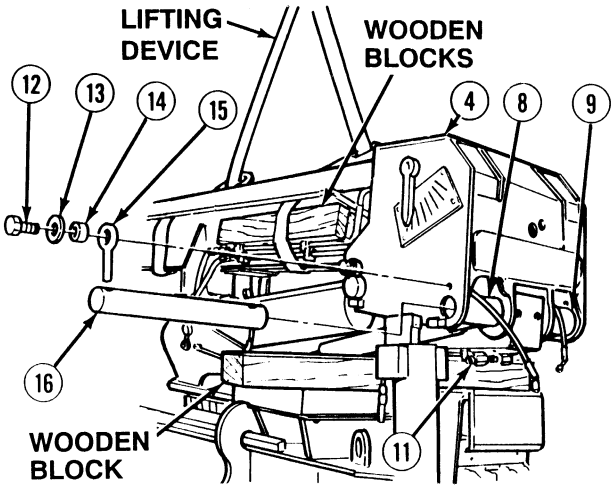
NOTE

Pin should stick out evenly on both sides.

(14) Finish installing pin (16) in erection cylinder (9).

(15) Apply sealing compound to threads of two screws (12).

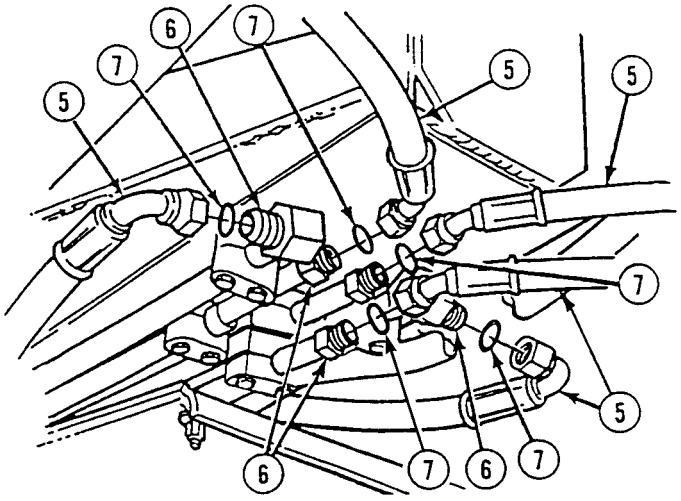
(16) Install two lock pins (15) and bushings (14) with washers (13) and screws (12). Tighten screw to 135 lb-ft (183 N·m).



16-3. BOOM ASSEMBLY REPAIR (CONT).

(17) Apply hydraulic oil to five preformed packings (7).

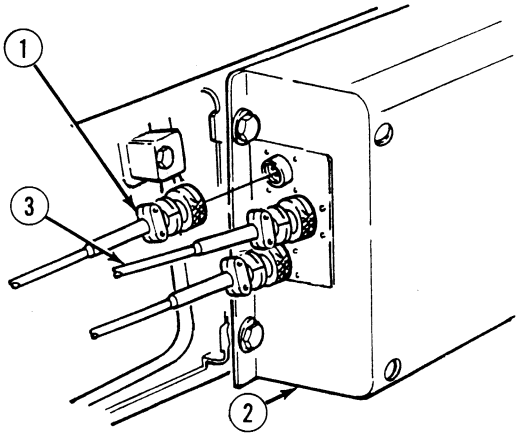
(18) Install five preformed packings (7) on fittings (6) and connect hoses (5).



NOTE

Route wire harness and install cable ties as necessary.

(19) Route wire harness (3) and connect connector (1) at top rear of overload shutdown box (2).



f. Follow-On Maintenance:

- Install telescope cylinder, (Para 16-10).
- Install hook block, (TM 9-2320-364-20).
- Grease all pivot points, (TM 9-2320-364-20).
- Install muffler, (TM 9-2320-364-20).
- Return LHS to transit position, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-10).
- Check crane operation, (TM 9-2320-364-10).
- Adjust boom cable and chain, (Para 16-4).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-4. BOOM CABLE AND CHAIN ADJUSTMENT.

This task covers:

a. Adjustment b. Follow-On Maintenance

INITIAL SETUP

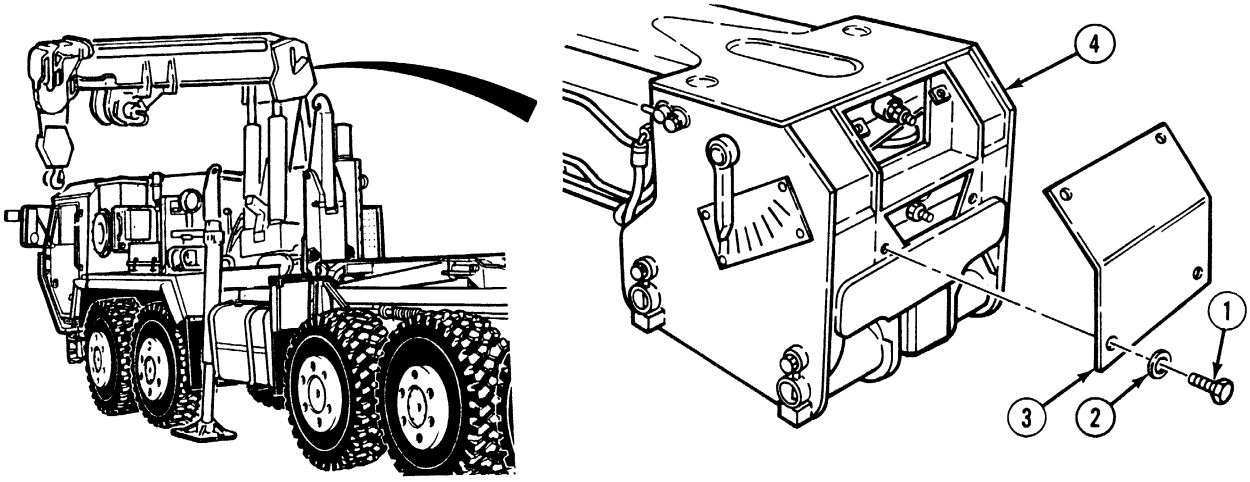
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)

Materials/Parts
Grease (Item 21, Appendix B)

Personnel Required
Two

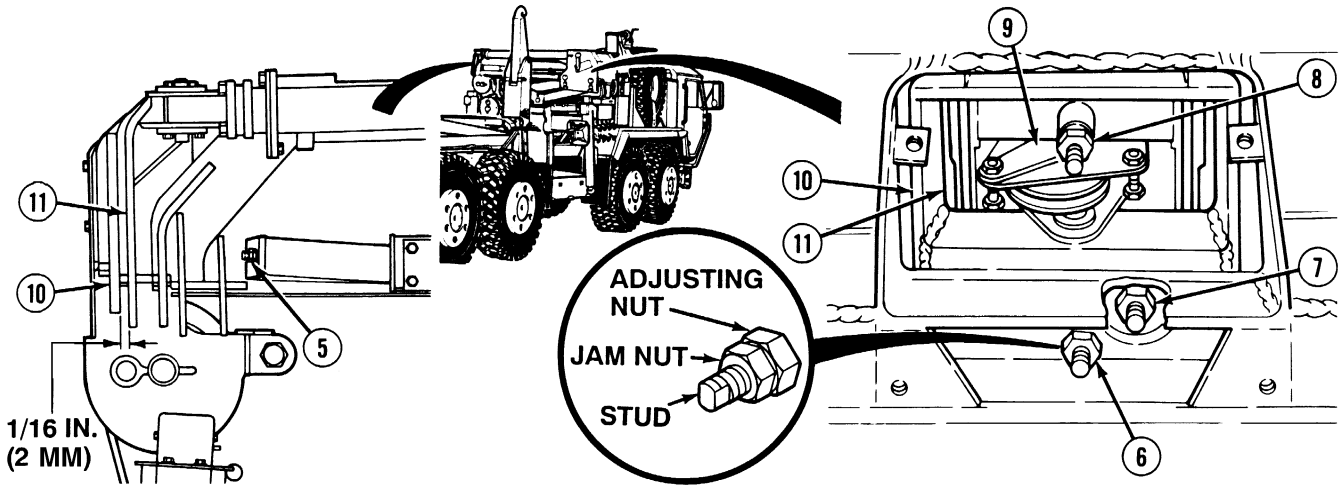
Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Adjustment.



(1) Remove four screws (1), washers (2) and cover (3) from boom base (4).

16-4. BOOM CABLE AND CHAIN ADJUSTMENT (CONT).



(2) Hold flat surface of cable and remove jam nuts, and loosen adjusting nuts (5), (6), (7) and (8).

(3) Apply grease to sliding areas of each boom section.

NOTE

All boom sections must be fully retracted to stops for adjustment.

(4) Operate crane and fully retract outer-mid section (11), inner-mid section (10) and fly section (9). Ensure boom sections are fully retracted by manually pushing them back to stops.

(5) With the aid of an assistant, hold flat surface of cable and tighten adjusting nut (5) until outer-mid section (11) just begins to move.

(6) Hold flat surface of cable and loosen adjusting nut (5) two turns.

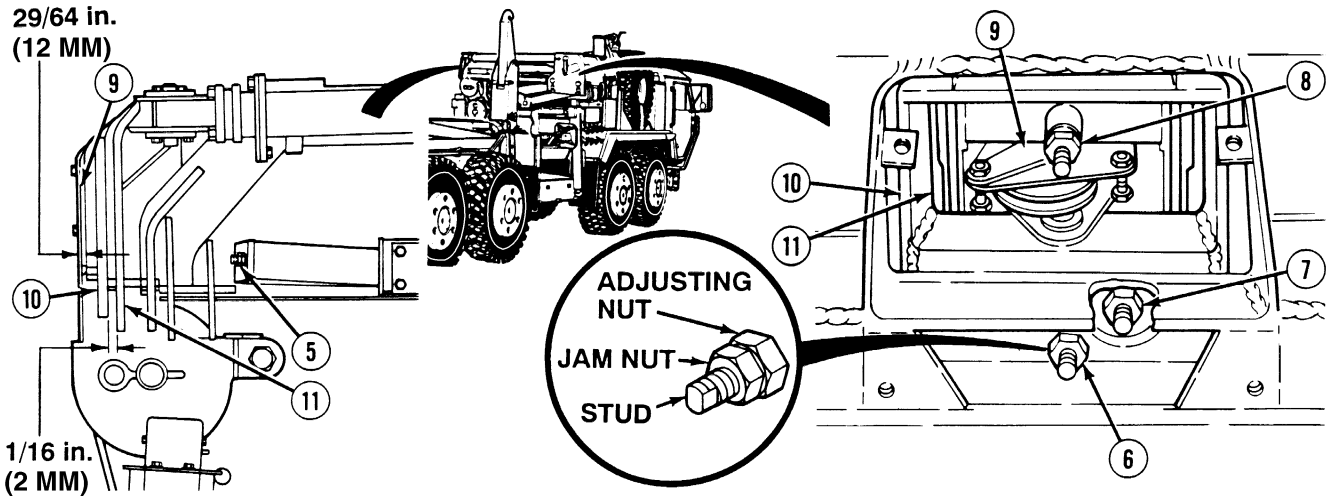
(7) Manually push outer-mid section (11) completely back to stops.

(8) With the aid of an assistant, tighten adjusting nut (6) to 60 lb-in (7 N·m) and check for 1/16 in. (2 mm) plus or minus 1/64 in. minimum clearance between outer-mid section (11) and inner-mid section (10). If 60 lb-in (7 N·m) can not be obtained, repeat Steps (6) through (9).

(9) With the aid of an assistant, hold flat surface of cable and tighten adjusting nut (7) until inner-mid section (10) just begins to move.

(10) Hold flat surface of cable and loosen adjusting nut (7) two turns.

(11) Manually push fly section (9) completely back to stops.



(12) With the aid of an assistant, tighten adjusting nut (8) to 36 lb-in (4 N·m) and check for 29/64 in. (12 mm) to plus or minus 1/64 in. (0.4 mm) minimum clearance between inner-mid section (10) and fly section (9). If 36 lb-in (4 N·m) can not be obtained, repeat Steps (10) through (13).

(13) Operate crane two times to fully extend and retract boom sections.

(14) Recheck clearance between boom sections:

(a) Minimum clearance between outer-mid section (11) and inner-mid section (10) should be 1/16 in. (2 mm) plus or minus 1/64 in. (0.4 mm).

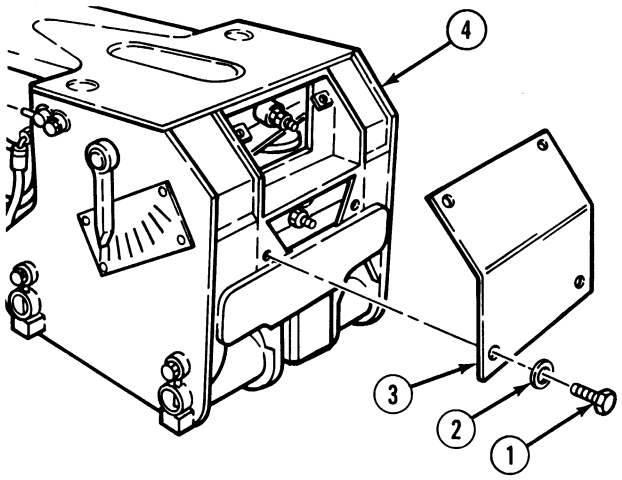
(b) Minimum clearance between inner-mid section (10) and fly section (9) should be 29/64 in. (12 mm) plus or minus 1/64 in. (0.4 mm).

(15) If measurement in Step (14) (a) is wrong, repeat Steps (6) through (9).

(16) If measurement in Step (14) (b) is wrong, repeat Steps (10) through (13).

(17) Position jam nuts on adjusting nuts (5), (6), (7) and (8), hold flat surface of cable and tighten jam nuts.

(18) Install cover (3) on boom base (4) with four washers (2) and screws (1). Tighten screws to 17 lb-ft (23 N·m).



b. Follow-On Maintenance:

- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-5. ERECTION CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

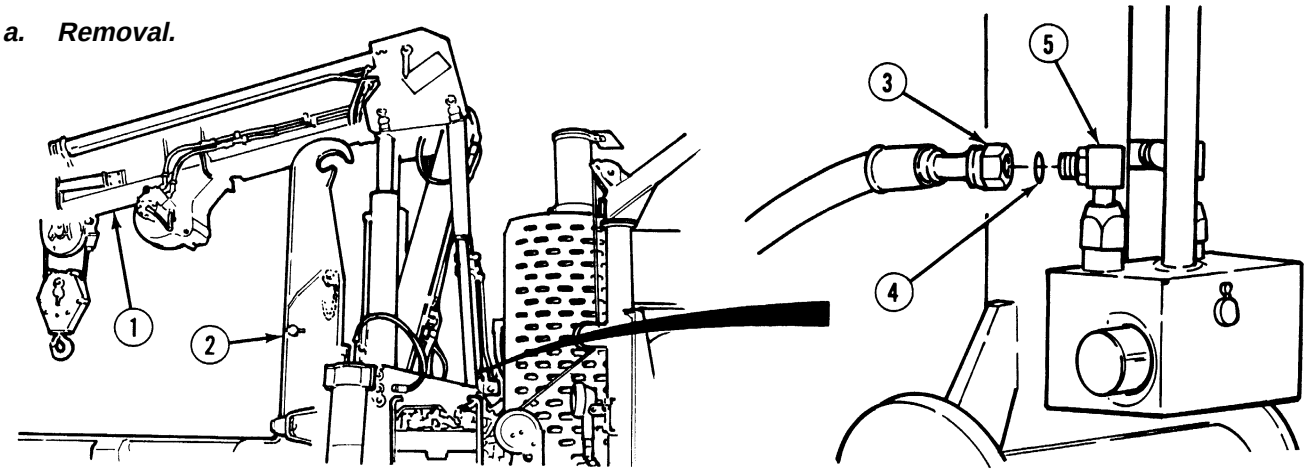
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 100 lb (45 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (2) (Item 389, Appendix E)

Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

Ensure boom is fully supported by the LHS hook. Failure to support boom with LHS hook will cause boom to drop and may result in serious injury or death to personnel.

(1) Position boom (1) on LHS hook (2).

WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

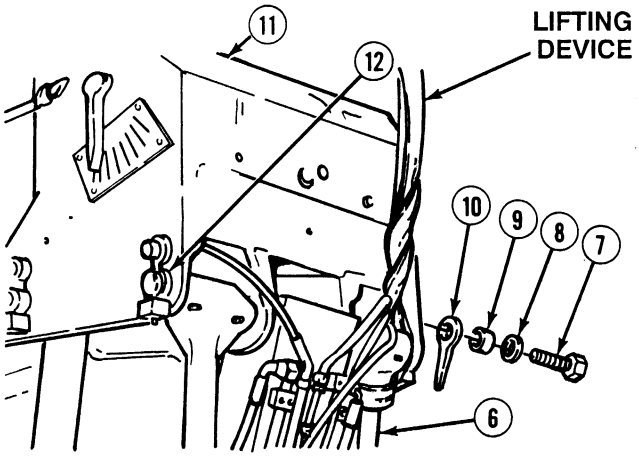
NOTE

- Tag and mark hydraulic hoses and tubes before disconnecting.
- Cap and plug hydraulic hoses and fittings after disconnecting.

(2) Disconnect two hoses (3) and remove preformed packings (4) from elbows (5). Discard preformed packings.

WARNING

Erection cylinder weights 78 lbs (35 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



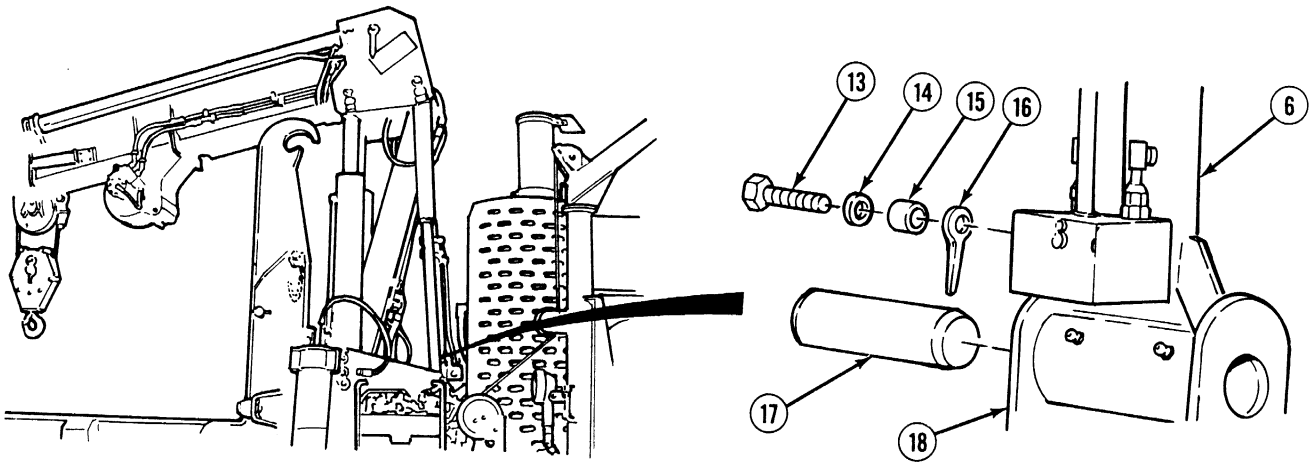
(3) Attach lifting device around erection cylinder (6).

(4) Remove two screws (7), washers (8), bushings (9) and lock pins (10) from boom base (11).

WARNING

One pin secures erection cylinder, tension cylinder, and mast. Be careful to drive out pin only as far as needed to remove erection cylinder, or other components may fall, causing injury to personnel.

(5) Drive pin (12) out far enough to free erection cylinder (6) from boom base (11).



(6) Remove screw (13), washer (14), bushing (15) and lock pin (16) from pin (17) and turntable (18).

(7) Drive out pin (17) and remove erection cylinder (6) from turntable (18).

16-5. ERECTION CYLINDER REPLACEMENT (CONT).

b. Installation.

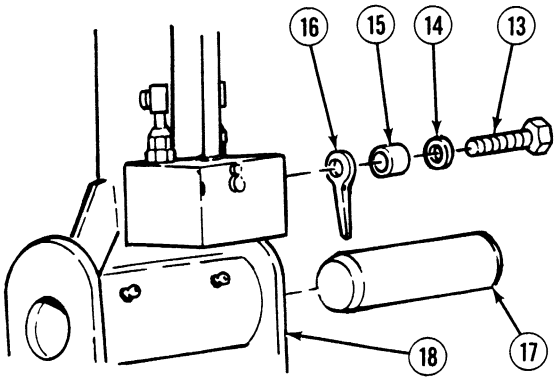
WARNING

Erection cylinder weighs 78 lbs (35 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

NOTE

Make sure pin is installed with lock pin holes aligned.

(1) With the aid of an assistant and using lifting device, align and position base end of erection cylinder (6) in turntable (18) with pin (17).



WARNING

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 sealing compound to threads of screw (13).

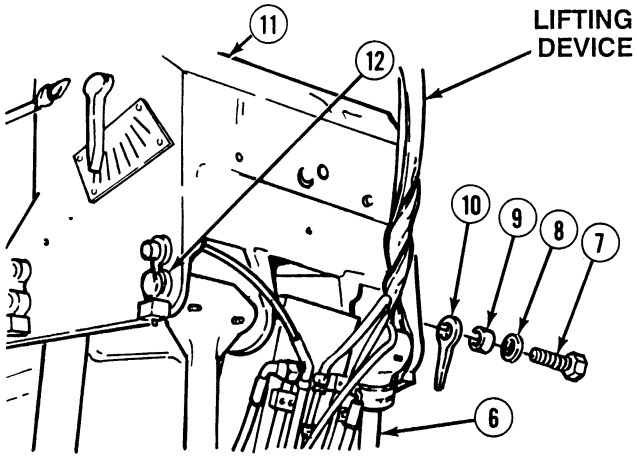
(3) Install lock pin (16) and bushing (15) with washer (14) and screw (13). Tighten screw to 135 lb-ft (183 N·m).

(4) Position top of erection cylinder (6) in boom base (11) and install pin (12).

(5) Apply sealing compound to threads of two screws (7).

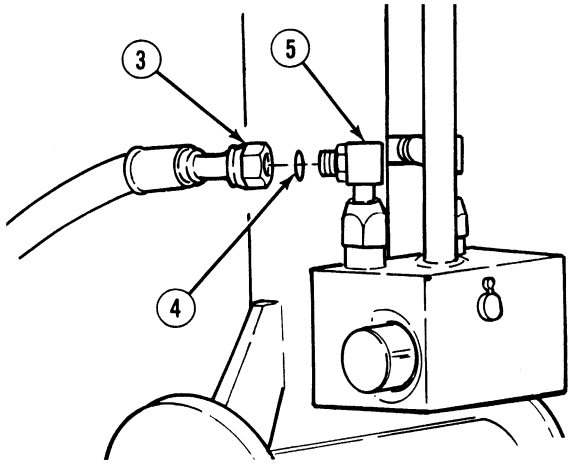
(6) Install lock pins (10) and bushings (9) with two washers (8) and screws (7). Tighten screws to 135 lb-ft (183 N·m).

(7) Remove lifting device from erection cylinder (6).



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.



(8) Apply hydraulic oil to two preformed packings (4).

(9) Install two preformed packings (4) on elbows (5).

(10) Connect two hoses (3) on elbows (5).

c. Follow-On Maintenance:

- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-6. LIFT CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 6 gal (Item 145, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
Lifting Device, Minimum Capacity 150 lbs (68 kg)
Wooden Block (Appendix C)

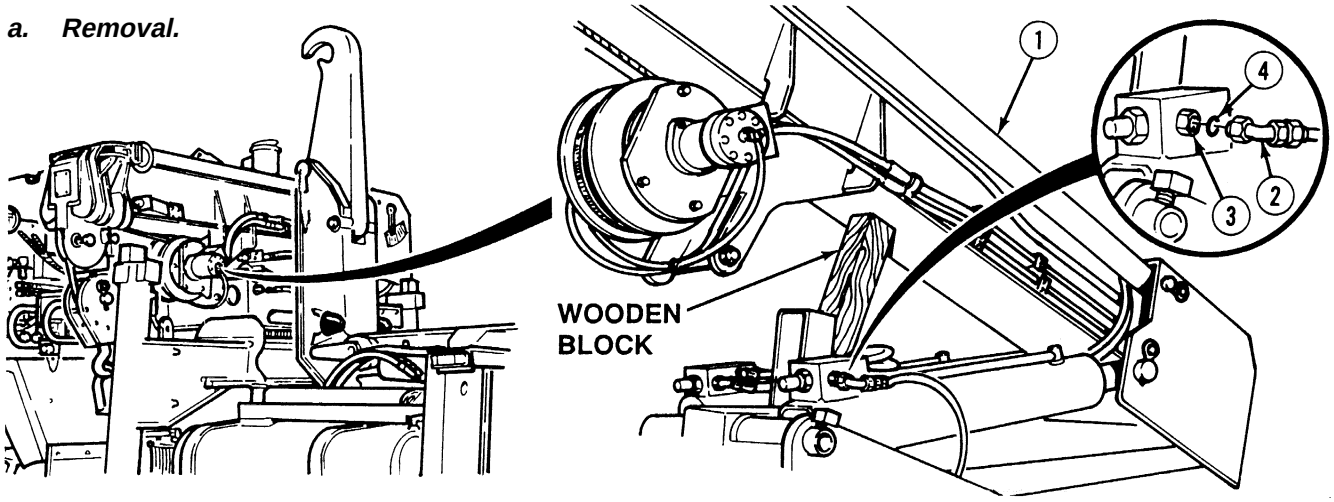
Materials/Parts
Compound, Antiseize (Item 14, Appendix B)

Materials/Parts - Continued
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (Item 384, Appendix E)
Packing, Preformed (2) (Item 389, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

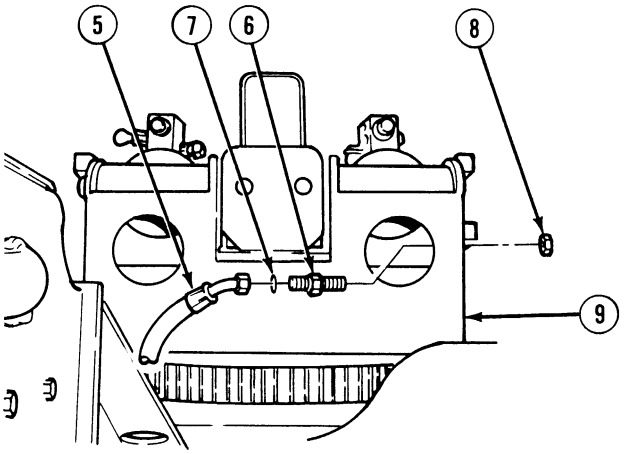
- Left and right side lift cylinders are removed the same way. Left side shown.
- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and cylinder after removal.

(1) Raise boom (1) and support with wooden block.

(2) Disconnect two hoses (2) from fittings (3) and remove two preformed packings (4). Discard preformed packings.

WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.



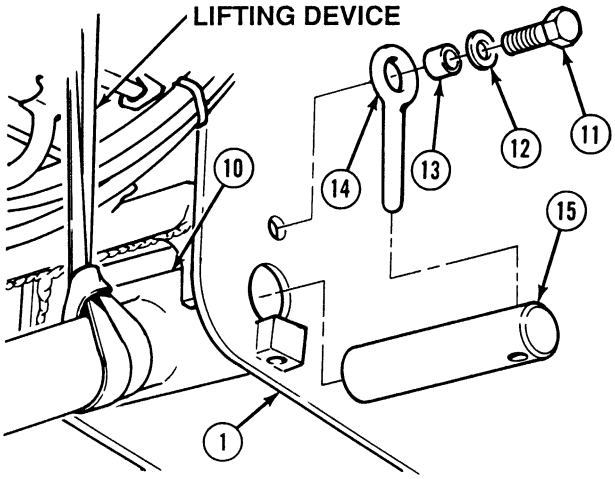
(3) Reach inside access hole and remove hose (5) from fitting (6).

(4) Remove and discard preformed packing (7) from hose (5).

(5) Remove nut (8) and fitting (6) from turntable (9).

WARNING

Lift cylinder weighs 122 lbs (55 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



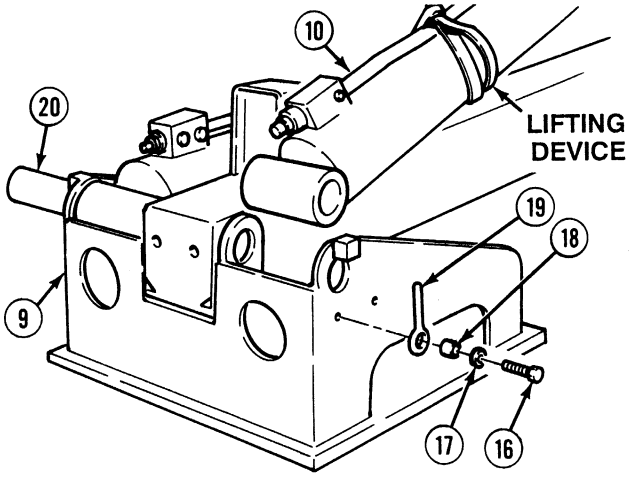
(6) Attach lifting device around lift cylinder (10).

(7) Remove screw (11), washer (12), bushing (13) and lock pin (14) from pin (15) and boom (1).

(8) Drive pin (15) out and remove lift cylinder (10) from boom (1).

16-6. LIFT CYLINDER REPLACEMENT (CONT).

(9) Remove two screws (16), washers (17), bushings (18) and lock pins (19) from pin (20) and turntable (9).



WARNING

One pin secures both lift cylinders and mast. Be careful to drive out pin only as far as needed to remove selected cylinder and prevent possible injury to personnel.

(10) Drive pin (20) out far enough to remove lift cylinder (10).

(11) Remove lift cylinder (10) from turntable (9).

(12) Place drain pan under lift cylinder (10) to catch excess fluid.

(13) Remove lifting device and allow lift cylinder (10) to drain into drain pan.

(14) Repeat Steps (1) through (13) for other lift cylinder.

b. Installation.

WARNING

- Lift cylinder weighs 122 lbs (55 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.
- Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Left and right side lift cylinders are installed the same way. Left side shown.

(1) Attach lifting device around lift cylinder (10).

(2) With the aid of an assistant, align and position lift cylinder (10) in turntable (9).

(3) Apply antiseize compound to pin (20).

(4) Install lift cylinder (10) by driving pin (20) back through cylinder and turntable (9).

(5) Apply sealing compound to threads of two screws (16).

(6) Apply antiseize compound to two lock pins (19).

(7) Install two lock pins (19) and bushings (18) with washers (17) and screws (16). Tighten screws to 135 lb-ft (183 N·m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(8) Apply antiseize compound to pin (15).

(9) Install other end of lift cylinder (10) in boom (1) with pin (15).

(10) Apply sealing compound to threads of screw (11).

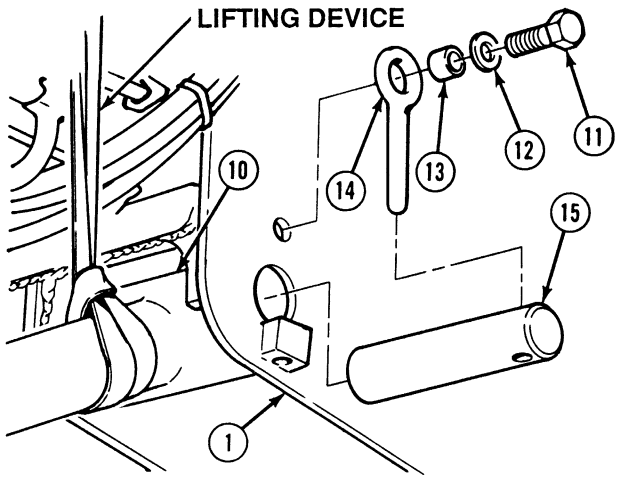
(11) Apply antiseize compound to lock pin (14).

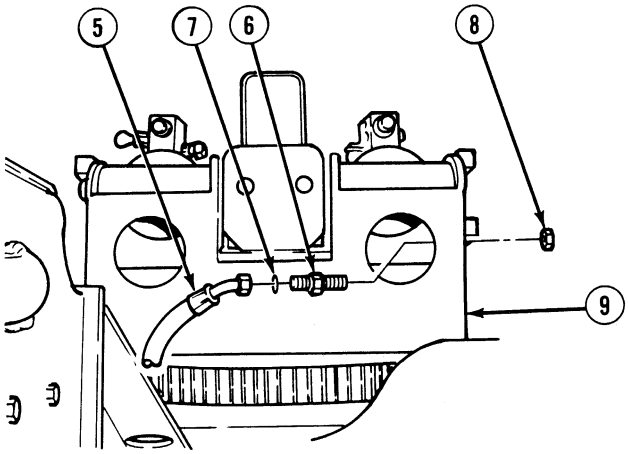
NOTE

Ensure hole in pin faces up and down.

(12) Install lock pin (14) and bushing (13) with washer (12) and screw (11). Tighten screw to 135 lb-ft (183 N·m).

(13) Remove lifting device from lift cylinder (10).





(14) Install fitting (6) on turntable (9) with nut (8).

(15) Apply hydraulic oil to preformed packing (7).

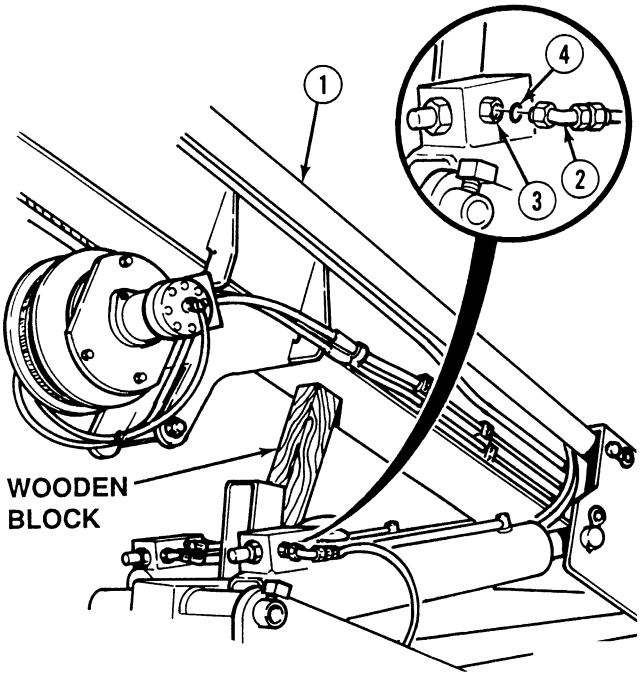
(16) Install preformed packing (7) and connect hose (5).

16-6. LIFT CYLINDER REPLACEMENT (CONT).

(17) Apply hydraulic oil to preformed packings (4).

(18) Install four preformed packings (4) on fittings (3) and connect hoses (2) on fittings.

(19) Raise boom (1) and remove wooden block from under boom.



c. Follow-On Maintenance:

- Check and fill hydraulic reservoir, (TM 9-2320-364-20).
- Check operation and check for leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-7. LIFT CYLINDER HOLDING VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

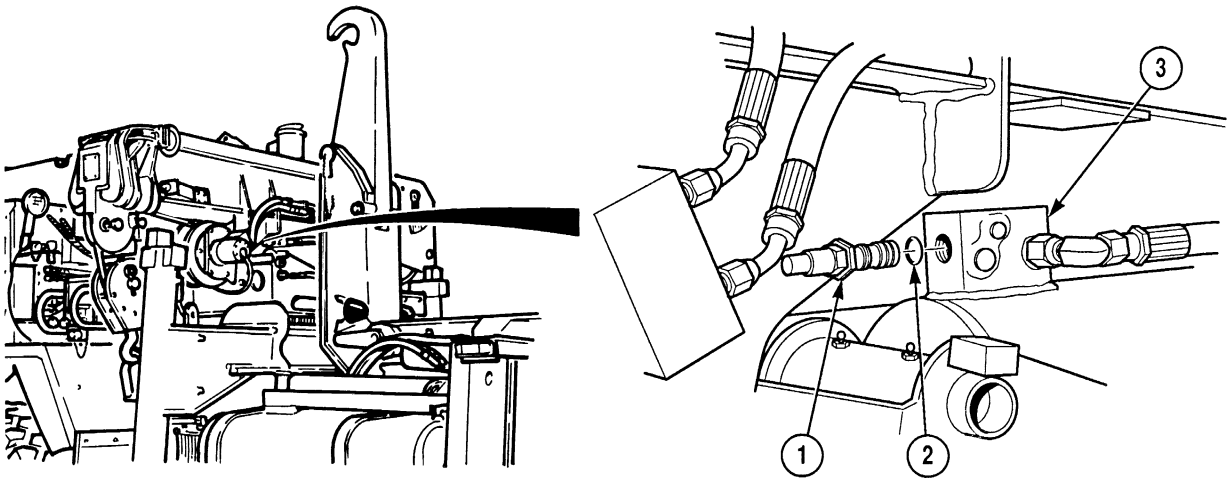
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain, 6 gal (Item 145, Appendix F)
Wrench, Combination 1-1/8 in. (Item 255, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (Item 364, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

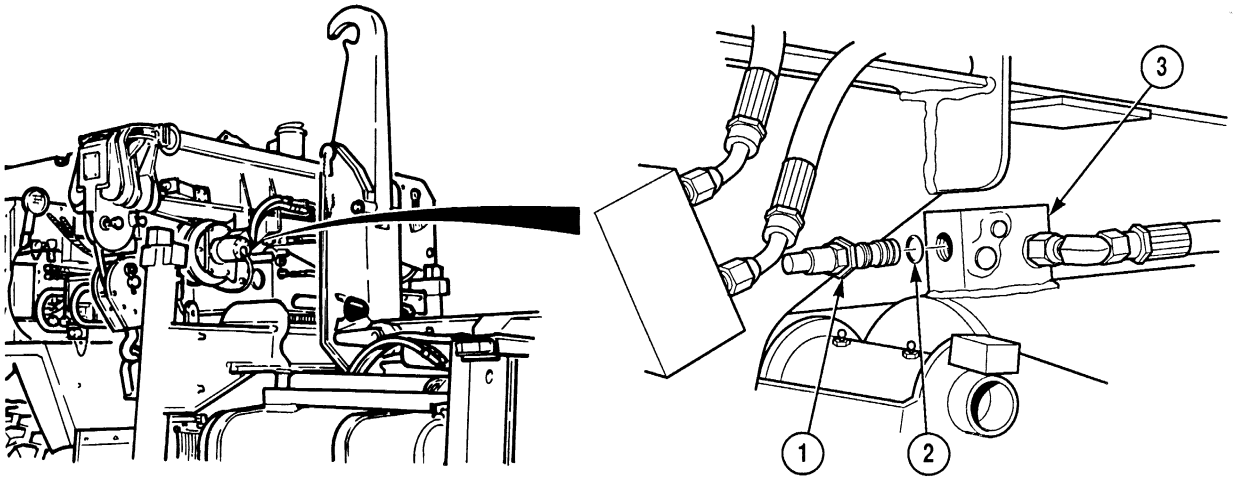
NOTE

- Holding valves are removed the same way from left and right side lift cylinders. Left side shown.
- Plug lift cylinder after disconnecting.

a. Removal. Remove holding valve (1) and preformed packing (2) from lift cylinder (3). Discard preformed packing.

16-7. LIFT CYLINDER HOLDING VALVE REPLACEMENT (CONT).

b. Installation.



NOTE

Holding valves are installed the same way on left and right side cylinders.

(1) Apply hydraulic oil to preformed packing (2).

(2) Install holding valve (1) and preformed packing (2) on lift cylinder (3).

c. Follow-On Maintenance:

- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-8. TENSION LINK REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

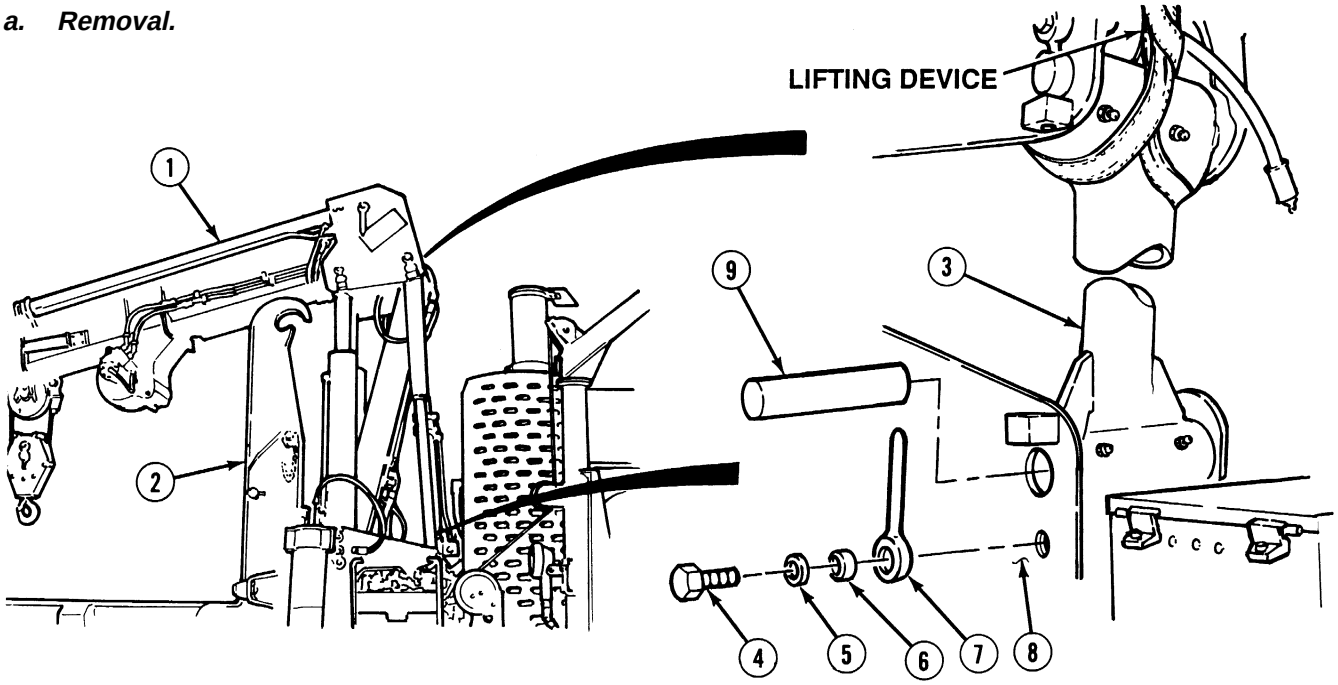
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 50 lb
(23 kg)

Materials/Parts
Compound, Antiseize (Item 14, Appendix B)
Sealing Compound (Item 56, Appendix B)

Personnel Required
Two

Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF. (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

Ensure boom is fully supported by the LHS hook. Failure to support boom with LHS hook will cause boom to drop and may result in serious injury or death to personnel.

(1) Support boom (1) with LHS hook (2).

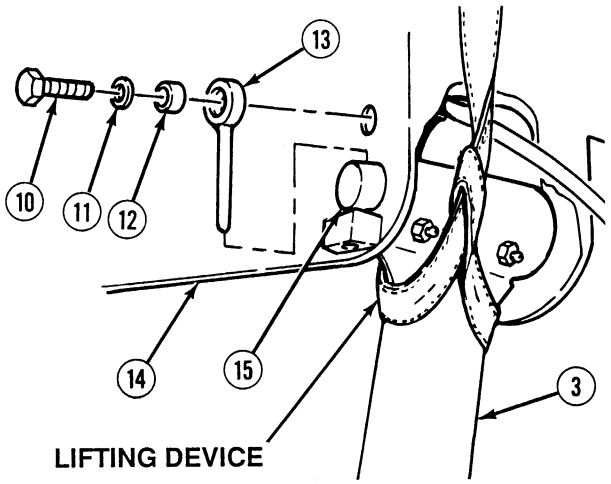
(2) Attach lifting device around tension link (3).

(3) Remove screw (4), washer (5), bushing (6) and lock pin (7) from turntable (8) and tension link (3).

(4) Drive pin (9) out from link (3) and turntable (8).

16-8. TENSION LINK REPLACEMENT (CONT).

(5) Remove two screws (10), washers (11), bushings (12) and lock pins (13) from boom (14) and tension link (3).



WARNING

Long pin also holds in mast and erection cylinder. Be careful to drive out pin only as far as needed to remove tension cylinder to prevent possible injury to personnel.

NOTE

Drive pin toward front of truck.

(6) Drive pin (15) out far enough to free tension link (3).

(7) Remove tension link (3) from boom (14).

(8) Remove lifting device from tension link (3).

b. Installation.

(1) Attach lifting device around tension link (3).

(2) With the aid of an assistant, align tension link (3) on boom (14) and install pin (15).

WARNING

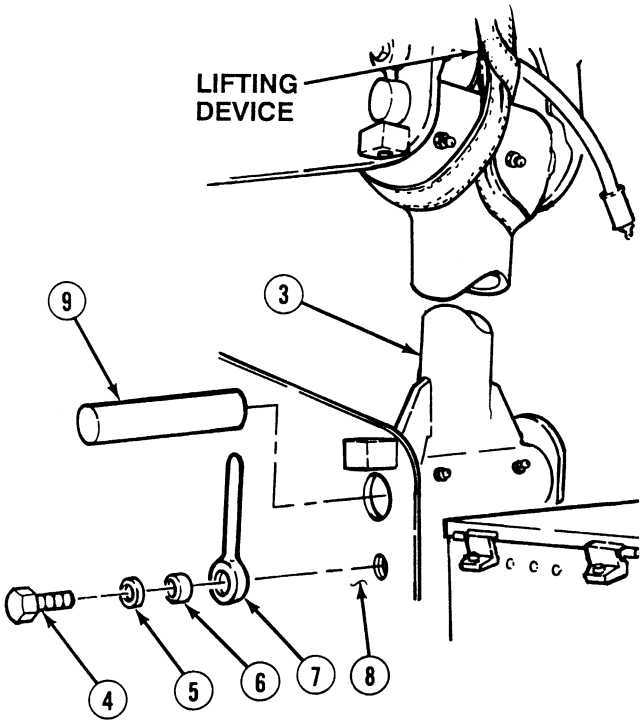
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound to threads of two screws (10).

(4) Install two lock pins (13) and bushings (12) with washers (11) and screws (10). Tighten screws to 135 lb-ft (183 N·m).

(5) Apply antiseize compound to pin (9).

(6) With the aid of an assistant, align tension link (3) with turntable (8) and install pin (9).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(7) Apply sealing compound to threads of screw (4).

(8) Install lock pin (7) and bushing (6) with washer (5) and screw (4). Tighten screw to 135 lb-ft (183 N·m).

c. Follow-On Maintenance:

- Check oil level, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-9. MAST ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Lifting Device, Minimum Capacity 125 lbs (57 kg)

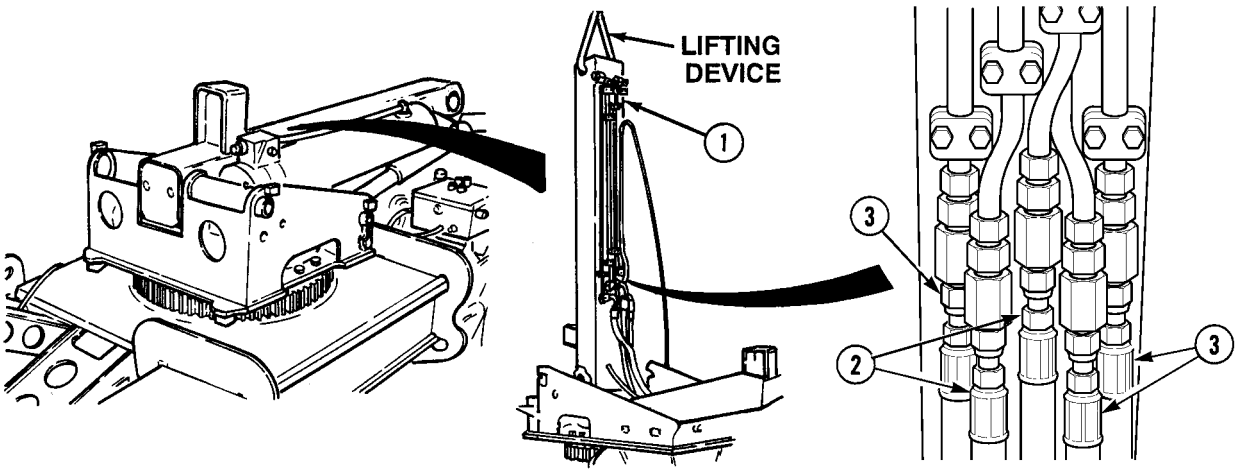
Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Antiseize (Item 14, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)

Materials/Parts - Continued
Packing, Preformed (3) (Item 336, Appendix E)
Packing, Preformed (2) (Item 373, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Boom assembly removed, (Para 16-3)
One lift cylinder removed, (Para 16-6)

a. Removal.



WARNING

Mast weighs 109 lbs (49 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(1) Attach lifting device to mast (1).

(2) Lift end of mast (1) for access to five hydraulic hoses (2) and (3).

NOTE

Remove cable ties as required to remove cable.

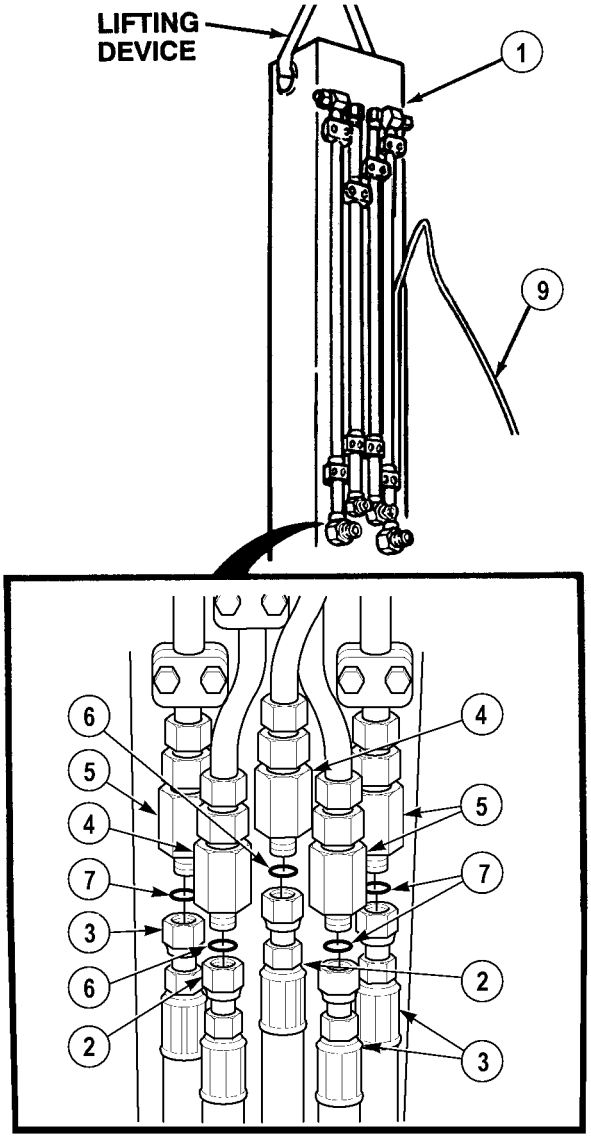
(3) Move overload shutdown connector cable (9) away from mast (1).

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(4) Disconnect hoses (2) and (3) from tubes (4) and (5).

(5) Remove and discard preformed packings (6) and (7) from tubes (4) and (5).



16-9. MAST ASSEMBLY REPLACEMENT (CONT).

(6) Drive out pin (10) far enough to free mast (1) from turntable (11).

(7) With the aid of an assistant, guide mast (1) from turntable (11).

(8) Lower mast (1) and remove lifting device.

b. Installation.

WARNING

Mast weighs 109 lbs (49 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to mast (1).

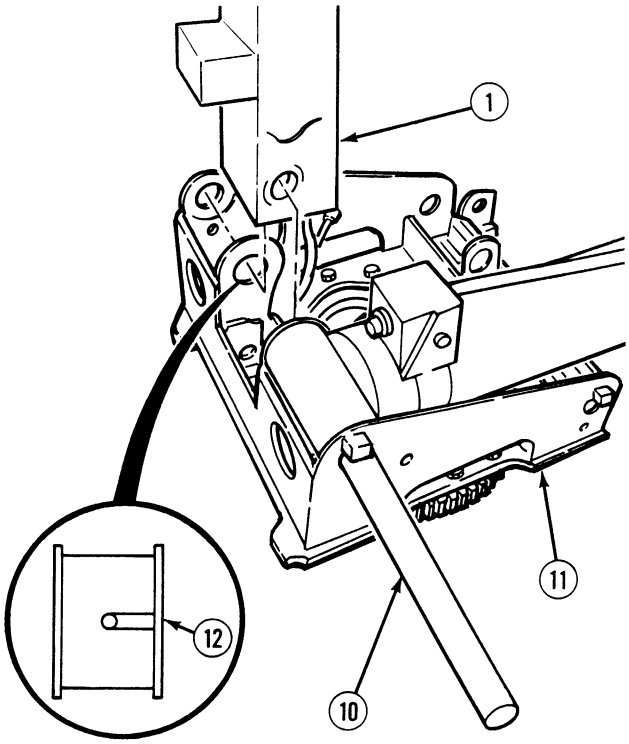
(2) With the aid of an assistant, align mast (1) with turntable (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply antiseize compound to pin (10).

(4) Install mast (1) with pin (10). Drive pin (10) through mast (1) until flush with sleeve (12). Keep mast in upright position.



(5) Apply hydraulic oil to preformed packings (6) and (7).

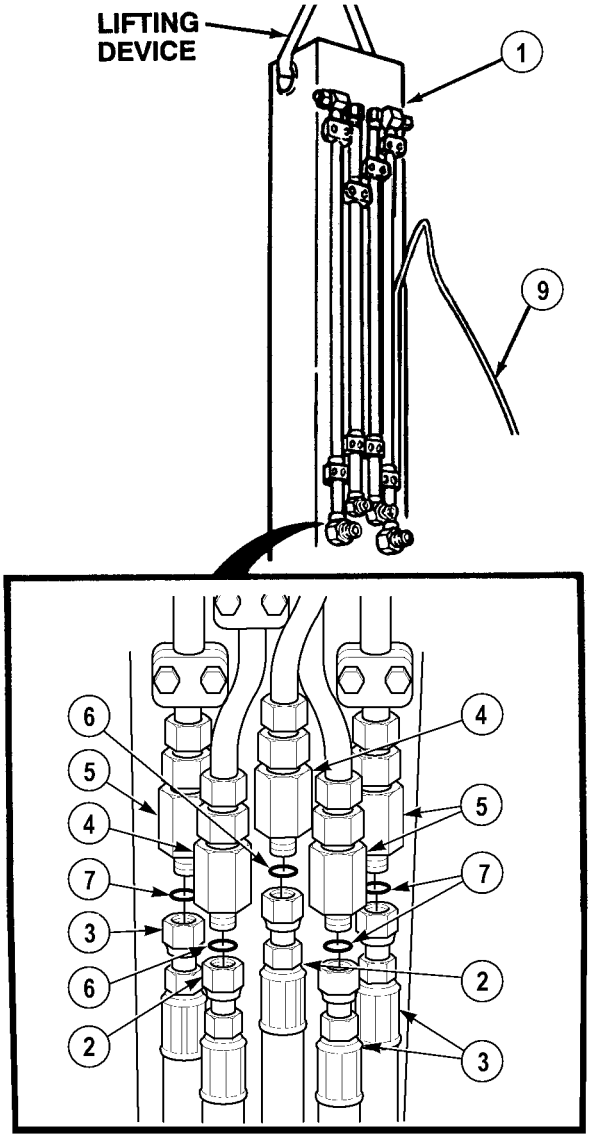
(6) Install preformed packings (6) and (7) and connect hoses (2) and (3) on tubes (4) and (5).

NOTE

Install cable ties as required.

(7) Secure overload shutdown connector (9) to tube (5) with cable ties.

(8) Lower mast (1) into installed position and remove lifting device.



c. Follow-On Maintenance:

- Install lift cylinder, (Para 16-6).
- Install boom assembly, (Para 16-3).
- Lubricate crane, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-10. TELESCOPE CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

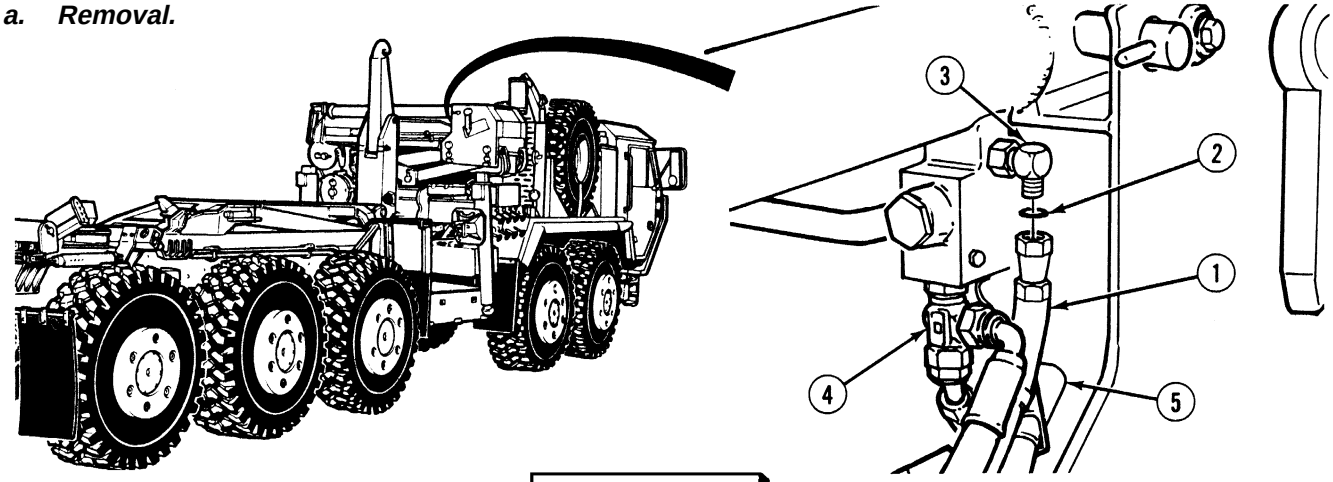
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 6 gal (Item 145, Appendix F)
Lifting Device, Minimum Capacity 75 lbs (34 kg)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (4) (Item 398, Appendix E)
Pin, Cotter (2) (Item 418, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

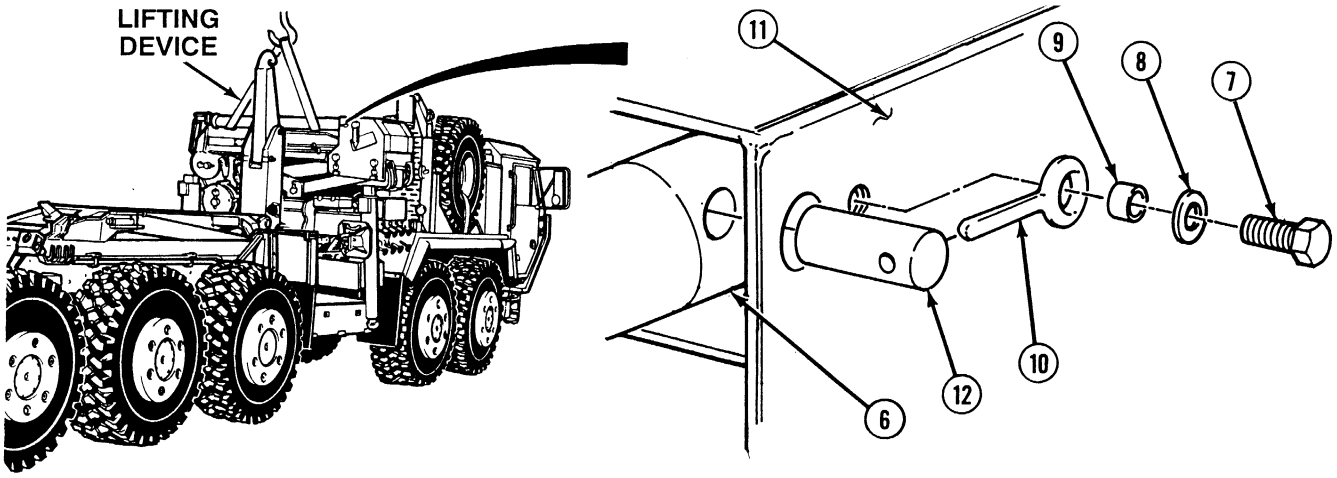
The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Left and right telescope cylinders are removed the same way. Left side shown.
- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses after removal.

(1) Position drain pan under four hoses (1).

(2) Disconnect four hoses (1) and remove preformed packings (2) from elbow (3), tee (4) and fitting (5). Discard preformed packings.



WARNING

Telescope cylinder weighs 70 lbs (32 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

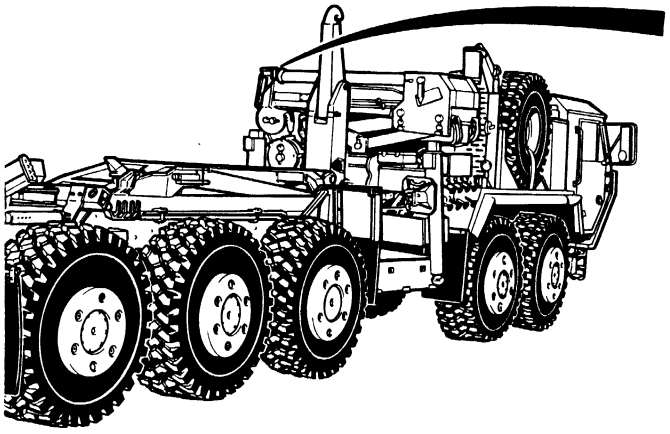
(3) Attach lifting device to telescope cylinder (6).

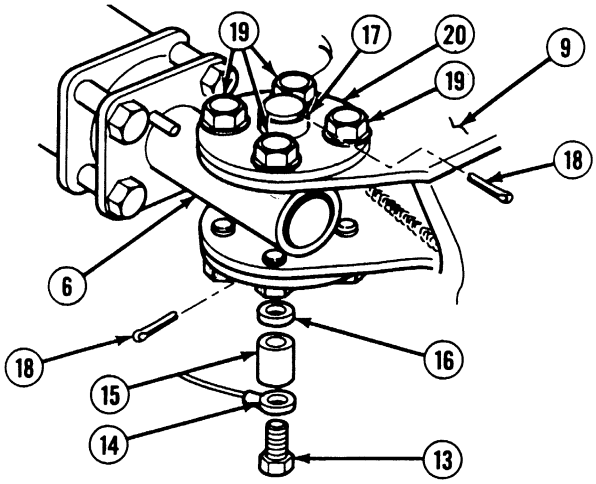
(4) Remove screw (7), washer (8) and bushing (9) from lock pin (10) and boom base (11).

(5) Remove lock pin (10) from pin (12).

(6) Remove pin (12) from telescope cylinder (6) from boom base (11).

16-10. TELESCOPE CYLINDER REPLACEMENT (CONT).





CAUTION

Cable must be retracted slowly to prevent damage to sensing unit. Failure to comply may result in damage to equipment.

NOTE

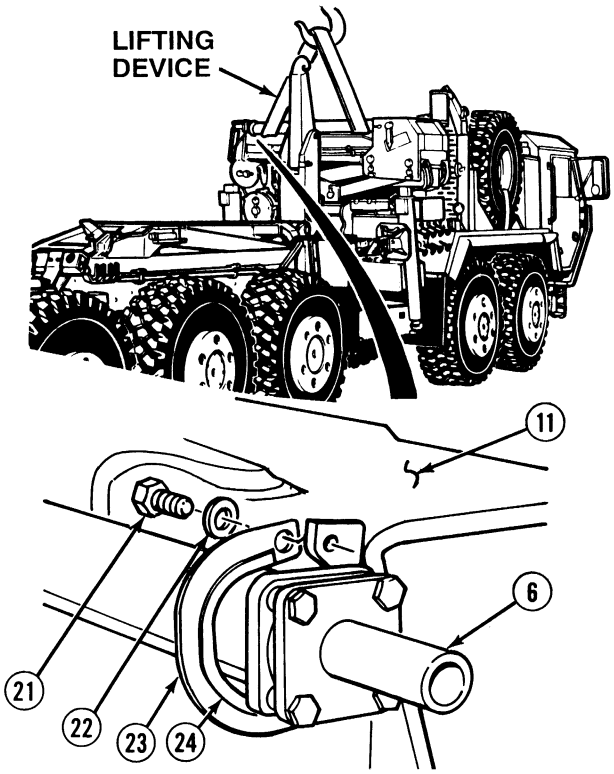
- Mark the top and bottom of retaining pin. Bottom has threaded hole to accommodate screw. Also note if pin holds overload shutdown cable.
- Perform Step (7) if overload shutdown cable is attached to telescope cylinder.

(7) Remove screw (13), cable (14), spacer (15) and washer (16) from retaining pin (17) and slowly let cable retract.

(8) Remove two cotter pins (18) and retaining pin (17) from boom base (11). Discard cotter pins.

(9) Loosen screws (19) from top retaining plate (20).

(10) Remove two screws (21), washers (22) and cylinder hold-down (23) from boom base (11).



NOTE

Perform Step (11) if quick edge is damaged.

(11) Remove quick edge (24) from cylinder hold-down (23).

(12) Using lifting device, remove telescope cylinder 96) from boom base (11).

(13) Repeat Steps (1) through (12) for other telescope cylinder.

b. Installation.

WARNING

Telescope cylinder weighs 70 lbs (32 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to telescope cylinder (6).

(2) With the aid of an assistant, use lifting device and position telescope cylinder (6) on boom base (11).

NOTE

Perform Step (3) if quick edge was removed.

(3) Install quick edge (24) on cylinder hold-down (23).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound on threads of screw (21).

(5) Install cylinder hold-down (23) on boom base (11) over telescope cylinder (6) with two washers (22) and screws (21). Tighten screw to 68 lb-ft (92 N·m).

16-10. TELESCOPE CYLINDER REPLACEMENT (CONT).

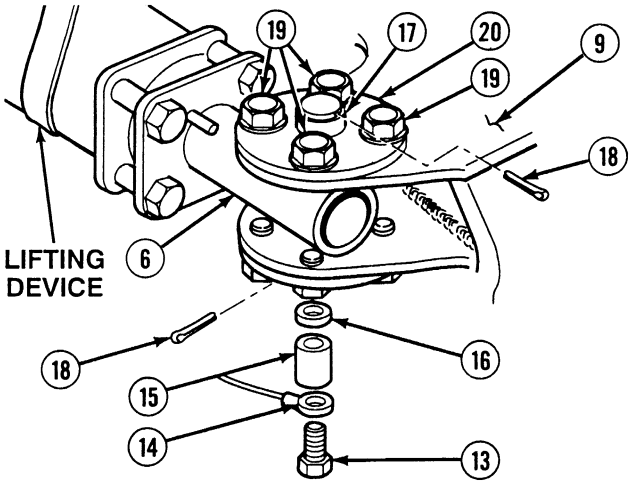
NOTE

Cylinder rod may have to be repositioned to install retaining pin.

(6) Align telescope cylinder (6) in boom base (11) and install retaining pin (17) and two cotter pins (18) in telescope cylinder (6).

(7) Tighten screws (19) on top retaining plate (20) to 28 lb-ft (38 N·m).

(8) Remove lifting device from telescoping cylinder (6).



NOTE

Perform Step (9) if overload shutdown cable was removed.

(9) Install washer (16), spacer (15), cable (14) and screw (13) to retaining pin (17). Tighten screw to 72 lb-in (8 N·m).

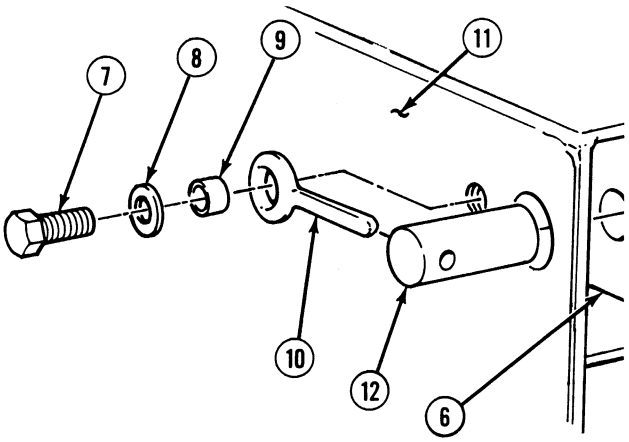
NOTE

Locking hole must be positioned facing lock pin screw hole.

(10) Install base end of telescope cylinder (6) on boom base (11) with pin (12).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



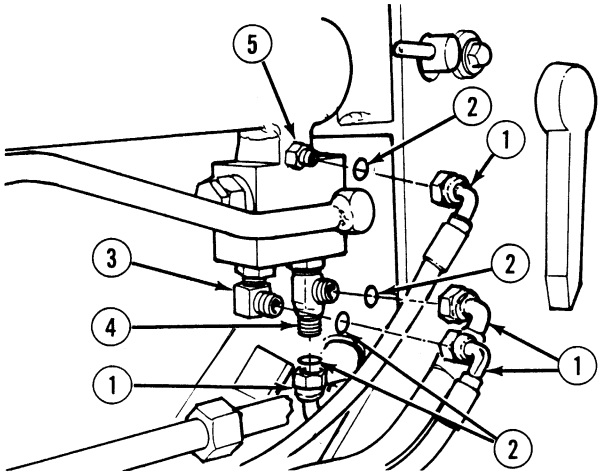
(11) Apply sealing compound on threads of screw (7).

(12) Install lock pin (10), bushing (9), washer (8) and screw (70 in pin (10) and boom base (11). Tighten screw to 28 lb-ft (38 N·m).

(13) Apply hydraulic oil to four preformed packings (2).

(14) Install four preformed packings (2) and hoses (1) on elbow (3), tee (4) and fitting (5).

(15) Repeat Steps (1) through (14) for remaining telescoping cylinder.



c. Follow-On Maintenance:

- Check operation, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Check hydraulic reservoir oil level, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-11. HOIST ASSEMBLY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Wrench, Combination 1 1/2 in. (Item 260, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)
Lifting Device, Minimum Capacity 250 lbs (114 kg)

Materials/Parts
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)

Materials/Parts - Continued
Lockwasher (Item 282, Appendix E)
Lockwasher (2) (Item 283, Appendix E)
Packing, Preformed (2) (Item 348, Appendix E)
Packing, Preformed (Item 372, Appendix E)

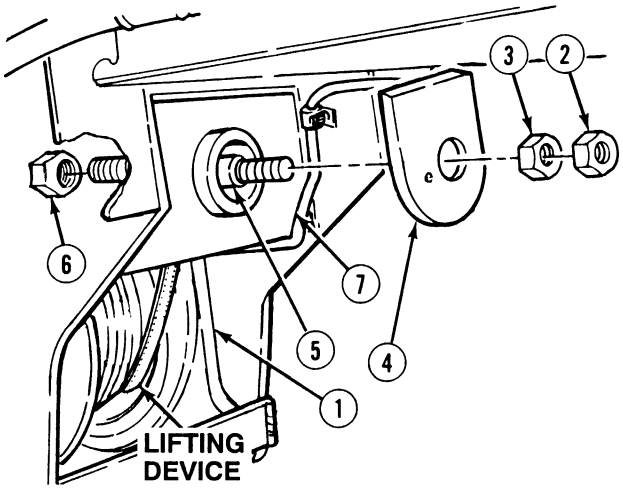
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hoist cable removed, (TM 9-2320-364-20)
Hoist motor valve removed, (Para 16-13)

a. Removal.

WARNING

Hoist assembly weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.



(1) Wrap and attach lifting device around hoist assembly (1).

CAUTION

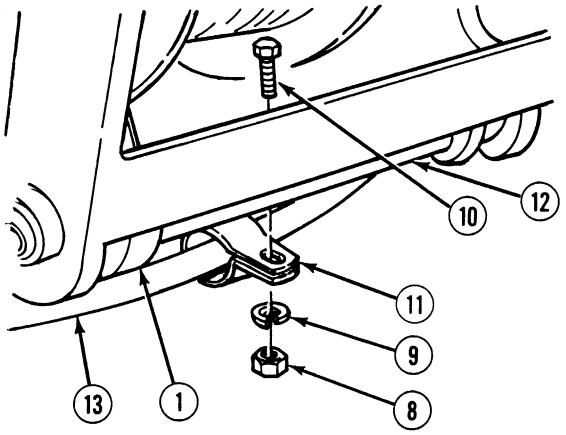
- To avoid damage to tension load cell cable, do not allow tension load cell to turn when removing nuts.
- Count exposed threads on tension load cell before nuts are removed to ensure nuts are reinstalled to same positions.

(2) Remove jam nut (2), swivel nut (3) and end cap (4) from tension load cell (5).

(3) Remove swivel nut (6) from front of tension load cell (5) at hoist mount (7).

(4) Remove nut (8), lockwasher (9), screw (10) and cable clamp (11) from shaft (12). Discard lockwasher.

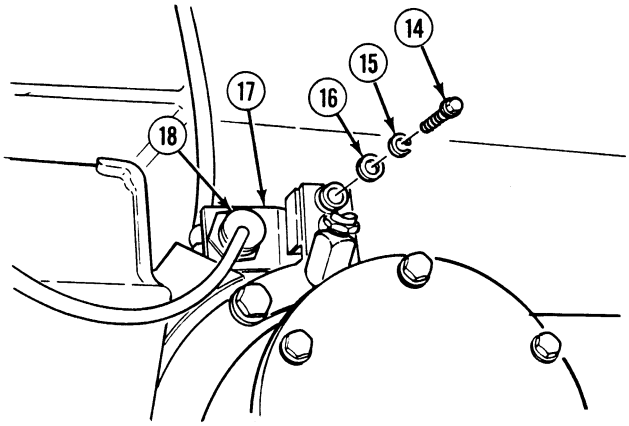
(5) Loosen cable (13) and operate lifting device to rotate hoist assembly (1) slowly down.



(6) Remove two screws (14), lockwashers (15), washers (16) and proximity switch assembly (17) from bracket (18). Discard lockwashers.

(7) Position proximity switch assembly (17) out of way.

(8) Reposition lifting device on hoist assembly (1).



(9) With the aid of an assistant, drive out pin (19) from hoist assembly (1).

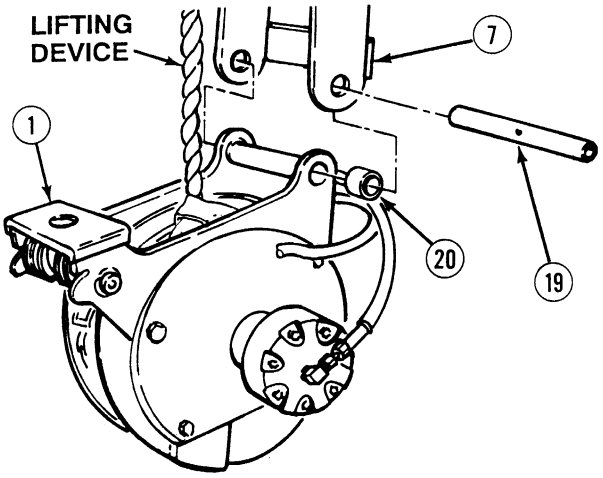
(10) Lower hoist assembly (1) and remove from hoist mount (7).

(11) Remove lifting device from hoist assembly (1).

NOTE

Perform Step (12) if bushings are damaged.

(12) Remove two bushings (20) from hoist mount (7).



16-11. HOIST ASSEMBLY REPLACEMENT (CONT).

b. Installation.

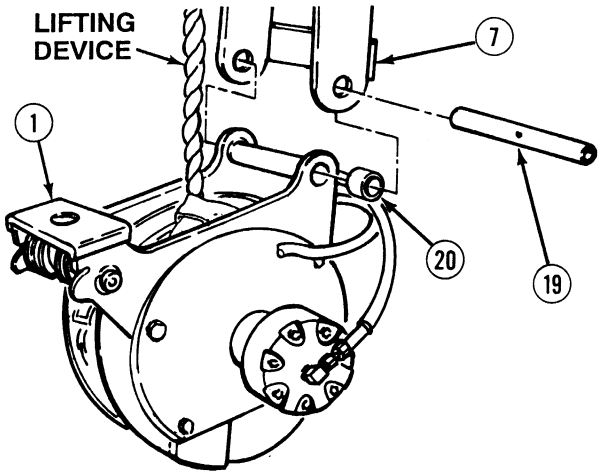
NOTE

Perform Step (1) if bushings are damaged.

(1) Install two bushings (20) in hoist mount (7).

WARNING

Hoist assembly weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



(2) Wrap and attach lifting device around hoist assembly (1).

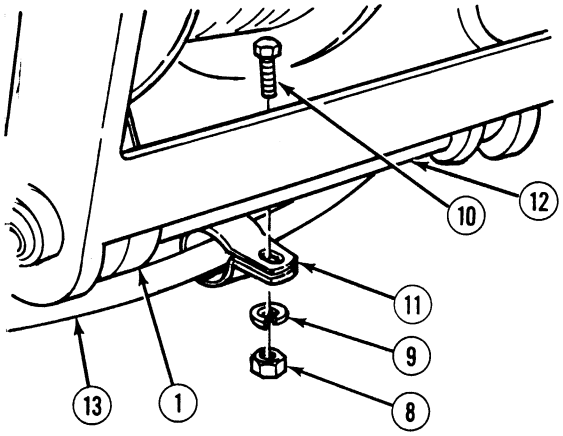
(3) With the aid of an assistant, align hoist assembly (1) with hoist mount (7).

NOTE

Hole in shaft and hole in pin must line up. Keep alignment during installation.

(4) With the aid of an assistant, maintain hoist assembly (1) and hoist mounting bracket (7) alignment while installing pin (19).

(5) Install cable (13) and cable clamp (11) on shaft (12) with screw (10), lockwasher (9) and nut (8). Tighten screw to 17 lb-ft (23 N·m).



CAUTION

- To avoid damage to load cell cable and tension load cell, do not allow cell to turn when installing nut.
- Ensure that nuts have at least two full threads showing after installing on load cell.

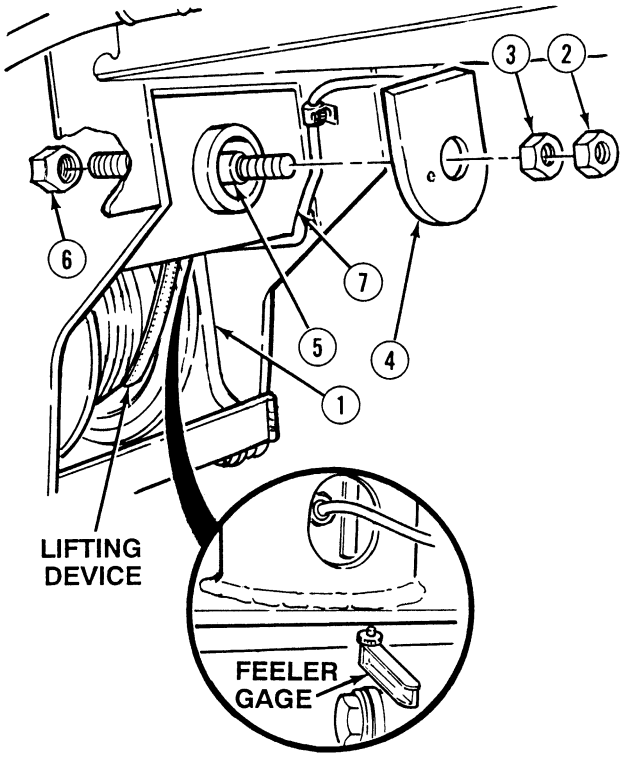
(6) Position hoist assembly (1) into hoist mount (7) and install front nut (6) on tension load cell (5).

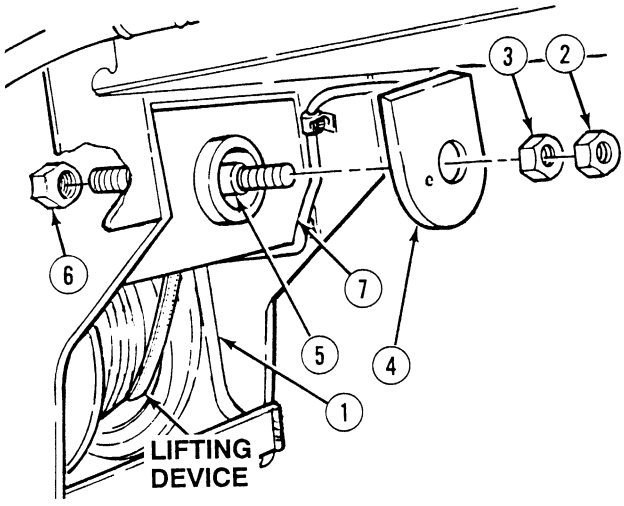
(7) Install end cap (4), swivel nut (3) and jam nut (2) on tension load cell (5). Install jam nut loosely.

(8) Adjust overload switch to 0.12 in. (3 mm) by loosening or tightening nut (6) until gap between hoist assembly (1) and hoist mount (7) is obtained.

(9) Tighten jam nut (2) on tension load cell (5).

(10) Remove lifting device from hoist assembly (1).

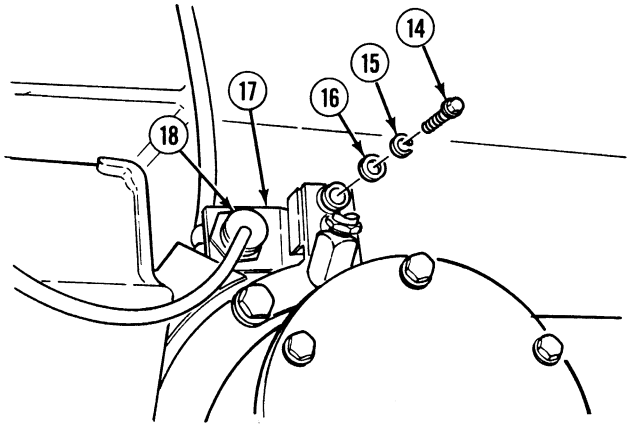




16-11. HOIST ASSEMBLY REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(11) Apply sealing compound to threads of two screws (14).

(12) Install proximity switch (17) on bracket (18) with two washers (15), lockwashers (16) and screws (14). Tighten screws to 108 lb-in (12 N·m).

c. Follow-On Maintenance:

- Install hoist motor valve, (Para 16-13).
- Install hoist cable, (TM 9-2320-364-20).
- Lube hoist assembly, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-12. HYDRAULIC HOIST MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

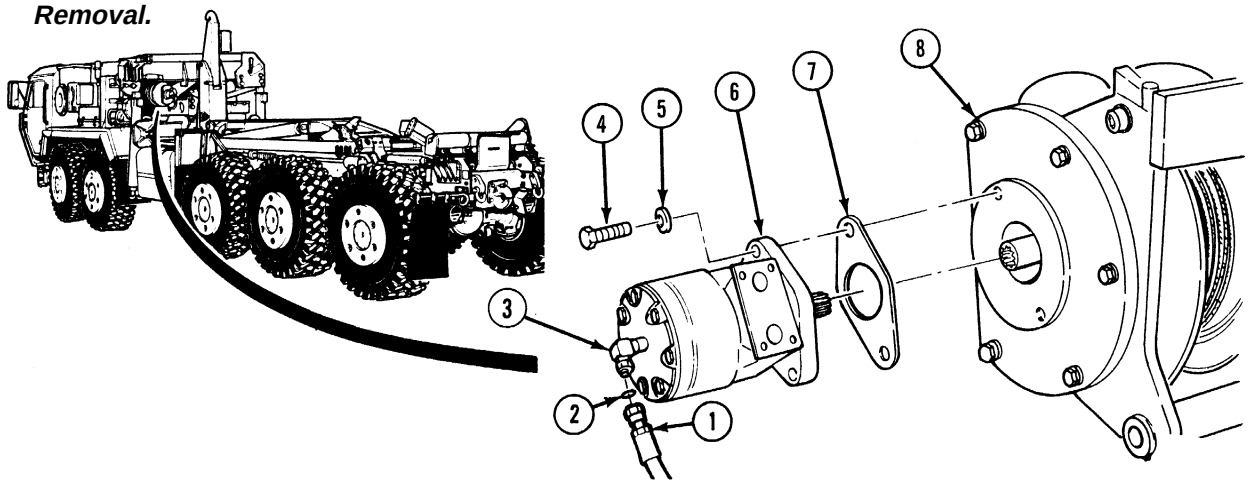
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Crowsfoot, 3/4., 3/8 in. Drive (Item 268, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Gasket (Item 106, Appendix E)
Lockwasher (2) (Item 286, Appendix E)
Packing, Preformed (Item 383, Appendix E)
Ring, Retaining (Item 496, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hoist motor valve removed, (Para 16-13)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(1) Position drain pan under hose (1).

(2) Disconnect hose (1) and remove preformed packing (2) from elbow (3). Discard preformed packing.

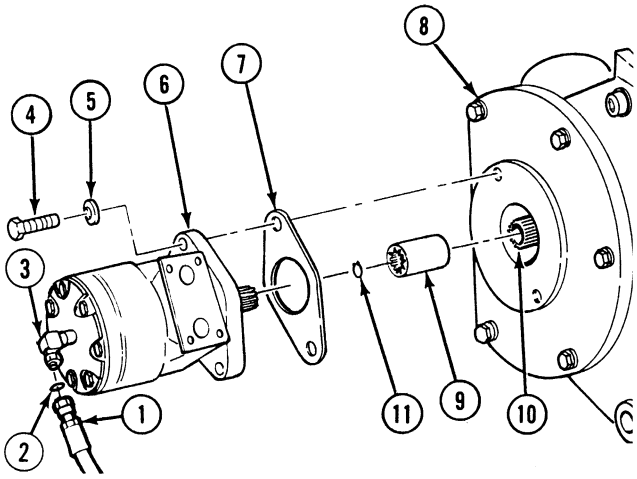
(3) Remove two screws (4), lockwashers (5), motor (6) and gasket (7) from hoist drum (8). Discard lockwashers and gasket.

16-12. HYDRAULIC HOIST MOTOR REPLACEMENT (CONT).

NOTE

Note location and position of coupling prior to removal.

(4) Remove coupling (9) from spline shaft (10).



WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

Perform Step (5) if retaining ring is damaged.

(5) Remove retaining ring (11) from coupling (9). Discard retaining ring.

b. Installation.

NOTE

Perform Step (1) if retaining ring was removed.

(1) Install retaining ring (11) in coupling (9).

NOTE

Install coupling in location position noted in removal.

(2) Install coupling (9) on splined shaft (10) in hoist drum (8).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound to threads of two screws (4).

(4) Install gasket (7) and motor (6) on drum (8) with two lockwashers (5) and screws (4). Tighten screws to 68 lb-ft (92 N·m).

(5) Apply hydraulic oil to preformed packing (2).

(6) Install preformed packing (2) and connect hose (1) on elbow (3).

c. Follow-On Maintenance:

- Install hoist motor valve, (Para 16-13).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-13. HOIST MOTOR VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

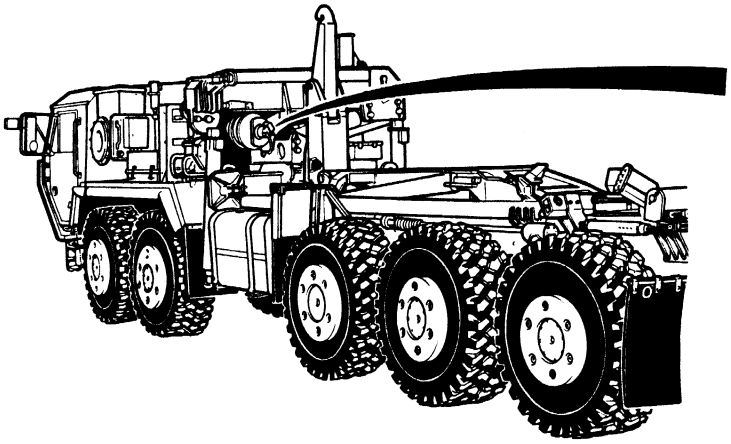
Materials/Parts
Cloth, Cleaning (Item 12, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)

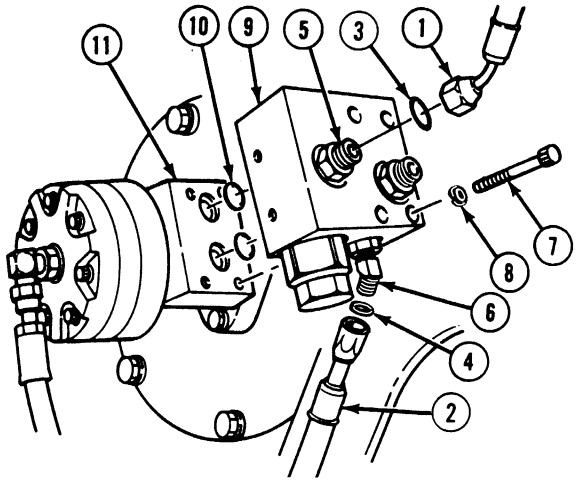
Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 153, Appendix E)
Lockwasher (4) (Item 233, Appendix E)
Packing, Preformed (2) (Item 348, Appendix E)
Packing, Preformed (Item 383, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

16-13. HOIST MOTOR VALVE REPAIR (CONT).

a. Removal.





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(1) Position drain pan under two hoses (1) and hose (2).

(2) Disconnect two hoses (1) and hose (2) and remove preformed packings (3) and (4) from two fittings (5) and elbow (6). Discard preformed packings.

(3) Remove four screws (7), lockwashers (8), hoist motor valve (9) and two preformed packings (10) from motor (11). Discard lockwashers and preformed packings.

b. Disassembly.

(1) Remove two fittings (1) and preformed packings (2) from housing (3). Discard preformed packings.

NOTE

Matchmark position of elbow prior to removal.

(2) Remove elbow (4) and preformed packing (5) from housing (3). Discard preformed packing.

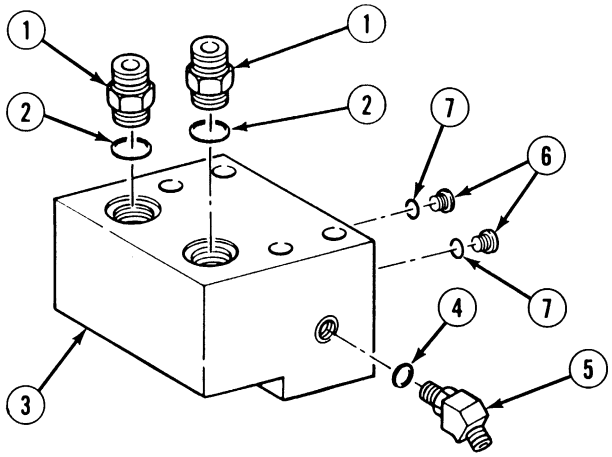
NOTE

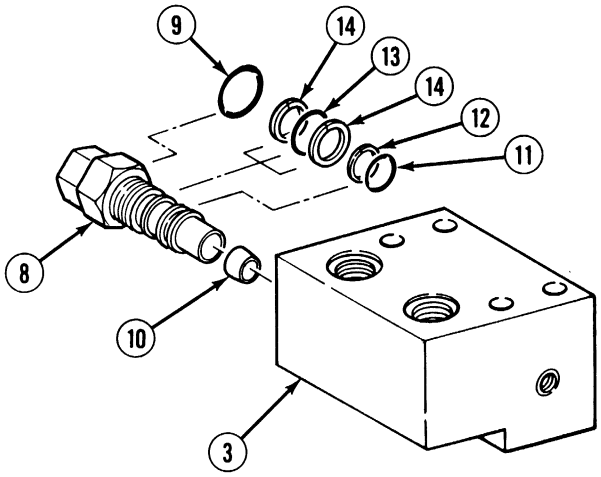
Perform Step (3) if plugs are damaged.

(3) Remove two plugs (6) and preformed packing (7) from housing (3). Discard preformed packing.

(4) Remove safety relief valve (8) and preformed packing (9) from housing (3). Discard preformed packing.

(5) Remove preformed packing (11), backup ring (12), preformed packing (13) and two backup rings (14) from safety relief valve (8). Discard preformed packings and backup rings.





16-13. HOIST MOTOR VALVE REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

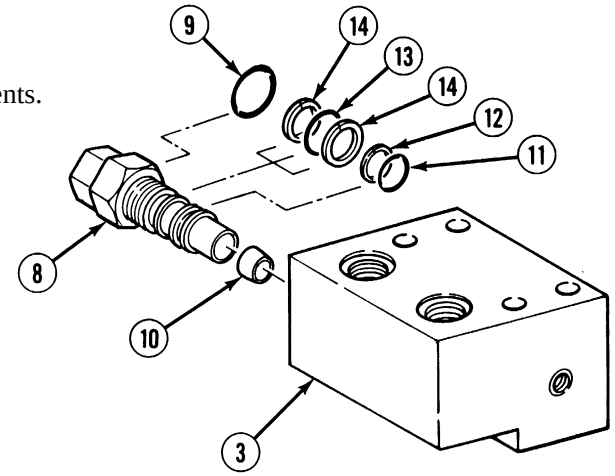
- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry all parts with a cleaning cloth.

(3) Inspect each part for nicks, burns, scratches or dents.

(4) Replace damaged parts.



d. Assembly.

(1) Apply hydraulic oil to preformed packings (13) and (9) and backup rings (14) and (12).

(2) Install two backup rings (14), preformed packing (13), backup ring (12) and preformed packing (11) on safety relief valve (8).

(3) Install orifice (10), preformed packing (9), and safety relief valve (8) in housing (3).

NOTE

Perform Step (3) if plugs were removed.

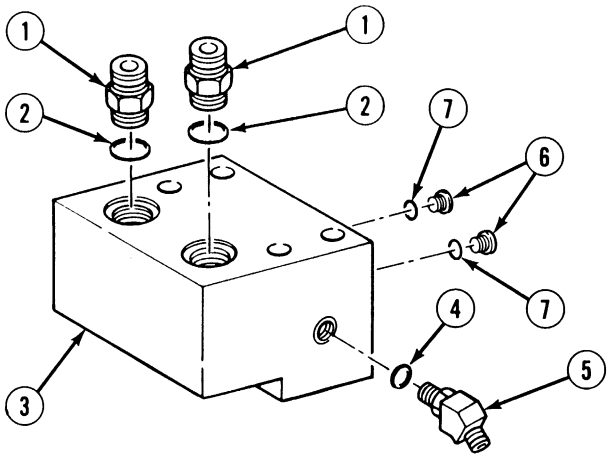
(4) Coat threads of two plugs (6) with sealing compound.

(5) Install two plugs (6) and preformed packing (7) in housing (3).

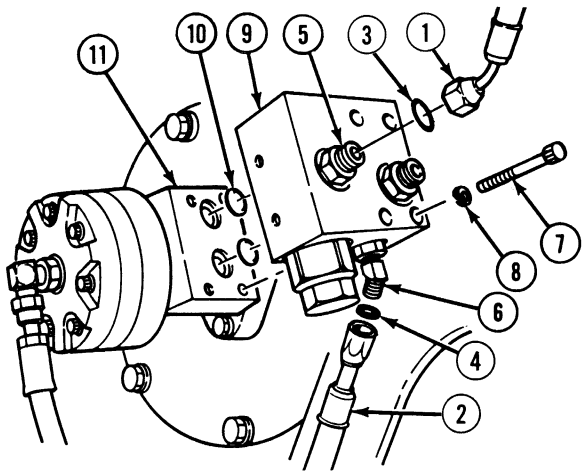
(6) Apply hydraulic oil to preformed packings (5) and (2).

(7) Install preformed packing (5) and elbow (4) in housing (3).

(8) Install two preformed packings (2) and fittings (1) in housing (3).



e. Installation.



(1) Apply hydraulic oil to two preformed packings (10).

(2) Install two preformed packings (10) and position hoist motor valve (9) on motor (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound on threads of four screws (7).

(4) Install four lockwashers (2) and screws (7). Tighten screws to 15 to 17 lb-ft (20 to 23 N·m).

(5) Apply hydraulic oil to preformed packings (3) and (4).

(6) Install two preformed packings (3) and preformed packing (4) and connect two hoses (1) and hose (2) on two fittings (5) and elbow (6).

f. Follow-On Maintenance:

- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Check operation, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-14. HOIST BRAKE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

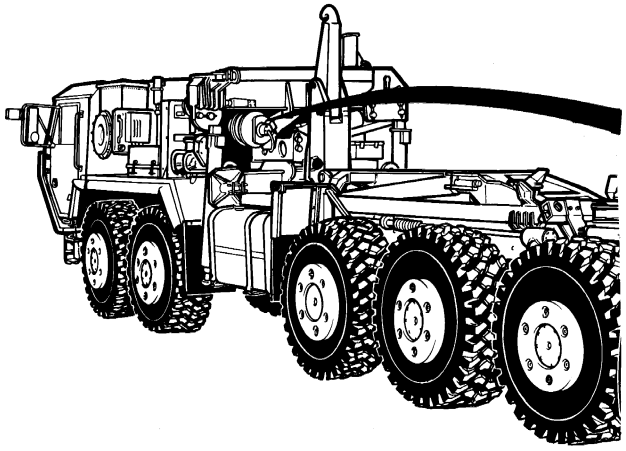
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Micrometer, Outside, Caliper, Set (Item 139, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

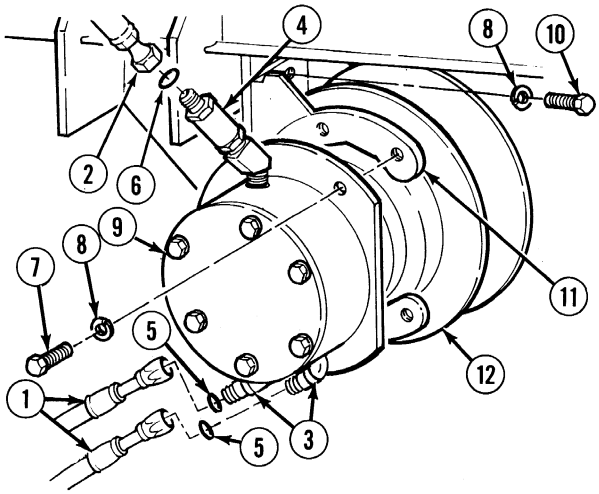
Materials/Parts
Cable Ties (Item 9, Appendix B)
Cloth, Cleaning (Item 12, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 53, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Key (Item 140, Appendix E)
Packing, Preformed (2) (Item 334, Appendix E)
Packing, Preformed (Item 336, Appendix E)
Packing, Preformed (2) (Item 383, Appendix E)
Repair Kit (Item 468, Appendix E)
Ring, Retaining (Item 493, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

(1) Position drain pan under two hoses (1) and hose (2).

(2) Disconnect two hoses (1) and hose (2) from two elbows (3) and check valve (4).

(3) Remove two preformed packings (5) and preformed packing (6) from two elbows (3) and check valve (4). Discard preformed packings.

(4) Remove three screws (7) and lockwashers (8) from brake assembly (9). Discard lockwashers.

(5) Remove two screws (10), lockwashers (8), bracket (11) and brake assembly (9) from hoist drum (12). Discard lockwashers.

16-14. HOIST BRAKE REPAIR (CONT).

b. Disassembly.

NOTE

Matchmark position of elbows and check valve prior to removal.

(1) Remove two elbows (1) and preformed packings (2) from hoist brake (3). Discard preformed packings.

(2) Remove check valve (4) from elbow (5).

(3) Remove elbow (5) from hoist brake (3).

(4) Remove plug (6) and bleeder valve (7) from hoist brake (3).

NOTE

Matchmark both top and bottom of hoist brake.

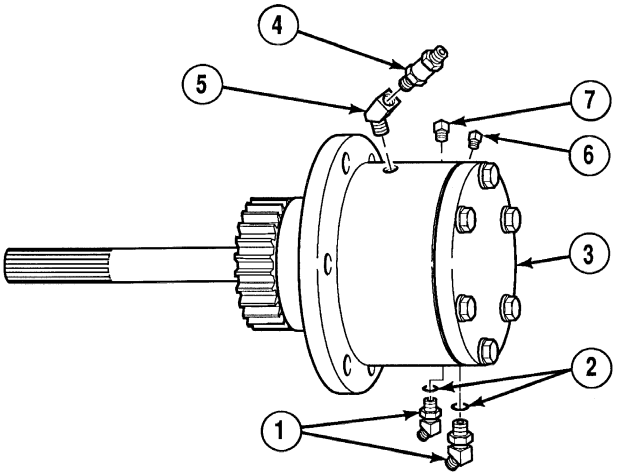
(5) Remove six screws (8), washers (9) and bearing housing (10).

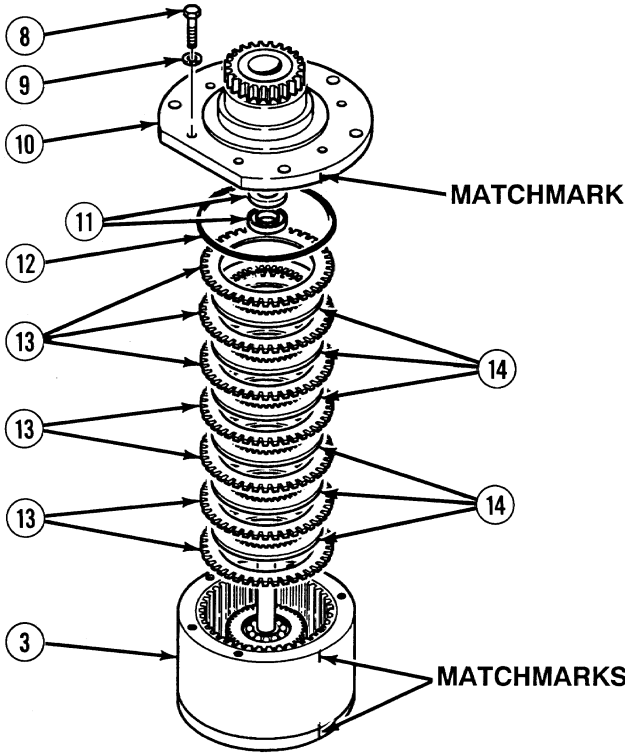
(6) Remove and discard two oil seals (11) and preformed packing (12) from bearing housing (10).

NOTE

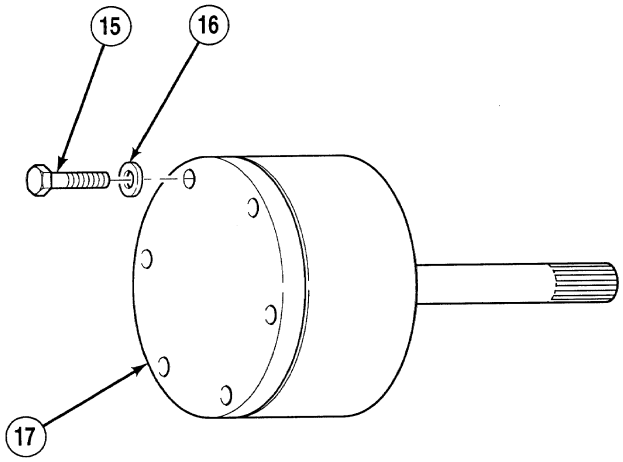
Tie clutch plates and pressure plates together with cable ties in order of removal.

(7) Remove eight clutch discs (13) and seven pressure plates (14) from hoist brake (3).





(8) Remove six screws (15) and washers (16) from access cover (17).

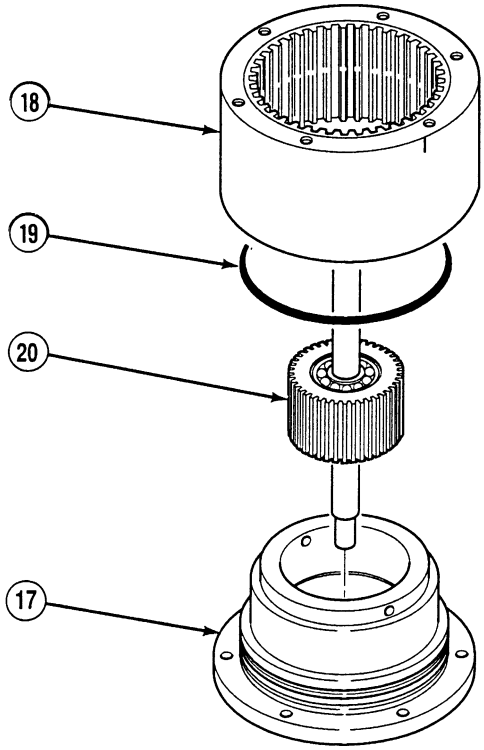


(9) Remove housing (18) and preformed packing (19) from access cover (17). Discard preformed packing.

NOTE

If access cover is not held as shown, springs may fall from assembly.

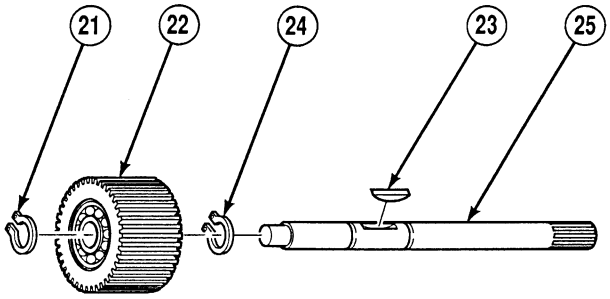
(10) Hold access cover (17) and remove friction clutch assembly (20).



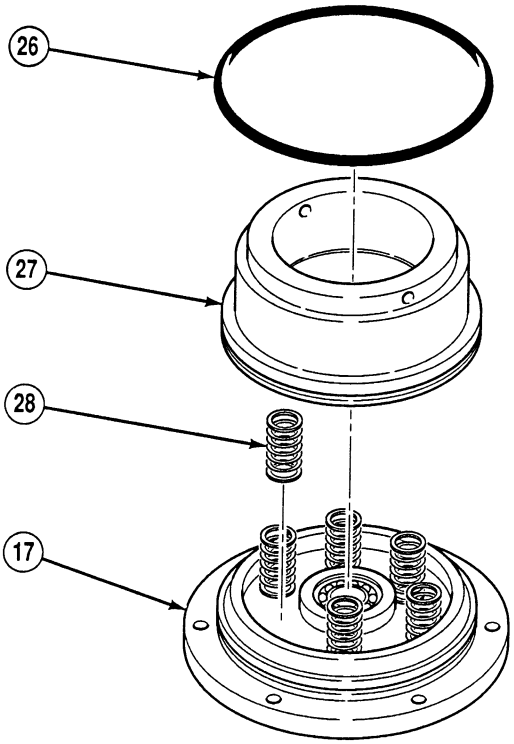
16-14. HOIST BRAKE REPAIR (CONT).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.



(11) Remove retaining ring (21), gear (22), key (23) and retaining ring (24) from gear end of shaft (25). Discard retaining rings and key.



(12) Remove preformed packing (26) from piston (27). Discard preformed packing.

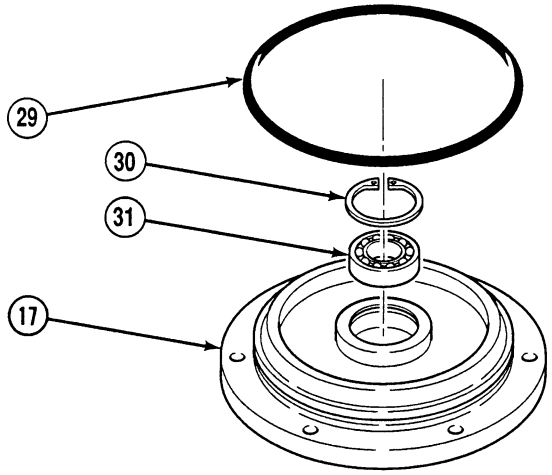
(13) Remove piston (27) and six springs (28) from access cover (17). Discard springs.

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

- Shaft may be used to remove bearing.
- Note position of bearing prior to removal.



(14) Remove preformed packing (29), retaining ring (30) and bearing (31) from access cover (17). Discard preformed packing and retaining ring.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect parts for cracks, breaks, scratches, gouges, pitting and stripped threads.

(4) Inspect clutch discs for wear. If disc is under 0.064 in. (1.62 mm) thick, replace disc.

(5) Inspect pressure plates for wear. If pressure plate is under 0.057 in. (1.45 mm) thick, replace pressure plate.

(6) Inspect bearing rotation. Bearing should rotate freely.

(7) Replace damaged parts.

16-14. HOIST BRAKE REPAIR (CONT).

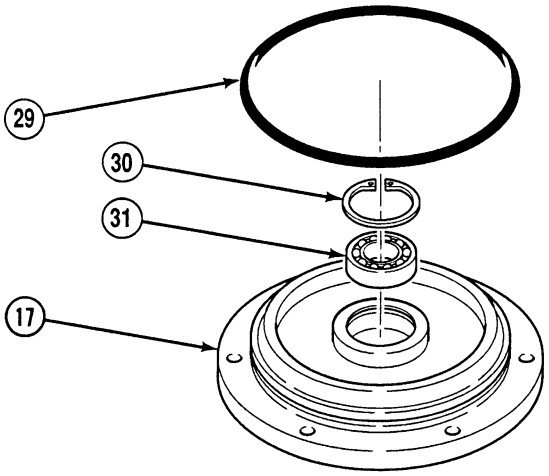
d. Assembly.

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(1) Apply hydraulic oil to preformed packing (29).

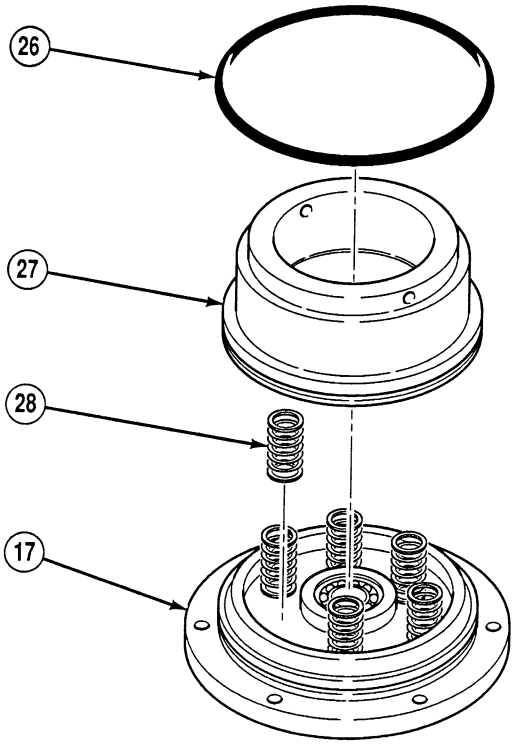
(2) Install bearing (31), retaining ring (30) and preformed packing (29) in access cover (17).



(3) Apply hydraulic oil to preformed packing (26).

(4) Install preformed packing (26) on piston (27).

(5) Position six springs (28) and piston (27) on access cover (17).

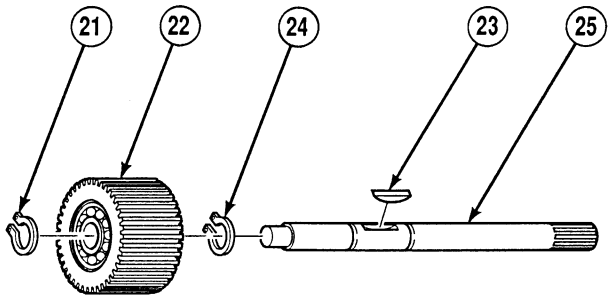


WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

Holes in gear must face spline end of shaft.

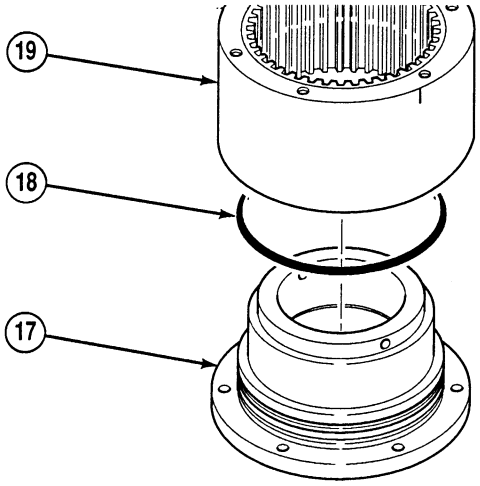


(6) Install retaining ring (24), key (23), gear (22) and retaining ring (21) on shaft (25).

(7) Apply hydraulic oil to preformed packing (18).

(8) Install preformed packing (18) in housing (19).

(9) Install housing (19) on access cover (17).



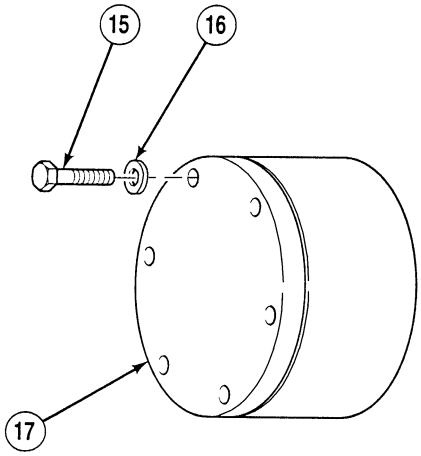
16-14. HOIST BRAKE REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(10) Apply sealing compound on threads of six screws (15).

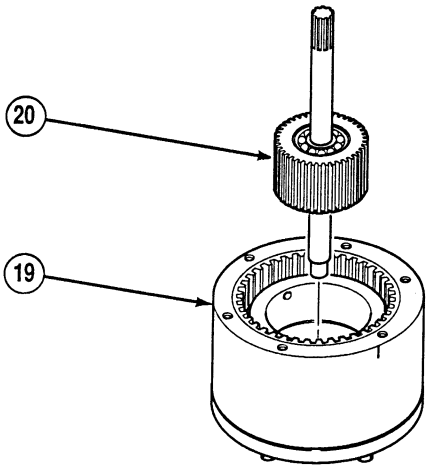
(11) Align matchmarks and install access cover (17) with six washers (16) and screws (15). Tighten screws to 28 lb-ft (38 N·m).



CAUTION

Ensure clutch assembly is flush with top of ring gear, or damage to plates will result.

(12) Install friction clutch assembly (20) in housing (19).



CAUTION

Do not align notches in stators and disc. Alignment allows fluid to flow and will cause incorrect operation. Start stack with stator.

NOTE

Ensure pressure plates and clutch discs are installed in same order as removed.

(13) Remove cable ties and install seven pressure plates (14) and eight clutch discs (13) in hoist brake (3).

(14) Apply hydraulic oil to preformed packing (12).

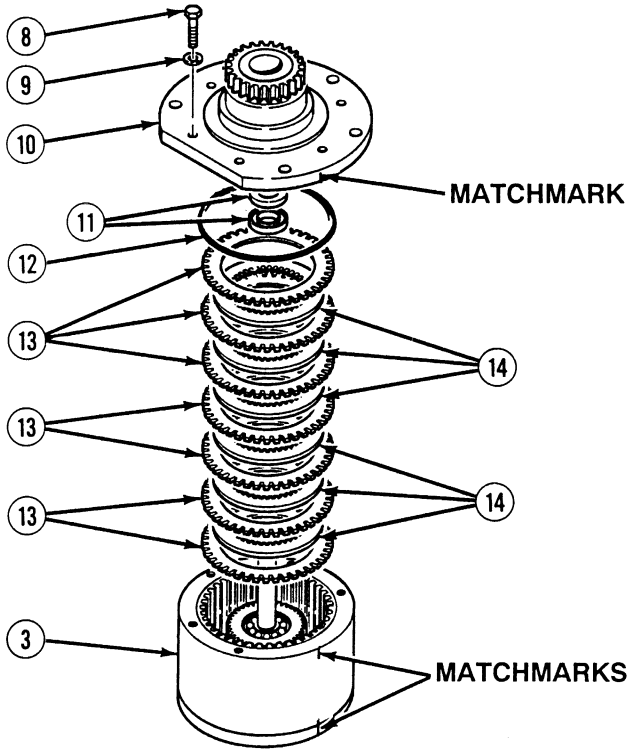
(15) Install preformed packing (12) and two oil seals (11) in bearing housing (10).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(16) Apply sealing compound on threads of six screws (8).

(17) Align matchmarks and install bearing housing (10) with six washers (9) and screws (8). Tighten screws to 28 lb-ft (38 N·m).



16-14. HOIST BRAKE REPAIR (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(18) Coat threads of bleeder valve (7) with sealing compound.

(19) Install bleeder valve (7) and plug (6) in hoist brake (3).

(20) Coat threads of elbow (5) with sealing compound.

(21) Install and align elbow (5) in hoist brake (3).

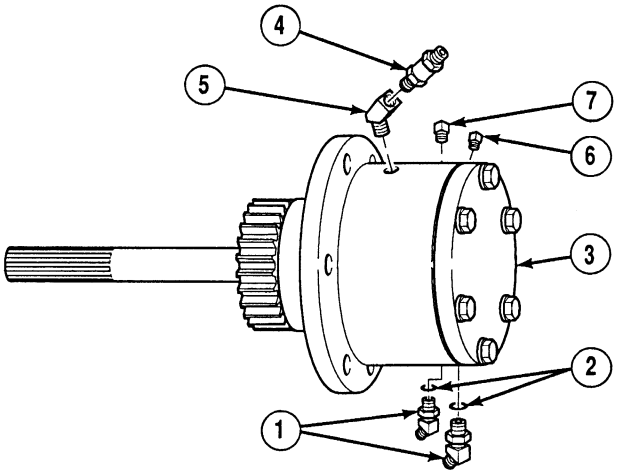
(22) Coat threads of check valve (4) with sealing compound.

(23) Install check valve (4) in elbow (5).

(24) Apply hydraulic oil to two preformed packings (2).

(25) Install two preformed packings (2) on elbows (1).

(26) Install two elbows (1) on hoist brake (3).

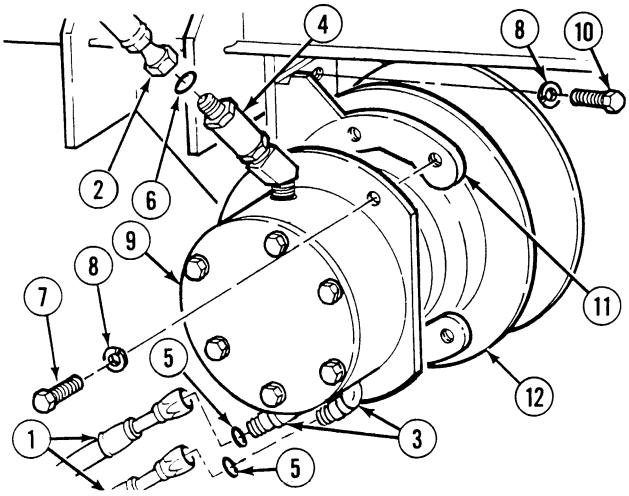


e. Installation.

(1) Align and install brake assembly (9) and bracket (11) on hoist drum (12) with five lockwashers (8), two screws (10) and three screws (7). Tighten screws to 68 lb-ft (92 N·m).

(2) Apply hydraulic oil to preformed packings (5) and (6).

(3) Install two preformed packings (5) and preformed packing (6) and connect hoses (1) on two elbows (3) and check valve (4).



f. Follow-On Maintenance:

- Fill hoist brake, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-15. HOIST CABLE FOLLOWER REPAIR.

This task covers:

a. Disassembly b. Cleaning/Inspection c. Assembly

INITIAL SETUP

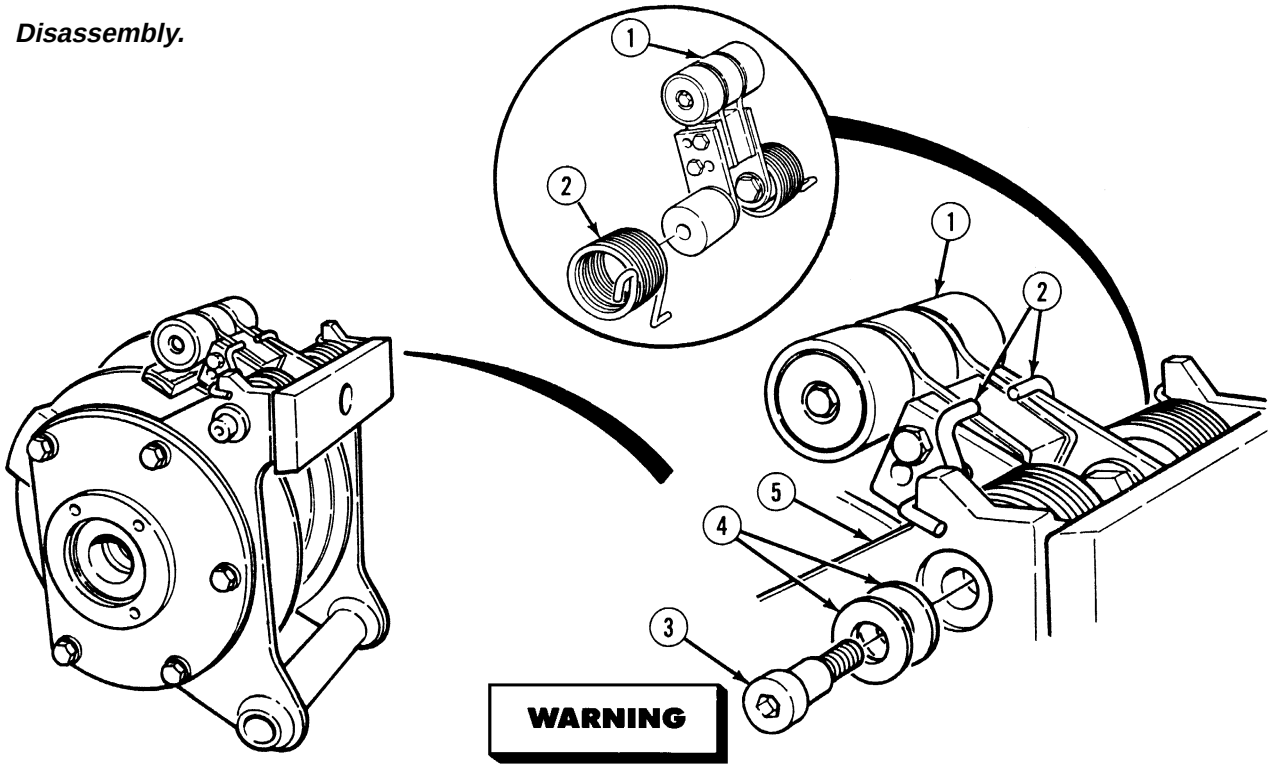
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Socket , Socket Head Screw 5/16 in. 1/2 in. Drive (Item 210, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

Tools and Special Tools - Continued
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Equipment Condition
Hoist assembly on clean work surface

a. Disassembly.



WARNING

When second spring is released, cable follower may fly up against bracket. Keep hands and face away from this area, or injury to personnel may result.

NOTE

Remove spring on side with extra block first.

(1) Hold cable follower (1) up while prying ends of two springs (2) down to remove spring pressure on cable follower.

(2) Remove two screws (3), four thrust washers (4) and cable follower (1) from bracket (5) and separate two springs (2).

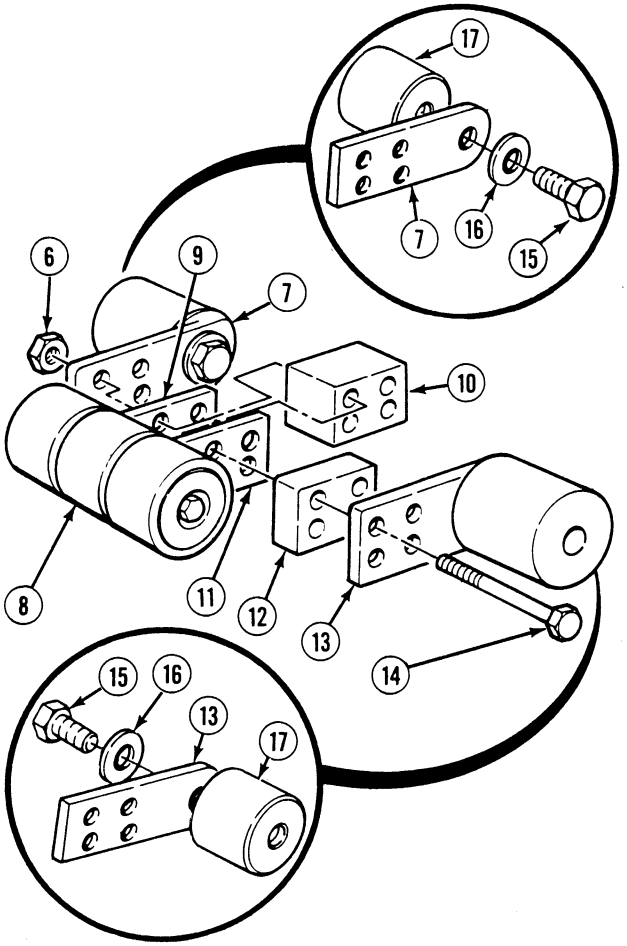
16-15. HOIST CABLE FOLLOWER REPAIR (CONT).

NOTE

Perform Steps (3) through (9) only if cable follower assembly is damaged.

(3) Remove two nuts (6) and separate left lever arm foot (7), roller assembly (8), spacer (9), block (10), spacer (11), block (12), right lever arm foot (13) and two screws (14).

(4) Remove two screws (15), washers (16) and spring support tubes (17) from lever arm feet (7) and (13).



(5) Remove screw (18), end cap (19), thrust washer (20), roller (21) and thrust washer (22) from support plate (23) and roller shaft (24).

(6) Remove bushing (25) from support plate (23).

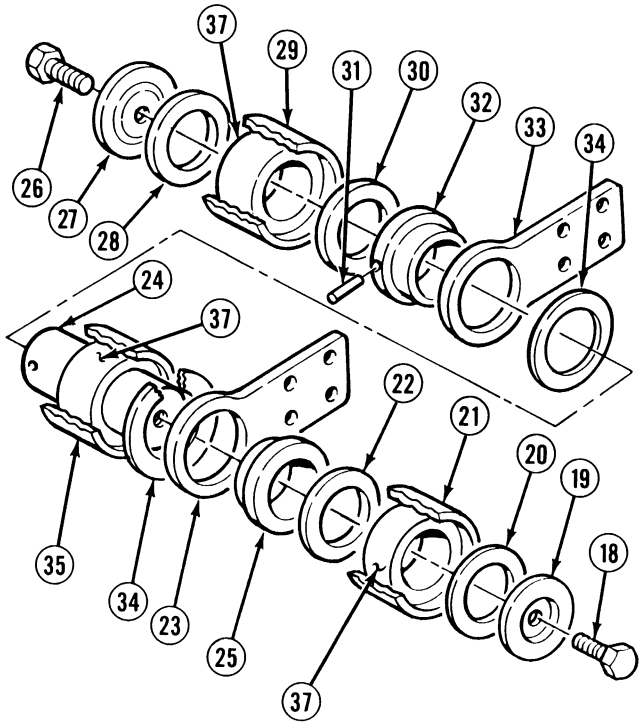
(7) Remove screw (26), end cap (27), thrust washer (28), roller (29) and thrust washer (30) from roller shaft (24).

(8) Remove spring pin (31) from bushing (32).

(9) Remove bushing (32), support plate (33), two thrust washers (34) from roller shaft (24).

(10) Remove roller (35) from roller shaft (24).

(11) Remove three bearings (37) from rollers (21), (29) and (35)



b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect each part for cracks, breaks, gouges, pitting and stripped threads.

(4) Replace damaged parts.

16-15. HOIST CABLE FOLLOWER REPAIR (CONT).

c. Assembly.

NOTE

Perform Steps (1) through (9) only if cable follower assembly was disassembled.

(1) Install three bearings (37) in rollers (21), (29), and (35).

(2) Position roller (35) and two thrust washers (34) on roller shaft (24).

(3) Install bushing (32) in support plate (33).

(4) Install bushing (32), thrust washer (30), roller (29), thrust washer (28), end cap (27) and screw (26) on roller shaft (24). Tighten screw to 72 lb-in (8 N·m).

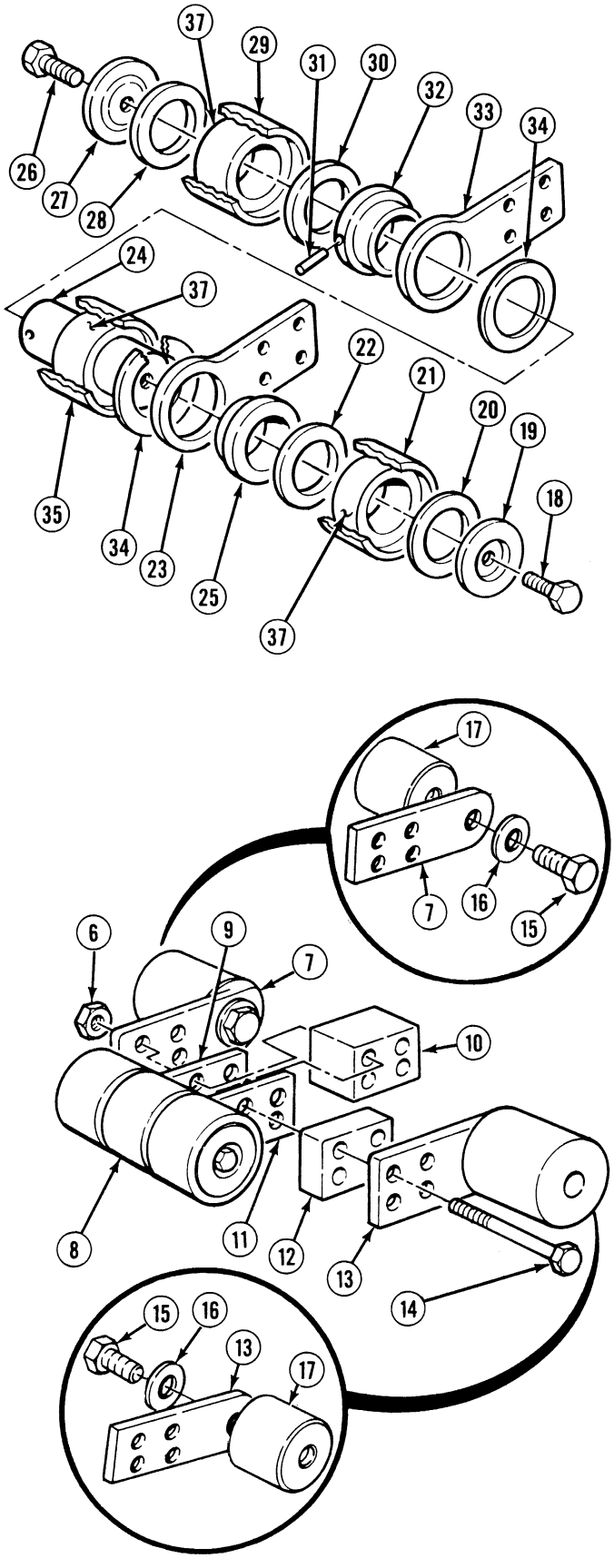
(5) Install spring pin (32) in bushing (33) and roller shaft (24).

(6) Install bushing (25) in support plate (23).

(7) Install bushing (25), thrust washer (22), roller (21), thrust washer (20), end cap (19) and screw (18) on roller shaft (24). Tighten screw to 72 lb-in (8 N·m).

(8) Install spring support tubes (17) on lever arm feet (7) and (13) with two washers (16) and screws (15). Tighten screws to 68 lb-ft (92 N·m).

(9) Install left spring holder (7), roller assembly (8), spacer (9), block (10), spacer (11), block (12), right spring holder (13), two screws (14) and nuts (6). Tighten screws to 16 lb-ft (22 N·m).



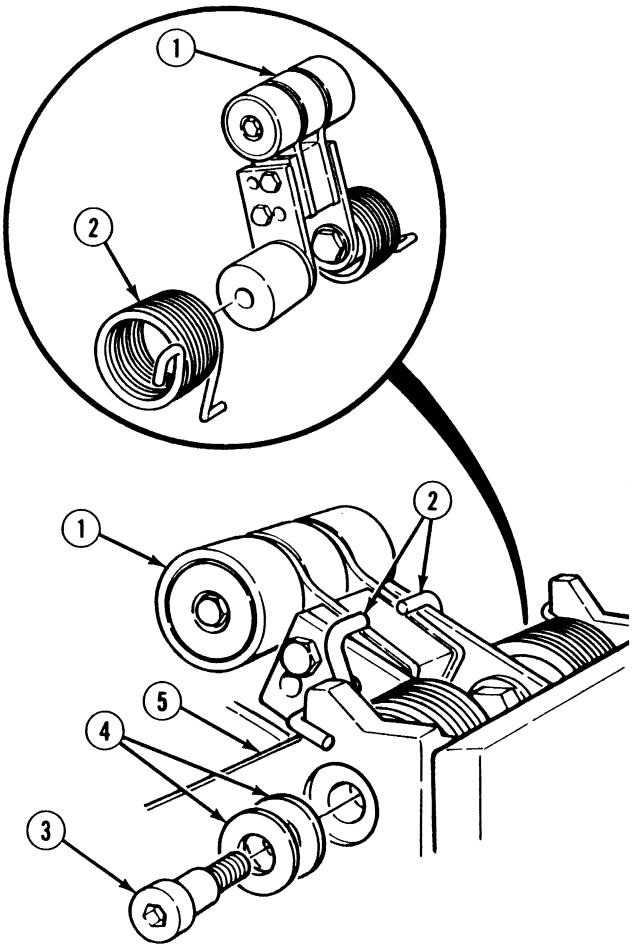
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(10) Apply thread sealing compound on threads of two screws (3).

(11) Position springs (2) and install cable follower (1) on bracket (5) with four thrust washers (4) and two screws (3). Tighten screws to 87 lb-ft (118 N·m).

(12) Hold cable follower (1) up while prying ends of two springs (2) up to fully install two springs.



END OF TASK

16-16. TURNTABLE AND GEAR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

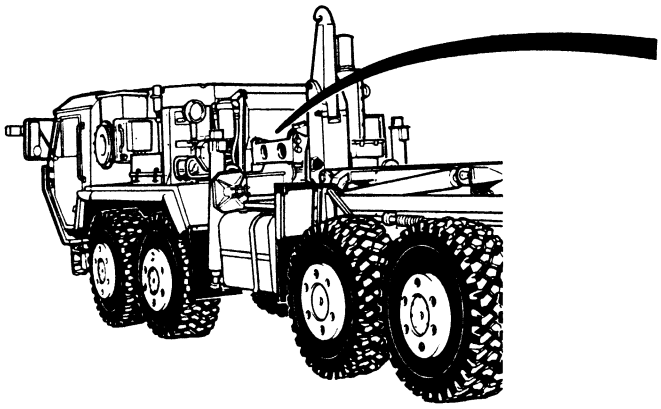
INITIAL SETUP

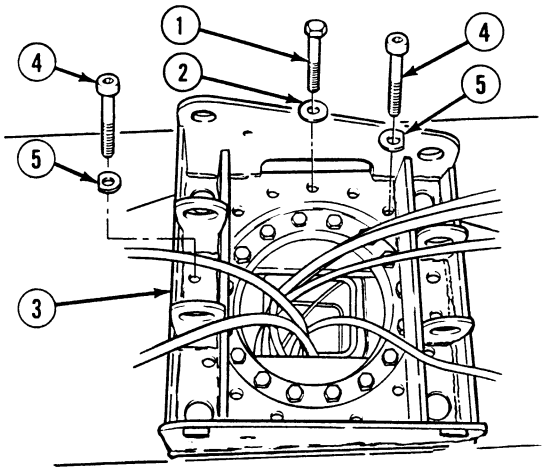
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Socket, Socket Head Screw, 5/8 in., 3/4 in.
Drive (Item 212, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 150 lbs
(68 kg)

Materials/Parts
Sealing Compound (Item 56, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Lift cylinders removed, (Para 16-6)
Erection cylinder removed, (Para 16-5)
Tension link removed, (Para 16-8)
Mast removed, (Para 16-9)

a. Removal.





CAUTION

Note location of socket head screw and washer with flat spot combinations. Also note locations of hex head screw and flat spot combinations. They must be installed in same holes from which they were removed or damage to equipment may occur.

(1) Remove 10 screws (1) and washers (2) from turntable (3).

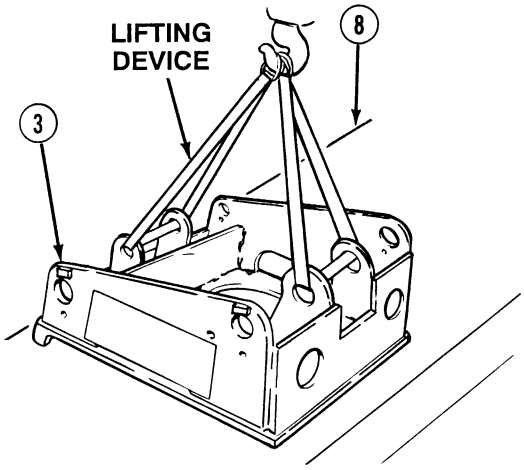
(2) Remove eight screws (4) and washers (5) from turntable (3).

WARNING

Turntable weighs 150 lbs (68 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(3) Attach lifting device to turntable (3).

(4) Remove turntable (3) from crane subframe (8).



(5) Remove 16 screws (9) and washers (10) from gear (11).

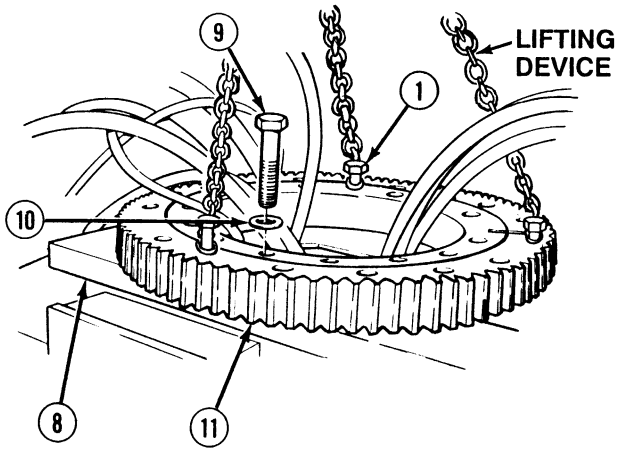
WARNING

Gear weighs 135 lbs (61 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(6) Attach lifting device to gear (11) with three screws (1).

(7) Remove gear (11) from crane subframe (8).

(8) Remove three screws (1) and lifting device from gear (11).



b. Installation.

WARNING

Gear weighs 135 lbs (61 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

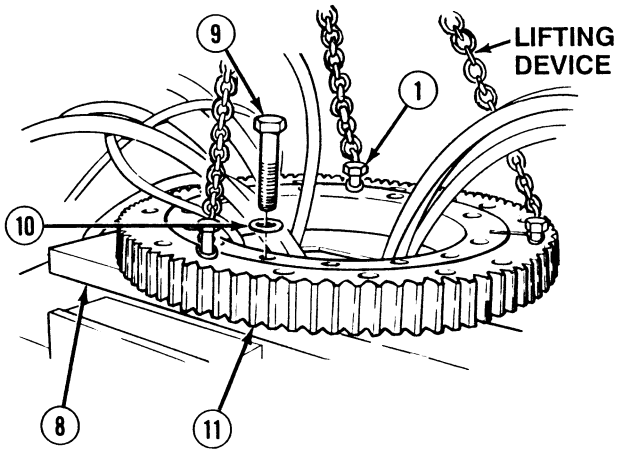
(1) Attach lifting device to gear (11) with three screws (1).

16-16. TURNTABLE AND GEAR REPLACEMENT (CONT).

NOTE

Letter G stamped on bearing faces down and centered on subframe.

(2) Install gear (11) on subframe (8) and pull hoses through gear (11).



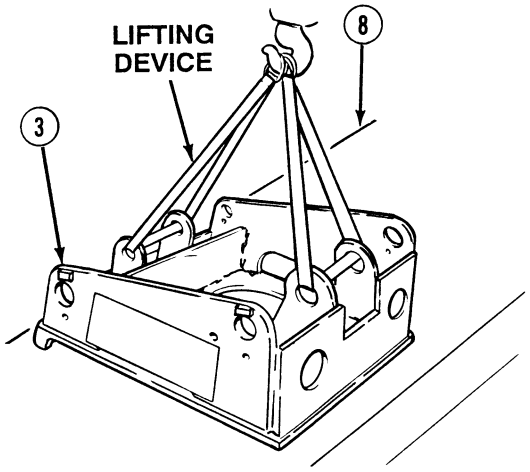
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound on threads of 16 screws (9).

(4) Install 16 screws (9) and washers (10) in gear (11). Tighten screws to 333 lb-ft (452 N·m).

(5) Remove three screws (1) and lifting device from gear (11).



WARNING

Turntable weighs 150 lbs (68 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(6) Attach lifting device to turntable (3).

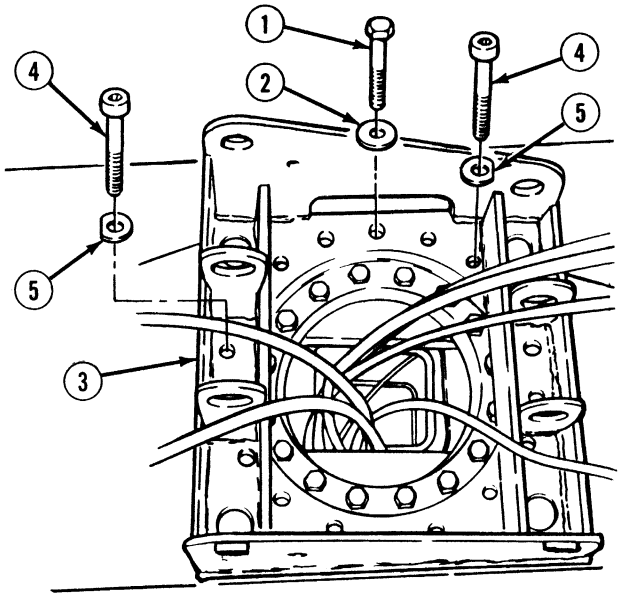
NOTE

Turntable must be positioned parallel to truck.

(7) Position turntable (3) on crane subframe (8) and pull hoses through turntable.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(8) Apply sealing compound on threads of eight screws (4).

(9) Install eight screws (4) and washers (5) in turntable (3). Tighten screws to 333 lb-ft (452 N·m).

(10) Apply sealing compound on threads of 10 screws (1).

(11) Install ten screws (1) and washers (2) in turntable (3). Tighten screws to 333 lb-ft (452 N·m).

c. Follow-On Maintenance:

- Install mast, (Para 16-9).
- Install erection cylinder, (Para 16-5).
- Install tension link, (Para 16-8).
- Install lift cylinders, (Para 16-6).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-17. CRANE SUBFRAME REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

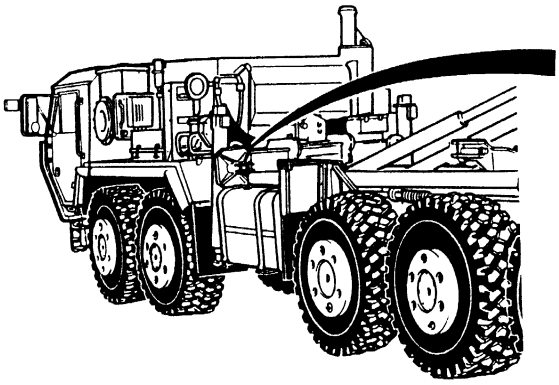
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Jackstand (4) (Item 132, Appendix F)
Wrench, Combination 1-1/2 in.
(Item 260, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Lifting Device, Minimum Capacity 1500 lbs
(681 kg)
Wooden Block (2) (Appendix C)

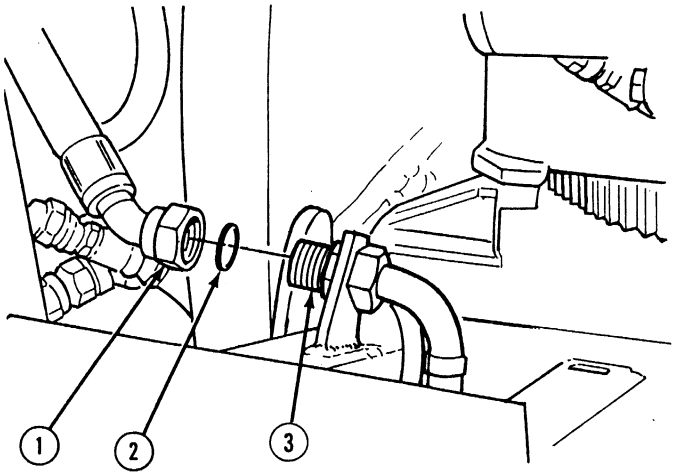
Materials/Parts
Oil, Hydraulic (Item 35, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (4) (Item 373, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9 2320-364-10)
Turntable and bearing removed, (Para 16-16)
Boom assembly removed, (Para 16-3)
Lift cylinders removed, (Para 16-6)
Erection cylinder removed, (Para 16-5)
Tension cylinder removed, (Para 16-8)
Outrigger cylinders removed, (Para 16-31)
Crane junction box removed, (Para 6-6)

a. Removal.

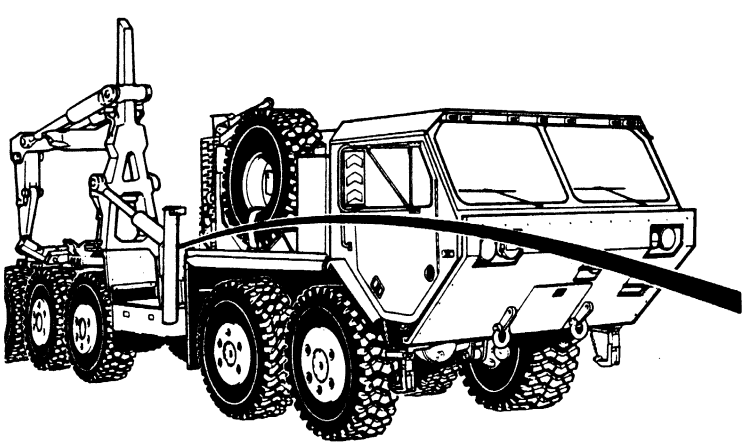


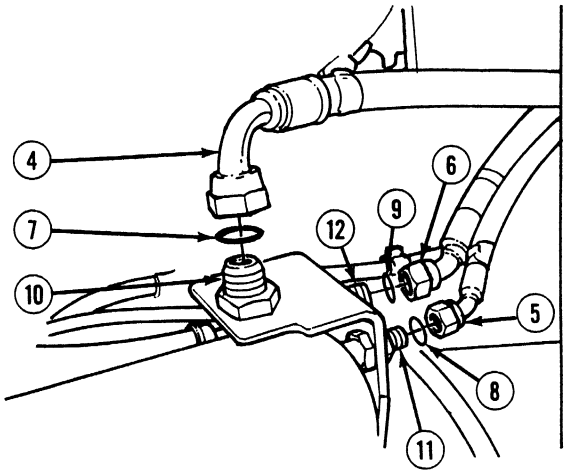


NOTE

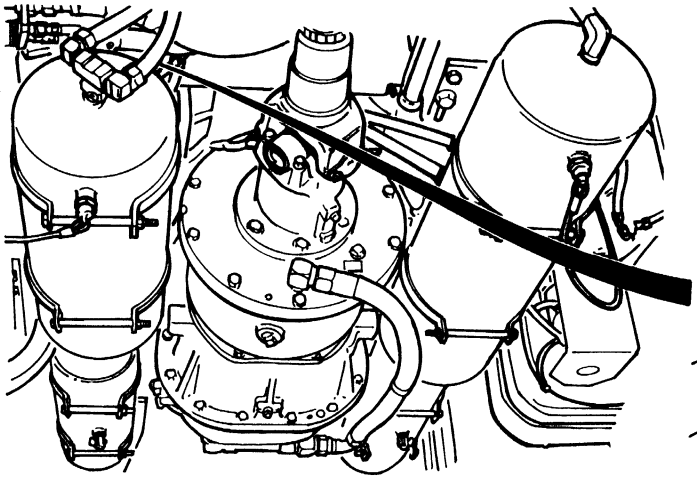
- Tag and mark hoses prior to removal.
- Cap and plug hoses and fittings after removal.

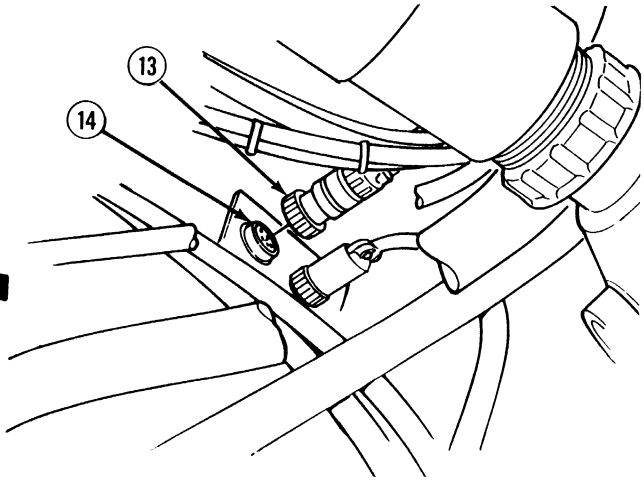
(1) Remove hose 2724 (1) and preformed packing (2) from fitting (3). Discard preformed packing.





(2) Remove hoses 2902 (4), 2776 (5) and 2694 (6) and preformed packing (7), (8) and (9) from fittings (10), (11) and (12). Discard preformed packings.



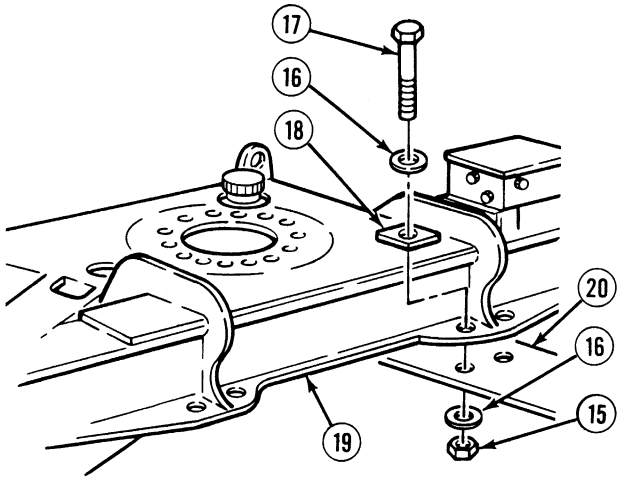


NOTE

Tag and mark connector prior to removal.

(3) Disconnect five-pin overload cable connector (13) from overload box MC29 connector (14).

(4) Remove 12 nuts (15), washers (16), screws (17), washers (16) and plates (18) from subframe (19) and bracket (20).



16-17. CRANE SUBFRAME REPLACEMENT (CONT).

WARNING

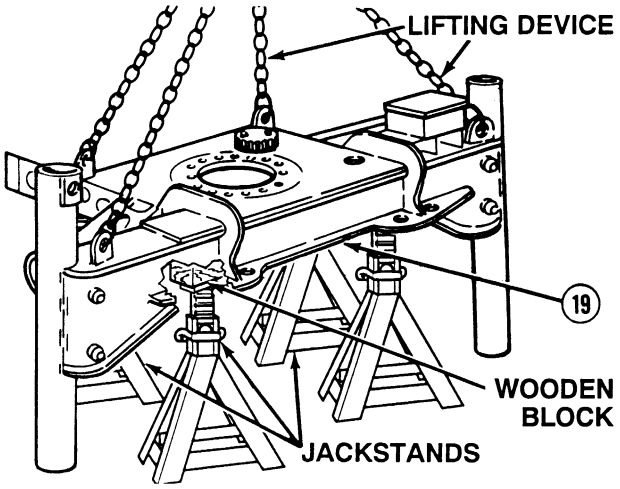
Subframe weighs 1,420 lbs (645 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(5) Attach lifting device to subframe (19) lift points.

(6) With the aid of an assistant, raise subframe (19) approximately two inches (51 mm) to assure that subframe is level.

(7) With the aid of an assistant, guide subframe (19) up and away from truck and place on jackstands and wooden blocks.

(8) Remove lifting device from subframe (19).

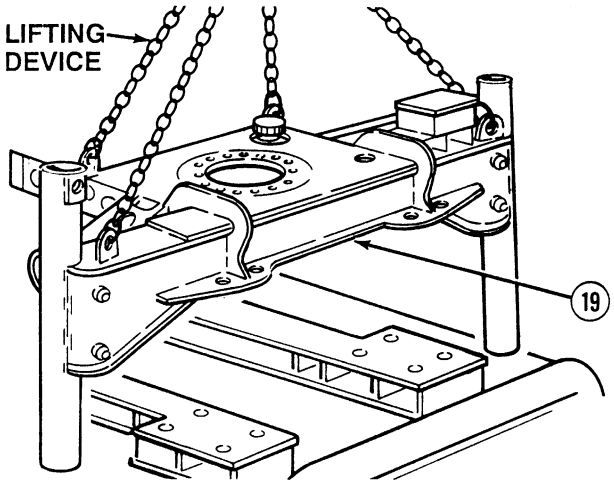


b. Installation.

WARNING

Subframe weighs 1,420 lbs (645 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to subframe (19) lift points.



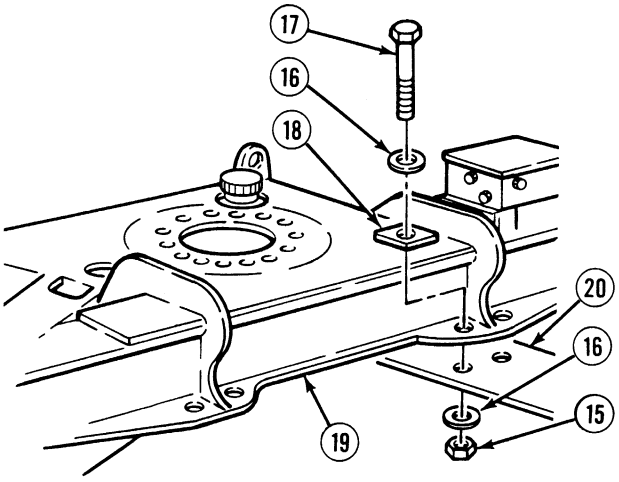
CAUTION

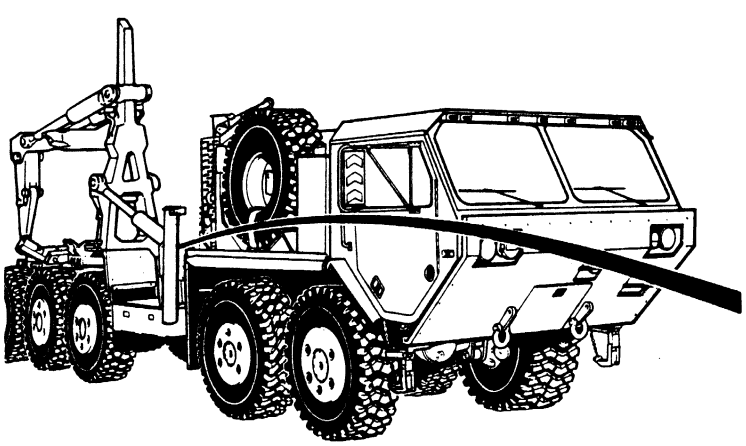
Be careful not to crush hoses and wires, or damage to equipment may result.

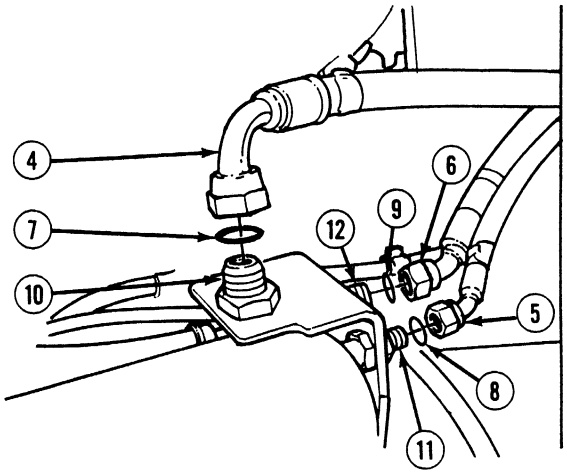
(2) With the aid of an assistant, guide subframe (19) and align with holes in truck frame (20).

(3) Install 12 plates (18), washers (16), screws (17), washers (16) and nuts (15) in bracket (20) and subframe (19). Tighten nuts to 370 lb-ft (502 N·m).

(4) Remove lifting device from subframe (19).

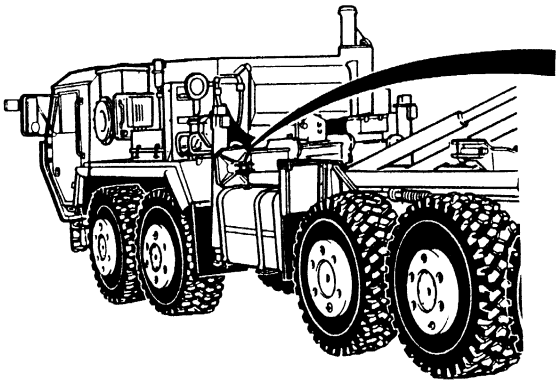


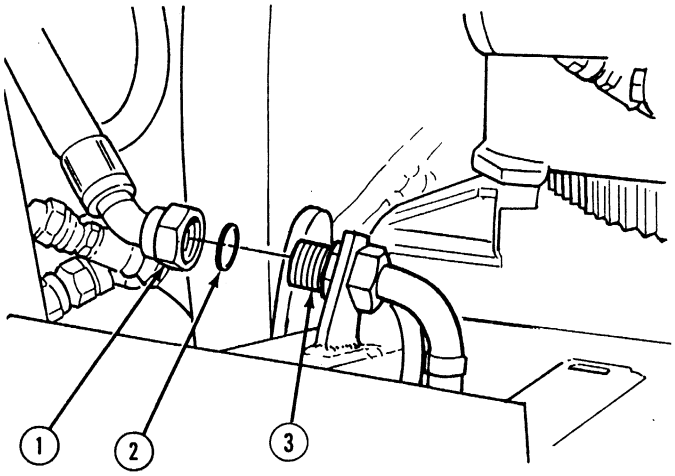




(5) Apply hydraulic oil to preformed packings (7), (8) and (9).

(6) Install hoses 2902 (4), 2776 (5) and 2694 (6) and preformed packings (7), (8) and (9) on fittings (10), (11) and (12).

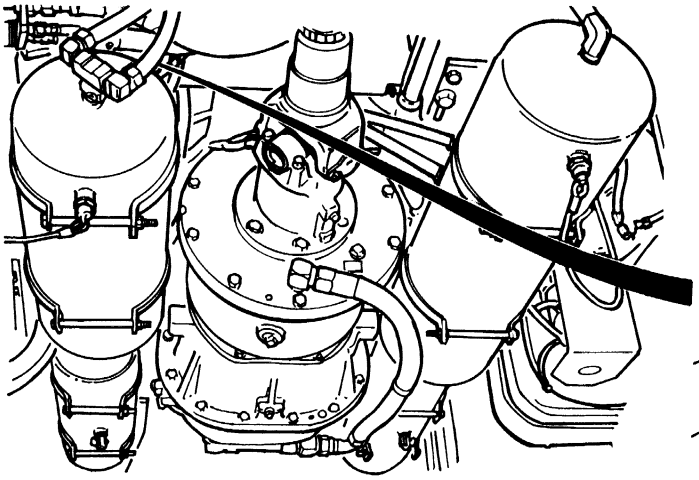


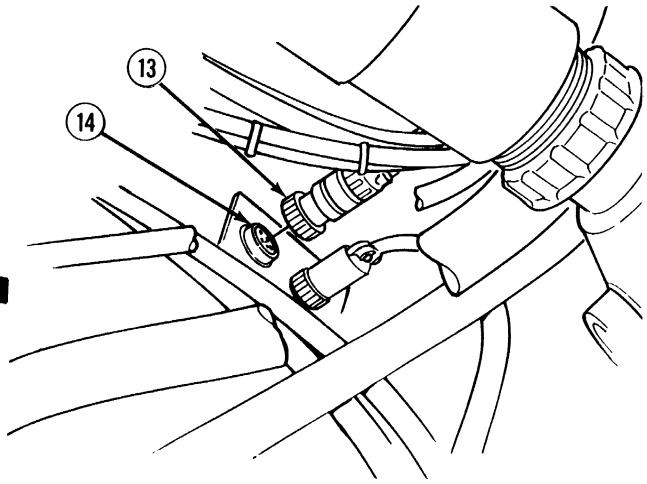


(7) Apply hydraulic oil to preformed packing (2).

(8) Install hose 2724 (1) and preformed packing (2) on fitting (3).

16-17. CRANE SUBFRAME REPLACEMENT (CONT).





(9) Connect five-pin connector (13) to overload box MC29 connector (14).

c. Follow-On Maintenance:

- Install crane junction box, (Para 6-6).
- Install turntable and bearing, (Para 16-16).
- Install erection cylinder, (Para 16-5).
- Install tension cylinders, (Para 16-8).
- Install lift cylinders, (Para 16-6).
- Install boom assembly, (Para 16-3).
- Install outrigger cylinders, (Para 16-31).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-18. SWING DRIVE GEAR REDUCER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 240, Appendix F)
Brush, Wire, Scratch (Item 23, Appendix F)
Cap and Plug Set, (Item 26, Appendix F)
Respirator, Air Filter (Item 195, Appendix F)
Sander, Portable, Disk Electric (Item 198, Appendix F)
Socket, Swivel 13/16 in. (Item 220, Appendix F)
Welder, Arc (Item 251, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
Wrench, Torque (0 to 600 lb-ft [0-814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 200 lbs (91 kg)
Screw (2) (3/8 in.-16 by 1-1/4 in.)
Washer, Flat (2) (3/8 in.)

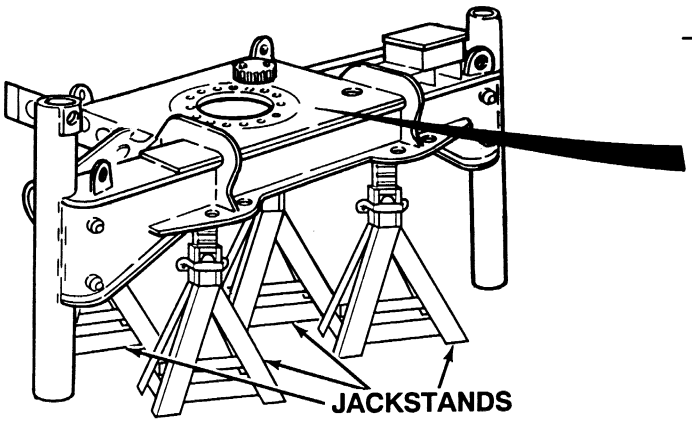
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 53, Appendix B)
Sealing Compound (Item 56, Appendix B)
Sealing Compound (Item 65, Appendix B)
Strip, Metal (Item 70, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (2) (Item 389, Appendix E)
Screw (Item 539, Appendix E)

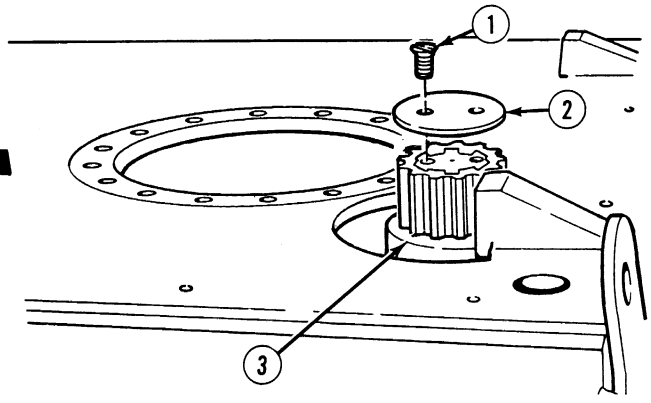
Personnel Required
Two

References
TC 9-237, Operator's Manual for Welding Theory and Application

Equipment Condition
Crane subframe assembly removed, (Para 16-17)

a. Removal.

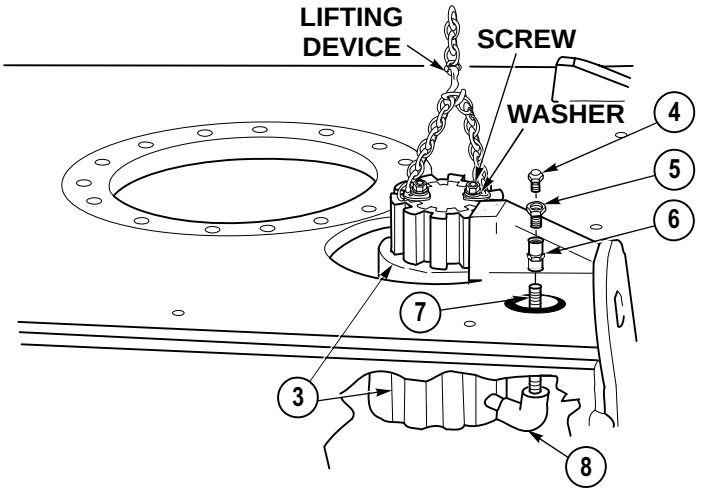




(1) Remove two screws (1) and cover (2) from swing drive gear reducer (3).

16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).

(2) Attach lifting device to swing drive gear reducer (3) with two screws and washers.



WARNING

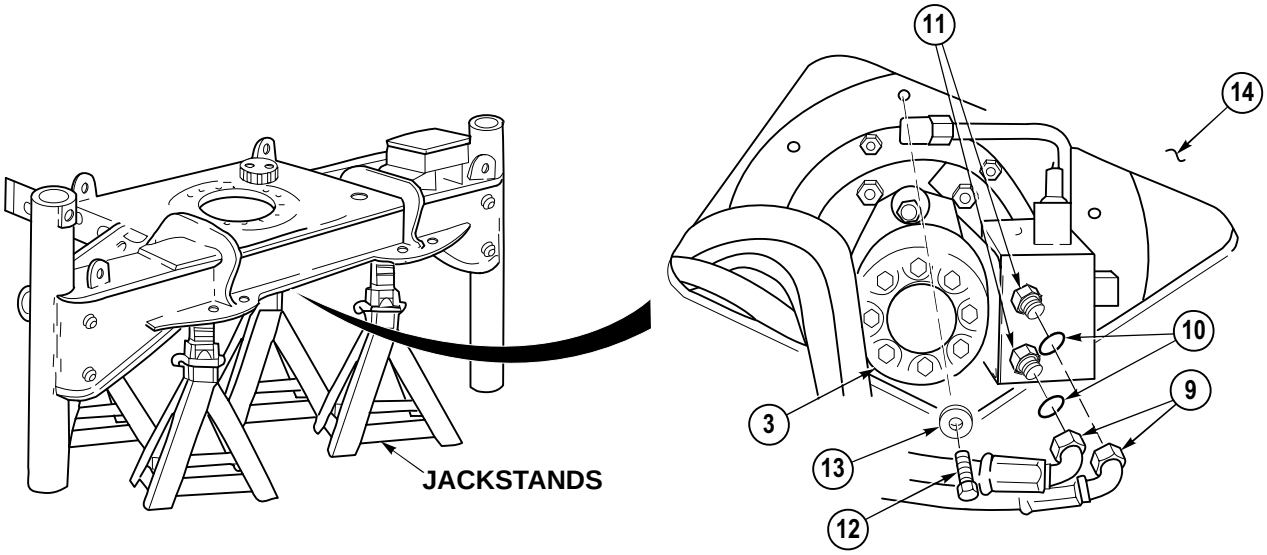
Swing drive gear reducer weighs 140 lbs (64 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(3) Take-up slack in lifting device.

(4) Remove vent (4), reducer (5) and adapter (6) from fitting (7).

(5) Remove fitting (7) from elbow and fitting (8).

(6) Remove elbow and fitting (8) from swing drive gear reducer (3).



NOTE

Cap and plug hydraulic hoses and tubes after removal.

(7) Remove two hoses (9) and preformed packings (10) from fittings (11). Discard preformed packings.

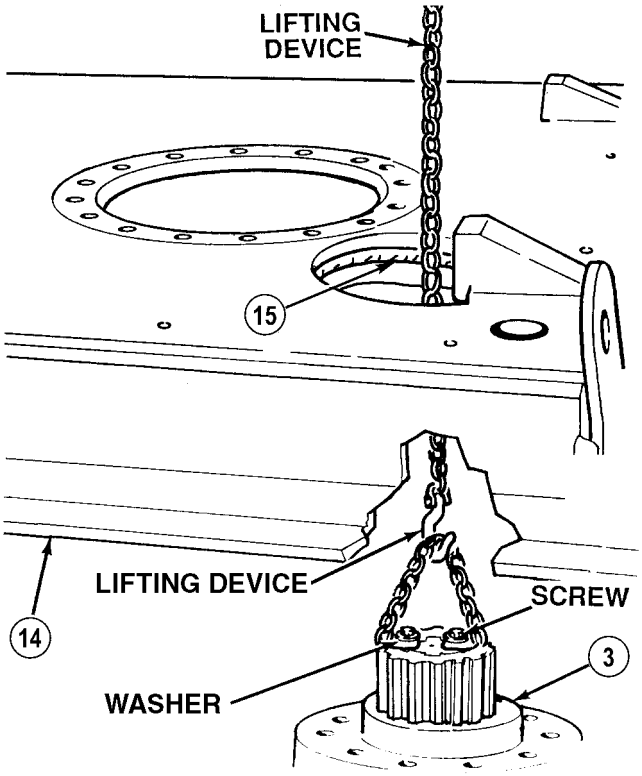
NOTE

Swivel socket may be needed to remove some screws.

(8) Remove nine screws (12) and washers (13) from under subframe assembly (14) and swing drive gear reducer (3).

(9) With the aid of an assistant, guide swing drive gear reducer (3) from subframe assembly (14).

(10) Remove two screws, washers and chain from swing drive assembly gear reducer (3).



WARNING

- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production and chest tightness. The following precautions must be taken whenever using CARC paint:
- NEVER weld or cut CARC-coated materials.

NOTE

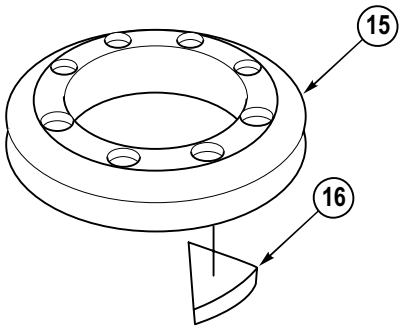
Perform Steps (11) through (14) if a new gear reducer is to be installed.

(11) Using a wire scratch brush, remove CARC paint from area four in. (102 mm) around welding/grinding points of spacer ring (15).

(12) Grind off weld from spacer ring (15) and subframe assembly (14) and remove spacer ring (15).

(13) Using a wire scratch brush, remove CARC paint from area four in. (102 mm) around welding/grinding points of wedge (16).

(14) Grind off weld from two wedges (16) and spacer ring (15) and remove two wedges (16).



16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).

b. Installation.

WARNING

Bearing gear weighs 135 lbs. (61 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

NOTE

- Perform Steps (1) through (20) if installing a new gear reducer.
- If installing original gear reducer, go to Step (21).
- Screws used in Step (1) were removed with turntable.

(1) Attach lifting device to bearing gear (17) with three screws (18).

NOTE

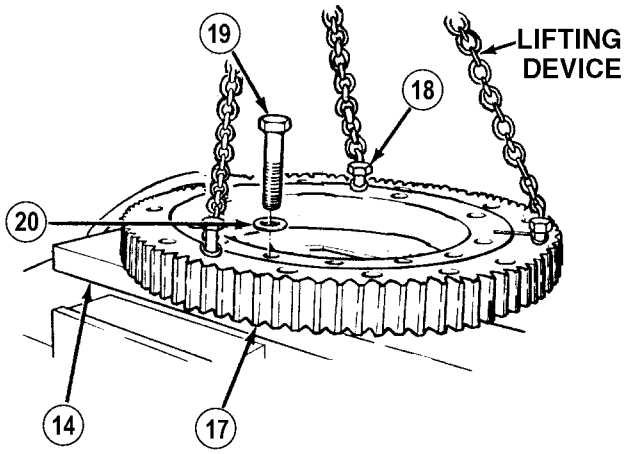
Letter G stamped on bearing faces down and centered on subframe.

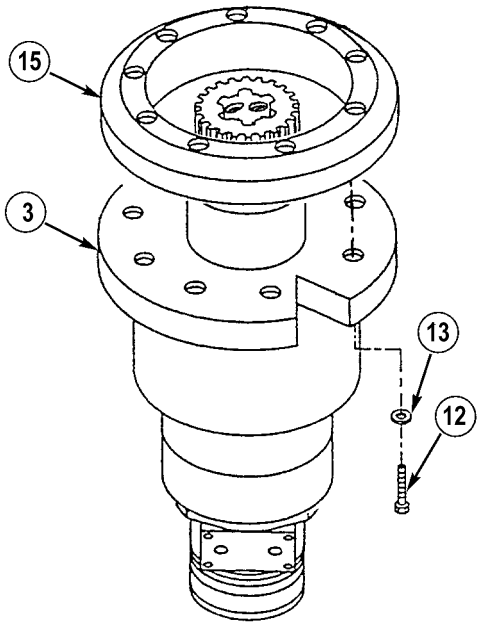
(2) Position bearing gear (17) on subframe (14).

(3) Install 16 screws (19) and washers (20) in bearing gear (17). Tighten screws to 333 lb-ft (452 N·m).

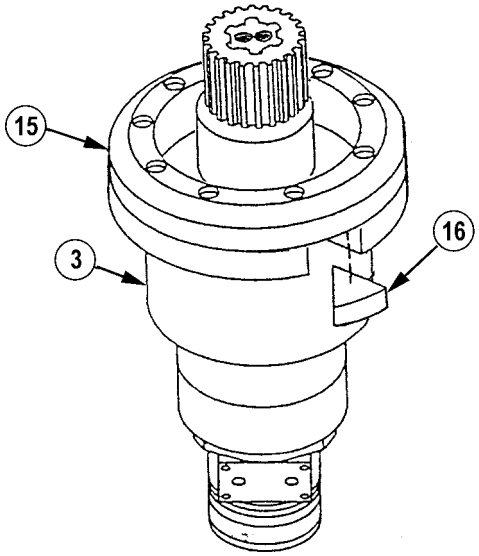
(4) Remove three screws (18) and lifting device from bearing gear (17).

(5) Install spacer ring (15) on gear reducer (3) with nine screws (12) and washers (13). Tighten screws to 99 lb-ft (134 N·m).





(6) Position two wedges (16) in "V" shaped cut-outs on swing drive gear reducer (3) and against spacer ring (15).



WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

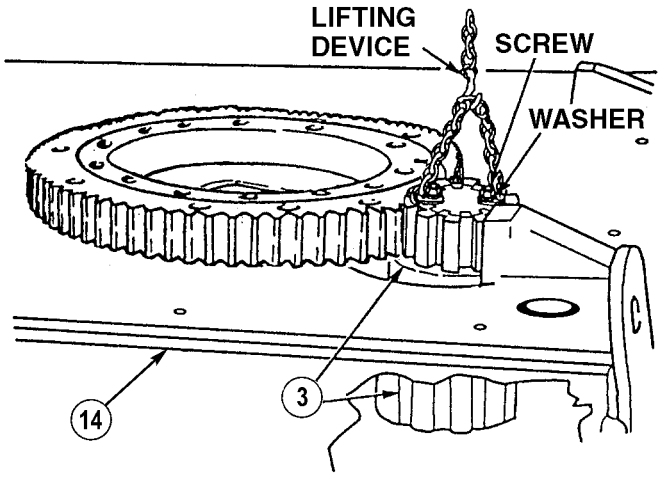
CAUTION

Do not weld wedge to swing drive gear reducer. Only weld wedge to spacer ring or damage to equipment will result.

(7) Weld two wedges (16) to spacer ring (15) in accordance to TC 9-237.

(8) Install lifting device on swing drive gear reducer (3) with two washers and screws.

(9) Position swing drive gear reducer (3) under subframe assembly (14).



WARNING

Swing drive gear reducer weighs 140 lbs. (64 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(10) Position lifting device through subframe assembly (14) and attach to chain.

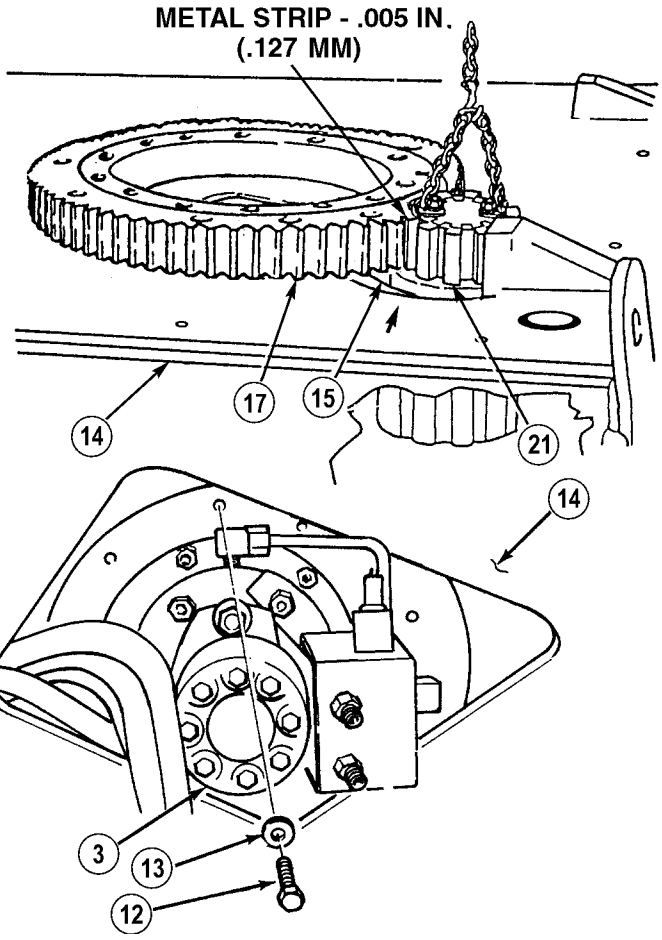
(11) With the aid of an assistant, use lifting device and position swing drive gear reducer (3) in subframe assembly (14).

16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).

NOTE

The .005 in. (.127 mm) metal strip must be positioned around tooth on spur gear and between spur gear and bearing gear to obtain .010 in. (.254 mm) backlash.

(12) Position .005 in. (.127 mm) metal strip around tooth of spur gear (21) and position spur gear (21) with metal strip on bearing gear (17).



WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

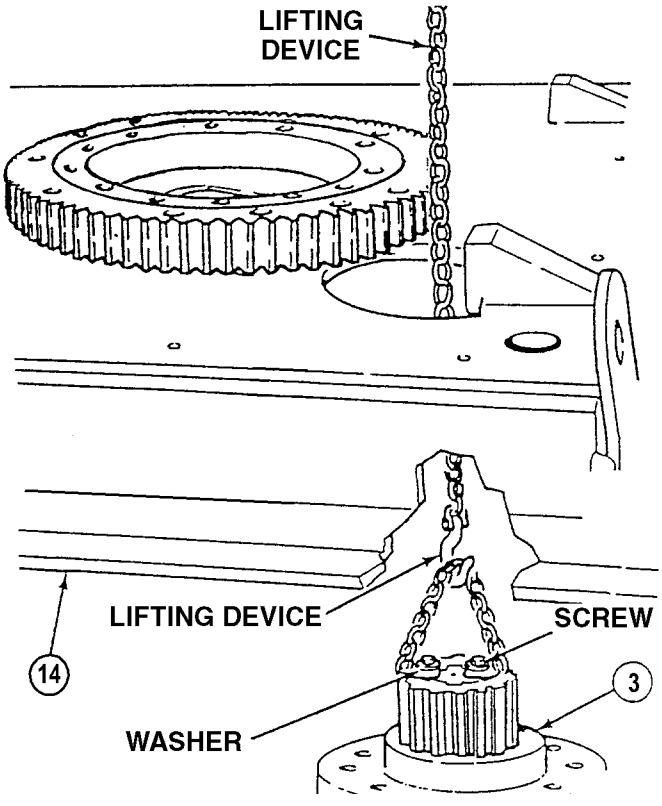
(13) Tack weld spacer ring (15) to subframe assembly (14) in accordance to TC 9-237.

WARNING

Swing drive gear reducer weighs 140 lbs. (64 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(14) With the aid of an assistant and using lifting device, remove nine screws (12), washers (13) and swing drive gear reducer (3) from subframe assembly (14).

(15) Remove two screws, washers and chain from swing drive assembly gear reducer (3).



(16) Remove sixteen screws (19) and washers (20) from bearing gear (17).

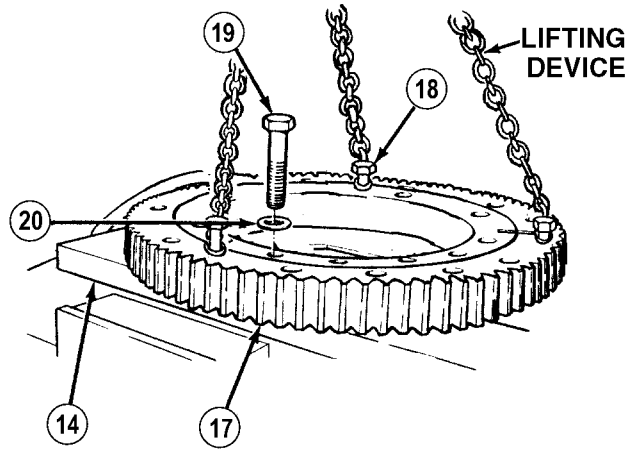
WARNING

Gear weighs 135 lbs. (61 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(17) Attach lifting device to gear (17) with three screws (18).

(18) Remove bearing gear (17) from subframe assembly (14).

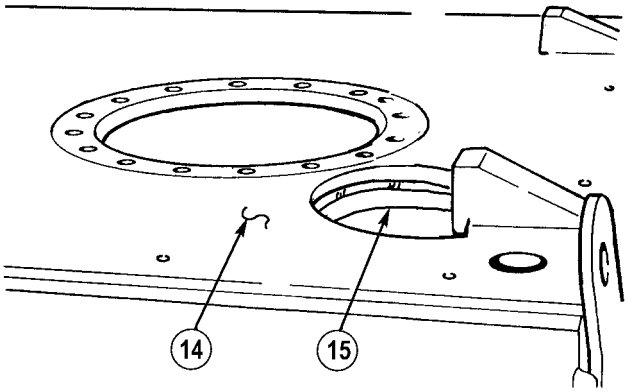
(19) Remove three screws (18) and lifting device from bearing gear (17).



WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(20) Weld spacer ring (15) to subframe assembly (14) in accordance to TC 9-237.



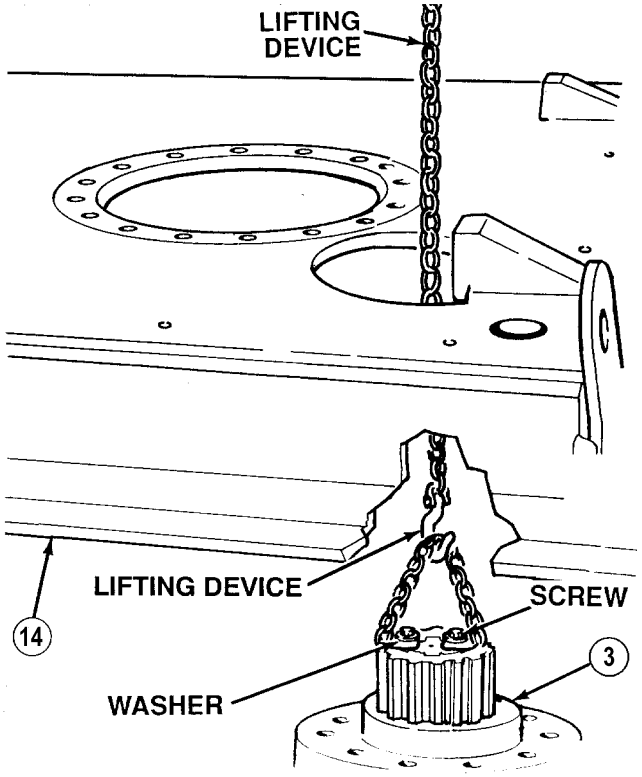
(21) Position swing drive gear reducer (3) under subframe assembly (14).

WARNING

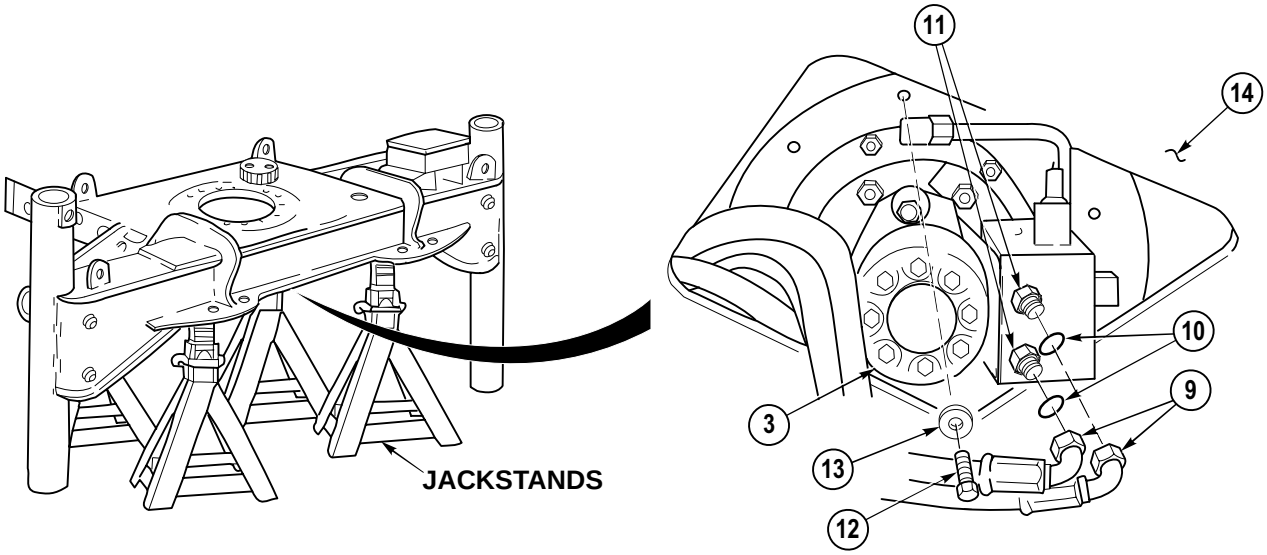
Swing drive gear reducer weighs 140 lbs. (64 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(22) Position lifting device through subframe assembly (14) and attach to chain.

(23) With the aid of an assistant, use lifting device and position swing drive gear reducer (3) in subframe assembly (14).



16-18. SWING DRIVE GEAR REDUCER REPLACEMENT (CONT).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

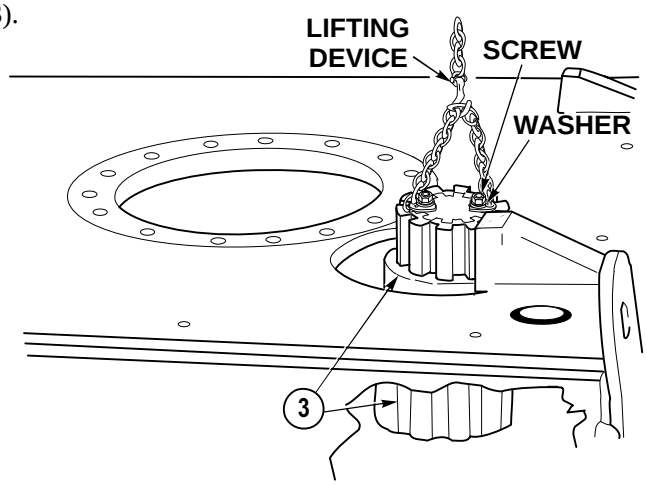
(24) Apply sealing compound on threads of nine screws (12).

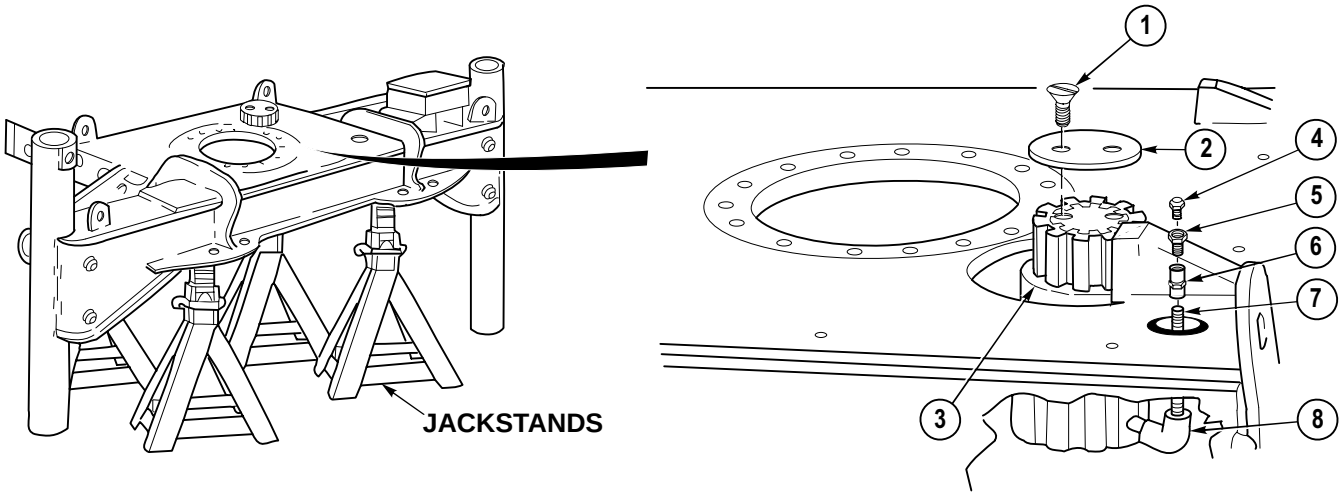
(25) Install nine washers (13) and screws (12) in swing drive gear reducer (3) and subframe assembly (14). Tighten screws to 99 lb-ft (134 N·m).

(26) Apply hydraulic oil to two preformed packings (10).

(27) Install two preformed packings (10) and hoses (9) on fittings (11).

(28) Remove lifting device, two screws and washers from swing drive gear reducer (3).





WARNING

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.

(29) Apply sealing compound on threads of fitting (7) and elbow and fitting (8).

(30) Install elbow and fitting (8) in swing drive gear reducer (3).

(31) Install fitting (7) in elbow and fitting (8).

(32) Apply sealing compound to threads of fitting (7), reducer (5) and vent (4).

(33) Install adapter (6), reducer (5) and vent (4) on fitting (7).

(34) Apply sealing compound on threads of two screws (1).

(35) Install cover (2) on swing drive gear reducer (3) with two screws (1). Tighten screws to 19 lb-ft (25.7 N·m).

c. Follow-On Maintenance:

- Install crane subframe assembly, (Para 16-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-19. SWING DRIVE MOTOR VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

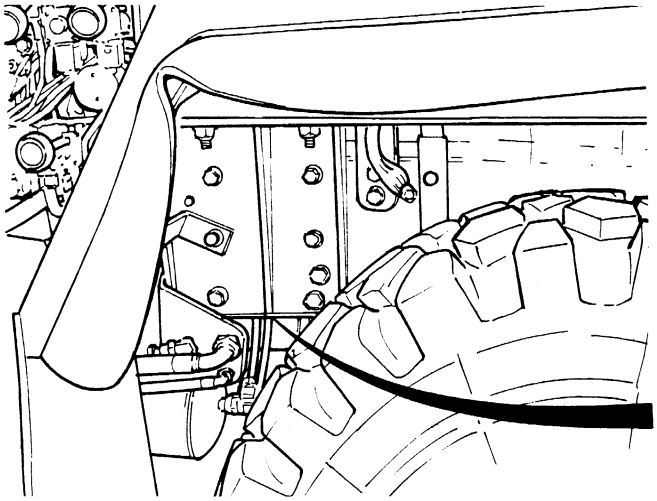
INITIAL SETUP

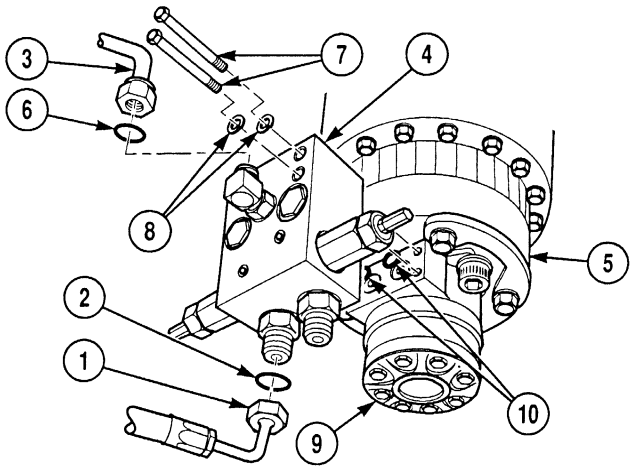
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 149, Appendix E)
Lockwasher (4) (Item 283, Appendix E)
Packing, Preformed (2) (Item 344, Appendix E)
Packing, Preformed (Item 347, Appendix E)
Packing, Preformed (2) (Item 348, Appendix E)
Packing, Preformed (4) (Item 389, Appendix E)

a. Removal.





WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses and tubes prior to removal.
- Cap and plug hoses and tubes after removal.

(1) Position drain pan under two hoses (1).

(2) Disconnect two hoses (1) and remove preformed packings (2). Discard preformed packings.

(3) Disconnect tube (3) from swing motor valve (4) and brake (5) and remove two preformed packings (6). Discard preformed packings.

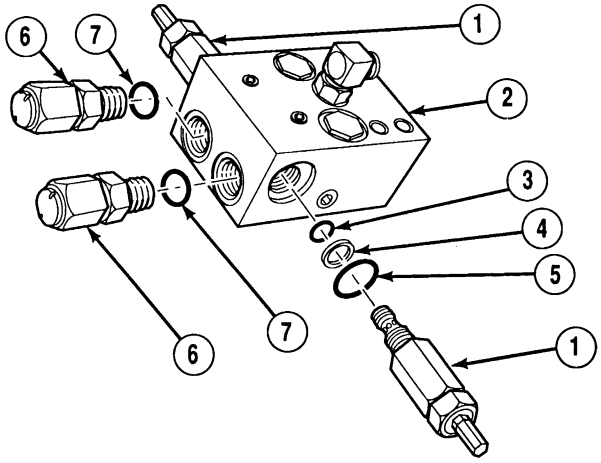
(4) Remove four screws (7) and lockwashers (8) from swing motor valve (4). Discard lockwashers.

(5) Remove swing motor valve (4) from motor (9).

(6) Remove and discard two preformed packings (10) from motor (9).

16-19. SWING DRIVE MOTOR VALVE REPAIR (CONT).

b. Disassembly.



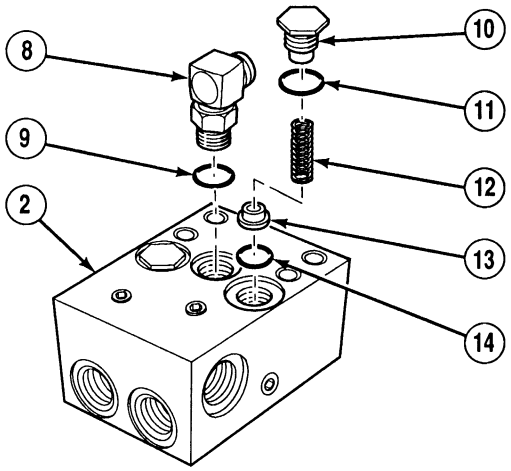
NOTE

Tag and mark relief valves prior to disassembly.

(1) Remove two relief valves (1) from valve (2).

(2) Remove two preformed packings (3), backup rings (4) and two preformed packings (5) from valves (1). Discard preformed packings and backup rings.

(3) Remove two fittings (6) and preformed packings (7). Discard preformed packings.

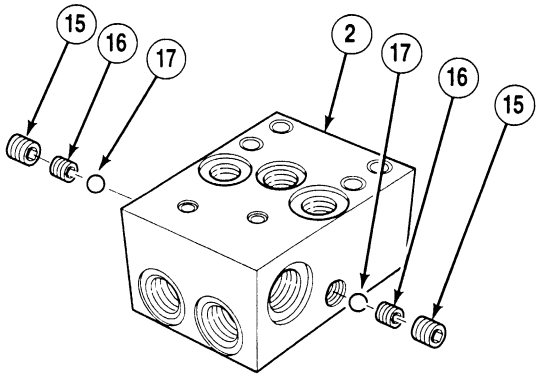


NOTE

Note location and position of elbow prior to removal.

(4) Remove elbow (8) and preformed packing (9) from valve (2). Discard preformed packing.

(5) Remove two check valves (10), preformed packings (11), springs (12), valve seats (13) and preformed packings (14). Discard preformed packings.



(6) Remove two plugs (15), seats (16) and ball bearings (17) from valve (2).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for nicks, burrs, scratches or dents.

(3) Replace damaged parts.

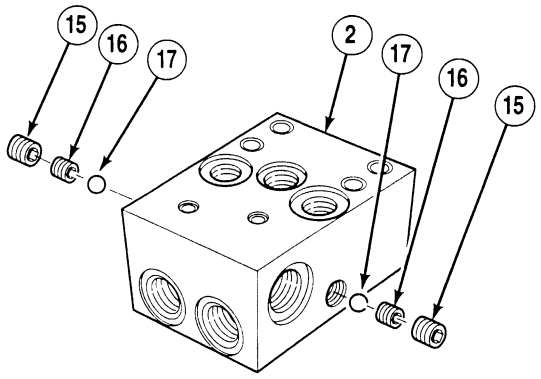
d. Assembly.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of two plugs (15).

(2) Install two ball bearings (17), seats (16) and plugs (15) in valve (2).



16-19. SWING DRIVE MOTOR VALVE REPAIR (CONT).

(3) Apply hydraulic oil to preformed packings (14) and (11).

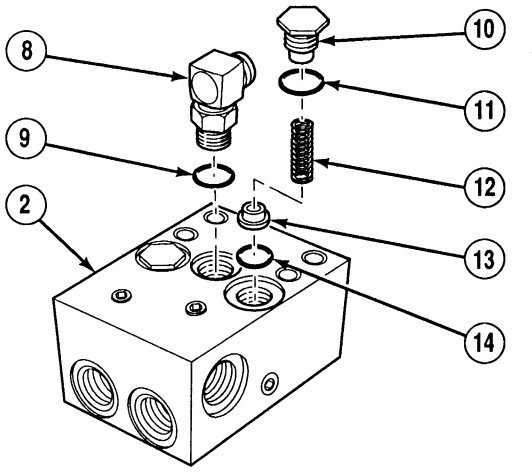
(4) Install two preformed packings (14), valve seats (13), springs (12), preformed packings (11) and check valves (10) in manifold (2).

NOTE

Position elbow as noted prior to removal.

(5) Apply hydraulic oil to preformed packing (9).

(6) Install preformed packing (9) and elbow (8) in valve (2).



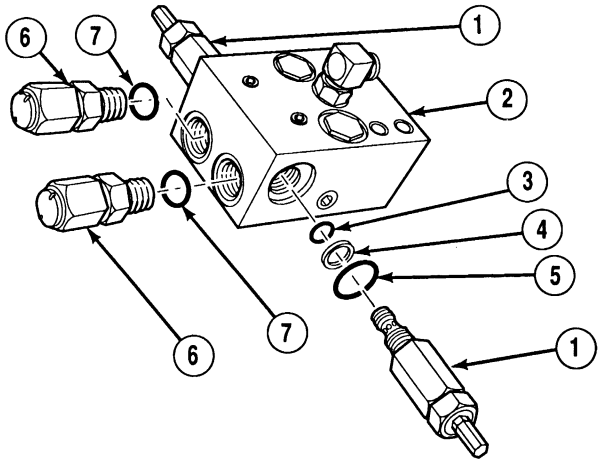
(7) Apply hydraulic oil to two preformed packings (7).

(8) Install two preformed packings (7) and fittings (6) in valve (2).

(9) Apply hydraulic oil to preformed packings (5) and (3) and back up rings (4).

(10) Install two preformed packings (5), backup rings (4) and preformed packings (3) on two relief valves (1).

(11) Install two relief valves (1) in valve (2).



e. Installation.

(1) Apply hydraulic oil to two preformed packings (10).

(2) Install two preformed packings (10) in motor (9).

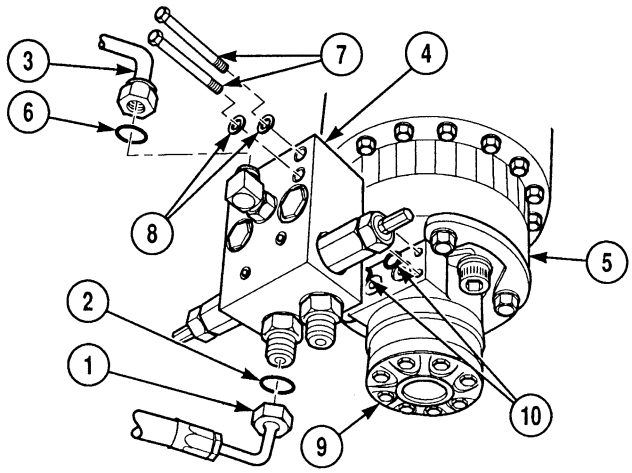
(3) Install swing motor valve (4) on motor (9) with four lockwashers (8) and screws (7). Tighten screws to 108 lb-in (12 N·m).

(4) Apply hydraulic oil to two preformed packings (6).

(5) Install two preformed packings (6) and tube (3) on brake (5) and valve (4).

(6) Apply hydraulic oil to two preformed packings (2).

(7) Install two preformed packings (2) and hoses (1) on swing motor valve (4).



f. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-20. SWING DRIVE MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

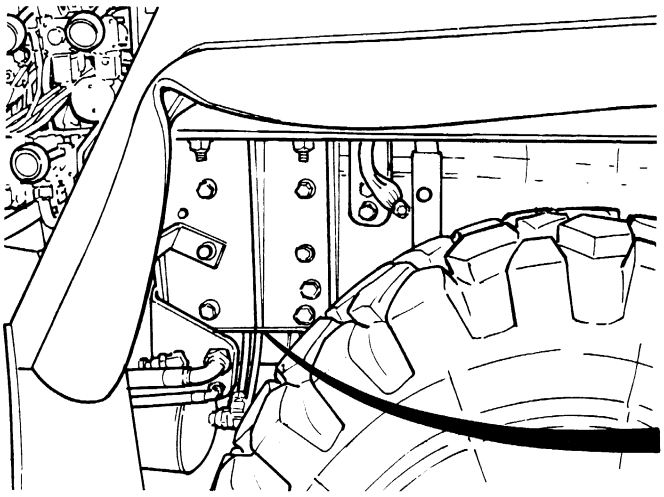
INITIAL SETUP

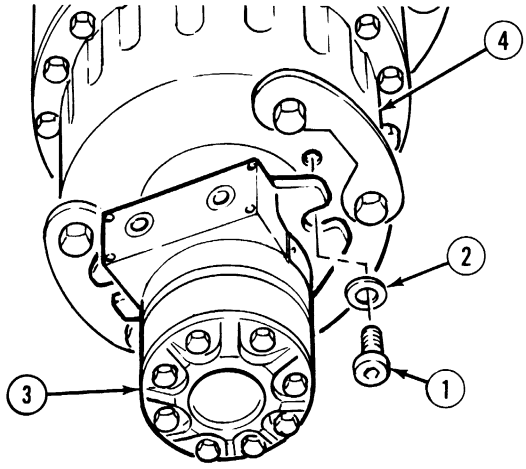
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Socket, Socket Head Screw, 3/8 in., 1/2 in. Drive
(Item 213, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Sealing Compound (Item 56, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Swing motor valve removed, (Para 16-19)

a. Removal.





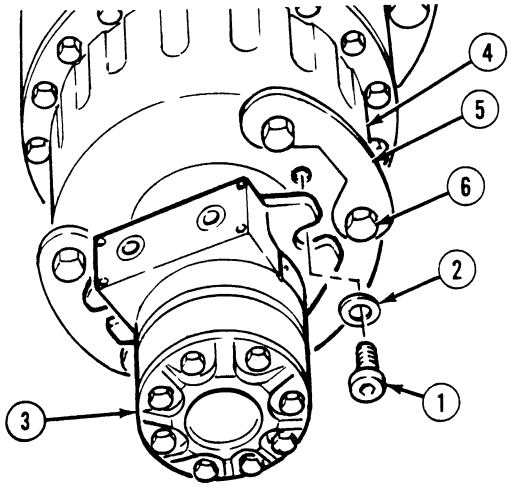
(1) Remove two screws (1) and washers (2) from motor (3).

(2) Remove motor (3) from swing drive gear reducer (4).

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(1) Apply sealing compound to threads of two screws (1).

(2) Install motor (3) on swing drive gear reducer (4) with two lockwashers (2) and screws (1). Tighten screws to 115 lb-ft (156 N·m).

NOTE

Perform Step (3) if brackets are loose.

(3) Position two brackets (5) and tighten four screws (6) to 35 lb-ft (47 N·m).

c. Follow-On Maintenance:

- Install swing motor valve, (Para 16-19).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-21. SWING DRIVE BRAKE REPLACEMENT.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

INITIAL SETUP

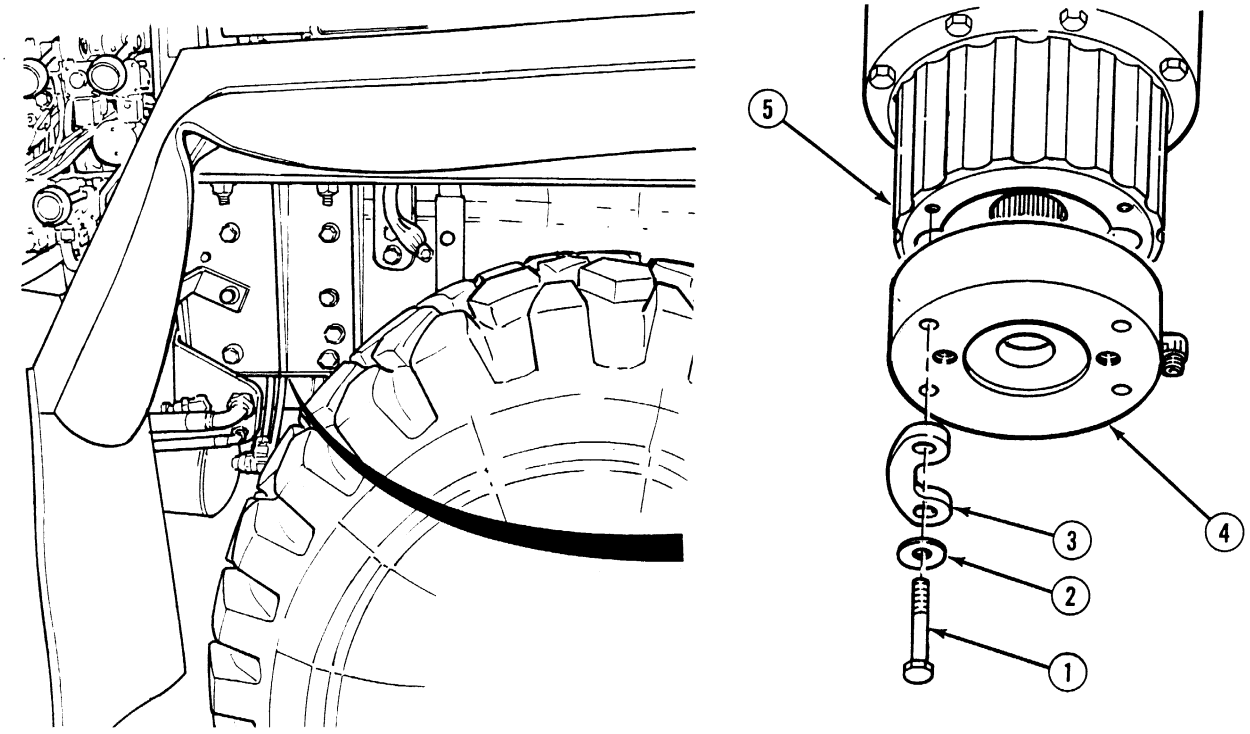
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Adhesive (Item 1, Appendix B)
Sealant, Adhesive (Item 49, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 54, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Swing drive motor removed, (Para 16-20)
Driveshaft removed, (TM 9-2320-364-20)

a. Removal.



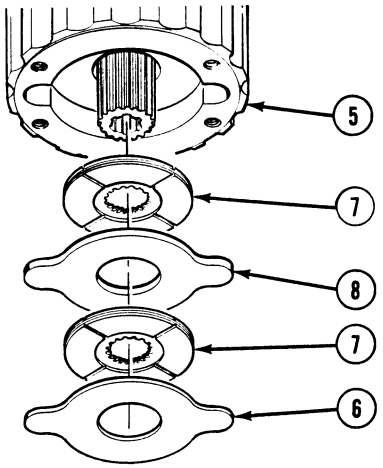
(1) Remove four screws (1), washers (2) and two stops (3) from brake cylinder housing (4).

NOTE

- Brake is spring loaded.
- Disc and stators may drop when brake is removed.

(2) Remove brake cylinder housing (4) from swing drive assembly (5).

(3) Remove spacer (6), disc (7), spacer (8) and disc (7) from swing drive assembly (5).



b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect each part for cracks, breaks, gouges, pitting and stripped threads.

(4) Replace damaged parts.

(5) Inspect spacer thickness. If spacers are under 0.225 in. (5.72 mm), replace spacer.

(6) Inspect spacer thickness. If spacer is under 0.118 in. (3.00 mm), replace spacer.

(7) Inspect disc thickness. If disc is under 0.21 in. (5.33 mm), replace disc.

16-21. SWING DRIVE BRAKE REPLACEMENT (CONT).

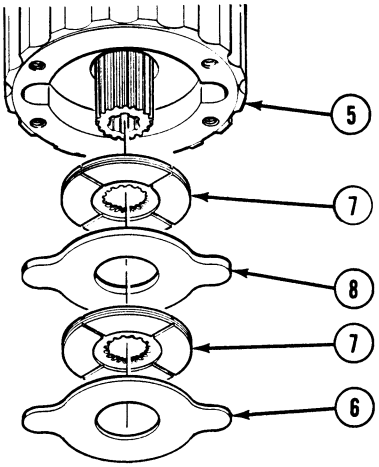
c. Installation.

(1) Install disc (7) in swing drive assembly (5).

NOTE

Thick spacer is installed first.

(2) Install spacer (8), disc (7) and spacer (6) in swing drive assembly (5).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply adhesive to back of brake cylinder housing (4).

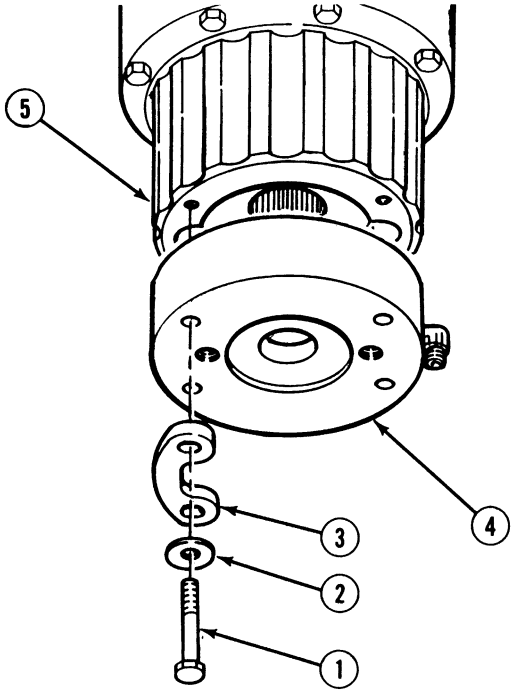
NOTE

Brake is spring loaded.

(4) Align and install brake cylinder housing (4) on swing drive assembly (5).

(5) Apply sealing compound on threads of four screws (1).

(6) Position two stops (3), four washers (2) and screws (1). Tighten screws to 35 lb-ft (47 N·m).



d. Follow-On Maintenance:

- Install swing drive motor, (Para 16-20).
- Install driveshaft, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-22. ACCUMULATOR SERVICE.

This task covers:

a. Service

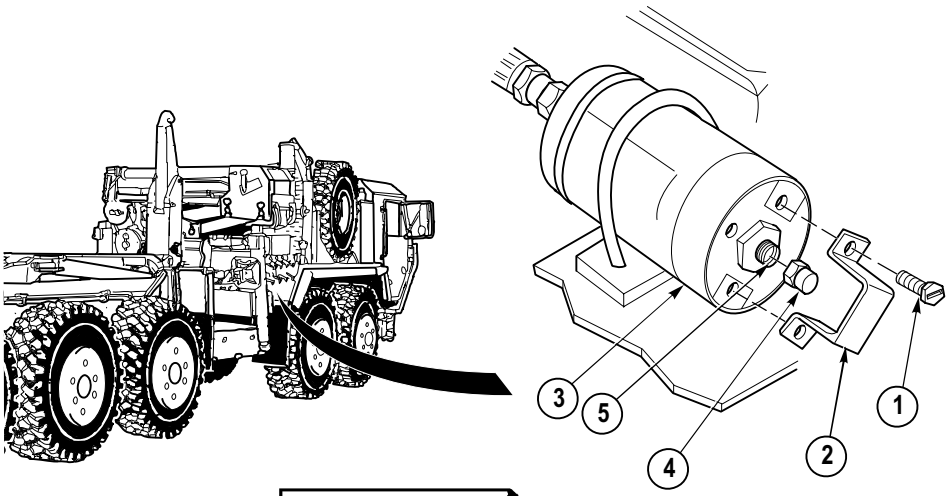
b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Charging Kit, Pressure
(Item 30, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Service.



WARNING

- The crane hydraulics system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.
- Accumulator testing and servicing can expose personnel to high pressure nitrogen. Use of proper safety equipment is required to prevent serious injury or death.

NOTE

- Accumulator can only be accurately serviced when there is 0 psi (0 kPa) present in all crane hydraulic circuits.
- Ensure that all crane control levers are manually operated to the full up and down positions. Failure to comply could result in trapped hydraulic pressure, resulting in incorrect accumulator service readings.

(1) Remove two screws (1) and guard (2) from accumulator (3).

(2) Remove valve stem cap (4) from valve stem (5).

16-22. ACCUMULATOR SERVICING (CONT).

WARNING

Ensure charging cylinder contains dry nitrogen. Dry nitrogen tanks are marked with one or two black bands. Certain other gasses can cause accumulator to explode. Failure to comply may result in injury to personnel.

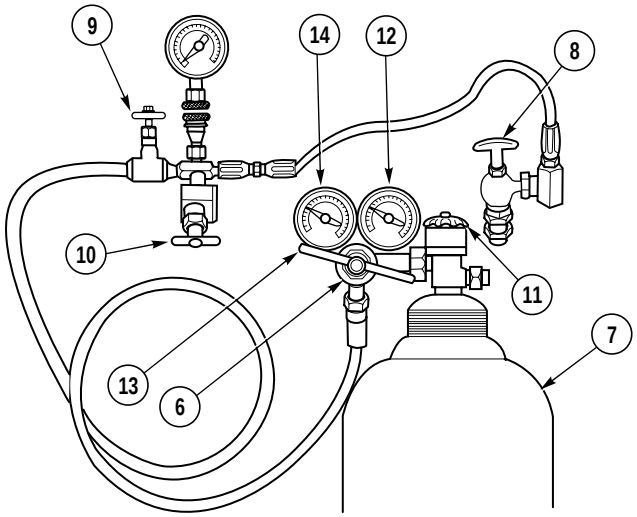
(3) Attach charging regulator (6) to nitrogen cylinder (7).

(4) Position valve (8) on valve stem (5). Do not tighten valve (8).

(5) Back out stem of valve (8) until stem no longer contacts valve stem core (5).

(6) Close valves (9) and (10).

(7) Open nitrogen cylinder shutoff valve (11) and observe nitrogen cylinder pressure gage (12). Pressure must be greater than 250 psi (1,724 kPa).



NOTE

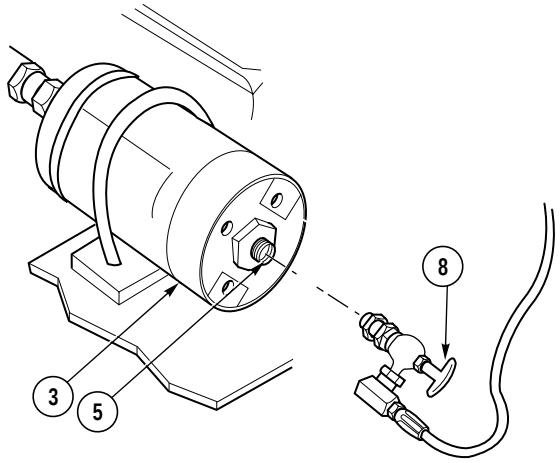
Pressure regulator valve is opened by turning clockwise and closed by turning counter-clockwise until handle turns freely.

(8) Open pressure regulator valve (13) until gage (14) reaches between 15 and 20 psi (103 and 138 kPa), then close pressure regulator valve (13).

(9) Open valve (10) and tighten valve (8) just before gage (14) reaches 0 psi.

(10) Open pressure regulator valve (13) until gage (14) reads between 190 and 210 psi (1,310 and 1,448 kPa).

(11) Turn stem of valve (8) clockwise until nitrogen begins to enter accumulator (3). Allow accumulator (3) to fill slowly.



(12) Close pressure regulator valve (13) when sound of nitrogen flowing into accumulator (3) has stopped.

(13) Close valve (10) and open valve (9) slowly to purge accumulator (3).

(14) When nitrogen stops flowing from accumulator (3), close valve (9).

(15) Turn stem of valve (8) fully counter-clockwise.

(16) Repeat Steps (8) through (12) to charge accumulator (3).

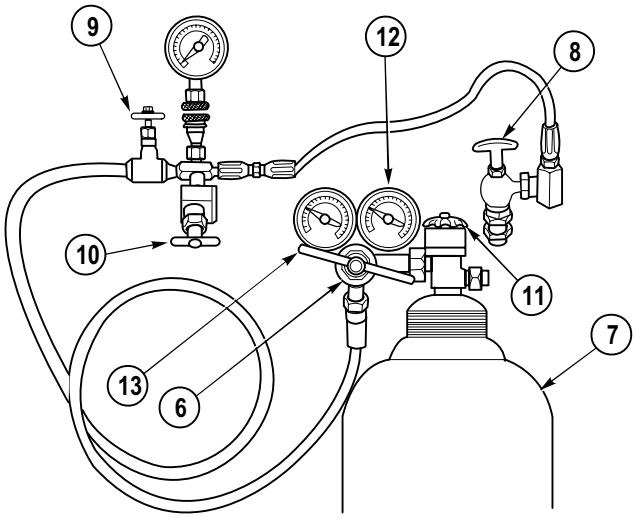
(17) Turn stem of valve (8) fully counter-clockwise.

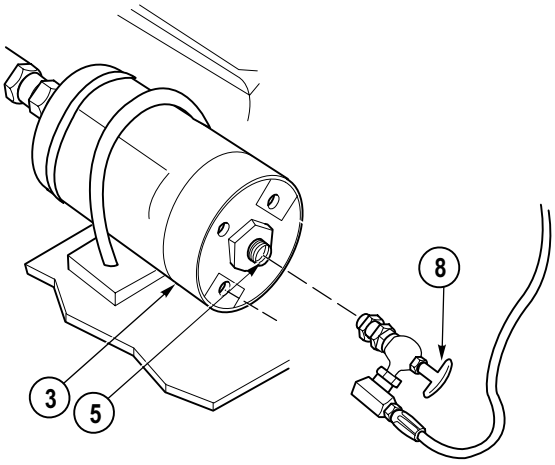
(18) Open valve (9) slowly to release pressure.

(19) Remove valve (8) from valve stem (5).

(20) Close nitrogen cylinder shut-off valve (11).

(21) Remove charging regulator (6) from nitrogen cylinder (7).

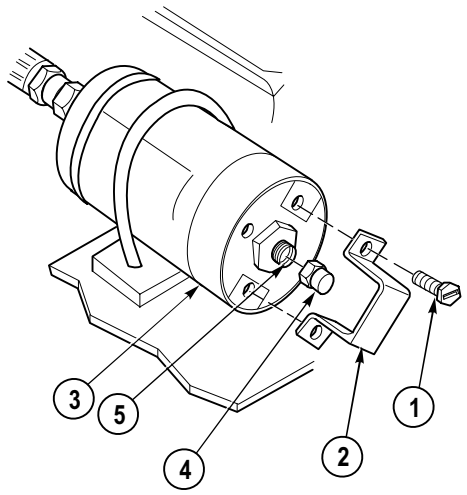




16-22. ACCUMULATOR SERVICING (CONT).

(22) Install valve stem cap (4) on valve stem (5).

(23) Install guard (2) on accumulator (3) with two screws (1).



b. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain (Item 149, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination, 1-1/4 in. (Item 256, Appendix F)
Wrench, Combination, 1-3/8 in. (Item 258, Appendix F)
Wrench, Combination, 1-1/2 in. (Item 260, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

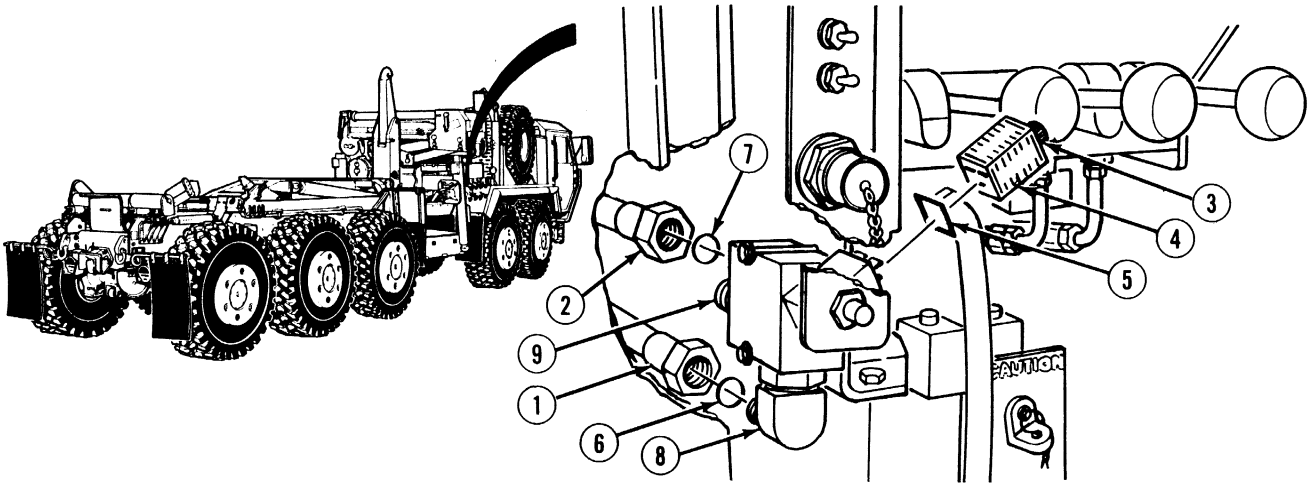
Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 33, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 156, Appendix E)
Lockwasher (2) (Item 283, Appendix E)
Packing, Preformed (2) (Item 346, Appendix E)
Packing, Preformed (2) (Item 391, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Crane stowage box removed, (TM 9-2320-364-20)

16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR (CONT).

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

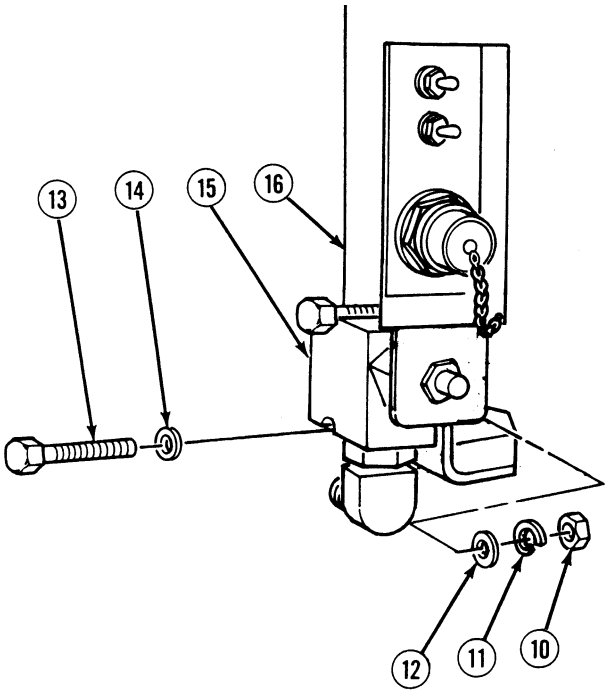
- Tag and mark hydraulic tubes prior to removal.
- Cap and plug hydraulic tubes after removal.

(1) Position drain pan under tubes (1) and (2).

(2) Loosen screw (3) and remove connector (4) and square seal (5).

(3) Disconnect tubes (1) and (2) and remove preformed packings (6) and (7) from fittings (8) and (9). Discard preformed packings.

(4) Remove two nuts (10), lockwashers (11), washers (12), screws (13), washers (14) and two way hydraulic solenoid valve (15) from bracket (16). Discard lockwashers.



b. Disassembly.

CAUTION

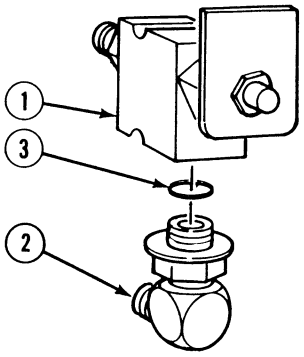
Do not damage electrical connector, or crane will not operate properly.

(1) Position two way hydraulic solenoid valve (1) in vise with soft jaws.

NOTE

Tag and mark fittings and elbows prior to disassembly.

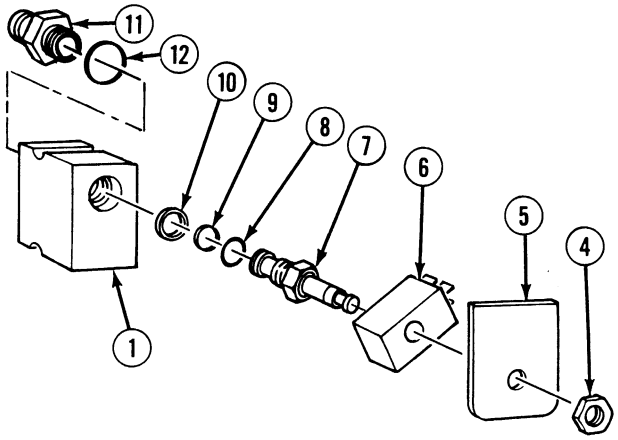
(2) Remove elbow (2) and preformed packing (3) from two way hydraulic solenoid valve (1). Discard preformed packing.



16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR (CONT).

NOTE

Matchmark data plate and coil before disassembly.



(3) Remove nut (4) and data plate (5) from two way hydraulic solenoid valve (1).

(4) Remove coil (6) from valve stem (7).

(5) Remove valve stem (7) from two way hydraulic solenoid valve (1).

(6) Remove preformed packings (8) and (9) and backup ring (10) from valve stem (7). Discard preformed packings and backup ring.

(7) Remove fitting (11) and preformed packing (12). Discard preformed packing.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Wash parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect parts for cracks, broken terminals and stripped threads.

(4) Replace damaged parts.

d. Assembly.

(1) Apply hydraulic oil to preformed packing (12).

(2) Install preformed packing (12) and fitting (11) in two way hydraulic solenoid valve (1).

(3) Apply hydraulic oil to preformed packing (3).

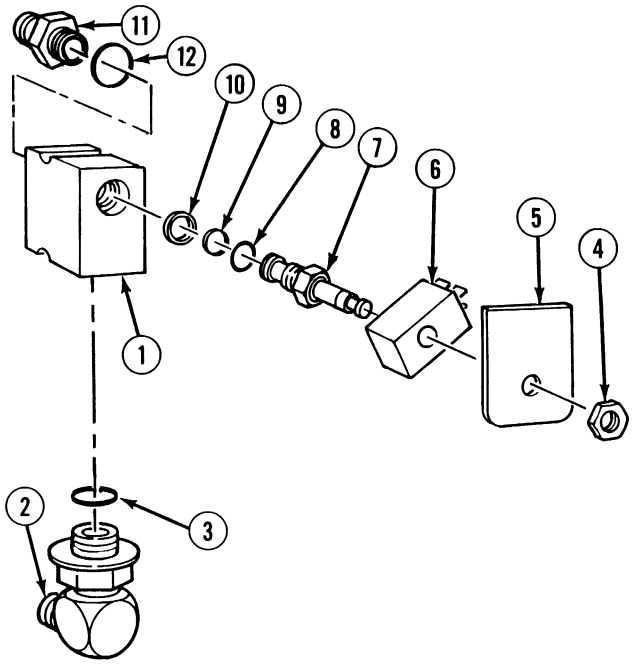
(4) Align and install preformed packing (3) and elbow (2).

(5) Apply hydraulic oil to preformed packings (8) and (9).

(6) Install two preformed packings (8) and (9) and backup ring (10) on valve stem (7).

(7) Install valve stem (7) in two way hydraulic solenoid valve (1).

(8) Install coil (6), data plate (5) and nut (4).



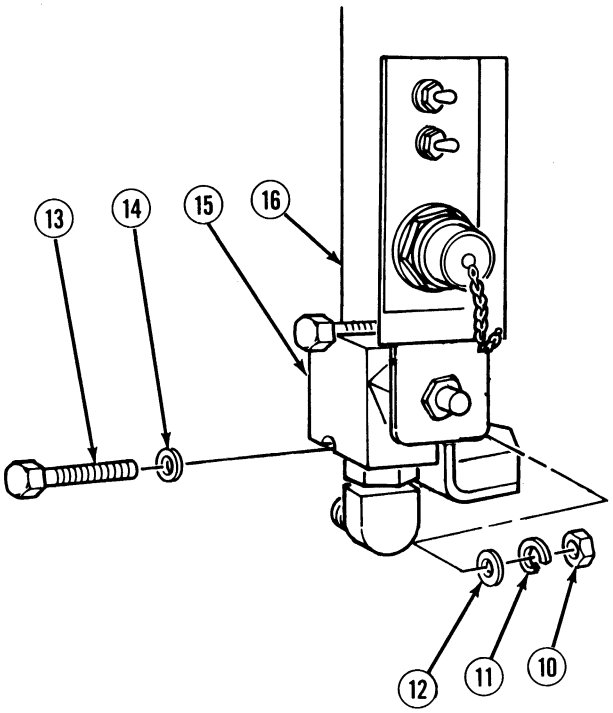
e. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of two screws (13).

(2) Install two way hydraulic solenoid valve (15) on bracket (16) with two screws (13), washers (14), washers (12), lockwashers (11) and nuts (10). Tighten nuts to 108 lb-in (12 N·m).

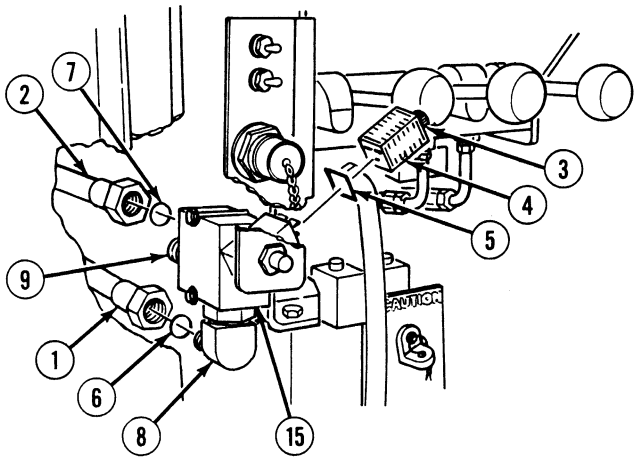


16-23. TWO WAY HYDRAULIC SOLENOID VALVE REPAIR (CONT).

(3) Apply hydraulic oil to preformed packings (6) and (7).

(4) Install preformed packings (6) and (7) and connect tubes (1) and (2) to fittings (8) and (9) on two way hydraulic pressure solenoid valve (15).

(5) Install square seal (5) and connector (4) and tighten screw (3).



f. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Install crane stowage box, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-on Maintenance

INITIAL SETUP

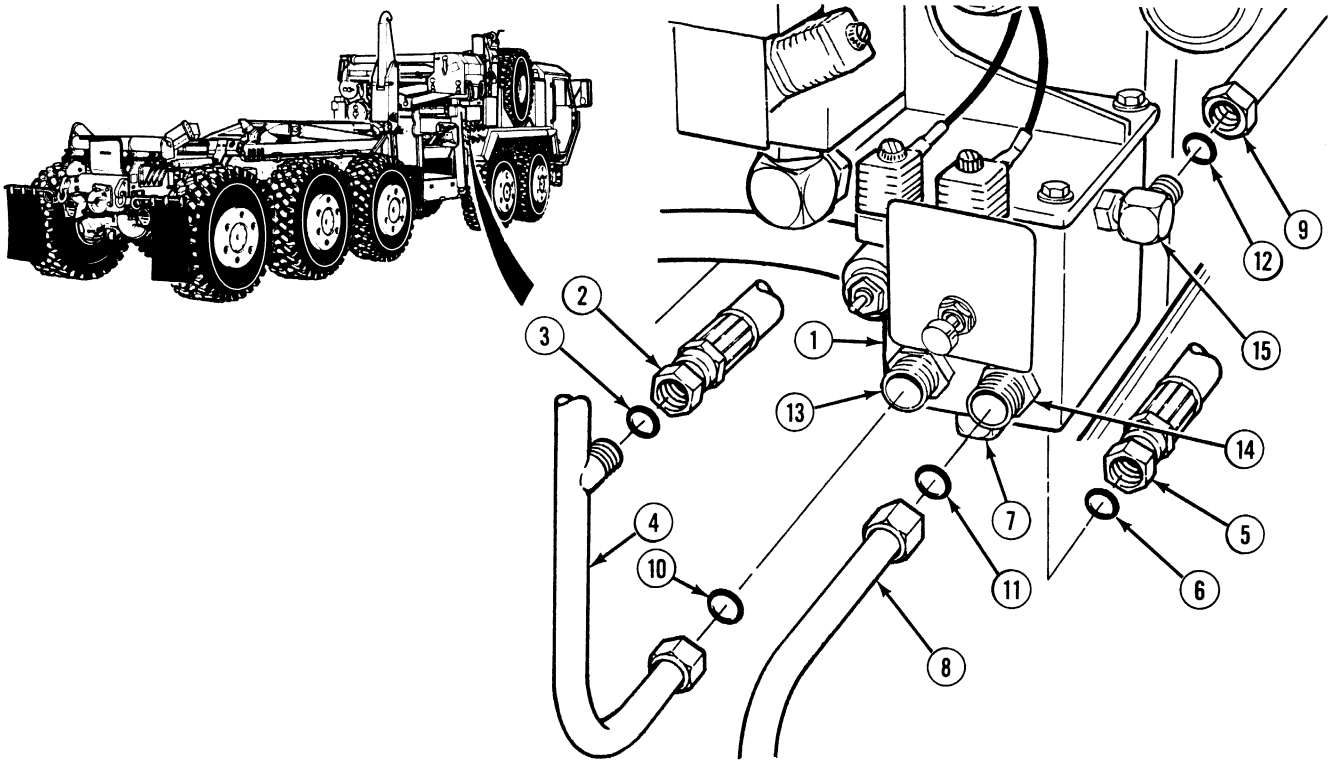
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Adapter, Socket (Item 8, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Socket, Socket Head Screw, 1/8 in., 3/8 in. Drive
(Item 209, Appendix F)
Socket, Socket Head Screw, 5/16 in., 1/2in. Drive
(Item 210, Appendix F)
Socket, Socket Head Screw, 9/16 in., 1/2in. Drive
(Item 211, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination, 1-1/8 in.
(Item 255, Appendix F)
Wrench, Combination, 1-3/8 in.
(Item 258, Appendix F)
Wrench, Combination, 1-1/2 in.
(Item 260, Appendix F)
Wrench, Crowsfoot, 7/8 in., 3/8 in. Drive
(Item 267, Appendix F)
Wrench, Crowsfoot, 3/4 in., 3/8 in. Drive
(Item 268, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench Set, Socket, 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Kit, Repair (Item 148, Appendix E)
Lockwasher (4) (Item 269, Appendix E)
Packing, Preformed (Item 373, Appendix E)
Packing, Preformed (Item 391, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Right fender mud flap removed,
(TM 9-2320-364-20)

16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hoses and tubes prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.

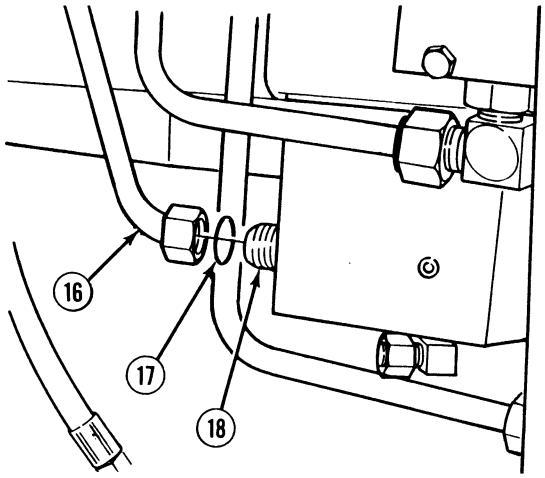
(1) Position drain pan under solenoid housing (1).

(2) Remove hose (2) and preformed packing (3) from tube (4). Discard preformed packing.

(3) Remove hose (5) and preformed packing (6) from elbow (7). Discard preformed packing.

(4) Remove tubes (4), (8) and (9) and preformed packings (10), (11) and (12) from fittings (13), (14) and (15). Discard preformed packings.

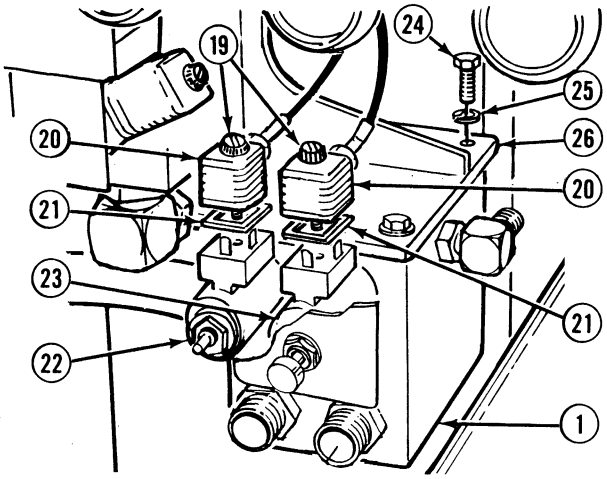
(5) Remove tube (16) and preformed packing (17) from fitting (18). Discard preformed packing.



(6) Loosen two screws (19) on connectors (20).

(7) Remove two connectors (20) and gaskets (21) from solenoids (22) and (23). Discard gaskets.

(8) Remove four screws (24), lockwashers (25) and solenoid housing (1) from bracket (26). Discard lockwashers.

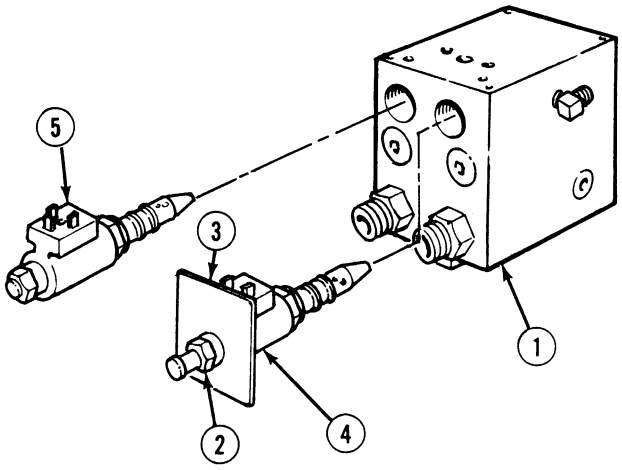


16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

b. Disassembly.

NOTE

- Tag and mark all parts during removal.
- Note location and position of elbows, fittings, valves and plugs prior to removal.

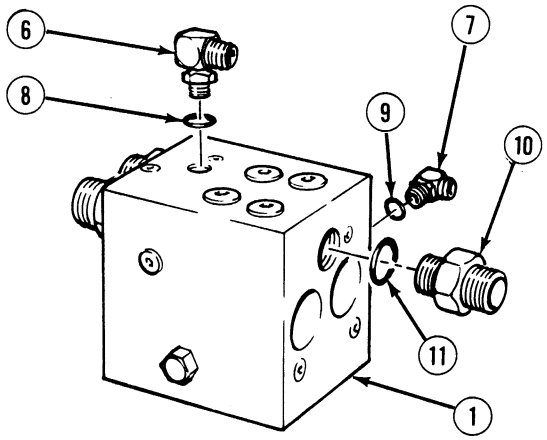


(1) Position solenoid housing (1) in soft jawed vise.

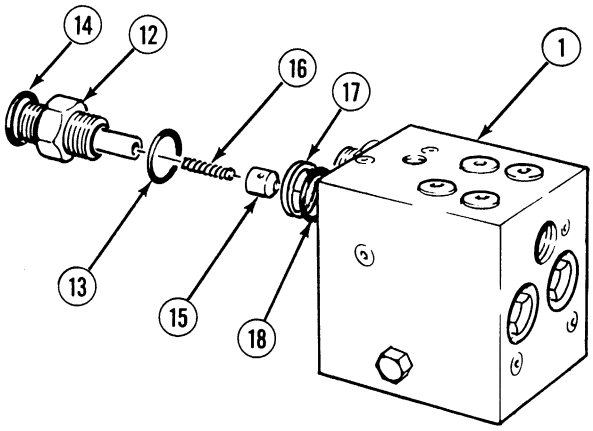
(2) Remove nut (2) and plate (3) from solenoid (4).

(3) Remove solenoid (4) from solenoid housing (1).

(4) Remove solenoid (5) from solenoid housing (1).



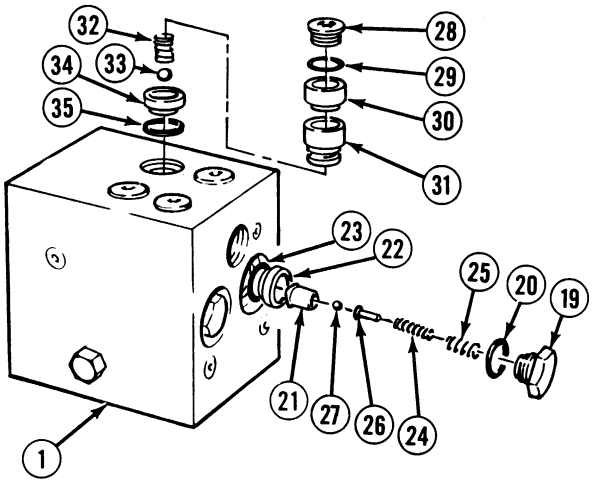
(5) Remove elbows (6) and (7), preformed packings (8) and (9), fitting (10) and preformed packing (11) from solenoid housing (1). Discard preformed packings.



(6) Remove two valves (12), preformed packings (13) and (14), plungers (15), spring (16), seat (17) and preformed packing (18) from solenoid housing (1). Discard preformed packings.

(7) Remove two valve caps (19), preformed packings (20), plungers (21), seat (22), preformed packing (23), springs (24) and (25), poppets (26) and check balls (27) from solenoid housing (1). Discard preformed packings and springs.

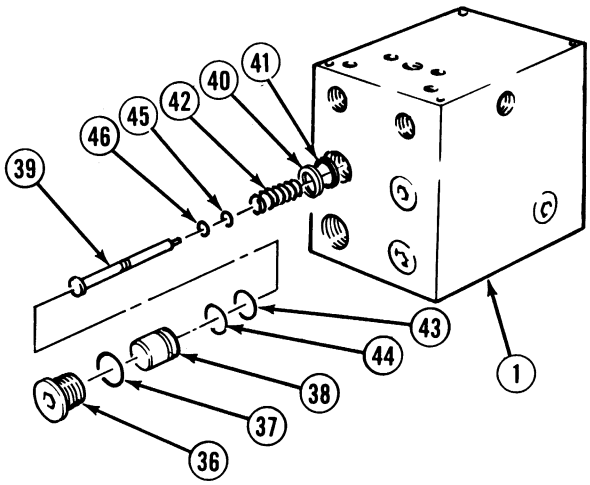
(8) Remove plug (28), preformed packing (29), spacers (30) and (31), spring (32), check ball (33), seat (34) and preformed packing (35) from solenoid housing (1). Discard preformed packings and spring.



(9) Remove two caps (36), preformed packings (37), pistons (38), plungers (39) preformed packing (40), seat (41) and springs (42) from solenoid housing (1). Discard preformed packings and springs.

(10) Remove two backup rings (43) and preformed packings (44) from pistons (38). Discard preformed packings and backup rings.

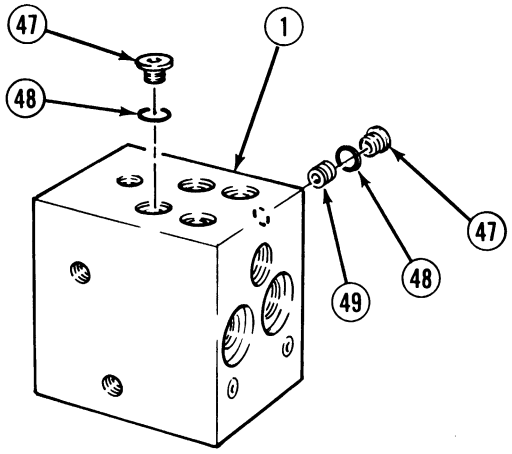
(11) Remove two preformed packings (45) and backup rings (46) from plungers (39). Discard preformed packings and backup rings.



NOTE

Perform Steps (12) through (15) if plugs are leaking or damaged.

(12) Remove five plugs (47), preformed packings (48) and orifice (49) from solenoid housing (1). Discard preformed packings.

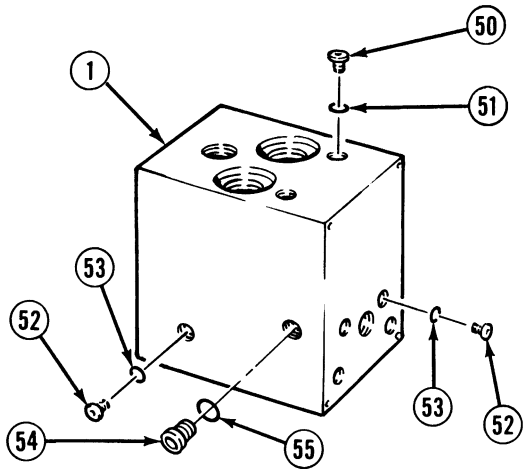


16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

(13) Remove five plugs (50) and preformed packings (51) from solenoid housing (1). Discard preformed packings.

(14) Remove two plugs (52) and preformed packings (53) from solenoid housing (1). Discard preformed packings.

(15) Remove plug (54) and preformed packing (55) from solenoid housing (1). Discard preformed packing.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Dry parts with cleaning cloth.

(3) Inspect each part for cracks, gouges, pitting and stripped threads.

(4) Replace damaged parts.

d. Assembly.

NOTE

Perform Steps (1) through (8) if plugs were removed.

(1) Apply hydraulic oil to preformed packing (55).

(2) Install preformed packing (55) and plug (54) in solenoid housing (1).

(3) Apply hydraulic oil to preformed packings (53).

(4) Install two preformed packings (53) and plugs (52) in solenoid housing (1). Tighten plugs to 50 to 60 lb-in (6 to 7 N·m).

(5) Apply hydraulic oil to five preformed packings (51).

(6) Install five preformed packings (51) and plugs (50) in solenoid housing (1). Tighten plugs to 50 to 60 lb-in (6 to 7 N·m).

(7) Apply hydraulic oil to preformed packings (48).

(8) Install five preformed packings (48) and plugs (47) in solenoid housing (1). Tighten plugs to 35 to 40 lb-ft (47 to 54 N·m).

(9) Apply hydraulic oil to two preformed packings (45).

(10) Install two preformed packings (45) and backup rings (46) on plungers (39).

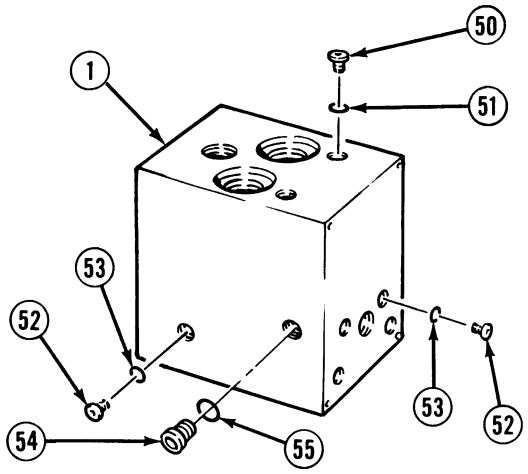
(11) Apply hydraulic oil to two preformed packings (44).

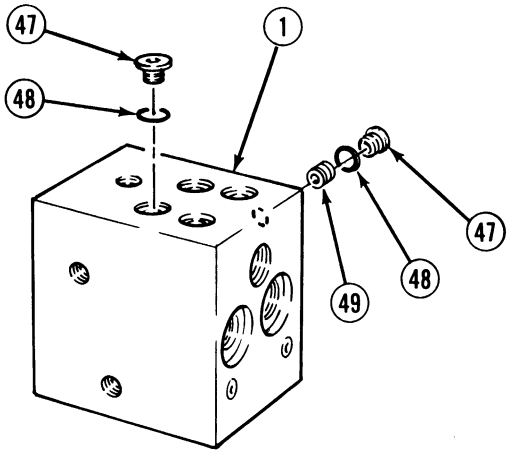
(12) Install two preformed packings (44) and backup rings (43) on pistons (38).

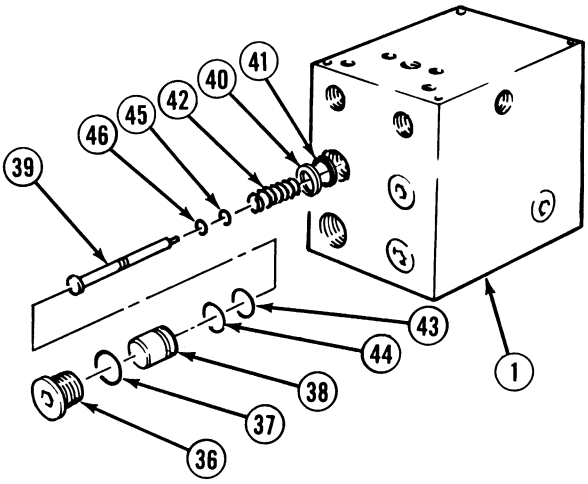
(13) Install two springs (42), seat (40), preformed packing (41) and plungers (39) in solenoid housing (1).

(14) Apply hydraulic oil to two preformed packings (37).

(15) Install two pistons (38) preformed packings (37) and caps (36) in solenoid housing (1). Tighten caps to 70 to 75 lb-ft (95 to 102 N·m).







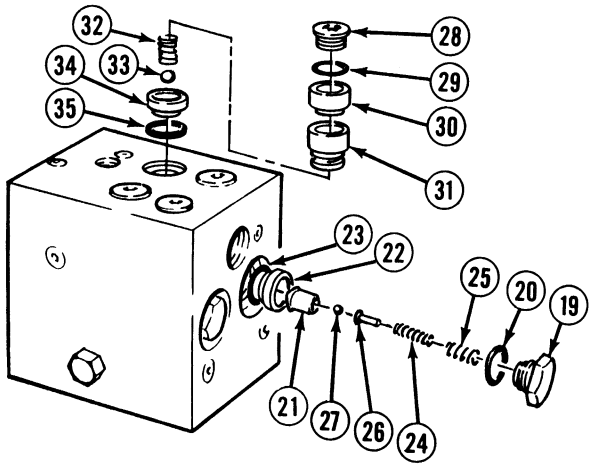
16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).

(16) Apply hydraulic oil to preformed packings (29) and (35).

(17) Install preformed packing (35), seat (34), check ball (33), spring (32), spacers (31) and (30), preformed packing (29) and plug (28) in solenoid housing (1). Tighten plug to 35 to 40 lb-ft (47 to 54 N·m).

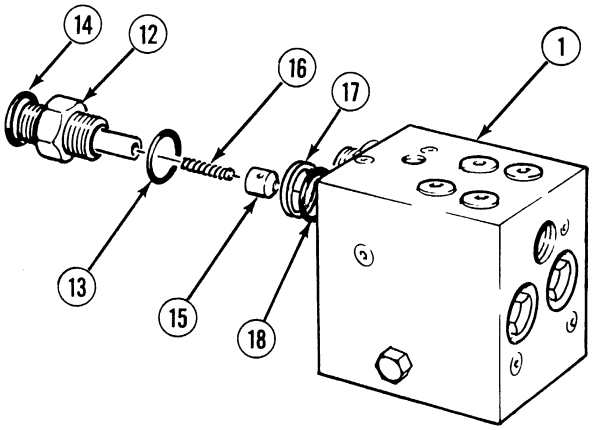
(18) Apply hydraulic oil to preformed packing (23) and two preformed packings (20).

(19) Install two plungers (21), check balls (27), poppets (26), springs (24), springs (25), preformed packing (23), seat (22), preformed packings (20) and valve caps (19) in solenoid housing (1). Tighten valve caps to 50 to 55 lb-ft (68 to 75 N·m).



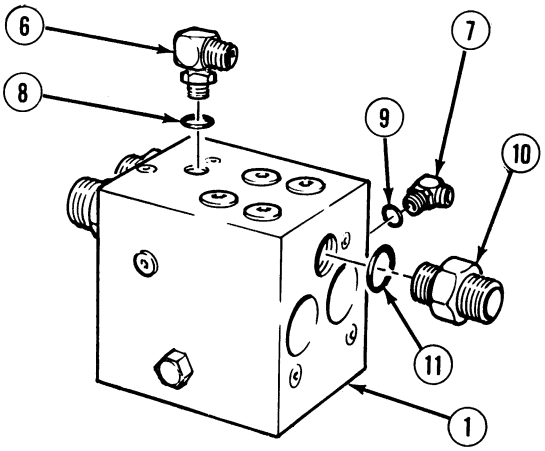
(20) Apply hydraulic oil to preformed packings (13), (14) and (18).

(21) Install two preformed packings (18), seat (17), plungers (15), springs (16), preformed packings (13) and (14) and valves (12) in solenoid housing (1). Tighten valves to 110 to 115 lb-ft (149 to 156 N·m).



(22) Apply hydraulic oil to preformed packings (8), (9) and (11).

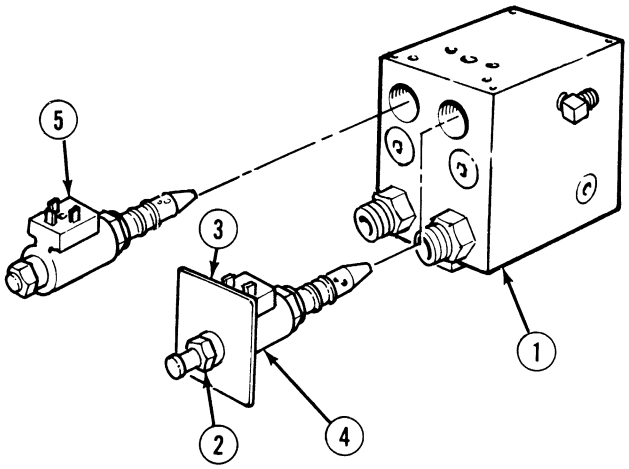
(23) Install preformed packing (11), fitting (10), preformed packings (8) and (9) and elbows (7) and (6) in solenoid housing (1).



(24) Install solenoid (5) in solenoid housing (1). Tighten solenoid to 50 to 60 lb-in (6 to 7 N·m).

(25) Install solenoid (4) in solenoid housing (1). Tighten solenoid to 50 to 60 lb-in (6 to 7 N·m).

(26) Install plate (3) on solenoid (4) with nut (2). Tighten nut to 30 to 40 lb-in (3 to 5 N·m).

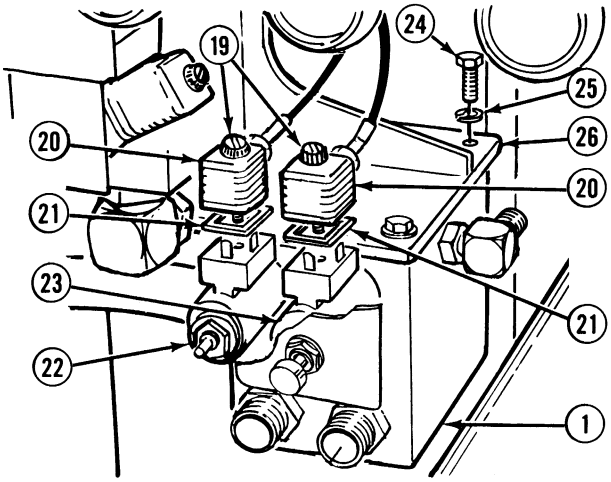


e. Installation.

(1) Install solenoid housing (1) on bracket (26) with four lockwashers (25) and screws (24). Tighten screws to 108 lb-in (12 N·m).

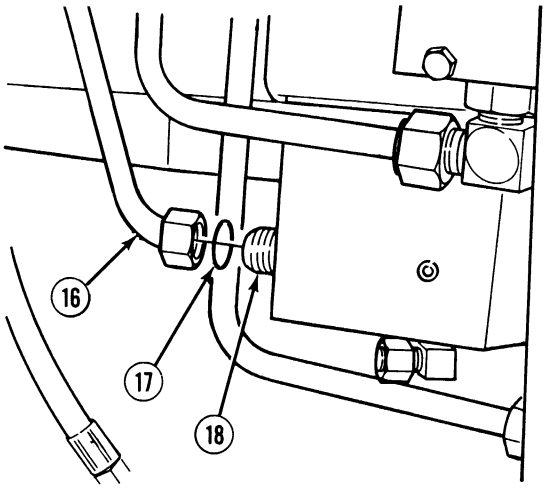
(2) Position two gaskets (21) and connectors (20) on solenoids (22) and (23).

(3) Tighten two screws (19) on connectors (20).

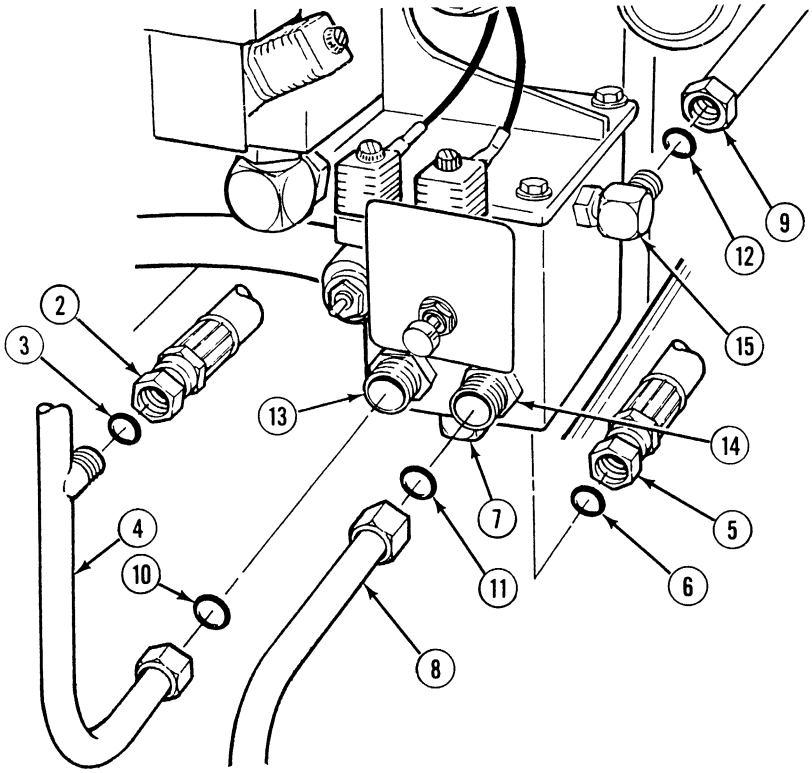


(4) Apply hydraulic oil to preformed packing (17).

(5) Install preformed packing (17) and tube (16) on fitting (18).



16-24. MANUAL OVERRIDE SOLENOID MANIFOLD REPAIR (CONT).



(6) Apply hydraulic oil to preformed packings (6), (10), (11) and (12).

(7) Install preformed packings (10), (11) and (12) and tubes (4), (8) and (9) on fittings (13), (14) and (15).

(8) Install preformed packing (6) and hose (5) on elbow (7).

(9) Apply hydraulic oil to preformed packing (3).

(10) Install preformed packing (3) and hose (2) on tube (4).

f. Follow-On Maintenance:

- Install right fender mud flap, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-25. TENSION LOAD CELL REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

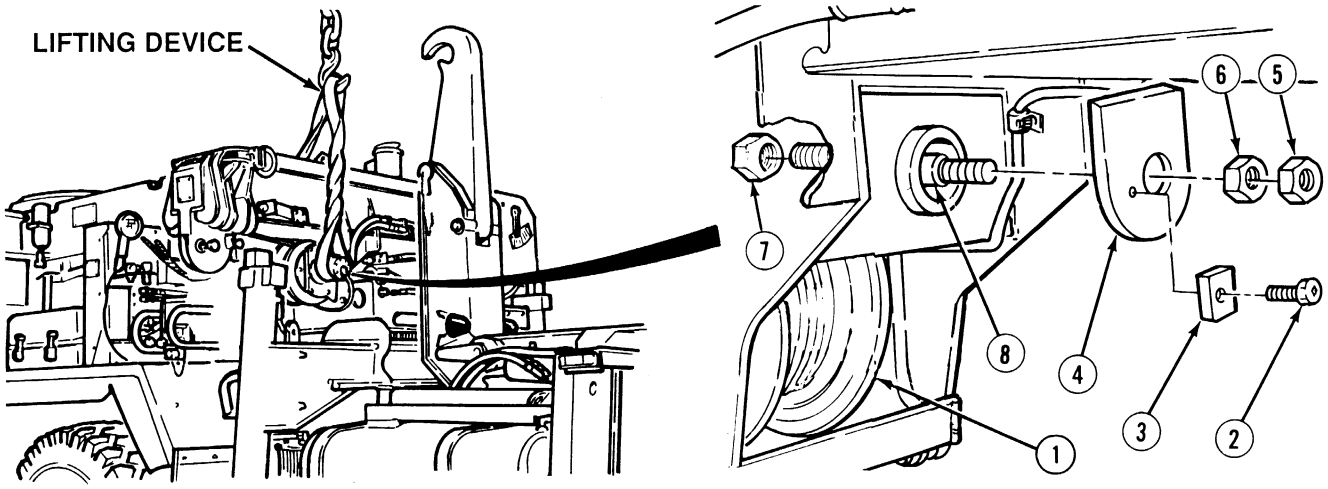
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination 1-7/16 in.
(Item 259, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Lifting Device, Minimum Capacity 250 lbs
(114 kg)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (2) (Item 282, Appendix E)
Packing, Preformed (2) (Item 337, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Crane hoist cable removed,
(TM 9-2320-364-20)

16-25. TENSION LOAD CELL REPLACEMENT (CONT).

a. Removal.



WARNING

Hoist weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(1) Attach lifting device around hoist assembly (1).

(2) Remove screw (2) and block (3) from end cap (4).

CAUTION

- To avoid damage to tension load cell, hold cable while removing nuts. Do not allow tension load cell to move or wiring may be damaged.
- To avoid damage to load cell, use care when lowering or raising hoist assembly.

NOTE

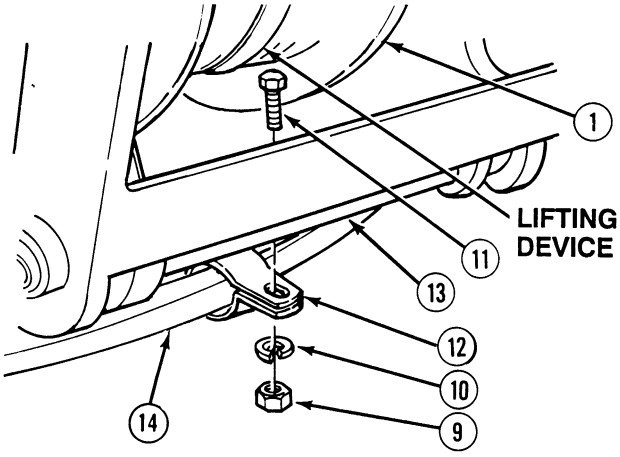
- Count exposed threads on tension load cell before nuts are removed to ensure nuts are reinstalled to the same positions.
- Raise or lower lifting device to allow hoist assembly to rotate forward and down slightly to gain better access to nuts during removal.

(3) Remove jam nut (5), swivel nut (6), swivel nut (7) and end cap (4) from tension load cell (8).

(4) Remove nut (9), lockwasher (10), screw (11) and cushion clip (12).

(5) Remove cushion clip (12) from shaft (13) and move hoses (14) away from shaft (13). Discard lockwasher.

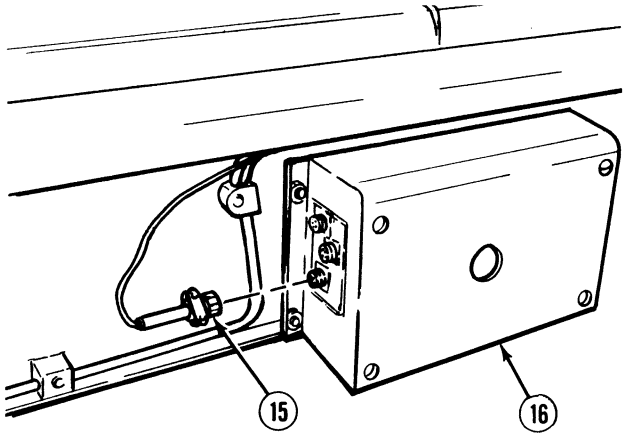
(6) Loosen and remove hoses (14) and lower lifting device to rotate hoist assembly (1) slowly down.



NOTE

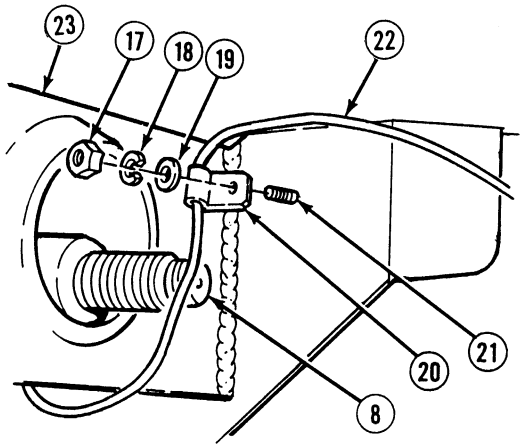
- Tag and mark electrical wires and cables prior to removal.
- Remove cable ties as required.

(7) Disconnect connector (15) from overload shutdown box (16).

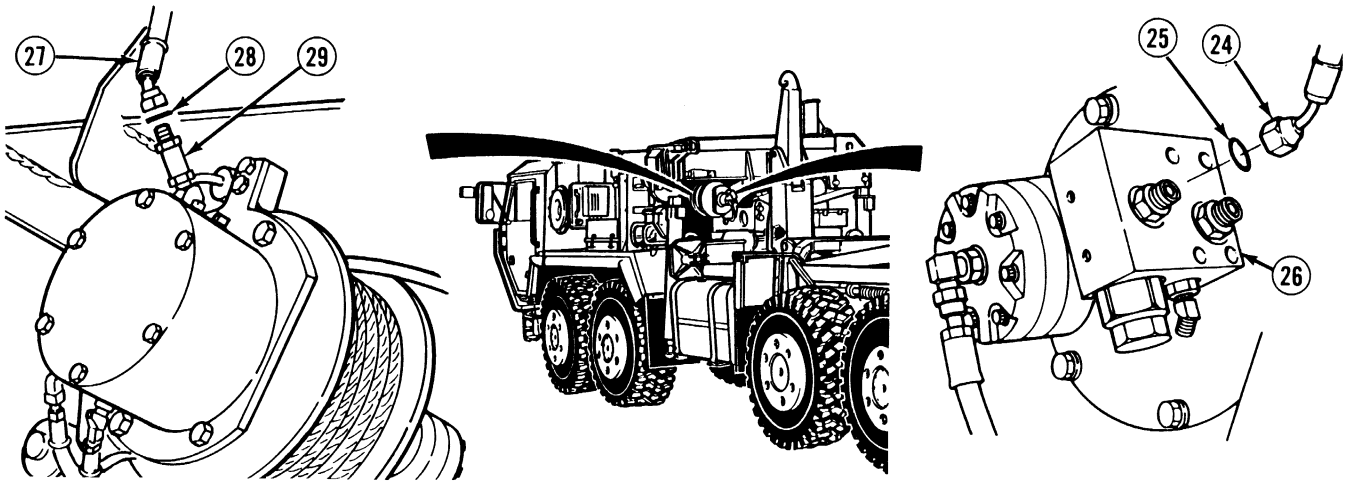


(8) Remove nut (17), lockwasher (18), washer (19) and cushion clip (20) from stud (21). Discard lockwasher.

(9) Remove cushion clip (20) from cable (22) and pull cable through hoist mount (23).



16-25. TENSION LOAD CELL REPLACEMENT (CONT).



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

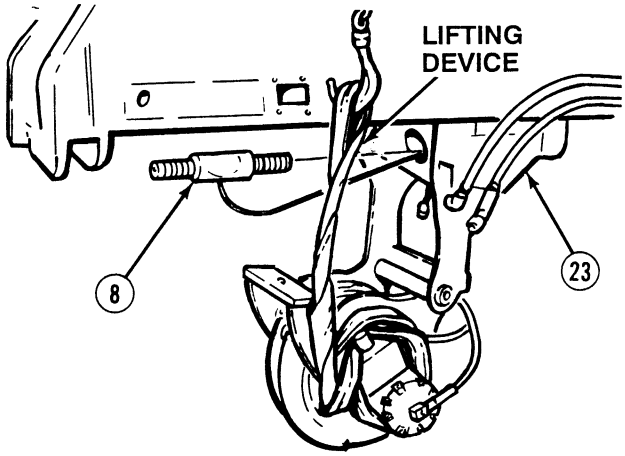
NOTE

- Tag and mark all hydraulic hoses before disconnecting.
- Cap and plug hydraulic hoses and hoist motor valve after removal.

(10) Disconnect two hoses (24) and preformed packings (25) from hoist motor valve (26). Discard preformed packings.

(11) Disconnect hose (27) and preformed packing (28) from brake bleeder valve (29). Discard preformed packing.

(12) Carefully remove tension load cell (8) from hoist mount (23).



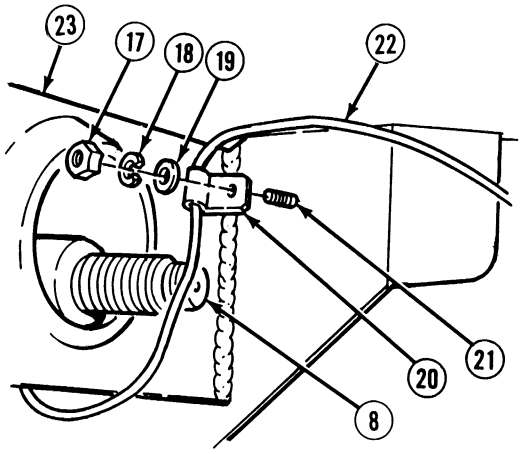
b. Installation.

NOTE

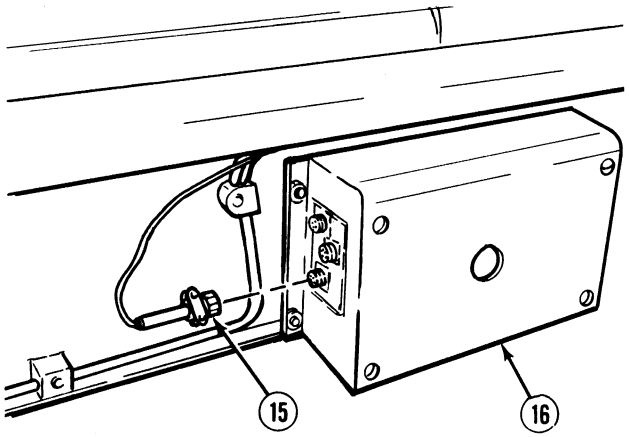
Install cable ties as necessary.

(1) Position tension load cell (8) and cable (22) in hoist mount (23).

(2) Install cable (22) in cushion clip (20) and install on stud (21) with washer (19), lockwasher (18) and nut (17).



(3) Install connector (15) on overload shutdown box (16).

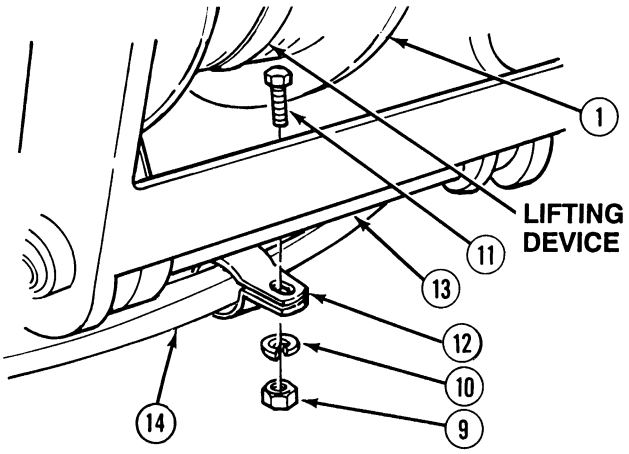


WARNING

Hoist weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

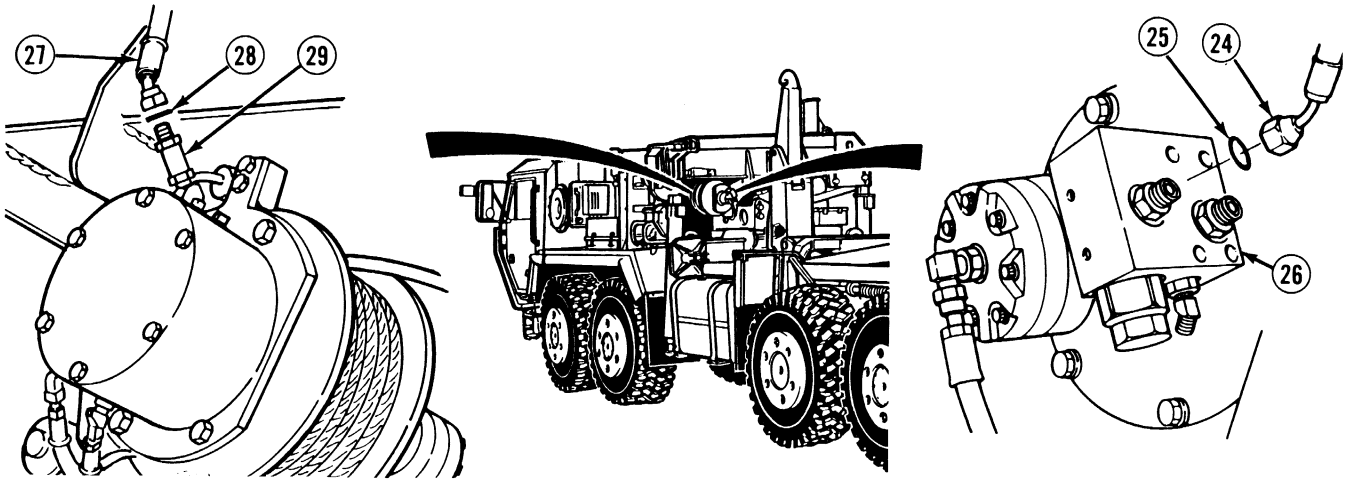
To avoid damage to load cell use care when lowering or raising hoist assembly.



(4) Use lifting device to raise hoist assembly (1).

(5) Position two hoses (14) in cushion clip (12) and install clip on shaft (13) with screw (11), lockwasher (10) and nut (9). Tighten nut to 17 lb-ft (23 N·m).

16-25. TENSION LOAD CELL REPLACEMENT (CONT).



(6) Apply hydraulic oil to preformed packing (28).

(7) Install preformed packing (28) and hose (27) on brake bleeder valve (29).

(8) Apply hydraulic oil to two preformed packings (25).

(9) Install two preformed packings (25) and hoses (24) on hoist motor valve (26).

(10) Install swivel nut (7) on front of tension load cell (8).

CAUTION

To avoid damage to load cell, use care when lowering or raising hoist assembly.

NOTE

Raise or lower lifting device to allow hoist assembly to rotate forward slightly to gain better access to nuts during installation.

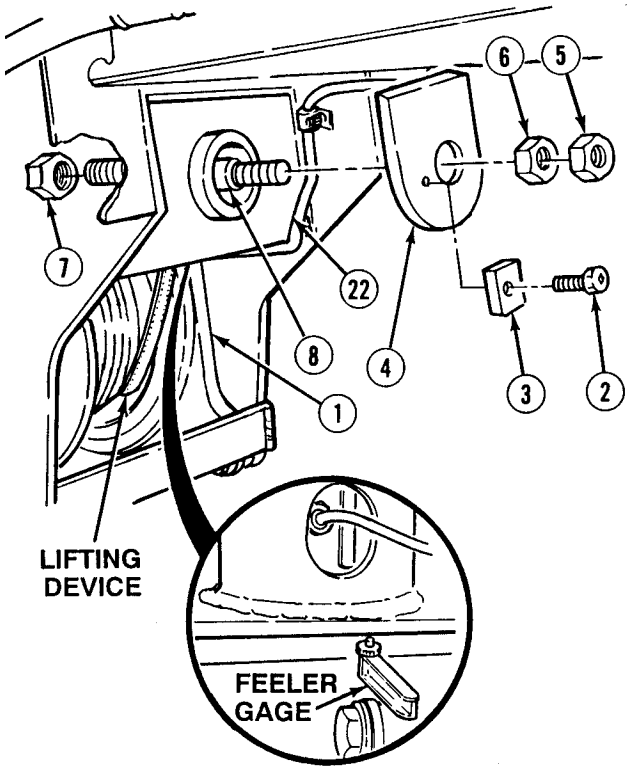
(11) Position end cap (4), swivel nut (6) and jam nut (5) on tension load cell (8).

(12) Using feeler gage, adjust tension load cell (8) to 0.12 in (3.1 mm) between end cap (4) and hoist mount (22) by loosening or tightening nut (7) until gap is obtained.

(13) Install block (3) with screw (2) on end cap (4). Tighten screw to 84 lb-in (9 N·m).

(14) Tighten jam nut (5).

(15) Remove lifting device from hoist assembly (1).



c. Follow-On Maintenance:

- Install crane hoist cable, (TM 9-2320-364-20).
- Perform crane load test, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

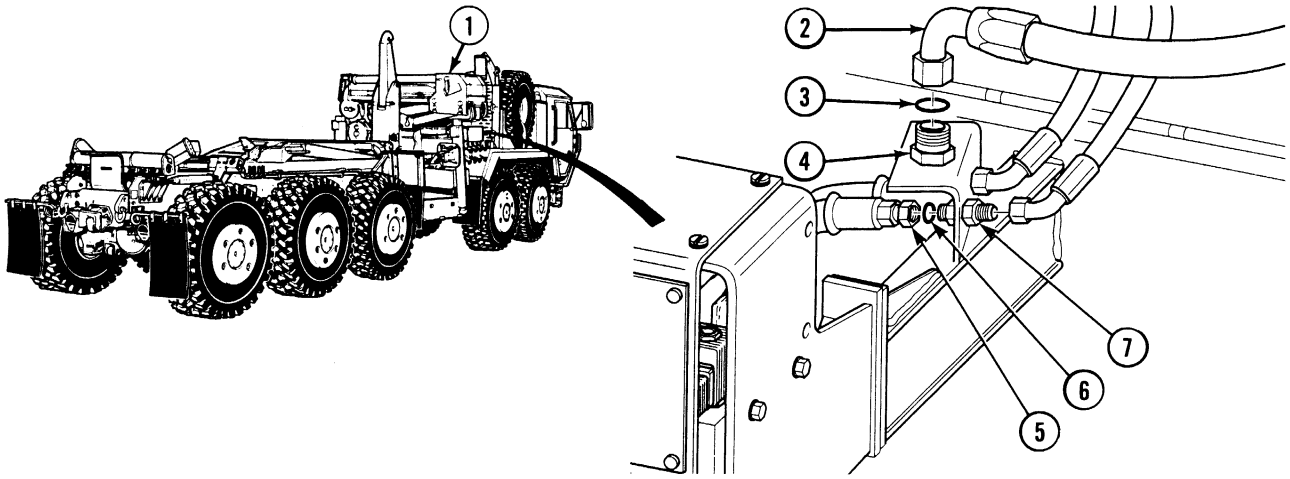
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Rivet Gun (Item 196, Appendix F)
Socket, Socket Head Screw 1/8 in. (Item 209 Appendix F)
Wrench, Combination, 1-3/8 in. (Item 258, Appendix F)
Wrench, Combination, 1-5/8 in. (Item 261, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)
Lifting Device, Minimum Capacity 100 lbs (45 kg)
Screw (4-40 NC x 1.5 in.)
Wooden Block (2) (Appendix C)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Gasket (11) (Item 110, Appendix E)
Lockwasher (4) (Item 264, Appendix E)
Lockwasher (12) (Item 282, Appendix E)
Packing, Preformed (8) (Item 347, Appendix E)
Packing, Preformed (3) (Item 389, Appendix E)
Packing, Preformed (3) (Item 391, Appendix E)
Packing, Preformed (2) (Item 392, Appendix E)
Washer, Seal (6) (Item 408, Appendix E)
Retainer (Item 472, Appendix E)
Retainer (Item 473, Appendix E)
Screw (Item 519, Appendix E)

Equipment Condition
Crane erected, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark all hydraulic hoses prior to removal.
- Cap and plug all hydraulic hoses and tubes after removal.

(1) Position drain pan under crane (1).

(2) Disconnect drain supply hose (2) and remove preformed packing (3) from bulkhead fitting (4). Discard preformed packing.

(3) Disconnect hose (5) and remove preformed packing (6) from bulkhead fitting (7).

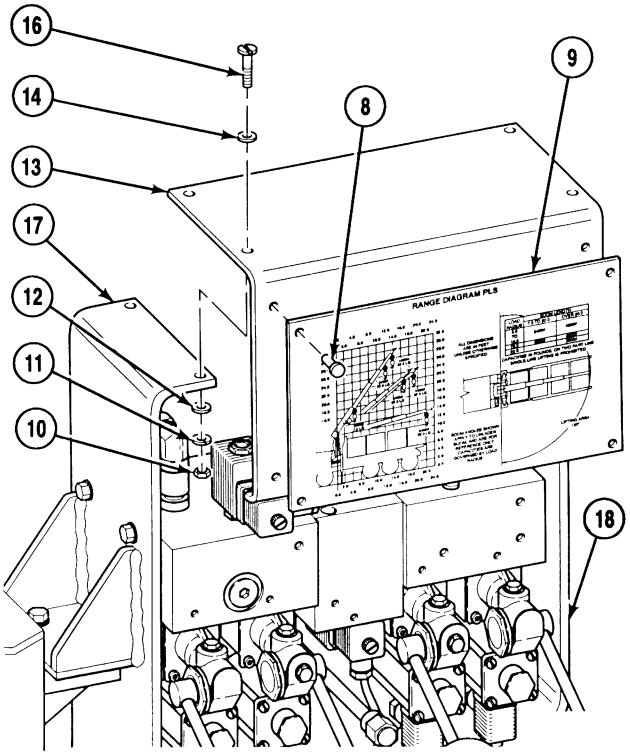
16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

NOTE

Perform Step (4) if data plate is damaged.

(4) Remove four rivets (8) and data plate (9).

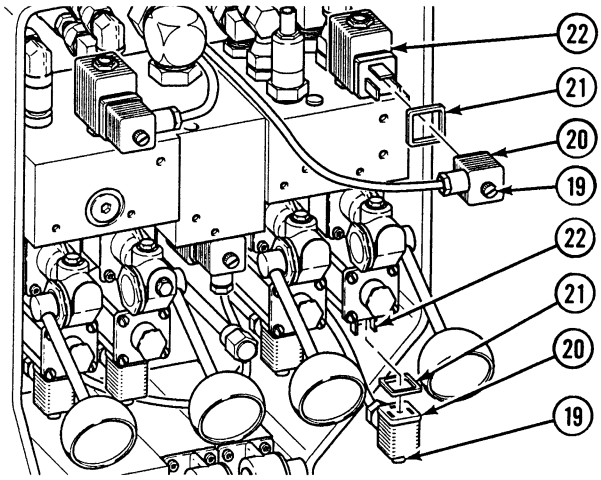
(5) Remove four nuts (10), lockwashers (11), washers (12), cover (13), washers (14) and screws (16) from left and right brackets (17) and (18). Discard lockwashers.



NOTE

Tag and mark all connections before disassembly.

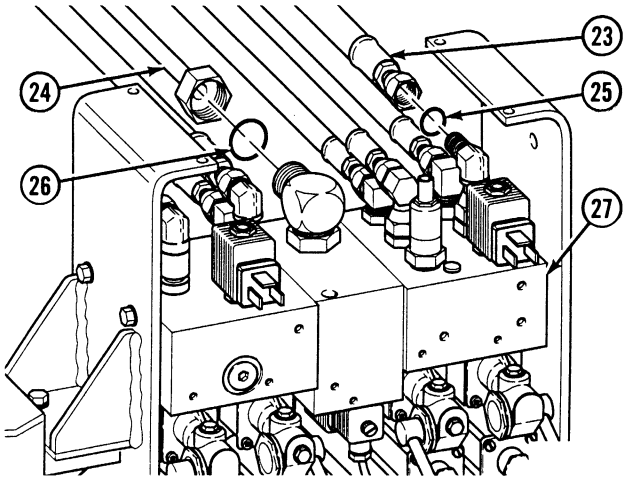
(6) Loosen 11 screws (19) and remove connectors (20) and gaskets (21) from solenoids (22). Discard gaskets.



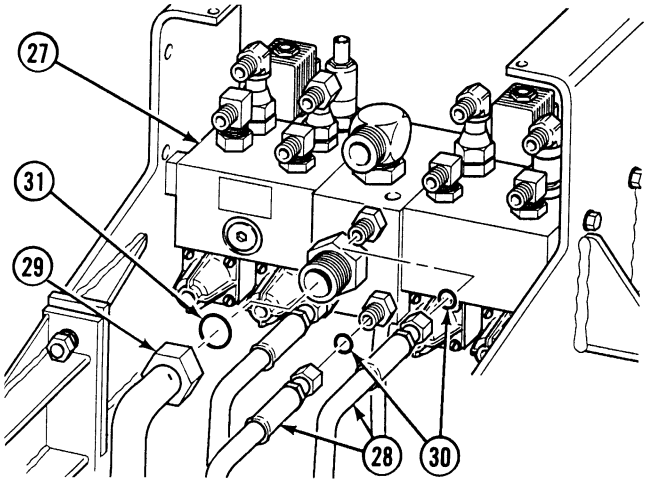
NOTE

Tag and mark all hydraulic hoses before removal.

(7) Remove eight hoses (23), tube (24) and nine preformed packings (25) and (26) from four valve bank (27). Discard preformed packings.



(8) Remove two hoses (28), tube (29) and three preformed packings (30) and (31) from four valve bank (27). Discard preformed packings.



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

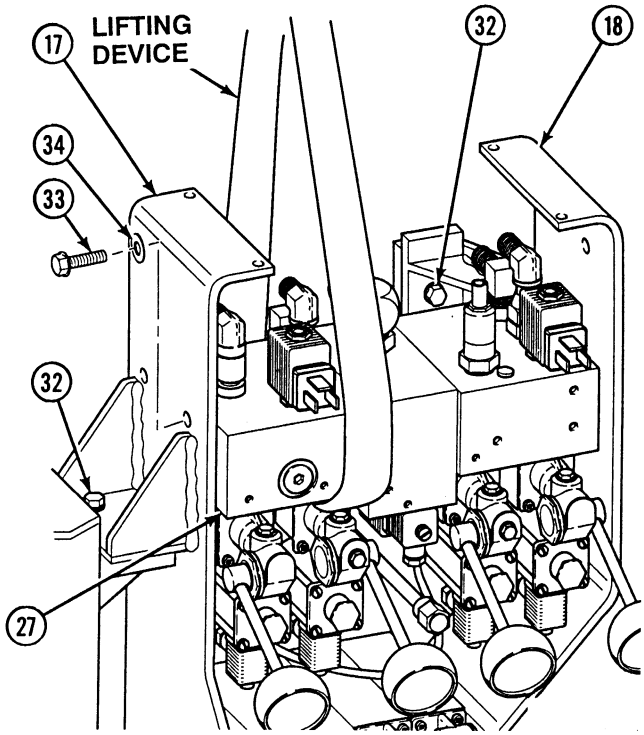
WARNING

Four valve bank weighs 75 lbs (34 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(9) Attach lifting device to four function control valve bank (27).

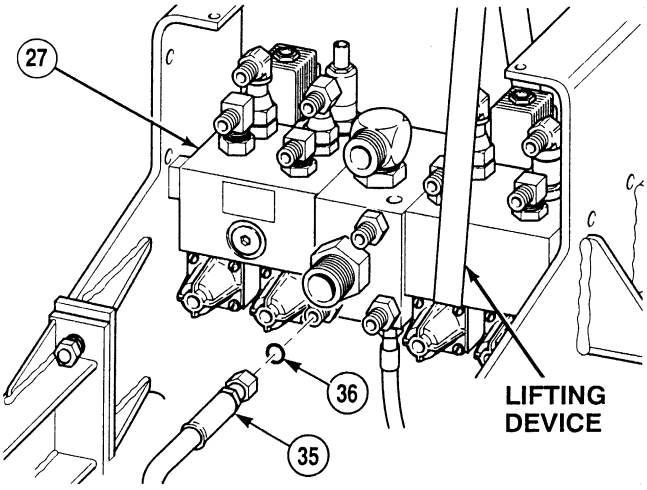
(10) Loosen four screws (32) in left and right brackets (17) and (18).

(11) Remove four screws (33), lockwashers (34) and move four function control valve bank (27) away from brackets (17) and (18).



(12) Remove hose (35) and preformed packing (36) from four function control valve bank (27). Discard preformed packings.

(13) Position four function control valve bank (27) on blocking and remove lifting device.



b. Disassembly.

NOTE

Note location and position of solenoids, valves, fittings and elbows prior to removal.

(1) Remove four screws (1) from solenoid valve (2).

(2) Remove solenoid valve (2) from hoist valve (3).

(3) Remove plate (4) and four preformed packings (5) and (6) from plate. Discard preformed packings.

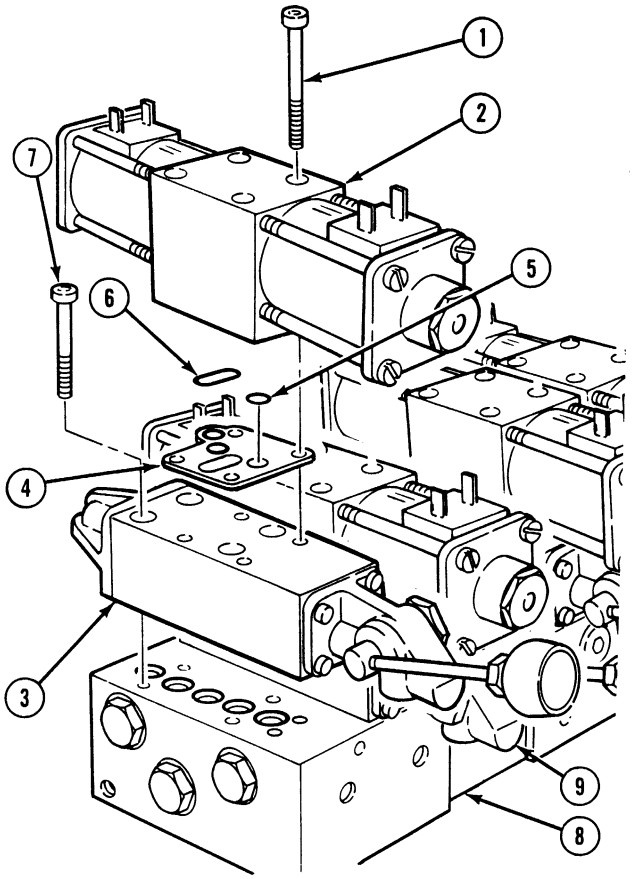
(4) Remove four screws (7) from hoist valve (3).

NOTE

Preformed packing may stay with manifold or come off with valve.

(5) Remove hoist valve (3) from hoist/lift manifold (8).

(6) Perform Steps (1) through (5) for boom valve (9).



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(7) Remove four screws (10) from solenoid valve (11).

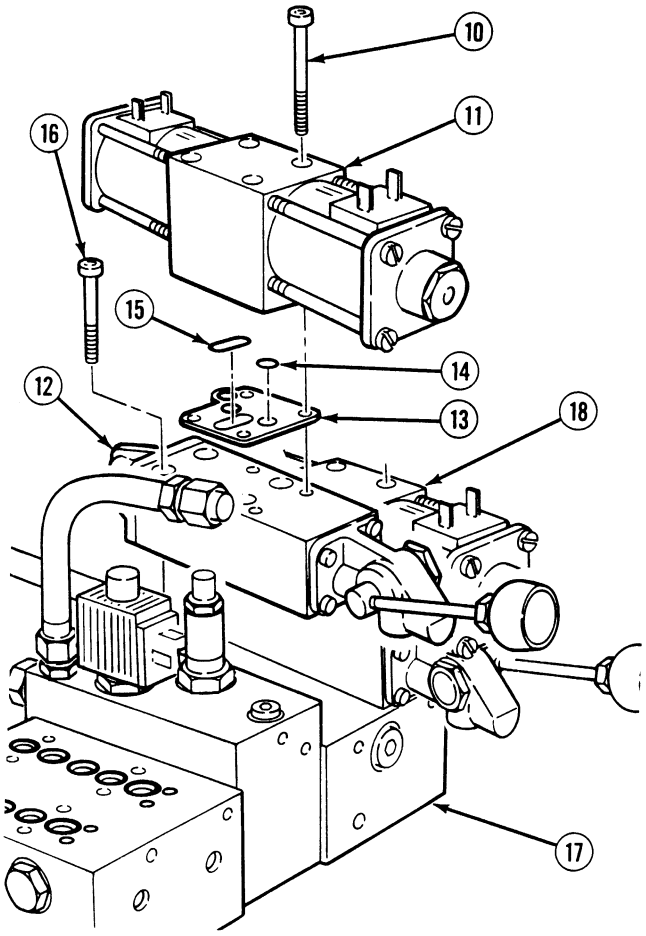
(8) Remove solenoid valve (11) from telescope valve (12).

(9) Remove plate (13) and preformed packings (14) and (15) from plate. Discard preformed packings.

(10) Remove four screws (16) from telescope valve (12).

(11) Remove telescope valve (12) from telescope/swing manifold (17).

(12) Perform Steps (7) through (11) for swing valve (18).

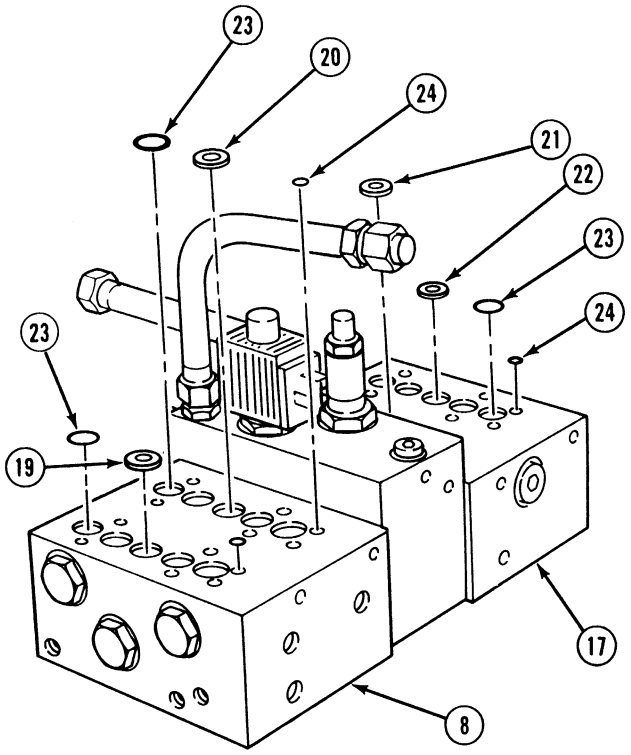


NOTE

Orifices are different. Tag and mark orifices as they are removed.

(13) Remove orifices (19), (20), (21) and (22).

(14) Remove preformed packings (23) and (24) from hoist/lift manifold (8) and telescope/swing manifold (17). Discard preformed packings.



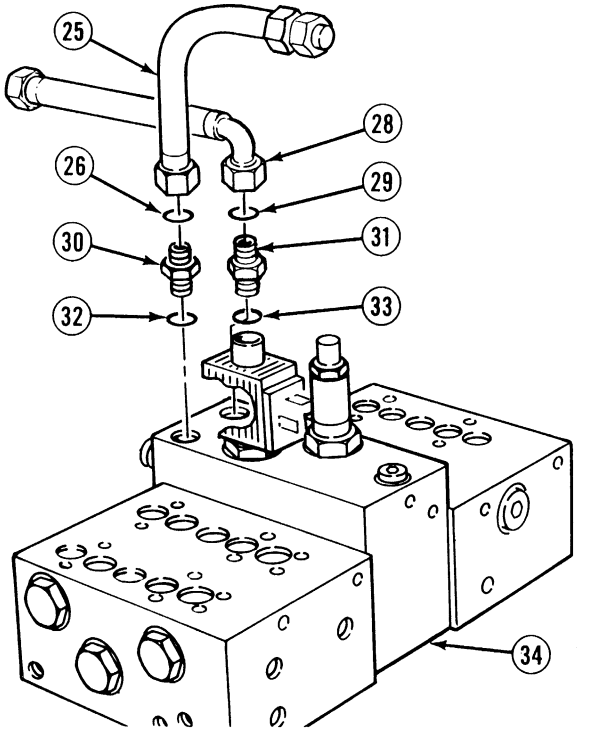
NOTE

Tag and mark hoses and tubes prior to removal.

(15) Remove tube (25) and preformed packing (26) from fitting (30). Discard preformed packing.

(16) Remove hose (28) and preformed packing (29) from fitting (31). Discard preformed packings.

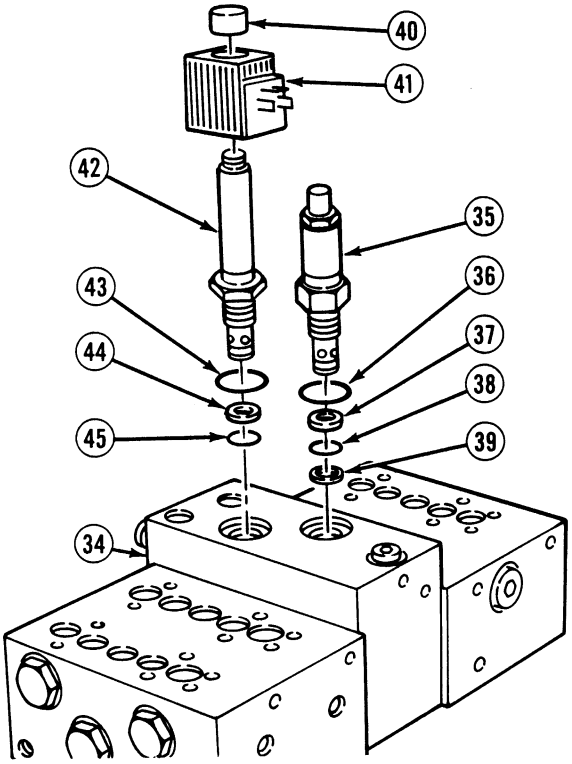
(17) Remove fittings (30) and (31) and preformed packings (32) and (33) from manifold (34). Discard preformed packings.



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(18) Remove relief valve (35), preformed packing (36), backup ring (37), preformed packing (38) and backup ring (39) from manifold (34). Discard preformed packings and backup ring.

(19) Remove cap (40), solenoid (41), directional valve (42), preformed packing (43), backup ring (44) and preformed packing (45). Discard preformed packings and backup ring.

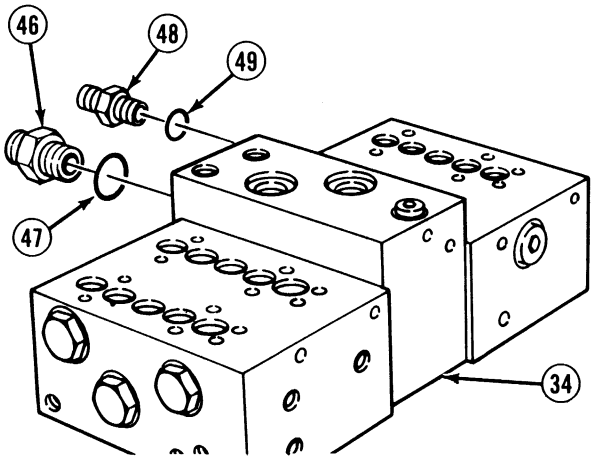


CAUTION

Do not lay four valve bank on its side where solenoid terminals could be damaged.

(20) Remove fitting (46) and preformed packing (47) from manifold (34). Discard preformed packings.

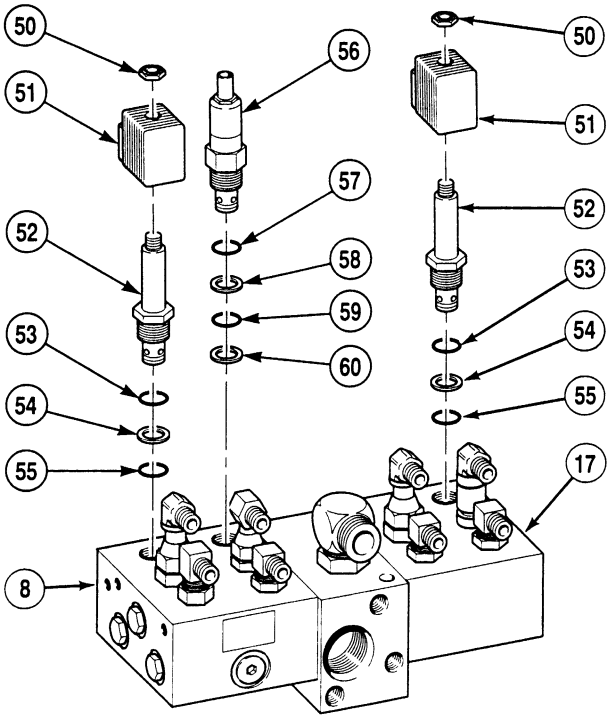
(21) Remove three fittings (48) and preformed packings (49) from manifold (34). Discard preformed packings.



(22) Turn assembly over.

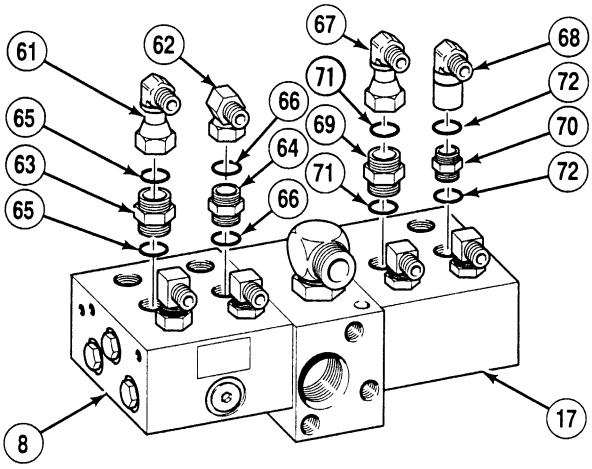
(23) Remove two caps (50), solenoids (51) directional valves (52), preformed packings (53), backup ring (54) and two preformed packings (55) from hoist/lift manifold (8) and telescope/swing manifold (17). Discard preformed packings and backup ring.

(24) Remove relief valve (56), preformed packing (57), backup ring (58), preformed packing (59) and backup ring (60) from hoist/lift manifold (8). Discard preformed packings and backup rings.



(25) Remove elbows (61) and (62), fittings (63) and (64) and preformed packings (65) and (66) from hoist/lift manifold (8). Discard preformed packings.

(26) Remove elbows (67) and (68), fittings (69) and (70) and preformed packings (71) and (72) from telescope/swing manifold (17). Discard preformed packings.

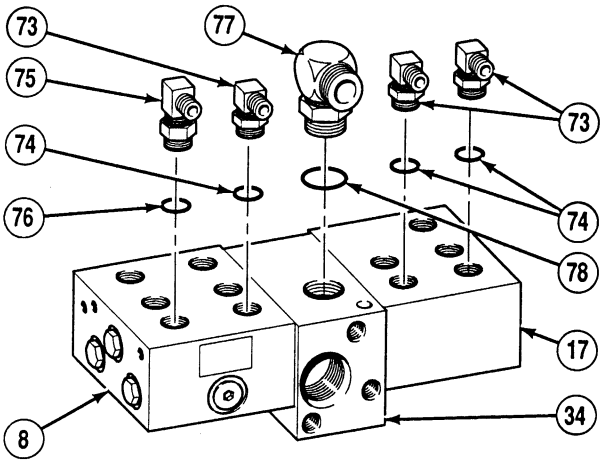


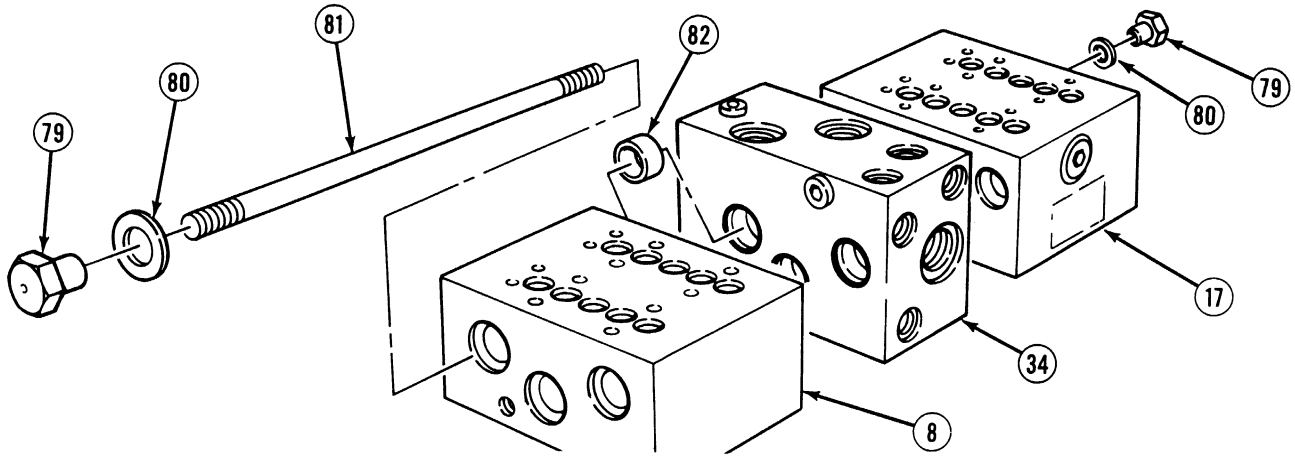
16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(27) Remove three elbows (73) and preformed packing (74) from manifolds (8) and (17). Discard preformed packings.

(28) Remove elbow (75) and preformed packing (76) from hoist/lift manifold (8). Discard preformed packing.

(29) Remove elbow (77) and preformed packing (78) from manifold (34). Discard preformed packing.



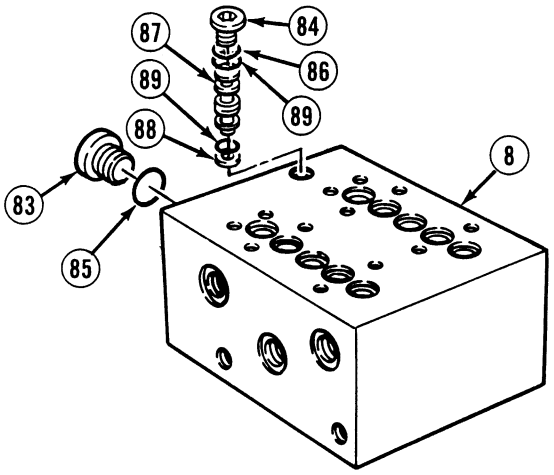


(30) Remove six nuts (79), seal washers (80), three tie rods (81) and four positioning rings (82) from hoist/lift manifold (8), manifold (34) and telescope/swing manifold (17). Discard seal washers.

(31) Remove plugs (83) and (84) and preformed packings (85) and (86) from hoist/lift manifold (8). Discard preformed packings.

(32) Remove check valve (87) from manifold (8) using 4-40 NC by 1 1/2 in. screw.

(33) Remove backup ring (88) and two preformed packings (89) from check valve (87). Discard backup ring and preformed packing.

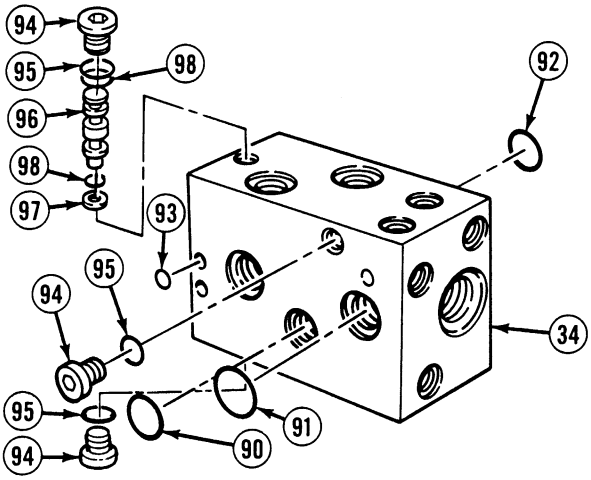


(34) Remove preformed packings (90), (91), (92) and (93) from manifold (34). Discard preformed packings.

(35) Remove three plugs (94) and preformed packings (95) from manifold (34). Discard preformed packings.

(36) Remove three check valves (96) from manifold (34) using 4-40 NC by 1 1/2 in. screw.

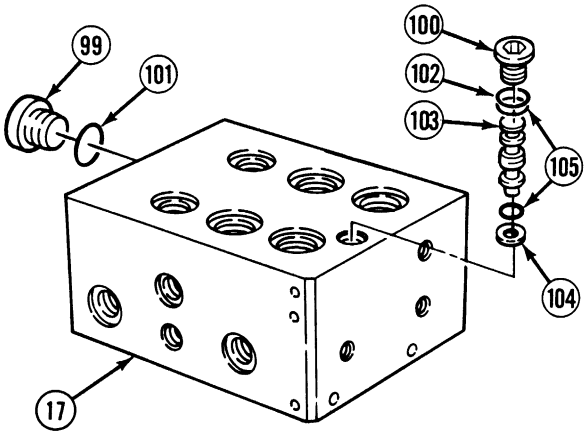
(37) Remove backup ring (97) and two preformed packings (98) from each check valve (96). Discard backup ring and preformed packing.



(38) Remove plugs (99) and (100) and preformed packings (101) and (102) from telescope/swing manifold (17). Discard preformed packings.

(39) (Remove check valve (103) from manifold (17) using 4-40 NC by 1 1/2 in. screw.

(40) Remove backup ring (104) and two preformed packings (105) from check valve (103). Discard backup ring and preformed packing.



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for breaks, cracks, gouges, dents and stripped threads.

(3) Replace damaged parts.

d. Assembly.

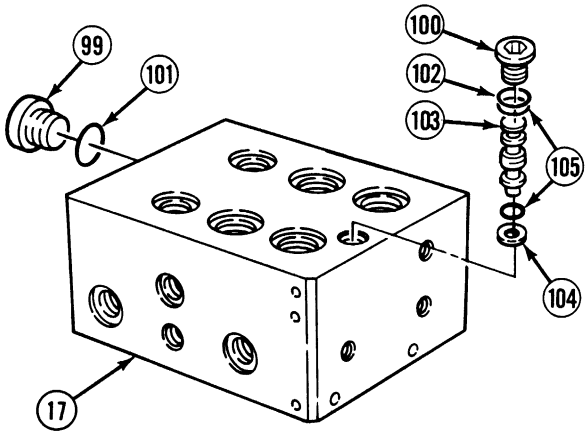
(1) Apply hydraulic oil to preformed packing (105) and backup ring (104).

(2) Install two preformed packings (105) and backup ring (104) on check valve (103).

(3) Install check valve (103) in telescope/swing manifold (17).

(4) Apply hydraulic oil to preformed packings (102) and (101).

(5) Install preformed packings (102) and (101) and plugs (100) and (99) in telescope/swing manifold (17).



(6) Apply hydraulic oil to preformed packing (98) and backup ring (97).

(7) Install two preformed packings (98) and backup ring (97) on each of three check valves (96).

(8) Install three check valves (96) in manifold (34).

(9) Apply hydraulic oil to three preformed packings (95).

(10) Install three preformed packings (95) and plugs (94) in manifold (34). Tighten plugs to 55 to 65 lb-in (6 to 7 N·m).

(11) Apply hydraulic oil to preformed packings (93), (92), (91) and (90).

(12) Install preformed packings (93), (92), (91) and (90) in manifold (34).

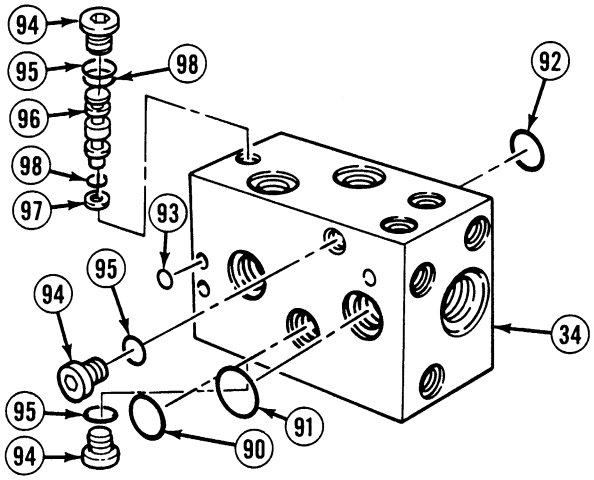
(13) Apply hydraulic oil to two preformed packings (89) and backup rings (88).

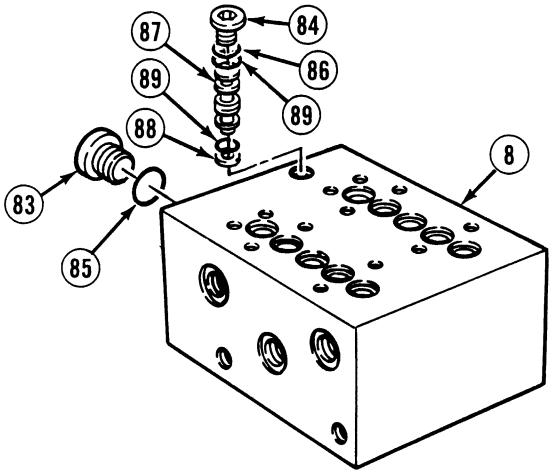
(14) Install two preformed packings (89) and backup rings (88) on check valve (87).

(15) Install check valve (87) in hoist/lift manifold (8).

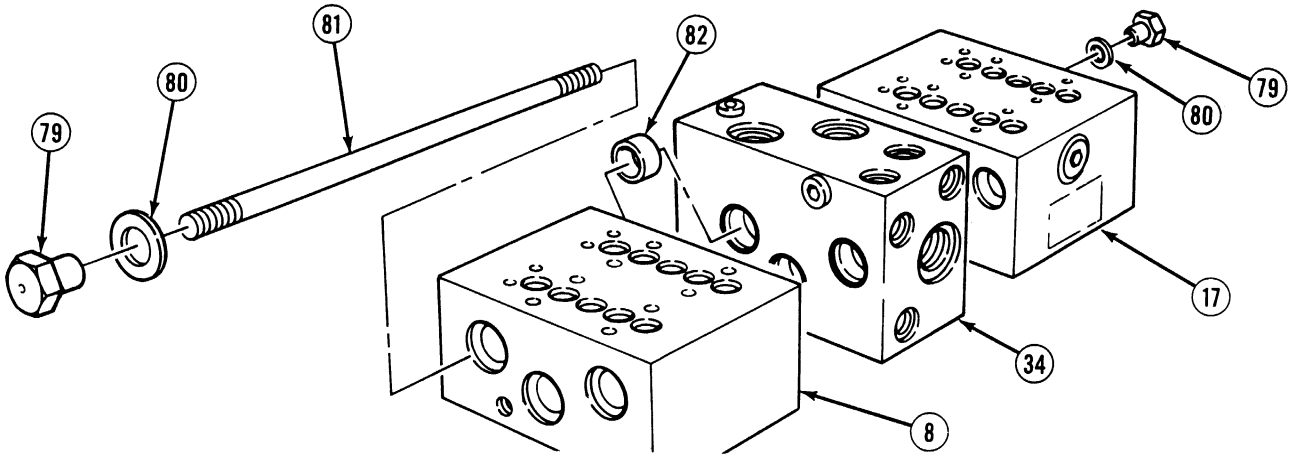
(16) Apply hydraulic oil to preformed packings (85) and (86).

(17) Install preformed packings (86) and (85) and plugs (84) and (83) in hoist/lift manifold (8).





16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).



(18) Position telescope/swing manifold (17), manifold (34) and hoist/lift manifold (8) together with four positioning rings (82).

(19) Apply hydraulic oil to six seal washers (80).

(20) Install three tie rods (81) with six seal washers (80) and nuts (79).

(21) Apply hydraulic oil to preformed packing (78).

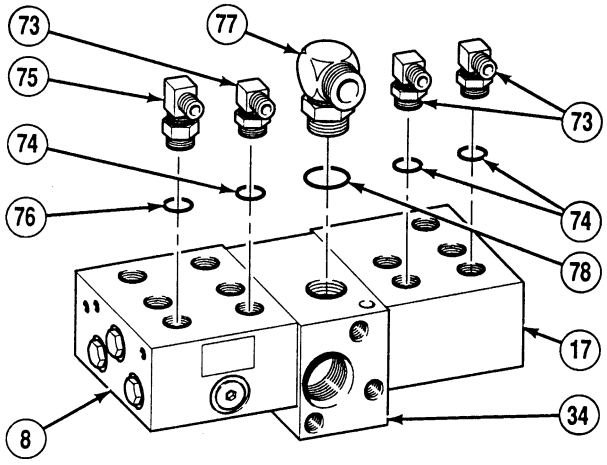
(22) Install preformed packing (78) and elbow (77) on manifold (34).

(23) Apply hydraulic oil to preformed packing (76).

(24) Install preformed packing (76) and elbow (75) on hoist/lift manifold (8).

(25) Apply hydraulic oil to three preformed packings (74).

(26) Install three preformed packings (74) elbows (73) in hoist/lift manifold (8) and telescope/swing manifold (17).

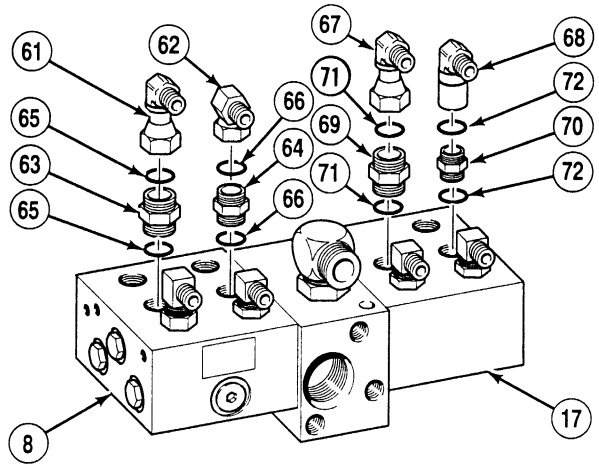


(27) Apply hydraulic oil to preformed packings (72) and (71).

(28) Install preformed packings (72) and (71), fittings (70) and (69) and elbows (68) and (67) on telescope/swing manifold (17).

(29) Apply hydraulic oil to preformed packings (65) and (66).

(30) Install preformed packings (66) and (65), fittings (64) and (63) and elbows (62) and (61) on hoist/lift manifold (8).



NOTE

Install valves loosely until assembly is complete to avoid damage to plugs.

(31) Apply hydraulic oil to preformed packing (59) and backup rings (58) and (60).

(32) Install backup ring (58), preformed packing (59) and backup ring (60) on relief valve (56).

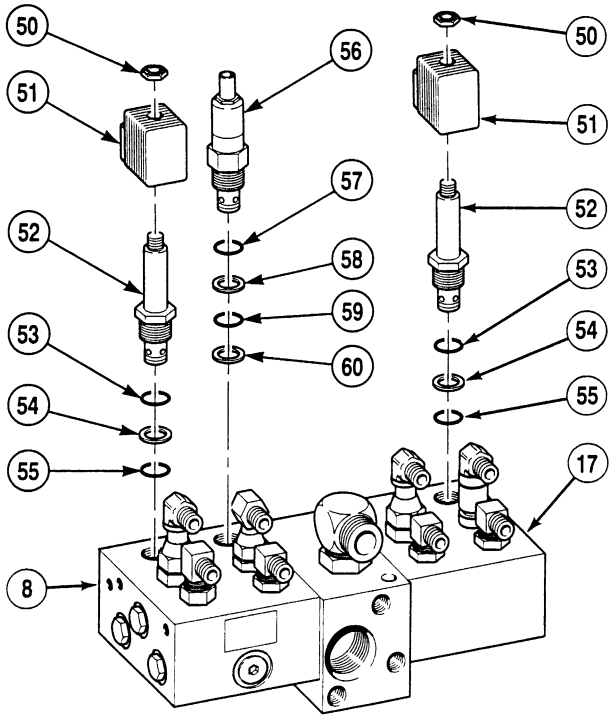
(33) Apply hydraulic oil to preformed packing (57).

(34) Install preformed packing (57) and relief valve (56) on hoist/lift manifold (8).

(35) Apply hydraulic oil to preformed packings (53) and (55) and backup ring (54).

(36) Install preformed packing (53), backup ring (54) and preformed packing (55) on each of two directional valves (52).

(37) Install two directional valves (52), solenoids (51) and caps (50) on hoist/lift manifold (8) and telescope/swing manifold (17).



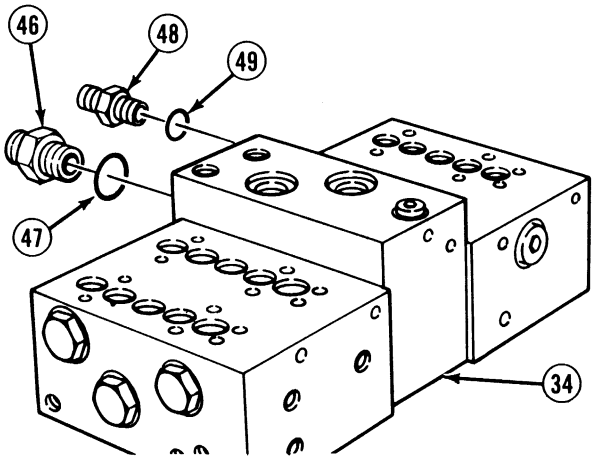
16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(38) Apply hydraulic oil to three preformed packings (49).

(39) Install three preformed packings (49) and fittings (48) on manifold (34).

(40) Apply hydraulic oil to preformed packing (47).

(41) Install preformed packing (47) and fitting (46) on manifold (34).



(42) Apply hydraulic oil to preformed packing (45) and backup ring (44).

(43) Install backup ring (44) and preformed packing (45) on directional valve (42).

(44) Apply hydraulic oil to preformed packing (43).

(45) Install preformed packing (43) and directional valve (42) in manifold (34).

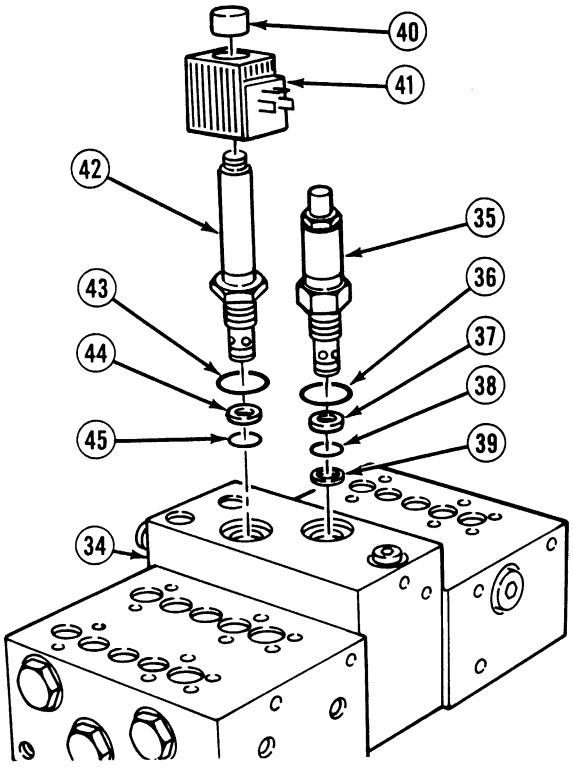
(46) Install solenoid (41) and cap (40).

(47) Apply hydraulic oil to preformed packing (38) and backup rings (37) and (39).

(48) Install backup ring (37), preformed packing (38) and backup ring (39) on relief valve (35).

(49) Apply hydraulic oil to preformed packing (36).

(50) Install preformed packing (36) and relief valve (35) in manifold (34).



(51) Apply hydraulic oil to preformed packings (32) and (33).

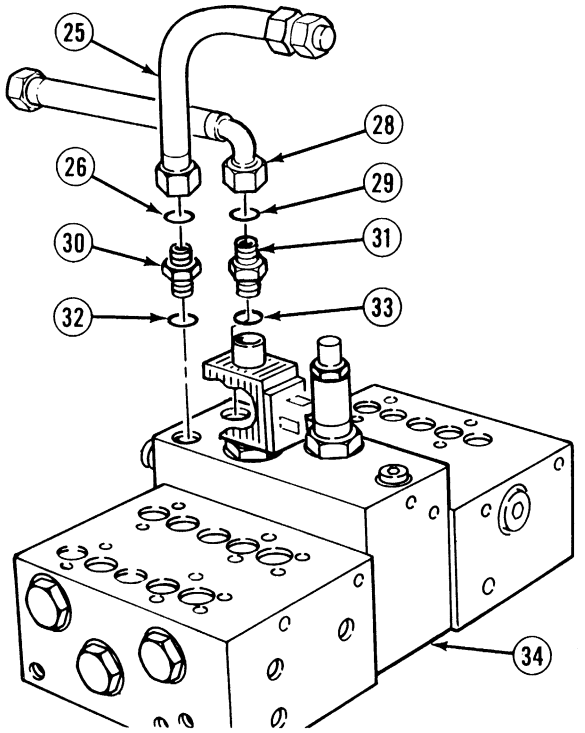
(52) Install preformed packings (33) and (32) and fittings (31) and (30) on manifold (34).

(53) Apply hydraulic oil to preformed packing (29).

(54) Install preformed packing (29) and hose (28) on fitting (31).

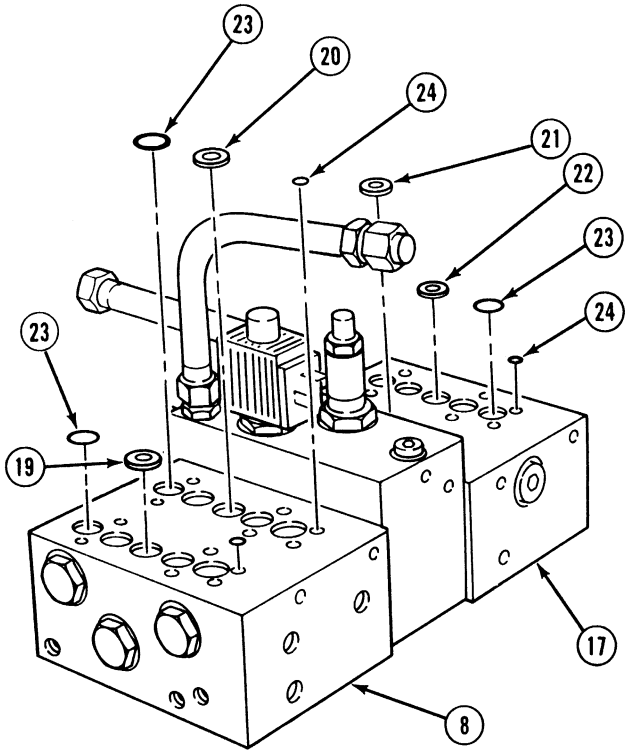
(55) Apply hydraulic oil to preformed packing (26).

(56) Install preformed packing (26) and tube (25) on fitting (30).



(57) Apply hydraulic oil to preformed packings (23) and (24).

(58) Install preformed packings (23) and (24) and orifices (19), (20), (21) and(22) in telescope/swing manifold (17) and hoist/lift manifold (8).



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

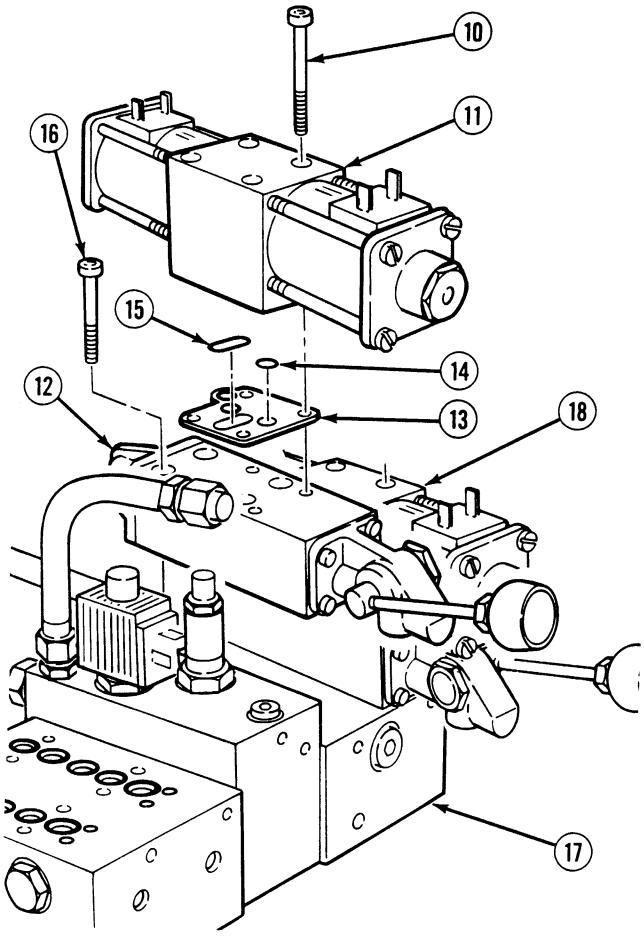
(59) Install telescope valve (12) on telescope/swing manifold (17) with four screws (16).

(60) Apply hydraulic oil to preformed packings (14) and (15).

(61) Install preformed packings (14) and (15) in plate (13) and position on telescope valve (12).

(62) Install solenoid valve (11) with four screws (10).

(63) Perform Steps (59) through (62) for swing valve (18).



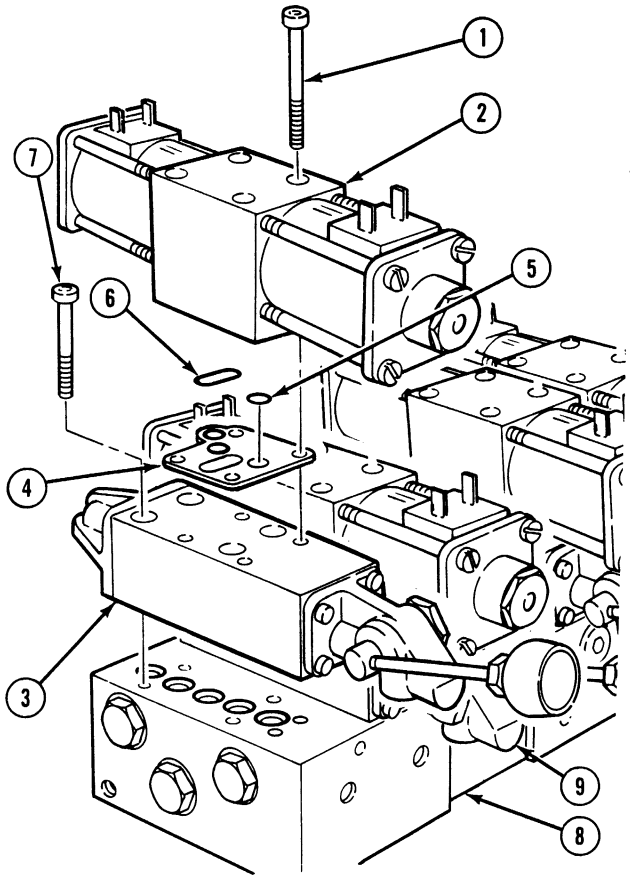
(64) Install hoist valve (3) on hoist/lift manifold (8) with four screws (7).

(65) Apply hydraulic oil to preformed packings (5) and (6).

(66) Install preformed packings (5) and (6) in plate (4) and position on hoist valve (3).

(67) Install hoist solenoid valve (2) with four screws (1).

(68) Perform Steps (64) through (67) for boom valve (9).



16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

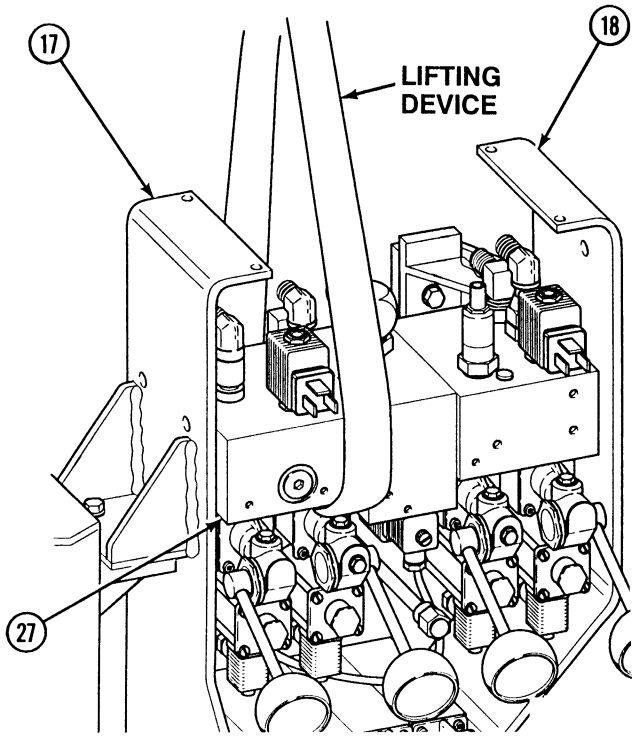
e. Installation.

WARNING

Four valve control valve bank weighs 75 lbs (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

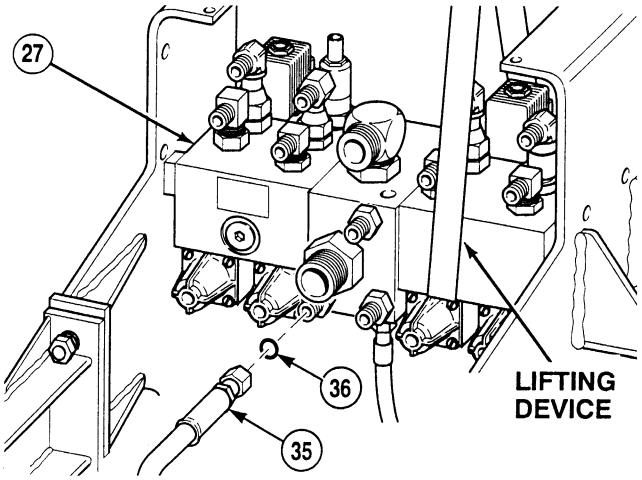
(1) Attach lifting device to four valve control valve bank (27).

(2) Position four function control valve bank (27) loosely between left and right mounting brackets (17) and (18).



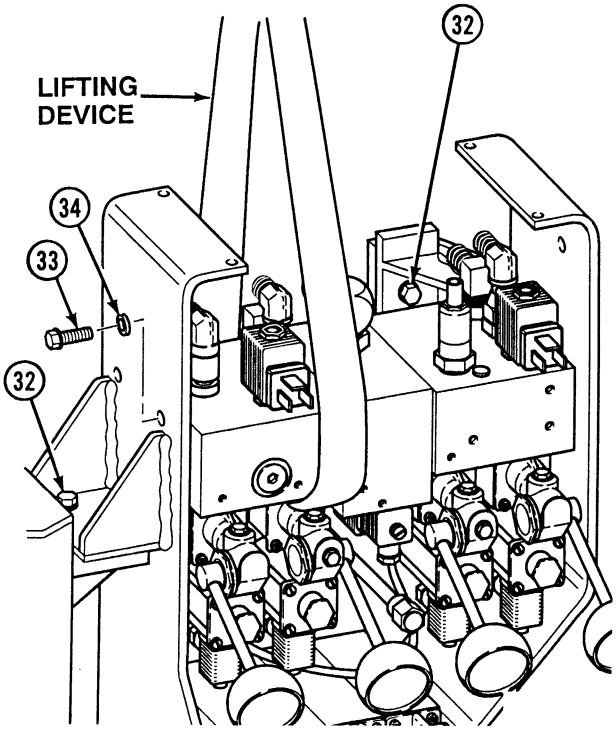
(3) Apply hydraulic oil to preformed packing (36).

(4) Install preformed packing (36) and hose (35) on four function control valve bank (27).



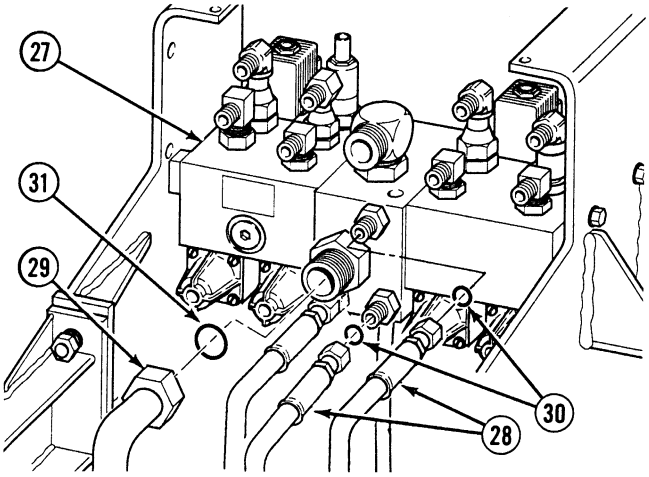
(5) Install four lockwashers (34) and screws (33). Tighten screws to 17 lb-ft (23 N·m).

(6) Tighten four screws (32) to 17 lb-ft (23 N·m) and remove lifting device.



(7) Apply hydraulic oil to preformed packings (30) and (31).

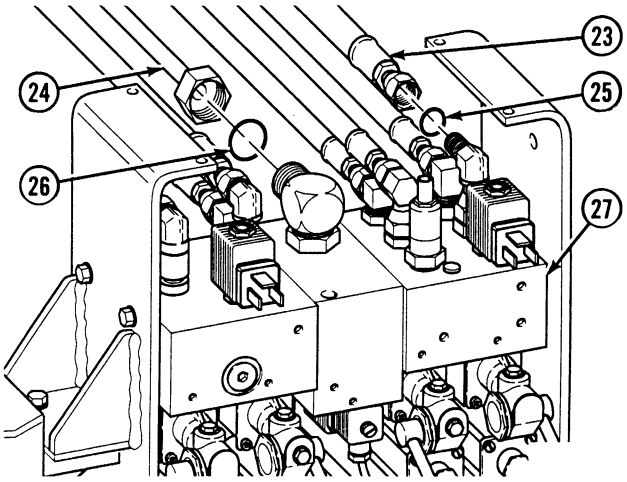
(8) Install preformed packings (30) and (31), tube (29) and two hoses (28) on four function control valve bank (27).



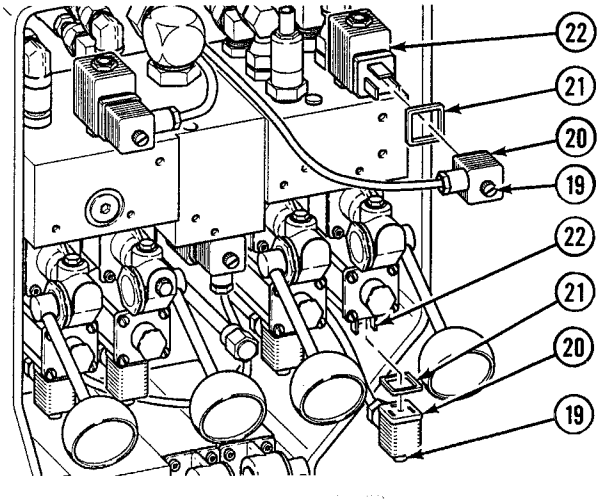
16-26. FOUR FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(9) Apply hydraulic oil to preformed packings (25) and (26).

(10) Install preformed packings (25) and (26), tube (24) and eight hoses (23) on four function control valve bank (27).



(11) Install 11 gaskets (21) and connectors (20) on solenoids (22) and tighten 11 screws (19).

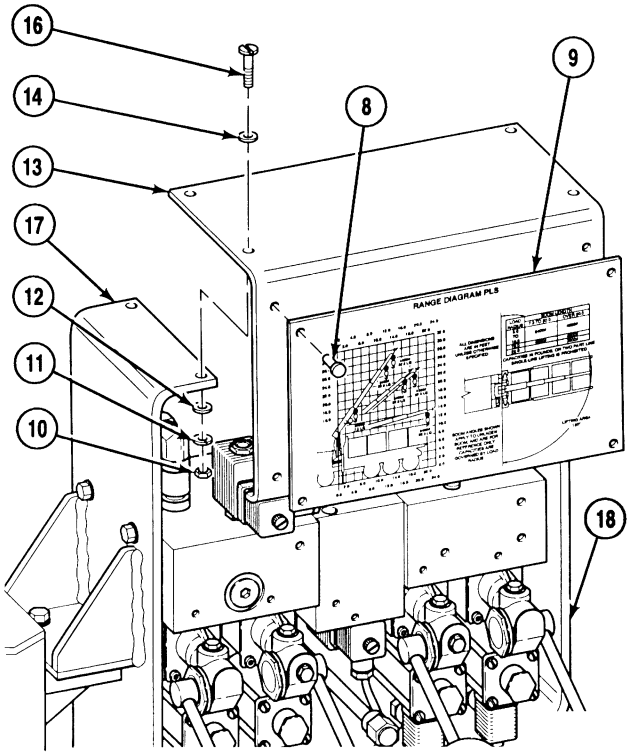


(12) Install cover (13) with four screws (16), washers (14), washers (12), lockwashers (11) and nuts (10). Tighten nuts to 84 lb-in (9 N·m).

NOTE

Perform Step (13) if data plate was removed.

(13) Install data plate (8) with four rivets (9).

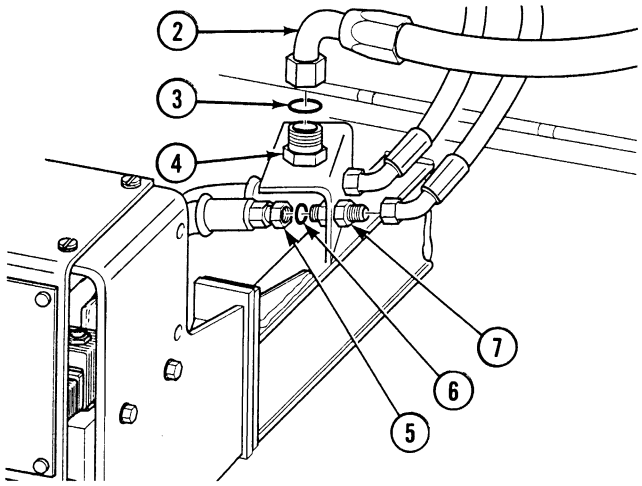


(14) Apply hydraulic oil to preformed packing (6).

(15) Install preformed packing (6) hose (5) on bulkhead fitting (7).

(16) Apply hydraulic oil to preformed packing (3).

(17) Install preformed packing (3) and drain supply line hose (2) on bulkhead fitting (4).



f. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Start engine and check for oil leaks, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Check hydraulic fluid level, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 84, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (6) (Item 286, Appendix E)

Materials/Parts - Continued
Packing, Preformed (Item 339, Appendix E)
Packing, Preformed (Item 373, Appendix E)
Packing, Preformed (Item 389, Appendix E)
Packing, Preformed (6) (Item 391, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Crane stowage box removed, (TM 9-2320-364-20)

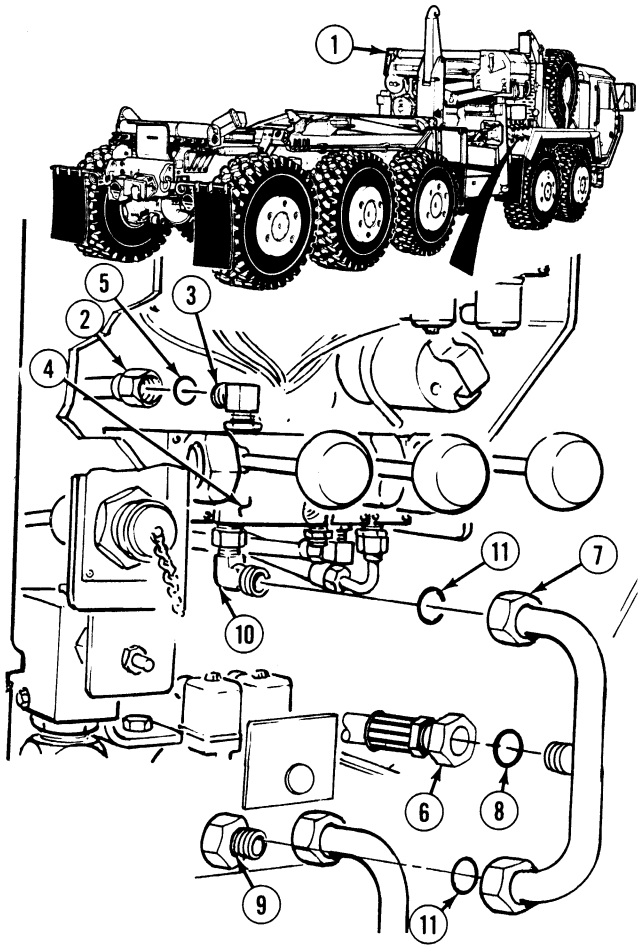
a. Removal.

WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark hydraulic hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.



(1) Position drain pan under crane (1).

(2) Disconnect hose (2) from elbow (3) on three function control valve bank (4) and remove preformed packing (5). Discard preformed packing.

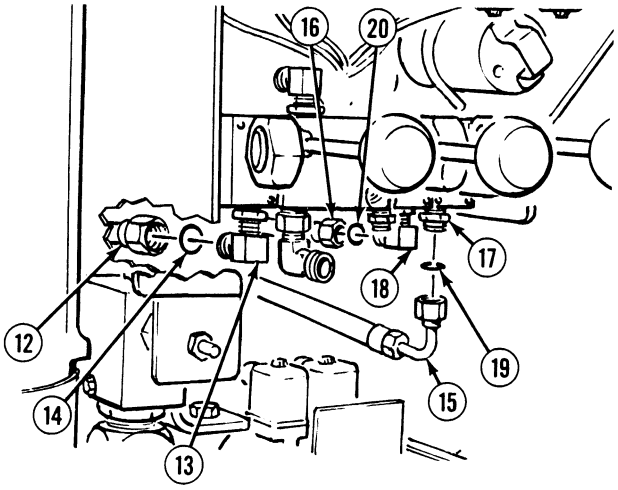
(3) Disconnect hose (6) from tube (7) and remove preformed packing (8). Discard preformed packing.

(4) Disconnect tube (7) from fitting (9) and elbow (10) and remove two preformed packings (11). Discard preformed packings.

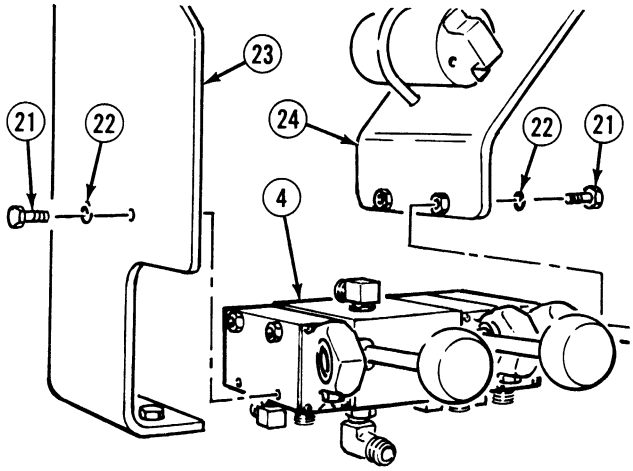
16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(5) Disconnect tube (12) from elbow (13) and remove preformed packing (14). Discard preformed packing.

(6) Disconnect hoses (15) and (16) from fittings (17) and elbows (18) and remove preformed packings (19) and (20). Discard preformed packings.



(7) Remove four screws (21), lockwashers (22) and three function control valve bank (4) from left and right brackets (23) and (24).



b. Disassembly.

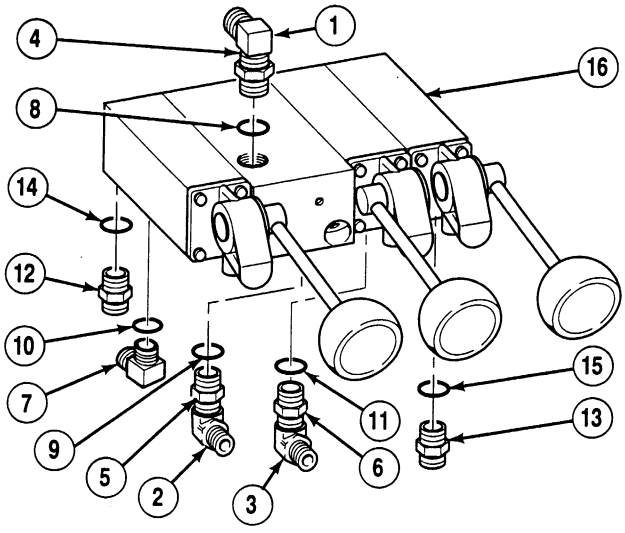
NOTE

Tag and mark position of elbows, fittings, and valves prior to removal.

(1) Remove elbows (1), (2) and (3) from fittings (4), (5) and (6).

(2) Remove fittings (4), (5) and (6), elbow (7) and preformed packings (8), (9), (10) and (11). Discard preformed packings.

(3) Remove fittings (12) and (13) and preformed packings (14) and (15) from three valve bank (16). Discard preformed packings.

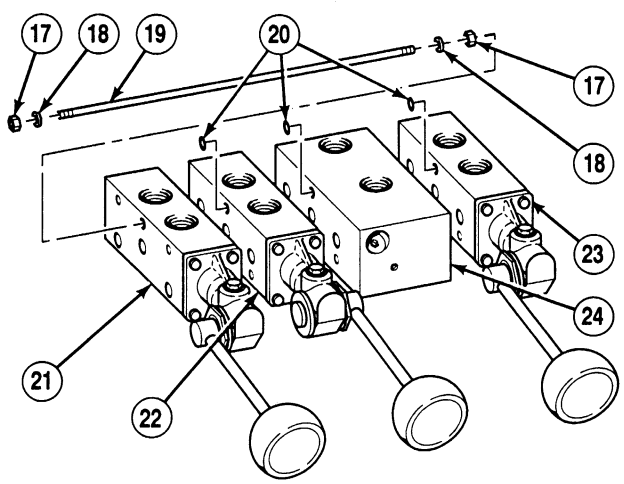


(4) Remove six nuts (17), lockwashers (18), three studs (19) and nine shims (20). Discard lockwashers.

NOTE

Tag and mark position of valves prior to removal.

(5) Separate left-hand outrigger valve (21), mast valve (22) and right-hand outrigger valve (23) from manifold (24).

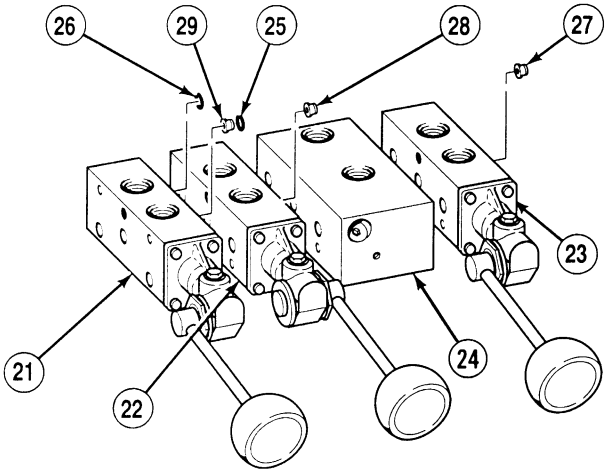


(6) Remove and discard preformed packings (25) and (26) from left hand outrigger valve (21).

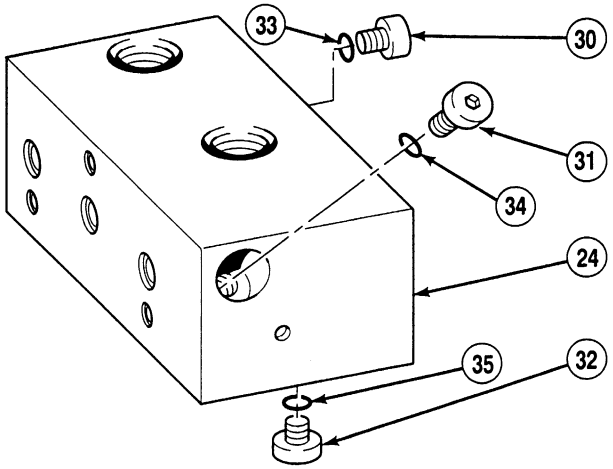
NOTE

Orifices are different. Tag and mark orifices as they are removed.

(7) Remove orifices (27), (28) and (29) from left-hand outrigger valve (21), mast valve (22) and right-hand outrigger valve (23).



(8) Remove plugs (30), (31) and (32) and preformed packings (33), (34) and (35) from manifold (24). Discard preformed packings.



16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

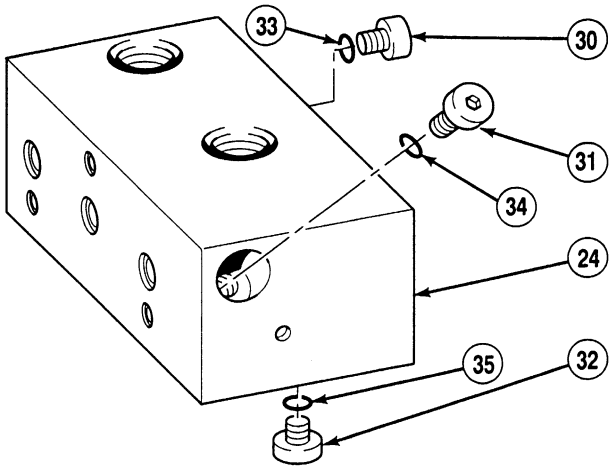
(2) Inspect each part for cracks, gouges or stripped threads.

(3) Replace damaged parts.

d. Assembly.

(1) Apply hydraulic oil to preformed packings (33), (34) and (35).

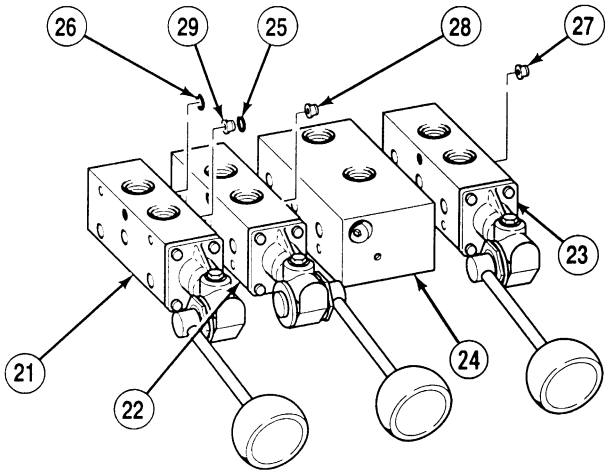
(2) Install preformed packings (33), (34) and (35) and plugs (30), (31) and (32) in manifold (24).



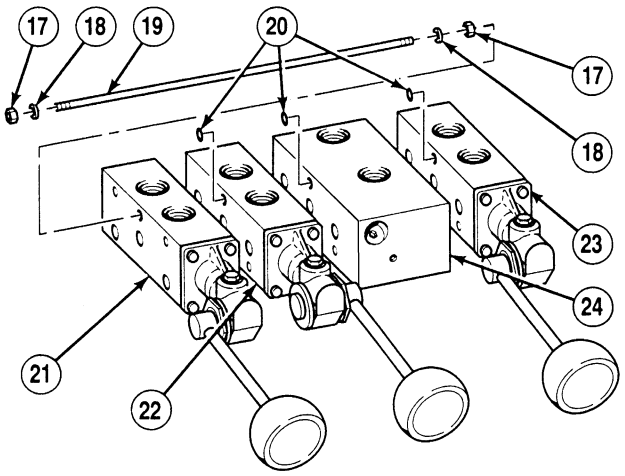
(3) Install orifices (27), (28) and (29) in left-hand outrigger valve (21), mast valve (22) and right-hand outrigger valve (23).

(4) Apply hydraulic oil to preformed packings (25) and (26).

(5) Install preformed packings (25) and (26) on left hand outrigger valve (21).



(6) Install nine shims (20) left-hand outrigger valve (21), mast valve (22) and right hand outrigger valve (23) on manifold (24) with three studs (19), six lockwashers (18) and nuts (17). Tighten nuts to 20 to 23 lb-ft (27 to 31 N·m).

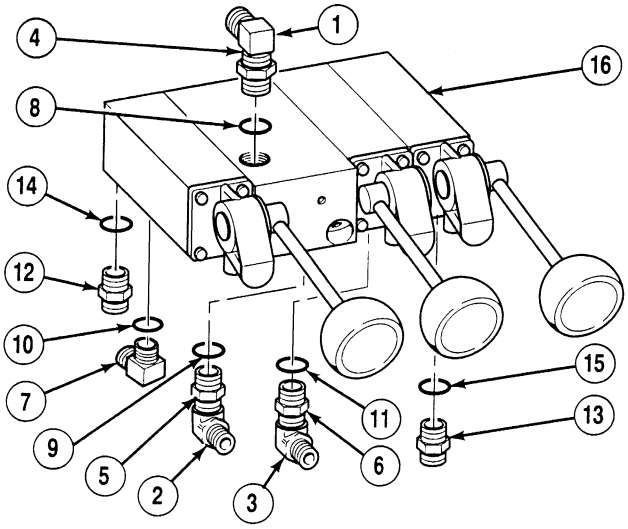


(7) Apply hydraulic oil to preformed packings (14) and (15).

(8) Install preformed packings (14) and (15) and fittings (12) and (13) in three valve bank (16).

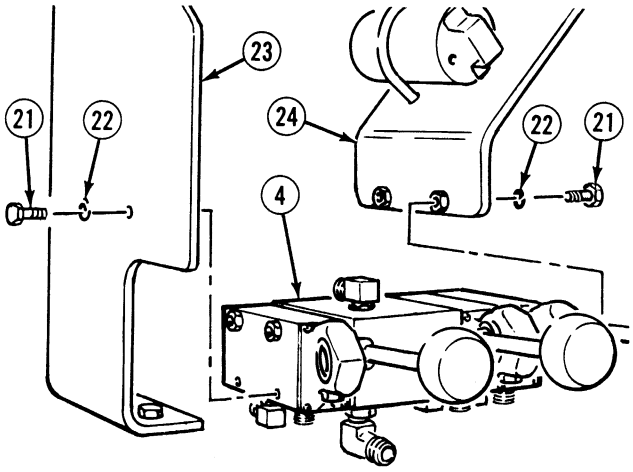
(9) Apply hydraulic oil to preformed packings (8), (9), (10) and (11).

(10) Install preformed packings (8), (9), (10) and (11), elbow (7) and fittings (4), (5) and (6) in three valve bank (16).



e. Installation.

(1) Install three valve bank (4) on left and right brackets (23) and (24) with four lockwashers (22) and screws (21). Tighten screws to 72 lb-in (8 N·m).



16-27. THREE FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(2) Apply hydraulic oil to preformed packings (19) and (20).

(3) Install preformed packings (19) and (20) and hoses (15) and (16) on fittings (17) and elbows (18).

(4) Apply hydraulic oil to preformed packing (14).

(5) Install preformed packing (14) and connect tube (12) on elbow (13).

(6) Apply hydraulic oil to preformed packing (11).

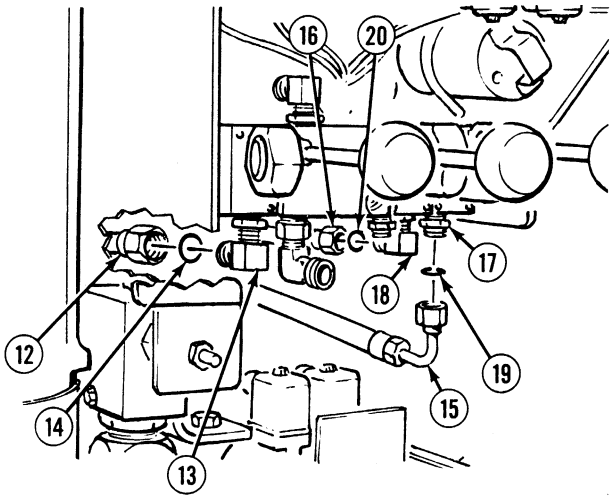
(7) Install preformed packings (11) and connect tube (7) on fitting (9) and elbow (10).

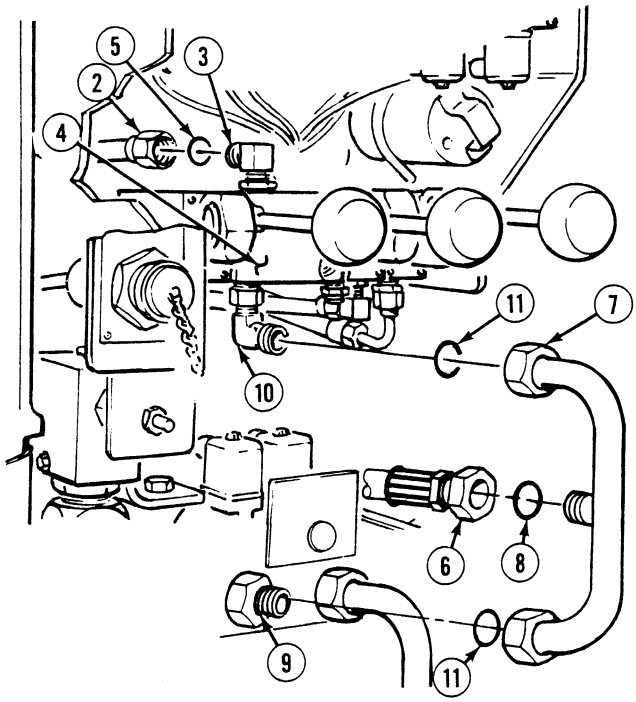
(8) Apply hydraulic oil to preformed packing (8).

(9) Install preformed packing (80 and connect hose (6) on tube (7).

(10) Apply hydraulic oil to preformed packing (5).

(11) Install preformed packing (5) and connect hose (2) on elbow (3) on three function control valve bank (4).





f. Follow-On Maintenance:

- Start engine and check for leaks, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Check hydraulic fluid level, (TM 9-2320-364-20).
- Install crane stowage box, (TM 9-2320-364-20).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-28. TWO FUNCTION CONTROL VALVE BANK REPLACEMENT.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

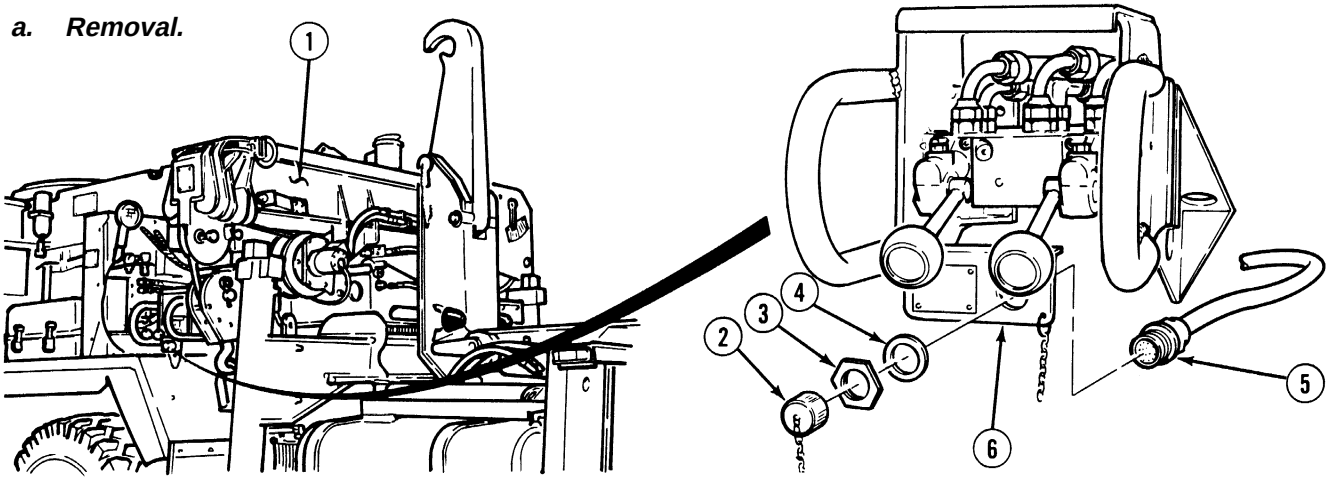
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 84, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Rivet Gun (Item 196, Appendix F)
Wrench, Combination, 1-1/16 in. (Item 254, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)

Materials/Parts - Continued
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Repair Kit (Item 152, Appendix E)
Repair Kit (Item 158, Appendix E)
Lockwasher (Item 228, Appendix E)
Lockwasher (16) (Item 282, Appendix E)
Packing, Preformed (Item 345, Appendix E)
Packing, Preformed (3) (Item 347, Appendix E)
Packing, Preformed (6) (Item 389, Appendix E)
Screw (Item 519, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

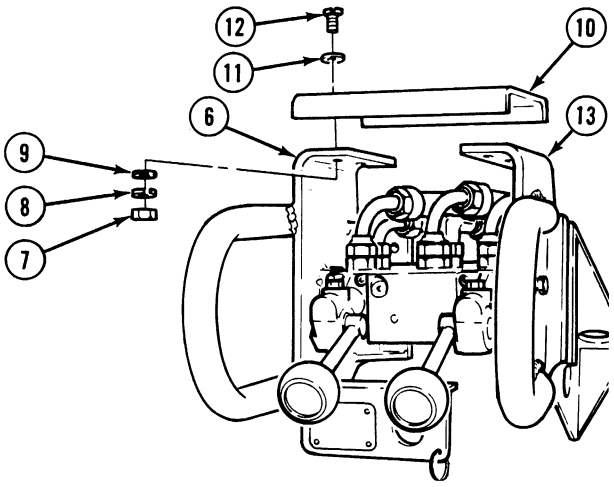


(1) Position drain pan under crane (1).

(2) Remove cap (2), nut (3), lockwasher (4) and connector (5) from bracket (6). Discard lockwasher.

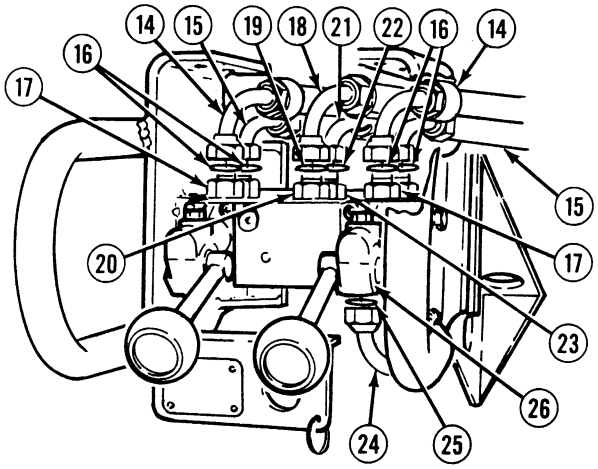
16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(3) Remove four nuts (7), lockwashers (8), washers (9), cover (10), washers (11) and screws (12) from brackets (6) and (13). Discard lockwashers.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.



NOTE

- Tag and mark hoses prior to removal.
- Cap and plug hoses and fittings after removal.

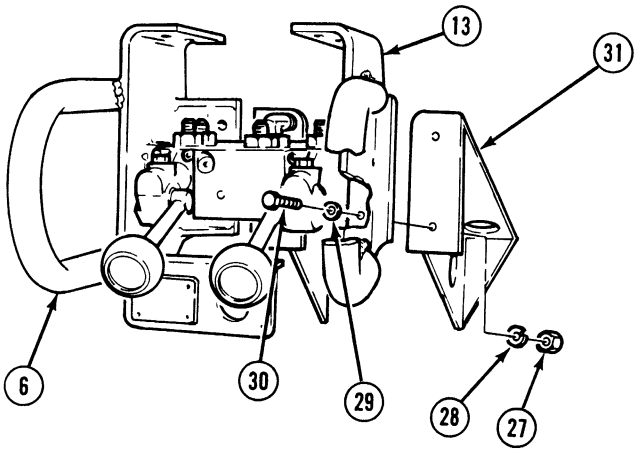
(4) Remove two hoses (14), hoses (15) and four preformed packings (16) from fittings (17). Discard preformed packings.

(5) Remove hose (18) and preformed packing (19) from fitting (20). Discard preformed packing.

(6) Remove hose (21) and preformed packing (22) from elbow (23). Discard preformed packing.

(7) Remove hose (24) and preformed packing (25) from elbow (26). Discard preformed packing.

(8) Remove four nuts (27), lockwashers (28), washers (29), screws (30) and brackets (6) and (13) from crane subframe (31). Discard lockwashers.



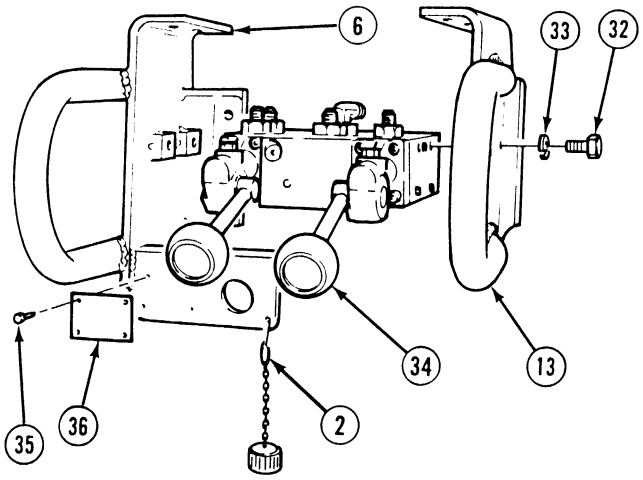
(9) Remove four screws (32), lockwashers (33) and brackets (6) and (13) from two function control valve bank (34). Discard lockwashers.

(10) Remove cap and chain assembly (2) from bracket (6).

NOTE

Perform Step (11) if data plate is damaged.

(11) Remove four rivets (35) and data plate (36) from bracket (6).

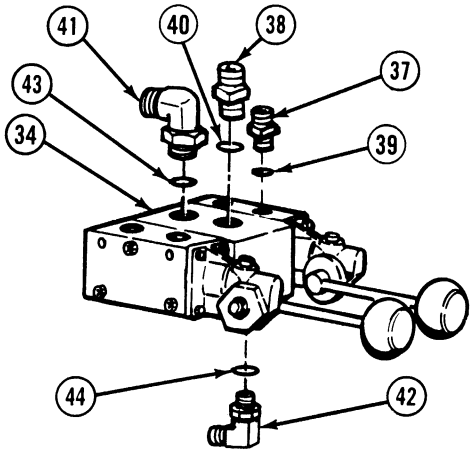


NOTE

Tag and mark positions of elbows and fittings prior to removal.

(12) Remove four fittings (37), fitting (38), four preformed packings (39) and preformed packing (40) from two function control valve bank (34). Discard preformed packings.

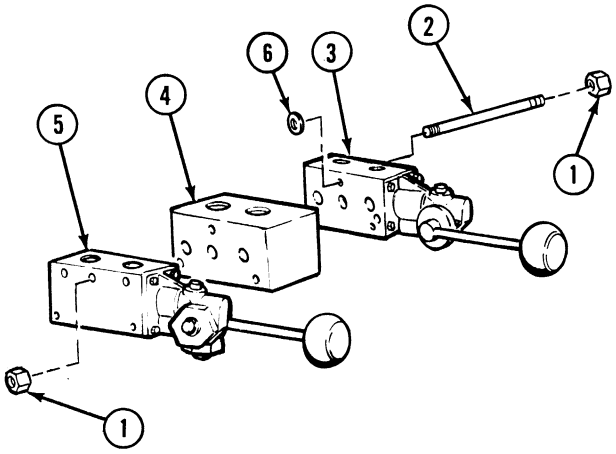
(13) Remove elbows (41) and (42) and preformed packings (43) and (44) from two function control valve bank (34). Discard preformed packings.



16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

b. Disassembly.

(1) Remove six nuts (1) and three studs (2).



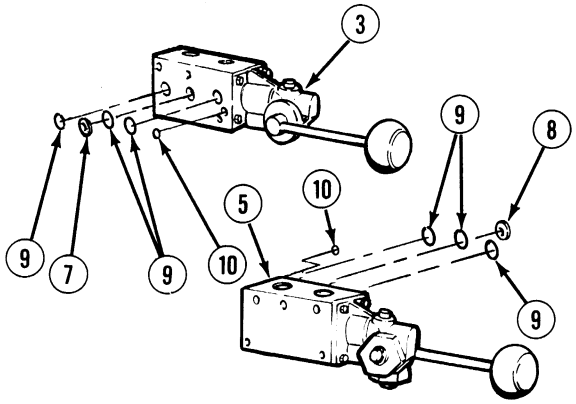
NOTE

Tag and mark valves prior to removal.

(2) Separate right outrigger valve (3), manifold (4), left outrigger valve (5) and remove six shims (6).

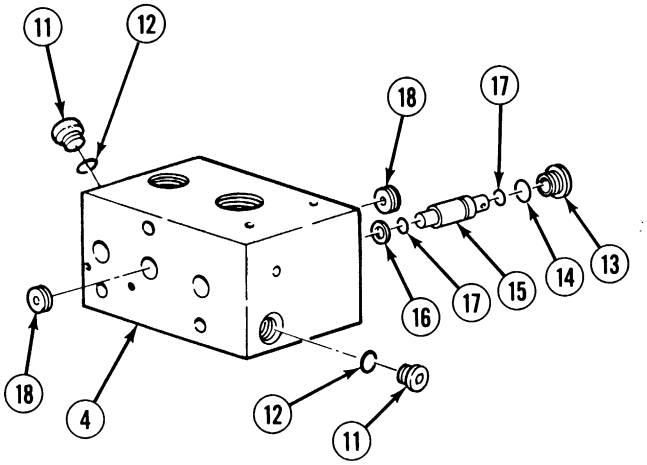
NOTE

Tag and mark orifices prior to removal.



(3) Remove orifices (7) and (8) from right outrigger valve (3) and left outrigger valve (5).

(4) Remove and discard six preformed packings (9) and two preformed packings (10) from right outrigger valve (3) and left outrigger valve (5). Discard preformed packings.



(5) Remove two plugs (11) and preformed packings (12) from manifold (4). Discard preformed packings.

(6) Remove plug (13), preformed packing (14), check valve (15), backup ring (16) and two preformed packings (17) from manifold (4). Discard preformed packing.

(7) Remove two flow orifices (18) from manifold (4).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for nicks, scratches and burrs.

(3) Replace damaged parts.

d. Assembly.

(1) Apply hydraulic oil to preformed packings (14), (12) and (17).

(2) Install backup ring (16), two preformed packings (17), check valve (15), plug (13) and preformed packing (14) in manifold (4).

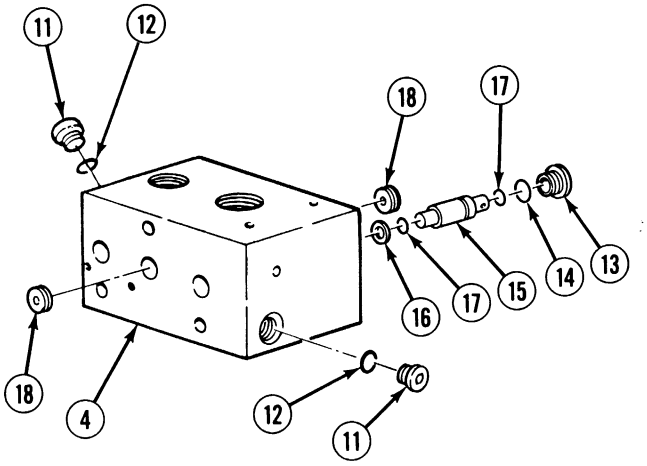
(3) Install two flow orifices (18) in manifold (4).

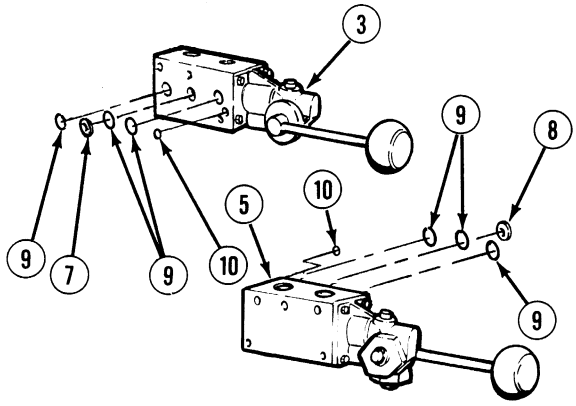
(4) Install two plugs (11) and preformed packings (12) in manifold (4).

(5) Apply hydraulic oil to six preformed packings (9) and two preformed packings (10).

(6) Install six preformed packings (9) and two preformed packings (10) in right outrigger valve (3) and left outrigger valve (5).

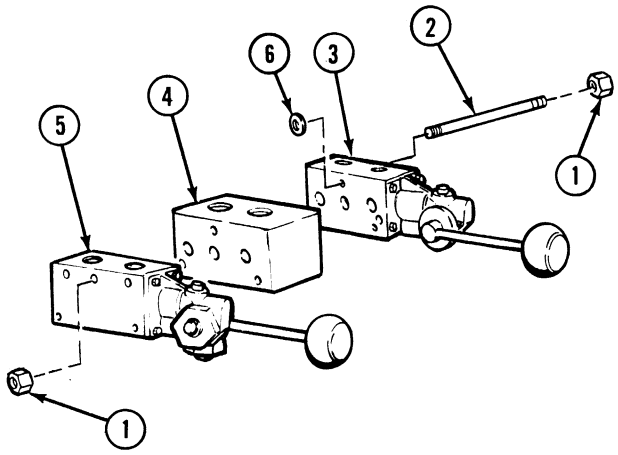
(7) Install orifices (7) and (8) in right outrigger valve (3) and left outrigger valve (5).





16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

(8) Install six shims (6), right outrigger valve (3) and left outrigger valve (5) on manifold (4) with three studs (2) and six nuts (1). Tighten nuts evenly 20 to 23 lb-ft (27 to 31 N·m).



e. Installation.

(1) Apply hydraulic oil to four preformed packings (39).

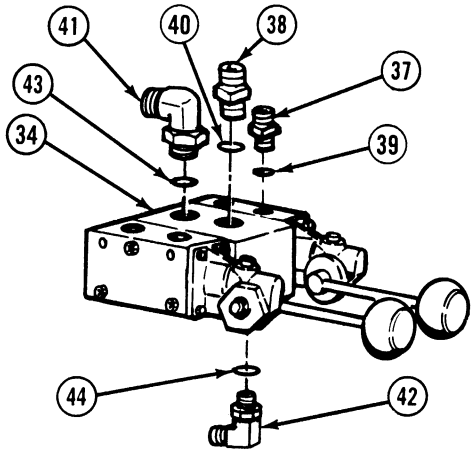
(2) Install four preformed packings (39) and fittings (37) in two function control valve bank (34).

(3) Apply hydraulic oil to preformed packing (40).

(4) Install preformed packing (40) and fitting (38) in two function control valve bank (34).

(5) Apply hydraulic oil to preformed packings (43) and (44).

(6) Install preformed packings (43) and (44) and elbows (41) and (42) in two function control valve bank (34).



NOTE

Perform Step (7) if data plate was removed.

(7) Install data plate (36) with four rivets (35).

(8) Install cap and chain assembly (2) on bracket (6).

WARNING

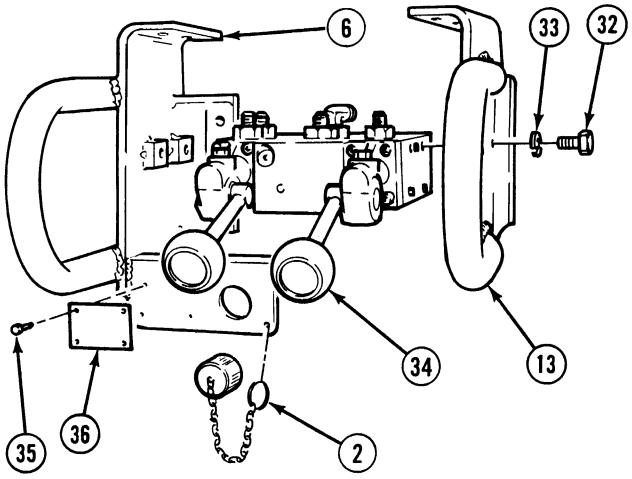
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

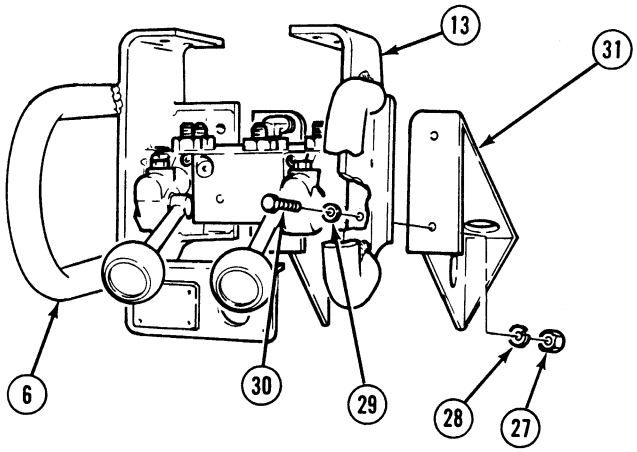
(9) Apply sealing compound on threads of four screws (32).

(10) Install brackets (6) and (13) on two function control valve bank (34) with four lockwashers (33) and screws (32). Tighten screws to 72 lb-in (8 N·m).

(11) Apply sealing compound on threads of four screws (30).

(12) Install brackets (6) and (13) on crane subframe (31) with four screws (30), washers (29), lockwashers (28) and nuts (27). Tighten nuts to 17 lb-ft (23 N·m).





16-28. TWO FUNCTION CONTROL VALVE BANK REPAIR (CONT).

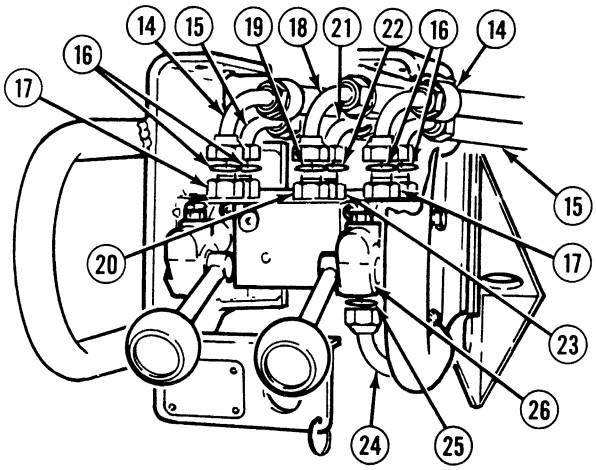
(13) Apply hydraulic oil to preformed packings (25), (22), (19) and (16).

(14) Install preformed packing (25) and hose (24) on elbow (26).

(15) Install preformed packing (22) and hose (21) on elbow (23).

(16) Install preformed packing (19) and hose (18) on elbow (20).

(17) Install four preformed packings (16), two hoses (15) and hoses (14) on four fittings (17).

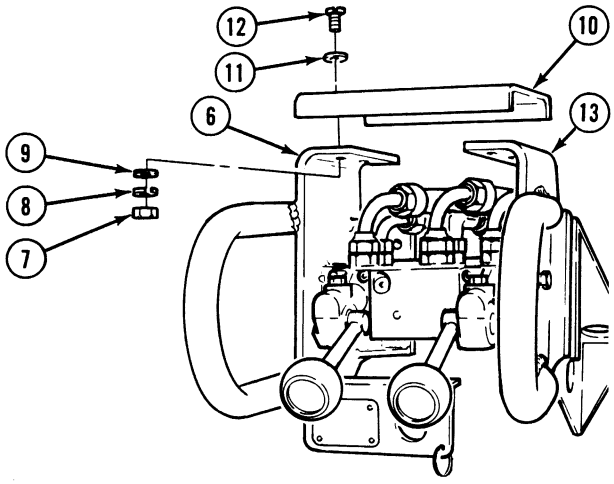


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area.

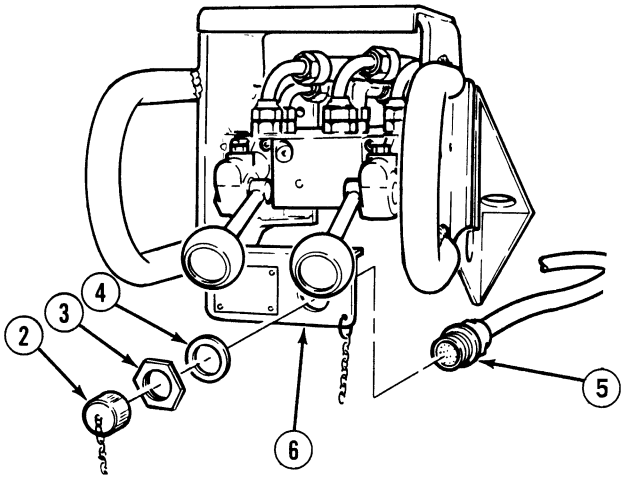
(18) Apply sealing compound on threads of four screws (12).

(19) Install cover (10) on brackets (6) and (13) with four screws (12), washers (11), washers (9), lockwashers (8) and nuts (7). Tighten nuts to 72 lb-in (8 N·m).



(20) Install connector (5) in bracket (6) with nut (3) and lockwasher (4).

(21) Install cap (2) on bracket (6).



f. Follow-On Maintenance:

- Check oil level, (TM 9-2320-364-10).
- Operate crane and check for oil leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-29. FOUR/THREE FUNCTION CONTROL VALVE BANK MOUNT REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

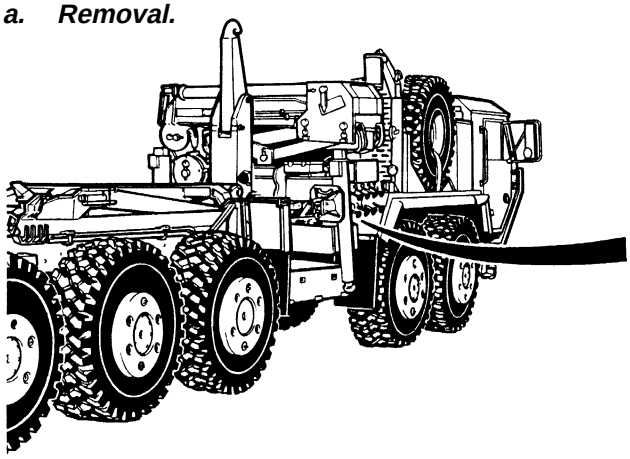
INITIAL SETUP

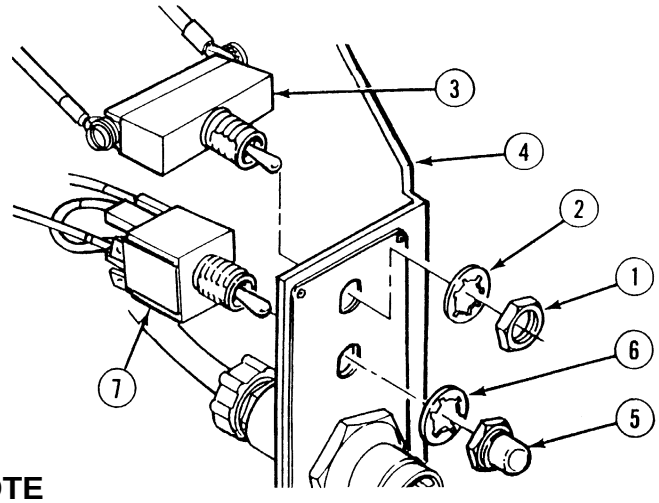
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)
Rivet Gun (Item 196, Appendix F)
Wrench Combination 1-11/16 in. (Item 262, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Crane accumulator removed, (TM 9-2320-364-20)
Hydraulic solenoid valve removed, (Para 16-24)
Solenoid valve assembly removed, (Para 16-23)
Four function control valve bank removed, (Para 16-26)
Three function control valve bank removed, (Para 16-27)

Materials/Parts
Sealing Compound (Item 56, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (Item 228, Appendix E)
Lockwasher (4) (Item 264, Appendix E)

a. Removal.





NOTE

Lockwashers removed in Steps (1) and (3) do not get discarded unless switch is damaged.

(1) Remove nut (1), and lockwasher (2) from power switch (3).

(2) Note position and remove power switch (3) from left valve mount (4).

(3) Remove boot (5) and lockwasher (6) from high idle switch (7).

(4) Remove high idle switch (7) from left valve mount (4).

16-29. FOUR/THREE VALVE BANK MOUNT REPLACEMENT (CONT).

(5) Remove cap (8) from connector (9).

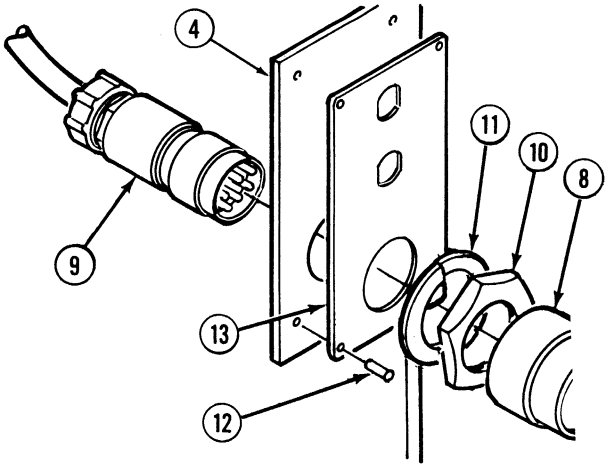
(6) Remove cap (8) from bracket (4).

(7) Remove nut (10), lockwasher (11) and connector (9). Discard lockwasher.

(8) Drill out four rivets (12) and remove data plate (13) from bracket (4).

(9) Remove two nuts (14), lockwashers (15), washers (16), mount (17), washers (18) and screws (19) from subframe (20). Discard lockwashers.

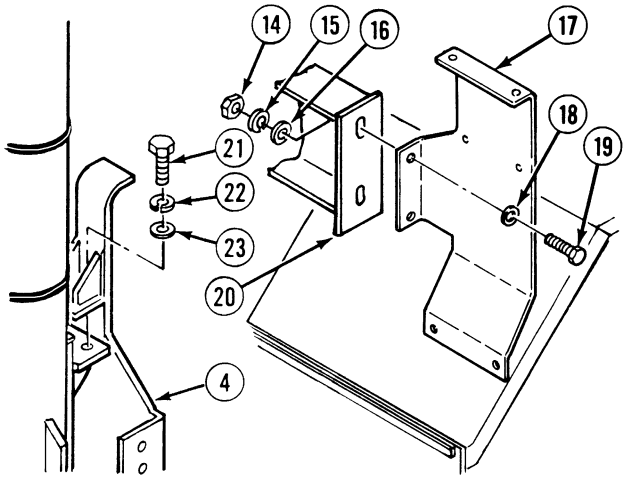
(10) Remove two screws (21), lockwashers (22), washers (23) and mount (4). Discard lockwashers.



b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(1) Apply sealing compound on threads of two screws (21).

(2) Install mount (4) on subframe (20) with two screws (21), lockwashers (22) and washers (23). Tighten screws to 17 lb-ft (23 N·m).

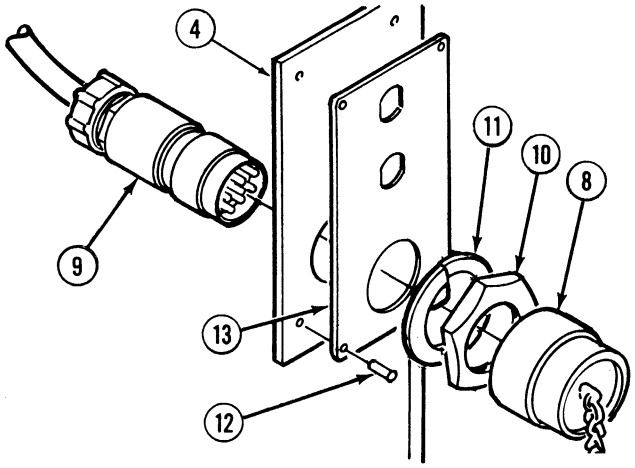
(3) Apply sealing compound on threads of two screws (19).

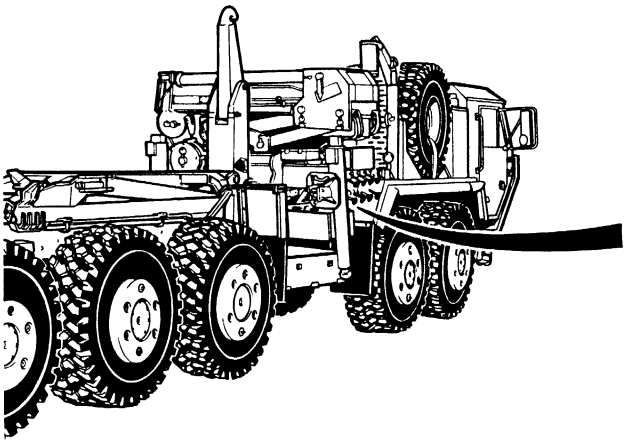
(4) Position mount (17) and install with two screws (19), washers (18), washers (16), lockwashers (15) and nuts (14). Tighten nuts to 17 lb-ft (23 N·m).

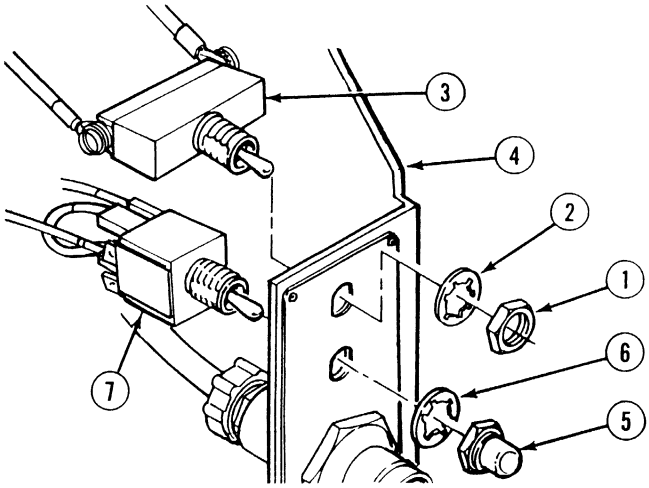
(5) Install data plate (13) on mount (4) with four rivets (12).

(6) Install connector (9) with lockwasher (11) and nut (10).

(7) Install cap (8) on mount (4) and connector (9).







(8) Install high idle switch (7) in mount (4) with washer (6) and boot (5).

(9) Install power switch (3) in mount (4) with washer (2) and nut (1).

c. Follow-On Maintenance:

- Install solenoid valve assembly, (Para 16-23).
- Install main hydraulic pressure solenoid valve, (Para 16-24).
- Install three valve bank, (Para 16-27).
- Install four valve bank, (Para 16-26).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-30. LEFT SIDE AND RIGHT SIDE CRANE REMOTE CONTROL CABLE CONNECTOR REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

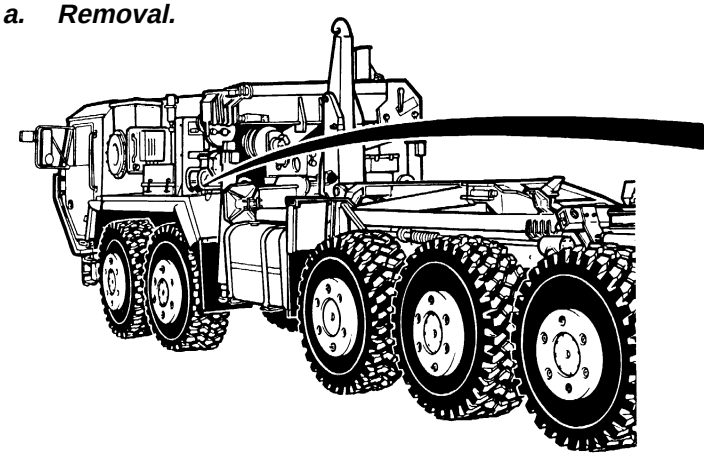
Tools and Special Tools
Tool Kit, Electric (Item 239, Appendix F)
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)

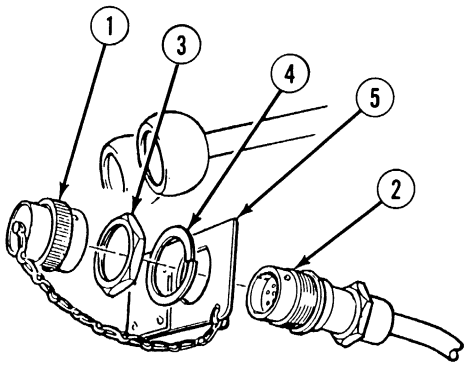
Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts
Tags, Identification (Item 72, Appendix B)
Lockwasher (2) (Item 228, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Removal.





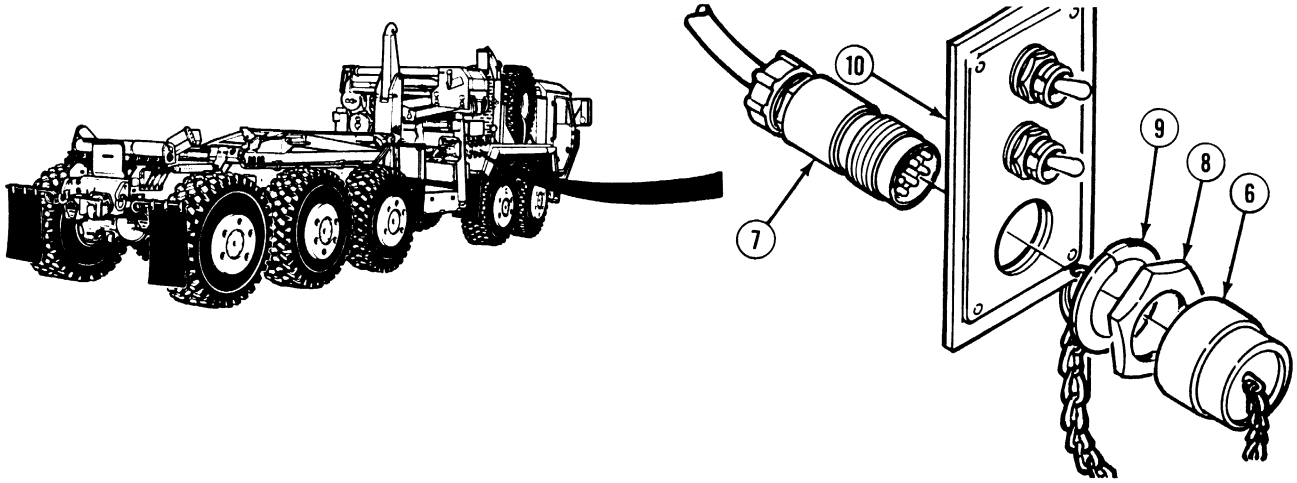
NOTE

- If removing left side cable connector, perform Steps (1) through (3).
- If removing right side cable connector, perform Steps (4) through (6).

(1) Remove cover with chain (1) from connector (2).

(2) Remove nut (3) and lockwasher (4). Discard lockwasher.

(3) Remove connector (2) from bracket (5).

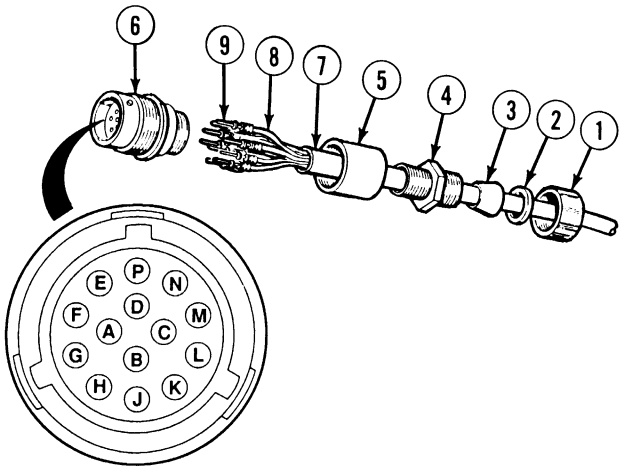


(4) Remove cap (6) from connector (7).

(5) Remove nut (8) and lockwasher (9). Discard lockwasher.

(6) Remove connector (7) from bracket (10).

b. Disassembly.



(1) Remove connector cap (1), ring (2), grommet (3) and connector (4) from conduit (5).

(2) Remove conduit (5) from receptacle connector body (6) and slide down cable (7).

NOTE

Tag and mark wires before disassembly.

(3) Remove 14 wires (8) from receptacle connector body (6).

NOTE

Perform Step (4) if pins are damaged.

(4) Remove 14 pins (9) from wires (8).

(5) Remove conduit (5), connector (4), grommet (3), ring (2) and connector cap (1) from cable (7).

16-30. LEFT SIDE AND RIGHT SIDE CRANE REMOTE CONTROL CABLE CONNECTOR REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Wash metal parts in drycleaning solvent.

(2) Dry with cleaning cloth.

(3) Inspect for damaged parts, frayed or broken wires. Test wires for continuity.

(4) Replace damaged parts.

d. Assembly.

(1) Position connector cap (1), ring (2), grommet (3), connector (4) and conduit (5) on cable (7).

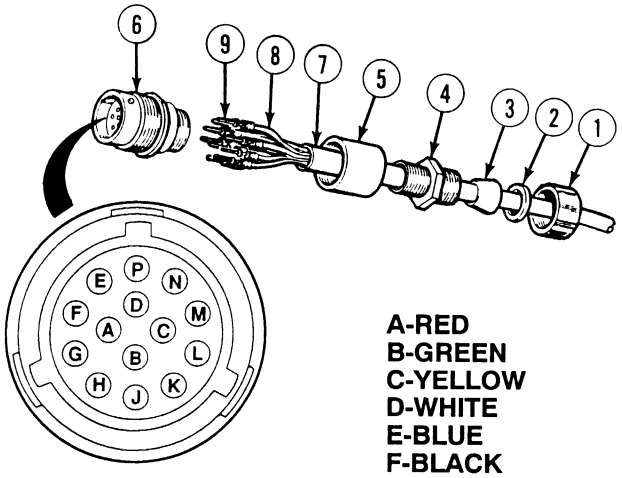
NOTE

Perform Step (2) if pins are removed.

(2) Install 14 pins (9) on wires (8).

(3) Install 14 wires (8) in receptacle connector body (6).

(4) Install conduit (5), connector (4), grommet (3), ring (2) and connector cap (1) on receptacle connector body (6).



A-RED
B-GREEN
C-YELLOW
D-WHITE
E-BLUE
F-BLACK
G-ORANGE
H-VIOLET
J-RED/GREEN
K-GREY
L-TAN
M-BROWN
N-LT.PINK
P-SHIELD

e. Installation.

NOTE

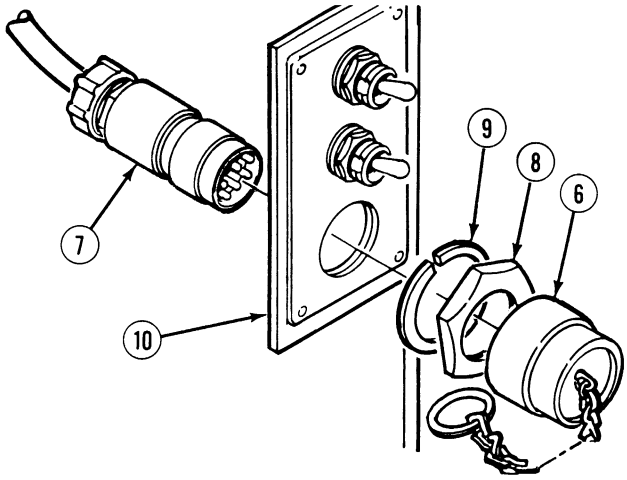
- If connector was removed, perform Steps (1) and (2).
- If left side cable connector was removed, perform Steps (3) and (4).

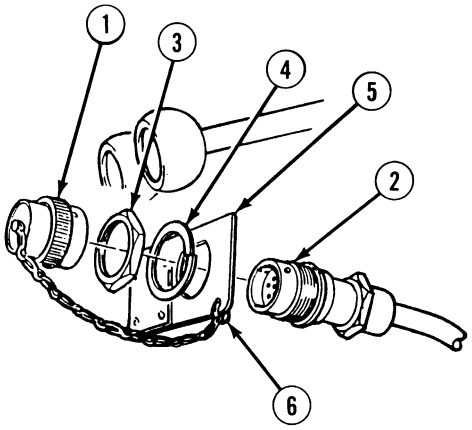
(1) Position connector (7) in bracket (10) and install lockwasher (9) and nut (8).

(2) Install cover with chain (6) on connector (7).

(3) Position connector (2) in bracket (5) and install lockwasher (4) and nut (3).

(4) Install cover with chain (1) on connector (2).





f. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Check operation of remote control unit at remote control station, (TM 9-2320-264-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-31. OUTRIGGER CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

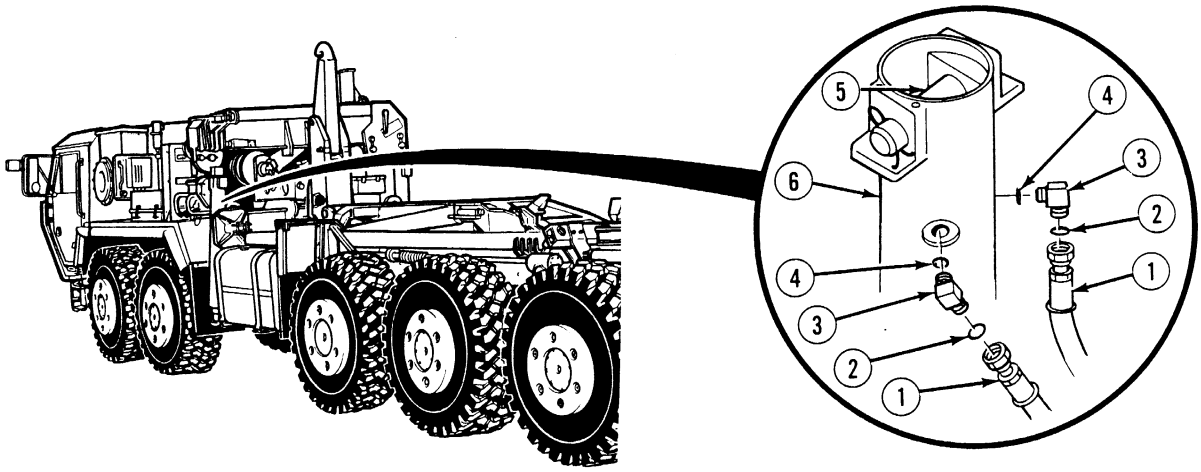
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Jack, Hydraulic, Hand (Item 128, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Lifting Device, Minimum Capacity 150 lbs
(68 kg)
Wooden Block (Appendix C)

Materials/Parts
Compound, Antiseize (Item 14, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 53, Appendix B)
Tags, Identification (Item 72, Appendix B)
Packing, Preformed (2) (Item 347, Appendix E)
Packing, Preformed (2) (Item 389, Appendix E)
Pin, Cotter (2) (Item 423, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Outrigger proximity switch removed,
(TM 9-2320-364-20)

a. Removal.



WARNING

The crane hydraulic system operates at oil pressures up to 3,100 psi (21,375 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Left and right outrigger cylinders are removed the same way. Left side shown.
- Tag and mark hydraulic hoses prior to disconnecting.
- Plug hoses after disconnecting.

(1) Position drain pan under two hoses (1).

(2) Disconnect hoses (1) and preformed packings (2) from elbows (3). Discard preformed packings.

NOTE

Note location of elbows prior to removal.

(3) Remove two elbows (3) and preformed packings (4) from cylinder (5) through holes in subframe barrel (6). Discard preformed packings.

16-31. OUTRIGGER CYLINDER REPLACEMENT (CONT).

WARNING

Outrigger cylinder weighs 115 lbs (52 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(4) Position jack and wooden block under cylinder (5) and raise cylinder to just touch bottom of subframe barrel (6), until holes in cylinder and barrel align.

NOTE

Do not discard cotter pins at this time.

(5) Remove two cotter pins (7) and pin (8).

(6) Raise jack further, until hole in cylinder (5) is above subframe barrel (6) and reinstall pin (8) and cotter pins (7).

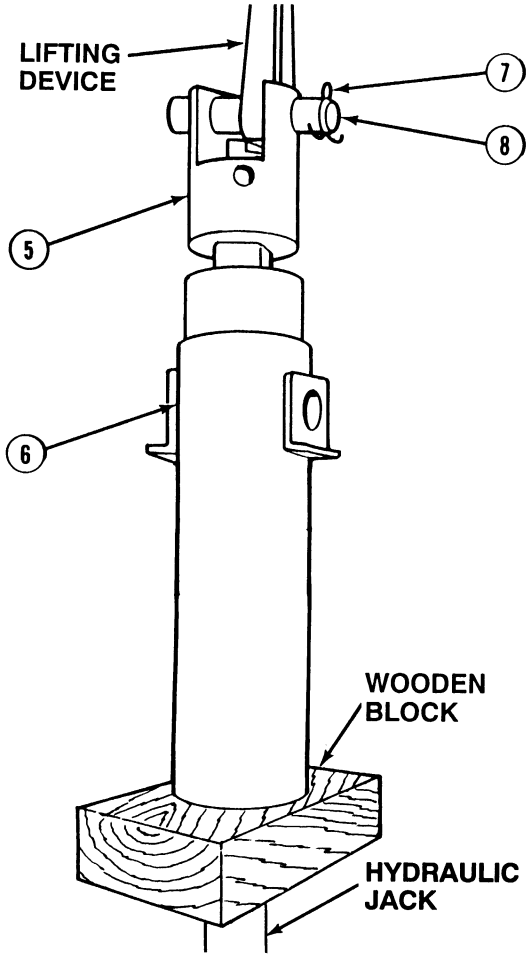
(7) Attach lifting device to pin (8).

(8) Operate lifting device to remove cylinder (5) from subframe barrel (6).

(9) Remove two cotter pins (7) and pin (8).

(10) Remove lifting device and jack.

(11) Repeat Steps (1) through (10) for other outrigger cylinder.



b. Installation.

WARNING

Outrigger cylinder weighs 115 lbs (52 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

NOTE

Left and right cylinders are installed the same way. Left side shown.

(1) Install pin (8) and two cotter pins (7) in cylinder (5).

(2) Install lifting device on pin (8).

NOTE

During installation, make sure outrigger cylinder is positioned so hose connections will align correctly in subframe barrel.

(3) Place jack under subframe barrel (6).

(4) Coat outside of cylinder (5) with anti-seize compound.

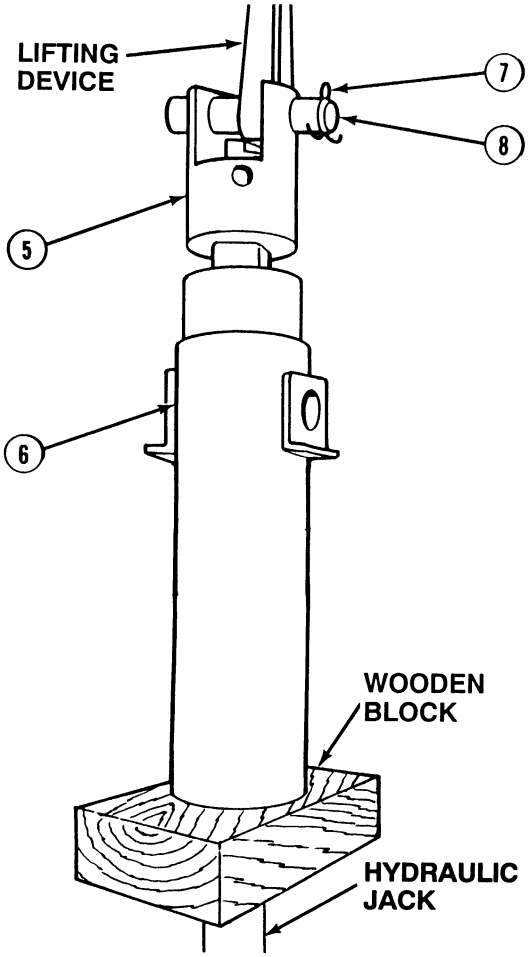
(5) Install cylinder (5) in subframe barrel (6). Lower cylinder to rest on jack.

(6) Remove lifting device from pin (8).

(7) Remove and discard pin (8) and two cotter pins (7).

(8) Lower jack until hole in cylinder (5) aligns in subframe barrel (6).

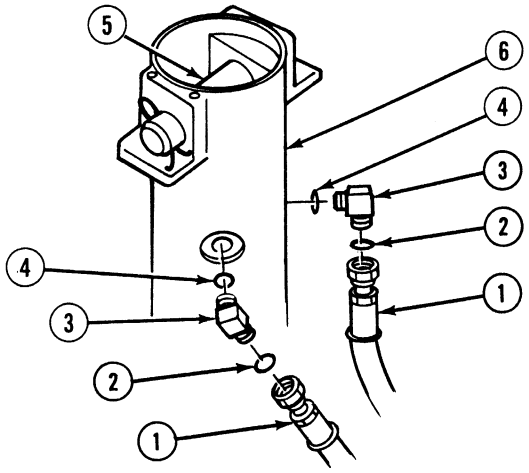
(9) Install pin (8) and two cotter pins (7).



16-31. OUTRIGGER CYLINDER REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



NOTE

Install elbows as noted prior to removal.

(10) Apply sealing compound on threads of two elbows (3).

(11) Apply hydraulic oil to preformed packings (4).

(12) Install preformed packings (4) and elbows (3) in cylinder (5) through holes in subframe barrel (6).

(13) Apply hydraulic oil to preformed packings (2).

(14) Install two preformed packings (2) and connect hoses (1).

(15) Remove lifting device and jack.

(16) Repeat Steps (1) through (15) for other cylinder.

c. Follow-On Maintenance:

- Check oil level, (TM 9-2320-364-20).
- Install outrigger proximity switch, (TM 9-2320-364-20).
- Operate crane and check for oil leaks, (TM 9-2320-364-10).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-32. CRANE LOAD TEST.

This task covers:

a. Load Test

b. Follow-On Maintenance

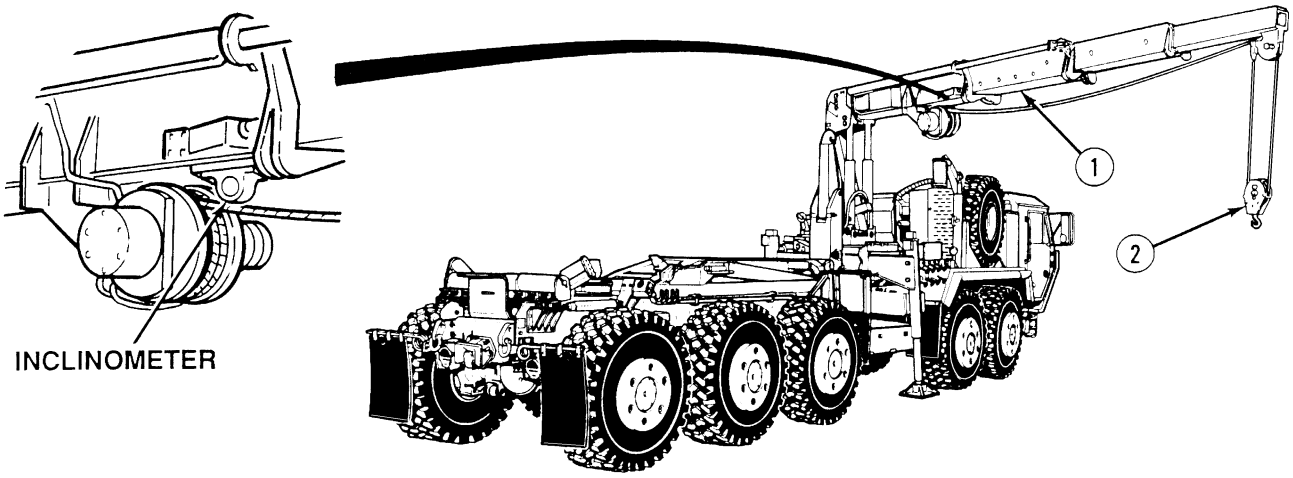
INITIAL SETUP

Tools and Special Tools
Protractor, Magnetic (Item 170, Appendix F)
Test weight, 3890 to 3910 lbs. (1766-1775 kg)
Test weight, 4280 to 4300 lbs. (1943-1952 kg)

Equipment Condition
Wheels chocked, (TM 9-2320-364-10)
Crane erected, (TM 9-2320-364-10)

References
TM 9-2320-364-10

a. Load Test.



WARNING

Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

(1) Swing boom (1) so that hoist hook block (2) is on right side of truck.

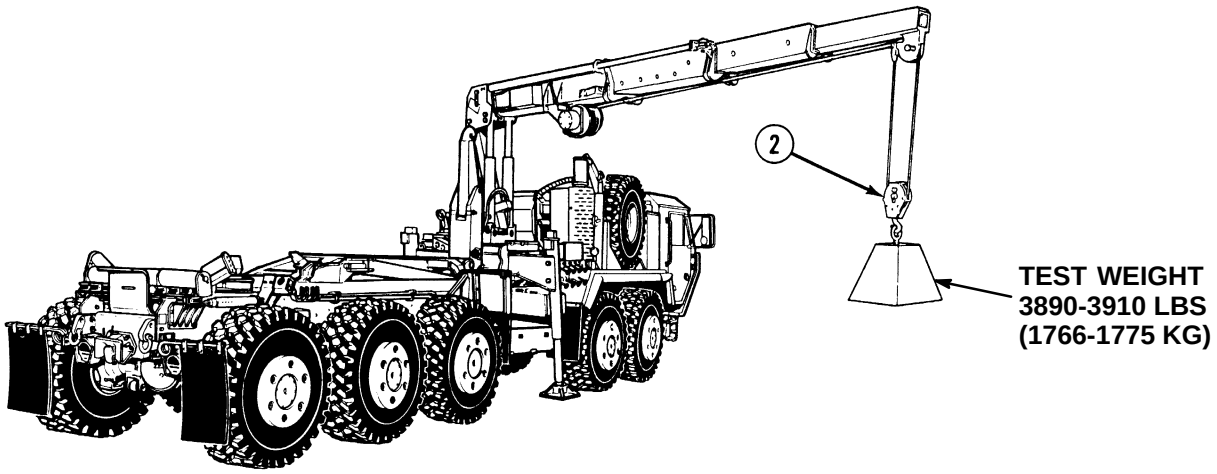
(2) Telescope boom (1) out completely.

(3) Attach inclinometer parallel to boom (1) on underside of boom.

(4) Operate boom (1) so that inclinometer indicates 0 degrees.

(5) Raise boom so that inclinometer indicates 5 degrees and remove inclinometer from boom.

16-32. CRANE LOAD TEST (CONT).



(6) Lower hook block (2) and attach hook block to test weight (3,890 to 3,910 lbs. [1,766 to 1,775 kg]).

NOTE

- Only use HOIST control lever in Steps (6) through (8). Do not use TELESCOPE or MAST control levers or test will be invalid.
- If crane will not lift test weight in Step (6), crane has failed load test. Perform Follow-On Maintenance and notify GS Maintenance for repair.

(7) Lift test weight three to four ft. (0.92 to 1.2 m) up using hoist.

(8) Lower test weight to ground using hoist.

(9) Disconnect hook block (2) from test weight.

NOTE

Only use HOIST control lever in Steps (9) and (10). Do not use TELESCOPE or MAST control levers or test will be invalid.

(10) Attach hook block (2) to test weight (4,280 to 4,300 lbs. [1,943 to 1,952 kg]).

WARNING

Using HOIST control lever, crane should lift test weight a maximum of 1 in. (2.5 cm) before Overload Sensing System (OSS) disables hoist. If hoist lifts test load higher than 1 in. (2.5 cm), OSS is not functioning correctly and crane has failed load test. Perform Follow-On Maintenance and notify GS Maintenance.

NOTE

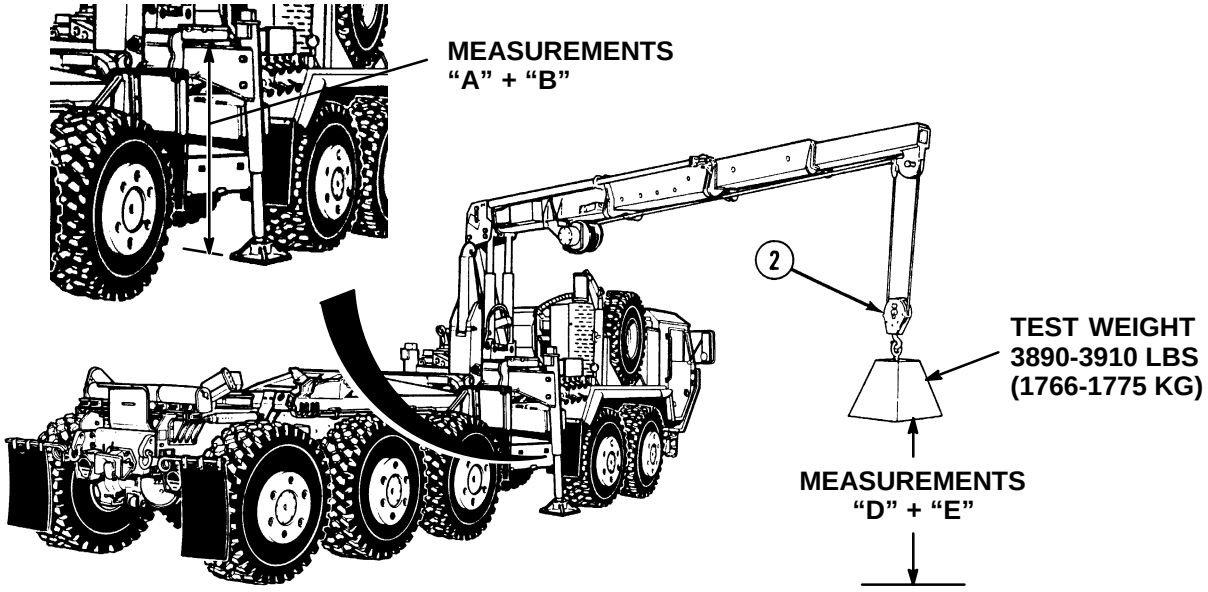
OSS disables hoist only in the direction of raising. OSS does not effect hoist lowering.

(11) Attempt to lift test weight using hoist.

(12) Lower test weight to ground using hoist.

(13) Disconnect hoist hook block (2) from test weight.

(14) Position truck on hard level surface



WARNING

Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

(15) Lower hook block (2) and attach hook block to test weight (3,890 to 3,910 lbs. [1,766 to 1,775 kg]).

(16) Lift test weight three to four ft. (0.92 to 1.2 m) using hoist.

(17) Measure the distance between the top of the subframe and the ground. Record as measurement A.

NOTE

Allow thirty minutes between Step (17) and Step (18). If measurement C exceeds one-half inch, notify GS maintenance for repair.

(18) Repeat Step (17). Record as measurement B.

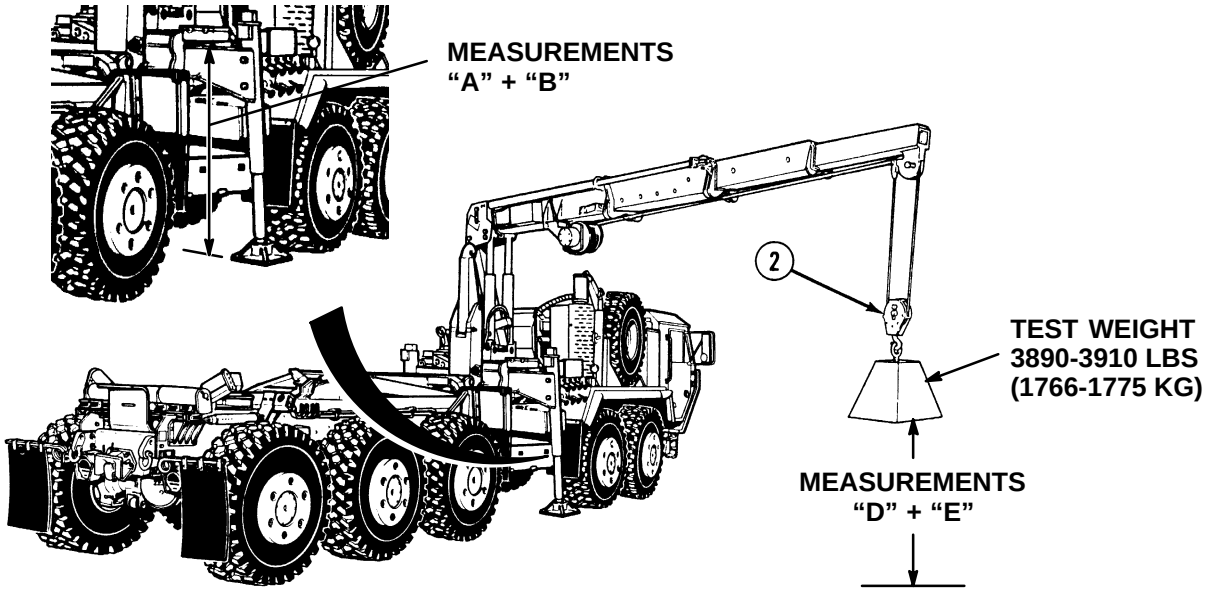
(19) Subtract measurement B, from measurement A, and record as measurement C.

NOTE

Ensure distance between top of subframe and ground (measurement B), does not change while performing Step (21).

(20) Measure the distance between the bottom outside edge of test weight and the ground. Record as measurement D.

16-32. CRANE LOAD TEST (CONT).



WARNING

Do not stand under crane. Mechanical failure and operator error can cause injury or death to personnel.

NOTE

Allow thirty minutes between Step (20) and Step (21). If measurement F exceeds one inch, notify GS maintenance for repair.

(21) Repeat Step (20). Record as measurement E.

(22) Subtract measurement E from measurement D, and record as measurement F.

(23) Lower test weight to ground using hoist.

(24) Disconnect hook block (2) from test weight.

b. Follow-on Maintenance:

- Stow crane, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-33. CRANE CONTROL VALVES REPAIR.

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Wrench, Combination 1-7/16 in. (Item 259, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Preformed Packing Kit (Item 158, Appendix E)

Equipment Condition
Valves removed from:
Four function control valve bank, (Para 16-26)
Three function control valve bank, (Para 16-27)
Two function control valve bank, (Para 16-28)

a. Disassembly.

NOTE

All three valves are disassembled the same way.

(1) Loosen nut (1) and remove knob (2), nut (1) and lever (3) from lever end cap (4).

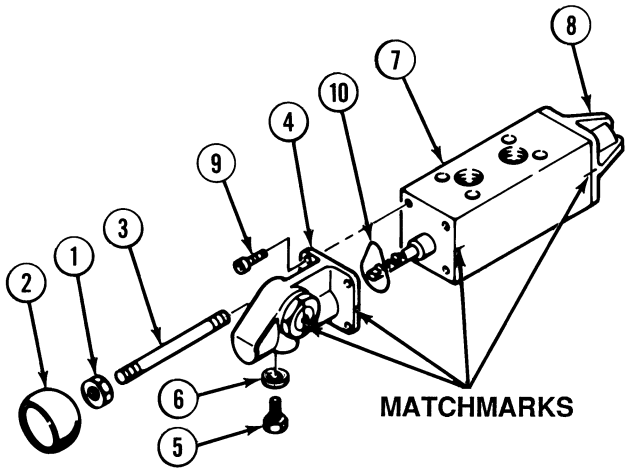
(2) Remove screw (5) and seal washer (6). Discard seal washer.

(3) Matchmark valve body (7), lever end cap (4) and end cap (8).

NOTE

- Mark position of gear to cap.
- Lever may need to be operated to remove lever cap assembly.

(4) Remove four screws (9), lever end cap (4) and preformed packing (10) from valve body (7). Discard preformed packing.



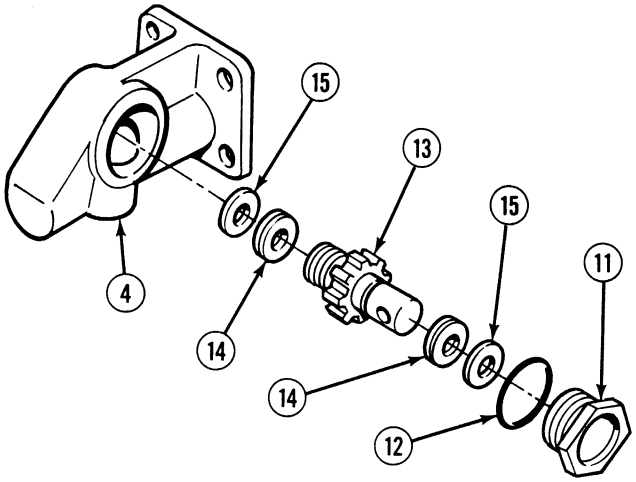
16-33. CRANE CONTROL VALVES REPAIR (CONT).

NOTE

Matchmark pinion before removing.

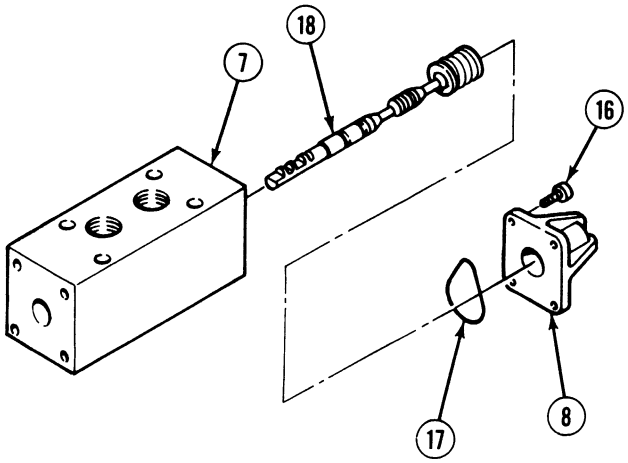
(5) Remove cap (11), preformed packing (12) and pinion (13) from lever end cap (4). Discard preformed packing.

(6) Remove and discard two quad rings (14) and backup rings (15) from pinion (13).



(7) Remove four screws (16), end cap (8) and preformed packing (17) from valve body (7). Discard preformed packing.

(8) Remove spool assembly (18) from valve body (7).



b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

(2) Inspect each part for nicks, scratches, burrs and broken springs.

(3) Replace damaged parts.

c. Assembly.

WARNING

Use care when installing springs. Springs are under tension and can act as projectiles when released and could cause severe eye injury.

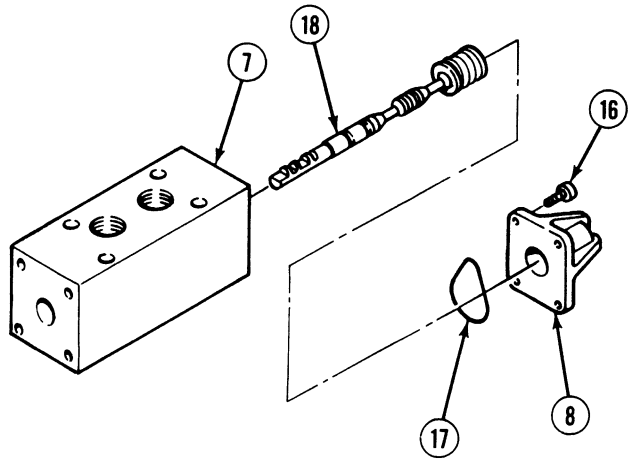
NOTE

All three valves are assembled the same way.

(1) Install spool assembly (18) in valve body (7).

(2) Apply hydraulic oil to preformed packings (17).

(3) Align matchmarks and install preformed packings (17) and end cap (8) on valve body (7) with four screws (16).

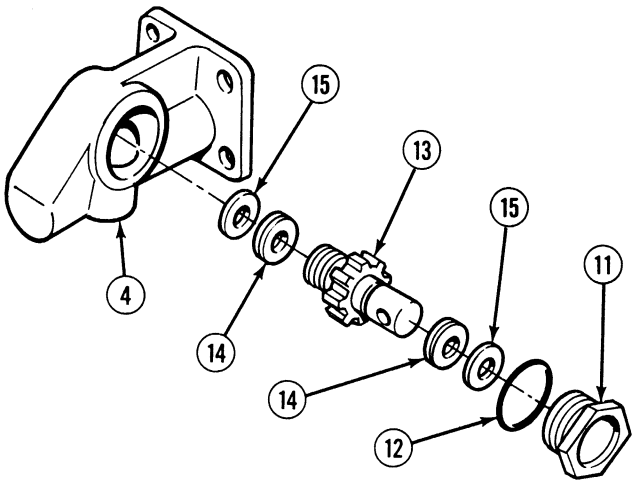


(4) Apply hydraulic oil to backup rings (15) and quad rings (14).

(5) Install two backup rings (15) and quad rings (14) on pinion (13).

(6) Apply hydraulic oil to preformed packing (12).

(7) Install pinion (13), preformed packing (12) and cap (11) in lever end cap (4).



16-33. CRANE CONTROL VALVES REPAIR (CONT).

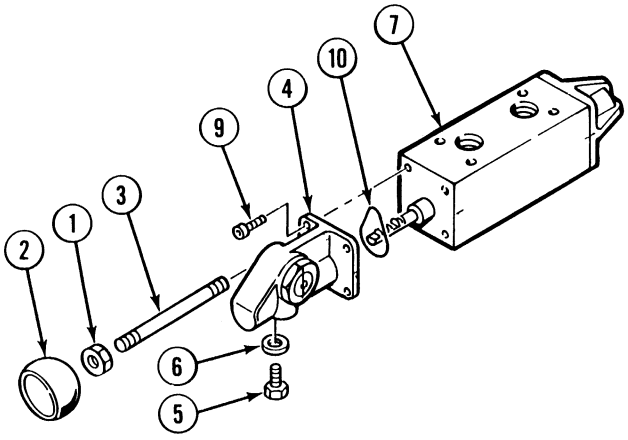
NOTE

Lever may have to be operated to install lever end cap.

(8) Apply hydraulic oil to preformed packing (10).

(9) Align matchmarks and install preformed packing (10) and lever end cap (4) on valve body (7) with four screws (9).

(10) Install seal washer (6) and screw (5) in lever end cap (4).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(11) Apply sealing compound to threads of lever (3). Install lever, nut (1) and knob (2) on lever end cap (4). Tighten nut against knob.

d. Follow-On Maintenance:

- Install valves:
  Four function control valve bank, (Para 16-26).
  Three function control valve bank, (Para 16-27).
  Two function control valve bank, (Para 16-28).
- Load test crane, (Para 16-32).
- Remove wheel chocks, (TM-2320-364-10).

END OF TASK

16-34. HOIST, BOOM, TELESCOPE, SWING SOLENOID VALVE REPAIR.

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts
Packing, Preformed (2) (Item 395, Appendix E)

Equipment Condition
Solenoids removed, (Para 16-24)
Pilot valve/solenoid assemblies removed from:
Hoist, (Para 16-11)
Boom, (Para 16-3)
Telescope cylinder, (Para 16-10)
Swing drive, (Para 16-20)

a. Disassembly.

NOTE

All four solenoid assemblies are disassembled the same way.

(1) Matchmark two solenoids (1) and pilot valve (2).

(2) Remove eight screws (3), two plates (4), solenoids (1) and preformed packings (5) from pilot valve (2). Discard preformed packings.

(3) Remove spool (6) from pilot valve (2).

(4) Remove armature assembly (7) and push pin (8) from coil (9).

(5) Remove coil (9) from case (10).

(6) Remove plug (11) and preformed packings (12) and (13) from armature assembly (7). Discard preformed packings.

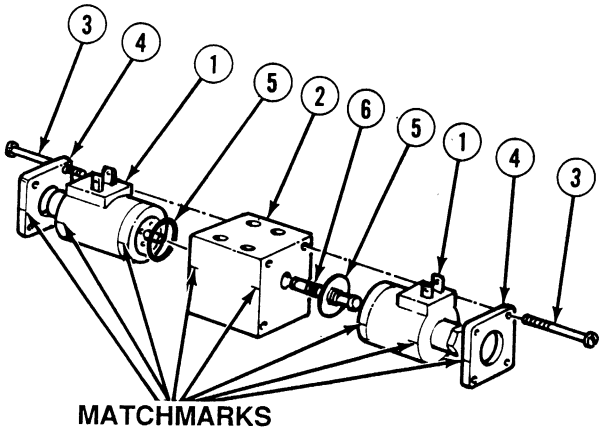
(7) Drive out push pin (14) from plug (11).

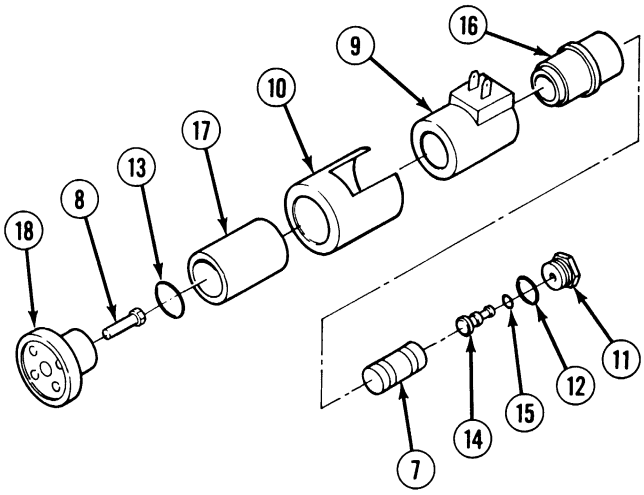
(8) Remove quad ring (15) from push pin (14). Discard quad ring.

(9) Remove tube (16) from coil (9).

(10) Remove armature (18) from case (10).

(11) Remove sleeve (17) from case (10).





16-34. HOIST, BOOM, TELESCOPE, SWING SOLENOID VALVE REPAIR (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts in drycleaning solvent.

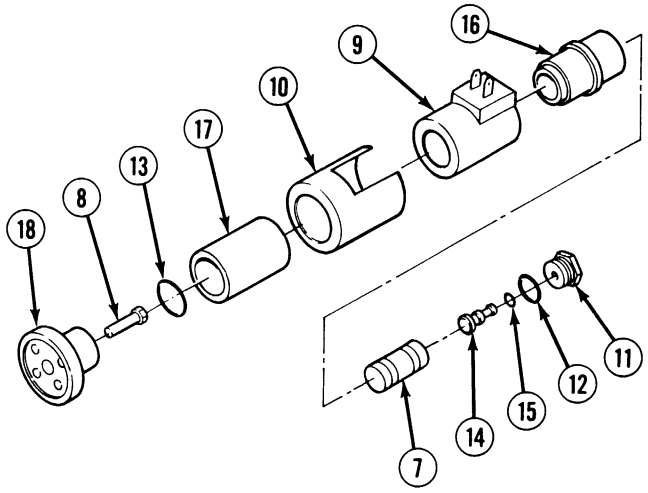
(2) Inspect each part for nicks, scratches and burrs.

(3) Replace damaged parts.

c. Assembly.

NOTE

All four solenoids are assembled the same way.



(1) Install armature (18) in case (10).

(2) Install sleeve (17) in case (10).

(3) Install tube (16) in coil (9).

(4) Apply hydraulic oil to quad ring (15).

(5) Install quad ring (15) on push pin (14).

(6) Install push pin (14) in plug (11).

(7) Apply hydraulic oil to preformed packing (22).

(8) Position preformed packing (12) on plug (11) and install plug (11) in armature assembly (7).

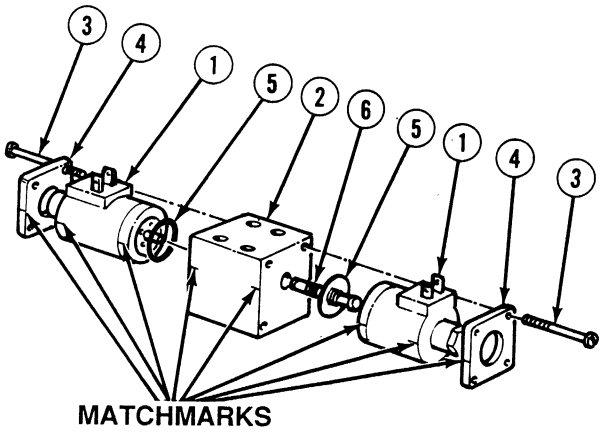
(9) Position coil (9) in case (10).

(10) Position push pin (8) and armature assembly (7) in coil (10).

(11) Install spool (6) in pilot valve (2).

(12) Apply hydraulic oil to two preformed packings (5).

(13) Align matchmarks and install two preformed packings (5), solenoids (1) and plates (4) on pilot valve (2) with eight screws (3).



d. Follow-On Maintenance:

- Install pilot valve/solenoid assemblies on:
- Hoist, (Para 16-11).
- Boom, (Para 16-3).
- Telescope cylinder, (Para 16-10).
- Swing drive, (Para 16-20).

END OF TASK

Section III. SELF-RECOVERY WINCH MAINTENANCE

16-35. SELF-RECOVERY WINCH (SRW) MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

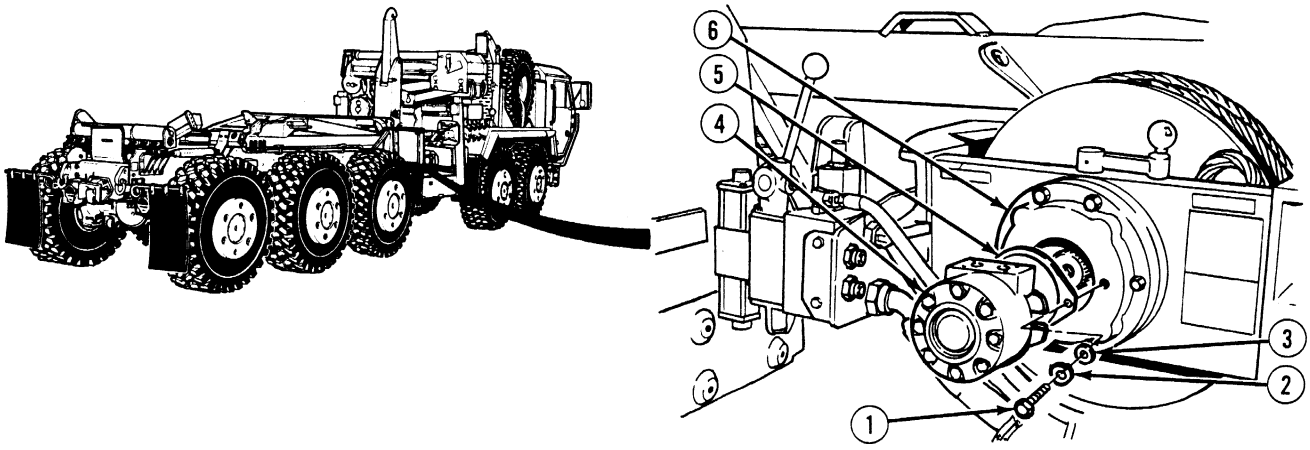
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Crowsfoot, 3/4 in., 3/8 in. Drive
(Item 268, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Sealing Compound (Item 56, Appendix B)
Lockwasher (2) (Item 286, Appendix E)
Repair Kit (Item 464, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Counterbalance valve removed, (Para 16-36)
Winch drained, (TM 9-2320-364-20)

a. Removal.



(1) Remove two screws (1), lockwashers (2) and washers (3) from hydraulic motor (4). Discard lockwashers.

NOTE

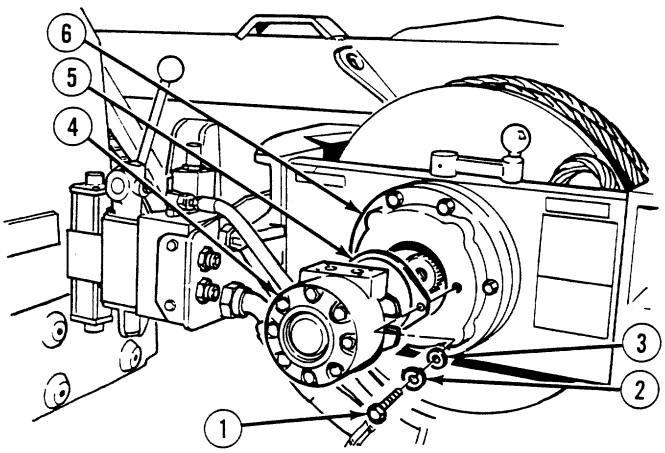
When removing hydraulic motor, ensure that brake shaft remains in brake housing.

(2) Remove hydraulic motor (4) and gasket (5) from brake housing (6). Discard gasket.

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



CAUTION

Apply adhesive sparingly to hydraulic motor and brake housing. Ensure adhesive does not leak to other parts or damage to equipment may result.

(1) Apply sealing compound to mating surface of hydraulic motor (4) and brake housing (6).

(2) Install gasket (5) on hydraulic motor (4).

(3) Install two washers (3), lockwashers (2) and screws (1) on hydraulic motor (4).

(4) Install hydraulic motor (4) on brake housing (6).

(5) Tighten two screws (1) to 75 to 95 lb-ft (102 to 129 N·m).

c. Follow-On Maintenance:

- Install counterbalance valve, (Para 16-36).
- Fill winch, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

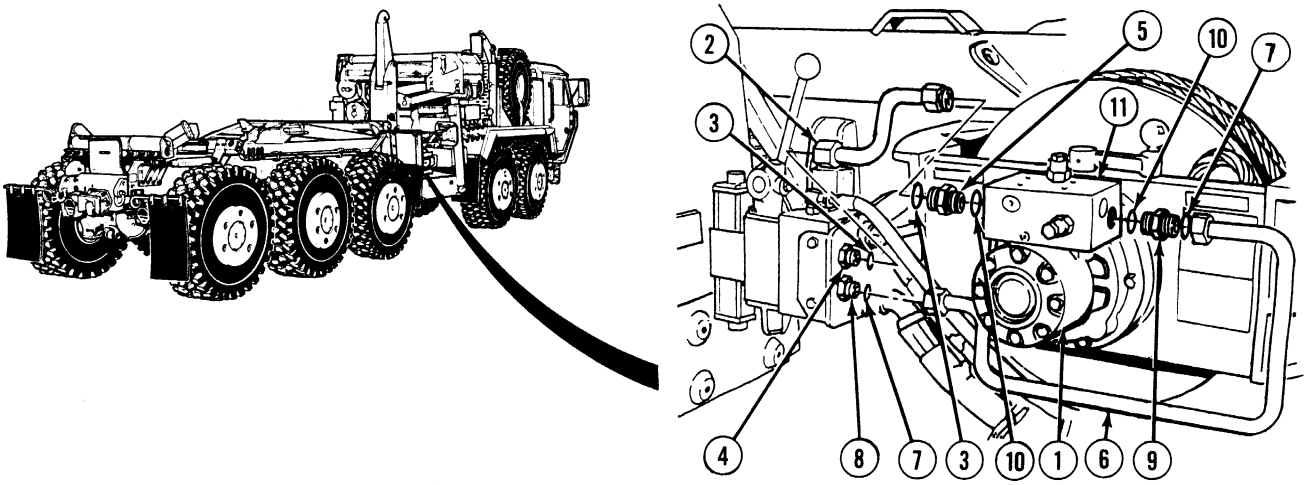
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination 1-1/16 in. (Item 254, Appendix F)
Wrench, Combination 1-1/8 in. (Item 255, Appendix F)
Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
Wrench, Torque (0 to 60 N·m) (Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft 0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, appendix B)
Kit, Seal Replacement (Item 159, Appendix E)
Packing, Preformed (2) (Item 338, Appendix E)
Packing, Preformed (2) (Item 350, Appendix E)
Packing, Preformed (2) (Item 355, Appendix E)
Repair Kit (Item 464, Appendix E)
Seal Kit (Item 578, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

The winch hydraulic system operates at oil pressures up to 3,675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

Cap and plug hoses and tubes after removal.

(1) Position drain pan under hydraulic motor (1).

(2) Remove tube (2) and two preformed packings (3) from control valve adapter (4) and counterbalance valve adapter (5). Discard preformed packings.

(3) Remove tube (6) and two preformed packings (7) from control valve adapter (8) and counterbalance valve adapter (9). Discard preformed packings.

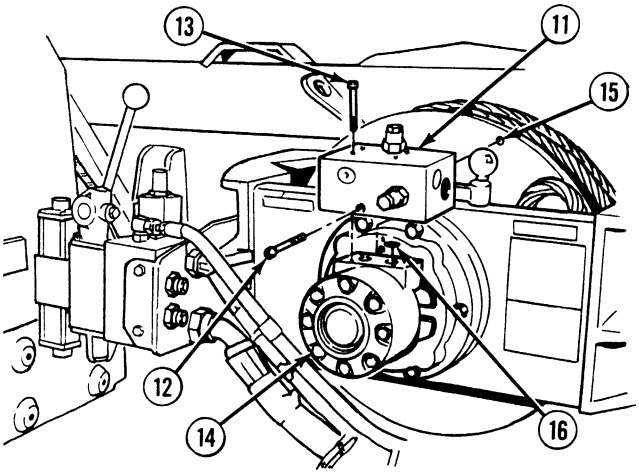
(4) Remove counterbalance valve adapters (5) and (9) and two preformed packings (10) from counterbalance valve assembly (11). Discard preformed packings.

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR (CONT).

(5) Remove screw (12), four screws (13) and counterbalance valve assembly (11) from hydraulic motor housing (14).

(6) Remove preformed packing (15) from back of counterbalance valve assembly (11). Discard preformed packing.

(7) Remove two preformed packings (16) from hydraulic motor housing (14). Discard preformed packings.



b. Disassembly.

CAUTION

Jam nut on counter balance valve cartridge is factory set and is not to be removed. Damage to equipment may result if jam nut is tampered with or removed.

(1) Position counterbalance valve assembly (1) in soft jaw vise.

(2) Remove counter balance valve cartridge (2) from counterbalance valve assembly (1).

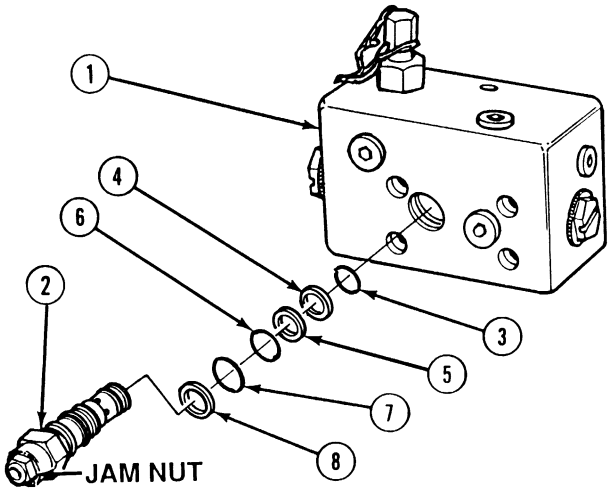
CAUTION

Valve cartridge is easily scratched or dented. Use extreme caution when removing preformed packings and backup rings from valve cartridge or damage to equipment may result.

(3) Remove and discard preformed packing (3) and backup ring (4) from counter balance valve cartridge (2).

(4) Remove and discard backup ring (5) and preformed packing (6) from counter balance valve cartridge (2).

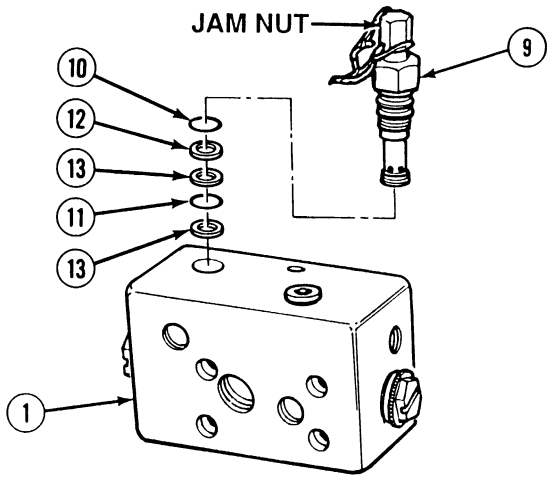
(5) Remove and discard preformed packing (7) and backup ring (8) from counter balance valve cartridge (2).



CAUTION

Jam nut on relief valve cartridge is preset at factory and is not to be removed. Damage to equipment may result if jam nut is tampered with or removed.

(6) Remove relief valve (9) from counterbalance valve assembly (1).



CAUTION

Relief valve is easily scratched or dented. Use extreme care when removing preformed packings and backup rings from relief valve or damage to equipment may result.

(7) Remove and discard preformed packings (10) and (11) and backup rings (12) and (13) from relief valve (9).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury or death to personnel.

(1) Clean all metal parts in dry cleaning solvent.

(2) Dry all parts with compressed air.

(3) Inspect all parts for dents, cracks, pitting or stripped threads.

(4) Replace all damaged parts.

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR (CONT).

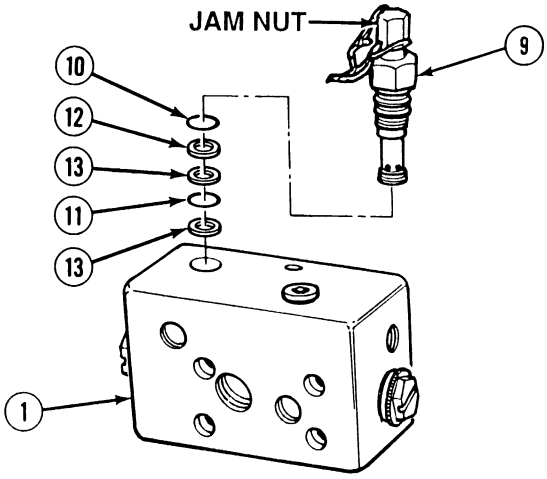
d. Assembly.

CAUTION

Relief valve is easily scratched or dented. Use extreme care when installing preformed packings and backup rings in relief valve or damage to equipment may result.

NOTE

Cup side of backup ring should face preformed packing upon installation.



(1) Apply hydraulic oil to preformed packings (10) and (11) and backup rings (12) and (13).

(2) Install two preformed packings (10) and (11) and two backup rings (12) and (13) in relief valve (9).

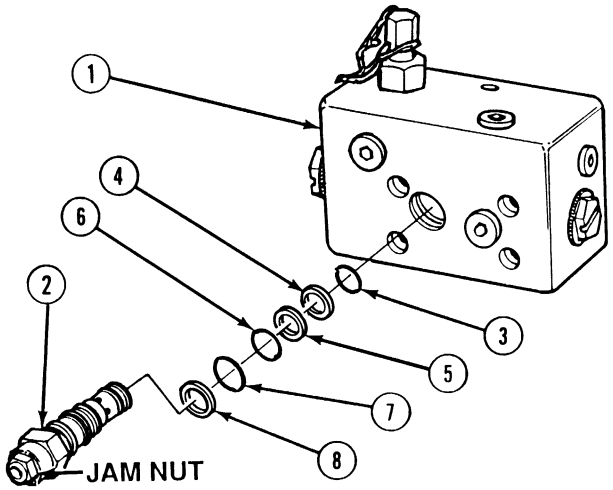
CAUTION

Jam nut on relief valve is preset at factory. Damage to equipment may result if jam nut is tampered with or removed.

(3) Install relief valve (9) in counterbalance valve assembly (1). Tighten relief valve 30 to 36 lb-ft (41 to 49 N·m).

CAUTION

- Jam nut on valve cartridge is factory set and is not to be removed. Damage to equipment may result if jam nut is tampered with or removed.
- Valve cartridge is easily scratched or dented. Use extreme caution when installing preformed packings and backup rings on valve cartridge or damage to equipment may result.



NOTE

Cup side of backup ring should face preformed packing.

(4) Apply hydraulic oil to preformed packing (7) and backup ring (8).

(5) Install backup ring (8) and preformed packing (7) on counterbalance valve cartridge (2).

(6) Apply hydraulic oil to preformed packing (6) and backup ring (5).

(7) Install preformed packing (6) and backup ring (5) on counterbalance valve cartridge (2).

(8) Apply hydraulic oil to preformed packing (3) and backup ring (4).

(9) Install backup ring (4) and preformed packing (3) on counter balance valve cartridge (2).

(10) Install counterbalance valve cartridge (2) in counterbalance valve assembly (1). Tighten valve cartridge 30 to 35 lb-ft (41 to 47 N·m).

16-36. SELF-RECOVERY WINCH (SRW) COUNTERBALANCE VALVE REPAIR (CONT).

e. Installation.

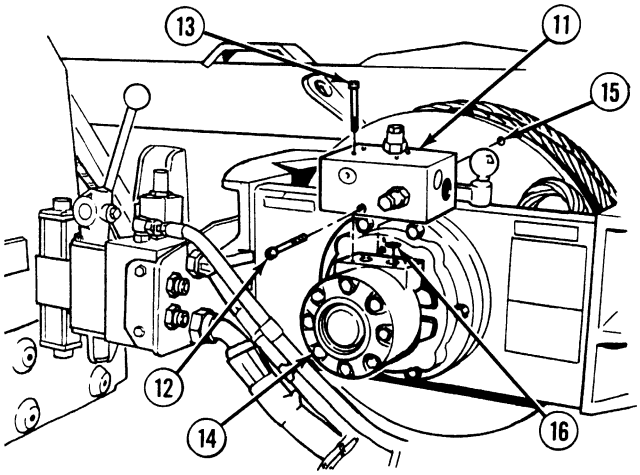
(1) Apply hydraulic oil to two preformed packings (16).

(2) Install two preformed packings (16) in hydraulic motor housing (14).

(3) Apply hydraulic oil to preformed packing (15).

(4) Install preformed packing (15) in back of counterbalance valve assembly (11).

(5) Install counterbalance valve assembly (11) on hydraulic motor housing (14) with screw (12) and four screws (13).



(6) Apply hydraulic oil to two preformed packings (10).

(7) Install two preformed packings (10) on counterbalance valve adapters (5) and (9).

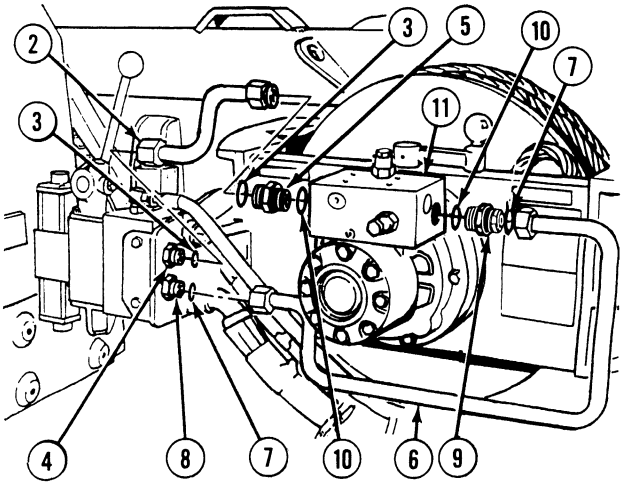
(8) Install counterbalance valve adapters (5) and (9) in counterbalance valve assembly (11).

(9) Apply hydraulic oil to two preformed packings (7).

(10) Install two preformed packings (7) and tube (6) on control valve adapter (8) and counterbalance valve adapter (9).

(11) Apply hydraulic oil to two preformed packings (3).

(12) Install two preformed packings (3) and tube (2) on control valve adapter (4) and counterbalance valve adapter (5).



f. Follow-On Maintenance:

- Fill hydraulic reservoir as required, (TM 9-2320-364-20).
- Operate winch and check for leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-37. SELF-RECOVERY WINCH (SRW) MANIFOLD REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-on Maintenance

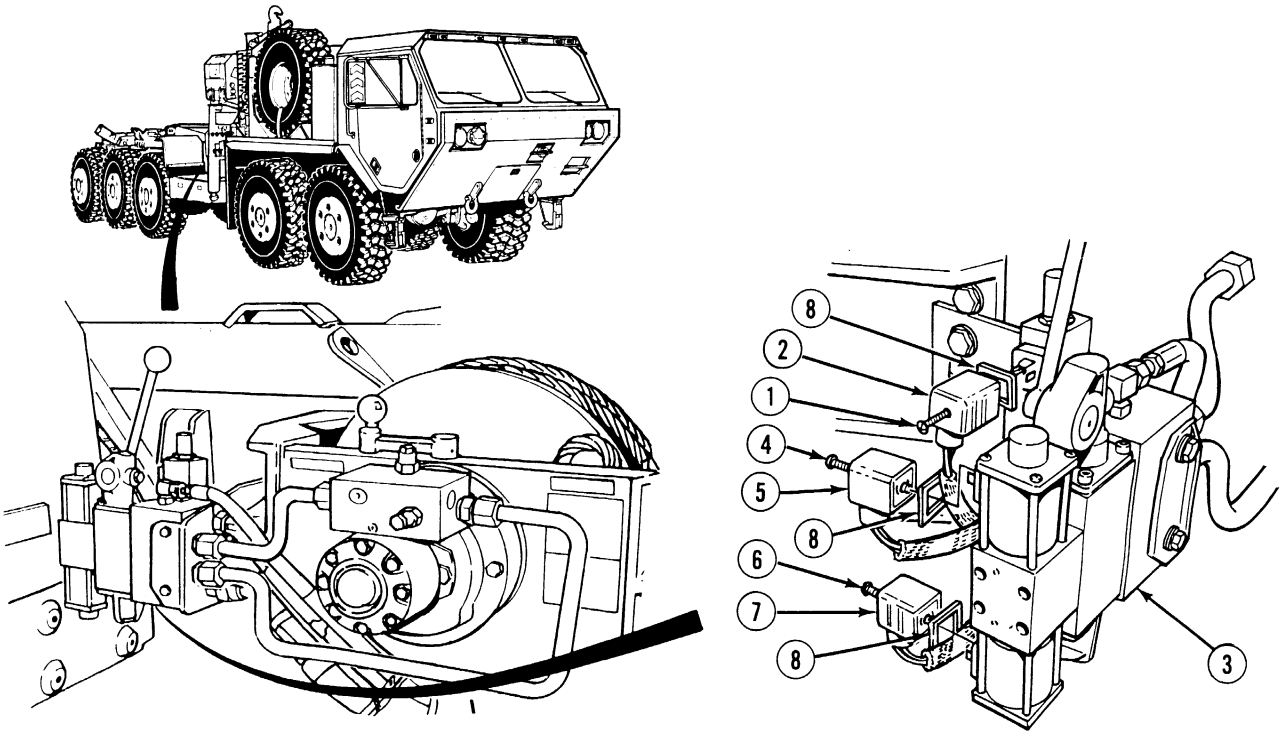
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench, Combination 1-1/4 in.
(Item 256, Appendix F)
Wrench, Combination 1-3/8 in.
(Item 258, Appendix F)
Wrench, Combination 1-1/2 in.
(Item 260, Appendix F)
Wrench, Combination 1-5/8 in.
(Item 261, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (2) (Item 210, Appendix E)
Lockwasher (2) (Item 266, Appendix E)
Packing, Preformed (4) (Item 338, Appendix E)
Packing, Preformed (4) (Item 350, Appendix E)
Packing, Preformed (Item 377, Appendix E)
Packing, Preformed (Item 387, Appendix E)
Packing, Preformed (Item 388, Appendix E)
Preformed Packing Kit (Item 450, Appendix E)

Equipment Condition
Engine OFF, (TM (-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Hydraulic reservoir drained,
(TM 9-2320-364-20)

16-37. SELF-RECOVERY WINCH MANIFOLD REPLACEMENT (CONT).



a. Removal.

WARNING

The winch hydraulic system operates at oil pressures up to 3,675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Note position and location of elbows and fittings prior to removal.
- Tag and mark connectors, hoses and tubes prior to removal.
- Cap and plug hoses, tubes and fittings after removal.

(1) Loosen screw (1) and disconnect MC121 connector (2) from self recovery winch manifold (3).

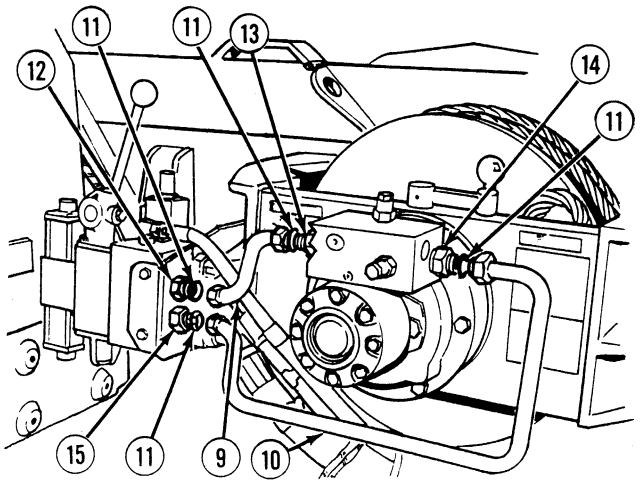
(2) Loosen screw (4) and disconnect MC122 connector (5) from self recovery winch manifold (3).

(3) Loosen screw (6) and disconnect MC123 connector (7) from self recovery winch manifold (3).

(4) Remove and discard three gaskets (8) from connectors (2), (5) and (7).

(5) Position drain pan under two tubes (9) and (10).

(6) Remove tubes (9) and (10) and preformed packings (11) from fittings (12), (13), (14) and (15).

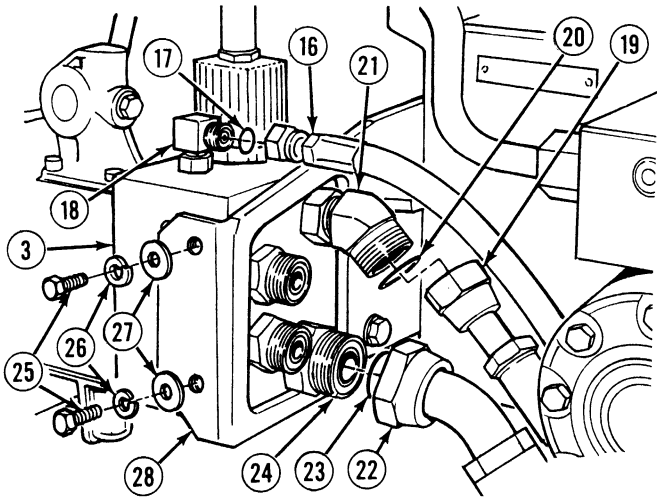


(7) Remove hose 2809A (16), preformed packing (17) from elbow (18). Discard preformed packing.

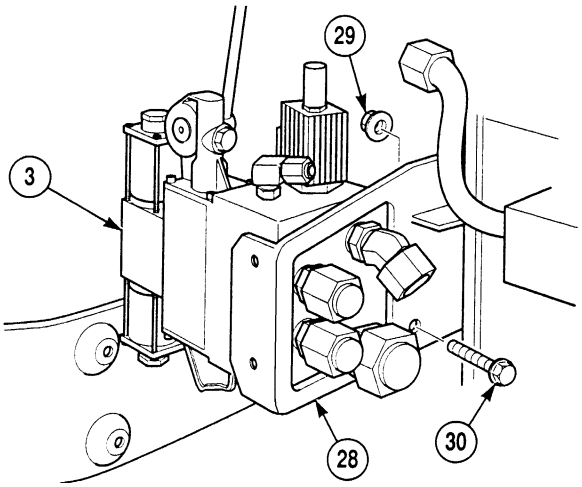
(8) Remove hose 2899A (19), preformed packing (20) from elbow (21). Discard preformed packing.

(9) Remove hose 2886A (22), preformed packing (23) from fitting (24). Discard preformed packing.

(10) Remove two screws (25), lockwashers (26), washers (27) from valve mount bracket (28) and self-recovery winch manifold (3). Discard lockwashers.

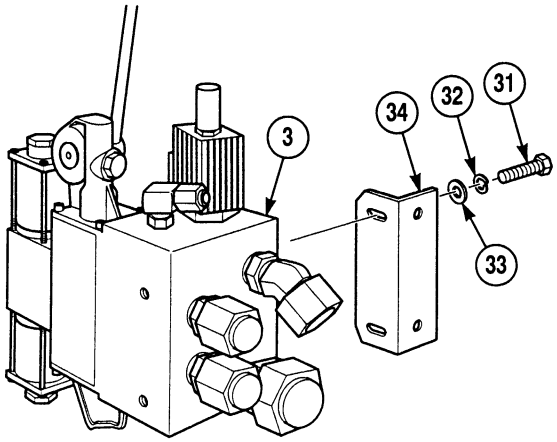


(11) Remove two locknuts (29), screws (30) and self recovery winch manifold (3) from valve mount bracket (28). Discard locknuts.



16-37. SELF-RECOVERY WINCH MANIFOLD REPLACEMENT (CONT).

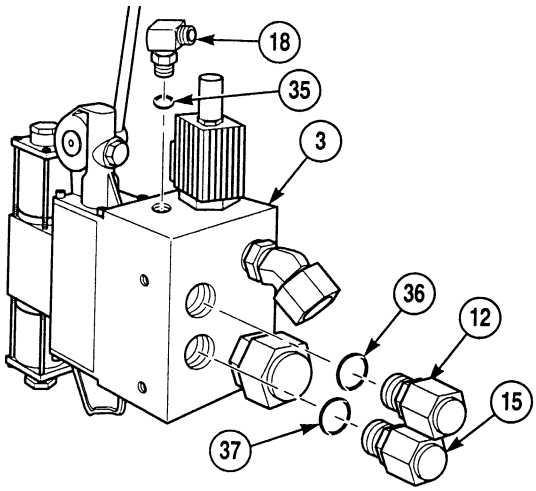
(12) Remove two screws (31), lockwashers (32), washers (33), adjusting angle bracket (34) from self recovery winch manifold (3). Discard lockwashers.



(13) Remove elbow (18) and preformed packing (35) from self recovery winch manifold (3). Discard preformed packing.

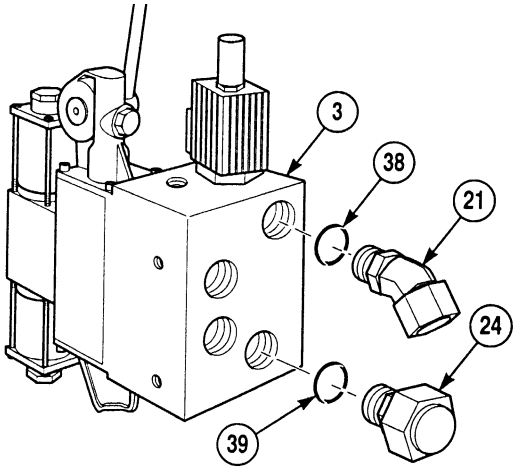
(14) Remove fitting (12) and preformed packing (36) from self recovery winch manifold (3). Discard preformed packing.

(15) Remove fitting (15) and preformed packing (37) from self recovery winch manifold (3). Discard preformed packing.



(16) Remove elbow (21) and preformed packing (38) from self recovery winch manifold (3). Discard preformed packing.

(17) Remove fitting (24) and preformed packing (39) from self recovery winch manifold (3). Discard preformed packing.



b. Installation.

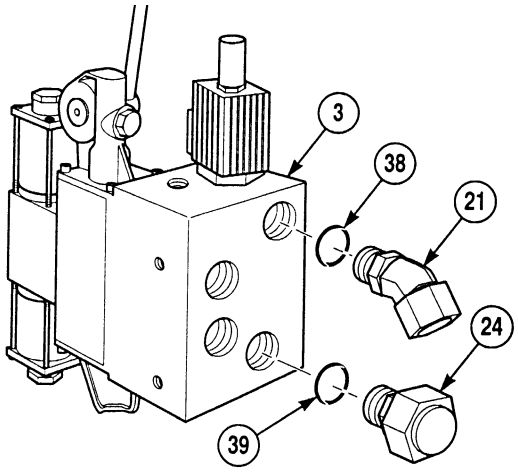
NOTE

Install elbows and fittings as noted prior to removal.

(1) Apply hydraulic oil to preformed packings (39), (38), (37), (36) and (35).

(2) Install preformed packing (39) and fitting (24) on self-recovery winch manifold (3).

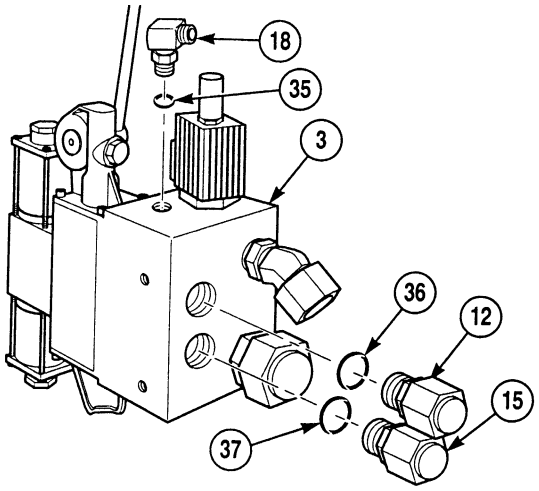
(3) Install preformed packing (38) and elbow (21) on self-recovery winch manifold (3).



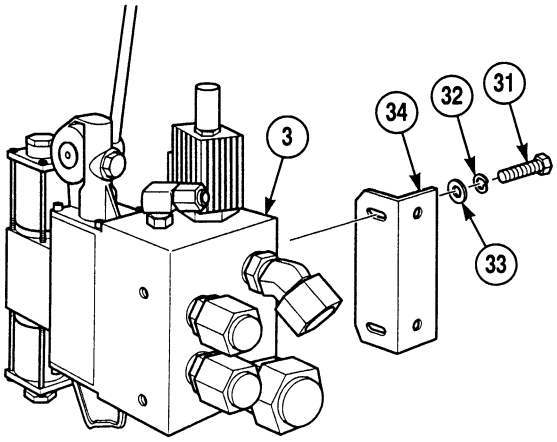
(4) Install preformed packing (37) and fitting (15) on self-recovery winch manifold (3).

(5) Install preformed packing (36) and fitting (12) on self-recovery winch manifold (3).

(6) Install preformed packing (35) and elbow (18) on self-recovery winch manifold (3).

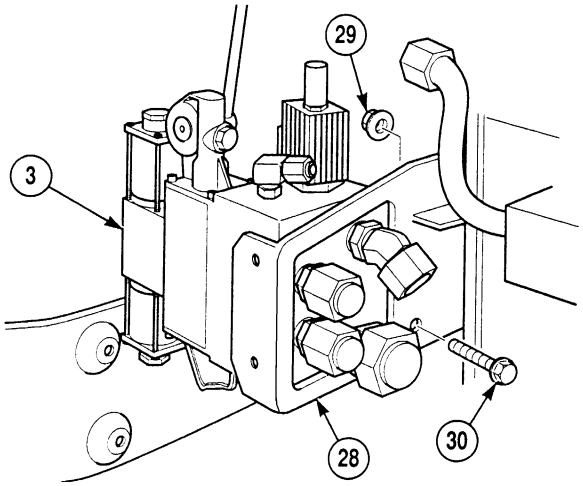


(7) Install adjusting angle bracket (34) two washers (33), lockwashers (32) and screws (31) on self-recovery winch manifold (3).



16-37. SELF-RECOVERY WINCH MANIFOLD REPLACEMENT (CONT).

(8) Position self-recovery winch manifold (3), with two screws (30) and locknuts (29) on valve mount bracket (28).



(9) Position self-recovery winch manifold (3) on valve mount bracket (28) with two washers (27), lockwashers (26), and screws (25).

(10) Apply hydraulic oil to preformed packings (23).

(11) Install preformed packing (23) and hose 2886A (22) on fitting (24).

(12) Apply hydraulic oil to preformed packing (20).

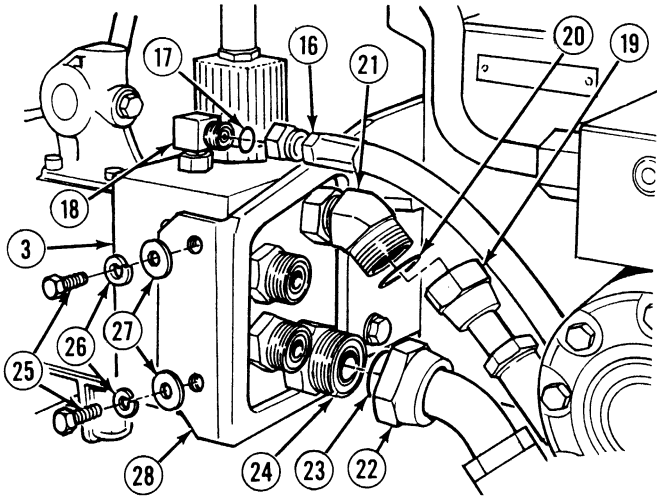
(13) Install preformed packing (20) and hose 2899A (19) on elbow (21).

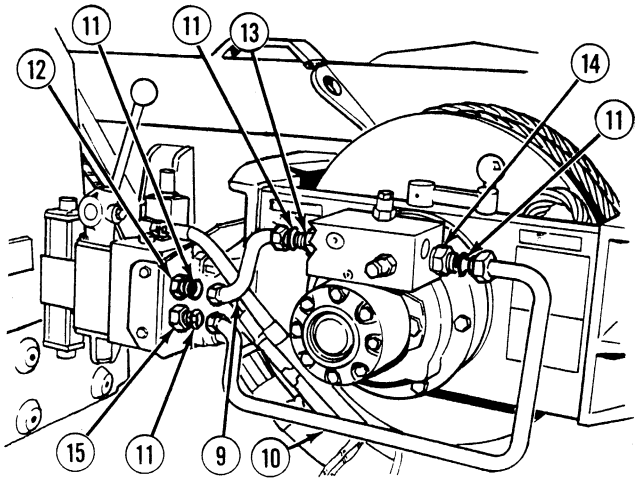
(14) Apply hydraulic oil to preformed packing (17).

(15) Install preformed packing (17) and hose 2809A (16) on elbow (18).

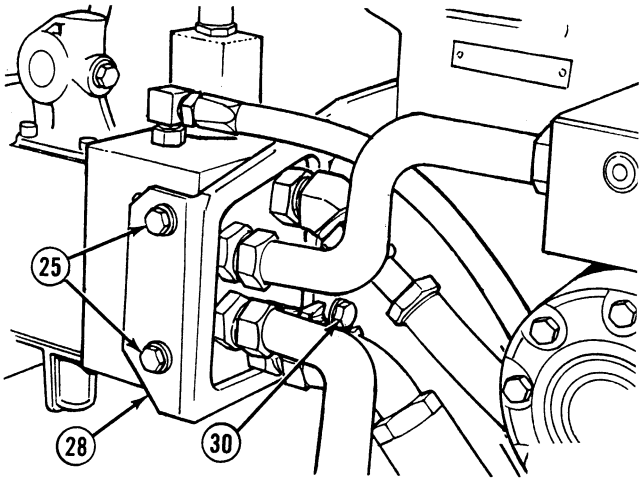
(16) Apply hydraulic oil to four preformed packings (11).

(17) Install four preformed packings (11) and tubes (9) and (10) on fittings (12), (13), (14) and (15).





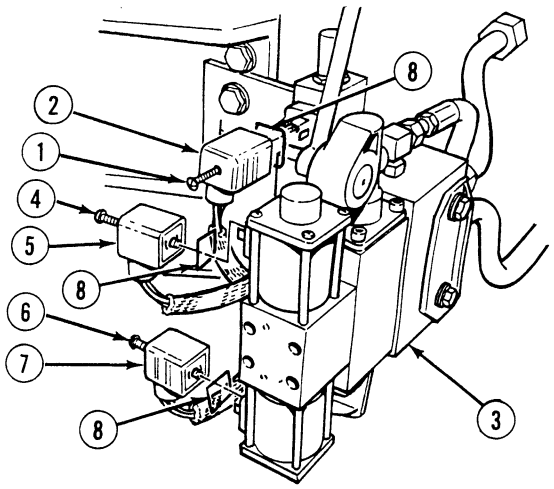
(18) Tighten screws (30) and (25) on valve mount bracket (28).



(19) Install gasket (8), MC123 connector (7) and screw (6) on self-recovery winch manifold (3).

(20) Install gasket (8), MC122 connector (5) and screw (4) on self-recovery winch manifold (3).

(21) Install gasket (8), MC121 connector (2) and screw (1) on self-recovery winch manifold (3).



c. Follow-On Maintenance:

- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

Section IV. LOAD HANDLING SYSTEM MAINTENANCE

16-38. LOAD HANDLING SYSTEM (LHS) HOOK REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

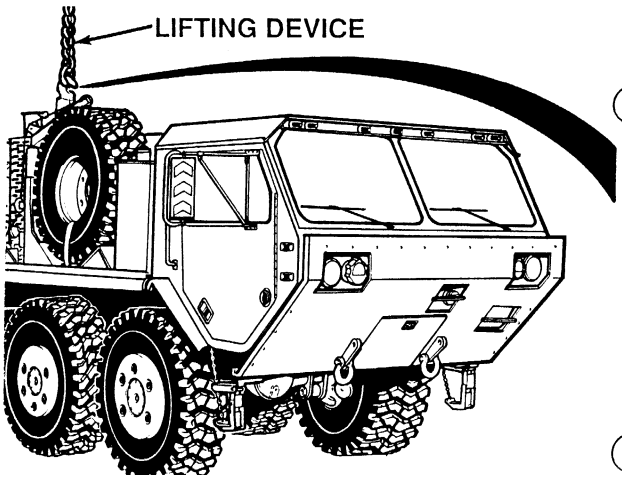
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Lifting Device, Minimum Capacity 200 lbs (91 kg)

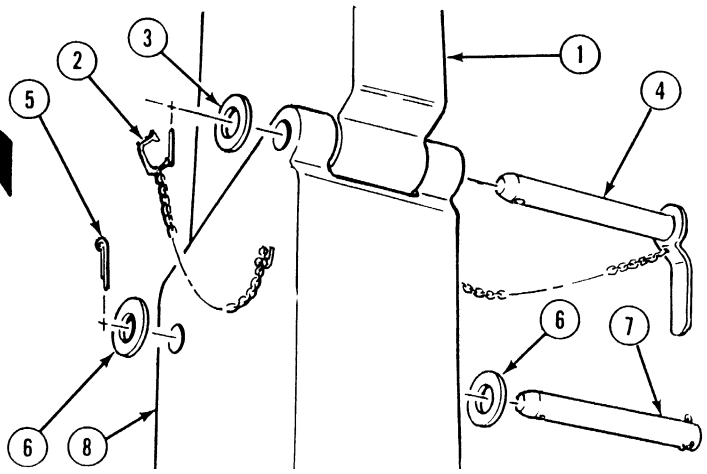
Materials/Parts
Compound, Antiseize (Item 14, Appendix B)

Materials/Part - Continued
Pin, Cotter (Trucks not equipped with CHU) (Item 425, Appendix E)
Ring, Retaining (2) (Trucks equipped with CHU) (Item 425, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

Hook weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

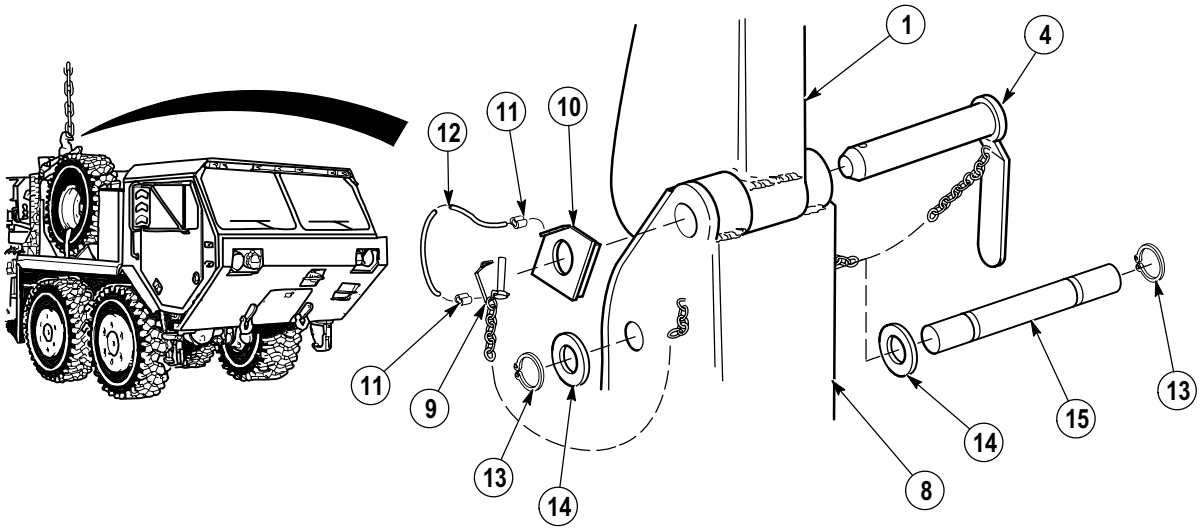
(1) Attach lifting device to support hook (1).

NOTE

- Perform Steps (2) and (3) on truck not equipped with CHU.
- Perform Steps (4) through (6) on trucks equipped with CHU.

(2) Remove snapper pin (2), washer (3) and retaining pin (4).

(3) Remove cotter pin (5), two washers (6), pivot pin (7) and hook (1) from hook arm (8). Discard cotter pin.



(4) Remove snapper pin (9), retaining bracket (10) and retaining pin (4).

(5) If necessary for replacement, remove swaging sleeves (11) from wire rope (12).

(6) Remove two retaining rings (13), washers (14), pivot pin (15) and hook (1) from hook arm (8). Discard retaining rings.

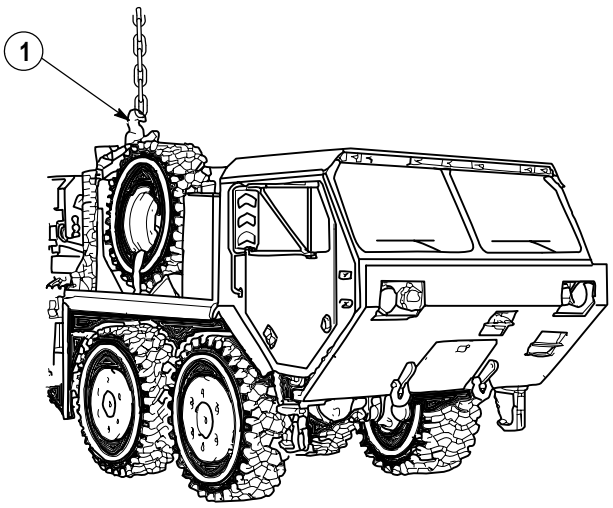
(7) Remove lifting device from hook (1).

b. Installation.

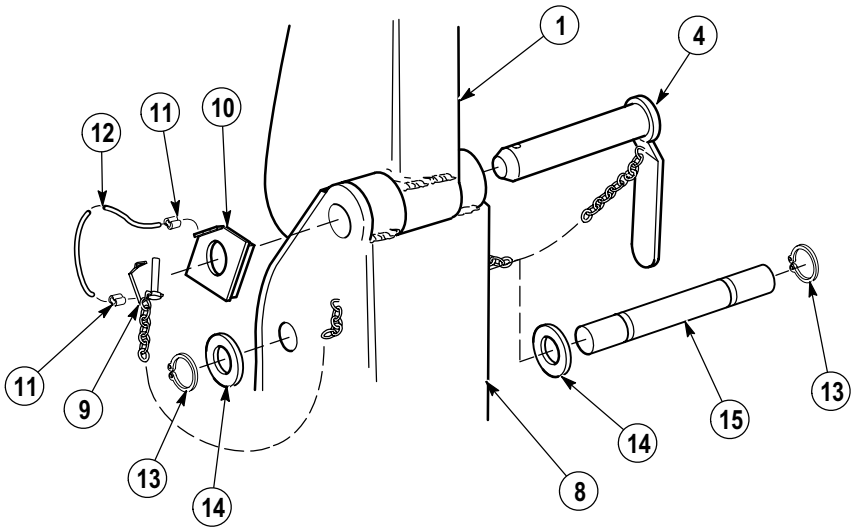
WARNING

Hook weighs 200 lbs (91 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to hook (1).



16-38. LOAD HANDLING SYSTEM (LHS) HOOK REPLACEMENT (CONT).



NOTE

- Perform Steps (2) through (6) on trucks equipped with CHU.
- Perform Steps (7) through (10) on trucks not equipped with CHU.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(2) Apply antiseize compound to pivot pin (15).

(3) Using lifting device, install hook (1) on hook arm (8) with pivot pin (15) two washers (14) and retaining rings (13).

(4) Apply antiseize compound to retaining pin (4).

(5) Install retaining pin (4), retaining bracket (10) and snapper pin (9) on hook (1).

(6) If removed, secure wire rope (12) to retaining bracket (10) and to chain of snapper pin (9) with swaging sleeves (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

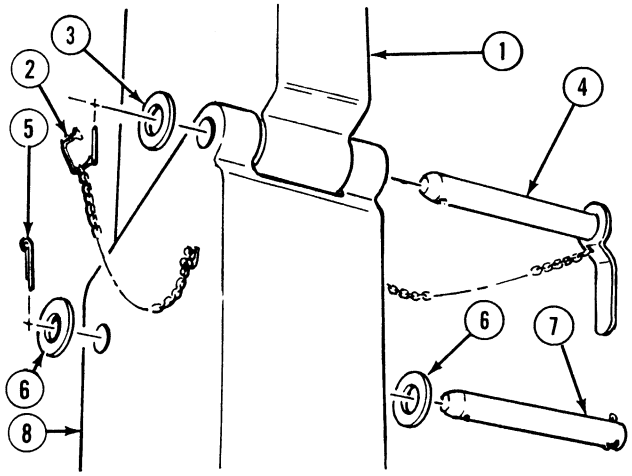
(7) Apply antiseize compound to pivot pin (7).

(8) Using lifting device, install hook (1) on hook arm (8) with pivot pin (7), two washers (6) and cotter pin (5).

(9) Apply antiseize compound to retaining pin (4).

(10) Install retaining pin (4), washer (3) and snapper pin (2) on hook (1).

(11) Remove lifting device from hook (1).



c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

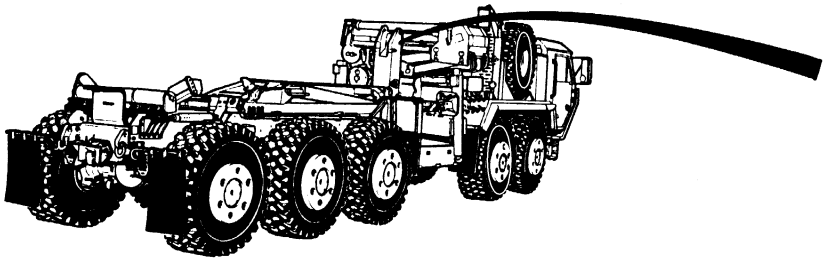
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Wrench, Combination 2-1/8 in. (Item 266, Appendix F)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)
Lifting Device, Minimum Capacity 1100 lbs (499 kg)

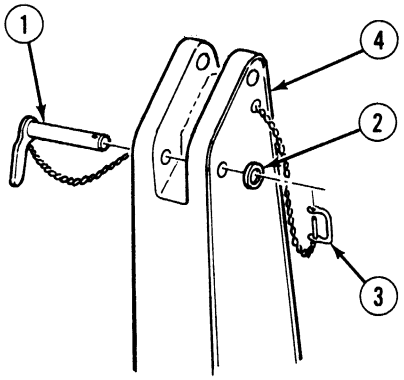
Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Grease (Item 22, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)
Locknut (2) (Item 175, Appendix E)
Ring, Retaining (2) (Item 495, Appendix E)
Seal (4) (Item 573, Appendix E)

References
TC 9-237

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS hook removed, (Para 16-38)
LHS hook arm cylinders removed, (Para 17-12)

a. Removal.



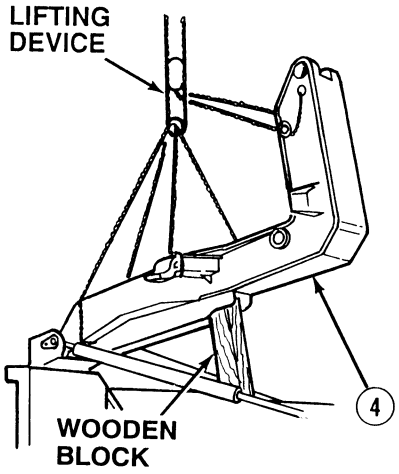


(1) Install pivot pin (1), washer (2) and snapper pin (3) in hook arm (4).

WARNING

Hook arm weighs 1,100 lbs (499 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(2) Attach lifting device to hook arm (4).



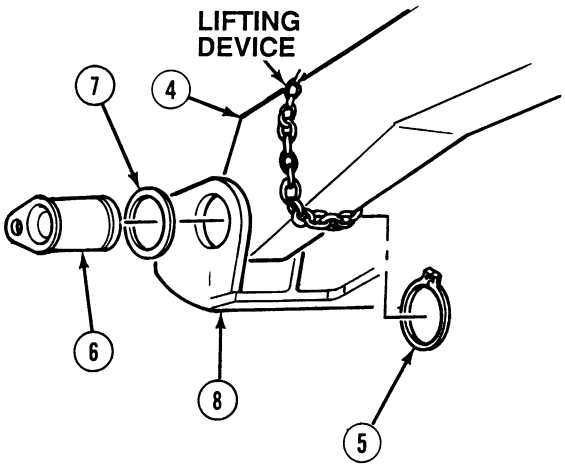
WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(3) Using lifting device, support hook arm (4) and remove two retaining rings (5), pivot pins (6) and shims (7) from hook arm and middle frame (8). Discard retaining rings.

(4) Using lifting device, remove hook arm (4) from middle frame (8).

(5) Remove lifting device from hook arm (4).



16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR (CONT).

b. Disassembly.

WARNING

- Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.
- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

– ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.

– DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).

– DO NOT use CARC paint without adequate ventilation.

– NEVER weld or cut CARC-coated materials.

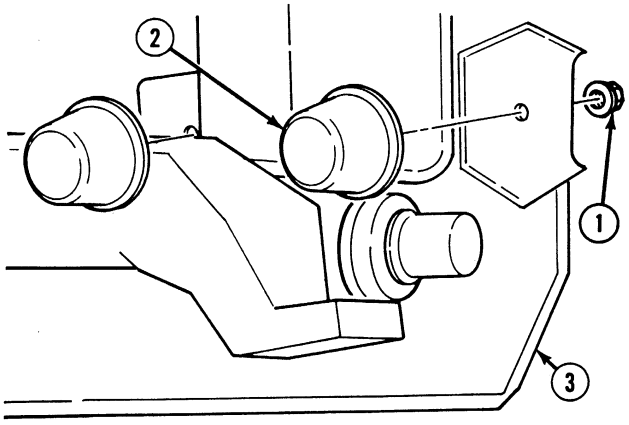
– DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.

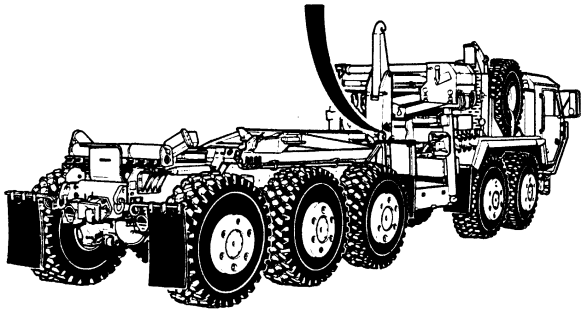
– BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

NOTE

If hook arm retaining pin or snapper pin replacement is necessary, grind chain tack weld smooth on hook arm surface and tack weld pin chain at same location.

(1) Remove two locknuts (1) and rubber bumpers (2) from hook arm (3). Discard locknuts.



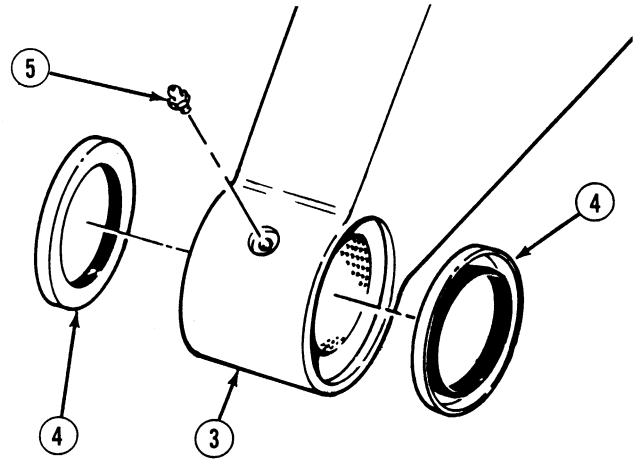


NOTE

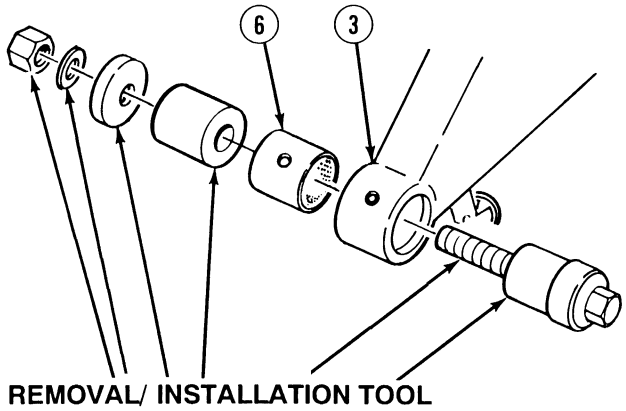
Seals are removed by prying out.

(2) Remove four seals (4) from hook arm (3). Discard seals.

(3) Remove two lube fittings (5) from hook arm (3).



(4) Using hook arm and middle frame bushing removal/installation tool (six pieces), remove two bushings (6) from hook arm (3) as shown.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean metal surfaces with drycleaning solvent (P-D-680) and wipe seals and bushings with a clean cloth.

(2) Inspect hook arm for cracked welds and damage. Replace or repair as necessary.

16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR (CONT).

(3) Inspect bushing for wear. Replace bushing if pivot pin has worn through bushing surface and metal is showing through.

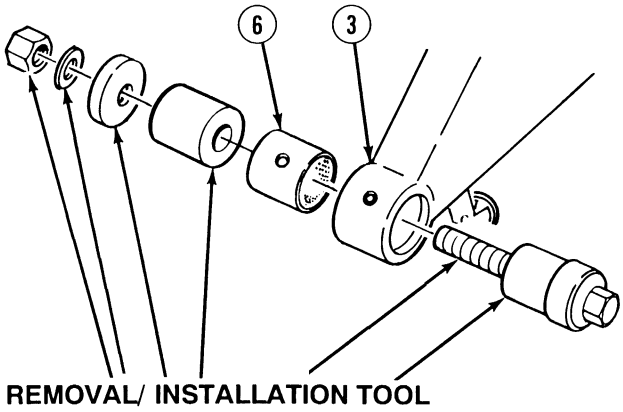
(4) Wipe rubber bumpers with a clean cloth, do not use drycleaning solvent. Replace bumper if rubber part is cracking, crumbling or loose from threaded metal base.

d. Assembly.

NOTE

- Apply light coat of grease to outer surface of bushings prior to installation.
- Apply light coat of grease to threads of removal/ installation tool prior to use.

(1) Using hook arm and middle frame bushing removal/installation tool (use five of six pieces), align lube hole in bushing (6) with lube fitting hole in hook arm (3) and install two bushings in hook arm as shown.



NOTE

If lube fitting hole is restricted by bushing, go to Step (4) of removal.

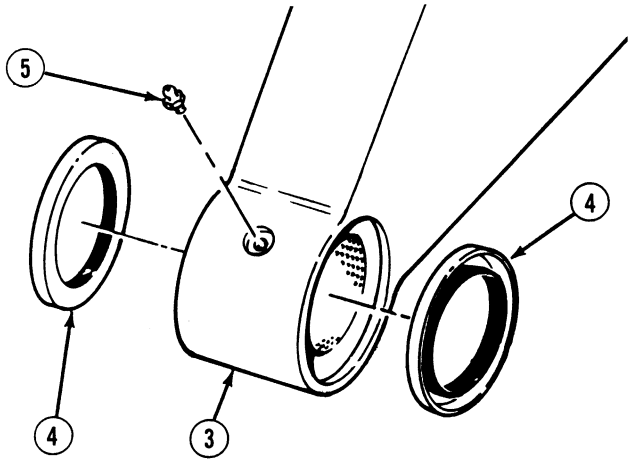
(2) Check lube fitting hole in hook arm (3) for restrictions.

(3) Install two lube fittings (5) in hook arm (3).

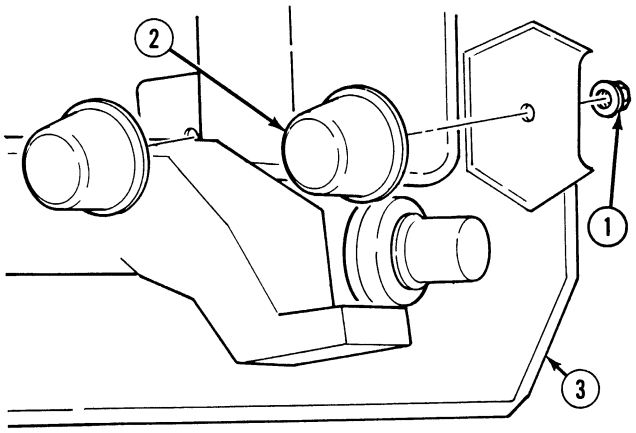
NOTE

Apply light coat of grease to outer edges of seals prior to installation.

(4) Install four seals (4) in hook arm (3).



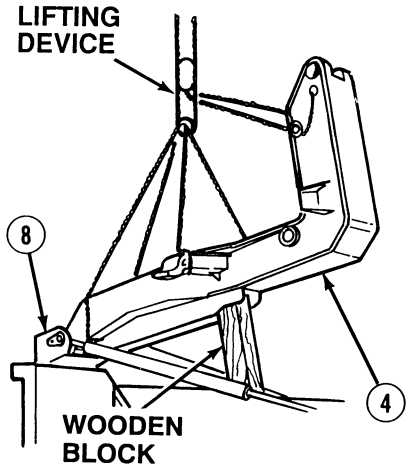
(5) Install two rubber bumpers (2) on hook arm (3) with two locknuts (1).



e. Installation.

WARNING

- Hook arm weighs 1,100 lbs (499 kg). Attach suitable lifting device prior to installation prevent possible injury to personnel.
- Ensure hook arm is supported with wooden blocks during installation to prevent possible injury to personnel.

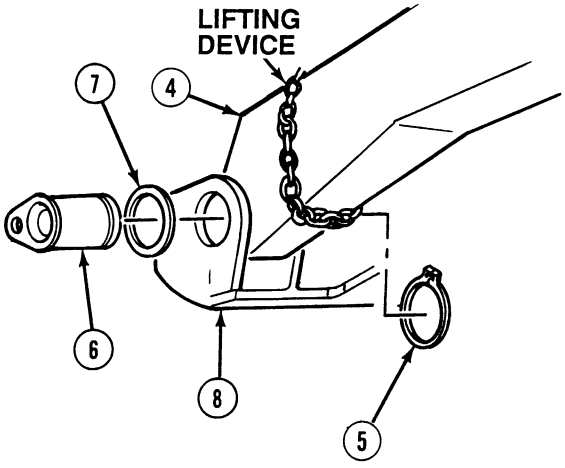


(1) Attach lifting device to hook arm (4) and place hook arm in installation position on middle frame (8).

(2) Install two shims (7) with pivot pins (6) on middle frame (8) and hook arm (4).

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.



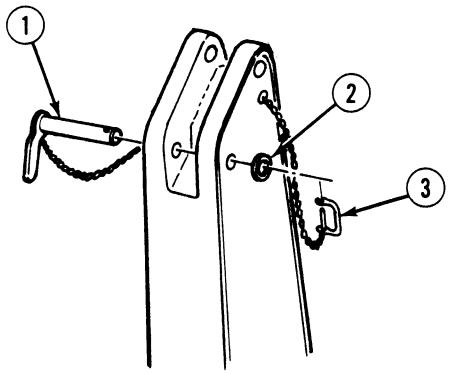
(3) Install two retaining rings (5) on pivot pins (6).

(4) Remove lifting device from hook arm (4).

16-39. LOAD HANDLING SYSTEM (LHS) HOOK ARM REPAIR (CONT).

(5) Remove snapper pin (3) from pivot pin (1).

(6) Remove washer (2) and pivot pin (1).



f. Follow-On Maintenance:

- Install LHS hook arm cylinders, (Para 17-12).
- Install LHS hook, (Para 16-38).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Tape, Measuring (Item 235, Appendix F)
Wrench, Combination 1-13/16 in. (Item 264, Appendix F)
Lifting Device, Minimum Capacity 1000 lbs (454 kg)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)
Wooden Blocks (2) (Appendix C)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Grease (Item 22, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)
Tags, Identification (Item 72, Appendix B)

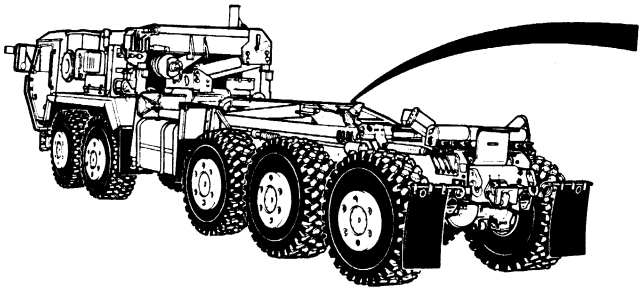
Materials/Parts - Continued
Lockwasher (Item 277, Appendix E)
Ring, Retaining (4) (Item 495, Appendix E)
Seal (Item 573, Appendix E)

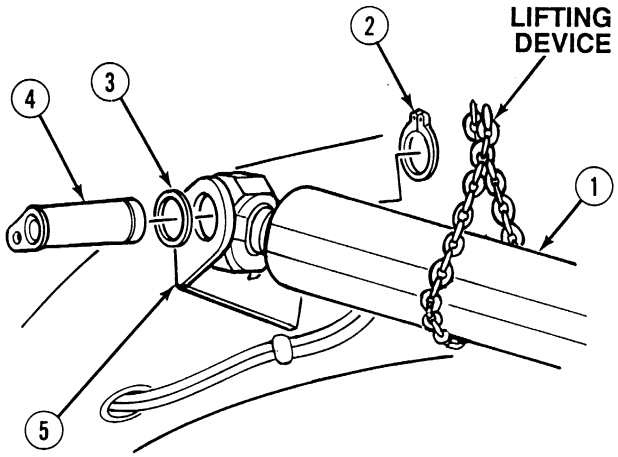
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
LHS hook arm removed, (Para 16-39)
Proximity switch (hook arm up) removed, (TM 9-2320-364-20)
Proximity switch (main frame down) removed, (TM 9-2320-364-20)
Middle frame tubes removed, (Para 16-41)
LHS junction box removed, (TM 9-2320-364-20)

16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

a. Removal.





WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

NOTE

Left and right main cylinders are removed the same way.

(1) Attach lifting device to left main cylinder (1).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(2) Using lifting device, support left main cylinder (1) and remove retaining ring (2), shim (3) and pivot pin (4).

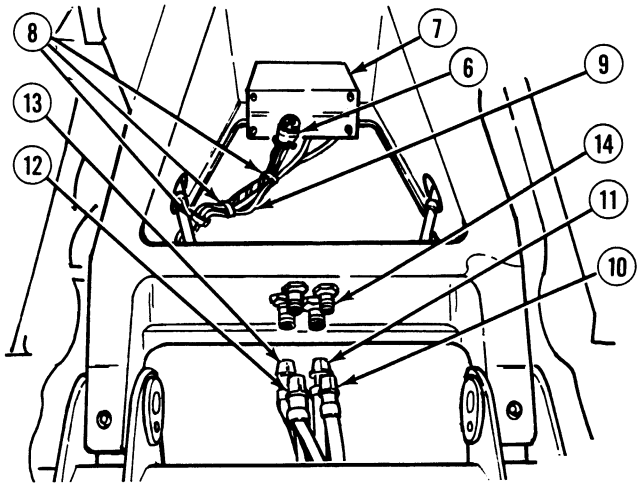
(3) Lower left main cylinder (1) out of middle frame (5).

(4) Remove lifting device from left main cylinder (1).

(5) Repeat Steps (1) through (4) for right main cylinder (1).

(6) Remove connector (6) from junction box (7).

(7) Remove cable ties (8) from main harness (9).



WARNING

The LHS hydraulics system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

NOTE

- Tag and mark all hoses prior to removal.
- Cap and plug all hoses and fittings after removal.

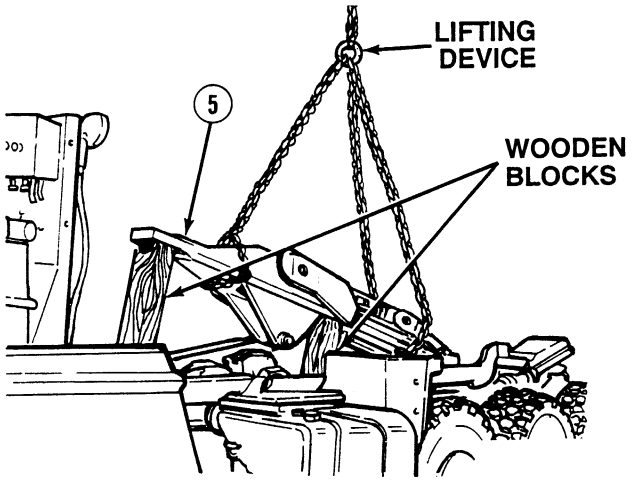
(8) Remove hoses 2881 (10), 2882 (11), 2891 (12) and 2892 (13) from middle frame bulkhead fittings (14).

WARNING

Middle frame weighs 1,000 lbs (454 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(9) Attach lifting device to middle frame (5).

(10) With the aid of an assistant, use lifting device and wooden blocks to support middle frame (5).

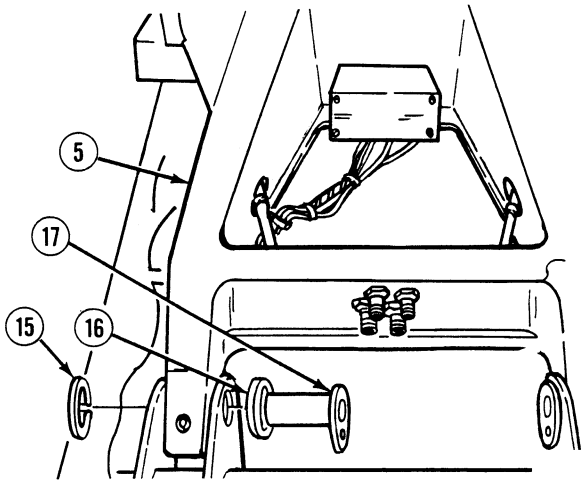


16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(11) With the aid of an assistant, remove two retaining rings (15), shims (16) and pivot pins (17) from middle frame (5). Discard retaining rings.



CAUTION

Do not allow wooden blocks supporting middle frame to fall when middle frame is lifted, or damage to equipment may result.

(12) With the aid of an assistant and using lifting device, remove middle frame (5) from truck.

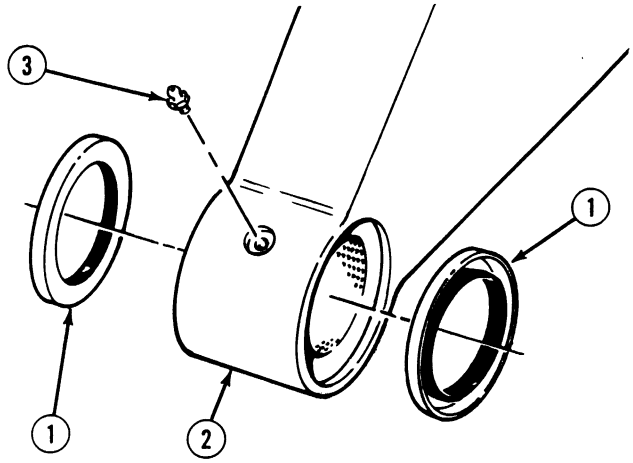
(13) Remove lifting device from middle frame (5).

b. Disassembly.

NOTE

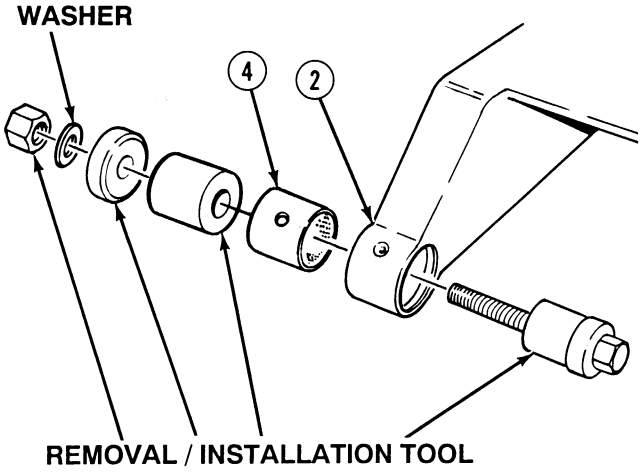
Seals are removed by prying out.

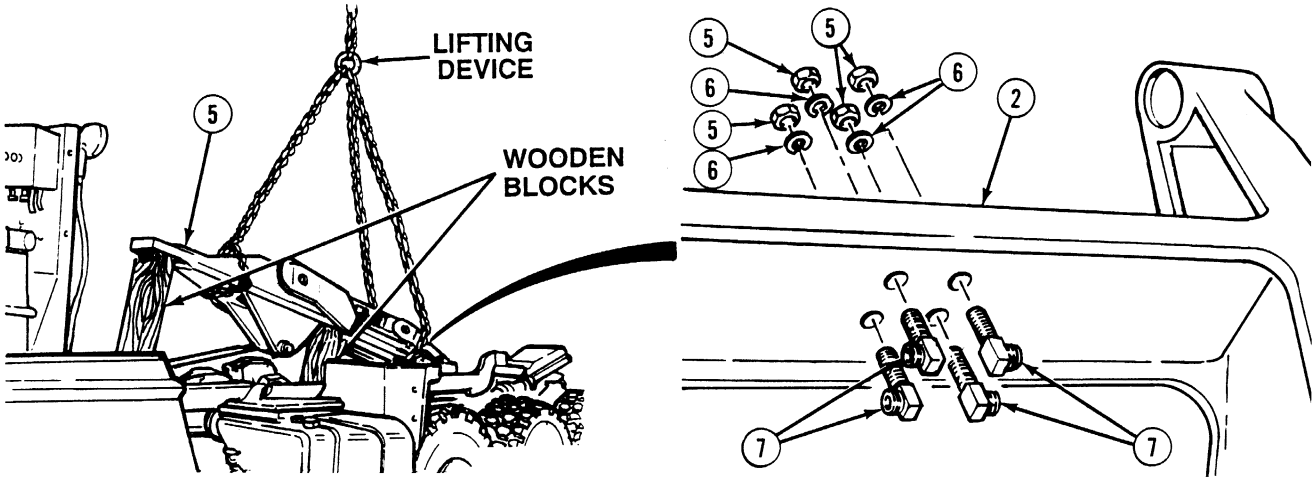
(1) Remove four seals (1) from middle frame (2). Discard seals.



(2) Remove two lube fittings (3) from middle frame (2).

(3) Using removal/installation tool (six pieces), remove two bushings (4) from middle frame (2) as shown.





(4) Remove four nuts (5), lockwashers (6) and bulkhead fittings (7) from middle frame (2). Discard locknuts.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

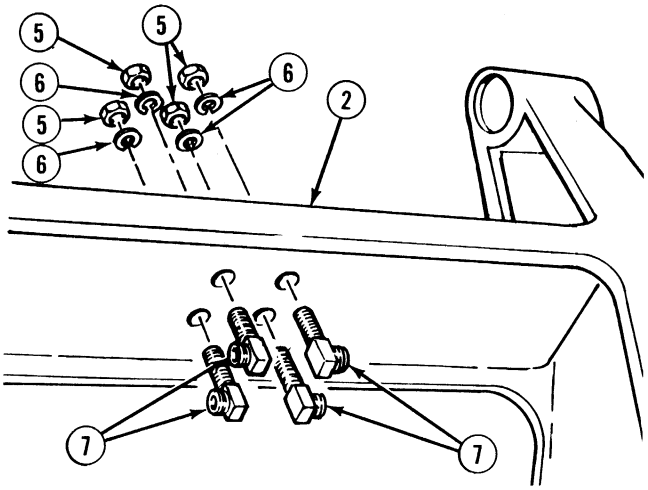
(1) Clean all metal surfaces with drycleaning solvent (P-D-680).

(2) Inspect middle frame for cracked welds or damage. Replace or repair as necessary.

(3) Inspect bushing for wear. Replace if pivot pin has worn through bushing surface and metal is showing through.

d. Assembly.

(1) Install four bulkhead fittings (7), lockwashers (6) and nuts (5) on middle frame (2).

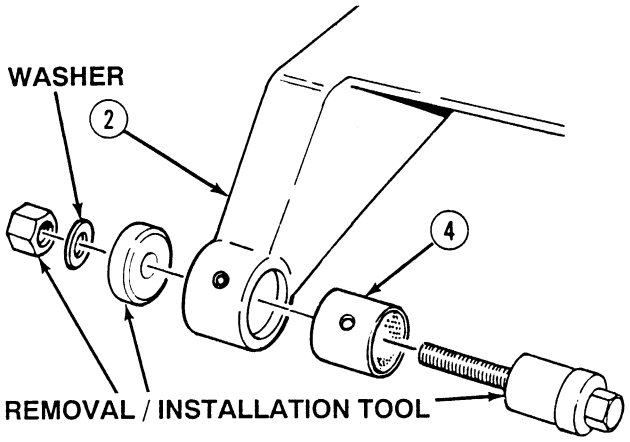


16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

NOTE

- Apply light coat of grease to outer surface of bushings prior to installation.
- Apply light coat of grease to threads of removal/ installation tool prior to use.

(2) Using hook arm and middle frame bushing removal/installation tool, align lube hole in bushing (4) with lube fitting hole in middle frame (2) and install two bushings (4) as shown.

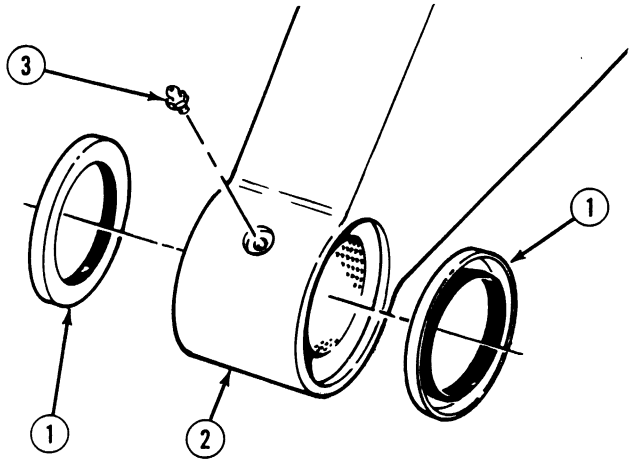


NOTE

Apply light coat of grease to outer edges of seals prior to installation.

(3) Install four seals (1) in middle frame (2).

(4) Install two lube fittings (3) in middle frame (2).



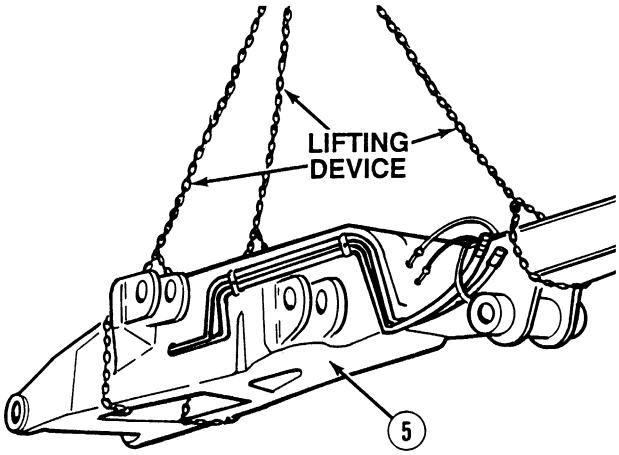
e. Installation.

WARNING

Middle frame weighs 1,000 lbs (454 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to middle frame (5).

(2) With the aid of an assistant and using lifting device, position middle frame (5) on truck.



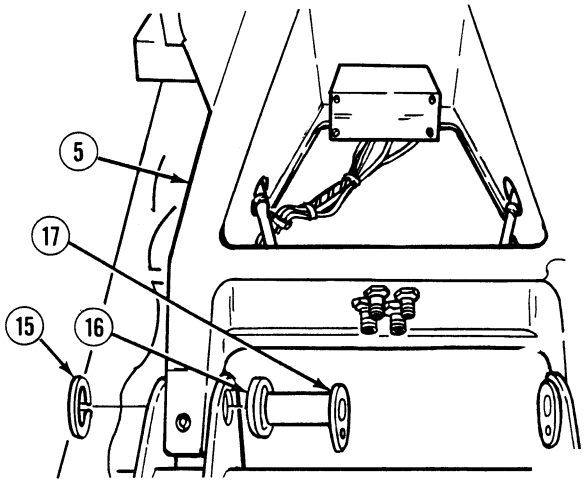
WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

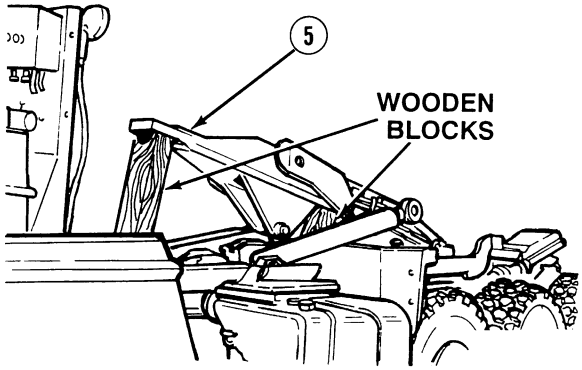
Coat pin with grease prior to installation.

(3) With the aid of an assistant, install two pivot pins (17), shims (16) and retaining rings (15) on middle frame (5).



(4) Block middle frame (5) up in two places so that front of middle frame is 30 to 35 in. (76 to 89 cm) above compression frame where bumpers are mounted.

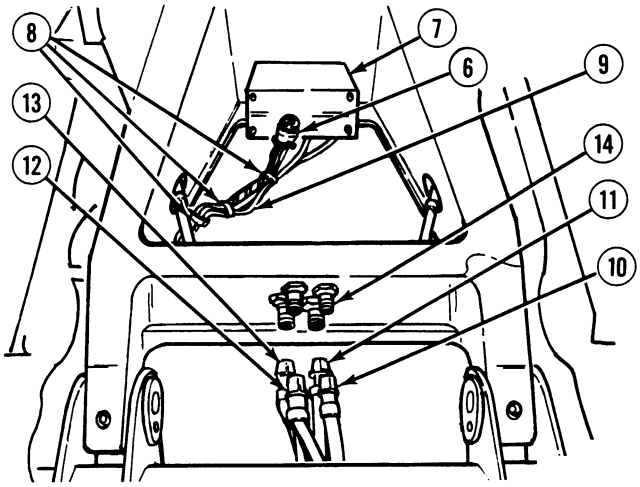
(5) Remove lifting device from middle frame (5).



(6) Install hoses 2881 (10), 2882 (11), 2891 (12) and 2892 (13) on middle frame bulkhead fittings (14).

(7) Install connector (6) on junction box (7).

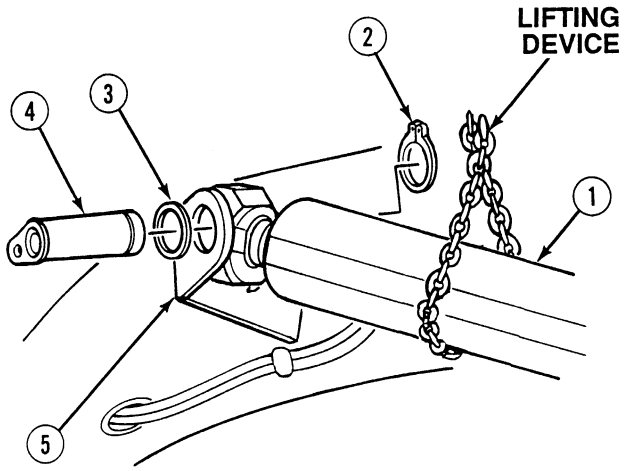
(8) Install cable ties (8) on main harness (9).



16-40. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME REPAIR (CONT).

WARNING

Main cylinders weigh 325 lbs (148 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.



(9) Attach lifting device to left main cylinder (1).

(10) Using lifting device, lift main cylinder (1) into installation position.

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(11) Install pivot pin (4), shim (3) and retaining ring (2) on middle frame (5) and main cylinder (1).

(12) Remove lifting device from main cylinder (1).

(13) Repeat Steps (8) through (11) for right main cylinder (1).

f. Follow-On Maintenance:

- Install LHS junction box, (TM 9-2320-364-20).
- Install middle frame tubes, (Para 16-41).
- Install proximity switch (hook arm up), (TM 9-2320-364-20).
- Install proximity switch (main frame down), (TM 9-2320-364-20).
- Install hook arm, (Para 16-39).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Lifting Device, Minimum Capacity 2,100 lbs (953 kg)
Wooden Block (2) (Appendix C)

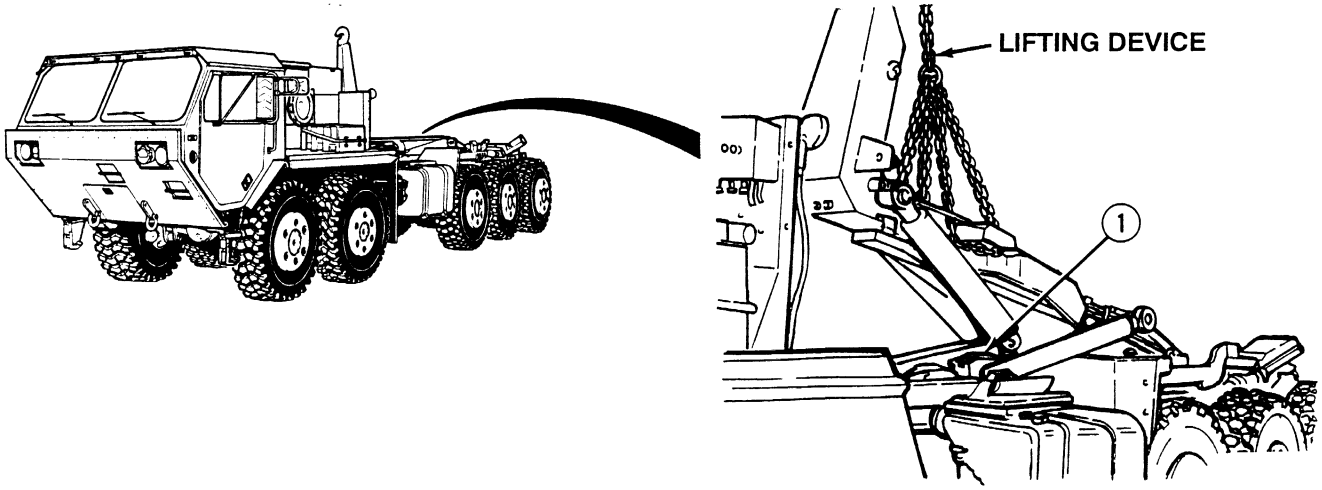
Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (2) (Item 239, Appendix E)

Materials/Parts - Continued
Lockwasher (2) (Item 266, Appendix E)
Packing, Preformed (2) (Item 331, Appendix E)
Ring, Retaining (Item 495, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS main junction box cover removed, (TM 9-2320-364-20)

a. Removal.

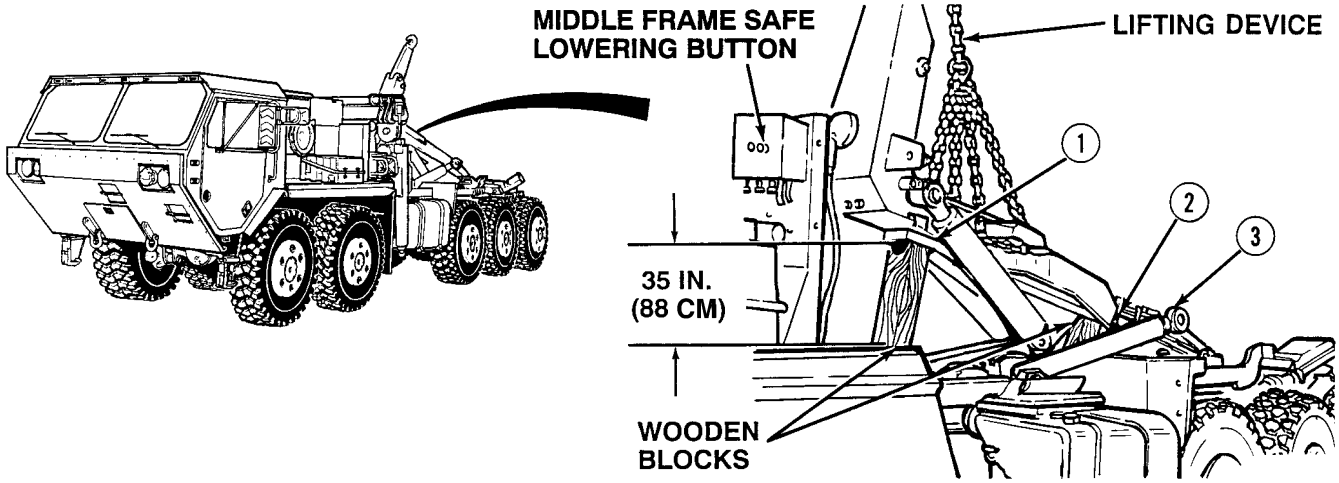


WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Hook arm cylinders weigh 210 lbs (95 kg) each. Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(1) Attach lifting device to middle frame (1).

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).



NOTE

Middle frame tube should be blocked 35 in. (89 cm) above compression frame.

(2) Turn ignition switch to ON position.

CAUTION

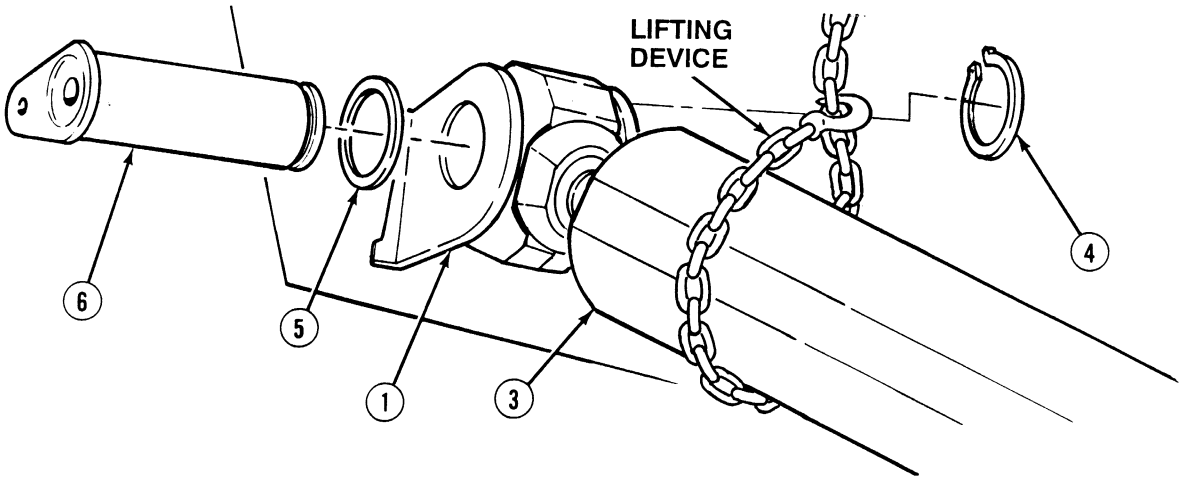
Do not allow wooden blocks supporting middle frame to fall when middle frame is lifted, or damage to equipment may result.

(3) With the aid of an assistant, press middle frame safe lowering button while using lifting device to raise middle frame (1).

(4) Raise middle frame (1) hook arm pivot pin (2) is above main cylinder (3). Block up middle frame (1) in two places with wooden blocks.

(5) Turn ignition switch to OFF position.

(6) Remove lifting device from hook arm (1).



WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(7) Attach lifting device to main cylinder (3).

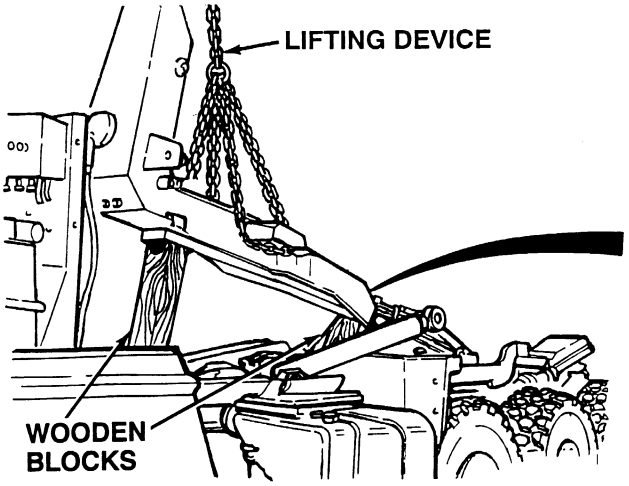
WARNING

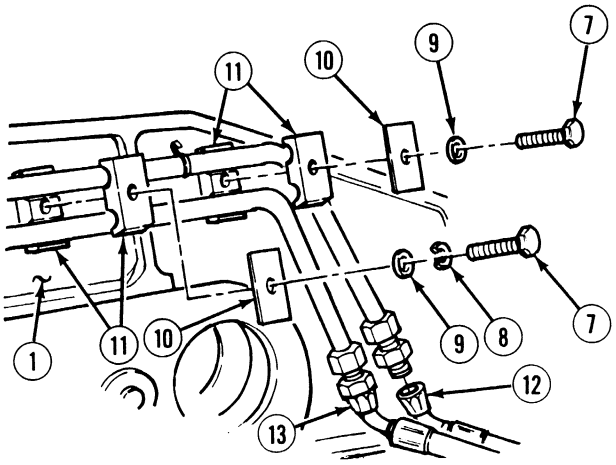
Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(8) With the aid of an assistant, support main cylinder (3) using lifting device and remove retaining ring (4), shim (5) and main cylinder pivot pin (6). Lower main cylinder out of middle frame (1).

(9) Remove lifting device from main cylinder (3).

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

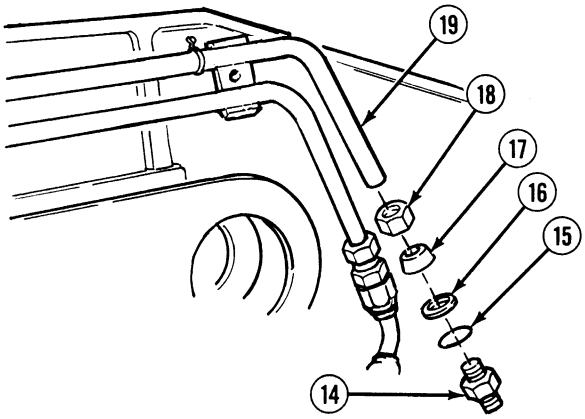
NOTE

- Tag and mark all hoses prior to removal.
- Cap and plug hydraulic hoses and tubes after removal.
- Remove cable ties as required.

(10) Remove two screws (7), lockwashers (8), washers (9), cover plates (10) and four clamps (11).

(11) Remove screw (7), washer (9), cover plate (10), two clamps (11), hose 2891 (12) and hose 2881 (13) from middle frame (1).

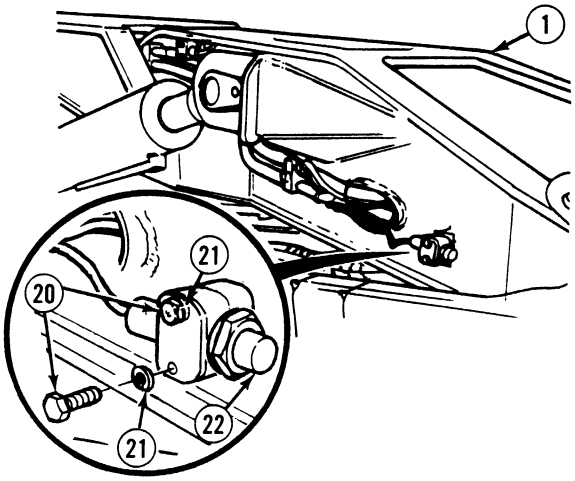
(12) Remove adapter (14), preformed packing (15), spacer (16), compression ring (17) and nut (18) from tube (19). Discard preformed packing.

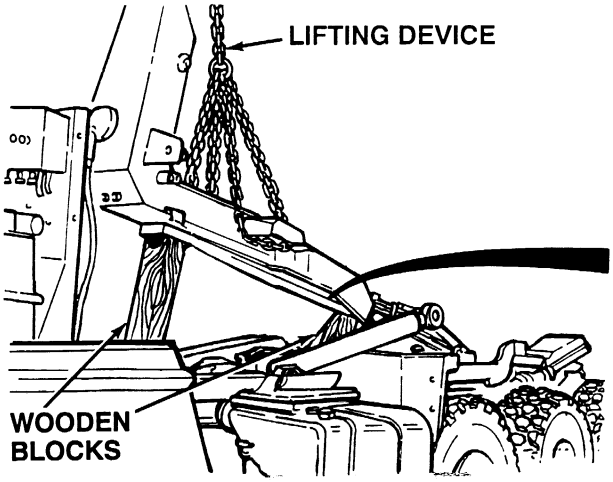


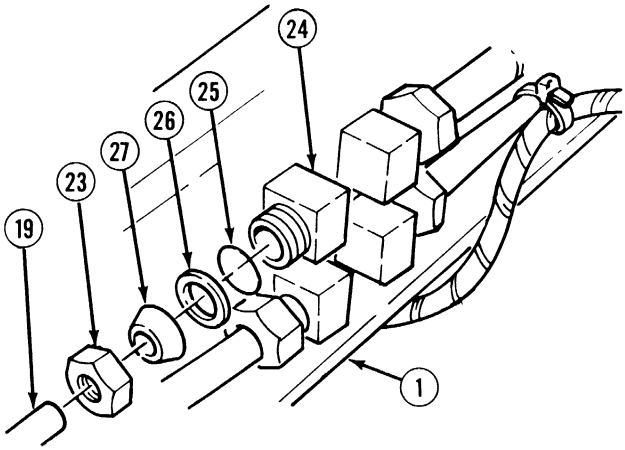
NOTE

Step (13) applies to tubes on left side only.

(13) Remove two screws (20), lockwashers (21) and proximity switch (22) with clamp. Do not separate clamp halves.







NOTE

Remove cable ties from tube as required.

(14) Remove tube nut (23), from bulkhead (24) at inside rear of middle frame (1).

(15) Pull tube (19) from bulkhead (24), remove preformed packing (25), spacer (26), compression ring (27) and nut (23), from tube and remove tube from middle frame (1). Discard preformed packing.

b. Installation.

(1) Apply hydraulic oil to preformed packing (25).

(2) Position tube (19) through middle frame (1) and install nut (23), compression ring (27), spacer (26) and preformed packing (25) on tube (19).

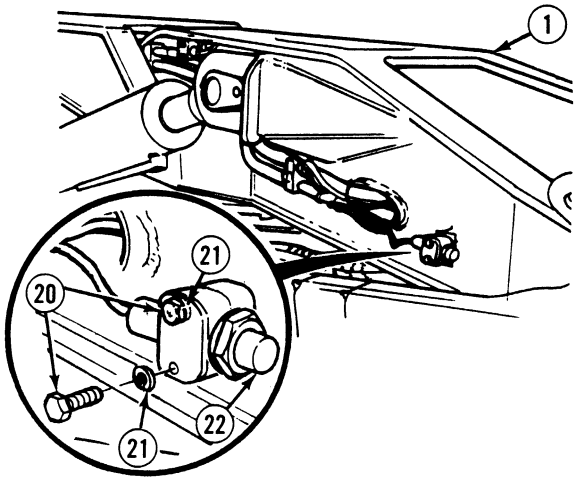
NOTE

Install cable ties as required to secure harness to tube.

(3) Insert tube (19) into bulkhead (24) and install nut (23) on bulkhead.

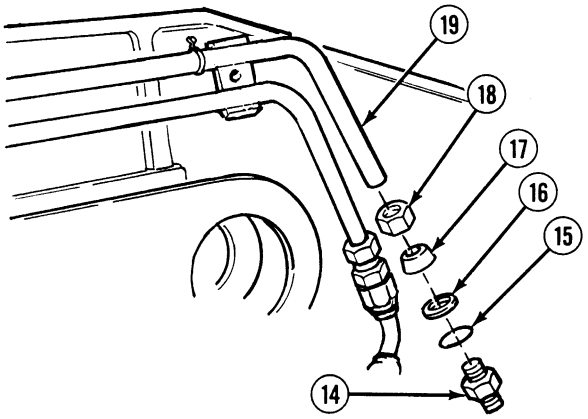
16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).

(4) Install proximity switch (22) with clamps using two screws (20) and lockwashers (21).



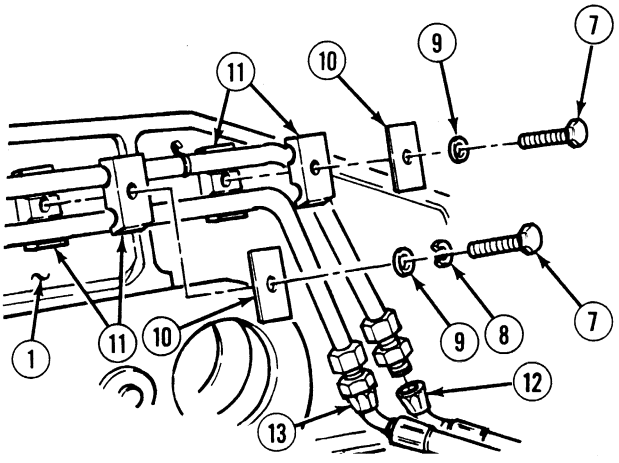
(5) Apply hydraulic oil to preformed packing (15).

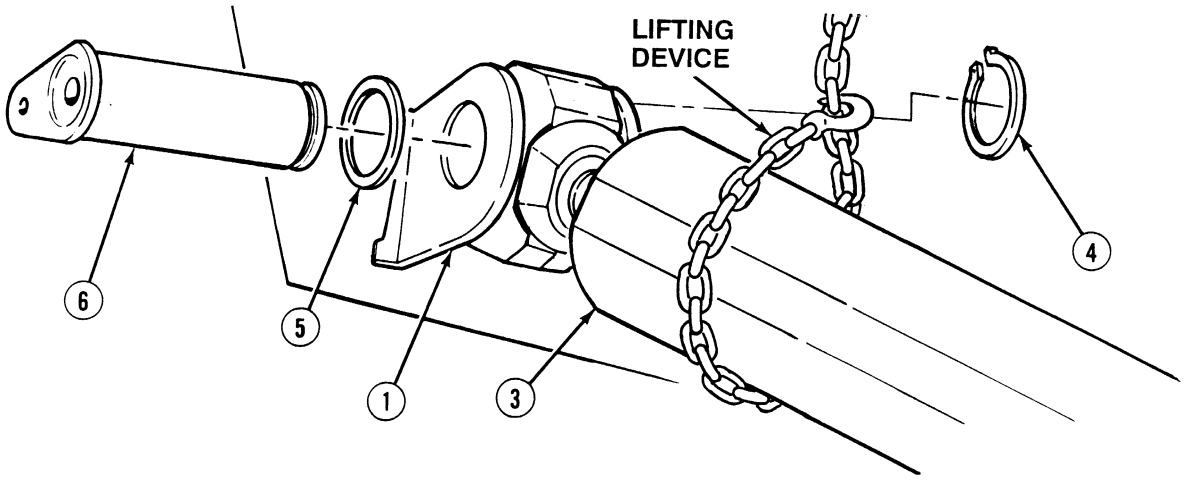
(6) Install tube nut (18), compression ring (17), spacer (16), preformed packing (15) and adapter (14) on tube (19).



(7) Install four clamps (11), two cover plates (10), washers (9), lockwashers (8) and screws (7).

(8) Install hose 2891 (12), hose 2881 (13), two clamps (11), cover plate (10), washer (9) and screw (7) on middle frame (1).





WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(9) Attach lifting device to main cylinder (3).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

It may be necessary to use soft faced hammer to align cylinder rod end with clevis on middle frame.

(10) With the aid of an assistant and using lifting device, lift main cylinder (3) into middle frame (1) and install pivot pin (6), shim (5) and retaining ring (4).

(11) Remove lifting device from main cylinder (3).

16-41. LOAD HANDLING SYSTEM (LHS) MIDDLE FRAME TUBE REPLACEMENT (CONT).

WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Hook arm cylinders weigh 210 lbs (95 kg) each. Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(12) Attach lifting device to middle frame (1).

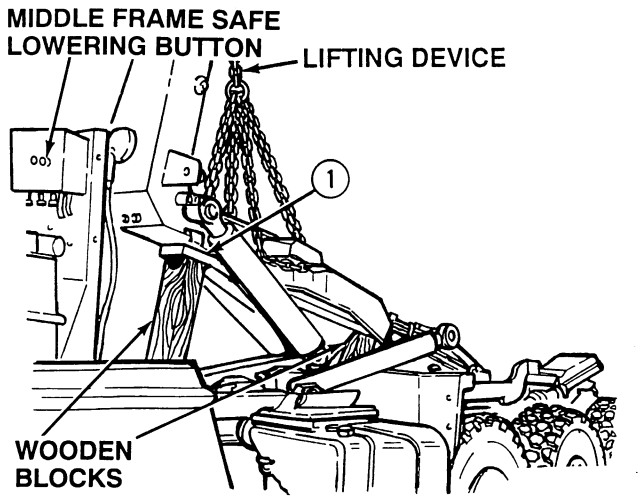
CAUTION

Do not allow wooden blocks supporting middle frame to fall when middle frame is lifted, or damage to equipment may result.

(13) With the aid of an assistant, press middle frame safe lowering button while using lifting device to raise middle frame (1).

(14) Remove wooden blocks and then lower middle frame (1).

(15) Remove lifting device from middle frame (1).



c. Follow-On Maintenance:

- Install LHS main junction box cover, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-42. COMPRESSION FRAME REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Wrench, Combination 1-1/8 in. (Item 255, Appendix F)
Wrench, Combination 1-1/4 in. (Item 256, Appendix F)
Wrench, Combination 1-5/8 in. (Item 261, Appendix F)
Wrench, Combination 1-13/16 in. (Item 264, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m]) (Item 278, Appendix F)
Lifting Device, Minimum Capacity 800 lbs (363 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)

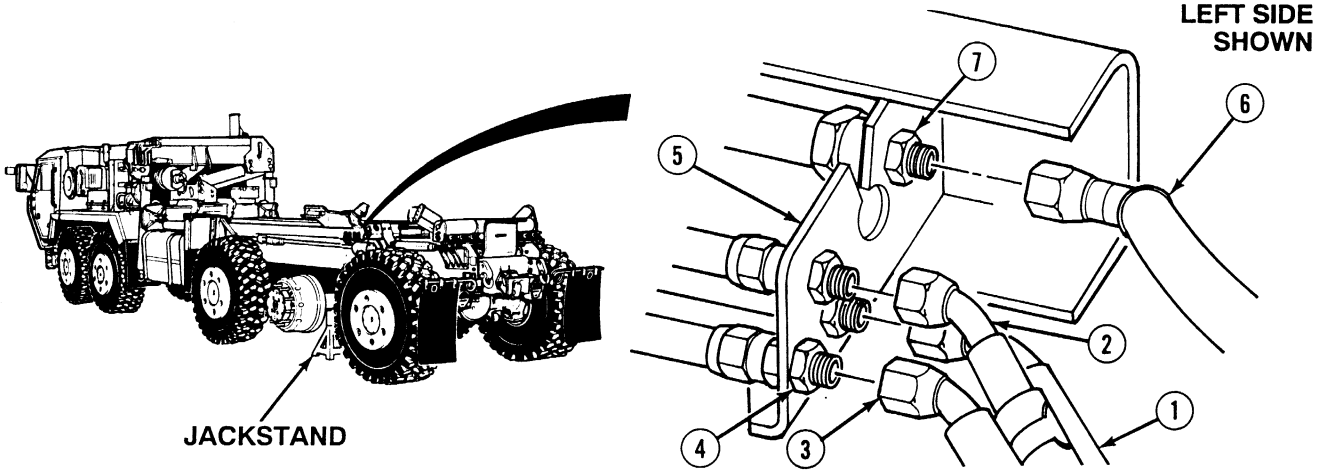
Materials/Parts - Continued
Tags, Identification (Item 72, Appendix B)
Locknut (6) (Item 167, Appendix E)
Locknut (Item 175, Appendix E)
Locknut (6) (Item 204, Appendix E)
Lockwasher (3) (Item 266, Appendix E)
Lockwasher (6) (Item 277, Appendix E)
Lockwasher (16) (Item 282, Appendix E)
Packing, Preformed (4) (Item 332, Appendix E)
Packing, Preformed (2) (Item 333, Appendix E)
Washer, Spring (48) (Item 696, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Tire removed (4th axle left side), (TM 9-2320-364-10)
LHS main harness removed, (Para 6-31)
LHS middle frame removed, (Para 16-40)
LHS main cylinders removed, (Para 17-15)

16-42. COMPRESSION FRAME REPAIR (CONT).

a. Removal.



WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

NOTE

- Tag and mark all hoses prior to removal.
- Left side and right side procedures are the same. Left side is shown.
- Disconnect hoses 2588, 2888, 2889 and 2892 on the right side.
- Cap and plug all hoses and tubes prior to removal.

(1) Disconnect hoses 2887 (1), 2666 (2) and 2890 (3) from three adapters (4) at front of compression frame (5).

(2) Disconnect hose 2891 (6) from adapter (7) at front of compression frame (5).

WARNING

Compression frame weighs 800 lbs (363 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

NOTE

Left and right side screws are removed the same way. Left side shown.

(3) Attach lifting device to compression frame (5).

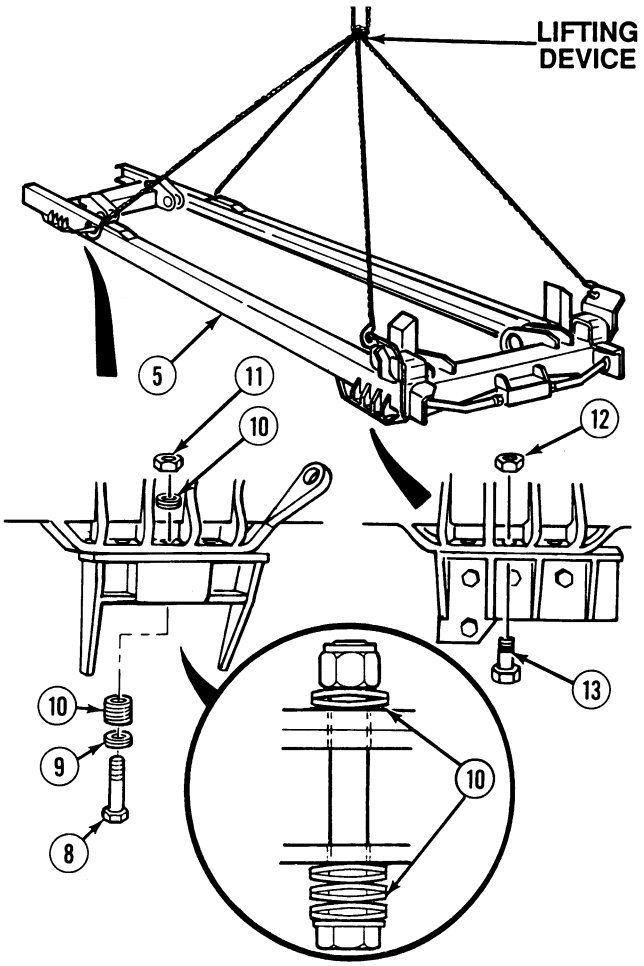
(4) With the aid of an assistant, remove three front screws (8), washers (9), 24 spring washers (10) and three locknuts (11) from compression frame (5) and truck. Discard spring washers and locknuts.

(5) With the aid of an assistant, remove three rear locknuts (12) and screws (13) from compression frame (5) and truck. Discard locknuts.

(6) Repeat Steps (4) through (5) for right side.

(7) With the aid of an assistant and using lifting device, lift compression frame (5) off truck.

(8) Remove lifting device from compression frame (5).

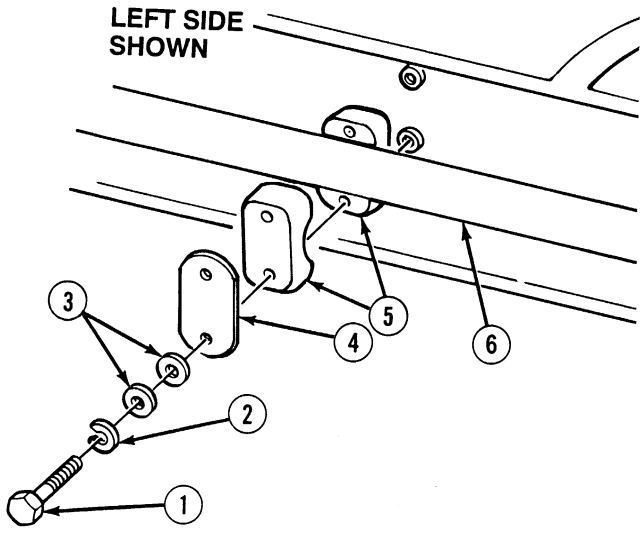


b. Disassembly.

NOTE

Left and right side clamps are removed the same way. Left side shown.

(1) Remove eight screws (1) and lockwashers (2), sixteen washers (3), four cover plates (4) and eight tube clamp halves (5) from left side compression frame tube (6). Discard lockwashers.



16-42. COMPRESSION FRAME REPAIR (CONT).

NOTE

- Tag and mark all hoses prior to removal.
- Left side and right side procedures are the same. Left side is shown.
- Cap and plug all hoses and tubes after removal.
- Disconnect hoses 2588, 2888 and 2889 on the right side.

(2) Disconnect hoses 2887 (7), 2666 (8) and 2890 (9) from three adapters (10) at front of compression frame (11).

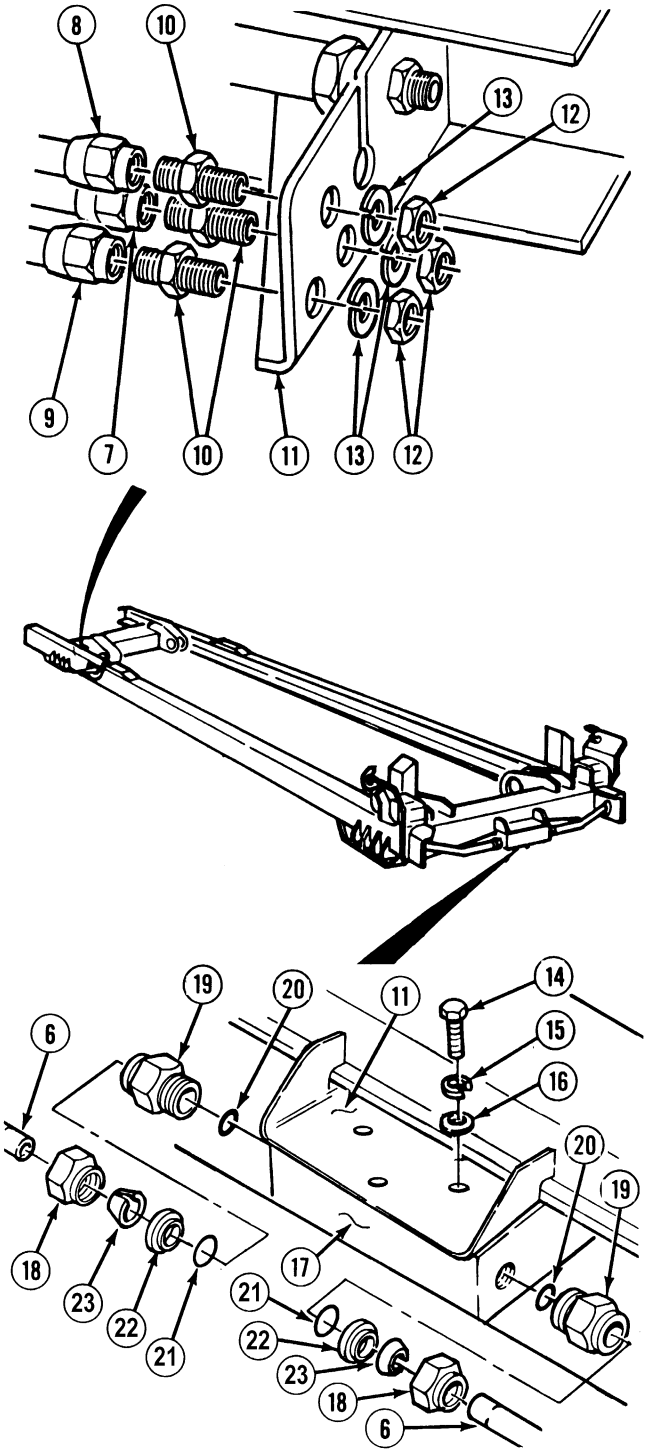
(3) Remove three nuts (12), lockwashers (13) and adapters (10) from compression frame (11). Discard lockwashers.

(4) Remove three screws (14), lockwashers (15) and washers (16) from diverter manifold (17). Discard lockwashers.

(5) Remove two nuts (18) and compression frame tubes (6) from diverter manifold (17).

(6) Remove two fittings (19) and preformed packings (20) from diverter manifold (17). Discard preformed packings.

(7) Remove two preformed packings (21), spacers (22), compression rings (23) and nuts (18) from compression frame tubes (6). Discard preformed packings.

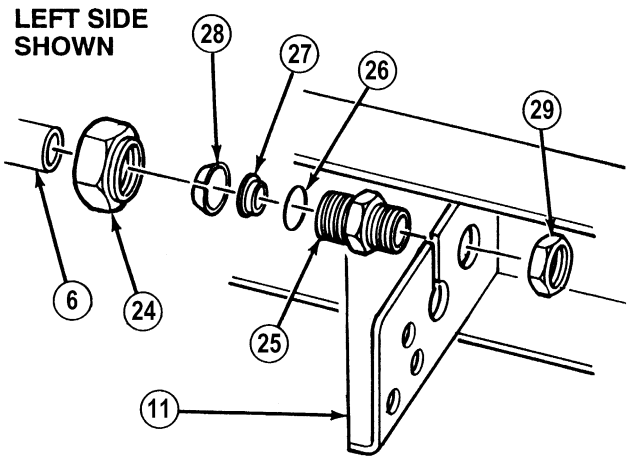


(8) Remove left side compression frame nut (24) and left side compression frame tube (6) from adapter (25).

(9) Remove preformed packing (26), spacer (27), compression ring (28) and nut (24) from left side compression frame tube (6). Discard preformed packing.

(10) Remove nut (29) and adapter (25) from compression frame (11).

(11) Repeats Steps (1) through (10) for right side.

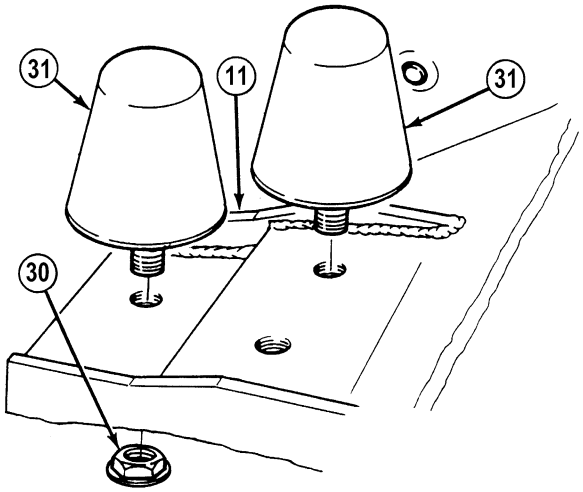


(12) Remove locknut (30) and three rubber bumpers (31) from compression frame (11). Discard locknut

c. Assembly.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(1) Coat threads of three rubber bumpers (31) with sealing compound.

(2) Install three rubber bumpers (31) in compression frame (11).

(3) Install locknut (30) on rubber bumper (31).

16-42. COMPRESSION FRAME REPAIR (CONT).

(4) Install adapter (25) with nut (29) in compression frame (11).

CAUTION

Ensure correct preformed packing is installed on fitting or damage to packing will result.

(5) Apply hydraulic oil to preformed packing (26).

(6) Install nut (24), compression ring (28), spacer (27) and preformed packing (26) on left side compression frame tube (6).

(7) Install left side compression frame tube (6) in adapter (25) and slide preformed packing (26) with spacer (27) and compression ring (28) into adapter (25).

(8) Install nut (24) on adapter (25).

(9) Apply hydraulic oil to two preformed packings (21).

(10) Install two nuts (18), compression rings (23), spacers (22) and preformed packings (21) on compression frame tubes (6).

CAUTION

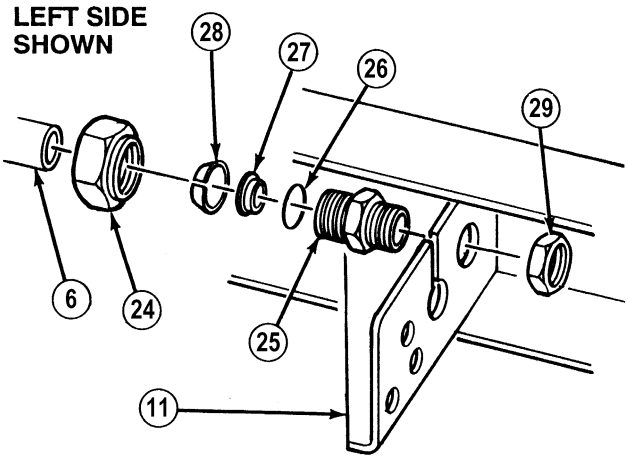
Ensure correct preformed packing is installed on fitting or damage to packing will result.

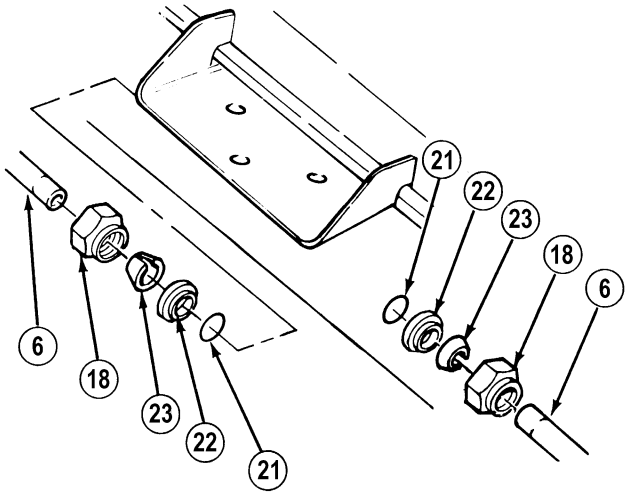
(11) Apply hydraulic oil to two preformed packings (20) and install on fittings (19).

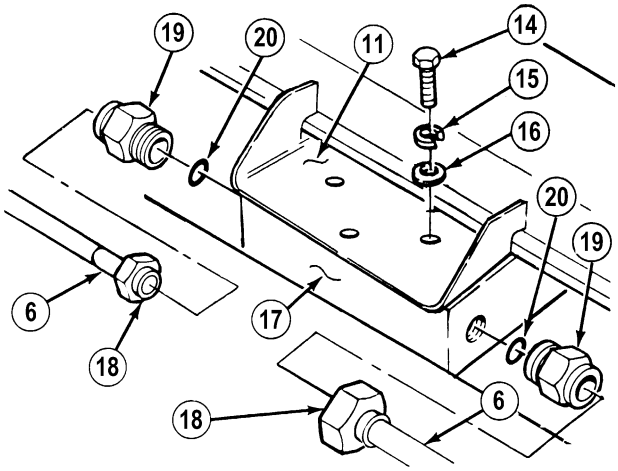
(12) Install two fittings (19) on diverter manifold (17).

(13) Install two compression frame tubes (6) in diverter manifold (17).

(14) Install diverter manifold (17) on compression frame (11) with three washers (16), lockwashers (15) and screws (14).





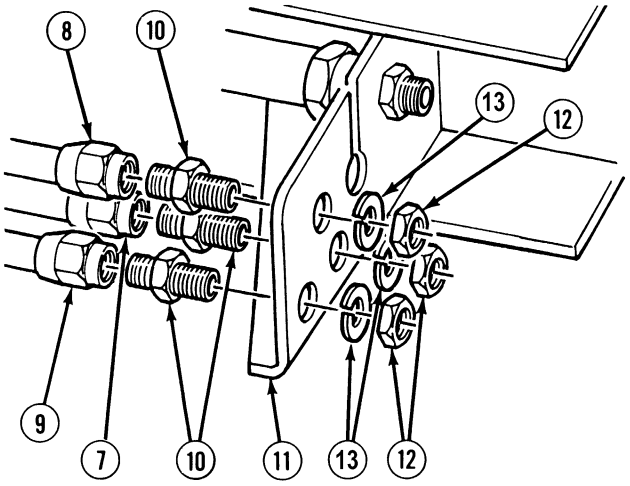


NOTE

Repeat Steps (15) and (16) for right side hoses 2588, 2888 and 2889.

(15) Install three adapters (10) at front of compression frame (11) with three lockwashers (13) and nuts (12).

(16) Install hoses 2887 (7), 2666 (8) and 2890 (9) on three adapters (10).

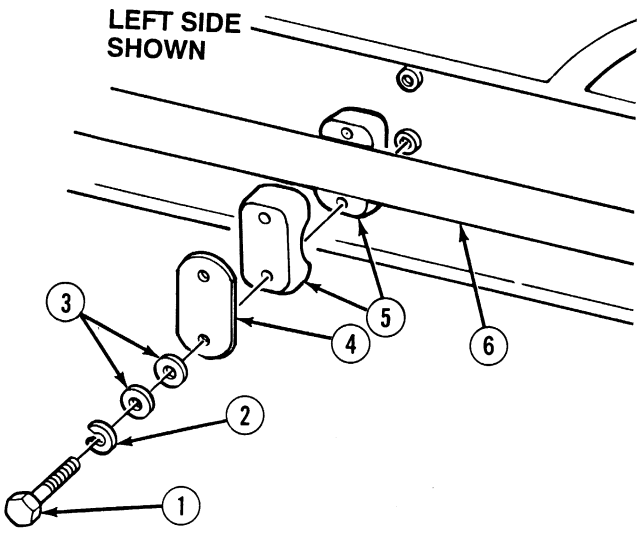


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(17) Apply sealing compound to threads of screws (1).

(18) Install eight tube clamp halves (5) and four cover plates (4) on left side compression frame tube (6) with sixteen washers (3), eight lockwashers (2) and screws (1).



16-42. COMPRESSION FRAME REPAIR (CONT).

d. Installation.

WARNING

Compression frame weighs 4,200 lbs (1,907 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

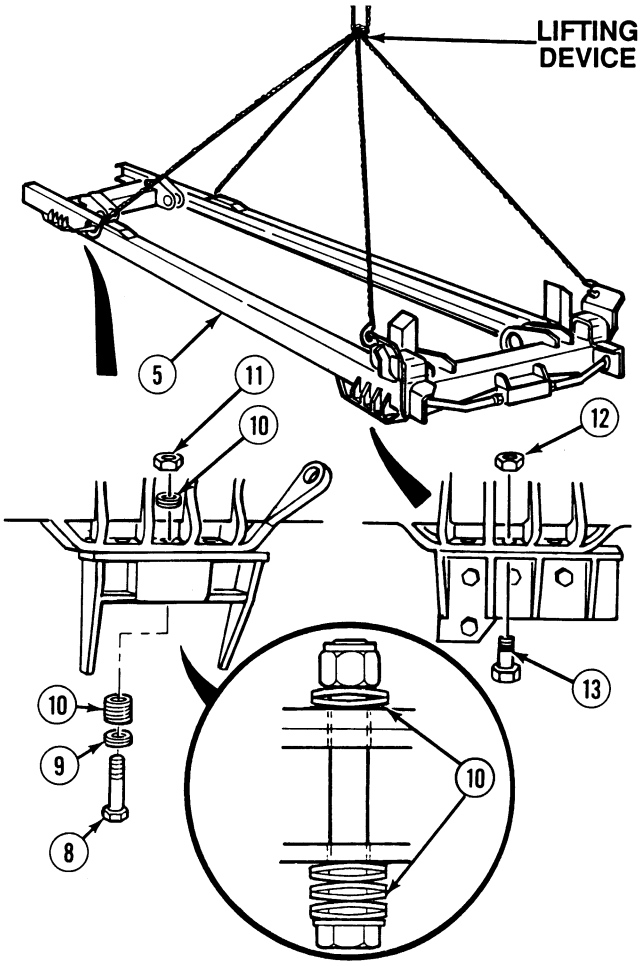
(1) Attach lifting device to compression frame (5).

(2) With the aid of an assistant and using lifting device, lower compression frame (5) onto truck and position for installation.

NOTE

Left and right side screws are installed the same way. Left side is shown.

(3) Position three screws (13) and locknuts (12) on each side of compression frame (5) and truck.



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Install spring washers in pairs with no two pairs in the same direction.

(4) Apply sealing compound on threads of three screws (8).

(5) Install washer (9) and six spring washers (10) on three screws (8).

(6) Position three front screws (8) with washers (9) and spring washers (10) up through truck and compression frame (5), and then install two spring washers (10) and locknut (11) on screw (8).

(7) Repeat Steps (3) through (6) for right side.

(8) Tighten locknuts (11) to 75 lb-ft (102 N·m).

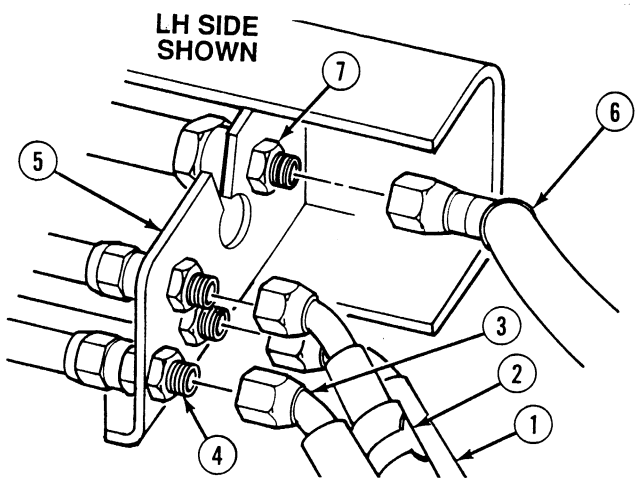
(9) Tighten locknuts (12) to 410 lb-ft (556 N·m).

(10) Repeat Steps (7) and (8) for right side.

(11) Remove lifting device from compression frame (5).

(12) Install hose 2891 (6) on adapter (7).

(13) Install hoses 2887 (1), 2666 (2) and 2890 (3) on three adapters (4) at front of compression frame (5).



e. Follow-On Maintenance:

- Install middle frame, (Para 16-40).
- Install LHS main harness, (Para 6-31).
- Install LHS main cylinders, (Para 17-15).
- Install Axle No. 4 left side tire, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

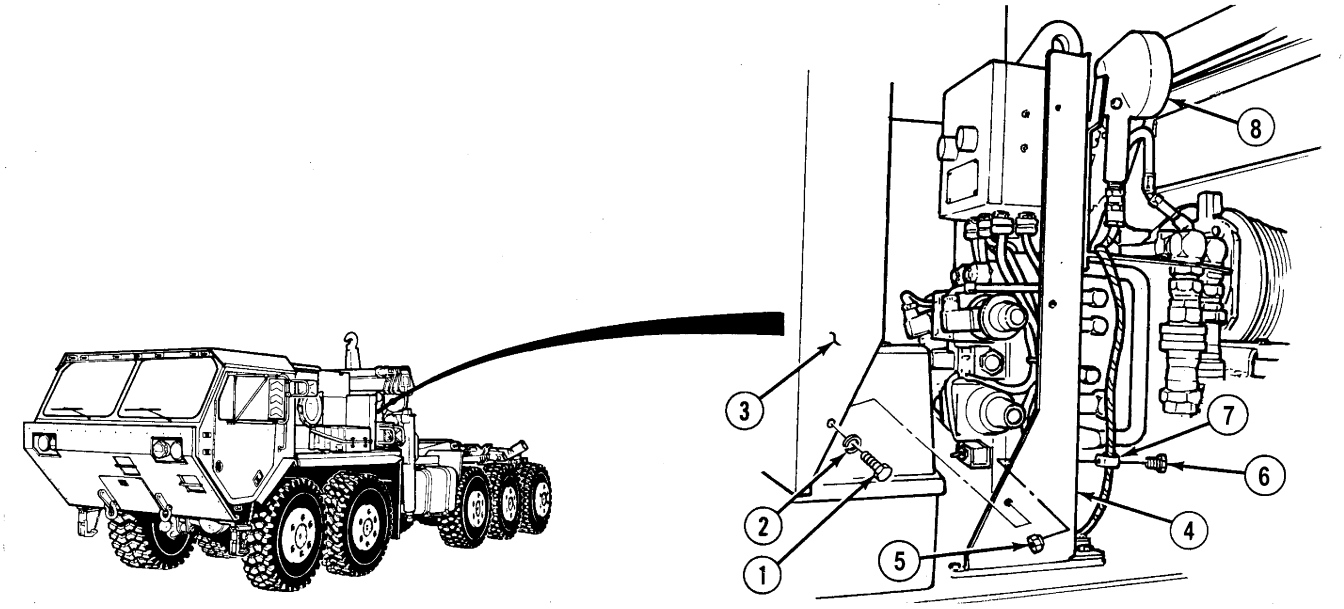
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Torch, Propane (Item 247, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Lifting Device, Minimum Capacity 150 lbs
(68 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 54, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (4) (Item 174, Appendix E)
Locknut (Item 176, Appendix E)
Locknut (6) (Item 210, Appendix E)
Lockwasher (8) (Item 251, Appendix E)
Lockwasher (8) (Item 266, Appendix E)
Packaging, Preformed (4) (Item 351, Appendix E)
Packaging, Preformed (2) (Item 352, Appendix E)
Packaging, Preformed (6) (Item 355, Appendix E)
Parts Kit, Seal (Item 410, Appendix E)
Pin, Cotter (Item 420, Appendix E)
Preformed Packing Kit (Item 449, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
LHS main manifold load control valve removed,
(Para 17-6)
LHS check valve removed, (Para 17-7)
LHS main manifold relief valve removed,
(Para 17-8)
LHS solenoid valve and coil removed,
(Para 17-9)
LHS directional control valve removed,
(Para 17-10)
LHS transit valve removed, (Para 17-11)

a. Removal.



NOTE

Only remove center screw on engine side of LHS control box cover.

(1) Remove four screws (1), lockwashers (2) and cover (3) from LHS main manifold bracket assembly (4). Discard lockwashers.

(2) Remove locknut (5), screw (6) and cushion clip (7) from LHS main manifold bracket assembly (4). Discard locknut.

(3) Remove worklight (8) from LHS main manifold bracket assembly (4).

NOTE

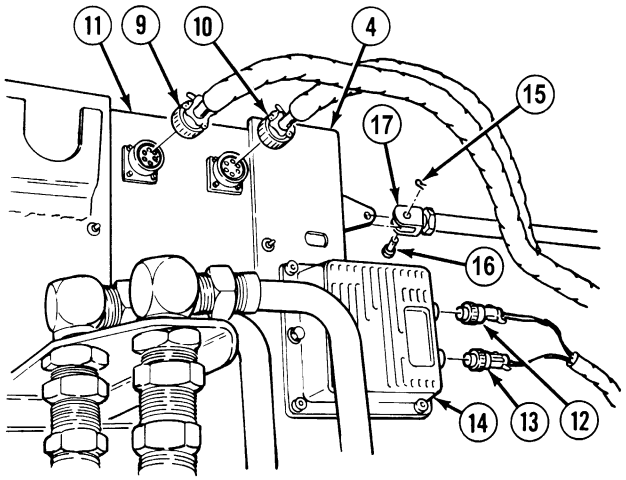
Tag and mark wires prior to removal.

(4) Disconnect MC82 connector (9) and MC85 connector (10) from LHS main junction box (11).

(5) Disconnect MC59 connector (12) and MC73 connector (13) from EPAC controller (14).

(6) Remove cotter pin (15), pin (16) and clevis (17) from LHS main manifold bracket assembly bracket (4). Discard cotter pin.

(7) Position drain pan under LHS main manifold bracket assembly (4).



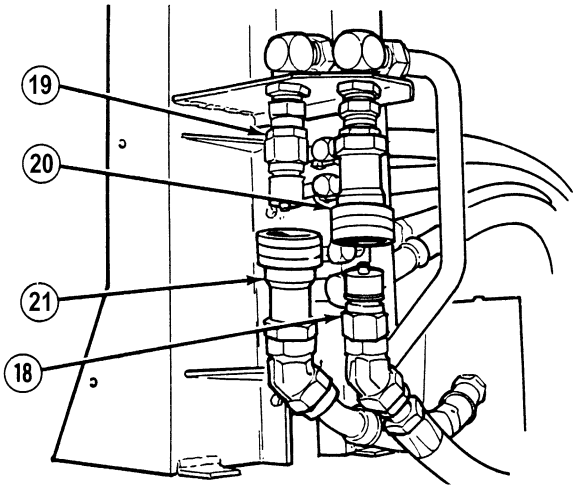
16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury to personnel.

NOTE

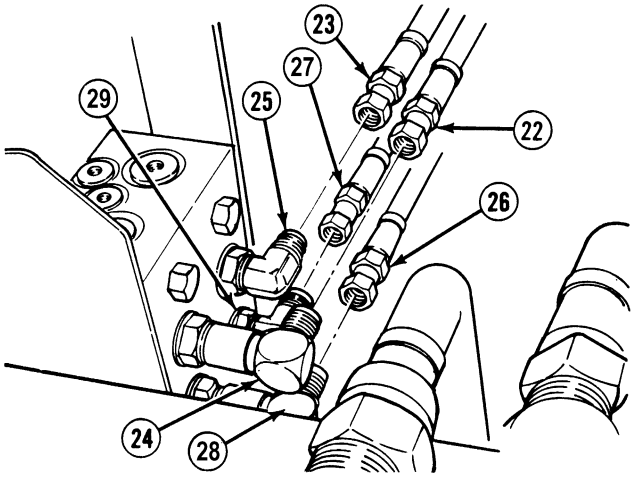
Cap and plug all hoses, tubes and fitting after removal.



(8) Remove couplings (18) and (19) from fittings (20) and (21).

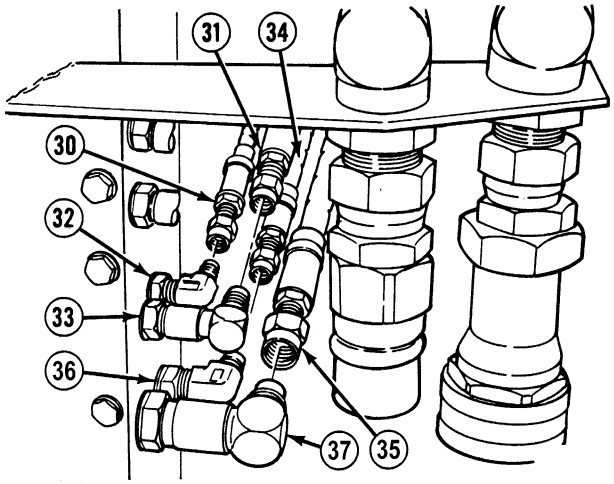
(9) Remove hose 2887 (22) and hose 2588 (23) from elbows (24) and (25).

(10) Remove hose 2888 (26) and hose 2666 (27) from elbows (28) and (29).



(11) Remove hose 2890 (30) and hose 2889 (31) from elbows (32) and (33).

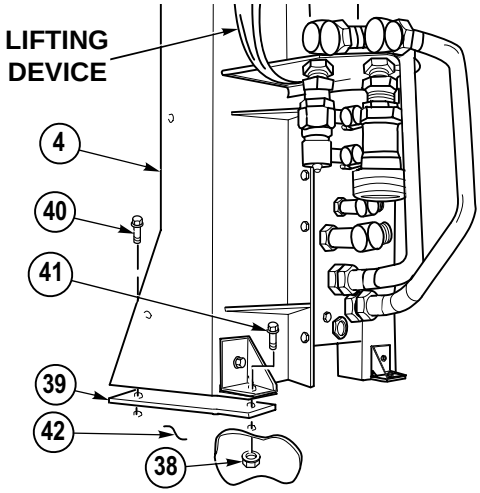
(12) Remove hose 2892 (34) and hose 2891 (35) from elbows (36) and (37).



NOTE

Spacer is under left side of LHS main manifold bracket assembly.

(13) Remove four locknuts (38), spacer (39), two screws (40) and screws (41) from LHS main manifold bracket assembly (4). Discard locknuts.



WARNING

LHS main manifold bracket assembly weighs 120 lbs (54 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(14) Attach lifting device to LHS main manifold bracket assembly (4).

(15) Remove LHS main manifold bracket assembly (4) from fender (42).

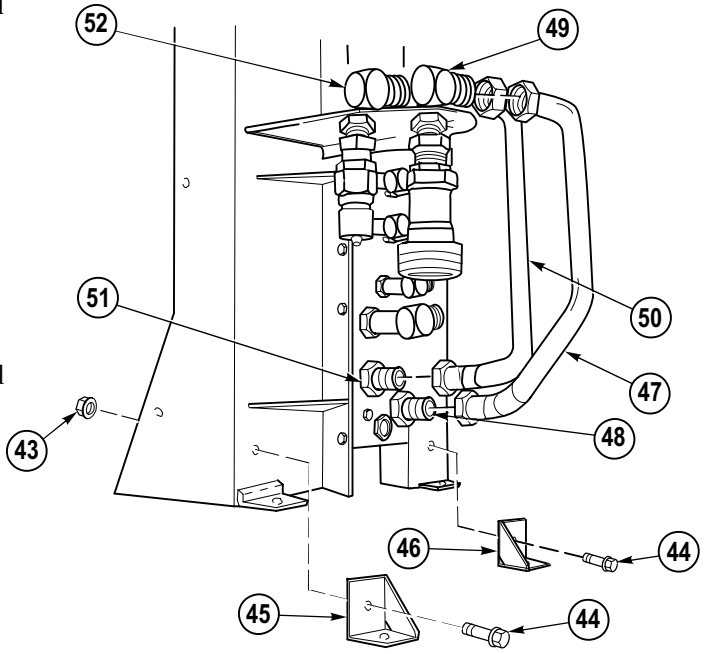
(16) Position LHS main manifold bracket assembly (4) on clean work surface.

(17) Remove lifting device from LHS main manifold bracket assembly (4).

(18) Remove two locknuts (43), screws (44) and brackets (45) and (46). Discard locknuts.

(19) Remove oil tube (47) from fitting (48) and elbow (49).

(20) Remove oil tube (50) from fitting (51) and elbow (52).



16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(21) Remove couplings (53) and (54) and two preformed packings (55) from fittings (56). Discard preformed packings.

(22) Remove two nuts (57), elbow (49) and elbow (52) from bracket (58).

(23) Loosen four screws (59) and remove cover (60) from LHS main junction box (11).

(24) Remove four locknuts (61), screws (62) and LHS main junction box (11) from LHS main manifold assembly (4). Discard locknuts.

(25) Remove eight screws (63), lockwashers (64) and LHS main manifold bracket assembly (4) from hydraulic manifold (65). Discard lockwashers.

(26) Heat screws (66) where installed to LHS main manifold bracket assembly (4) with propane torch.

WARNING

Screws are extremely hot. Do not touch screws without protective gloves or severe burns to hands could result.

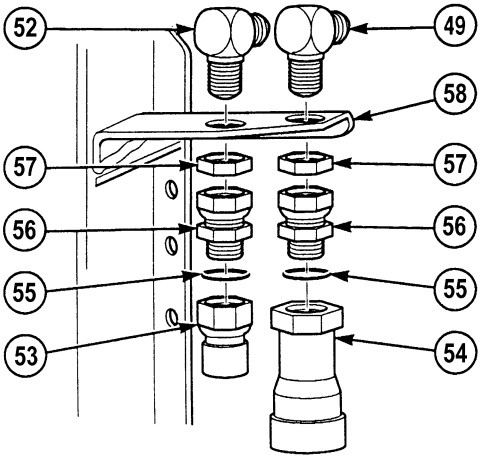
(27) Remove two screws (66), lockwashers (67), washers (68) and spacers (69) from LHS main manifold bracket assembly (4). Discard lockwashers.

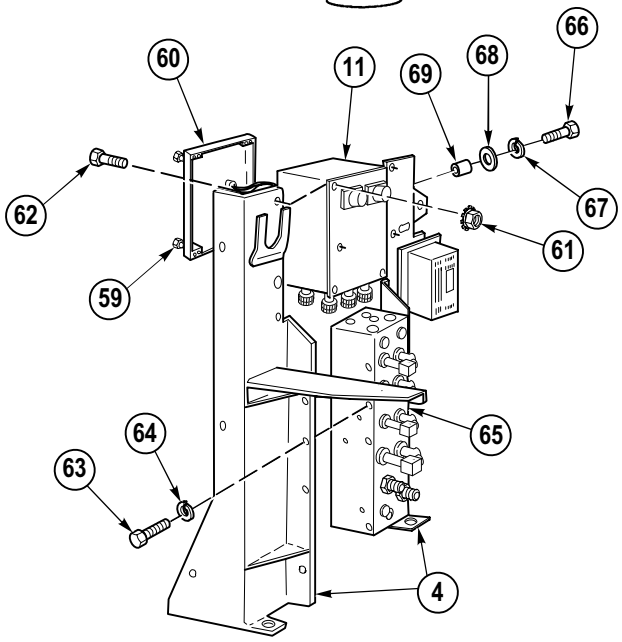
(28) Remove switch (70) and preformed packings (71) and (72) from hydraulic manifold (65). Discard preformed packings.

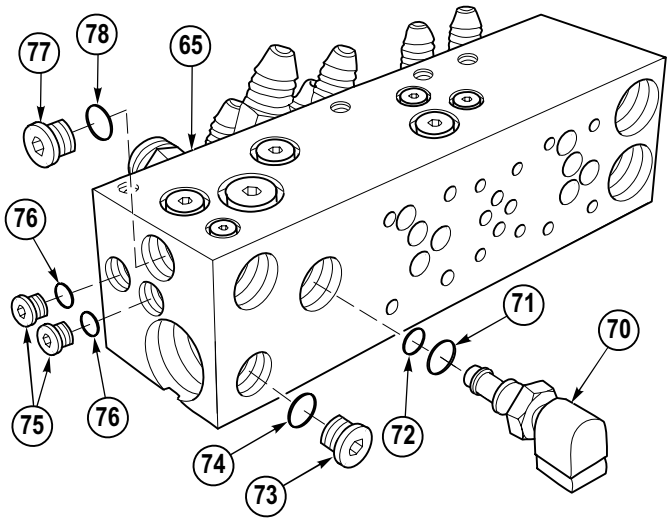
(29) Remove plug (73) and preformed packing (74) from hydraulic manifold (65). Discard preformed packing.

(30) Remove two plugs (75) and preformed packings (76) from hydraulic manifold (65). Discard preformed packings.

(31) Remove plug (77), and preformed packing (78) from hydraulic manifold (65). Discard preformed packing.





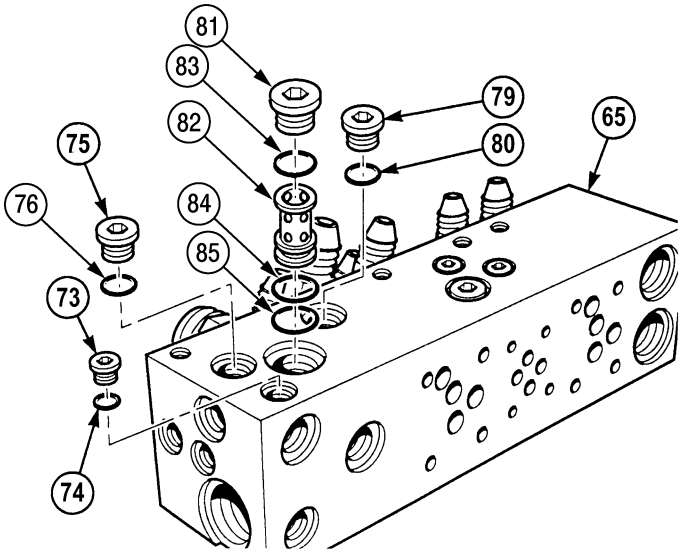


(32) Remove plug (79), and preformed packing (80) from hydraulic manifold (65). Discard preformed packing.

(33) Remove plug (81), check valve (82) and preformed packings (83), (84) and (85) from hydraulic manifold (65). Discard preformed packings.

(34) Remove plug (75) and preformed packing (76) from hydraulic manifold (65). Discard preformed packing.

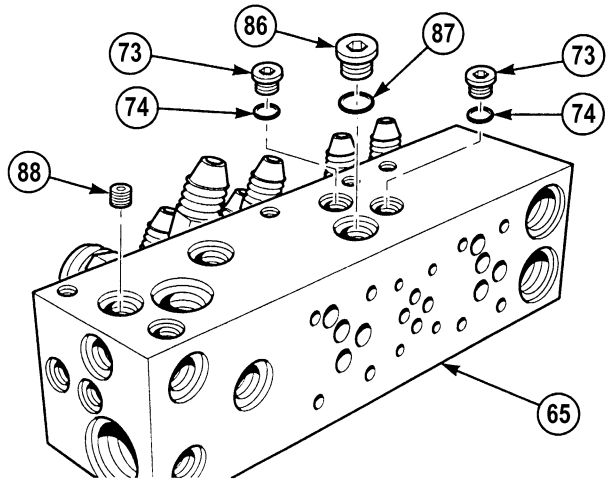
(35) Remove plug (73) and preformed packing (74) from hydraulic manifold (65)



(36) Remove plug (86) and preformed packing (87) from hydraulic manifold (65). Discard preformed packing.

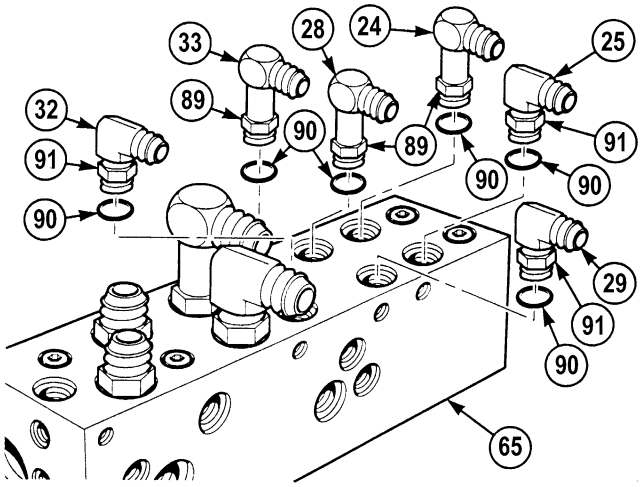
(37) Remove two plugs (73) and preformed packings (74) from hydraulic manifold (65). Discard preformed packings.

(38) Remove orifice plug (88) from hydraulic manifold (65).



(39) Loosen three nuts (89) and remove elbows (24), (28) and (33) and preformed packings (90) from hydraulic manifold (65).

(40) Loosen three nuts (91) and remove elbows (25), (29) and (32) and preformed packings (90) from hydraulic manifold (65). Discard preformed packings.

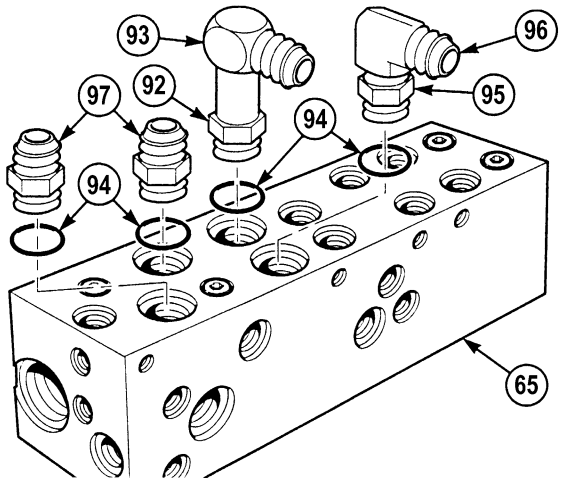


16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

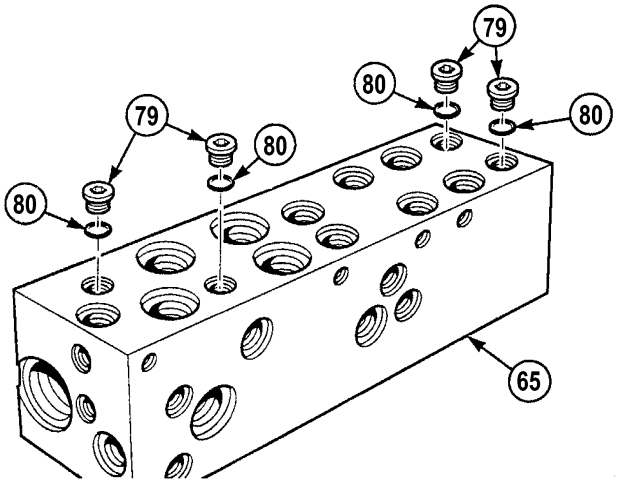
(41) Loosen nut (92) and remove elbow (93) and preformed packing (94) from hydraulic manifold (65). Discard preformed packing.

(42) Loosen nut (95) and remove elbow (96) and preformed packing (94) from hydraulic manifold (65). Discard preformed packing.

(43) Remove two fittings (97) and preformed packings (94) from hydraulic manifold (65). Discard preformed packings.



(44) Remove four plugs (79) and preformed packings (80) from hydraulic manifold (65). Discard preformed packings.

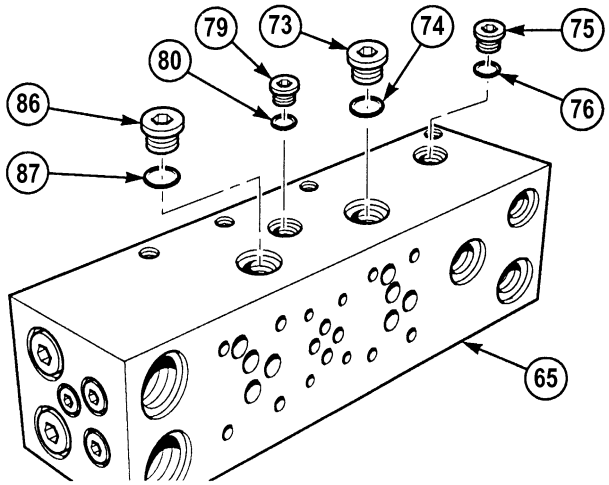


(45) Remove plug (86) and preformed packing (87) from hydraulic manifold (65). Discard preformed packings.

(46) Remove plug (79) and preformed packing (80) from hydraulic manifold (65). Discard preformed packing.

(47) Remove plug (73) and preformed packing (74) from hydraulic manifold (65). Discard preformed packing.

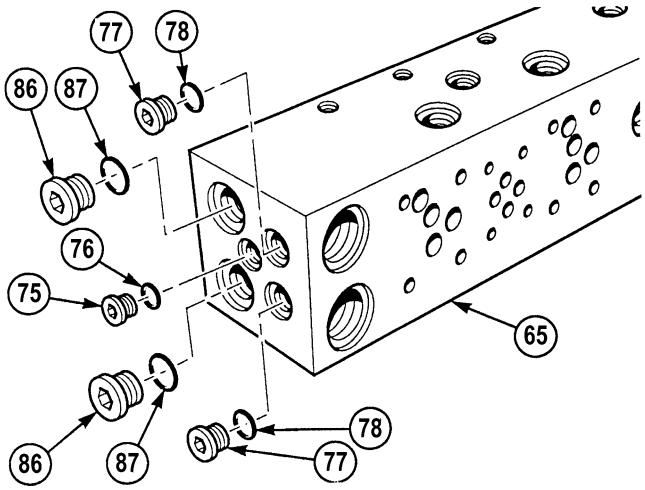
(48) Remove plug (75) and preformed packing (76) from hydraulic manifold (65). Discard preformed packing.



(49) Remove two plugs (77) and preformed packings (78) from hydraulic manifold (65). Discard preformed packings.

(50) Remove plug (75) and preformed packing (76) from hydraulic manifold (65). Discard preformed packing.

(51) Remove two plugs (86) and preformed packings (87) from hydraulic manifold (65). Discard preformed packings.



b. Installation.

(1) Apply hydraulic oil to preformed packing (87).

(2) Install two preformed packings (87) and plugs (86) on hydraulic manifold (65). Tighten to 15 lb-ft (20 N·m).

(3) Apply hydraulic oil to preformed packing (76).

(4) Install preformed packing (76) and plug (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(5) Apply hydraulic oil to preformed packing (78).

(6) Install two preformed packings (78) and plugs (77) on hydraulic manifold (65). Tighten to 30 lb-ft (41 N·m).

16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(7) Apply hydraulic oil to preformed packing (76).

(8) Install preformed packing (76) and plug (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(9) Apply hydraulic oil to preformed packing (74).

(10) Install preformed packing (74) and plug (73) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).

(11) Apply hydraulic oil to preformed packing (80).

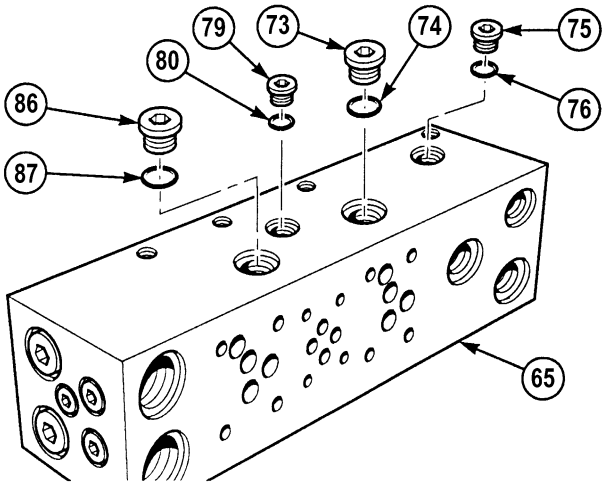
(12) Install preformed packing (80) and plug (79) on hydraulic manifold (65). Tighten to 11 lb-ft (15 N·m).

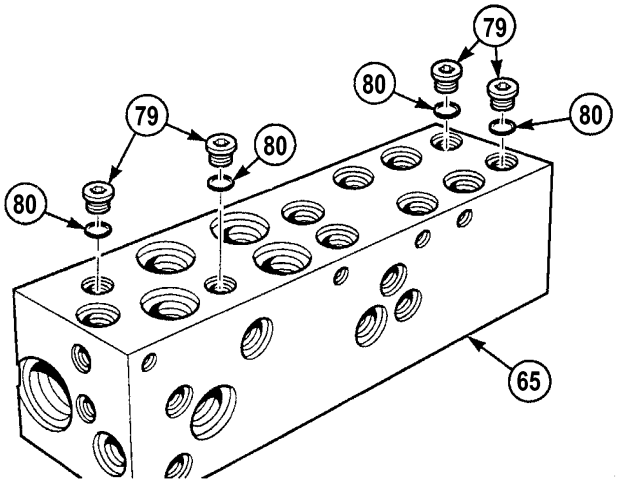
(13) Apply hydraulic oil to preformed packing (87).

(14) Install preformed packing (87) and plug (86) on hydraulic manifold (65). Tighten to 15 lb-ft (20 N·m).

(15) Apply hydraulic oil to four preformed packings (80).

(16) Install four preformed packings (80) and plugs (79) on hydraulic manifold (65). Tighten to 11 lb-ft (15 N·m).





(17) Apply hydraulic oil to two preformed packings (94).

(18) Install two preformed packings (94) and fittings (97) on hydraulic manifold (65).

(19) Apply hydraulic oil to preformed packing (94).

(20) Install preformed packing (94) and elbow (96) on hydraulic manifold (65) and tighten nut (95).

(21) Apply hydraulic oil to preformed packing (93).

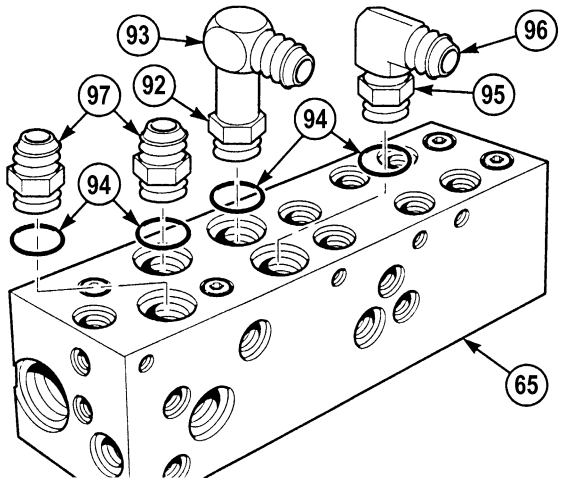
(22) Install preformed packing (94) and elbow (93) on hydraulic manifold (65) and tighten nut (92).

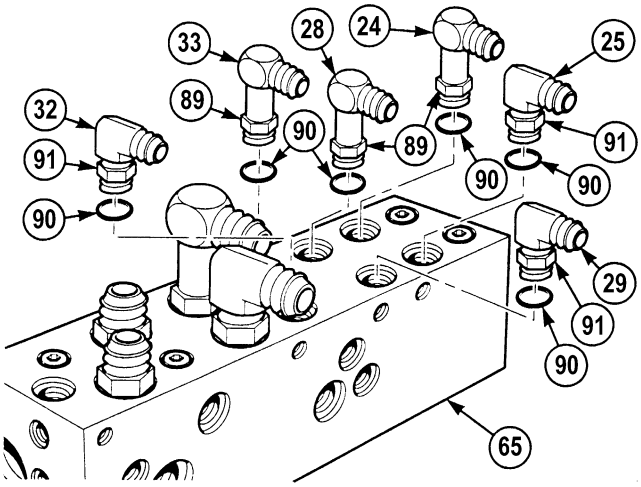
(23) Apply hydraulic oil to three preformed packings (90).

(24) Install three preformed packings (90) and elbows (25), (29) and (32) and tighten nuts (91).

(25) Apply hydraulic oil to three preformed packings (90).

(26) Install three preformed packings (90) and elbows (24), (28) and (33) and tighten nuts (89).





16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

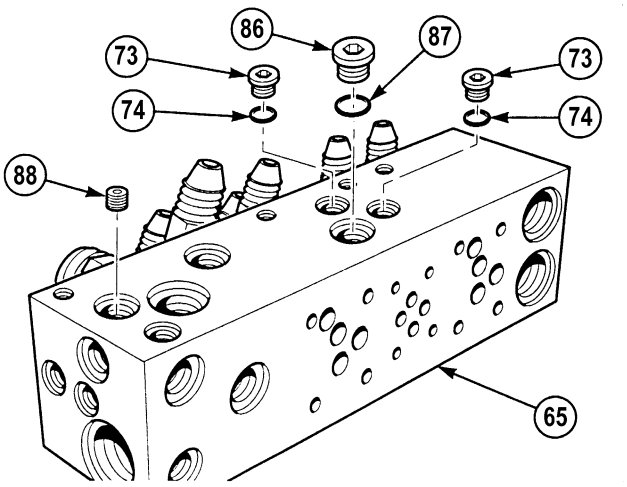
(27) Apply hydraulic oil to two preformed packings (74).

(28) Install two preformed packings (74) and plugs (73) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).

(29) Apply hydraulic oil to preformed packing (87).

(30) Install preformed packing (87) and plug (86) on hydraulic manifold (65). Tighten to 15 lb-ft (20 N·m).

(31) Install orifice plug (88) on hydraulic manifold (65).



(32) Apply hydraulic oil to preformed packing (74).

(33) Install preformed packing (74) and plug (63) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).

(34) Apply hydraulic oil to preformed packing (76).

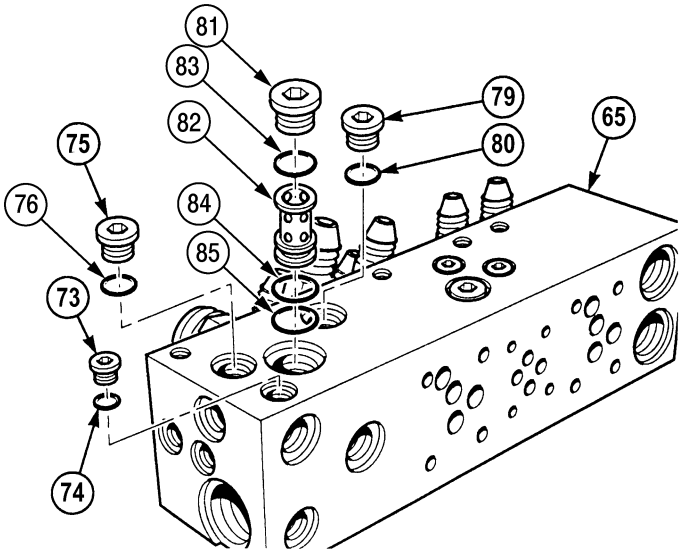
(35) Install preformed packing (76) and plug (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(36) Apply hydraulic oil to preformed packings (83), (84) and (85).

(37) Install preformed packings (83), (84) and (85), check valve (82) and plug (81) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(38) Apply hydraulic oil to preformed packing (80).

(39) Install preformed packing (80) and plug (79) on hydraulic manifold. Tighten to 11 lb-ft (15 N·m).



(40) Apply hydraulic oil to preformed packing (78).

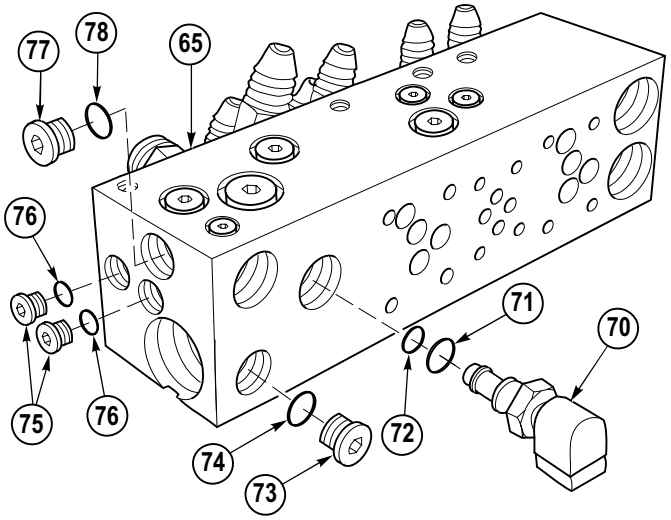
(41) Install preformed packing (78) and plug (77) on hydraulic manifold (65). Tighten to 30 lb-ft (41 N·m).

(42) Apply hydraulic oil to two preformed packings (76).

(43) Install two preformed packings (76) and plugs (75) on hydraulic manifold (65). Tighten to 8 lb-ft (11 N·m).

(44) Apply hydraulic oil to preformed packing (74).

(45) Install preformed packing (74) and plug (73) on hydraulic manifold (65). Tighten to 5 lb-ft (7 N·m).



(46) Apply hydraulic oil to preformed packings (71) and (72).

(47) Install preformed packings (71) and (72) and switch (70) on hydraulic manifold (65). Tighten to 20 lb-ft (27 N·m).

(48) Install hydraulic manifold (65) on left and right LHS main manifold brackets assembly (4) with eight lockwashers (64) and screws (63).

WARNING

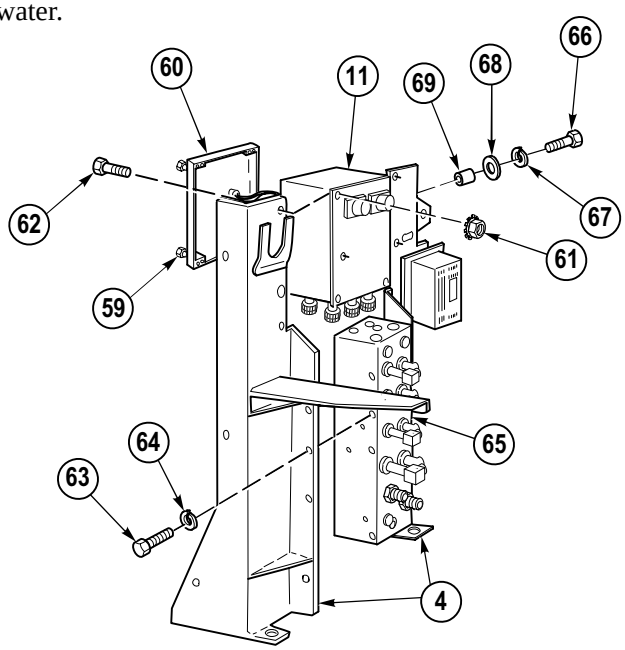
Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(49) Coat threads of screws (66) with sealing compound.

(50) Install two spacers (69), washers (68), lockwashers (67) and screws (66) on LHS main manifold assembly (4). Tighten to 13 lb-ft (18 N·m).

(51) Install LHS main junction box (11) on LHS main manifold assembly (4) with four locknuts (61) and screws (62). Tighten to 21 lb-in (3 N·m).

(52) Install cover (60) on LHS main junction assembly (4) and tighten screws (59).

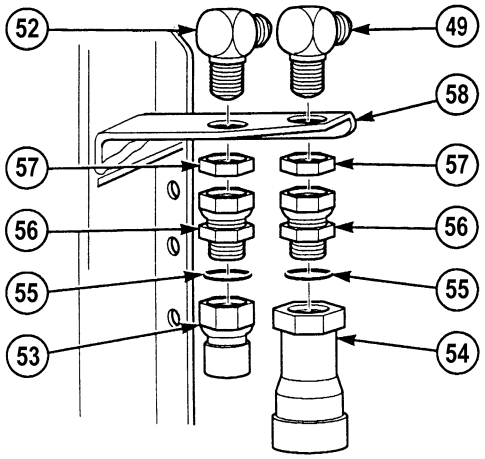


16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(53) Install elbows (49) and (52) on bracket (58) with nuts (57).

(54) Apply hydraulic oil to two preformed packings (55).

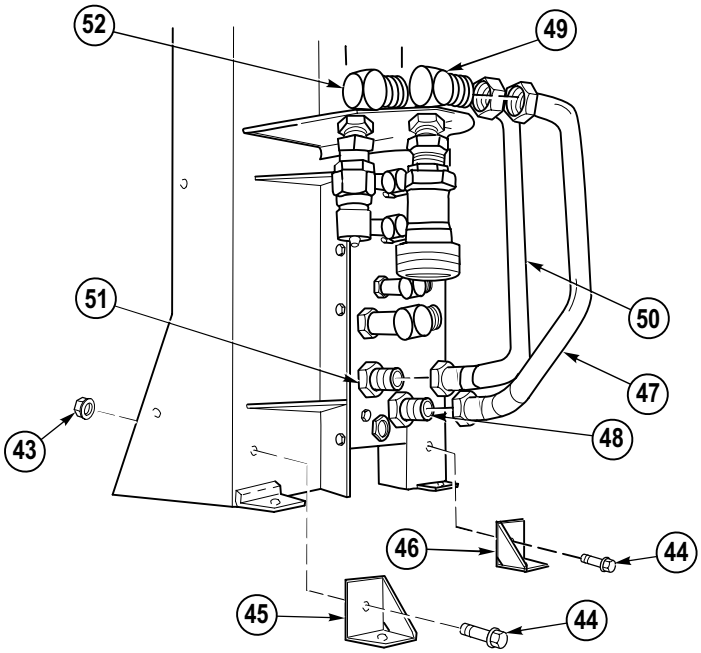
(55) Install two preformed packings (55) fittings (56) and couplings (53) and (54) on elbows (49) and (52).



(56) Install oil tube (50) on fitting (51) and elbow (52).

(57) Install oil tube (47) on fitting (48) and elbow (49).

(58) Install brackets (45) and (46) with screws (44) and two locknuts (43). Tighten to 23 lb-ft (31 N·m).



WARNING

LHS main manifold bracket assembly weights 120 lbs (54 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(59) Attach lifting device to LHS main manifold bracket assembly (4).

(60) Position LHS main manifold bracket assembly (4) on fender (42).

NOTE

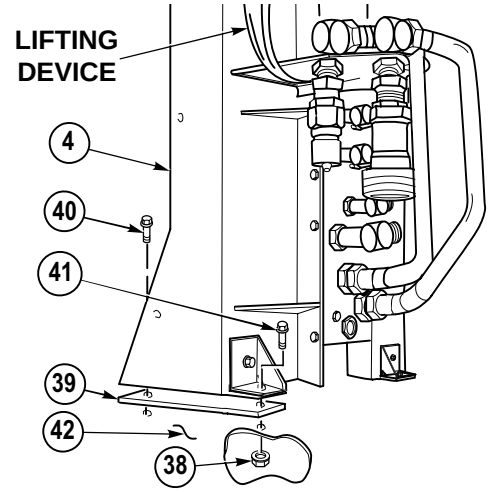
Spacer is installed under left side of main manifold bracket assembly.

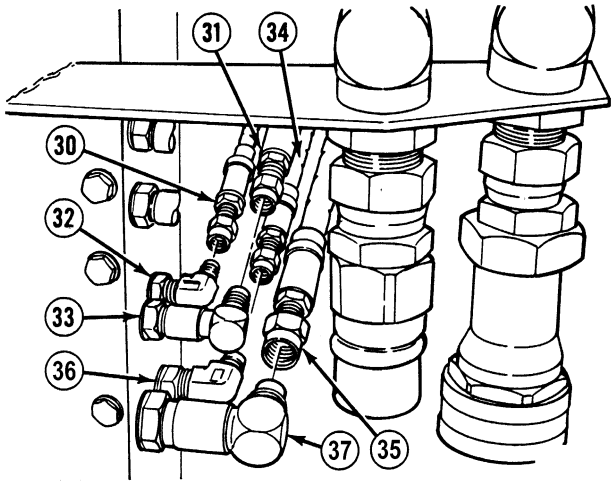
(61) Install spacer (39), two screws (40), screws (41) and four locknuts (38) on LHS main manifold bracket assembly (4) and fender (42). Tighten to 23 lb-ft (31 N·m).

(62) Remove lifting device from LHS main manifold bracket assembly (4).

(63) Install hose 2892 (34) and hose 2891 (35) on elbows (36) and (37).

(64) Install hose 2890 (30) and hose 2889 (31) on elbows (32) and (33).

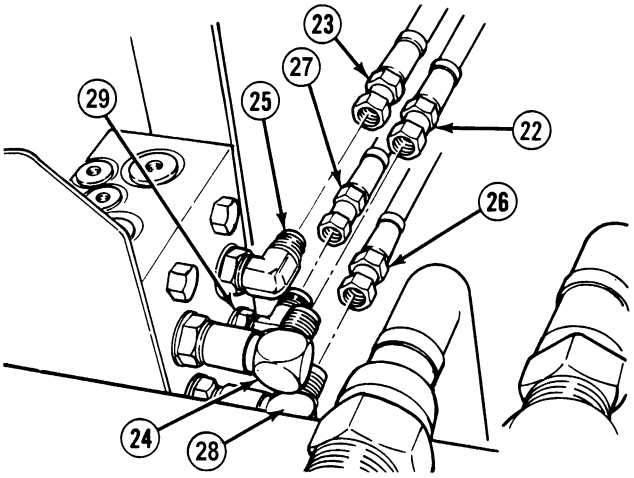




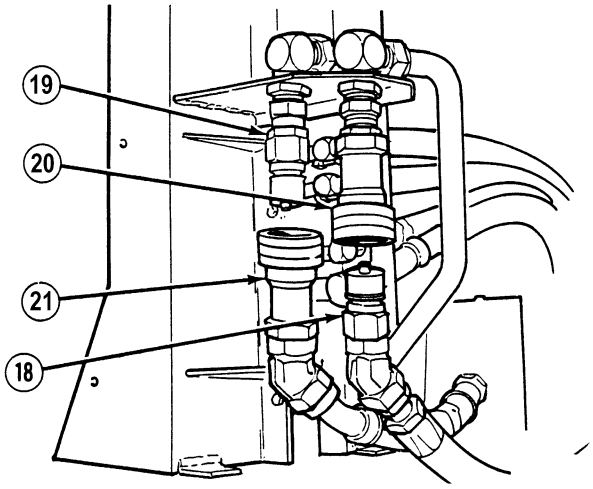
16-43. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD/BRACKET REPLACEMENT (CONT).

(65) Install hose 2888 (26) and hose 2588 (27) on elbows (28) and (29).

(66) Install hose 2887 (22) and hose 2588 (23) on elbows (24) and (25).



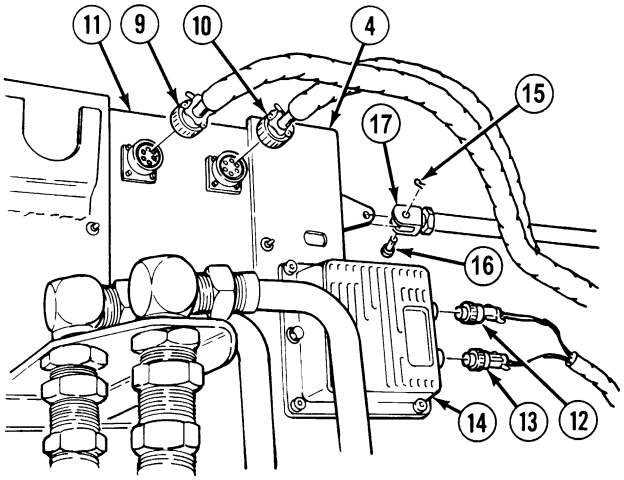
(67) Install couplings (18) and (19) on fittings (20) and (21).



(68) Install clevis (17), pin (16) and cotter pin (15) on bracket (4).

(69) Connect MC59 connectors (12) and MC73 connector (13) on EPAC controller (11).

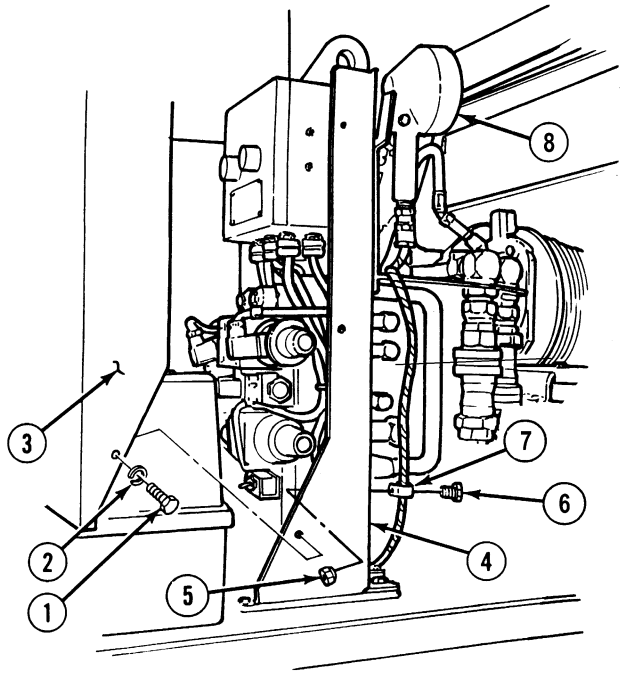
(70) Connect MC82 connectors (9) and MC85 connector (10) on LHS main junction box (11).



(71) Install cover (3), four lockwashers (2) and screws (1) on LHS main manifold bracket assembly (4).

(72) Install cushion clip (7) on LHS main manifold bracket assembly (4) with screw (6) and locknut (5).

(73) Install worklight (8) on LHS main manifold bracket assembly (4).



c. Follow-On Maintenance.

- Install LHS transit valve, (Para 17-11).
- Install LHS directional control valve, (Para 17-10).
- Install LHS solenoid valve and coil, (Para 17-9).
- Install LHS main manifold relief valve, (Para 17-8).
- Install LHS check valve, (Para 17-7).
- Install LHS main manifold load control valve, (Para 17-6).
- Connect batteries, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-44. CONTAINER HANDLING UNIT (CHU) PIVOT REPAIR.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

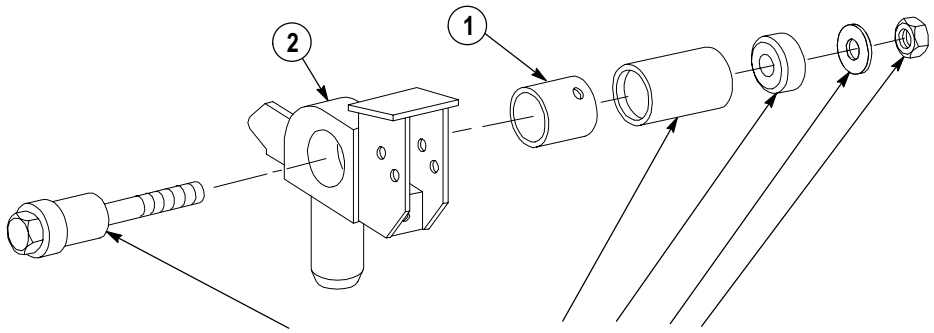
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Press, 60 Ton (Item 164, Appendix F)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)

Materials/Parts
Grease (Item 22, Appendix B)
Sealing Compound (Item 58, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)

Equipment Condition
Pivot removed, (TM 9-2320-364-20)

a. Removal



REMOVAL/INSTALLATION TOOL

NOTE

Left side and right side pivots are identical. Right side is shown.

(1) Using removal/installation tool (six pieces), remove bushing (1) from slider pivot (2).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

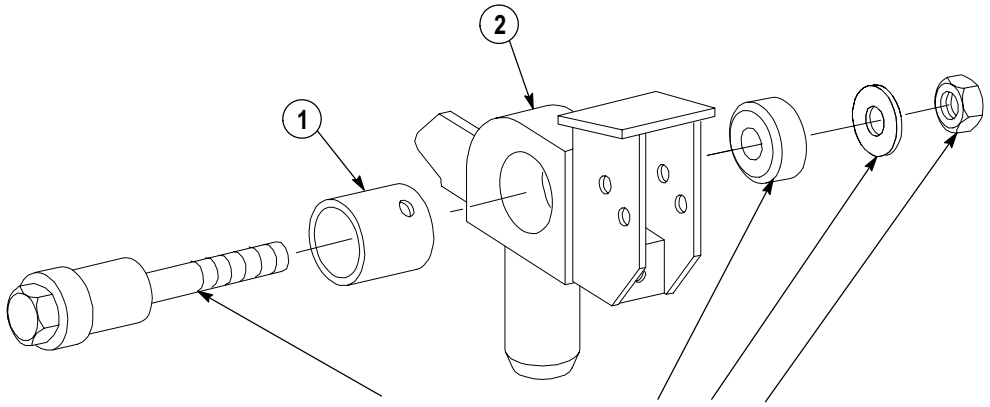
(2) Dry parts with compressed air.

(3) Inspect parts for breaks, cracks, burrs and sharp edges. Look for unusual signs of wear on pivot.

(4) Replace all damaged parts.

16-44. CONTAINER HANDLING UNIT (CHU) PIVOT REPAIR (CONT).

c. Installation.



REMOVAL/INSTALLATION TOOL

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Left side and right side pivot are identical. Right side is shown.
- Apply light coat of grease to threads of removal/installation tool prior to use.

(1) Apply light coat of sealing compound to bushing (1).

(2) Align hole in bushing (1) with grease fitting hole in slider pivot (2) and using removal/installation tool (six pieces), install bushing into slider pivot.

d. Follow-On Maintenance:

- Install pivot, (TM 9-2320-364-20).

END OF TASK

16-45. CONTAINER HANDLING UNIT (CHU) SLIDER ARM BUSHING REPLACEMENT.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Press, 60 Ton (Item 164, Appendix F)
Puller Kit, Universal (Item 174, Appendix F)
LHS Bushing Remover (Appendix C)
LHS Bushing Remover/Installer (Small) (Appendix C)
LHS Bushing Remover/Installer (Large) (Appendix C)
LHS Lead Screw (Appendix C)
LHS Washer (Appendix C)

Materials/Parts
Sealing Compound (Item 58, Appendix B)
Solvent, Drycleaning (Item 69, Appendix B)

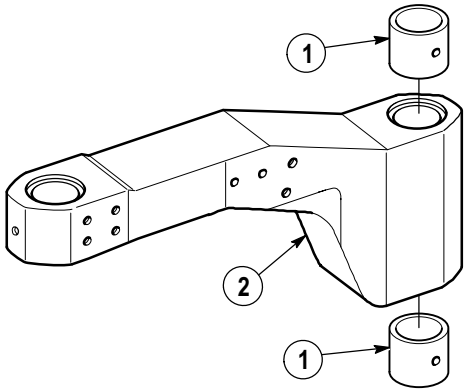
Equipment Condition
Slider arm removed, (TM 9-2320-364-20)

a. Removal

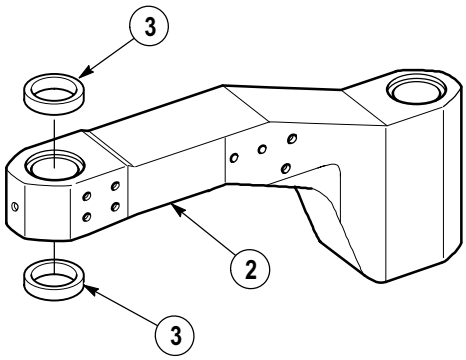
NOTE

There are two arm assemblies. Right side is shown.

(1) Using puller kit, remove two bushings (1) from large end of arm assembly (2).



(2) Using removal/installation tool (six pieces), remove two bushings (3) from arm assembly (2).



16-45. CONTAINER HANDLING UNIT (CHU) SLIDER ARM BUSHING REPLACEMENT (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

(2) Dry parts with compressed air.

(3) Inspect parts for breaks, cracks, burrs and sharp edges. Look for unusual signs of wear on arm.

(4) Replace all damaged parts.

c. Installation.

WARNING

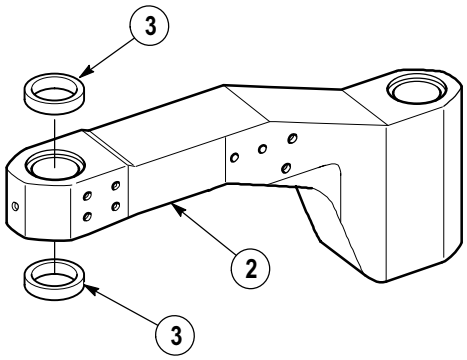
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

There are two arm assemblies. Right side is shown.

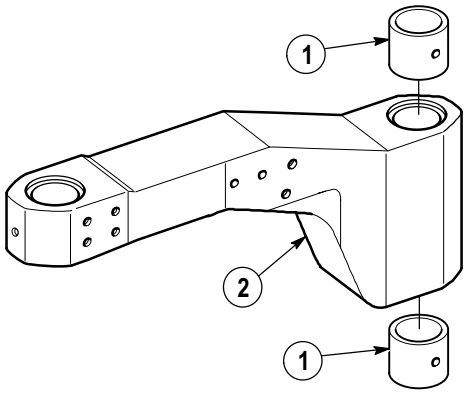
(1) Apply sealing compound to two bushings (3).

(2) Using removal/installation tool, install two bushings (3) in arm assembly (2) flush with outer surface.



(3) Apply sealing compound to two bushings (1).

(4) Using removal/installation tool and press, install two bushings (1) in arm assembly (2) flush with outer surface.



d. Follow-On Maintenance:

- Install slider arm, (TM 9-2320-364-20).

END OF TASK

16-46. CONTAINER HANDLING UNIT (CHU) LIFTING FRAME LOWER CONTAINER LOCK HANDLE REPAIR.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Installation
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Brush, Wire, Scratch (Item 23, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable (Item 49, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Air Blow (Item 86, Appendix F)
Respirator, Air Filter (Item 195, Appendix F)
Sander, Portable, Disk Electric (Item 198, Appendix F)
Welder, Arc (Item 251, Appendix F)

Materials/Parts
Grease, General Purpose (Item 22, Appendix B)

References
TC 9-237

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Lifting frame removed from truck, (TM 9-2320-364-10).
Lower container lock plate removed, (TM 9-2320-364-20)

a. Removal.

WARNING

- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production and chest tightness. The following precautions must be taken whenever using CARC paint:
- NEVER weld or cut CARC-coated materials.

NOTE

There are two lower container lock handles. Both are removed the same way. Right side is shown.

(1) Using a wire scratch brush, remove CARC paint from area around welding between handle (1) and stem (2).

(2) Grind off weld from handle (1) and remove from stem (2). Discard handle.

NOTE

Grind stem as necessary to remove handnut.

(3) Remove handnut (3) from stem (2).

WARNING

Use extreme care when compressing, releasing, removing, or installing springs. Springs are under tension and can act as projectiles when released. Ensure proper eye protection is worn to prevent injury to personnel.

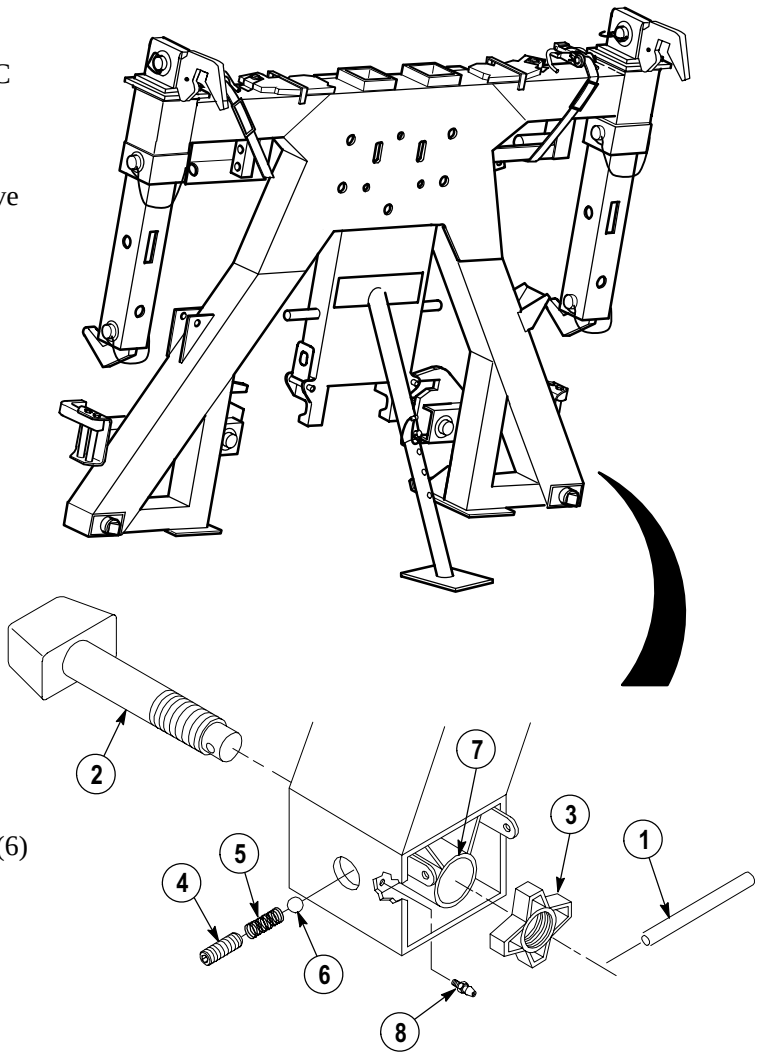
(4) Remove setscrew (4), spring (5) and ball (6) from container lock (7).

(5) Remove stem (2) from container lock (7).

NOTE

Perform Step (6) if grease fitting is damaged.

(6) Remove grease fitting (8) from container lock (7).



16-46. CONTAINER HANDLING UNIT (CHU) LIFTING FRAME LOWER CONTAINER LOCK HANDLE REPAIR (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

(2) Dry parts with compressed air.

(3) Inspect parts for breaks, cracks, burrs and sharp edges.

(4) Replace all damaged parts.

c. Installation.

NOTE

- There are two lower container lock handles. Both are installed the same way. Right side is shown.
- Perform Step (1) if grease fitting was removed.

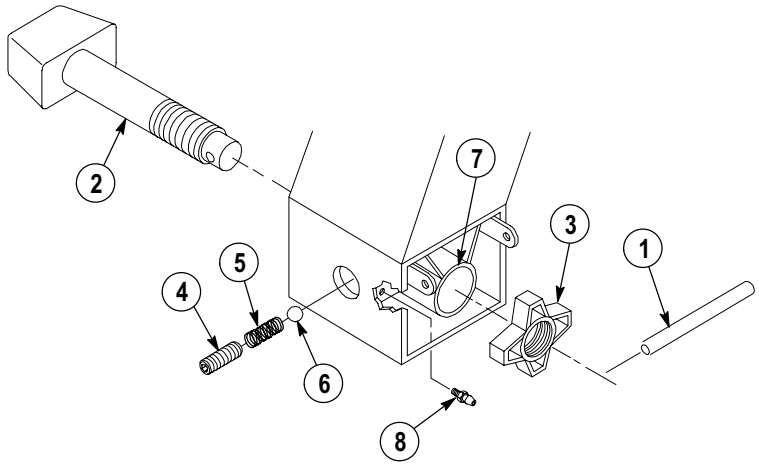
(1) Install grease fitting (8) in container lock (7).

(2) Position stem (2) in container lock (7).

(3) Position handnut (3) on stem (2).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.



(4) Position handle (1) in stem (2).

(5) Tack weld handle (1) to stem (2) in accordance with TC 9-237.

NOTE

Setscrew is properly installed when head is flush with container lock.

(6) Install ball (6), spring (5) and setscrew (4) in container lock (7).

d. Follow-On Maintenance:

- Lubricate lower container lock, (TM 9-2320-364-10).
- Lower container lock plate installed, (TM 9-2320-364-20).
- Install lifting frame on truck, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

16-47. CONTAINER HANDLING UNIT (CHU) RAIL TRANSPORT ISO CORNER LOCKS REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

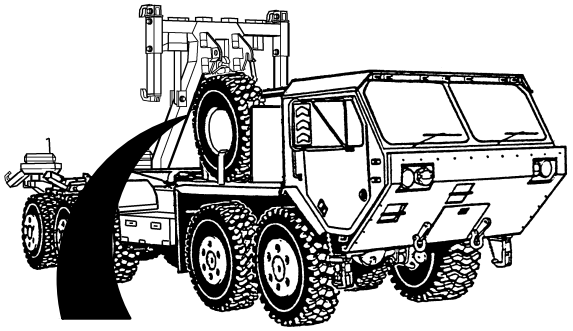
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Brush, Wire, Scratch (Item 23, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable (Item 49, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Air Blow (Item 86, Appendix F)
Respirator, Air Filter (Item 195, Appendix F)
Sander, Portable, Disk Electric (Item 198, Appendix F)
Welder, Arc (Item 251, Appendix F)

Materials/Parts
Grease, General Purpose (Item 22, Appendix B)

References
TC 9-237

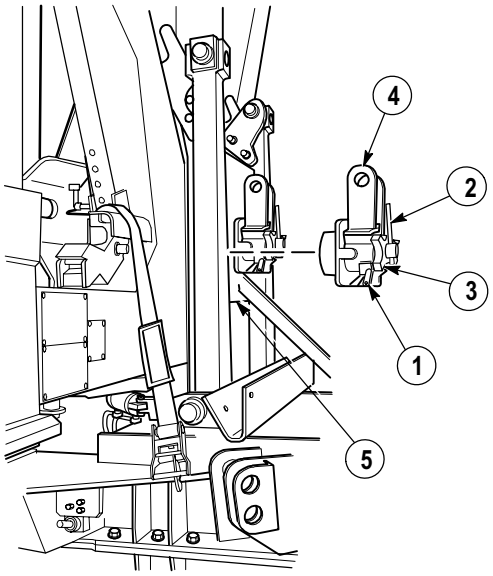
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

There are two rail transport ISO corner locks. Both are removed the same way. Right side is shown.



(1) Lift pin (1) to unlock lock handle (2).

(2) Loosen handnut (3), rotate handle (2) 90 degrees and remove ISO corner lock (4) from stow weldment (5).

b. Disassembly.

WARNING

- CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production and chest tightness. The following precautions must be taken whenever using CARC paint:
- NEVER weld or cut CARC-coated materials.

NOTE

There are two lower container lock handles. Both are removed the same way. Right side is shown.

(1) Using a wire scratch brush, remove CARC paint from area around welding between handle (1) and stem (2).

(2) Grind off weld from handle (1) and remove from stem (2). Discard handle.

NOTE

Grind stem as necessary to remove handnut.

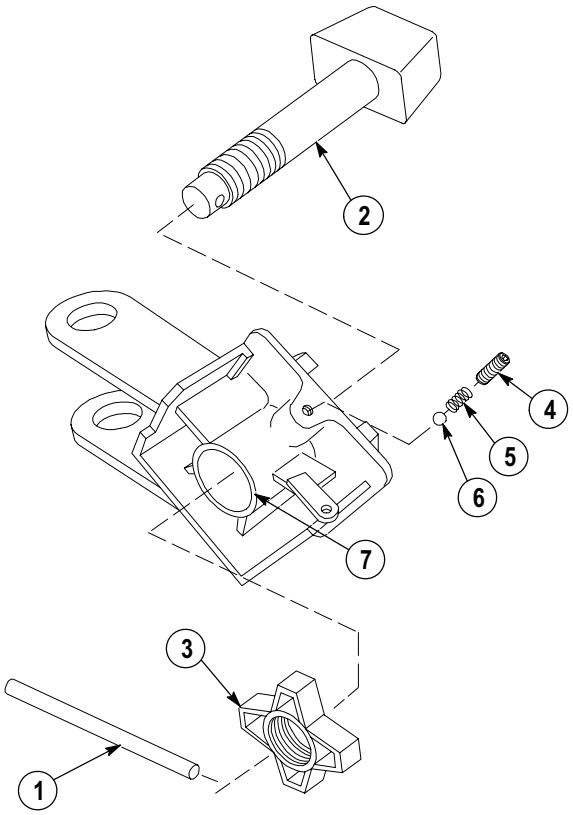
(3) Remove handnut (3) from stem (2).

WARNING

Use extreme care when compressing, releasing, removing, or installing springs. Springs are under tension and can act as projectiles when released. Ensure proper eye protection is worn to prevent injury to personnel.

(4) Remove setscrew (4), spring (5) and ball (6) from container (7).

(5) Remove stem (2) from container lock (7).



16-47. CONTAINER HANDLING UNIT (CHU) RAIL TRANSPORT ISO CORNER LOCKS REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all metal parts with drycleaning solvent.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.) or injury to personnel may result.

(2) Dry parts with compressed air.

(3) Inspect parts for breaks, cracks, burrs and sharp edges.

(4) Replace all damaged parts.

d. Assembly.

NOTE

There are two lower container lock handles. Both are installed the same way. Right side is shown.

(1) Position stem (2) in container lock (7).

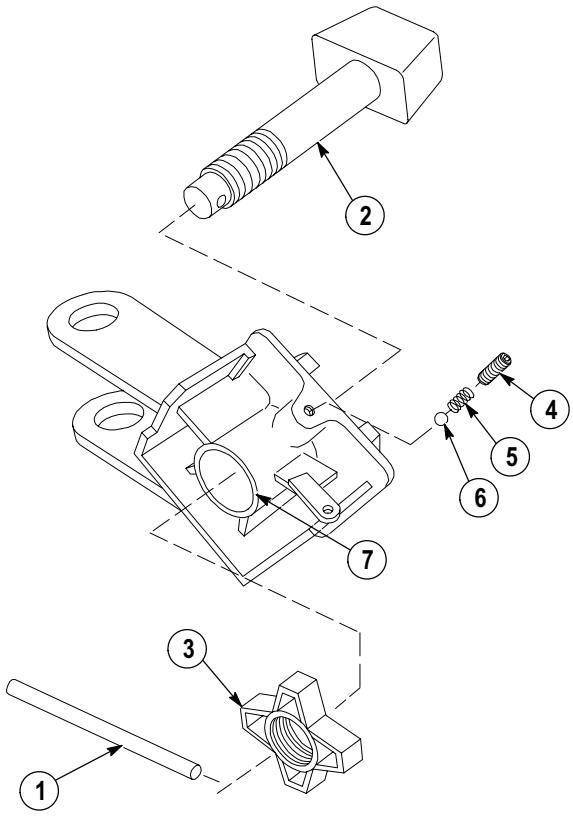
(2) Position handnut (3) on stem (2).

WARNING

Unsafe welding practices can cause serious injury from fire, explosions, or harmful agents. Allow only authorized personnel to weld or cut metals, and follow safety precautions in TC 9-237. Protective clothing and goggles must be worn; adequate protective equipment used, a suitable fire extinguisher kept nearby; and requirements of TC 9-237 strictly followed.

(3) Position handle (1) in stem (2).

(4) Tack weld handle (1) to stem (2) in accordance with TC 9-237.



NOTE

Setscrew is properly installed when head is flush with container lock.

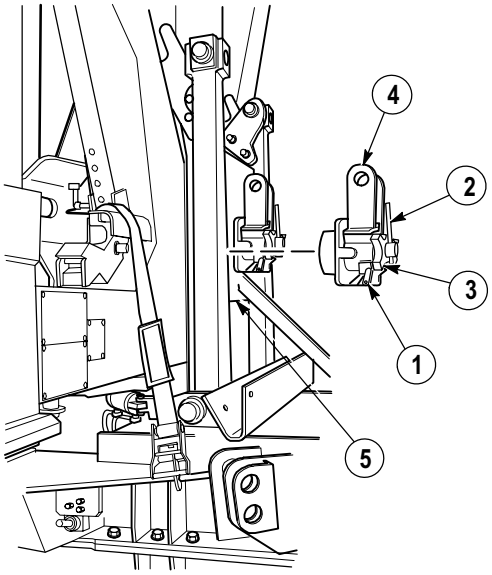
(5) Install ball (6), spring (5) and setscrew (4) in container lock (7).

16-47. CONTAINER HANDLING UNIT (CHU) RAIL TRANSPORT ISO CORNER LOCKS REPAIR (CONT).

e. Installation

NOTE

There are two rail transport corner ISO locks. Both are installed the same way. Right side is shown.



(1) Install ISO corner lock (4) on stow weldment (5) and rotate handle (2) 90 degrees.

(2) Tighten handnut (3) and rotate pin (1) to lock handle (2).

f. Follow-On Maintenance:

- Lubricate ISO lock, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 17

HYDRAULIC SYSTEM MAINTENANCE

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17-1. DIRECT SUPPORT HYDRAULIC SYSTEM MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing, and servicing hydraulic system components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

17-2. MAIN HYDRAULIC PUMP REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Adapter, Socket (3/4 in. male to 1/2 in. female)
(Item 8, Appendix F)
Adapter, Socket (3/8 in. male to 1/4 in. female)
(Item 11, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Puller Kit, Universal (Item 174, Appendix F)
Puller Kit, Pump, Roof Mount
(Item 176, Appendix F)
Winch, Cable, Hand Operated
(Item 252, Appendix F)
Wrench, Pipe 3-1/2 in. Opening
(Item 271, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (175 lb-ft [237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 300 lbs
(136 kg)
Installer, Seal (Appendix C)

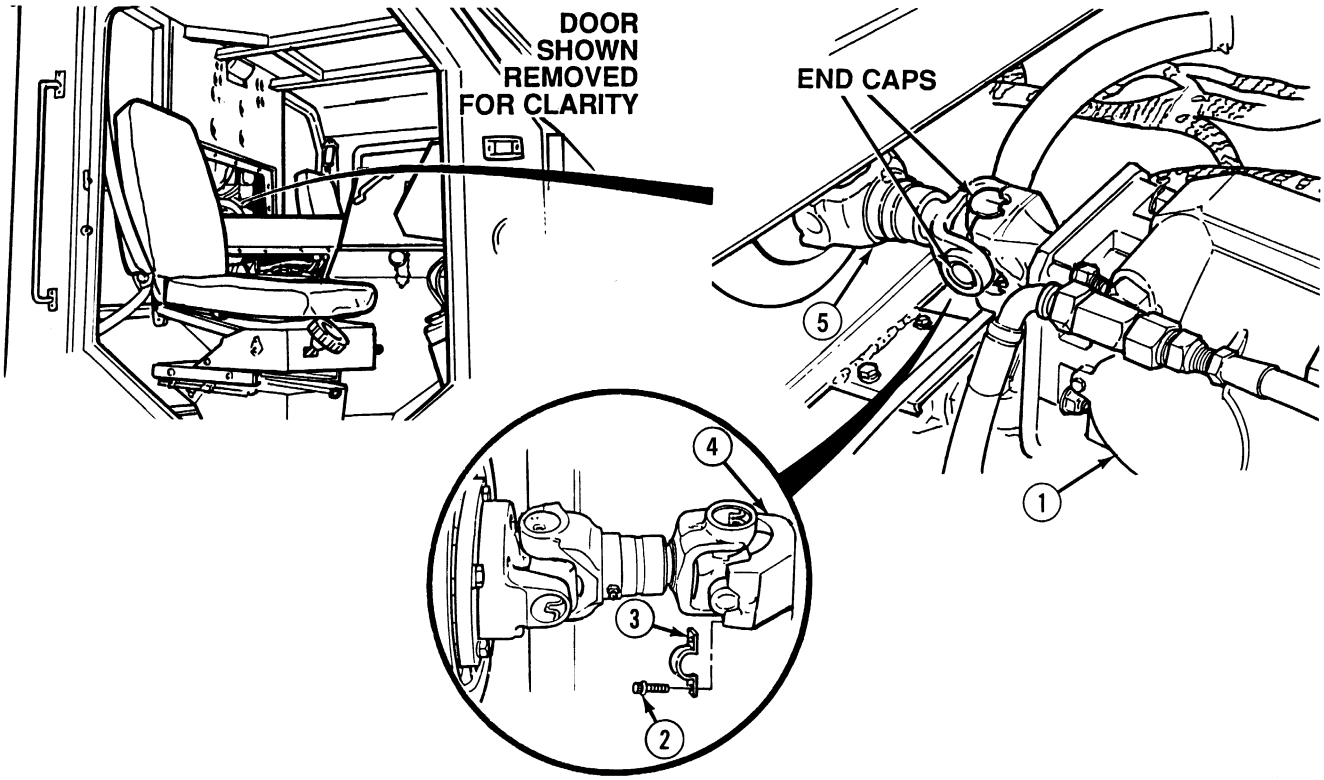
Materials/Parts
Cable Ties (Item 9, Appendix B)
Grease (Item 21, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Rope, 3/4 in thick, 20 ft (Item 48, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts
Tags, Identification (Item 72, Appendix B)
Tape, Masking (Item 73, Appendix B)
Locknut (4) (Item 165, Appendix E)
Locknut (4) (Item 166, Appendix E)
Lockwasher (8) (Item 251, Appendix E)
Lockwasher (11) (Item 255, Appendix E)
Packing, Preformed (8) (Item 338, Appendix E)
Packing, Preformed (Item 342, Appendix E)
Packing, Preformed (3) (Item 354, Appendix E)
Packing, Preformed (Item 361, Appendix E)
Packing, Preformed (Item 362, Appendix E)
Packing, Preformed (8) (Item 385, Appendix E)
Packing, Preformed (3) (Item 450, Appendix E)
Ring, Retaining (2) (Item 497, Appendix E)
Ring, Retaining (Item 498, Appendix E)
Screw, Tapping (2) (Item 562, Appendix E)
Seal (2) (Item 569, Appendix E)
Seal (Item 571, Appendix E)
Washer, Seal (2) (Item 695, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hydraulic reservoir drained,
(TM 9-2320-364-20)
Electrical Control Box (ECB) removed,
(TM 9-2320-364-20)
Steering reservoir drained, (TM 9-2320-364-20)
Cab engine access panel removed,
(TM 9-2320-364-20)

a. Removal.



CAUTION

Universal joint end caps may fall off during Step (2). Ensure caps stay with driveshaft. Failure to comply may result in damage to equipment.

NOTE

- Tag and mark hoses prior to removal.
- Note location and position of adapters, elbows and tees prior to removal.
- Cap and plug all hoses and fittings after removal.
- Remove cable ties as required.

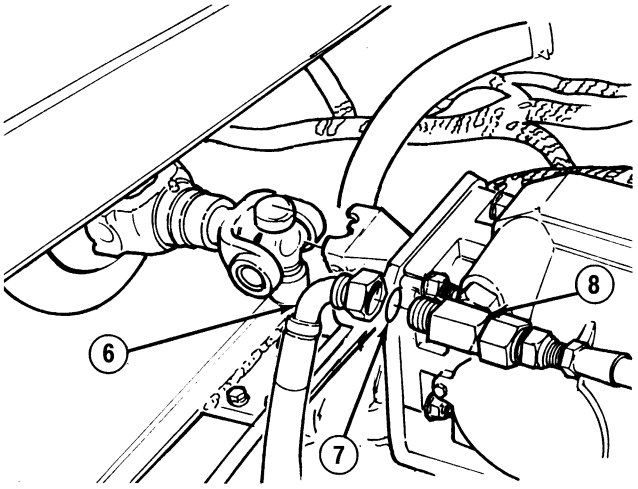
(1) Position drain pan under main hydraulic pump (1).

(2) Remove four screws (2), and two straps (3) from end yoke (4).

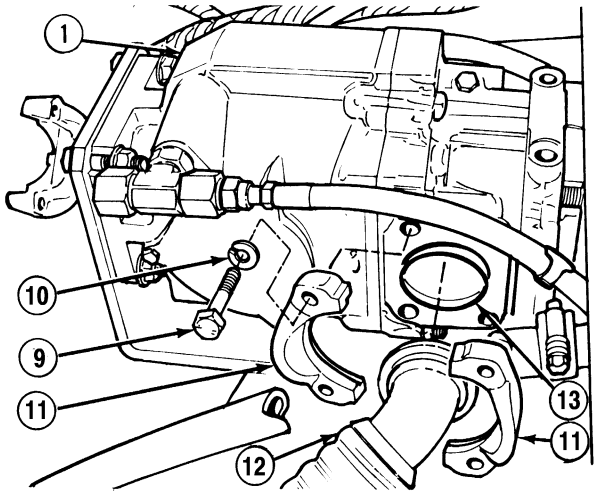
(3) Remove driveshaft (5) from end yoke (4) and position driveshaft out of way.

17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(4) Remove hose 2781 (6) and preformed packing (7) from tee (8). Discard preformed packing.

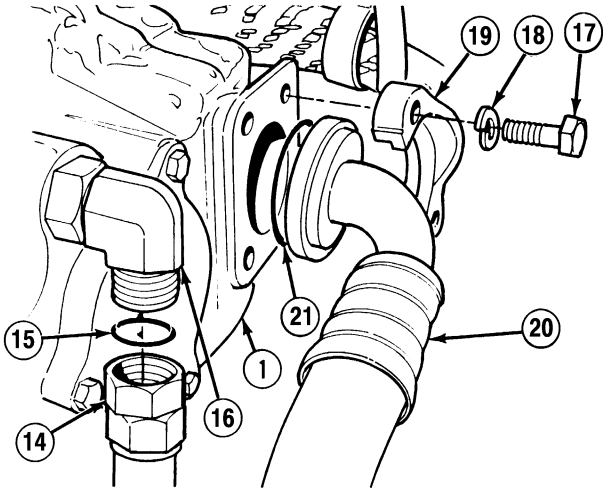


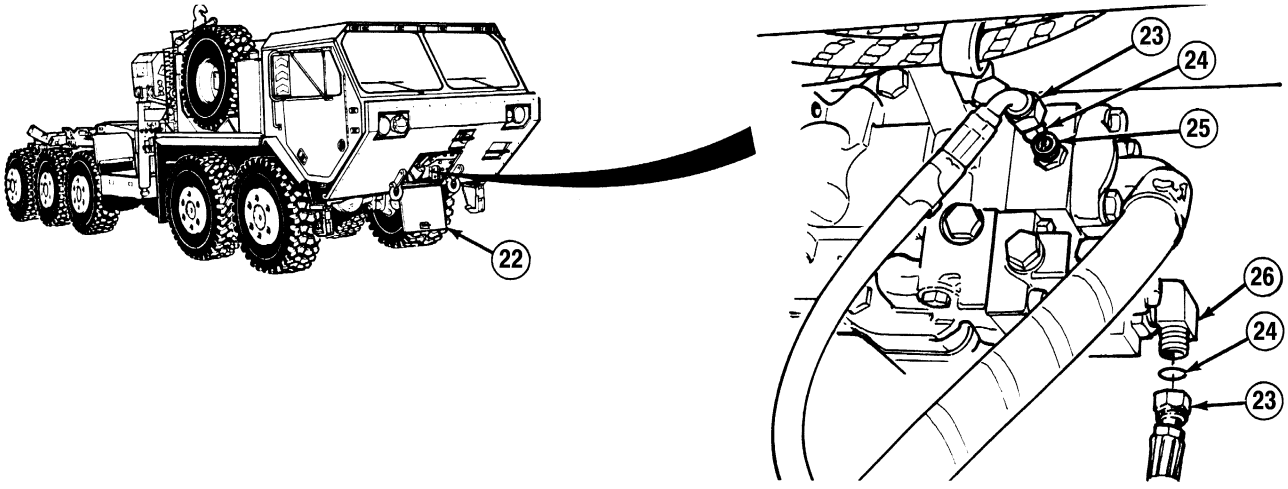
(5) Remove four screws (9), lockwashers (10), split flanges (11), hose 2498 (12) and preformed packing (13) from main hydraulic pump (1). Discard lockwashers and preformed packing.



(6) Remove hose 2701 (14) and preformed packing (15) from elbow (16). Discard preformed packing.

(7) Remove four screws (17), lockwashers (18), two split flanges (19), hose 2278 (20) and preformed packing (21) from main hydraulic pump (1). Discard lockwashers and preformed packing.



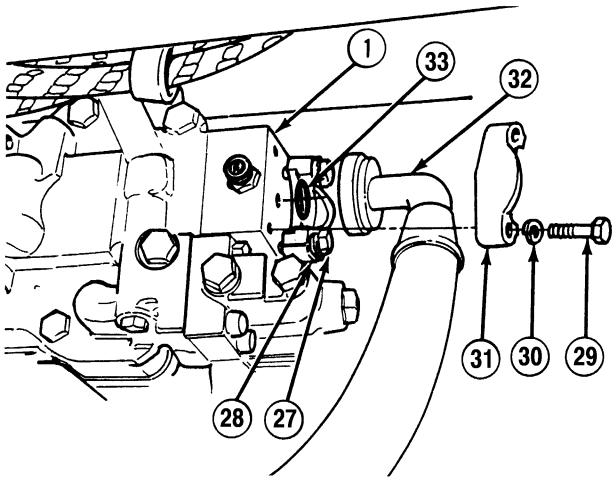


(8) Open front access cover (22).

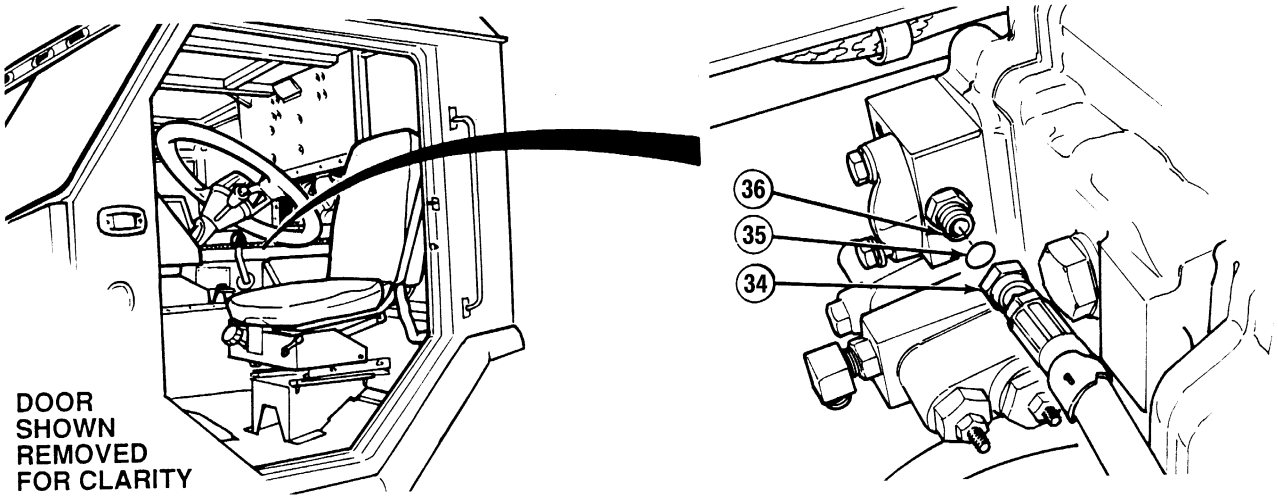
(9) Remove hose 2503 (23) and two preformed packings (24) from adapter (25) and elbow (26). Discard preformed packings.

(10) Loosen two screws (27) from split flange (28).

(11) Remove two screws (29), lockwashers (30), split flange (31), hose 2393 (32) and preformed packing (33) from main hydraulic pump (1). Discard lockwashers and preformed packing.

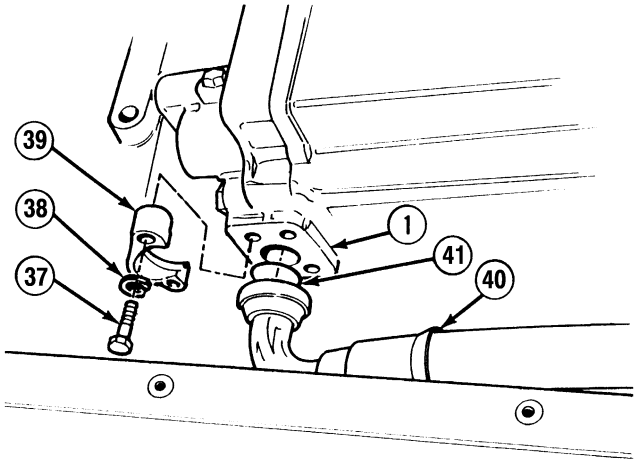


17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).



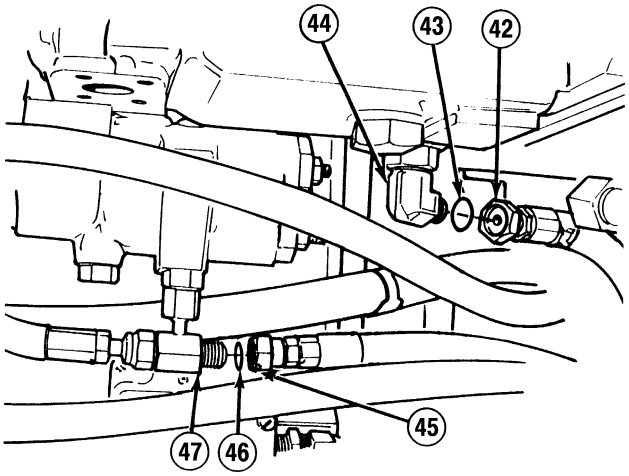
(12) Remove hose 2907 (34) and preformed packing (35) from adapter (36). Discard preformed packing.

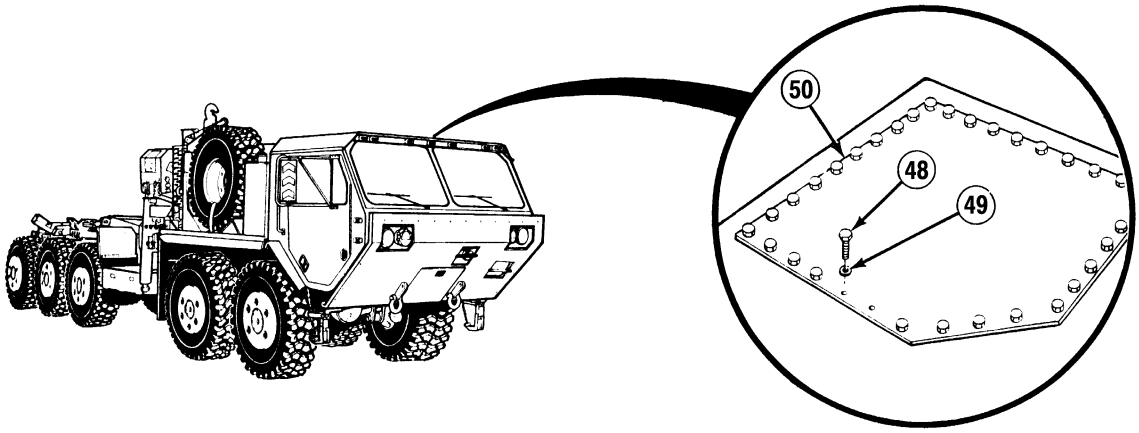
(13) Remove four screws (37), lockwashers (38), split flanges (39), hose 2935 (40) and preformed packing (41) from main hydraulic pump (1). Discard lockwashers and preformed packing.



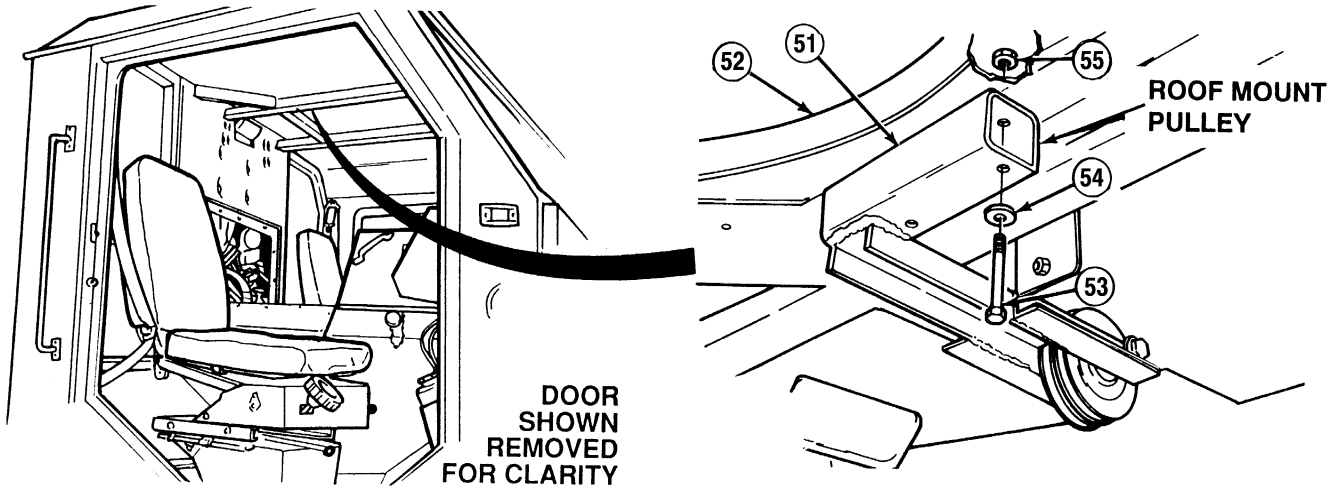
(14) Remove hose 2290 (42) and preformed packing (43) from elbow (44). Discard preformed packing.

(15) Remove hose 2295 (45) and preformed packing (46) from tee (47). Discard preformed packing.





(16) Remove and discard two screws (48) and washers (49) from cover plate (50).

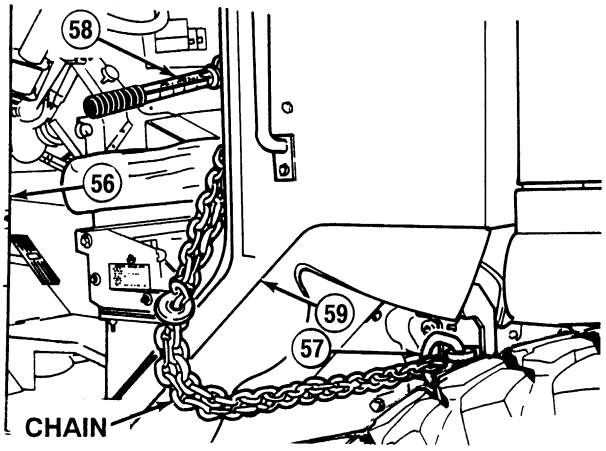


(17) Install roof mount pulley (51) to bottom side of cover plate frame (52) with two 3 in. (76 mm) screws (53), washers (54) and nuts (55).

17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(18) Open left cab door (56).

(19) Attach chain to tiedown ring (57) and cable winch (58) inside cab (59).



WARNING

Main hydraulic pump weighs 215 lbs (98 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

(20) Position lifting device around main hydraulic pump (1).

(21) Install cable of cable winch (58) to roof mount pulley (51) by removing nut (60) and lockwasher (61) from screw (62). Discard lockwasher.

(22) Position screw (62) until screw is flush with left side of left pulley (63).

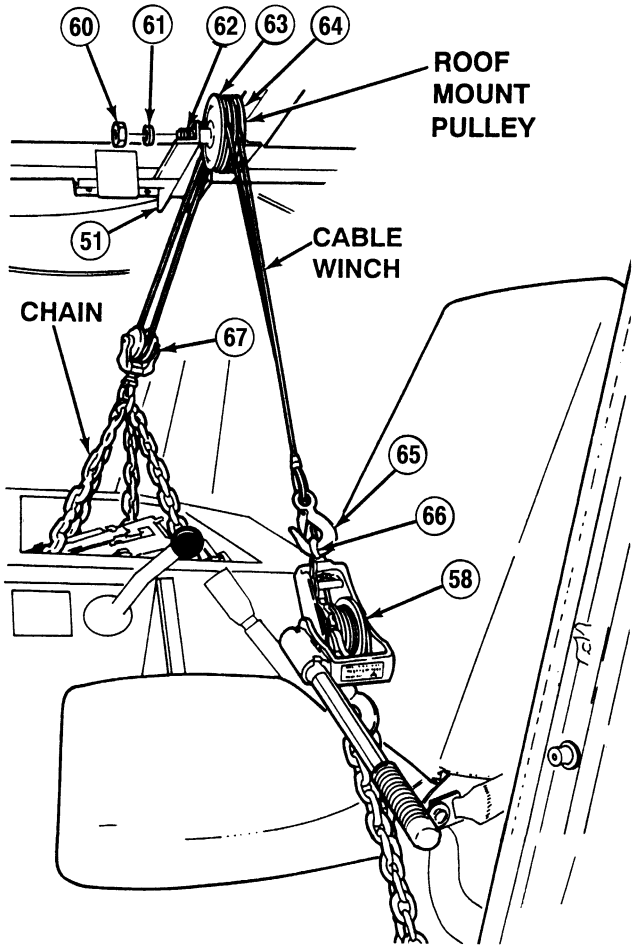
(23) Position output cable of cable winch (58) on right pulley (64) and return cable on left pulley (63) on cable winch.

(24) Attach end hook (65) of cable to eye (66) of cable winch (58).

(25) Attach free pulley hook (67) of cable winch (58) to lifting device chain.

(26) Install screw (62) with lockwasher (61) and nut (60) to roof mount pulley (51).

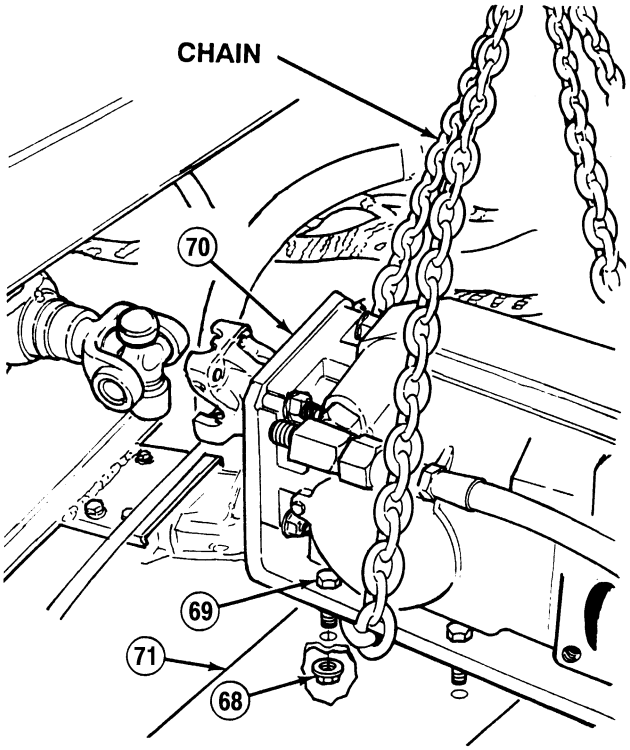
(27) Tighten cable of cable winch (58) until slack is removed.



NOTE

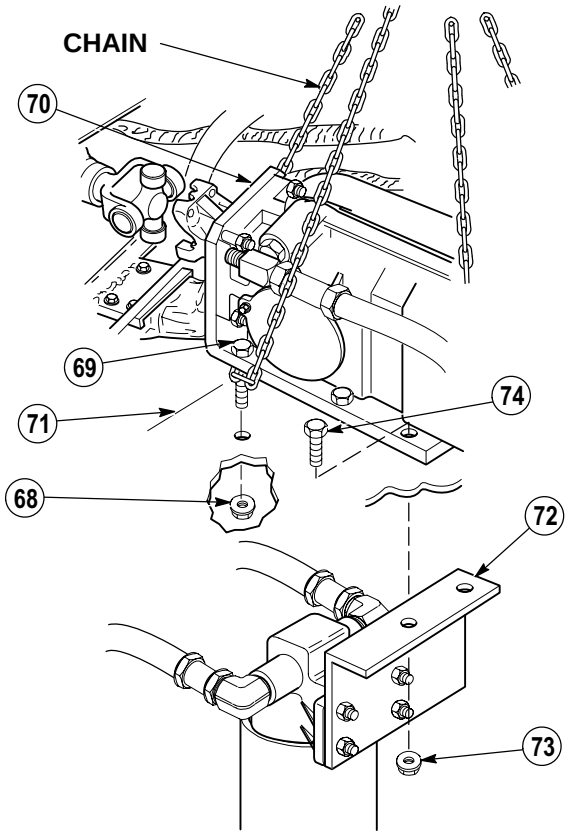
- If truck is not equipped with remote engine oil filter, perform Step (28).
- If truck is equipped with remote engine oil filter, perform Steps (29) and (30).

(28) With the aid of an assistant, remove four locknuts (68) from screws (69) on pump mount bracket (70) and crossmember (71). Discard locknuts.



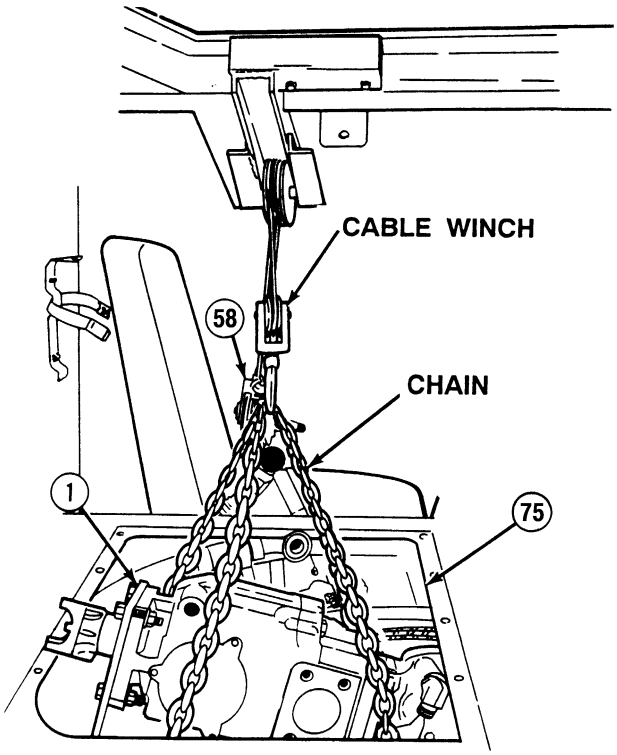
(29) With the aid of an assistant, remove two locknuts (68) from screws (69) on pump mount bracket (70) and crossmember (71). Discard locknuts.

(30) While supporting remote oil filter assembly (72) remove two locknuts (73) from screws (74) on pump mount bracket (70) and crossmember (71). Discard locknuts.



17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(31) With the aid of an assistant, using cable winch (58) and lifting device, raise main hydraulic pump (1) until clear of access hole (75).

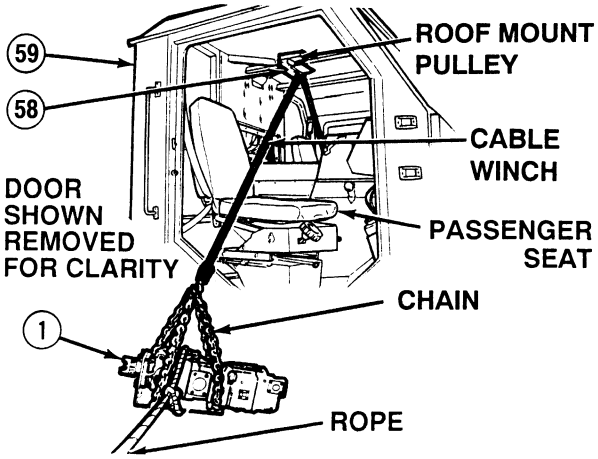


(32) Attach rope to main hydraulic pump (1).

(33) With the aid of an assistant, pull main hydraulic pump (1) horizontally through passenger door and unwind cable winch to lower main hydraulic pump (1) onto passenger seat.

(34) Remove cable winch (58) from chain and hydraulic pump (1).

(35) Attach lifting device to chain on main hydraulic pump (1).



WARNING

Never stand in front of main hydraulic pump during lifting. Hydraulic pump can swing out of door and cause serious injury to personnel.

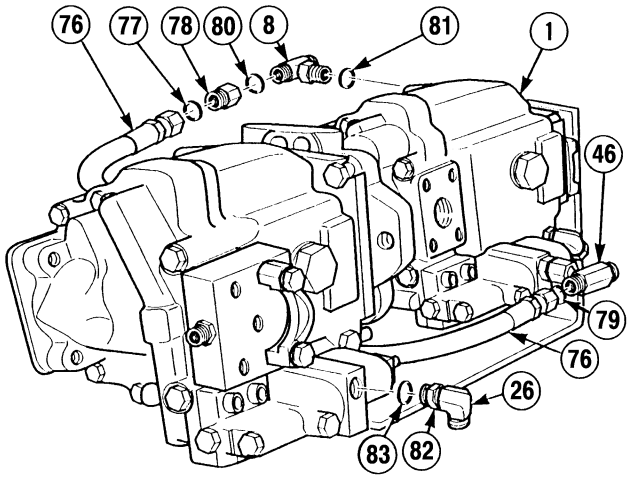
(36) With the aid of an assistant, use lifting device and lift main hydraulic pump (1) out of cab (59) and lower main hydraulic pump (1) onto a work surface.

(37) Remove chain and rope from main hydraulic pump (1).

(38) Remove hose 2049 (76) and preformed packing (77) from adapter (78) on tee (8). Discard preformed packing.

(39) Remove hose 2049 (76) and preformed packing (79) from tee (46). Discard preformed packing.

(40) Remove adapter (78) and preformed packing (80) from tee (8). Discard preformed packing.



NOTE

Note location and position of tees and elbows prior to removal.

(41) Remove tee (8) and preformed packing (81) from main hydraulic pump (1). Discard preformed packing.

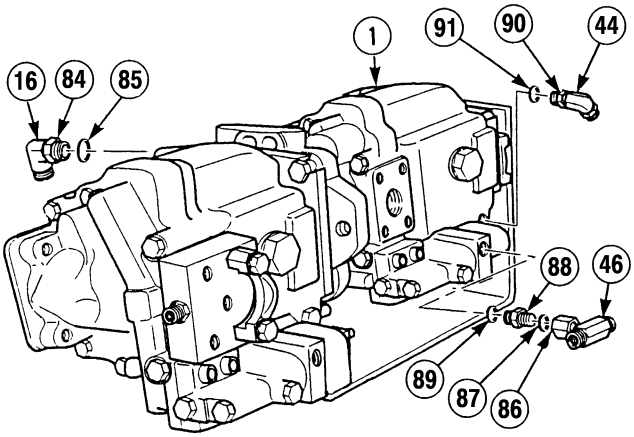
(42) Loosen nut (82) and remove elbow (26) and preformed packing (83) from main hydraulic pump (1). Discard preformed packing.

(43) Loosen nut (84) and remove elbow (16) and preformed packing (85) from main hydraulic pump (1). Discard preformed packing.

(44) Loosen nut (86) and remove tee (46) and preformed packing (87) from adapter (88). Discard preformed packing.

(45) Remove adapter (88) and preformed packing (89) from main hydraulic pump (1). Discard preformed packing.

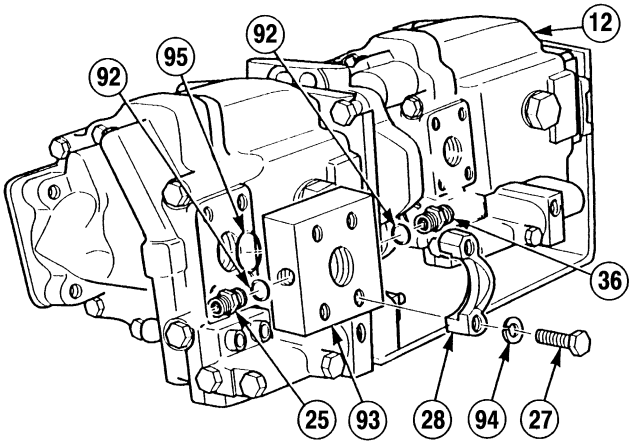
(46) Loosen nut (90) and remove elbow (44) and preformed packing (91) from main hydraulic pump (1). Discard preformed packing.



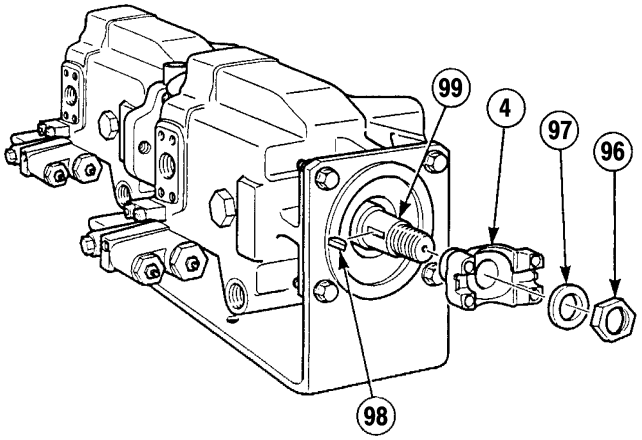
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(47) Remove adapters (36) and (25) and two preformed packings (92) from manifold (93). Discard preformed packings.

(48) Remove two screws (27), lockwashers (94), split flange (28), manifold (93) and preformed packing (95) from main hydraulic pump (1). Discard lockwashers and preformed packing.



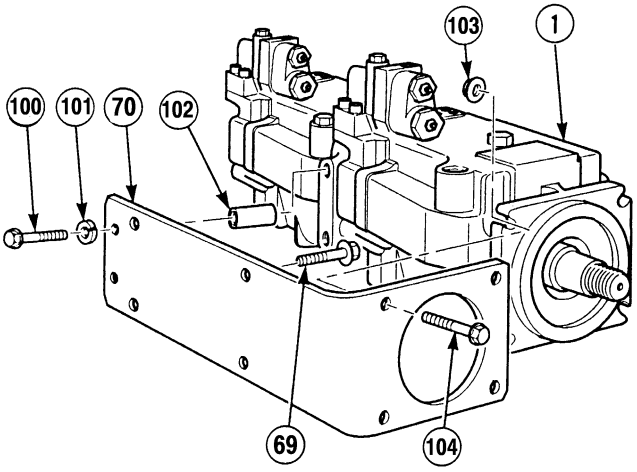
(49) Remove nut (96), washer (97), end yoke (4) and key (98) from main hydraulic pump shaft (99).



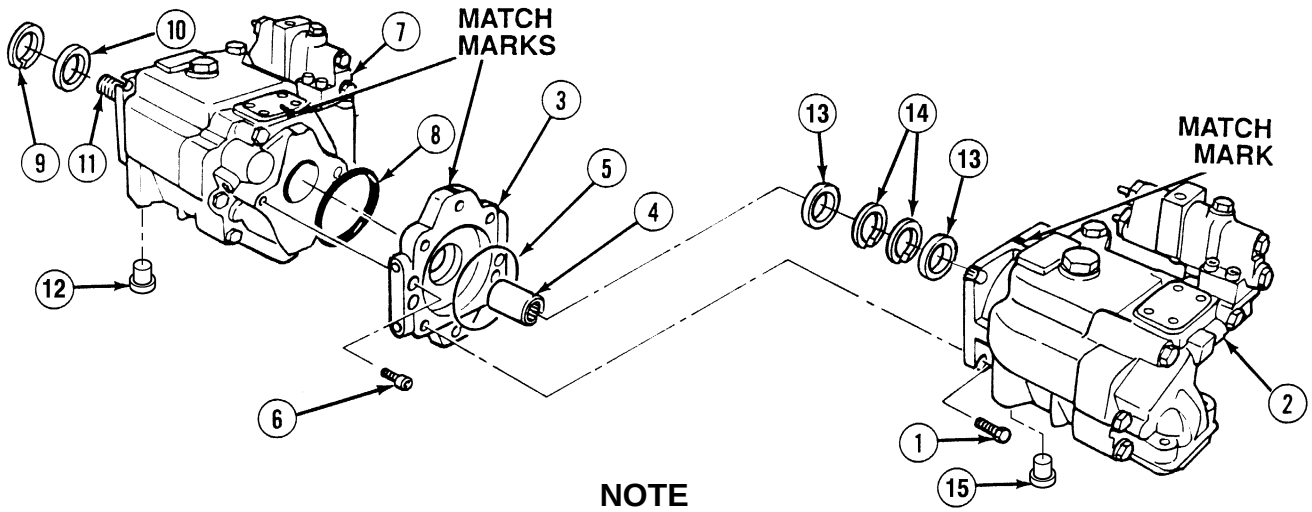
(50) Remove two screws (100), lockwashers (101) and spacers (102) from main hydraulic pump (1). Discard lockwashers.

(51) Remove four locknuts (103), screws (104) and main hydraulic pump (1) from pump mount bracket (70). Discard locknuts.

(52) Remove four screws (69) from pump mount bracket (70).



b. Disassembly.



NOTE

Matchmark both piston pumps and adapter prior to disassembly.

(1) Remove four screws (1) from piston pump (2) and adapter (3).

(2) Remove piston pump (2) from adapter (3).

(3) Remove coupling (4) from piston pump (2).

(4) Remove preformed packing (5) from piston pump (2). Discard preformed packing.

(5) Remove two screws (6) from adapter (3) and piston pump (7).

(6) Remove adapter (3) from piston pump (7).

(7) Remove preformed packing (8) from adapter (3). Discard preformed packing.

WARNING

Use care when removing retaining rings. Retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

NOTE

Note position of seals prior to removal.

(8) Remove and discard retaining ring (9) from piston pump (7).

(9) Remove and discard seal (10) from main hydraulic shaft (11).

(10) Remove plug (12) from piston pump (7).

(11) Remove and discard seal (13) from piston pump (2).

(12) Remove and discard two retaining rings (14) from piston pump (2).

(13) Remove and discard seal (13) from piston pump (2).

(14) Remove plug (15) from piston pump (2).

17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

c. Cleaning/Inspection.

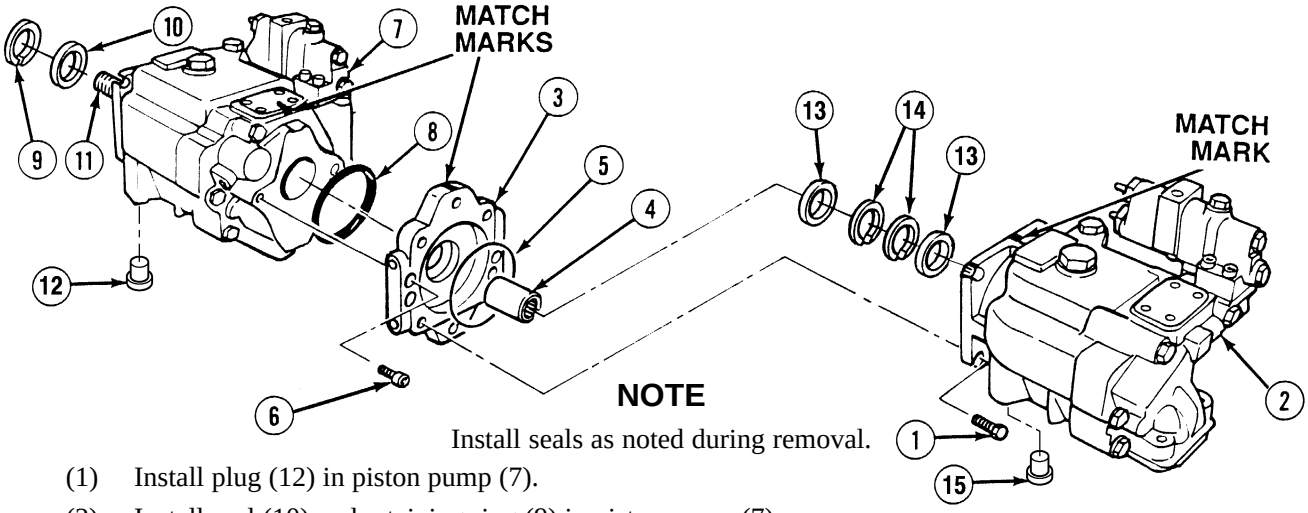
WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleansing purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

(1) Clean all mating surfaces with drycleaning solvent.

(2) Dry all parts with compressed air.

d. Assembly.



NOTE

Install seals as noted during removal.

(1) Install plug (12) in piston pump (7).

(2) Install seal (10) and retaining ring (9) in piston pump (7).

(3) Install plug (15) in piston pump (2).

(4) Install seal (13), two retaining rings (14) and seal (13) in piston pump (2).

(5) Apply hydraulic oil to preformed packing (8).

(6) Install preformed packing (8) on adapter (3).

(7) Align matchmarks and install adapter (3) on piston pump (7) with two screws (6). Tighten screws to 76 to 94 lb-ft (103 to 127 N·m).

(8) Apply hydraulic oil to preformed packing (5).

(9) Install preformed packing (5) on piston pump (2).

(10) Install coupling (4) on piston pump (2).

(11) Align matchmarks and install piston pump (2) on adapter (3) with four screws (1). Tighten screws to 48 to 58 lb-ft (65 to 79 N·m).

e. Installation.

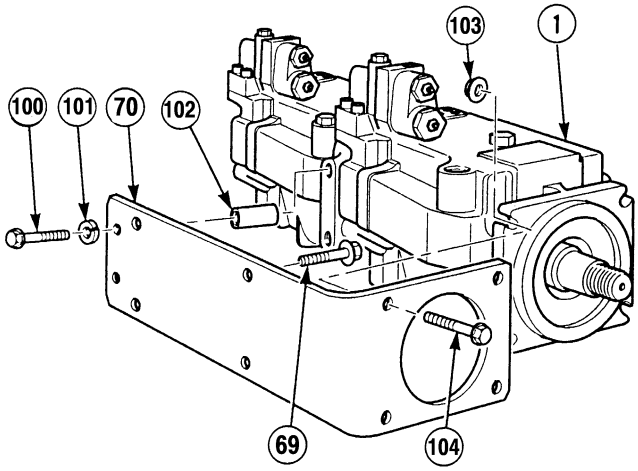
NOTE

Install adapters, elbows and tees as noted prior to removal.

(1) Position four screws (69) in pump mount bracket (70) and position pump mount bracket on main hydraulic pump (1).

(2) Install four screws (104), pump mount bracket (70) and four locknuts (103) on main hydraulic pump (1).

(3) Install two screws (100), lockwashers (101), pump mount bracket (70) and spacers (102) in main hydraulic pump (1).

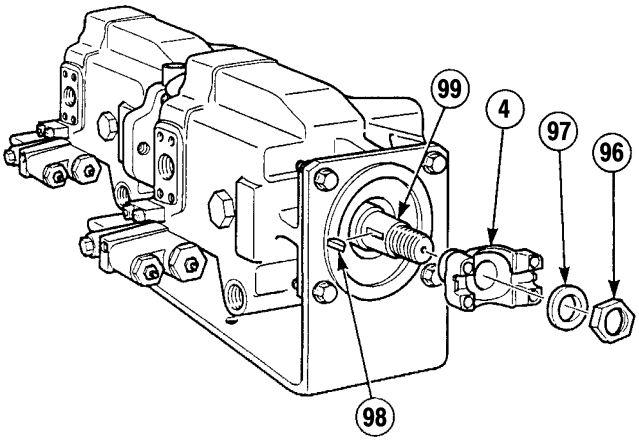


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound on threads of hydraulic pump shaft (99).

(5) Install key (98), end yoke (4), washer (97) and nut (96) on hydraulic pump shaft (99). Tighten nut 138 lb-ft (187 N·m).

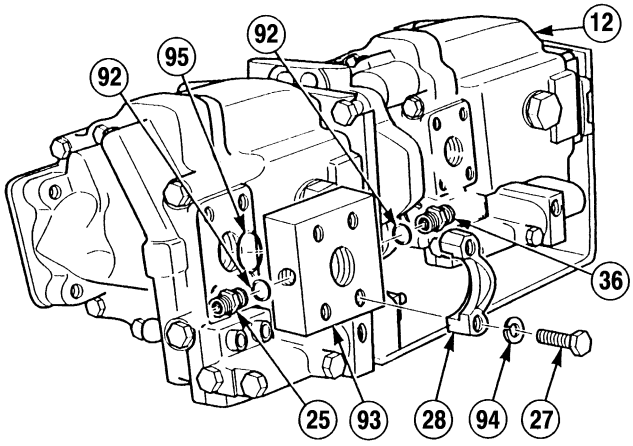


(6) Apply hydraulic oil to preformed packing (95).

(7) Position preformed packing (95), manifold (93) and split flange (28) on main hydraulic pump (1) with two lockwashers (94) and screws (27).

(8) Apply hydraulic oil to preformed packings (92).

(9) Install two preformed packings (92) and adapters (36) and (25) in manifold (93).



17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(10) Apply hydraulic oil to preformed packing (91).

(11) Install preformed packing (91) and elbow (44) in main hydraulic pump (1) and tighten nut (90).

(12) Apply hydraulic oil to preformed packing (89).

(13) Install preformed packing (89) and adapter (88) in main hydraulic pump (1).

(14) Apply hydraulic oil to preformed packing (87).

(15) Install preformed packing (87) and tee (46) on adapter (88) and tighten nut (86).

(16) Apply hydraulic oil to preformed packing (85).

(17) Install preformed packing (85) and elbow (16) in main hydraulic pump (1) and tighten nut (84).

(18) Apply hydraulic oil to preformed packing (81).

(19) Install preformed packing (81) and tee (8) in main hydraulic pump (1).

(20) Apply hydraulic oil to preformed packing (80).

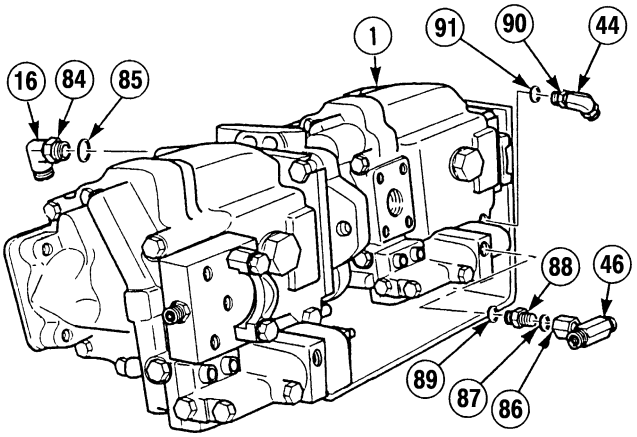
(21) Install preformed packing (80) and adapter (78) on tee (9).

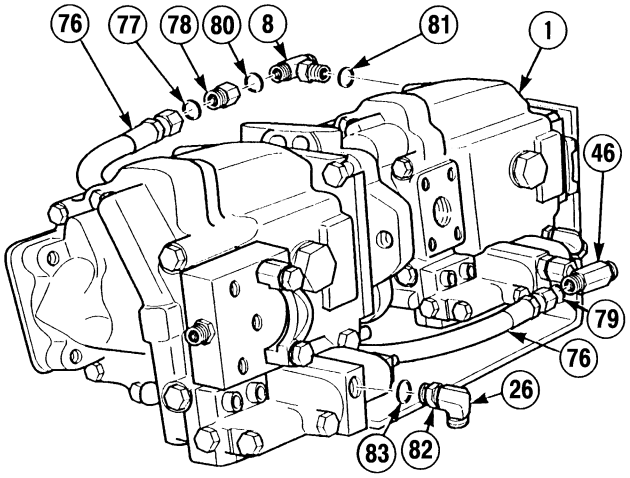
(22) Apply hydraulic oil to preformed packings (77), (79) and (83).

(23) Install two preformed packings (77) and (79) and hose 2049 (76) on adapter (78) and tee (46).

(24) Apply hydraulic oil to preformed packing (83).

(25) Install preformed packing (83) and elbow (26) in main hydraulic pump (1) with nut (82).





WARNING

Main hydraulic pump weighs 215 lbs (98 kg). Attach suitable lifting device prior to removal or installation to prevent possible injury to personnel.

(26) Attach chain and rope to main hydraulic pump (1).

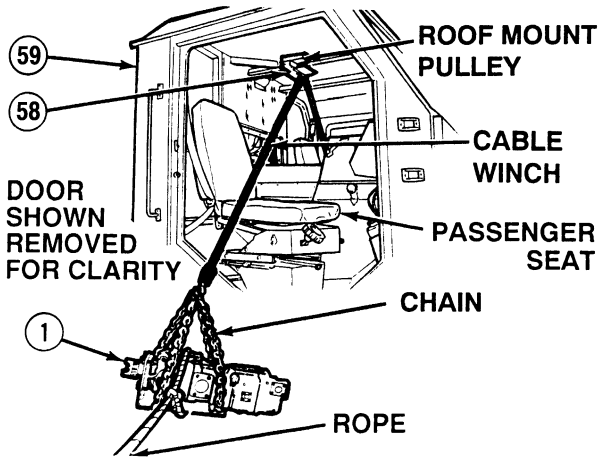
WARNING

Never stand in front of main hydraulic pump during lifting. Hydraulic pump can swing out of door and cause serious injury to personnel.

(27) With the aid of an assistant, use lifting device and lift main hydraulic pump (1). Using a rope, guide main hydraulic pump (1) through passenger side door of cab (59) and lower onto passenger seat.

(28) Remove lifting device from chain on main hydraulic pump (1).

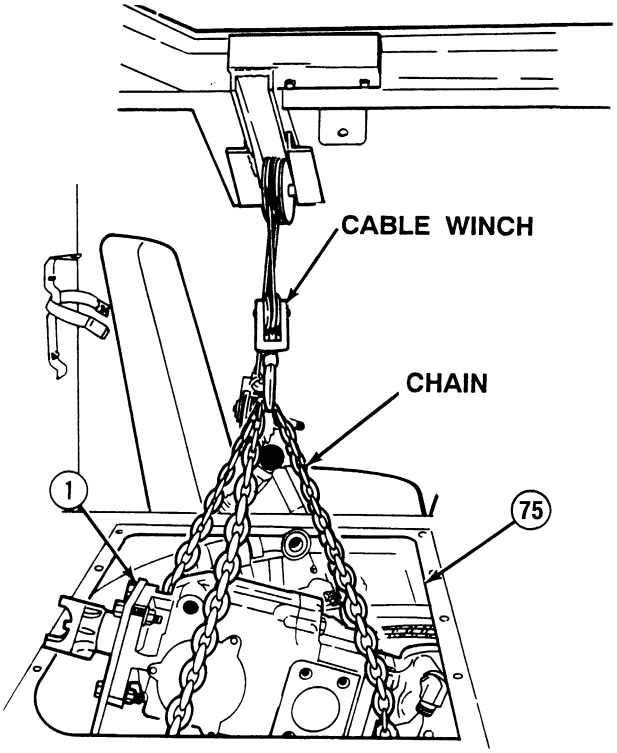
(29) Attach cable winch (58) to chain on main hydraulic pump (1).



17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(30) With the aid of an assistant, use rope to guide main hydraulic pump (1) as cable winch and chain are used to lift main hydraulic pump (1) from passenger seat over access hole (75).

(31) With the aid of an assistant, lower main hydraulic pump (1) through access hole (75).

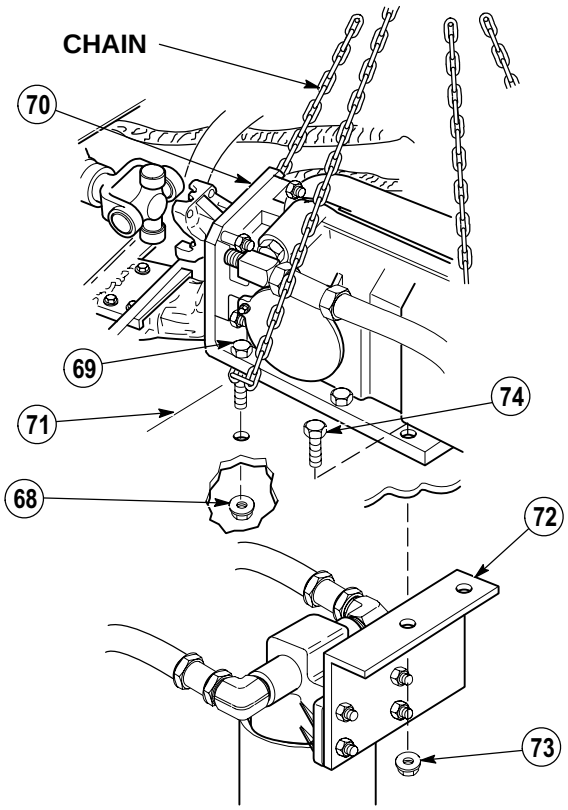


NOTE

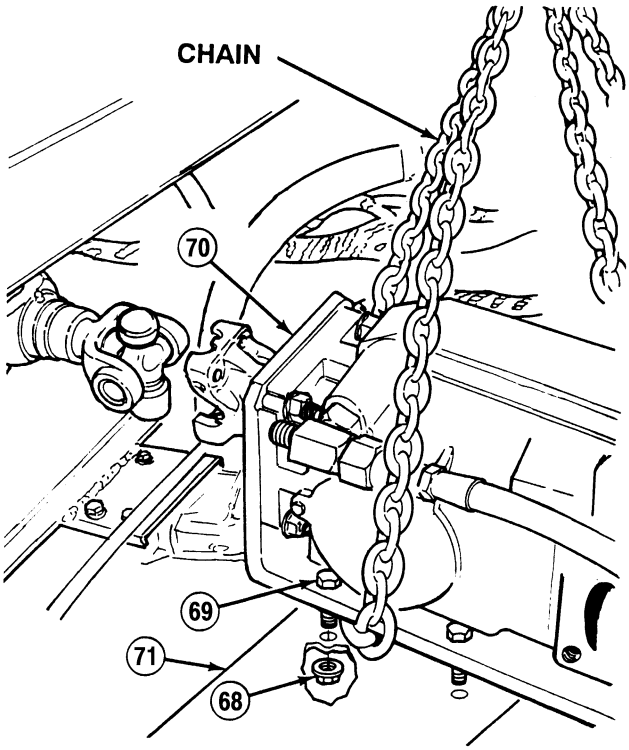
- If truck is equipped with remote engine oil filter, perform Steps (32) and (33).
- If truck is not equipped with remote engine oil filter, perform Step (34).

(32) With the aid of an assistant, install pump mount bracket (70) on crossmember (71) with two screws (69) and locknuts (68).

(33) Position remote oil filter assembly (72) and install to pump mount bracket (70) on crossmember (71) with two screws (74) and locknuts (73).



(34) With the aid of an assistant, install pump mount bracket (70) on crossmember (71) with four screws (69) and four locknuts (68).



(35) Loosen cable of cable winch (58) and disconnect free pulley hook (67) from chain.

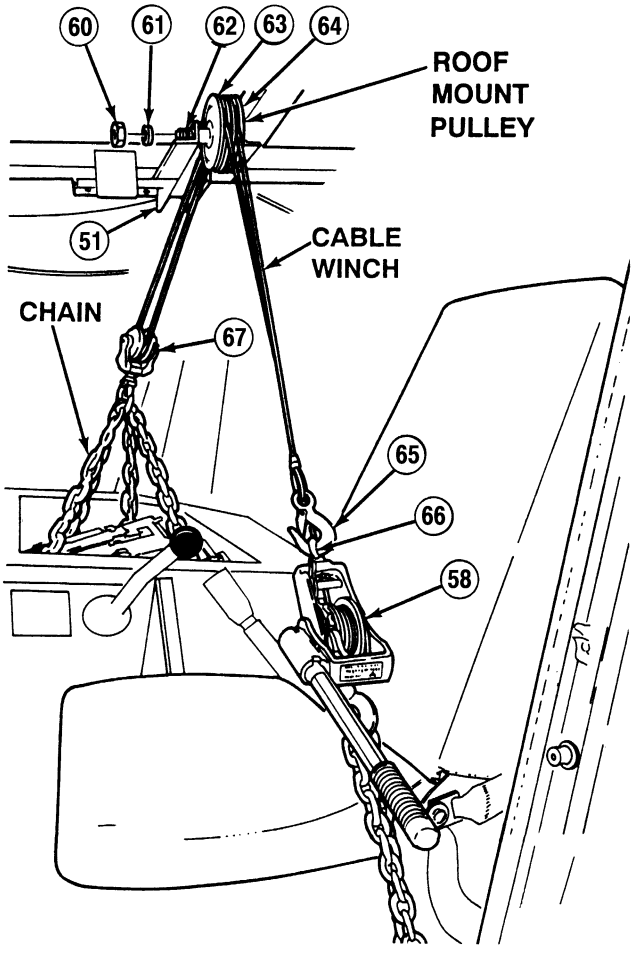
(36) Remove nut (60) and lockwasher (61) from screw (62).

(37) Position screw (62) until screw is flush with left side of left pulley (63).

(38) Remove cable winch cables from pulleys (63) and (64).

(39) Install screw (62), lockwasher (61) and nut (60) on roof mount pulley (51).

(40) Disconnect end hook (65) from eye (66) of cable winch (58).

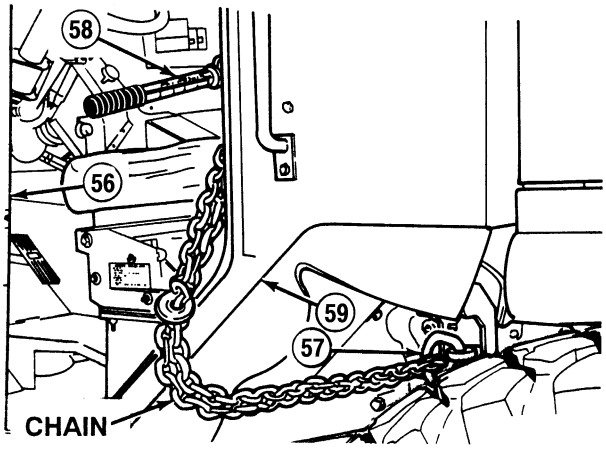


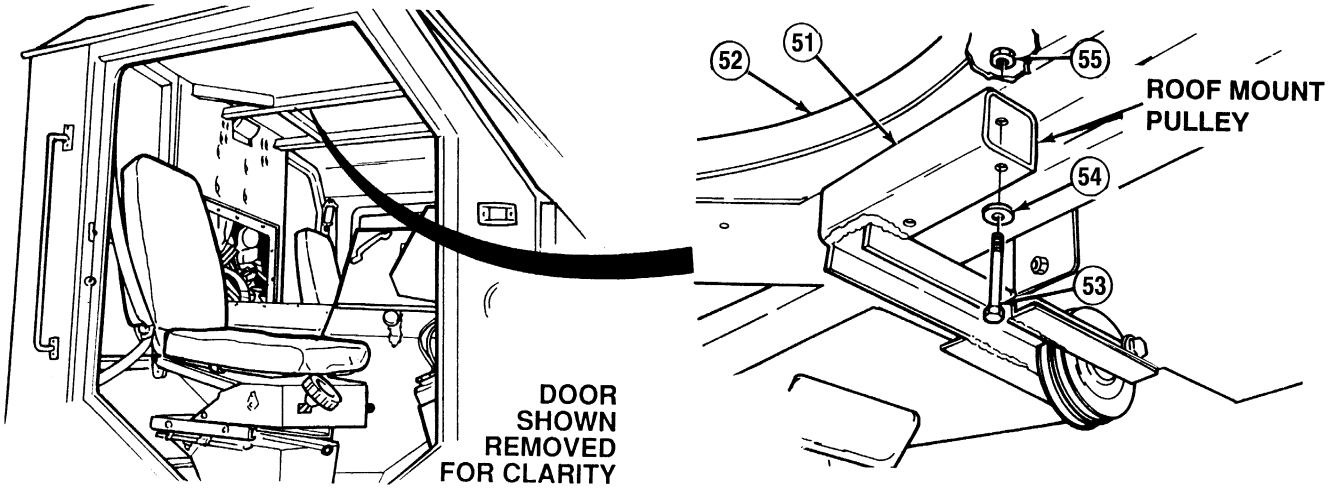
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

(41) Disconnect cable winch (58) from chain.

(42) Disconnect chain from tiedown ring (57).

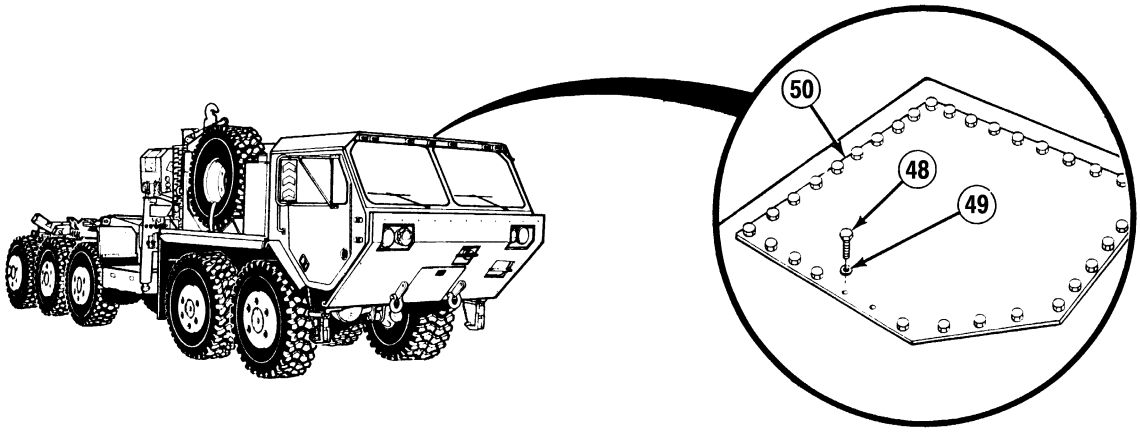
(43) Close door (56) on cab (59).





(44) Remove two nuts (55) from screws (53).

(45) Remove roof mount pulley (51) from bottom side of cover plate frame (52) by removing two screws (53) and washers (54).



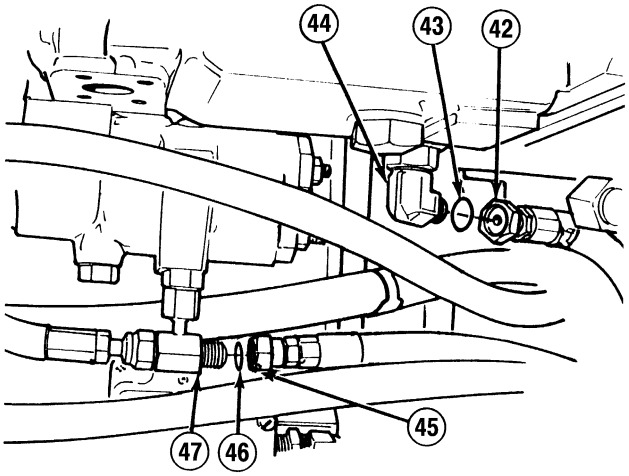
(46) Install two screws (48) and washers (49) in cover plate (50).

(47) Apply hydraulic oil to preformed packing (46).

(48) Install preformed packing (46) and hose 2295 (45) on tee (47).

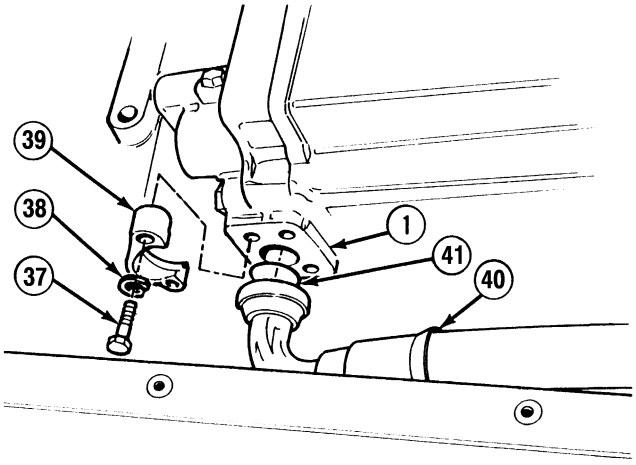
(49) Apply hydraulic oil to preformed packing (43).

(50) Install preformed packing (43) and hose 2290 (42) on elbow (44).

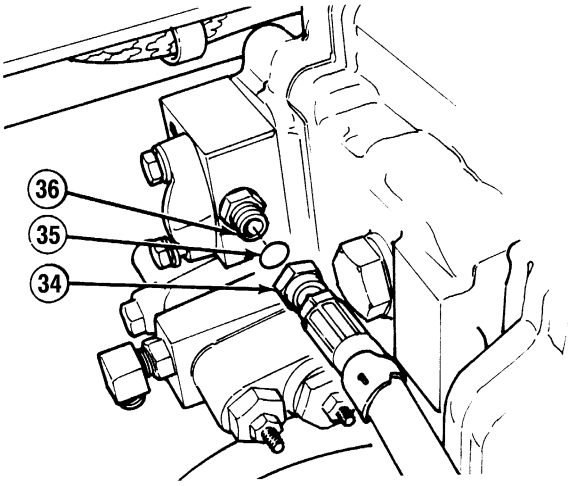


(51) Apply hydraulic oil to preformed packing (41).

(52) Install preformed packing (41), hose 2935 (40) and two split flanges (39) on main hydraulic pump (1) with four lockwashers (38) and screws (37).







(53) Apply hydraulic oil to preformed packing (35).

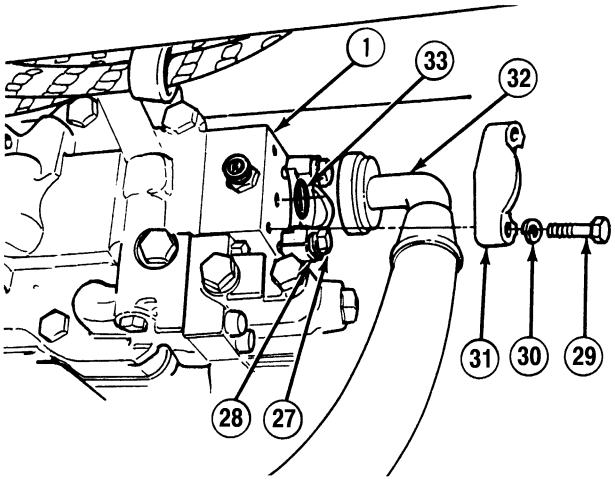
(54) Install preformed packing (35) and hose 2907 (34) on adapter (36).

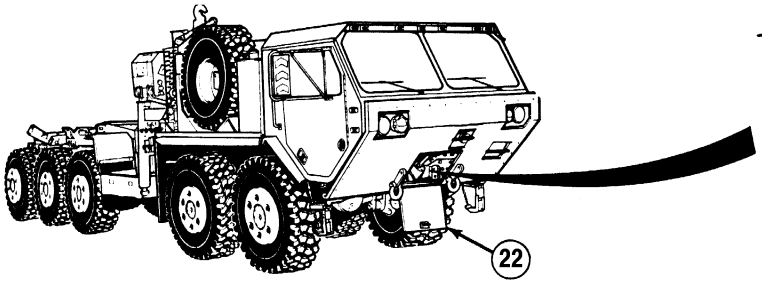
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

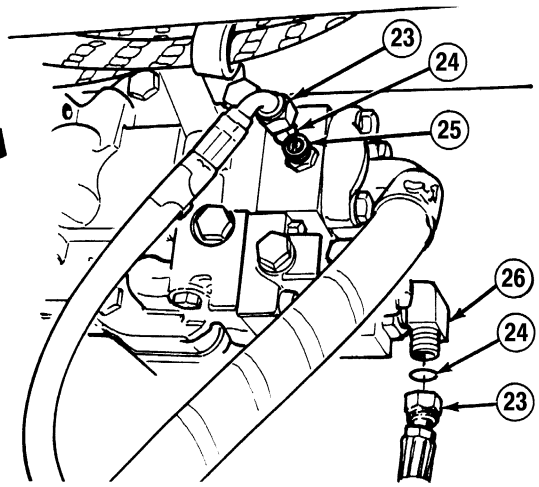
(55) Apply hydraulic oil to preformed packing (33).

(56) Install preformed packing (33), hose 2393 (32) and split flange (31) on main hydraulic pump (1) with two lockwashers (30) and screws (29).

(57) Tighten two screws (27) on split flange (28).







(58) Apply hydraulic oil to preformed packings (24).

(59) Install preformed packings (24) and hose 2503 (23) on adapter (25) and elbow (26).

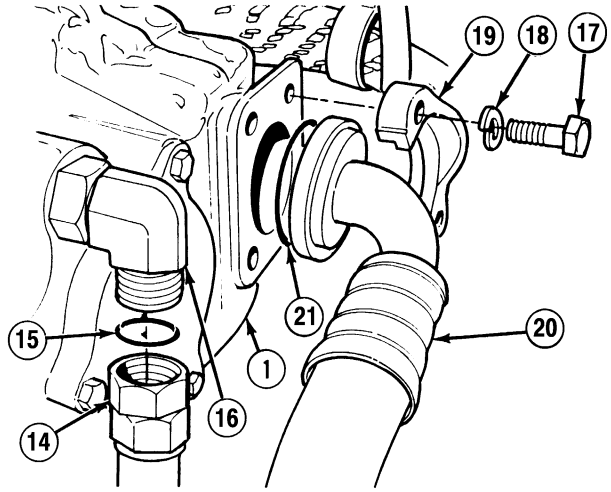
(60) Close front access cover (22).

(61) Apply hydraulic oil to preformed packing (21).

(62) Install preformed packing (21), hose 2278 (20) and two split flanges (19) on main hydraulic pump (1) with four lockwashers (18) and screws (17).

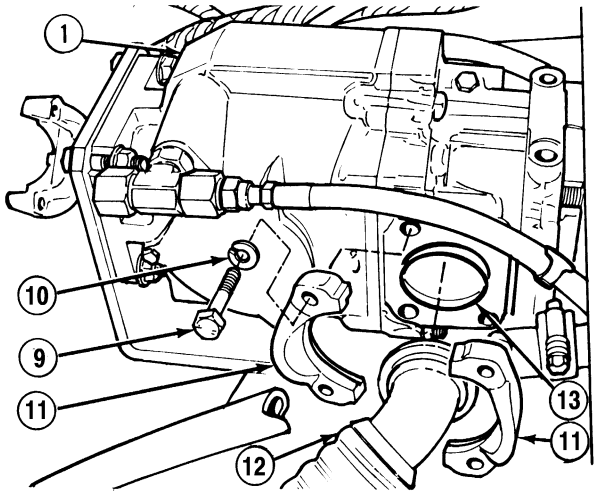
(63) Apply hydraulic oil to preformed packing (15).

(64) Install preformed packing (15) and hose 2701 (14) on elbow (16).



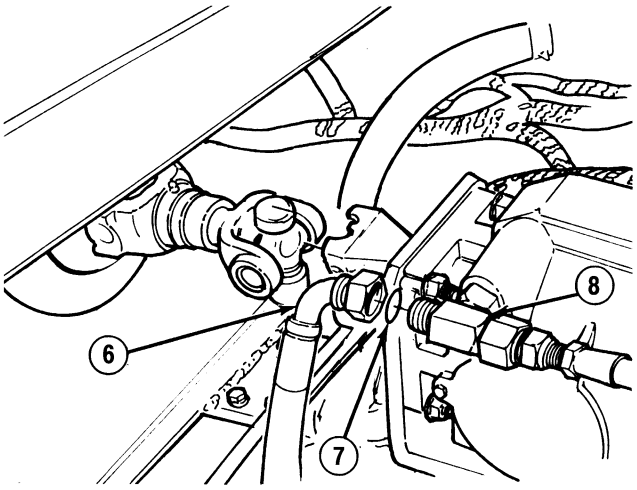
(65) Apply hydraulic oil to preformed packing (13).

(66) Install preformed packing (13), hose 2498 (12) and two split flanges (11) on main hydraulic pump (1) with four lockwashers (10) and screws (9).



(67) Apply hydraulic oil to preformed packing (7).

(68) Install preformed packing (7) and hose 2781 (6) on tee (8).



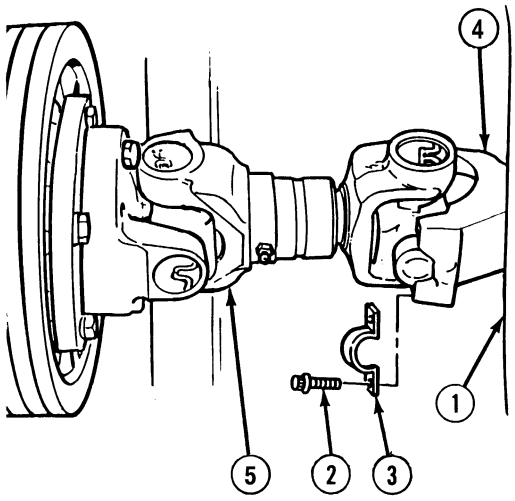
17-2. MAIN HYDRAULIC PUMP REPAIR (CONT).

CAUTION

Universal joint end caps may fall off upon performing Step (69). Use caution when installing failure to comply may result in damage to equipment.

NOTE

If tape was installed around end caps, remove tape prior to Step (69).



(69) Position driveshaft (5) on end yoke (4) of main hydraulic pump (1).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(70) Apply sealing compound to threads of four screws (2).

(71) Install driveshaft (5) on end yoke (4) with two straps (3) and four screws (2). Tighten screws to 25 to 30 lb-ft (34 to 41 N·m).

f. Follow-On Maintenance:

- Fill steering reservoir, (TM 9 2320-364-20).
- Install Electrical Control Box (ECB), (TM 9-2320-364-20).
- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for 3 minutes, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Install cab engine access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-3. MAIN HYDRAULIC PUMP INPUT SHAFT SEAL REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

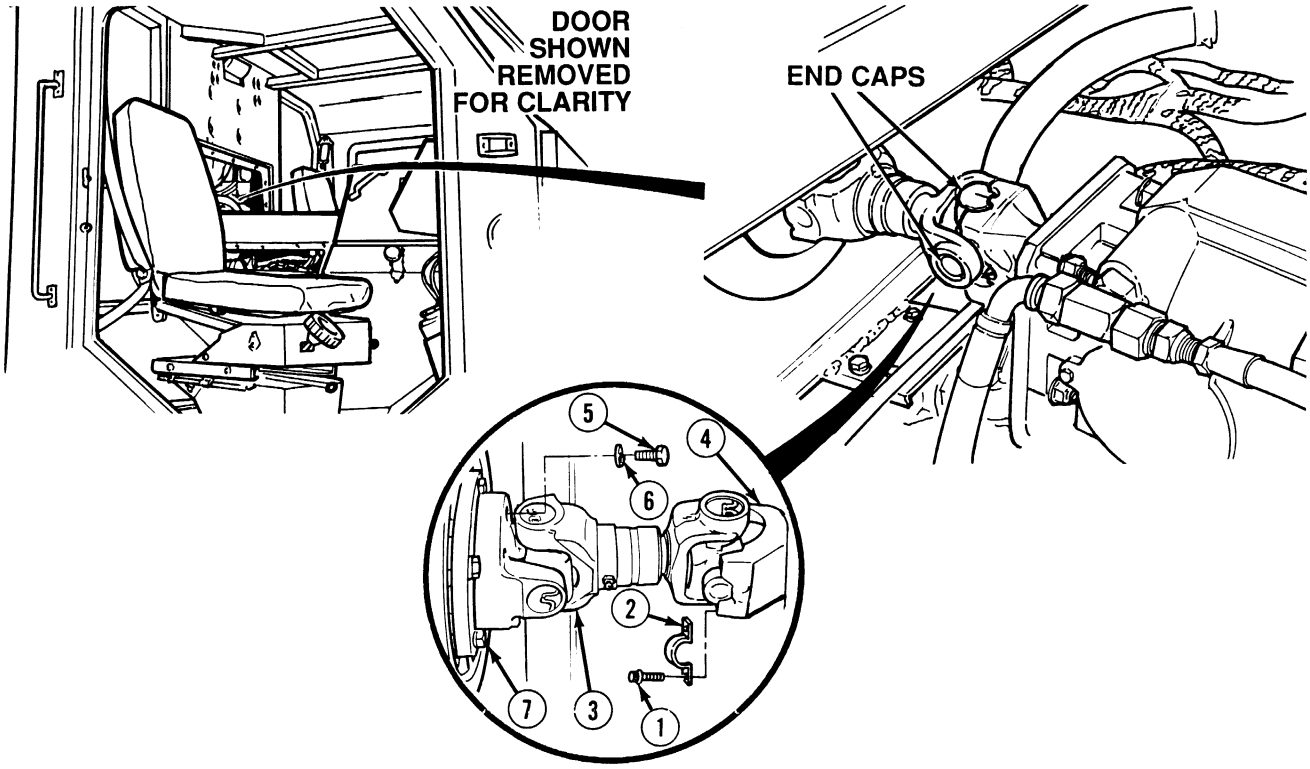
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Adapter, Socket (3/8 in. male to 1/4 in. female)
(Item 11, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Pliers, Retaining Ring (Item 154, Appendix F)
Puller Kit, Universal (Item 174, Appendix F)
Wrench, Pipe 3-1/2 in. Opening
(Item 271, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (175 lb-ft [237 N·m])
(Item 277, Appendix F)
Installer, Seal (Appendix C)

Materials/Parts
Grease (Item 21, Appendix B)
Sealing Compound (Item 56, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Lockwasher (4) (Item 252, Appendix E)
Ring, Retaining (Item 498, Appendix E)
Seal (Item 571, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Cab engine access panel removed,
(TM 9-2320-364-20)

17-3. MAIN HYDRAULIC PUMP INPUT SHAFT SEAL REPLACEMENT (CONT).

a. Removal.



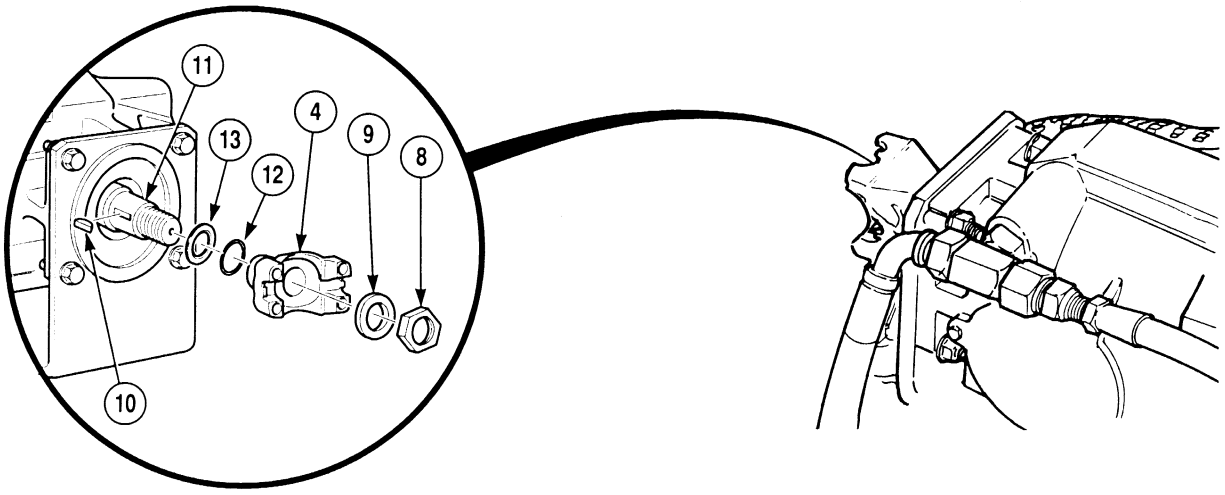
CAUTION

Universal joint end caps may fall off upon performing Steps (1) through (3). Use caution when removing. Failure to comply may result in damage to equipment.

(1) Remove four screws (1) and two straps (2) from pump drive shaft (3) and end yoke (4).

(2) Remove four screws (5) and lockwashers (6) from pump drive shaft (3) and engine (7). Discard lockwashers.

(3) Remove pump drive shaft (3) from end yoke (4) and engine (7).



(4) While holding end yoke (4) with pipe wrench, remove nut (8), washer (9), end yoke (4) and key (10) from main hydraulic pump shaft (11).

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released and could cause severe eye injury.

(5) Remove and discard retaining ring (12) from main hydraulic pump shaft (11).

(6) Place drain pan under main hydraulic pump shaft (11).

NOTE

A small amount of hydraulic oil will continue to flow after removal of seal.

(7) Remove and discard seal (13) from main hydraulic pump shaft (11).

b. Installation.

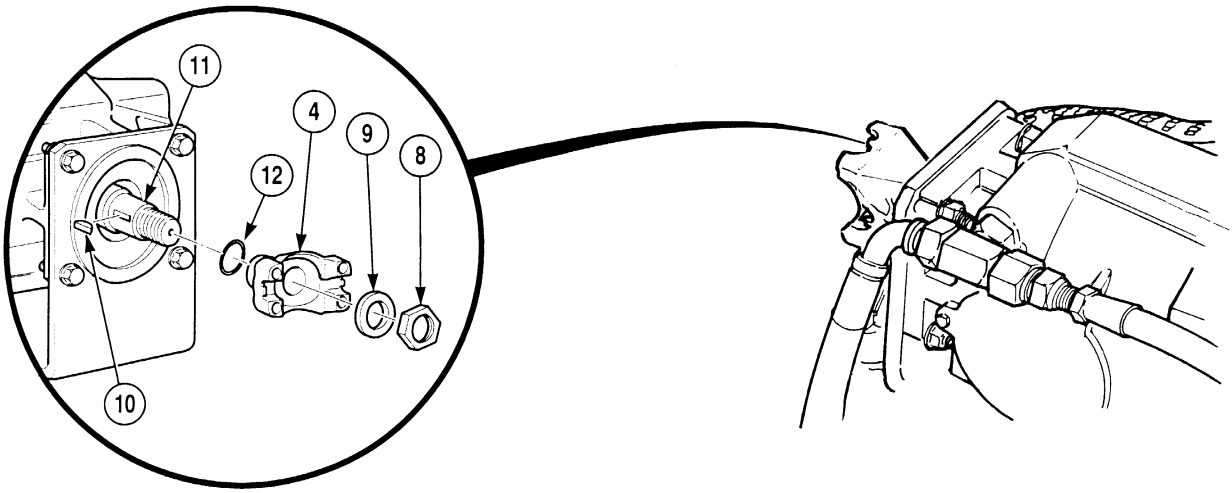
(1) Apply grease to seal (13) and main hydraulic pump shaft (11).

NOTE

- Spring in seal faces inward.
- Seal is installed past second groove on hydraulic pump.

(2) Using seal installer, install seal (13) on main hydraulic pump shaft (11).

17-3. MAIN HYDRAULIC PUMP INPUT SHAFT SEAL REPLACEMENT (CONT).



WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released and could cause severe eye injury.

(3) Install retaining ring (12) in second groove on main hydraulic pump shaft (11).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound to threads of main hydraulic pump shaft (11).

(5) Install key (10) end yoke (4), washer (9) and nut (8) on main hydraulic pump shaft (11).

(6) While holding end yoke (4) with pipe wrench, tighten nut (8) to 138 lb-ft (187 N·m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(7) Apply sealing compound to threads of four screws (5).

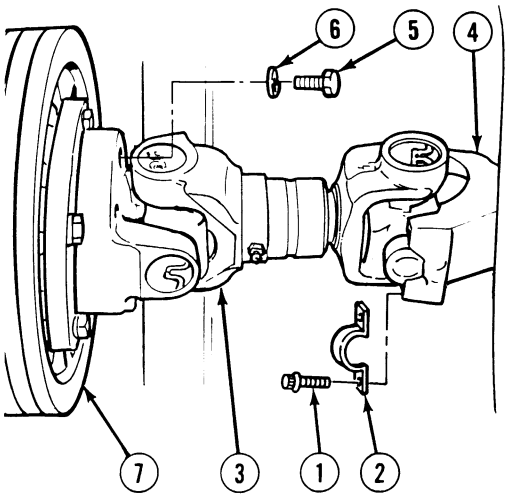
CAUTION

Universal joint end caps may fall off performing Steps (8) through (10).

(8) Install pump drive shaft (3) on engine (7) with four screws (5) and lock washers (6). Tighten screws to 60 lb-ft (81 N·m).

(9) Apply sealing compound to threads of four screws (1).

(10) Install pump drive shaft (3) on yoke (4) with four screws (1) and two straps (2). Tighten screws to 25 to 30 lb-ft (34 to 41 N·m).



c. Follow-On Maintenance:

- Fill steering reservoir, (TM 9-2320-364-20).
- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for three minutes, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Install cab engine access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-4. MAIN HYDRAULIC PUMP CONTROL SUBASSEMBLY REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

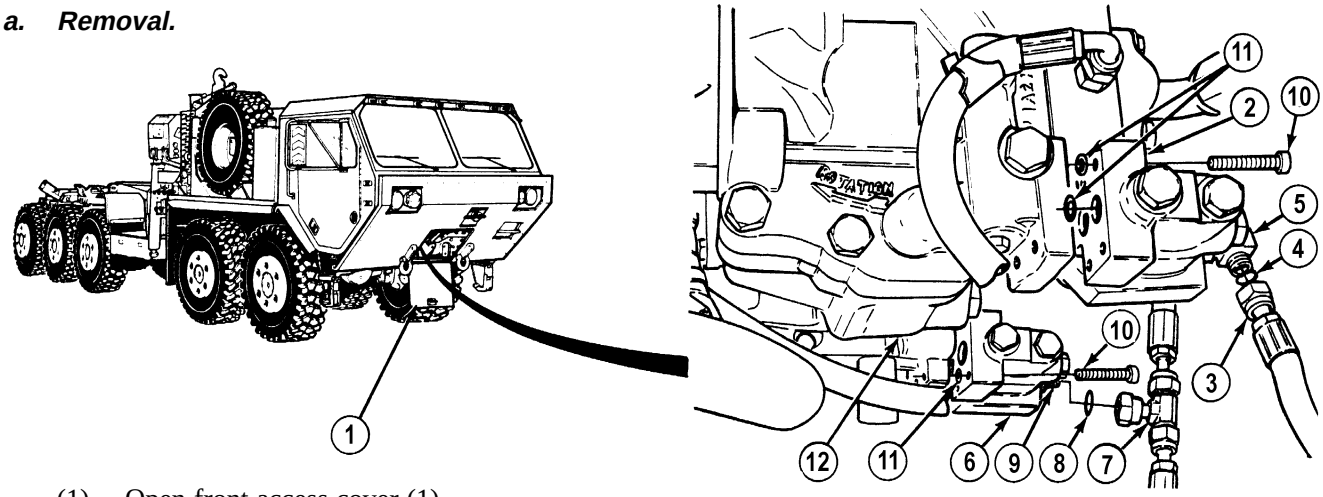
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist's (Item 248, Appendix F)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Packing, Preformed (3) (Item 329, Appendix E)

Materials/Parts - Continued
Packing, Preformed (Item 347, Appendix E)
Packing, Preformed (Item 350, Appendix E)
Packing, Preformed (Item 385, Appendix E)
Packing, Preformed (Item 450, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Main hydraulic reservoir drained, (TM 9-2320-364-20)

a. Removal.



(1) Open front access cover (1).

NOTE

- If removing front hydraulic pump control subassembly, perform Steps (2) and (3).
- If removing rear control subassembly perform Steps (4) and (5).

(2) Position drain pan under front control subassembly (2).

(3) Remove hose 2503 (3) and preformed packing (4) from elbow (5). Discard preformed packing.

(4) Position drain pan under rear control subassembly (6).

(5) Remove tee (7) and preformed packing (8) from adapter (9). Discard preformed packing.

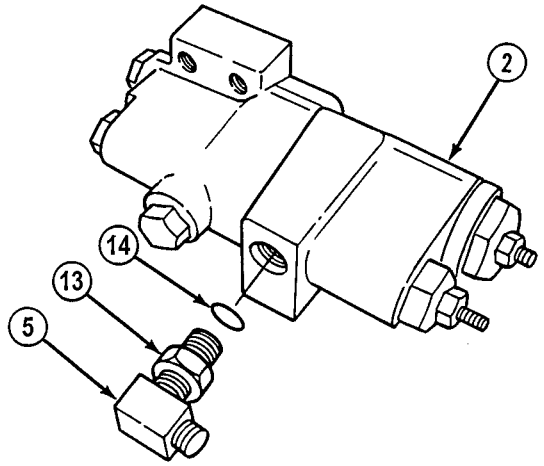
(6) Remove four screws (10), three preformed packings (11) and control subassembly (2) or (6) from hydraulic pump (12). Discard preformed packings.

NOTE

- Note location and position of elbows prior to removal.
- If removing front control subassembly, perform Steps (7) and (8).
- If removing rear control subassembly, perform Steps (9) and (10).

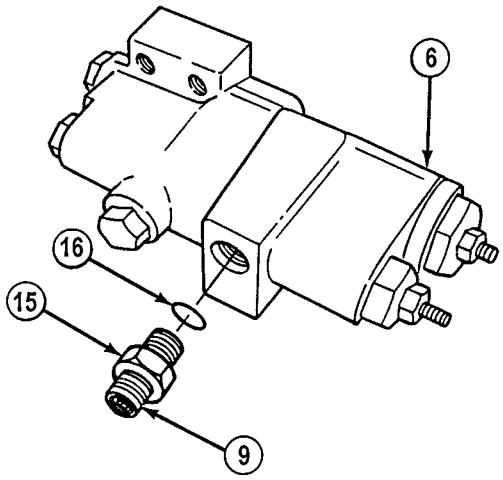
(7) Position front control subassembly (2) in soft jawed vise.

(8) Loosen nut (13) and remove elbow (5) and preformed packing (14) from front control subassembly (2). Discard preformed packing.



(9) Position rear control subassembly (6) in soft jawed vise.

(10) Loosen nut (15) and remove adapter (9) and preformed packing (16) from rear control subassembly (6). Discard preformed packing.



b. Disassembly.

CAUTION

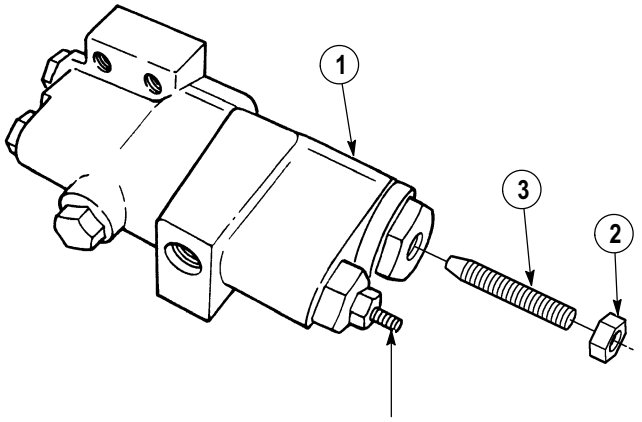
Outside pump control setscrew is factory adjusted and should not be removed or adjusted. Removal or adjustment of outside pump control setscrew could result in damage to truck hydraulic system and components. Remove inside pump control setscrew only.

NOTE

Disassembly of front control subassembly and rear control subassembly are identical. Front control subassembly is shown for disassembly.

(1) Position front control subassembly (1) in soft jawed vise.

(2) Remove jam nut (2) and adjusting screw (3) from front control subassembly (1).



17-4. MAIN HYDRAULIC PUMP CONTROL SUBASSEMBLY REPAIR (CONT).

c. Cleaning/Inspection.

WARNING

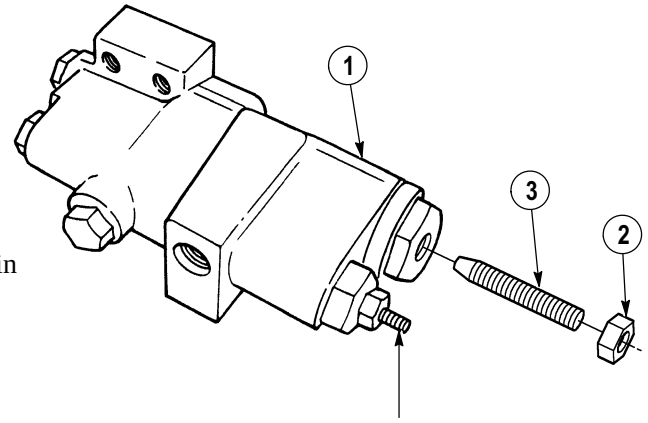
- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

d. Assembly.

NOTE

Assembly of front control subassembly and rear control subassembly are identical. Front control subassembly is shown for assembly.

Install adjusting screw (3) and jam nut (2) in front control subassembly (1).



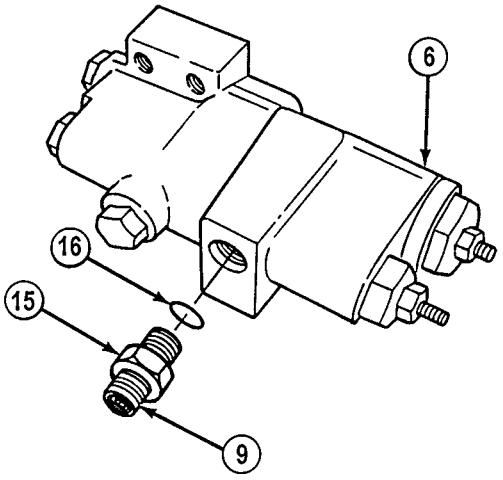
e. Installation.

NOTE

- If installing rear control subassembly, perform Steps (1) and (2).
- If installing front control subassembly, perform Steps (3) and (4).
- Install elbow and adapter as noted prior to removal.

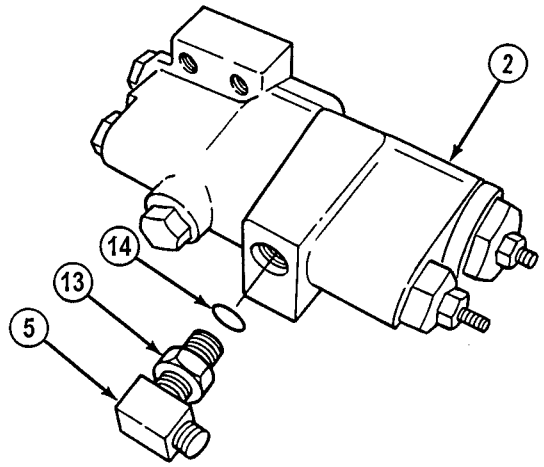
(1) Apply hydraulic oil to preformed packing (16).

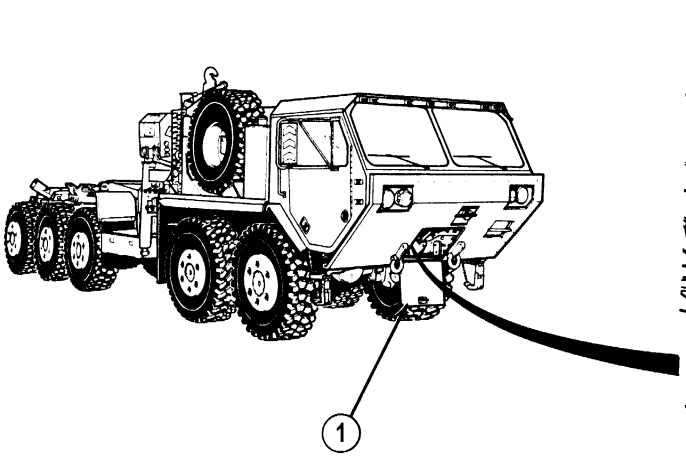
(2) Install preformed packing (16) and adapter (9) in rear control subassembly (6). Tighten nut (15) in adapter (9).

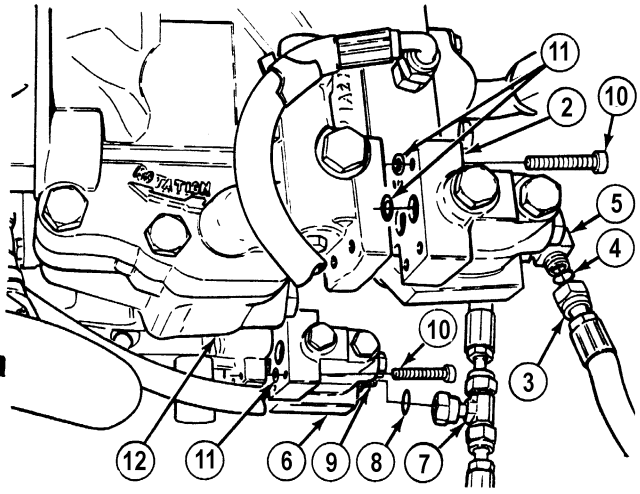


(3) Apply hydraulic oil to preformed packing (14).

(4) Install preformed packing (14) and elbow (5) in front control subassembly (2). Tighten nut (13).







(5) Apply hydraulic oil to three preformed packings (11).

NOTE

- If installing front control subassembly, perform Steps (6) through (8).
- If installing rear control subassembly, perform Steps (9) through (12).

(6) Install front control subassembly (2) on hydraulic pump (12) with three preformed packings (11) and screws (10).

(7) Apply hydraulic oil to preformed packing (4).

(8) Install preformed packing (4) and hose 2503 (3) on elbow (5).

(9) Install rear control subassembly (6) on hydraulic pump (12) with three preformed packings (11) and screws (10).

(10) Apply hydraulic oil to preformed packing (8).

(11) Install preformed packing (8) and tee (7) on adapter (9).

(12) Close front access cover (1).

17-4. MAIN HYDRAULIC PUMP CONTROL SUBASSEMBLY REPAIR (CONT).

f. Follow-On Maintenance:

- Fill main hydraulic reservoir, (TM 9-2320-364-20).
- Adjust main hydraulic system pressure, (rear control subassembly only), (Para 17-5).
- Adjust steering system hydraulic pressure (front control subassembly only), (Para 12-2).
- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-5. MAIN HYDRAULIC SYSTEM ADJUSTMENT.

This task covers:

a. Main Hydraulic Pump Control Adjustment
b. Follow-On Maintenance

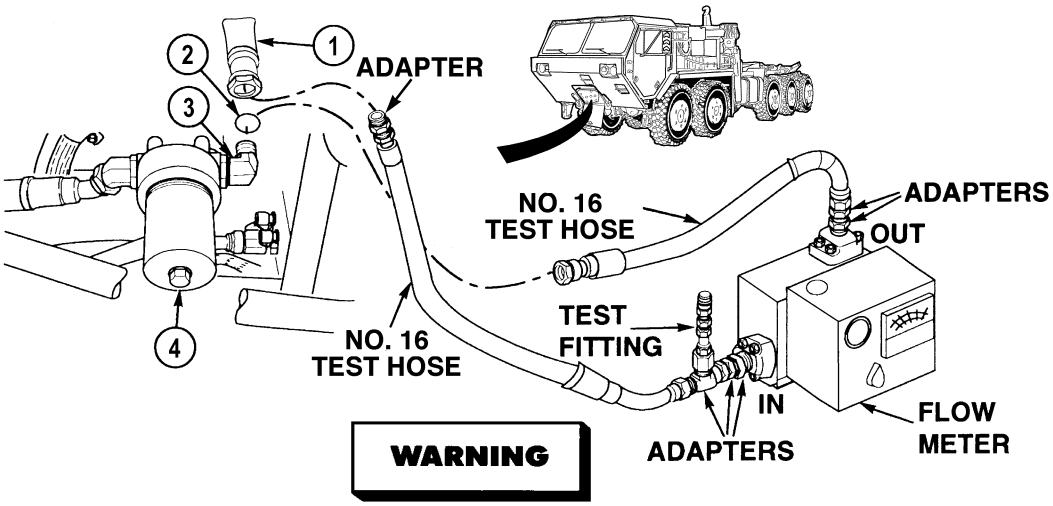
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Pressure Test Kit (Item 165, Appendix F)
Wrench, Combination, 1-1/2 in. (Item 260, Appendix F)
Wrench, Combination, 1-5/8 in. (Item 261, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Packing, Preformed (2) (Item 347, Appendix E)
Packing, Preformed (2) (Item 353, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Cab engine access panel removed, (TM 9-2320-364-20)
Left side noise panel removed, (TM 9-2320-364-20)

a. Main Hydraulic System Hydraulic Pump Control Adjustment.



The main hydraulic system operates at oil pressures up to 3,675 psi (25,339 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Position drain pan under hoses.
- Access to hoses is through cab engine access panel.

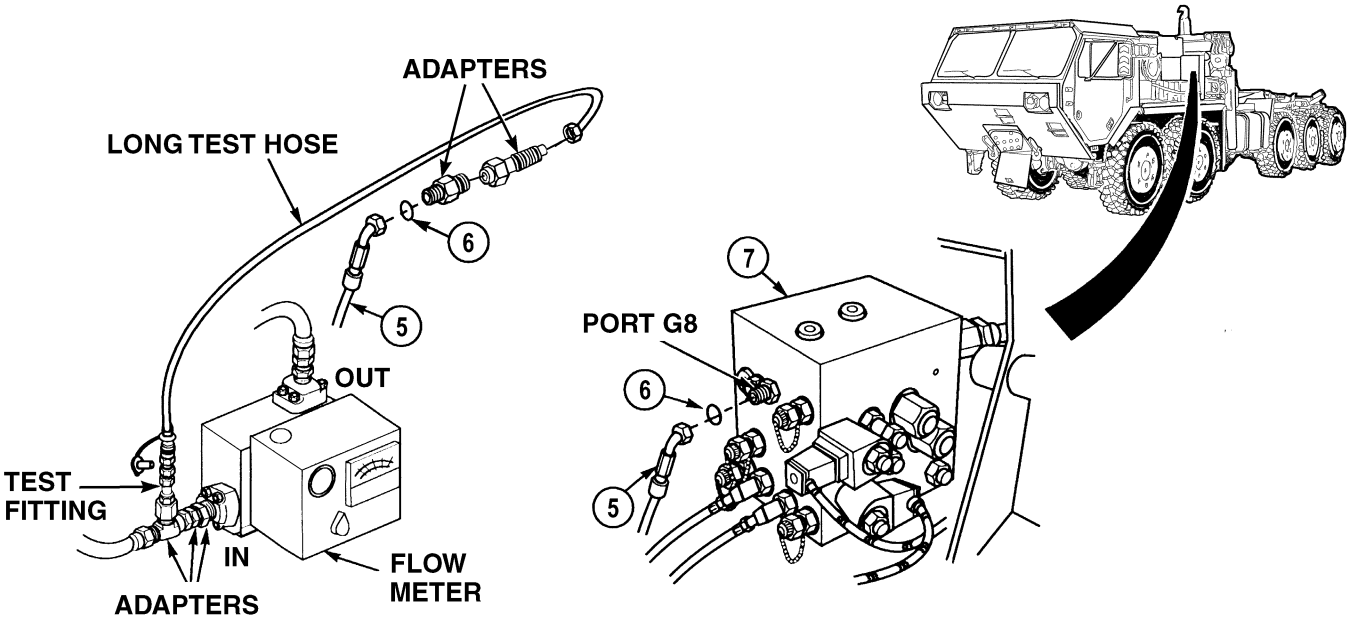
(1) Disconnect hose 2935 (1) and remove preformed packing (2) from elbow (3) on high pressure filter (4). Discard preformed packing.

(2) Apply hydraulic oil to preformed packing (2).

(3) Position preformed packing (2) on elbow (3).

(4) Install flowmeter, adapters, No. 16 test hoses and test fitting in line between hose 2935 (1) and elbow (3) on high pressure filter (4).

17-5. MAIN HYDRAULIC SYSTEM ADJUSTMENT (CONT).



(5) Disconnect hose 2295 (5) and remove preformed packing (6) from port G8 on multifunction manifold (7). Discard preformed packing.

(6) Install metal cap on port G8.

(7) Apply hydraulic oil to preformed packing (6).

(8) Position preformed packing (6) on adapter.

(9) Install adapter and test fitting on hose 2295 (5).

(10) Install long test hose between test fittings.

(11) Set selector on flowmeter to LO FLOW.

(12) Turn handle on loading valve to the left and open loading valve on flowmeter fully.

(13) Start engine (TM 9-2320-364-10).

CAUTION

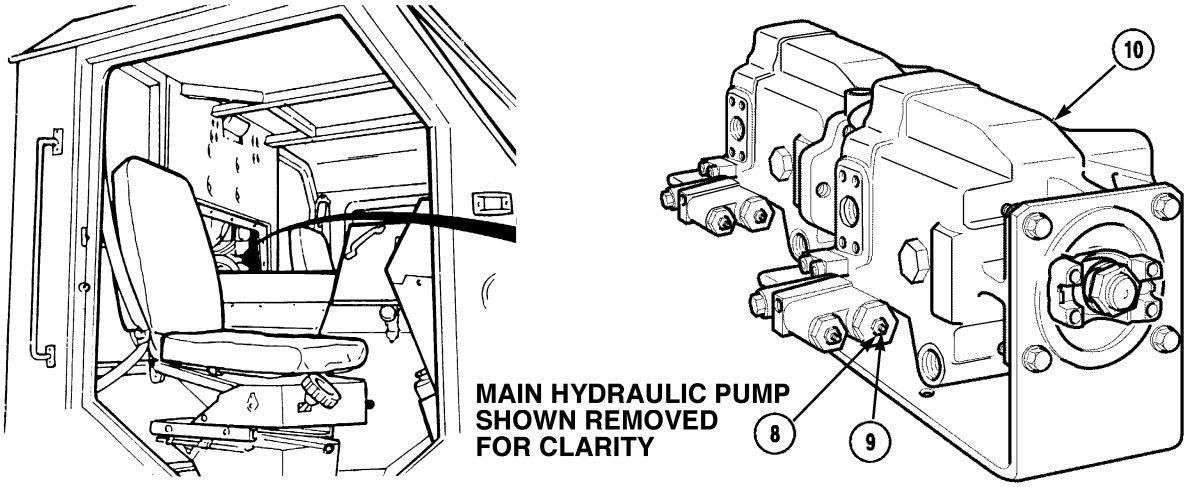
Do not allow loading valve to remain closed longer than 10 seconds or damage to equipment may result.

(14) Turn handle on loading valve to the right and slowly close loading valve on flowmeter.

(a) If 3,675 psi +75 –50 psi (25,339 kPa +517, – 345 kPa) are not present on flowmeter pressure gage when flow drops to 0 gpm (0 lpm), go to Step (15).

(b) If 3,675 psi +75 –50 psi (25,339 kPa +517, –345 kPa) are present on flowmeter pressure gage when flow drops to 0 gpm (0 lpm), main hydraulic pump control adjustment is OK, go to Step (21).

(15) Shut OFF engine (TM 9-2320-364-10).



CAUTION

- Outside pump control set screw is factory set and non-adjustable at any level of maintenance.
- Adjustment of outside pump control set screw could result in damage to truck hydraulic system and components. Adjust inside pump control set screw only.

(16) Loosen nut (8) on inside pump control set screw (9).

NOTE

Turning inside pump control set screw to the right will increase pump output pressure and turning to the left will decrease pump output pressure. Each full turn will change the output pressure about 330 psi (2,275 kPa).

(17) Hold nut (8) and turn set screw (9) to adjust main hydraulic pump (10) output pressure to 3,675 psi +75 –50 psi (25,339 kPa +517, –345 kPa).

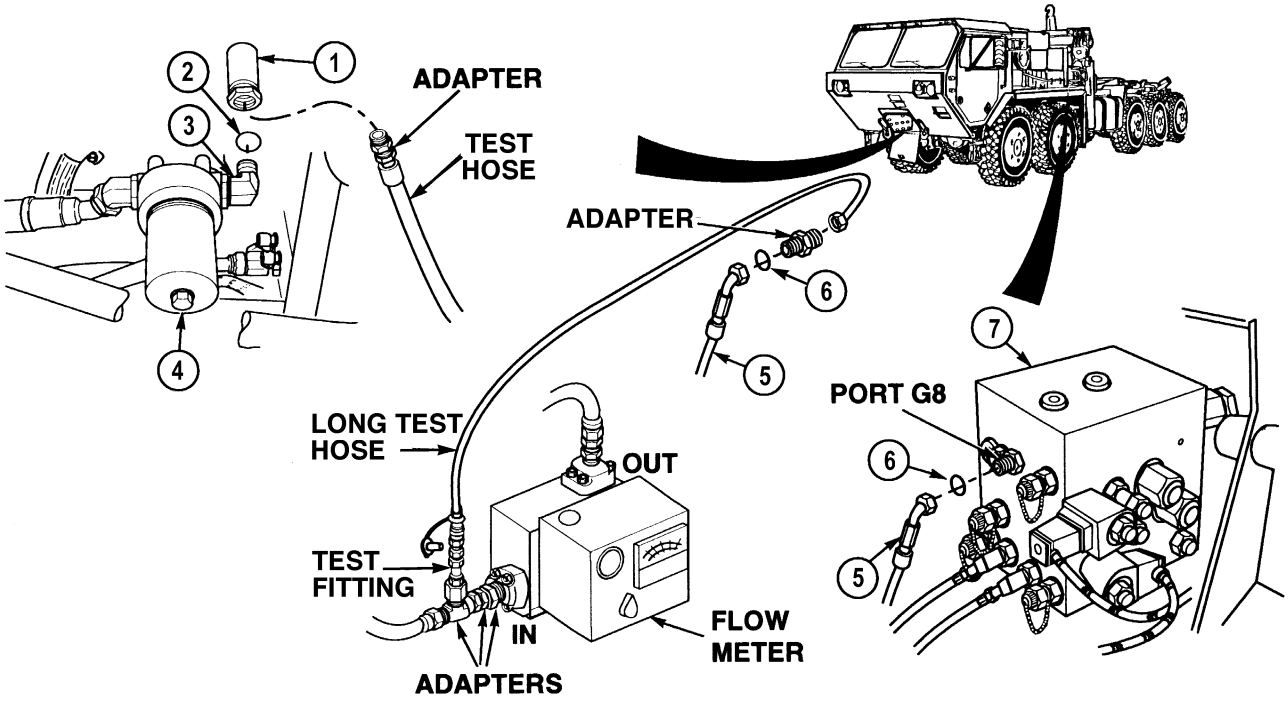
(18) Tighten nut (8) on set screw (9).

(19) Start engine (TM 9-2320-364-10).

(20) Verify pressure and make necessary adjustments. Refer to Steps (15) through (19).

(21) Shut OFF engine (TM 9-2320-364-10).

17-5. MAIN HYDRAULIC SYSTEM ADJUSTMENT (CONT).



(22) Remove test hose, adapter and test fitting from hose 2295 (5).

(23) Remove metal cap and preformed packing (6) from port G8 on multifunction manifold (7). Discard preformed packing.

(24) Apply hydraulic oil to preformed packing (6).

(25) Position preformed packing (6) on port G8.

(26) Connect hose 2295 (5) to port G8.

(27) Disconnect flowmeter, adapters, No. 16 test hoses, test fitting and test hose from hose 2935 (1) and elbow (3).

(28) Remove and discard preformed packing (2) from elbow (3).

(29) Apply hydraulic oil to preformed packing (2).

(30) Position preformed packing (2) on elbow (3).

(31) Connect hose 2935 (1) to elbow (3) on high pressure filter (4).

(32) Check main hydraulic reservoir oil level and add oil as necessary.

b. Follow-On Maintenance:

- Install left side noise panel, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-6. LOAD HANDLING SYSTEM (LHS) LOAD CONTROL VALVE MAIN FRAME REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

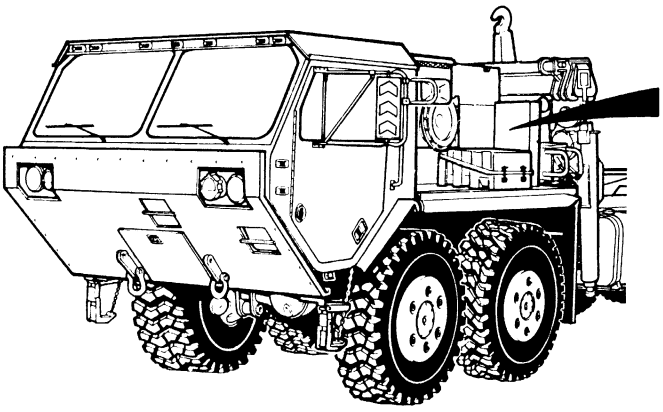
INITIAL SETUP

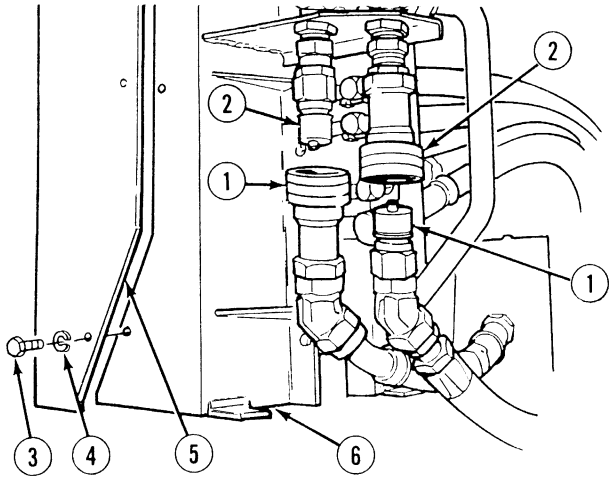
Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination 1-1/2 in. (Item 260, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 453, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

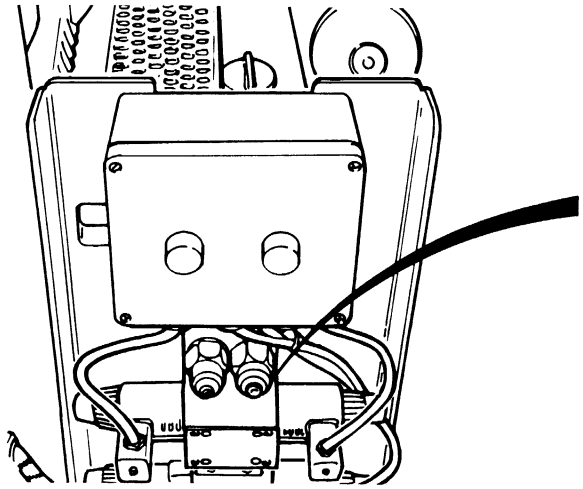
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

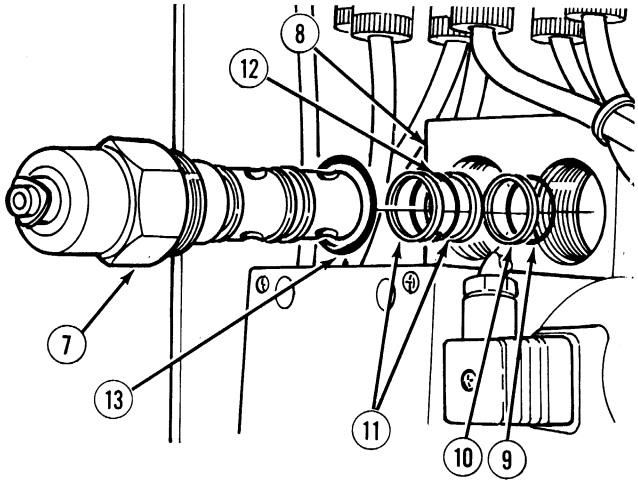
NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

17-6. LOAD HANDLING SYSTEM (LHS) LOAD CONTROL VALVE MAIN FRAME REPLACEMENT (CONT).





NOTE

- Both load control valves are removed the same way.
- Left side (outside) load control valve controls loading.
- Right side (inside) load control valve controls unloading.

(3) Position drain pan under load control valves (7).

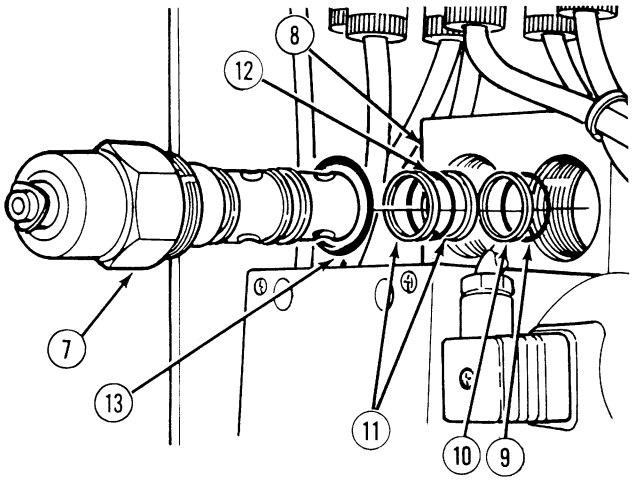
(4) Remove load control valve (7) from hydraulic manifold (8).

(5) Remove preformed packing (9), backup ring (10), two backup rings (11), preformed packing (12) and preformed packing (13) from load control valve (7). Discard preformed packings and backup rings.

b. Installation.

CAUTION

Preformed packing, backup ring and sealing ring assembly are very similar in size. The last preformed packing to be installed and its backup ring are the smallest in size. If these components fit loosely or tightly on load control valve, they are installed in the incorrect position. Damage to equipment may result.



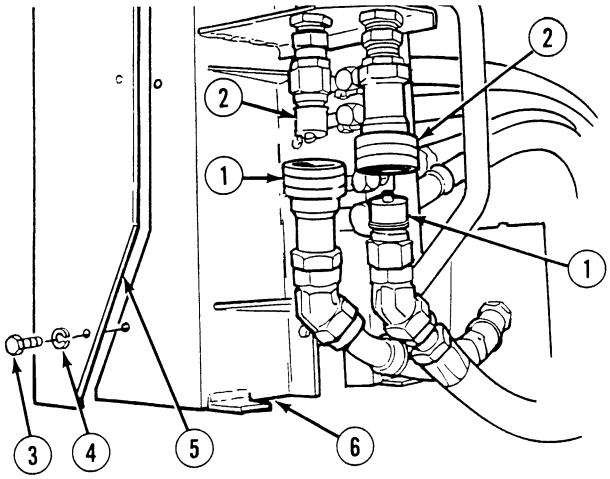
(1) Apply hydraulic oil to preformed packings (9), (12) and (13) and backup rings (11) and (10).

(2) Install preformed packing (13), preformed packing (12), two backup rings (11), backup ring (10) and preformed packing (9) on load control valve (7).

(3) Install load control valve (7) in hydraulic manifold (8). Tighten valve to 75 lb-ft (102 N·m).

(4) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(5) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-7. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD CHECK VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

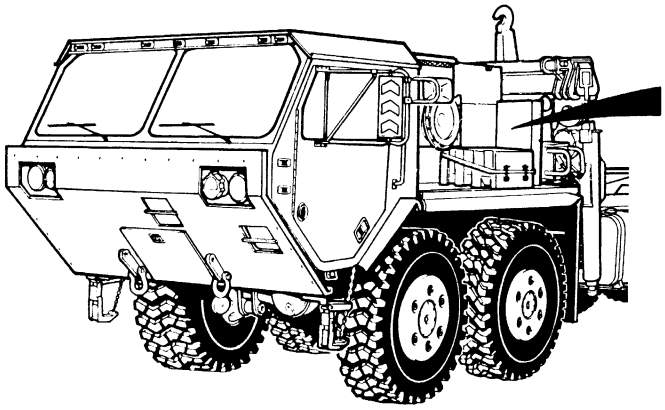
INITIAL SETUP

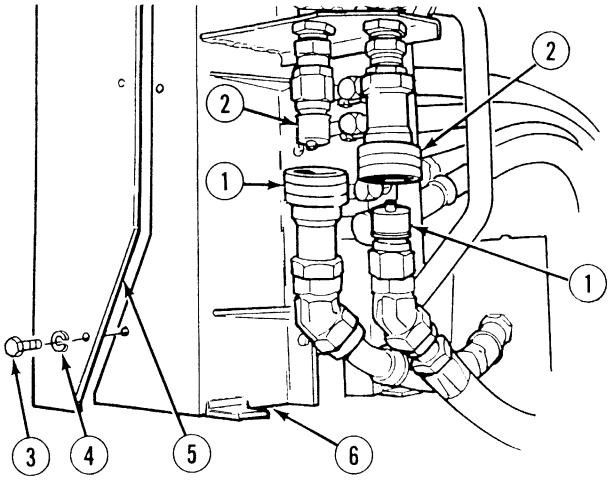
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 410, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

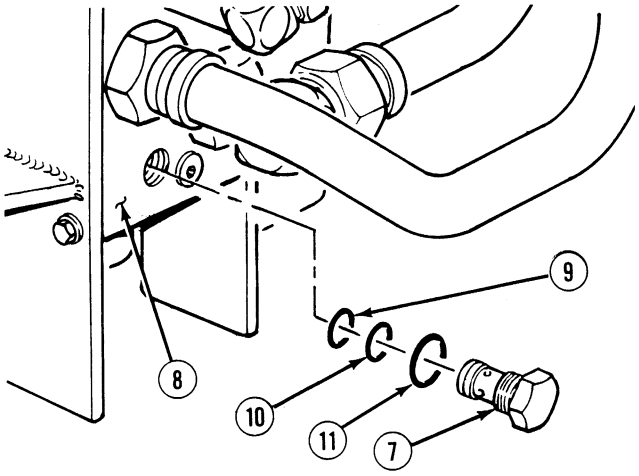
Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

(3) Position drain pan under check valve (7).

(4) Remove check valve (7) from manifold (8).

(5) Remove backup ring (9) and two preformed packings (10) and (11) from valve (7). Discard backup ring and preformed packings.



b. Installation.

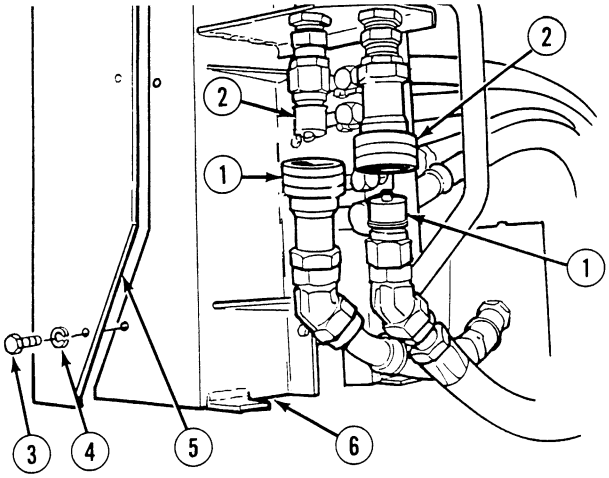
(1) Apply hydraulic oil to two preformed packings (10) and (11) and backup ring (9).

(2) Install two preformed packings (10) and (11) and backup ring (9) on check valve (7).

(3) Install check valve (7) in manifold (8). Tighten valve to 45 lb-ft (61 N·m).

(4) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(5) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-8. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD RELIEF VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wooden Block (2) (Appendix C)

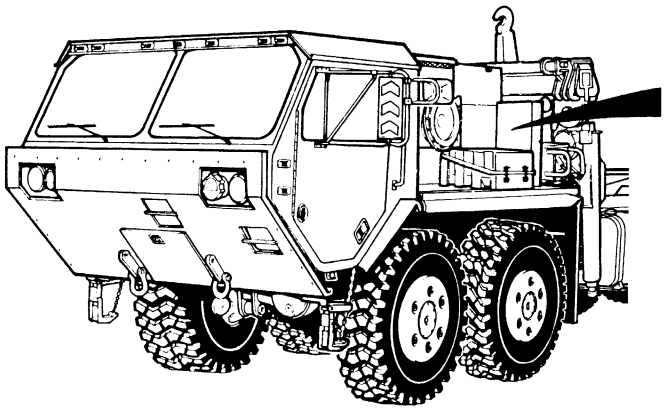
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Locknut (4) (Item 210, Appendix E)
Lockwasher (4) (Item 266, Appendix E)

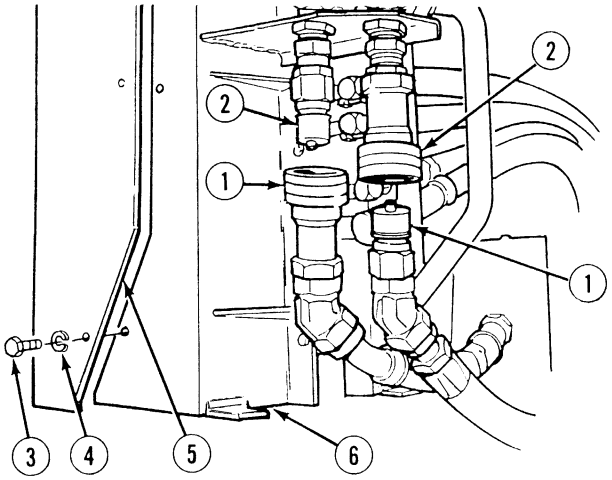
Materials/Parts - Continued
Pin, Cotter (Item 420, Appendix E)
Preformed Packing Kit (Item 454, Appendix E)

Personnel Required
Two

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

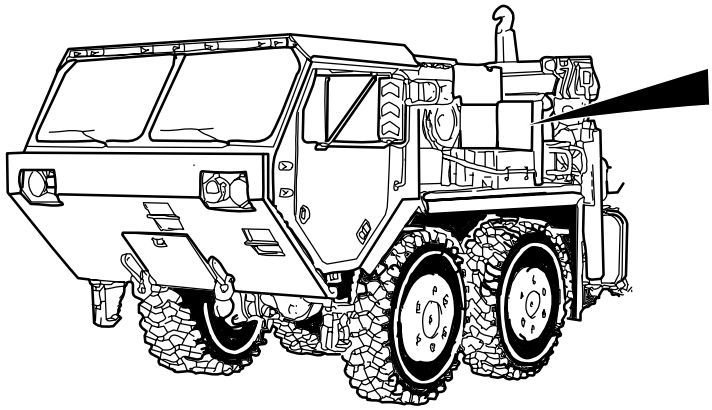
The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

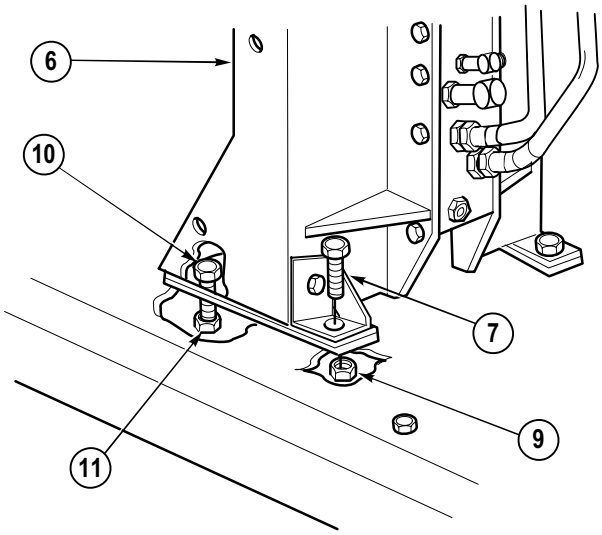
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

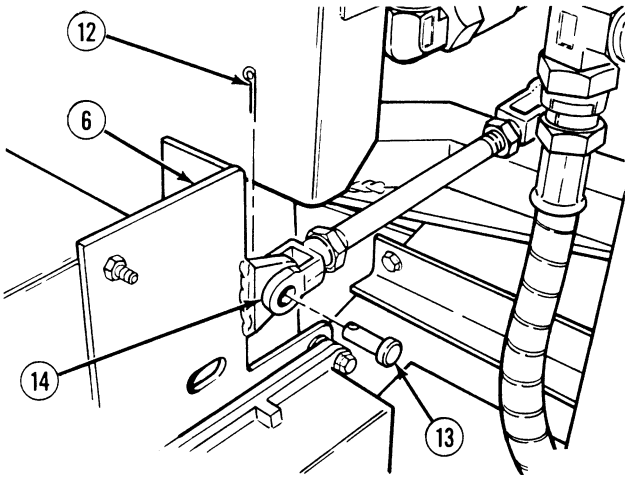




(3) Remove two screws (7) and locknuts (9) from LHS main junction box (6). Discard locknuts.

(4) Loosen two screws (10) and locknuts (11) on LHS main junction box (6) approximately six turns.

(5) Remove cotter pin (12), pin (13) and yoke (14) from LHS main junction box (6). Discard cotter pin.

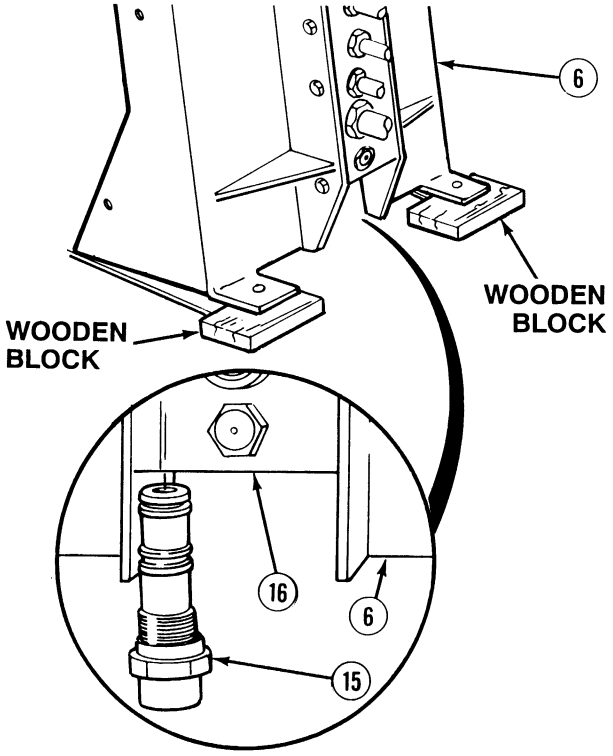


17-8. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD RELIEF VALVE REPLACEMENT (CONT).

(6) With the aid of an assistant, push on top of LHS main junction box (6) towards front of truck enough to lift rear of LHS main junction box (6) approximately two in. (5.08 cm), and place two wooden blocks under LHS main junction box (6).

(7) Position drain pan under relief valve (15).

(8) Remove relief valve (15) from manifold (16).

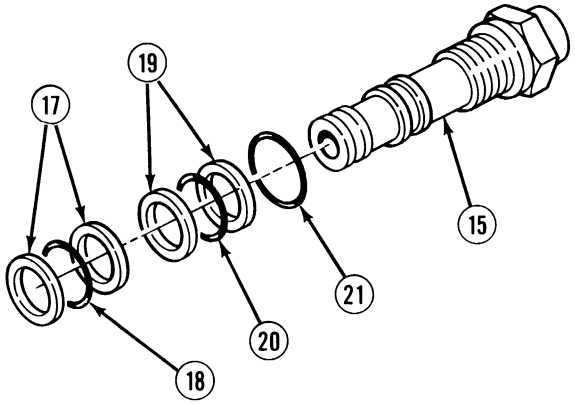


(9) Remove two backup rings (17), preformed packing (18), two backup rings (19), preformed packing (20) and preformed packing (21) from relief valve (15). Discard backup rings and preformed packings.

b. Installation.

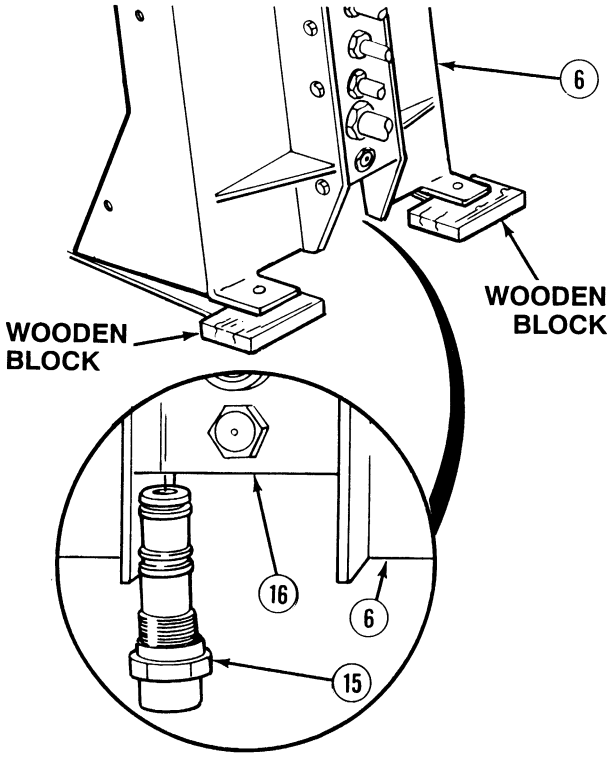
(1) Apply hydraulic oil to preformed packings (20) and (21) and two backup rings (17) and (19).

(2) Install preformed packing (21), preformed packing (20), two backup rings (19), preformed packing (18) and two backup rings (17) on relief valve (15).

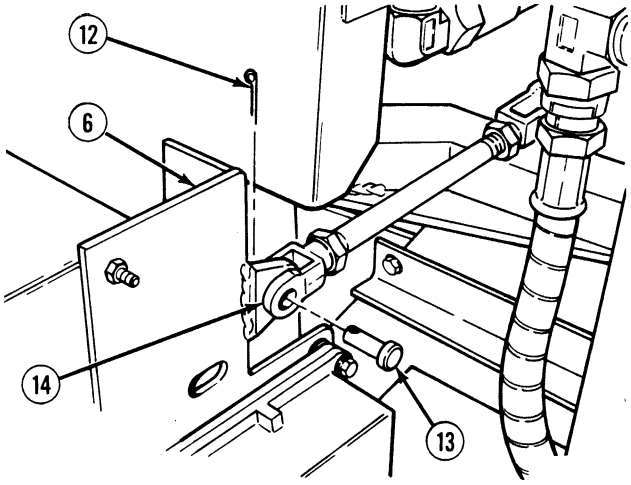


(3) Install relief valve (15) in manifold (16). Tighten relief valve to 65 lb-ft (88 N·m).

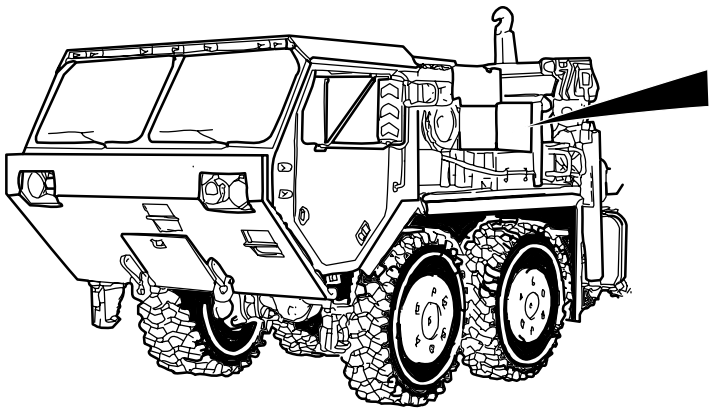
(4) With the aid of an assistant, push on top of LHS main junction box (6) and remove two wooden blocks. Lower LHS main junction box (6).

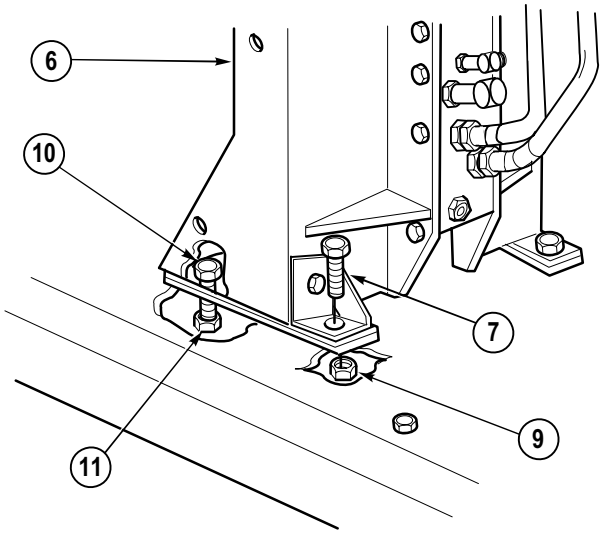


(5) Install yoke (14), pin (13) and cotter pin (12) on LHS main junction box (6).



17-8. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD RELIEF VALVE REPLACEMENT (CONT).





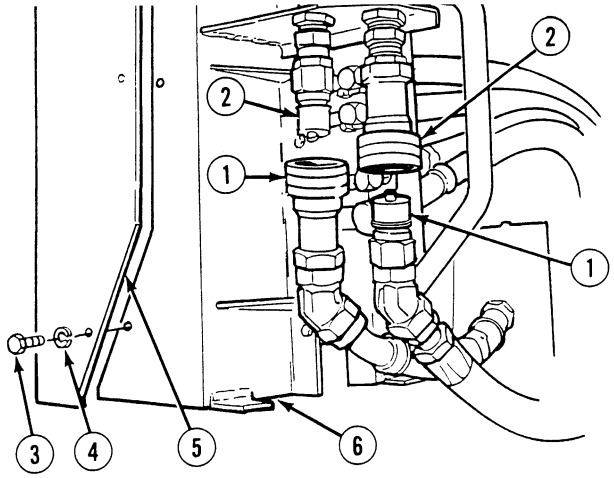
(6) Install two screws (7) and locknuts (9) on LHS main junction box (6).

(7) Remove two locknuts (11) on screws (10) on LHS main junction box (6). Discard locknuts.

(8) Install two locknuts (11) on screws (10) on LHS main junction box (6).

(9) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(10) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-9. LOAD HANDLING SYSTEM (LHS) MAIN MANIFOLD SOLENOID VALVE AND COIL REPAIR.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

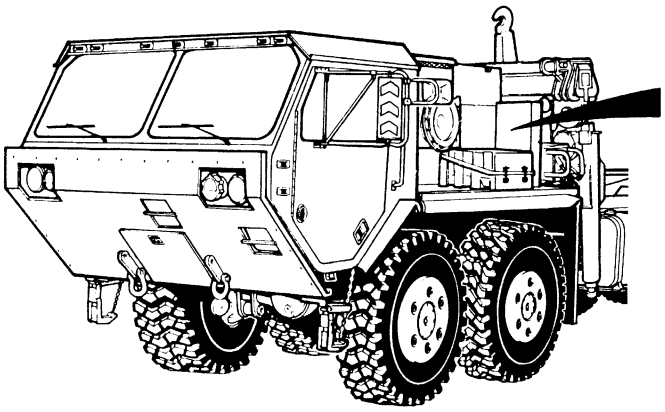
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

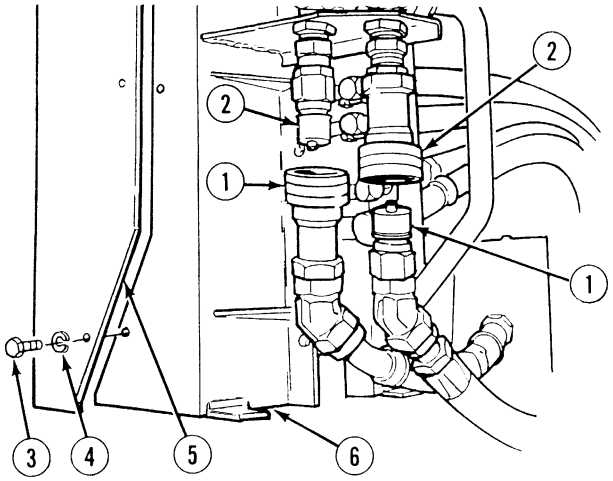
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 62, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 455, Appendix E)

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

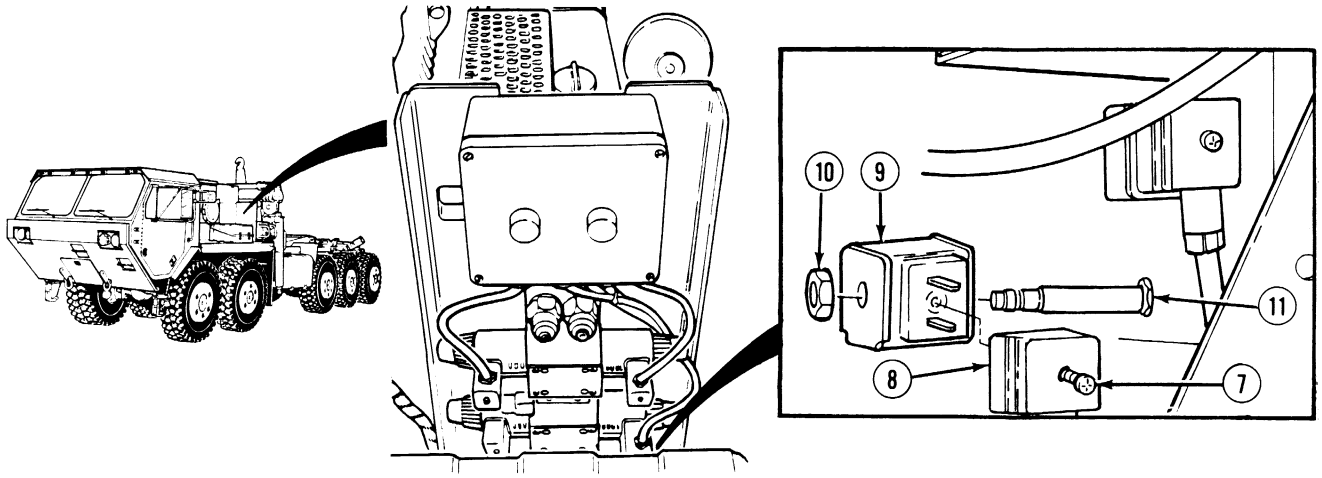
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

17-9. LOAD HANDLING SYSTEM (LHS) SOLENOID VALVE AND COIL REPAIR (CONT).

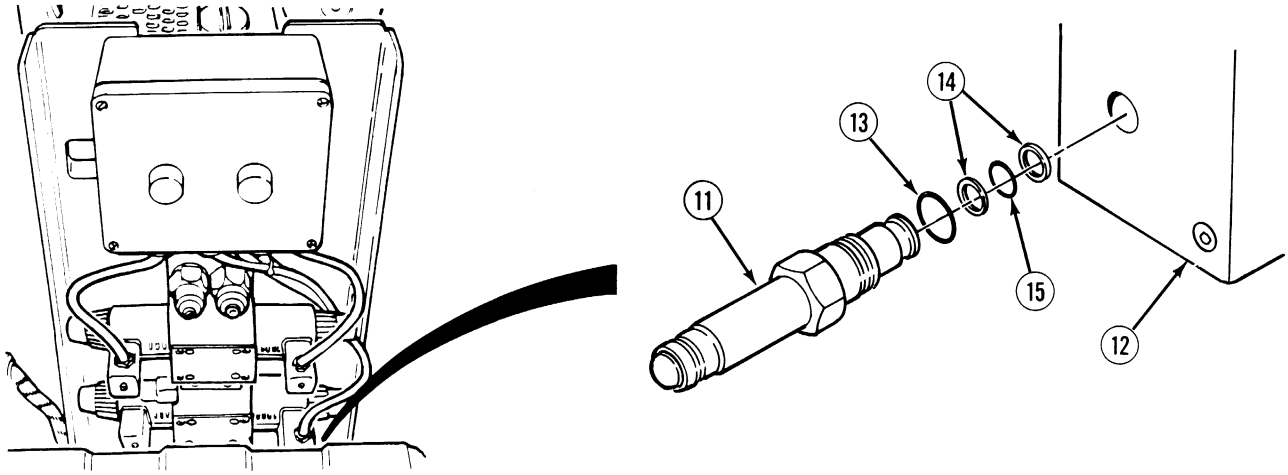


(3) Loosen screw (7) and connector (8) from solenoid valve coil (9).

NOTE

Proceed to ***Installation*** Step (5) if only replacing solenoid valve coil.

(4) Remove nut (10) and solenoid valve coil (9) from solenoid valve (11).



(5) Position drain pan under solenoid valve (11).

(6) Remove solenoid valve (11) from hydraulic manifold (12).

(7) Remove preformed packing (13), two backup rings (14) and preformed packing (15) from solenoid valve (11). Discard preformed packings and backup rings.

b. Installation.

(1) Coat preformed packings (13) and (15) and two backup rings (14) with hydraulic oil.

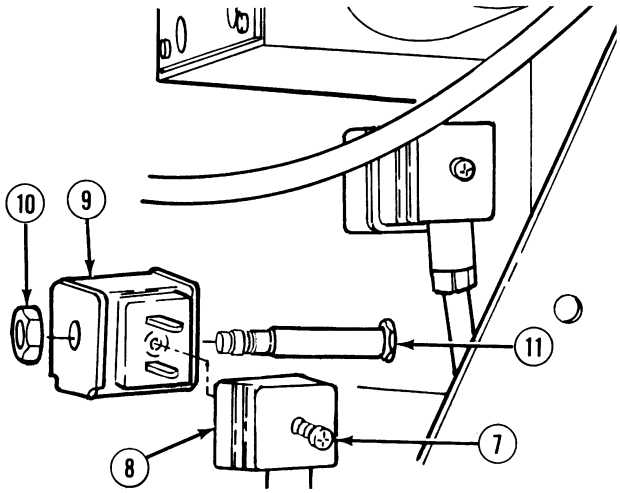
(2) Install preformed packing (15), two backup rings (14) and preformed packing (13) on solenoid valve (11).

(3) Install solenoid valve (11) in manifold (12) and tighten to 20 lb-ft (27 N·m).

17-9. LOAD HANDLING SYSTEM (LHS) SOLENOID VALVE AND COIL REPAIR (CONT).

(4) Install solenoid valve coil (9) on solenoid valve (11) with nut (10).

(5) Install connector (8) on solenoid valve coil (9) with screw (7).



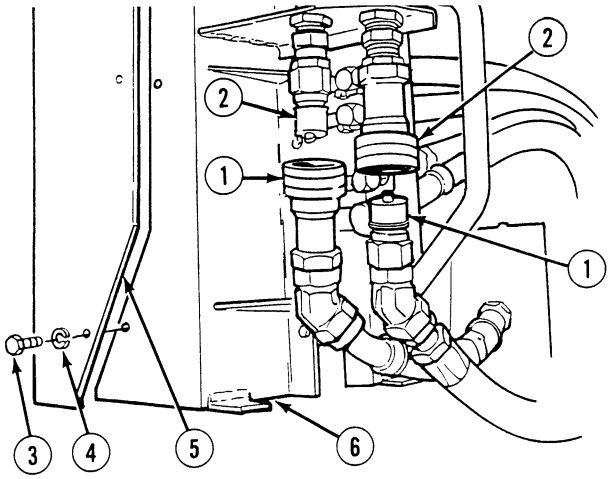
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(6) Apply sealing compound to the head of screw (7).

(7) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(8) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-10. LOAD HANDLING SYSTEM (LHS) DIRECTIONAL CONTROL VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

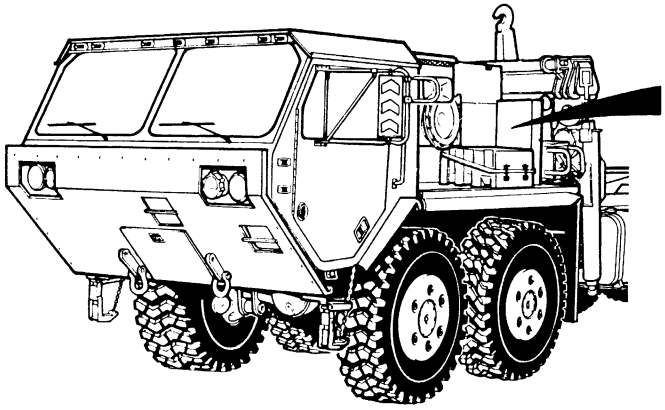
INITIAL SETUP

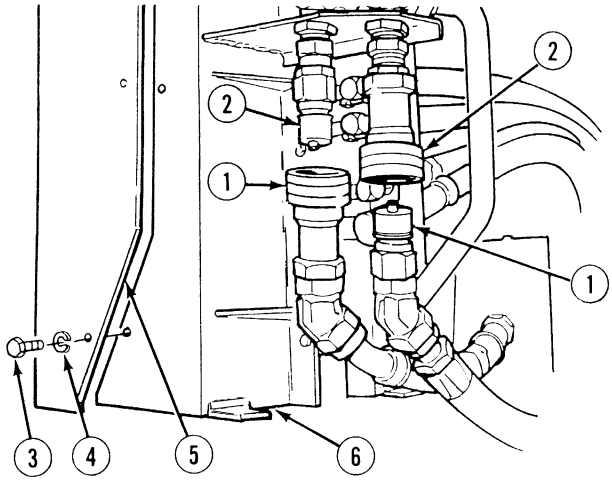
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 449, Appendix E)

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





WARNING

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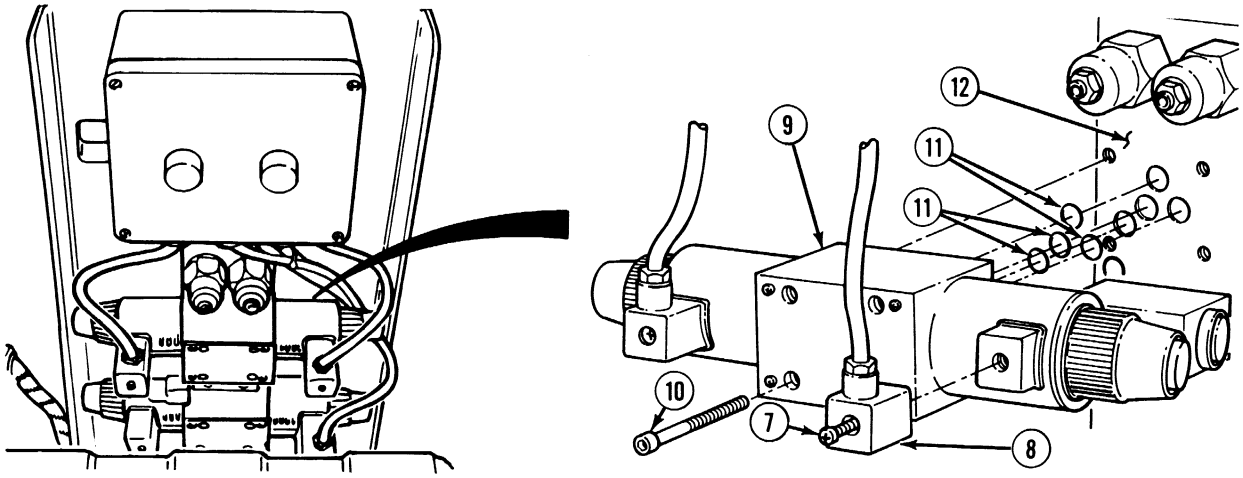
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.

17-10. LOAD HANDLING SYSTEM (LHS) DIRECTIONAL CONTROL VALVE REPLACEMENT (CONT).



(3) Loosen two screws (7) and connectors (8) from directional control valve (9).

(4) Position drain pan under directional control valve (9).

(5) Remove four screws (10), directional control valve (9) and five preformed packings (11) from hydraulic manifold (12). Discard preformed packings.

b. Installation.

(1) Apply hydraulic oil to five preformed packings (11).

(2) Install five preformed packings (11) on directional control valve (9).

(3) Install directional control valve (9) on hydraulic manifold (12) with four screws (10).

(4) Install two connectors (8) with screws (7).

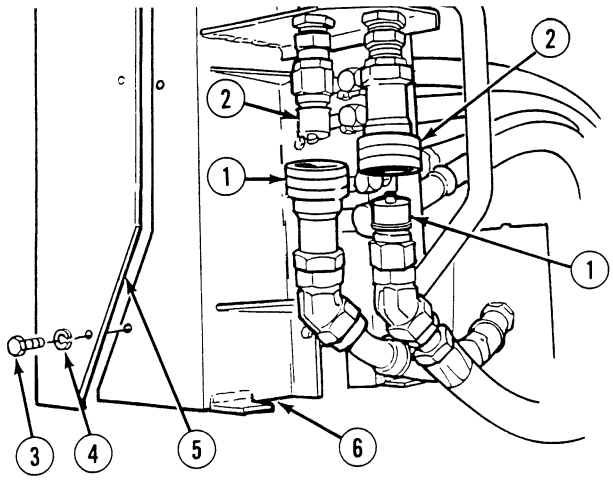
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(5) Apply sealing compound to heads of screws (7).

(6) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(7) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-11. LOAD HANDLING SYSTEM (LHS) TRANSIT VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

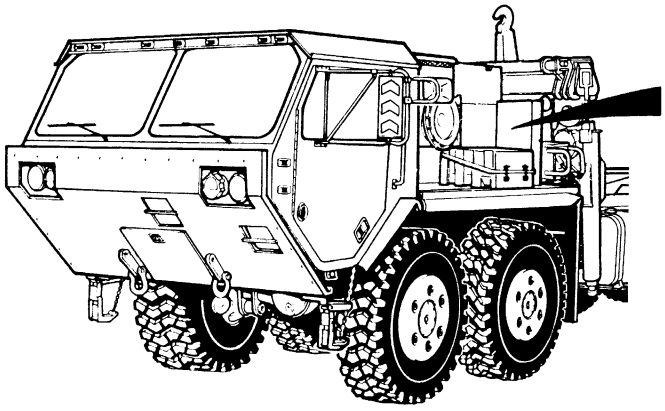
INITIAL SETUP

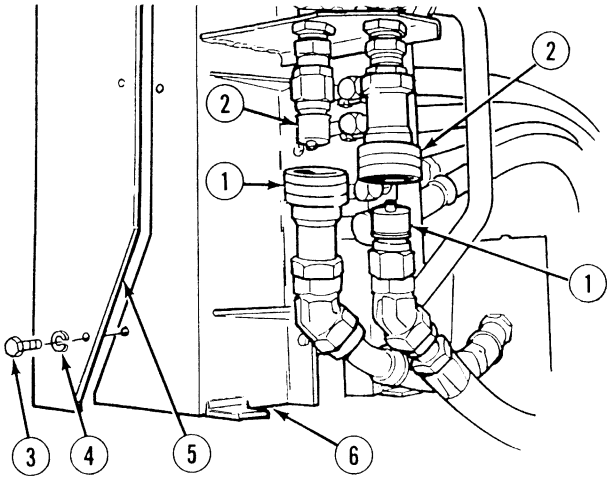
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)

Equipment Condition
LHS in transit position, (TM 9-2320-364-10)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)
Lockwasher (4) (Item 266, Appendix E)
Preformed Packing Kit (Item 449, Appendix E)

a. Removal.





WARNING

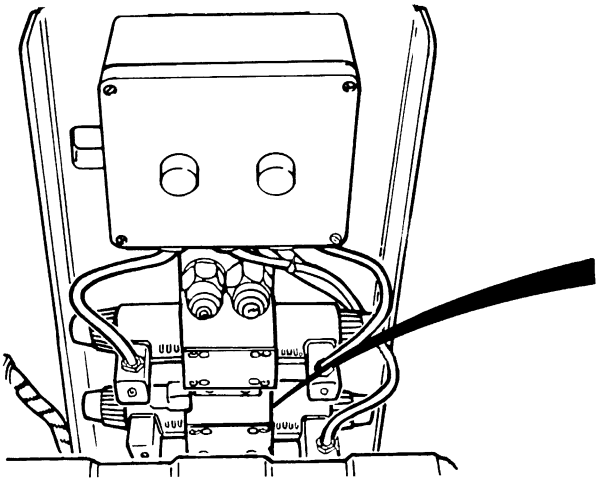
The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

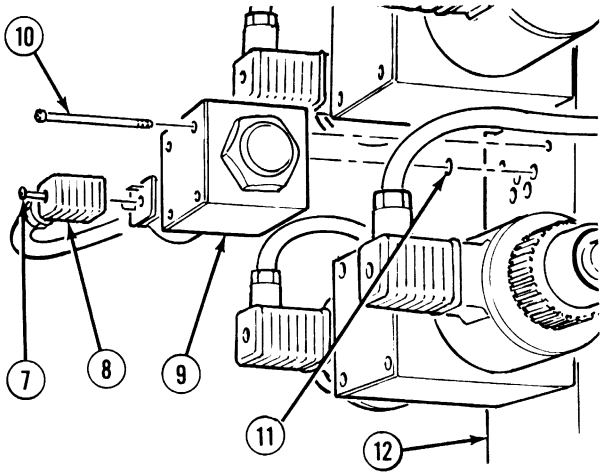
(1) Disconnect two hose quick disconnects (1) from main control box quick disconnects (2).

NOTE

Only remove center screw on engine side of LHS control box cover.

(2) Remove four screws (3), lockwashers (4) and LHS main junction box cover (5) from LHS main junction box (6). Discard lockwashers.





(3) Loosen captive screw (7) and remove connector (8) from transit valve (9).

(4) Position drain pan under transit valve (9).

(5) Remove four screws (10), transit valve (9) and four preformed packings (11) from hydraulic manifold (12). Discard preformed packings.

b. Installation.

(1) Apply hydraulic oil to four preformed packings (11).

(2) Install four preformed packings (11) on transit valve (9).

(3) Install transit valve (9) on hydraulic manifold (12) with four screws (10).

(4) Install connector (8) on transit valve (9) and tighten screw (7).

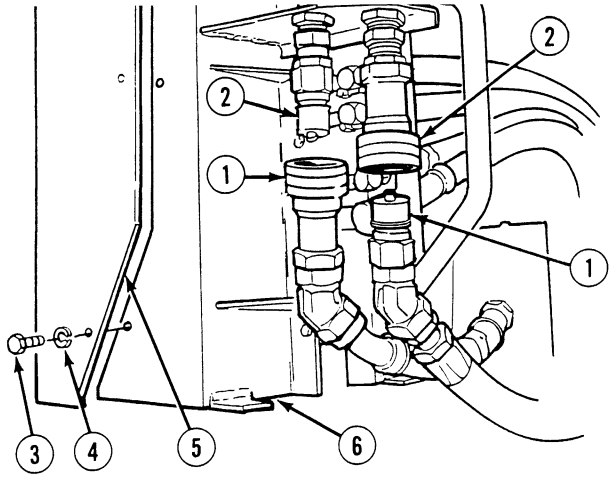
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(5) Apply sealing compound to head of screw (7).

(6) Install LHS main junction box cover (5) on LHS main junction box (6) with four lockwashers (4) and screws (3).

(7) Connect two hose quick disconnects (1) on main control box quick disconnects (2).



c. Follow-On Maintenance:

- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pliers, Channel Lock (Item 151, Appendix F)
Wooden Blocks (2) (Appendix C)
Lifting Device, Minimum capacity 2100 lb (953 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 56, Appendix B)
Locknut (Item 175, Appendix E)

Materials/Parts - Continued
Locknut (2) (Item 206, Appendix E)
Lockwasher (2) (Item 251, Appendix E)
Lockwasher (2) (Item 304, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Hook arm manifold removed, (Para 17-13)

a. Removal.

WARNING

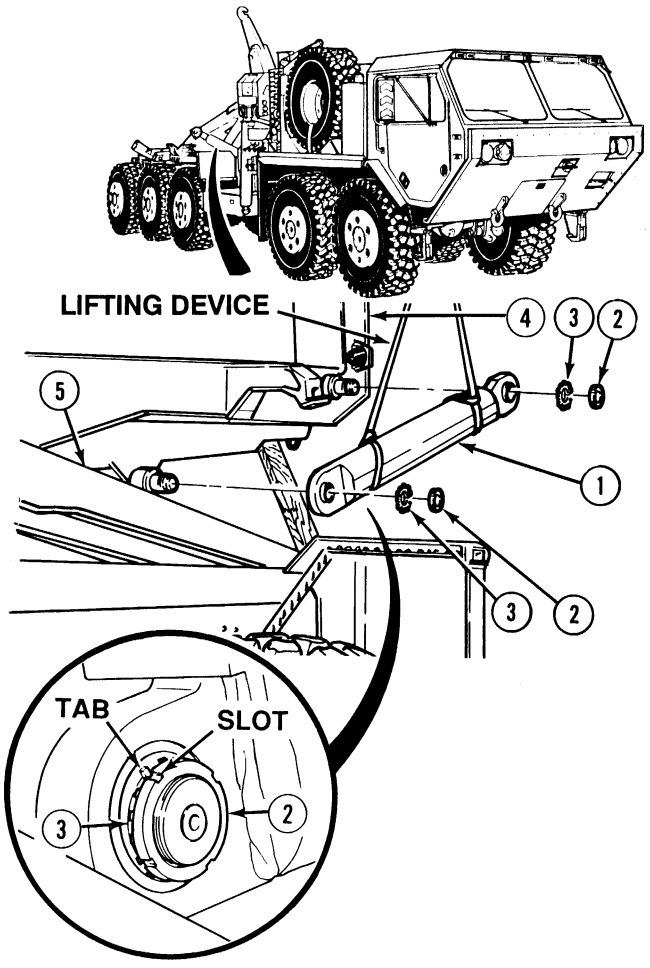
- Hook arm cylinders weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.
- Ensure hook arm assembly is supported with wooden blocks prior to removal to prevent possible injury to personnel.

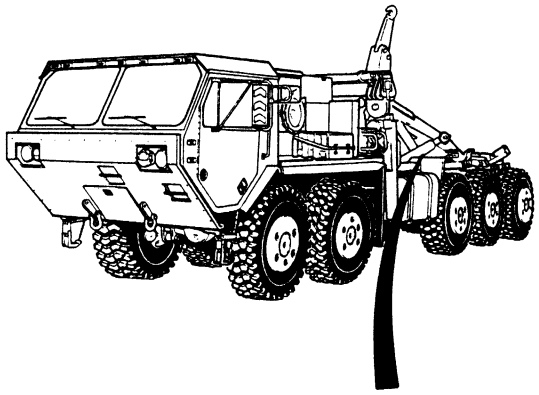
(1) Attach lifting device to right side cylinder (1).

(2) Remove two locknuts (2) and lockwashers (3) from right side cylinder (1) by bending lockwasher (3) tabs out of locknut (2) slots. Discard locknuts and lockwashers.

(3) With the aid of an assistant and using lifting device, remove right side cylinder (1) from hook arm (4) and middle frame (5).

(4) Remove lifting device from right side cylinder (1).





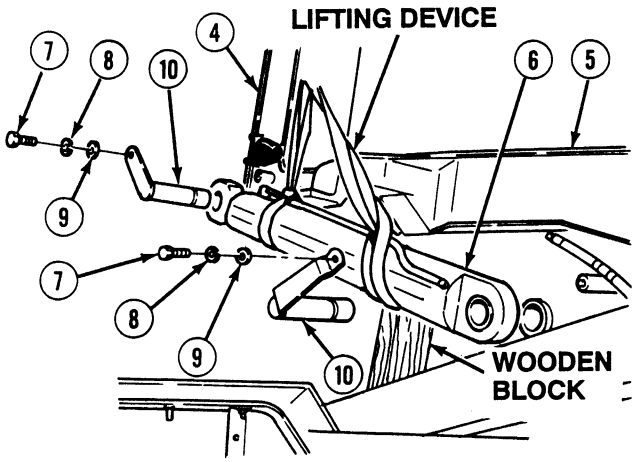
WARNING

Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(5) Attach lifting device to left side cylinder (6).

(6) With the aid of an assistant, remove two screws (7), lockwashers (8), washers (9), cylinder shafts (10) and left side cylinder (6) from hook arm (4) and middle frame (5). Discard lockwashers.

(7) Remove lifting device from left side cylinder (6).



b. Installation.

WARNING

Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(1) Attach lifting device to left side cylinder (6).

(2) With the aid of an assistant, install barrel end (rear) of left side cylinder (6) with cylinder shaft (10) to middle frame (5).

(3) Install washer (9), lockwasher (8) and screw (7) on cylinder shaft (10).

(4) Lower left side cylinder (6) and remove lifting device.

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT (CONT).

WARNING

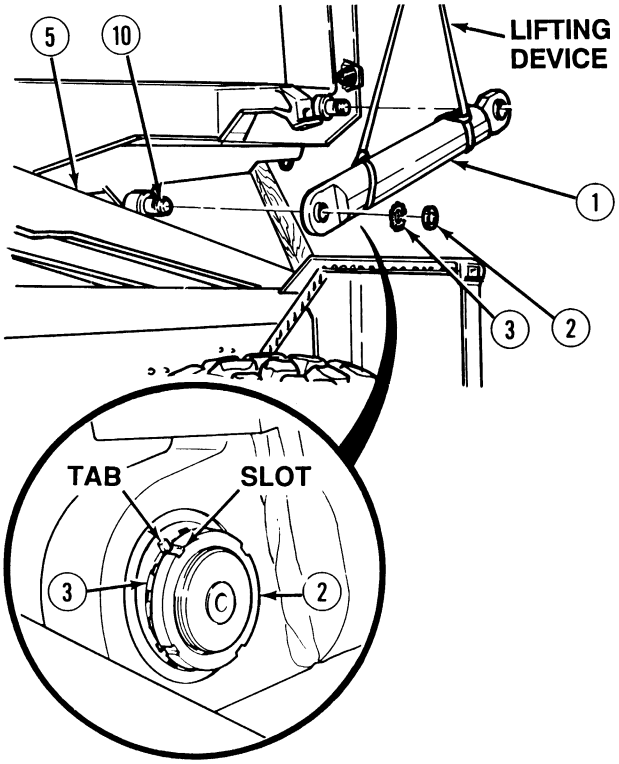
Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(5) Attach lifting device to right side cylinder (1).

(6) Using lifting device, install barrel end (rear) of right side cylinder (1) on cylinder shaft (10) on middle frame (5).

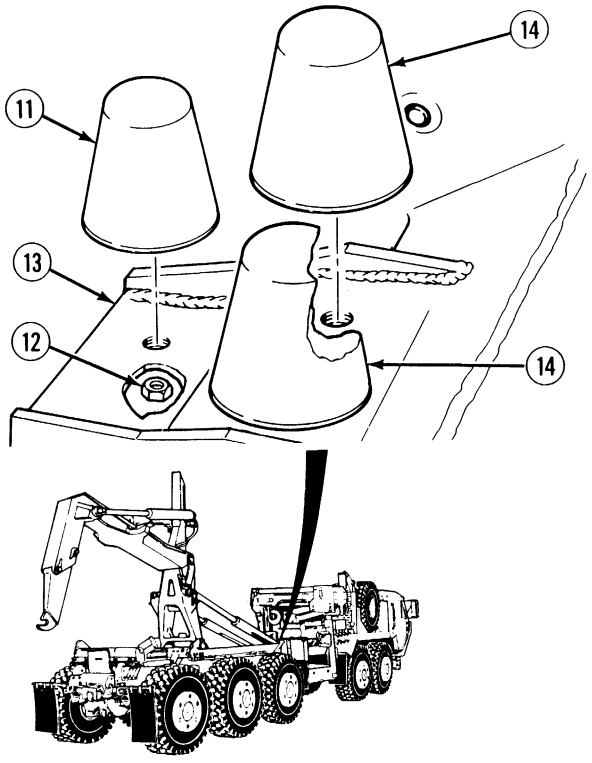
(7) Install lockwasher (3) and locknut (2) on cylinder shaft (10). Bend lockwasher (3) tab into locknut (2) slot.

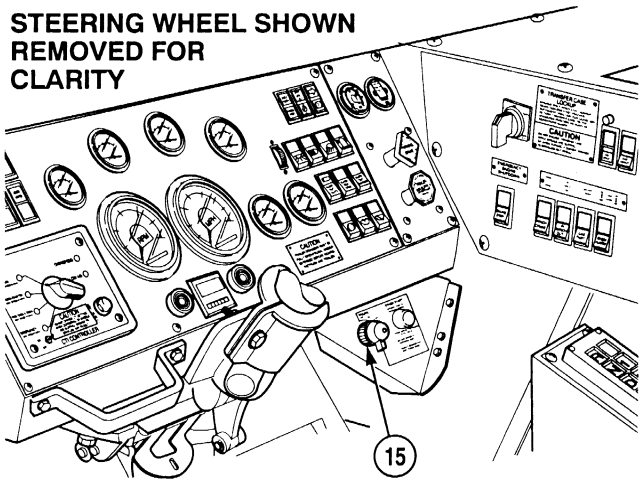
(8) Lower right side cylinder (1) and remove lifting device.

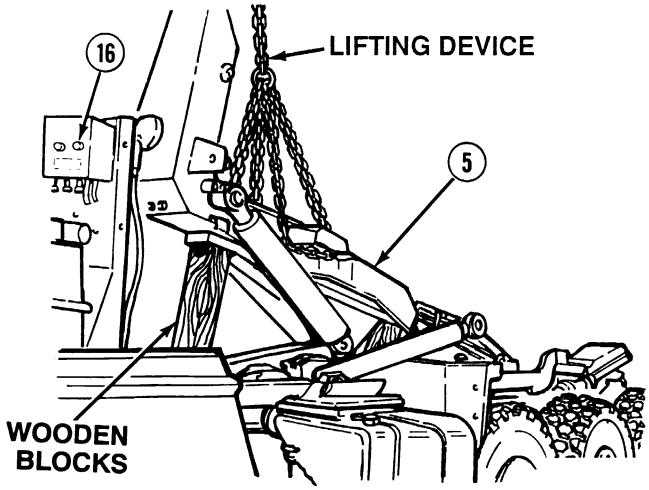


(9) Remove rubber bumper (11) and locknut (12) from compression frame (13). Discard locknut.

(10) Remove two rubber bumpers (14) from compression frame (13).







WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden block from falling or damage to equipment may result.

(11) Attach lifting device to middle frame (5).

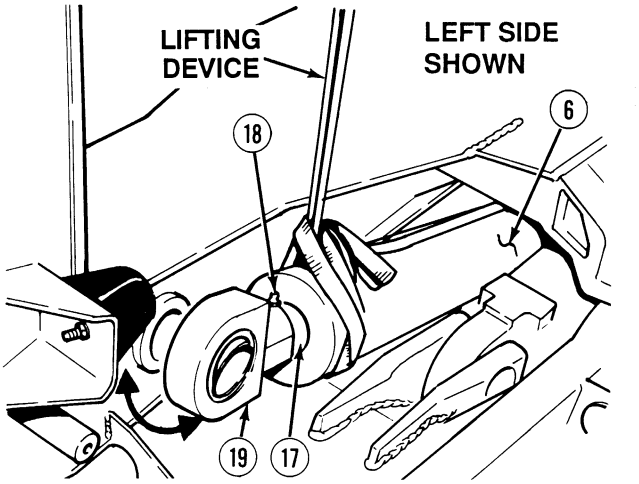
(12) With the aid of an assistant, turn ON ENGINE switch (15) and press middle frame safe lowering button (16) while using lifting device to raise middle frame (5), remove wooden block and lower middle frame (5).

(13) Turn OFF ENGINE switch (15) and remove lifting device from middle frame (5).

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT (CONT).

WARNING

Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.



NOTE

Steps (14) through (17) are for cylinder adjustment. Adjustment must be completed before completing installation of cylinders. Left side shown.

(14) Attach lifting device to left side cylinder (6).

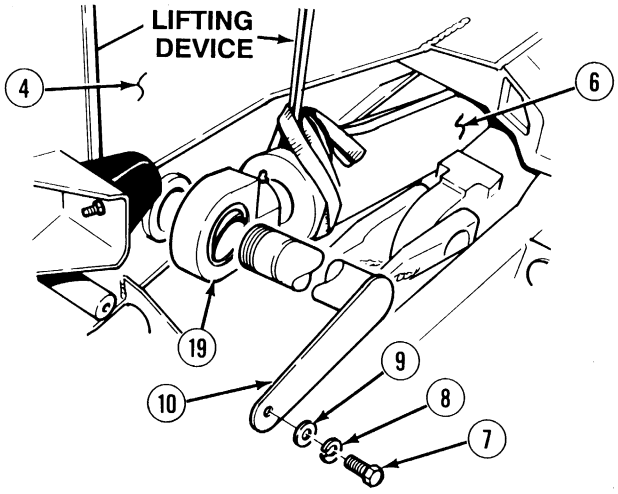
(15) Adjust cylinders by supporting left side cylinder (6) using lifting device and fully retract cylinder rod (17) in cylinder (6).

(16) Pull cylinder rod (17) out 1/4 in. (6.4 mm).

(17) Loosen hex head screw (18) and rotate rod lug (19) so rod lug bore lines up with cylinder shaft bore in hook arm (4). Tighten hex head screw (18).

NOTE

Perform Step (18) for left side cylinder only.



(18) Install left side cylinder (6) (rod lug end) with cylinder shaft (10), washer (9), lockwasher (8) and screw (7) on hook arm (4) when rod lug (19) bore and bore in hook arm line up.

(19) Remove lifting device from left side cylinder (6).

WARNING

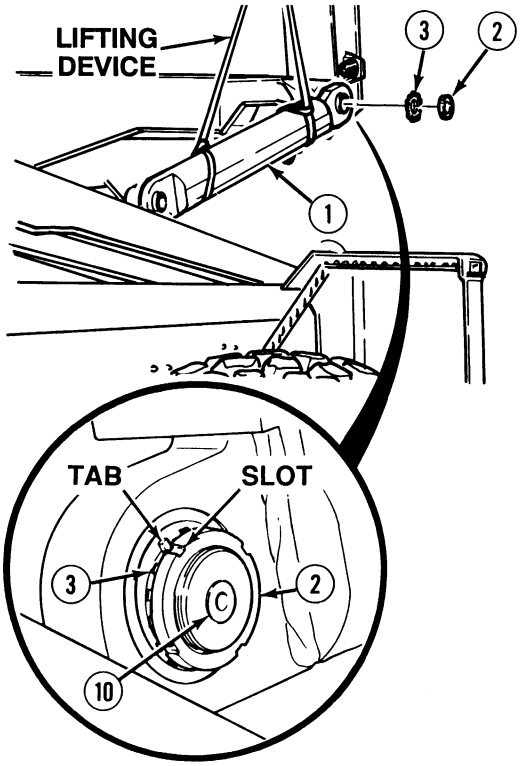
Hook arm cylinder weighs 210 lbs (95 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.

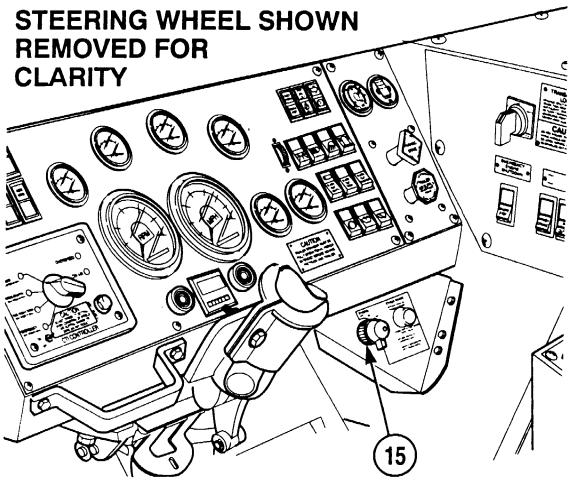
(20) Attach lifting device on right side cylinder (1).

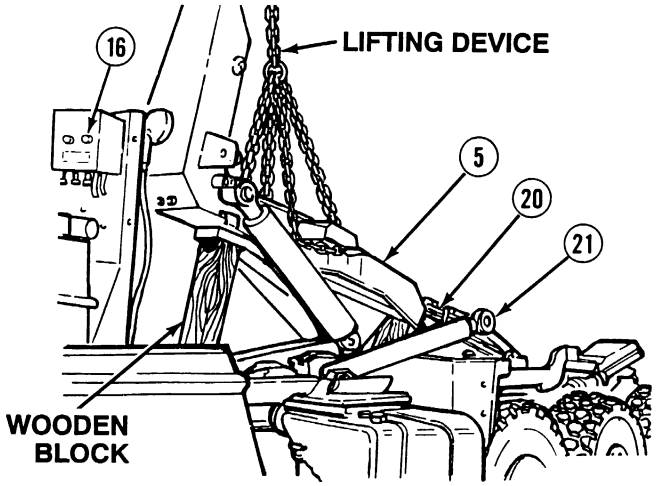
(21) With the aid of an assistant, using lifting device, install right side cylinder (1) (rod lug end) with lockwasher (3) and locknut (2) on cylinder shaft (10).

(22) Bend lockwasher (3) tab into locknut (2).

(23) Remove lifting device from right side cylinder (1).







WARNING

Middle frame, hook arm and hook have a combined weight of 2,100 lbs (953 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.

(24) Attach lifting device to middle frame (5).

(25) With the aid of an assistant, turn ON ENGINE switch (15) and press middle frame safe lowering button (16) while using lifting device to raise middle frame (5) and block up middle frame in two places.

(26) Turn OFF ENGINE switch (15) and remove lifting device from middle frame (5).

17-12. LOAD HANDLING SYSTEM (LHS) HOOK ARM CYLINDER REPLACEMENT (CONT).

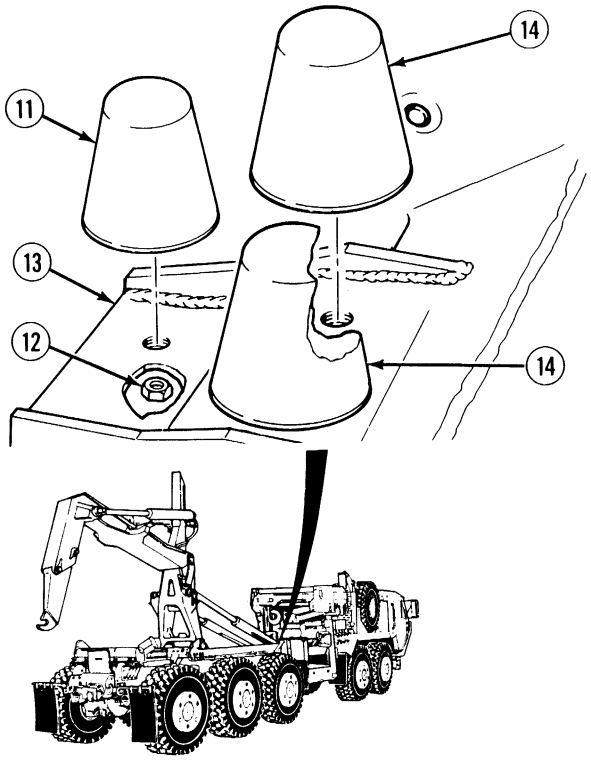
(27) Install rubber bumper (11) and locknut (12) on compression frame (13).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(28) Coat threads of two rubber bumpers (14) with sealing compound.

(29) Install two rubber bumpers (14) on compression frame (13).



c. Follow-On Maintenance:

- Install hook arm manifold, (Para 17-13).
- Check hydraulic reservoir oil level, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination, 1-1/4 in. (Item 256, Appendix F)
Wooden Block (2) (Appendix C)
Lifting Device, Minimum capacity 2500 lb (1135 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)

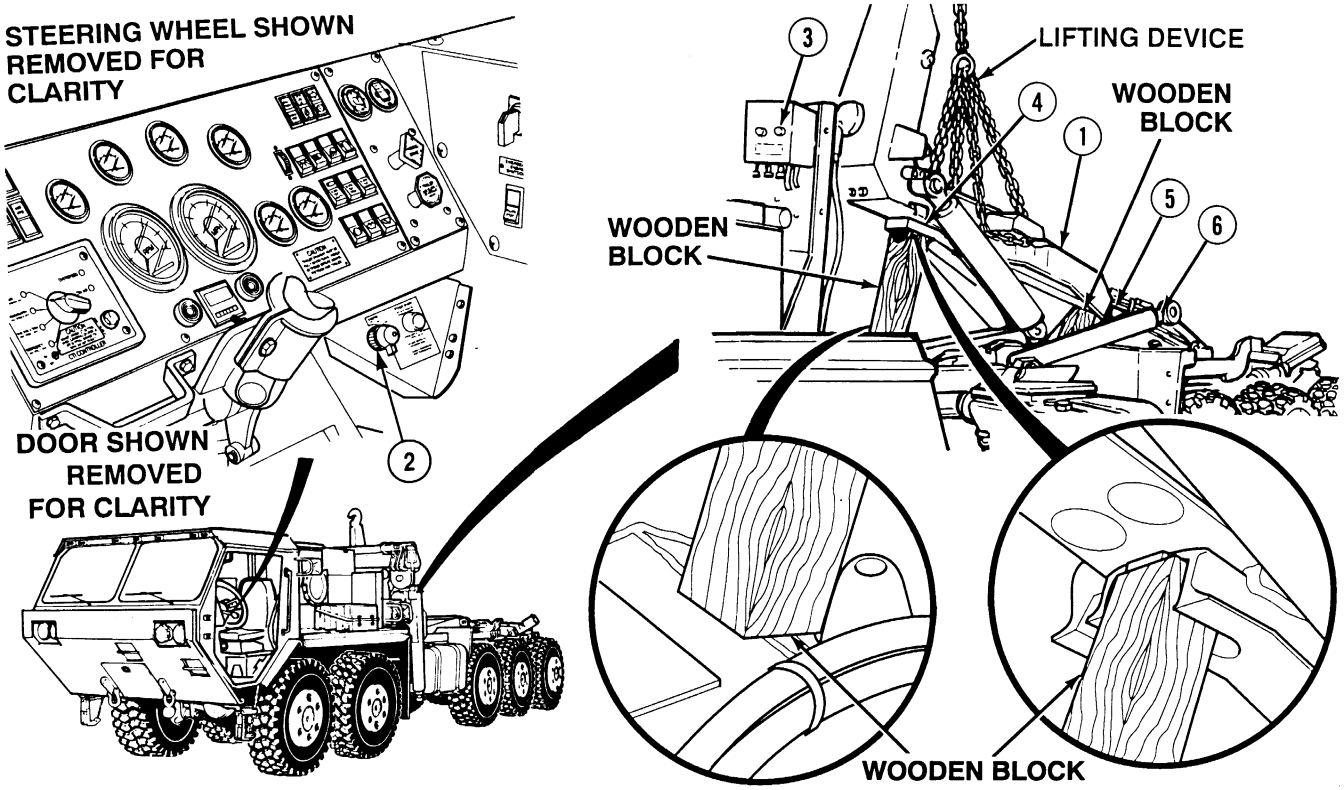
Materials/Parts
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (8) (Item 238, Appendix E)
Preformed Packing Kit (Item 447, Appendix E)
Preformed Packing Kit (Item 453, Appendix E)
Preformed Packing Kit (Item 455, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS manifold cover removed, (TM 9-2320-364-20)

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR (CONT).

a. Removal.



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent injury to personnel.

NOTE

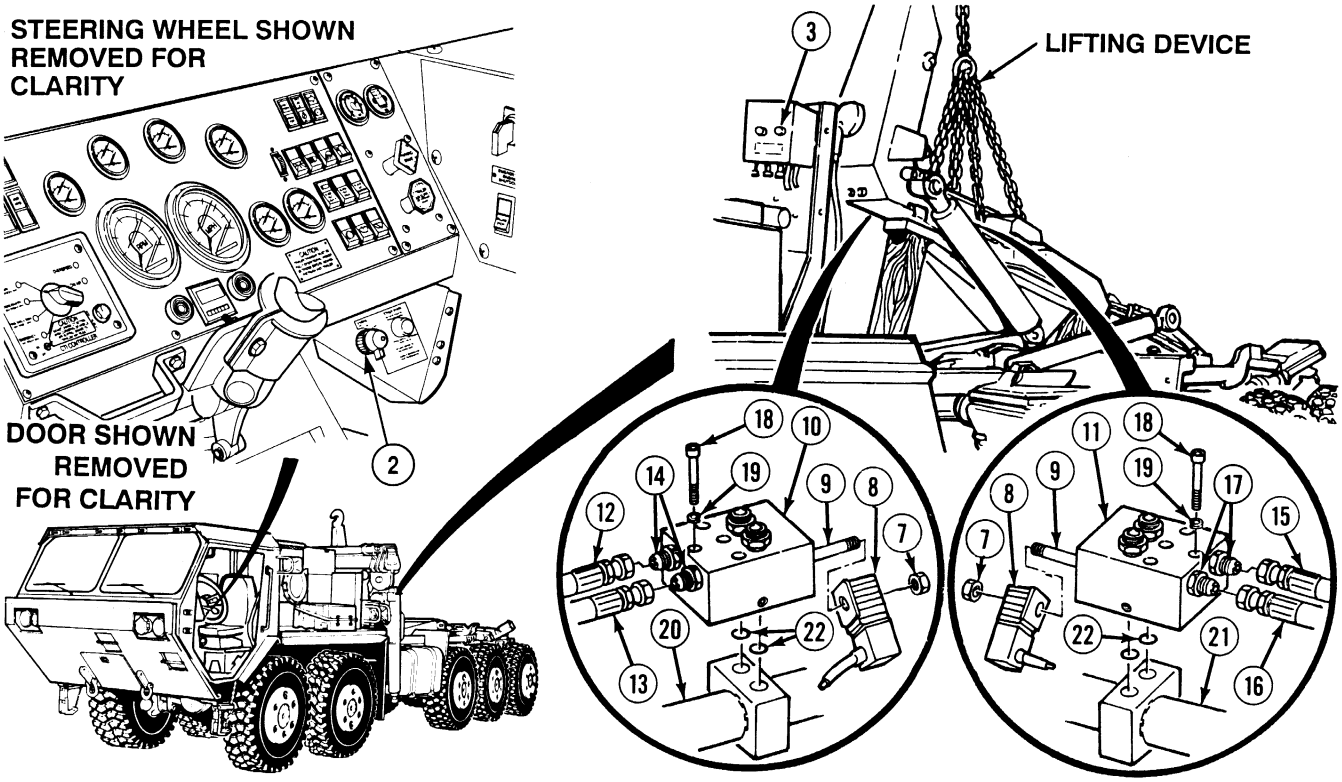
- There are two hook arm manifolds.
- Both manifolds are removed the same way. Left side shown.
- Remove cable ties as required.

(1) Attach lifting device to hook arm (1).

(2) Turn ON ENGINE switch (2).

(3) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise middle frame (4) up until hook arm pivot pin (5) is above main cylinder (6) and block up middle frame in two places.

(4) Remove lifting device from hook arm (1).



WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

(5) Press middle frame safe lowering button (3) to relieve hydraulic pressure.

(6) Turn OFF ENGINE switch (2).

(7) Remove two nuts (7) and solenoid valve coils (8) from solenoid valves (9).

(8) Position drain pan under left manifold (10) and right manifold (11).

NOTE

- Tag and mark hoses prior to removal.
- Cap hydraulic hoses after disconnecting.

(9) Remove hose 2281 (12) and hose 2891 (13) from two fittings (14) on left manifold (10).

(10) Remove hose 2882 (15) and 2892 (16) from two fittings (17) on right manifold (11).

(11) Remove eight screws (18), lockwashers (19) and left and right manifolds (10) and (11) from left and right cylinders (20) and (21). Discard lockwashers.

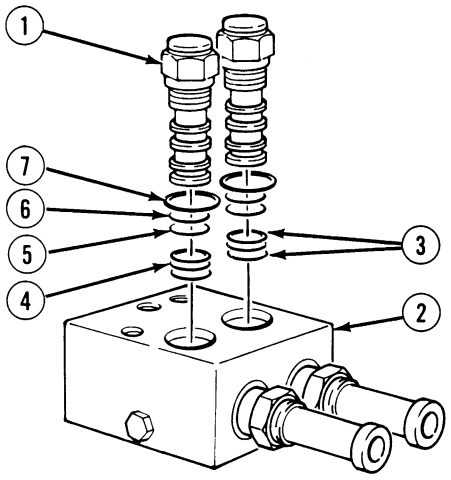
(12) Remove four preformed packings (22) from left and right manifolds (10) and (11). Discard preformed packings.

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR (CONT).

b. Disassembly.

NOTE

Note location and position of valves, adapters and plugs prior to removal.



(1) Remove two load control valves (1) from manifold (2).

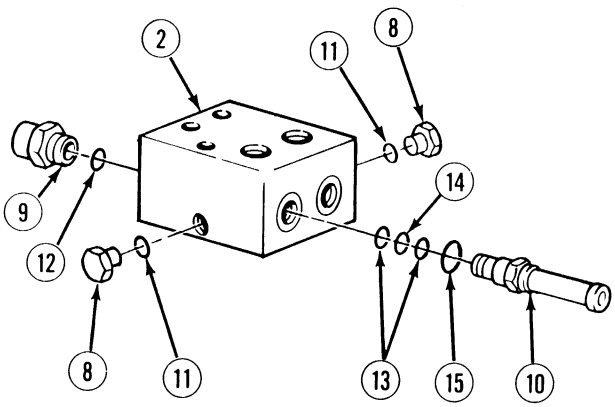
(2) Remove two backup rings (3), preformed packing (4), preformed packing (5), backup ring (6) and preformed packing (7) from each load control valve (1). Discard preformed packings and backup rings.

(3) Remove two hex head plugs (8), adapters (9) and solenoid valves (10) from manifold (2).

(4) Remove two preformed packings (11) from hex head plugs (8). Discard preformed packings.

(5) Remove two preformed packings (12) from adapters (9). Discard preformed packings.

(6) Remove two backup rings (13), preformed packing (14) and preformed packing (15) from each solenoid valve (10). Discard backup rings and preformed packing.



c. Cleaning/Inspection

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean manifold and components using drycleaning solvent.

(2) Inspect for any foreign material in ports and remove as necessary.

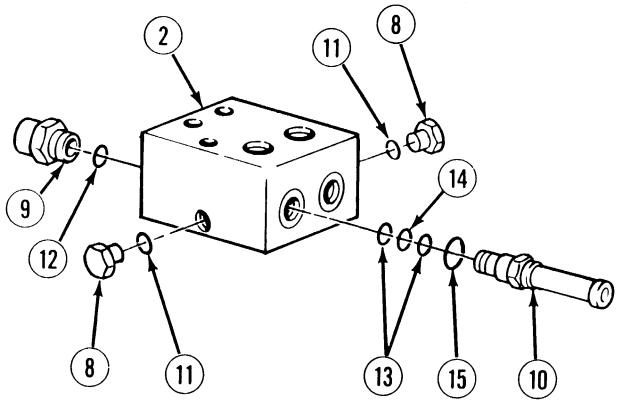
(3) Inspect for cracks, gouges, nicks or stripped threads.

(4) Replace all damaged parts.

d. Assembly.

NOTE

Install plugs, adapters and valves as noted prior to removal.



(1) Apply hydraulic oil to two preformed packings (14) and (15) and four backup rings (13).

(2) Install two preformed packings (15), preformed packing (14) and four backup rings (13) on two solenoid valves (10).

(3) Apply hydraulic oil to two preformed packings (11).

(4) Install two preformed packings (11) on hex head plugs (8).

(5) Apply hydraulic oil to two preformed packings (12).

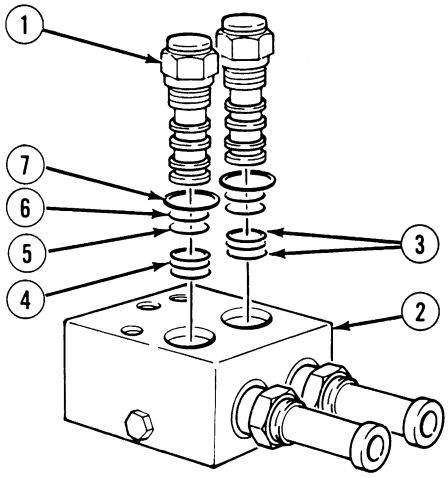
(6) Install two preformed packings (12) on adapters (9).

(7) Install two solenoid valves (10) in manifold (2).

(8) Install two adapters (9) in manifold (2).

(9) Install two hex head plugs (8) in manifold (2).

(10) Apply hydraulic oil to two preformed packings (7), backup rings (6), preformed packings (5), preformed packing (4) and four backup rings (3).

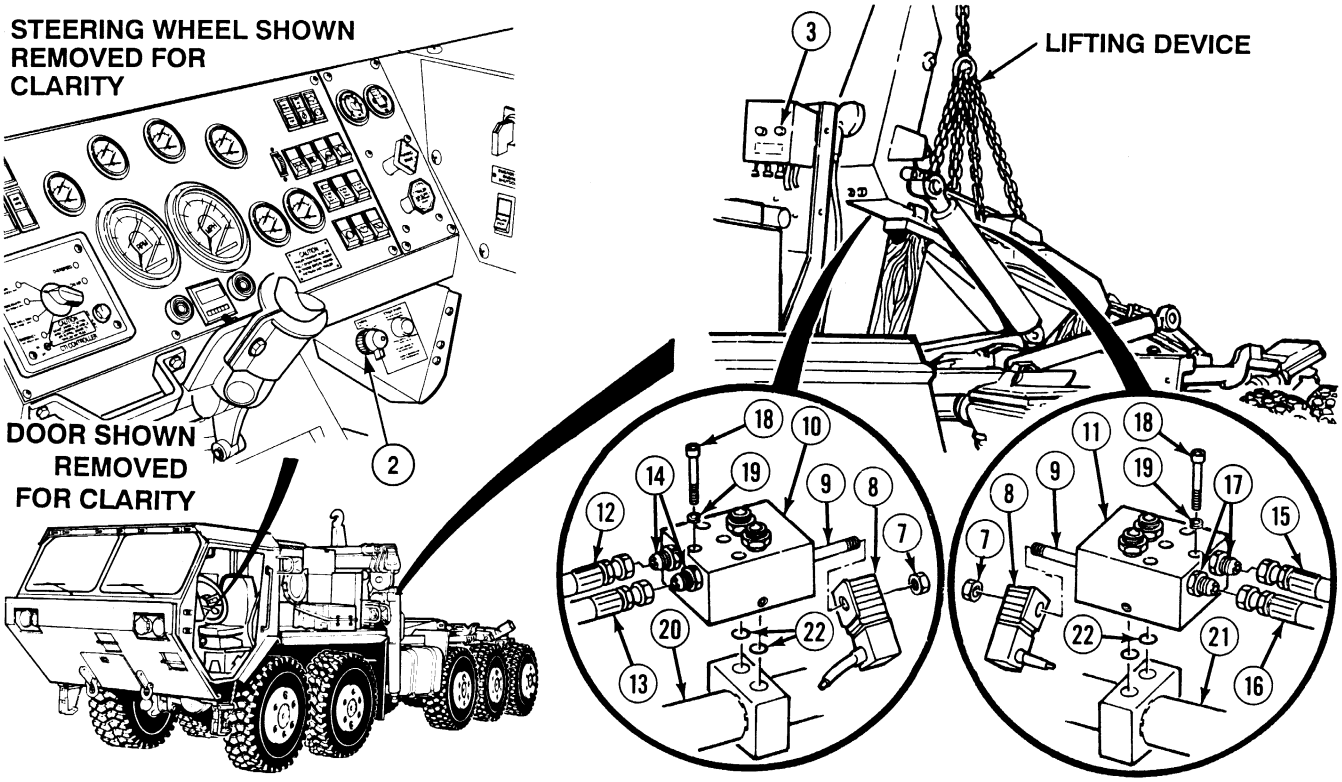


(11) Install two preformed packings (7), backup rings (6), preformed packings (5), preformed packing (4) and four backup rings (3) on two load control valves (1).

(12) Install two load control valves (1) in manifold (2).

17-13. LOAD HANDLING SYSTEM (LHS) HOOK ARM MANIFOLD REPAIR (CONT).

e. Installation.



NOTE

Install cable ties as required.

(1) Apply hydraulic oil to four preformed packings (22).

(2) Install four preformed packings (22) on left and right manifolds (10) and (11).

(3) Install left and right manifolds (10) and (11) on left and right cylinders (20) and (21) with eight lockwashers (19) and screws (18).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

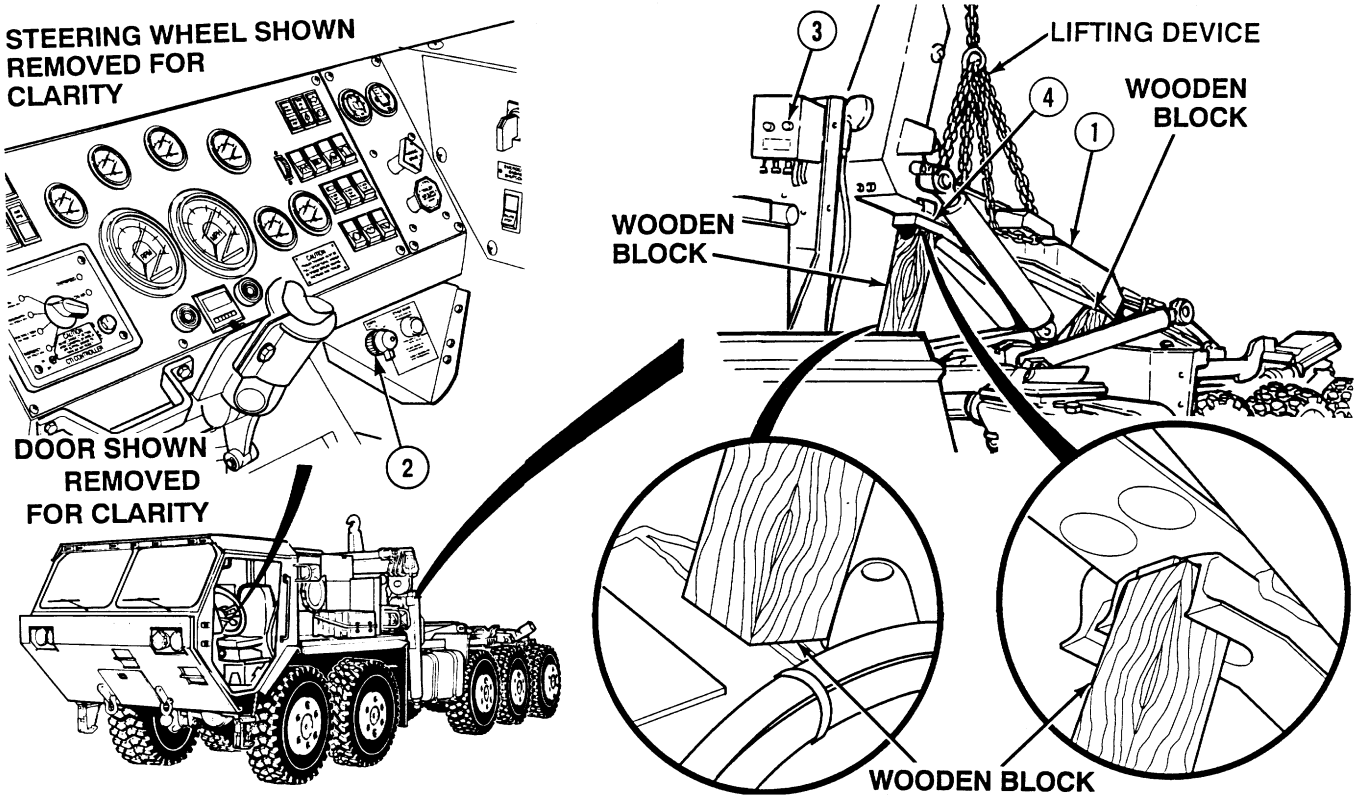
(4) Apply sealing compound in countersunk hole around head of eight screws (18).

(5) Install hose 2281 (12) and hose 2891 (13) on two fittings (14) on left manifold (10).

(6) Install hose 2882 (15) and 2892 (16) on two fittings (17) on right manifold (11).

(7) Install two solenoid valve coils (8) on solenoid valves (9) with nuts (7).

(8) Apply sealing compound to two nuts (7).



WARNING

Middle frame and hook arm have a combined weight of 2,100 lbs. (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent blocking from falling or damage to equipment may result.

(9) Attach lifting device to hook arm (1).

(10) Turn ON ENGINE switch (2).

(11) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise hook arm (1) and middle frame (4), remove blocking and then lower middle frame.

(12) Tun OFF ENGINE switch (2).

(13) Remove lifting device from hook arm (1).

f. Follow-On Maintenance:

- Install LHS manifold cover, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR.

This task covers:

a. Disassembly
b. Cleaning/Inspection
c. Assembly
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Stone, Sharpening (Item 229, Appendix F)
Vise, Pipe, Chain (Item 249, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
Wrench, Torque (Item 277, Appendix F)
Lifting Device, Minimum Capacity 250 lb (114 kg)
Wooden Blocks (2) (Appendix C)

Materials/Parts
Cloth, Cleaning (Item 11, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Strip, Rubber (Item 71, Appendix E)
Plug, Nylon (Item 445, Appendix E)
Screw (Item 531, Appendix E)
Seal Kit (Item 577, Appendix E)

Personnel Required
Two

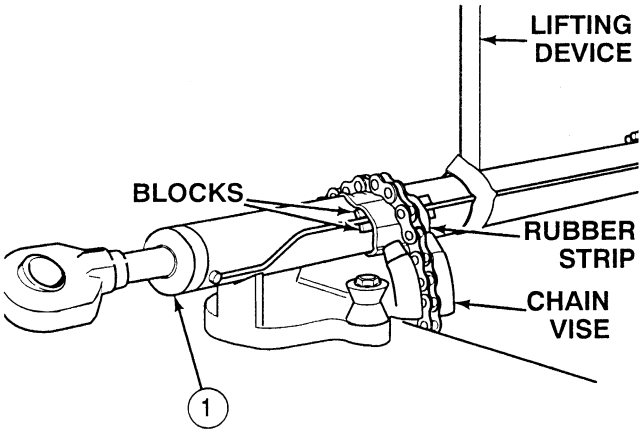
Equipment Condition
Hook arm cylinder removed, (Para 17-12) or
Main cylinder removed, (Para 17-15)

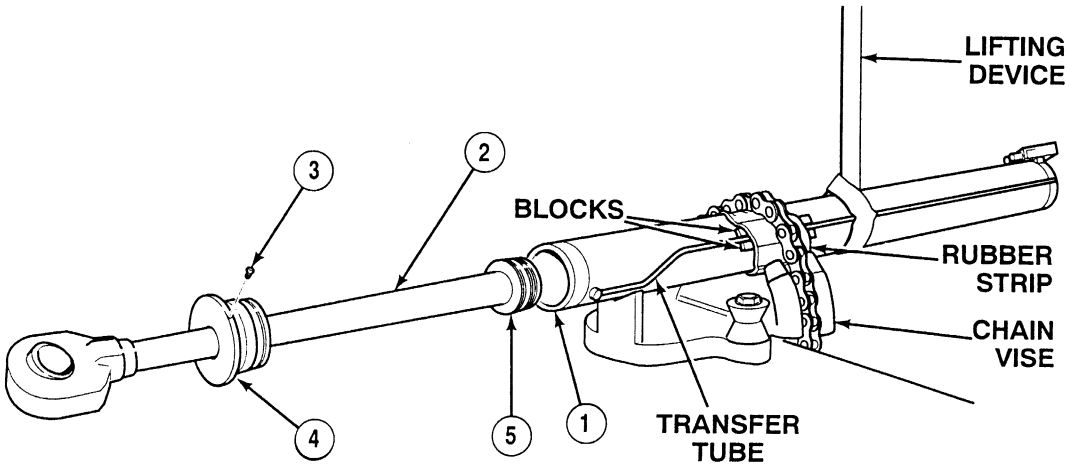
a. Disassembly.

WARNING

Cylinder weighs in excess of 210 lbs (95 kg). Attach suitable lifting device prior to lifting to prevent possible injury to personnel.

(1) Attach lifting device to cylinder (1).





CAUTION

Transfer tube is mounted along axis of cylinder. Use blocks to protect transfer tube when clamping cylinder in a chain vise or damage to equipment may result.

(2) Using lifting device, place cylinder (1) in chain vise using rubber stripping to protect cylinder surface. Use wooden block to protect transfer tube.

WARNING

Oil will spray from cylinder manifold ports when rod is moved in or out. Cover ports with two cleaning cloths to prevent oil from spraying. Failure to comply may result in injury to personnel.

CAUTION

Do not allow threaded or machined surfaces to come in contact with other metal surfaces. Clearances between cylinder components is very small, any minor damage done during disassembly could require component replacement or make assembly difficult.

(3) Position drain pan under cylinder (1).

(4) Move rod (2) out of cylinder (1) approximately 24 in. (61 cm) and properly support rod (2).

(5) Remove screw (3) and unscrew rod bearing (4) from cylinder (1). Discard screw.

(6) With the aid of an assistant, remove rod (2) and piston (5) from cylinder (1).

17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR (CONT).

WARNING

Cylinder weighs in excess of 210 lbs (95 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

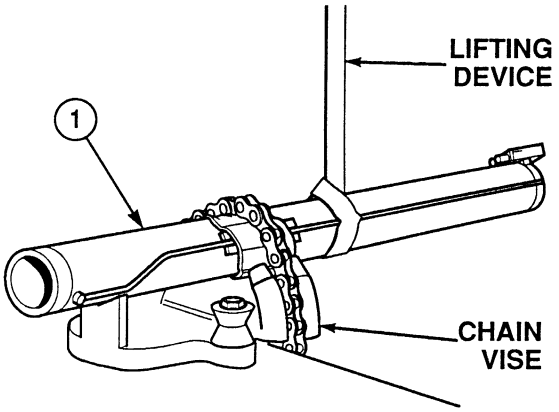
(7) Using lifting device, remove cylinder (1) from chain vise.

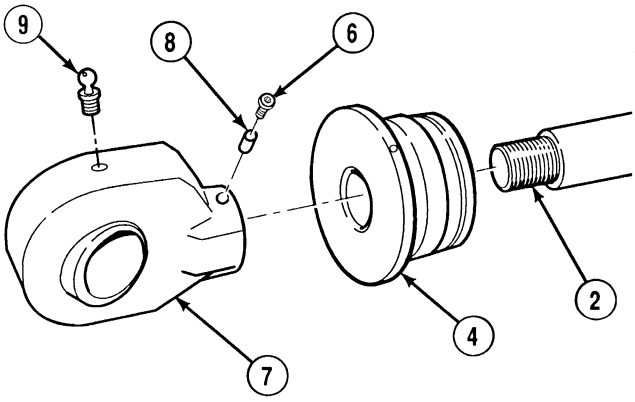
(8) Remove lifting device from cylinder (1).

(9) With the aid of an assistant, remove screw (6), rod lug (7) and rod bearing (4) from rod (2).

(10) Remove nylon plug (8) from bottom of screw hole in rod lug (7). Discard nylon plug.

(11) Remove lube fitting (9) from rod lug (7).

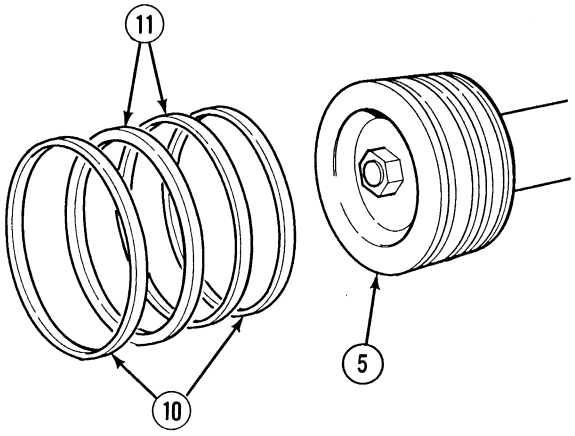




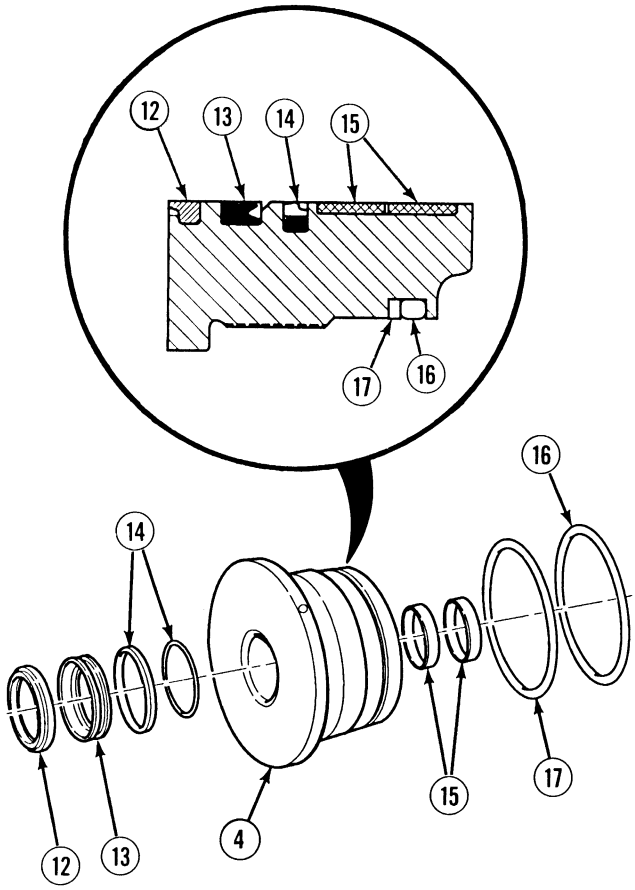
NOTE

In Steps (12) and (13) note location and position of rings, seals and packings prior to removal.

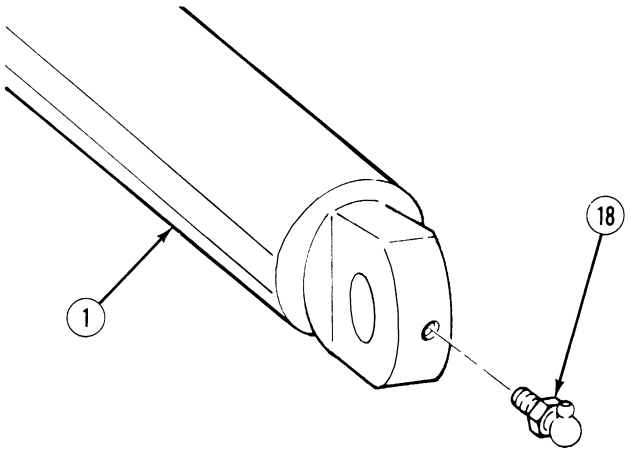
(12) Remove two wear rings (10) and piston seal assembly (11) from piston (5). Discard wear rings and seal assembly.



(13) Remove and discard wiper (12), rod seal (13), step seal assembly (14), two wear rings (15), preformed packing (16) and backup ring (17) from rod bearing (4).



(14) Remove lube fitting (18) from cylinder (1).



17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean all components and flush cylinder barrel using drycleaning solvent (P-D-680) only. Do not use cleaning cloth as any foreign material would contaminate hydraulic system.

(2) Inspect barrel bore for any scratches or corrosion. Replace barrel if rusted. Replace barrel and piston if either component is scratched.

(3) Inspect rod for bending. Replace if necessary.

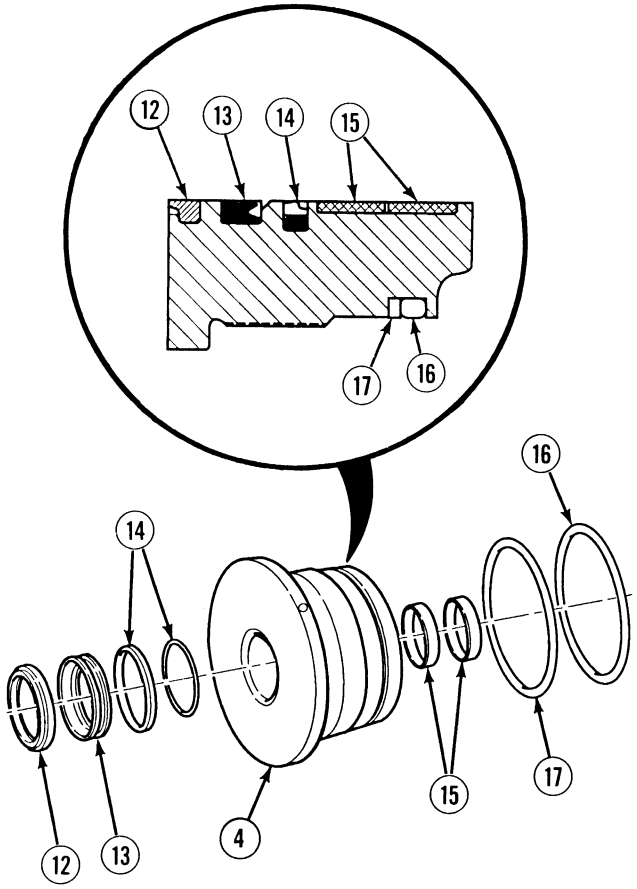
(4) Inspect rod for scratches or pitting. Remove minor scratches and pitting by using stone and lubrication oil. Stone imperfection just enough to smooth raised part.

(5) Inspect component threads for burrs and stripped threads. Replace or repair as necessary.

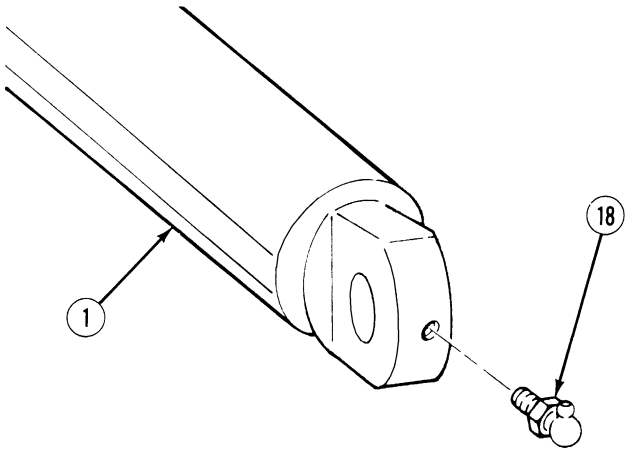
c. Assembly.

(1) Apply hydraulic oil to backup ring (17), preformed packing (16), two wear rings (15), step seal assembly (14), rod seal (13) and wiper (12).

(2) Install backup ring (17), preformed packing (16), two wear rings (15), step seal assembly (preformed packing first, then step seal) (14), rod seal (13) and wiper (12) on rod bearing (4).



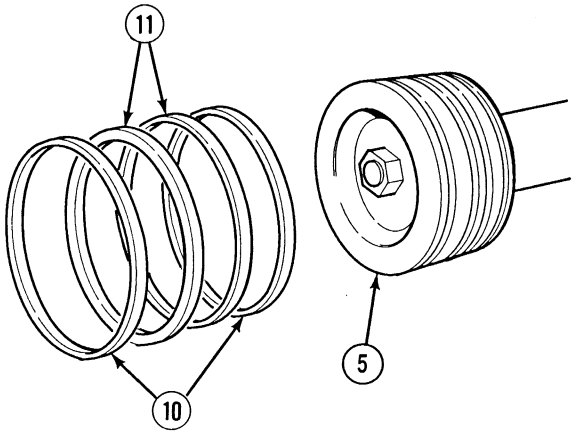
(3) Install lube fitting (18) to cylinder (1).



17-14. LOAD HANDLING SYSTEM (LHS) HOOK ARM/MAIN CYLINDER REPAIR (CONT).

(4) Apply hydraulic oil to piston seal assembly (11) and two wear rings (10).

(5) Install piston seal assembly (11) and two wear rings (10) on piston (5).



(6) Apply hydraulic oil to inside diameter of rod bearing (4).

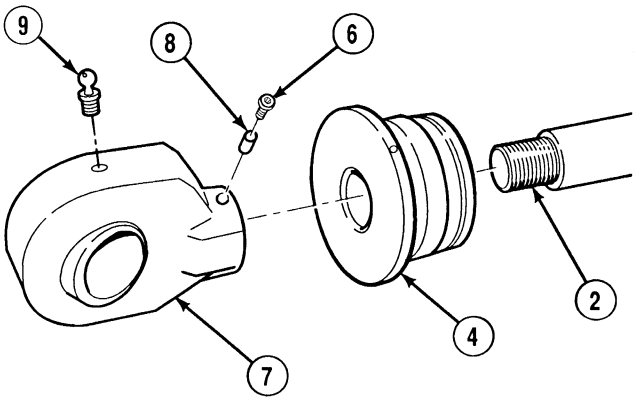
(7) Install rod bearing (4) on rod (2).

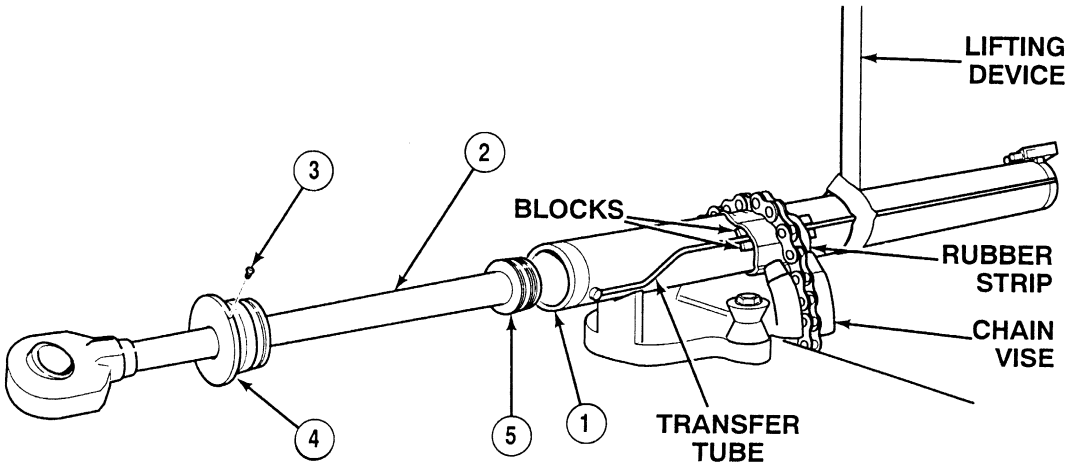
(8) Install rod lug (7) on rod (2).

(9) Position nylon plug (8) and screw (6) in rod lug (7).

(10) Tighten to 41 lb-ft (56 N·m).

(11) Install lube fitting (9) to rod lug (7).





WARNING

Cylinder weighs in excess of 210 lbs (95 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(12) Attach lifting device to cylinder (1).

CAUTION

Transfer tube is mounted along axis of cylinder. Use blocks to protect transfer tube when clamping cylinder in a chain vise, or damage to equipment may result.

(13) Using lifting device, place cylinder (1) in chain vise using rubber stripping to protect cylinder surface. Use wooden block to protect transfer tube.

(14) With the aid of an assistant, install piston (5) with rod (2) and rod bearing (4) in cylinder (1).

(15) Install rod bearing (4) in barrel (1) and align bearing to barrel screw hole halves. If rod bearing was replaced, drill new screw hole 0.440 in. (11.2 mm) deep using no. 26 drill (0.147 in. [3.73 mm]).

(16) Install screw (3) in rod bearing (4).

(17) Using lifting device, remove cylinder (1) from chain vise.

d. Follow-On Maintenance:

- Install hook arm cylinder, (Para 17-12).

END OF TASK

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Wrench Torque (0-175 lb ft [0-237 N·m]) (Item 277, Appendix F)
Wooden Block (2) (Appendix C)
Lifting Device, Minimum Capacity 2500 lbs (1135 kg)

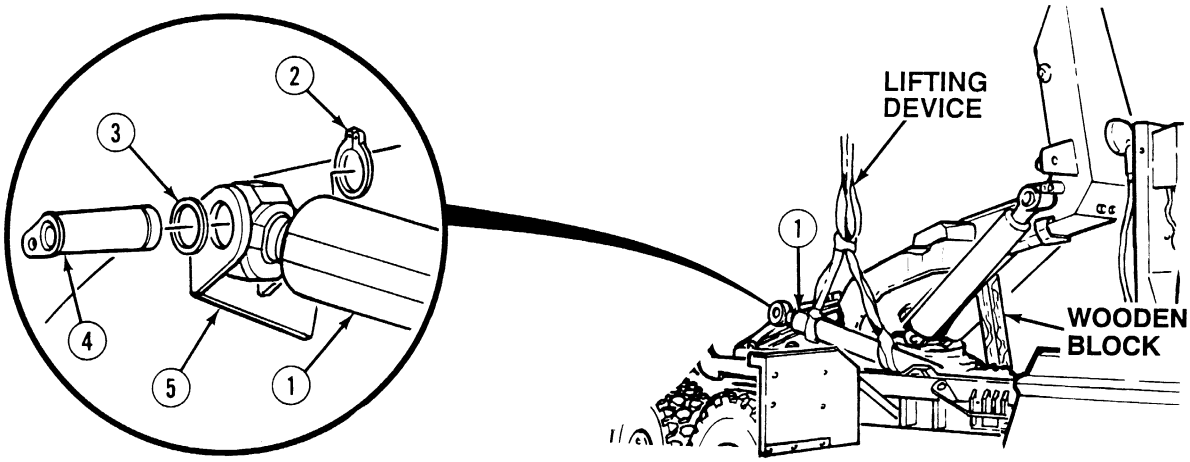
Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)

Materials/Parts - Continued
Sealing Compound (Item 56, Appendix B)
Locknut (Item 175, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Main cylinder manifold removed, (Para 17-16)

a. Removal.

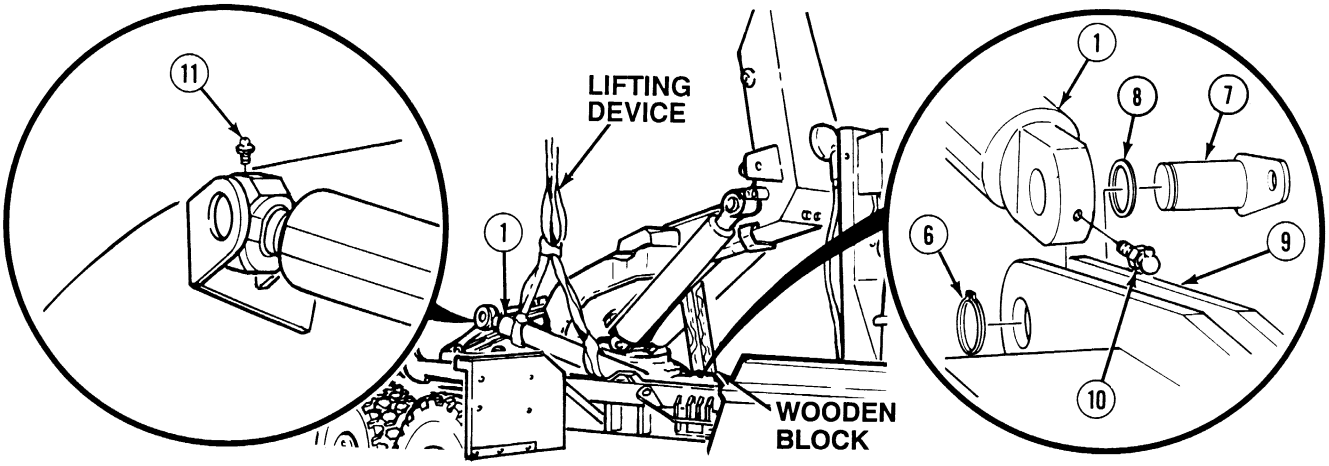


WARNING

- Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior removal to prevent possible injury to personnel.
- Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released and could cause severe eye injury.

(1) Attach lifting device to main cylinder (1).

(2) With the aid of an assistant, support main cylinder (1) using lifting device and remove retaining ring (2), shim (3) and pivot pin (4) from middle frame (5) and cylinder (1).



(3) Remove retaining ring (6), pivot pin (7) and shim (8) from compression frame (9) and main cylinder (1).

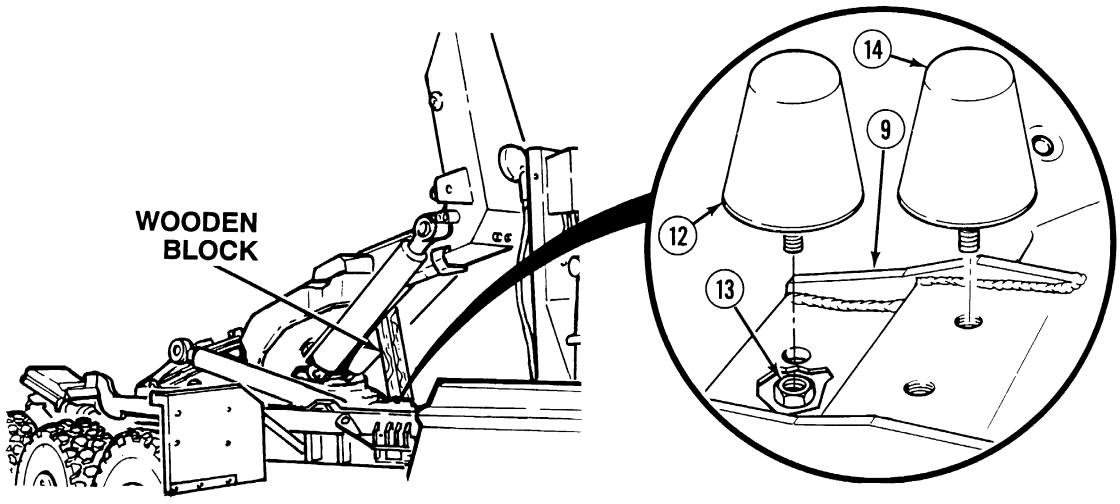
(4) With the aid of an assistant, remove main cylinder (1) from compression frame (9).

NOTE

Perform Step (5) if lube fittings are damaged.

(5) Remove lube fittings (10) and (11) from cylinder (1).

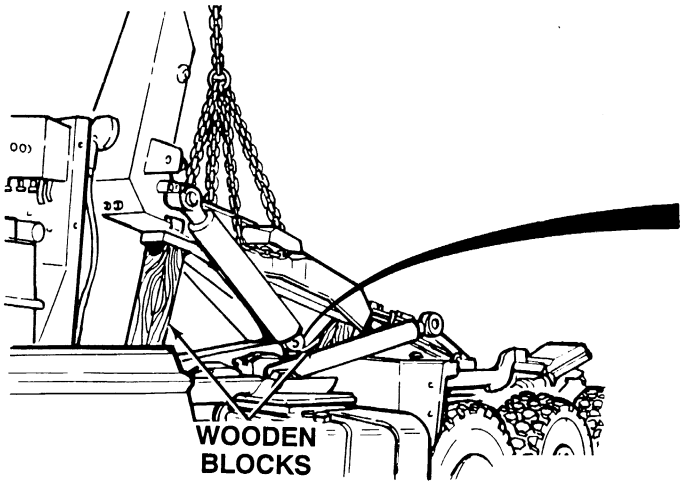
b. Installation.

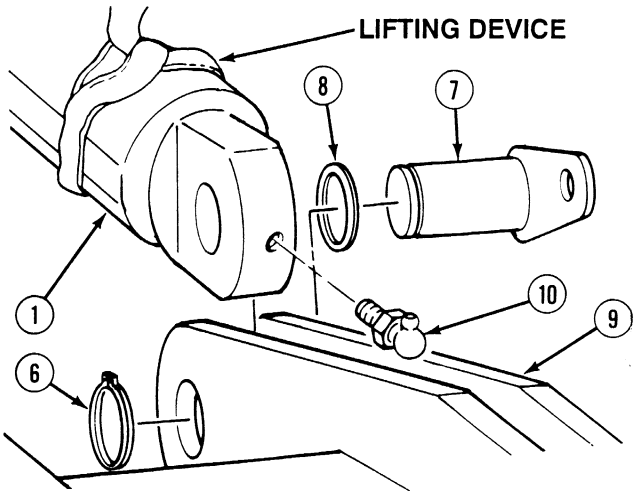


(1) Remove rubber bumper (12) and locknut (13) from compression frame (9). Discard locknut.

(2) Remove two rubber bumpers (14) from compression frame (9).

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT (CONT).





NOTE

Perform Step (3) if lube fitting was removed.

(3) Install lube fitting (10) in main cylinder (1).

WARNING

Main cylinder weighs 325 lbs (148 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

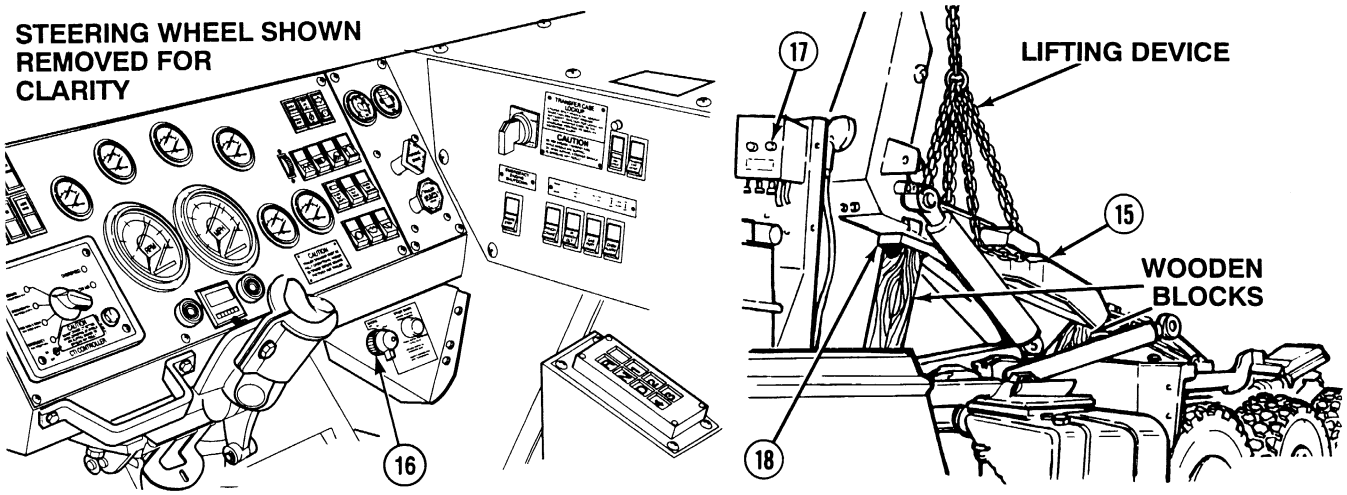
(4) Attach lifting device to main cylinder (1).

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(5) With the aid of an assistant and using lifting device, install barrel end of main cylinder (1), pivot pins (7), shim (8) and retaining ring (6) on compression frame (9).

(6) Remove lifting device from main cylinder (1).



WARNING

Middle frame and hook arm have a combined weight of 2,100 lbs (953 kg). Hook arm cylinders weigh 210 lbs (95 kg) each. Attach suitable lifting device prior to removal to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported by a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

(7) Attach lifting device to hook arm (15).

(8) Turn ON ENGINE switch (16).

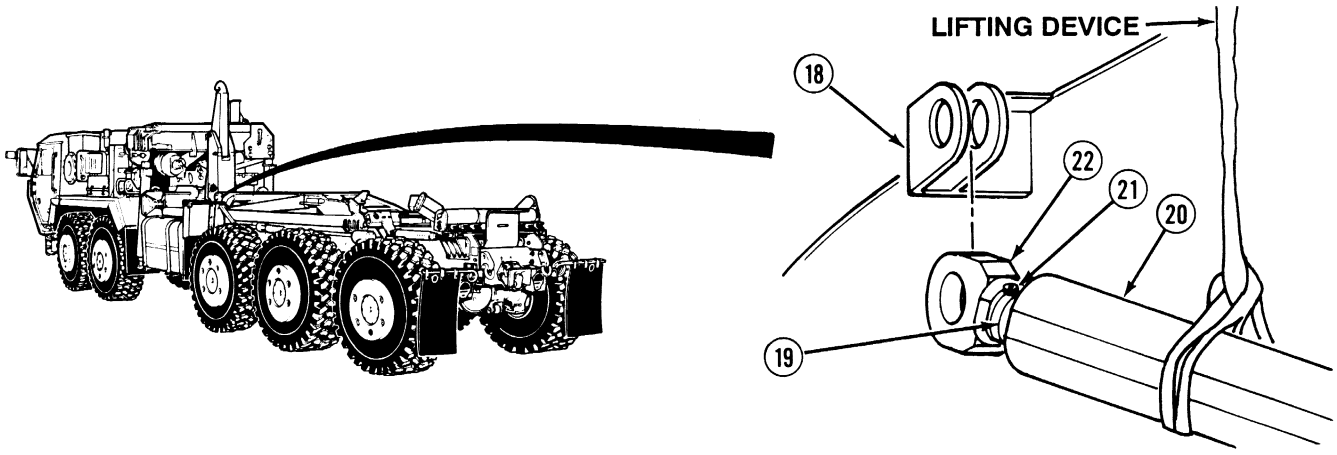
(9) With the aid of an assistant, press middle frame safe lowering button (17) while using lifting device to raise hook arm (15) and middle frame (18).

(10) Remove wooden block and then lower hook arm (15) and middle frame (18).

(11) Turn OFF ENGINE switch (16).

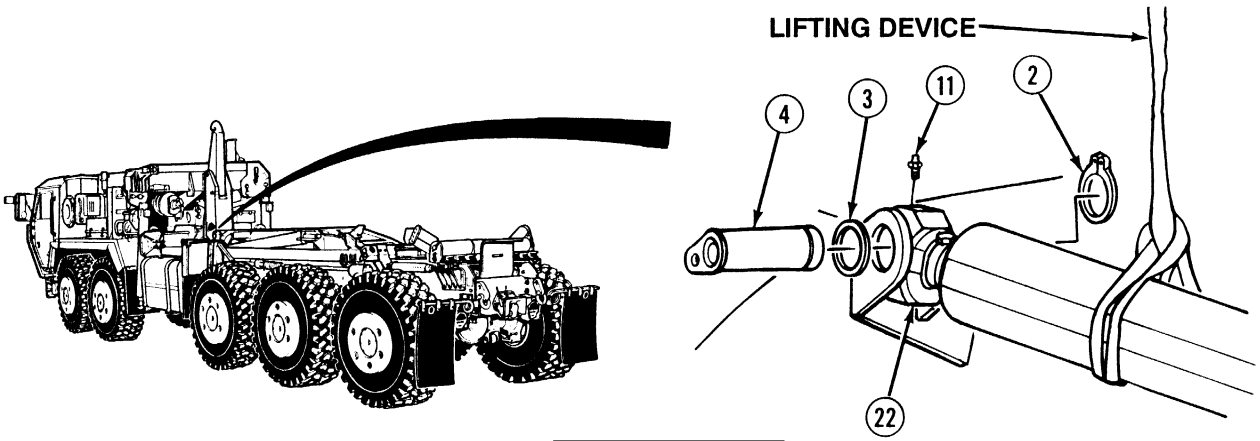
(12) Remove lifting device from hook arm (15).

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT (CONT).



(13) Fully compress cylinder rod (19) in barrel (20).

(14) Extend cylinder rod (19) out 1/4 in. (6.4 mm), loosen screw (21) and rotate rod lug (22) so lug bore aligns with holes in middle frame (18). Tighten screw (21) to 41 lb ft (56 N·m).



WARNING

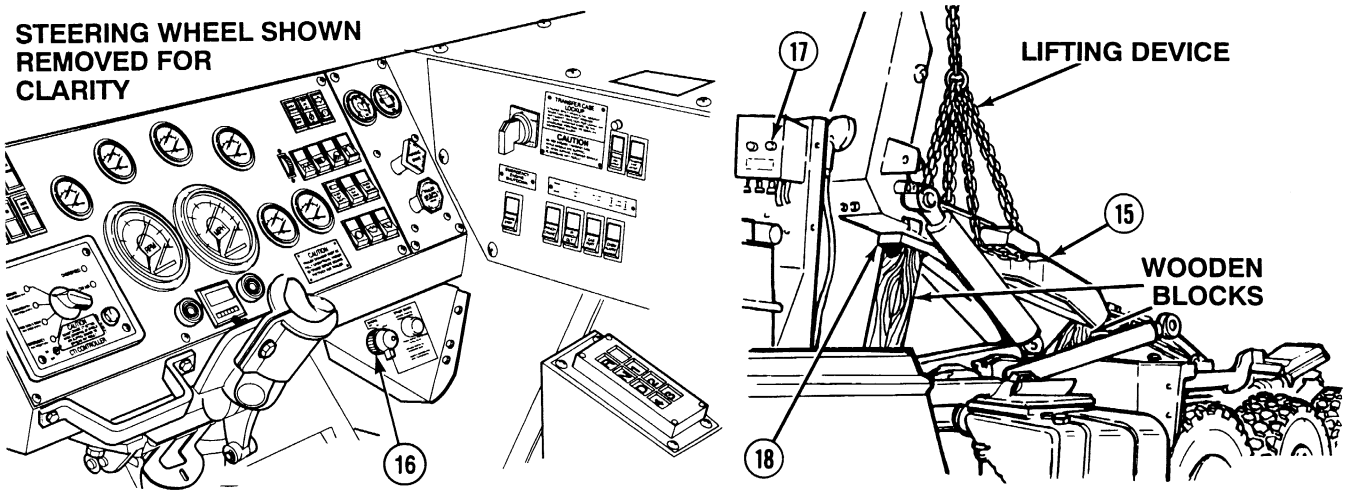
Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(15) When lug bore and middle frame holes align, install rod lug (22) with pivot pin (4), shim (3) and retaining ring (2).

NOTE

Perform Step (16) if lube fitting was removed.

(16) Install lube fitting (11) in rod lug (22).



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

Wooden blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

(17) Attach lifting device to hook arm (15).

(18) Turn ON ENGINE switch (16).

(19) With the aid of an assistant, press middle frame safe lowering button (17) while using lifting device to raise hook arm (15) and middle frame (18).

(20) Support middle frame (18) in two places with wooden blocks.

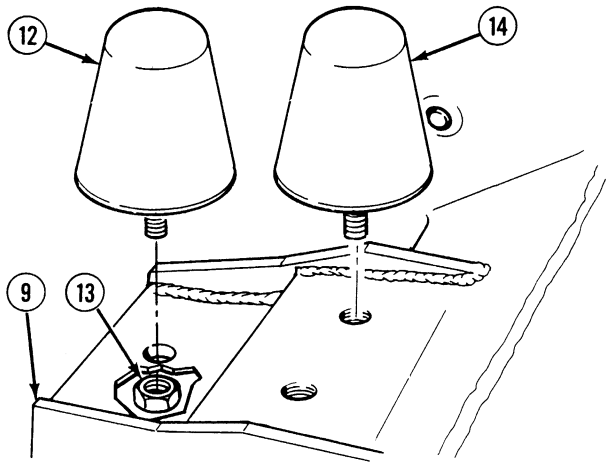
(21) Turn OFF ENGINE switch (16).

(22) Remove lifting device from hook arm (15).

17-15. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER REPLACEMENT (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(23) Coat threads of two rubber bumpers (14) with sealing compound.

(24) Install two rubber bumpers (14) on compression frame (9).

(25) Install rubber bumper (12) and locknut (13) on compression frame (9).

c. Follow-On Maintenance:

- Install main manifold, (Para 17-16).
- Remove wheel chocks (TM 9-2320-364-10).

END OF TASK

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wooden Block (2) (Appendix C)
Lifting Device, Minimum Capacity 2500 lb (1135 kg)

Materials/Parts
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 62, Appendix B)
Tags, Identification (Item 72, Appendix B)

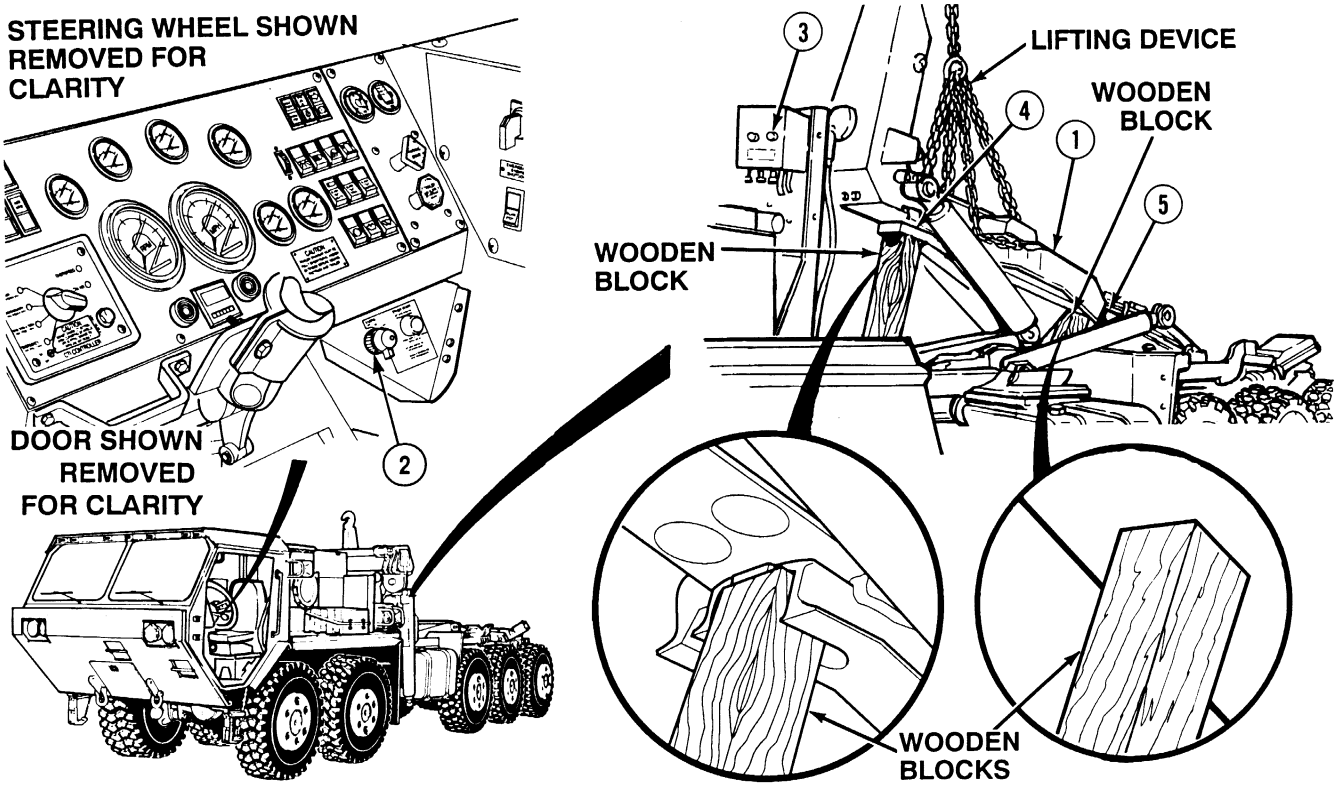
Materials/Parts - Continued
Lockwasher (4) (Item 238, Appendix E)
Preformed Packing (3) (Item 351, Appendix E)
Preformed Packing Kit (Item 448, Appendix E)
Preformed Packing Kit (Item 452, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS control box cover removed, (TM 9-2320-364-10)

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

a. Removal.



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

CAUTION

Wooden blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

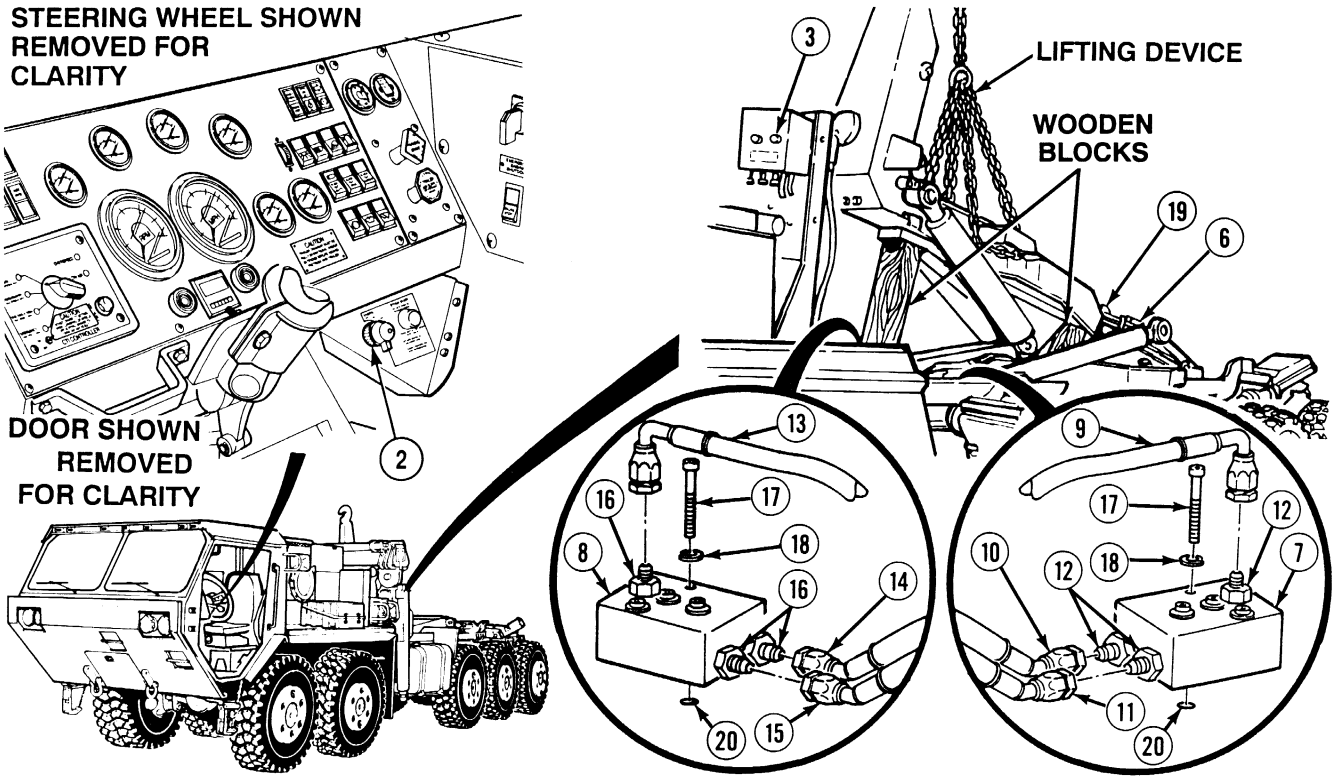
(1) Attach lifting device to hook arm (1).

(2) Turn ON ENGINE switch (2).

(3) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise middle frame (4) up until hook arm pivot pin (5) is above main cylinder (6).

(4) Block up middle frame in two places with wooden blocks.

(5) Remove lifting device from hook arm (1).



(6) Position drain pan under left main cylinder manifold (7) and right main cylinder manifold (8).

WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- Tag and mark all hoses prior to removal.
- Cap and plug all hydraulic hoses and fittings after disconnecting.

(7) Press middle safe lowering button (3) to relieve hydraulic pressure.

(8) Turn OFF ENGINE switch (2).

(9) Remove hose 2889 (9), hose 2588 (10) and hose 2888 (11) from fittings (12) on left manifold (7).

(10) Remove hose 2890 (13), hose 2887 (14) and hose 2666 (15) from fittings (16) on right manifold (8).

(11) Remove eight screws (17), lockwashers (18) and left and right manifolds (7) and (8) from left and right main cylinders (6) and (19). Discard lockwashers.

(12) Remove and discard four preformed packings (20) from left and right manifolds (7) and (8).

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

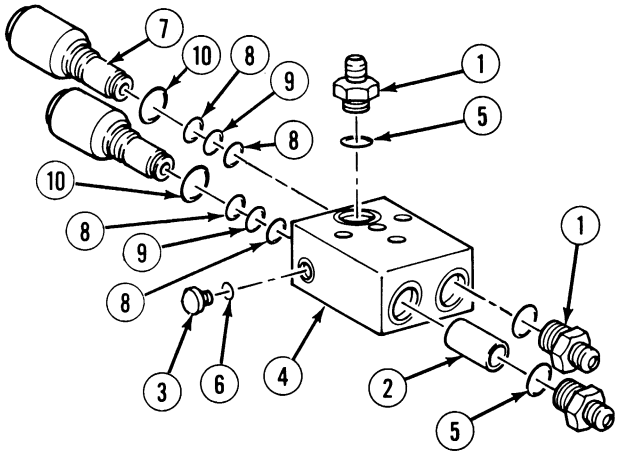
b. Disassembly.

CAUTION

- Velocity fuse will fall out when adapter is removed. Use care when removing adapter, or damage to equipment may result.
- Velocity fuse will not work correctly if installed backwards. Observe and record direction of valve during removal. Failure to comply may result in damage to equipment.

NOTE

Tag and mark ports that velocity fuse, relief valve, adapters and plug are removed from prior to disassembly.



(1) Remove three adapters (1), velocity fuse (2) and hex head plug (3) from main manifold (4).

(2) Remove three preformed packings (5) from adapters (1). Discard preformed packings.

(3) Remove preformed packing (6) from hex head plug (3). Discard preformed packing.

(4) Remove two relief valves (7) from manifold (4).

(5) Remove two backup rings (8), preformed packing (9) and preformed packing (10) from each relief valve (7). Discard backup rings and preformed packings.

c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(1) Clean manifold and components using drycleaning solvent (P-D-680).

(2) Inspect for any foreign material in ports and remove as necessary.

(3) Inspect for cracks, dents, gouges or stripped threads.

(4) Replace all damaged parts.

d. Assembly.

(1) Apply hydraulic oil to two preformed packings (10), preformed packing (9) and four backup rings (8).

(2) Install two preformed packings (10), preformed packing (9) and four backup rings (8) on two relief valves (7).

(3) Install two valves (7) in manifold (4).

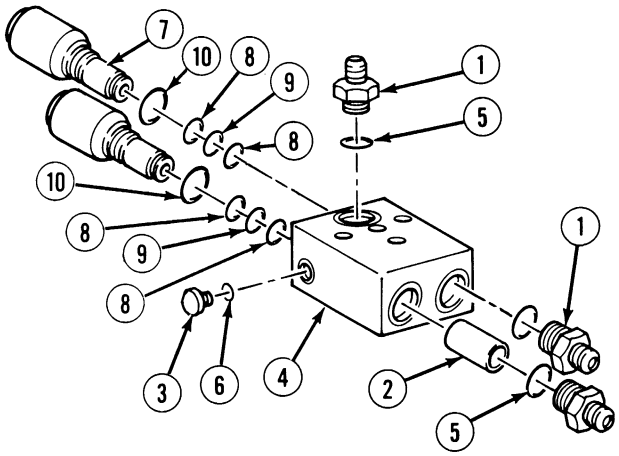
(4) Apply hydraulic oil to preformed packing (6).

(5) Install preformed packing (6) on hex head plug (3).

(6) Install hex head plug (3) in manifold (4).

(7) Apply hydraulic oil to three preformed packings (5).

(8) Install three preformed packings (5) on adapters (1).



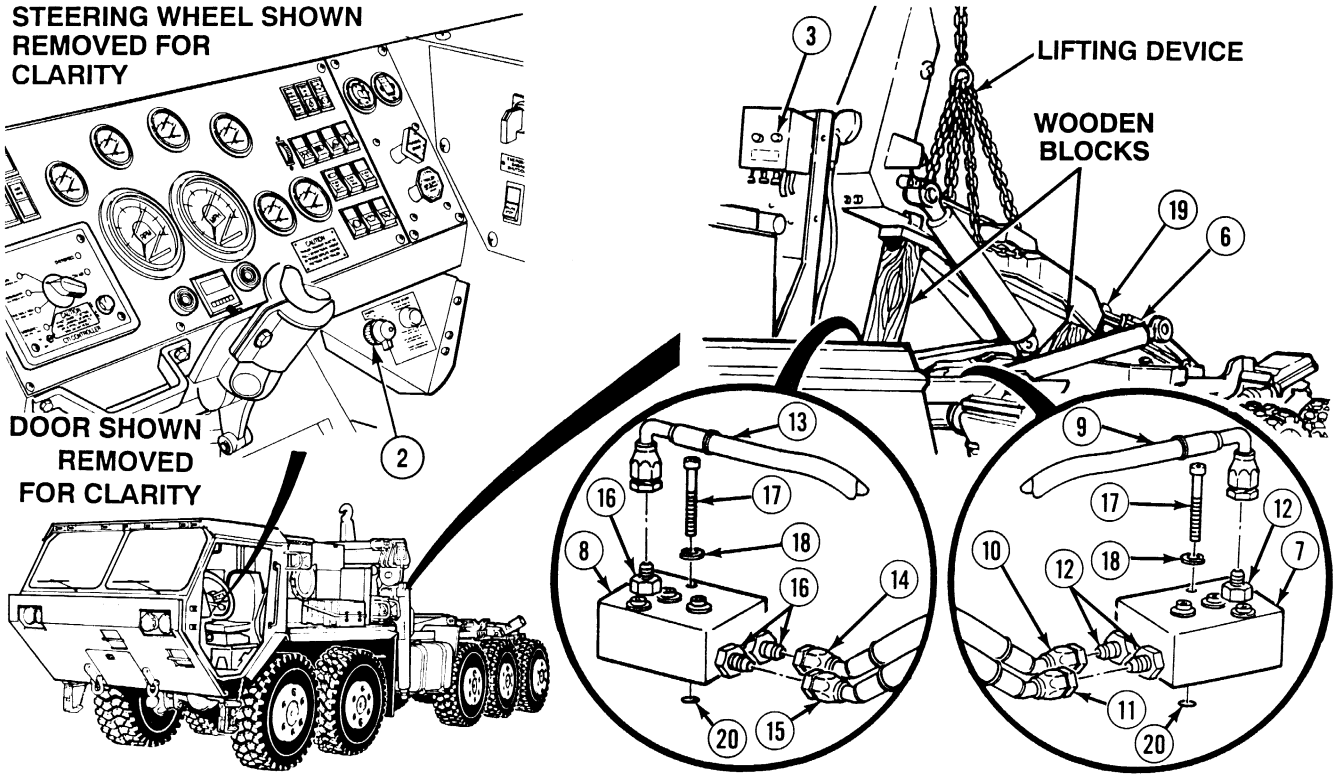
CAUTION

Velocity fuse will not work correctly if installed backwards. Install fuse as noted during removal. Failure to comply may result in damage to equipment.

(9) Install velocity fuse (2) and three adapters (1) in manifold (4).

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

e. Installation.



(1) Apply hydraulic oil to four preformed packings (20).

(2) Install four preformed packings (20) on left and right manifolds (7) and (8).

(3) Install left and right manifolds (7) and (8) on cylinders (6) and (19) with eight lockwashers (18) and screws (17).

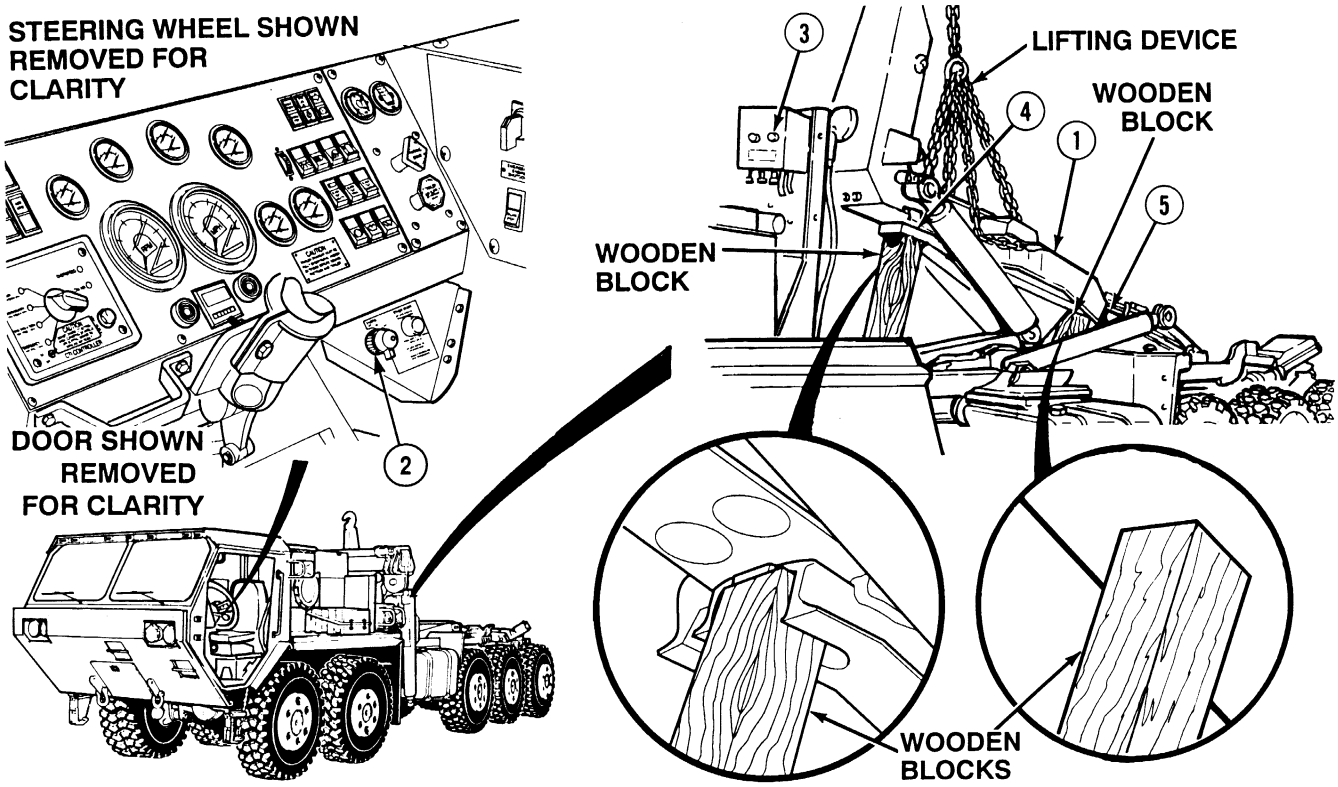
WARNING

Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound in countersunk hole and around head of eight screws (18).

(5) Install hose 2889 (9), hose 2588 (10) and hose 2888 (11) on fittings (12) on left manifold (7).

(6) Install hose 2890 (13), hose 2887 (14) and hose 2666 (15) on fittings (16) on right manifold (8).



WARNING

Middle frame and hook arm combined weight is 2,100 lbs (953 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

CAUTION

Blocks supporting middle frame can fall when middle frame is supported with a lifting device. Have assistant prevent wooden blocks from falling or damage to equipment may result.

(7) Attach lifting device to hook arm (1).

(8) Turn ON ENGINE switch (2).

(9) With the aid of an assistant, press middle frame safe lowering button (3) while using lifting device to raise hook arm (1) and middle frame (4), remove blocking and then lower middle frame.

(10) Turn OFF ENGINE switch (2).

(11) Remove lifting device from hook arm (1).

17-16. LOAD HANDLING SYSTEM (LHS) MAIN CYLINDER MANIFOLD REPAIR (CONT).

f. Follow-On Maintenance:

- Install LHS control box cover, (TM 9-2320-364-10).
- Start engine, (TM 9-2320-364-10).
- Operate LHS, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check hydraulic oil reservoir level, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-17. HYDRAULIC RETURN MANIFOLD REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation
e. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Vise, Machinist (Item 248, Appendix F)
Wrench, Combination 1-5/8 in. (Item 261, Appendix F)
Wrench, Combination 1-7/8 in. (Item 265, Appendix F)
Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Tags, Identification (Item 72, Appendix B)

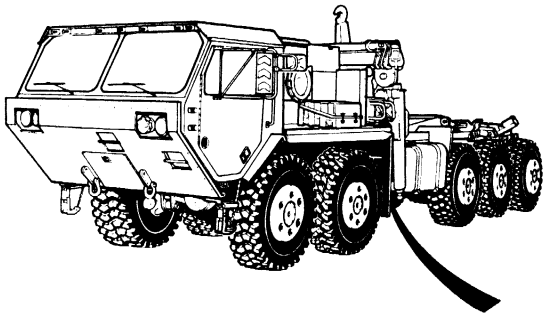
Materials/Parts - Continued
Locknut (4) (Item 166, Appendix E)
Locknut (2) (Item 210, Appendix E)
Packing, Preformed (Item 341, Appendix E)
Packing, Preformed (2) (Item 352, Appendix E)
Packing, Preformed (3) (Item 353, Appendix E)
Packing, Preformed (2) (Item 387, Appendix E)
Packing, Preformed (2) (Item 388, Appendix E)

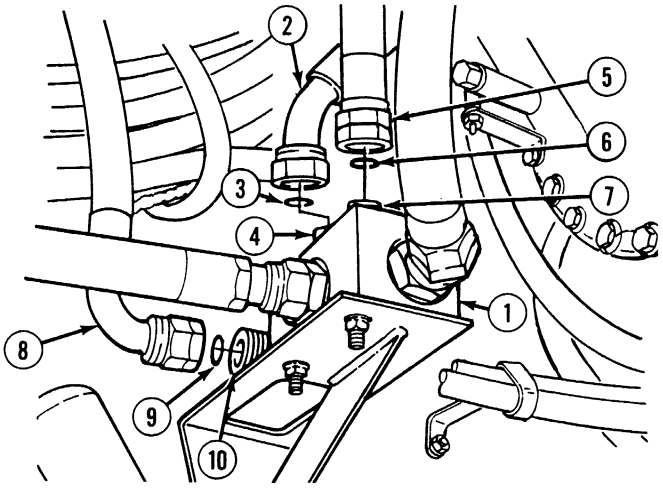
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Left rear fender skirt removed, (TM 9-2320-364-20)
Hydraulic reservoir drained, (TM 9-2320-364-20)

17-17. HYDRAULIC RETURN MANIFOLD REPAIR (CONT).

a. Removal.





NOTE

- Remove cable ties as required.
- Tag and mark hoses prior to removal.
- Cap and plug hoses after removal.

(1) Position drain pan under hydraulic return manifold (1).

(2) Remove hose 2904 (2) and preformed packing (3) from adapter (4). Discard preformed packing.

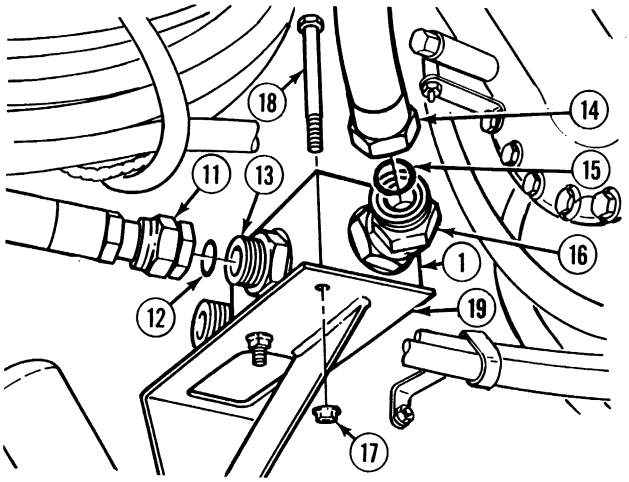
(3) Remove hose 2724 (5) and preformed packing (6) from adapter (7). Discard preformed packing.

(4) Remove hose 2917 (8) and preformed packing (9) from elbow (10). Discard preformed packing.

(5) Remove hose 2886 (11) and preformed packing (12) from adapter (13). Discard preformed packing.

(6) Remove hose 2918 (14) and preformed packing (15) from elbow (16). Discard preformed packing.

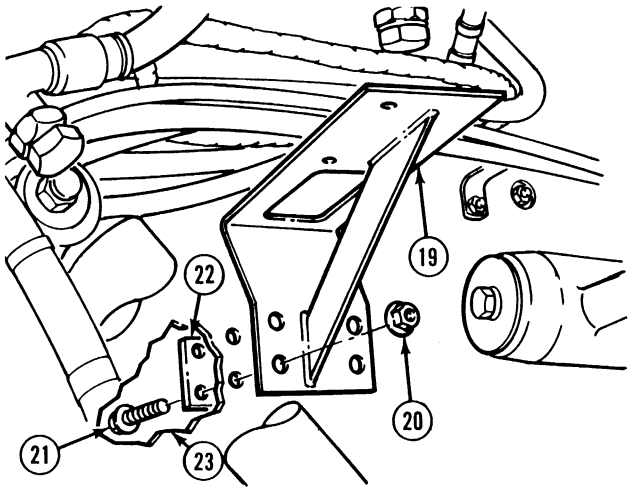
(7) Remove two locknuts (17), two screws (18) and hydraulic return manifold (1) from mounting bracket (19). Discard locknuts.



NOTE

Perform Step (8) only if bracket is damaged.

(8) With the aid of an assistant, remove four locknuts (20), mounting bracket (19), four screws (21) and tie ring assembly (22) from frame (23). Discard locknuts.



b. Disassembly.

NOTE

Note location and position of elbows and adapters prior to removal.

(1) Position hydraulic return manifold (1) in soft-jawed vise.

(2) Remove adapters (2) and (3) and preformed packings (4) from hydraulic return manifold (1). Discard preformed packings.

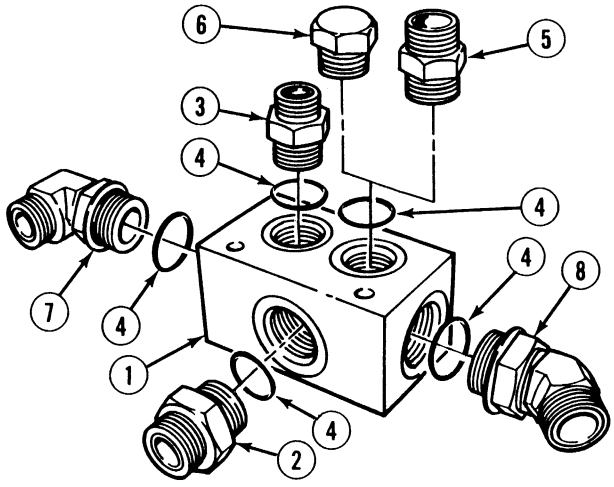
NOTE

- If truck is equipped with crane, adapter will be removed in Step (3).
- If truck is not equipped with crane, plug will be removed in Step (3).

(3) Remove adapter (5) or plug (6) and preformed packing (4) from hydraulic return manifold (1). Discard preformed packing.

(4) Remove elbows (7) and (8) and preformed packings (4) from hydraulic return manifold (1). Discard preformed packings.

(5) Remove hydraulic return manifold (1) from soft-jawed vise.



17-17. HYDRAULIC RETURN MANIFOLD REPAIR (CONT).

c. Assembly.

NOTE

Install elbows and adapters as noted prior to removal.

(1) Position hydraulic return manifold (1) in soft-jawed vise.

(2) Apply hydraulic oil to two preformed packings (4).

(3) Install two preformed packings (4) and elbows (7) and (8) in hydraulic return manifold (1).

NOTE

- If truck is equipped with crane, adapter will be installed in Step (5).
- If truck is not equipped with crane, plug will be installed in Step (5).

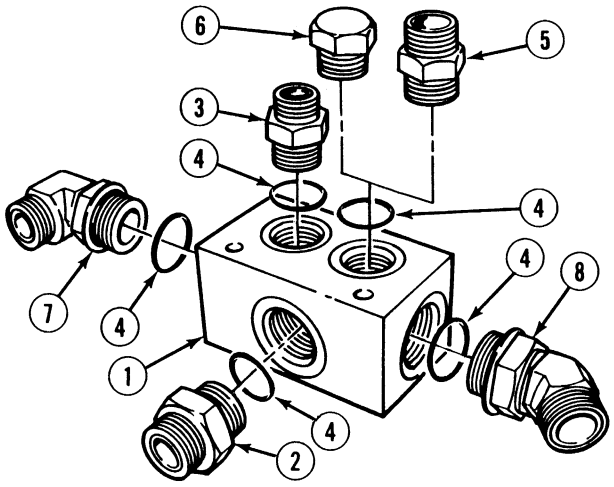
(4) Apply hydraulic oil to preformed packings (4).

(5) Install preformed packing (4) and adapter (5) or plug (6) in hydraulic return manifold (1).

(6) Apply hydraulic oil to two preformed packing (4).

(7) Install two preformed packings (4) and adapters (2) and (3) in hydraulic return manifold (1).

(8) Remove hydraulic return manifold (1) from soft-jawed vise.

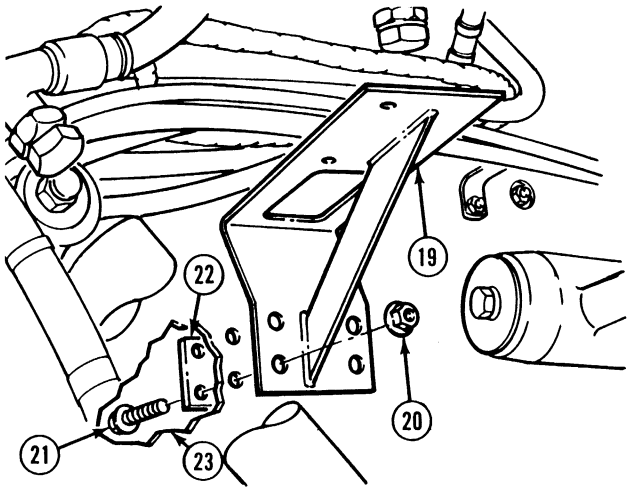


d. Installation.

NOTE

Perform Step (1) only if bracket was removed.

(1) With the aid of an assistant, install tie-down ring assembly (22) and mounting bracket (19) on frame (23) with four screws (21) and locknuts (20).



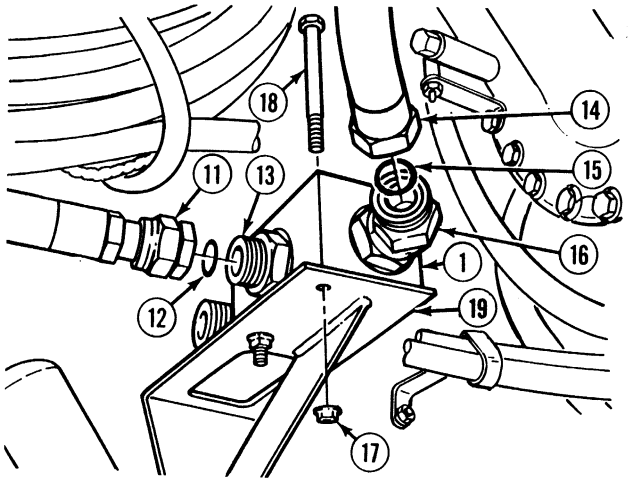
(2) Install hydraulic return manifold (1) on mounting bracket (19) with two screws (18) and locknuts (17).

(3) Apply hydraulic oil to preformed packing (15).

(4) Install preformed packing (15) and hose 2918 (14) on elbow (16).

(5) Apply hydraulic oil to preformed packing (12).

(6) Install preformed packing (12) and hose 2886 (11) on adapter (13).



(7) Apply hydraulic oil to preformed packing (9).

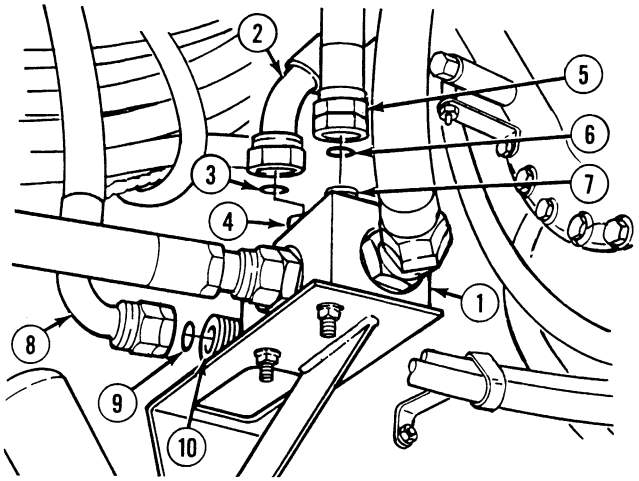
(8) Install preformed packing (9) and hose 2917 (8) on elbow (10).

(9) Apply hydraulic oil to preformed packing (6).

(10) Install preformed packing (6) and hose 2724 (5) on adapter (7).

(11) Apply hydraulic oil to preformed packing (3).

(12) Install preformed packing (3) and hose 2904 (2) on adapter (4).



e. Follow-On Maintenance:

- Install left rear fender skirt, (TM 9-2320-364-20).
- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for 3 minutes, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Combination 1-3/8 in. (Item 258, Appendix F)
Wrench, Combination 1-5/8 in. (Item 261, Appendix F)

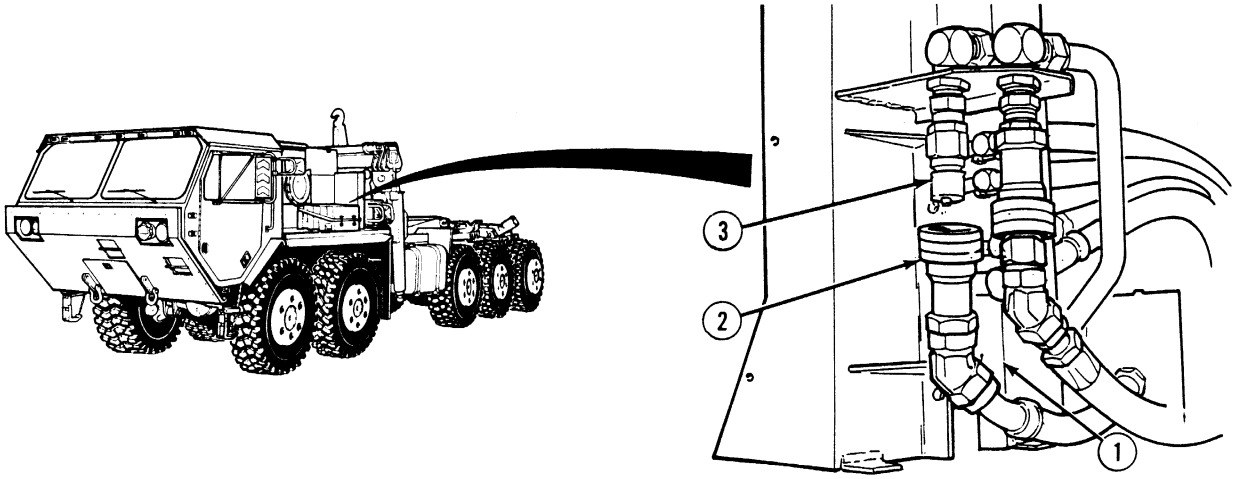
Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (6) (Item 210, Appendix E)
Lockwasher (4) (Item 255, Appendix E)
Packing, Preformed (Item 351, Appendix E)

Materials/Parts - Continued
Packing, Preformed (Item 354, Appendix E)
Packing, Preformed (2) (Item 388, Appendix E)
Parts Kit, Seal (Item 411, Appendix E)
Parts Kit, Seal (Item 412, Appendix E)
Preformed Packing Kit (Item 446, Appendix E)
Preformed Packing Kit (2) (Item 450, Appendix E)
Seal, Double Lipped, Teflon (Item 580, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Battery box removed, (TM 9-2320-364-20)
LHS control box cover removed, (TM 9-2320-364-10)
Left side noise panel removed, (TM 9-2320-364-20)
Left rear fender skirt removed, (TM 9-2320-364-20)
Transmission external filter head removed, (TM 9-2320-364-20)

a. Removal.



WARNING

The LHS hydraulic system operates at oil pressures up to 3,625 psi (24,994 kPa). Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

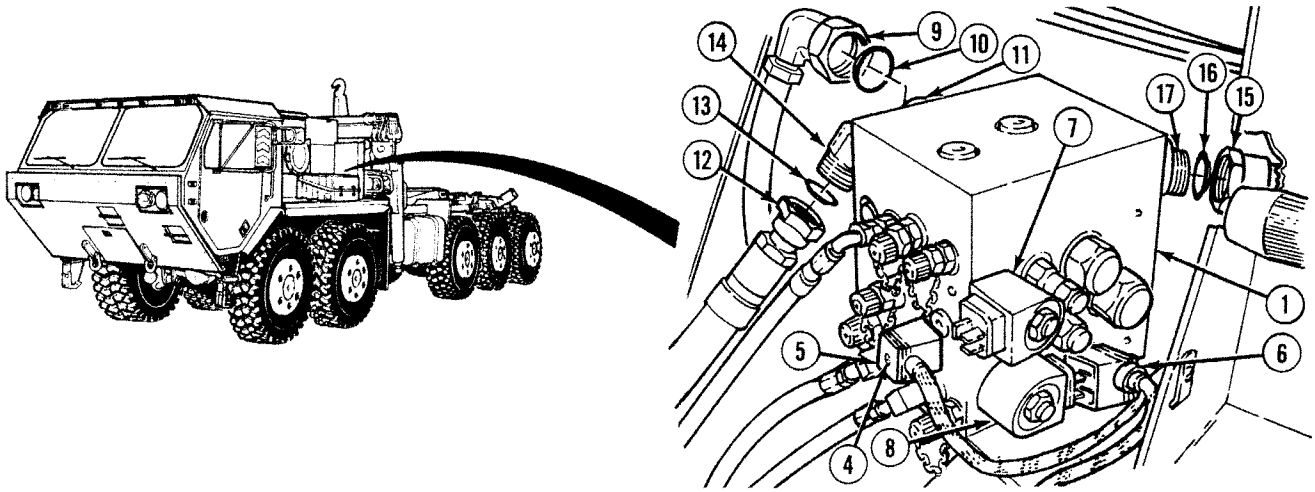
NOTE

- Tag and mark wires and hoses prior to removal.
- Remove cable ties as required.
- Cap and plug all hoses after removal.

(1) Position drain pan under multifunction manifold (1).

(2) Disconnect hose 2777 (2) at quick disconnect (3).

17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).



(3) Loosen screws (4) and disconnect connectors M10 (5) and M51 (6) from solenoids (7) and (8) on manifold (1).

(4) Remove hose 2936 (9) and preformed packing (10) from adapter (11). Discard preformed packing.

(5) Remove hose 2904 (12) and preformed packing (13) from elbow (14). Discard preformed packing.

(6) Remove hose 2777 (15) and preformed packing (16) from elbow (17). Discard preformed packing.

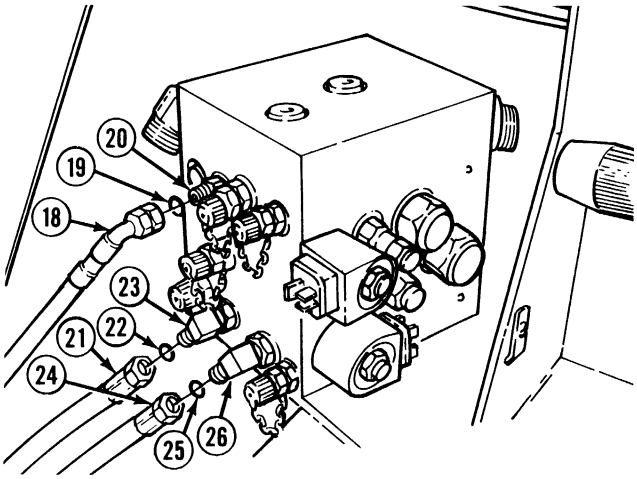
(7) Remove hose 2295 (18) and preformed packing (19) from adapter (20). Discard preformed packing.

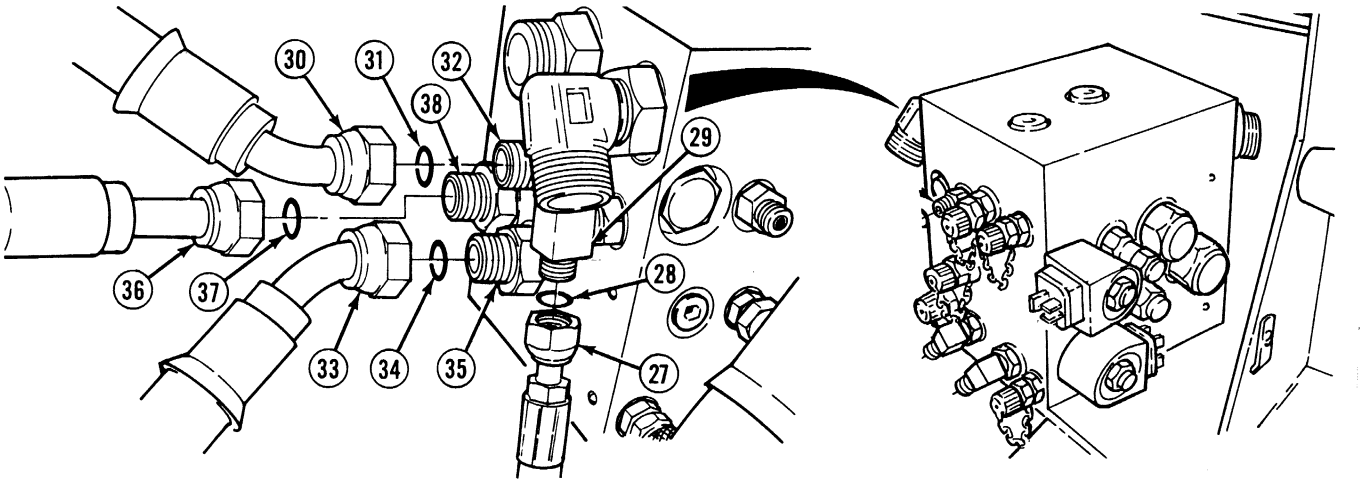
NOTE

If truck is equipped with crane, perform step (8).

(8) Remove hose 2776 (21) and preformed packing (22) from adapter (23). Discard preformed packing.

(9) Remove hose 2809 (24) and preformed packing (25) from elbow (26). Discard preformed packing.





(10) Remove hose 2291 (27) and preformed packing (28) from elbow (29). Discard preformed packing.

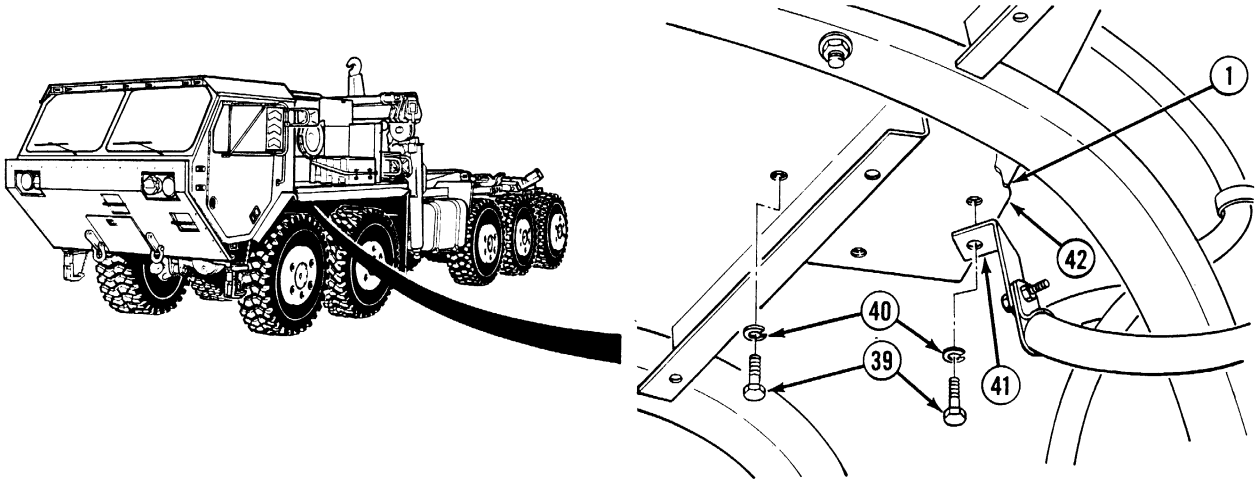
NOTE

If truck is equipped with crane, perform Step (12).

(11) Remove hose 2902 (30) and preformed packing (31) from adapter (32). Discard preformed packing.

(12) Remove hose 2899 (33) and preformed packing (34) from adapter (35). Discard preformed packing.

(13) Remove hose 2772 (36) and preformed packing (37) from adapter (38). Discard preformed packing.



(14) Remove four screws (39), lockwashers (40), bracket (41) and multifunction manifold (1) from mounting bracket (42). Discard lockwashers.

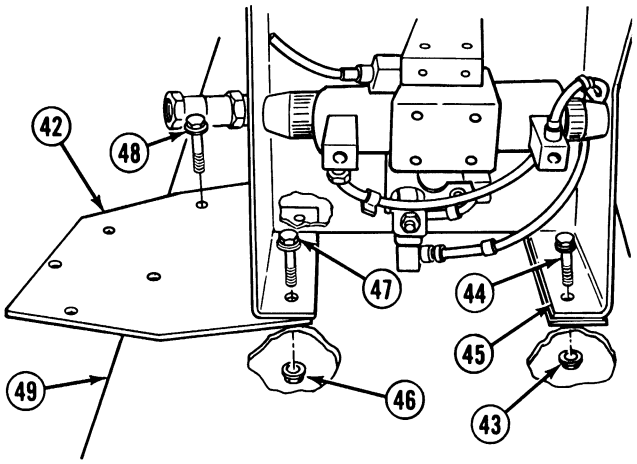
17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

NOTE

Perform Steps (15) and (16) only if bracket is damaged.

(15) Loosen two locknuts (43) and screws (44) on bracket (45).

(16) With the aid of an assistant, remove four locknuts (46), two screws (47), screws (48) and mounting bracket (42) from fender (49). Discard locknuts.



b. Disassembly.

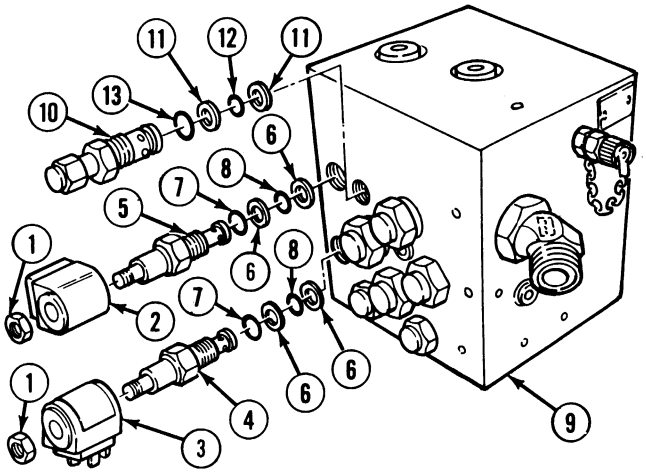
NOTE

Note location and position of valves, couplings, retainers, adapters and plugs.

(1) Remove two nuts (1) and solenoids (2) and (3) from solenoid valves (4) and (5).

(2) Remove solenoid valves (4) and (5), four packing retainers (6) and preformed packings (7) and (8) from manifold (9). Discard preformed packings and packing retainers.

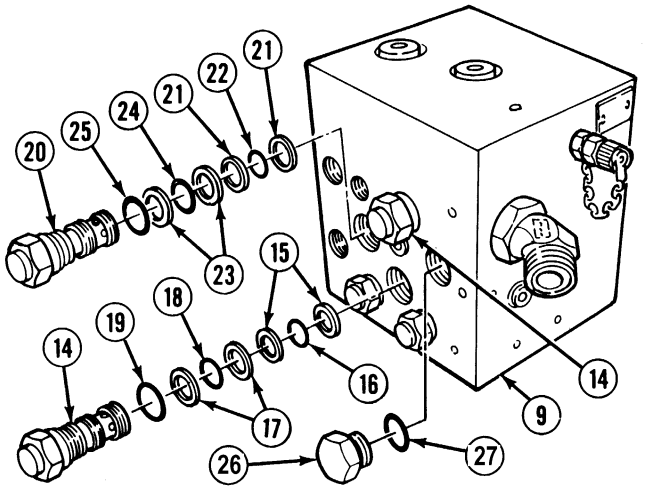
(3) Remove needle valve (10), two packing retainers (11) and preformed packings (12) and (13) from manifold (9). Discard preformed packings and packing retainers.



(4) Remove two needle valves (14), four retainers (15), two preformed packings (16), four packing retainers (17), two preformed packings (18) and preformed packing (19) from manifold (9). Discard preformed packings and packing retainers.

(5) Remove needle valve (20), two packing retainers (21), preformed packing (22), two packing retainers (23), preformed packing (24) and preformed packing (25) from manifold (9). Discard preformed packings and packing retainers.

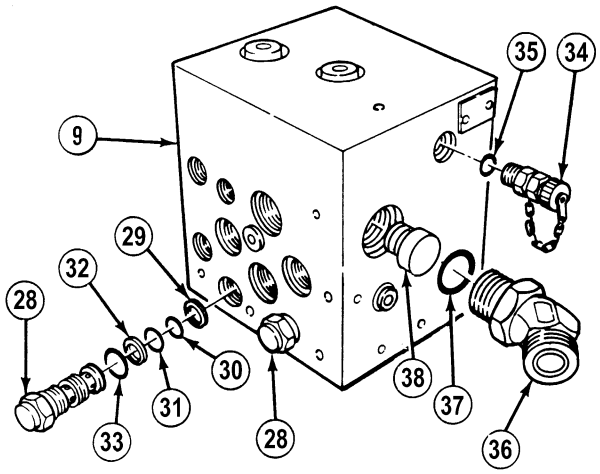
(6) Remove plug (26) and preformed packing (27) from manifold (9).



(7) Remove two shuttle valves (28), retainers (29), preformed packings (30) and (31), two packing retainers (32) and preformed packing (33) from manifold (9). Discard preformed packings and packing retainers.

(8) Remove coupling (34) and preformed packing (35) from manifold (9). Discard preformed packing.

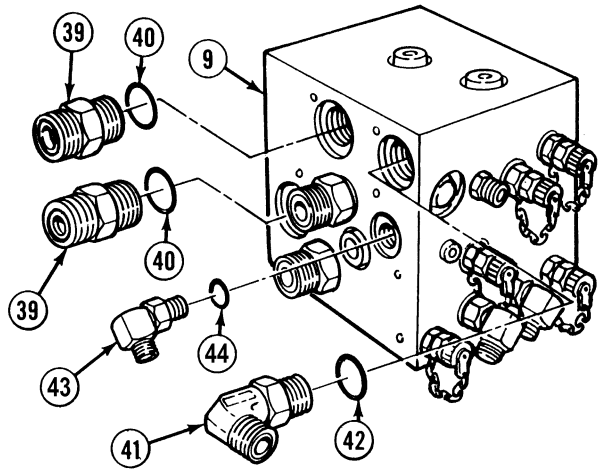
(9) Remove elbow (36) preformed packing (37) and orifice (38) from manifold (9). Discard preformed packing.



(10) Remove two adapters (39) and preformed packings (40) from manifold (9). Discard preformed packings.

(11) Remove elbow (41) and preformed packing (42) from manifold (9). Discard preformed packing.

(12) Remove elbow (43) and preformed packing (44) from manifold (9). Discard preformed packing.



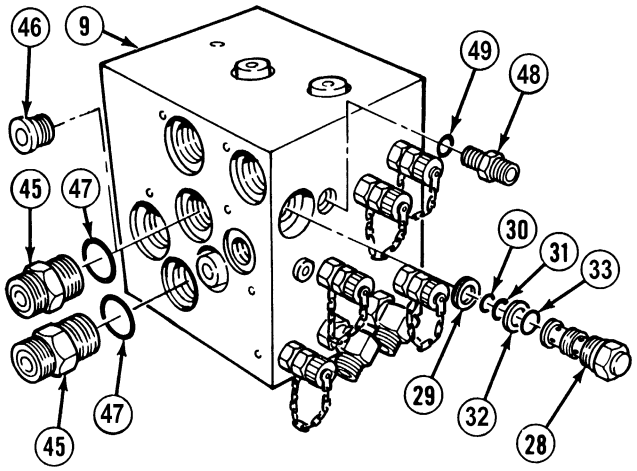
17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

NOTE

- If truck is not equipped with crane, perform Step (13).
- If truck is equipped with crane, perform Step (14).

(13) Remove adapter (45), plug (46) and two preformed packings (47) from manifold (9). Discard preformed packings.

(14) Remove two adapters (45) and preformed packings (47) from manifold (9). Discard preformed packings.



(15) Remove shuttle valve (28), packing retainer (29), two preformed packings (30) and (31), packing retainer (32) and preformed packing (33) from manifold (9). Discard preformed packings and packing retainers.

(16) Remove adapter (48) and preformed packing (49) from manifold (9). Discard preformed packing.

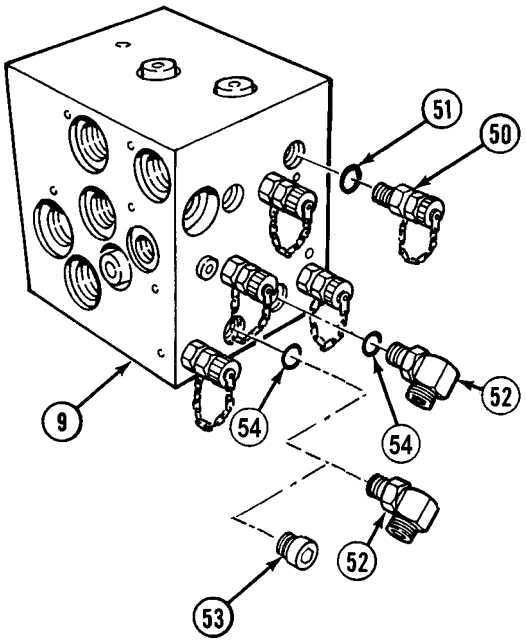
(17) Remove five couplings (50) and preformed packings (51) from manifold (9). Discard preformed packings.

NOTE

- If truck is not equipped with crane, perform Step (18).
- If truck is equipped with crane, perform Step (19).

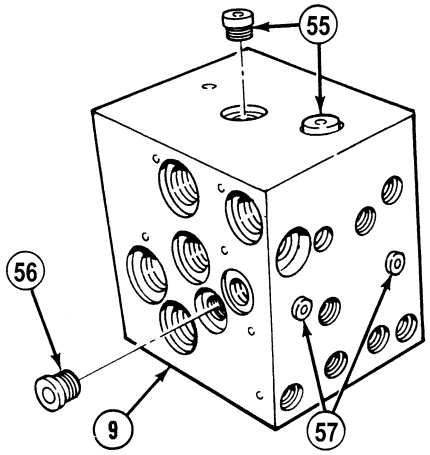
(18) Remove elbow (52), plug (53) and preformed packings (54) from manifold (9). Discard preformed packings.

(19) Remove two elbows (52) and preformed packings (54) from manifold (9). Discard preformed packings.



(20) Remove two plugs (55) and five machine thread plugs (56) from manifold (9).

(21) Remove two plugs (57) from manifold (9).



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury or death to personnel.

(1) Clean all metal parts with drycleaning solvent.

(2) Dry all metal parts with compressed air.

(3) Inspect manifold for cracks, holes, dents or stripped threads.

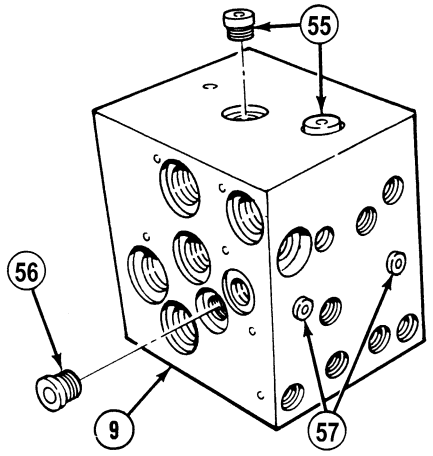
(4) Inspect manifold plugs and components for cracks or stripped threads.

17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

d. Assembly.

(1) Install two plugs (57) in manifold (9).

(2) Install five machine thread plugs (56) and two plugs (55) in manifold (9).



(3) Apply hydraulic oil to two preformed packings (54).

NOTE

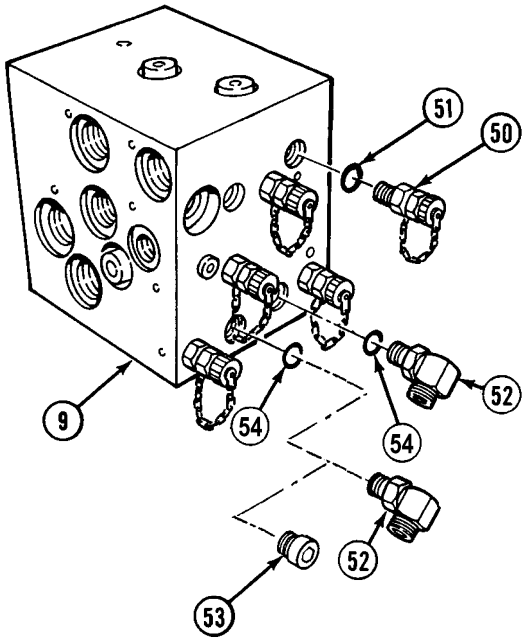
- If truck is equipped with crane, perform Step (4).
- If truck is not equipped with crane, perform Step (5).

(4) Install two preformed packings (54) and elbows (52) in manifold (9).

(5) Install two preformed packings (54), plug (53) and elbow (52) in manifold (9).

(6) Apply hydraulic oil to five preformed packings (51).

(7) Install five preformed packings (51) and couplings (50) in manifold (9).



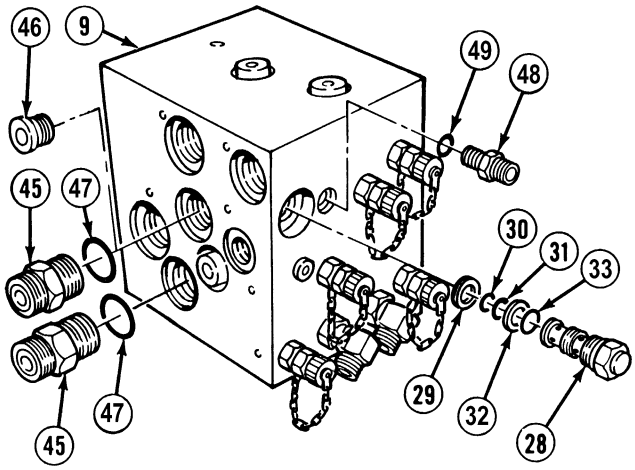
(8) Apply hydraulic oil to preformed packing (49).

(9) Install preformed packing (49) and adapter (48) in manifold (9).

(10) Apply hydraulic oil to three preformed packings (30), (31) and (33) and packing retainers (29) and (32).

(11) Install preformed packing (33), packing retainer (32), preformed packings (30) and (31), packing retainer (29) and shuttle valve (28) in manifold (9).

(12) Apply hydraulic oil to two preformed packings (47).



NOTE

- If truck is equipped with crane, perform Step (13).
- If truck is not equipped with crane, perform Step (14).

(13) Install two preformed packings (47) and adapters (45) in manifold (9).

(14) Install two preformed packings (47), plug (46) and adapter (45) in manifold (9).

(15) Apply hydraulic oil to preformed packing (44).

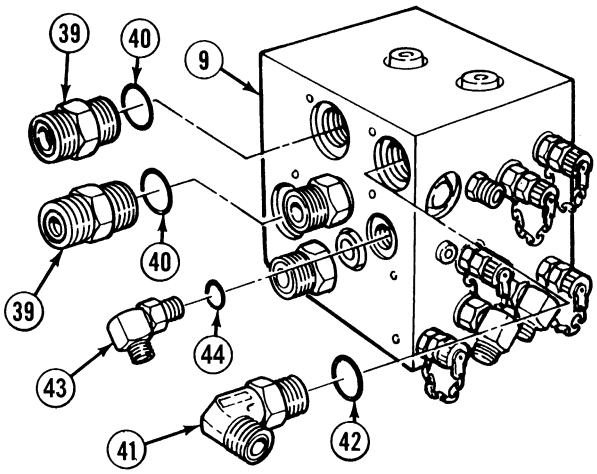
(16) Install preformed packing (44) and elbow (43) on manifold (9).

(17) Apply hydraulic oil to preformed packing (42).

(18) Install preformed packing (42) and elbow (41) in manifold (9).

(19) Apply hydraulic oil to two preformed packings (40).

(20) Install two preformed packings (40) and adapters (39) in manifold (9).



17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

(21) Apply hydraulic oil to preformed packing (37).

(22) Install orifice (38), preformed packing (37) and elbow (36) in manifold (9).

(23) Apply hydraulic oil to preformed packing (35).

(24) Install preformed packing (35) and coupling (34) in manifold (9).

(25) Apply hydraulic oil to preformed packings (30) and (31), two preformed packings (33) and packing retainers (29) and (32).

(26) Install two preformed packings (33), packing retainers (32), preformed packings (30) and (31), packing retainers (29) and shuttle valves (28) on manifold (9).

(27) Apply hydraulic oil to preformed packing (27).

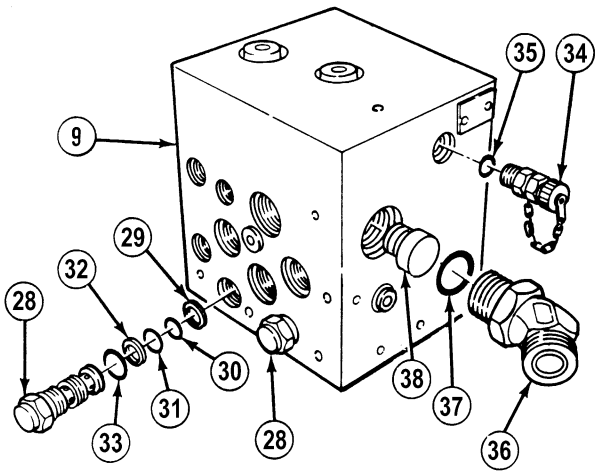
(28) Install preformed packing (27) and plug (26) in manifold (9).

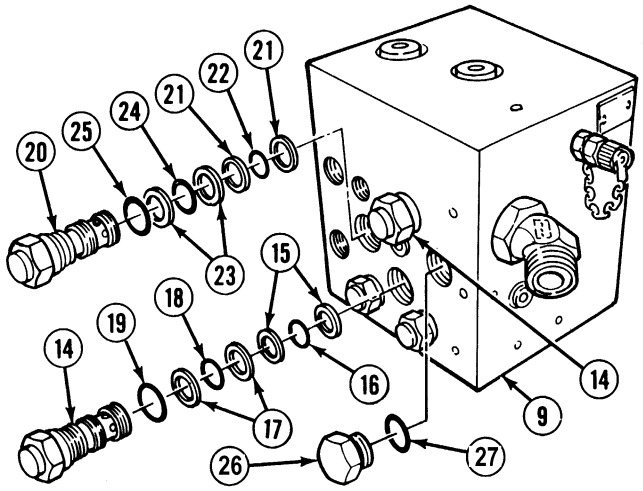
(29) Apply hydraulic oil to preformed packings (25), (24) and (22) and four packing retainers (23) and (21).

(30) Install preformed packings (24) and (25), two packing retainers (23), preformed packing (22), two packing retainers (21) and needle valve (20) in manifold (9).

(31) Apply hydraulic oil to preformed packings (19), (18) and (16) and four packing retainers (29) and (15).

(32) Install preformed packings (19) and (18), four packing retainers (17), two preformed packings (16), four packing retainers (15) and two needle valves (14) in manifold (9).





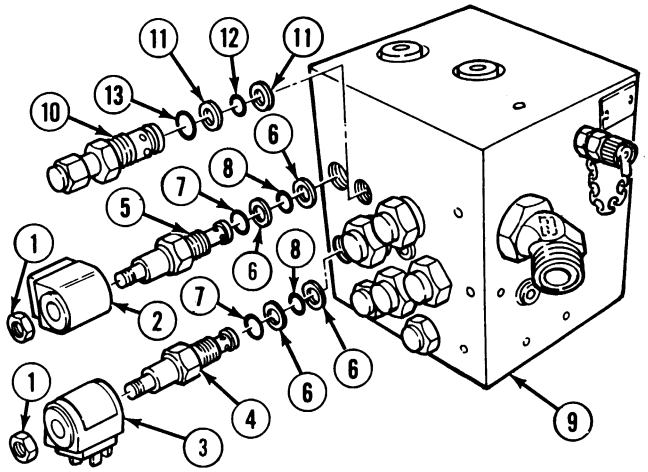
(33) Apply hydraulic oil to preformed packings (12) and (13) and two packing retainers (11).

(34) Install preformed packings (13) and (12), two packing retainers (11) and needle valve (10) in manifold (9).

(35) Apply hydraulic oil to four preformed packings (8) and (7) and four packing retainers (6).

(36) Install preformed packings (8) and (7), four packing retainers (6) and solenoid valves (4) and (5) in manifold (9).

(37) Install solenoids (2) and (3) on solenoid valves (4) and (5) with two nuts (1).



e. Installation.

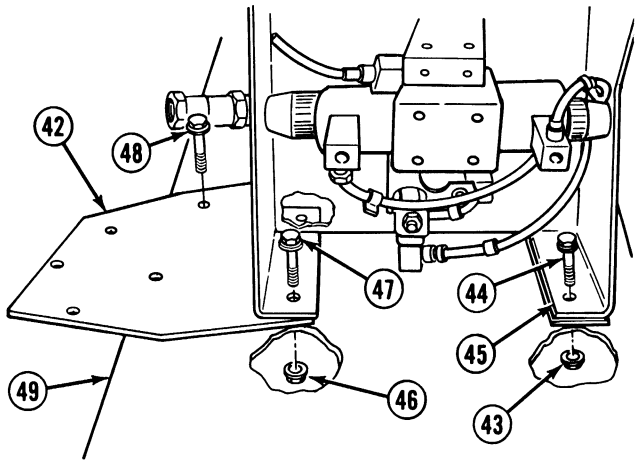
NOTE

- Install cable ties as required.
- Perform Steps (1) through (3) only if bracket was removed.

(1) With the aid of an assistant, install mounting bracket (42) on fender (49) with two screws (47), screws (48) and four locknuts (46).

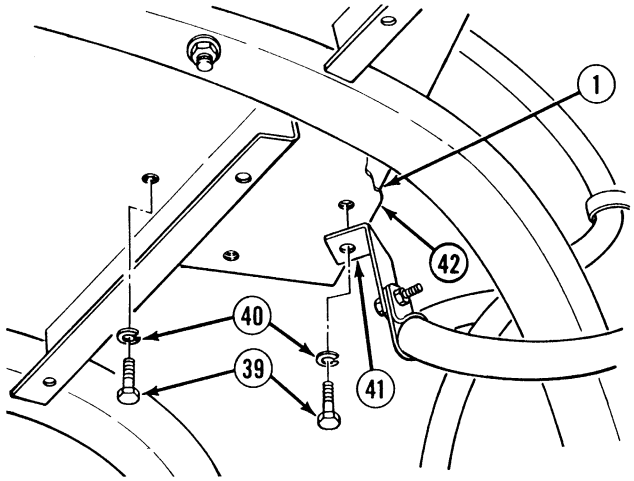
(2) Remove and discard two locknuts (43) from screws (44).

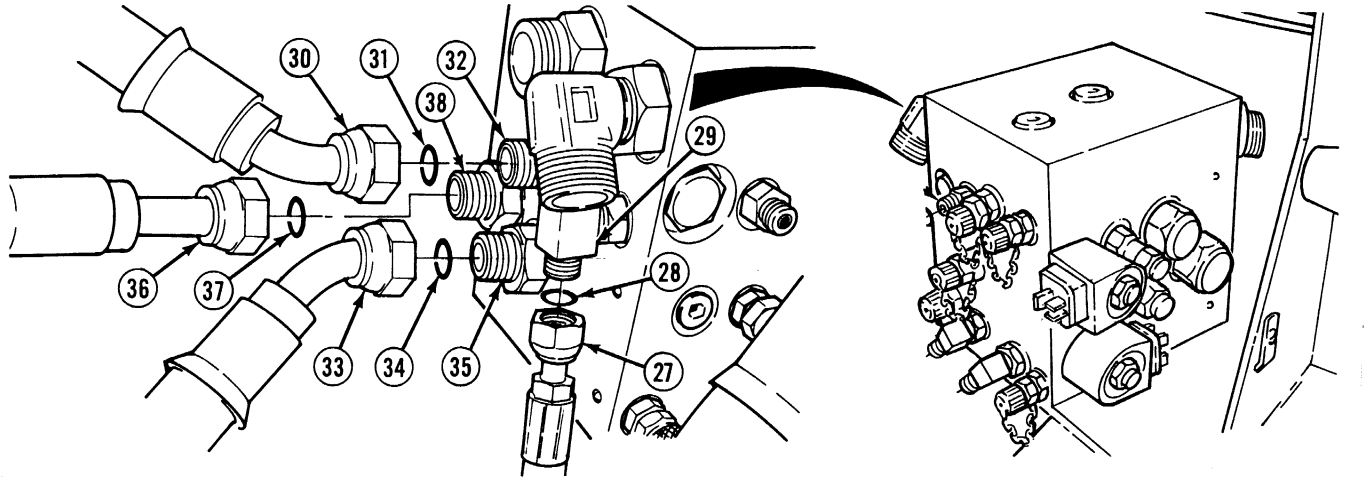
(3) Install two locknuts (43) and screws (44) on bracket (45).



17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

(4) Install multifunction manifold (1) and bracket (41) on mounting bracket (42) with four lockwashers (40) and screws (39).





(5) Apply hydraulic oil to preformed packing (37).

(6) Install preformed packing (37) and hose 2772 (36) on adapter (38).

(7) Apply hydraulic oil to preformed packing (34).

(8) Install preformed packing (34) and hose 2899 (33) on adapter (35).

NOTE

If truck is equipped with crane, perform Steps (9) and (10).

(9) Apply hydraulic oil to preformed packing (31).

(10) Install preformed packing (31) and hose 2902 (30) on adapter (32).

(11) Apply hydraulic oil to preformed packing (28).

(12) Install preformed packing (28) and hose 2291 (27) on elbow (29).

(13) Apply hydraulic oil to preformed packing (25).

(14) Install preformed packing (25) and hose 2809 (24) on elbow (26).

NOTE

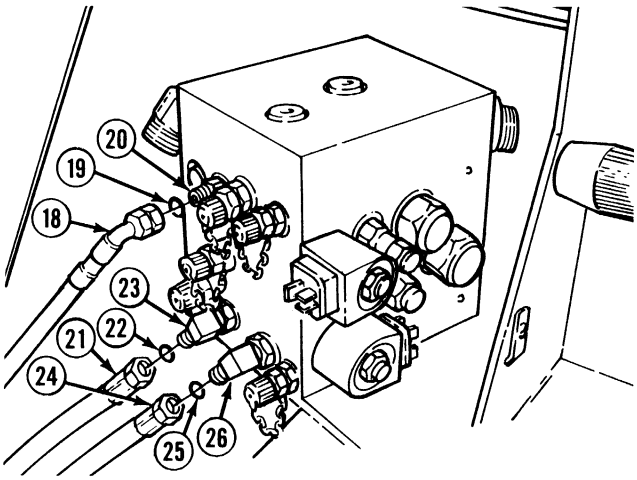
If truck is equipped with crane, perform Step (15) and (16).

(15) Apply hydraulic oil to preformed packing (22).

(16) Install preformed packing (22) and hose 2776 (21) on adapter (23).

(17) Apply hydraulic oil to preformed packing (19).

(18) Install preformed packing (19) and hose 2295 (18) on adapter (20).



(19) Apply hydraulic oil to preformed packing (16).

(20) Install preformed packing (16) and hose 2777 (15) on elbow (17).

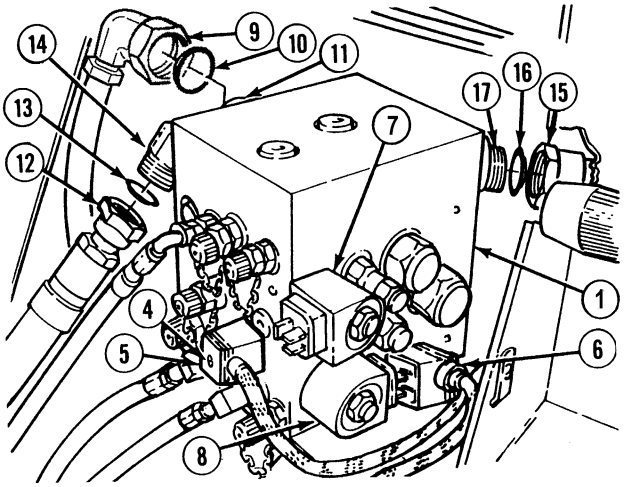
(21) Apply hydraulic oil to preformed packing (13).

(22) Install preformed packing (13) and hose 2904 (12) on elbow (14).

(23) Apply hydraulic oil to preformed packing (10).

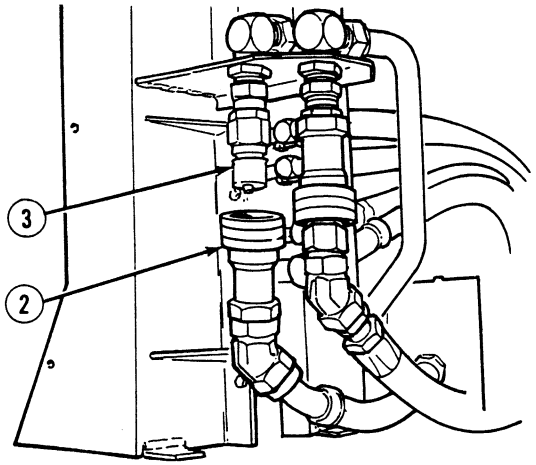
(24) Install preformed packing (10) and hose 2936 (9) on adapter (11).

(25) Connect connectors M10 (5) and M51 (6) on solenoids (7) and (8) on manifold (1) and tighten screws (4).



17-18. HYDRAULIC MULTIFUNCTION MANIFOLD/BRACKET REPAIR (CONT).

(26) Connect hose 2777 (2) at quick disconnect (3).



f. Follow-On Maintenance:

- Install transmission external filter head, (TM 9-2320-364-20).
- Install LHS control box cover, (TM 9-2320-364-10).
- Install left rear fender skirt, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Install battery box, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

17-19. DIVERTER BLOCK REPAIR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

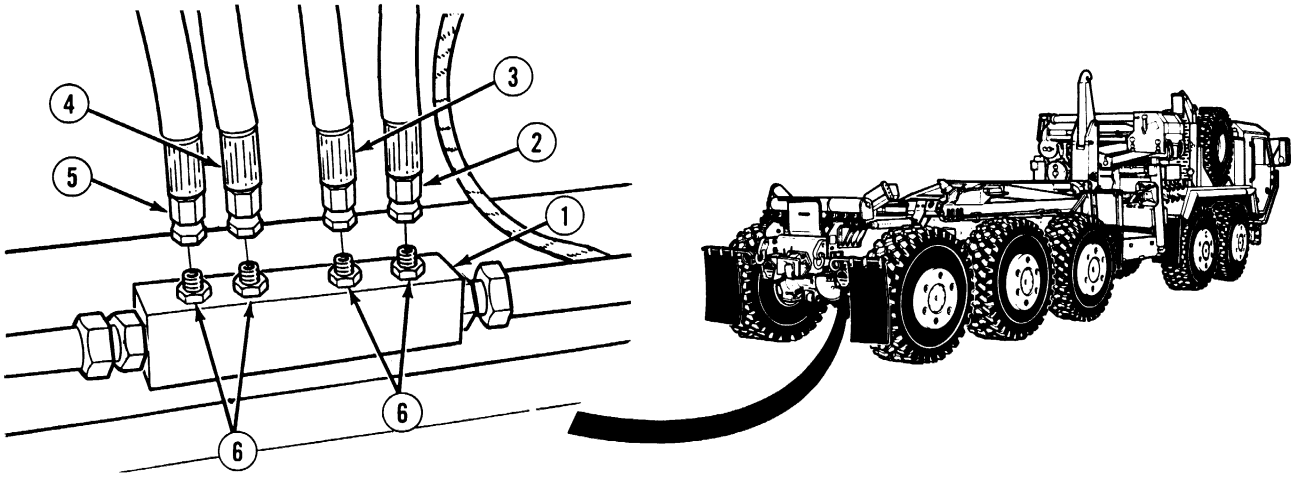
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's (Item 240, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Compressor Unit, Air (Item 35, Appendix F)
Gloves, Chemical Oil Protective (Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Airblow (Item 86, Appendix F)
Pan, Drain (Item 145, Appendix F)
Vice, Machinist (Item 248, Appendix F)
Wrench, Combination 1-3/4 in. (Item 263, Appendix F)
Wrench, Combination 1-13/16 in. (Item 264, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Solvent, Drycleaning (Item 68, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (3) (Item 266, Appendix E)
Packing, Preformed (2) (Item 332, Appendix E)
Packing, Preformed (2) (Item 333 Appendix E)
Packing, Preformed (4) (Item 355, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

- Remove cable ties as required.
- Tag and mark hoses prior to removal.
- Cap and plug hoses after removal.

(1) Position drain pan under diverter block (1).

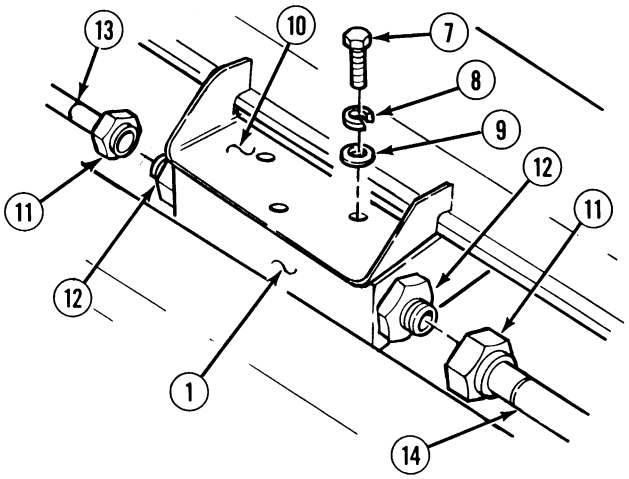
(2) Remove hose 2891 (2), hose 2882 (3), hose 2881 (4) and hose 2892 (5) from four adapters (6).

17-19. DIVERTER BLOCK REPAIR (CONT).

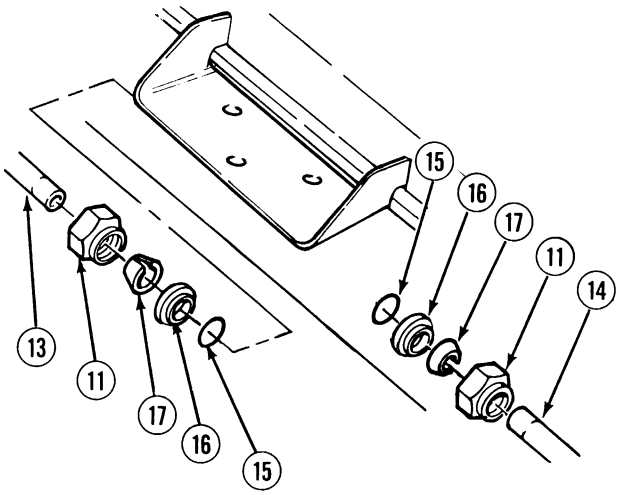
(3) Remove three screws (7), lockwashers (8) and washers (9) from bracket (10) and diverter block (1). Discard lockwashers.

(4) Remove two coupling nuts (11) from adapters (12).

(5) Remove diverter block (1) from tubes (13) and (14).



(6) Remove two preformed packings (15), bushings (16), sleeves (17) and coupling nuts (11) from tubes (13) and (14). Discard preformed packings.

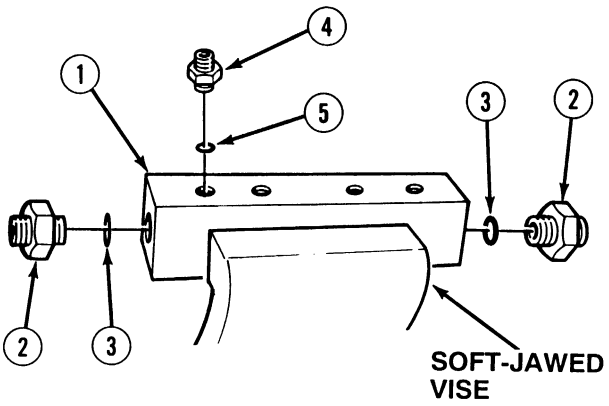


b. Disassembly.

(1) Position diverter block (1) in soft-jawed vise.

(2) Remove two adapters (2) and preformed packings (3) from diverter block (1). Discard preformed packings.

(3) Remove four adapters (4) and preformed packings (5) from diverter block (1). Discard preformed packings.



c. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury or death to personnel.

(1) Clean manifold and components using drycleaning solvent.

(2) Dry all parts with compressed air.

(3) Inspect for any foreign material in ports and remove as necessary.

(4) Inspect for cracks, dents, gouges or stripped threads.

(5) Replace all damaged parts.

d. Assembly.

(1) Position diverter block (1) in soft-jawed vise.

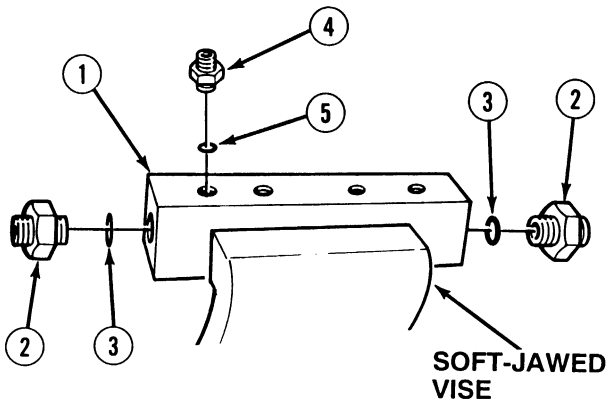
(2) Apply hydraulic oil to four preformed packings (5).

(3) Install four preformed packings (5) and adapters (4) in diverter block (1).

(4) Apply hydraulic oil to two preformed packings (3).

(5) Install two preformed packings (3) and adapters (2) in diverter block (1).

(6) Remove diverter block (1) from vise.



17-19. DIVERTER BLOCK REPAIR (CONT).

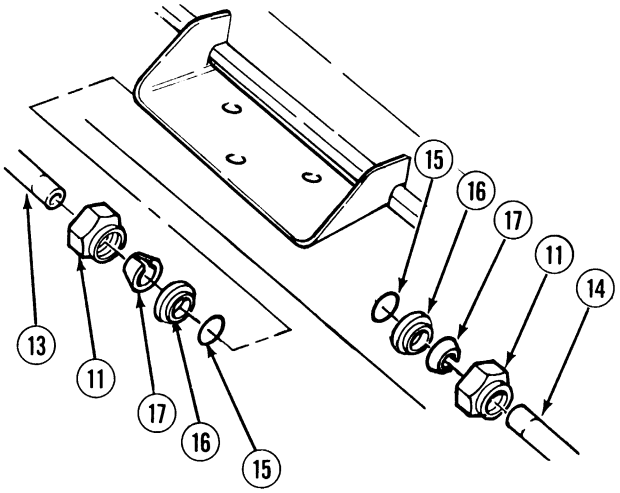
e. Installation.

NOTE

Install cable ties as required.

(1) Apply hydraulic oil to two preformed packings (15).

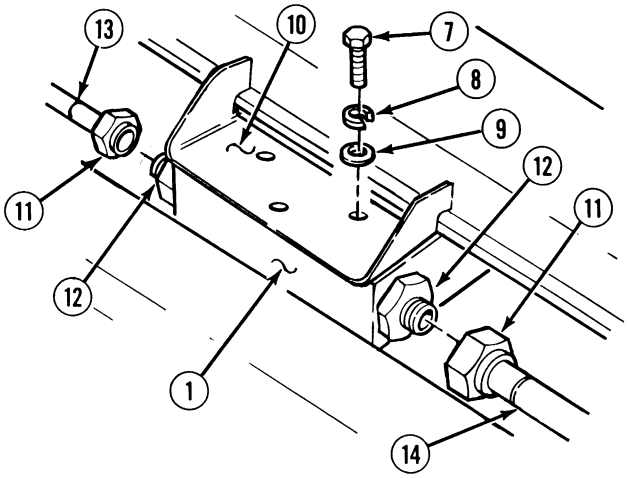
(2) Position two coupling nuts (11), sleeves (17), bushings (16) and preformed packings (15) on tubes (13) and (14).



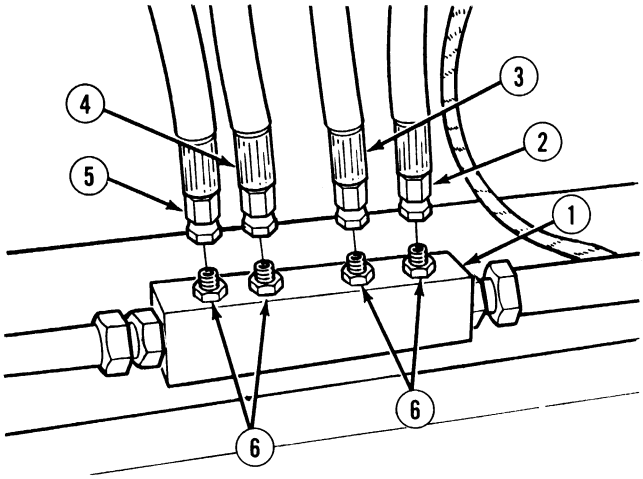
(3) Position diverter block (1) on tubes (13) and (14).

(4) Install two coupling nuts (11) on adapters (12).

(5) Install diverter block (1) on bracket (10) using three washers (9), lockwashers (8) and screws (7).



(6) Install hose 2892 (5), hose 2881 (4), hose 2882 (3) and hose 2891 (2) on four adapters (6).



f. Follow-On Maintenance:

- Fill hydraulic reservoir, (TM 9-2320-364-20).
- Start engine and run for 3 minutes, (TM 9-2320-364-10).
- Shut OFF engine, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

CHAPTER 18

SPECIAL PURPOSE KITS MAINTENANCE

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18-1. DIRECT SUPPORT SPECIAL PURPOSE KITS MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for installing special purpose kits as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

18-2. ENGINE ARCTIC KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in.
(Item 49, Appendix F)
Rivet Gun (Item 196, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench Set, Socket 3/8 in. Drive
(Item 273, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)

Materials/Parts
Adhesive (Item 2, Appendix B)
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Preventive (Item 14, Appendix B)
Sealant, Electrical (Item 50, Appendix B)
Sealing Compound (Item 53, Appendix B)

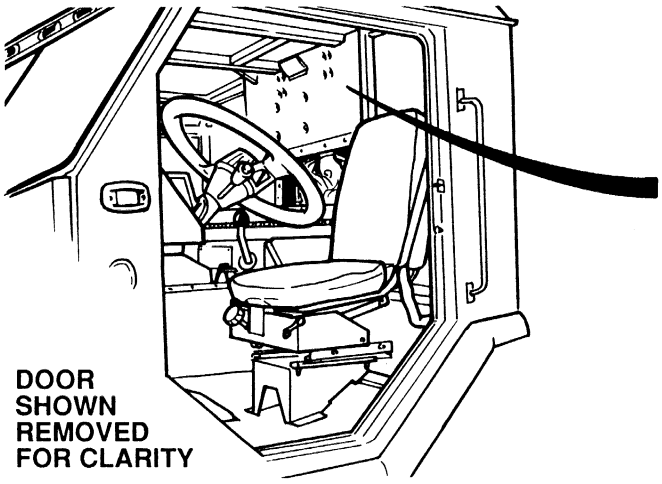
Materials/Parts - Continued
Lockwasher (22) (Item 282, Appendix E)
Lockwasher (2) (Item 286, Appendix E)
Screw, Self-Tapping (Item 559, Appendix E)

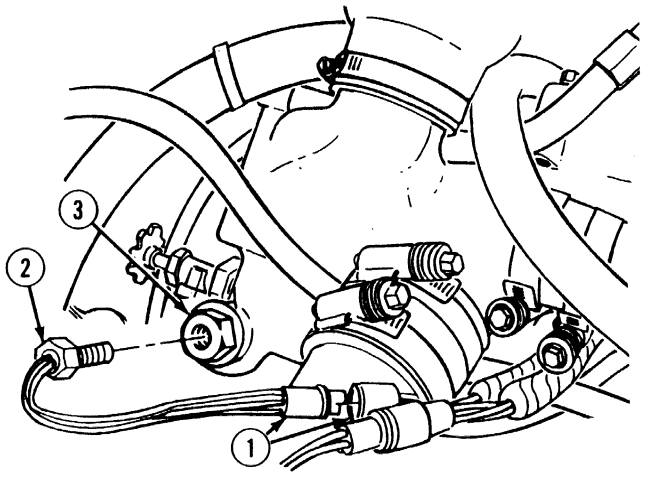
References
TM 9-6140-200-14

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Coolant drained, (TM 9-2320-364-20)
Fuel pressure transducer removed,
(TM 9-2320-364-20)
Secondary fuel filter head removed,
(TM 9-2320-364-20)

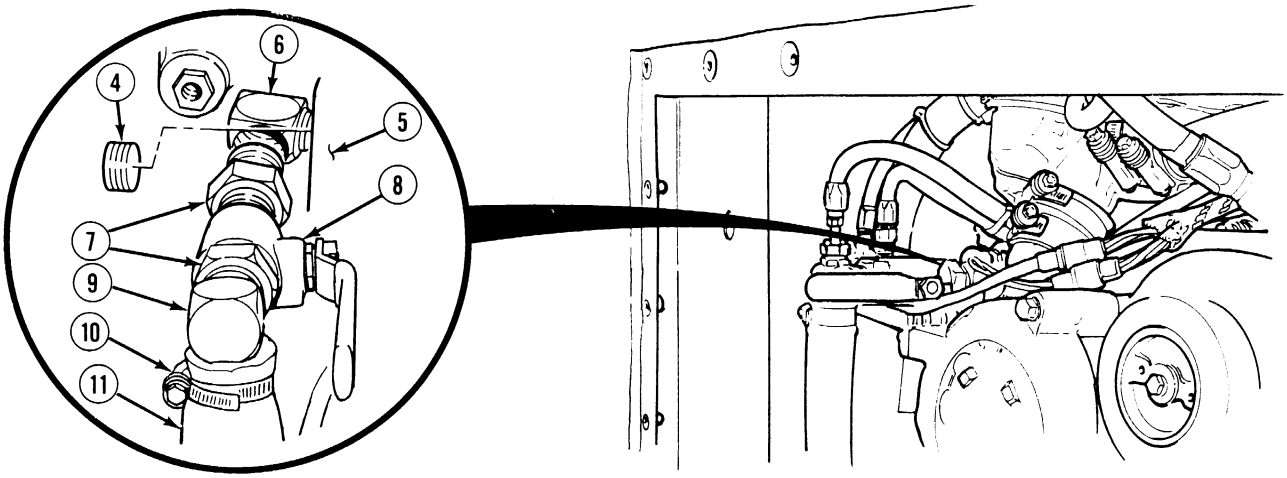
a. Installation.





(1) Disconnect MC71 connector (1).

(2) Remove water temperature sensor (2) from reducer (3).



(3) Remove plug (4) from water pump (5).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound to threads of elbow (6).

(5) Install elbow (6) to engine water pump (5).

(6) Apply sealing compound to threads of nipple (7).

(7) Install nipple (7) to elbow (6).

(8) Apply sealing compound to threads of nipple (7).

(9) Install valve (8) to nipple (7).

(10) Apply sealing compound to threads of elbow (9).

(11) Install elbow (9) to valve (8).

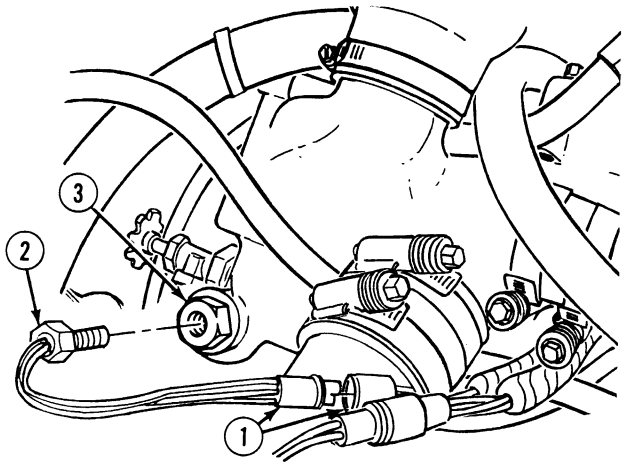
(12) Position hose clamp (10) on hose (11).

(13) Install hose (11) to elbow (9) with hose clamp (10).

18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



(14) Apply sealing compound to threads of water temperature sensor (2).

(15) Install water temperature sensor (2) to reducer (3).

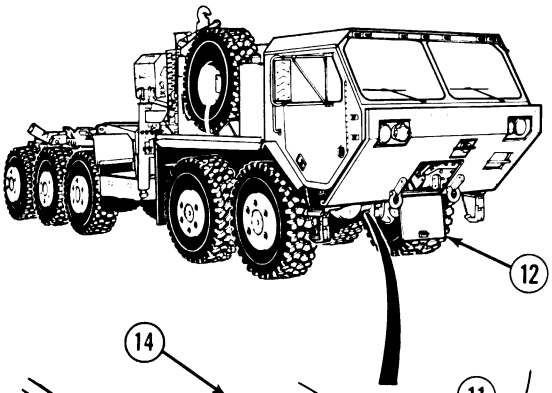
(16) Connect MC71 connector (1).

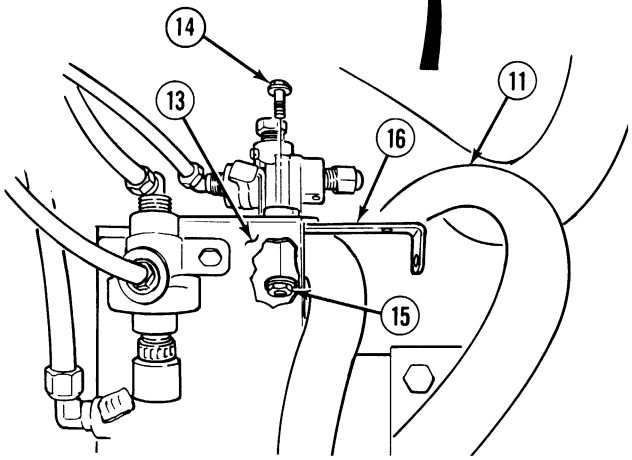
(17) Open front access cover (12).

(18) Route hose (11) down along left side of bracket (13) and towards front access cover (12).

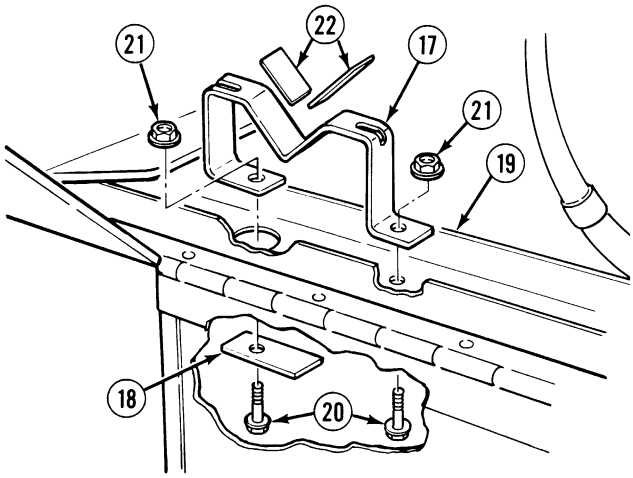
(19) Remove screw (14) and locknut (15) from chassis air front gladhand bracket (13). Discard locknut.

(20) Install bracket (16) on bracket (13) with screw (14) and locknut (15).





(21) Install lower bracket (17) and retaining plate (18) to frame (19) with two screws (20) and locknuts (21).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(22) Apply adhesive to one side of two rubber pads (22).

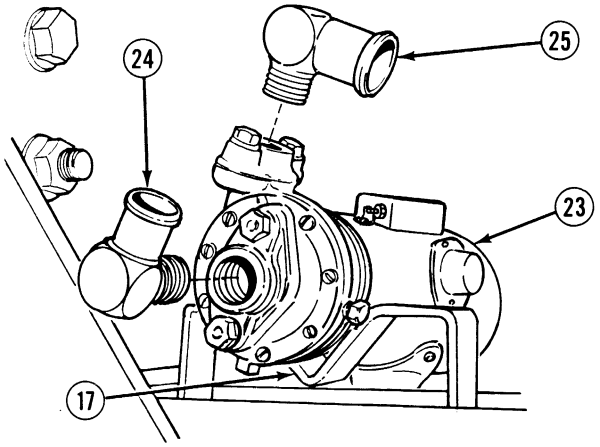
(23) Install two rubber pads (22) on lower bracket (17).

(24) Position water pump (23) in a soft jawed vise.

(25) Coat threads of two fittings (24) and (25) with sealing compound.

(26) Install two fittings (24) and (25) in water pump (23).

(27) Position water pump (23) on bracket (17).

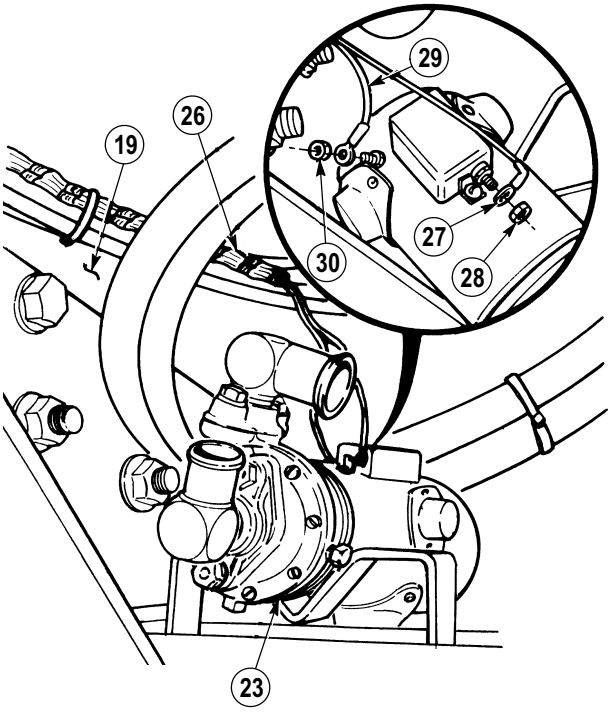


18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).

(28) Position arctic pump wire harness (26) on frame (19).

(29) Install wire 1644 (27) and nut (28) on water pump (23).

(30) Install wire 1435 (29) and nut (30) on water pump (23).



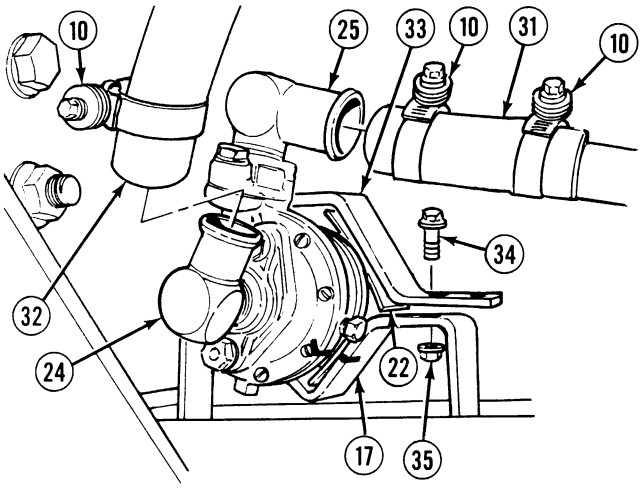
(31) Position two hose clamps (10) on hose (31).

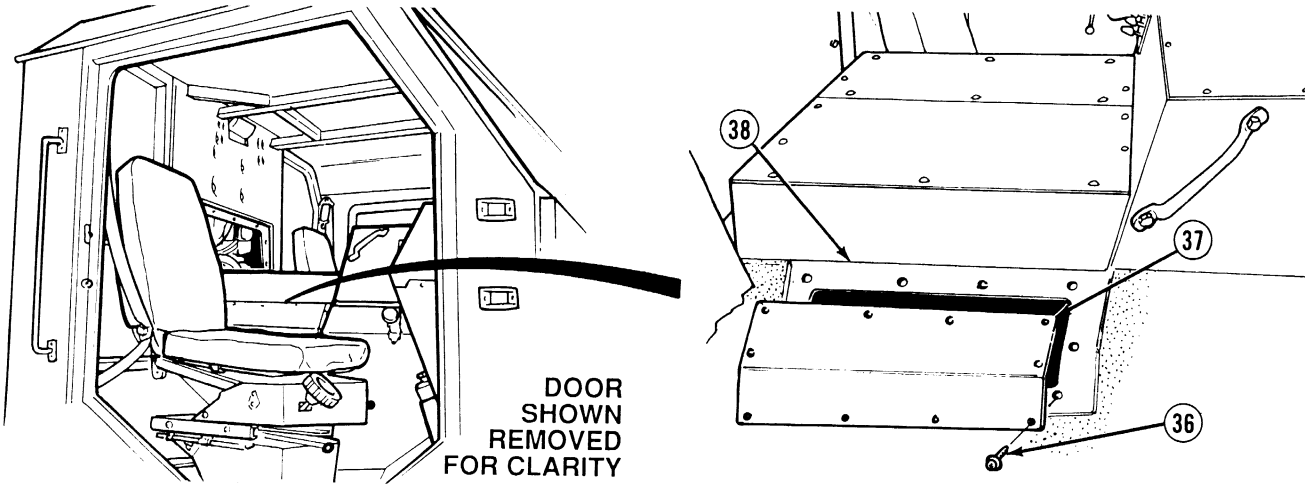
(32) Install hose (31) to fitting (25) with clamp (10).

(33) Position clamp (10) on hose (32).

(34) Install hose (32) on fitting (24) with hose clamp (10).

(35) Install two rubber pads (22) and bracket (33) to lower bracket (17) with two screws (34) and locknuts (35).



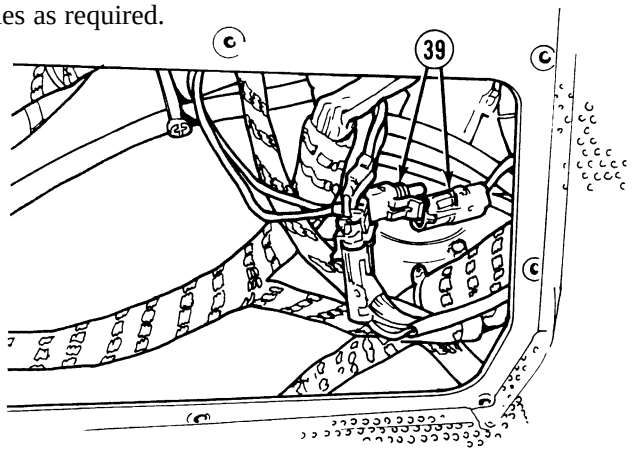


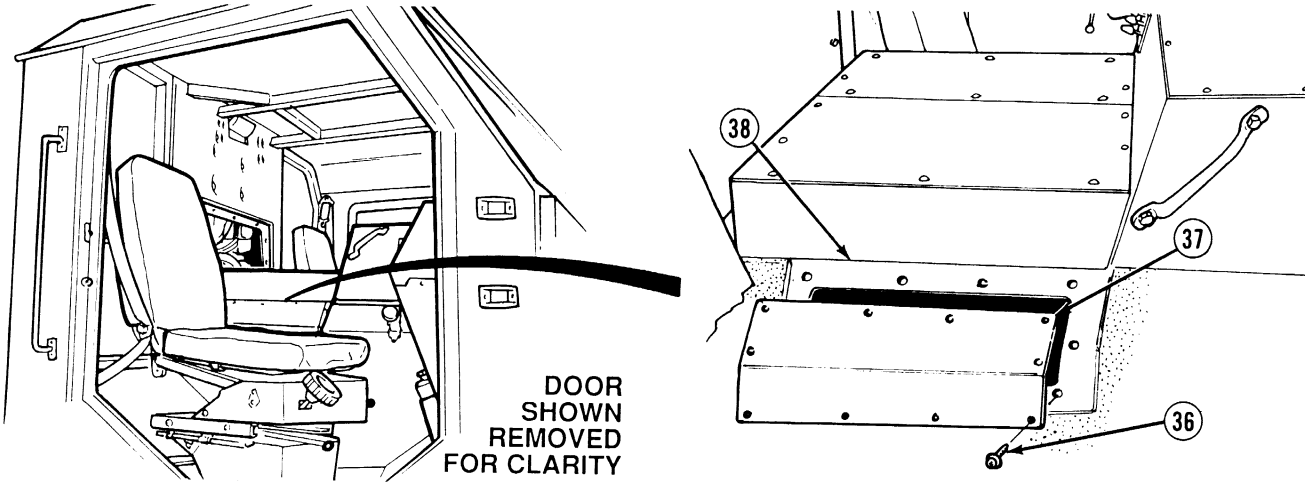
(36) Remove 10 screws (36) and Electronic Control Box (ECB) right side panel (37) from cab (38).

NOTE

Install cable ties as required.

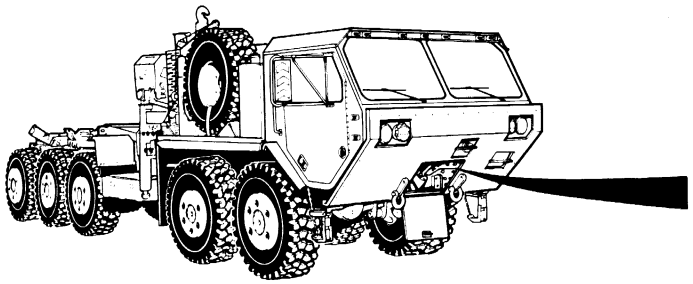
(37) Connect MC 120 connector (39).

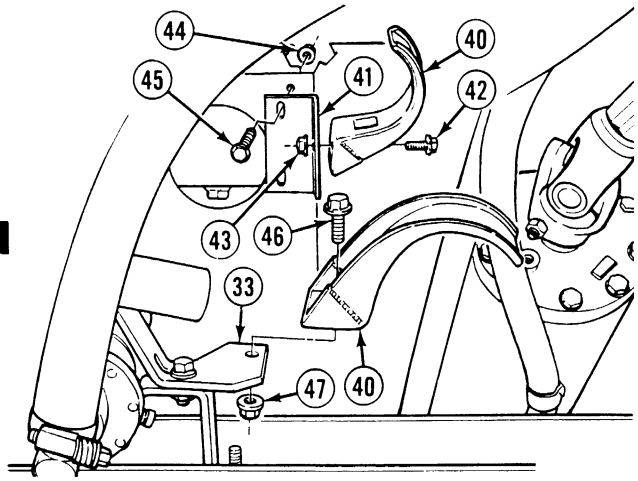




(38) Install ECB right side panel (37) to cab (38) with 10 screws (36).

18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).





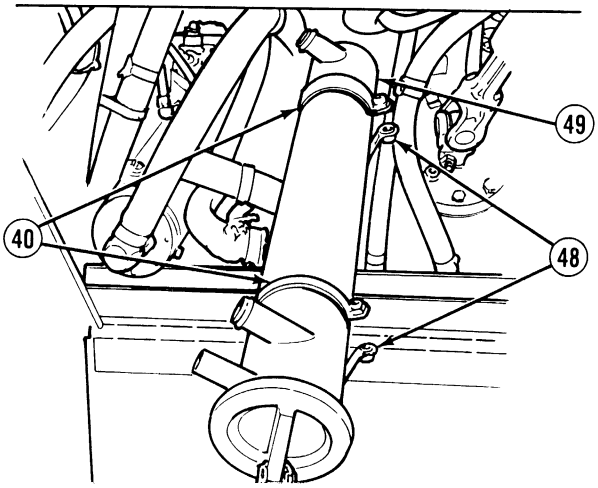
(39) Install bracket (40) on bracket (41) with screw (42) and locknut (43).

(40) Remove two locknuts (44) and screws (45) from bracket (41). Discard locknuts.

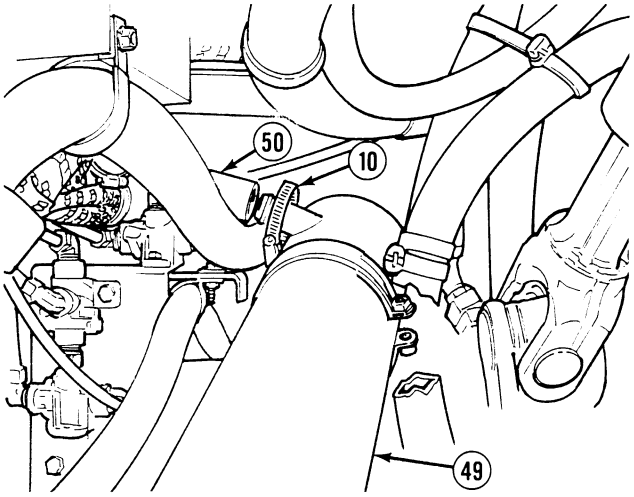
(41) Install bracket (40) on bracket (33) with screw (46) and locknut (47).

(42) Position two clamps (48) in brackets (40).

(43) Position arctic water jacket (49) in two clamps (48).



(44) Position clamp (10) and hose (50) on arctic water jacket (49).

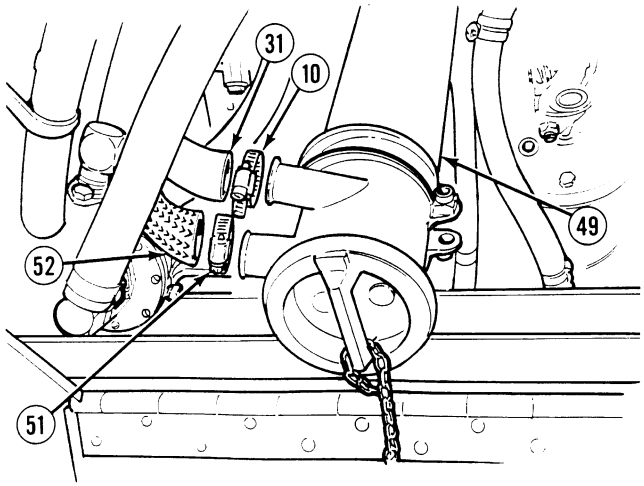


(45) Position clamp (10) and hose (31) on arctic water jacket (49).

WARNING

Sharp edges of exhaust pipe could cause injury to personnel.

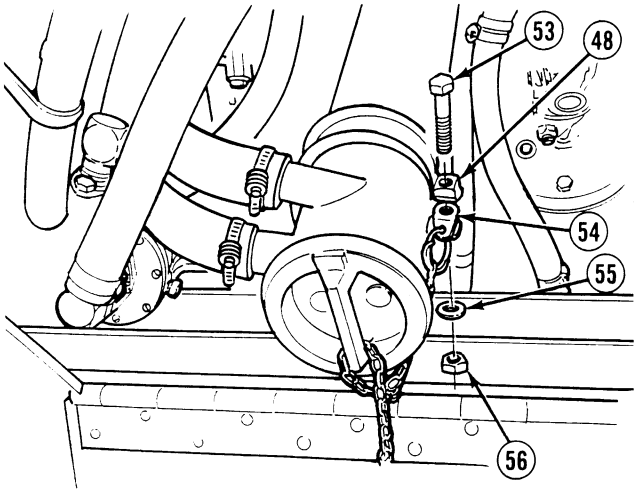
(46) Position clamp (51) and exhaust pipe (52) on arctic water jacket (49).



(47) Remove screw (53) from clamp (48).

(48) Install safety chain (54) on clamp (48)

(49) Install screw (53) in clamp (48) with washer (66) and locknut (56).

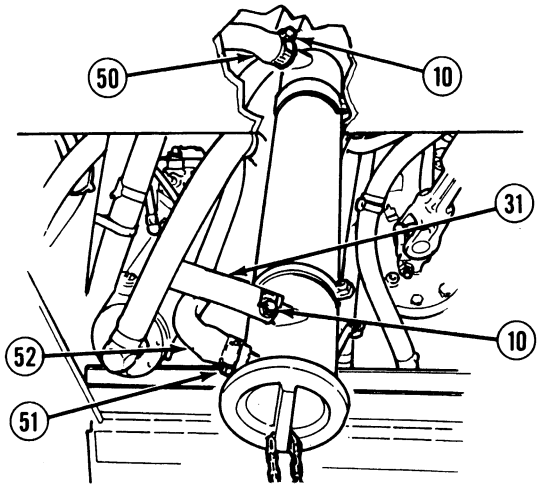


18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).

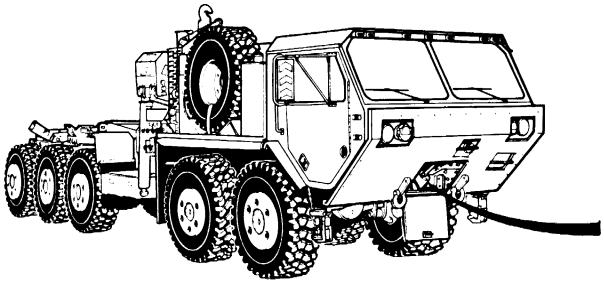
(50) Tighten clamp (10) on hose (31) to 40 lb-in (5 N·m).

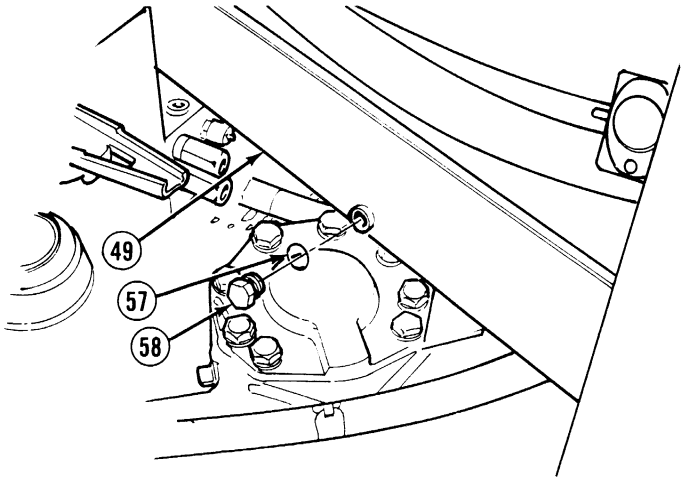
(51) Tighten clamp (51) on exhaust tube (52) to 40 lb-in (5 N·m).

(52) Tighten clamp (10) on hose (50) to 40 lb-in (5 N·m).



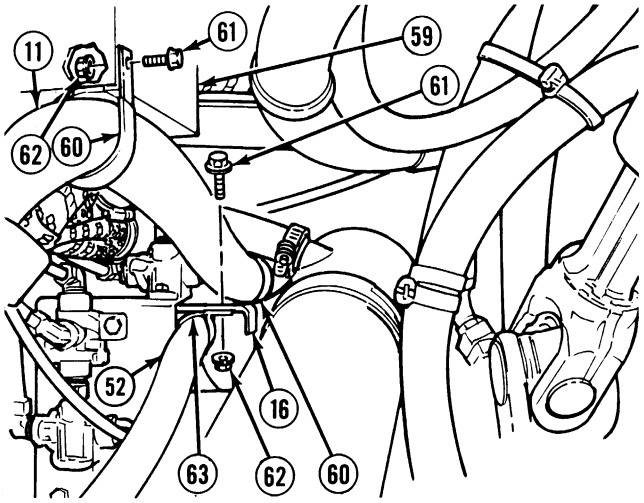
(53) Install gasket (57) and plug (58) in arctic water jacket (49).





(54) Install hose (11) to CTIS valve cover (59) with cushion clip (60), screw (61) and locknut (62).

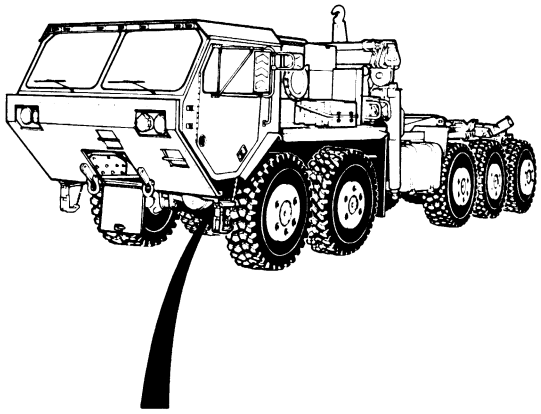
(55) Install hose (11) and exhaust tube (52) to bracket (16) with cushion clips (60) and (63), screw (61) and locknut (62).

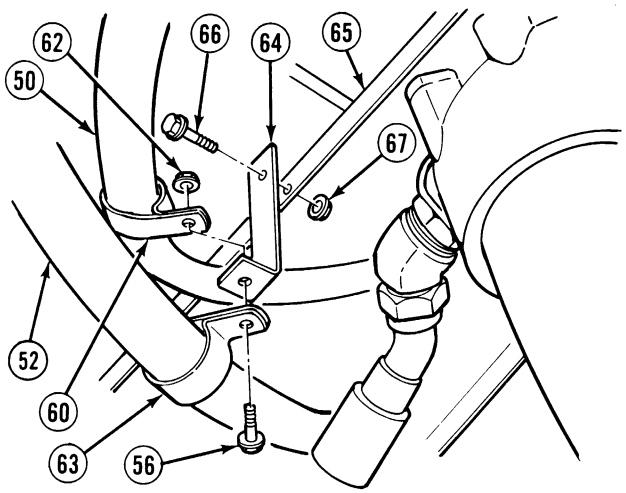


(56) Install bracket (64) to front engine support (65) with screw (66) and locknut (67).

(57) Route hose (50) and exhaust tube (52) to bracket (64).

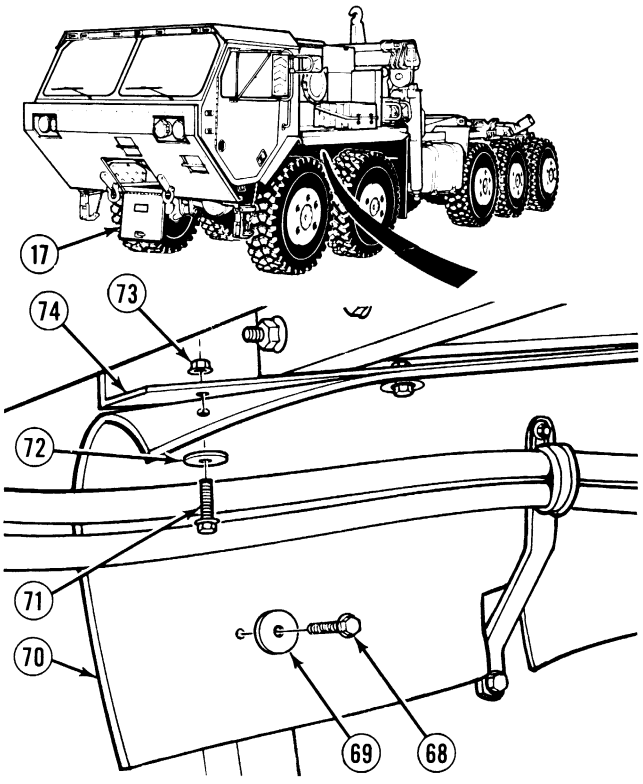
(58) Install hose (50) and exhaust tube (52) to bracket (64) with cushion clip (60), cushion clip (63), screw (61) and locknut (62).



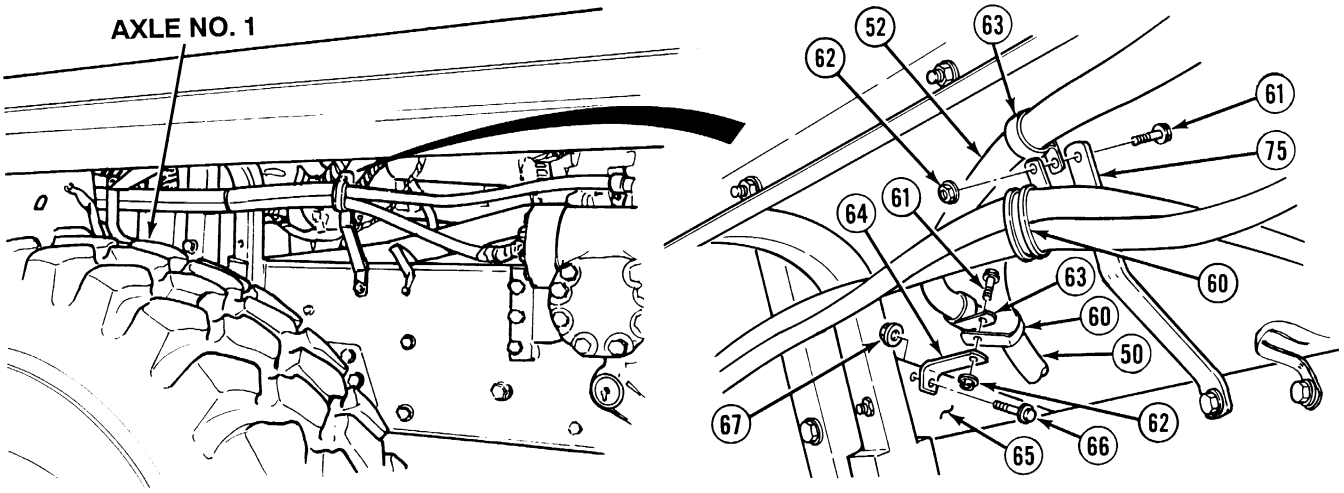


(59) Remove self-tapping screw (68) and washer (69) from left fender front skirt (70). Discard self-tapping screw.

(60) Remove six screws (71), washers (72) locknuts (73) and left fender front skirt (70) from left fender (74). Discard locknuts.



18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).



(61) Install bracket (64) to front engine support (65) with screw (66) and locknut (67).

(62) Route hose (50) and exhaust tube (52) to bracket (64).

(63) Install hose (50) and exhaust tube (52) on bracket (64) with cushion clip (60) cushion clip (63), screw (61) and locknut (62).

(64) Remove screw (61) and locknut (62) from bracket (75) and cushion clip (60). Discard locknut.

(65) Install cushion clip (60), cushion clip (63) and exhaust tube (52) with screw (61) and locknut (62).

(66) Push back cloth covering (76) on exhaust tube (52) approximately 12 in. (30.48 cm).

WARNING

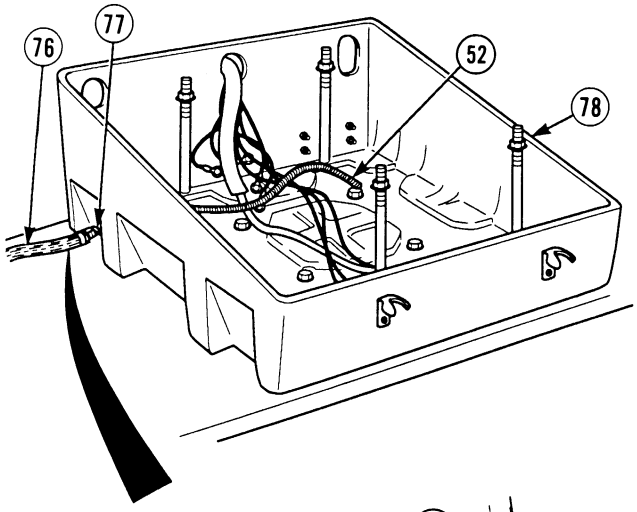
Sharp edges of exhaust tube could cause injury to personnel.

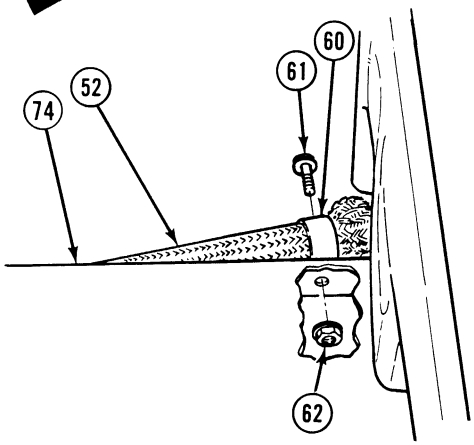
NOTE

- Exhaust tube should not be allowed to be pulled back through battery box.
- Lay exhaust tube along bottom of battery box.

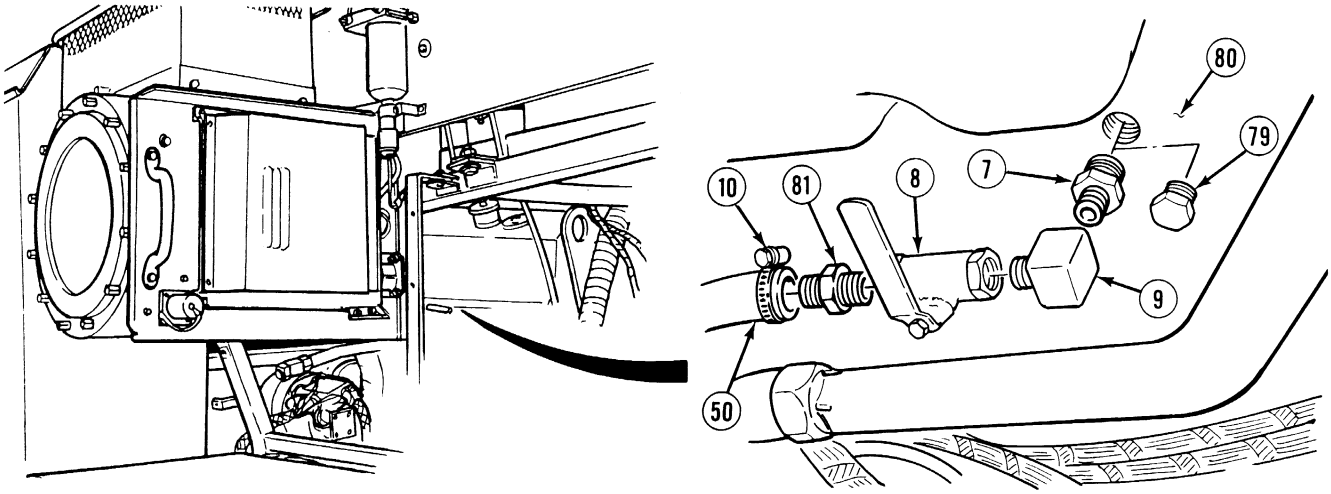
(67) Position 12 in. (30 cm) section of exposed exhaust tube (52) through hole (77) and along bottom of battery box (78).

(68) Install exhaust tube (52) to fender (74) with cushion clip (60), screw (61) and locknut (62).





18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).



(69) Remove plug (79) from engine block (80).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(70) Apply sealing compound to threads of reducer (7).

(71) Install reducer (7) on engine block (80).

(72) Apply sealing compound to threads of elbow (9).

(73) Install elbow (9) to reducer (7).

(74) Install valve (8) to elbow (9).

(75) Apply sealing compound to threads of adapter (81).

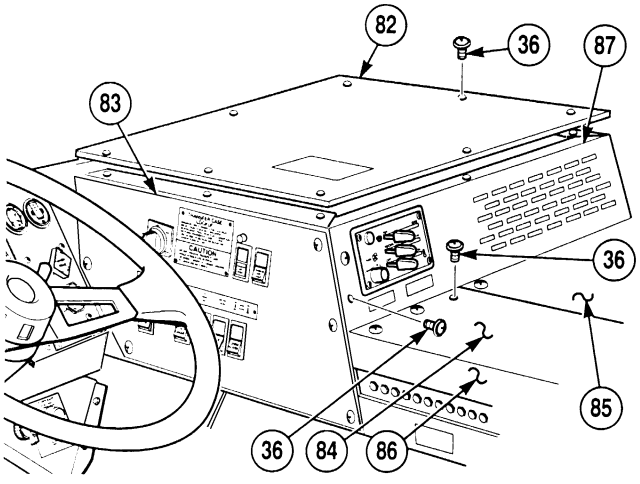
(76) Install adapter (81) to valve (8).

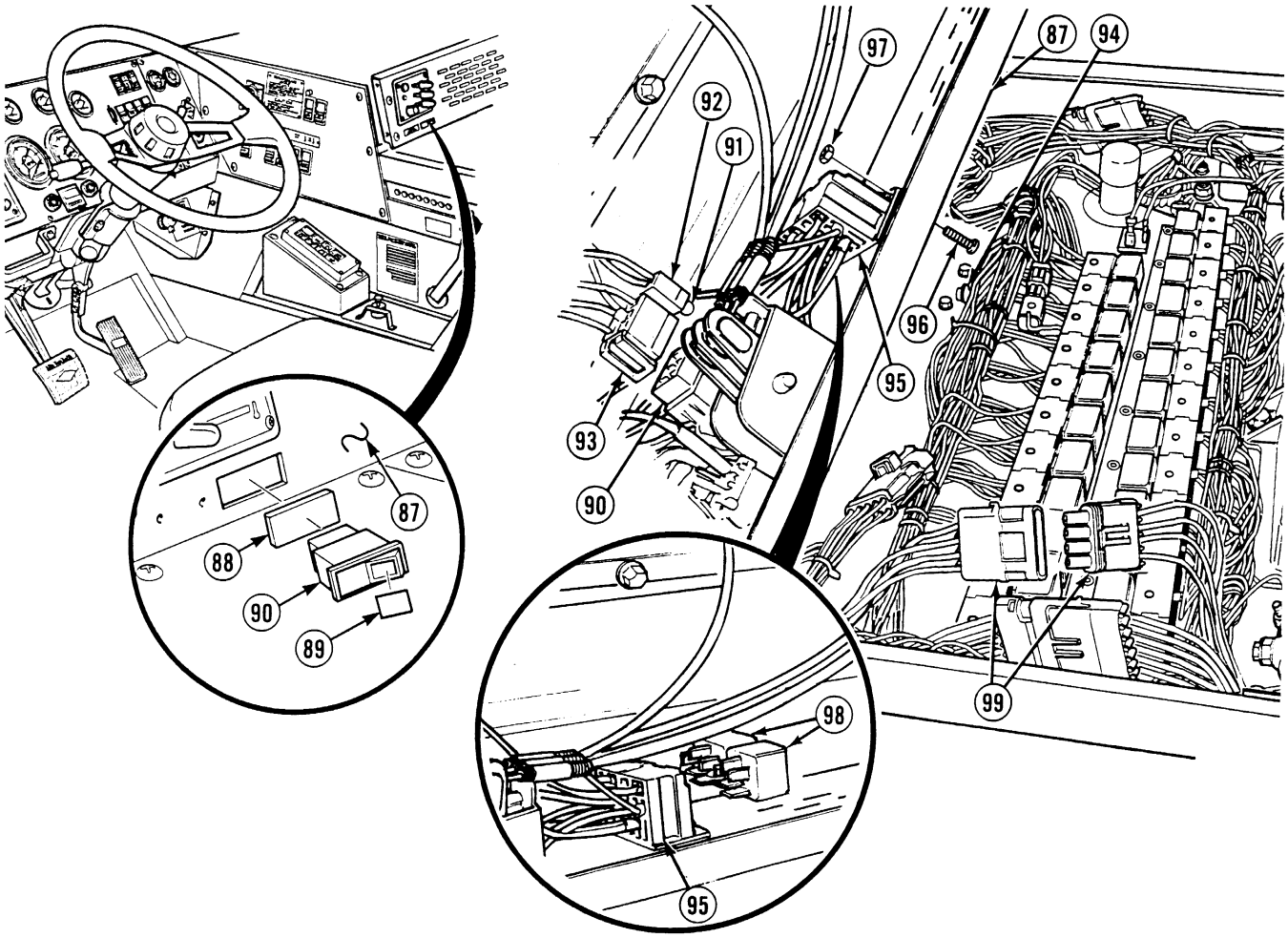
(77) Install clamp (10) and hose (50) on adapter (81). Tighten clamp to 40 lb-in (4.5 N·m).

(78) Remove eight screws (36) and heater control access panel (82) from heater compartment (83). Discard screws.

(79) Remove 15 screws (36) and ECB access panels (84) and (85) from ECB (86).

(80) Remove four screws (36) and tilt heater control panel (87).





(81) Remove cover (88) from heater control panel (87). Discard cover.

(82) Apply applique (89) on switch (90).

(83) Install switch (90) on heater control panel (87).

(84) Install lamp (91) on connector (92).

(85) Install connector (92) on switch (90).

(86) Install connector (93) on switch (90).

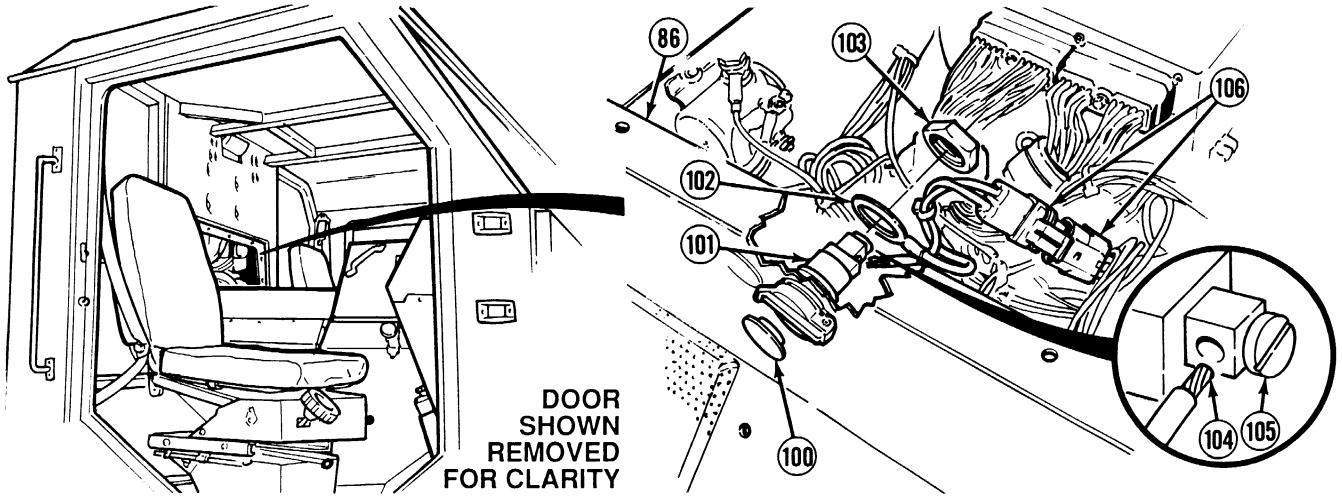
(87) Remove two plastic plugs (94) from heater control panel (87).

(88) Install arctic pump relay sockets (95), two screws (96) and locknuts (97) on heater control panel (87).

(89) Install two arctic pump relays (98) in relay sockets (95).

(90) Connect MC 119 connector (99).

18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).



(91) Remove and discard plug (100) from ECB (86).

(92) Install 24V receptacle (101) and wire 1435 (102) to ECB (86) with nut (103).

NOTE

Install cable ties as required.

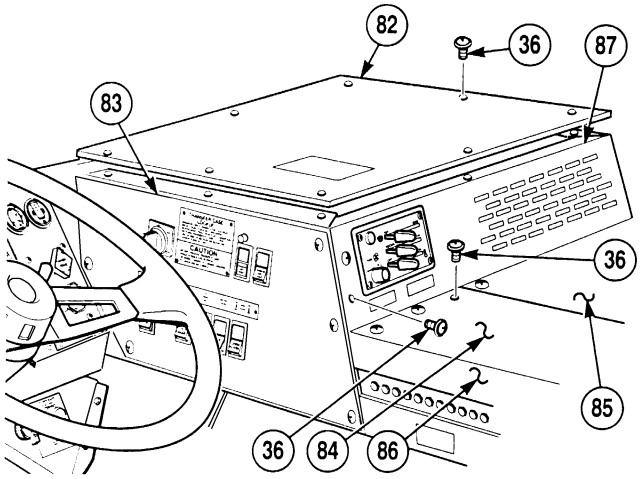
(93) Install wire 1340 (104) on 24V receptacle (101) with screw (105).

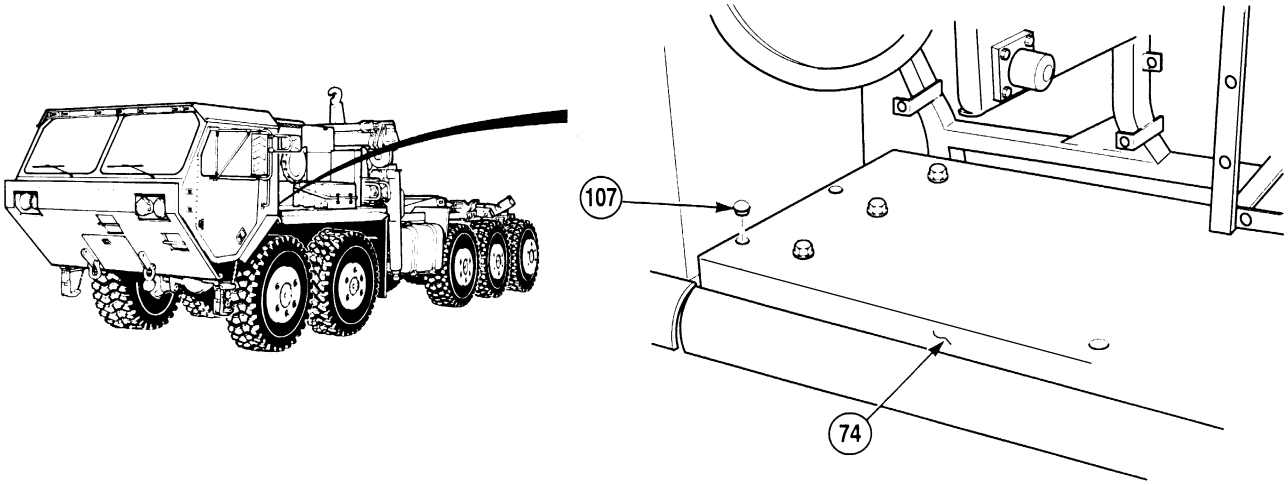
(94) Connect MC 101 connector (106).

(95) Install heater control panel (87) to heater compartment (83) with four screws (36).

(96) Install ECB covers (84) and (85) with 15 screws (36).

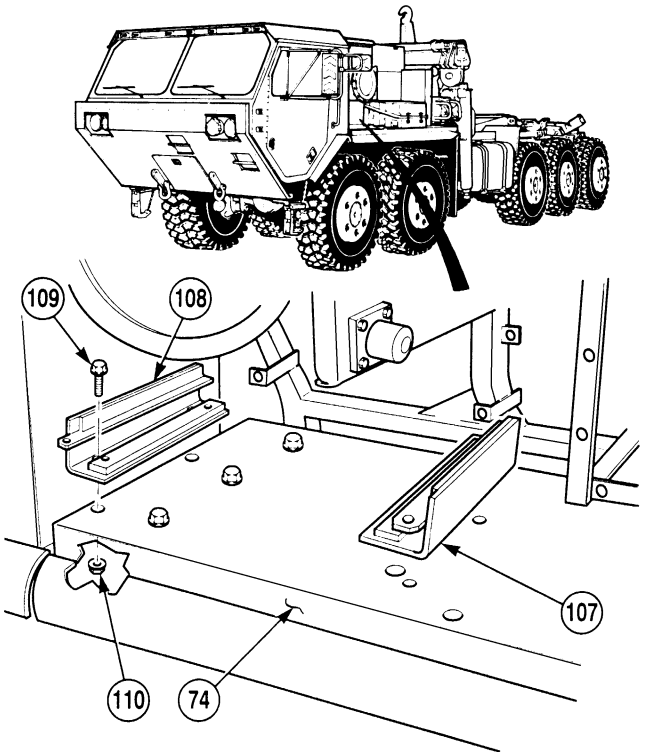
(97) Install heater control access panel (83) with eight screws (36).





(98) Remove four plugs (107) from fender (74).

(99) Install left and right hand guides (108) on left fender (74) with five screws (109) and locknuts (110).



18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).

(100) Remove two locknuts (111) and screws (112) from battery box tray (113). Discard locknuts.

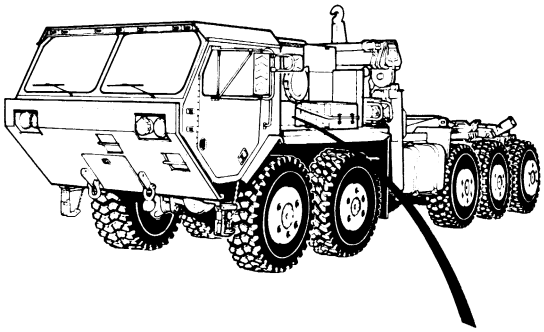
WARNING

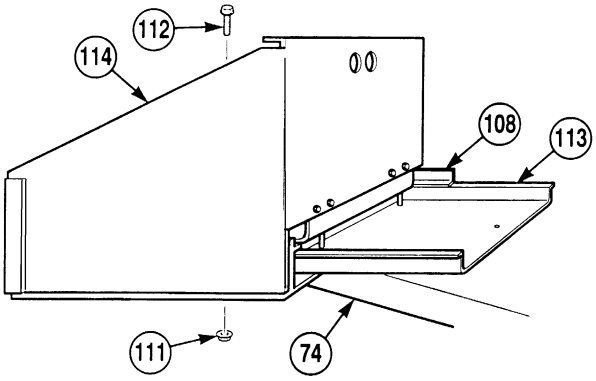
Battery box weighs 75 lbs (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(101) With the aid of an assistant, position battery box (114) on left fender (74).

(102) With the aid of an assistant, install battery box tray (113) on left and right hand guides (108).

(103) Install two screws (112) and locknuts (111) on battery box tray (113).



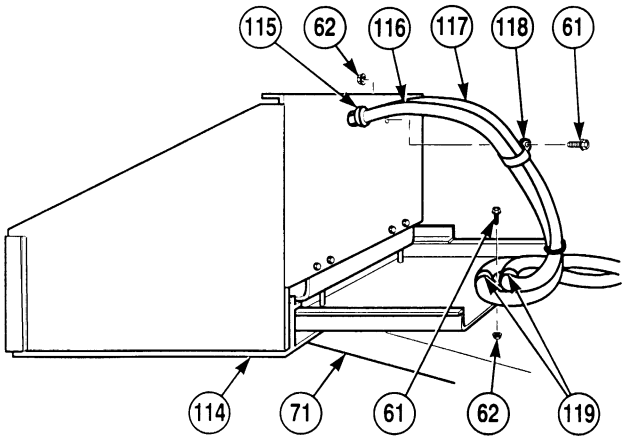


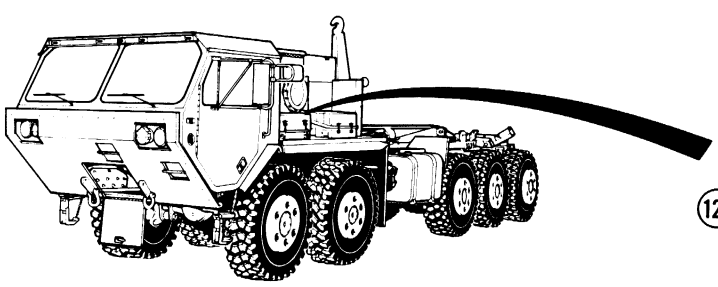
(104) Install two grommets (115) on two battery cables 1138 (116) and 1139 (117).

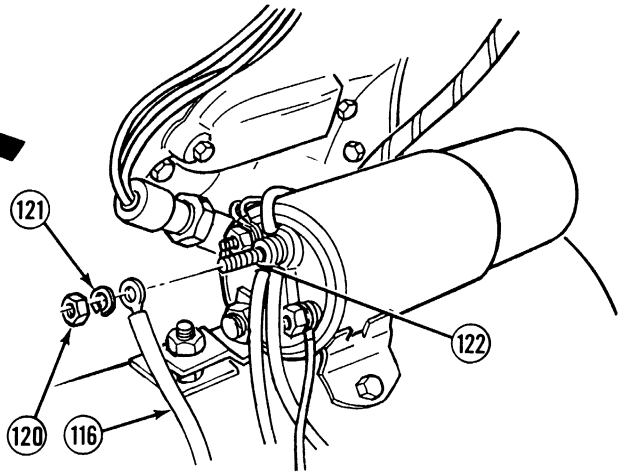
(105) Install battery cables 1138 (116) and 1139 (117) and grommets (115) in battery box (114).

(106) Install cushion clip (118) on battery box (114) with screw (61) and locknut (62).

(107) Install two cushion clips (119) on fender (71) with screw (61) and locknut (62).







(108) Remove nut (120) and lockwasher (121) from starter solenoid terminal (122). Discard lockwasher.

(109) Install cable 1138 (116) to starter solenoid terminal (122) with lockwasher (121) and nut (120).

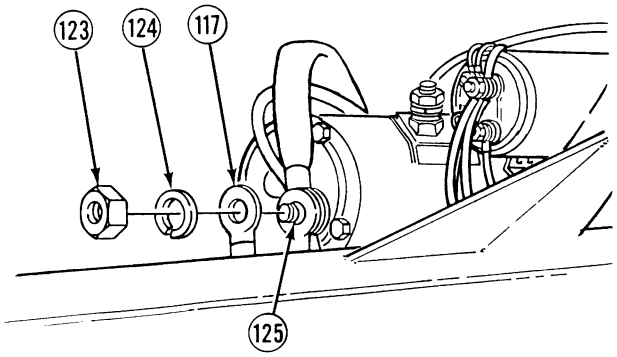
WARNING

Adhesives, solvents, and sealing compounds can burn easily can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(110) Apply electrical sealant to starter solenoid terminal (122).

18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).

(111) Remove nut (123) and lockwasher (124) from starter solenoid terminal (125). Discard lockwasher.



(112) Install cable 1139 (117) to starter terminal (125) with lockwasher (124) and nut (123).

WARNING

Adhesives, solvents, and sealing compounds can burn easily can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

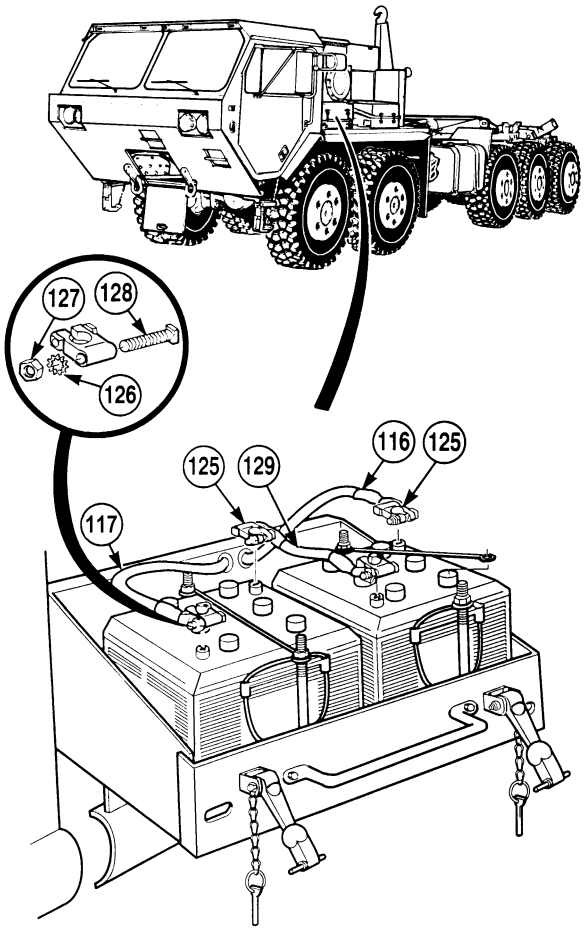
(113) Apply electrical sealant to starter terminal (125).

WARNING

- Upon installation of all wires and cables, ensure no contact is made with battery terminals or other wires and cables. Strap wires as required to prevent injury or death to personnel or damage to equipment.
- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged.
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

NOTE

Refer to TM 9-6140-200-14 for more specific details on battery maintenance.



(114) Install negative battery post terminal (125) to battery cable 1138 (116) with lockwasher (126), nut (127) and screw (128).

(115) Install positive post terminal (129) to battery cable 1139 (117) with lockwasher (126), nut (127) and screw (128).

18-2. ENGINE ARCTIC KIT INSTALLATION (CONT).

(116) Install negative battery post terminal (125) to battery cable 1137 (129) with lockwasher (126), nut (127) and screw (128).

(117) Install positive terminal (130) to battery cable 1137 (129) with lockwasher (126), nut (132) and screw (128).

(118) Position two batteries (131) and (132) in battery box (114).

(119) Install two battery holders (133) to two carrier bolts (134) with four washers (135) locknuts (136).

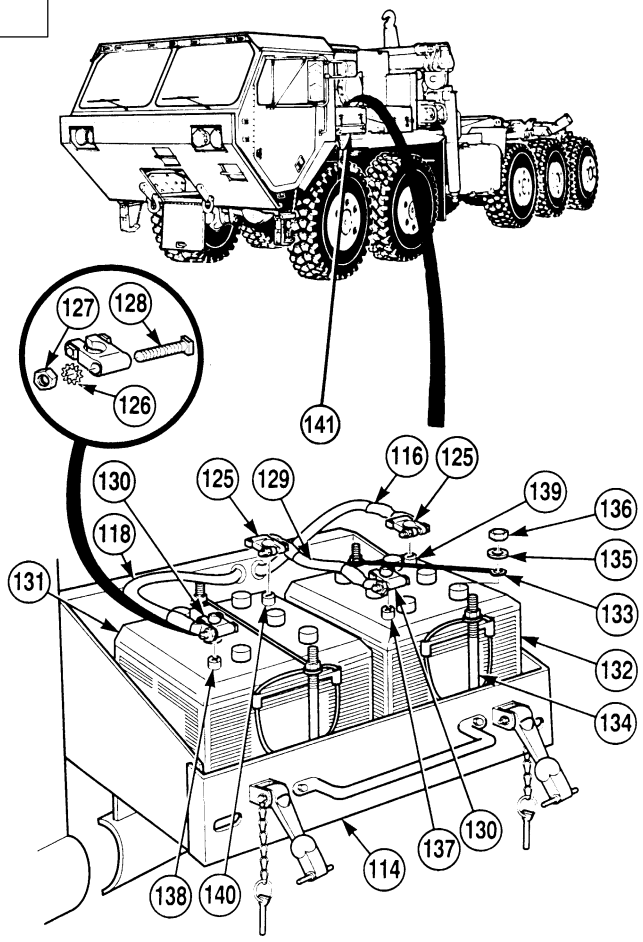
(120) Install cable 1137 (129) to positive battery terminal (137) on battery (132).

(121) Install cable 1139 (117) to positive terminal (138) on battery (131).

(122) Install cable 1138 (116) to negative terminal (139) on battery (132).

(123) Install cable 1137 (129) to negative terminal (140) on battery (131).

(124) Tighten four nuts (127) on two positive terminals (130) and negative terminals (125).



WARNING

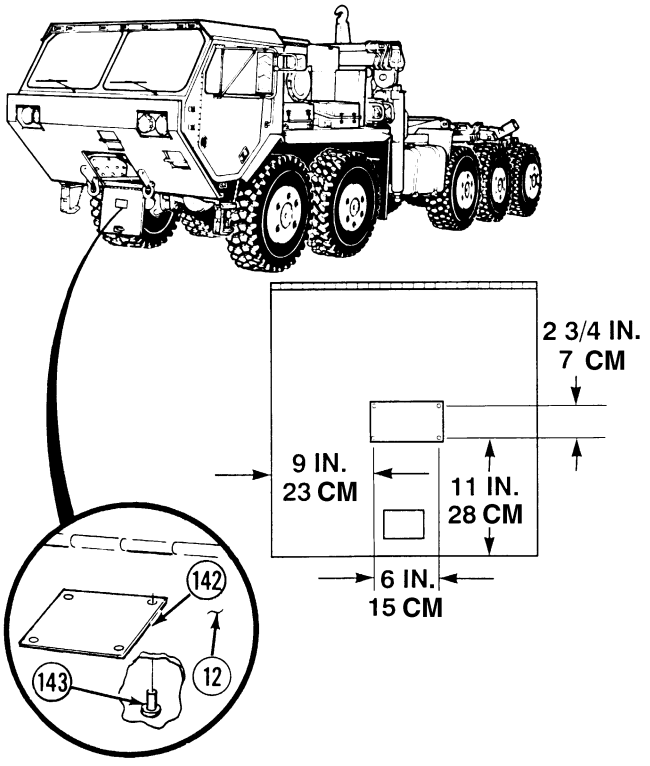
Corrosion compound contains alkali. Do not get in eyes; wear safety goggles/glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush with large amounts of water for at least 15 minutes and get immediate medical attention.

(125) Apply anticorrosion compound on positive terminals (137), (138) and negative terminals (139) and (140).

(126) Install cover (141) to battery box (114).

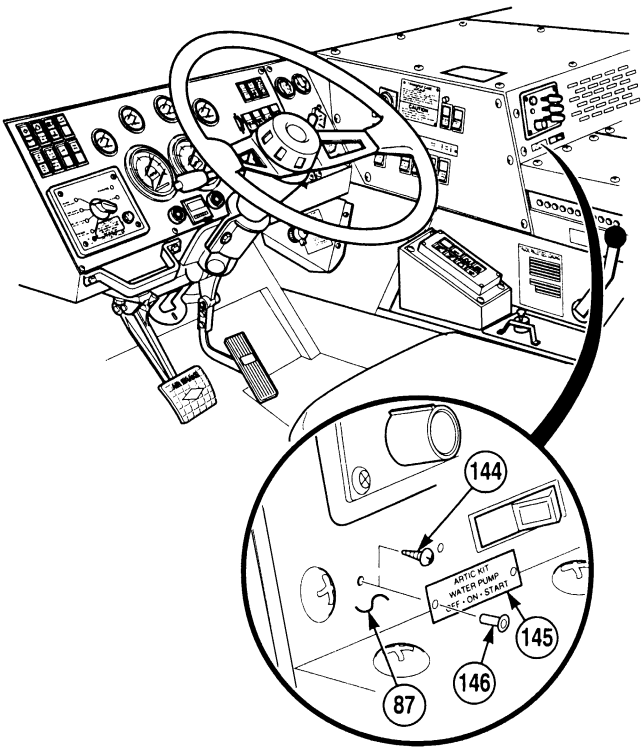
(127) Drill four 1/8 in. holes in front access cover (12) as shown.

(128) Install data plate (142) to front access cover (12) with four rivets (143).



(129) Remove two screws (144) from heater control panel (87).

(130) Install data plate (145) to heater control panel (87) with two rivets (146).



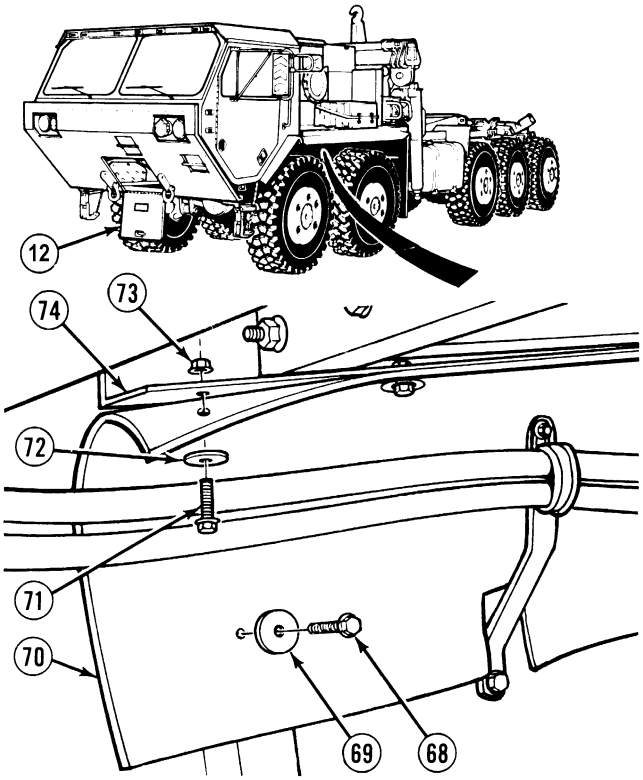
(131) Install left fender front skirt (70) to left fender (74) with six screws (71) and washers (72) and locknuts (73).

(132) Install self-tapping screw (68) and washer (69) in left fender front skirt (70).

(133) Close front access cover (12).

b. Follow-On Maintenance:

- Install 200 AMP alternator belts, (TM 9-2320-364-20).
- Install secondary fuel filter head, (TM 9-2320-364-20).
- Install fuel pressure sensor, (TM 9-2320-364-20).
- Check coolant level, (TM 9-2320-364-20).
- Install batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).



END OF TASK

18-3. ALTERNATOR KIT INSTALLATION (200 AMP).

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Caps, Vise Jaw (Item 27, Appendix F)
Gun, Heat (Item 87, Appendix F)
Multimeter (Item 140, Appendix F)
Tension Gage, Belt (Item 236, Appendix F)
Vise, Machinist's (Item 248, Appendix F)
Wrench Set, Socket 3/4 in. Drive
(Item 274, Appendix F)
Wrench, Torque (0-60 N·m)
(Item 276, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Preventive
(Item 15, Appendix B)
Oil, Lubricating (Item 36, Appendix B)
Sealant, Electrical (Item 50, Appendix B)
Locknut (Item 169, Appendix E)
Locknut (2) (Item 174, Appendix E)
Locknut (5) (Item 176, Appendix E)

Materials/Parts
Lockwasher (7) (Item 251, Appendix E)
Lockwasher (4) (Item 271, Appendix E)
Lockwasher (3) (Item 283, Appendix E)
Lockwasher (2) (Item 286, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Left side noise panel removed,
(TM 9-2320-364-20)
Left front noise panel removed,
(TM 9-2320-364-20)
Left front and rear fender skirt guard removed,
(TM 9-2320-364-20)
Electric Control Box (ECB) cover removed,
(TM 9-2320-364-20)
Cab engine access panel removed,
(TM 9-2320-364-20)

Personnel Required
Two

a. Installation.

(1) Remove dual voltage alternator control (DUVAC controller and voltage regulator only) (TM 9-2350-364-20).

(2) Remove alternator belts, (TM 9-2320-364-20).

(3) Remove alternator, (TM 9-2320-364-20).

NOTE

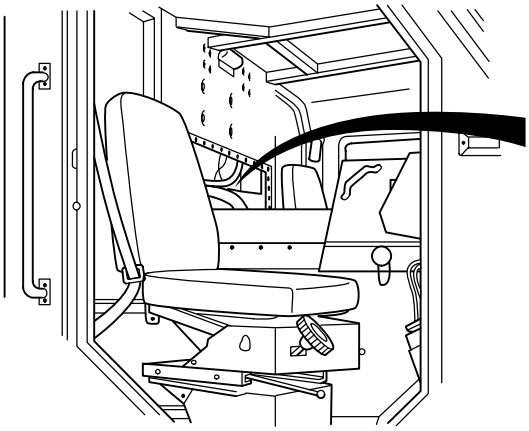
Wire harnesses are being replaced with the installation of 200 AMP alternator.

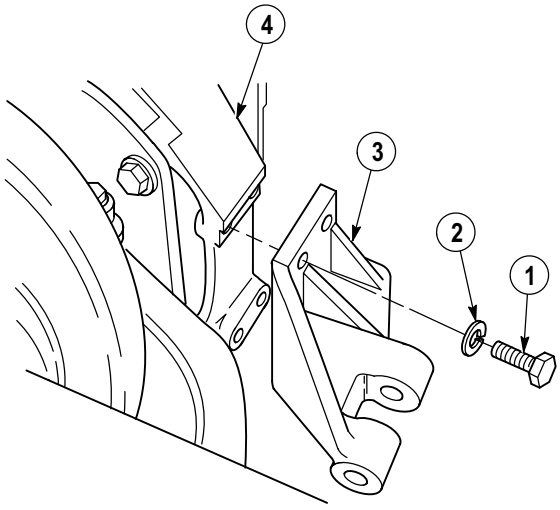
(4) Remove STE/ICE-R alternator wire harness, (Para 6-21).

(5) Remove DDEC battery power wire harness, (Para 6-17).

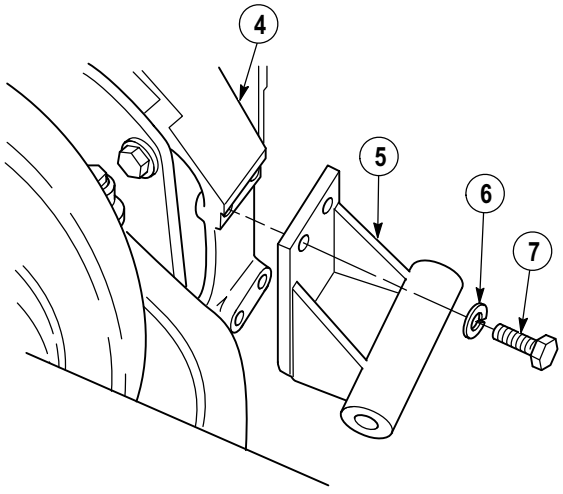
(6) Remove isolator, (TM 9-2320-364-20).

(7) Remove four screws (1), lockwashers (2) and 145 AMP alternator mounting bracket (3) from engine (4).



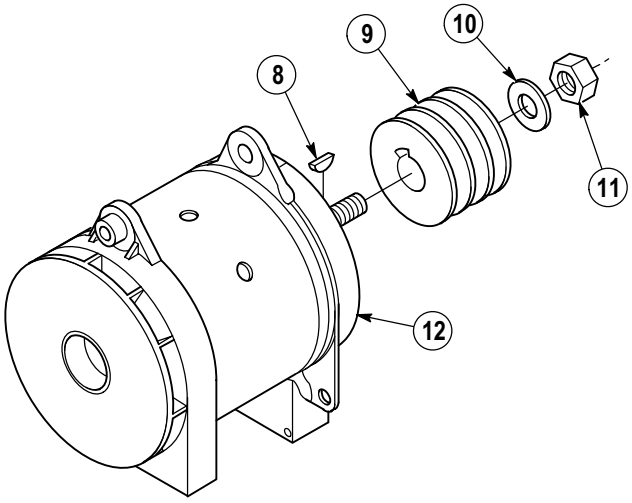


(8) Install 200 AMP alternator mounting bracket (5) on engine (4), with four lockwashers (6) and screws (7) . Tighten screws.



18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

(9) Position key (8), pulley (9), washer (10) and locknut (11) on 200 AMP alternator (12).



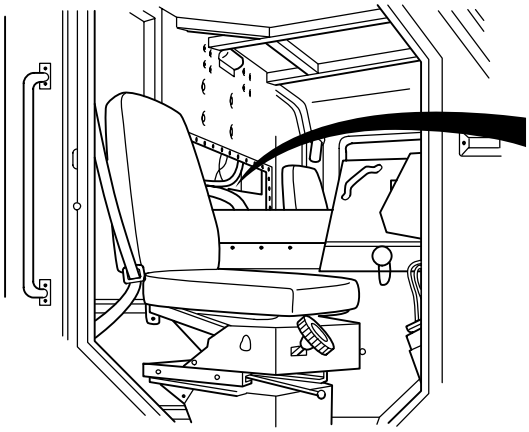
WARNING

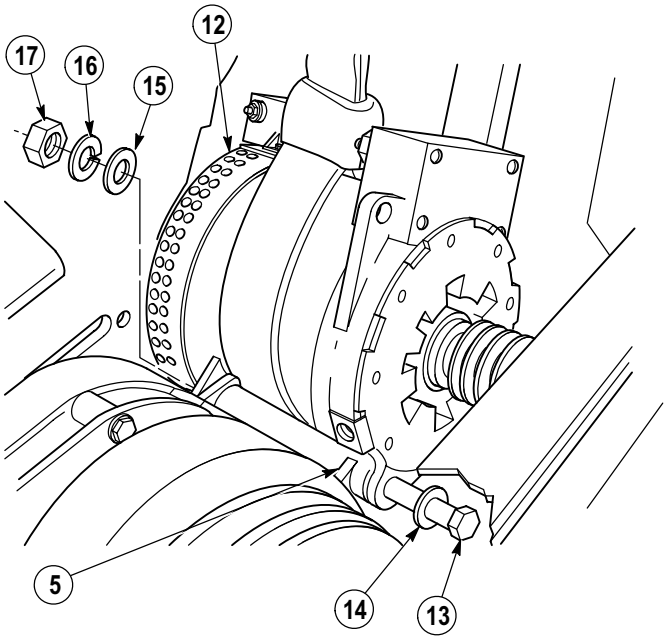
200 AMP alternator weighs 75 lbs (34 kg). Use an assistant to prevent possible injury.

(10) Position pulley (9) in soft jawed vise.

(11) Tighten locknut (11) on 200 AMP alternator (12) to 120 lb-ft (163 N·m).

(12) Remove pulley (9) from vise.





(13) With the aid of an assistant, position alternator (12) in mounting bracket (5).

(14) Install screw (13), washer (14), washer (15), lockwasher (16) and nut (17) in mounting bracket (5) and alternator (12).

(15) Install polarity protection control (18) with washers (19), lockwashers (20) and screws (21) on electric bracket (22).

NOTE

Polarity protection control is properly installed when 12V BAT and 12V LOAD terminals are on top.

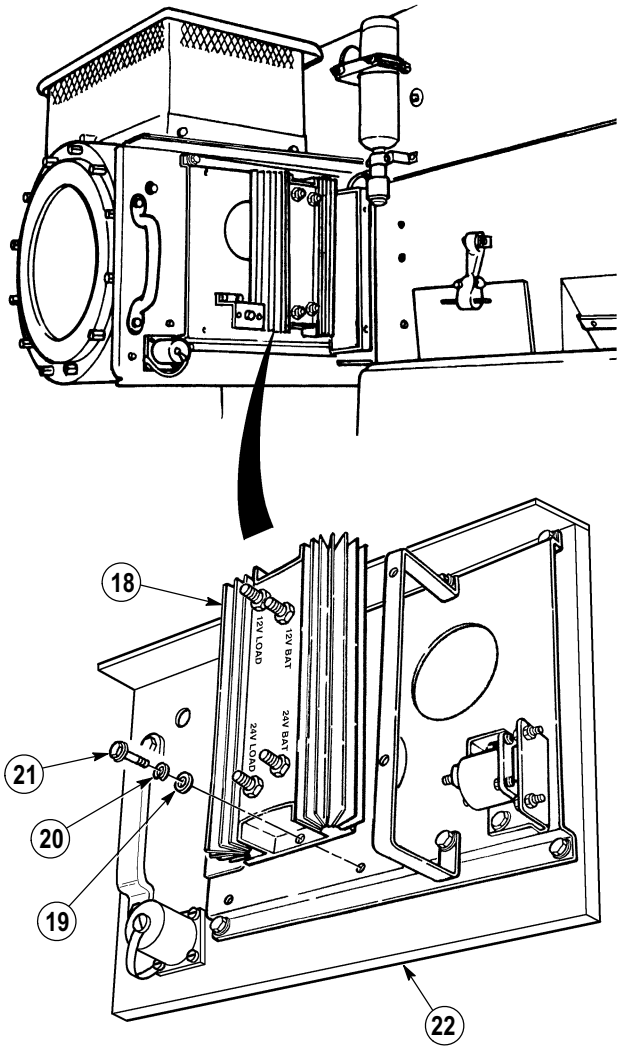
(16) Position 200 AMP polarity wire harness (23) in truck.

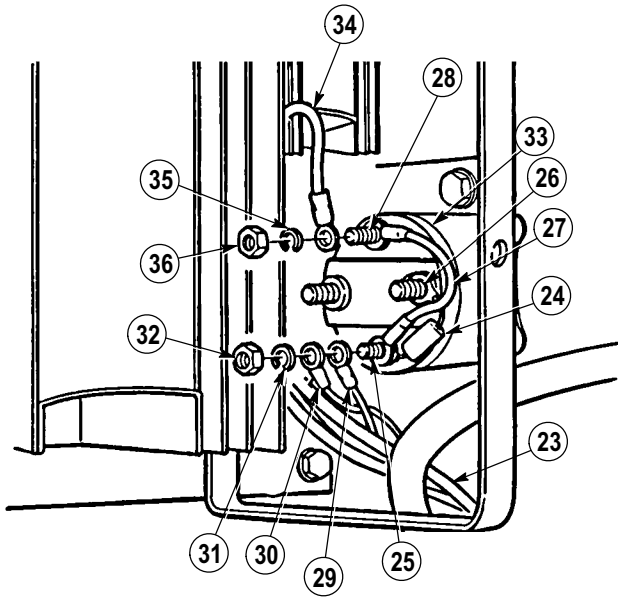
(17) Install capacitor (24) on studs (25) and (26).

(18) Install jumper diode (27) with negative terminal on stud (28) and positive terminal on stud (25).

(19) Install wire 1435 (29), wire 1435 (30) of 200 AMP polarity wire harness (23), lockwasher (31) and nut (32) on stud (25) of 24 volt solenoid switch (33).

(20) Install wire 1021A (34) of 200 AMP polarity wire harness (23), lockwasher (35) and nut (36) on stud (28) of 24 volt solenoid switch (33).





18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

(21) Install wire 1045 (37) of 200 AMP polarity wire harness (23), capacitor wire (38), lockwasher (39) and nut (40) on stud (26) of 24 volt solenoid switch (33).

(22) Install wire 1055 (41) of 200 AMP polarity wire harness (23), lockwasher (42) and nut (43) on stud (44) of 24 volt solenoid switch (33).

NOTE

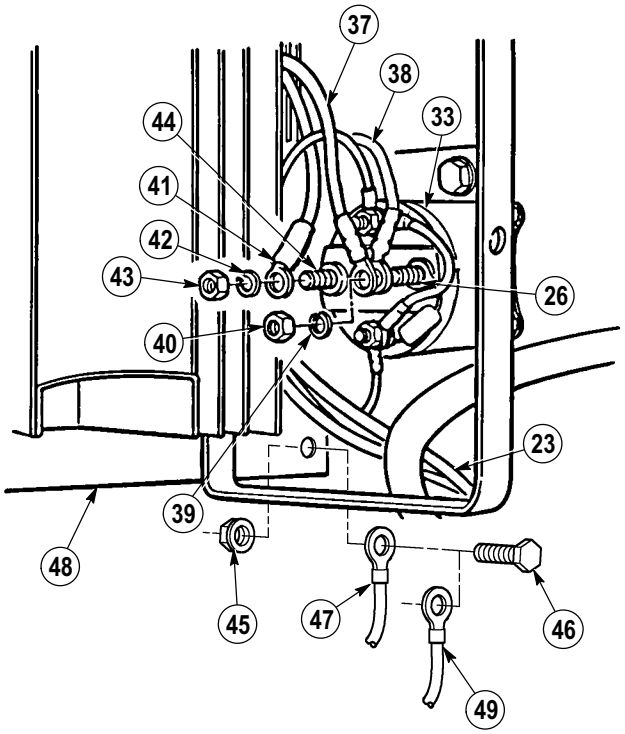
Wire 1435 in Step (23) was removed in Step (1) from DUVAC ground stud.

(23) Remove locknut (45), screw (46) and wire 1435 (47) from bracket (48). Discard locknut.

NOTE

Wire 1435 in Step (24) was removed in Step (1) and is part of chassis harness.

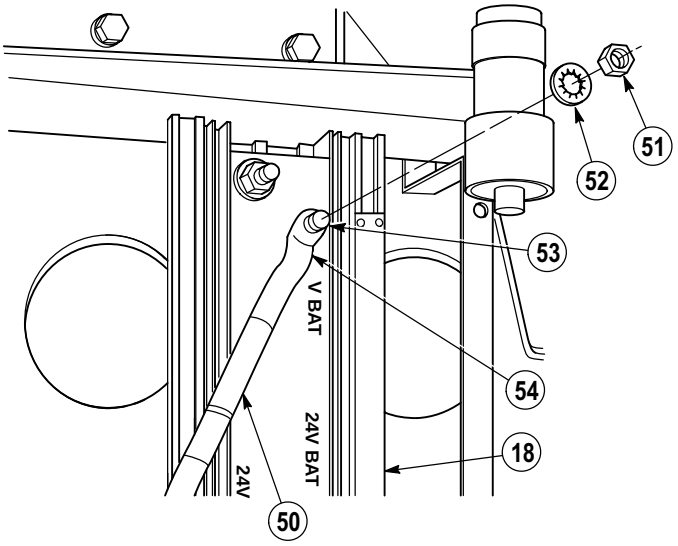
(24) Install wire 1435 (49) to bracket (48) with screw (46) and locknut (45).



(25) Position polarity power wire harness (50) in truck.

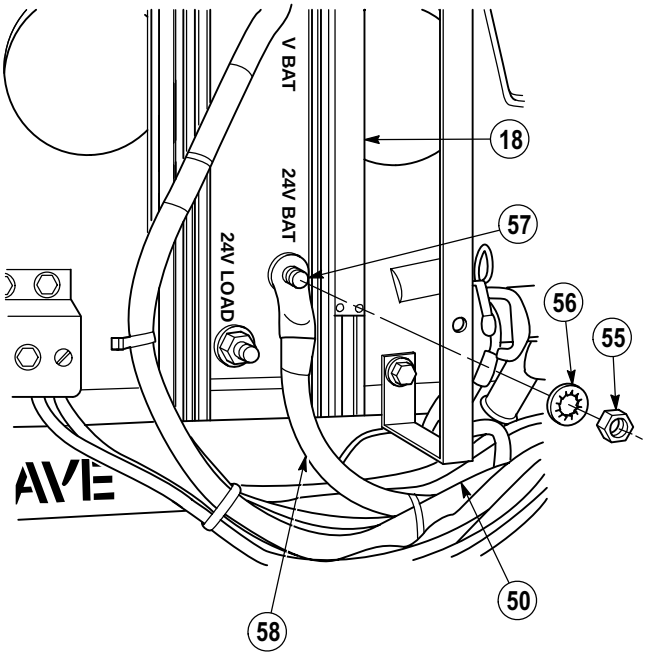
(26) Remove nut (51) and lockwasher (52) from 12 volt battery terminal (53) of polarity protection control (18).

(27) Install wire 1566 (54) of polarity power wire harness (50), lockwasher (52) and nut (51) on 12 volt battery terminal (53).



(28) Remove nut (55) and lockwasher (56) from 24 volt battery terminal (57) of polarity protection control (18).

(29) Install wire 1281A (58), of polarity wire harness (50), lockwasher (56) and nut (55) on 24 volt battery terminal (57).



18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

(30) Remove nut (59), lockwasher (60) and wire 1431/1431 (61) from screw (62) on positive battery terminal (63). Discard lockwasher.

(31) Position lockwasher (60) and nut (59) on screw (62).

(32) Remove wires 1431/1431 (61) from battery box (64).

(33) Position wires 1431/1431 (61) to polarity protection control (18).

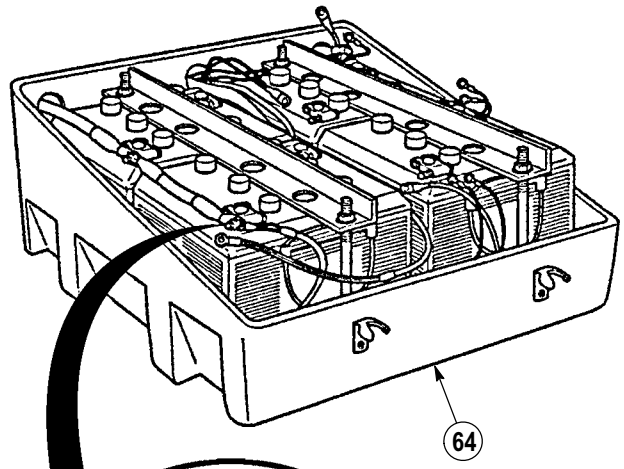
(34) Cut ring terminal (65) from wires 1431/1431 (61).

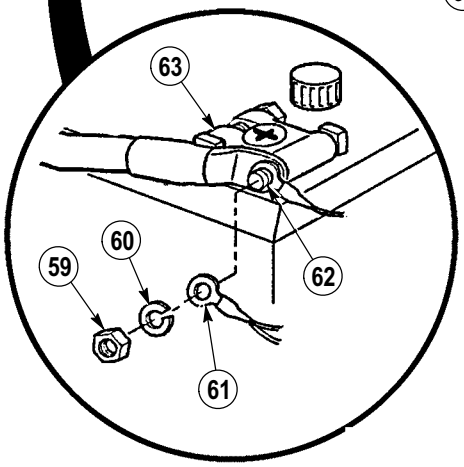
(35) Position heat shrink (66) on wires 1431/1431 (61).

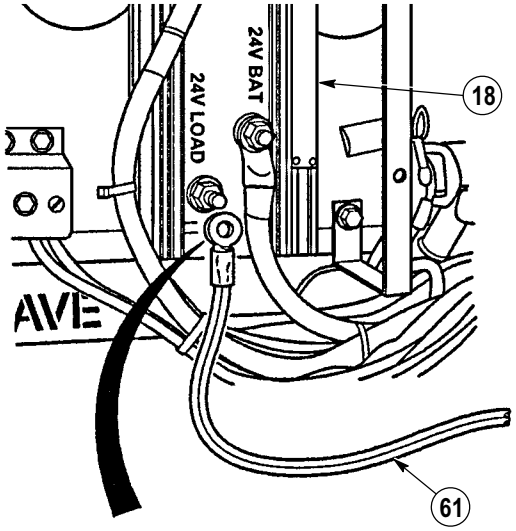
(36) Strip 1/8 in. (3.175 mm) of insulation off ends of wires 1431/1431 (61).

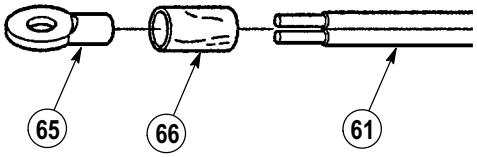
(37) Position ends of 1431/1431 wires (61) in end of 1/2 in. (12.7 mm) ring terminal (65).

(38) Position heat shrink (66) over ring terminal (65) and heat with heat gun until shrunk.



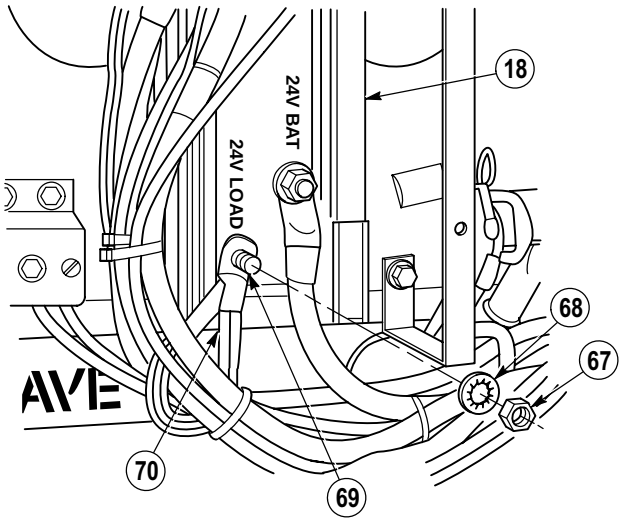






(39) Remove nut (67) and lockwasher (68) from 24 volt load terminal (69) of polarity protection control (18).

(40) Install wire 1281 (70), lockwasher (68) and nut (67) on 24 volt load terminal (69).



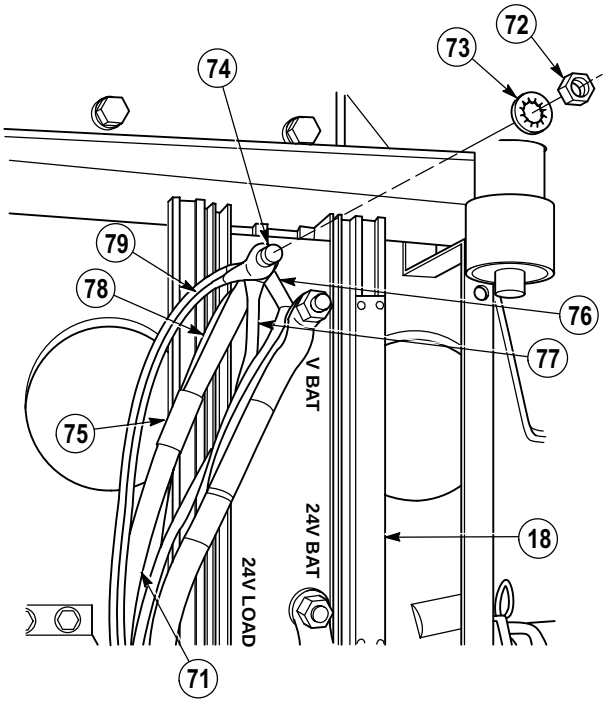
(41) Position DDEC battery power wire harness (200 AMP) (71) in truck.

NOTE

Wire 1430, wire 1866, wire 1079, and wire 1075 are part of the polarity wire harness (200 AMP) and wire 240/241 is part of the DDEC battery power wire harness (200 AMP). All wires are installed on the 12 volt load terminal of the polarity protection control.

(42) Remove nut (72) and lockwasher (73) from 12 volt load terminal (74) of the polarity protection control (18).

(43) Install wire 1430 (75), wire 1866 (76), wire 1079 (77), wire 1075 (78), wire 240/241 (79), lockwasher (73) and nut (72) on 12 volt load terminal (74).



18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

NOTE

1020 wires in steps (44) through (48) are part of chassis wire harness and were removed in Step (1).

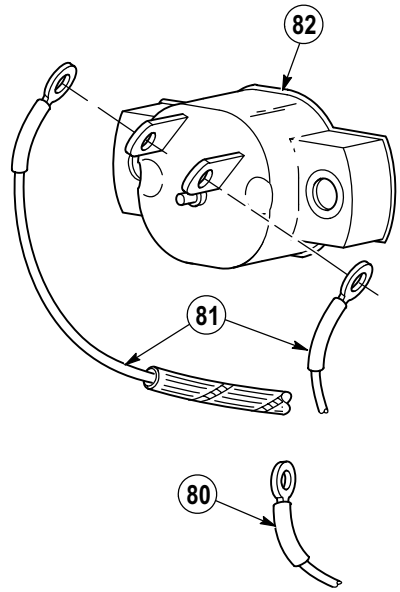
(44) Set multimeter select switch to Ohms.

(45) Connect positive (+) multimeter lead to wire 1020 (80) that was removed from DUVAC IGN terminal.

(46) Connect negative (–) multimeter lead to one of the 1020 wires (81) that were removed from circuit breaker (82).

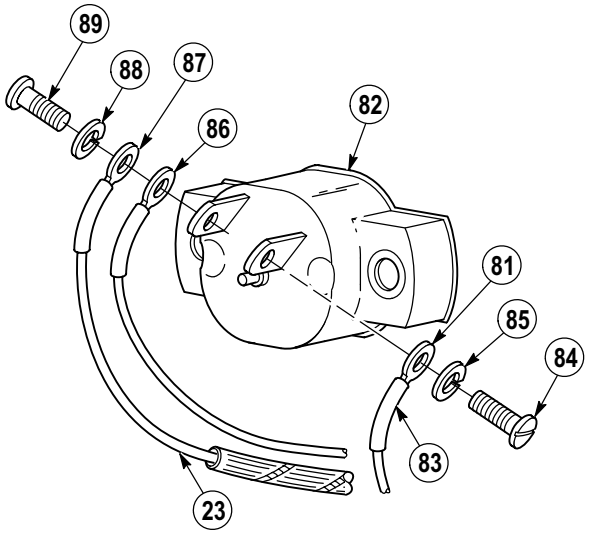
(47) Connect negative (–) multimeter lead to remaining wire 1020 (81) from circuit breaker (82).

(48) Tie back and tape off wire 1020 (81) removed from circuit breaker (82) and wire 1020 (80) from DUVAC IGN terminal that had continuity.



(49) Install remaining wire 1020 (81) from chassis wire harness (83) to circuit breaker (82) with screw (84) and lockwasher (85).

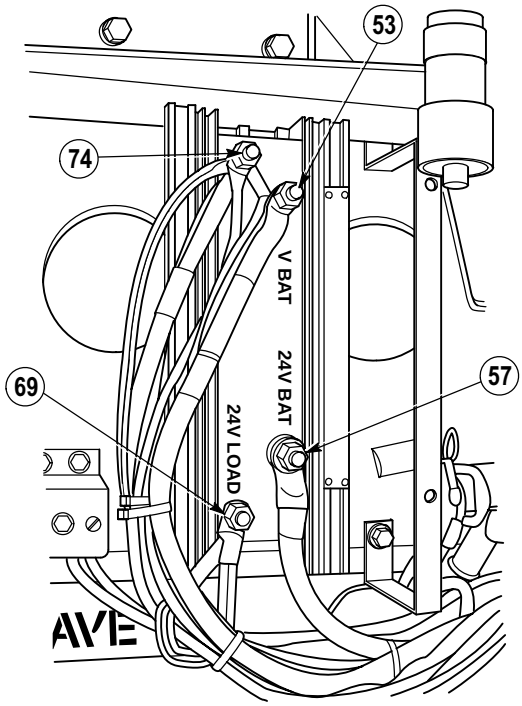
(50) Install wire 1020A (86) and wire 1020 (87) of 200 AMP polarity wire harness (23), lockwasher (88) and screw (89) on circuit breaker (82).

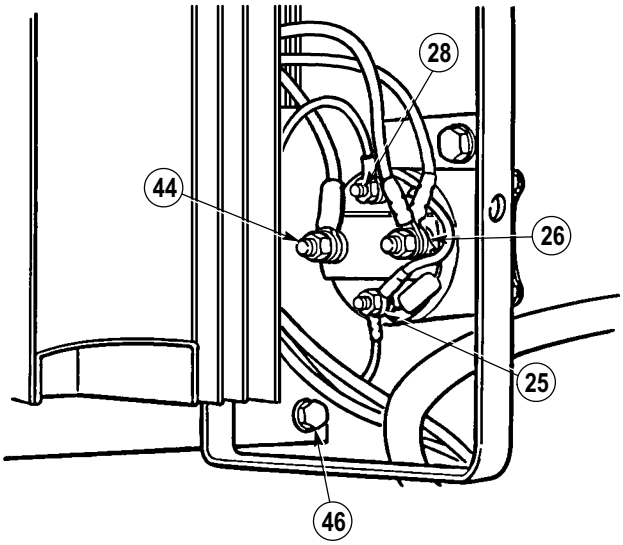


WARNING

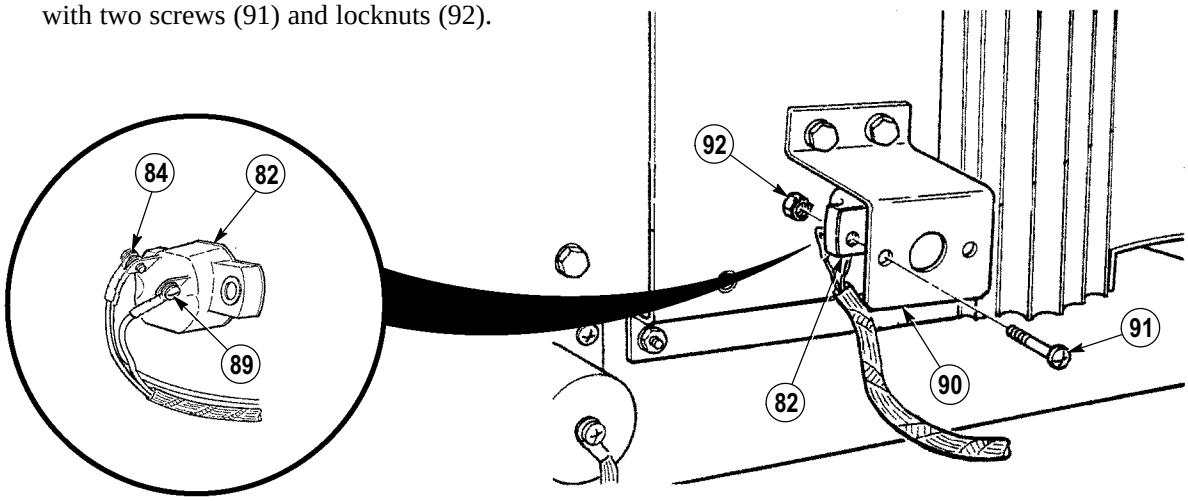
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(51) Apply electrical sealant to screws (46), (84), (89), studs (25), (26), (28), (44), 12 volt battery terminal (53), 24 volt battery terminal (57), 24 volt load terminal (69) and 12 volt load terminal (74).





(52) Install circuit breaker (82) on bracket (90) with two screws (91) and locknuts (92).



18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

(53) Install wire harnesses from polarity protection control (not shown) on bracket (93) with cushion clip (94), screw (95) and locknut (96).

(54) Position STE/ICE-R wire harness (97) in truck.

NOTE

Wire 1860 is part of the STE/ICE-R wire harness and wire 1274 is part of the 200 AMP polarity wire harness.

(55) Remove nut (98), lockwasher (99) and washer (100) from 12 volt terminal (101) of alternator (12).

(56) Install wire 1860 (102), wire 1274 (103), washer (100), lockwasher (99) and nut (98) on 12 volt terminal (101).

(57) Tighten nut (98) to 15 lb-ft (20 N·m).

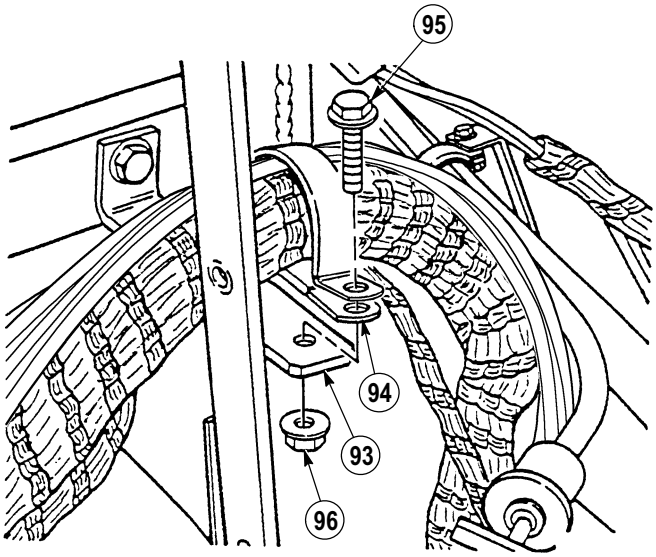
NOTE

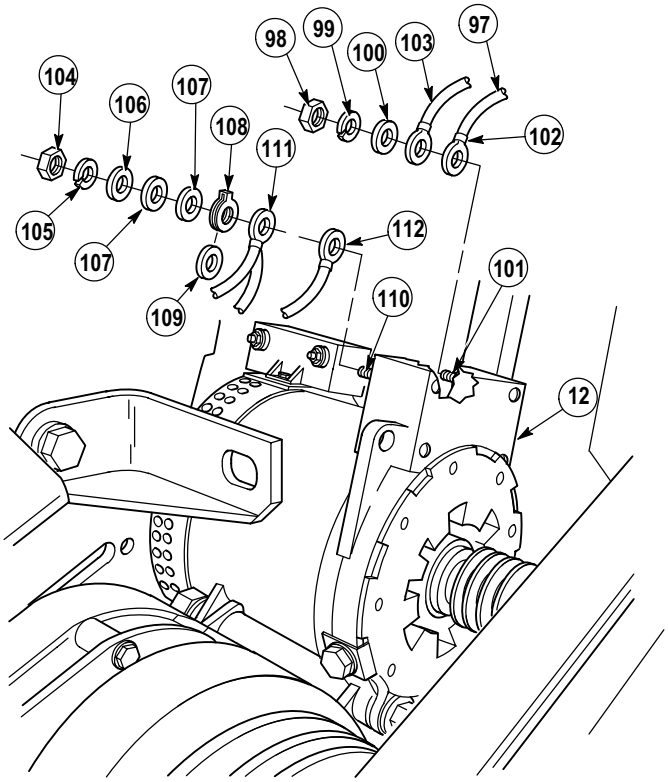
Wire 1820/1953 are part of STE/ICE-R wire harness and wire 1281A is part of 200 AMP polarity wire harness.

(58) Remove nut (104), lockwasher (105), washer (106), washer(s) if present (107), and fuse link (108) with insulator washer (109) from 24 volt terminal (110) of alternator (12).

(59) Install wire 1820/1953 (111), wire 1281A (112), fuse link (108) with insulator washer (109), washer(s) (if removed) (107), washer (106), lockwasher (105) and nut (104) on 24 volt terminal (110).

(60) Tighten nut (104) to 15 lb-ft (20 N·m).





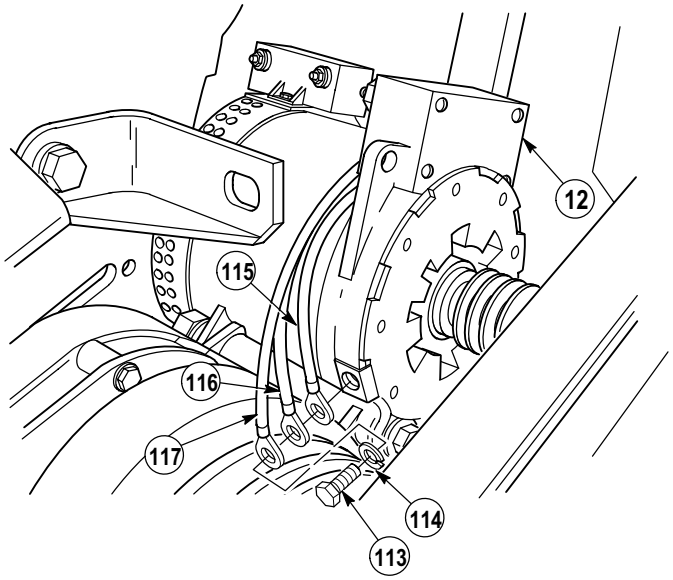
NOTE

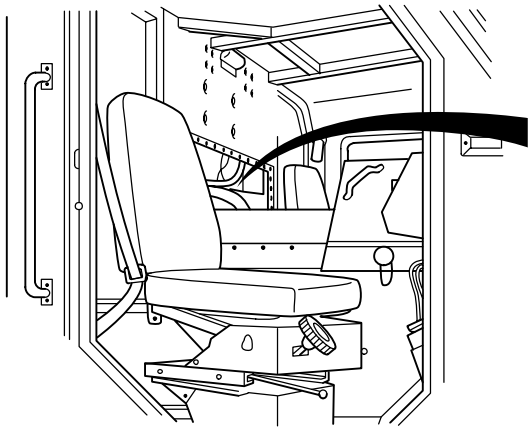
Wire 1815 is part of STE/ICE-R wire harness and wire 1435 and wire 1275 are part of 200 AMP polarity wire harness.

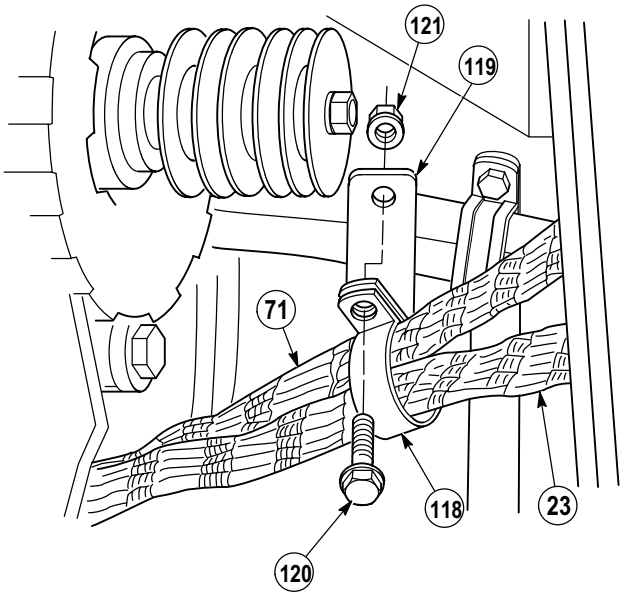
(61) Remove screw (113) and lockwasher (114) from alternator (12).

(62) Install wire 1815 (115), wire 1435 (116), wire 1275 (117), lockwasher (114) and screw (113) on alternator (12).

(63) Tighten screw (113) to 17 lb-ft (23 N·m).







(64) Install 200 AMP polarity wire harness (23) and DDEC battery power wire harness (71) in cushion clip (118).

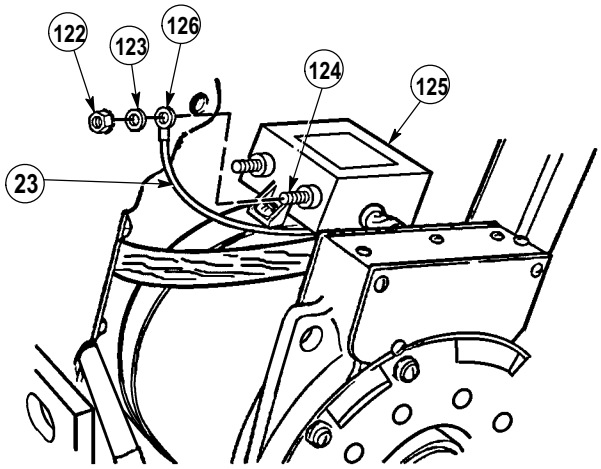
(65) Position cushion clip (118) on bracket (119) and secure with screw (120) and locknut (121).

18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

(66) Remove locknut (122) and washer (123) from terminal (124) of regulator (125).

(67) Install wire 1020B (126) of 200 AMP polarity wire harness (23), washer (123) and locknut (122) on terminal (124).

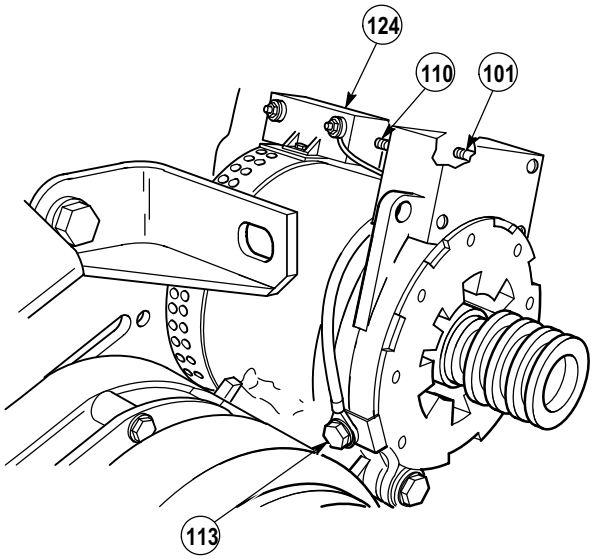
(68) Tighten locknut (122) to 25 lb-in. (3 N·m).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(69) Apply electrical sealant to screw (113), 12 volt terminal (101), 24 volt terminal (110) and terminal (124).



(70) Position three alternator belts (127) on alternator (12) and engine pulley (128).

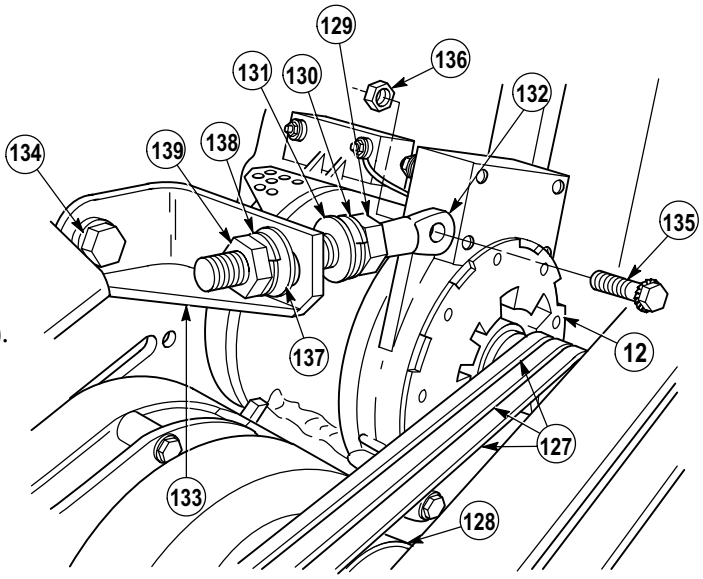
(71) Install nut (129), lockwasher (130) and washer (131) on alternator support arm (132).

(72) Position alternator support arm (132) in bracket (133).

(73) Tighten screw (134) to 170 lb-ft (230 N·m).

(74) Position alternator support arm (132) on alternator (12) with screw (135) and locknut (136).

(75) Position washer (137), lockwasher (138) and nut (139) on alternator support arm (132).



(76) Install belt tensioning gage on belts (127).

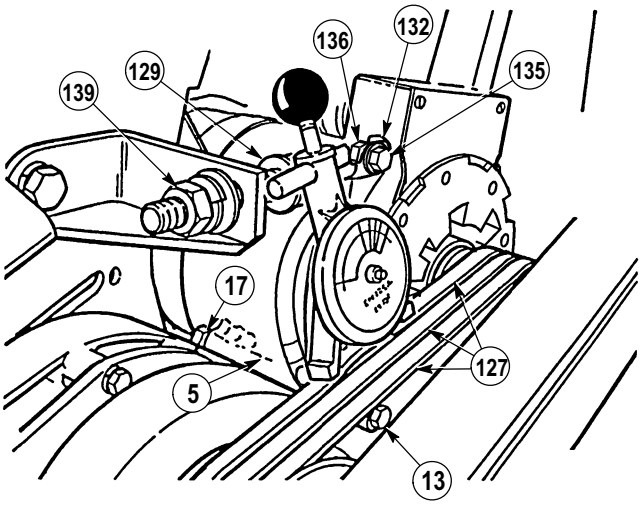
(77) Tighten nut (129) on alternator support arm (132) until alternator belts tension reaches 60 to 65 lbs (260 to 289 N).

(78) Tighten nut (139) on alternator support arm (132).

(79) Remove belt tensioning gage from belts (127).

(80) Tighten locknut (136) on screw (135) to 26-30 lb-ft (30-41 N·m).

(81) Tighten nut (17) on screw (13) and alternator mounting bracket (5) to 90 lb-ft (122 N·m).



18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

(82) Remove and discard plug (140) from manifold (141).

(83) Install reducer (142) and oil pressure switch (143) in manifold (141).

NOTE

Wire 1020B and wire 1020A are part of 200 AMP polarity wire harness.

(84) Remove two screws (144) from oil pressure switch (143).

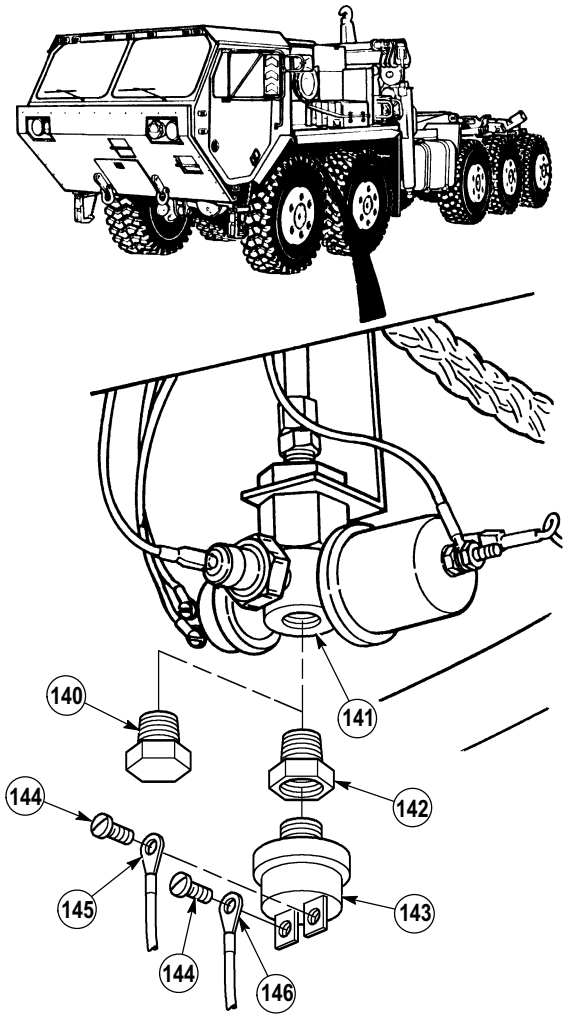
(85) Install wire 1020B (145), wire 1020A (146) and two screws (144) on oil pressure switch (143).

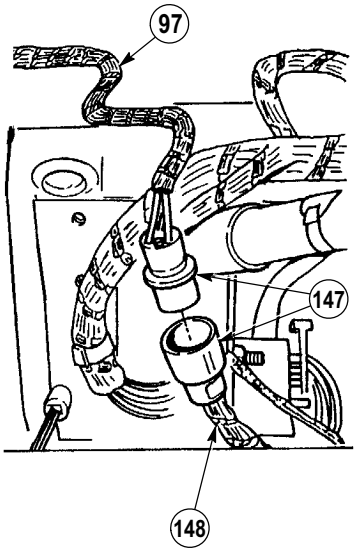
WARNING

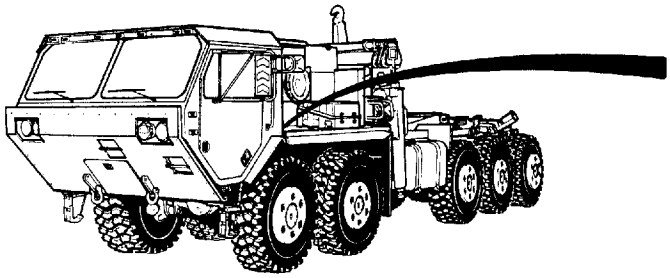
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

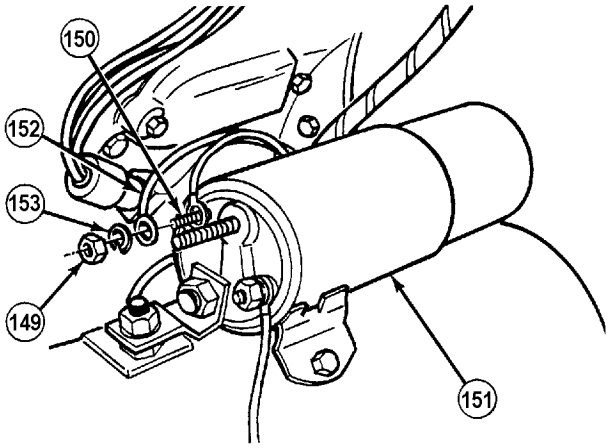
(86) Apply electrical sealant to two screws (144).

(87) Connect MC24 connector (147) on STE/ICE-R wire harness (97) and STE/ICE-R harness (148).









NOTE

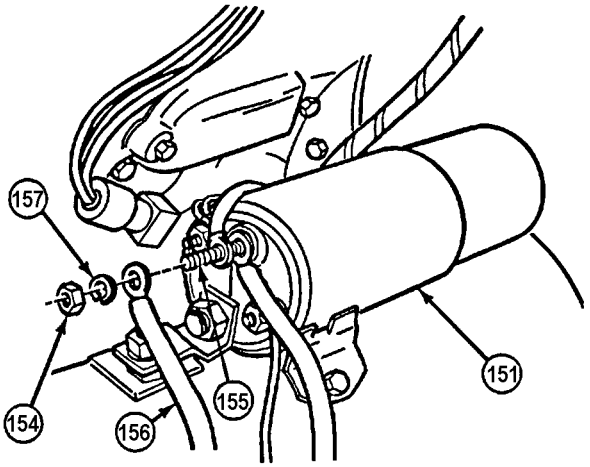
Wire 1045 and wire 1055 are part of 200 AMP polarity wire harness.

(88) Remove nut (149) from terminal (150) of starter solenoid (151).

(89) Install wire 1045 (152), lockwasher (153) and nut (149) on terminal (150).

(90) Remove nut (154) from terminal (155) of starter solenoid (151).

(91) Install wire 1055 (156), lockwasher (157) and nut (154) on terminal (155).

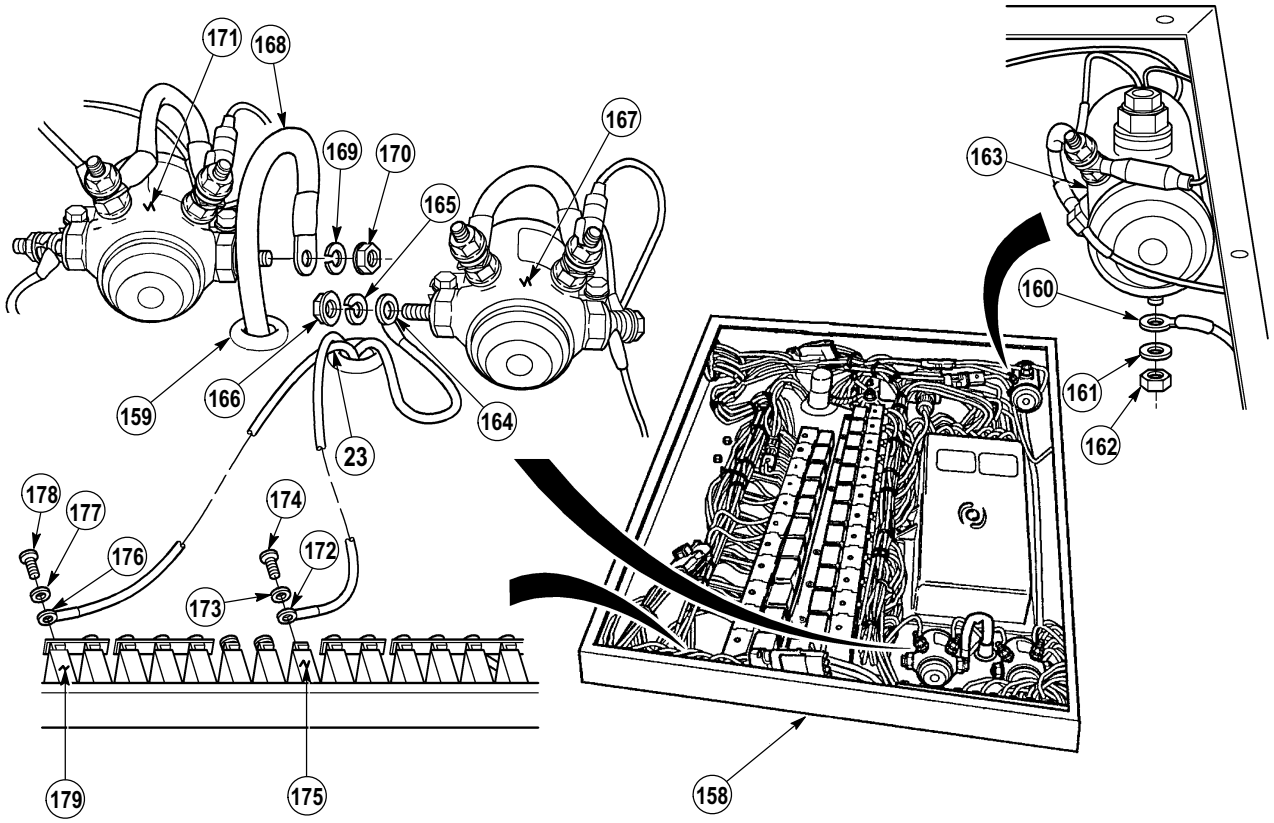


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(92) Apply electrical sealant to terminal (150) and (155).

18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).



NOTE

Wires in Steps (93) through (98) are part of 200 AMP polarity wire harness.

(93) Position 200 AMP polarity wire harness (23) in ECB (158) through grommets (159).

(94) Position wire 1075 (160), lockwasher (161) and nut (162) on solenoid (163). Tighten nut to 30 to 35 lb-in (3 to 4 N·m).

(95) Position wire 1281 (164), lockwasher (165), and nut (166) on solenoid (167). Tighten nut to 30 to 35 lb-in (3 to 4 N·m).

(96) Position wire 1430 (168), lockwasher (169) and nut (170) on solenoid (171). Tighten nut to 30 to 35 lb-in (3 to 4 N·m).

(97) Install wire 1866 (172), lockwasher (173) and screw (174) on circuit breaker CB12 (175).

(98) Install wire 1079 (176), lockwasher (177) and screw (178) on circuit breaker CB5 (179).

(99) Push two wires 240 (180) and (181) and two wires 241 (182) and (183) and MC14 connector (184) through grommet (185) on ECB (158).

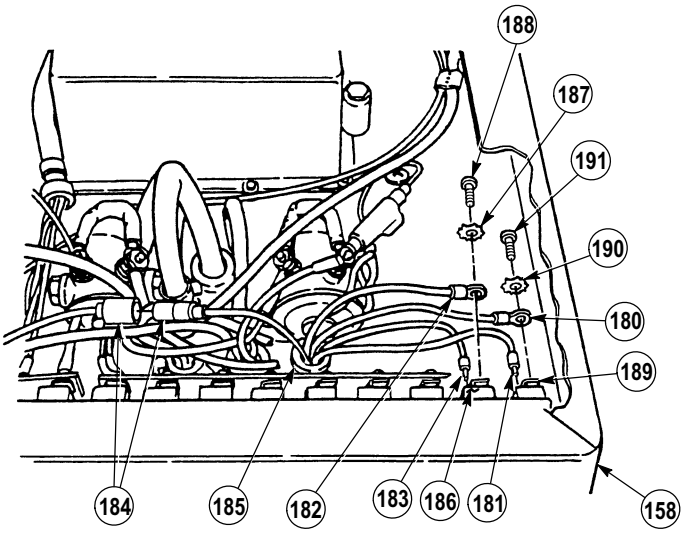
(100) Connect MC14 connector (184).

(101) Connect wire 241 (183) on circuit breaker CB22 (186).

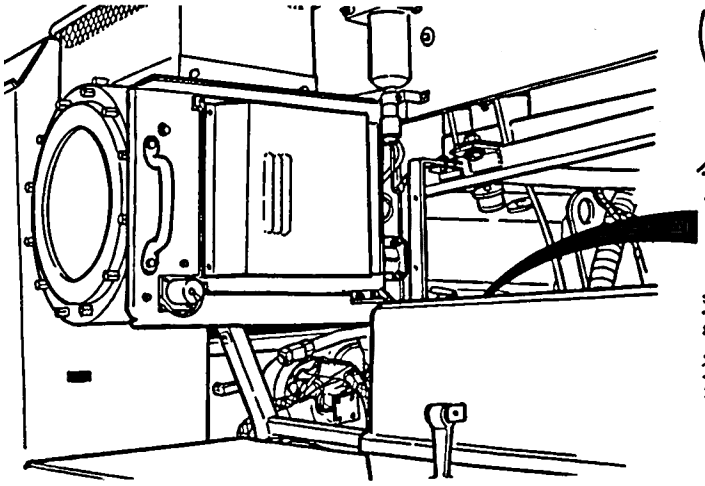
(102) Install wire 241 (182) on circuit breaker CB22 (186) with lockwasher (187) and screw (188).

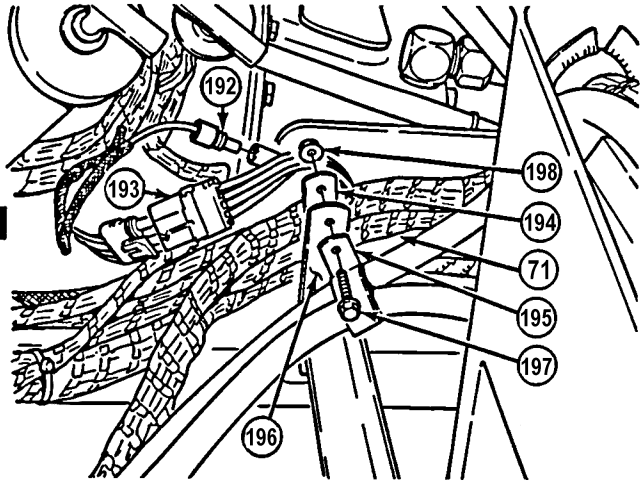
(103) Connect wire 240 (181) on circuit breaker CB23 (189).

(104) Install wire 240 (180) on circuit breaker CB23 (189) with lockwasher (190) and screw (191).



18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).





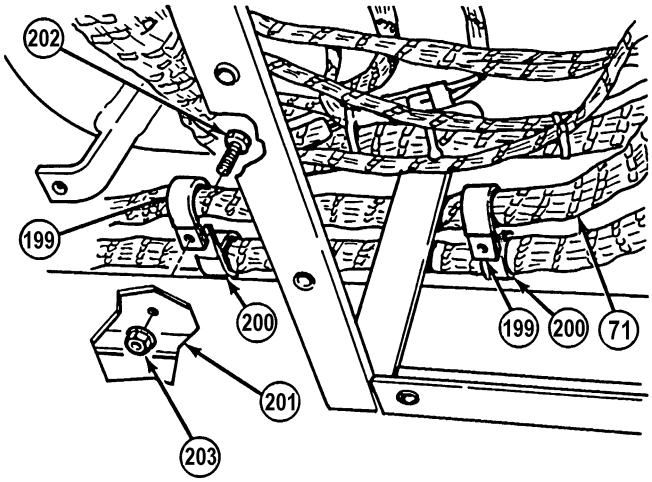
(105) Connect MC95 connector (192) and MC62 connector (193).

(106) Install cushion clip (194) on DDEC battery power wire harness (71).

(107) Install cushion clips (195) and (194) on bracket (196) with screw (197) and locknut (198).

(108) Install cushion clips (199) and (200) on DDEC battery power wire harness (71).

(109) Install cushion clips (199) and (200) on fender (201) with two screws (202) and locknuts (203).

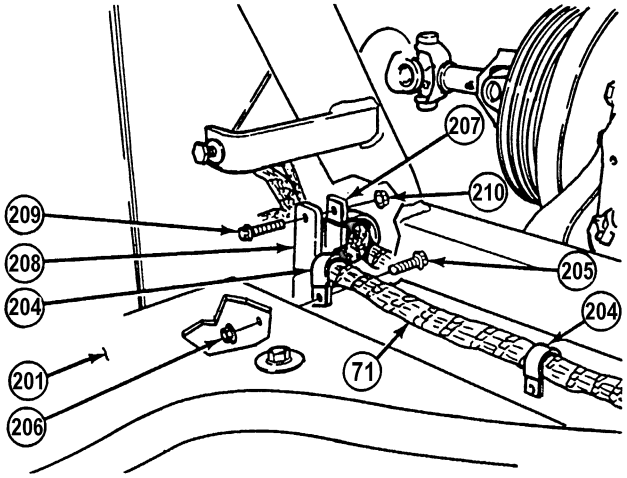


(110) Install two cushion clips (204) on DDEC battery power wire harness (71).

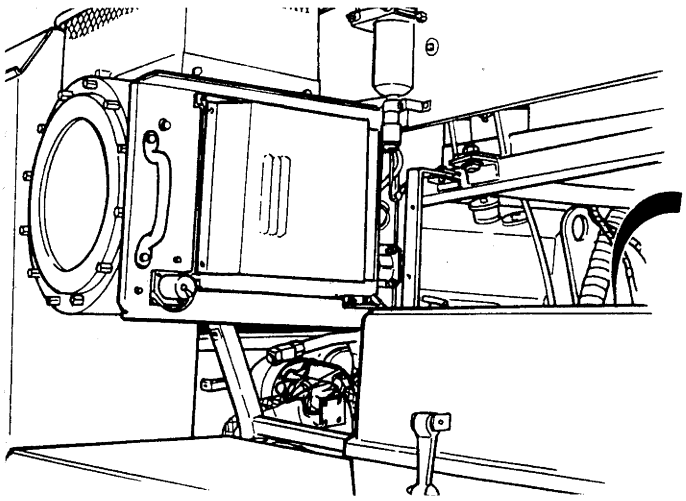
(111) Install two cushion clips (204) on fender (201) with two screws (205) and locknuts (206).

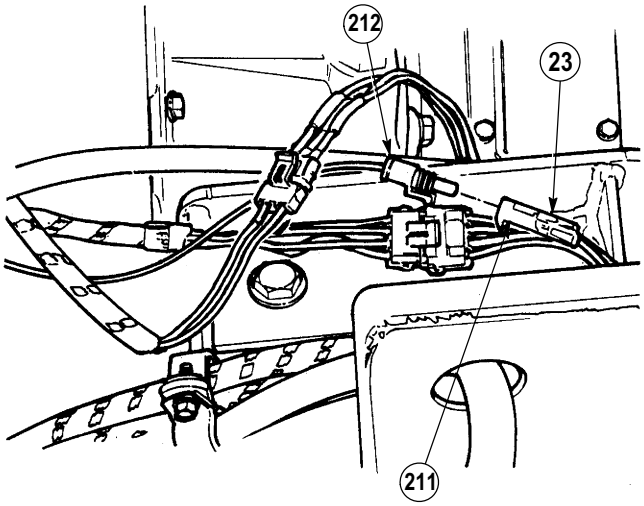
(112) Install cushion clip (207) on DDEC battery power wire harness (71).

(113) Install cushion clip (207) on bracket (208) with screw (209) and locknut (210).

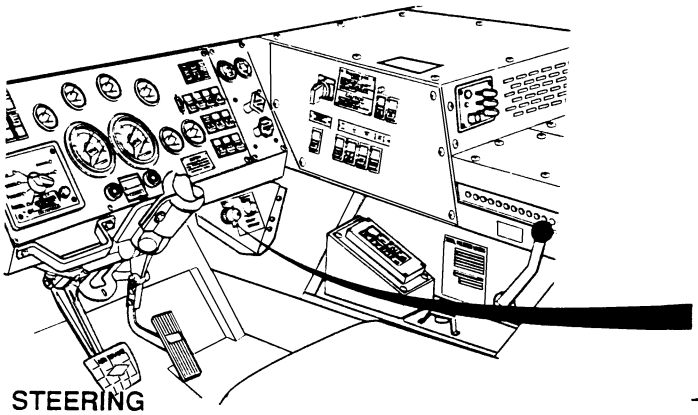


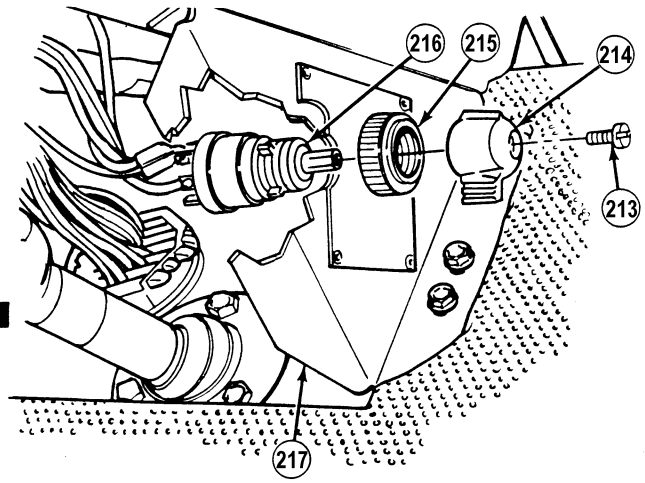
18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).





(114) Connect MC60 connector (211) of 200 AMP polarity wire harness (23) to MC60 connector of engine harness (212).





(115) Remove screw (213), lever (214) and nut (215) from engine switch (216).

(116) Remove engine switch (216) from instrument panel (217).

NOTE

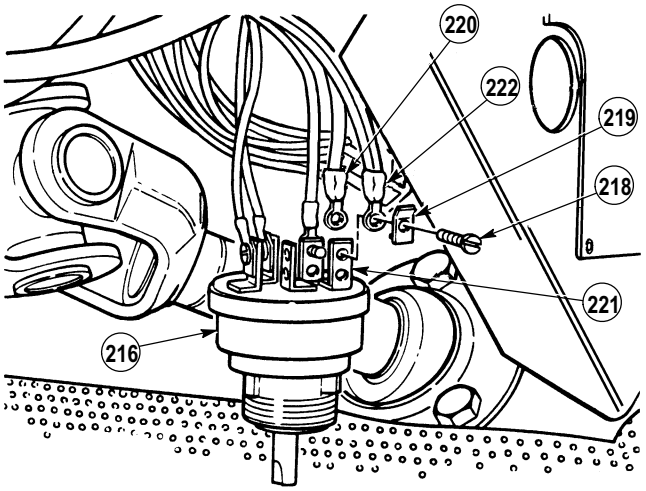
Wire 1431 removed in Step (117) was jumper wire removed from isolator in Step (6).

(117) Remove screw (218), washer (219) and wire 1431 (220) from BAT post (221) on engine switch (216). Discard wire 1431.

NOTE

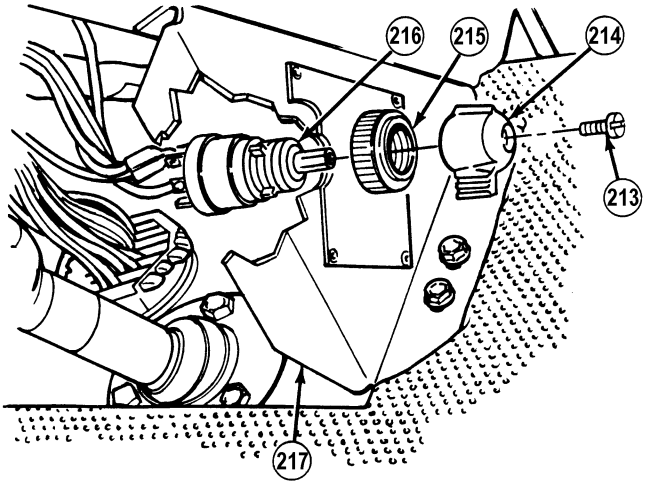
Wire 1431/1431 installed in Step (118) is from cab wire harness and was removed in Step (6).

(118) Install wire 1431/1431 (222), washer (219) and screw (218) on BAT post (221) on engine switch (216).

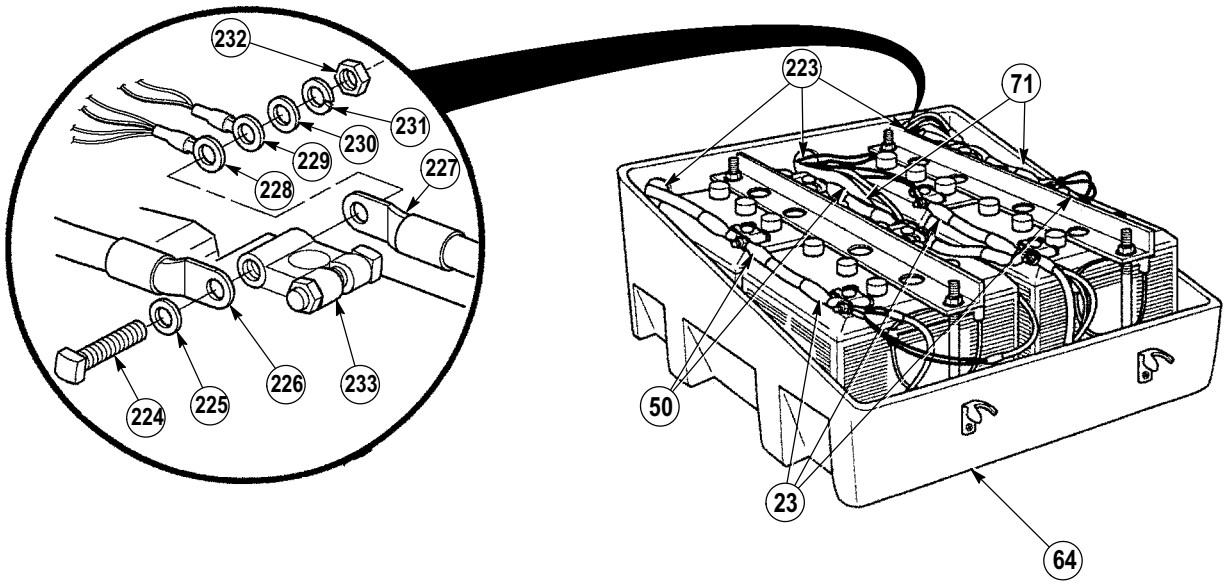


(119) Install engine switch (216) in instrument panel (217).

(120) Install nut (215), lever (214) and screw (213) on engine switch (216).



18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

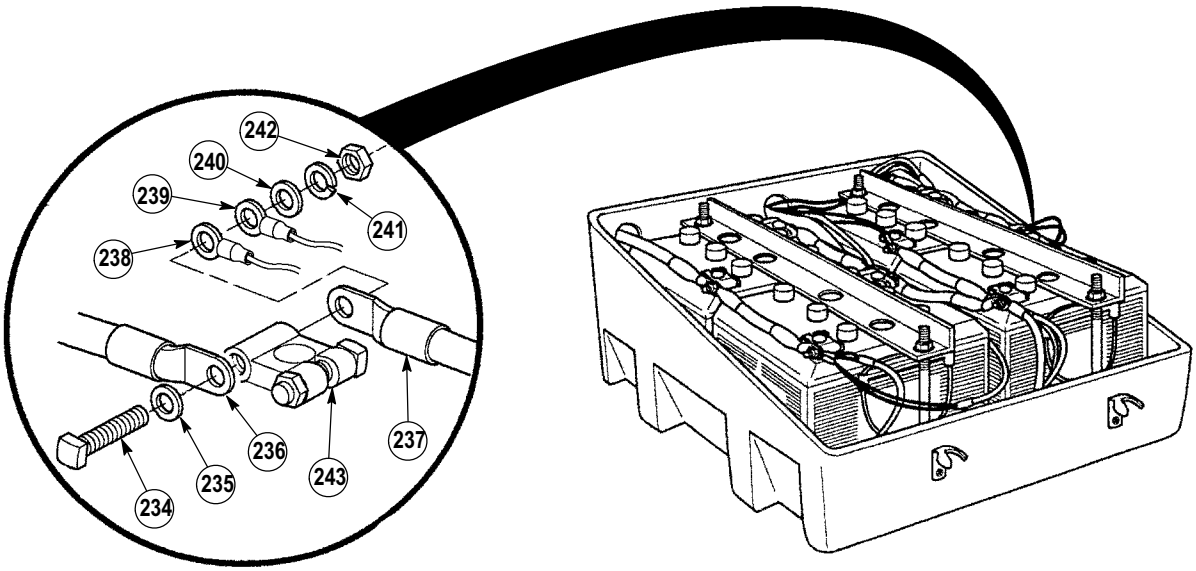
(121) Position 200 AMP polarity wire harness (23), DDEC battery power wire harness (71) and polarity power wire harness (50) through holes (223) of battery box (64).

(122) Position screw (224), washer (225), cable 1137 (226), cable 1138 (227), wires 208/209 (228), wires 150/150/151/953 (229), washer (230), lockwasher (231) and nut (232) on negative terminal (233).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(123) Tighten nut (232) to 12 to 16 lb-ft (16-22 N·m).



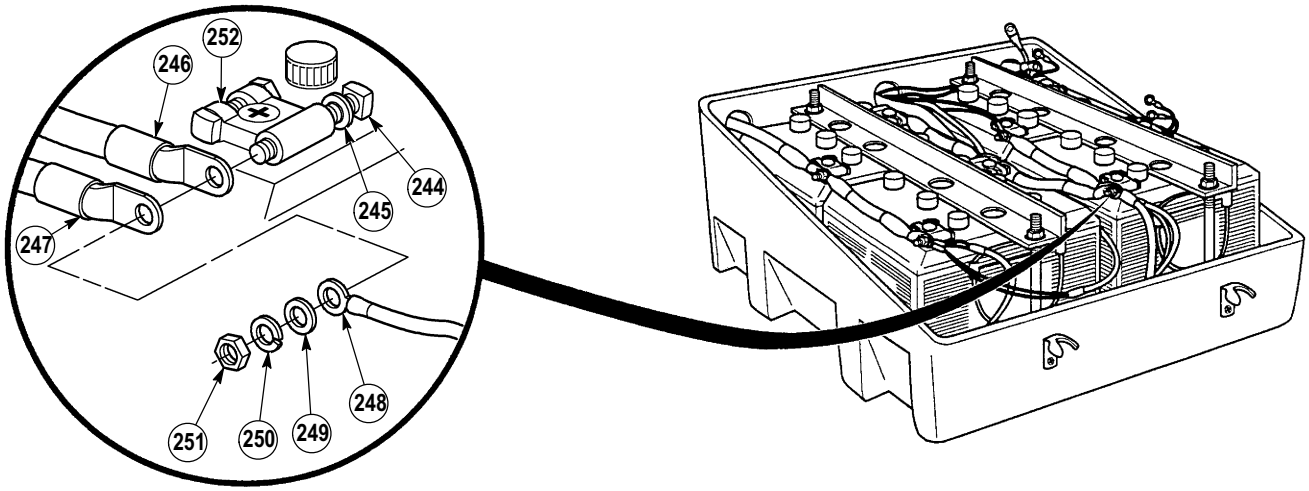
(124) Position screw (234), washer (235), cable 1137 (236), cable 1275 (237), wire 1821 (238), wire 1813 (239), washer (240), lockwasher (241) and nut (242) on negative terminal (243).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(125) Tighten nut (242) to 12 to 16 lb-ft (16 to 22 N·m).

18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).

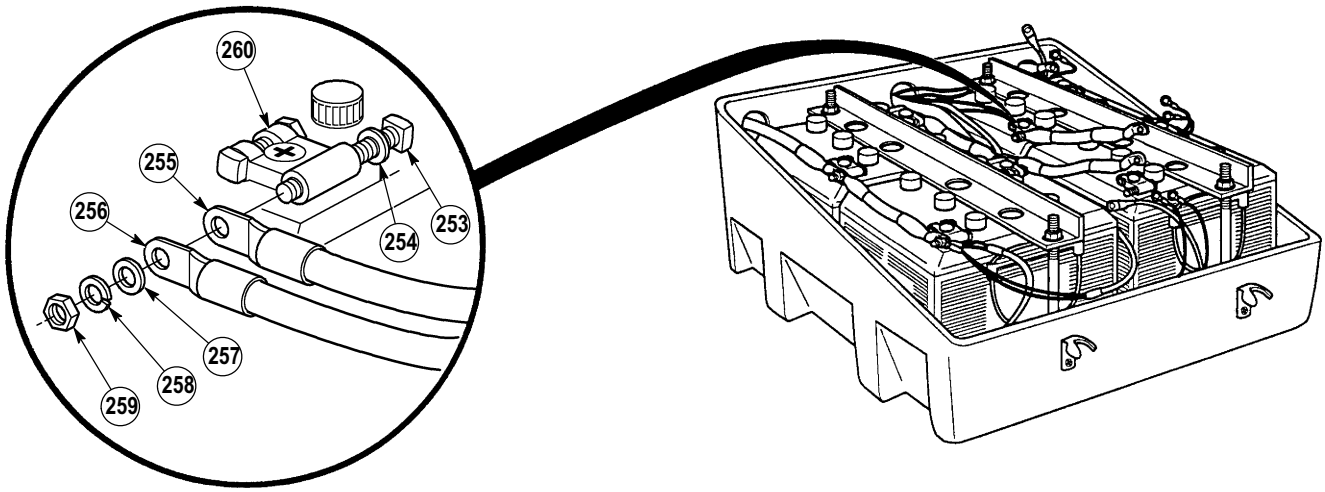


(126) Position screw (244), washer (245), cable 1137 (246), cable 1138 (247), cable 1566 (248), washer (249), lockwasher (250) and nut (251) on positive terminal (252).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(127) Tighten nut (251) to 12 to 16 lb-ft (16-22 N·m).

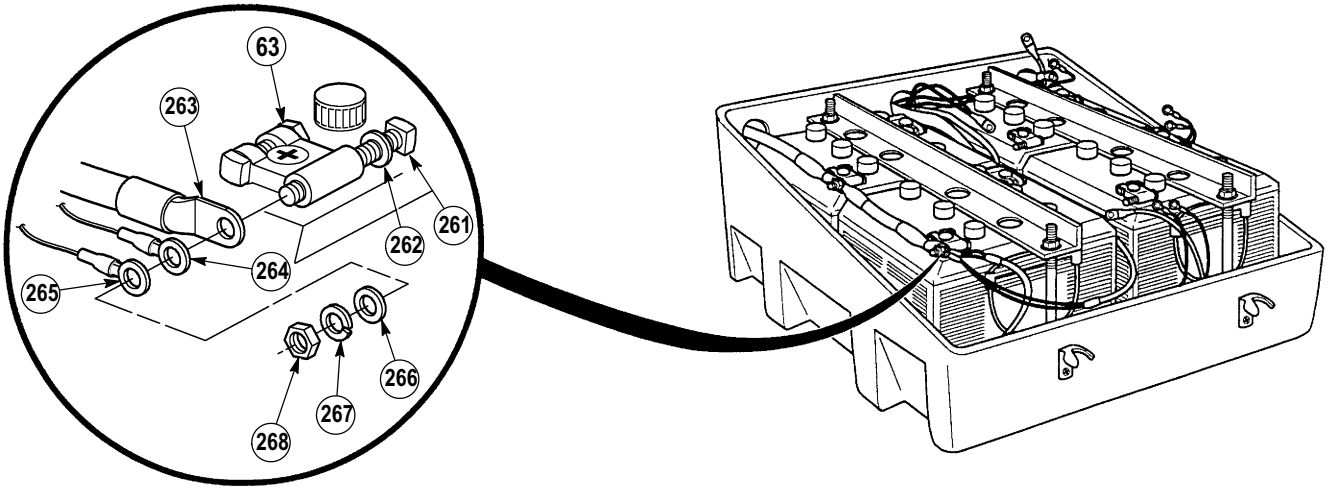


(128) Position screw (253), washer (254), cable 1137 (255), cable 1274 (256), washer (257), lockwasher (258) and nut (259) on positive terminal (260).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(129) Tighten nut (259) to 12 to 16 lb-ft (16-22 N·m).



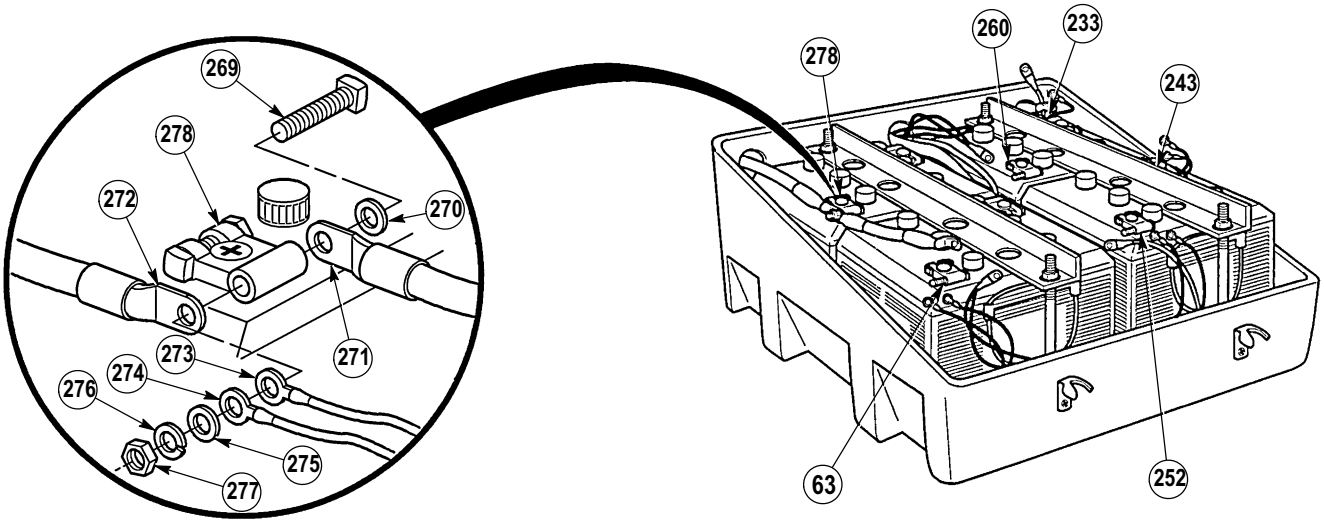
(130) Position screw (261), washer (262), cable 1137 (263), wire 1822 (264), wire 1814 (265), washer (266), lockwasher (267) and nut (268) on positive terminal (63).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(131) Tighten nut (268) to 12 to 16 lb-ft (16-22 N·m).

18-3. ALTERNATOR KIT INSTALLATION (200 AMP) (CONT).



(132) Position screw (269), washer (270), cable 1137 (271), cable 1139 (272), cable 1281A (273), cable 1281A (274), washer (275), lockwasher (276) and nut (277) on positive terminal (278).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(133) Tighten nut (277) to 12 to 16 lb-ft (16-22 N·m).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water at least 15 minutes and get immediate medical attention.

(134) Apply corrosion preventative compound to battery terminals (233), (243), (252), (260), (63) and (278).

b. Follow-On Maintenance:

- Install main hydraulic pump driveshaft, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Install Electronic Control Box (ECB) cover, (TM 9-2320-364-20).
- Install left front and rear fender skirt, (TM 9-2320-364-20).
- Install left front noise panel, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

18-4. SINCGARS RADIO KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Tape, Electrical (Item 74, Appendix B)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Right side noise panel removed,
(TM 9-2320-364-20)

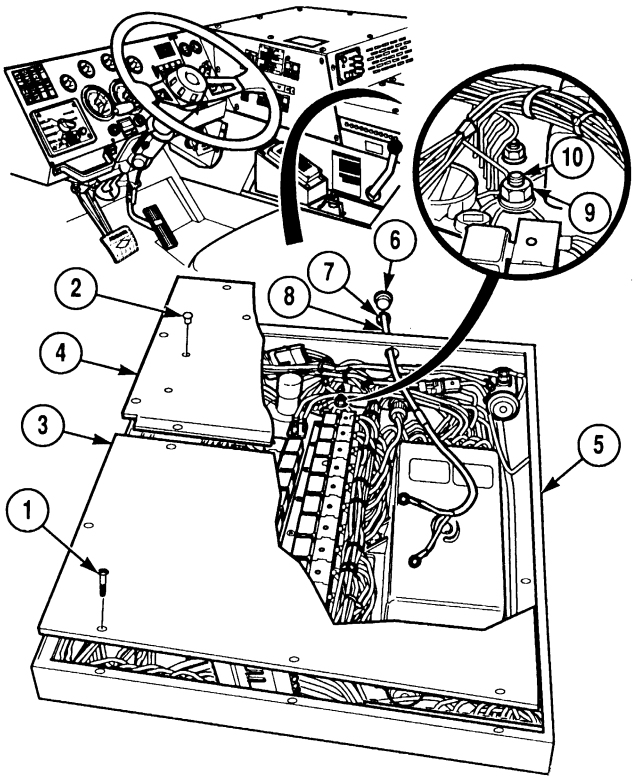
a. Installation.

WARNING

Always disconnect battery ground cable or power source before working on electrical components or injury to personnel may result. Discharge capacitors as noted. If personnel receive an electrical shock, get immediate medical attention.

NOTE

Retain removed plugs for future use.



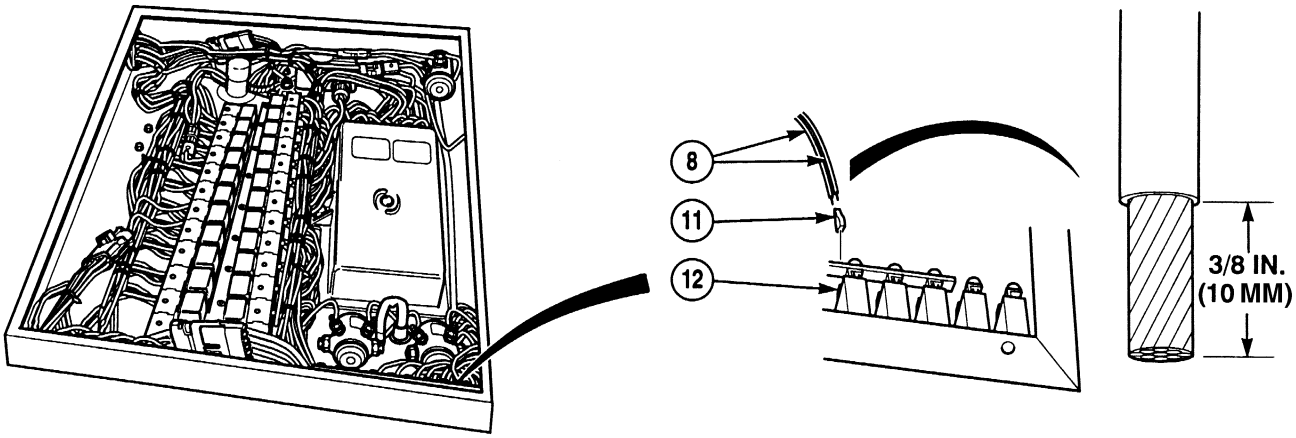
(1) Remove 15 screws (1), five plugs (2), left cover (3) and right cover (4) from Electronic Control Box (ECB) (5).

(2) Remove plug (6) from ECB (5).

(3) Install grommet (7) in right side of ECB (5) and position harness (8) through grommet (7) into ECB (5).

(4) Remove locknut (9) from stud (10). Discard locknut.

(5) Install wire harness (8) on stud (10) with locknut (9).



(6) Cut eyelet from wire harness (8) red wires, strip back insulation 3/8 in. (10 mm) and install connector (11). Discard eyelet.

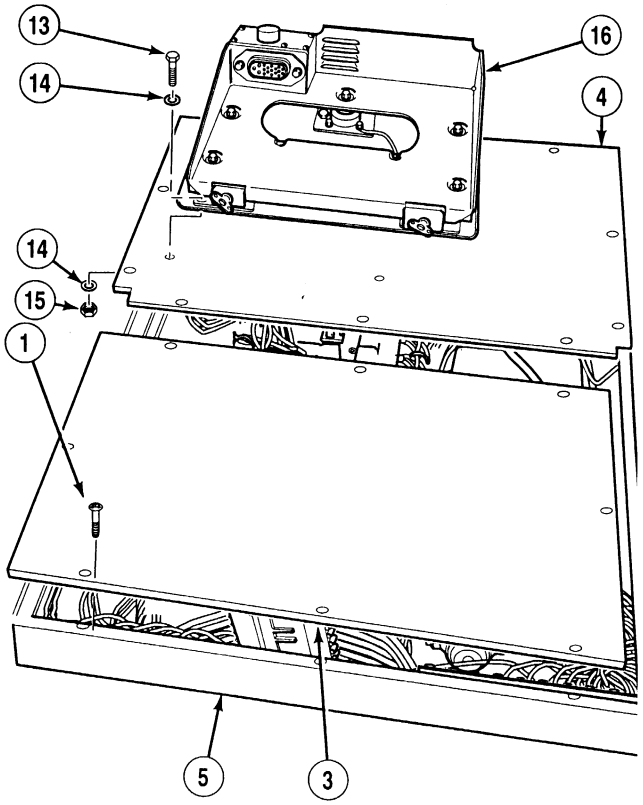
(7) Install connector (11) on circuit breaker CB19 (12).

(8) Install five screws (13), ten lockwashers (14), five nuts (15) and mounting base (16) on right cover (4).

NOTE

Leave right rear two screws holes open.

(9) Install right ECB cover (4), left ECB cover (3) with 15 screws (1) on ECB (5).

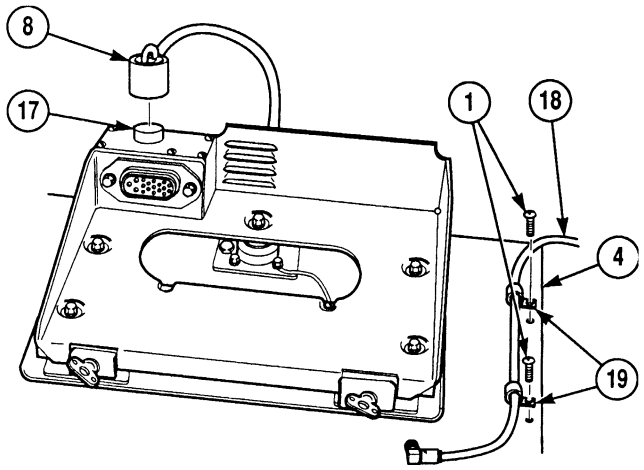


18-4. SINCGARS RADIO KIT INSTALLATION (CONT).

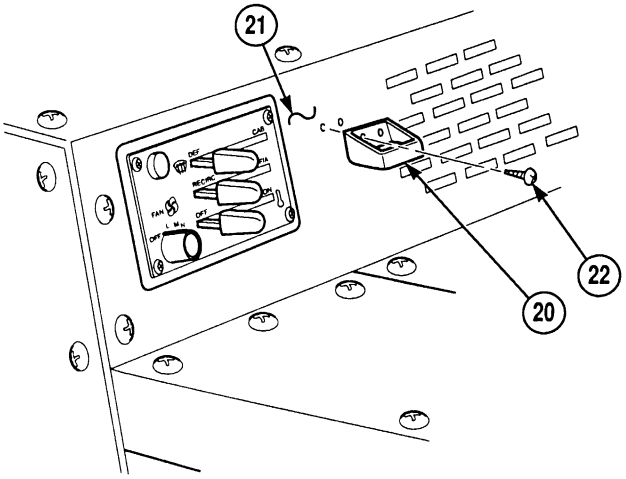
(10) Install remaining end of wire harness (8) on receptacle J1 (17).

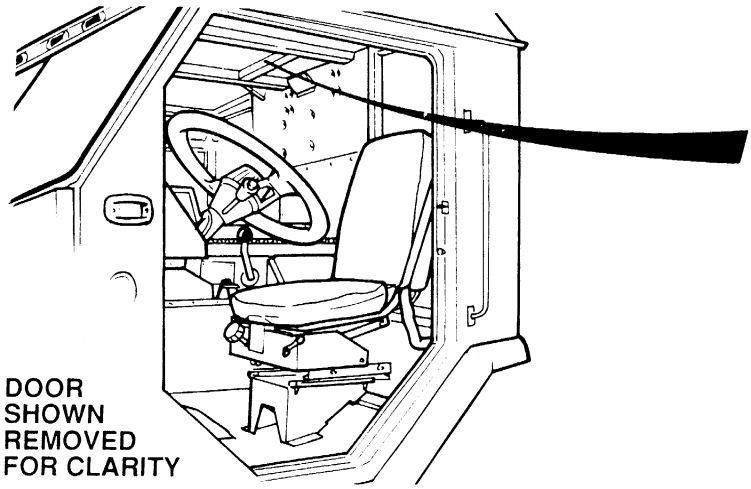
(11) Position radio end of antenna cable (18) in two clamps (19).

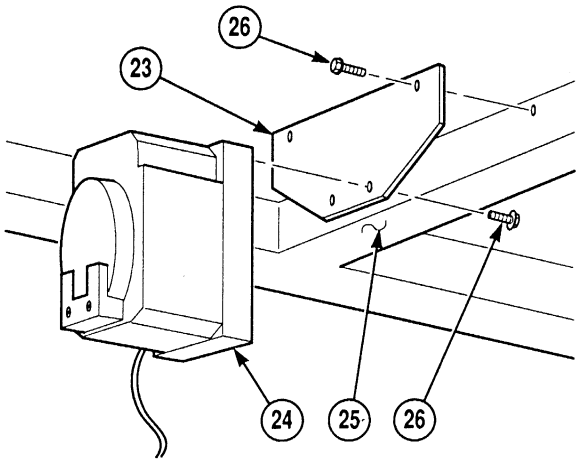
(12) Install two clamps (19) on right cover (4) with screws (1), leaving 18 in. (46 cm) of cable (18) on radio side of clamps.



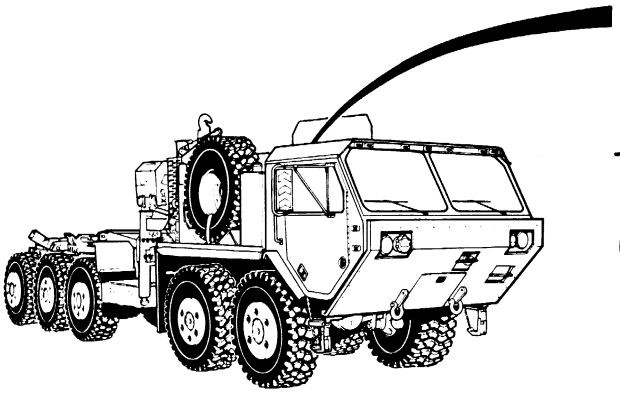
(13) Install bracket (20) in holes on heater control panel (21) with two screws (22).

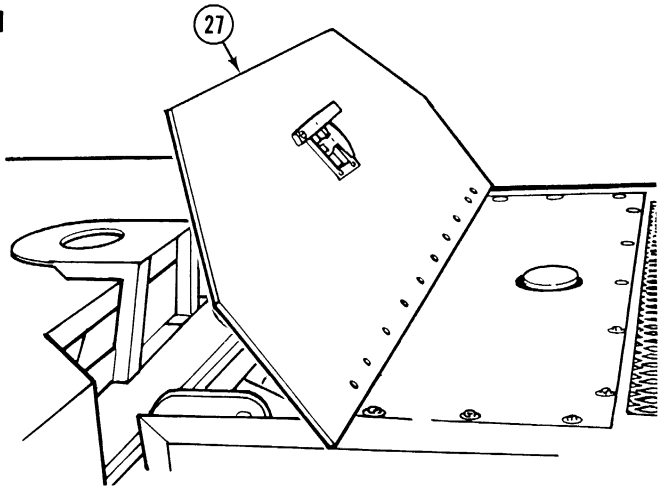




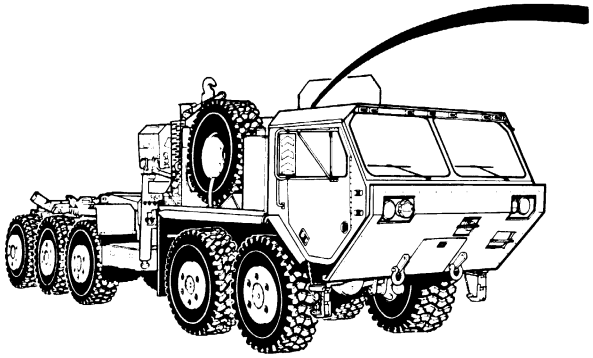


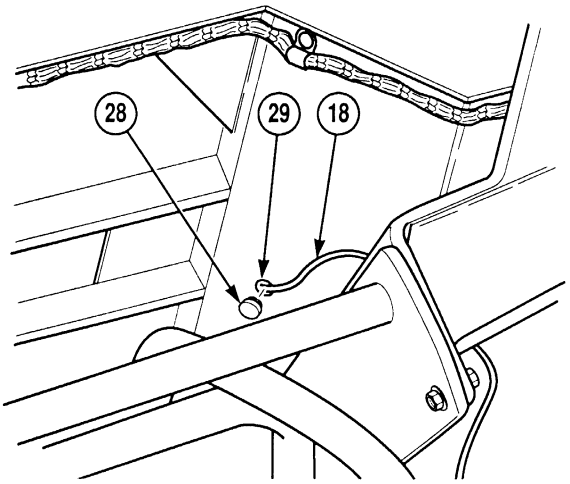
(14) Install bracket (23) and speaker (24) on cab (25) with four screws (26).





(15) Open engine access cover (27).





NOTE

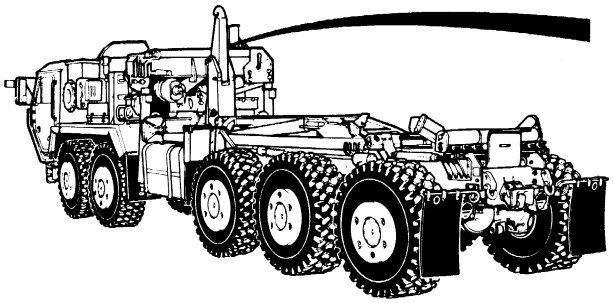
Retain cab plug for future use.

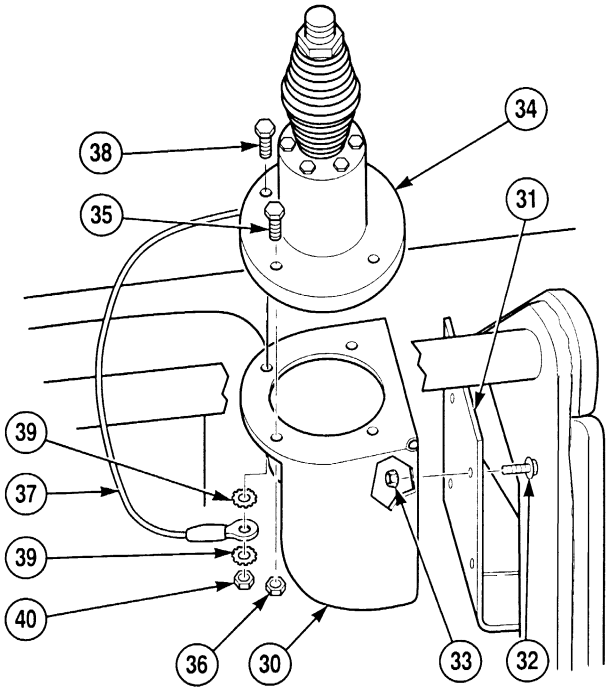
(16) Remove plug (28) and insert screwdriver through antenna hole (29) and insulation to determine where antenna hole (29) is from inside cab.

(17) Cut cab insulation only enough to thread antenna cable (18) through hole (29).

(18) With the aid of an assistant, push antenna cable (18) through hole (29) and out of cab.

18-4. SINCGARS RADIO KIT INSTALLATION (CONT).





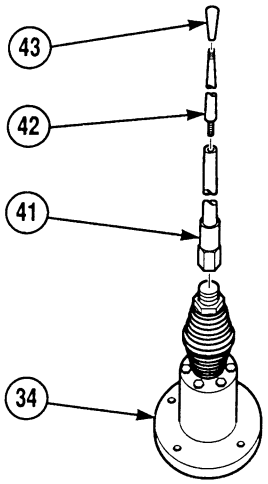
(19) Install support (30), in lowest position, on bracket (31) with four screws (32) and locknuts (33).

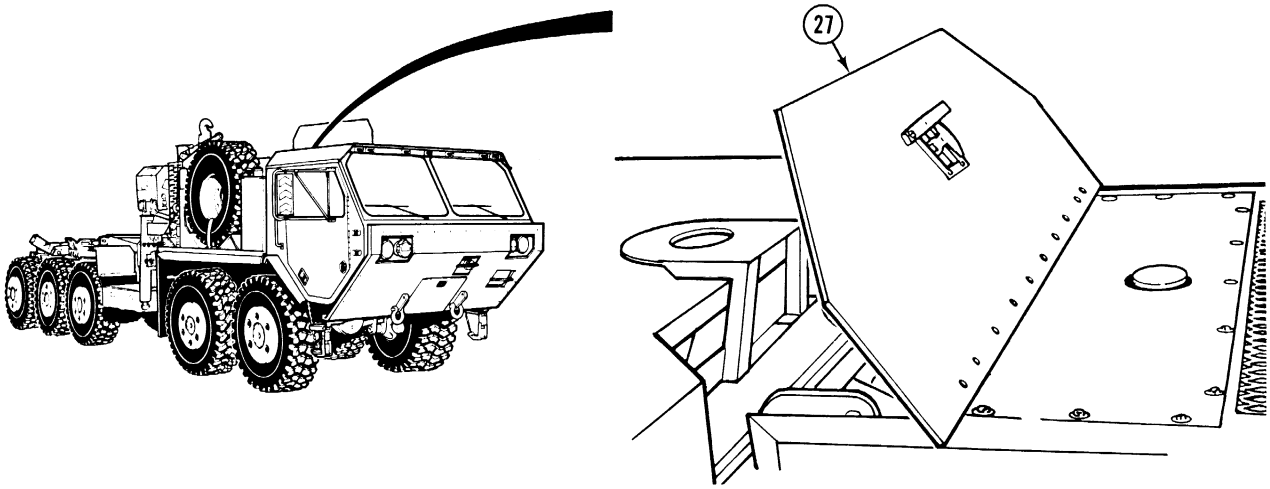
(20) Install antenna base (34) on support assembly (30) with three screws (35) and locknuts (36).

(21) Install ground wire (37) on antenna base (34) and support assembly (30) with screw (38), two lockwashers (39) and nut (40).

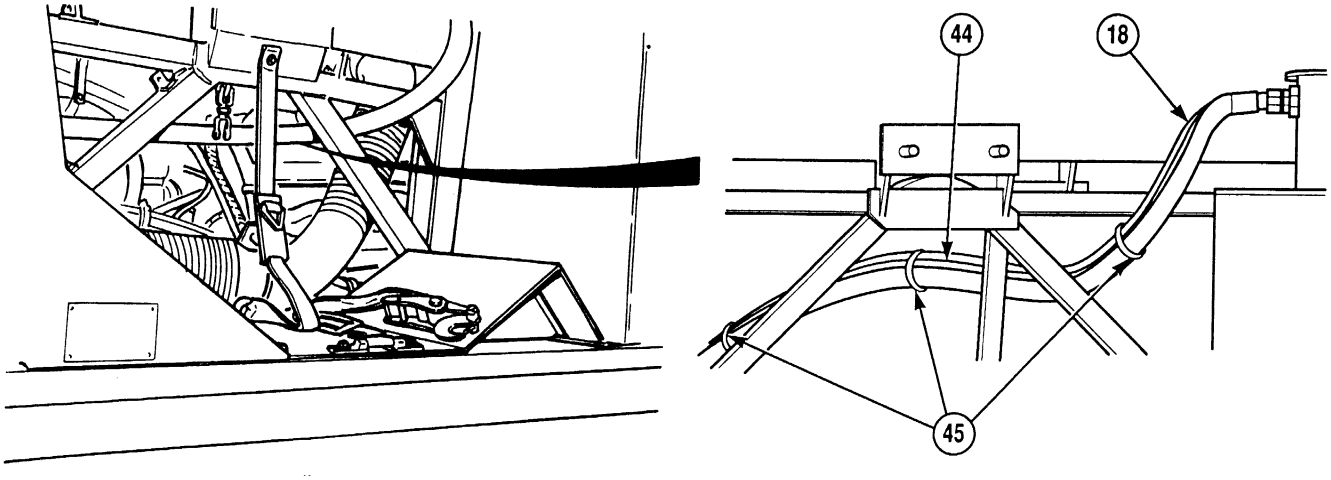
(22) Install antenna (41), antenna extension (42) and tip (43) on antenna base (34).

(23) Wrap tip (43) and top 6.0 in. (152.4 mm) of extension (42) with electrical tape to prevent tip from coming off.





(24) Close engine access cover (27).



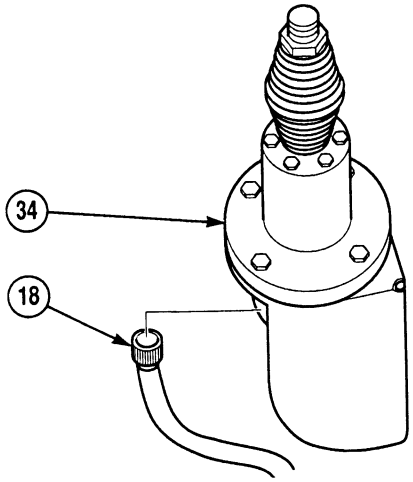
NOTE

- Ensure antenna cable cannot swing or shift into hot exhaust.
- Install cable ties as required.

(25) Install antenna cable (18) on hydraulic hoses (44) using cable ties (45).

18-4. SINCGARS RADIO KIT INSTALLATION (CONT).

(26) Install antenna cable (18) connector on antenna base (34).



b. Follow-On Maintenance:

- Install right side noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-5. MACHINE GUN KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

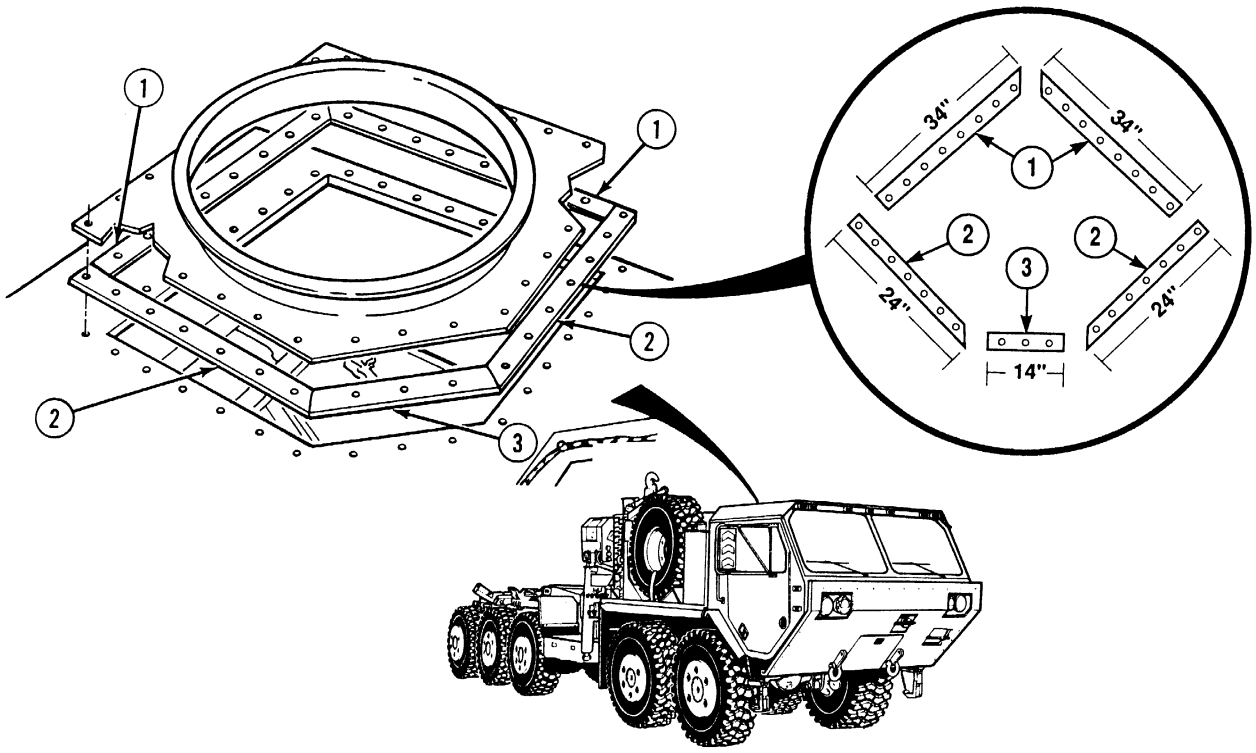
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Lifting Device, Minimum Capacity 350 lbs
(159 kg)

Materials/Parts
Adhesive (Item 1, Appendix B)
Sealing Compound (Item 54, Appendix B)

Personnel Required
Two

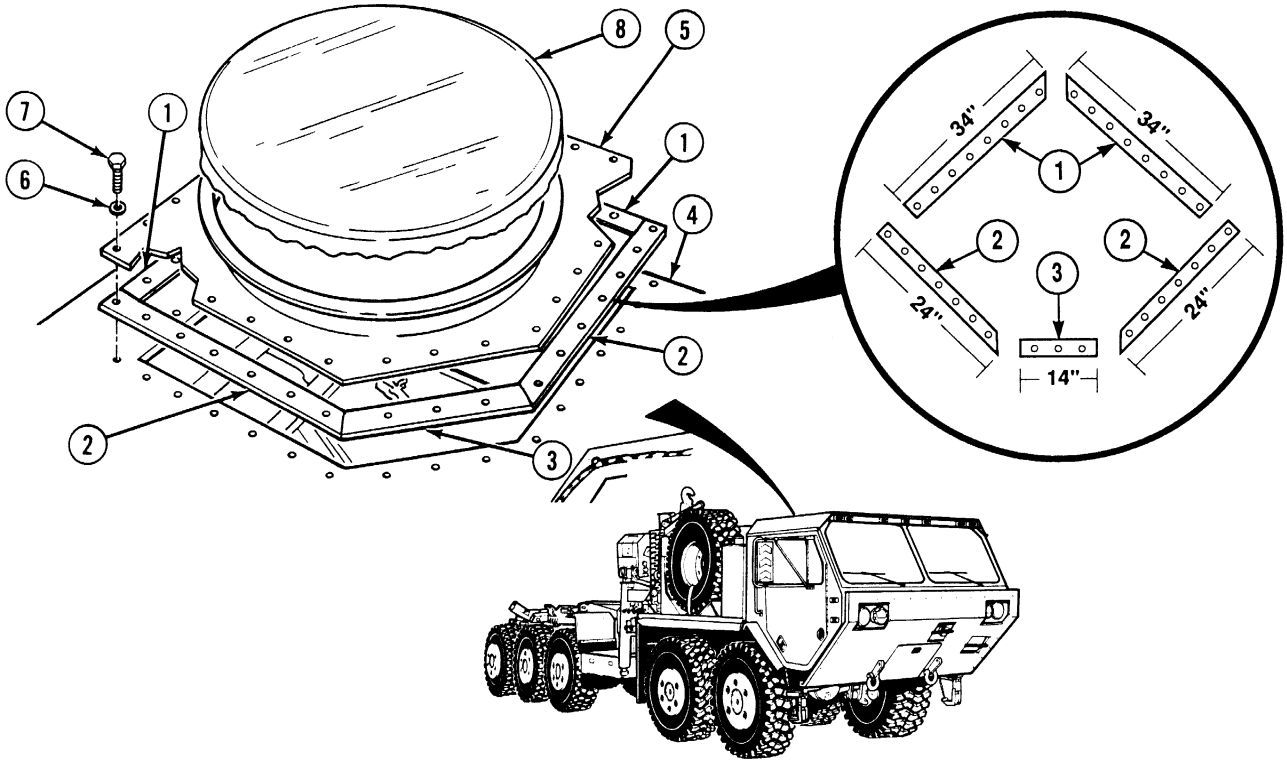
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Right roof cover plate removed,
(TM 9-2320-364-20)
Heater access panel removed,
(TM 9-2320-364-20)
ECB cover removed, (TM 9-2320-364-20)

a. Installation.



(1) Cut gasket strips (1), (2), and (3) to correct lengths shown.

18-5. MACHINE GUN KIT INSTALLATION (CONT).



(2) Apply adhesive to gasket strips (1), (2) and (3).

(3) Install gasket strips (1), (2) and (3) on roof (4).

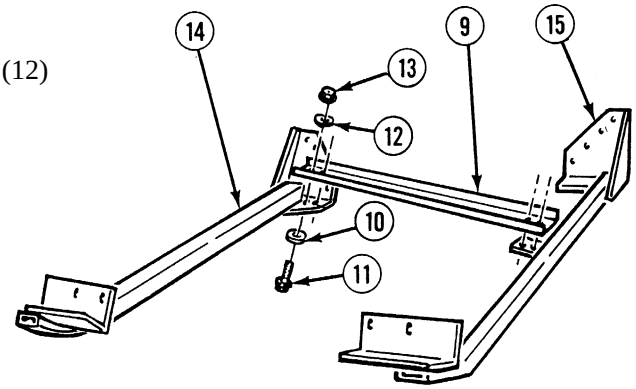
(4) Position hatch ring assembly (5) on roof (4).

(5) Punch 34 holes in five gasket strips (1), (2) and (3) using hatch ring assembly (5) as template.

(6) Install 34 sealing washers (6) and self-tapping screws (7) in hatch ring assembly (5).

(7) Install hatch cover (8) on hatch ring assembly (5).

(8) Install front support channel (9), four washers (10), screws (11), lockwashers (12) and nuts (13) on bracket (14) and front support (15).



WARNING

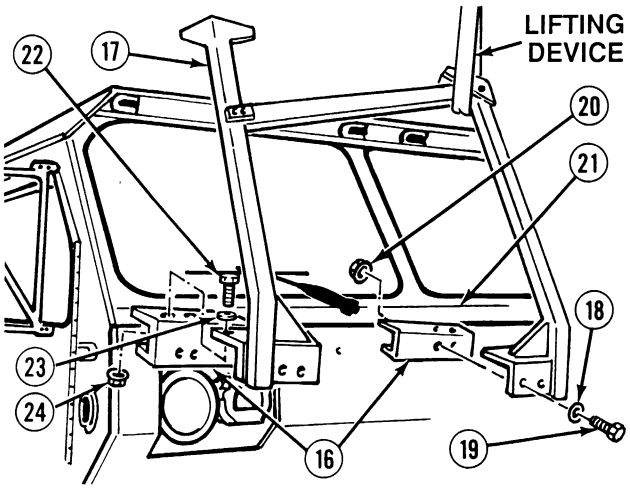
Machine gun ring front support weighs 55 lbs (25 kg). Attach suitable lifting device prior to installation to prevent injury to personnel.

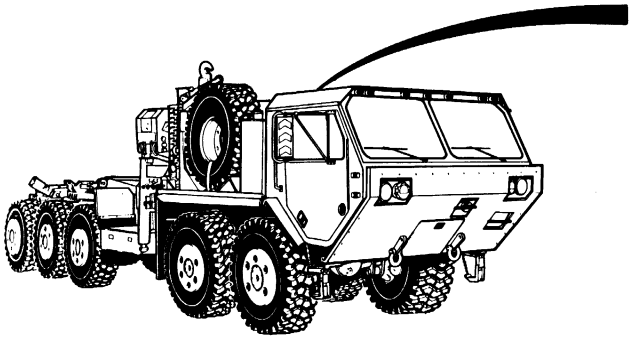
(9) With the aid of an assistant, position two spacers (16), front support (17), four washers (18), screws (19) and locknuts (20) on skid plate (21).

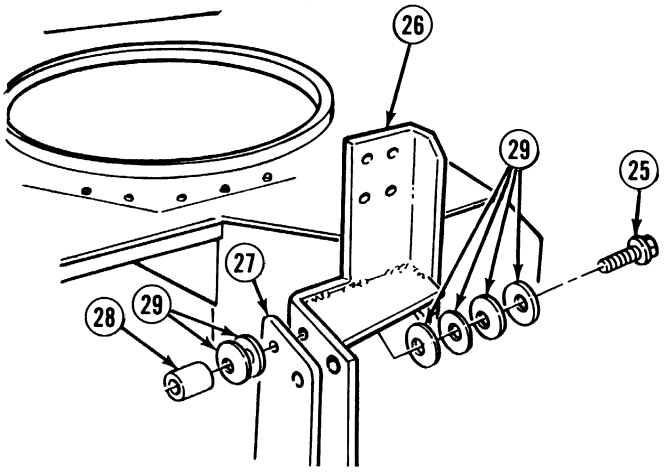
(10) Position four screws (22), washers (23) and locknuts (24) on front support (17).

(11) Tighten four locknuts (20) on skid plate (21).

(12) Tighten four locknuts (24) on front support (17).







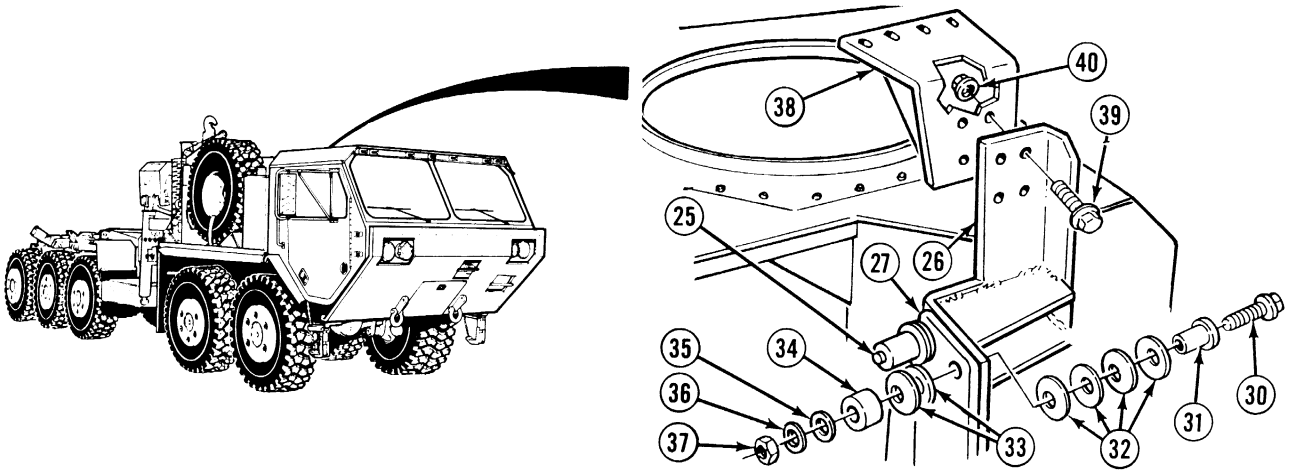
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(13) Apply sealing compound on threads of screw (25).

(14) Position rear support (26) on power module right frame (27) using spacer (28), six washers (29) and screw (25).

18-5. MACHINE GUN KIT INSTALLATION (CONT).



WARNING

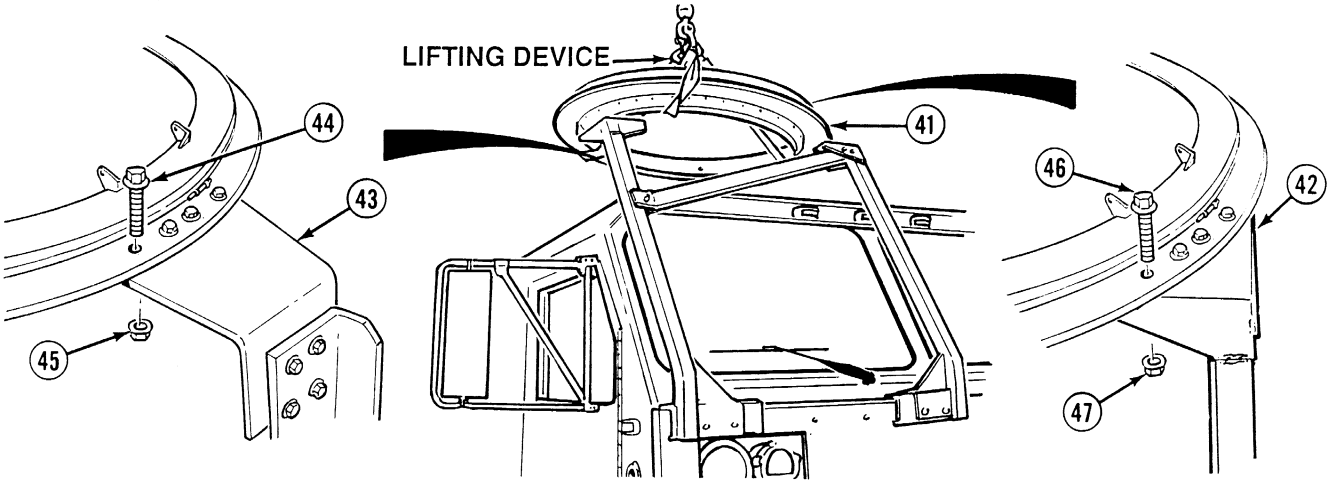
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(15) Apply sealing compound on threads of screw (30).

(16) Install four washers (31), sleeve (32), screw (30), washers (33), spacer (34), washer (35), lockwasher (36) and nut (37) on power module right frame (27). Tighten nut to 170 lb-ft (231 N·m).

(17) Tighten screw (25) to 128 lb-ft (174 N·m) on rear support (26).

(18) Install bracket (38) on rear support (26) with four screws (39) and locknuts (40).



WARNING

Machine gun ring weighs 295 lbs (134 kg). Attach suitable lifting device prior to installation to prevent injury to personnel.

(19) Attach lifting device to machine gun ring (41).

(20) With the aid of an assistant, position machine gun ring (41) on front and rear supports (42) and (43).

(21) Position four screws (44) and locknuts (45) on rear support (43).

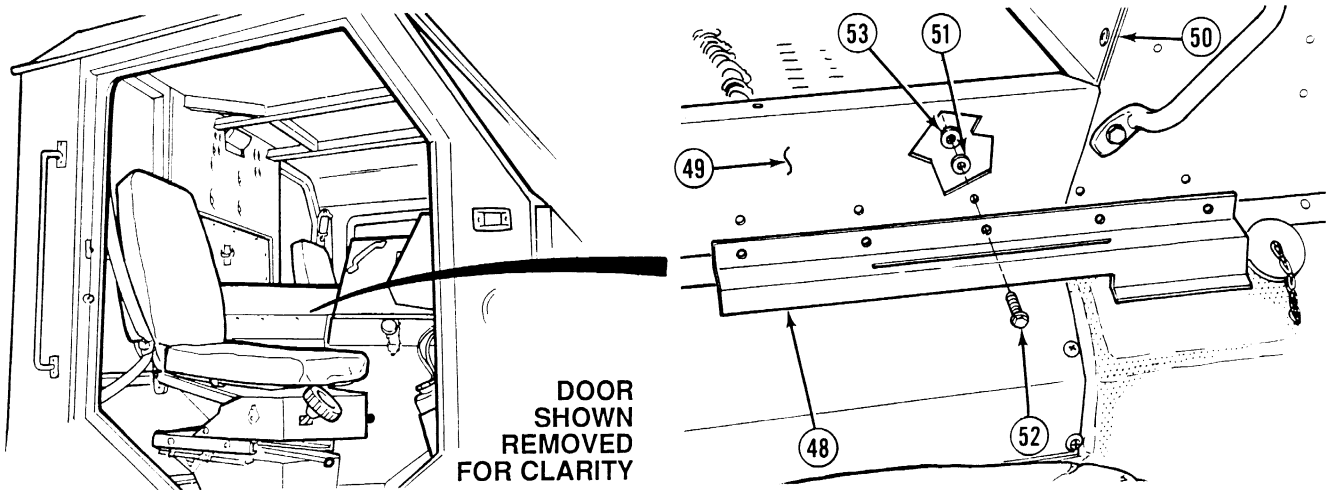
(22) Position eight screws (46) and locknuts (47) on front support (42).

(23) Tighten four locknuts (45) on rear support (43).

(24) Tighten eight locknuts (47) on front support (42).

(25) Remove lifting device from machine gun ring (41).

18-5. MACHINE GUN KIT INSTALLATION (CONT).



(26) Install platform bracket (48) on ECB (49) and heater panel (50) with five washers (51), screws (52) and locknuts (53).

(27) Remove screw (54) from CTIS manifold (55).

(28) Install bracket (56) to CTIS manifold (55) with screw (54).

NOTE

Tab on platform assembly fits in slot in platform bracket.

(29) Release leg assembly (57) from spring clip (58).

NOTE

Platform may be assembled.

(30) Position platform assembly (59) on platform bracket (48).

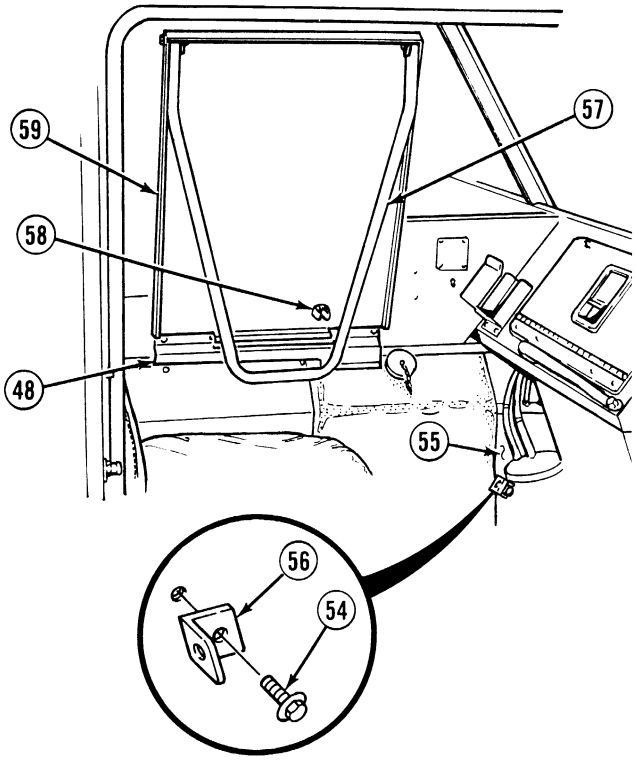
(31) Extend leg assembly (57) out from platform assembly (59).

(32) Lower platform assembly (59) to floor.

(33) Remove platform assembly (59) from platform bracket (48).

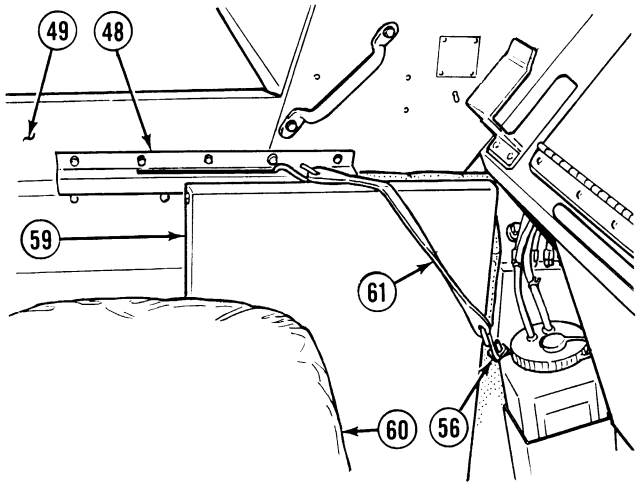
(34) Fold leg assembly (57) against platform assembly (59).

(35) Install leg assembly (57) in spring clip (58).



(36) Position platform assembly (59) between seat (60) and electrical control box (49).

(37) Hook strap (61) to bracket (56) and platform bracket (48) to secure platform assembly (59).



b. Follow-On Maintenance:

- Install Electronic Control Box (ECB) cover, (TM 9-2320-364-20).
- Install heater access panel, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-6. AUXILIARY FUEL TANK KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Hammer, Soft Faced (Item 88, Appx F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)

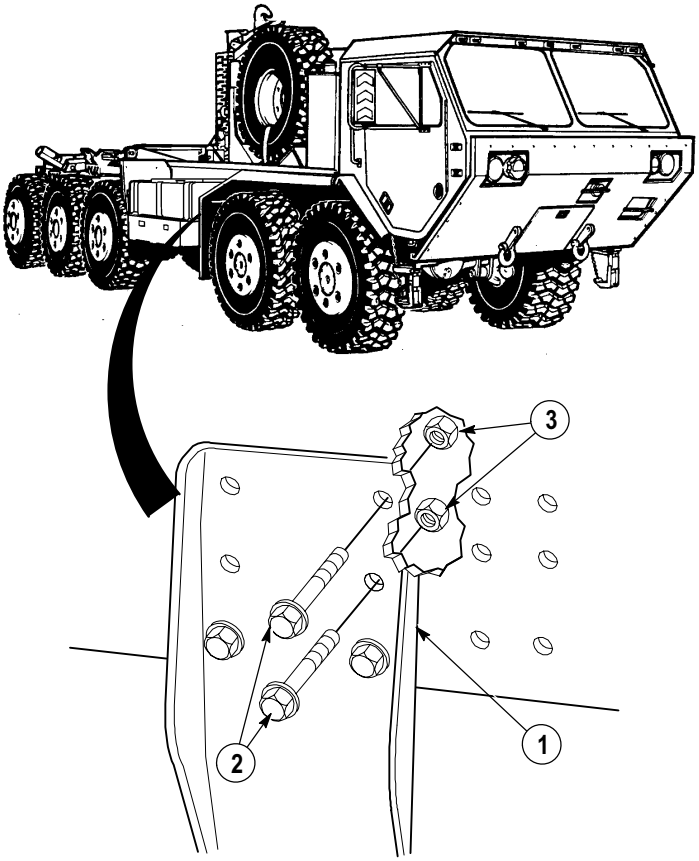
Materials/Parts
Adhesive (Item 1, Appendix B)
Lubricant, Tire (Item 31, Appx B)
Sealing Compound (Item 54, Appendix B)
Locknut (4) (Item 166, Appx E)
Locknut (2) (Item 176, Appx E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
LHS extended, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Main fuel tank drained,
(TM 9-2320-364-20)
Decontamination Kit Bracket removed,
(TM 9-2320-364-20)
Stowage Box and Brackets removed,
(TM 9-2320-364-20)

NOTE

- Vehicle can not be equipped with winch or crane.
- Auxiliary fuel tank kits can not be installed on truck with a material handling crane or self-recovery winch.



a. Installation.

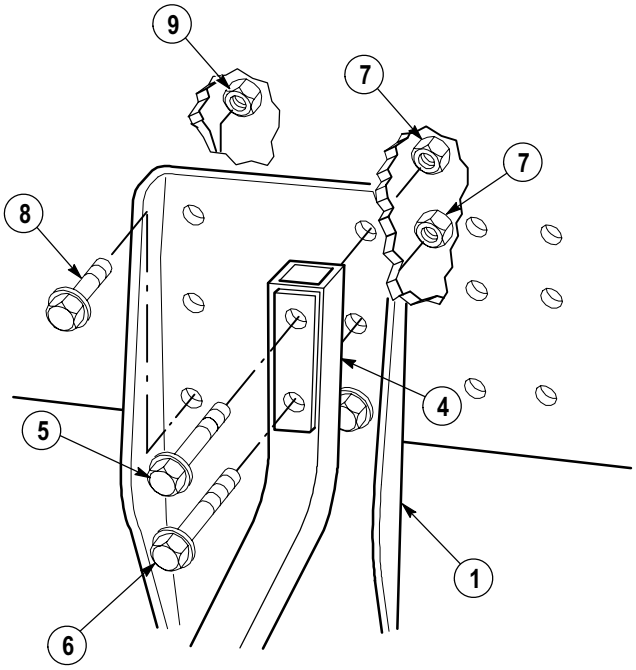
(1) With the aid of an assistant, support crossmember bracket (1) and remove two screws (2) and locknuts (3). Discard screws and locknuts.

NOTE

Rear stowage box bracket in Step (2) was removed in Equipment Conditions.

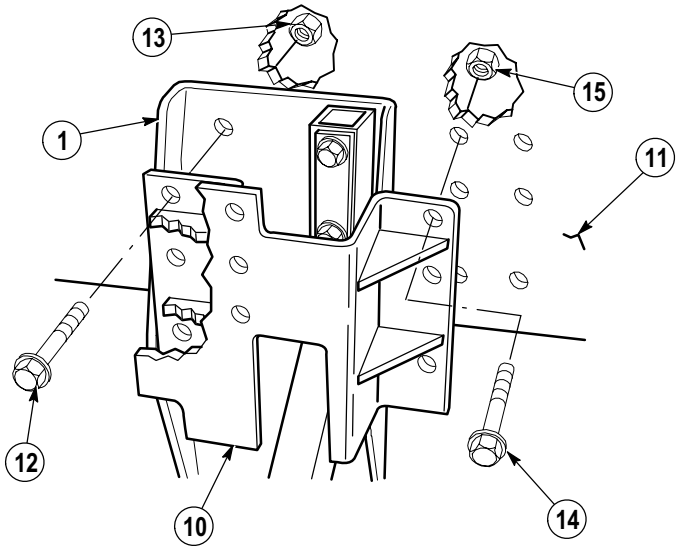
(2) Install rear stowage box bracket (4), screw (5), screw (6) and two locknuts (7) to crossmember bracket (1).

(3) Remove screw (8) and locknut (9) from crossmember bracket (1). Discard screw and locknut.



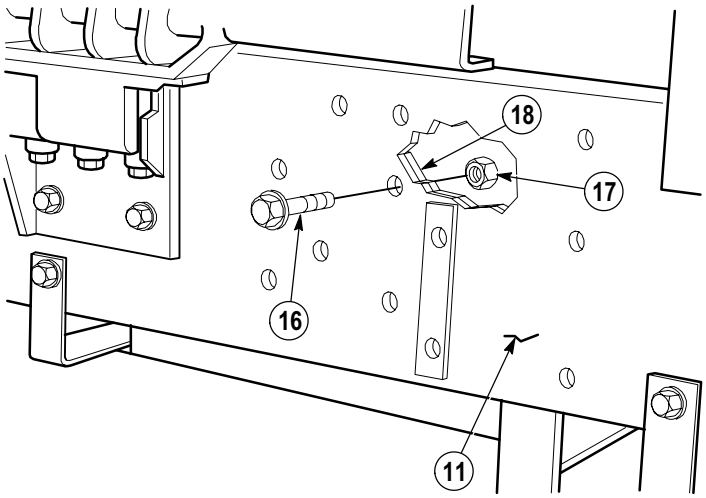
(4) Position rear fuel tank bracket (10) on frame (11) and crossmember bracket (1), with three 2.25 in. (5.715 cm) screws (12), locknuts (13), 2 in. (5.08 cm) screws (14) and locknuts (15).

(5) Tighten locknuts (13) to 375 lb-ft (508 N·m). Tighten locknuts (15) to 210 lb-ft (285 N·m).



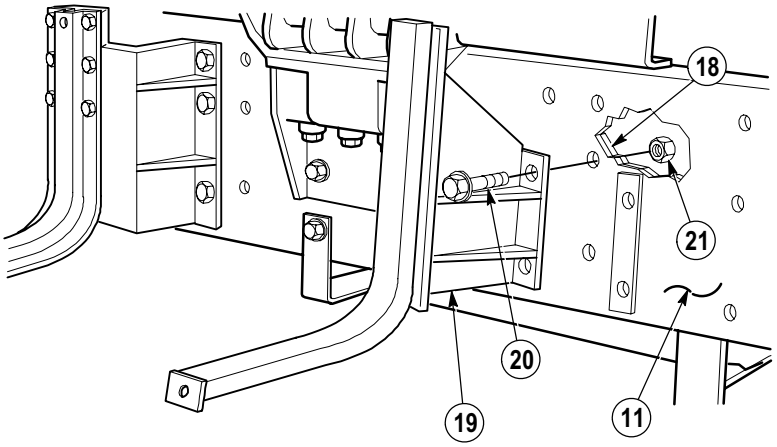
18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).

(6) Remove six corner screws (16) and locknuts (17) from transfer case bracket (18) and frame (11). Discard screws and locknuts.



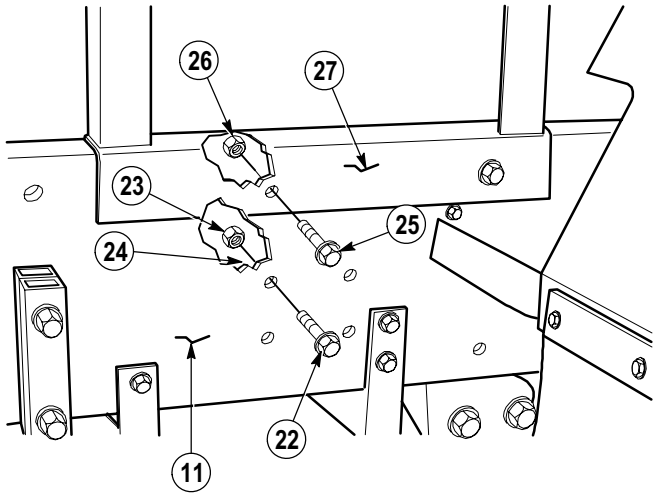
(7) Position middle fuel tank bracket (19) on frame (11) and transfer case bracket (18) with six 1.75 in. (4.445 cm) screws (20) and locknuts (21).

(8) Tighten locknuts (21) to 210 lb-ft (285 N·m).



(9) Remove four lower screws (22) and locknuts (23) from crossmember bracket (24) and frame (11). Discard screws and locknuts.

(10) Remove screw (25) and locknut (26) from deck weldment (27) and frame (11). Discard screw and locknut.

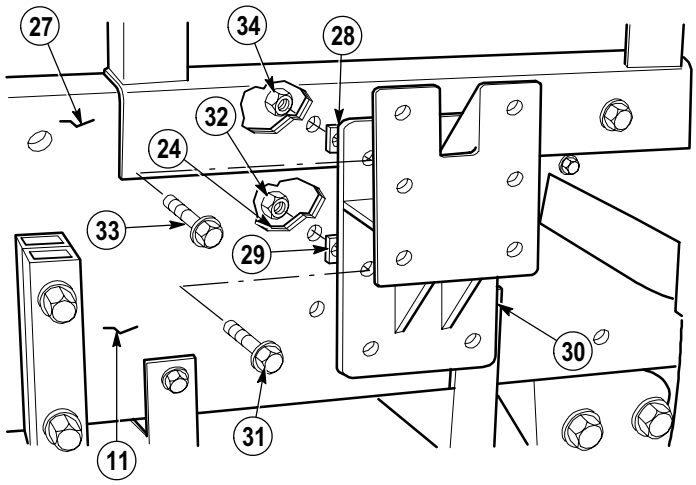


NOTE

If truck is equipped with CHU kit, spacers will not be present in Step (11).

(11) Install spacer (28), two spacers (29) and front fuel tank bracket (30) on frame (11), crossmember bracket (24) and deck weldment (27) with four 2.25 in. (5.715 cm) screws (31), locknuts (32), 2.75 in. (6.985 cm) screw (33) and locknut (34).

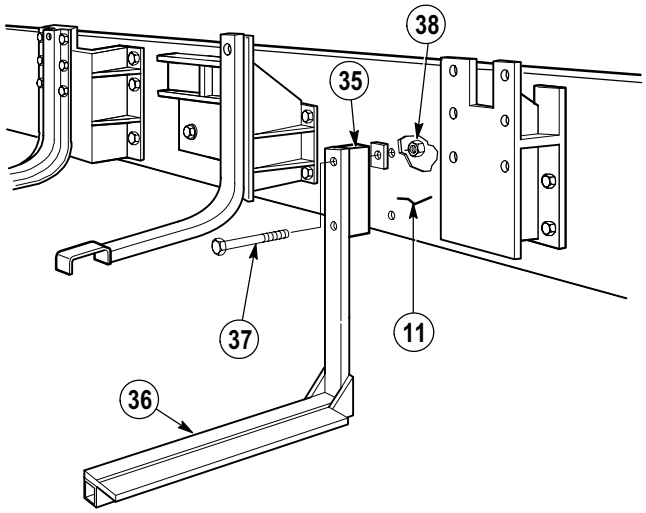
(12) Tighten four locknuts (32) to 210 lb-ft (285 N·m). Tighten locknut (34) to 375 lb-ft (508 N·m).



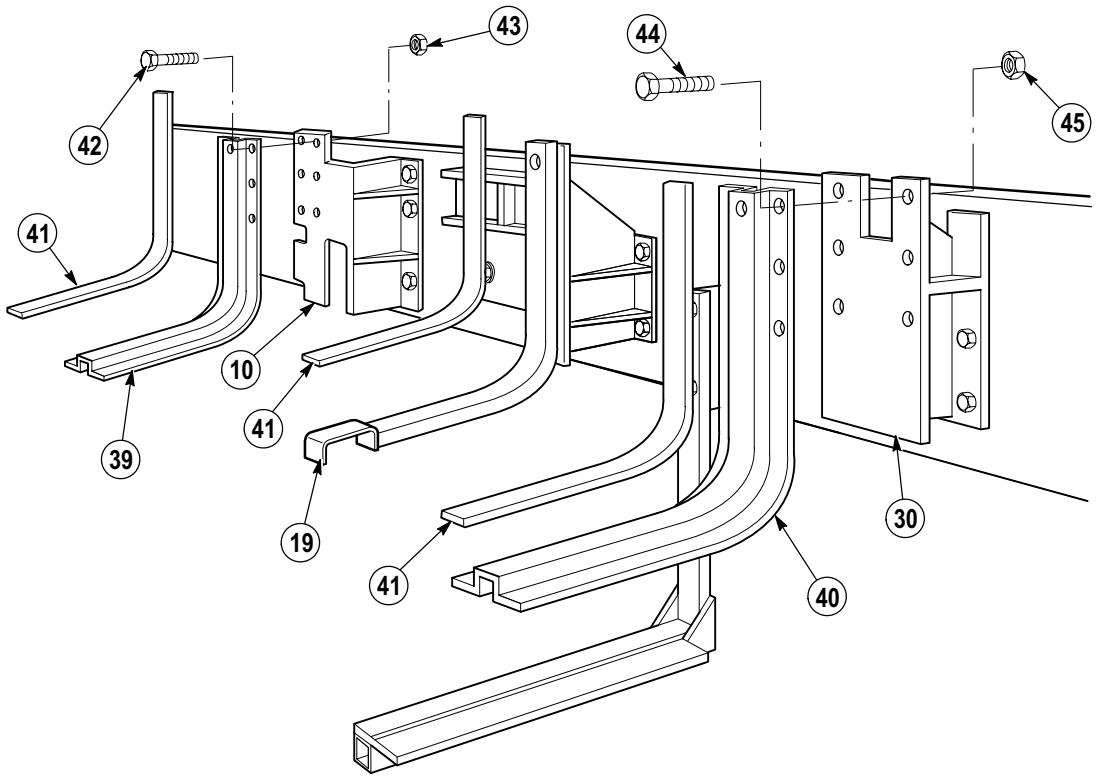
NOTE

- Front stowage box bracket in Step (13) is from auxiliary fuel tank kit.
- If truck is equipped with CHU kit, spacer will not be present in Step (13).

(13) Install spacer (35) and front stowage box bracket (36) on frame (11) with two screws (37) and locknuts (38).



18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).



WARNING

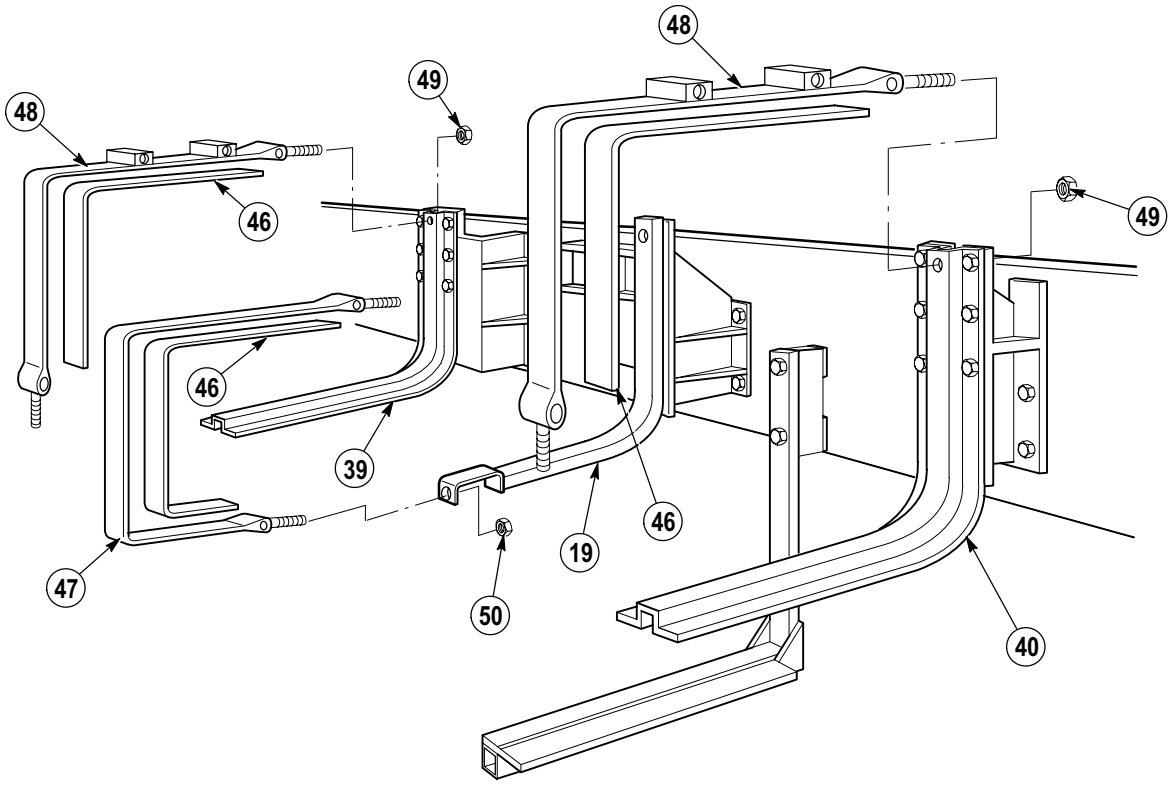
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(14) Apply spray adhesive to fuel tank brackets (39) and (40) and middle fuel tank bracket (19).

(15) Install rubber liners (41) by removing protective backing and installing on middle fuel tank bracket (19) and fuel tank brackets (39) and (40).

(16) Install fuel tank bracket (39) with six screws (42) and locknuts (43) on rear fuel tank bracket (10). Tighten locknuts to 210 lb-ft (285 N·m).

(17) Install fuel tank bracket (40) with six screws (44) and locknuts (45) on front fuel tank bracket (30). Tighten locknuts to 210 lb-ft (285 N·m).



NOTE

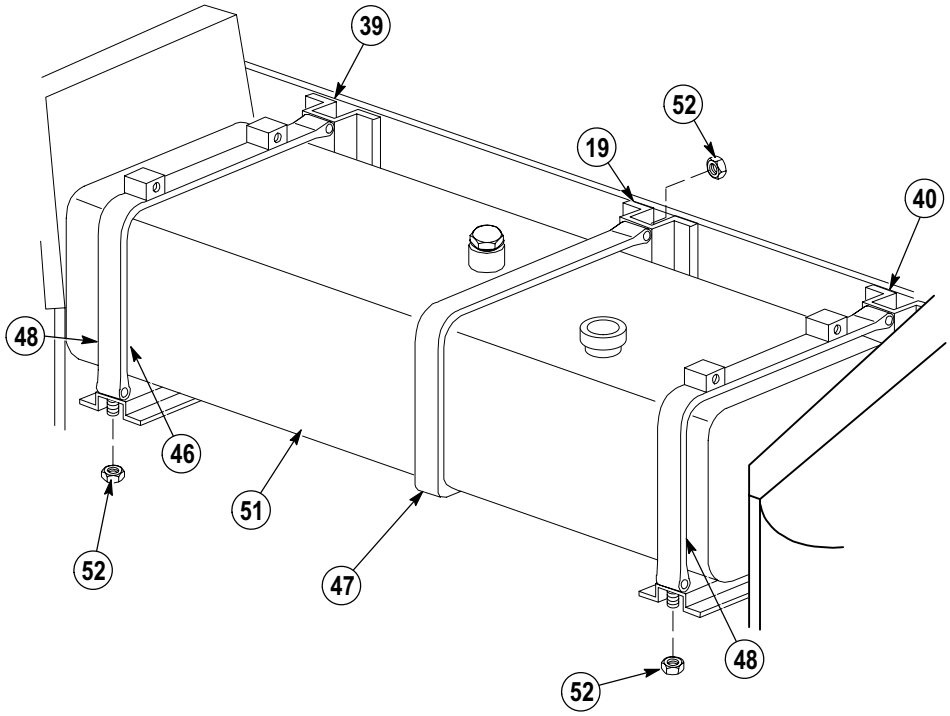
Fuel tank straps are properly installed when three threads are showing through end of nut.

(18) Install strap liners (46) on fuel tank strap (47) and two fuel tank straps (48).

(19) Attach two fuel tank straps (48) on fuel tank brackets (39) and (40) with two locknuts (49).

(20) Attach fuel tank strap (47) on middle fuel tank bracket (19) with locknut (50).

18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).



(21) With the aid of an assistant, position auxiliary fuel tank (51) on fuel tank brackets (39) and (40) and middle fuel tank bracket (19).

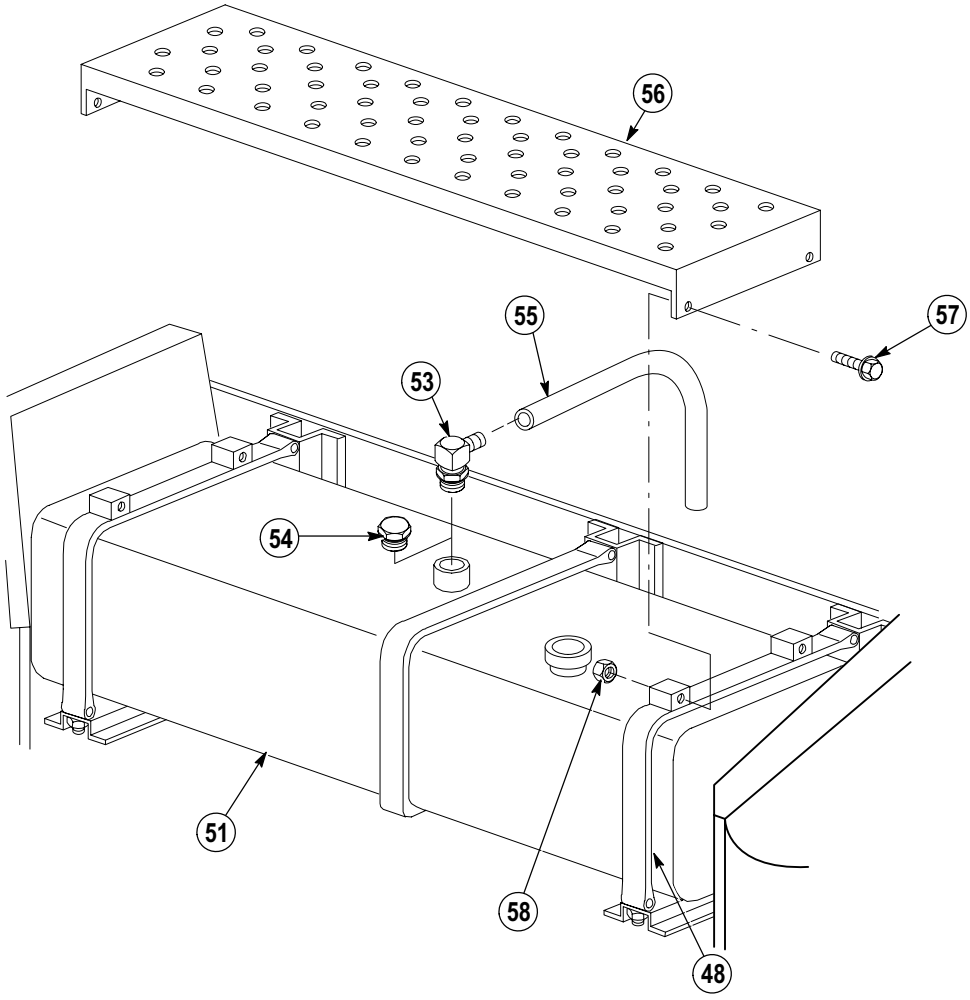
(22) Coat strap liners (46) and fuel tank (51) contact area with tire lubricant.

CAUTION

Do not overtighten locknuts or fuel tank straps will crush fuel tank.

(23) Secure auxiliary fuel tank (51) with two fuel tank straps (48), fuel tank strap (47) and three locknuts (52). Tighten locknuts to 25 to 30 lb-ft (34 to 41 N·m).

(24) Using soft faced hammer, tap on fuel tank straps (48) and (47) and retighten as necessary until torque remains at 25 to 30 lb-ft (34 to 41 N·m).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(25) Apply sealing compound to threads of soft tank vent valve (53).

NOTE

If auxiliary fuel tank is equipped with plug, perform Step (26).

(26) Remove plug (54).

(27) Install tank vent valve (53) into auxiliary fuel tank (51).

(28) Connect overflow hose (55) to tank vent valve (53).

(29) Install treaded platform (56), four screws (57) and four locknuts (58) to fuel tank straps (48).

18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Do not coat last two threads of fittings with sealing compound. Sealing compound will contaminate fuel system and cause damage to equipment.

NOTE

Install elbows, reducers, adapter, fuel shutoff valves and safety valves as noted prior to removal.

(30) Remove plug (59) from auxiliary fuel tank (51), if present.

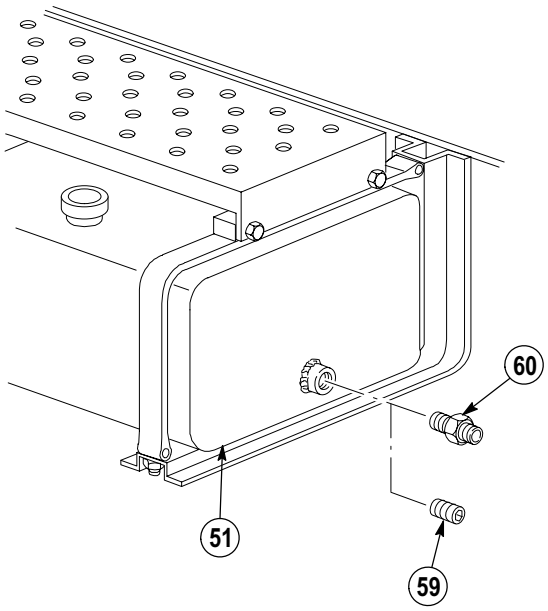
(31) Coat threads of reducer (60) with sealing compound.

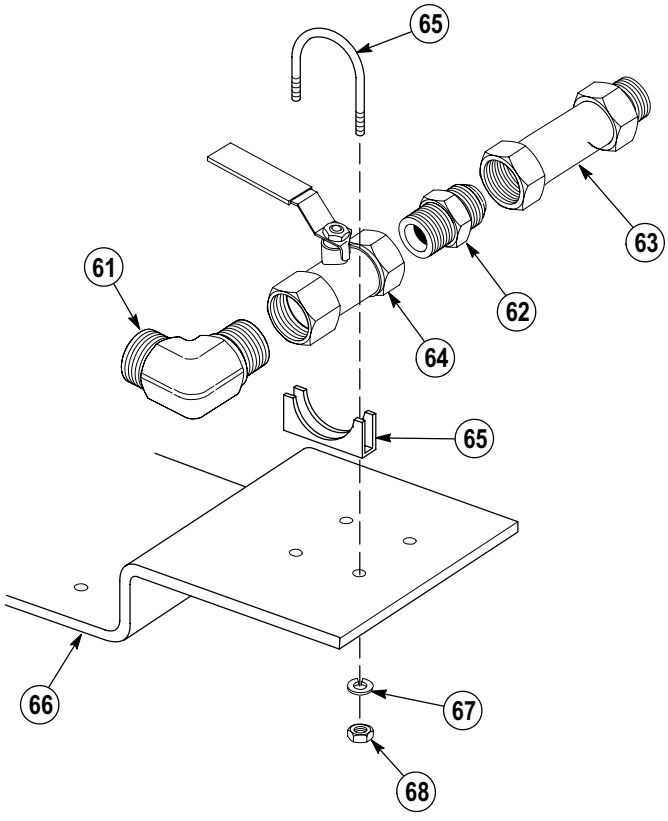
(32) Install reducer (60) on auxiliary fuel tank (51).

(33) Coat threads of elbow (61), adapter (62), and safety valve (63) with sealing compound.

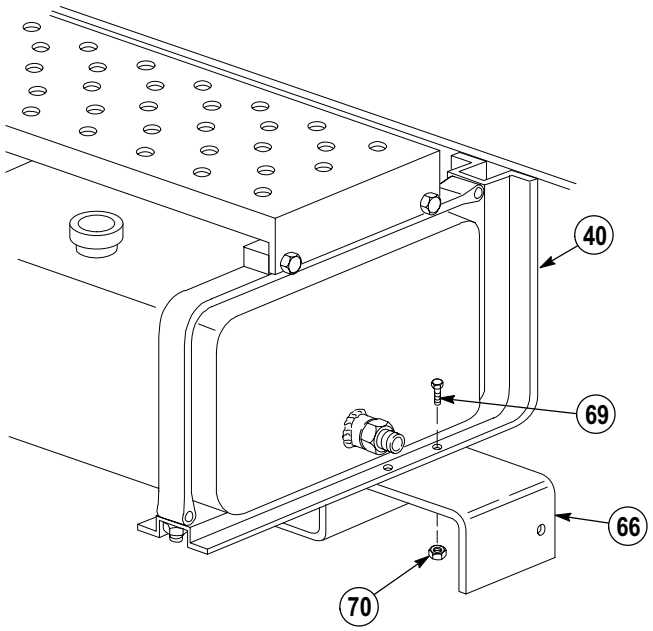
(34) Assemble elbow (61), fuel shutoff valve (64), adapter (62) and safety valve (63).

(35) Position fuel shutoff valve (64) between two clamps (65) and install on fuel tank guard (66) with four lockwashers (67) and nuts (68).





(36) Install fuel tank guard (66), two screws (69) and locknuts (70) to fuel tank bracket (40).



(37) Connect hose 2320 (71) to reducer (60).

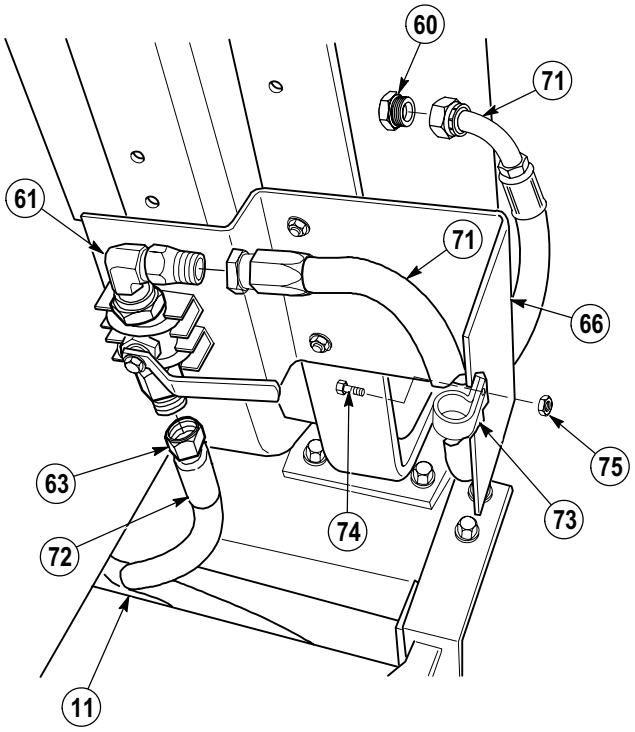
(38) Connect hose 2320 (71) to elbow (61).

(39) Connect hose 2320 (72) to safety valve (63).

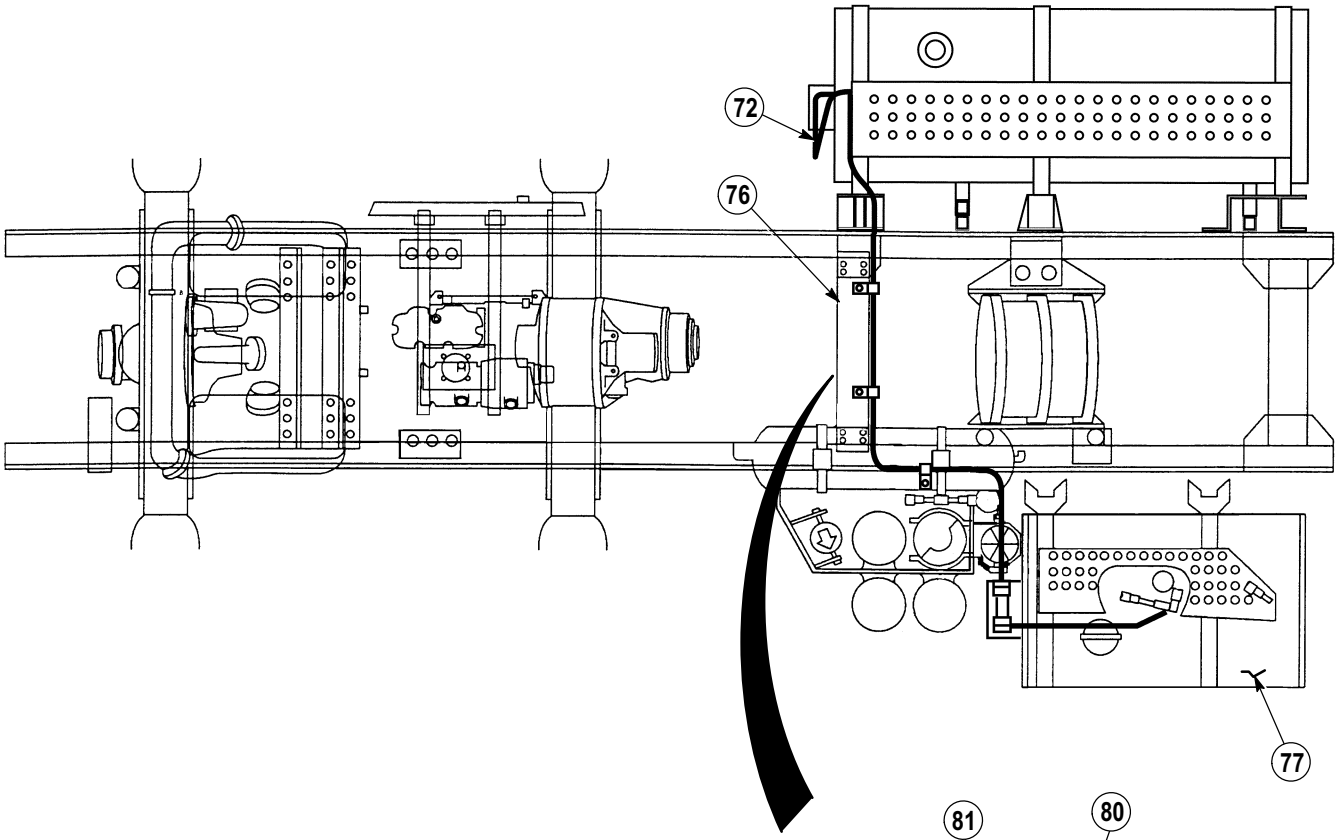
(40) Position cushion clip (73) on hose 2320 (71).

(41) Install cushion clip (73), screw (74) and locknut (75) on fuel tank guard (66).

(42) Position hose 2320 (72) under frame (11).



18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).



(43) Route hose 2320 (72) under crossmember (76) towards existing main fuel tank (77).

NOTE

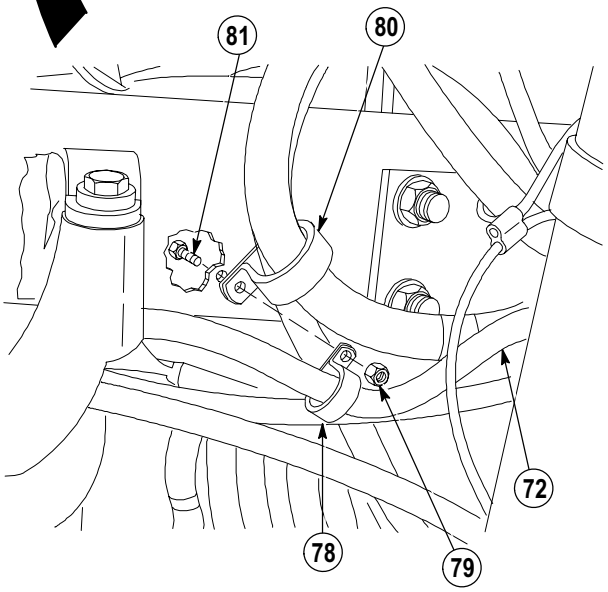
Three new cushion clips will be installed with two existing cushion clips on crossmember.

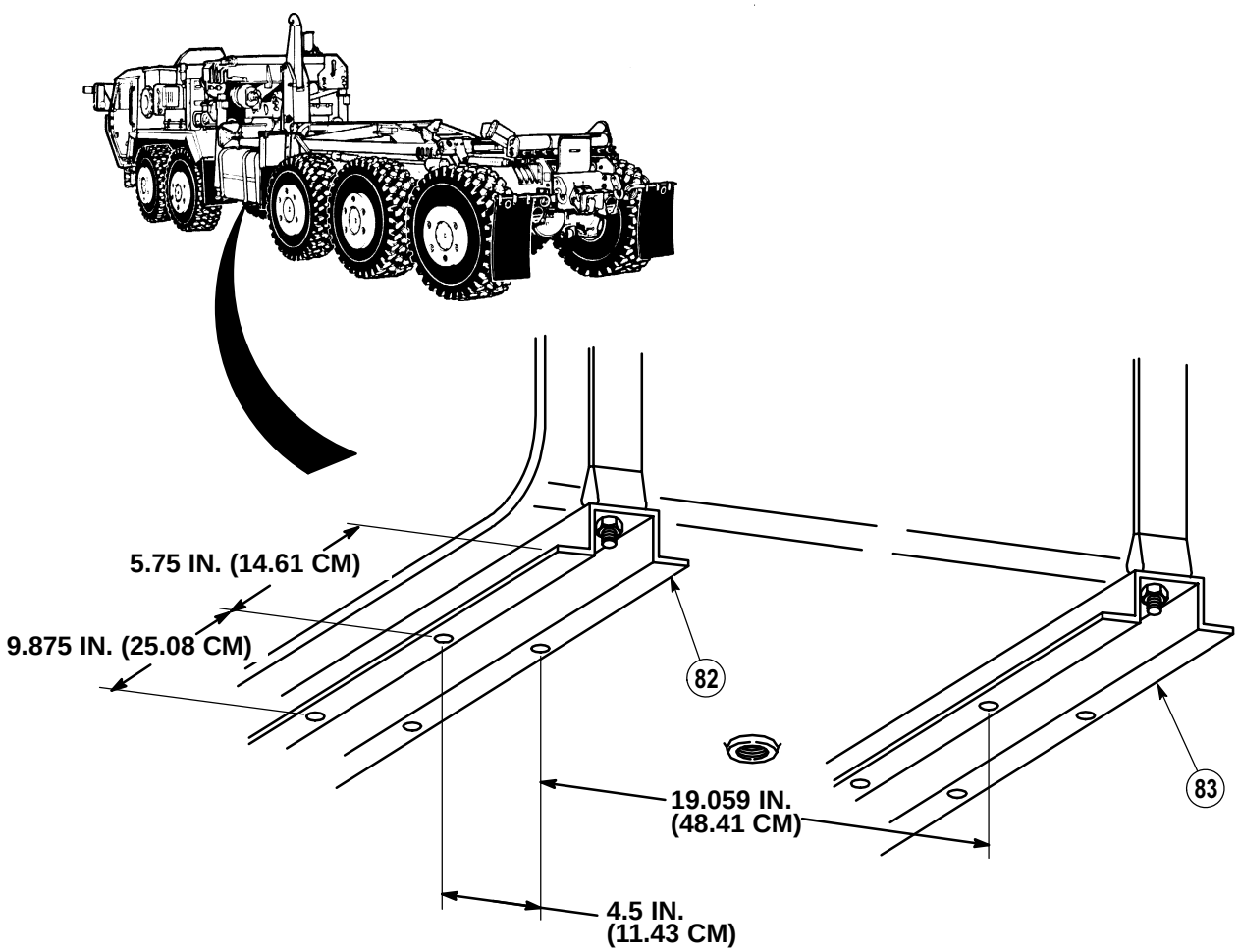
(44) Position three cushion clips (78) on hose 2320 (72).

(45) Remove locknut (79), cushion clip (80) and screw (81). Discard locknut.

(46) Install screw (81), cushion clip (80), cushion clip (78) and locknut (79).

(47) Repeat Steps (45) and (46) for remaining cushion clips (78).





NOTE

Fuel tank guard may be used as template in Step (48).

(48) Mark and drill four holes in front fuel tank bracket (82) and two holes in back fuel tank bracket (83) as shown.

18-6. AUXILIARY FUEL TANK KIT INSTALLATION (CONT).

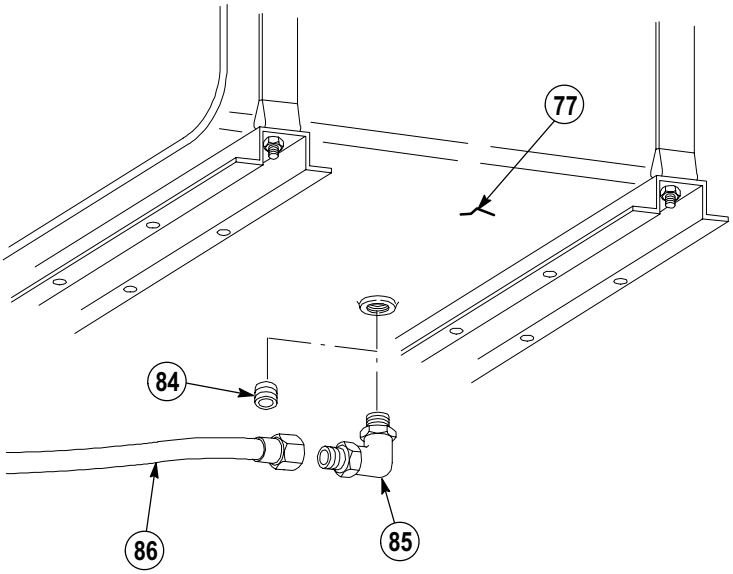
(49) Remove drain plug (84) from main fuel tank (77).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Do not coat last two threads of fittings with sealing compound. Sealing compound will contaminate fuel system and cause damage to equipment.



(50) Apply sealing compound to threads of reducer (85).

(51) Install reducer (85) in main fuel tank (77).

(52) Attach hose 2320 (86) to reducer (85).

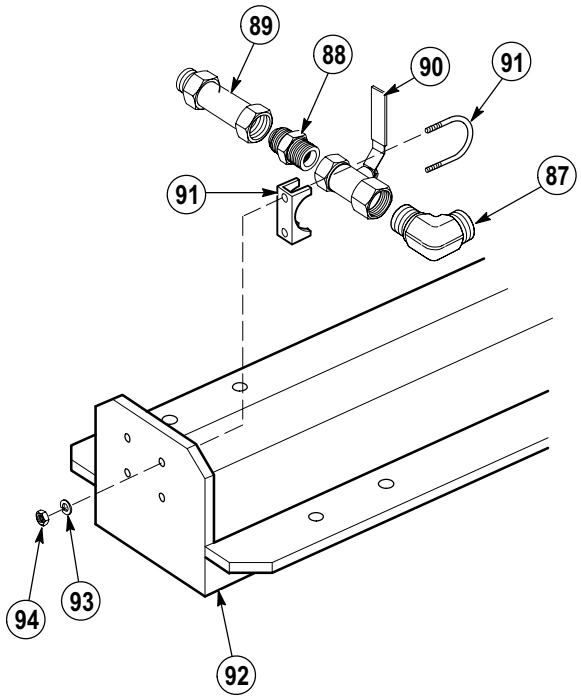
(53) Apply sealing compound to threads of elbow (87), adapter (88), and safety valve (89).

NOTE

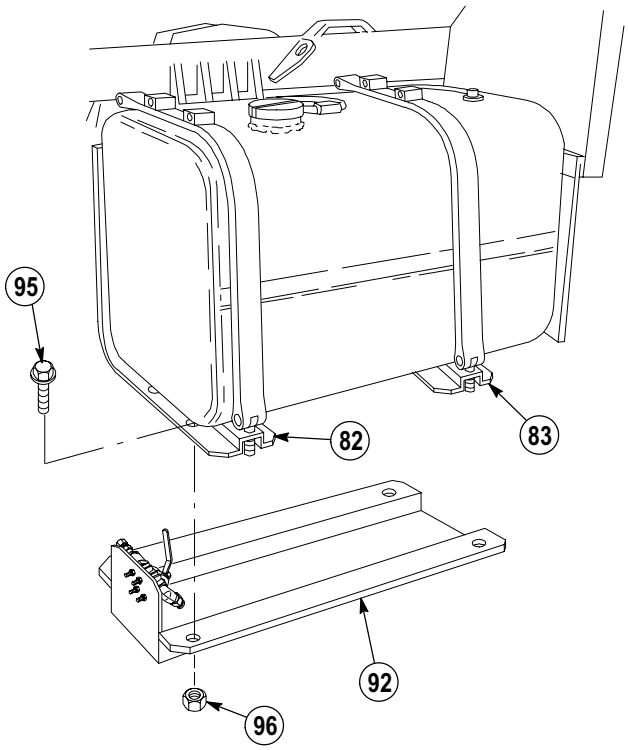
Ensure elbow, fuel shutoff valve and check valve are positioned as shown.

(54) Assemble elbow (87), fuel shutoff valve (90), adapter (88) and safety valve (89).

(55) Position fuel shutoff valve (90) between two muffler clamps (91) and install on fuel tank guard (92) with four lockwashers (93) and nuts (94).

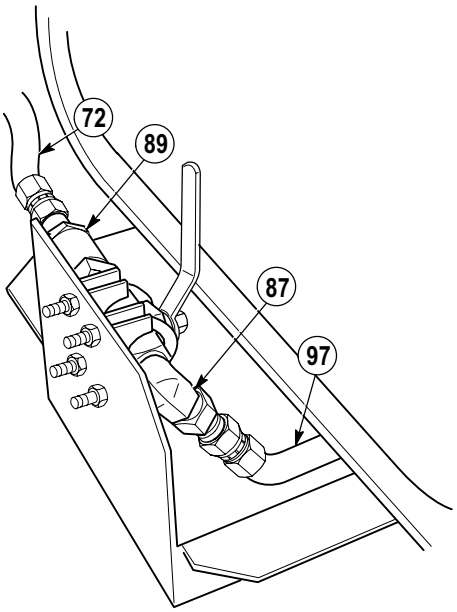


(56) Install fuel tank guard (92), six screws (95) and locknuts (96) to fuel tank brackets (82) and (83).



(57) Connect hose 2320 (97) to elbow (87).

(58) Connect hose 2320 (72) to safety valve (89).



b. Follow-On Maintenance:

- Install stowage box, (TM 9-2320-364-20).
- Fill fuel tanks, (TM 9-2320-364-10).
- Check fuel tanks and connections for leaks. Tighten any connections that leak.
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-7. AIR DRYER GUARD KIT INSTALLATION.

This task covers:

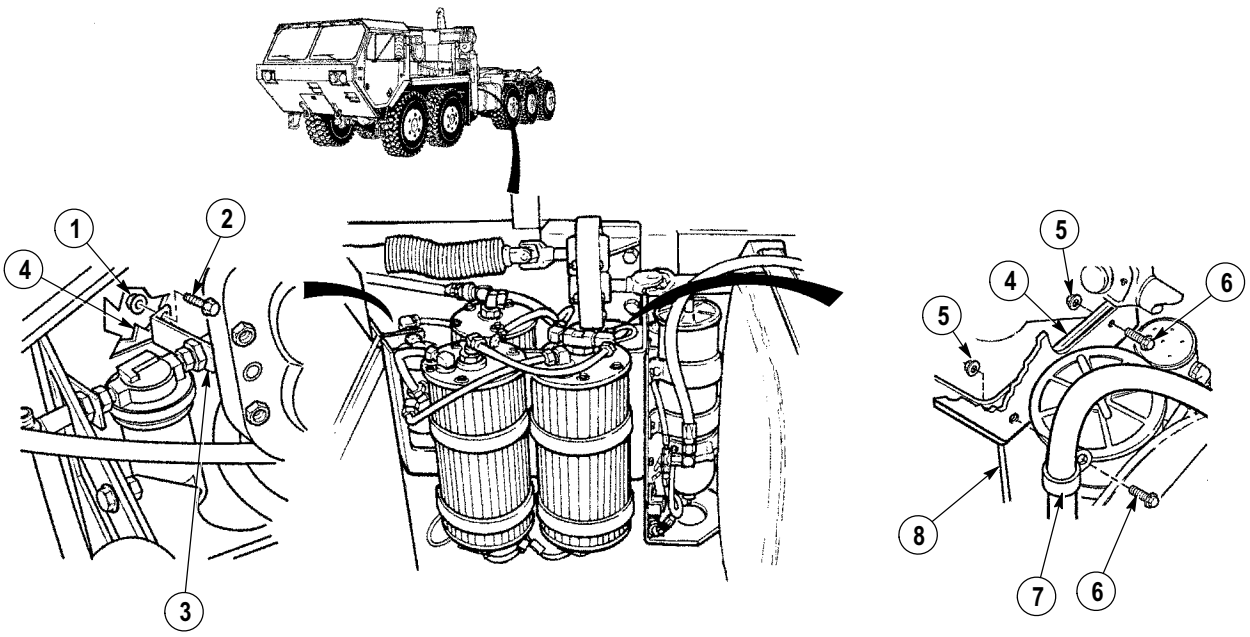
a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Item 241, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Left mud flap removed, (TM 9-2320-364-20)

a. Installation.



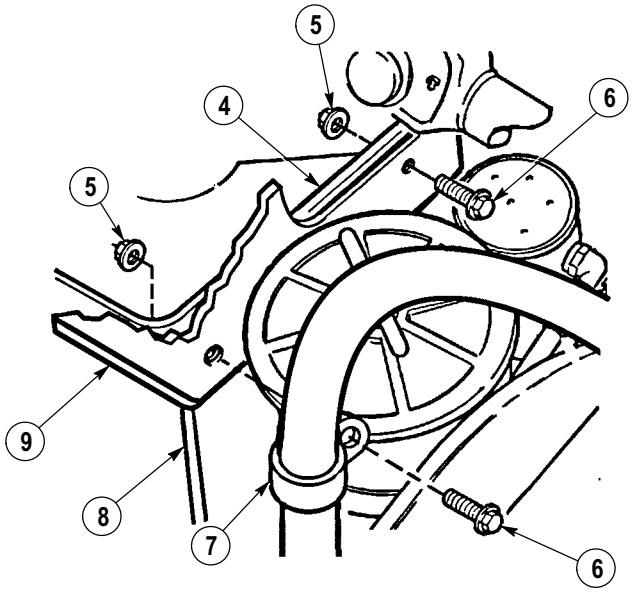
NOTE

Support coalescing filter in Step (1) when removing screws.

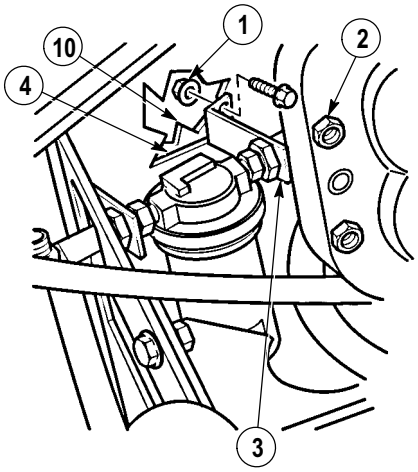
(1) Remove four locknuts (1), screws (2) from coalescing filter mounting brackets (3) and air dryer bracket (4). Discard locknuts and screws.

(2) Remove two locknuts (5), screws (6) from hose 2259 cushion clip (7), fuel/water separator bracket (8) and air dryer bracket (4). Discard locknuts and screws.

(3) Position hose 2259 cushion clip (7), rear air dryer guard bracket (9) and fuel/water separator bracket (8) on air dryer bracket (4) with two screws (6) and locknuts (5).



(4) Position front air dryer guard bracket (10) and coalescing filter mounting bracket (3) on air dryer bracket (4) with four screws (2) and locknuts (1).

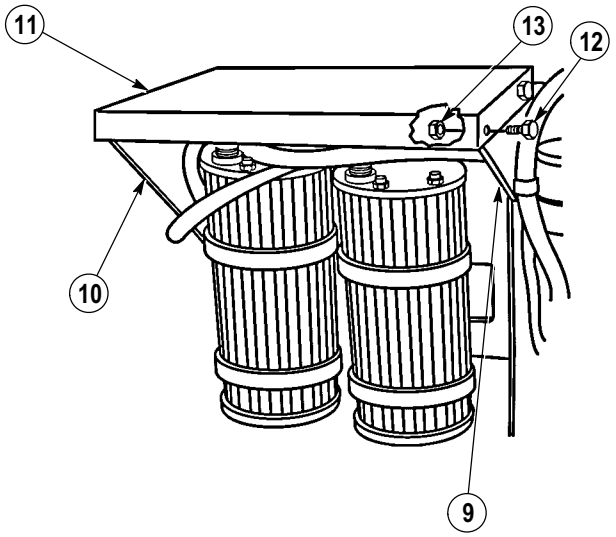


NOTE

- Position air dryer guard screw holes to align with front and back air dryer guard brackets.
- Front and back air dryer guard brackets mount to the inside of the air dryer guard.

(5) Position air dryer guard (11) on front air dryer guard bracket (10) and rear air dryer guard bracket (9) with four screws (12) and locknuts (13).

(6) Tighten four locknuts (13), two locknuts (5), and four locknuts (1).



b. Follow-On Maintenance:

- Install left center mud flap, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-8. AIR HORN KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

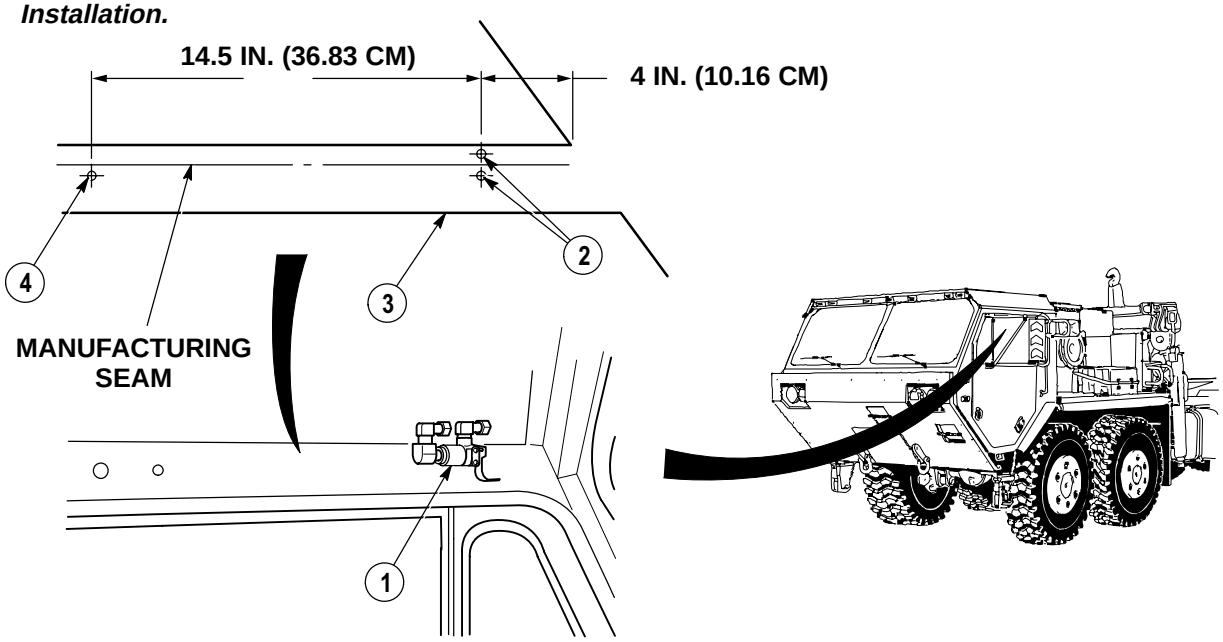
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Sealing Compound (Item 61, Appendix B)

Materials/Parts (cont)
Locknut (2) (Item 210, Appendix E)
Locknut (6) (Item 179, Appendix E)
Screw, Self-Locking (2) (Item 552, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Skid plate removed, (TM 9-2320-364-20)

a. Installation.



CAUTION

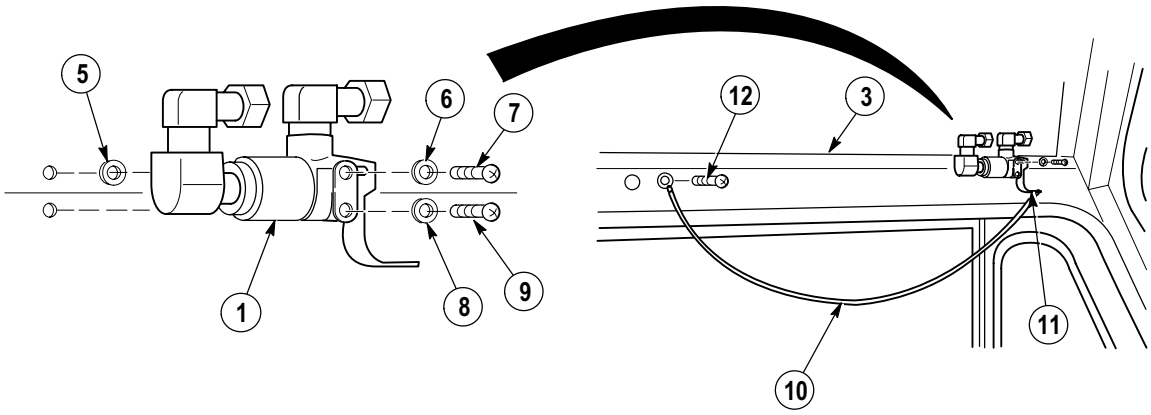
Ensure to drill only inner shell of door frame.

NOTE

Install cable ties as required.

(1) Using air horn valve (1) as template, mark and drill two 1/4 in. (6.35 mm) holes (2) in door frame (3).

(2) Measure distance, center, mark, and drill one 1/4 in. (6.35 mm) hole (4), in door frame (3).



NOTE

- Ensure rear elbow is slightly turned toward passenger side of cab to allow for air hose installation.
- One washer is installed between door frame and air horn valve, held in place by the top screw.

(3) Position air horn valve (1), to door frame with washer (5), washer (6) and screw (7).

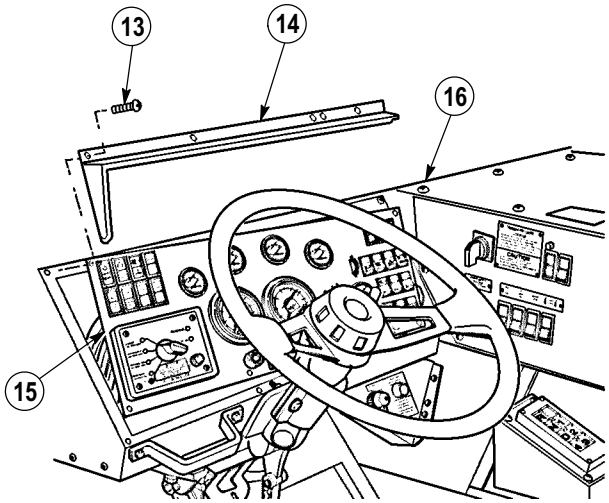
(4) Install washer (8) and screw (9) to air horn valve (1) and door frame (3).

(5) Connect pull chain (10) to S-hook on lever (11).

(6) Install remaining end of pull chain (10) to door frame (3) using screw (12).

18-8. AIR HORN KIT INSTALLATION (CONT).

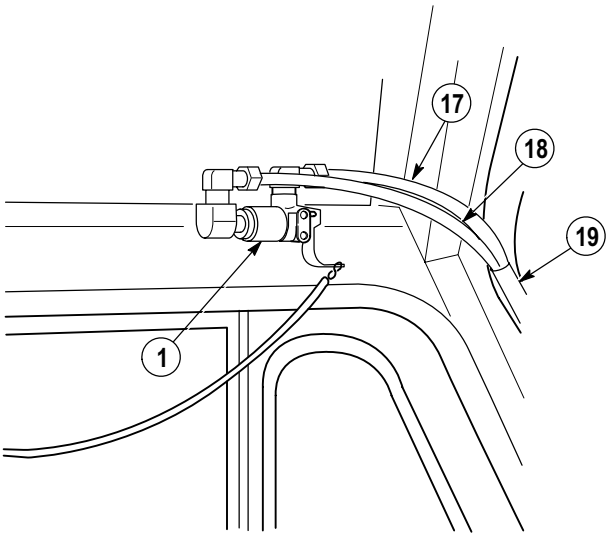
(7) Remove ten screws (13), sun shield (14) and instrument panel (15) from dash (16).



NOTE

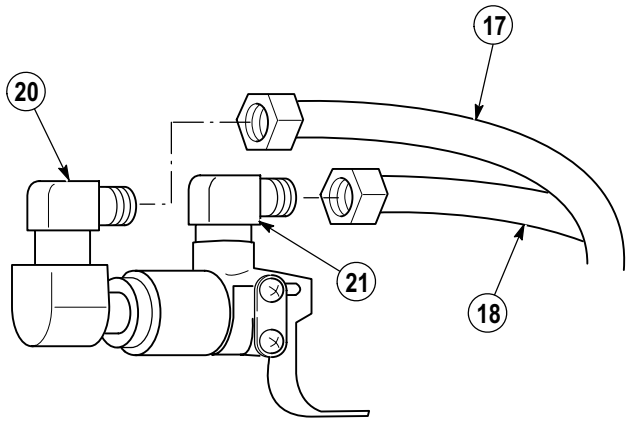
There are two air hoses 2039, use longer air hose for hose routing between air horn valve and valve manifold.

(8) Position air hose 2037 (17) and air hose 2039 (18) down through A-pillar (19).

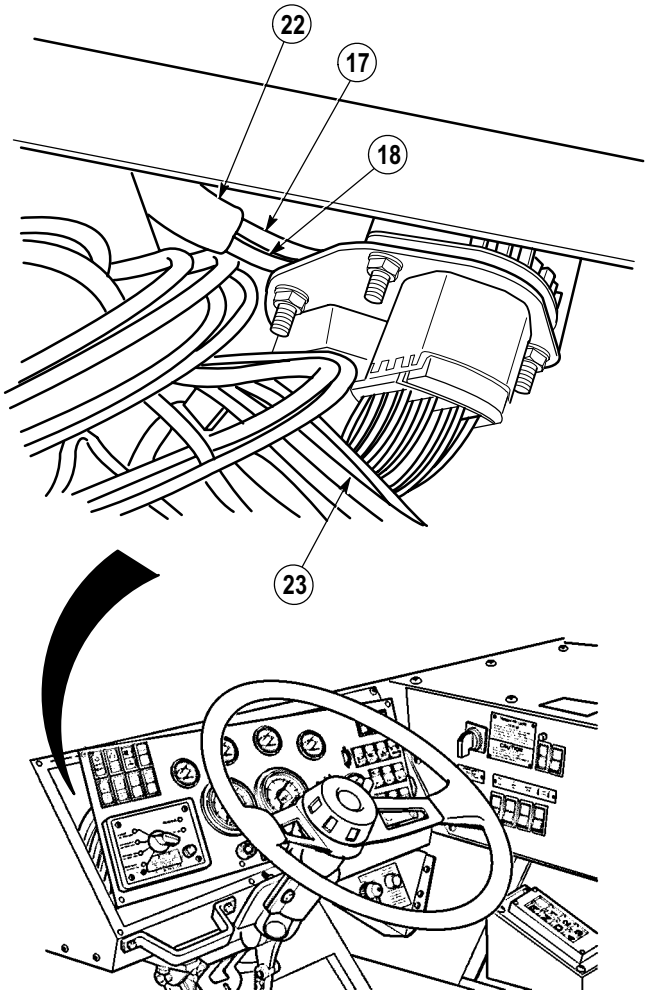


(9) Connect air hose 2037 (17) to elbow (20).

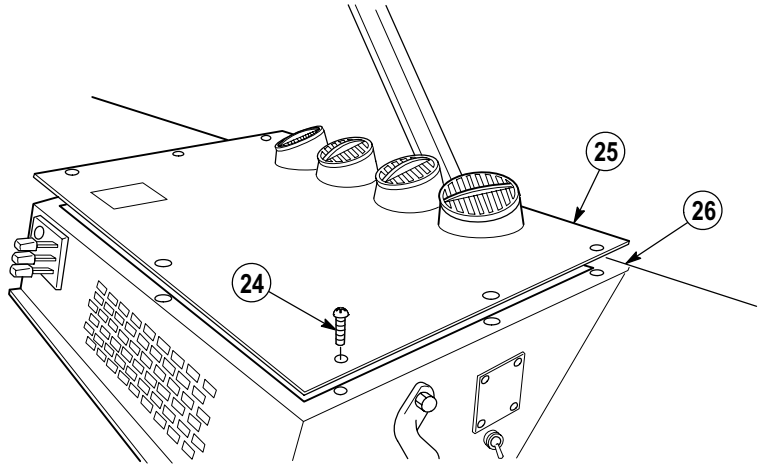
(10) Connect air hose 2039 (18) to elbow (21).



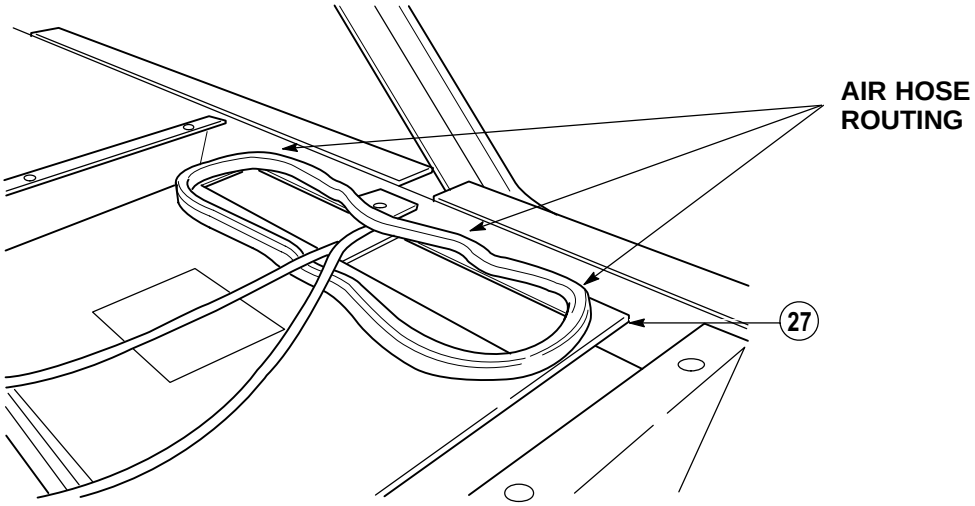
(11) Position two air hoses (17) and (18) through A-pillar tubing (22) and under instrument panel wiring (23) toward cab heater box.



18-8. AIR HORN KIT INSTALLATION (CONT).

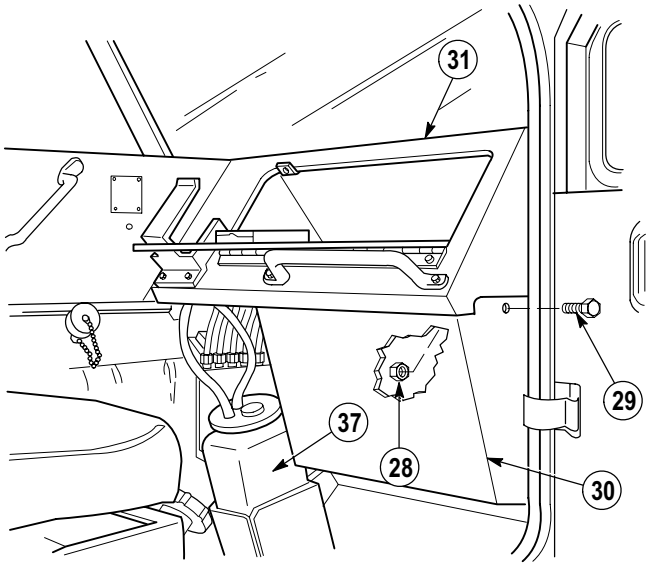


(12) Remove eight screws (24) and heater vent cover (25) from heater compartment (26).



(13) Position air hoses along front of heater box (27).

(14) Remove six locknuts (28), screws (29) and glove box (30) from dash (31).



(15) Continue routing both air hoses through heater box to passenger side foot well until all slack is taken up.

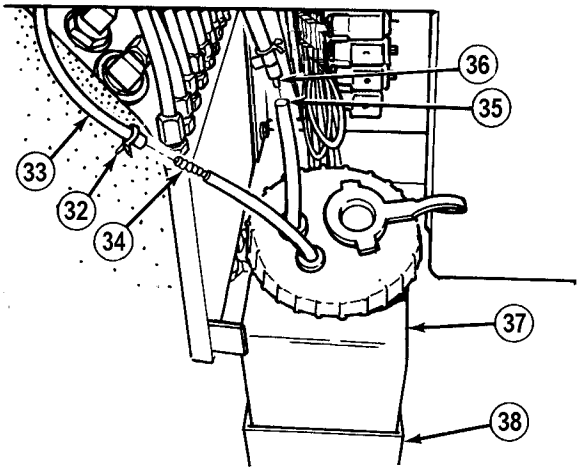
NOTE

Tag and mark hoses prior to removal.

(16) Slide clamp (32) up on hose (33) and remove hose from hose connector (34).

NOTE

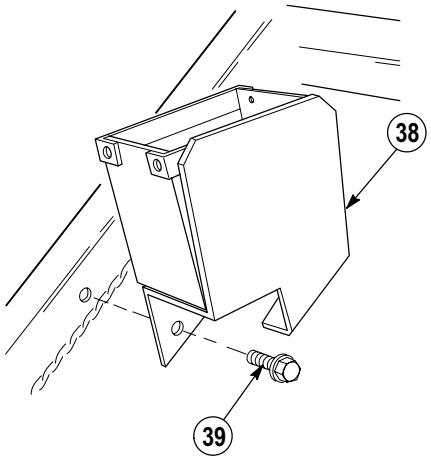
Perform Step (17) if relief valve is present.



(17) Remove hose (35) from relief valve (36)

(18) Remove windshield washer reservoir (37) from windshield washer reservoir bracket and mount (38).

(19) Remove two lock screws (39) and bracket and mount (38) from cab. Discard lock screws.

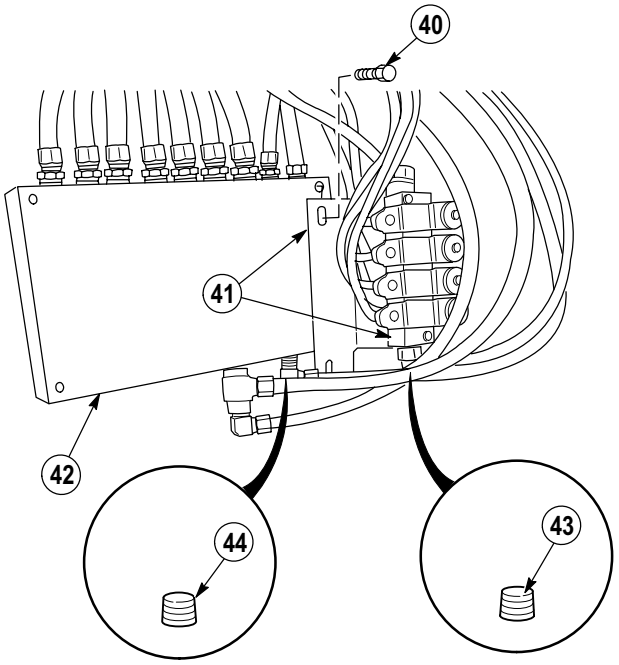


18-8. AIR HORN KIT INSTALLATION (CONT).

(20) Remove two screws (40) from solenoid mounting plate (41) and manifold (42).

(21) Remove plug (43) from solenoid (41).

(22) Remove plug (44) from manifold (42).



WARNING

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.

(23) Coat threads of elbow (45) with sealing compound.

(24) Install elbow (45) in solenoid (41).

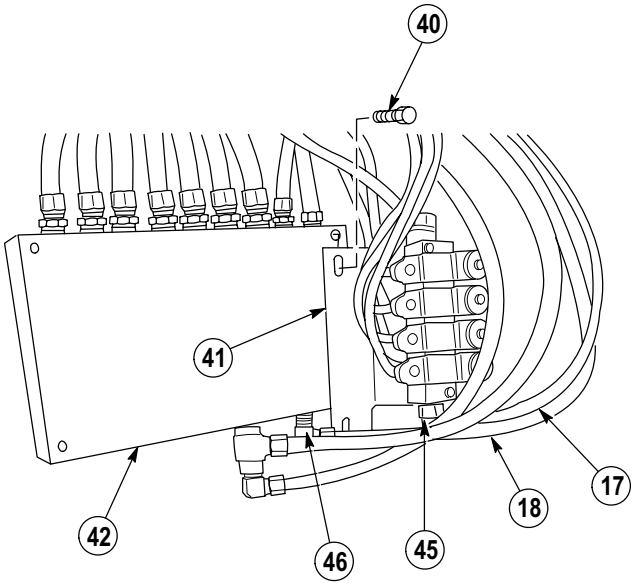
(25) Coat threads of elbow (46) with sealing compound.

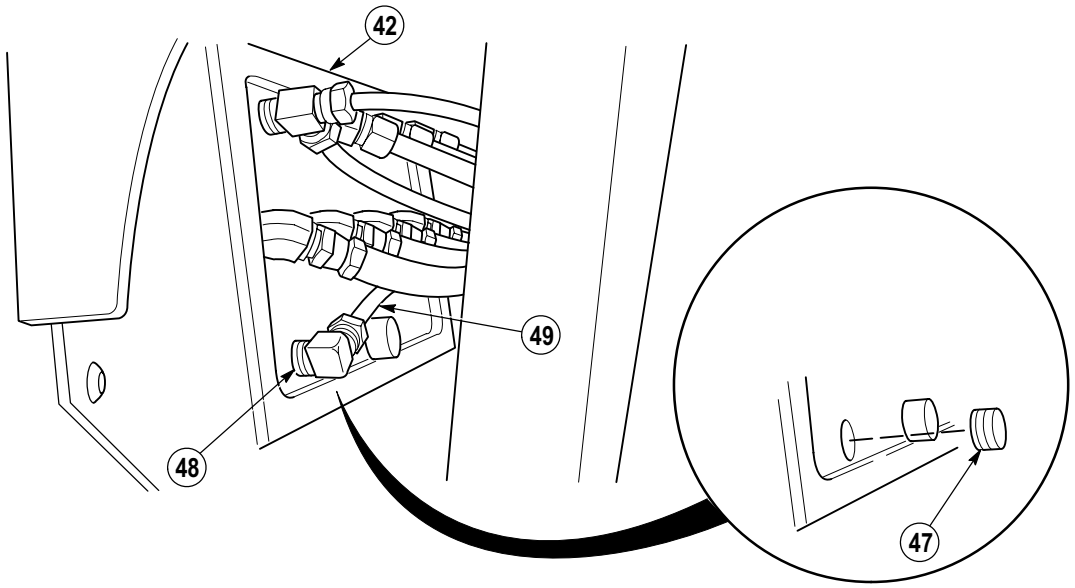
(26) Install elbow (46) in manifold (42).

(27) Connect air hose 2037 (17) to elbow (45).

(28) Connect air hose 2039 (18) to elbow (46).

(29) Install solenoid (41) with two screws (40) on manifold (42).





(30) Remove plug (47) from manifold (42).

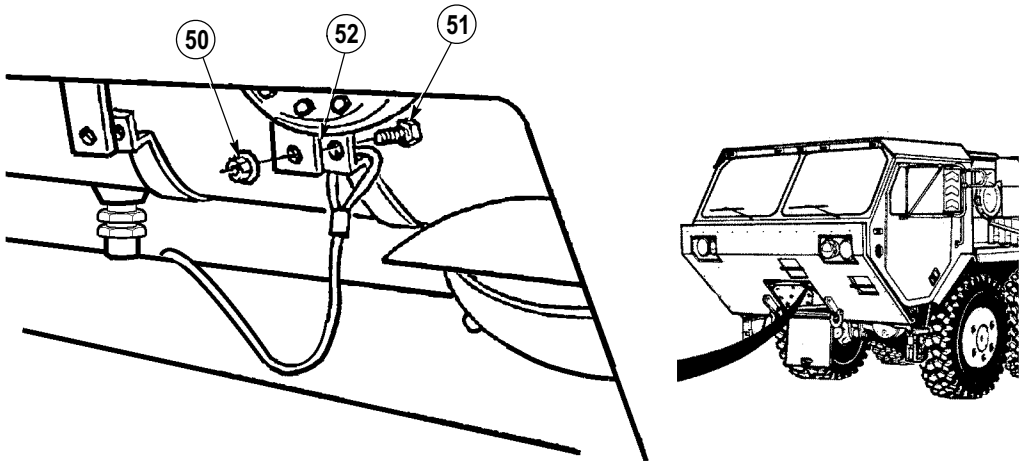
WARNING

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(31) Coat threads of elbow (48) with sealing compound.

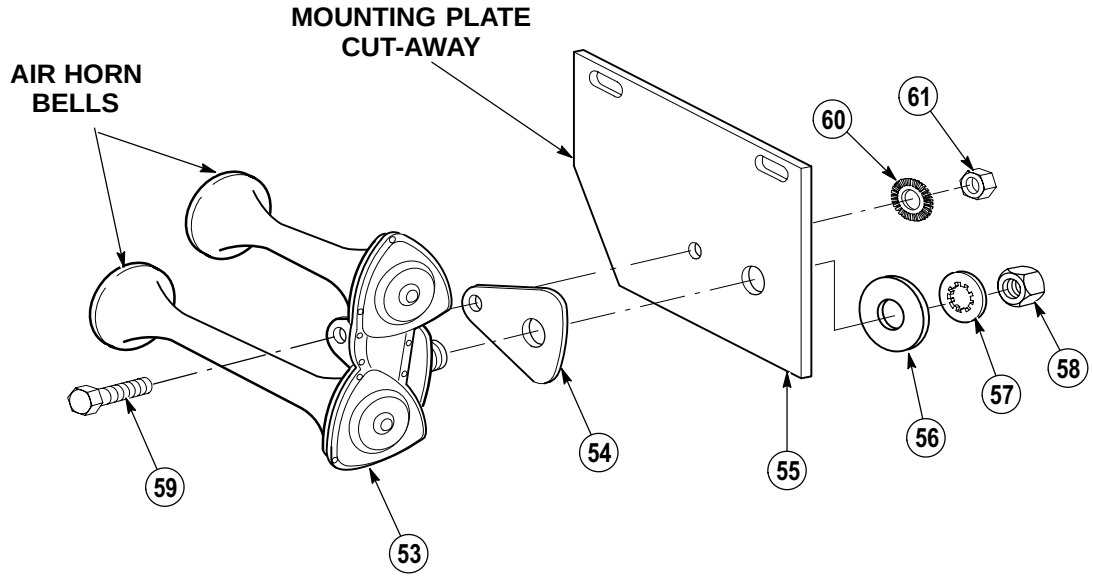
(32) Install elbow (48) in valve manifold (42).

(33) Connect air hose 2039 (49) to elbow (48).



(34) Remove and discard two locknuts (50) and screws (51) from air reservoir brackets (52).

18-8. AIR HORN KIT INSTALLATION (CONT).



NOTE

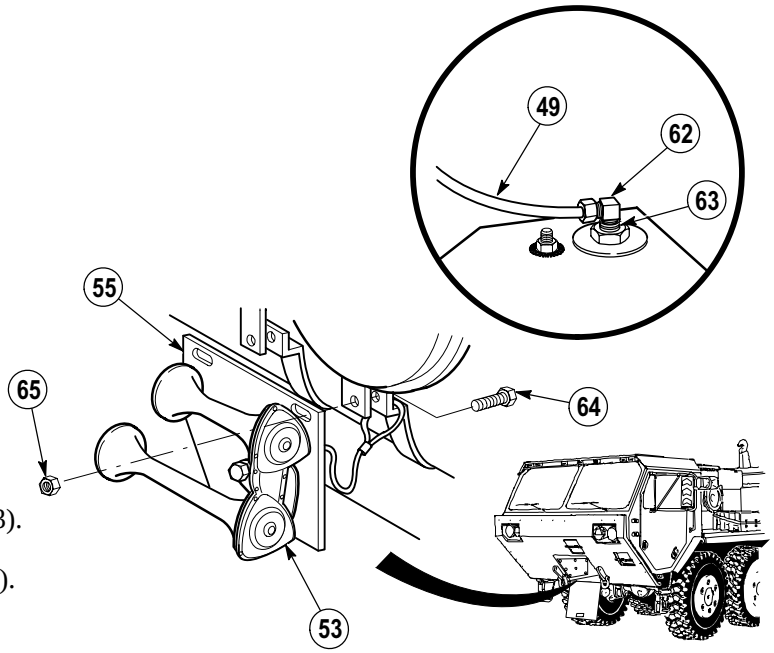
Mounting plate cut-away and air horn bells are mounted facing passenger side of truck.

(35) Position air horn (53) and gasket (54) on mounting plate (55) with washer (56), lockwasher (57) and nut (58).

(36) Install air horn (53) to mounting plate (55) with screw (59), star washer (60) and nut (61).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.



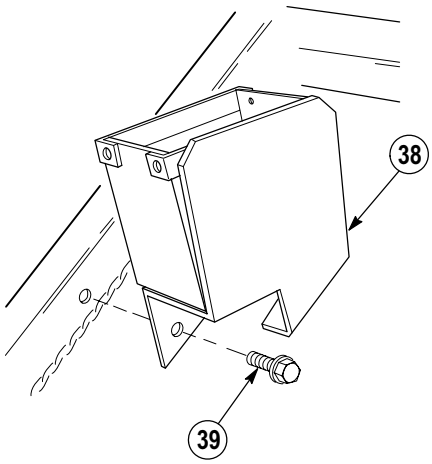
(37) Coat threads of elbow (62) with sealing compound.

(38) Install elbow (62) in air horn air inlet (63).

(39) Connect air hose 2039 (49) to elbow (62).

(40) Install air horn (53) and mounting plate (55) to two brackets (52) with two screws (64) and nuts (65).

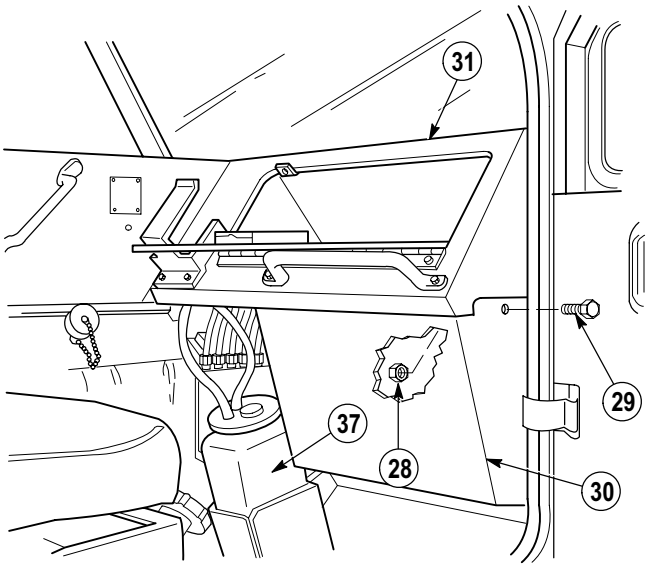
(41) Install bracket and mount (38) using two lock screws (39).



(42) Install windshield washer reservoir (37) on windshield washer reservoir bracket (38).

NOTE

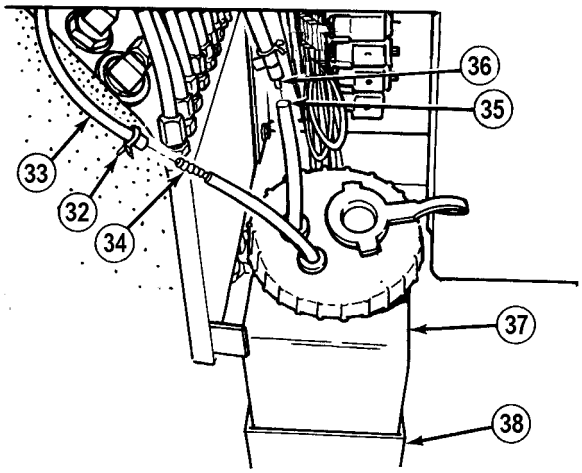
Perform step (43) if relief valve is present.



(43) Install hose (35) on relief valve (36).

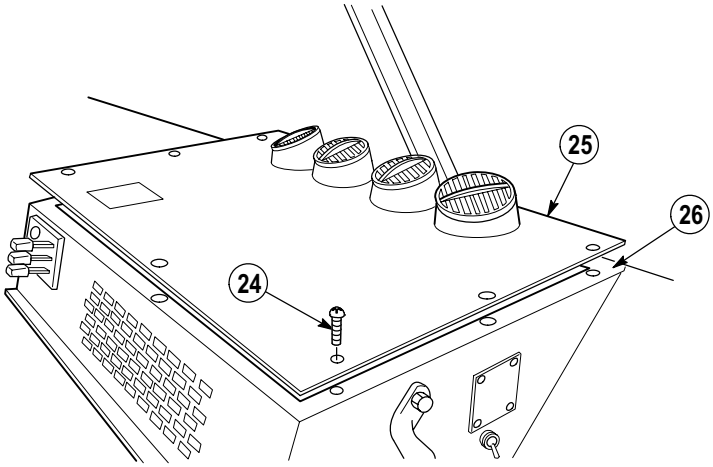
(44) Install hose connector (34) on hose (33) and slide clamp (32) down on hose.

(45) Install glove box (30) on dash (31) using six nuts (28) and screws (29).

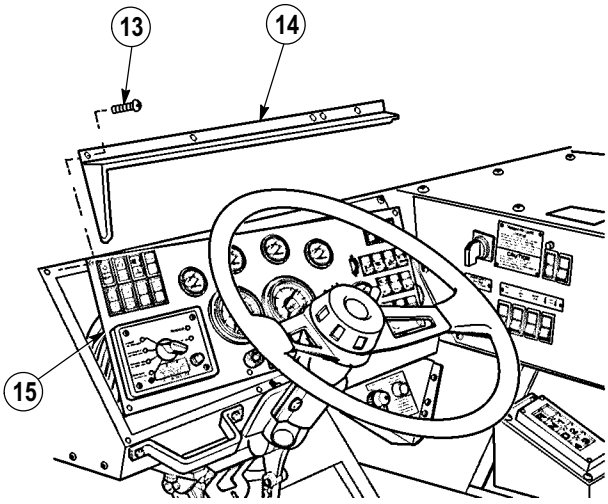


18-8. AIR HORN KIT INSTALLATION (CONT).

(46) Install heater vent cover (25) on heater compartment (26) using eight screws (24).



(47) Install instrument panel (15) and sun shield (14) using ten screws (13).



b. Follow-on Maintenance:

- Connect batteries, (TM 9-2320-364-10).
- Start engine and allow to idle for five minutes, (TM 9-2320-364-10).
- Shut off engine and check for air leaks, (TM 9-2320-364-10).
- Check air horn operation, (TM 9-2320-364-10).
- Install skid plate, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-9. INTERFACE KIT INSTALLATION.

This task covers:

a. Installation

b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools

Tool Kit, General Mechanic's (Item 240, Appendix F)
Blade Kit, Hole Saw (Item 18, Appendix F)
Cap and Plug Set (Item 26, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable 1/4 in. (Item 49, Appendix F)
Pan, Drain 4 Gal. (Item 144, Appendix F)

Materials/Parts

Cable Ties (Item 9, Appendix B)
Oil, Hydraulic (Item 34, Appendix B)
Sealing Compound (Item 53, Appendix B)
Tags, Identification (Item 72, Appendix B)
Lockwasher (Item 251, Appendix E)
Lockwasher (26) (Item 282, Appendix E)
Lockwasher (Item 283, Appendix E)
Lockwasher (Item 286, Appendix E)
Preformed Packing (Item 388, Appendix E)

Equipment Condition

Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
LHS fully extended, (TM 9-2320-364-10)
Air system drained, (TM 9-2320-364-10)
Fire extinguisher removed, (TM 9-2320-364-10)
Left side noise panel removed, (TM 9-2320-364-20)
Left front noise panel removed, (TM 9-2320-364-20)
Rear noise panel removed, (TM 9-2320-364-20)
Heater compartment cover removed, (TM 9-2320-364-20)
Batteries disconnected, (TM 9-2320-364-20)
Hydraulic reservoir drained, (TM 9-2320-364-20)

18-9. INTERFACE KIT INSTALLATION (CONT).

a. Installation.

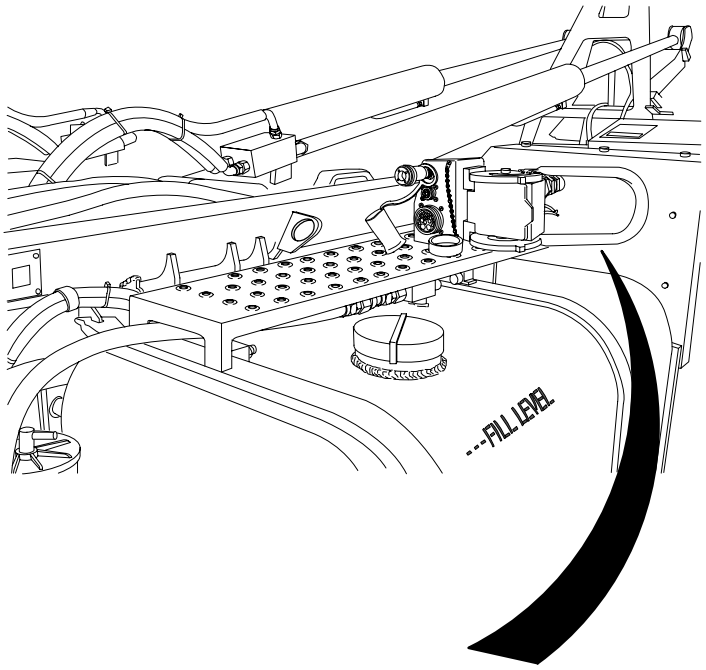
CAUTION

- Power interface kit cannot be installed on trucks equipped with a Material Handling Crane (MHC) or Self-Recovery Winch (SRW).
- Trucks must be equipped with a 200 AMP alternator before power interface kit can be installed.

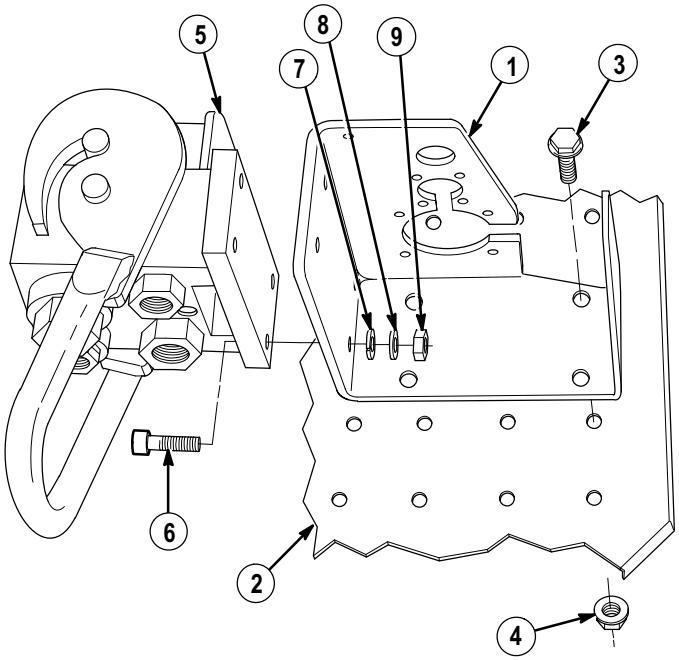
NOTE

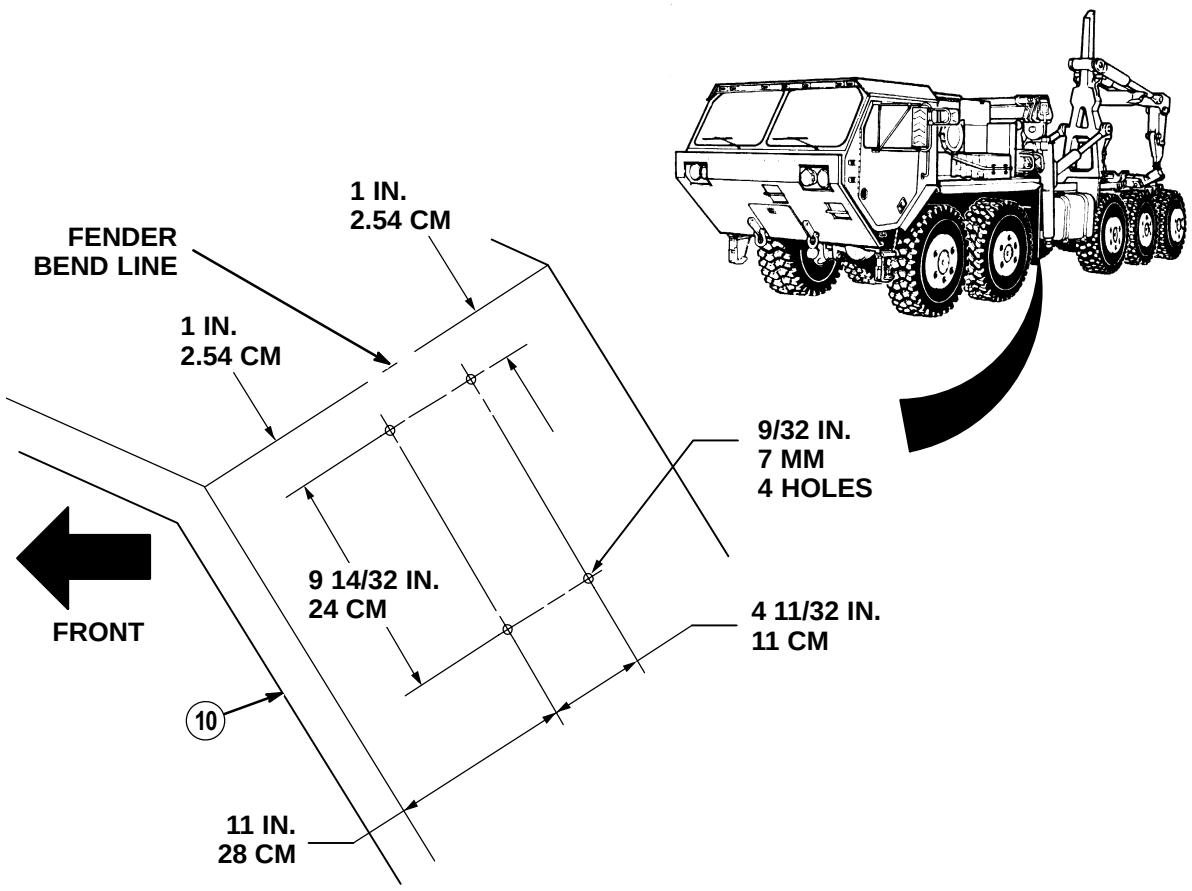
Use existing holes in step to mount bracket. Rear inside screw should be located in first hole from the rear and first row from inside.

(1) Install mounting bracket (1) to step (2) with four screws (3) and locknuts (4).

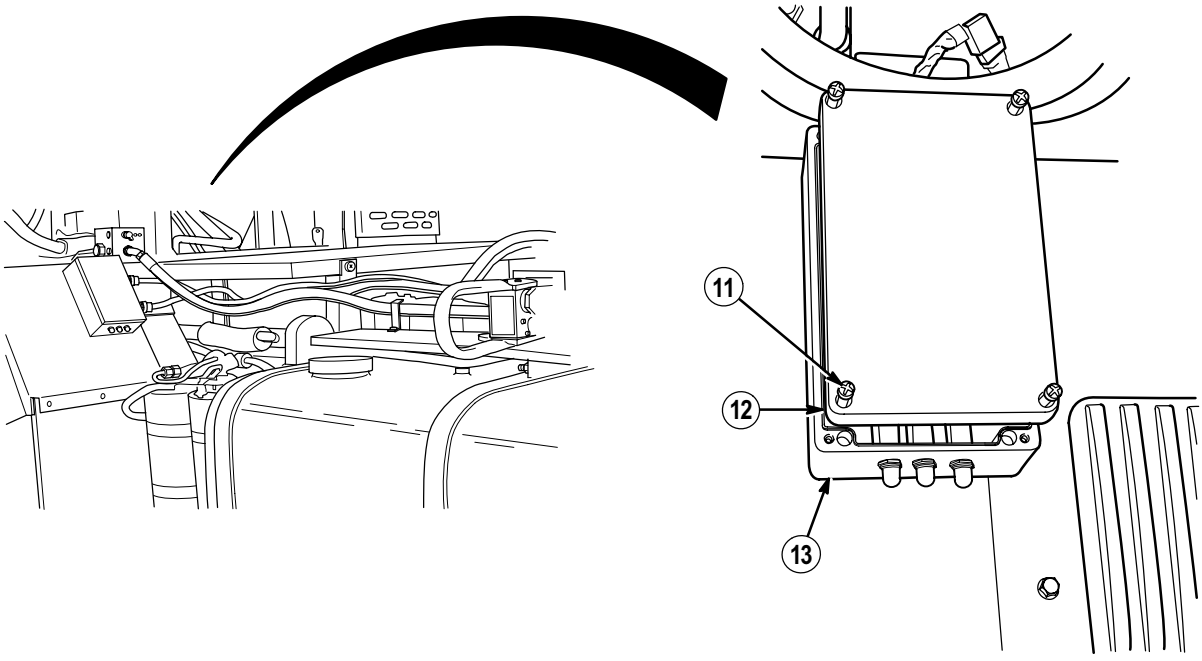


(2) Install quick disconnect (5) to mounting bracket (1) with four socket head screws (6), washers (7), lockwashers (8) and nuts (9).



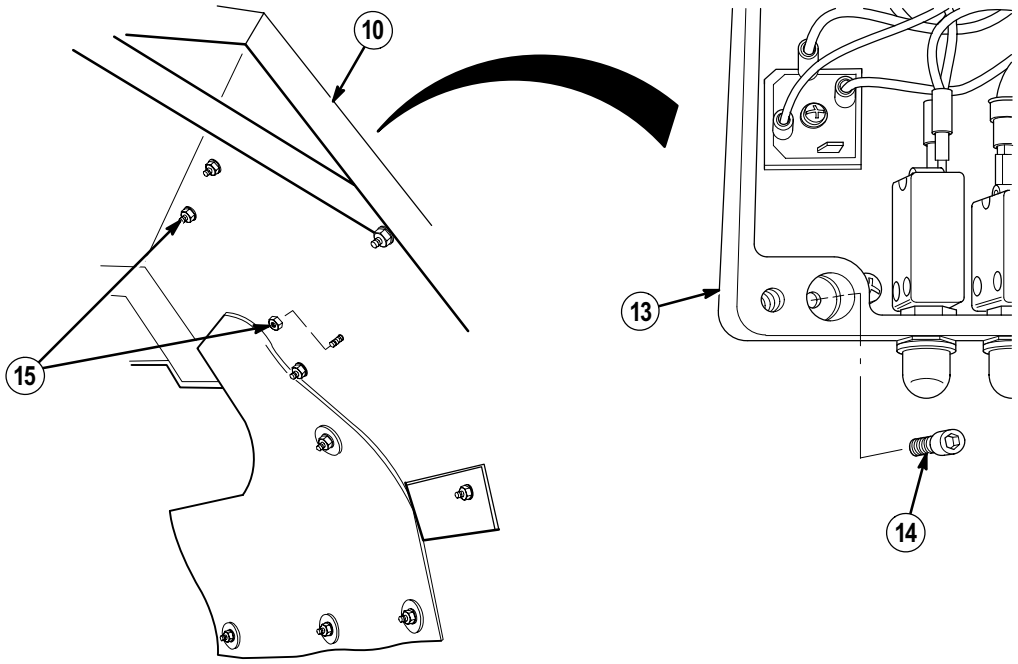


(3) Drill four 9/32 in. (7 mm) holes in left front fender (10) as shown.



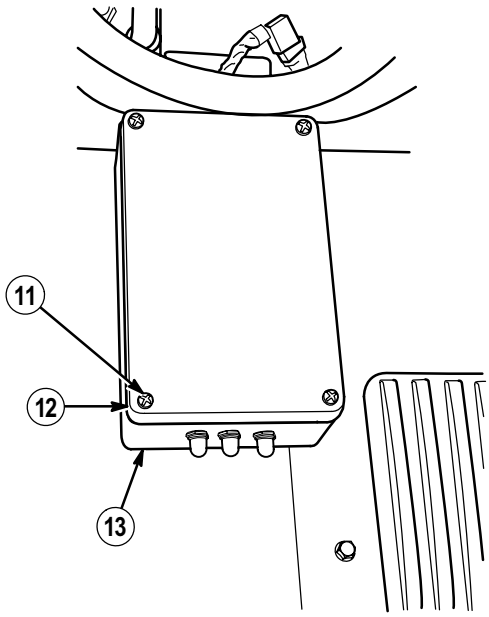
(4) Loosen four screws (11) and remove cover (12) from powerbox (13).

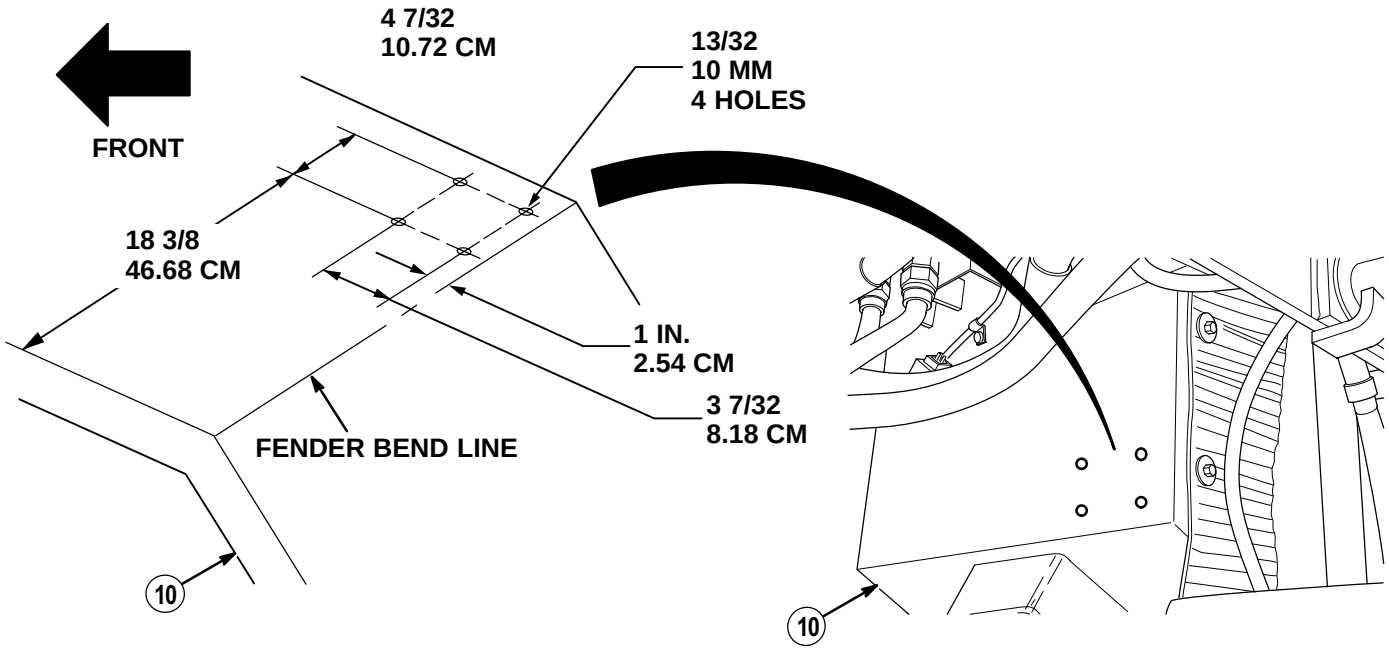
18-9. INTERFACE KIT INSTALLATION (CONT).



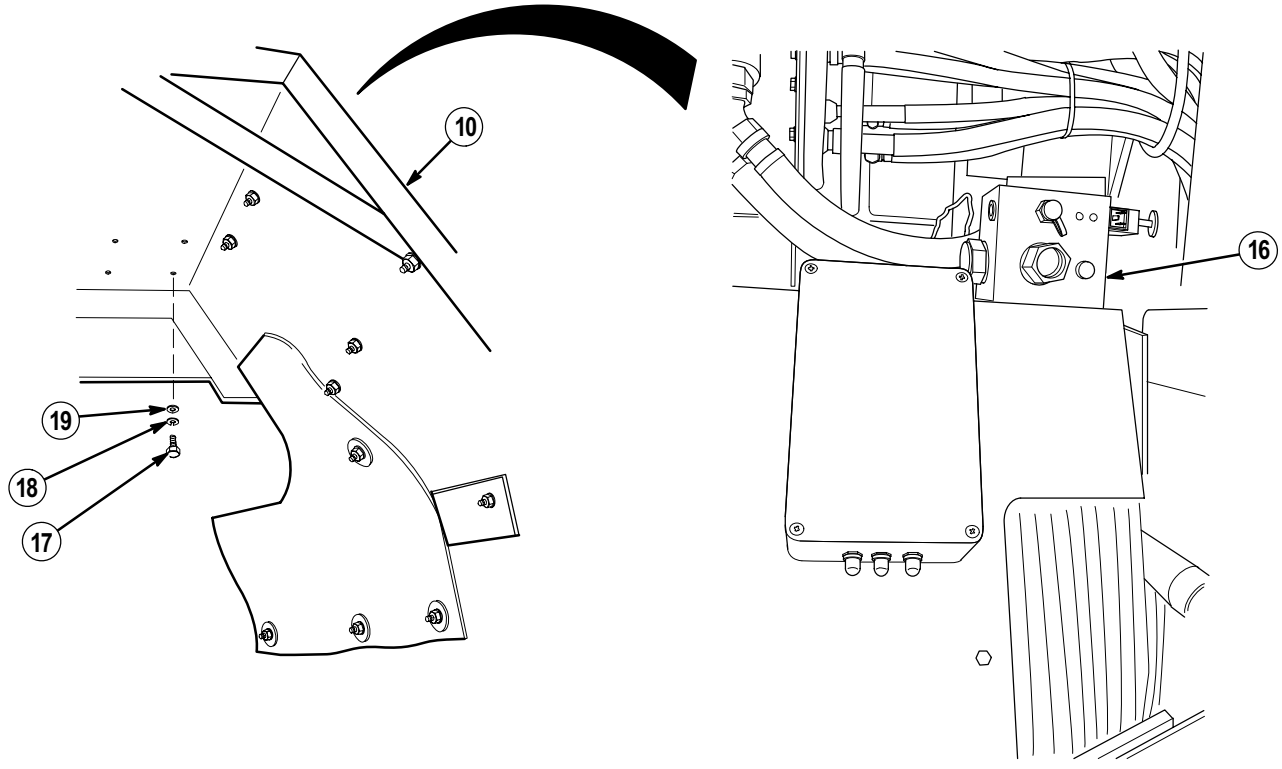
(5) Install powerbox (13) on left front fender (10) with four socket head screws (14) and locknuts (15).

(6) Position cover (12) on powerbox (13) and tighten four screws (11).



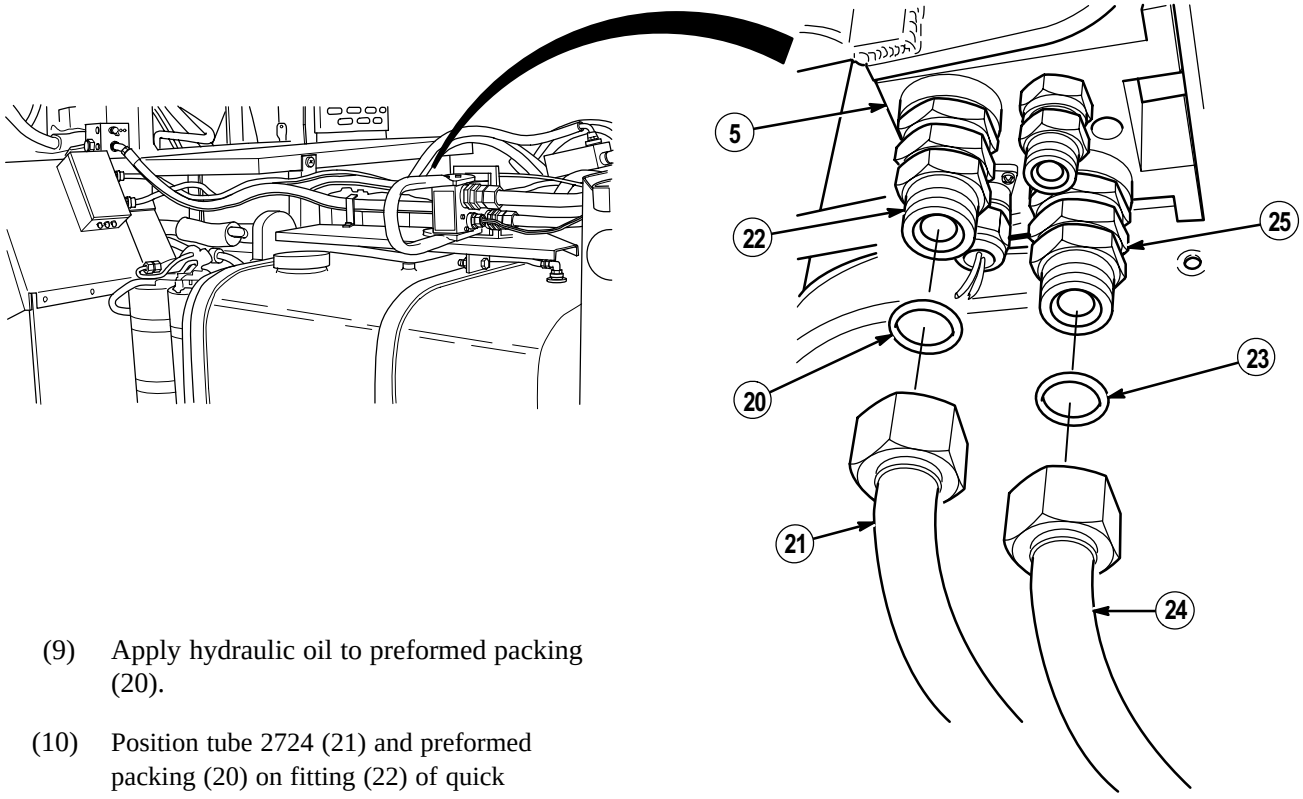


(7) Drill four 13/32 in. (10mm) holes in left front fender (10) as shown.



(8) Install valve (16) on fender (10) with four screws (17), lockwashers (18) and washers (19).

18-9. INTERFACE KIT INSTALLATION (CONT).

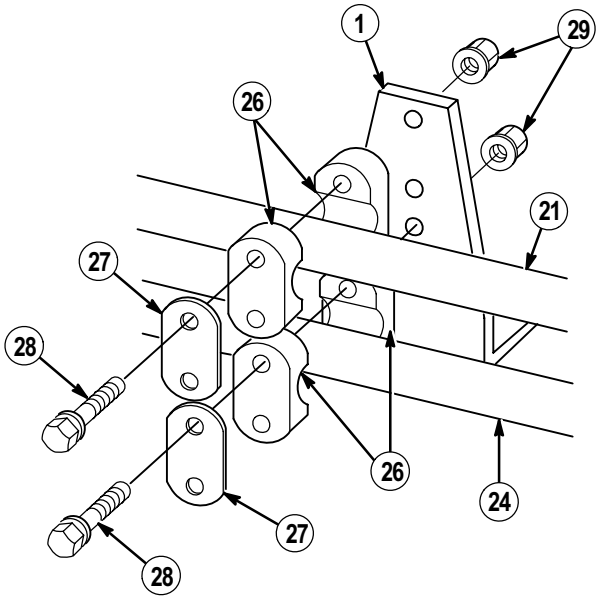


(9) Apply hydraulic oil to preformed packing (20).

(10) Position tube 2724 (21) and preformed packing (20) on fitting (22) of quick disconnect (5).

(11) Apply hydraulic oil to preformed packing (23).

(12) Position tube 2810 (24) and preformed packing (23) on fitting (25).

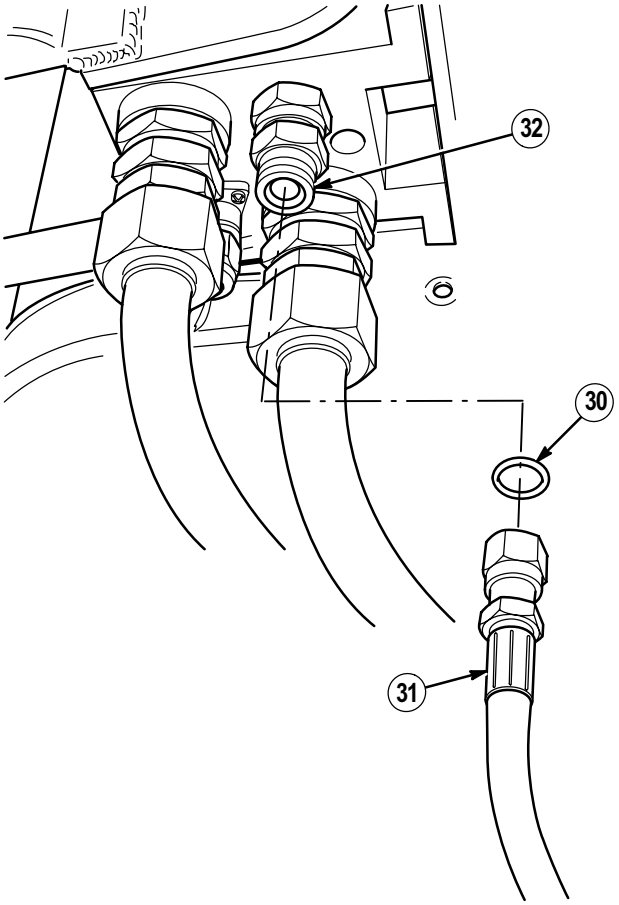


(13) Install four clamp halves (26), two cover plates (27), four screws (28), locknuts (29), tube 2810 (24) and tube 2724 (21) on quick disconnect mounting bracket (1).

(14) Tighten tubes 2810 (24) and 2724 (21) on fittings (22) and (25).

(15) Apply hydraulic oil to preformed packing (30).

(16) Install hose 2776 (31) and preformed packing (30) on fitting (32).

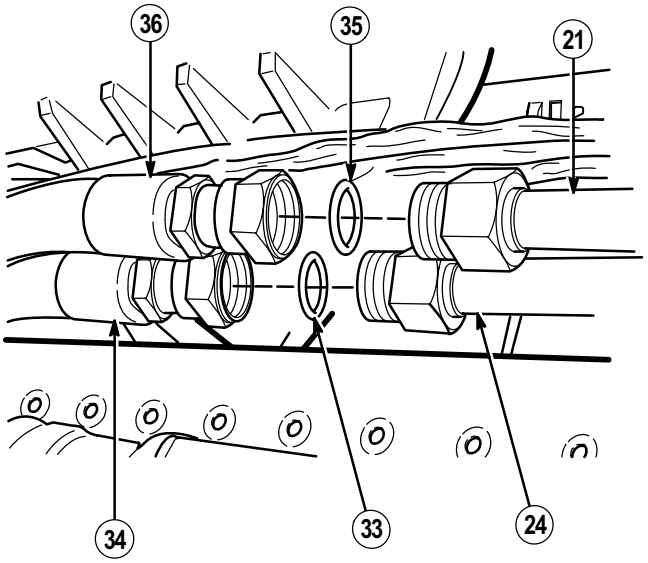


(17) Apply hydraulic oil to preformed packing (33).

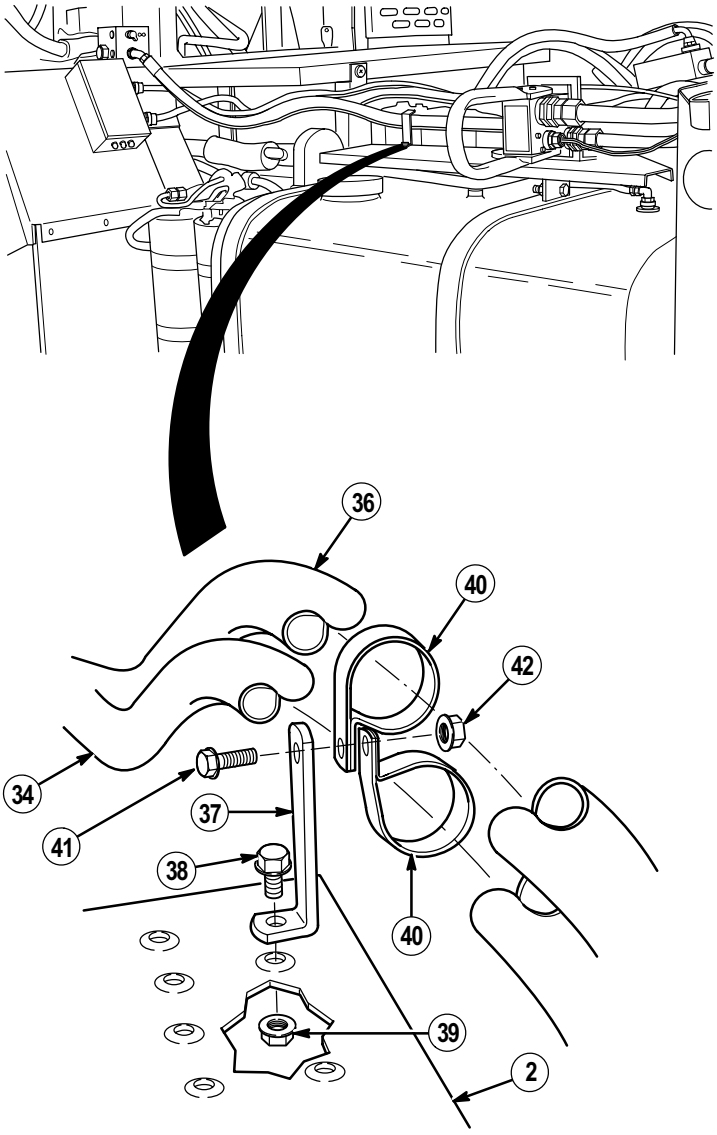
(18) Install hose 2810 (34) and preformed packing (33) on tube 2810 (24).

(19) Apply hydraulic oil to preformed packing (35).

(20) Install hose 2724 (36) and preformed packing (35) on tube 2724 (21).



18-9. INTERFACE KIT INSTALLATION (CONT).



(21) Position hose 2810 (34) and hose 2724 (36) along step (2).

NOTE

Use existing hole in step to mount bracket. Bracket should be mounted in second hole from front and in first row from inside.

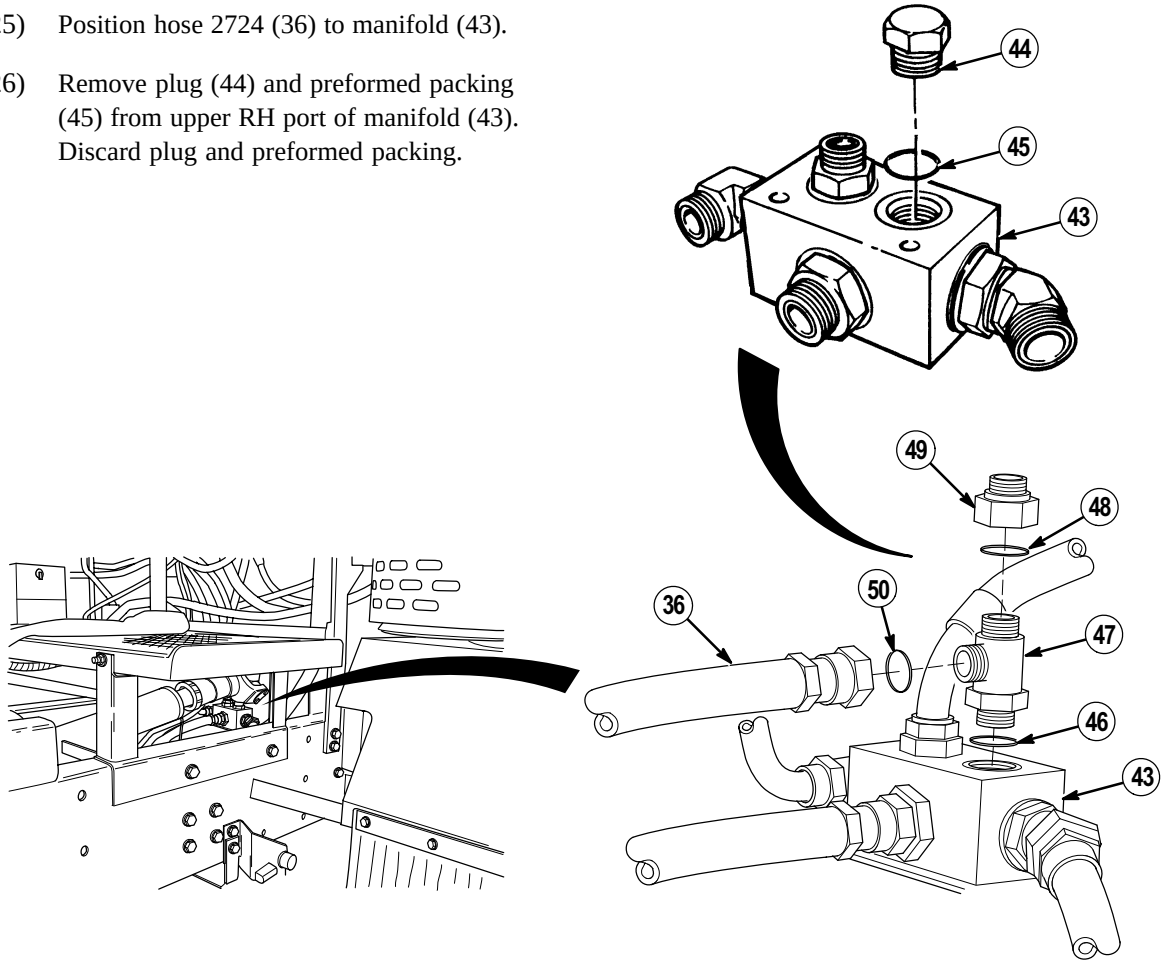
(22) Install bracket (37) to step (2) with screw (38) and locknut (39).

(23) Position two cushion clips (40) on hose 2810 (34) and hose 2724 (36).

(24) Install two cushion clips (40) to bracket (37) with screw (41) and locknut (42).

(25) Position hose 2724 (36) to manifold (43).

(26) Remove plug (44) and preformed packing (45) from upper RH port of manifold (43). Discard plug and preformed packing.



(27) Apply hydraulic oil to preformed packing (46).

(28) Install tee (47) and preformed packing (46) in upper RH port of manifold (43).

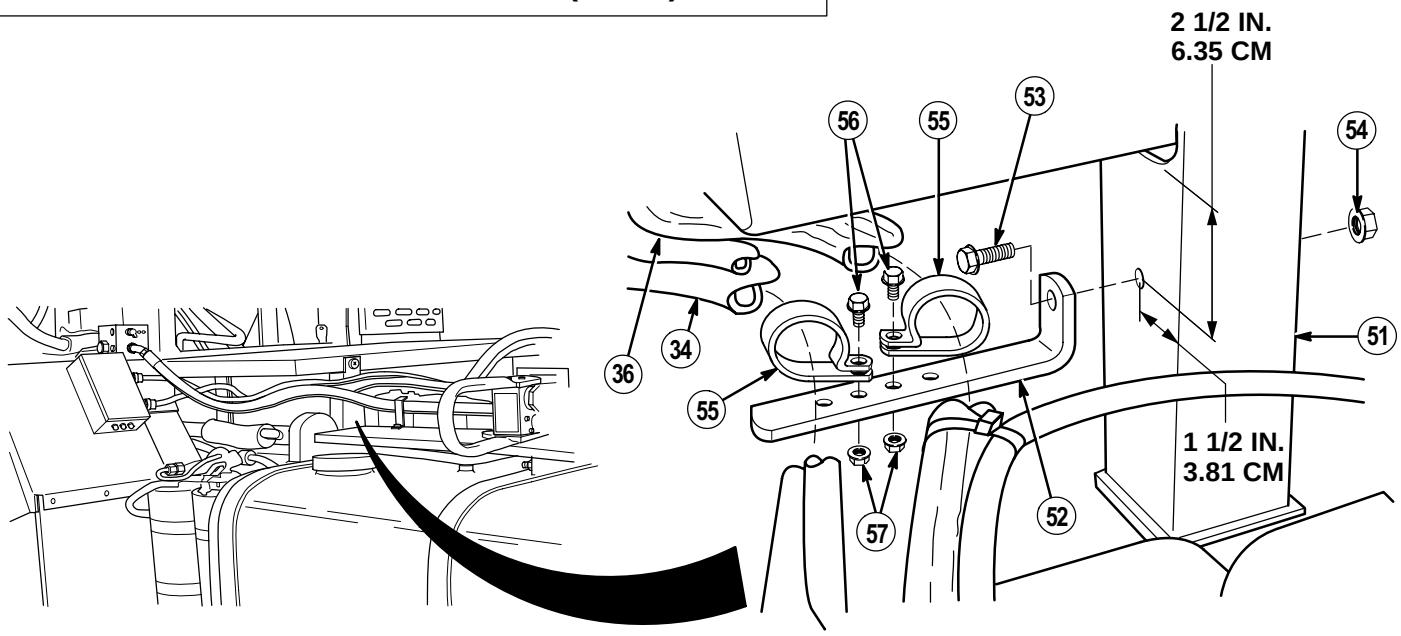
(29) Apply hydraulic oil to preformed packing (48).

(30) Install reducer (49) and preformed packing (48) on tee (47).

(31) Apply hydraulic oil to preformed packing (50).

(32) Install hose 2724 (36) and preformed packing (50) on tee (47).

18-9. INTERFACE KIT INSTALLATION (CONT).

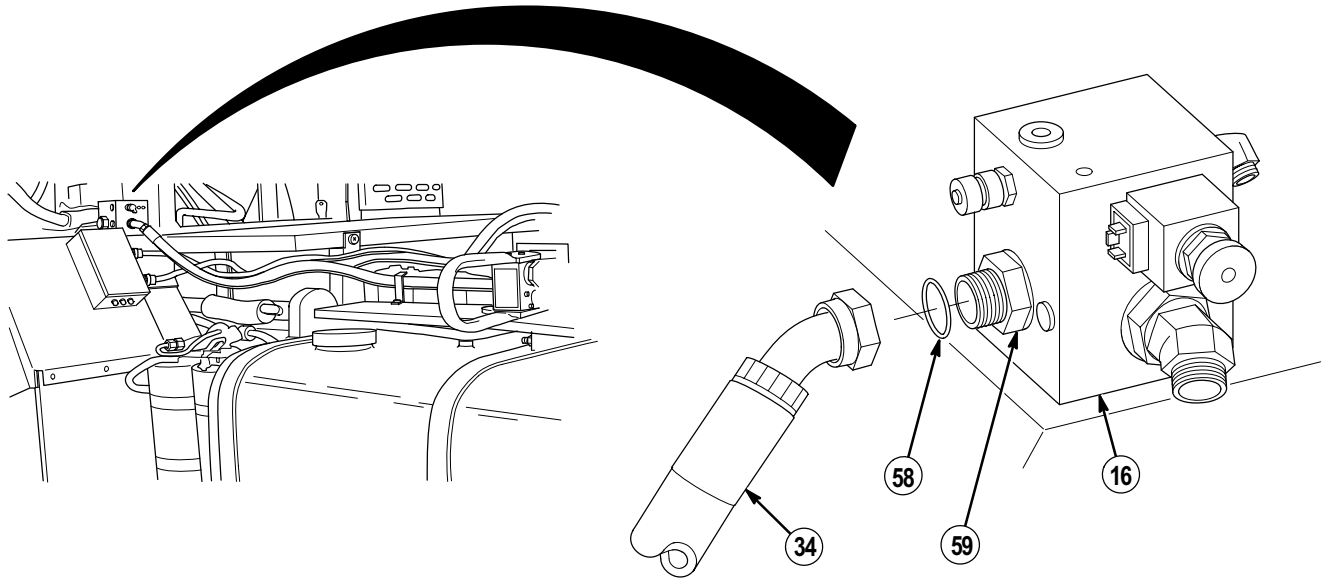


(33) Drill 13/32 in. (10 mm) hole in step support (51) as shown.

(34) Install bracket (52) to step support (51) with screw (53) and locknut (54).

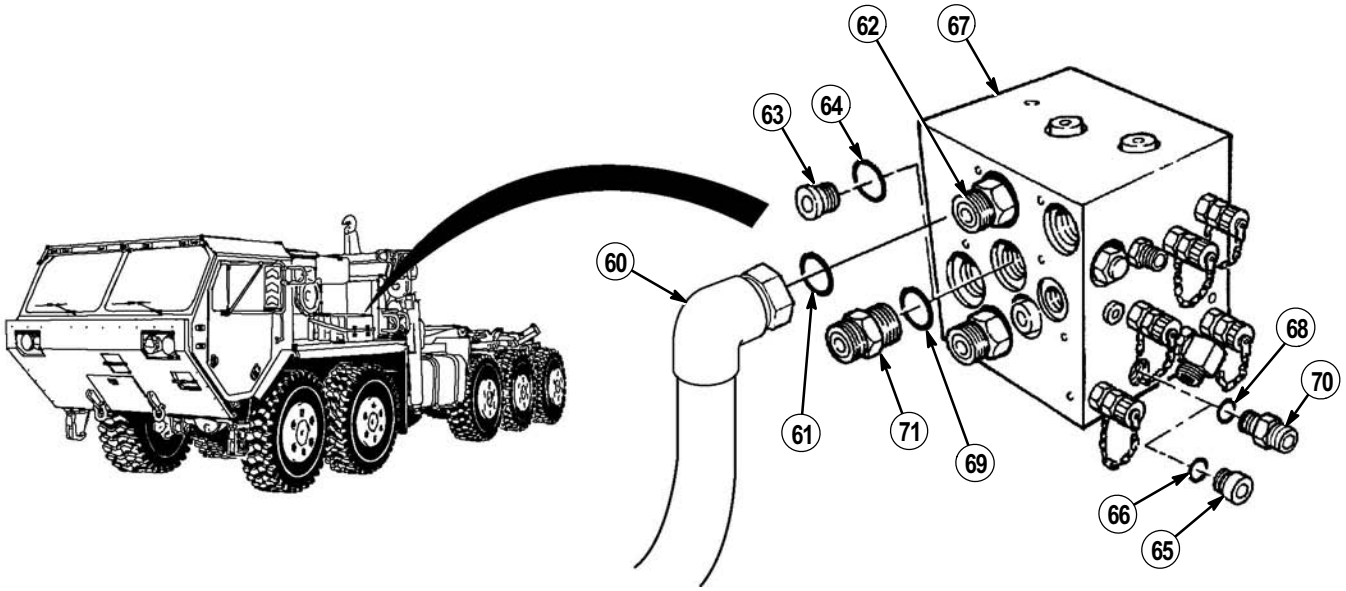
(35) Position two cushion clips (55) on hose 2810 (34) and hose 2724 (36).

(36) Install two cushion clips (55) on bracket (52) with two screws (56) and locknuts (57).



(37) Apply hydraulic oil to preformed packing (58).

(38) Install hose 2810 (34) and preformed packing (58) on fitting (59) in valve (16).



(39) Remove hose 2936 (60) and preformed packing (61) from fitting (62). Discard preformed packing.

(40) Remove and discard plug (63), preformed packing (64), plug (65) and preformed packing (66) from manifold (67).

(41) Apply hydraulic oil to preformed packing (68) and preformed packing (69).

(42) Install fitting (70) and preformed packing (68) in manifold (67).

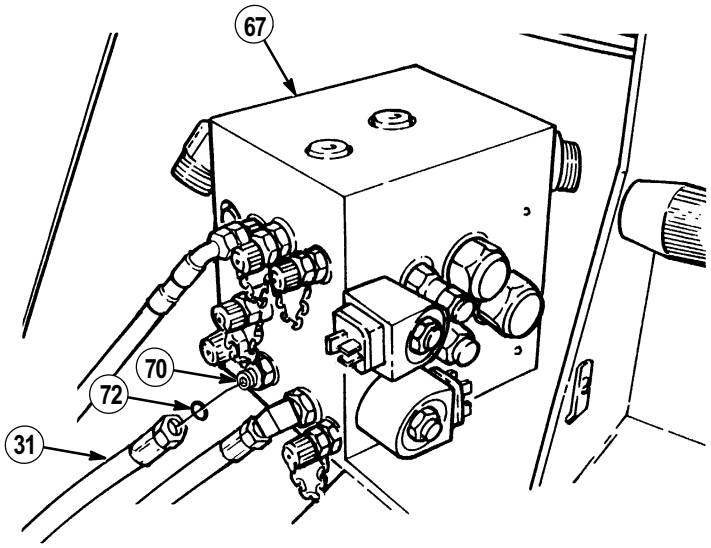
(43) Install fitting (71) and preformed packing (69) in manifold (67).

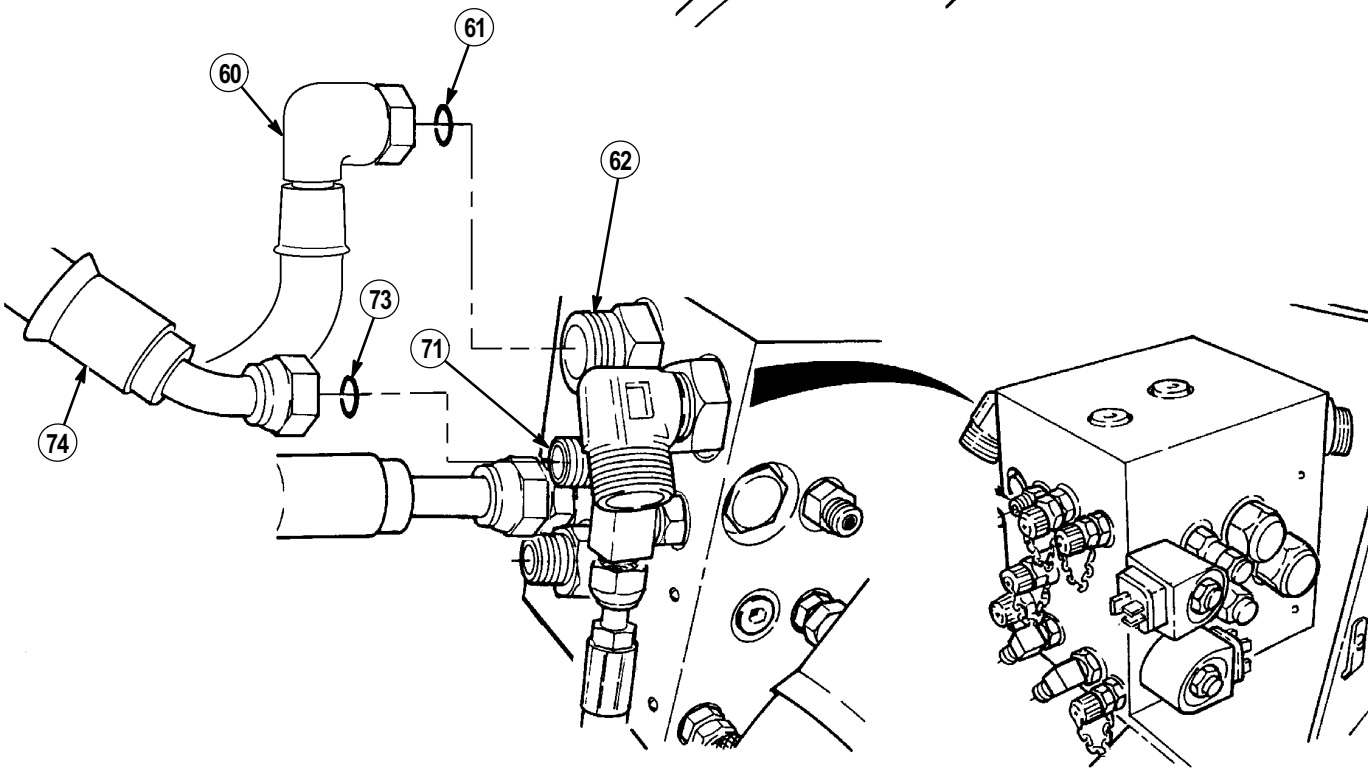
18-9. INTERFACE KIT INSTALLATION (CONT).

(44) Position 2776 hose (31) along hose 2724 (not shown) and hose 2810 (not shown) to manifold (67).

(45) Apply hydraulic oil to preformed packing (72).

(46) Install hose 2776 (31) and preformed packing (72) on fitting (70).



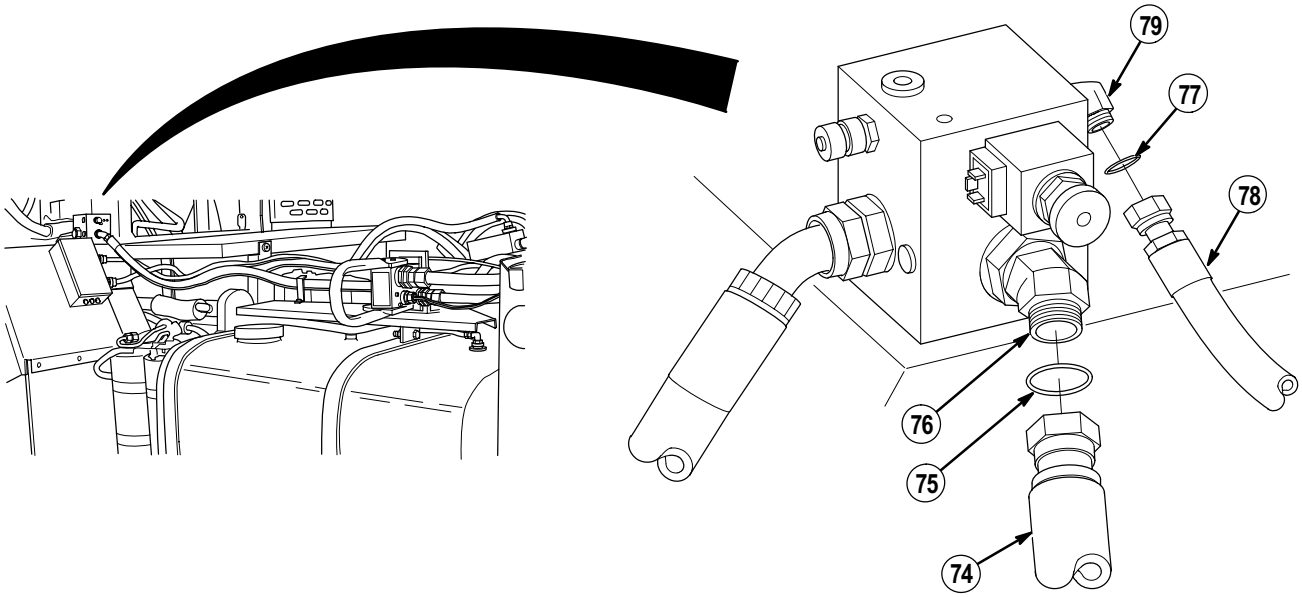


(47) Apply hydraulic oil to preformed packing (73)

(48) Install hose 2902 (74) and preformed packing (73) on fitting (71).

(49) Apply hydraulic oil to preformed packing (61).

(50) Install hose 2936 (60) and preformed packing (61) on fitting (62).

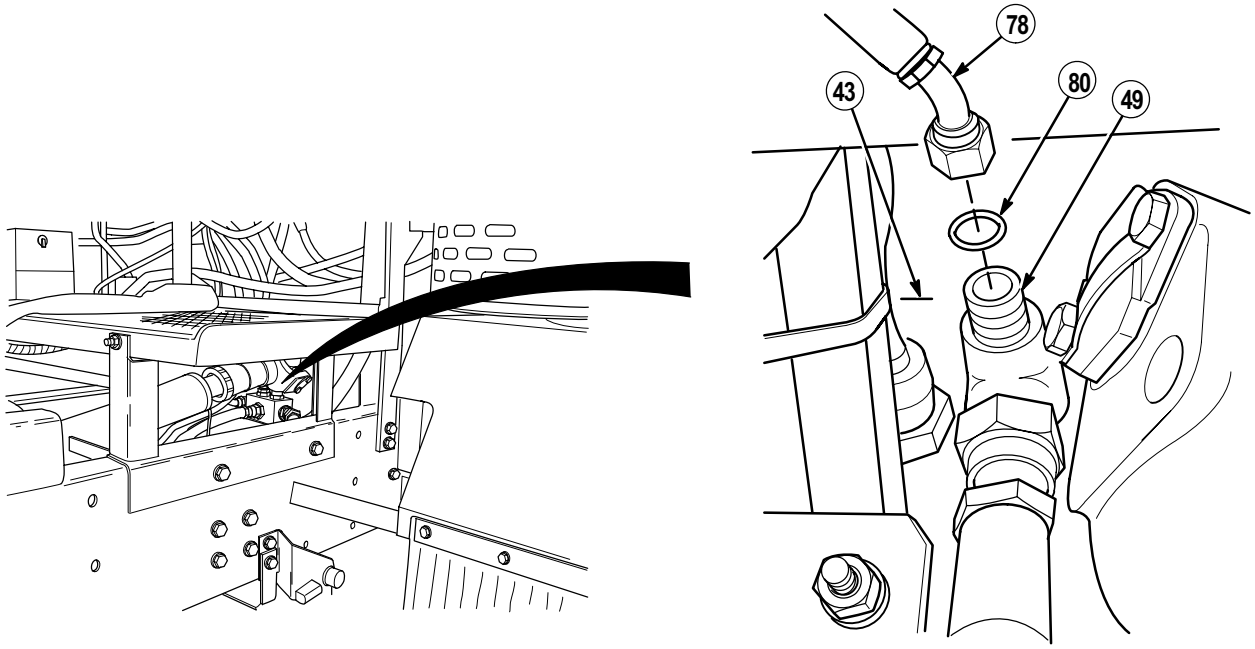


(51) Apply hydraulic oil to preformed packing (75).

(52) Install hose 2902 (74) and preformed packing (75) on fitting (76).

(53) Apply hydraulic oil to preformed packing (77).

(54) Install hose 2774 (78) and preformed packing (77) on elbow (79).



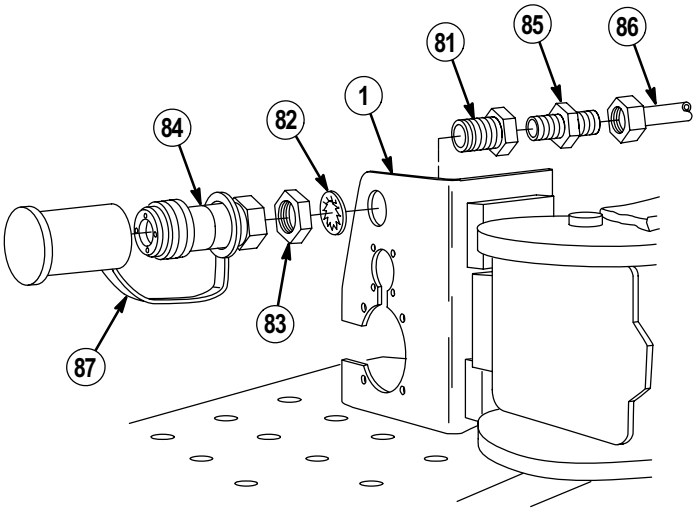
(55) Position hose 2774 (78) to manifold (43).

(56) Apply hydraulic oil to preformed packing (80).

(57) Install hose 2774 (78) and preformed packing (80) on reducer (49).

18-9. INTERFACE KIT INSTALLATION (CONT).

(58) Install fitting (81) in mounting bracket (1) with lockwasher (82) and jam nut (83).



WARNING

Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(59) Apply sealing compound on threads of fitting (81).

(60) Install quick disconnect (84) on fitting (81).

(61) Apply sealing compound on threads of fitting (85).

(62) Install fitting (85) in fitting (81).

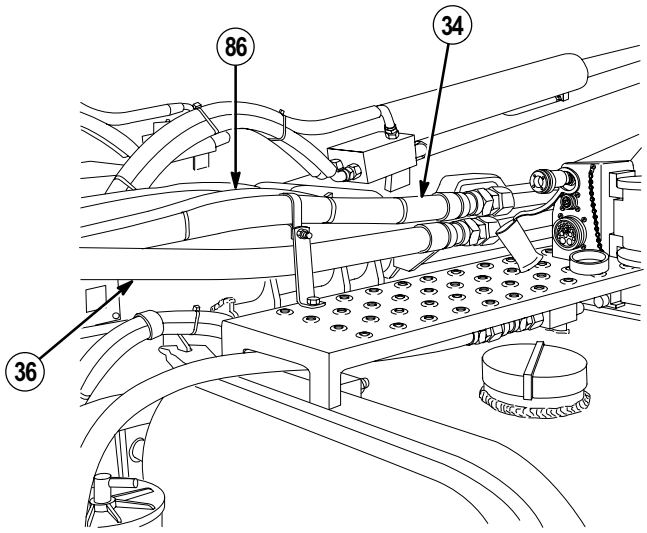
(63) Install air line 2133 (86) on fitting (85).

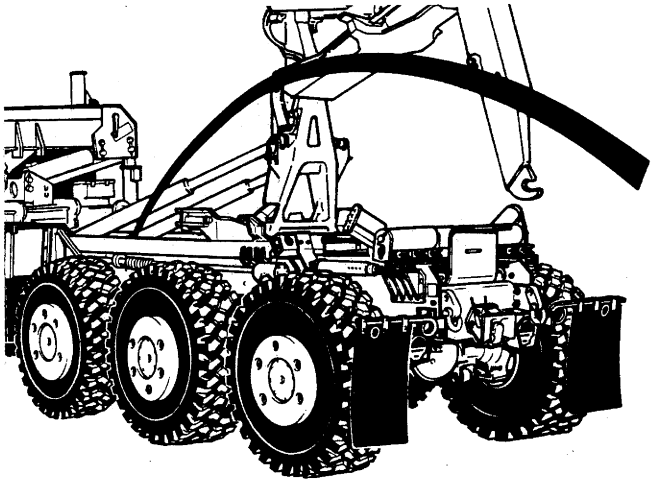
(64) Install cover (87) on air quick disconnect (84).

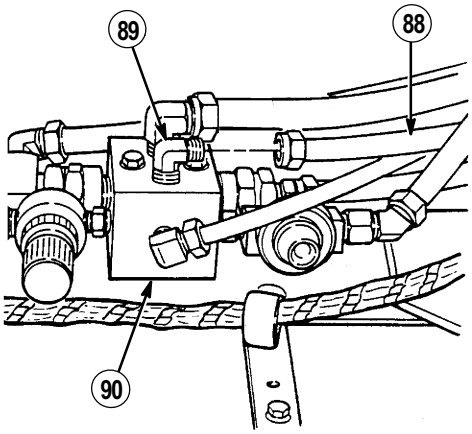
(65) Position air line 2133 (86) along hose 2724 (36) and hose 2810 (34).

(66) Remove existing air line 2133 (88) from elbow (89).

(67) Remove and discard elbow (89) from manifold (90).







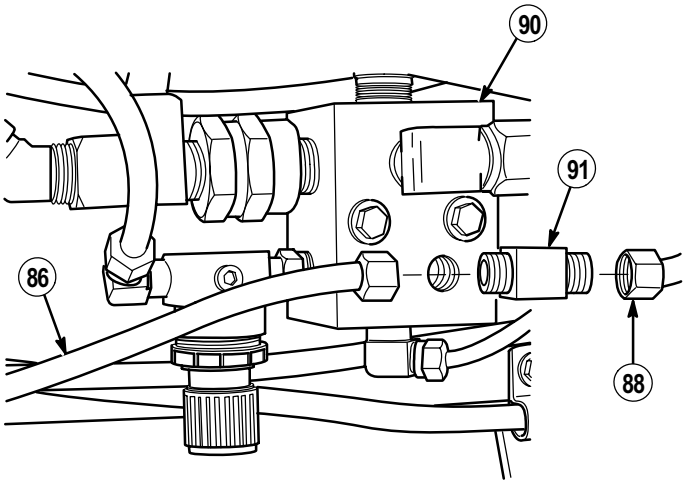
WARNING

Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

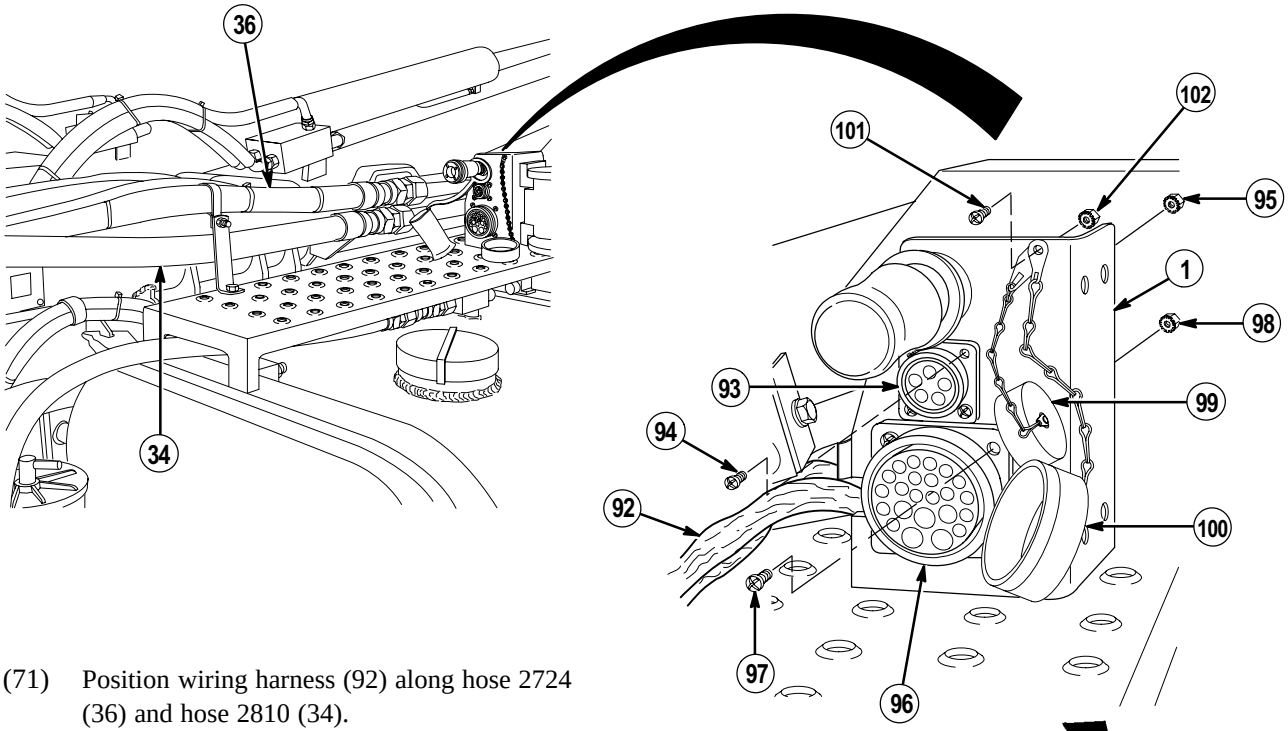
(68) Apply sealing compound on threads of tee (91).

(69) Install tee (91) in manifold (90).

(70) Install existing air line 2133 (88) and new air line 2133 (86) on tee (91).



18-9. INTERFACE KIT INSTALLATION (CONT).



(71) Position wiring harness (92) along hose 2724 (36) and hose 2810 (34).

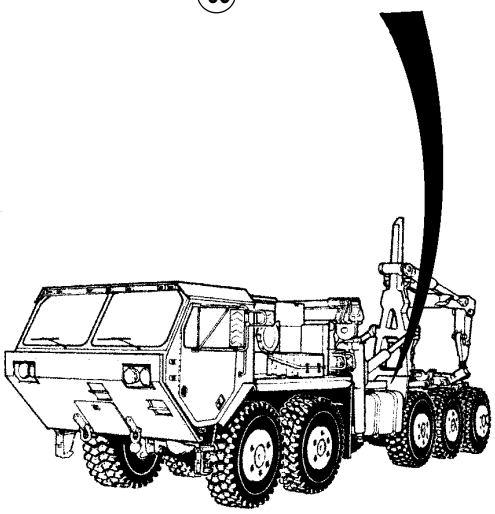
(72) Position MC138 connector (93) through slots in mounting bracket (1) and install with four screws (94) and locknuts (95).

(73) Install MC130 connector (96) to mounting bracket (1) with four screws (97) and locknuts (98).

(74) Install cap with chain (99) and cap with chain (100) with screw (101) and locknut (102) on mounting bracket (1).

(75) Install cap (100) on MC130 connector (96).

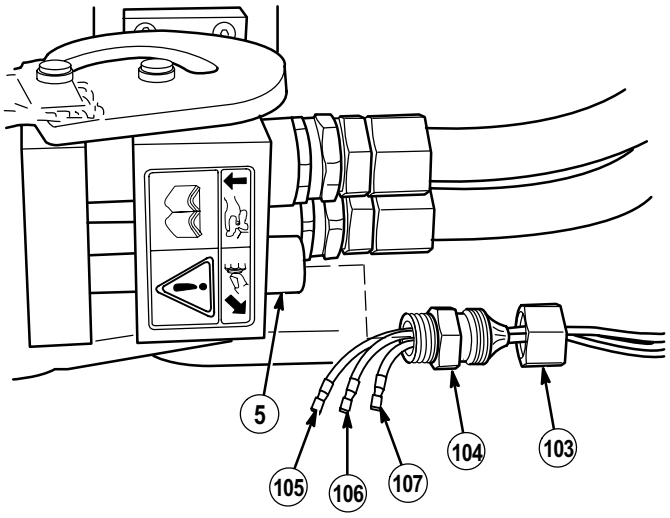
(76) Install cap (99) on MC138 connector (93).



(77) Remove nut (103) from fitting (104).

(78) Remove fitting (104) from quick disconnect (5).

(79) Position wires 1435 (105), 1435A (106) and 1435B (107) through nut (103) and fitting (104).



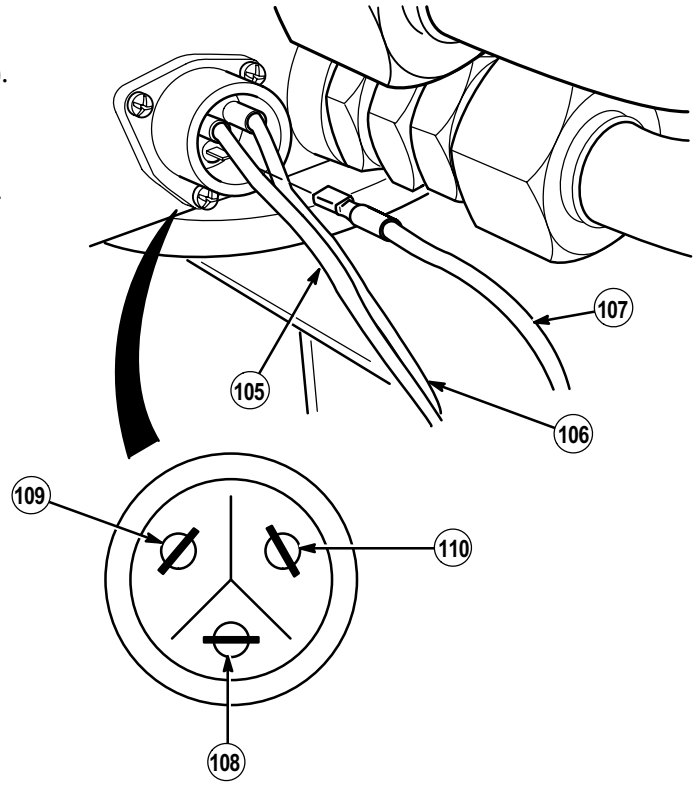
(80) Install wire 1435 (105) to terminal (108).

(81) Install wire 1435A (106) to terminal (109).

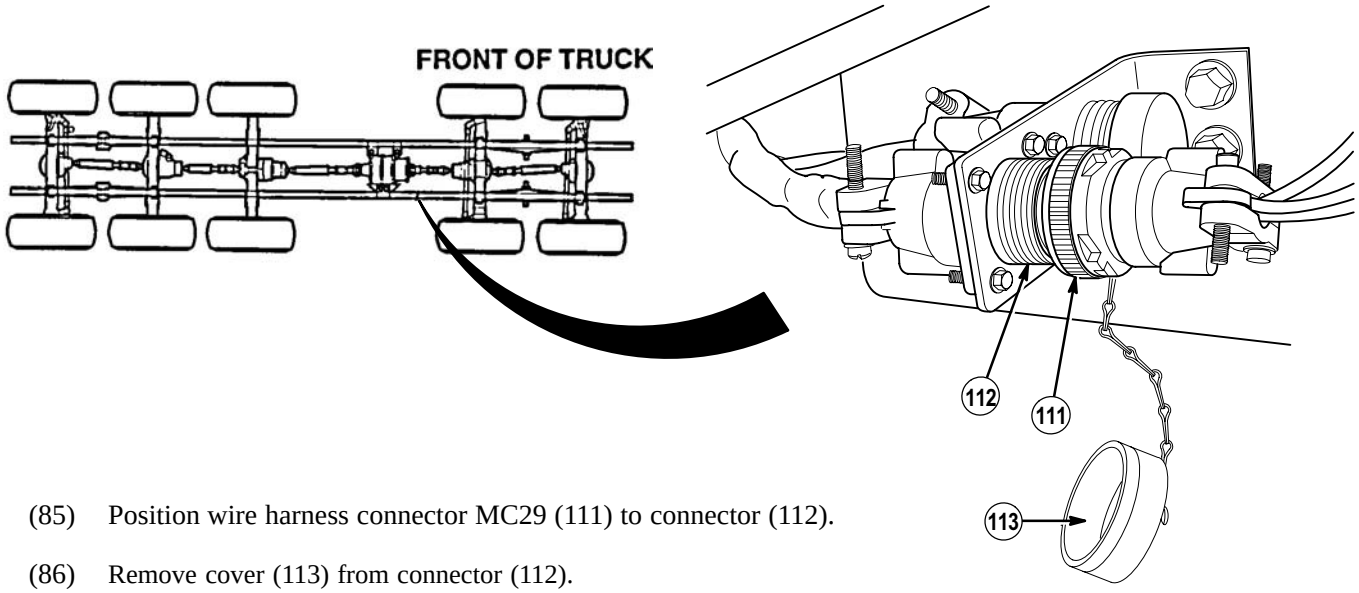
(82) Install wire 1435B (107) to terminal (110).

(83) Install fitting (104) on quick disconnect (5).

(84) Install nut (103) on fitting (104).



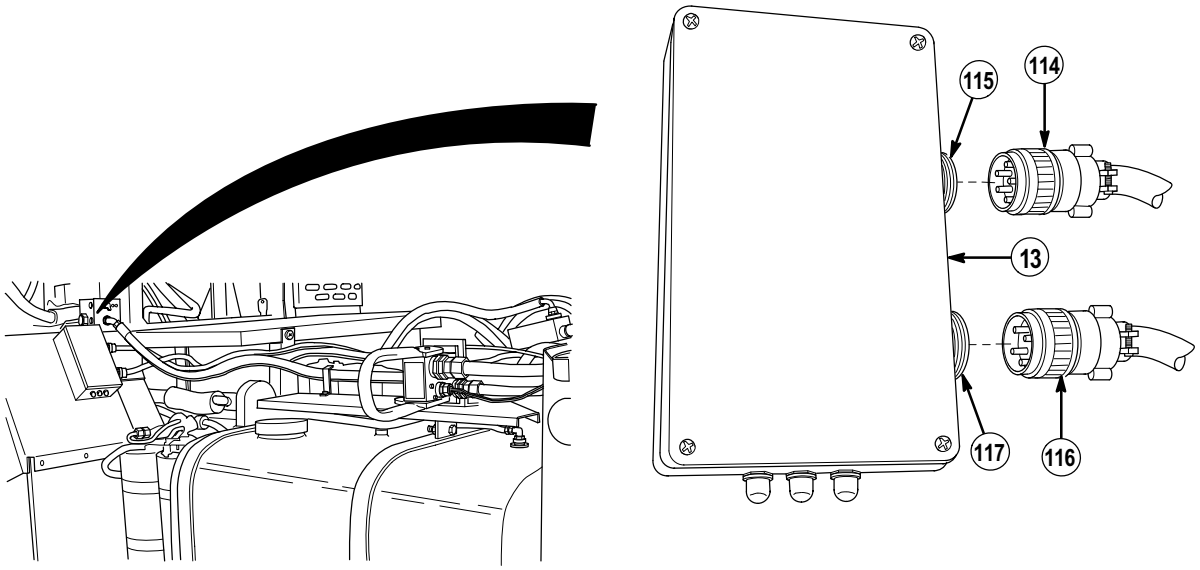
18-9. INTERFACE KIT INSTALLATION (CONT).



(85) Position wire harness connector MC29 (111) to connector (112).

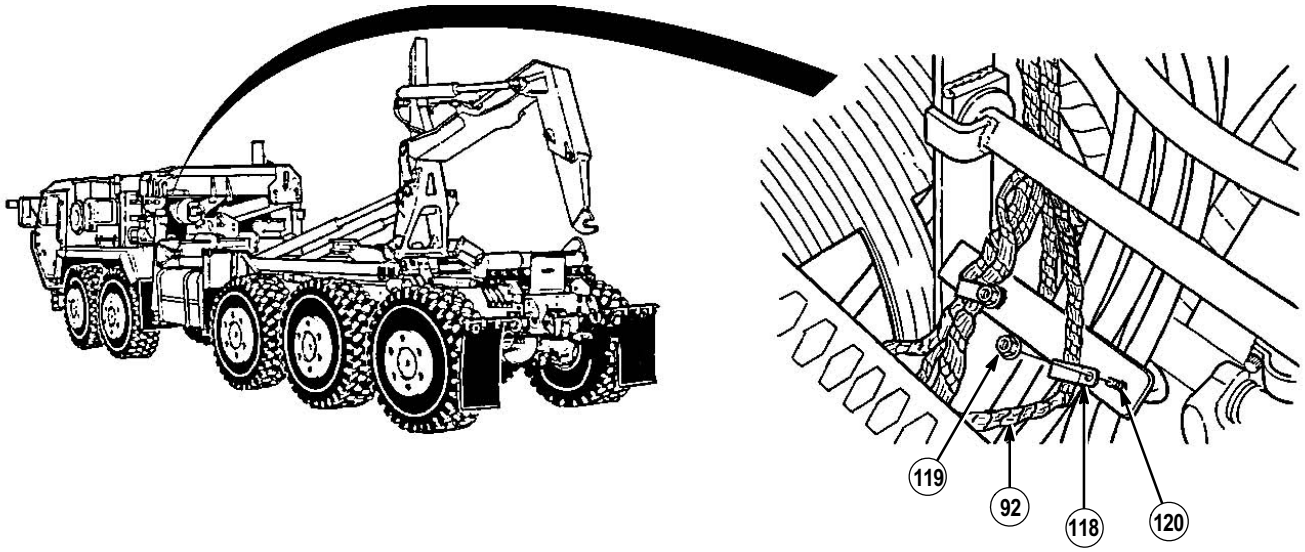
(86) Remove cover (113) from connector (112).

(87) Connect wire harness connector MC29 (111) to connector (112).



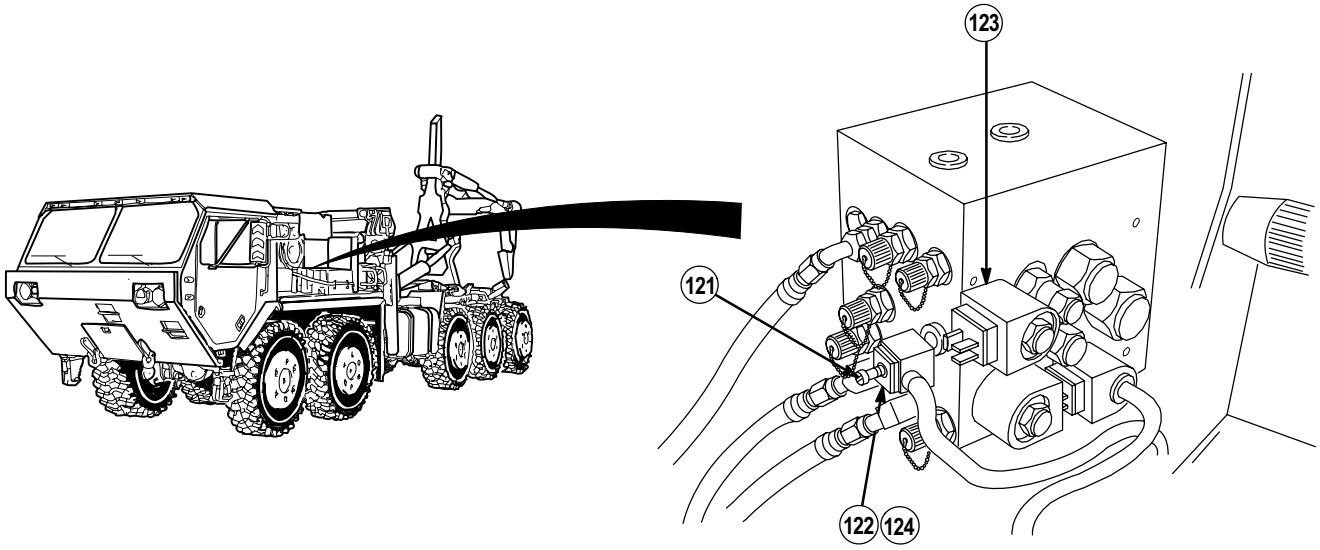
(88) Connect MC135 connector (114) to MC135 connector (115) on powerbox (13).

(89) Connect MC136 connector (116) to MC136 connector (117) on powerbox (13).



(90) Position wire harness (92) in cushion clip (118).

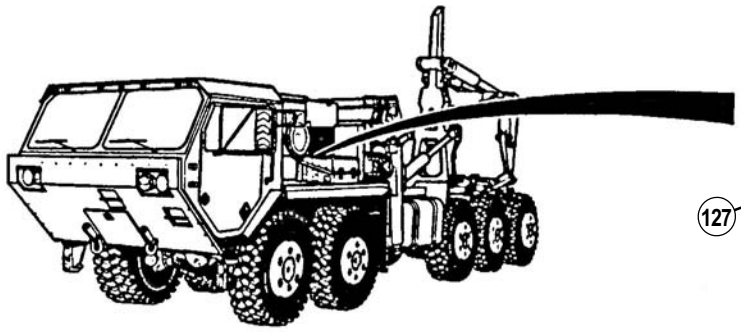
(91) Install cushion clip (118), and locknut (119) on U-bolt (120).

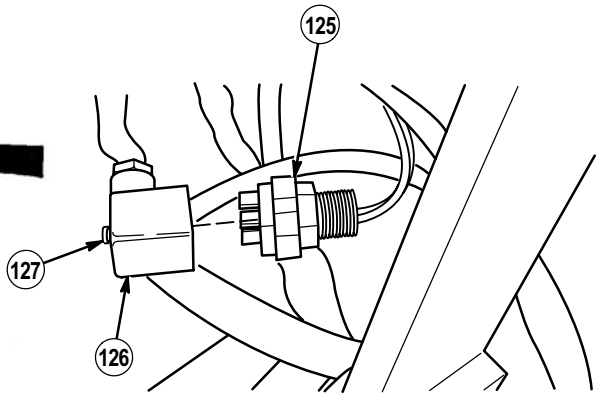


(92) Loosen screw (121) and disconnect MC10 connector (122) from solenoid valve (123).

(93) Connect MC133 connector (124) to valve (123) and tighten screw (121).

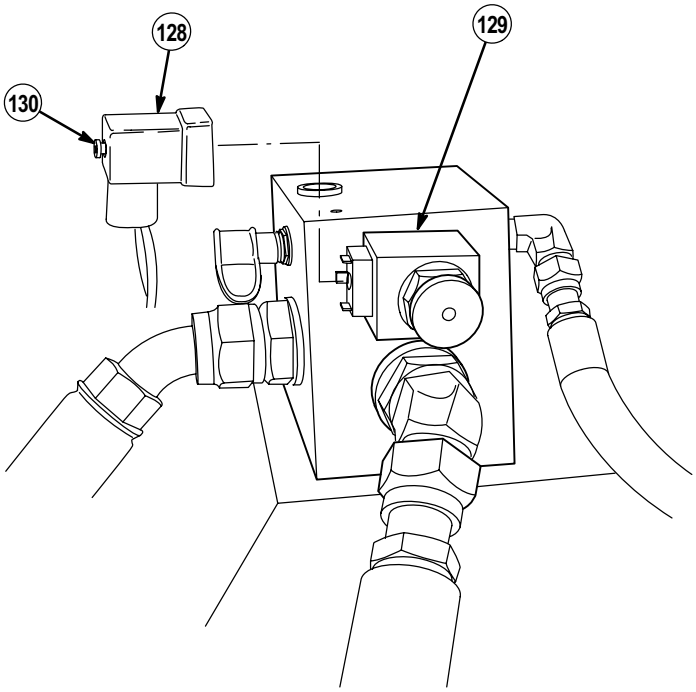
18-9. INTERFACE KIT INSTALLATION (CONT).





(94) Connect MC132 connector (125) to M10 connector (126) and tighten screw (127).

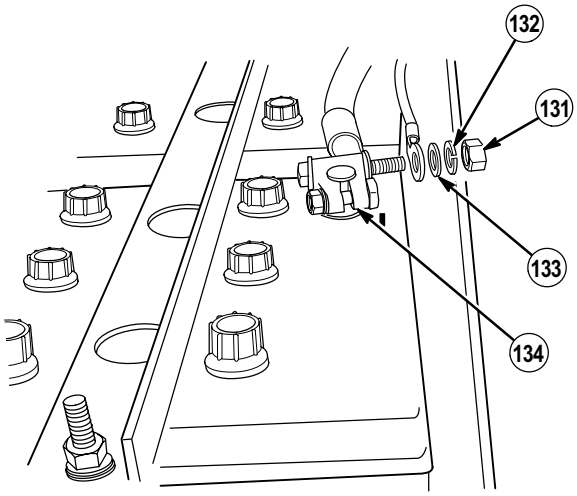
(95) Connect MC134 connector (128) to manual override solenoid (129) and tighten screw (130).

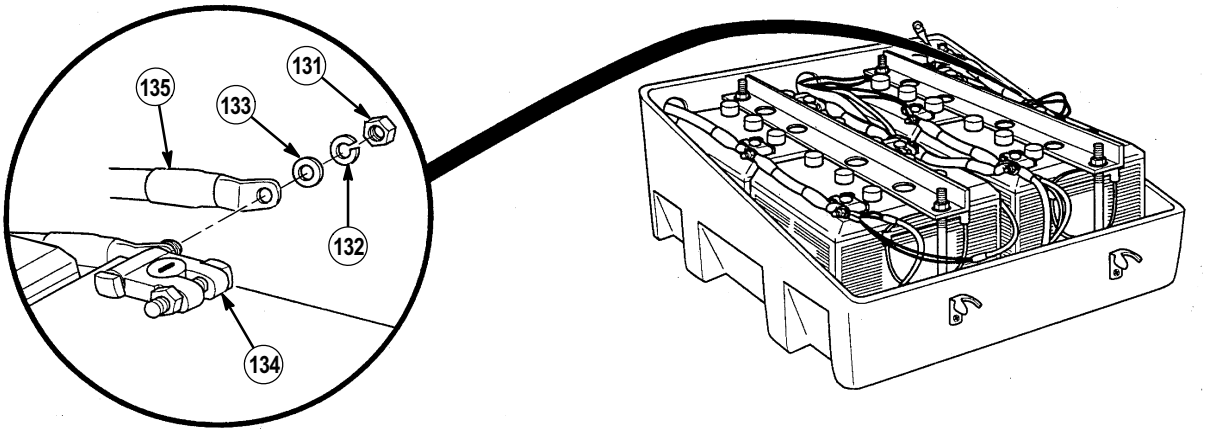


WARNING

- Upon installation of all wires and cables, ensure no contact is made with battery terminals or other wires and cables. Strap wires as required to prevent injury or death to personnel or damage to equipment.
- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing from being damaged.
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

(96) Remove nut (131), lockwasher (132) and washer (133) from negative terminal (134). Discard lockwasher.

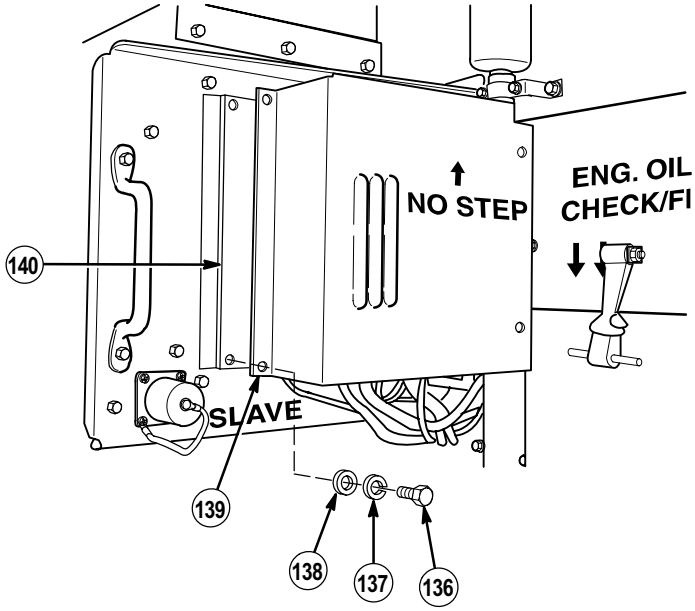




(97) Install wire 1435 (135) to negative terminal (134) with washer (133), lockwasher (132) and nut (131).

18-9. INTERFACE KIT INSTALLATION (CONT).

(98) Remove four screws (136), lockwashers (137), washers (138) and splash guard (139) from panel (140). Discard lockwashers.



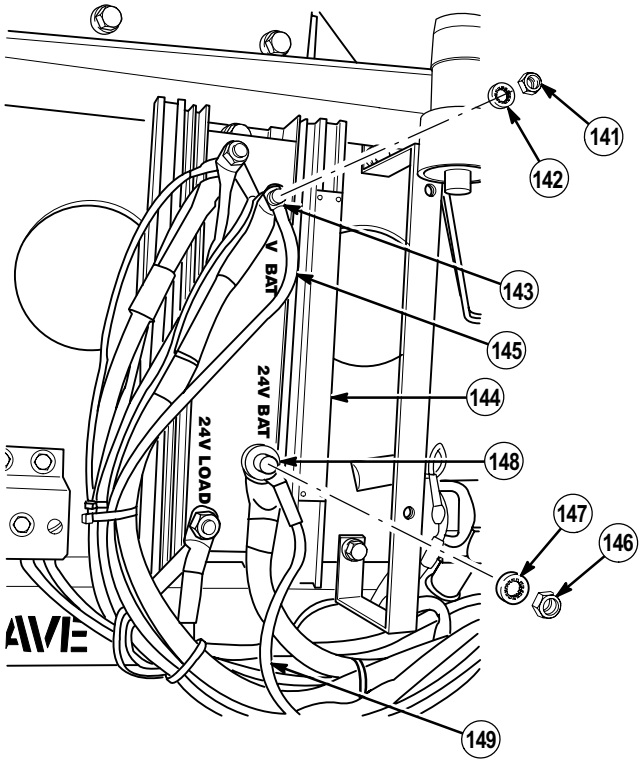
(99) Remove nut (141) and lockwasher (142) from 12V BAT terminal (143) on polarity protection (144). Discard lockwasher.

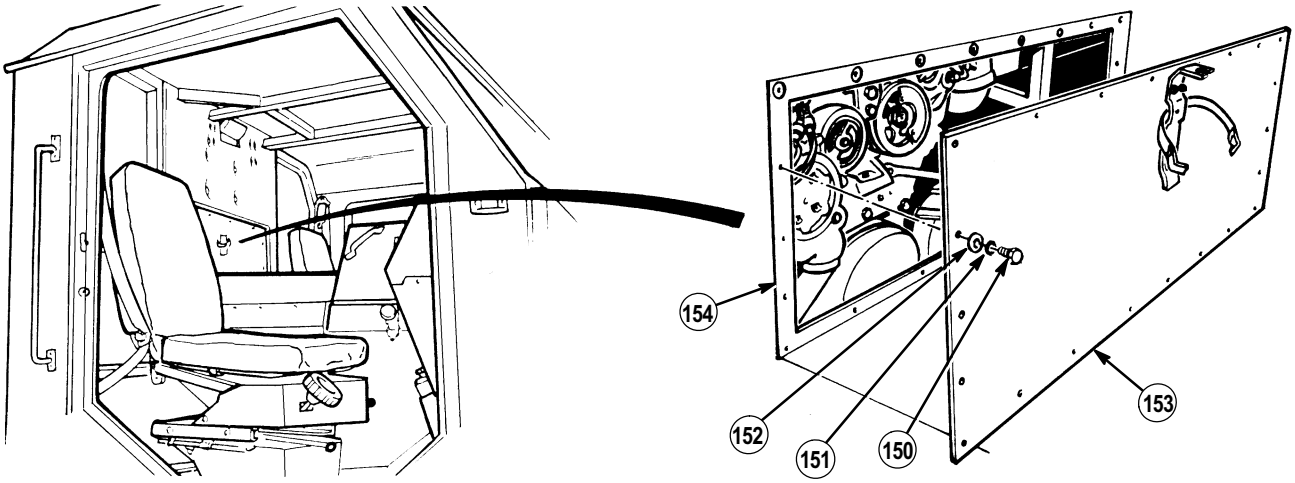
(100) Install wire 1785 (145) on 12V BAT terminal (143) with lockwasher (142) and nut (141).

(101) Remove nut (146) and lockwasher (147) from 24V BAT terminal (148) on polarity protection (144). Discard lockwasher.

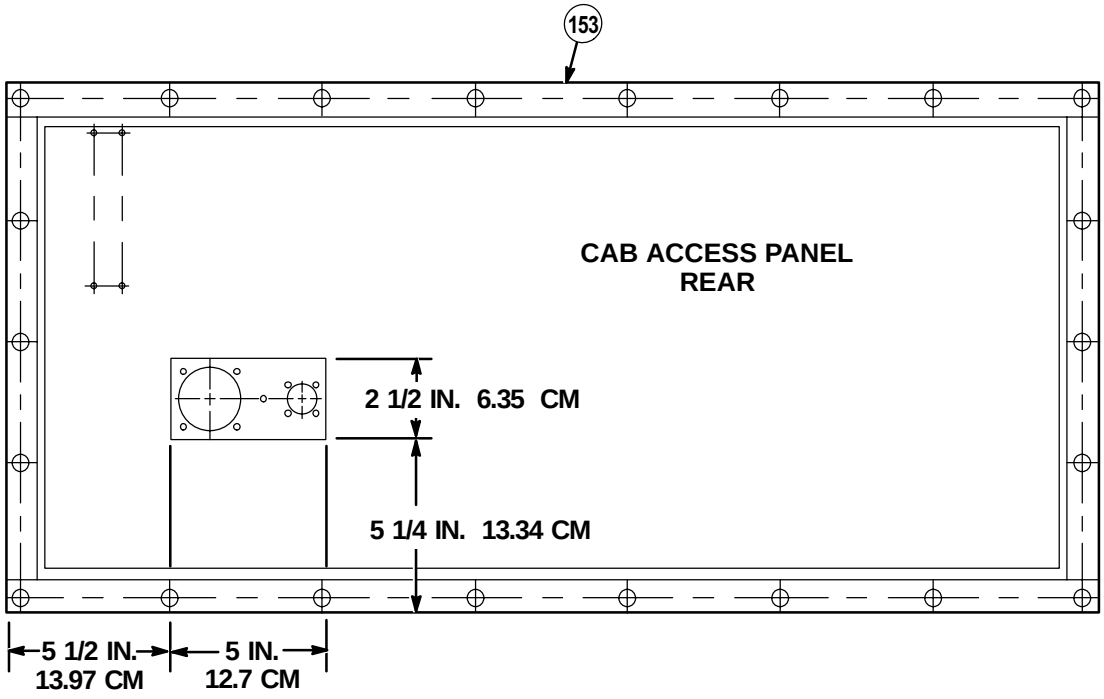
(102) Install wire 1784 (149) on 24V BAT terminal (148) with lockwasher (147) and nut (146).

(103) Install splash guard (139) on panel (140) with four washers (138), lockwashers (137) and screws (136).



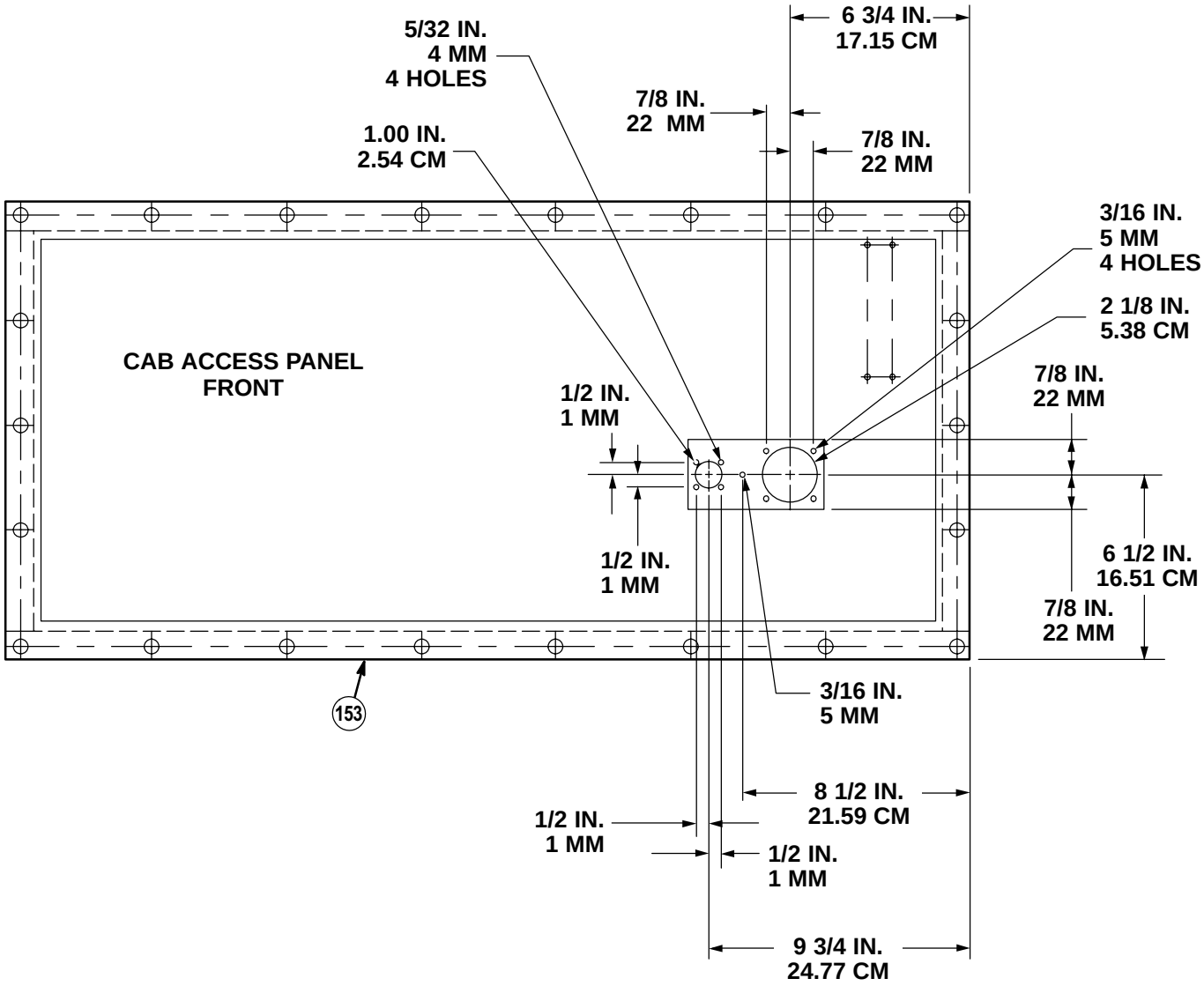


(104) Remove 22 screws (150), lockwashers (151), washers (152) and cab engine access panel (153) from cab (154). Discard lockwashers.



(105) Cut out and remove insulation from cab engine access panel (153) in dimensions shown.

18-9. INTERFACE KIT INSTALLATION (CONT).



(106) Drill eleven holes in cab engine access panel (153) in dimensions shown.

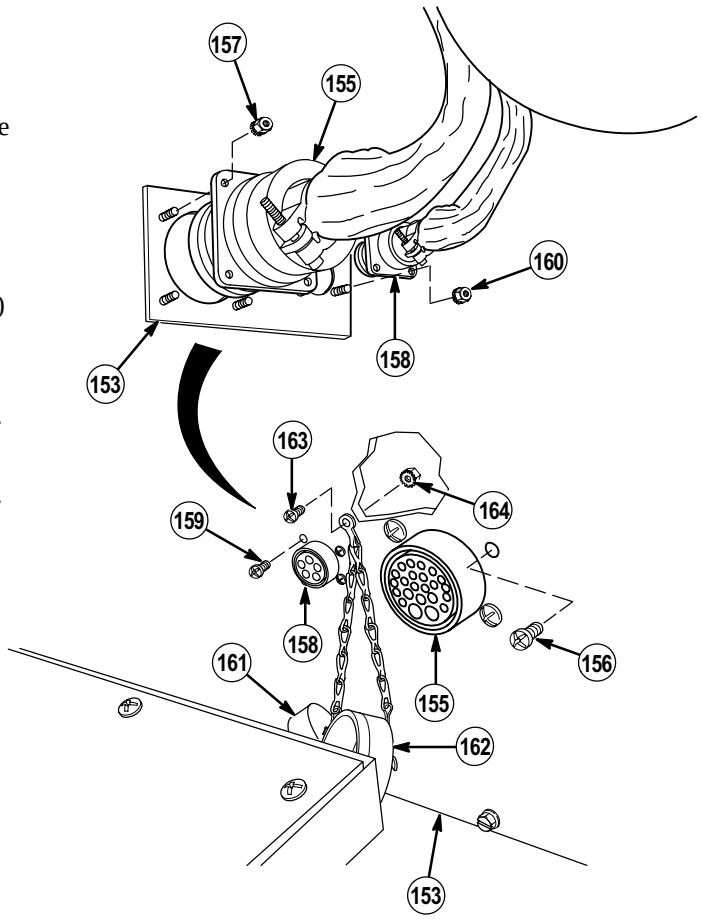
(107) Install MC129 connector (155) to cab engine access panel (153) with four screws (156) and locknuts (157).

(108) Install MC137 connector (158) to cab engine access panel (153) with four screws (159) and locknuts (160).

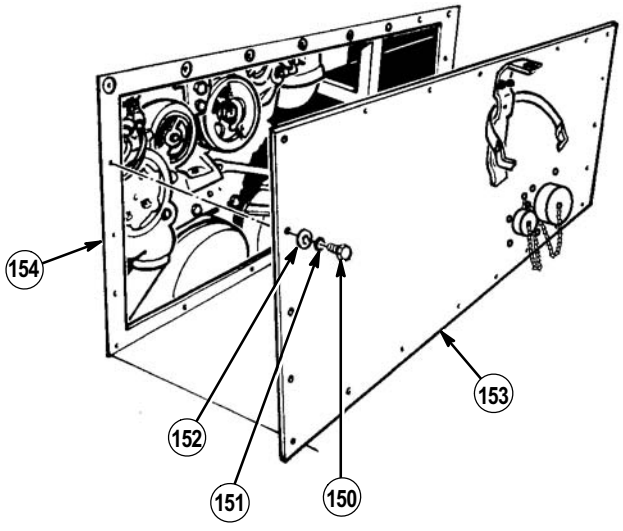
(109) Install cap with chain (161) and cap with chain (162) to cab engine access panel (153) with screw (163) and locknut (164).

(110) Install cap (162) to MC129 connector (155).

(111) Install cap (161) to MC137 connector (159).



(112) Install cab engine access panel (153) to cab (154) with 22 washers (152), lockwashers (151) and screws (150).

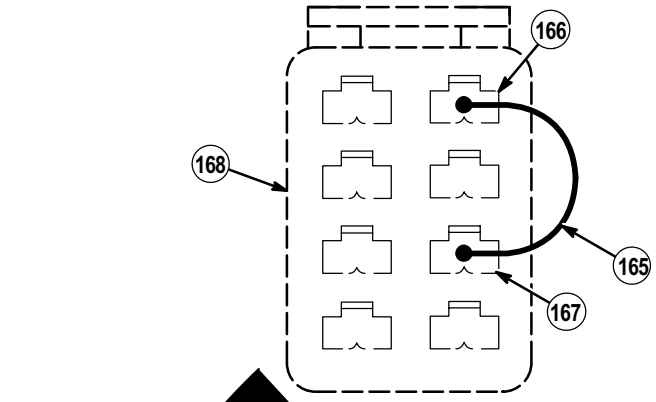


18-9. INTERFACE KIT INSTALLATION (CONT).

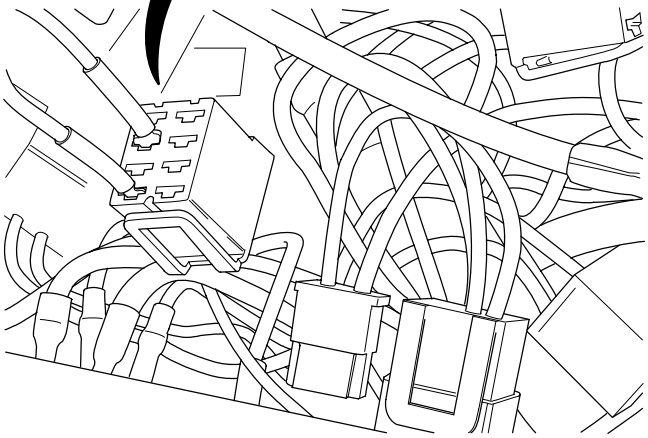
(113) Install jumper wire (165) between terminal 1 (166) and terminal 5 (167) of S4 connector (168).

CAUTION

Ensure all wires and hoses are away from moving parts and are not rubbing or making contact with metal parts. Failure to comply may result in damage to equipment.

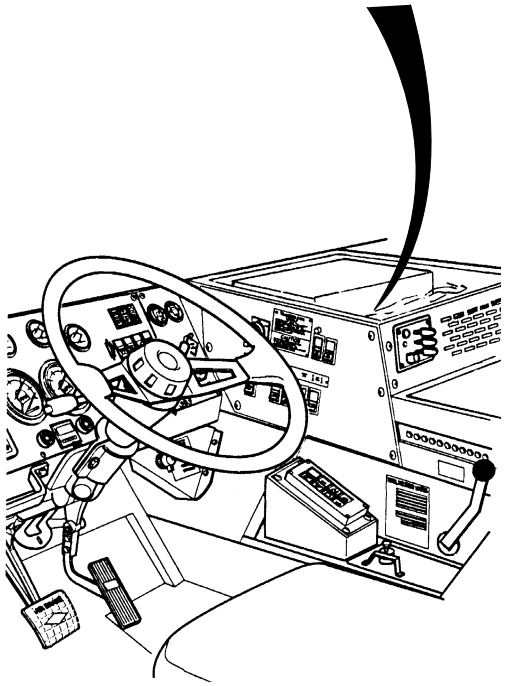


(114) Install cable ties to all hoses and wires as required.



b. Follow-On Maintenance:

- Fill hydraulic system, (TM 9-2320-364-20).
- Install heater compartment cover, (TM 9-2320-364-20).
- Install left front noise panel, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Install rear noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Install fire extinguisher, (TM 9-2320-364-10).
- Stow LHS, (TM 9-2320-364-10).
- Check for leaks, (TM 9-2320-364-10).
- Remove wheel chocks, (TM 9-2320-364-10).



END OF TASK

18-10. LHS CONTROLLER PROTECTION KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit General Mechanic's (Item 240, Appendix F)
Drill Set, Twist (Item 48, Appendix F)
Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)

Materials/Parts
Cable Ties (Item 9, Appendix B)
Tape, Electrical (Item 74, Appendix B)

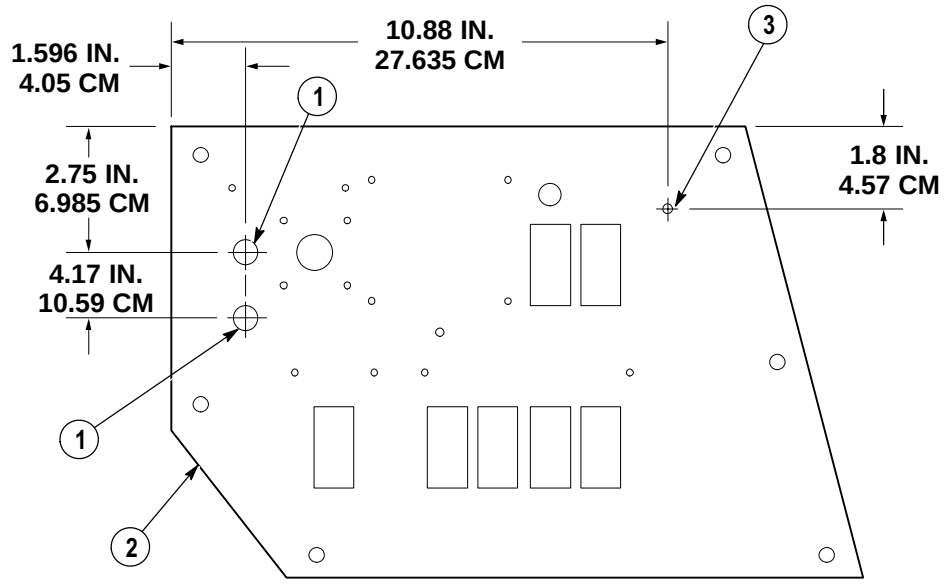
Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Heater cover removed, (TM 9-2320-364-20)

a. Installation.

(1) Remove LHS cab interface wire harness, (Para 6-32).

(2) Remove ECB side panel, (TM 9-2320-364-20).

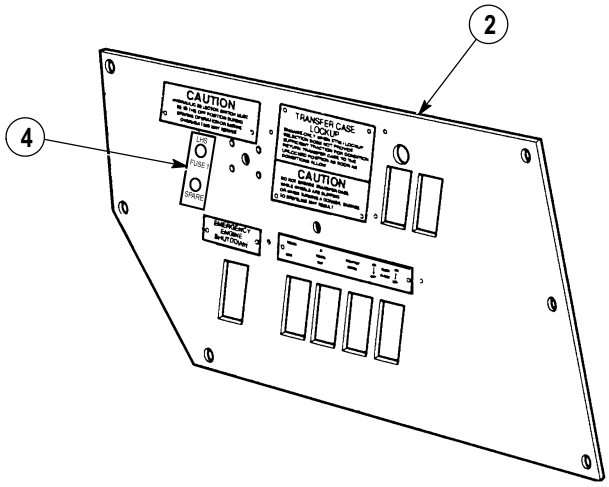


(3) Drill two 0.531 in. (13.487 mm) holes (1) in side panel (2) as shown.

(4) Drill 0.203 in. (5.16 mm) hole (3) in side panel (2) as shown.

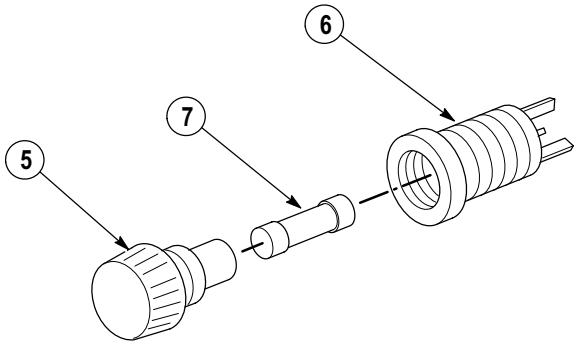
18-10. LHS CONTROLLER PROTECTION KIT INSTALLATION (CONT).

(5) Position fuse data plate (4) on side panel (2).



(6) Remove two covers (5) from fuse holders (6).

(7) Position two fuses (7) in fuse holders (6) and install covers (5).

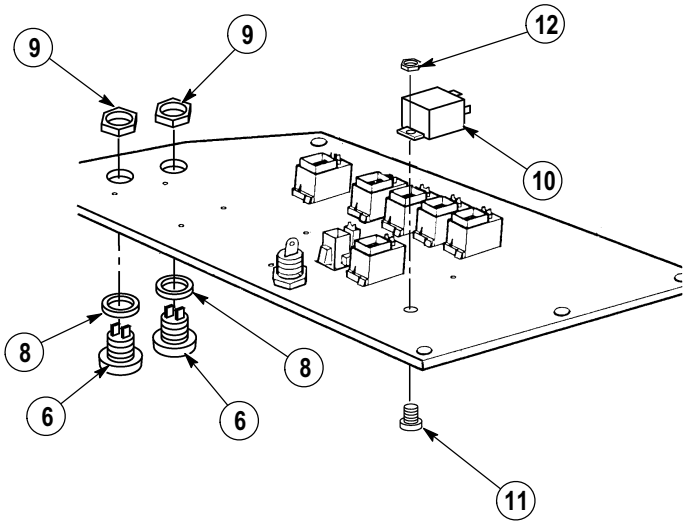


NOTE

There are two fuse holders. Both are installed the same way.

(8) Install two seals (8), fuse holders (6) and nuts (9) through data plate (4) on side panel (2).

(9) Install relay (10) on side panel (2) with screw (11) and locknut (12).



NOTE

- Evenly distribute any slack in harness.
- Install cable ties as required.

(10) Position cab interface wire harness in truck.

(11) Connect MC33 connector (13).

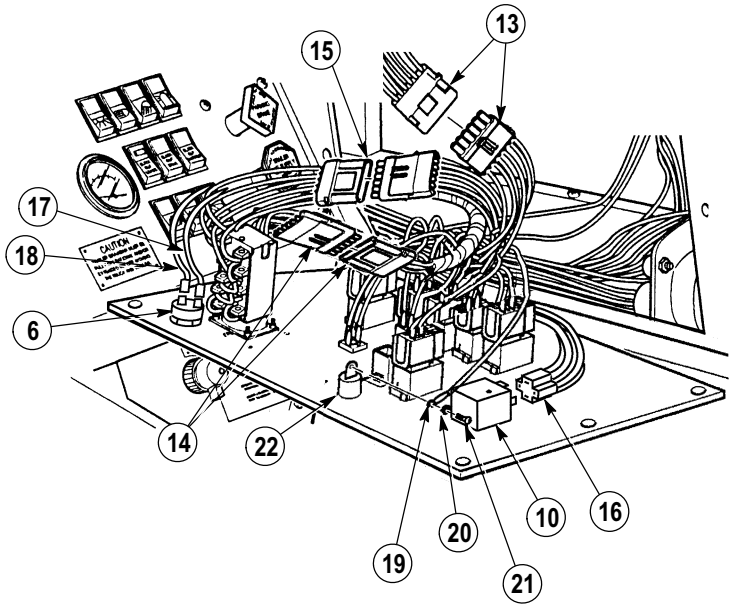
(12) Connect MC93 connector (14).

(13) Connect MC94 connector (15).

(14) Connect relay connector (16) to relay (10).

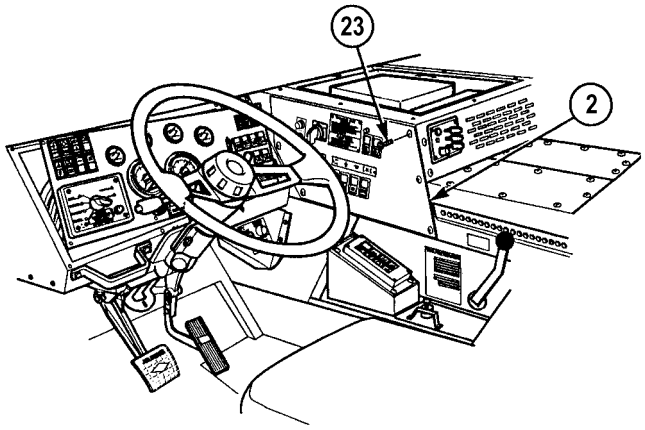
(15) Connect wires 1755A (17) and 1755 (18) to LHS fuse holder (6).

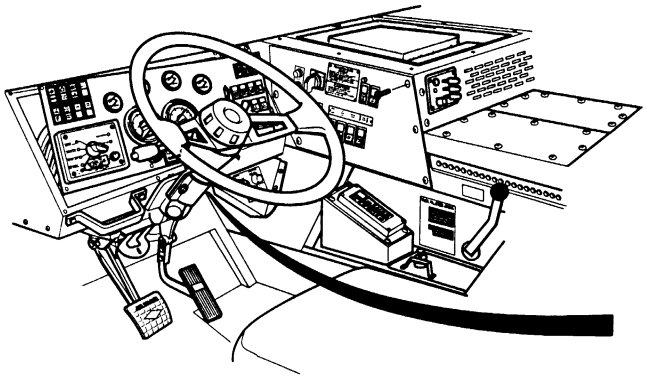
(16) Install wire 1052 (19), lockwashers (20) and screw (21) on panel light (22).

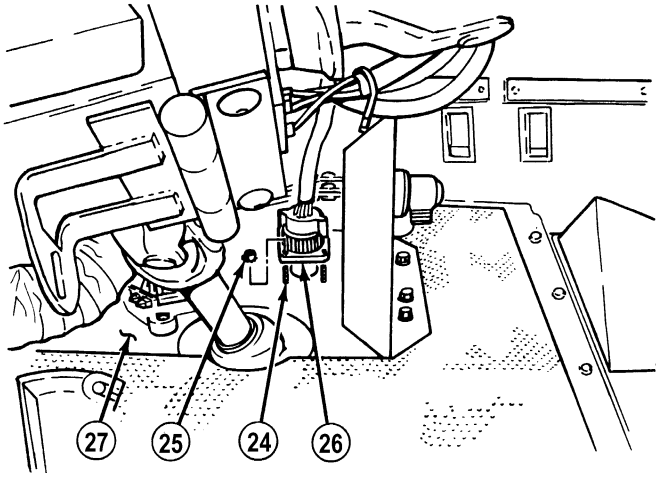


18-10. LHS CONTROLLER PROTECTION KIT INSTALLATION (CONT).

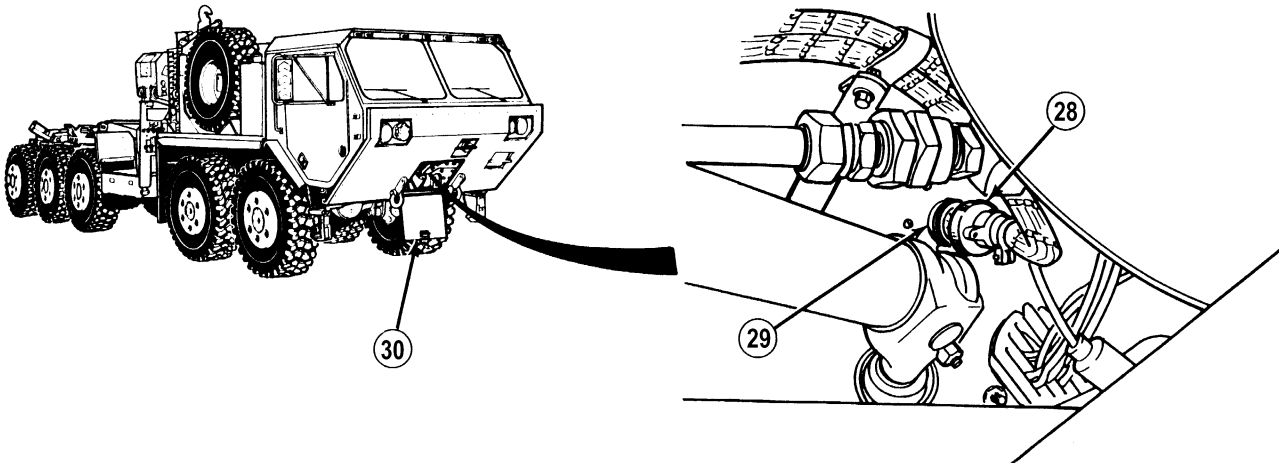
(17) Position side panel (2) in truck and install six screws (23) in side panel.







(18) With the aid of an assistant, install four screws (24), locknut (25), and MC84 connector (26) on cab (27).



(19) Connect MC84 connector (28) to bulkhead connector (29).

(20) Close front access cover (30).

b. Follow-On Maintenance:

- Install heater cover, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-11. BATTERY DISCONNECT SWITCH KIT INSTALLATION (200 AMP).

This task covers:

a. Installation

b. Follow-On Maintenance

INITIAL SETUP

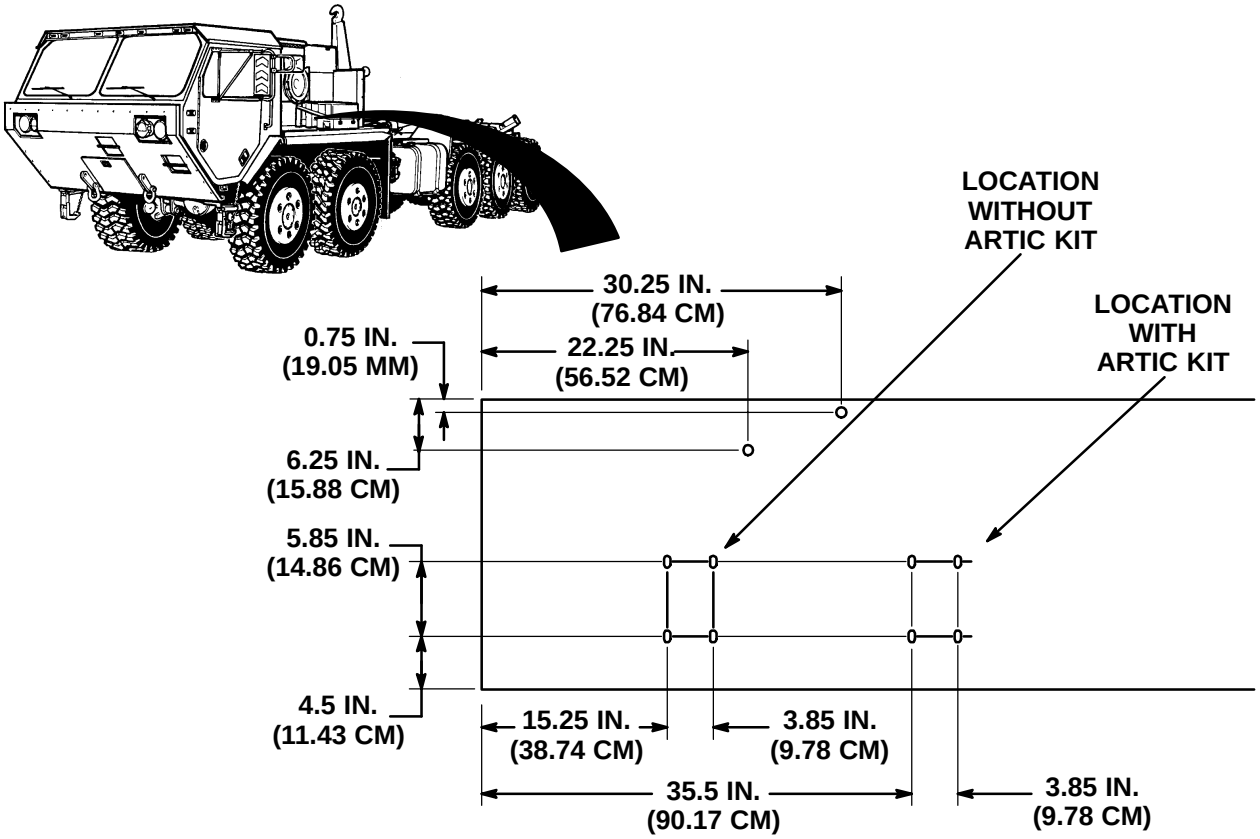
Tools and Special Tools
- Tool Kit General Mechanic's (Item 240, Appendix F)
- Drill Set, Twist (Item 48, Appendix F)
- Drill, Electric, Portable, 1/4 in. (Item 49, Appendix F)
- Gun, Heat (Item 87, Appendix F)
- Rivet Gun (Item 196, Appendix F)
- Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

Materials/Parts
- Cable Ties (Item 9, Appendix B)
- Compound, Corrosion Preventive (Item 15, Appendix B)
- Heatshrink (Item 30, Appendix B)

Materials/Parts - Continued
- Sealant, Electrical (Item 50, Appendix B)
- Lockwasher (Item 251, Appendix E)
- Lockwasher (2) (Item 254, Appendix E)
- Lockwasher (Item 283, Appendix E)
- Lockwasher (Item 286, Appendix E)
- Lockwasher (2) (Item 299, Appendix E)

Equipment Condition
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)
- Batteries disconnected, (TM 9-2320-364-20)
- Left side noise panel removed, (TM 9-2320-364-20)

a. Installation.



NOTE

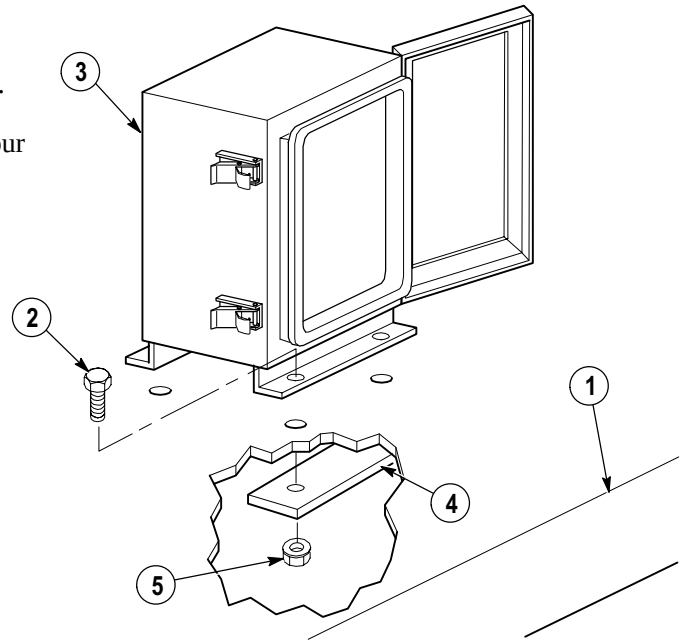
This task pertains to vehicles that have been field retrofit with 200 AMP alternator.

(1) Mark switch box and clamp hardware mounting locations on left fender.

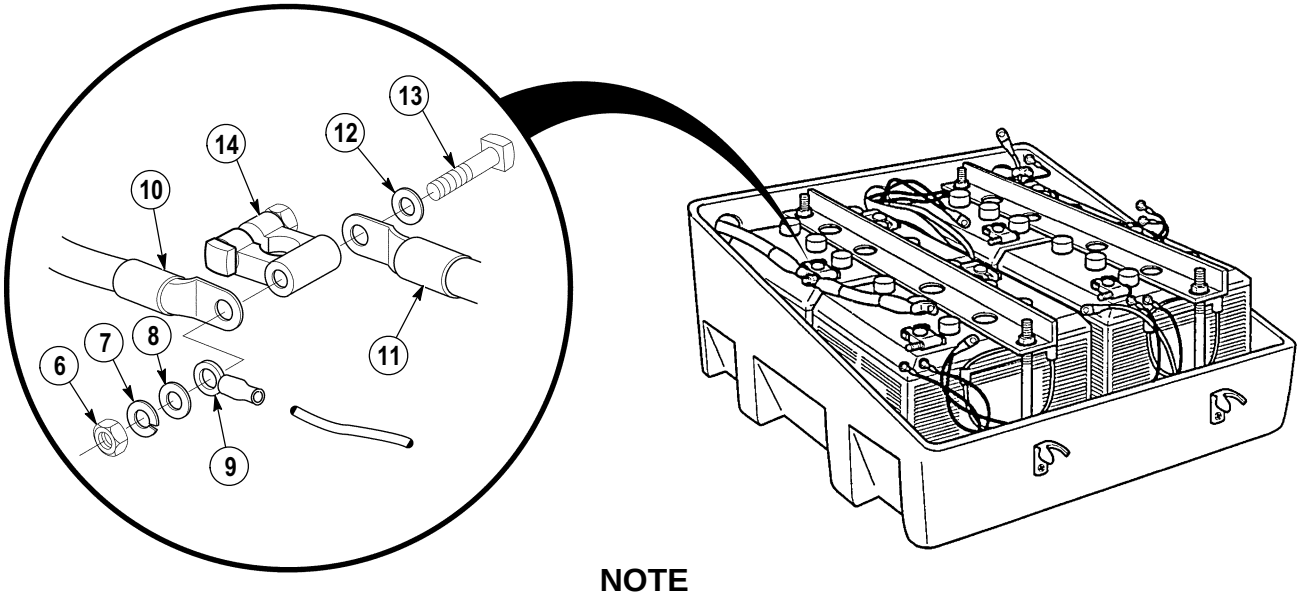
(2) Drill six .344 in. (11/32 in.) (8.74 mm) holes in fender (1) at locations marked in Step (1).

(3) Install four screws (2) through battery disconnect switch box (3) and fender (1).

(4) Position two mounting brackets (4) on four screws (2) and secure with four nuts (5).



18-11. BATTERY DISCONNECT SWITCH KIT INSTALLATION (200 AMP) (CONT).

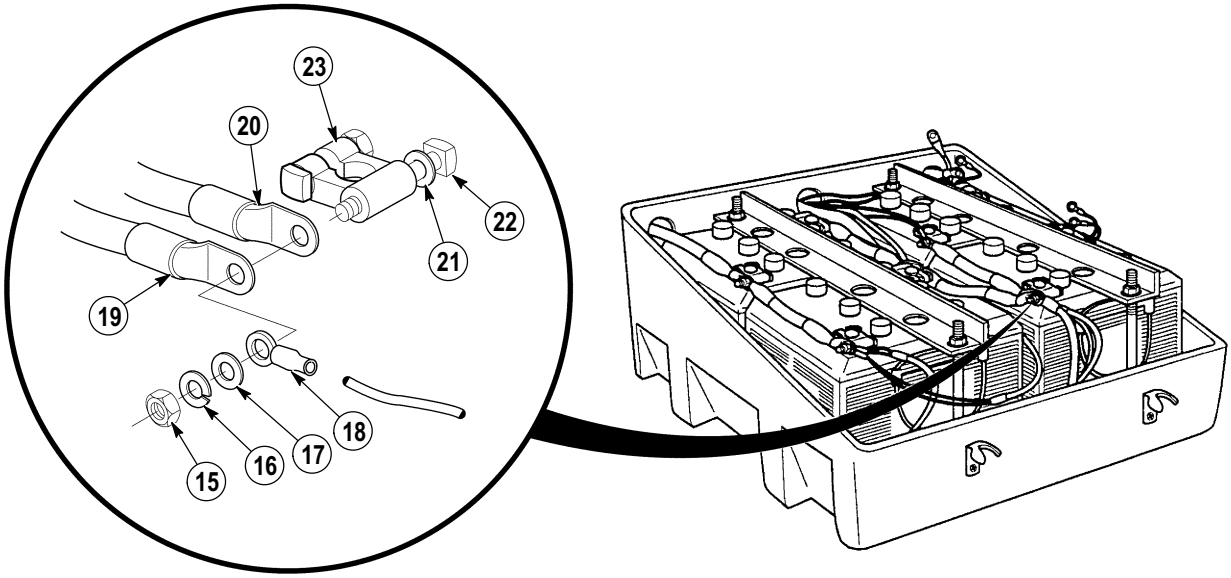


NOTE

Steps (5) through (13) modify polarity wire harness 3115308.

(5) Remove nut (6), lockwasher (7), washer (8), cable 1281A (9), cable 1137 (10), cable 1139 (11), washer (12) and screw (13) from positive terminal (14). Discard lockwasher.

(6) Cut terminal off of cable 1281A (9). Seal wire end with heatshrink and tie back exposed wire to the harness.



(7) Remove nut (15), lockwasher (16), washer (17), cable 1274 (18), cable 1138 (19), cable 1137 (20), washer (21) and screw (22) from positive terminal (23). Discard lockwasher.

(8) Cut terminal off of cable 1274 (18). Seal wire end with heatshrink and tie back exposed wire to the harness.

(9) Install cable 1138 (19) and cable 1137 (20) on positive terminal (23) with screw (22), washer (21), washer (17), lockwasher (16) and nut (15).

NOTE

There are three wires located on 24 volt terminal. Remove only wire 1281A and position remaining wires back on 24 volt terminal.

(10) Remove nut (24), lockwasher (25), washer (26), washer(s) (27), if present, fuse link (28) with insulator washer (29), wire 1281A (30) from 24 volt terminal (31). Discard lockwasher.

(11) Position fuse link (28) with insulator washer (29), washer(s) (27), if removed, washer (26) and nut (24) on 24 volt terminal (31).

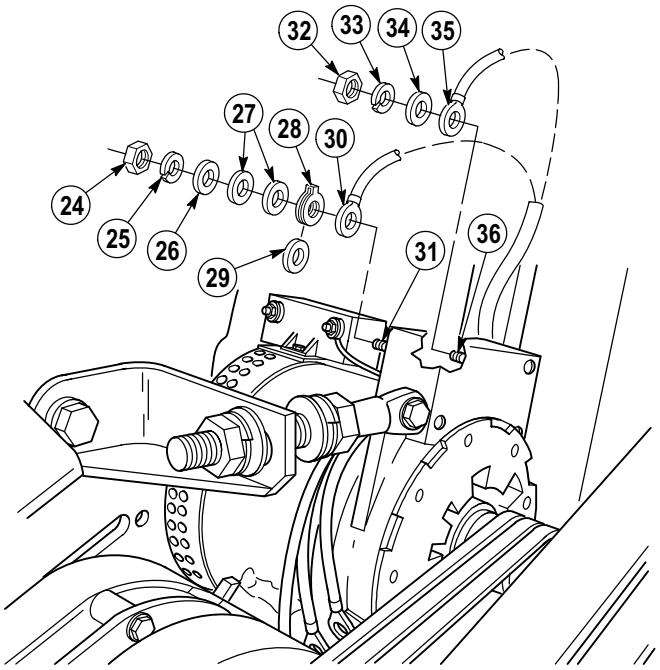
NOTE

There are two wires located on 12 volt terminal. Remove only wire 1274 and position remaining wire back on 12 volt terminal.

(12) Remove nut (32), lockwasher (33), washer (34) and wire 1274 (35) from 12 volt terminal (36). Discard lockwasher.

(13) Position nut (32) and washer (34) on 12 volt terminal (36).

(14) Cut terminals off of wire 1274 (35) and wire 1281A (30). Seal wire ends with heatshrink and tie back exposed wires to the harness.



18-11. BATTERY DISCONNECT SWITCH KIT INSTALLATION (200 AMP) (CONT).

(15) Position polarity protection and alternator wire harness (37) in truck.

(16) Remove nut (32) and washer (34) from 12 volt terminal (36).

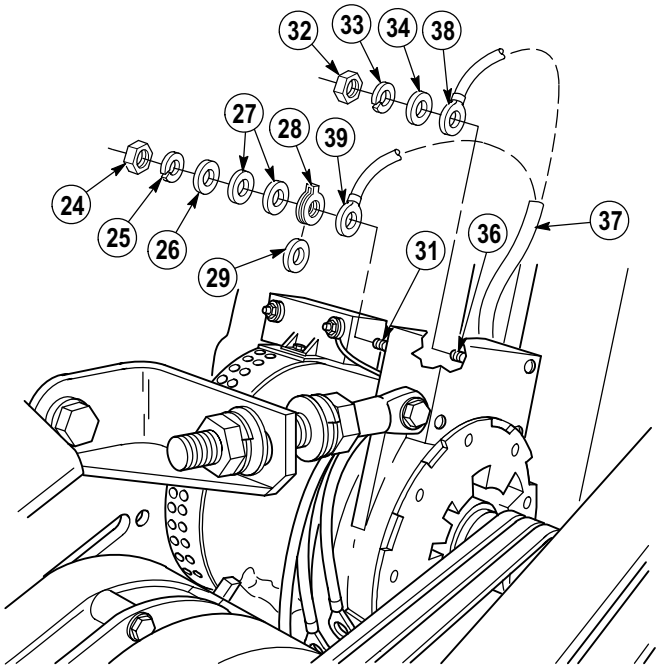
(17) Install wire 1274 (38), washer (34), lockwasher (33) and nut (32) on 12 volt terminal (36).

(18) Tighten nut (32) to 15 lb-ft (20 N·m).

(19) Remove nut (24), washer (26), washer(s), if present, (27), and fuse link (28) with insulator washer (29) from 24 volt terminal (31).

(20) Install wire 1281A (39), fuse link (28) with insulator washer (29), washer(s), if removed, (27), washer (26), lockwasher (25) and nut (24) on 24 volt terminal (31).

(21) Tighten nut (24) to 15 lb-ft (20 N·m).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(22) Apply electrical sealant to 24 volt terminal (31) and 12 volt terminal (36).

(23) Remove nut (40) from 12 volt battery terminal (41) of polarity protection control (42).

(24) Install wire 1566 (43), lockwasher (44) and nut (40) on 12 volt battery terminal (42).

(25) Remove nut (45) from 24 volt battery terminal (46) of polarity protection control (42).

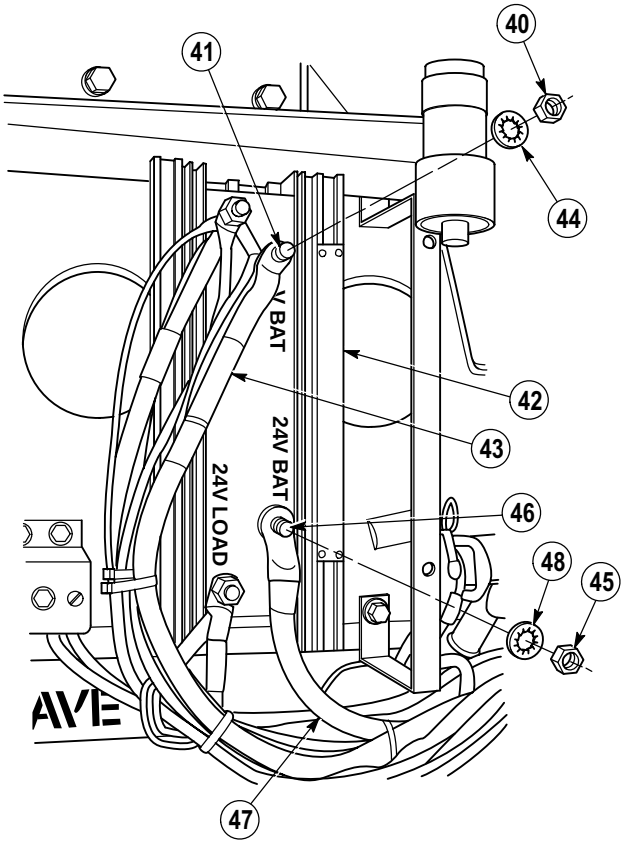
(26) Install wire 1281A (47), lockwasher (48) and nut (45) on 24 volt battery terminal (46).

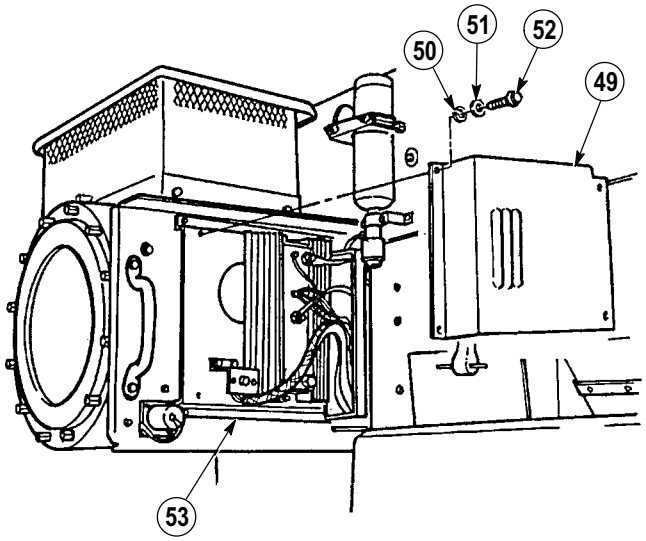
WARNING

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.

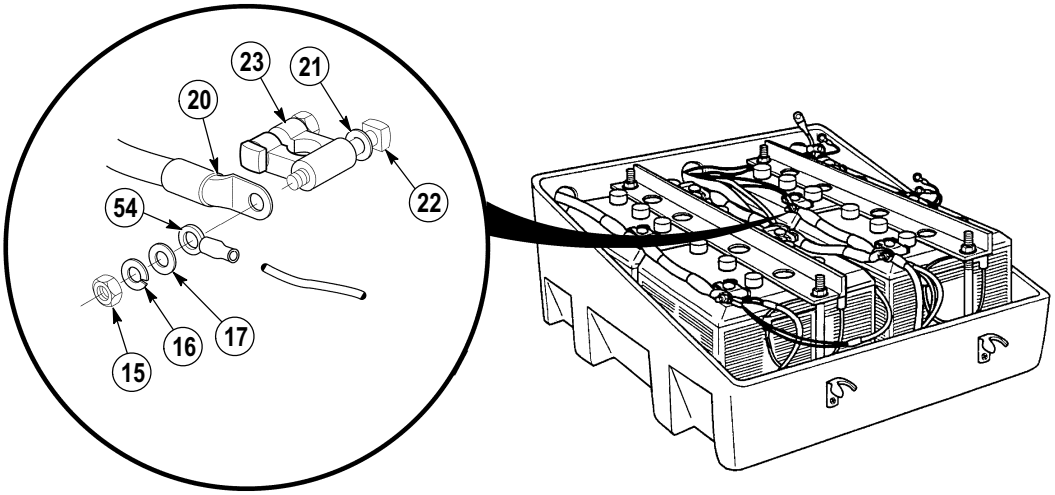
(27) Apply electrical sealant to 24 volt battery terminal (46) and 12 volt battery terminal (41).

(28) Install splash guard (49), four washers (50), lockwashers (51), and screws (52) on electric bracket (53).





18-11. BATTERY DISCONNECT SWITCH KIT INSTALLATION (200 AMP) (CONT).



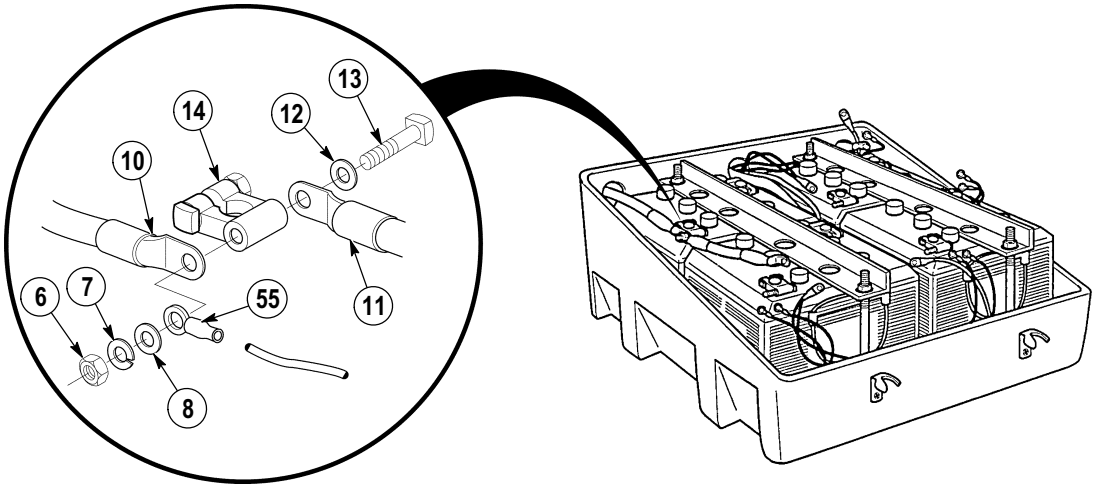
(29) Remove nut (15), lockwasher (16) and washer (17) from positive terminal (23).

(30) Position screw (22), washer (21), cable 1137 (20), cable 1566 (54), washer (17), lockwasher (16) and nut (15) on positive terminal (23).

CAUTION

While applying torque to nut, hold screw with wrench or damage to battery may occur.

(31) Tighten nut (15) to 12 to 16 lb-ft (16-22 N·m).

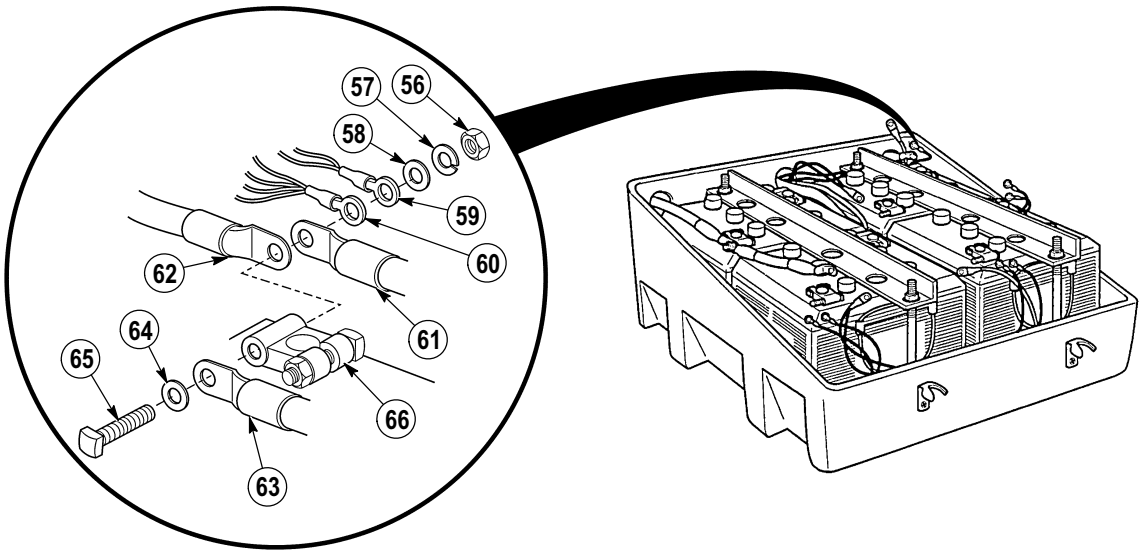


(32) Position screw (13), washer (12), cable 1139 (11), cable 1137 (10), wire 1281A (55), washer (8), lockwasher (7) and nut (6) on positive terminal (14).

CAUTION

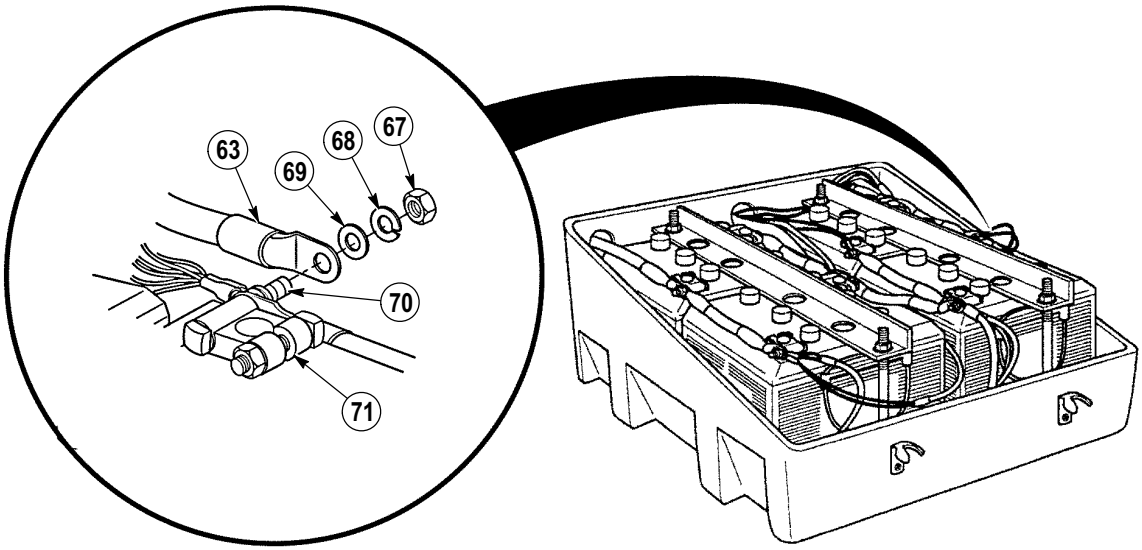
While applying torque to nut, hold screw with wrench or damage to battery may occur.

(33) Tighten nut (6) to 12 to 16 lb-ft (16-22 N·m).



(34) Remove nut (56), lockwasher (57), washer (58), wires 208/209 (59), wires 150/150/151/953 (60), cable 1138 (61), cable 1137 (62), wire 1275 (63), washer (64) and screw (65) from negative terminal (66).

(35) Install all wires except wire 1275 (63) back on negative terminal (66) with screw (65), washer (64), washer (58), lockwasher (57) and nut (56).



(36) Remove nut (67), lockwasher (68) and washer (69) from screw (70) on negative terminal (71).

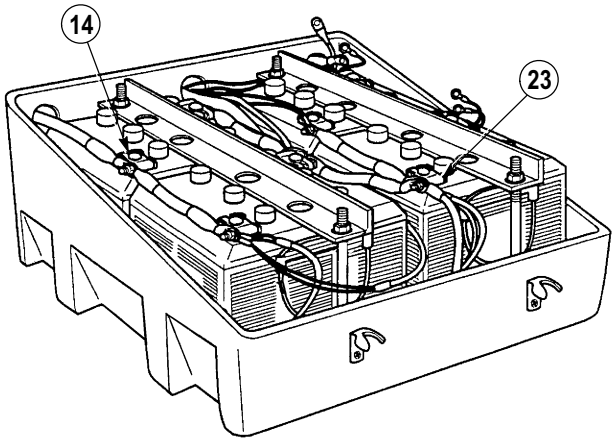
(37) Install wire 1275 (63) on negative terminal (71) with screw (70), washer (69), lockwasher (68) and nut (67).

18-11. BATTERY DISCONNECT SWITCH KIT INSTALLATION (200 AMP) (CONT).

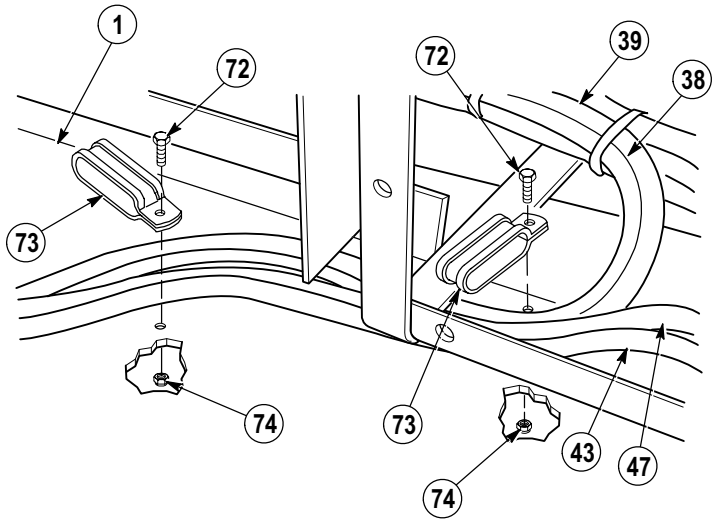
WARNING

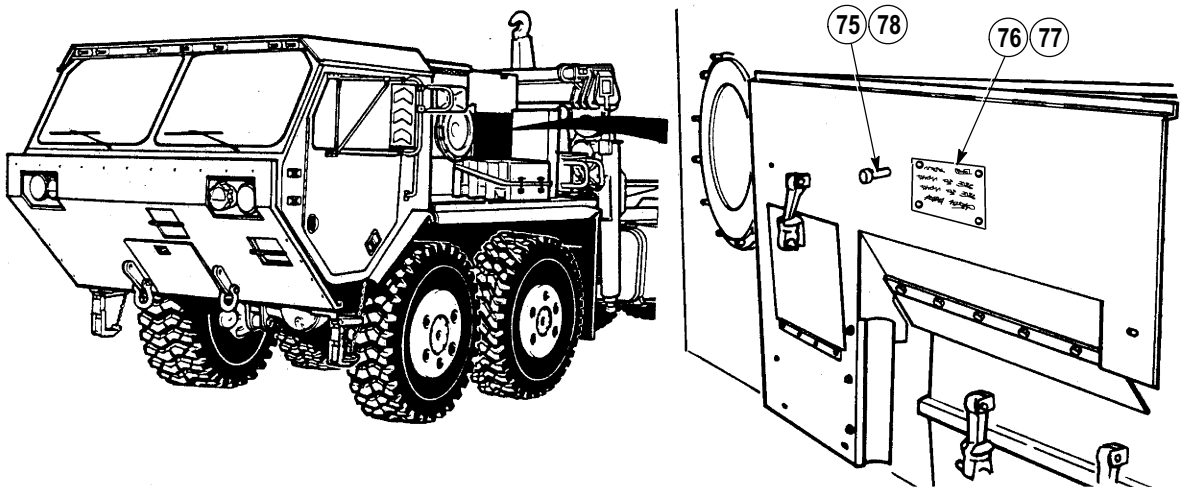
Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. Incase of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water at least 15 minutes and get immediate medical attention.

(38) Apply corrosion preventative compound to positive terminal (23) and positive terminal (14).



(39) Secure wires 1281A (39), 1274 (38), 1281A (47) and 1566 (43) to left fender (1) with two screws (72), clamps (73) and locknuts (74).





(40) Remove four rivets (75) and data plate (76). Discard rivets and data plate.

(41) Install data plate (77) and four rivets (78).

b. Follow-On Maintenance:

- Install left side noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit General Mechanic's (Item 240, Appendix F)
Pan, Drain 4 gal (Item 144, Appendix F)
Wrench, Torque (0-60 N·m) (Item 276, Appendix F)

Materials/Parts
Sealing Compound, (Item 56, Appendix B)
Sealing Compound, (Item 57, Appendix B)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Engine oil filter adapter removed, (TM 9-2320-364-20)
Right fender front skirt removed, (TM 9-2320-364-20)
Engine oil filter removed, (TM 9-2320-364-20)

a. Installation.

NOTE

Remote engine oil filter kit cannot be installed on trucks equipped with an arctic kit.

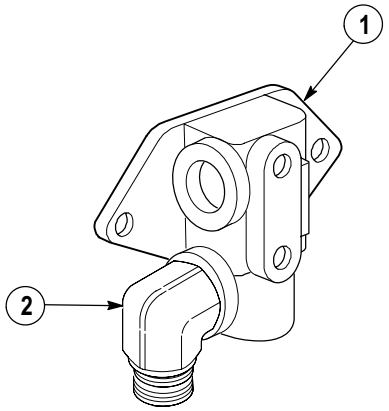
(1) Position engine oil filter manifold (1) in soft jawed vise.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure threads on adapters and engine oil filter manifold are clean and free of oil and grease.



(2) Apply sealing compound to threads of adapter (2).

NOTE

Adapter in Step (3) is installed in bottom port marked ”IN” and facing down.

(3) Install adapter (2) in engine oil filter manifold (1).

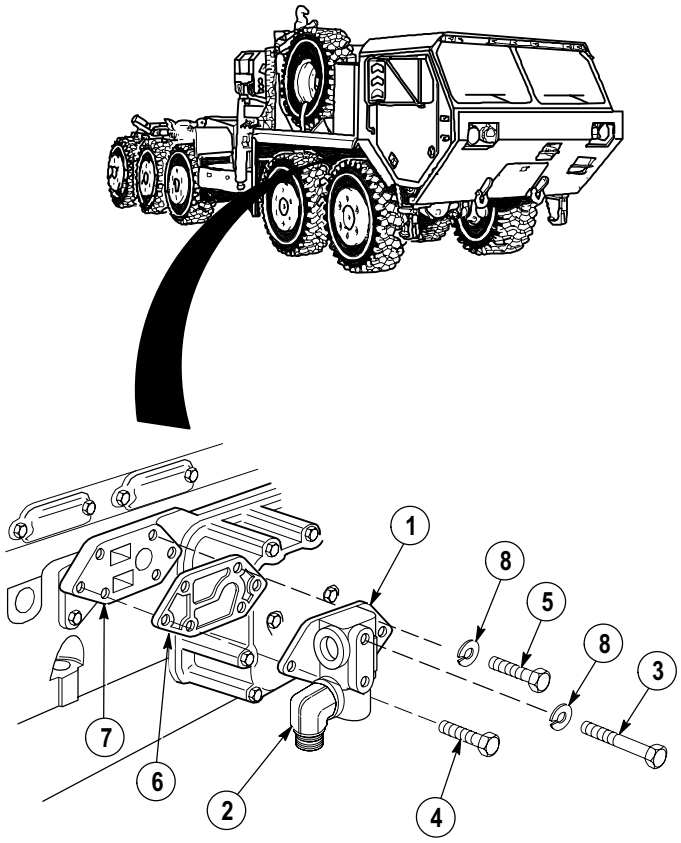
(4) Remove engine oil filter manifold (1) from vise.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(5) Apply sealing compound to threads of two screws (3), screws (4), and screws (5).

(6) Install gasket (6) and engine oil filter manifold (1) on oil cooler adapter cover (7) with two screws (3), screws (4), screws (5) and four lockwashers (8). Tighten screws 30 to 35 lb-ft (41 to 47 N·m).



18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure threads on adapters and engine oil filter manifold are clean and free of oil and grease.

(7) Apply sealing compound to threads of adapter (9).

NOTE

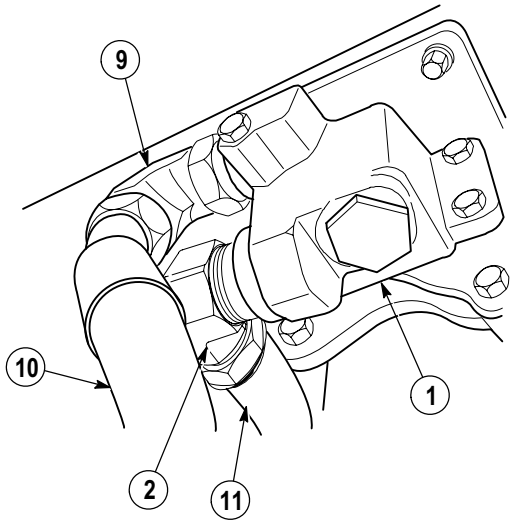
Adapter in Step (8) is installed in upper port marked “OUT” facing down.

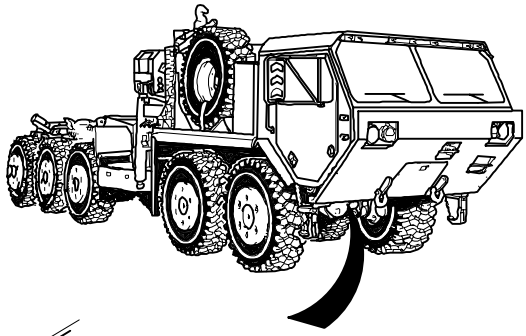
(8) Install adapter (9) on engine oil filter manifold (1).

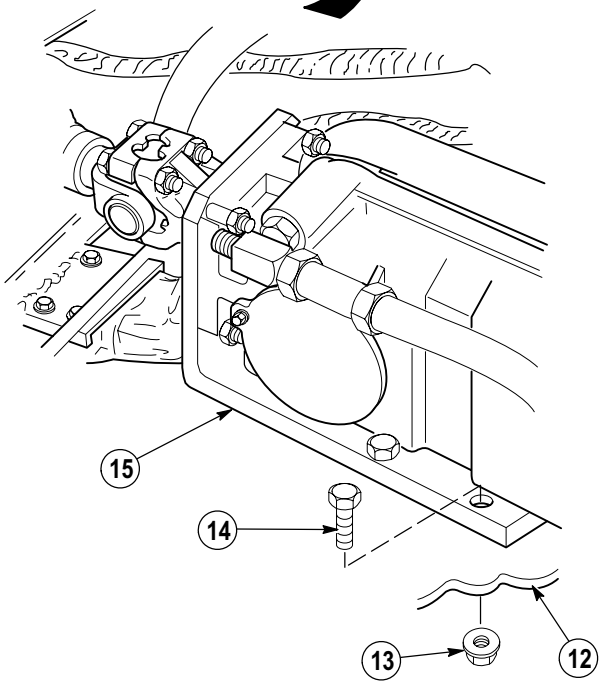
(9) Install hose 2830 (10) to adapter (9) and hose 2831 (11) to adapter (2).

(10) Position hoses 2830 (10) and 2831 (11) under front crossmember (12).

(11) Remove two locknuts (13) and screws (14) from hydraulic pump support (15). Discard locknuts.







NOTE

Remote engine oil filter kit will include longer screws for filter head bracket. If longer screws cannot be installed, existing screws may be used.

(12) Install filter head bracket (16) with two screws (17) and locknuts (18) to hydraulic pump support (15).

(13) Position filter head (19) in soft jawed vise.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure threads on adapters and filter head bracket are clean and free of oil and grease.

(14) Apply sealing compound to threads of adapter (20) and adapter (21).

NOTE

Adapters are properly positioned when facing away from filter head mount.

(15) Install adapter (20) and adapter (21) in filter head (19).

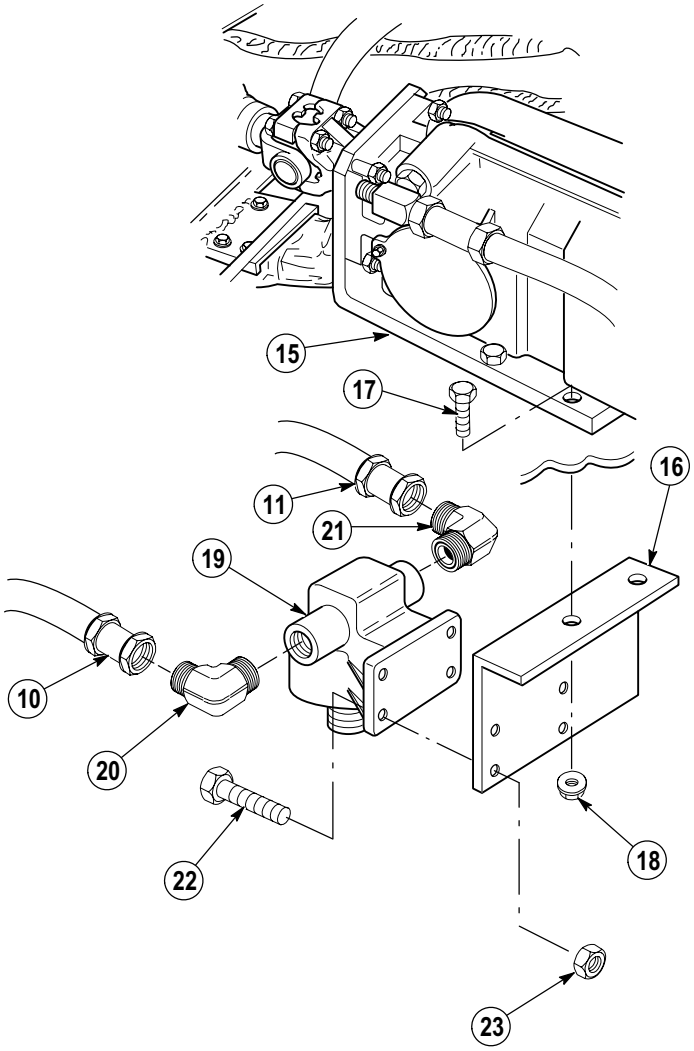
(16) Remove filter head (19) from vise.

(17) Install filter head (19) on filter head bracket (16) with four screws (22) and locknuts (23).

CAUTION

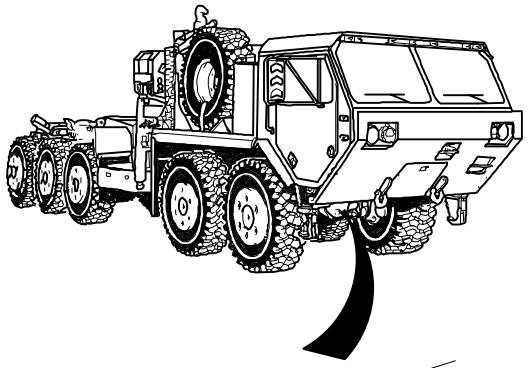
Ensure hose 2830 is installed to "IN" port of filter head and hose 2831 is installed to "OUT" port of filter head.

(18) Install hose 2830 (10) to adapter (20) and hose 2831 (11) to adapter (21).



18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION (CONT).

(19) Remove locknut (24) and washer (25) from right side motor mount (26). Discard washer and locknut.

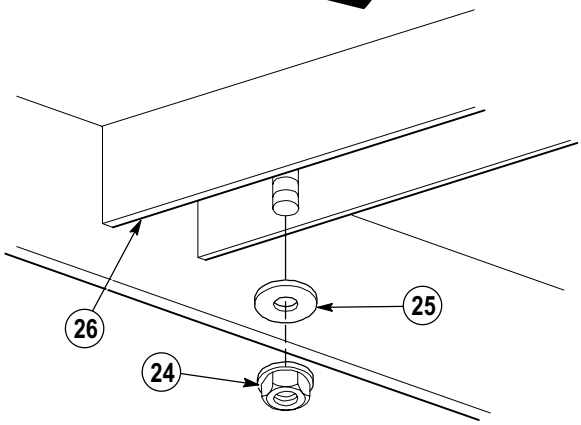


NOTE

Bend in bracket faces towards center of cab.

(20) Attach bracket (27) to right side motor mount (26) with locknut (28).

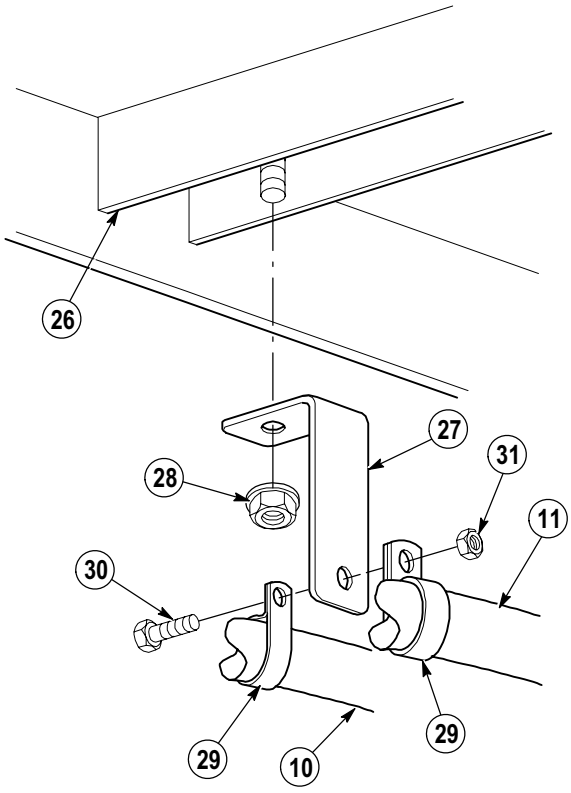
(21) Position two cushion clips (29) to hose 2831 (11) and hose 2830 (10).



NOTE

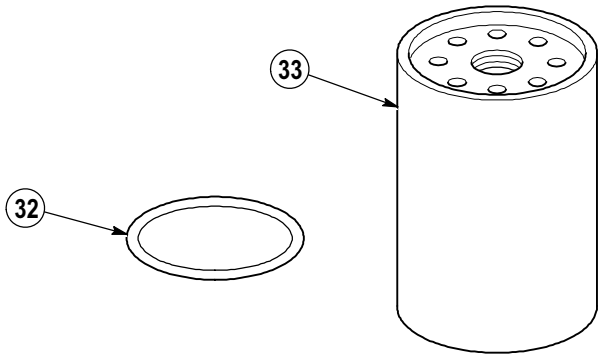
Ensure hoses do not contact any components on truck.

(22) Install two cushion clips (29) on bracket (27) with screw (30) and locknut (31).



(23) Lubricate preformed packing (32) with clean engine oil and install preformed packing on engine oil filter (33).

(24) Fill engine oil filter (33) 2/3 full with clean engine oil.



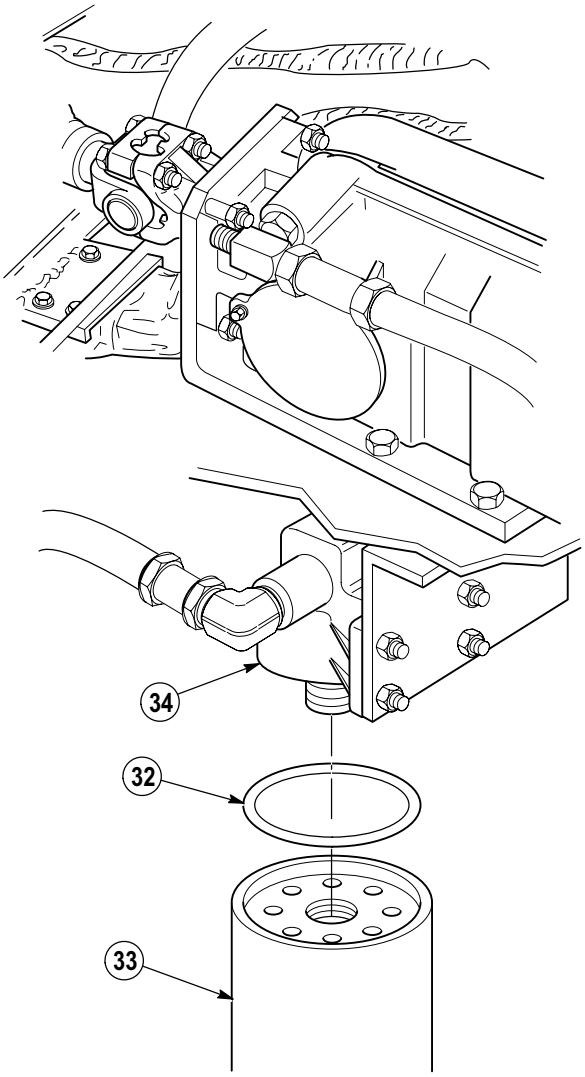
(25) Install engine oil filter (33) on filter head (34).

CAUTION

Do not use oil filter removal tool to tighten engine oil filter or possible damage to filter head may result.

(26) By hand, tighten engine oil filter (33) until preformed packing (32) makes contact with filter head (34).

(27) By hand, tighten engine oil filter (33) 2/3 turn on filter head (34).



18-12. REMOTE ENGINE OIL FILTER KIT INSTALLATION (CONT).

b. Follow-On Maintenance:

- Start and run engine for three minutes, (TM 9-2320-364-10).
- Check for oil leaks, (TM 9-2320-364-10).
- Shut OFF engine and allow oil to drain for 20 minutes, (TM 9-2320-364-10).
- Check oil level and add engine oil as needed, (TM 9-2320-364-10).
- Install right fender front skirt, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION.

This task covers:

a. Installation b. Adjustment c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Clamp, Machinist (2) (Item 32, Appendix F)
Pliers, Retaining Ring (Item 153, Appendix F)
Wrench, Torque (0 to 175 lb-ft [0-237 N·m])
(Item 277, Appendix F)
Wrench, Torque (0-600 lb-ft [0-814 N·m])
(Item 278, Appendix F)
Chain 3 pt. or 4 pt.
Lifting Device, Minimum Capacity 2000 lbs
(907 kg)

Materials/Parts
Cable ties (Item 9, Appendix B)
Compound, Corrosion Preventive
(Item 15, Appendix B)
Sealing Compound (Item 53, Appendix B)
Silicone Compound, Anti-Corrosion
(Item 66, Appendix B)
Soap Solution (Item 67, Appendix B)
Locknut (6) (Item 166, Appendix E)
Locknut (18) (Item 174, Appendix E)
Locknut (4) (Item 180, Appendix E)
Lockwasher (8) (Item 255, Appendix E)
Lockwasher (8) (Item 266, Appendix E)
Lockwasher (2) (Item 282, Appendix E)
Lockwasher (4) (Item 303, Appendix E)
Self-tapping screw (4) (Item 558, Appendix E)
Wooden blocks

References
TM 43-0139

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)
Rear noise panel removed,
(TM 9-2320-364-20)
Bumper stop bracket removed,
(TM 9-2320-364-20)
Platform assembly removed, (M1075 only)
(TM 9-2320-364-20)
Gear reducer removed, (Para 12-6)
Rear marker light assembly removed and
disassembled, (TM 9-2320-364-20)
Rear roller assembly removed,
(TM 9-2320-364-20)
Angled roller removed,
(TM 9-2320-364-20)
Horizontal roller removed,
(TM 9-2320-364-20)
Rear hard lift assembly removed,
(TM 9-2320-364-20
Self recovery winch (SRW) rear tension
guide removed (if equipped),
(TM 9-2320-364-20)
Self recovery winch (SRW) rear guide
removed (if equipped), (TM 9-2320-364-20)
Auxiliary fuel tank removed (if equipped),
(TM 9-2320-364-20)

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

a. Installation.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

NOTE

- Container Handling Unit (CHU) can only be installed on PLS M1077 (without crane).
- Remove all banding and screws during installation that are supporting components for packaging and shipping.
- A cross-reference of kit parts to kit installation procedures is located in Table 18-1 at the end of **b.** ***Adjustment.***
- Remove all tags and protection coverings on components and clean bare metal surfaces with dry cleaning solvent prior to installation.
- Adhesives, epoxy, sealants and grease required for kit installation can be found in box A, pack no. 2 of CHU kit crate.
- It may be necessary to unpack boxes as required to locate required box.

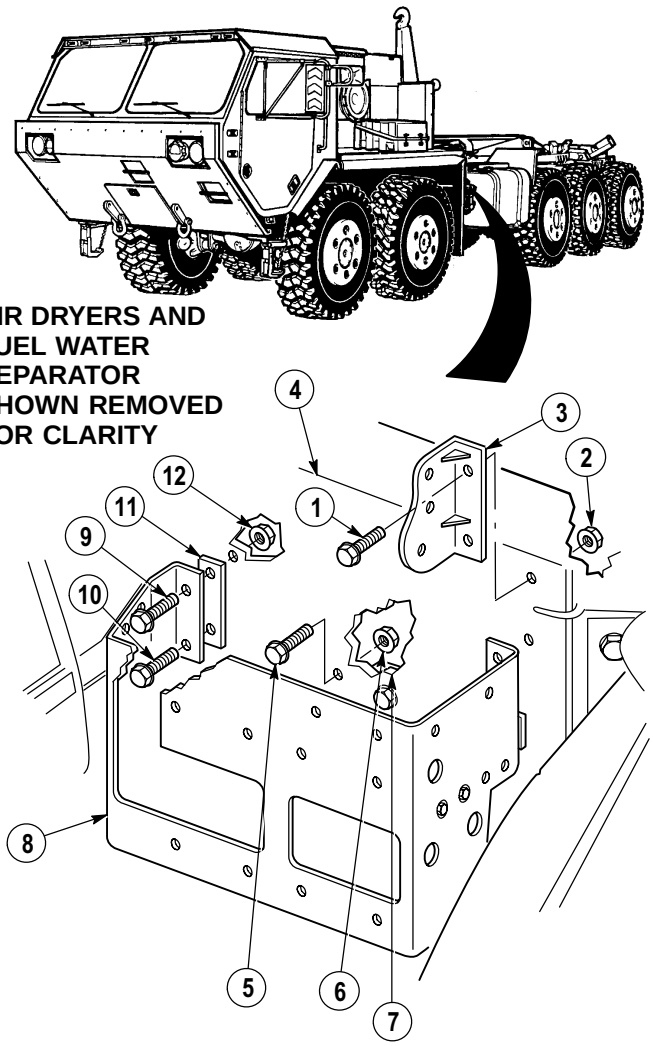
(1) Remove two screws (1), locknuts (2) and gear reducer mount (3) from frame (4). Discard screws, locknuts and gear reducer mount.

(2) Remove top two screws (5) and locknuts (6) from intermediate crossmember (7). Discard screws and locknuts.

NOTE

Retain bottom front screw from air dryer bracket for assembly.

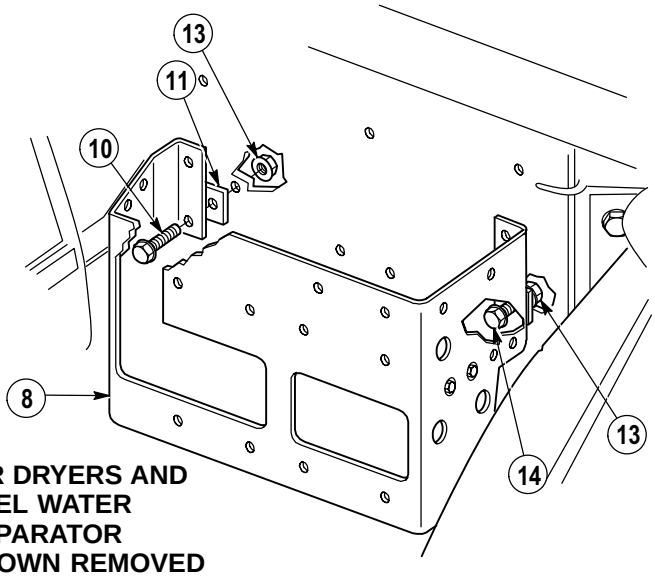
(3) With the aid of an assistant, support air dryer bracket (8) and remove front two screws (9) and (10), spacer (11) and two locknuts (12). Discard screw (9) and locknuts.



AIR DRYERS AND FUEL WATER SEPARATOR SHOWN REMOVED FOR CLARITY

(4) Rotate spacer (11) 90 degrees and position screw (10), spacer (11) and locknut (13) on air dryer bracket (8). Do not tighten.

(5) Loosen bottom rear screw (14) and locknut (13) on air dryer bracket (8). Do not remove.



AIR DRYERS AND FUEL WATER SEPARATOR SHOWN REMOVED FOR CLARITY

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Left front support bracket weighs 98 lbs (44 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

Hardware for mounting front support bracket can be found in box D, pack no. 31 and 32 of CHU kit crate.

(6) From CHU kit pallet, remove wood blocking and attach lifting device to left front support bracket (15).

(7) With the aid of an assistant, position left front support bracket (15) between air dryer bracket (8) and frame (16).

(8) Position five screws (17), screw (18) and six locknuts (19) to left front support bracket (15) and frame (16). Do not tighten.

(9) Position two screws (20) and locknuts (21) to left front support bracket (15) and frame (16). Do not tighten.

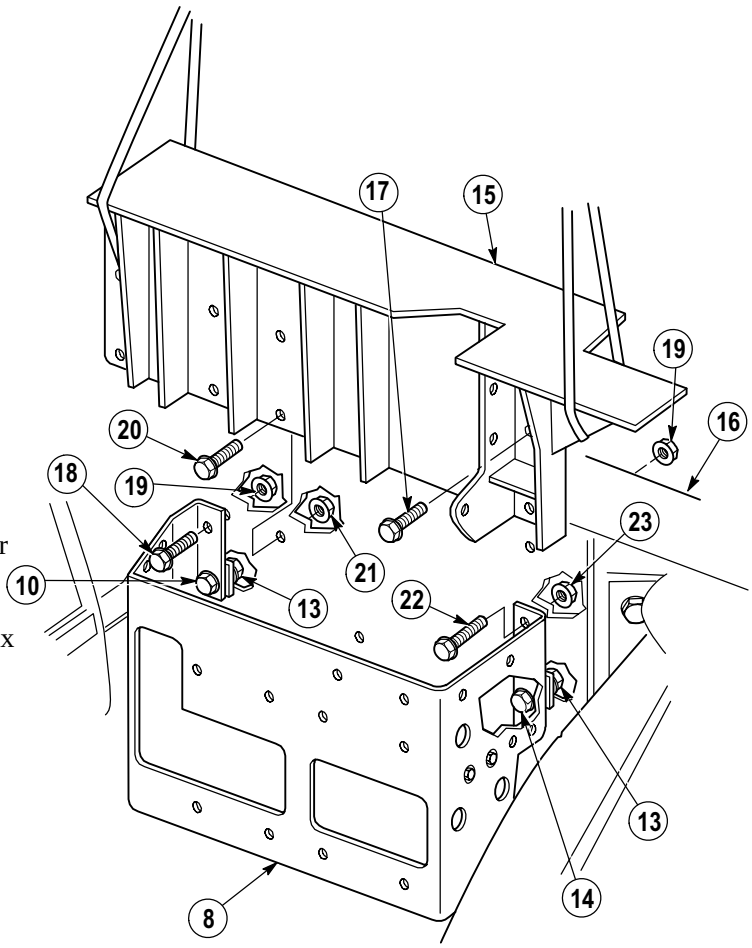
(10) Position screw (22) and locknut (23) to left front support bracket (15) and frame (16). Do not tighten.

(11) Remove locknut (13) from screw (14). Discard locknut.

(12) Position locknut (13) on screw (14). Do not tighten.

(13) Tighten six locknuts (19), two locknuts (21) and (13), locknut (23) on screw (10), (14), (18) and (22), five screws (17) and two screws (20).

(14) Remove lifting device from left front support bracket (15).



AIR DRYERS AND FUEL WATER SEPARATOR SHOWN REMOVED FOR CLARITY

NOTE

Perform Steps (15) and (16) if truck is equipped with auxiliary fuel tank.

(15) With the aid of an assistant, remove middle two locknuts (24), spacers (25) and screws (26) from frame (27) and auxiliary fuel tank support (28). Discard locknuts.

(16) Loosen bottom two screws (29) and locknuts (30) on auxiliary fuel tank support (28). Do not remove.

WARNING

Box assembly weighs 92 lbs (42 kg). Ensure box assembly is properly supported prior to removal to prevent possible injury to personnel.

(17) Support stowage box assembly (31).

(18) Remove top screw (32), spacer (33) and locknut (34) from bracket (35) and frame (27). Discard locknut and spacer.

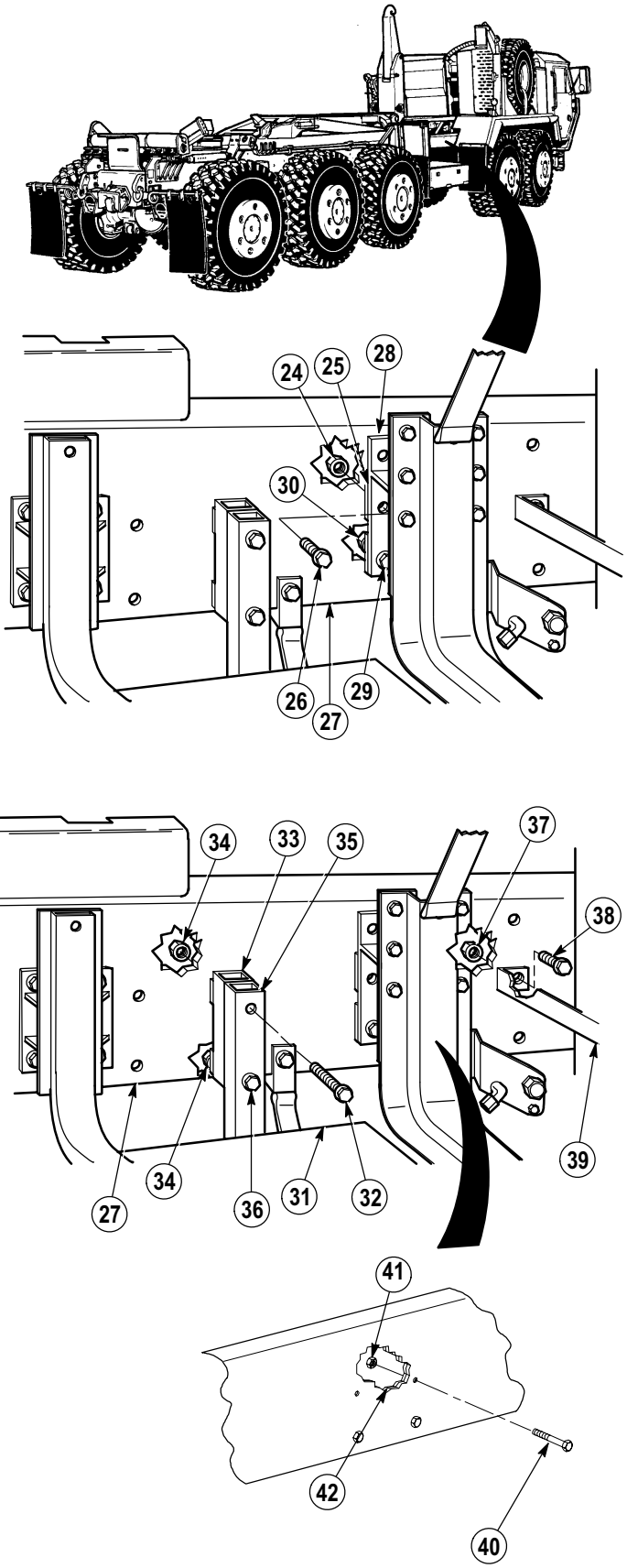
(19) Loosen bottom screw (36) and locknut (34) on right hand bracket (35). Do not remove.

(20) With the aid of an assistant remove locknut (37) and screw (38) from rear fender support (39) and frame (27). Discard locknut and screw.

NOTE

Perform Step (21) for trucks not equipped with auxiliary fuel tank.

(21) Remove two screws (40) and locknuts (41) from crossmember bracket (42). Discard locknuts and screws.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Right front support bracket weighs 98 lbs (44 kg). Attach suitable lifting device to prevent possible injury to personnel.

(22) From CHU kit pallet, attach lifting device to right front support bracket (43).

(23) With the aid of an assistant, position right front support bracket (43) between frame (27), bracket (35), auxiliary fuel tank support (28) and rear fender support (39).

NOTE

- Ensure top front screw is installed from inside of frame.
- Perform Step (24) for trucks equipped with auxiliary fuel tank.
- Screw installed in rear upper hole of auxiliary fuel tank support was removed with platform assembly.
- Perform Step (25) for trucks not equipped with auxiliary fuel tank.

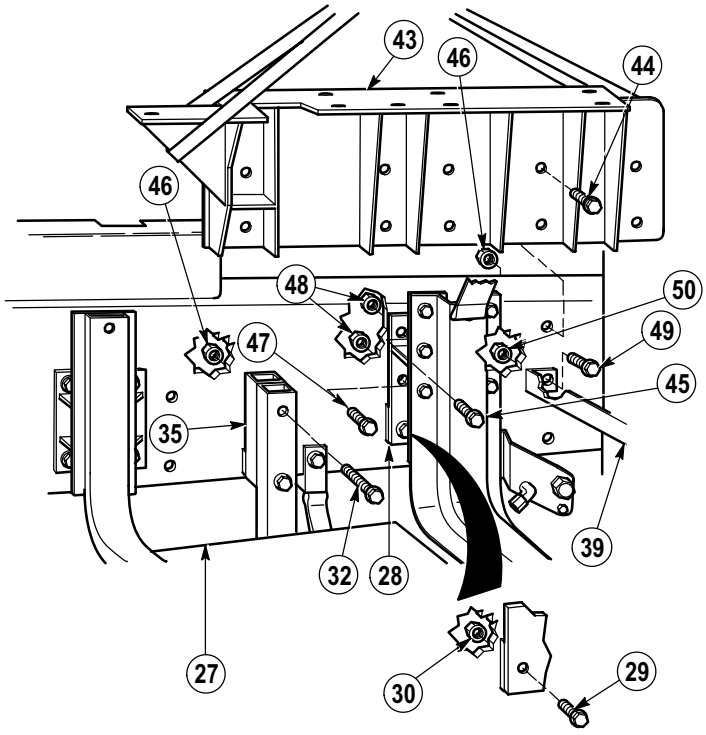
(24) With the aid of an assistant install screw (32), four screws (44), screw (45), six locknuts (46), two screws (47), locknuts (48), screw (49) and locknut (50) in auxiliary fuel tank support (28).

(25) With the aid of an assistant install six screws (44), six locknuts (46), two screws (47), locknuts (48), screw (49) and locknut (50).

(26) Remove two locknuts (30) from screws (29). Discard locknuts.

(27) Install two locknuts (30) on two screws (29).

(28) Remove lifting device from right front support bracket (43).



WARNING

Front support assembly weighs 660 lbs (300 kg). Attach suitable lifting device to prevent possible injury to personnel.

CAUTION

Ensure lifting device does not contact air cylinders or air lines. Failure to comply may result in damage to equipment.

(29) From CHU kit pallet, attach lifting device to front support assembly (51).

(30) With the aid of an assistant, position front support assembly (51) on left front support bracket (15) and right front support bracket (43).

NOTE

Hardware for mounting front support assembly can be found in box D, pack no. 21 of CHU kit crate.

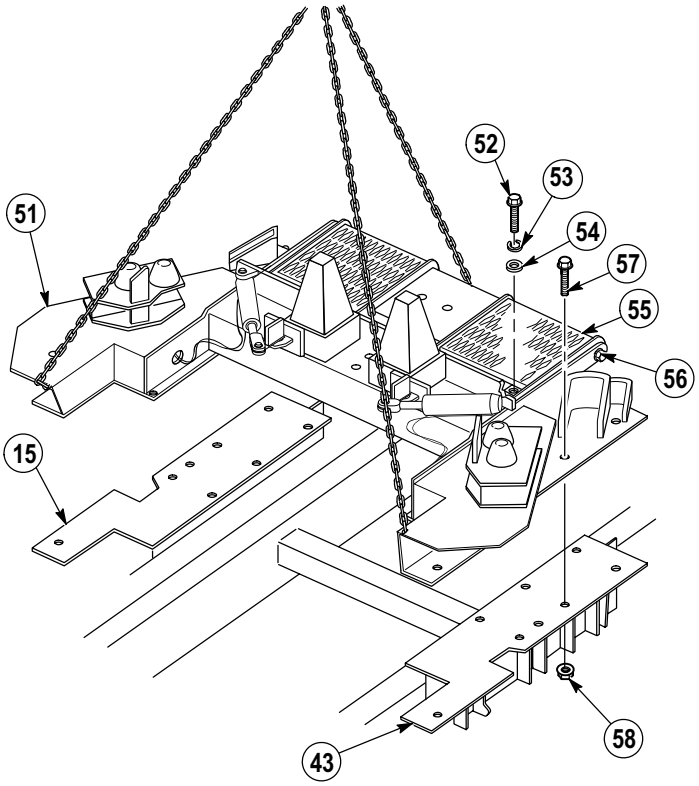
(31) Remove two screws (52), lockwashers (53) and washers (54) from deck weldment (55). Discard lockwashers.

(32) Loosen two screws (56) and rotate deck weldment (55) toward front of truck.

(33) Repeat Steps (31) and (32) for remaining deck weldment (55).

(34) With the aid of an assistant, install front support assembly (51) on left front support bracket (15) and right front support bracket (43) with 18 screws (57) and locknuts (58).

(35) Remove lifting device from front support assembly (51).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Stow weldment weighs 410 lbs (186 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

Hardware for mounting stow weldment can be found in box D, pack no. 24 of CHU kit crate.

(36) From CHU kit pallet, attach lifting device to stow weldment (59).

(37) With the aid of an assistant, position stow weldment (59) on front support assembly (51).

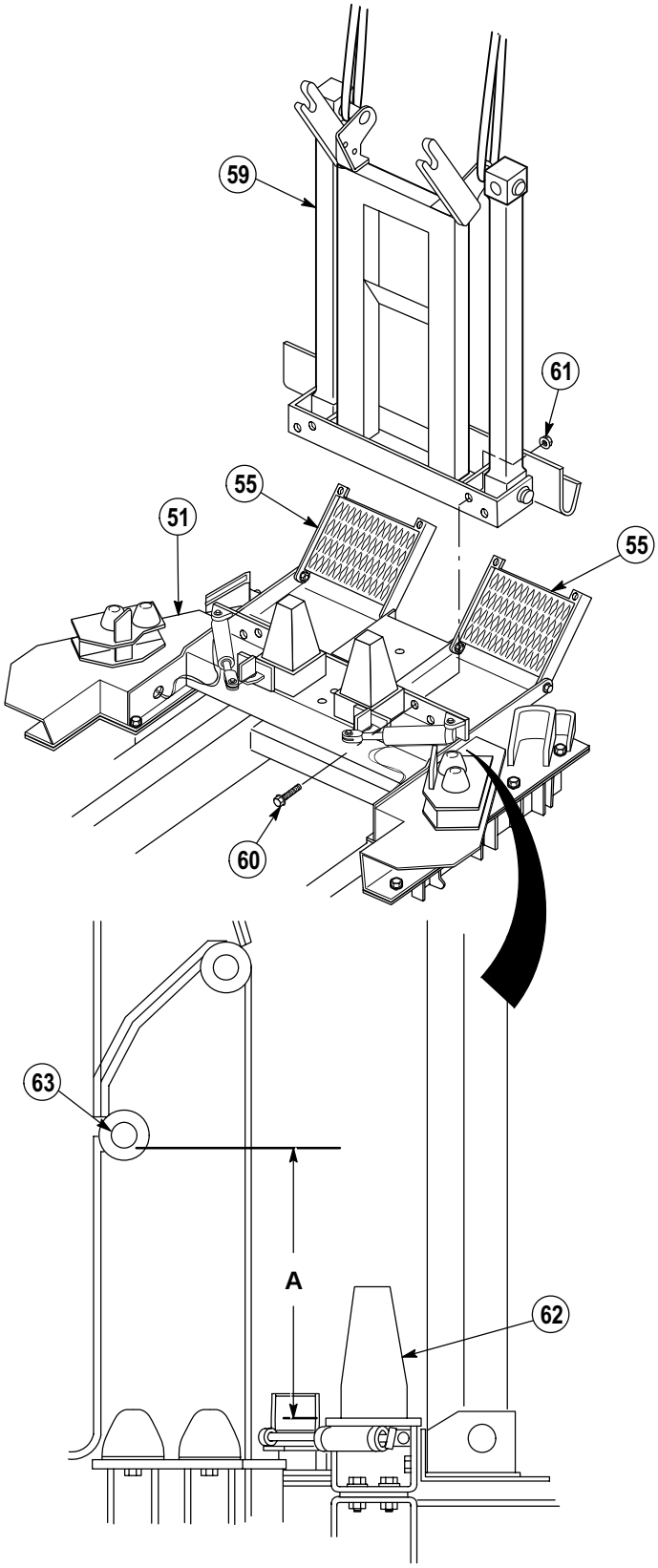
(38) Install stow weldment (59) on front support assembly (51) with four screws (60) and locknuts (61).

(39) Rotate two deck weldments (55) towards rear of truck.

NOTE

- Measurements should be taken on both sides of cone weldment.
- If measurement “A” is not 18.1 in. (46 cm) ± 0.125 in. (3.18 mm), perform Steps (42) and (45).
- If measurement “A” is 18.1 in. (46 cm) ± 0.125 in. (3.18 mm), go to Step (41).
- Cone weldment shims are already installed. Remove shims as required.

(40) Measure distance between base of cone weldment (62) and bottom of pivot pin (63). Record as measurement “A”.



NOTE

- Measurements should be taken on both sides of cone weldment.
- If measurement “B” is not 5.87 in. (15 cm) ± 0.125 in. (3.18 mm), perform Steps (43) through (45).
- If measurement “B” is 5.87 in. (15 cm) ± 0.125 in. (3.18 mm), go to Step (47).

(41) Measure distance between base of cone weldment (62) and LHS hook arm (64). Record as measurement “B”.

(42) Remove six locknuts (65), screws (66), cone weldment (62) and shim(s), as required, (67) from front support assembly (51). Discard locknuts and shim(s).

(43) Remove six locknuts (65) and screws (66) from cone weldment (62) and front support assembly (51). Discard locknuts.

(44) Position cone weldment (62) to proper position to achieve measurement “B”.

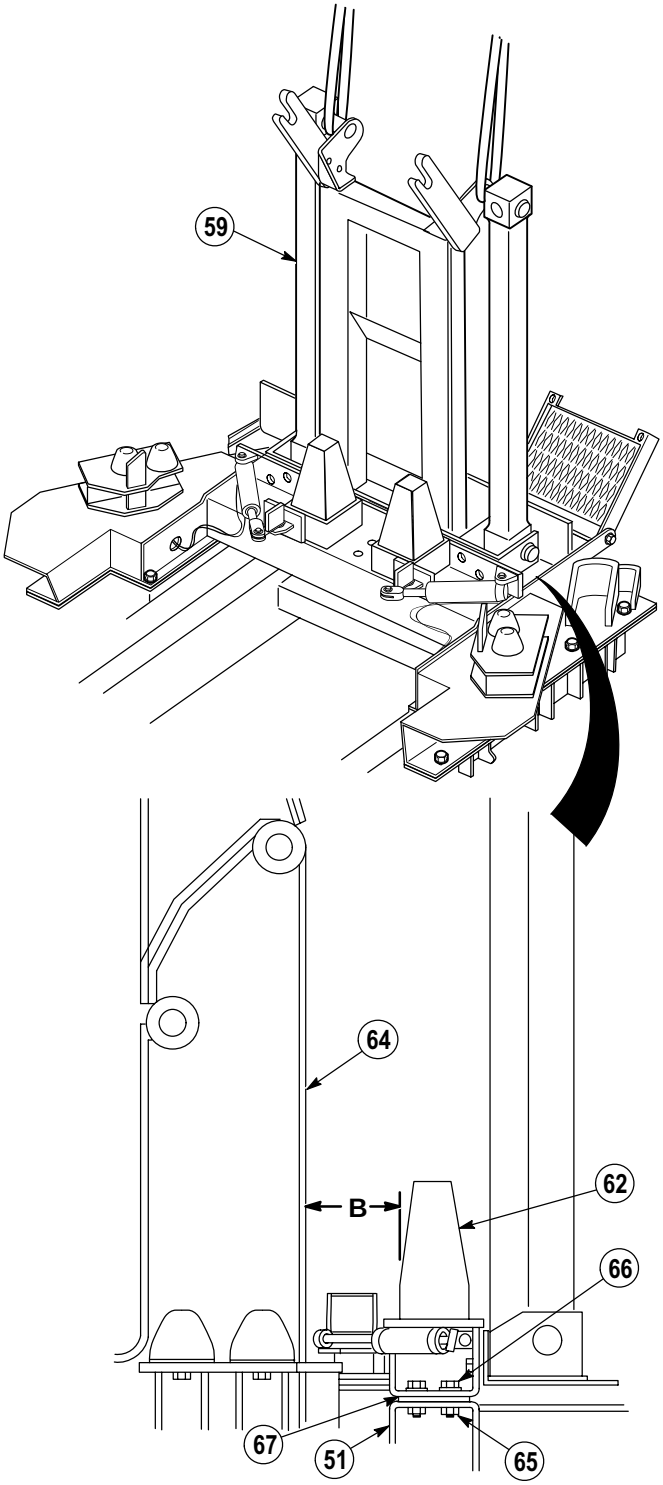
NOTE

Locknuts can be found in box F, pack no. 70 of CHU kit crate.

(45) Install cone weldment (62) and shim(s) (67) on front support assembly (51) with six screws (66) and locknuts (65).

(46) Repeat Steps (40) and (41).

(47) Remove lifting device from stow weldment (59).



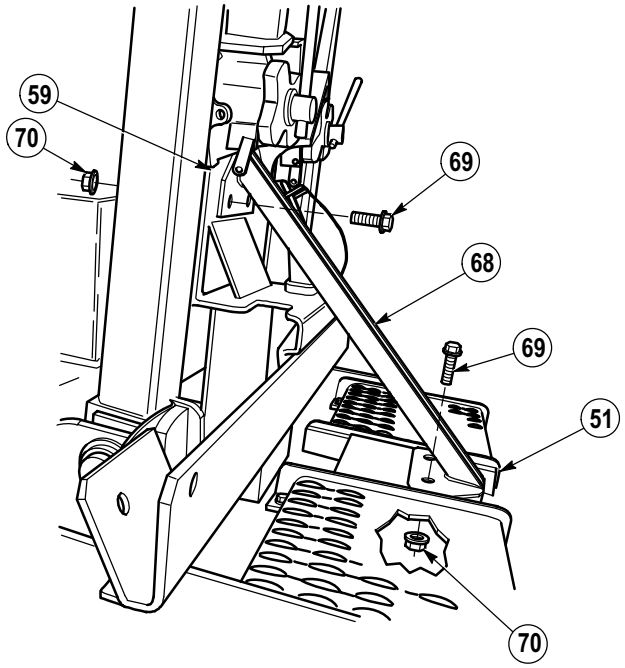
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Hardware for mounting stow weldment support brace can be found in box D, pack no. 25 of CHU kit crate.

(48) From CHU kit crate, remove stow weldment support brace (68).

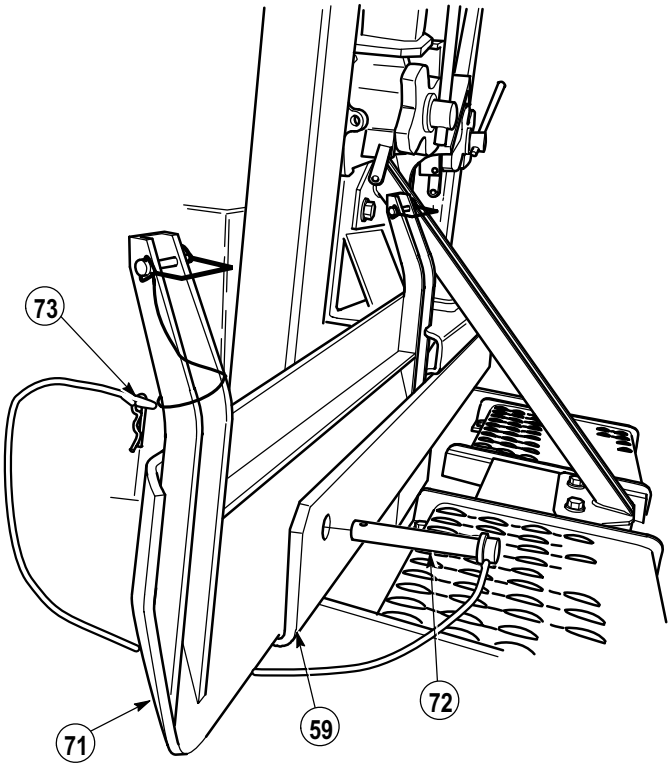
(49) Install stow weldment support brace (68) to stow weldment (59) and front support assembly (51) with four screws (69) and locknuts (70).

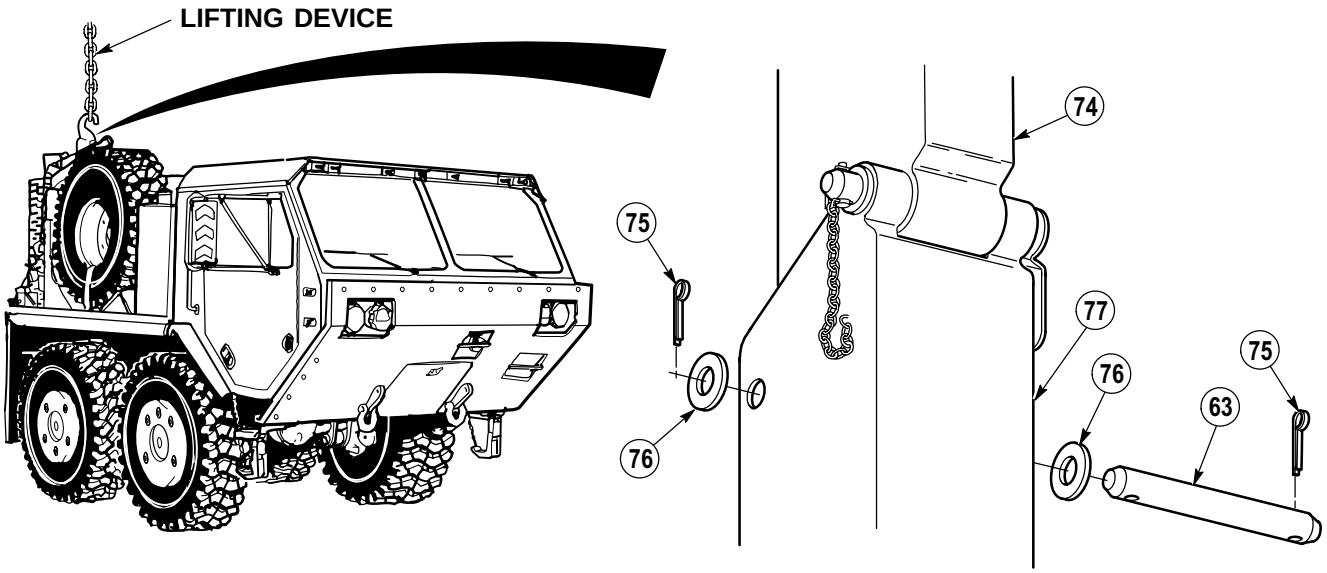


NOTE

- Both container guides are stowed the same way. Right side shown.
- From CHU kit crate, remove container guides.

(50) Position two container guides (71) on stow weldment (59) and install two pins (72) and quick release pins (73).





WARNING

Hook weighs 200 lbs (91 kg). Attach suitable lifting device prior to removal to prevent possible injury to personnel.

(51) Attach lifting device to hook (74).

(52) With the aid of an assistant, support hook (74) and remove two cotter pins (75), washers (76) and pivot pin (63) from hook arm (77). Discard cotter pins, pivot pin and washers.

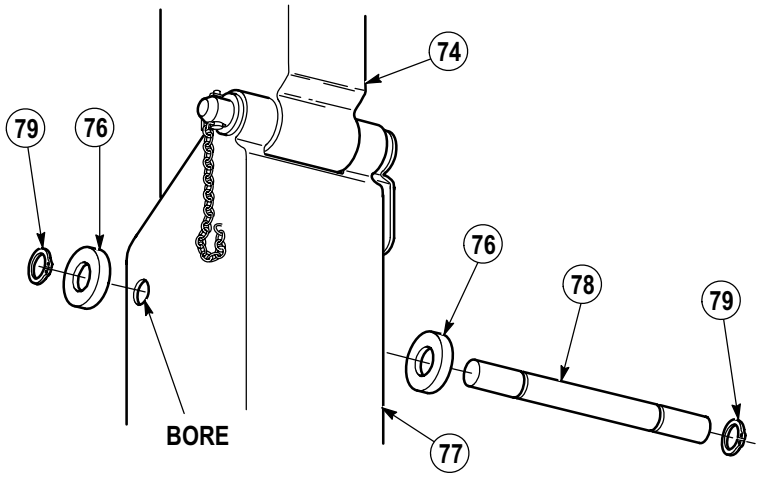
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Pivot pin can be found in box D, pack no. 30 of CHU kit crate.
- Antiseize compound can be found in box A of CHU kit crate.



(53) Apply antiseize compound to pivot pin (78).

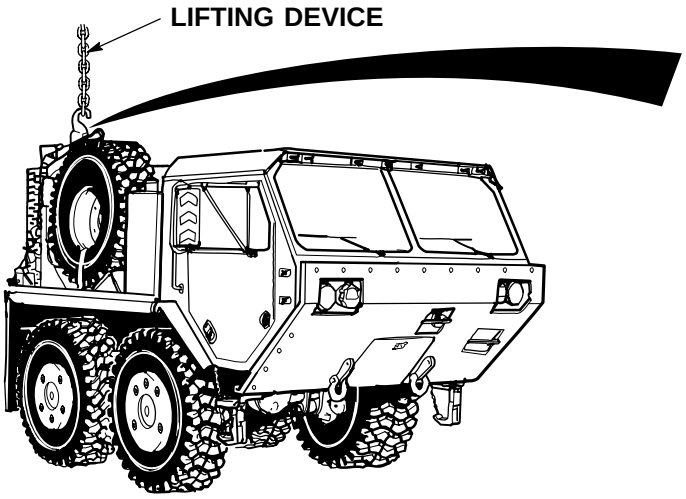
WARNING

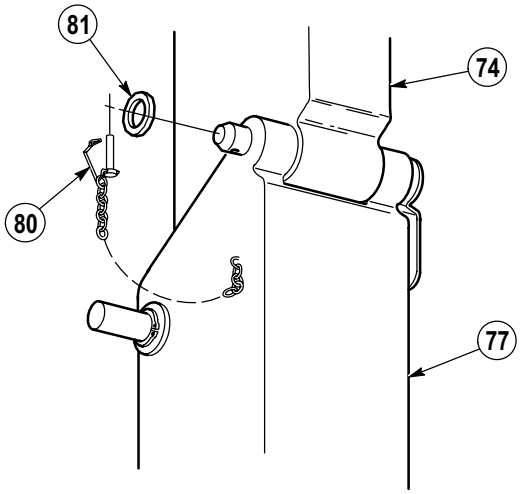
Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

NOTE

- Retaining rings and washer guards can be found in box D, pack no. 15 of CHU kit crate.
- Bore in hook arm may need to be cleaned for installation of pivot pin.

(54) Install pivot pin (78), two washer guards (76) and retaining rings (79) on hook arm (77) and hook (74).





(55) Support hook (74) and remove snapper pin (80) and washer (81) from hook arm (77). Discard washer.

(56) Position retaining pin (82) with handle pointing down in hook arm (77) and hook (74).

NOTE

Retaining bracket can be found in box D, pack no. 23 of CHU kit crate.

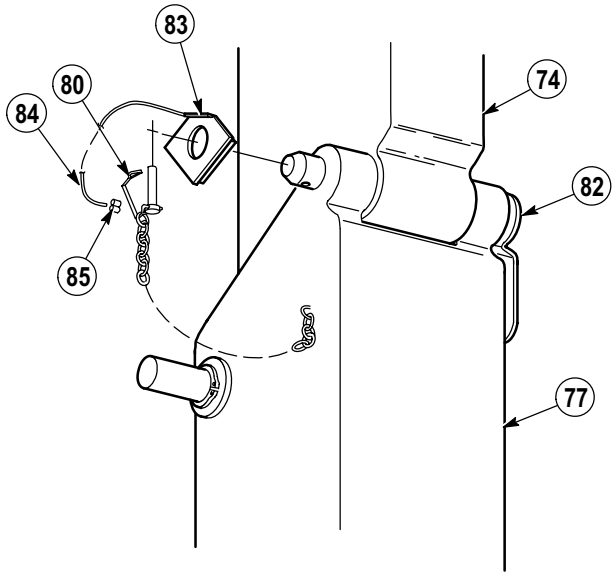
(57) Install retaining bracket (83) and snapper pin (80) to retaining pin (82).

NOTE

Wire tether is properly installed when wire tether is positioned through loop in snapper pin.

(58) Install wire tether (84) to snapper pin (80) with swaging sleeve (85).

(59) Remove lifting device from hook (74).

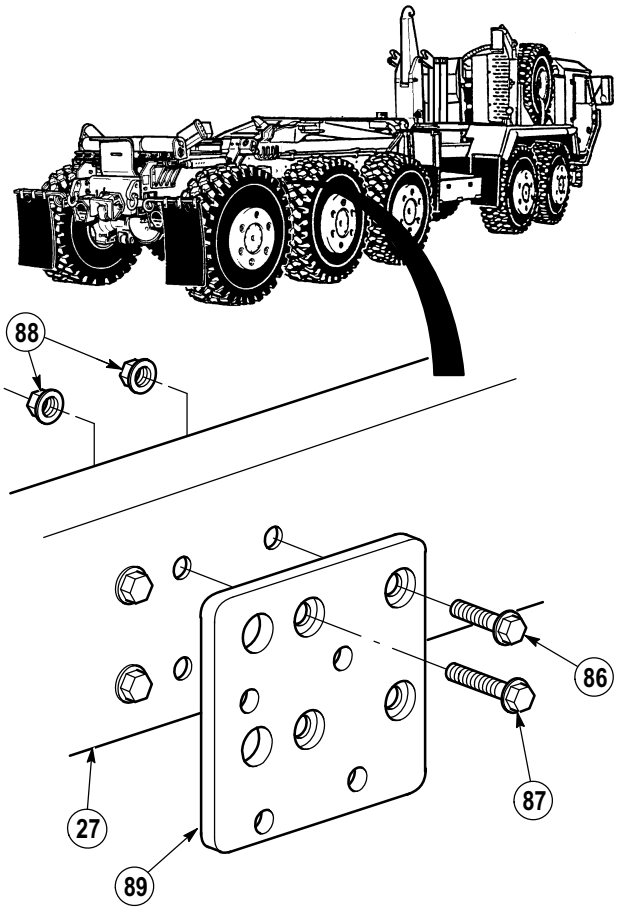


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

- Perform Steps (60) through (76) if truck is equipped with self-recovery winch.
- Adapter plate and guide bracket are bolted to CHU kit pallet. Hardware is in box E, pack no. 35 and 36 of CHU kit crate.
- Two screws in Step (60) were removed with rear tension guide.

(60) With the aid of an assistant install two screws (86), screws (87), four locknuts (88) and adapter plate (89) to frame (27).

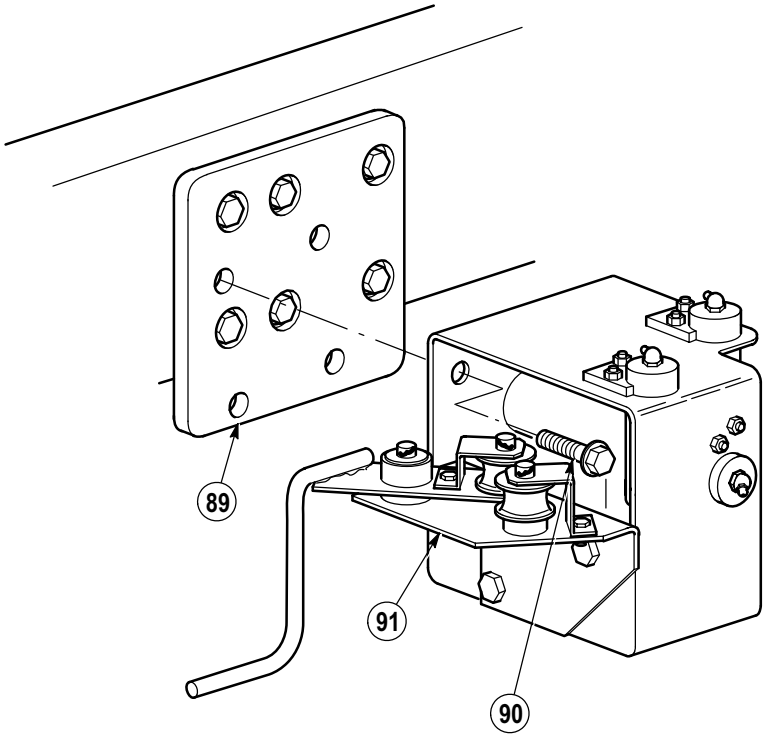


WARNING

- Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.
- Rear tension guide weighs 50 lbs (23 kg). Attach suitable lifting device to prevent possible injury to personnel.

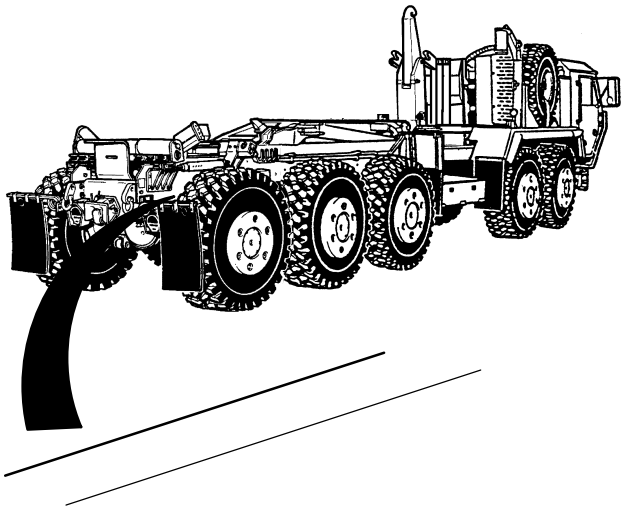
(61) Apply sealing compound (loctite 242) to threads of four screws (90).

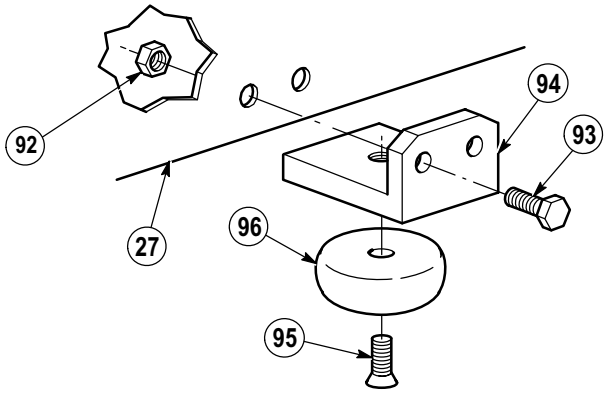
(62) With the aid of an assistant, install rear tension guide assembly (91) on adapter plate (89) with four screws (90).



(63) Remove two locknuts (92) screws (93) and axle stop bracket (94) from truck frame (27). Discard locknuts.

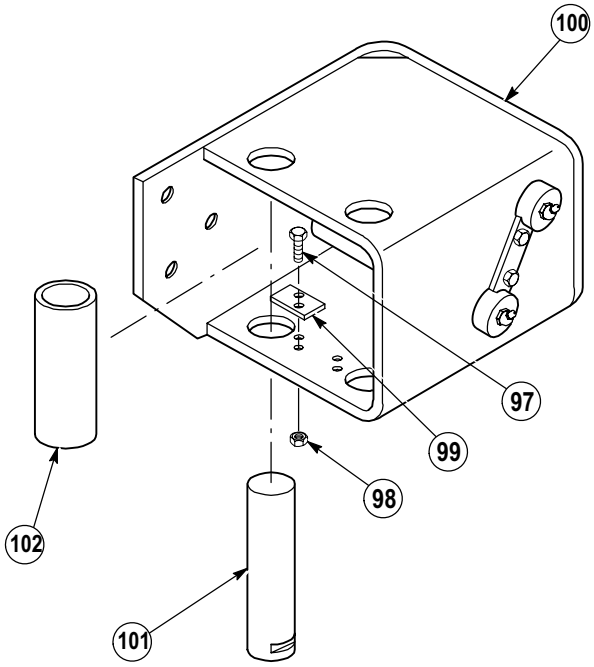
(64) Remove screw (95) and axle stop (96) from axle stop bracket (94). Discard screw and axle stop bracket.





(65) Remove four screws (97), locknuts (98) and two lock plates (99) from rear guide weldment (100). Discard locknuts.

(66) Remove two short shafts (101) and short rollers (102) from rear guide weldment (100). Discard rear guide weldment.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Rear guide assembly weighs 70 lbs (32 kg). Attach suitable lifting device to prevent possible injury to personnel.

(67) From CHU kit pallet, attach lifting device to rear guide (103).

(68) Install two short shafts (101) and short rollers (102) into rear guide (103).

NOTE

Lock plates are properly installed on inside of rear guide in slots of roller shafts.

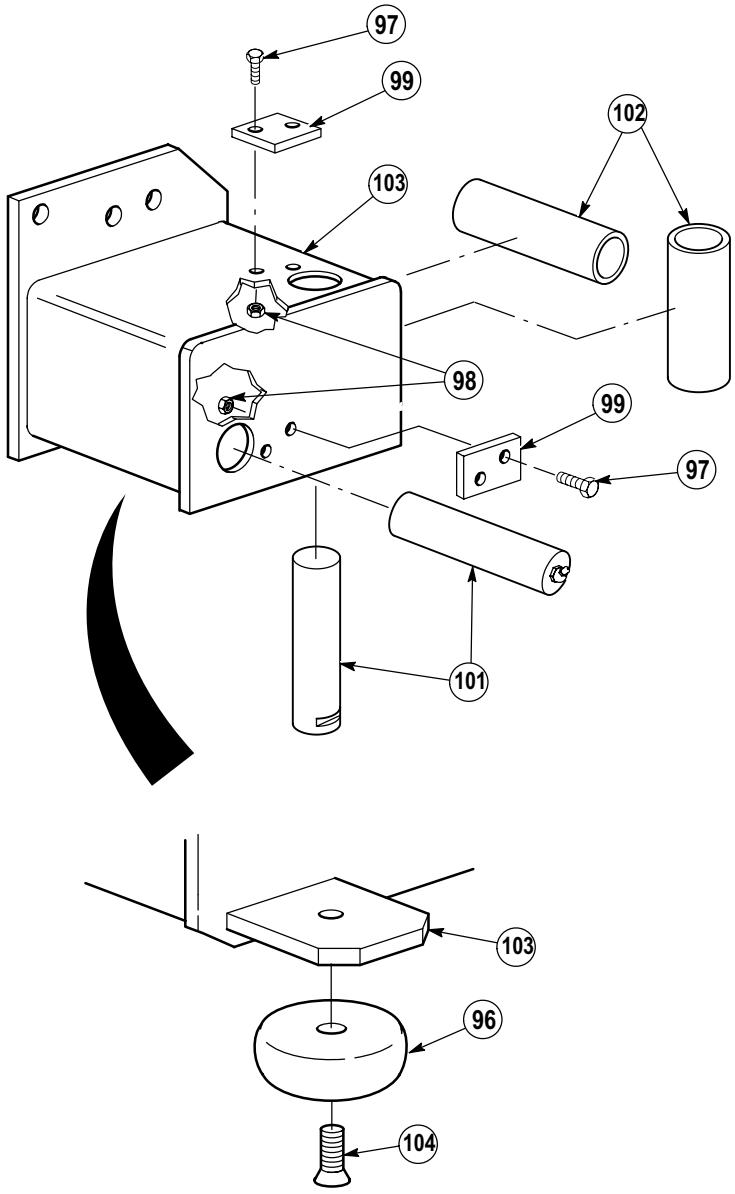
(69) Install two lock plates (99), four screws (97) and locknuts (98) on rear guide (103) and two short shafts (101).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(70) Apply sealing compound (loctite 242) to threads of screw (104).

(71) Install screw (104) and axle stop (96) on rear guide (103).



NOTE

Screws in Step (72) were removed with rear tension guide.

(72) With the aid of an assistant, position rear guide (103) on frame (27) with two lockwashers (105) and screws (106).

(73) With the aid of an assistant, position four locknuts (107) and screws (108) on rear guide (103).

NOTE

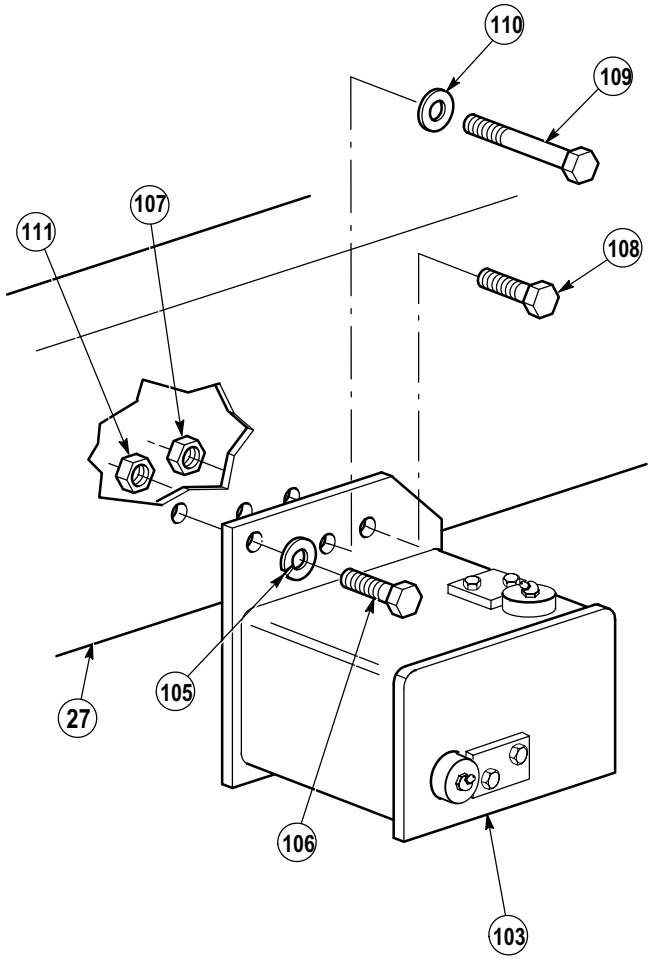
Screw in Step (74) was removed with rear tension guide.

(74) Install screw (109) with washer (110) and locknut (111).

(75) With the aid of an assistant, tighten two screws (106) on rear guide (103).

(76) With the aid of an assistant, tighten four locknuts (107) on rear guide (103).

(77) Remove lifting device from rear guide (103).

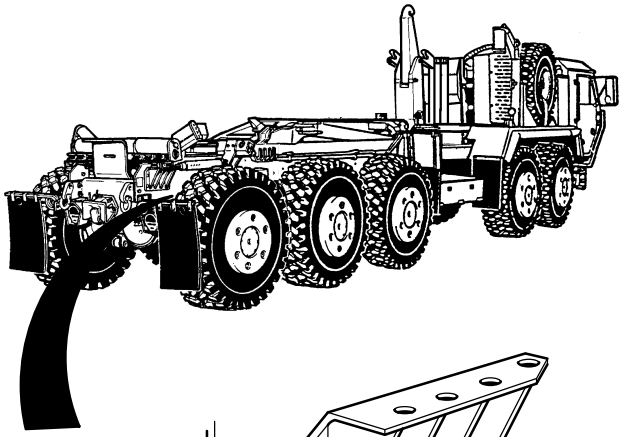


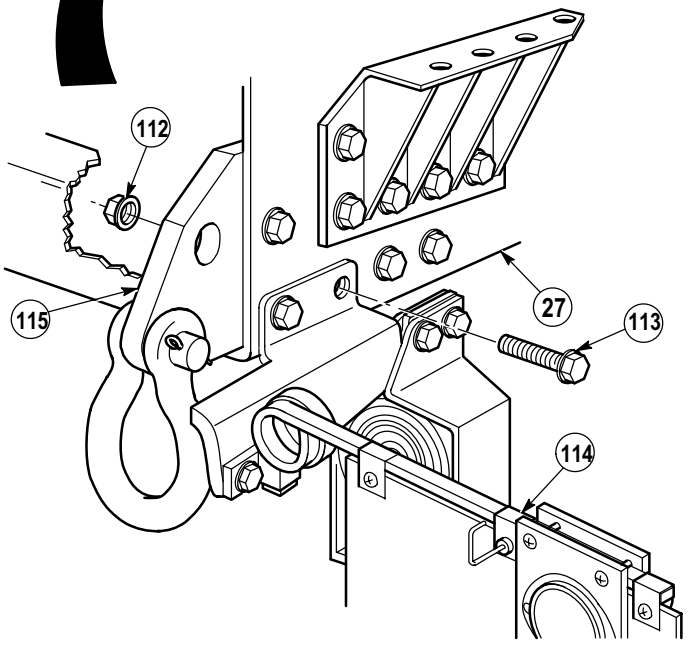
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Both rear splash guard assemblies are removed the same way unless noted. Right side shown.

(78) Remove two locknuts (112), screws (113) and rear splash guard assembly (114) from frame (27) and rear crossmember (115). Discard locknuts and screws.





WARNING

Rear roller bracket weighs 155 lbs (70 kg). Attach suitable lifting device to prevent possible injury to personnel.

(79) Attach lifting device to rear roller bracket (116).

NOTE

Perform Step (80) for right side of truck only.

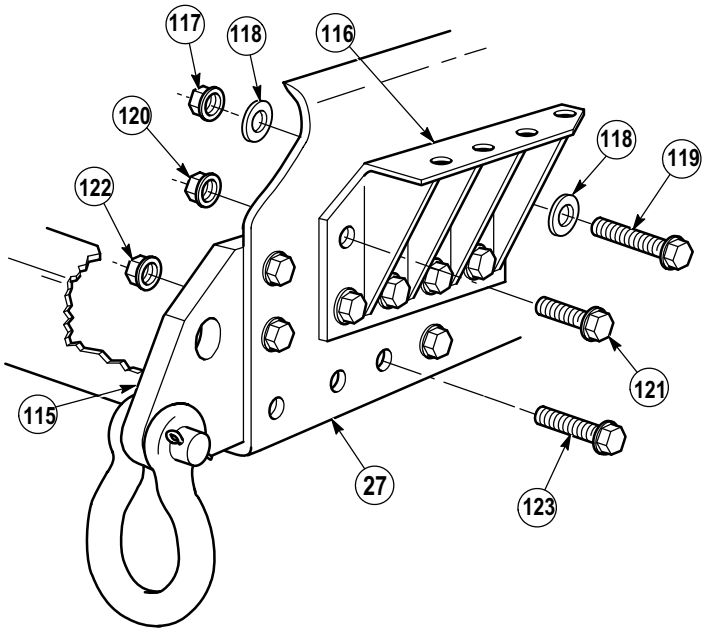
(80) Remove locknut (117), two washers (118) and screw (119). Discard locknut.

(81) With the aid of an assistant, remove eight locknuts (120), screws (121) and rear roller bracket (116) from frame (27) and rear crossmember (115). Discard locknuts, screws and roller bracket.

(82) Remove lifting device from rear roller bracket (116).

(83) Remove two locknuts (122) and screws (123) from frame (27) and rear crossmember (115). Discard locknuts and screws.

(84) Repeat Steps (78) through (83) for left side of truck.



WARNING

- Rear roller brackets weigh 150 lbs (68 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

- Hardware for rear brackets is in pack no. 33 of CHU kit crate.
- Shim(s) are in box D, pack no. 27 of CHU kit crate.
- Shim hardware is in box B, pack no. 44 of CHU kit crate.
- Straps are used to install rear brackets on truck. After rear brackets are on truck the straps are removed and installed on the lift frame.

(85) Unscrew and remove wood blocking from CHU kit crate to allow removal of rear brackets.

(86) Attach lifting device to strap (124) on right rear roller bracket (125). Lift and remove right roller bracket from CHU kit crate and position on ground.

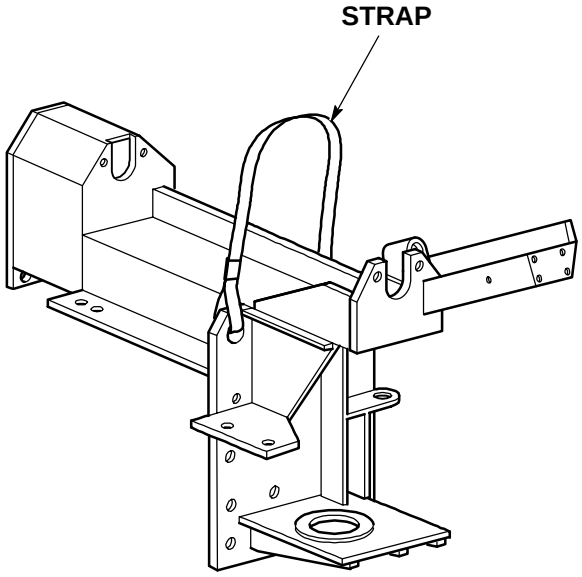
(87) Reposition strap (124) on right rear roller bracket (125) and lift bracket onto truck frame (27).

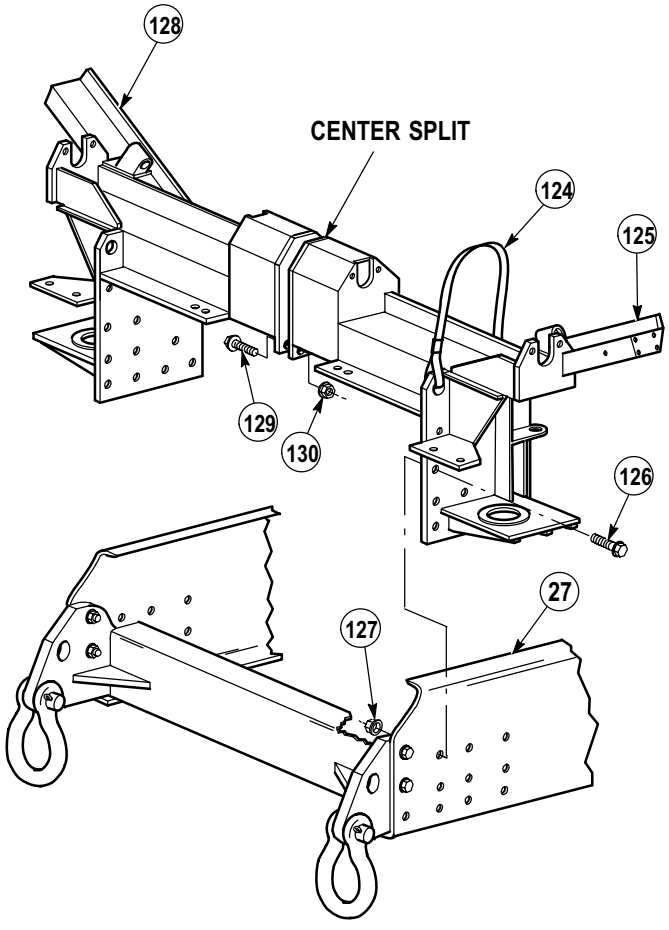
(88) With the aid of an assistant, position right rear roller bracket (125) on truck frame (27) with five screws (126) and locknuts (127). Do not tighten.

(89) Repeat Steps (86) through (88) for left rear roller bracket (128).

(90) Position bottom two screws (129) and locknuts (130) at center split of right rear roller bracket (125) and left rear roller bracket (128). Do not tighten.

(91) Tighten 10 locknuts (127) on screws (126) to 50 lb-ft (68 N·m).





18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Shims are 1/16 in. (1.59 mm) thick. Add one shim per every 1/16 in. (1.59 mm) gap.

(92) Measure gap at center split and determine number of shims (131) required.

(93) Position shim(s) if required (131) in center split and install remaining four screws (129) and locknuts (130).

(94) With the aid of an assistant, position five screws (132) and locknuts (127) on right rear roller bracket (125), frame (27) and rear crossmember (115).

NOTE

Perform Step (95) for right side only.

(95) Install screw (119), two washers (118) and locknut (117). Tighten to 175 lb-ft (237 N·m).

(96) Repeat Step (94) for left side of truck.

(97) Tighten six locknuts (130) on screws (129).

(98) Tighten ten locknuts (127) on screws (132).

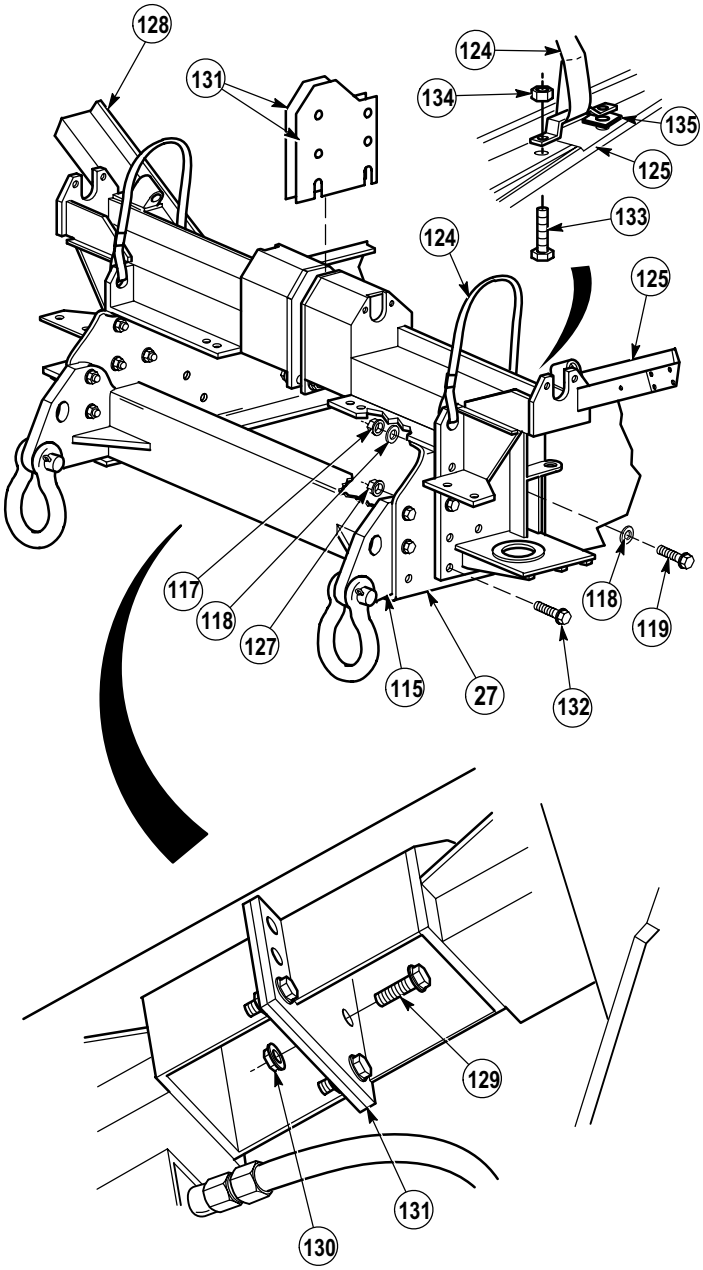
(99) Remove lifting device from left rear roller bracket (128).

NOTE

- Screws and locknuts are used in Step (299).
- Spacers are used in Step (102).

(100) Remove two screws (133), locknuts (134), spacer (135) and strap (124) from right rear roller bracket (125). Retain hardware.

(101) Repeat Steps (98) and (100) for left side of truck.

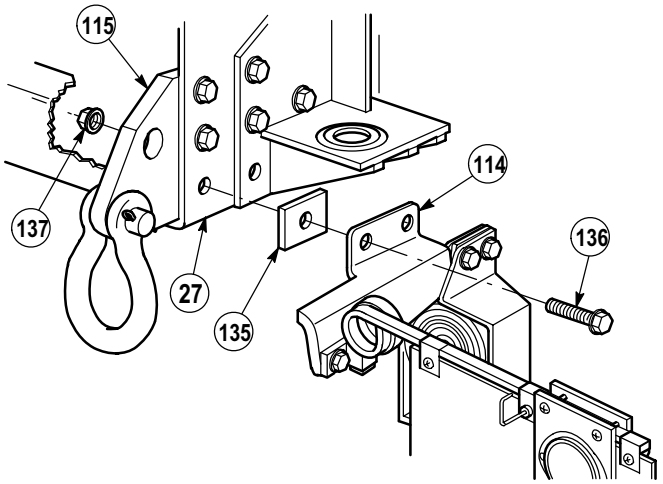


NOTE

Both rear splash guard assemblies are installed the same way. Right side shown.

(102) Install two screws (136), locknuts (137), spacer (135) and rear splash guard assembly (114) on frame (27) and rear crossmember (115).

(103) Repeat Step (102) for left side of truck.

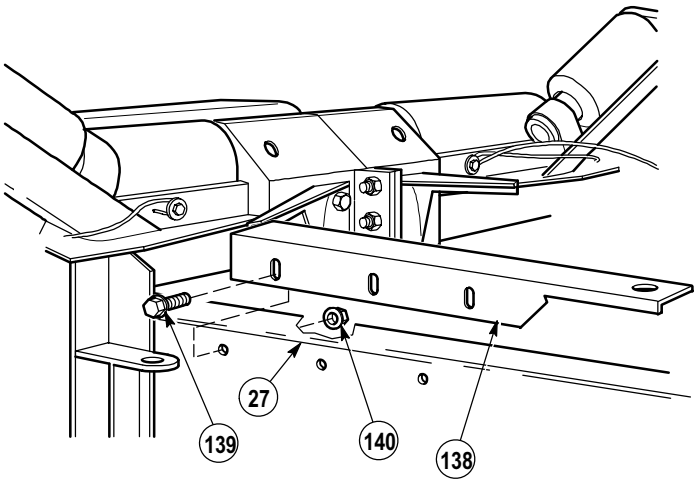


NOTE

- Deck brackets can be found standing in corners of CHU kit crate.
- Hardware for mounting deck and deck brackets can be found in box D, pack no. 28 of CHU kit crate.
- Hard lift deck brackets are installed the same way. Right side shown.

(104) Install right hard lift deck bracket (138) on frame (27) and position screw (139) and locknut (140) in rear position. Do not tighten.

(105) Repeat Step (104) for left side of truck.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

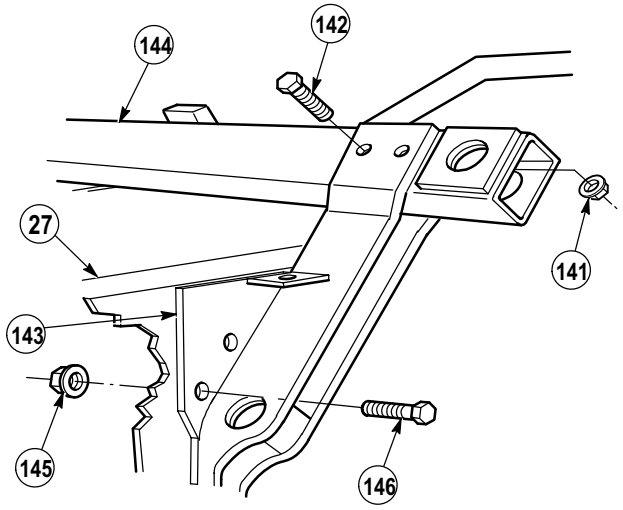
NOTE

- Hardware for strut brackets can be found in box A, pack no. 1 of CHU kit crate.
- Both sides of hard lift brackets are the same. Right side shown.

(106) Remove two locknuts (141) and screws (142) from hard lift bracket (143) and crossover tube (144). Discard locknuts and screws.

(107) Remove two locknuts (145) and screws (146) from hard lift bracket (143) and truck frame (27). Discard locknuts and screws.

(108) Repeat Steps (106) and (107) for left side of truck.



WARNING

Right strut bracket assembly weighs 80 lbs (36 kg). Attach suitable lifting device to prevent possible injury to personnel.

NOTE

Strut bracket assemblies are installed the same way. Right side shown.

(109) From CHU kit crate, unbolt and remove right strut bracket assembly (147).

(110) Install screw (148), screw (149), two locknuts (150) and strut bracket assembly (147) on hard lift bracket (143) and frame (27).

(111) Position two screws (151) and two locknuts (152) on strut bracket assembly (147), hard lift deck bracket (138) and frame (27).

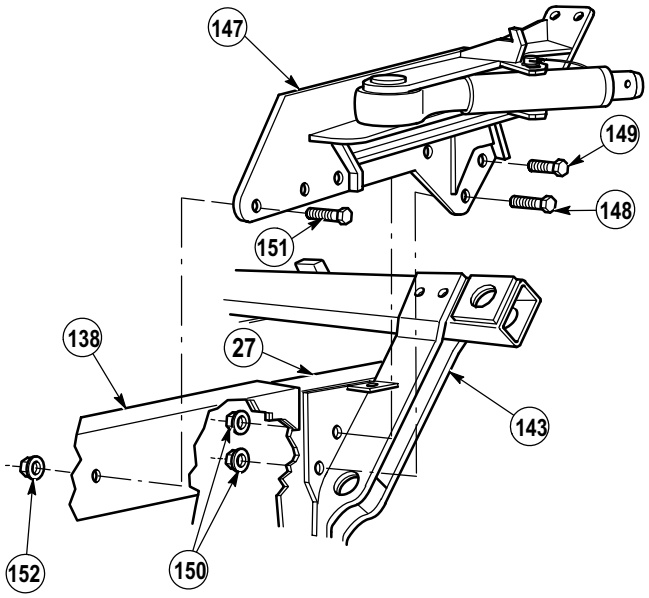
(112) Tighten screw (139) and two screws (151).

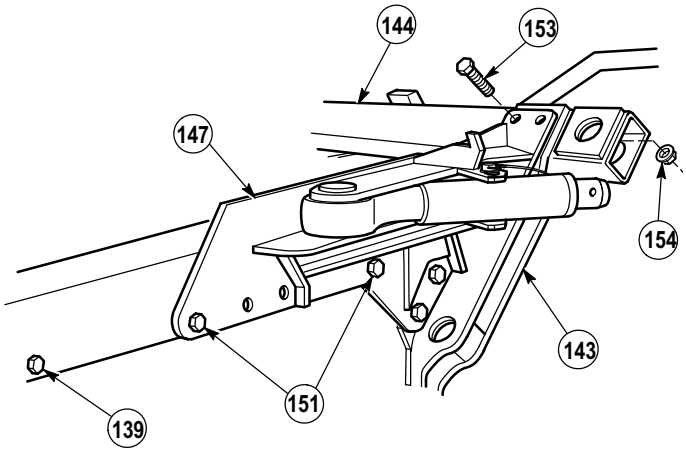
NOTE

Inside screw on crossover tube should be installed and tightened first to ease installation.

(113) Install two screws (153), locknuts (154) and strut bracket assembly (147) on hard lift bracket (143) and crossover tube (144).

(114) Repeat Steps (109) through (113) for left side of truck.





NOTE

- Preformed packings, seals, thrust washers, shims and retaining rings can be found in box C, pack no. 6, 9, 12, 13 and 39 of CHU kit crate.
- Pivot pins are in pack no. 56 of CHU kit crate.

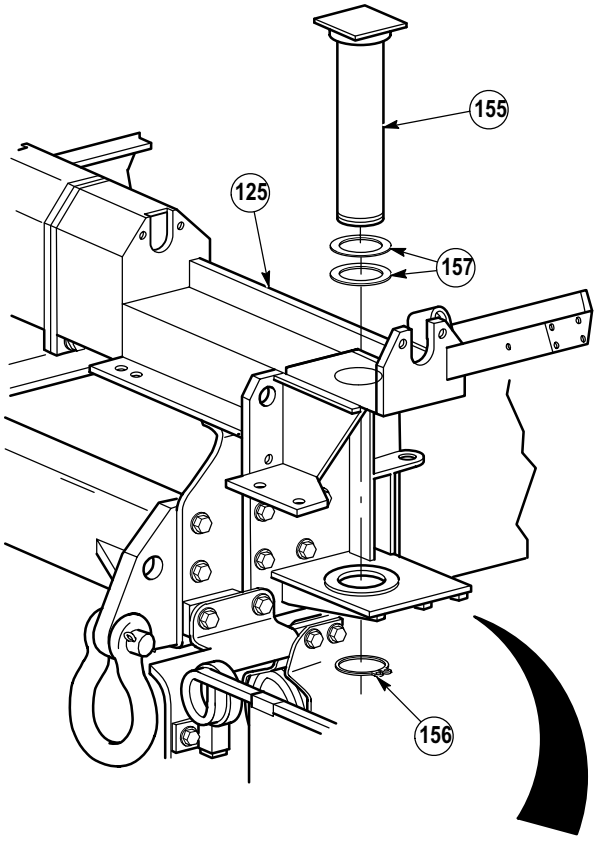
(115) Install pivot pin (155) and retaining ring (156) in right rear roller bracket (125).

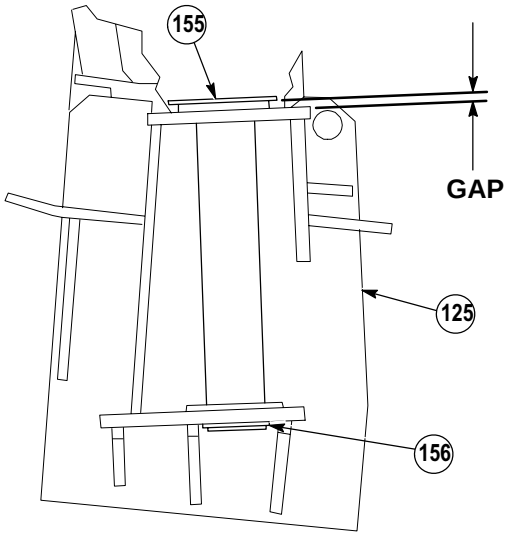
NOTE

- Shim is .06 in. (1.5 mm) thick. Add one shim per every gap between retaining ring and bottom edge of roller bracket.
- Only add shim(s) if gap between retaining ring and bottom edge of roller bracket exceeds .06 in. (1.5 mm).

(116) Measure distance between retaining ring (156) and roller bracket (125).

(117) Determine amount of shims(s) (157) required and remove retaining ring (156) and pivot pin (155) from roller bracket (125).



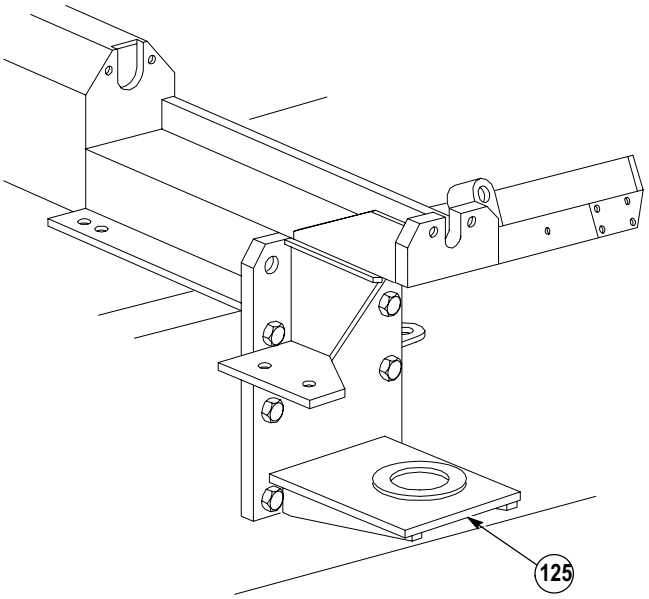


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(118) Clean preservative from right rear roller bracket (125) with dry cleaning solvent.



NOTE

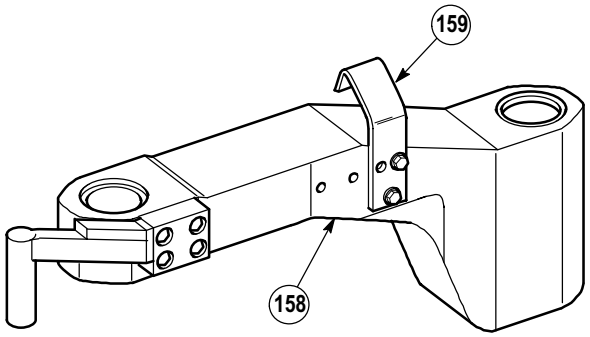
Arm assemblies are installed the same way. Right side shown.

(119) From CHU kit crate, unbolt and remove wood blocking between arm assemblies (158).

WARNING

Arm assembly weighs 240 lbs (109 kg). Attach suitable lifting device to prevent possible injury to personnel.

(120) Attach lifting device to lifting bracket (159) on right arm assembly (158) and remove from CHU kit crate.



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Sealing compound is applied to metallic side of thrust washer.

(121) Apply sealing compound (loctite 680) supplied in kit to thrust washers (160).

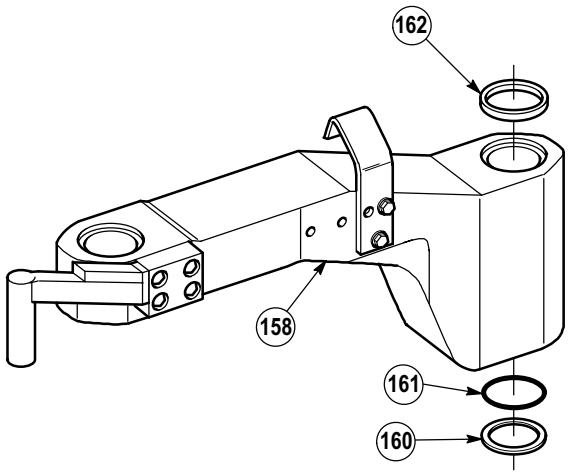
(122) Apply adhesive (loctite 409) supplied in kit to 6 points in recessed groove for preformed packing (161).

NOTE

Thrust washer is properly installed with metallic side to arm.

(123) Install seal (162), preformed packing (161) and thrust washer (160) on arm assembly (158).

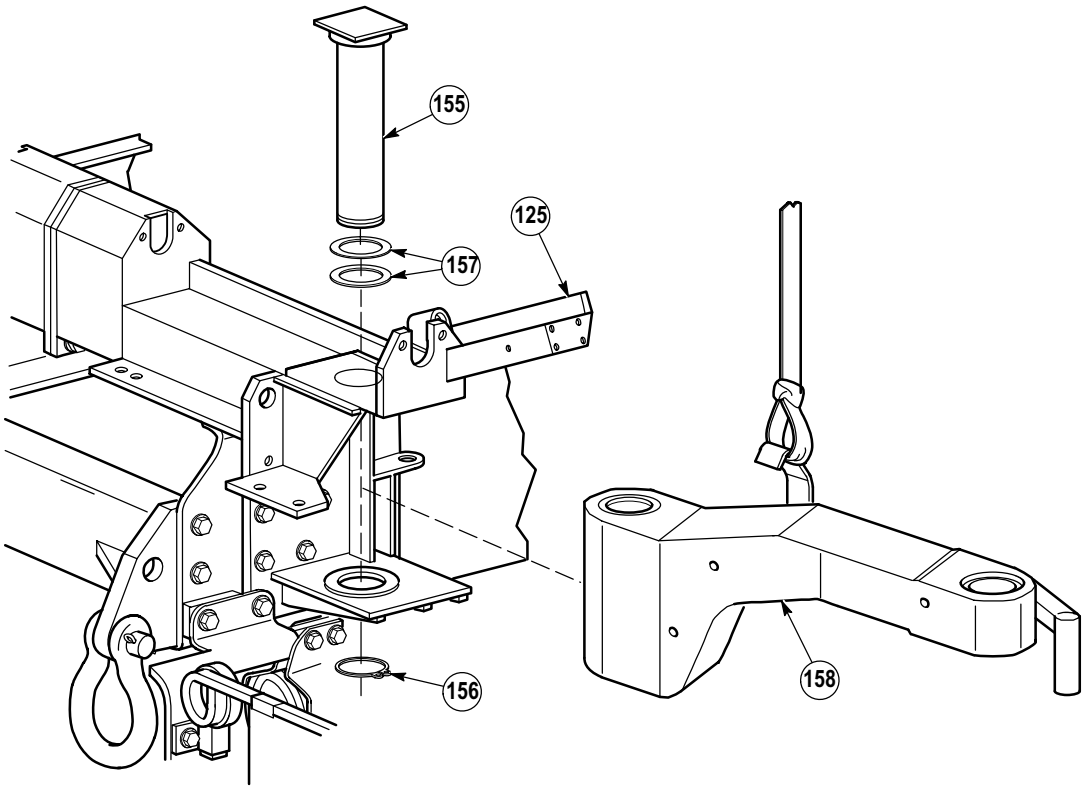
(124) Apply grease, supplied in kit, to face of seal (162), preformed packing (161), thrust washer (160), and bore in large end of arm assembly (158).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

Shims are installed between head of pivot pin and rear roller bracket.



(125) Apply grease, supplied in kit, to bores and machined surfaces of right rear roller bracket (125).

CAUTION

Ensure not to damage bottom preformed packing during arm installation.

(126) With the aid of an assistant, position right arm assembly (158) in right rear roller bracket (125).

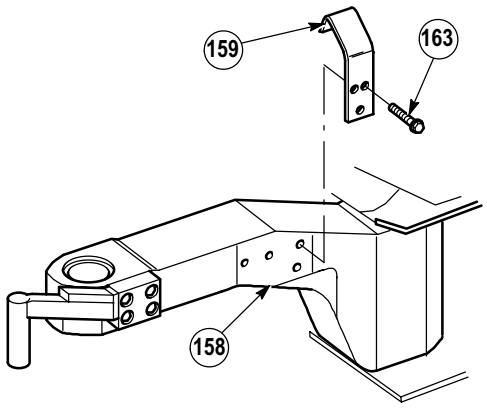
WARNING

Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

(127) Apply grease to outer surface of pivot pin (155) and install pivot pin, shim(s) (if required) (157) and retaining ring (156) in right arm assembly (158) and right rear roller bracket (125).

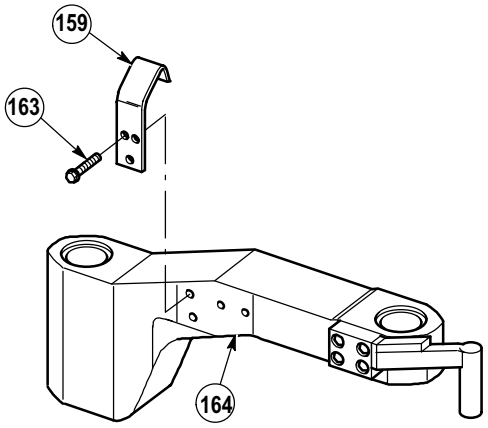
(128) Remove lifting device from lifting bracket (159).

(129) Remove two screws (163) and lifting bracket (159) from right arm assembly (158).



(130) Install lifting bracket (159) on left arm assembly (164) with two screws (163).

(131) Repeat Steps (115) through (129) for left side of truck.

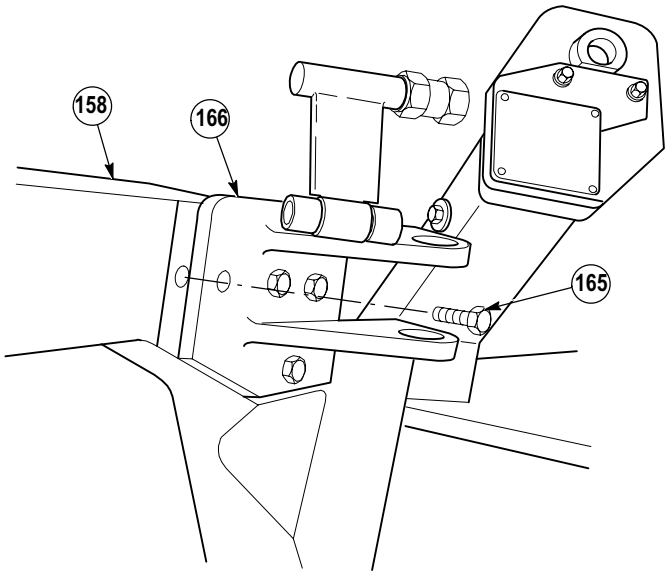


WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Pin bracket assemblies are in pack no. 62 and 63 located in bottom of CHU kit crate.
- Hardware is in box D, pack no. 26 of CHU kit crate.
- Pin bracket assemblies, struts and sliders are installed the same way. Right side shown.



(132) Apply sealing compound (loctite 242) to threads of four screws (165).

(133) With the aid of an assistant, install four screws (165) and right pin bracket assembly (166) on right arm assembly (158). Tighten to 80 lb-ft (108 N·m).

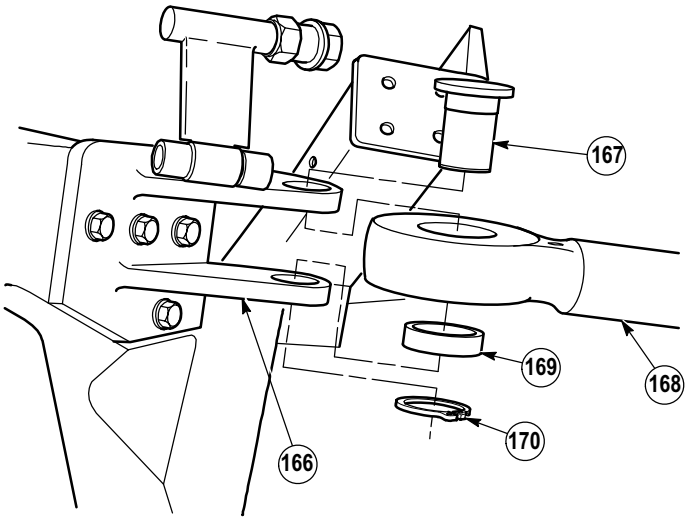
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

- Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.
- Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

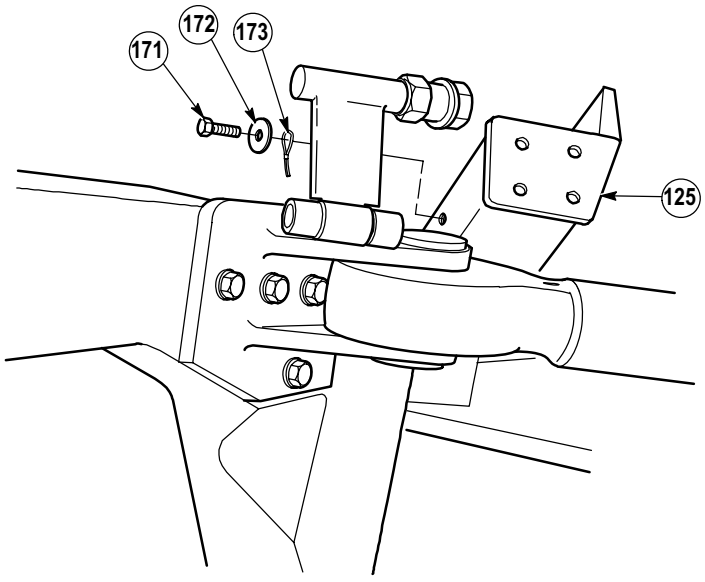
- Short struts can be found in box E, pack no. 34 of CHU kit crate.
- Retaining ring, ring support and pin can be found in box B, pack no. 42 and 43 of CHU kit crate.
- Hole in short strut for attaching spring should be located on top.
- Beveled edge of spacer faces bearing in short strut.



(134) Apply light coat of grease to outer surface of pin (167) and install pin, short strut (168), ring support (169) and retaining ring (170) on pin bracket assembly (166).

NOTE

Wire rope and hardware can be found in box B, pack no. 14 of CHU kit crate.



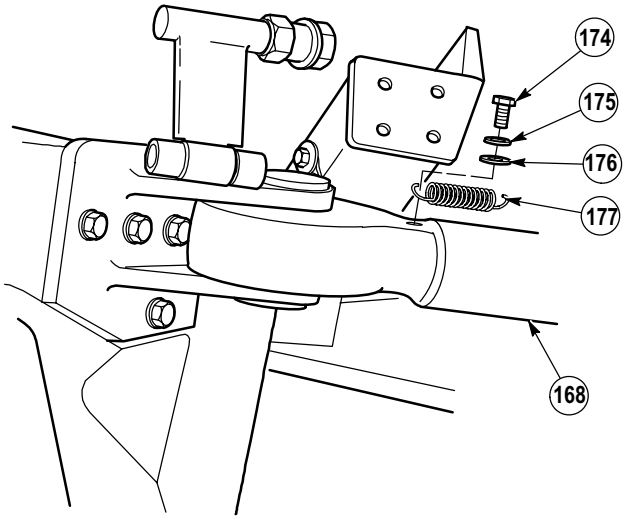
(135) Apply sealing compound (loctite 242) to threads of screw (171).

(136) Position screw (171), washer (172) and loop end of wire rope (173) on right rear roller bracket (125). Do not tighten screw.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(137) Apply sealing compound (loctite 242) to threads of screw (174).



NOTE

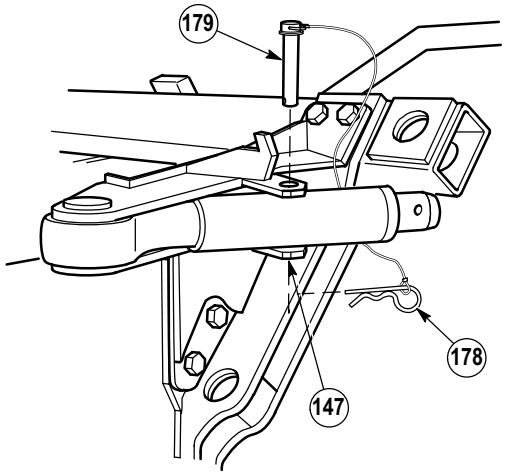
Screw is properly installed when head of screw is .50 in. (1.27 mm) from surface of short strut.

(138) Install screw (174), washer (175), washer (176) and spring (177) on short strut (168).

NOTE

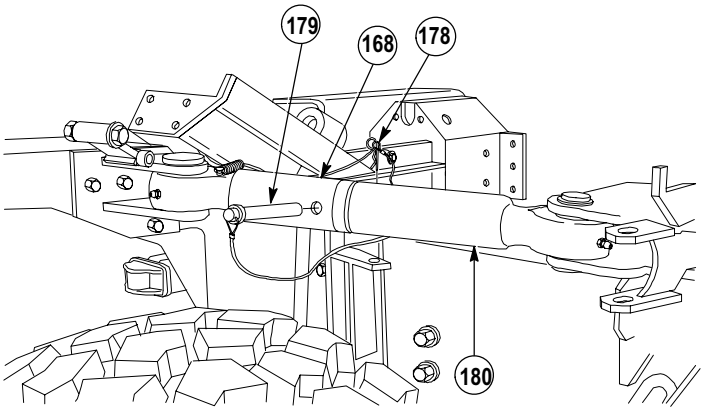
It may be necessary to bend brackets if pin cannot be removed or installed.

(139) Remove quick release pin (178) and pin (179) from strut bracket (147).



(140) Rotate long strut (180) to rear of truck.

(141) Position long strut (180) in short strut (168) and install pin (179) and quick release pin (178).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(142) Position wire rope (173) through end loop of spring (177).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(143) Apply sealing compound (loctite 242) to threads of screw (181).

(144) Position screw (181), washer (182) and end of wire (173) on right rear roller bracket (125).

NOTE

Wire must be pulled tight against roller bracket when installed.

(145) Wrap wire (173) around screw (181) and under washer (182) and tighten screw (181) and (171) on right rear roller bracket (125).

NOTE

- Preformed packings, seals, thrust washers, spacers and retaining rings can be found in boxes B and C, pack no. 7, 8, 11, 13 and 39 of CHU kit crate.
- Sealing compound is applied to metallic side of thrust washer.

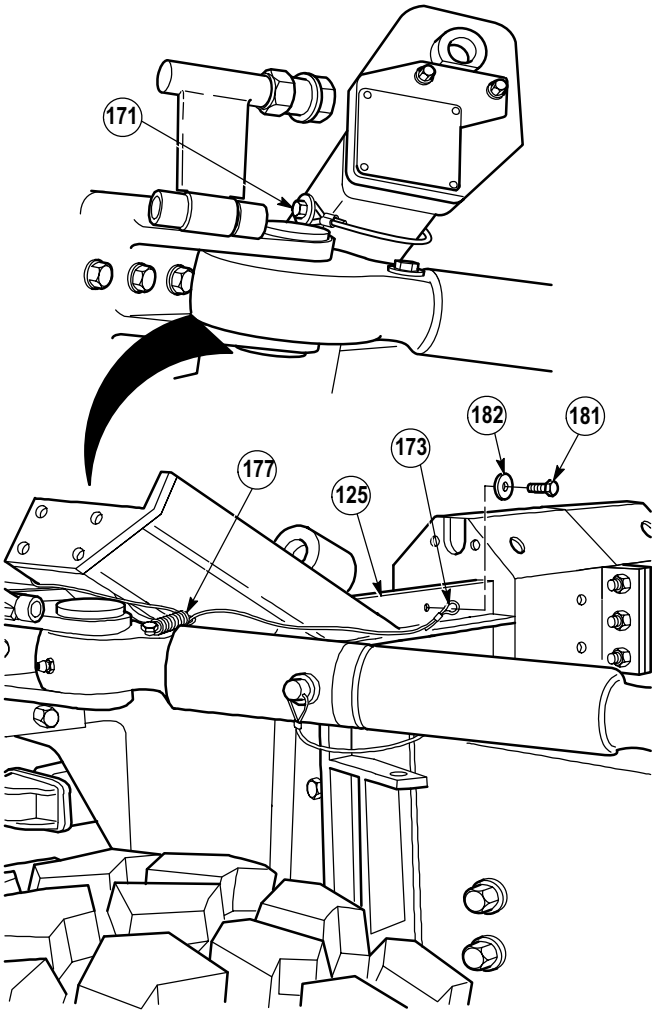
(146) Apply sealing compound (loctite 680) supplied in kit to thrust washer (183).

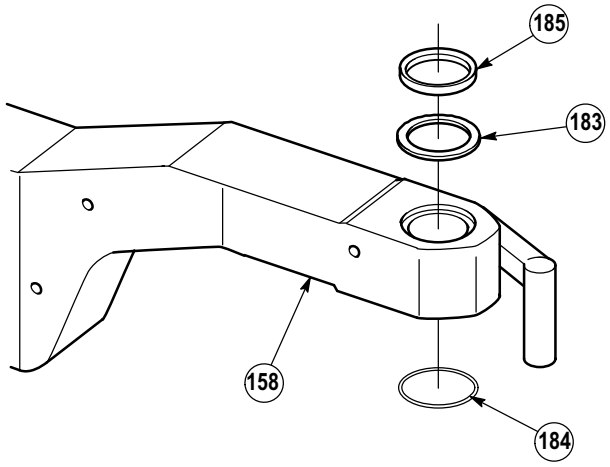
(147) Apply adhesive (loctite 409) supplied in kit to 6 points in recessed groove for preformed packing (184).

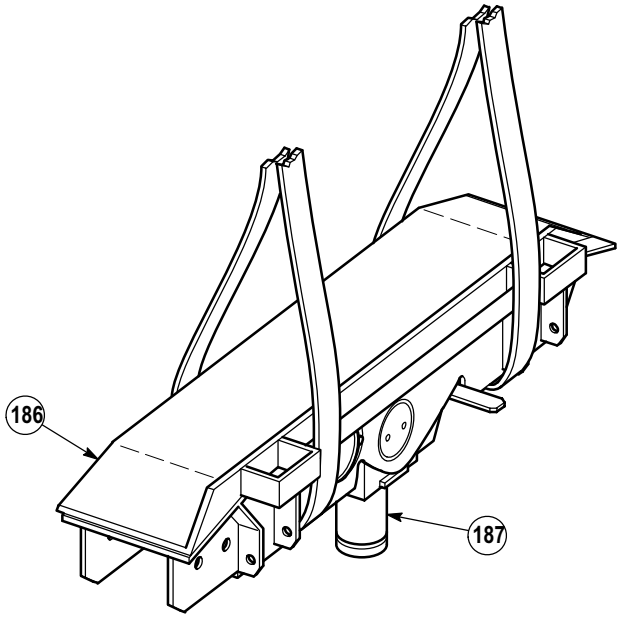
NOTE

Thrust washer is properly installed with metallic side to arm.

(148) Install seal (185), preformed packings (184) and thrust washer (183) on arm assembly (158).







WARNING

Slider weighs 142 lbs (64 kg). Attach suitable lifting device to prevent possible injury to personnel.

(149) From CHU kit crate, remove wood blocking covering sliders at the bottom and attach suitable lifting device to right slider (186).

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(150) Clean preservative from slider pivot pin (187) with dry cleaning solvent.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(151) Apply light coat of grease to outer surface of slider pivot pin (187), spacer (188) and retaining ring (189) and thrust washer, seals and bore on right arm assembly (158).

WARNING

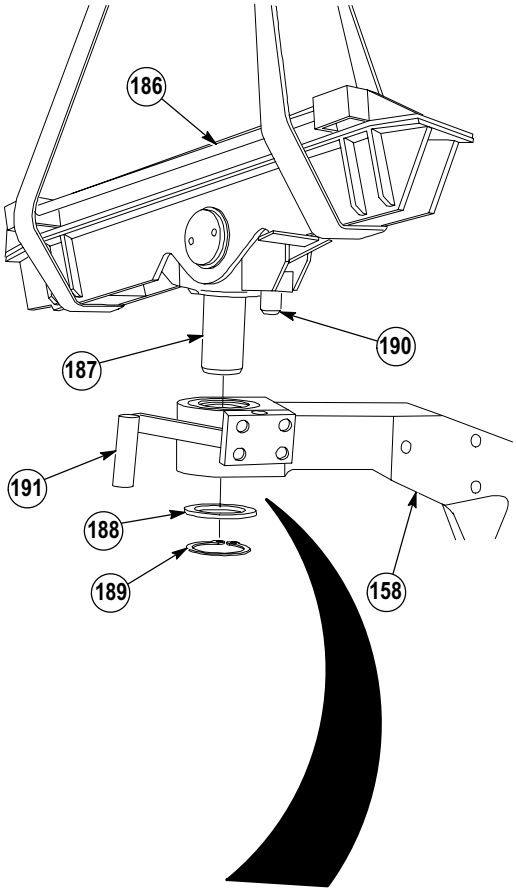
Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

NOTE

Ensure retaining ring is fully seated after installation.

(152) With the aid of an assistant, position right slider assembly (186) and install slider pivot (187) in right arm assembly (158) with spacer (188) and retaining ring (189).

(153) Remove lifting device from right slider assembly (186).



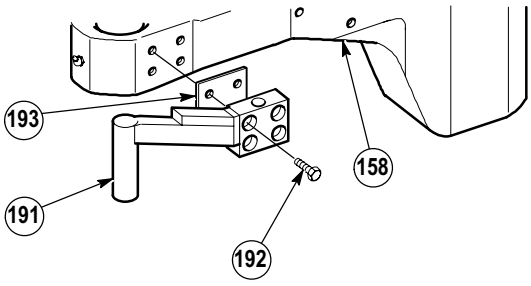
(154) Check that pivot lock pin (190) properly locks into handle (191).

NOTE

If pivot lock pin properly locks into handle go to Step (160).

(155) Remove four screws (192), shim(s) (193) (if present) and handle (191) from right arm assembly (158).

(156) Remove or add shim(s) (193) to right arm assembly (158) as required.



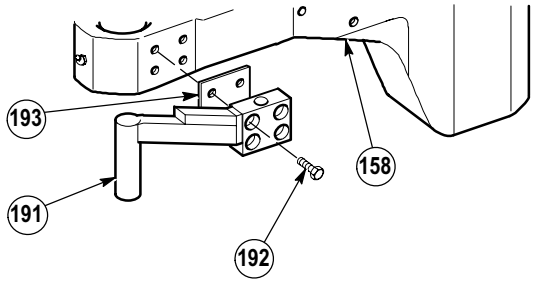
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(157) Apply sealing compound (loctite 242) to threads of four screws (192).

(158) Install four screws (192), handle (191) and shim(s) (193) (as required) on right arm assembly (158).

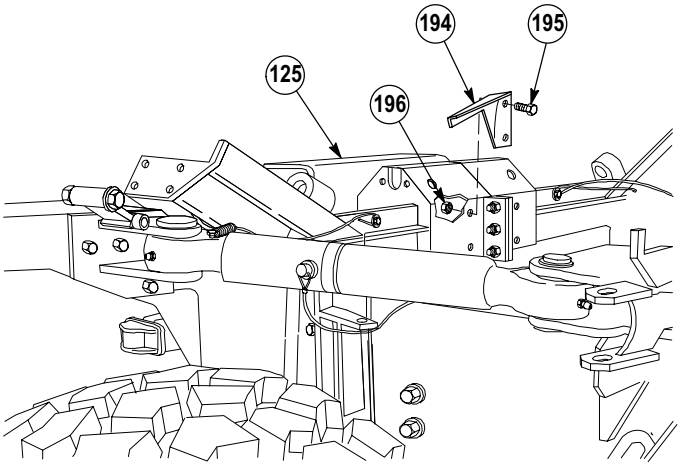
(159) Repeat Step (154).



NOTE

Stow plates, screws and locknuts can be found in box F, pack no. 69, 71 and 72 of CHU kit crate.

(160) Position stow plate (194) on right rear roller bracket (125) with two screws (195) and locknuts (196). Do not tighten.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

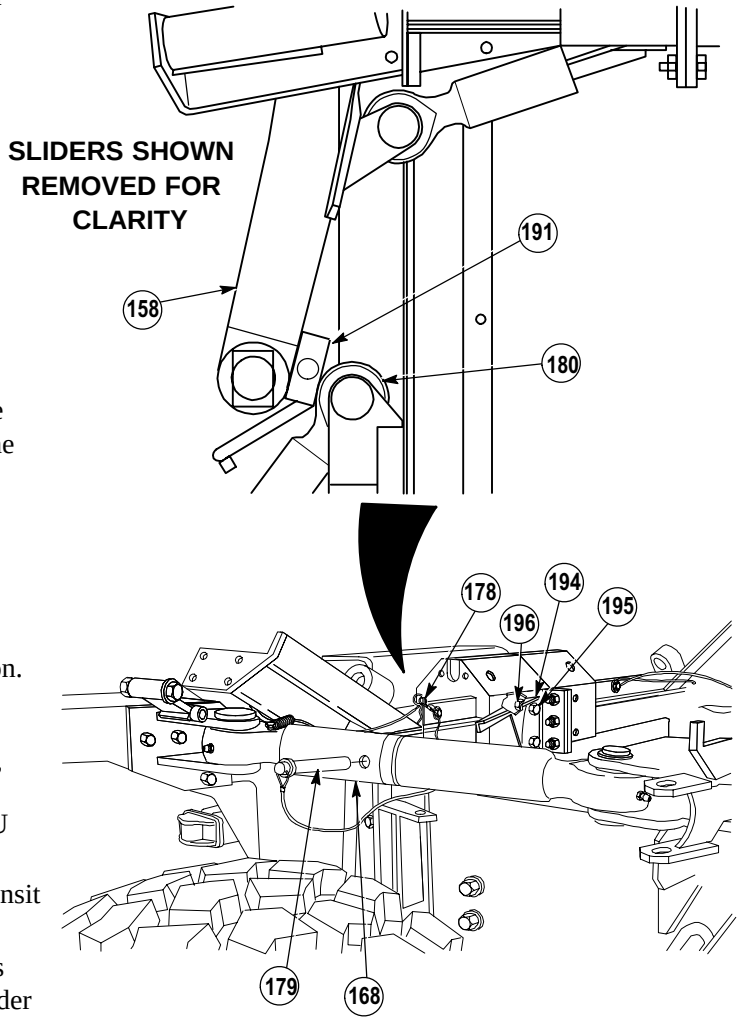
(161) Remove quick release pin (178) and pin (179) from short strut (168).

NOTE

- Stow plate should be positioned in center of short strut.
- Ensure slider arm is fully stowed and slider arm handle contacts long strut prior to tightening two screws.

(162) Position short strut (168) on stow plate (194) in stowed position and that handle (191) of arm assembly (158) contacts the long strut (180).

(163) Tighten two screws (195) and locknuts (196) on stow plate (194).



(164) Push down handle (197) and stow right slider assembly (186) in forward position.

NOTE

Cushion clip can be found in box B, pack no. 41 and hardware can be found in box B, pack no. 40 of CHU kit crate.

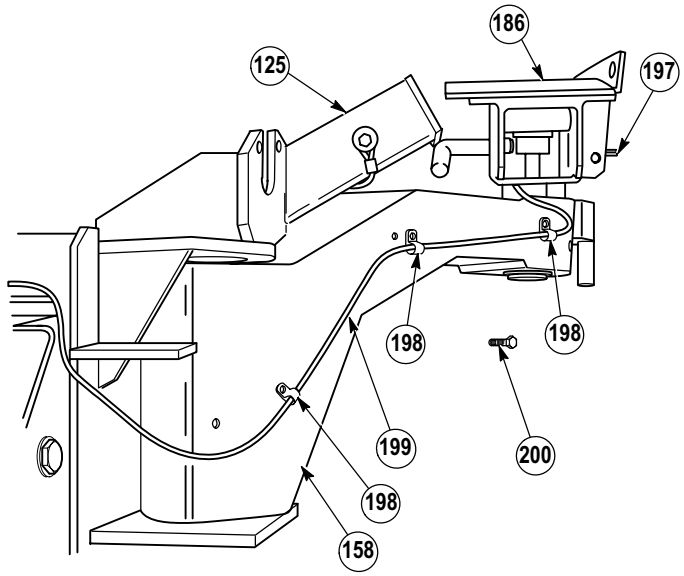
(165) Position three cushion clips (198) on transit lock switch wire harness (199).

(166) Position transit lock switch wire harness (199) along arm assembly (158) and under right rear roller assembly (125) with existing wire harnesses towards front of truck.

WARNING

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.

(167) Apply sealing compound (loctite 242) to threads of three screws (200).



CAUTION

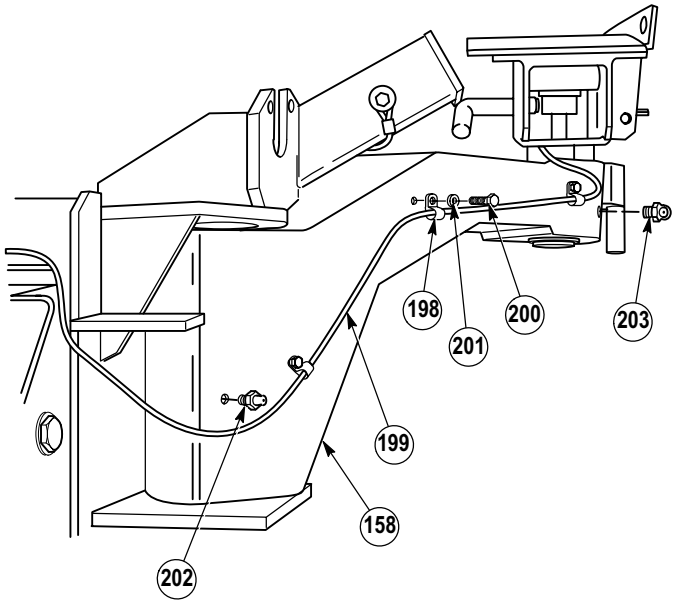
Leave enough slack in wire harness around pivot assembly to rotate slider without causing damage to harness. (In stowed position.)

(168) Install transit lock switch wire harness (199) with three screws (200), washers (201) and cushion clips (198) on arm assembly (158).

NOTE

Grease fittings can be found in box B, pack no. 10 of CHU kit crate.

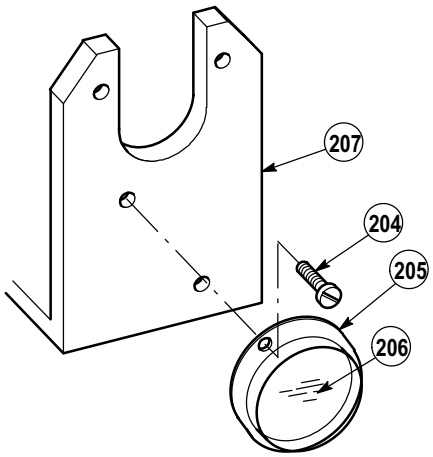
(169) Install grease fittings (202) and (203) in arm assembly (158).



NOTE

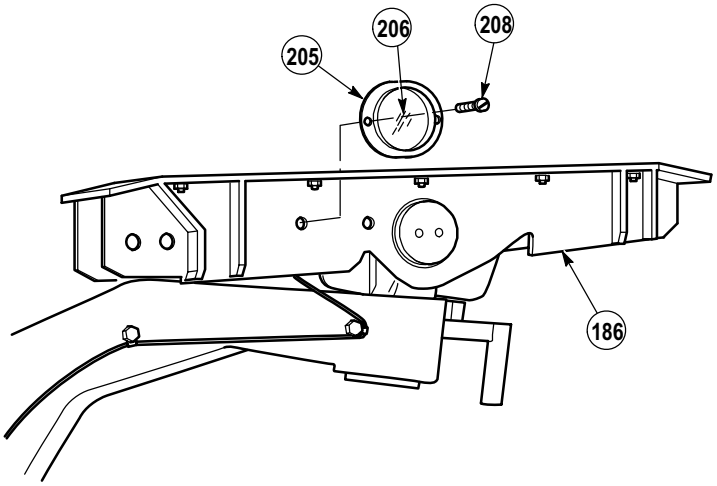
Reflectors are located on removed roller bracket.

(170) Remove two self tapping screws (204), reflector housing (205) and reflector (206) from roller bracket (207). Discard self-tapping screws.

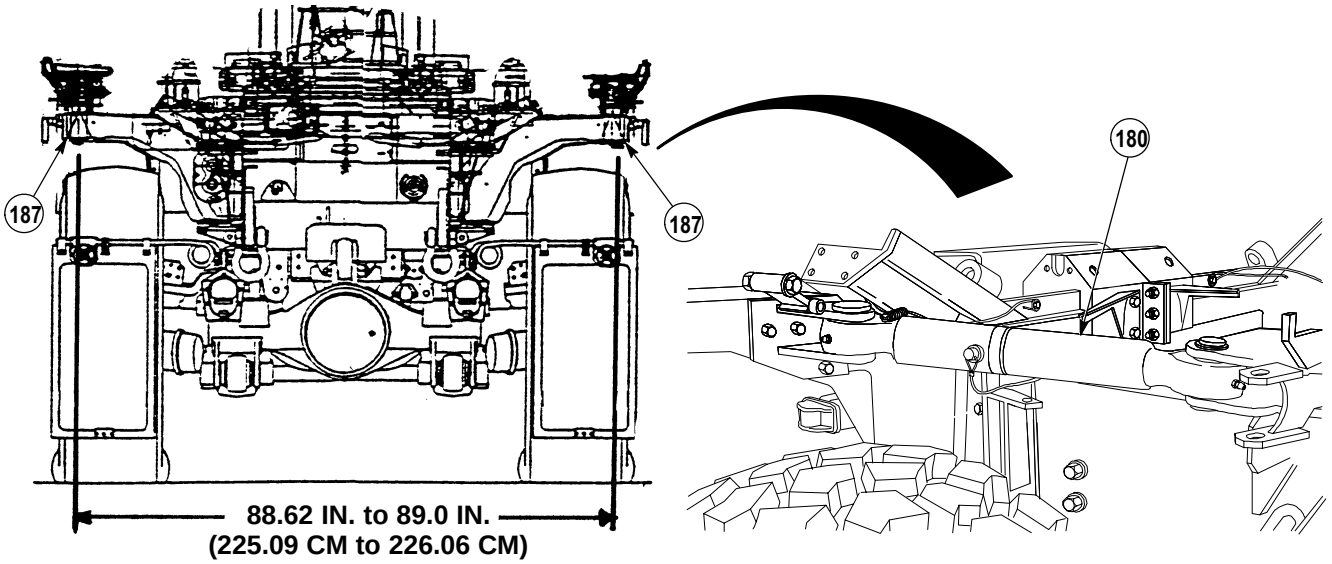


(171) Using two self tapping screws (208) install reflector (206) and reflector housing (205) on slider (186).

(172) Repeat Steps (132) through (171) for left side of truck.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



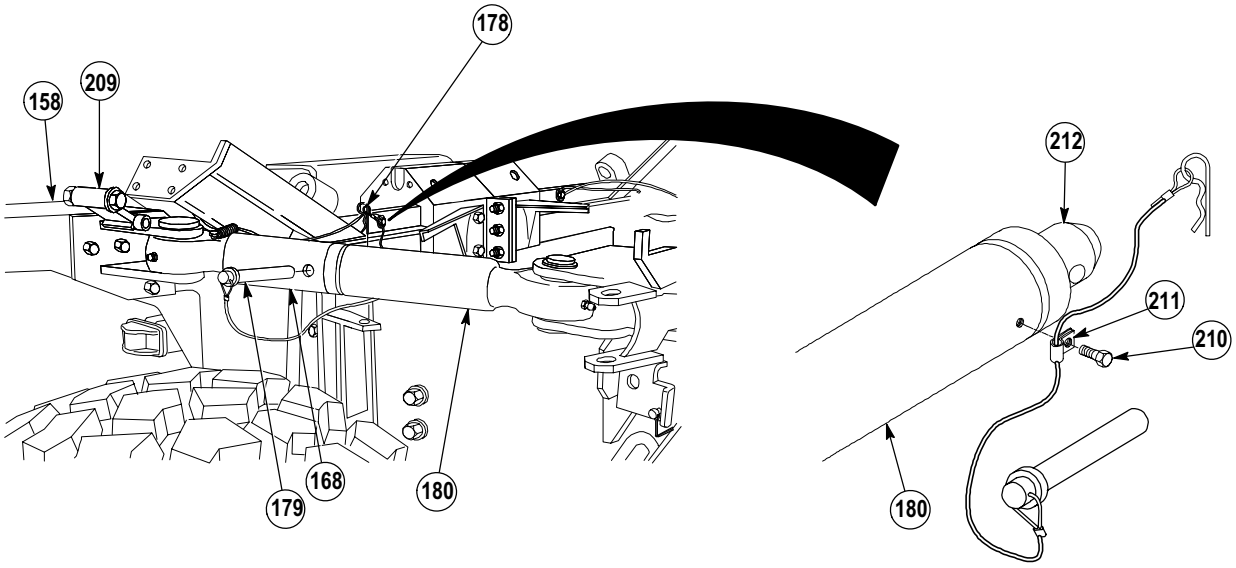
(173) Deploy both slider assemblies by extending short and long struts (TM 9-2320-364-10).

(174) With the aid of an assistant, measure distance between center of slider pivot pins (187).

NOTE

- Adjustment of struts is performed in Steps (176) through (185).
- If distance measured is 88.62 in. to 89 in. (225.09 cm to 226.06 cm) go to Step (188).

(175) Adjust long struts (180) so distance measured is 88.62 in. to 89 in. (225.09 cm to 226.06 cm) between slider pivot pin (187) centers.



(176) Remove quick release pin (178) and pin (179) from short strut (168) and long strut (180).

(177) Using handle of arm assembly (158), rotate arm assembly out to separate short strut (168) and long strut (180).

(178) Position flip lock (209) up to hold arm assembly (158) out. Release arm assembly.

NOTE

- Rotating pin end of long strut counterclockwise 1/2 turn will decrease width measurement by approximately 1/16 in. (1.59 mm).
- Rotating pin end of long strut clockwise 1/2 turn will increase width measurement by approximately 1/16 in. (1.59 mm).
- Adjust both RH and LH long struts equally to obtain the correct width measurement.

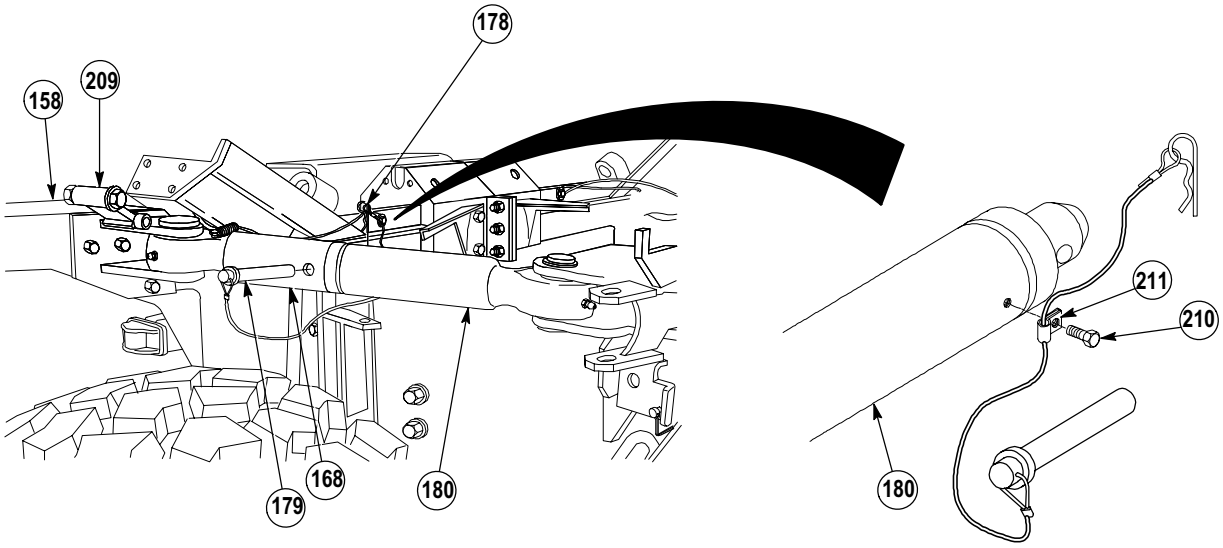
(179) Remove screw (210) and cushion clip (211) from long strut (180).

CAUTION

Do not unscrew pin end too far. Gap between long strut tube and pin end flange should not exceed 0.75 inches (19 mm). Failure to have sufficient engagement of pin end into long strut could result in damage to equipment.

(180) Rotate pin end (212) as required for correct width measurement.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



WARNING

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

Ensure hole in pin end align with hole for cushion clip.

(181) Apply sealing compound (loctite 242) to threads of screw (210).

(182) Install screw (210) and cushion clip (211) to long strut (180).

(183) Align long strut (180) with short strut (168).

(184) Using handle of arm assembly (158), rotate arm assembly and disengage flip lock (209).

(185) Position long strut (180) in short strut (168) and install pin (179) and quick release pin (178).

(186) Repeat Steps (176) through (185) for left side.

(187) Repeat Steps (174) through (186) as necessary.

WARNING

Horizontal roller weighs 75 lbs. (34 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

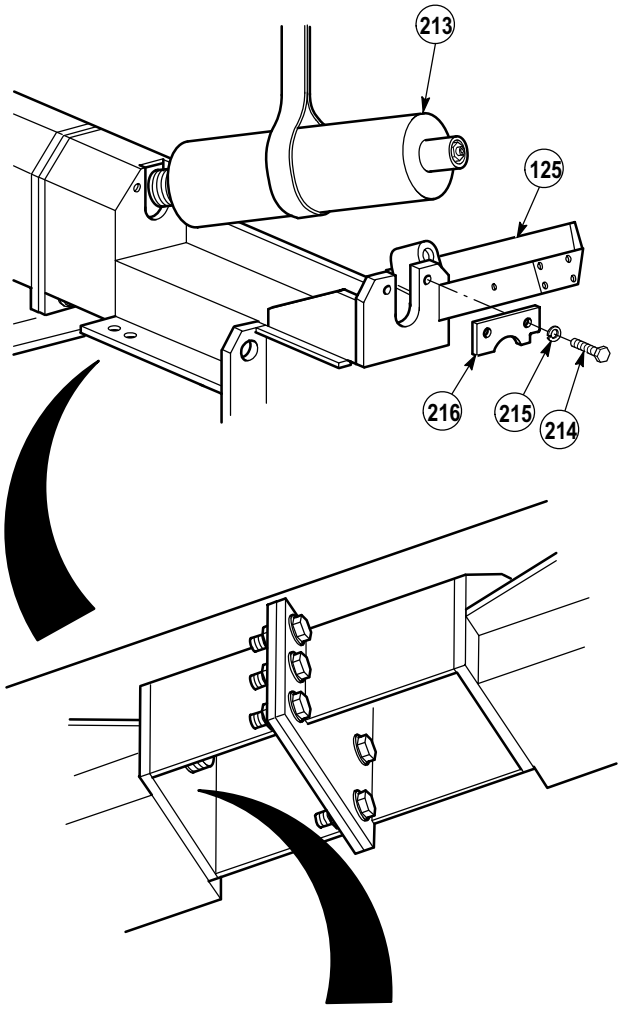
NOTE

- Reuse roller, screw, locknut and thrust washer from removal of horizontal roller.
- Lock plates can be found in box B, pack no. 46 of CHU kit crate.
- Both rollers are installed the same way. Right side shown.

(188) Attach lifting device to roller (213).

(189) With the aid of an assistant, position roller (213) in right rear roller bracket (125).

(190) Install two screws (214), lockwashers (215) and lockplate (216) in right rear roller bracket (125).



NOTE

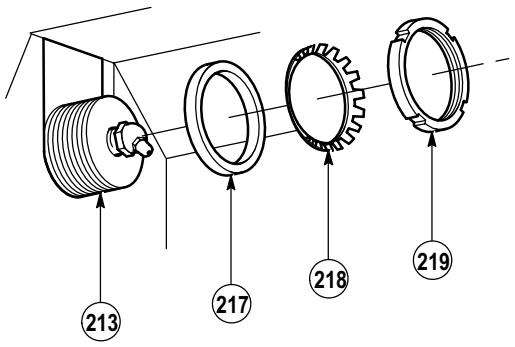
Locknut is installed properly when locknut is tightened and roller does not bind.

(191) Install thrust washer (217), lockwasher (218), and locknut (219) on roller (213).

(192) Bend tab of lockwasher (218) into slot of locknut (219).

(193) Remove lifting device from roller (213).

(194) Repeat Steps (188) through (193) for left side of truck.

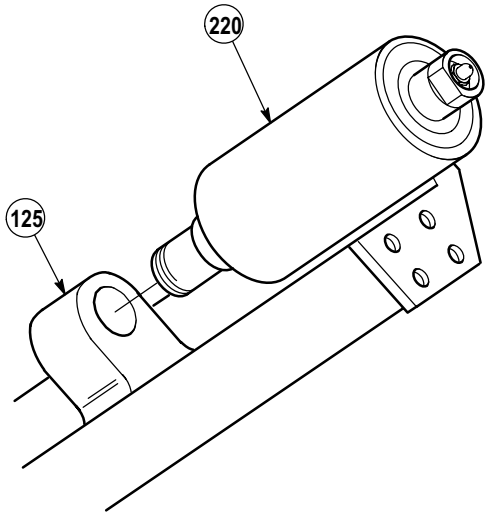


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

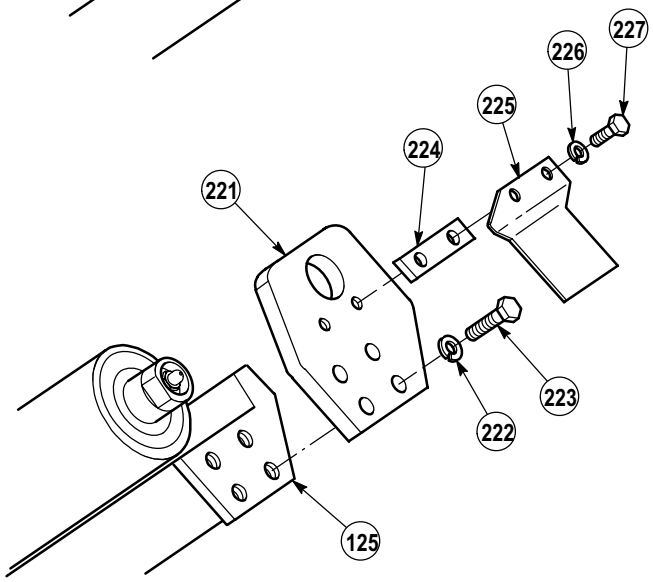
- Reuse roller, lockplate and screws from removal of angled roller.
- New end plates can be found in box B, pack no. 47 and 48 of CHU kit crate.
- Brackets can be found in box B, pack no. 49 and 50 of CHU kit crate.

(195) Position roller (220) in right rear roller bracket (125).



(196) Install endplate (221), four lockwashers (222) and screws (223).

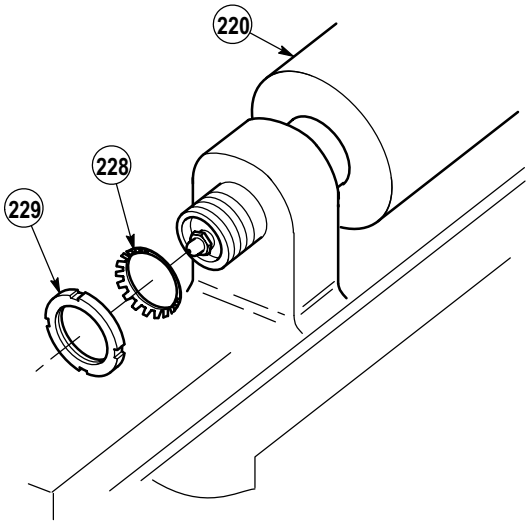
(197) Install lockplate (224), bracket (225), two lockwashers (226) and screws (227) on rear roller bracket (125).



(198) Install lockwasher (228) and locknut (229) on roller (220).

(199) Bend tab of lockwasher (228) into slot of locknut (229).

(200) Repeat Steps (195) through (199) for left side of truck.



WARNING

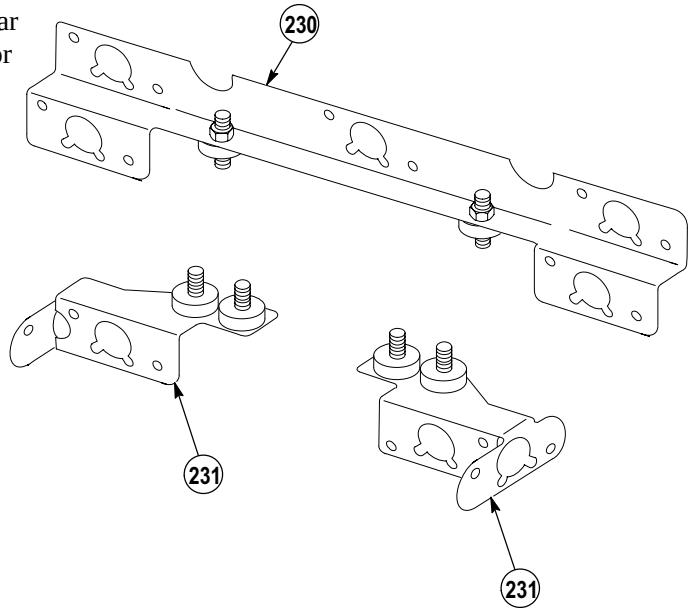
CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

- ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
- DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
- DO NOT use CARC paint without adequate ventilation.
- NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

NOTE

- Reuse parts from removal and disassembly of rear marker light assembly.
- Inspect all wires, connectors, parts for cracks and damage and replace as necessary.
- There are two blackout lights. Both blackout lights are installed the same way.
- Light bar can be found in CHU crate secured with wood blocking securing rear brackets.
- Rear brackets can be found in box A, pack no. 4 of CHU kit crate.

(201) Grind off paint on areas of marker light bar assembly (230) and rear brackets (231) for grounding surfaces.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

CAUTION

Keep all moisture and oils off lamp. Do not touch lamp with bare hands. Use a clean dry, oil free cloth to hold lamp while installing lamp in blackout light.

(202) Install gasket (232), blackout light assembly (233), two screws (234), ground wire (235) and locknuts (236) on rear marker light bar assembly (230).

CAUTION

Corrosion inhibitor contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

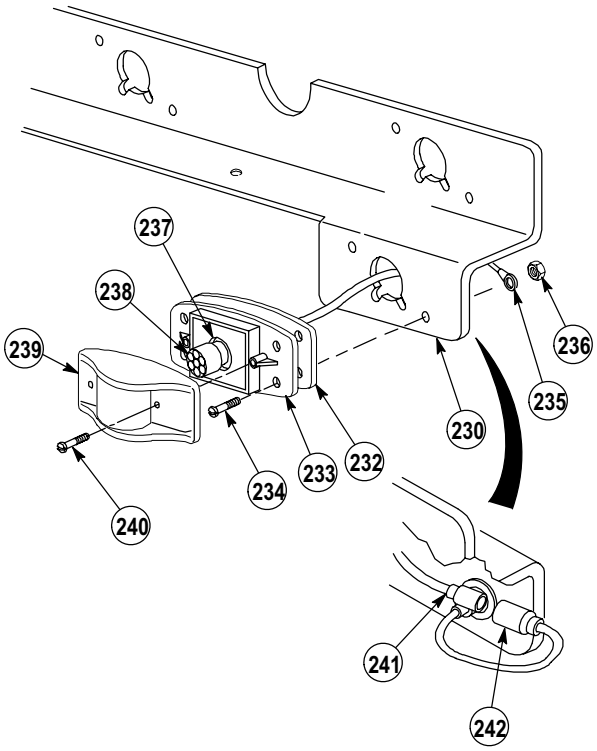
(203) Apply anti-corrosion silicone compound to inside of blackout lamp socket (237).

(204) Install blackout lamp (238) in blackout lamp socket (237).

(205) Install lens cover (239) with two screws (240) in blackout light assembly (233).

(206) Connect wire 1680 (241) to wire 490 (242).

(207) Repeat Steps (202) through (206) for remaining blackout light.



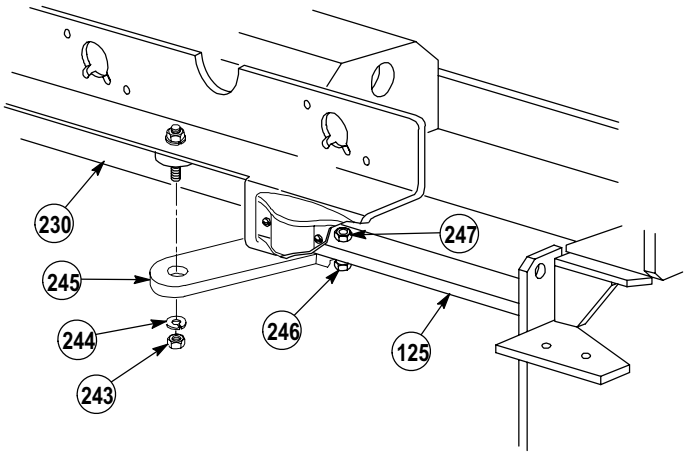
NOTE

Hardware can be found in box A, pack no. 45 of CHU kit crate.

(208) Position rear marker light bar assembly (230) on rear roller brackets (125).

(209) Install rear marker light bar assembly (230) with nut (243) and lockwasher (244) on light mounting plate (245).

(210) With the aid of an assistant, pull rear marker light bar assembly (230) towards rear of truck and tighten four screws (246) and locknuts (247) on light mounting plate (245).

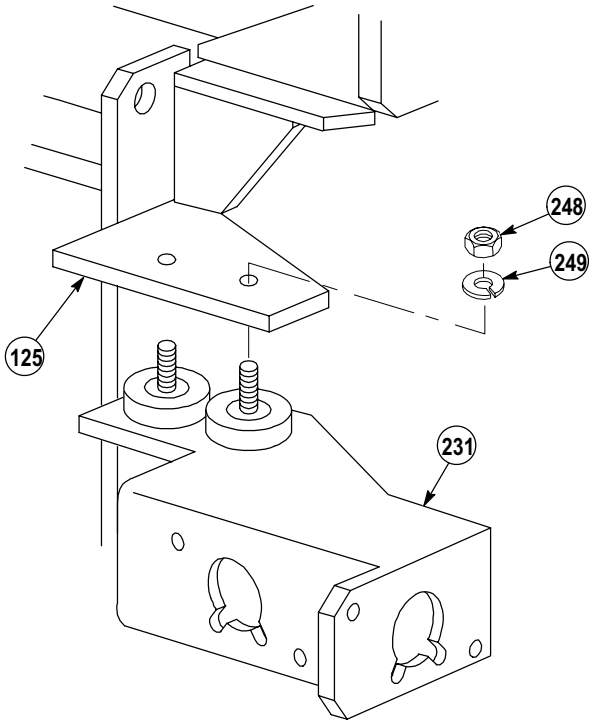


NOTE

Both rear brackets are installed the same way. Right side shown.

(211) Install rear bracket (231) with two nuts (248) and lockwashers (249) on rear roller brackets (125).

(212) Repeat Steps (209) and (211) for left side of truck.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

- All seven red marker lights are installed the same way.
- Perform Steps (213) through (217) for marker light with lamp.
- Perform Steps (219) through (223) for marker light with LED.

(213) Install gasket (250), marker light assembly (251), two screws (252), wire 489 (253), ground wire 1435 (254) and two locknuts (255) on rear bracket (231).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

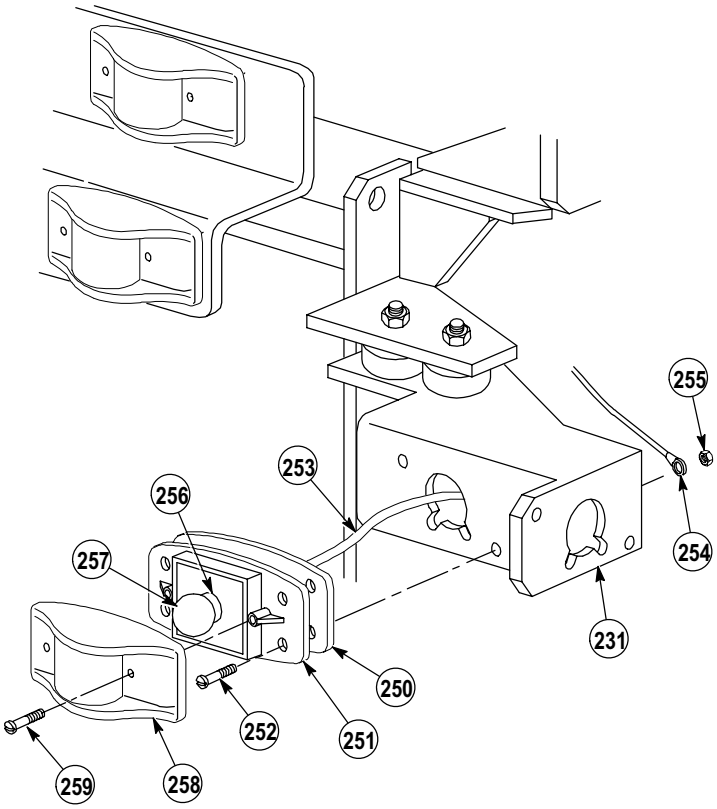
(214) Apply anti-corrosion silicone compound to inside of lamp socket (256).

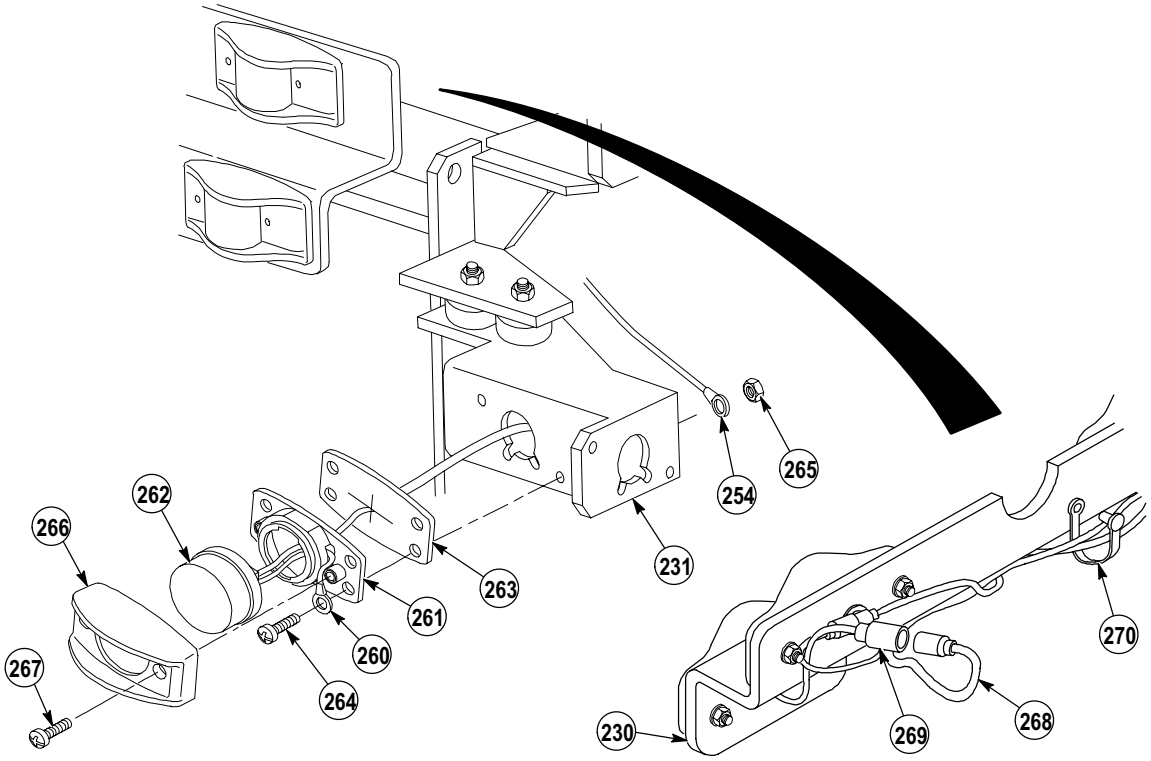
(215) Install lamp (257) in lamp socket (256).

(216) Install lens cover (258) with two screws (259) in marker light assembly (251).

(217) Apply corrosive preventive compound to ground wire 1435 (254).

(218) Repeat Steps (213) through (217) for remaining marker light assemblies (251).





(219) Position ground wire 1435 (260) through hole in marker light assembly (261).

(220) Install LED (262) in marker light assembly (261) and turn 1/4 turn clockwise.

(221) Install gasket (263), marker light assembly (261), two screws (264), ground wire (260), ground wire 1435 (254) and two locknuts (265) on rear bracket (231).

(222) Install lens cover (266) with two screws (267) in marker light assembly (261).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water for at least 15 minutes and get immediate medical attention.

(223) Apply corrosive preventive compound to ground wire 1435 (254).

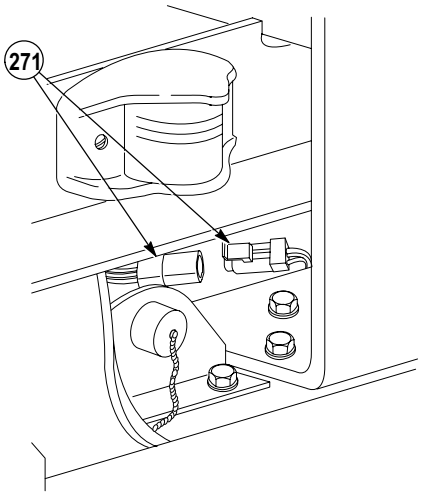
(224) Connect wire 1012 (268) to wire 489 (269).

(225) Repeat Steps (219) through (224) for remaining marker light assemblies (261).

(226) Position two push clips (270) on wires 489 (269).

(227) Install push clip (270) and two wires 489 (269) on rear marker light bar assembly (230).

(228) Connect MC90 connector (271).

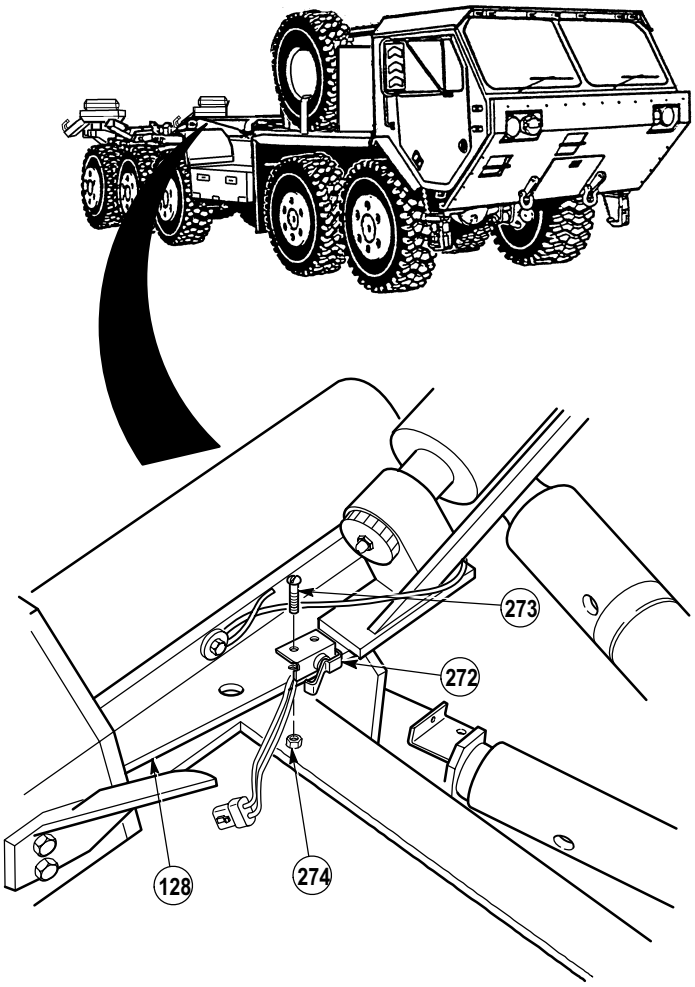


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

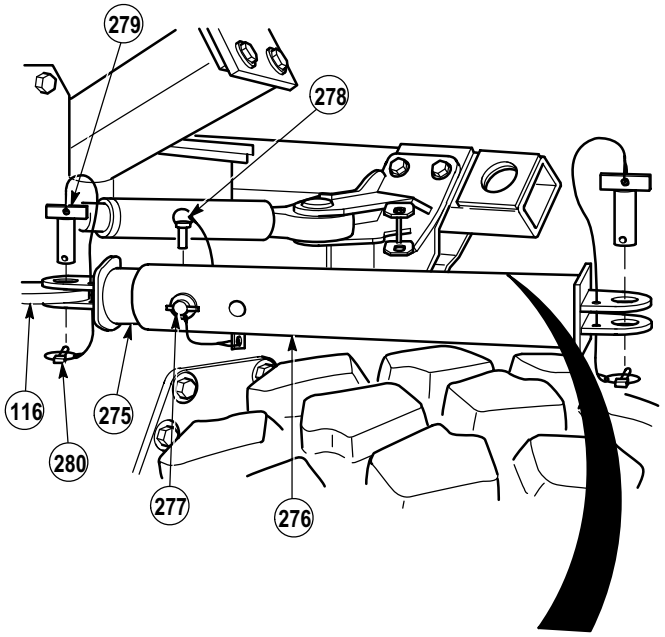
- Mode switch and hardware can be found in box D, pack no. 18 of CHU kit crate.
- Mode switch is installed on top of gusset of left rear roller bracket.

(229) Position mode switch (272) on left rear roller bracket (128) using two screws (273) and locknuts (274). Do not tighten.



NOTE

- Rear hard lift struts are in box D, pack no. 29 of CHU kit crate.
- Hard lift slider bracket, tether, swaging sleeve and pin are in box B, pack no. 37 and 38 of CHU kit crate.



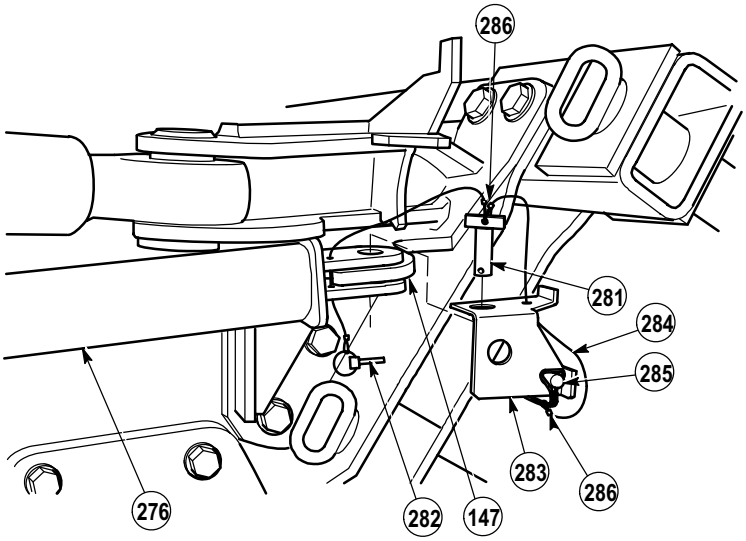
(230) Position rear hard lift strut (275) in front hard lift strut (276) and install pin (277) and quick disconnect pin (278).

(231) Install pin (279), quick disconnect pin (280) and rear hard lift strut (275) on rear roller bracket (116).

(232) Install pin (281), quick disconnect pin (282), hard lift slider bracket (283) and front hard lift strut (276) on strut bracket (147).

NOTE

Wire tether is properly installed when positioned through loop in snapper pin.



(233) Install wire tether (284) to snapper pin (285) with swaging sleeve (286).

(234) Install snapper pin (285) in hard lift slider bracket (283).

NOTE

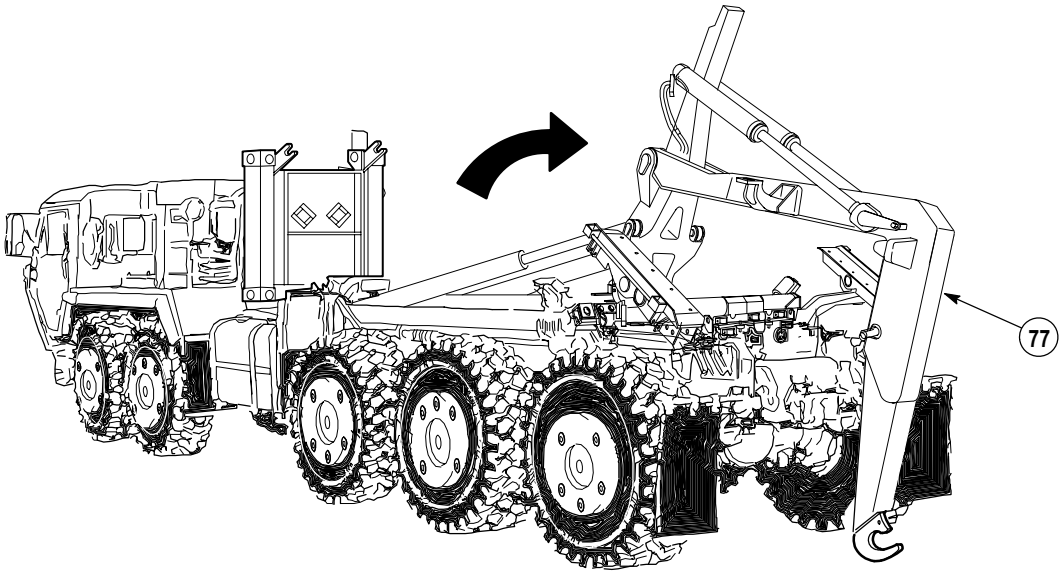
Wire tether is properly installed when positioned through front hole of hard lift slider bracket and hole in pin.

(235) Position wire tether (284) through hard lift slider bracket (283) and install to pin (281) with swaging sleeve (286).

(236) Install hard lift slider bracket (283) on front hard lift strut (276) and strut bracket (147) with pin (281) and quick disconnect pin (282).

(237) Repeat Steps (230) through (236) for left side of truck.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

Do not turn steering wheel with rear steering shaft disconnected, or if steering wheel is turned, steering may need realignment.

(238) Connect batteries (TM 9-2320-364-20).

(239) Start engine and extend hook arm (77) fully to take tension off of pivot point (TM 9-2320-364-10).

WARNING

- Hook arm weighs 1,100 lbs (499 kg). Attach suitable lifting device to prevent possible injury to personnel.
- Ensure hook arm is supported with lifting device during installation to prevent possible injury to personnel.

(240) Attach lifting device to hook arm (77).

(241) Ensure hook arm (77) is positioned fully to left side of truck. Use a pry bar if needed.

WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

NOTE

- Shim is .0747 in. (1.9 mm) thick. Add one shim per every .0747 in. (1.9 mm) gap between inside lip and hook arm.
- Only add shim if area between inside lip and hook arm exceeds .0747 in. (1.9 mm).
- Perform Steps (243) through (246) if shim(s) are required.

(242) Measure distance between hook arm (77) and inside lip (287) of middle frame (288). Record as measurement “A”.

(243) With the aid of an assistant, support hook arm (77) and remove retaining ring (289) from left side of pivot pin (290).

NOTE

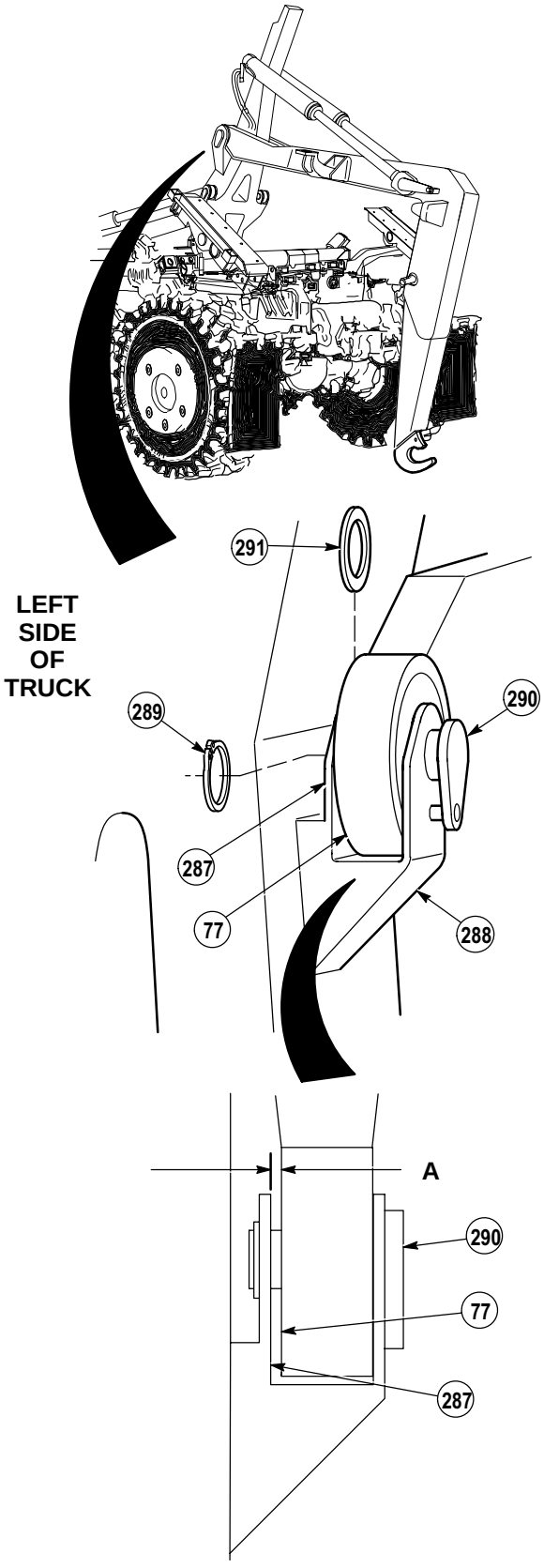
- Shims can be found in box D, pack no. 15 of CHU kit crate.
- Do not completely remove pivot pin.

(244) Partially remove left side pivot pin (290) until shim(s) (291) can be installed between hook arm (77) and middle frame (288).

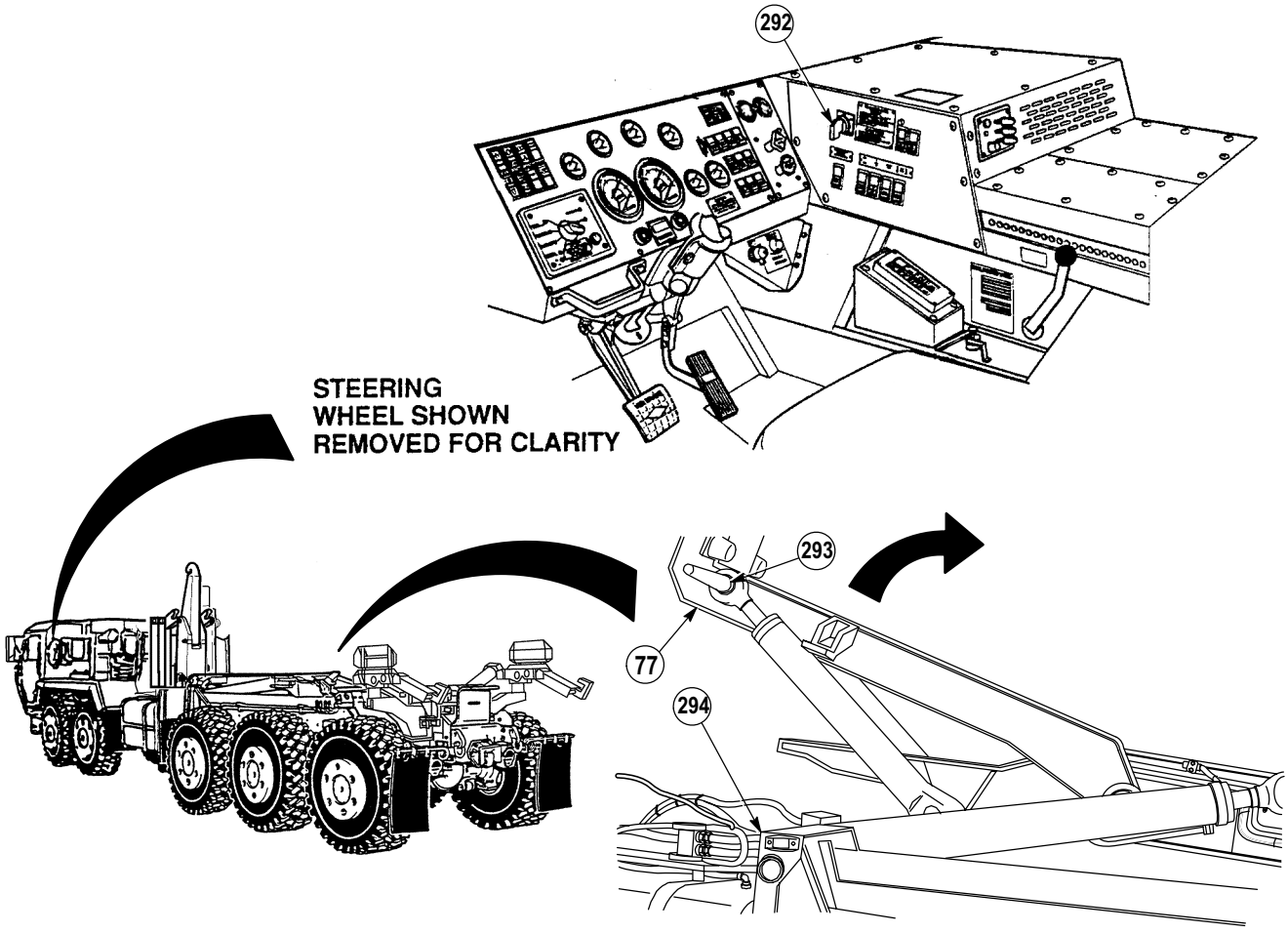
(245) Position shim(s) (as required) (291) between inside lip (287) of middle frame (288) and hook arm (77).

(246) Install left side pivot pin (290) through shim(s) (291) and inside lip (287) and install retaining ring (289).

(247) Remove lifting device from hook arm (77).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

LHS is being raised to expose area to install sensor plate.

(248) Start engine and stow LHS (TM 9-2320-364-10).

CAUTION

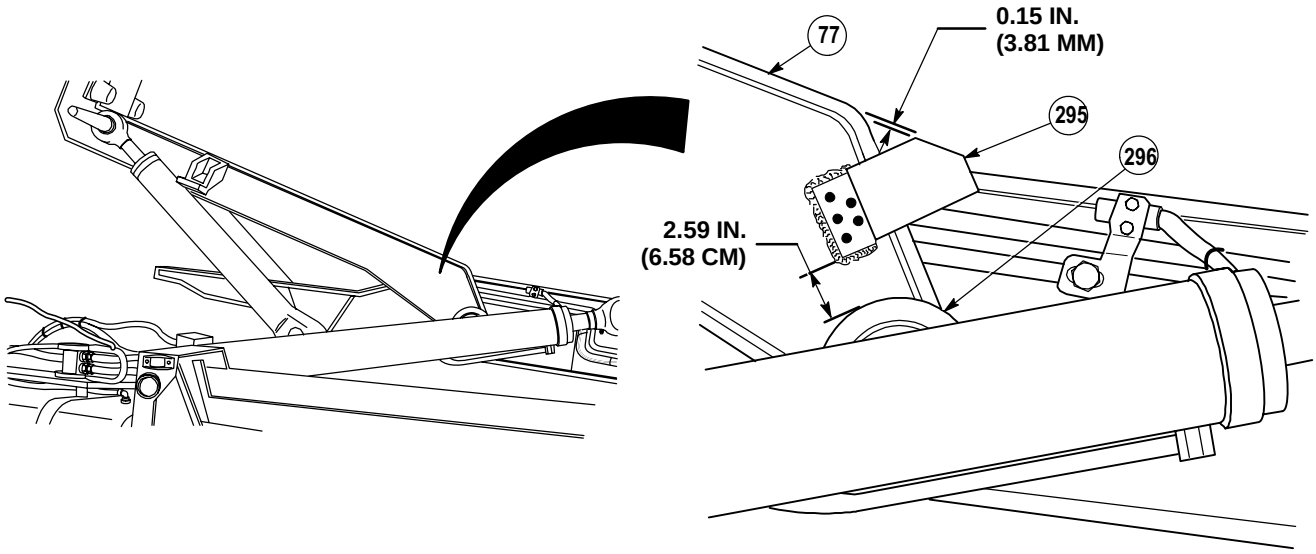
Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(249) Set hydraulic selector switch (292) to MAN H.A. and raise hook arm (77) until hook arm cylinder pivot pin (293) is 25 in. (63.5 cm) from main frame (294).

(250) Set hydraulic selector switch (292) to MAN M.F. and raise main frame (294) until hook arm cylinder pivot pin (293) is 45 in. (114.3 cm) from main frame (294).

(251) Shut OFF engine.

(252) Disconnect batteries (TM 9-2320-364-20).



WARNING

CARC paint contains isocyanate (HDI) which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

- ALWAYS use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.
- DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, etc.).
- DO NOT use CARC paint without adequate ventilation.
- NEVER weld or cut CARC-coated materials.
- DO NOT grind or sand painted equipment without high-efficiency air purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.

NOTE

Sensor plate can be found in box D, pack no. 17 of CHU kit crate.

(253) Measure and mark an area on hook arm (77) for sensor plate (295) to be mounted as shown.

(254) Grind off paint in area marked in Step (253) for sensor plate (295) to be mounted.

(255) Mark hook arm (77) 2.59 in. (6.59 cm) from boss (296) on hook arm.

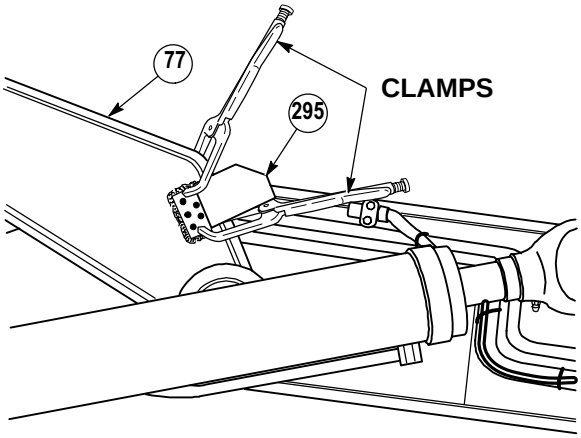
(256) Align sensor plate (295) 0.15 in. (3.81 mm) below top edge of hook arm (77).

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(257) Position sensor plate (295) with two clamps on hook arm (77) as shown.

(258) Mark line around sensor plate (295) on hook arm (77).

(259) Remove two clamps and sensor plate (295) from hook arm (77).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Epoxy and mixing stick can be found in box A, pack no. 2 of CHU kit crate.
- Mix epoxy according to directions on package.

(260) Mix epoxy supplied with CHU kit and apply to sensor plate (295) and hook arm (77).

NOTE

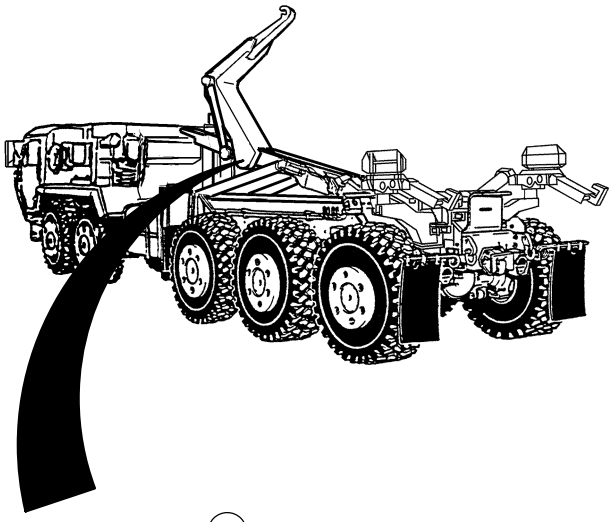
Epoxy takes approximately 15 minutes to cure.

(261) Clamp sensor plate (295) to hook arm (77) in position marked until cured.

(262) Remove clamps from hook arm (77).

(263) Prime and paint area as necessary (TM 43-0139).

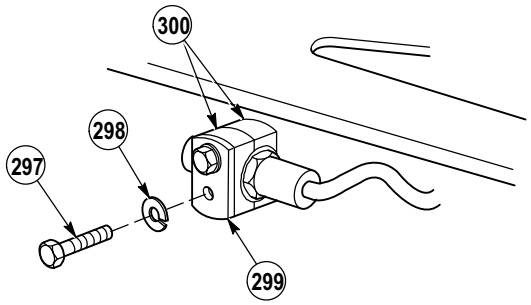
(264) Remove two screws (297), lockwashers (298) and plate (299) from two clamp halves (300). Discard lockwashers and plate.



NOTE

- Mounting plate can be found in box D, pack no. 22 of CHU kit crate.
- Proximity switch can be found in box D, pack no. 20 of CHU kit crate.

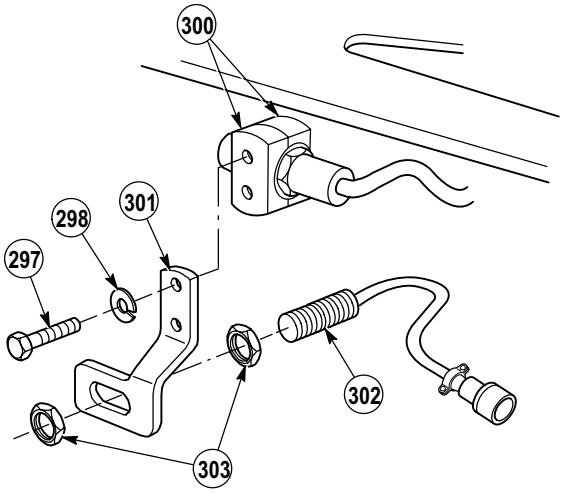
(265) Install two screws (297), lockwashers (298) and proximity switch mount (301) on two clamp halves (300).



NOTE

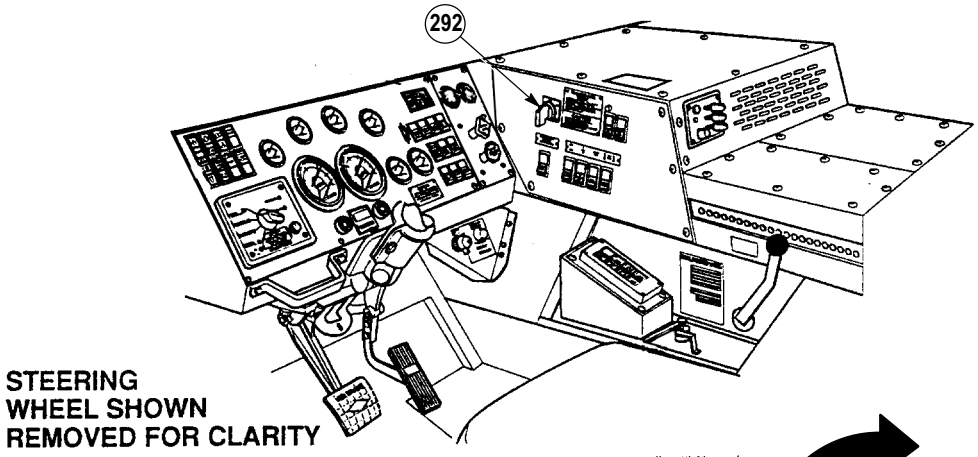
Proximity switch is properly positioned when two threads extend past edge of nut.

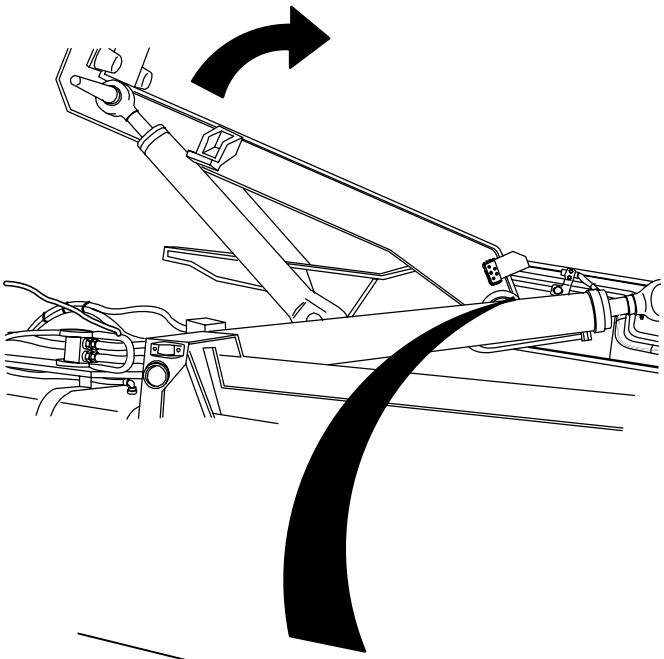
(266) Position CHU hook up arm proximity switch (302) and two nuts (303) on proximity switch mount (301).



(267) Connect batteries (TM 9-2320-364-20).

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



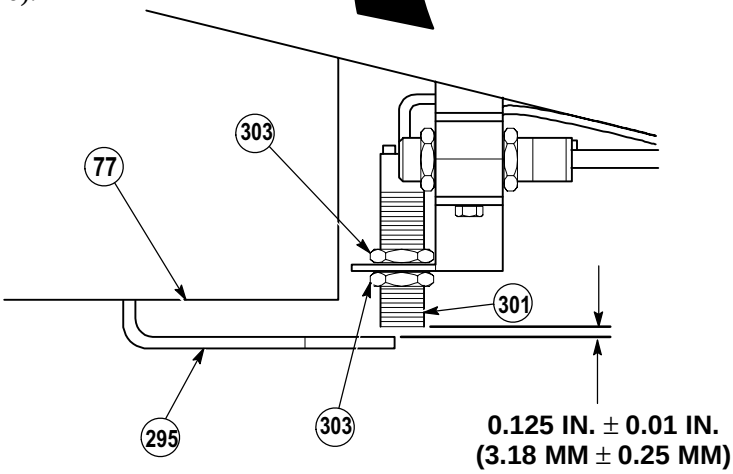


(268) Start engine, set hydraulic selector switch (292) to MAN H.A. and raise hook arm (77) until sensor plate (295) covers approximately half of proximity switch (302) (TM 9-2320-364-10).

(269) Shut OFF engine.

(270) Using feeler gage, adjust clearance between CHU proximity switch (302) and sensor plate (295) to 0.125 in. ± 0.01 in. (3.18 mm ± 0.25 mm) and tighten nuts (303).

(271) Disconnect batteries (TM 9-2320-364-20).



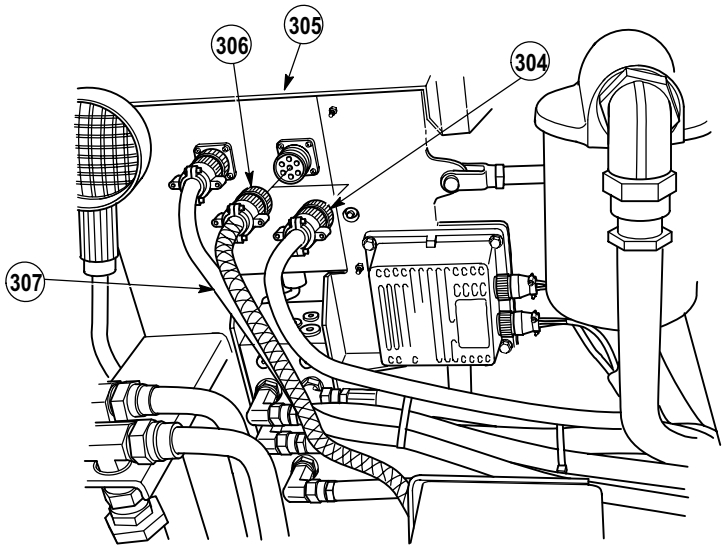
NOTE

- Cut existing cable ties as necessary for routing wire harnesses.
- Jumper harness and cable ties can be found in box D, pack no. 16 of CHU kit crate.
- CHU harness can be found in box D, pack no. 19 of CHU kit crate.

(272) Disconnect MC85 connector (304) from LHS main junction box (305).

(273) Connect wire jumper harness MC81 connector (306) to LHS main junction box (305).

(274) Position wire jumper harness (307) and MC85 connector (304) along existing wire harness to CHU electrical box (308).



CAUTION

Keep wires away from prop shaft or damage to wire harness may result.

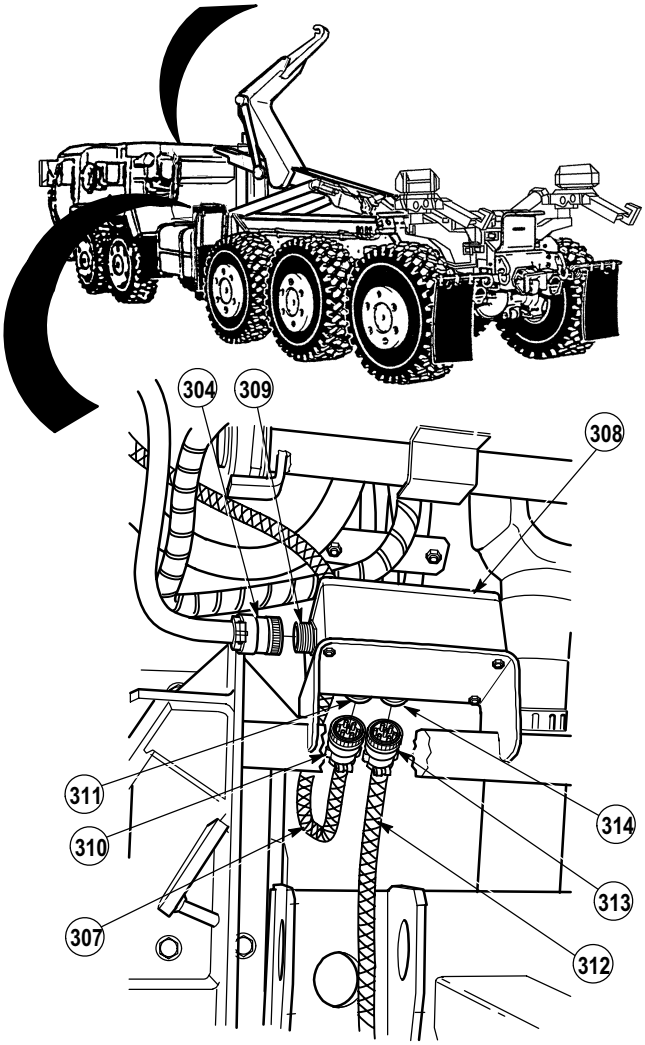
NOTE

Existing wire harness on truck plugs into side of CHU electrical box.

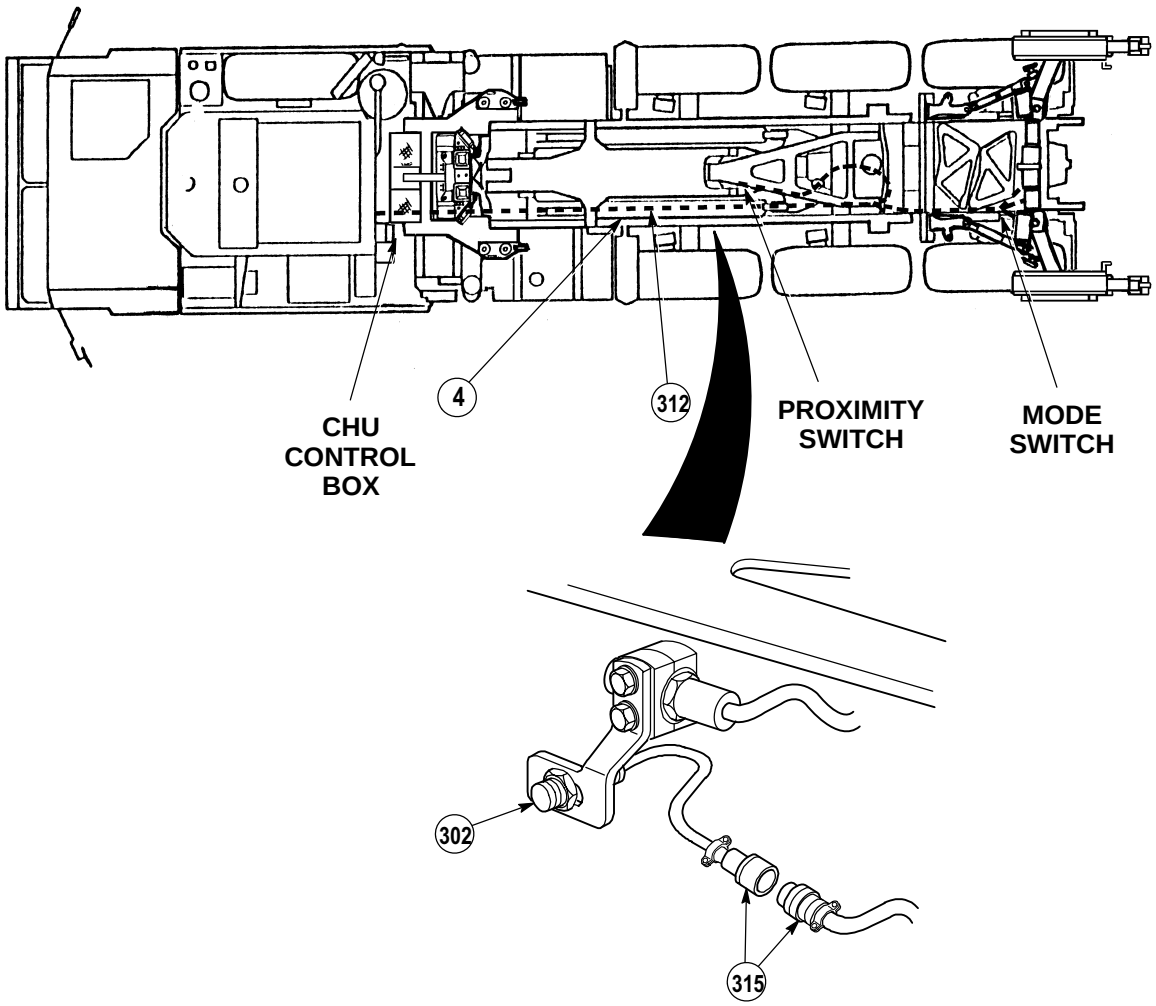
(275) Connect MC85 connector (304) to CHU electrical box MC82A connector (309).

(276) Connect wire jumper harness MC82 connector (310) to CHU electrical box MC82B connector (311).

(277) Connect CHU wire harness (312) MC185 connector (313) to CHU electrical box MC185 connector (314).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

- Position wire harness under crossmember if difficult to feed through crossmember holes.
- It may be necessary to remove existing clamps and hydraulic lines to route CHU wire harness.
- It may be necessary to raise or lower LHS to aid in CHU wire harness installation (TM 9-2320-364-10).

(278) Position CHU wire harness (312) along frame (4) and existing wire harnesses.

(279) Connect connector MC188 (315) to hook up arm proximity switch (302).

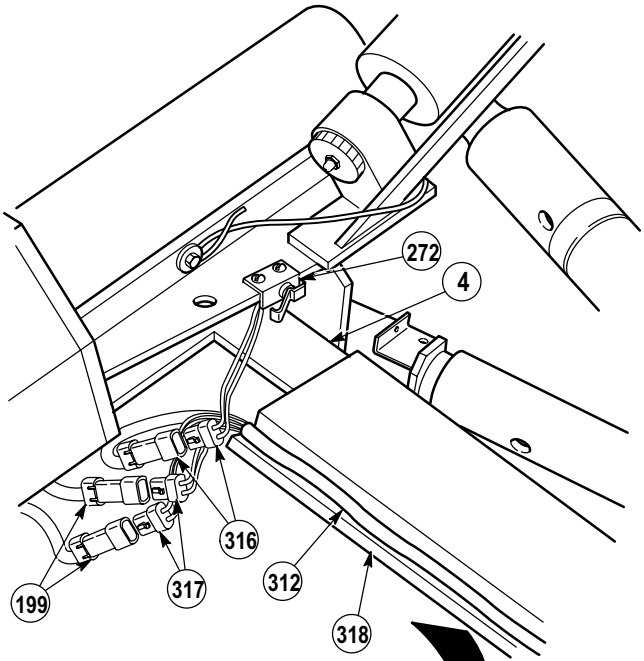
(280) Position CHU wire harness (312) with MC189 connector (316) and two MC190 connectors (317) along inside of frame (4) and in groove of left hardlift deck bracket (318).

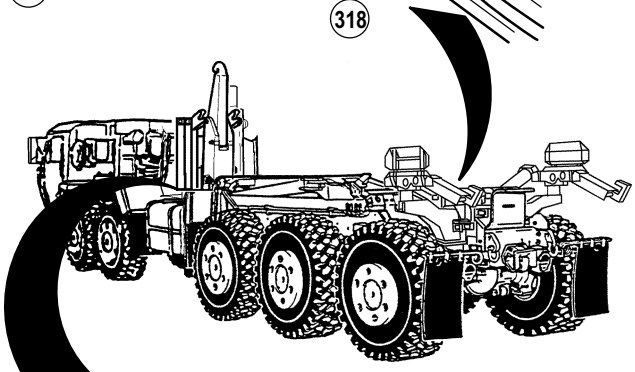
NOTE

Position wires so they are supported by switch.

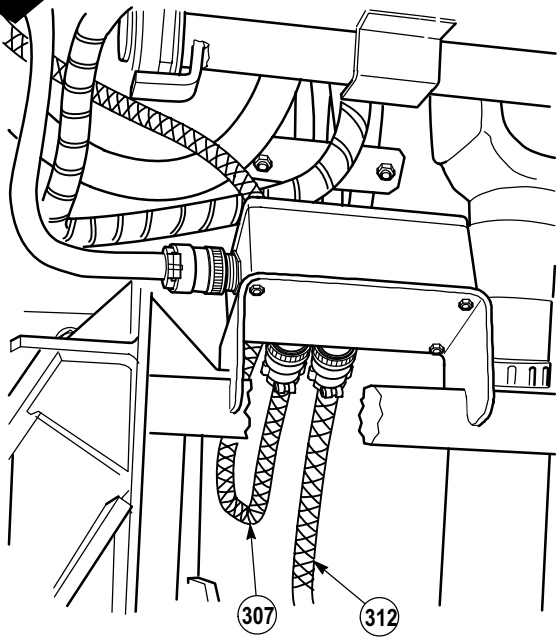
(281) Connect MC189 connector (316) to mode switch (272).

(282) Connect two connectors MC190 (317) to right and left rear lock limit switch (199).

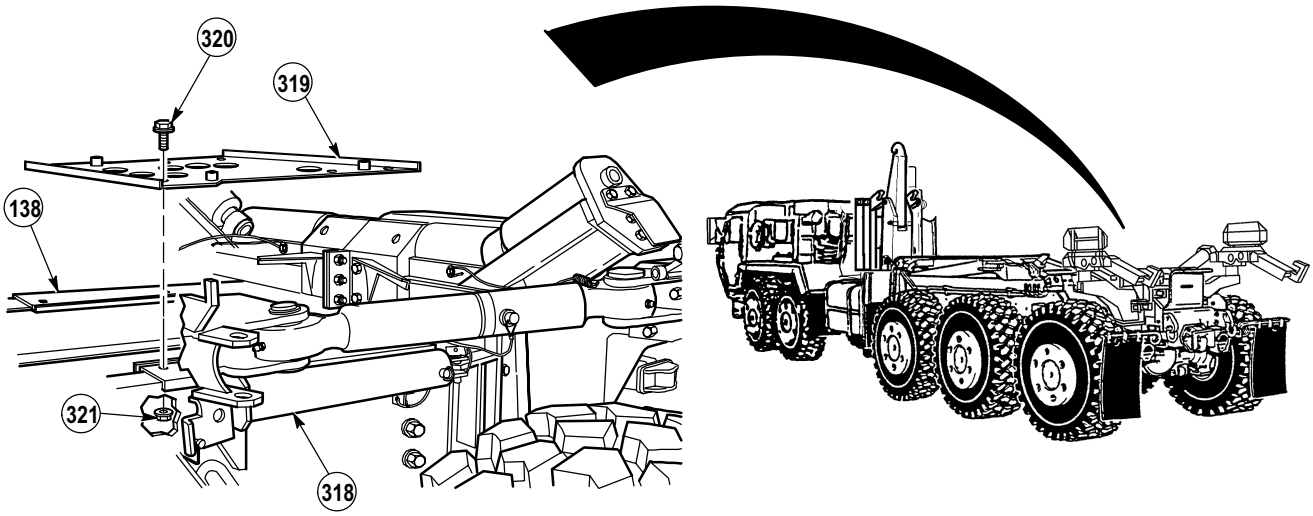




(283) Install cable ties along CHU wire harness (312) and jumper wire harness (307) as required.



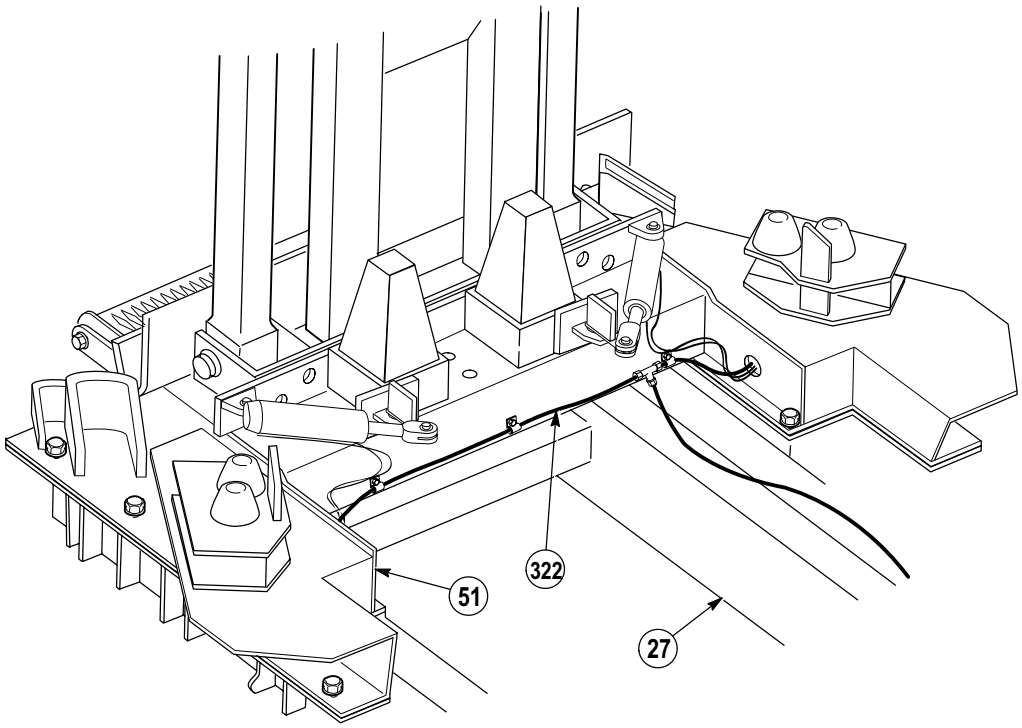
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

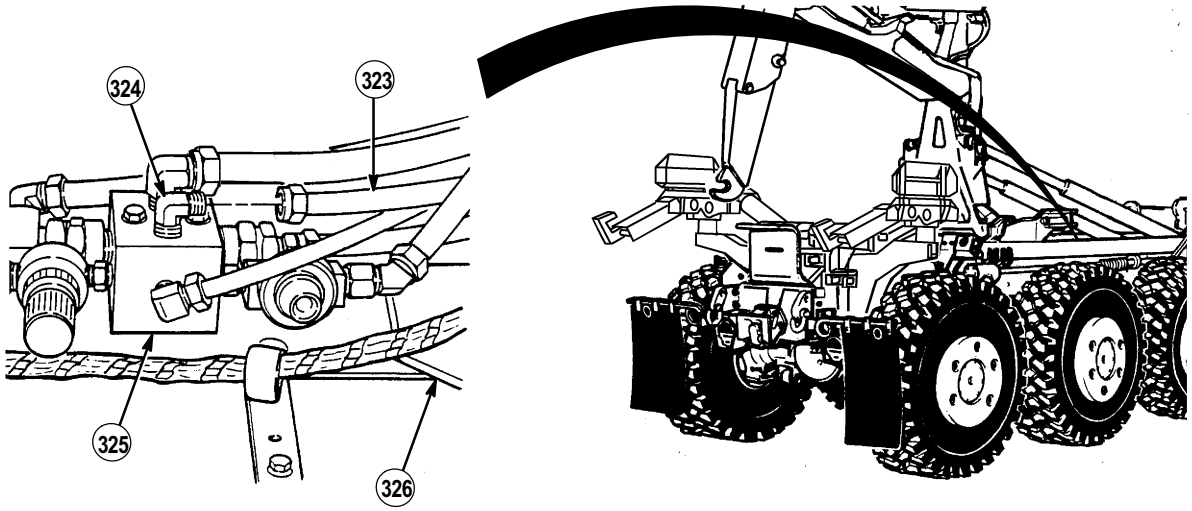
Locknuts and screws can be found in box D, pack no. 28 of CHU kit crate.

(284) Install deck assembly (319) on left hardlift deck bracket (318) and right hardlift deck bracket (138) with six screws (320) and locknuts (321).



(285) Drain air system (TM 9-2320-364-10).

(286) Unwrap and position air supply line 2501 (322) from front support assembly (51) along frame (27) towards rear of truck.

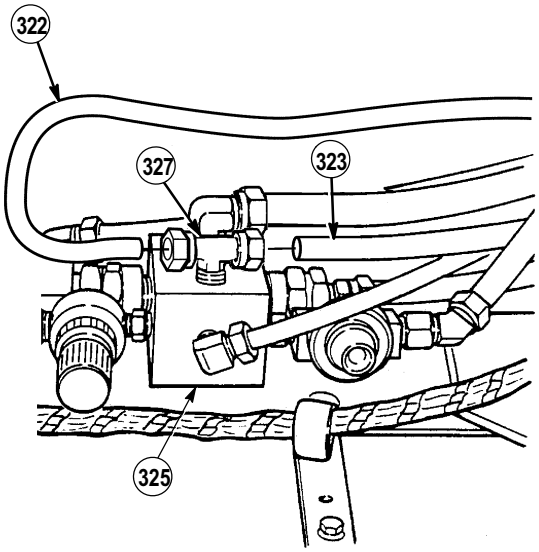


(287) Remove air line 2133 (323) and elbow (324) from air manifold (325) on crossmember (326). Discard elbow.

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.



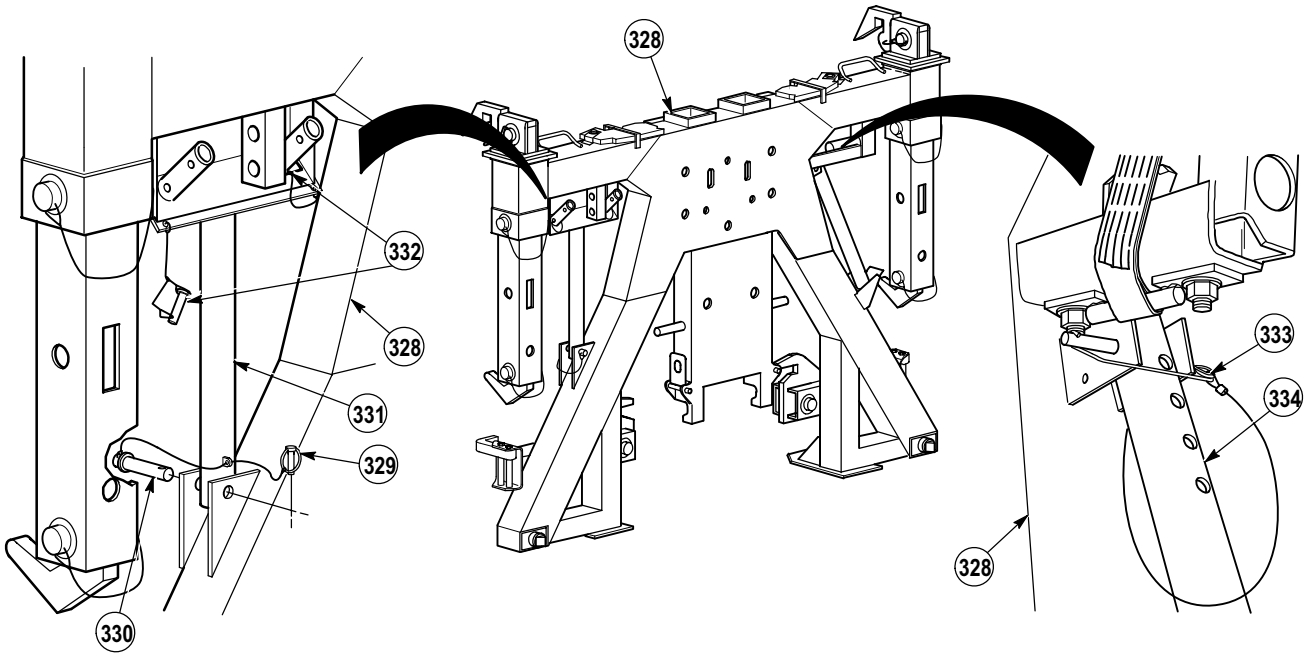
(288) Apply sealing compound on threads of tee (327).

(289) Install tee (327) on air manifold (325).

NOTE

Air line should be cut to remove excess without kinking line.

(290) Cut end of air supply line 2501 (322) and air line 2133 (323) and install on tee (327).



WARNING

Lifting frame weighs 1,600 lbs (704 kg). Attach suitable lifting device prior to installation to prevent possible injury to personnel.

(291) Attach lifting device to lifting frame (328).

(292) With the aid of an assistant, lift lifting frame (328) and remove quick release pin (329) and pin (330) from upper strut (331).

(293) Remove two quick release pins (332) and upper strut (331) from lifting frame (328).

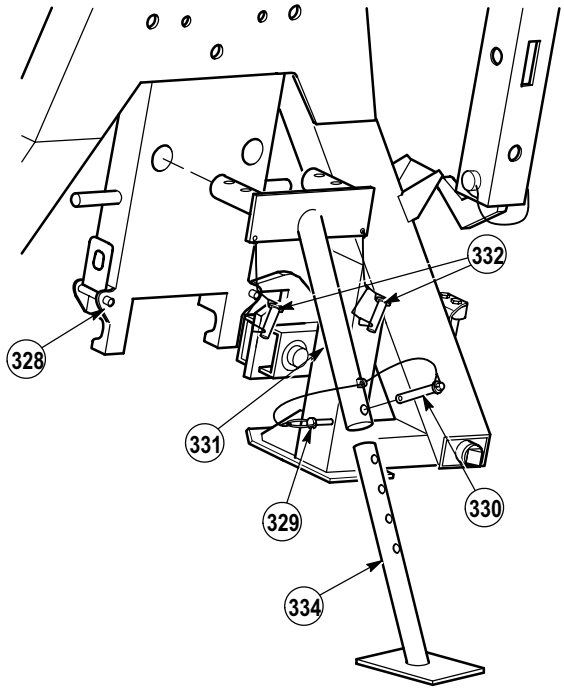
(294) Install upper strut (331) on lifting frame (328) with two quick release pins (332).

(295) Remove quick release pin (333) and lower strut (334) from lifting frame (328).

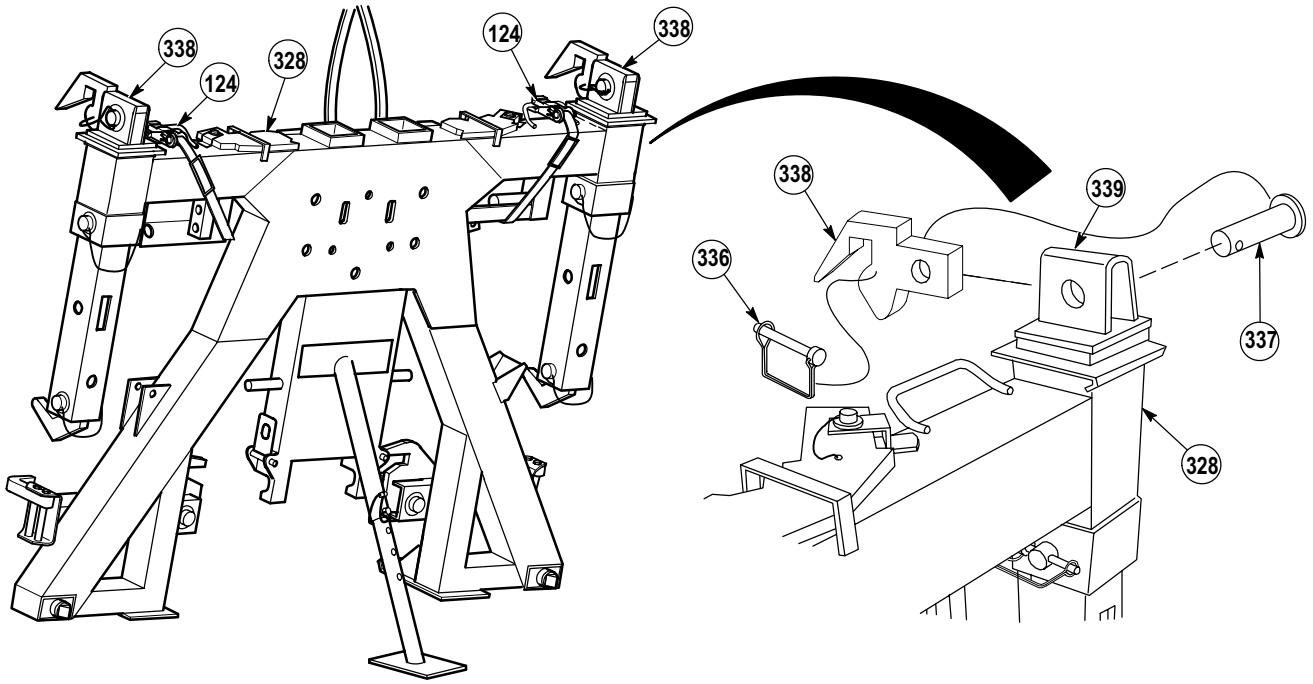
NOTE

When installing lower strut, use second pin hole, adjust as necessary.

(296) Install lower strut (334) on upper strut (331) and with pin (330) and quick release pin (329).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



NOTE

Position lifting frame on the ground so PLS can lift with the hook arm.

(297) Lower lifting frame (328) to the ground.

(298) Remove lifting device from lifting frame (328).

(299) Install two screws (133), locknuts (134) and strap (124) on lifting frame (328).

(300) Attach hook end of strap (124) to lifting frame (328) strap stow bar (335).

(301) Remove lock pin (336), pin (337) and hook (338) from front of slide arm (339).

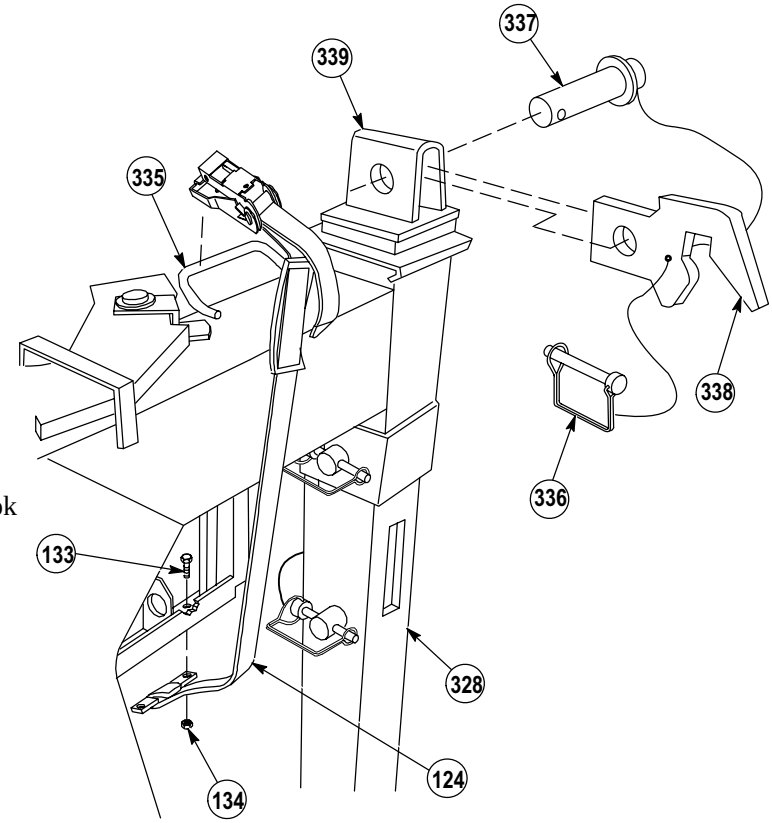
NOTE

Both hooks are removed and installed the same way. Right side shown.

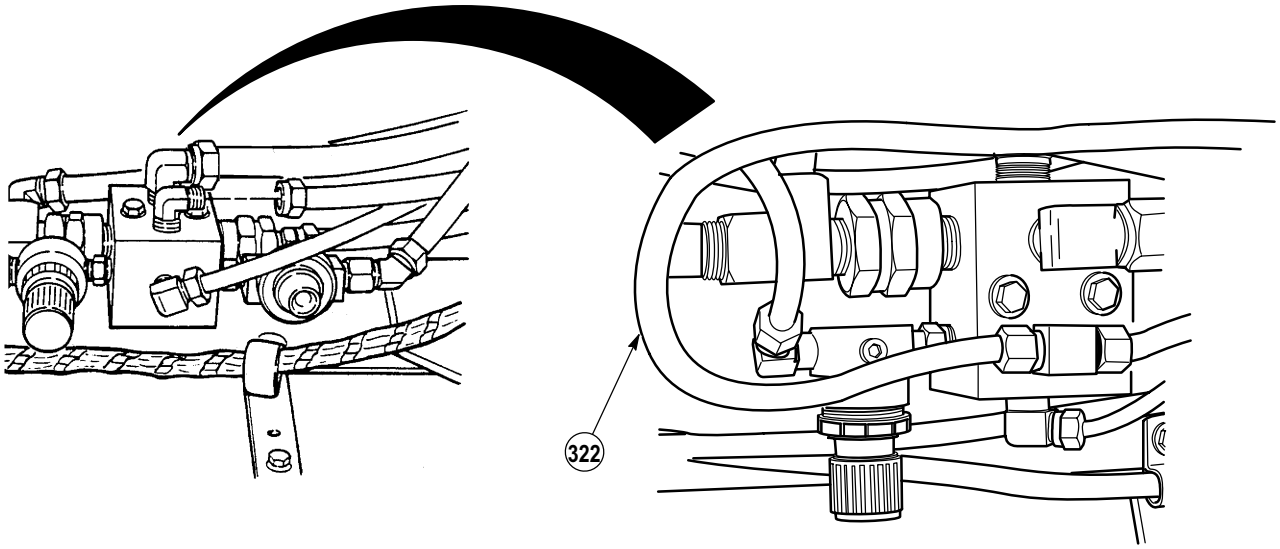
(302) Install hook (338), pin (337) and lock pin (336) in back of slide arm (339).

(303) Repeat Steps (299) through (302) for left side.

(304) Install gear reducer (Para 12-6).



b. Adjustment.

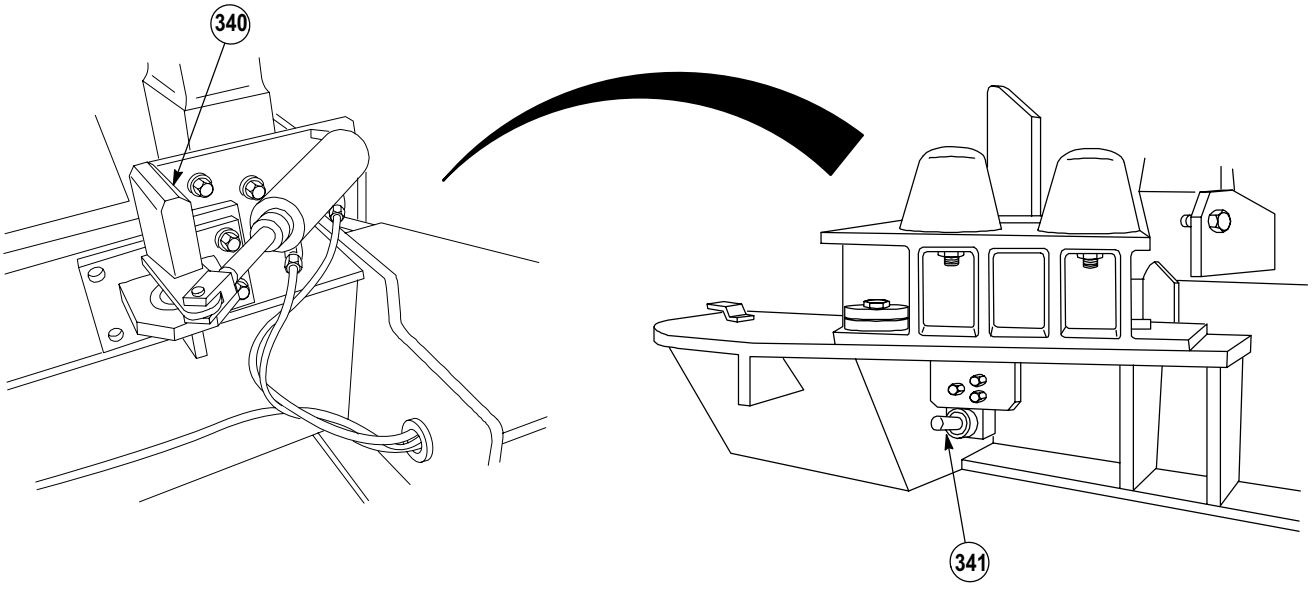


(1) Connect batteries, (TM 9-2320-364-20).

(2) Start engine (TM 9-2320-364-10).

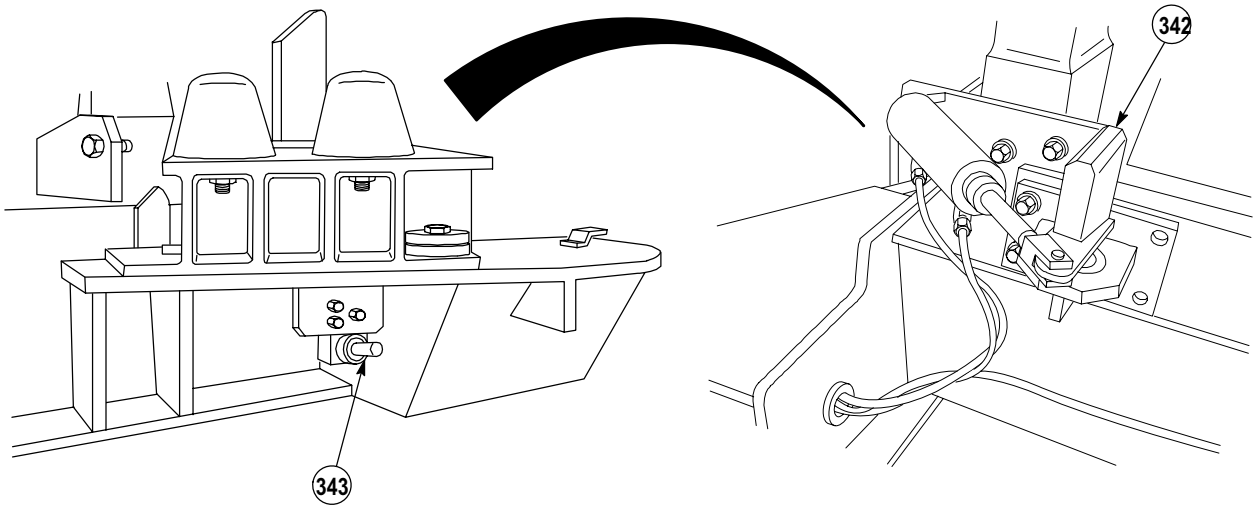
(3) Build air pressure to 125 psi (861 kPa).

(4) Check air line 2501 (322) for leaks.



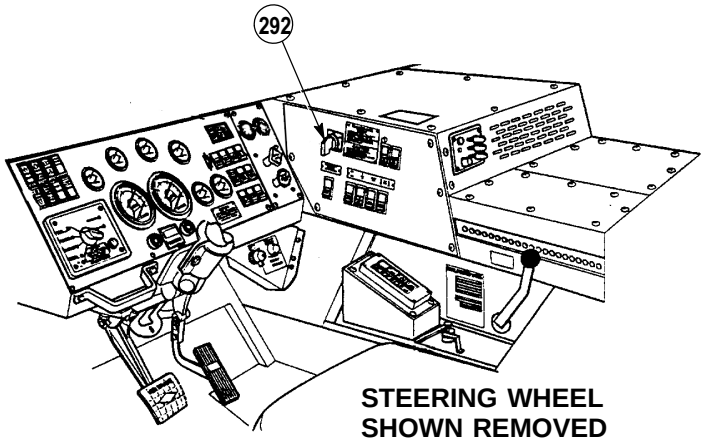
(5) Check right rotary paddle (340) to ensure rotation using right lock valve (341).

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).



(6) Check left rotary paddle (342) to ensure rotation using left lock valve (343).

(7) Shut OFF engine.



STEERING WHEEL SHOWN REMOVED FOR CLARITY

(8) Configure lifting frame (328) for stowing. Refer to installing lifting frame on PLS truck in flatrack mode (TM 9-2320-364-10).

(9) Start engine (TM 9-2320-364-10).

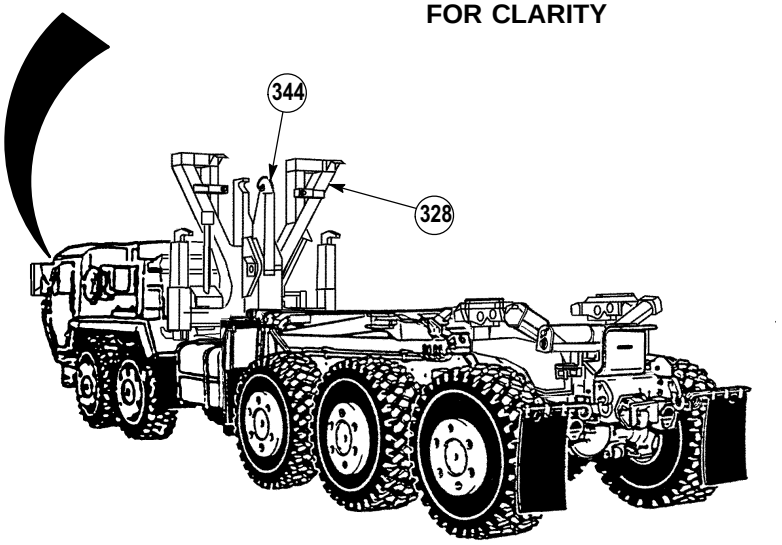
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(10) Set hydraulic selector switch (292) to AUTO and extend LHS (TM 9-2320-364-10).

(11) Extend LHS (344) to lifting frame (328).

(12) Position lifting frame (328) on truck with LHS in stow mode (TM 9-2320-364-10).



NOTE

Lifting frame is properly stowed when completely seated on cone weldment.

(13) Ensure lifting frame (328) is completely seated on cone weldment (62).

NOTE

Perform Steps (14) and (15), as necessary, if lifting frame is not completely seated.

(14) Raise lifting frame (328) with LHS (344) approximately 12 in. (30 cm) then lower lifting frame on cone weldment (62).

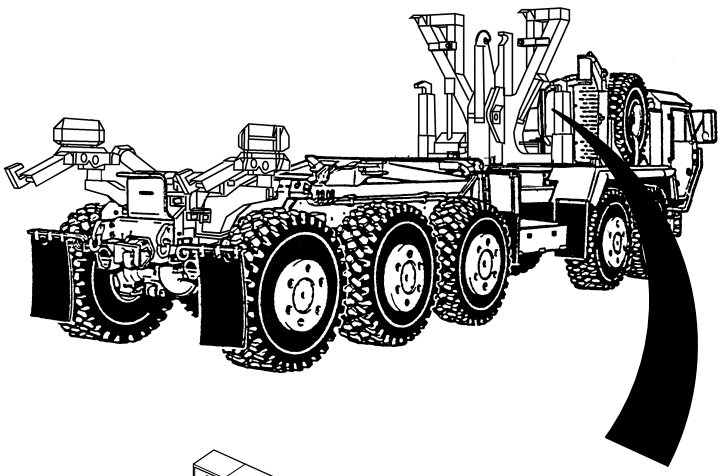
(15) Repeat Step (13).

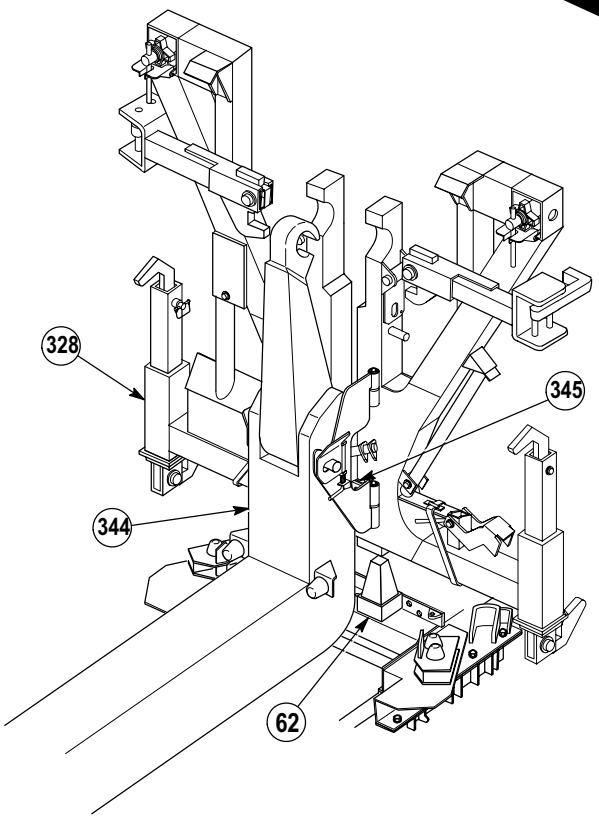
(16) Shut OFF engine.

NOTE

Ensure LF wear pads contact LHS hook arm.

(17) With the aid of an assistant, position lifting frame (328) towards rear of truck until LF wear pads (345) contact LHS.





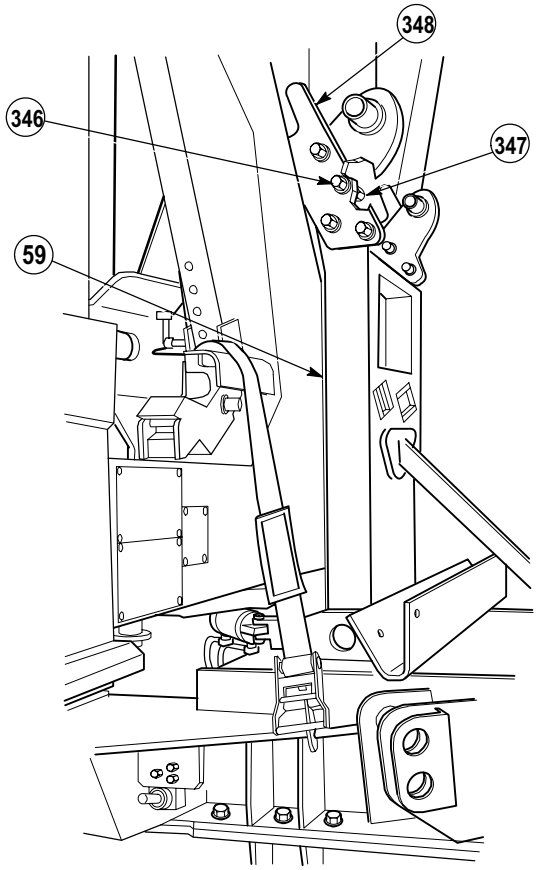
18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

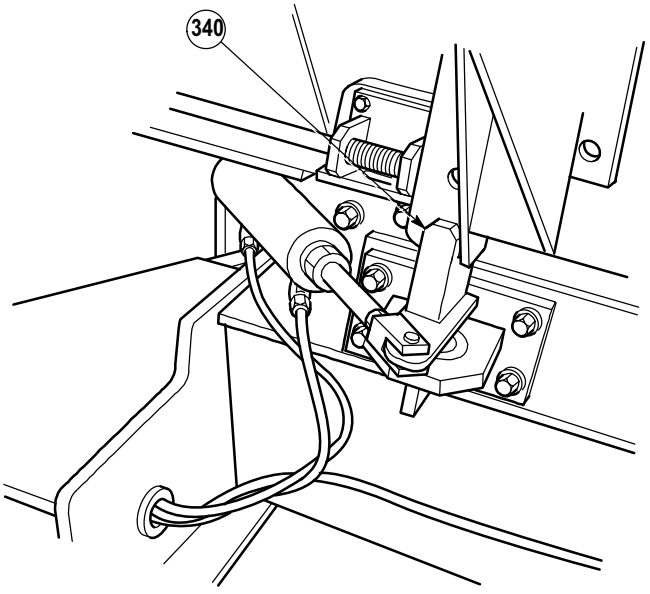
NOTE

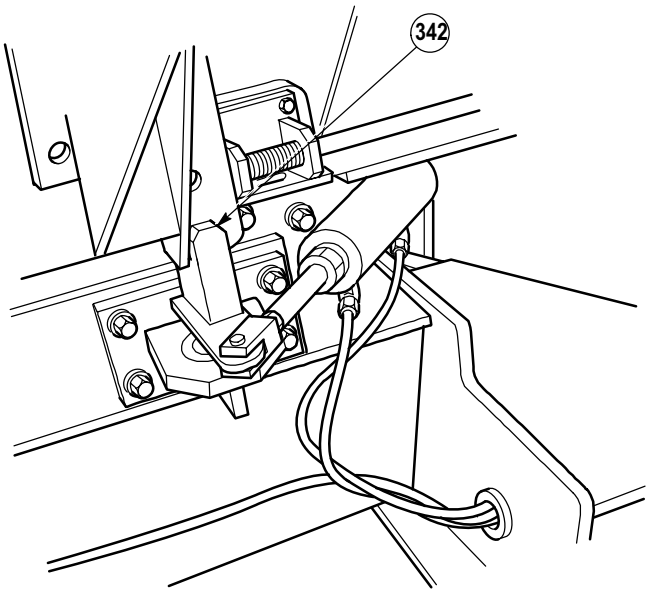
- Stow hooks are not tightened on stow weldment.
- Stow hook should have an even gap around LF pin.

(18) Tighten eight screws (346) and locknuts (347) on two hooks (348) and stow weldment (59).

(19) Verify LF wear pad gap to LHS hook arm is less than 1/8 in. (3.2 mm). If not repeat Steps (13) through (18).







(20) Operate right rotary paddle (340) and left rotary paddle (342) (TM 9-2320-364-10).

(21) If right rotary paddle (340) or left rotary paddle (342) bind, adjust rotary paddles (TM 9-2320-364-20).

(22) Position lifting frame in stowed position (TM 9-2320-364-10).

NOTE

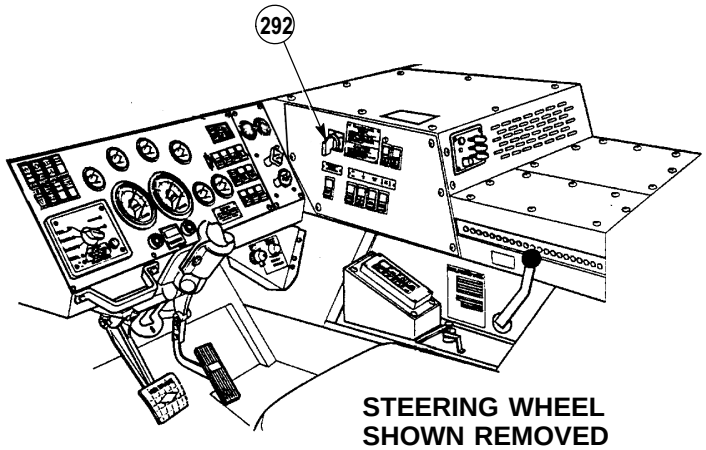
Ensure rear sliders are deployed in Step (23).

(23) Start engine (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(24) Set hydraulic selector switch (292) to AUTO.



STEERING WHEEL SHOWN REMOVED FOR CLARITY

NOTE

LHS may be extended approximately 12 in. (30 cm) after hook arm cylinder stops and main frame cylinder extends to make measurement in Step (27) easier.

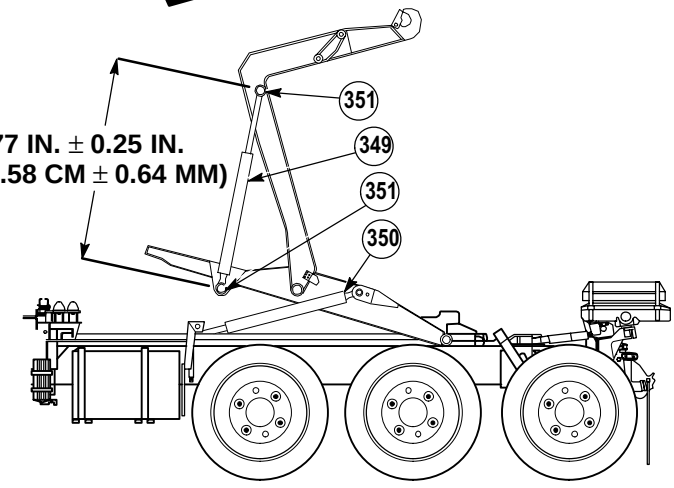
(25) Extend hook arm cylinder (349) until hook arm cylinder stops and main frame cylinders (350) starts to move.

(26) Shut OFF engine.

NOTE

- If measurement in Step (27) is 77 in. ± 0.25 in. (196 cm ± 0.64 mm), go to Step (33).
- If measurement in Step (27) is not 77 in. ± 0.25 in. (196 cm ± 0.64 mm), perform Steps (28) through (32).

(27) With the aid of an assistant, measure distance between center of two hook arm cylinder pivot pins (351).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

NOTE

- Moving proximity switch towards rear lengthens hook arm cylinder.
- Moving proximity switch towards front shortens hook arm cylinder.

(28) Loosen two nuts (303) on proximity switch (302) and move proximity switch as required.

(29) Tighten two nut (303) on proximity switch (302).

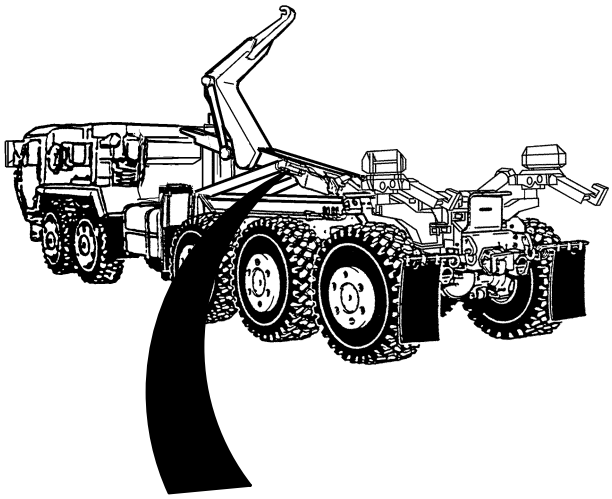
(30) Start engine and stow LHS (TM 9-2320-364-10).

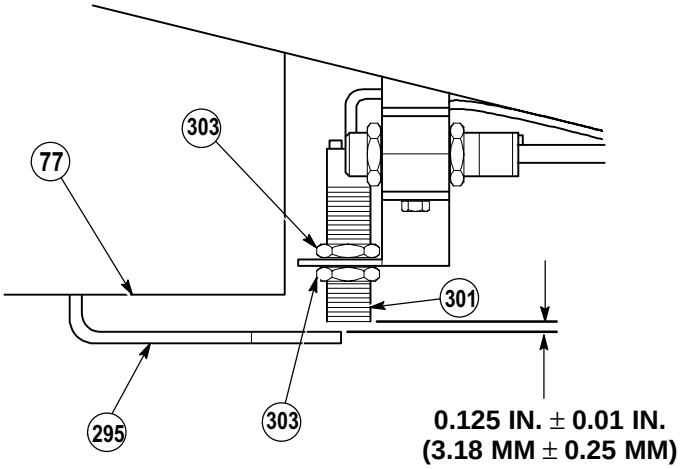
(31) Repeat Steps (25) through (28) until hook arm cylinder length is 77 in. ± 0.25 in. (196 cm ± 0.64 mm).

(32) Using feeler gage, adjust clearance between CHU proximity switch (302) and sensor plate (295) to 0.125 in. ± 0.01 in. (3.18 mm ± 0.25 mm) and tighten nuts (303).

(33) Start engine and stow LHS (TM 9-2320-364-10).

(34) Shut OFF engine.





(35) Remove lifting frame (328) from PLS truck in flatrack mode (TM 9-2320-364-10).

(36) Install lifting frame (328) on PLS truck in container mode (TM 9-2320-364-10).

(37) Measure gap between bail bar (352) and hook (353) as shown.

NOTE

- Both rubber bumpers are removed the same way. Right side shown.
- Shims and locknuts can be found in boxes D and F, pack no. 16 and 70 of CHU kit crate.
- Shims are 0.104 in. (2.7 mm) thick.
- Add shims to decrease clearance.
- Remove shims to increase clearance.
- If gap is not 0.38 in. ± 0.25 in. (9.65 mm ± 6.35 mm), perform Steps (38) through (46).
- If gap is 0.38 in. ± 0.25 in. (9.65 mm ± 6.35 mm), perform Step (47).

(38) Start engine (TM 9-2320-364-10).

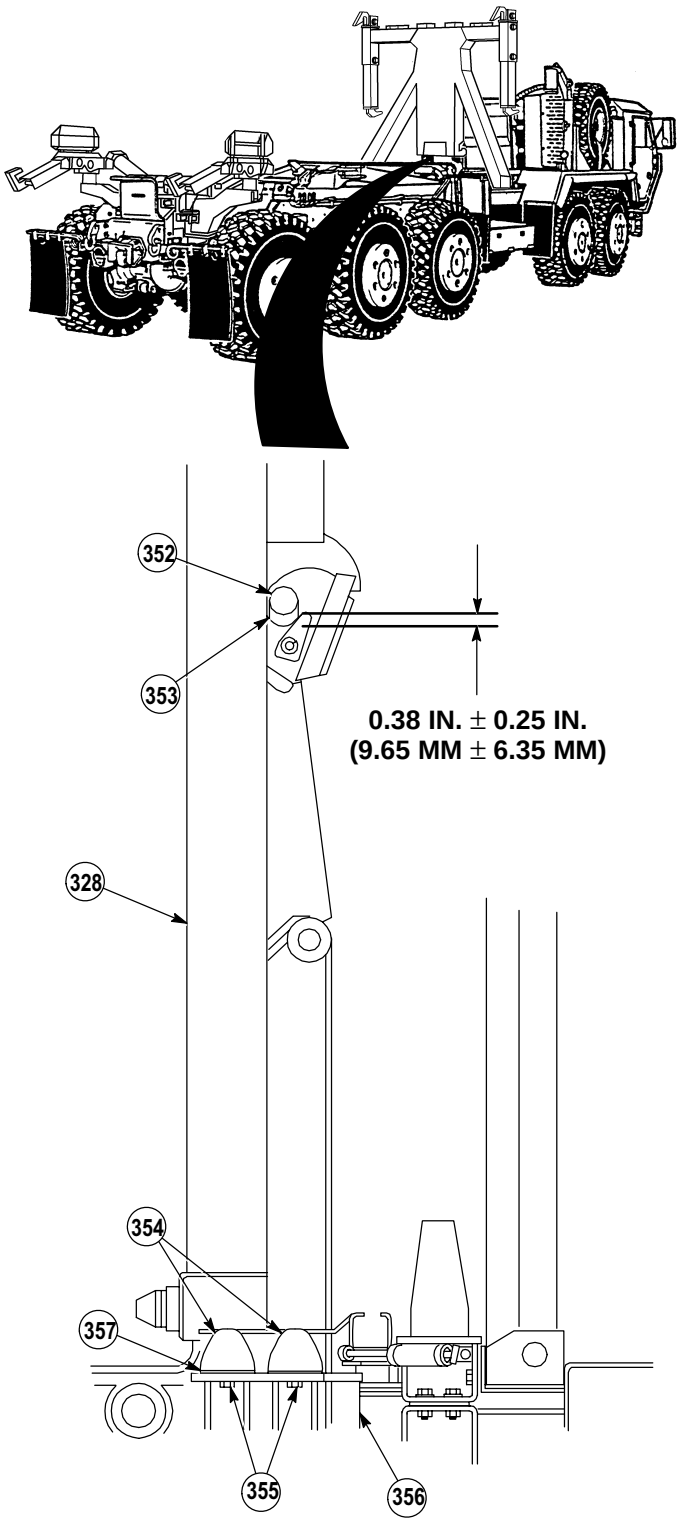
(39) Using LHS, raise lifting frame (328) approximately 12 in. (30 cm) off of rubber bumpers (354).

(40) Shut OFF engine.

(41) Remove two locknuts (355) and rubber bumpers (354) from bumper weldment (356). Discard locknuts.

(42) Install two rubber bumpers (354), shim(s) (357), as required, and two locknuts (355) on bumper weldment (356).

(43) Repeat Steps (41) and (42) for left side.



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(44) Start engine (TM 9-2320-364-10).

(45) Position lifting frame on cone weldment (TM 9-2320-364-10).

(46) Shut OFF engine (TM 9-2320-364-10).

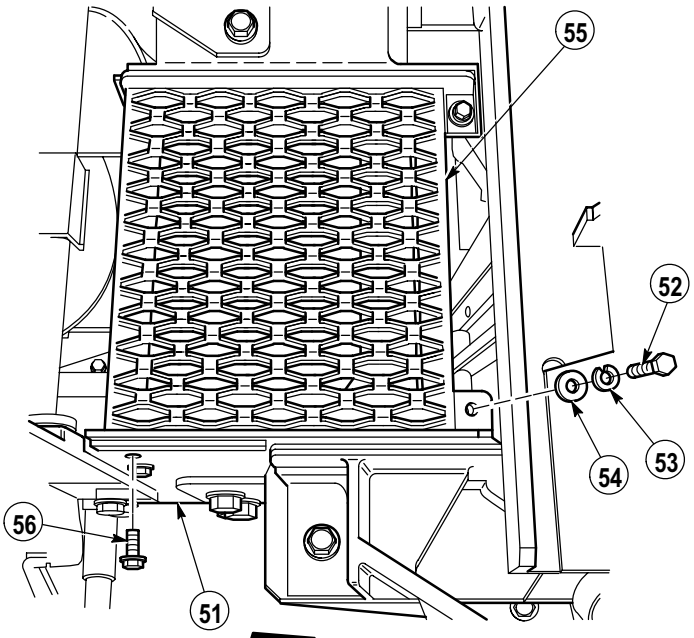
NOTE

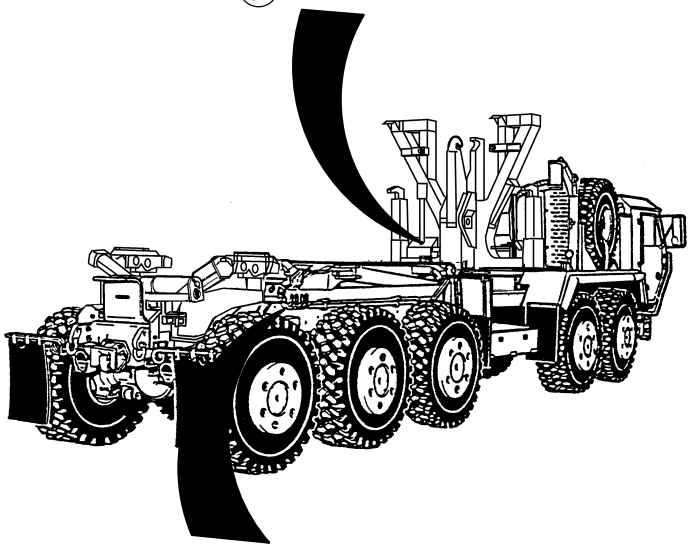
- Both deck weldments are installed the same way. Right side shown.
- Lockwashers can be found in box F, pack no. 70 of CHU kit crate.

(47) Position deck weldment (55) on front support assembly (51) and install two screws (52), lockwashers (53) and washer (54).

(48) Tighten two screws (56) on front support assembly (51).

(49) Repeat Steps (47) and (48) for left side.



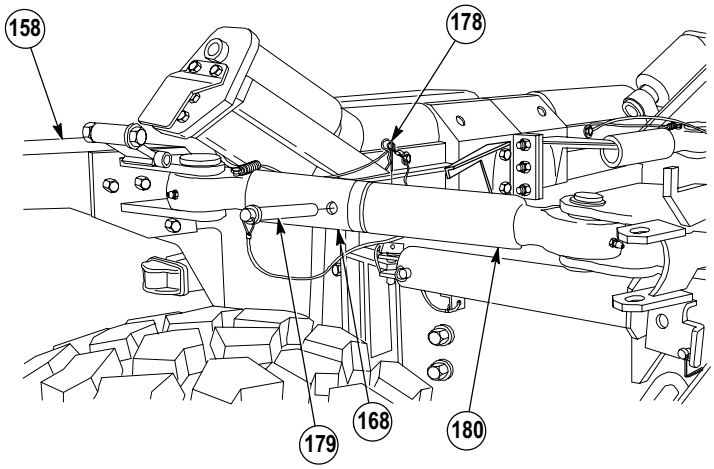


NOTE

- Ensure slider arm is deployed.
- Both flip lock brackets are adjusted the same way. Right side shown.

(50) Remove quick release pin (178) and pin (179) from short strut (168) and long strut (180).

(51) With the aid of an assistant and using handle of arm assembly (158), rotate arm assembly out and separate short strut (168) from long strut (180).



(52) With assistant holding arm assembly (158) out, position flip lock (209) up.

(53) Measure gap between stop bolt (358) and right rear roller bracket (125).

NOTE

- If gap is not 3/8 in. ± 1/8 in. (9.5 mm ± 3.2 mm), perform Steps (54) and (55).
- If gap is 3/8 in. ± 1/8 in. (9.5 mm ± 3.2 mm), go to Step (57).

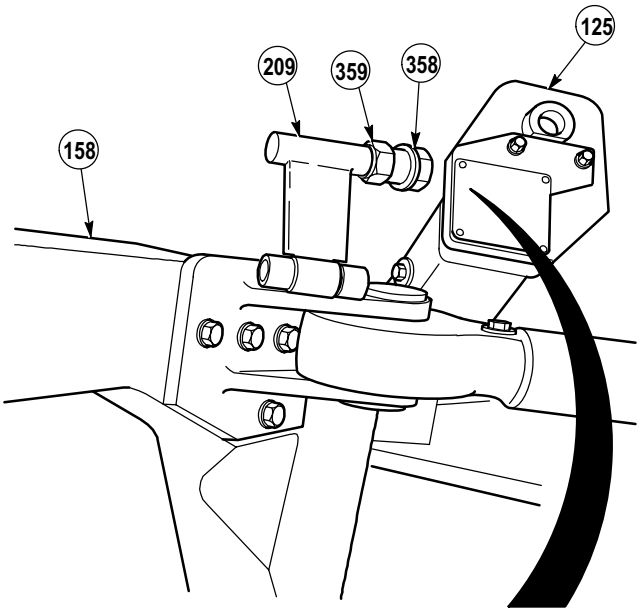
(54) Loosen jam nut (359) and adjust stop bolt (358) as required.

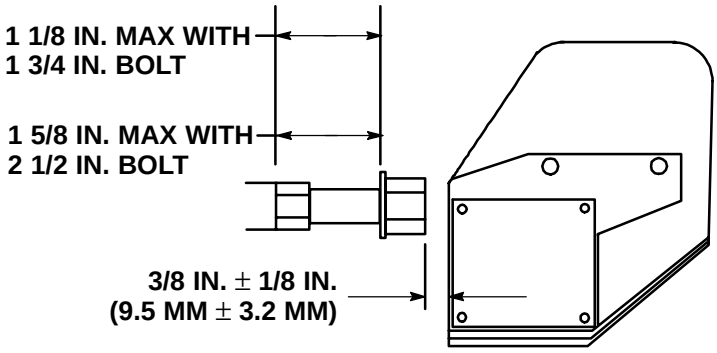
(55) Tighten jam nut (359) on stop bolt (358).

NOTE

Longer bolts for flip lock, 2 1/2 in., can be found in box F, pack no. 70 of CHU kit crate.

(56) If proper adjustment could not be made repeat Steps (52) thru (55) using longer bolt.



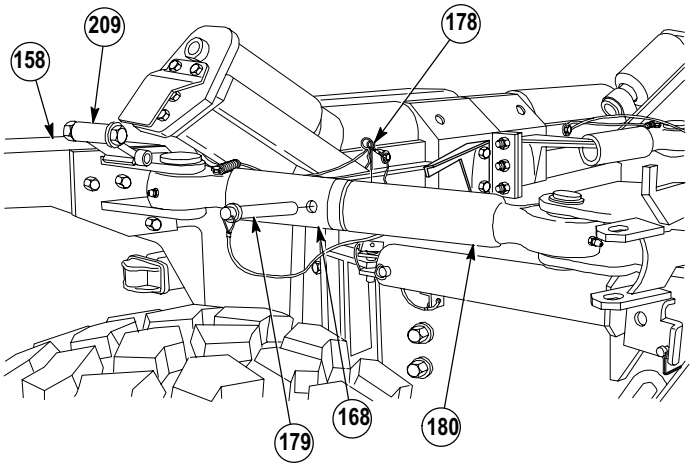


(57) Align long strut (180) with short strut (168).

(58) Using handle of arm assembly (158), rotate arm assembly out and release flip lock (209).

(59) Position long strut (180) into short strut (168) and install pin (179) and quick release pin (178).

(60) Repeat Steps (50) through (59) for left side.

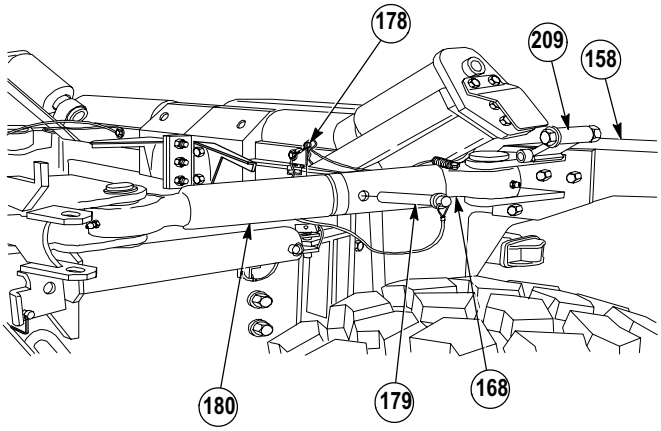


18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

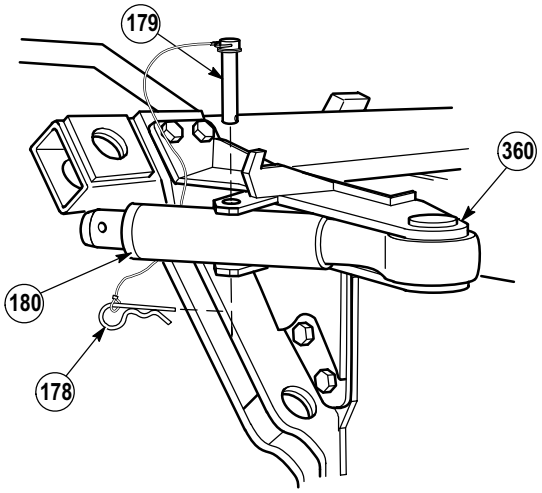
(61) Remove quick release pin (178) and pin (179) from left side short strut (168) and long strut (180).

(62) With the aid of an assistant and using handle of arm assembly (158), rotate arm assembly out and separate short strut (168) from long strut (180).

(63) With the aid of an assistant holding arm assembly (158), position flip lock (209) up.

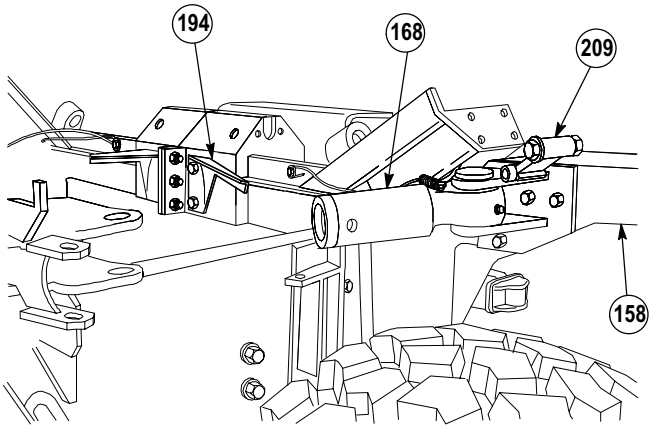


(64) Position long strut (180) on stowage bracket (360) and install pin (179) and quick release pin (178).



(65) Using handle of arm assembly (158), rotate arm assembly, out and release flip lock (209).

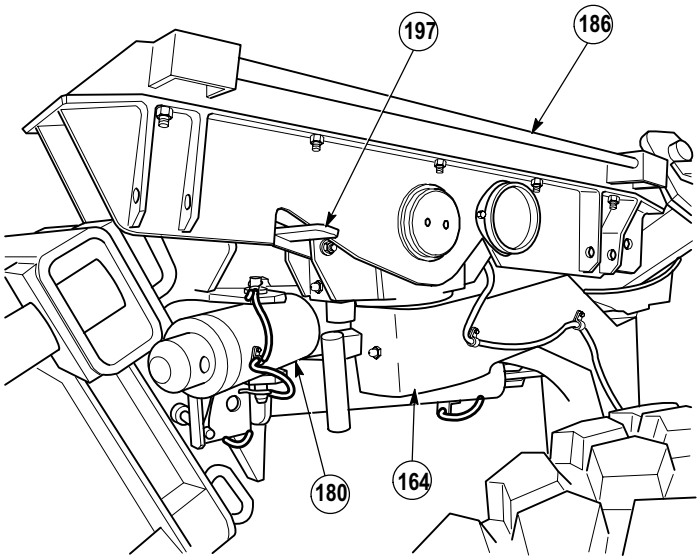
(66) Position short strut (168) in stowed position on stow plate (194).



NOTE

Ensure that when slider assembly is fully stowed, handle of arm assembly contacts the long strut.

(67) Push down handle (197) and stow slider assembly (186) in stowed position and ensure handle of arm assembly (164) contacts long strut (180).



(68) Check wire rope (173) is tight.

(69) Measure distance between short strut (168) and mode switch bracket (361).

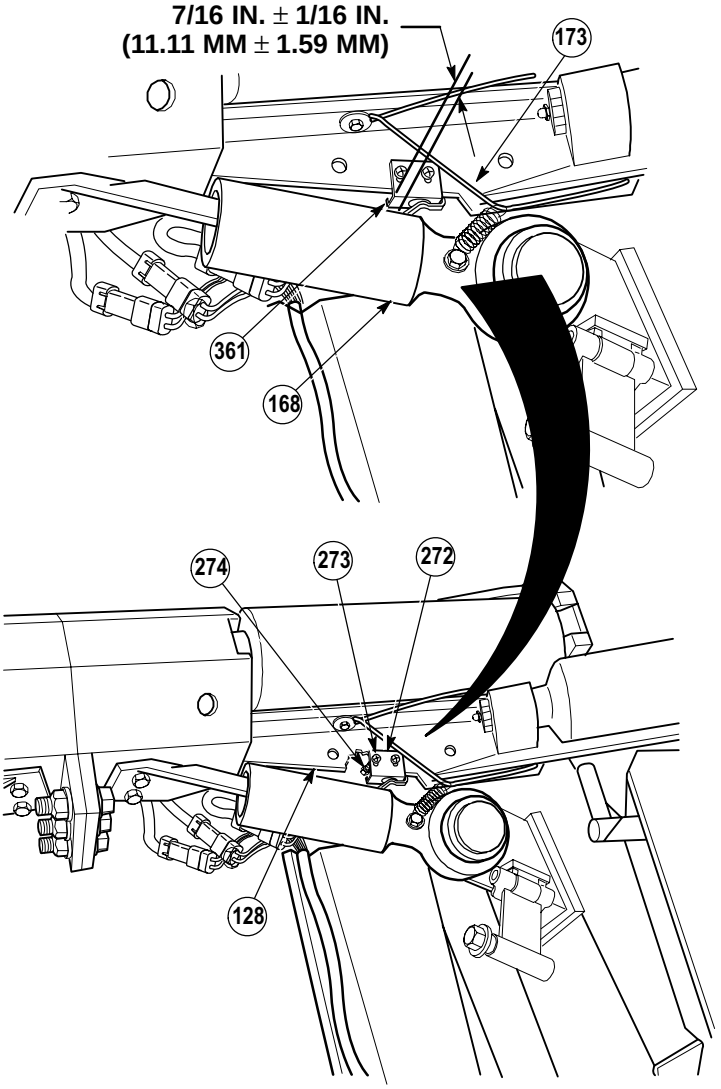
NOTE

- If gap between short strut and mode switch bracket is not 7/16 in. ± 1/16 in. (11.11 mm ± 1.59 mm), perform Step (70).
- If gap between short strut and mode switch bracket is 7/16 in. ± 1/16 in. (11.11 mm ± 1.59 mm), go to Step (71).

(70) Position mode switch (272) to dimension shown.

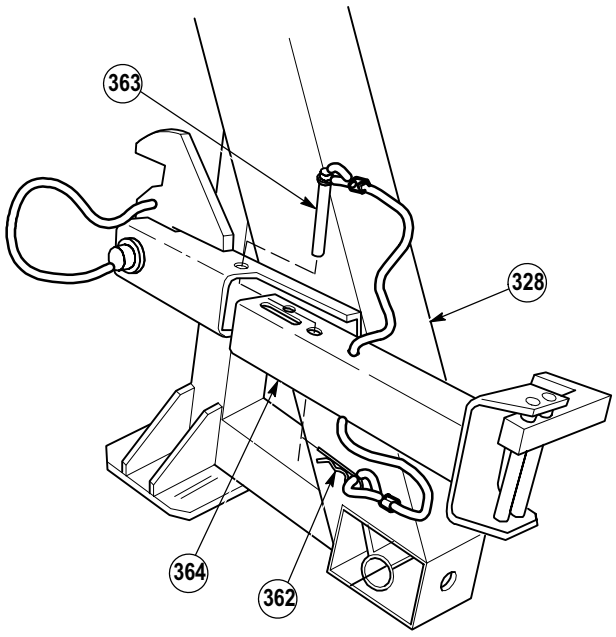
(71) Tighten two screws (273) and locknuts (274) on mode switch (272) and rear roller bracket (128).

(72) Deploy left arm assembly (TM 9-2320-364-10).



18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

(73) Remove two lock pins (362), pins (363) and rear container locks (364) from lifting frame (328).

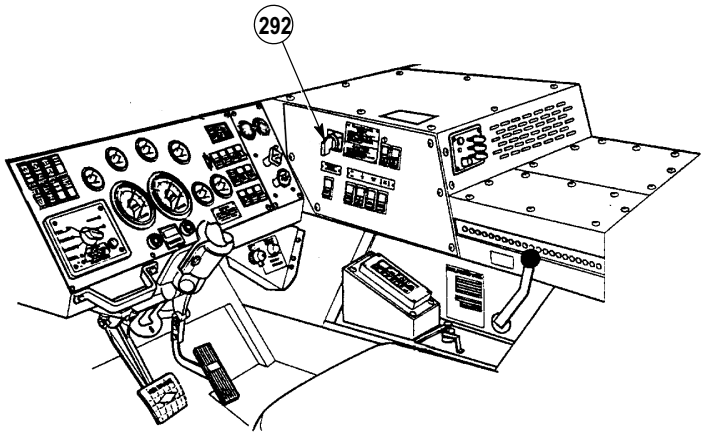


(74) Start engine (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(75) Set hydraulic selector switch (292) to AUTO.



STEERING WHEEL SHOWN REMOVED FOR CLARITY

(76) Raise LHS in auto mode approximately 18 inches (46 cm). Release joystick (365).

NOTE

- Both rear container locks are installed the same way. Left side shown.
- Lock handle is unlocked when facing front of slider.

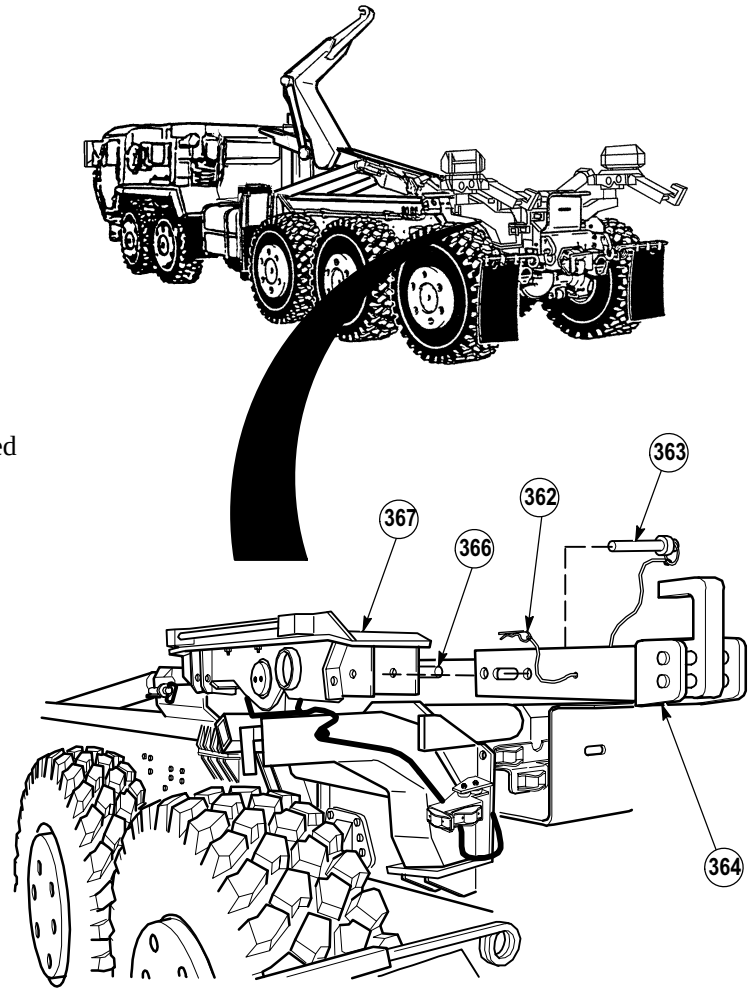
(77) Turn lock handle (366) on left rear slider assembly (367) forward to unlocked position.

(78) Position rear container lock (364) in locked position on left rear slider assembly (367) and install pin (363) and lock pin (362).

(79) Turn lock handle (366) on left rear slider assembly (367) back to locked position.

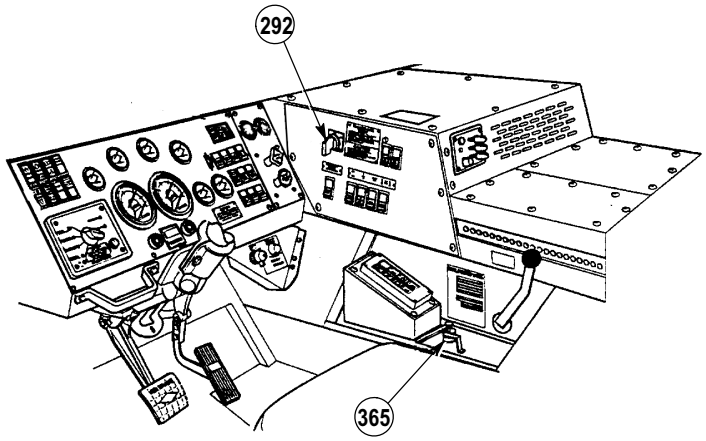
NOTE

- LHS should not move when joystick is in unload position.
- If LHS does not move in unload position, go to Step (82).
- If LHS moves in unload position, perform Step (81).



(80) Move joystick (365) to unload position and check LHS for movement.

(81) Adjust rear lock limit switch (TM 9-2320-364-20).



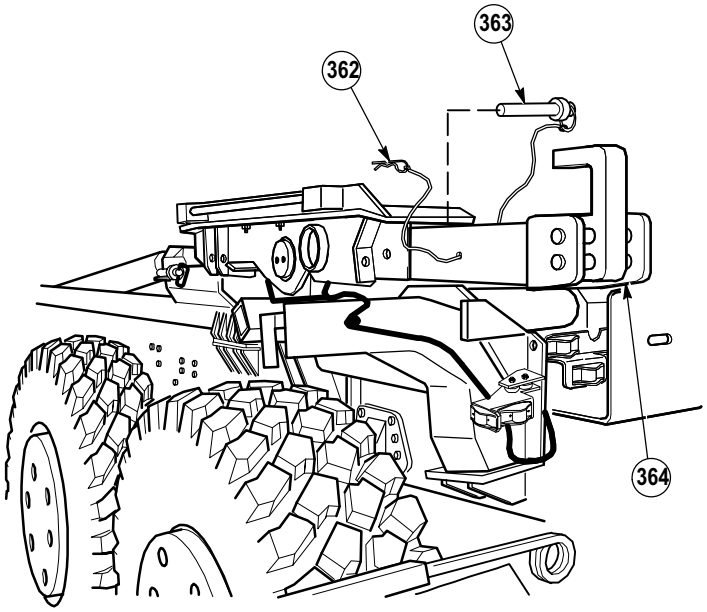
STEERING WHEEL SHOWN REMOVED FOR CLARITY

18-13. CONTAINER HANDLING UNIT (CHU) KIT INSTALLATION (CONT).

WARNING

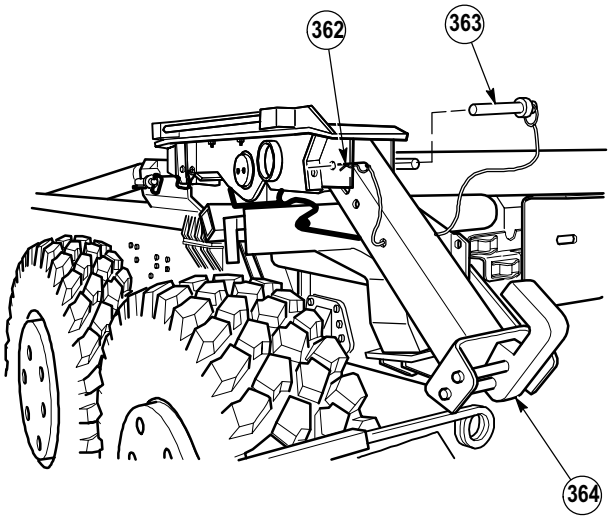
Container lock could drop suddenly if not supported. Failure to comply may result in injury to personnel.

(82) Support rear container lock (364) and remove lock pin (362) and pin (363) from rear container lock.



(83) Position and lock rear container lock (364) in ready mode position by pulling out, rotating down and inserting pin (363) and lock pin (362).

(84) Repeat Steps (77) through (83) for right side of truck.



(85) Raise LHS in auto mode to unload until HA stops and MF starts to raise. Release joystick (365).

(86) With the aid of an assistant, manually engage mode switch (272).

NOTE

- Hook arm cylinders should move when mode switch is engaged.
- If hook arm cylinders fully extend go to Step (89).
- If hook arm cylinder does not move, perform Step (88).

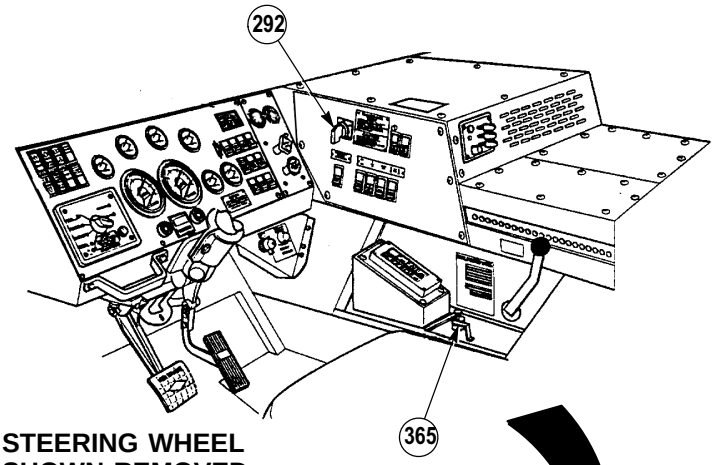
(87) Move joystick (365) to unload in auto mode and ensure HA fully extends before main frame moves.

(88) Adjust mode switch (TM 9-2320-364-20).

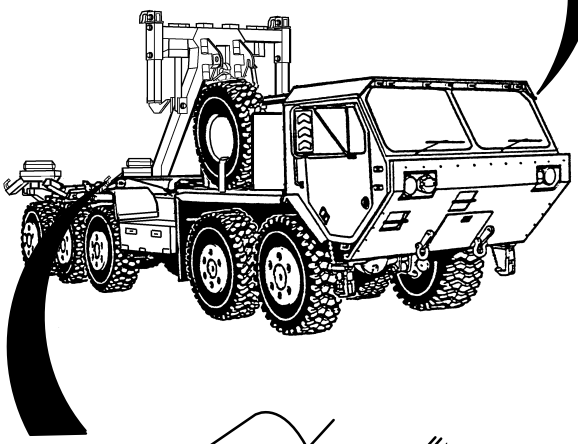
(89) Stow LHS and lifting frame on truck in container mode (TM 9-2320-364-10).

(90) Set hydraulic selector switch (292) to OFF.

(91) Shut OFF engine (TM 9-2320-364-10).



STEERING WHEEL SHOWN REMOVED FOR CLARITY



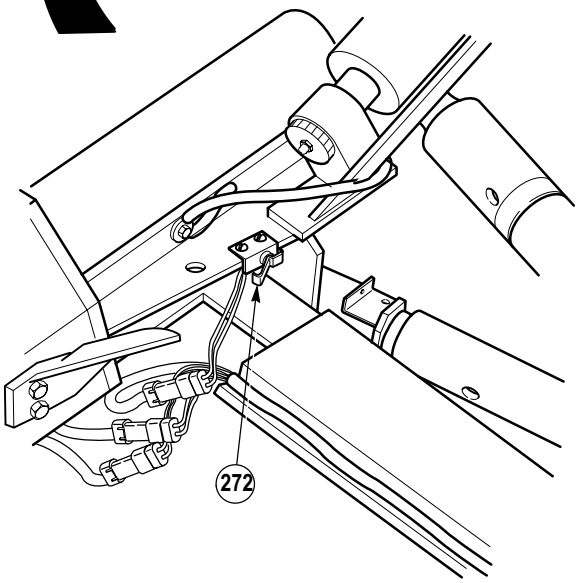


Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
111454A	SCREW, .075–10 X 2.25	6	1	COMBINE IN ONE 8 X 10 POLY BAG	149, 153
1324980	SCREW, 0.75–10 X 2.75	2	1		148
110312A	LOCKNUT, .075–10 G8	8	1		150, 154
15217A	SCREW, 0.62–11 X 1.50	4	1	ONE 6 X 8 POLY–BAG	151
110311A	LOCKNUT, 0.62–11	4	1		152
1663880	EPOXY & MIXING STICK	1	2	COMBINE IN ONE 6 X 8 POLY BAG (Took callout off)	
3221426	LOCTITE 680	2	2		
3221425	ADHESIVE # 242 LOCTITE	4	2	OTC REF 65270AX	
3221427	ANTI SEIZE 4 OZ CAN	1	2	OTC REF 1302130	
3230311	LOCTITE 409	1	2		
3221428	GREASE 1 LB CAN	1	3	ID ONLY OTC REF1864450	
2270080W	REAR BRACKET, RH LIGHT ASSEMBLY	1	4	ID ONLY	231
2270090W	REAR BRACKET, LH LIGHT ASSEMBLY	1	5	ID ONLY	231
2282350	SEAL,V–LIP (3.75 in. O.D.)	2	6	PLACE BOTH IN 4 X 1 X 4 PAPERBOARD CARTON	162
2282330	PREFORMED PACKING	2	7	PLACE BOTH BE-TWEEN TWO 4 X 4 CORRUGATED STIFFENERS. 200# SW	184
2282340	SEAL,V–LIP (4.34 in. O.D.)	2	8	PLACE BOTH IN 4 X 1 X 4 PAPERBOARD CARTON	185
2282320	PREFORMED PACKING	2	9	PLACE BOTH BE-TWEEN TWO 5 X 5 CORRUGATED STIFFENERS. 200# SW	161

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
615FX	GREASE FITTING	2	10	ONE 3 X 5 POLY–BAG	202
2305HX	GREASE FITTING	2	10	ONE 3 X 5 POLY–BAG	203
2253880	SPACER	2	11	ONE 3 X 5 VCI POLY–BAG	188
3124572	SHIM	4	12	ONE 6 X 8 VCI POLY–BAG	157
2254220	THRUST WASHER	4	13	ONE 6 X 8 VCI POLY–BAG	160, 183
3197833	SPRING	2	14	ONE 6 X 8 POLY–BAG	177
66420AX	SCREW, 0.25–20 X 100	2	14		174
703HX	WASHER, 0.25	2	14		175
2302HX	WASHER, 0.25	4	14		172, 182
	WASHER, 0.375	2	14		
1606140	SCREW, 0.25–20 X 0.75	4	14		171, 181
3205630	WIRE ROPE ASSEMBLY	2	14		173
2221970	SHIM, LHS	2	15	ONE 6 X 8 VCI POLY–BAG	291
2176780	RETAINING RING	2	15		79
	TEE, AIR CONNECTION	1	15	OTC REF 2719FX	327
3227120	GUARD, WASHER	2	15		76
3135770	HARNESS, JUMPER	1	16	ONE 12 X 12 POLY–BAG	307
5201HX	NYLON TIE, LONG	3	16		
3147469	SHIM, BUMPER	8	16		357
5193HX	TIE, CABLE, 7.31	10	16		
5193HX	TIE, CABLE, 7.31	11	16		
2265340	SENSOR PLATE	1	17	ONE 6 X 8 VCI POLY–BAG	295
3129160	MODE SWITCH	1	18	ONE 4 X 6 POLY–BAG	272

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
1571850	LOCKNUT, 10–24 X 0.75	2	18		274
59031AX	SCREW, 10–24 X 0.75	2	18		273
3181842	HARNESS,CHU	1	19	ONE 18 X 18 POLY–BAG	312
3135832	PROXIMITY SWITCH ASSEMBLY	1	20	ONE 3.5 X 1 X 7.75 PAPERBOARD CARTON	302
115217A	SCREW, 0.62–11 X 2.00	18	21	ONE 9 X 12 POLY–BAG	57
110311A	LOCKNUT, 0.62–11	18	21		58
3122223	PROXIMITY SWITCH MOUNT	1	22	ID ONLY	301
3205629	RETAINING BRACKET	1	23	ID ONLY	83
115217A	SCREW, 0.62–11 X 2.00	4	24	ONE 6 X 8 POLY–BAG	60
110311A	LOCKNUT, 0.62–11	4	24		61
115304A	SCREW, 0.50–13 X 1.25	4	25	ONE 6 X 8 POLY–BAG	69
110310A	LOCKNUT, 0.50–13	4	25		70
115304A	SCREW, 0.50–13 X 1.25	8	26	ONE 4 X 6 POLY–BAG	165
3124573	SHIM	4	27	ID ONLY	131
115289A	SCREW, 0.62–11 X 1.50	2	28	ONE 6 X 8 POLY–BAG	139
110311A	LOCKNUT, 0.62–11	2	28		140
115304A	SCREW, 0.5–13 X 1.25	6	28		320
115310A	LOCKNUT, 0.5–13	6	28		321
3117425	STRUT ASSEMBLY, HARDLIFT	2	29	ID ONLY	275
2152010	PIVOT PIN	1	30	ID ONLY	78

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
1336700	SCREW, 0.75–10 X 1.75	11	31	ONE 9 X 12 POLY–BAG	17, 44
110312A	LOCKNUT, SP,0.75–10	14	31		13, 19, 46
126536A	SCREW, 0.75–10 X 3.00	1	31		22
115217A	SCREW, 0.62–11 X 2.00	4	32	ONE 6 X 8 POLY–BAG	20, 47
110311A	LOCKNUT, 0.62–11	4	32		21, 48
111320A	SCREW, 0.75–10 X 2.00	2	32		18, 49
110312A	LOCKNUT, 0.75–10	2	32		23, 50
1337430	SCREW, 0.75–10 X 4.00	4	33	ONE 8 X 6 X 4 CORRUGATED CARTON, 200# SW	136
1317120	SCREW, 0.75–10 X 3.50	10	33		132
111320A	SCREW, 0.75–10 X 2.00	10	33		126
110312A	LOCKNUT, 0.75–10	24	33		127, 137
60861AX	LOCKNUT, 0.625–10	1	33		117
3121882	SHORT STRUT ASSEMBLY	2	34	ID ONLY	168
60861AX	LOCKNUT 0.62–11	1	35		111
1568960	SCREW, 0.50–13 X 1.0	1	35	ONE 3 X 5 POLY–BAG	104
318BX	LOCKWASHER, 0.62	2	35		105
2560HX	LOCKNUT, 0.31–18	4	35		98
111321A	SCREW, 0.62–11 X 1.00	4	36	ONE 6 X 8 POLY–BAG	90
111316A	SCREW 0.62–11 X 1.75	4	36		108
110311A	LOCKNUT, 0.62–11	8	36		107, 88
3126569	HARDLIFT SLIDER BRACKET	2	37	ID ONLY	283
1533100	WIRE ROPE, 10”	2	38	ONE 4 X 6 POLY–BAG	284
1864270	SWAGING SLEEVE	4	38		286
2218230	SNAPPER PIN	2	38		285
1369280	RETAINING RING	4	39	ONE 3 X 5 VCI POLY–BAG	156, 189

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
2109HX1	SCREW, 0.25–20 X 0.62	6	40	ONE 3 X 5 POLY–BAG	200
703HX	WASHER, 0.25	6	40		201
33855AX	CLIP,CUSHION	6	41	ONE 3 X 5 POLY–BAG	198
3227252	PIN	2	42	ONE 6 X 8 VCI POLY–BAG	167
3127711	RING SUPPORT	2	43	ONE 3 X 5 VCI POLY–BAG	169
2176780	RETAINING RING	2	43		170
1337720	SCREW, 0.75–10 X 2.5	6	44	ONE 6 X 8 POLY–BAG	129
100312A	LOCKNUT, SP, 0.75–10	6	44		130
434AX1	NUT, 0.38–16	6	45	ONE 3 X 5 POLY–BAG	243, 248
351AX	LOCKWASHER, 0.38	6	45		244, 249
3117420	LOCK PLATE	2	46	ID ONLY	216
2255150	END PLATE,RH	1	47	ID ONLY	221
2255160	END PLATE,LH	1	48	ID ONLY	221
3124574	BRACKET DATA PLATE MTG LH	1	49	ID ONLY	225
3138310	BRACKET DATA PLATE MTG RH	1	50	ID ONLY	225
2270050	REAR MARKER LIGHT BAR ASSEMBLY	1	51	PLACE 4 X 12 X .25 FOAM AROUND CENTER	230
3188476	CONTAINER GUIDE	2	52		71
3182113	HARDLIFT DECK BRACKET, RH	1	53		138

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
3182114	HARDLIFT DECK BRACKET, LH	1	54		318
3121819	REAR ROLLER BRACKET RH ASSEMBLY	1	55	P–19 ALL EXPOSED METAL, ID	125
3119744	PIVOT PIN (ARM)	2	56	ONE 8.5 X 4.5 X 14.5 PAPER BOARD CAR-TON	155
3121820	REAR ROLLER BRACKET LH ASSEMBLY	1	57	P–19 ALL EXPOSED MEATL, ID	128
3123917	SLIDER/PIVOT ASSEMBLY RH	1	58	P–19 ALL EXPOSED MEATL, ID	186
3123918	SLIDER/PIVOT ASSEMBLY LH	1	59	P–19 ALL EXPOSED MEATL, ID	186
3121846	RH ARM ASSEMBLY	1	60	12 X 18 VCI BAG TAPED AROUND UP-PER ARM BEARING, 24 X 20 VCI	158
				PAPER WRAPPED AROUND LOWER ARM BEARING, ID.	
3121847	LH ARM ASSEMBLY	1	61	12 X 18 VCI BAG TAPED AROUND UP-PER ARM BEARING, 24 X 20 VCI	164
				PAPER WRAPPED AROUND LOWER ARM BEARING, ID.	
3126527	RH PIN BRACKET ASSEMBLY	1	62	ID ONLY	166
3126528	LH PIN BRACKET ASSEMBLY	1	63	ID ONLY	166
3233870	LH STRUT BRACKET ASSEMBLY	1	64	P–19 ALL EXPOSED METAL, ID, LAG SCREW TO BUILD UP ”L”	147
3233869	RH STRUT BRACKET ASSEMBLY	1	65	P–19 ALL EXPOSED MEATL, ID, LAG SCREW TO BUILD UP ”L”	147

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
3202766	BRACE, STOW WELDMENT SUPPORT	1	66	ID ONLY	68
3145953	REAR GUIDE	1	67	LAG SCREW TO PAL-LET	103
3145954	ADAPTER PLATE, TENSIONER	1	68	LAG SCREW TO PAL-LET	89
115293A	SCREW, 0.50-13X1.50	4	69	4 X 6 POLY BAG	195
110310A	LOCKNUT, 0.50-13	4	69		196
	HARDWARE		70	6 X 8 POLY BAG	
1337720	SCREW, 0.75–10X2.50	2	70		106, 358
1598030	LOCKNUT, 0.50–13	4	70		355
110311A	LOCKNUT, 0.62–11	6	70		65
111454A	SCREW, 0.75–10 X 2.25	1	70		45
351AX	LOCKWASHER, 0.38	8	70		53, 176
3192798	STOW PLATE, RH	1	71	ID ONLY	194
3192799	STOW PLATE, LH	1	72	ID ONLY	194
3121898	LIFTING FRAME	1	73	ID ONLY	328
3188580	STOW WELDMENT ASSY	1	74	ID ONLY	59
3143293	FRONT SUPPORT ASSEMBLY	1	75	ID ONLY	51
3143292	FRONT SUPPORT BRACKET, LH	1	76	ID ONLY	15
3143291	FRONT SUPPORT BRACKET, RH	1	77	ID ONLY	43
3233488	SHIM	2	78	ID ONLY	193
3233489	SHIM	2	79	ID ONLY	
A: COMBINE PACKS 1–5, & 45, INTO ONE 12 X 6 X 6 CORRUGATED CARTON, 200# SW					
B: COMBINE PACKS 10–11, 14, 37–38, 40–44 & 46– 50 INTO ONE 8 X 8 X 6 CORRUGATED CARTON, 200# SW.					

Table 18-1. CHU PACKAGING INSTRUCTIONS TO MANUAL CROSS REFERENCE – Continued

PART #	DESCRIPTION	QTY	PACK NO.	PACKAGE TYPE	CALLOUT NUMBER
C: COMBINE PACKS 6–9, 12–13, & 39, 78, 79 INTO ONE 6 X 6 X 4 CORRUGATED CARTON, 200# SW.					
D: COMBINE PACKS 15–32 INTO ONE 22 X 14 X 4 CORRUGATED CARTON, 200# SW.					
E: COMBINE PACKS 34–36 INTO ONE 14 X 8 X 3.5 CORRUGATED CARTON, 200# SW.					
F: COMBINE PACKS 69–72 INTO ONE TBD CORRUGATED CARTON, 200# SW.					

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).
- Install rear noise panel, (TM 9-2320-364-20).
- Install bumper stop bracket, (TM 9-2320-364-20).
- Install rear hard lift extension assemblies, (TM 9-2320-364-20).
- Install auxiliary fuel tank, (if equipped), (TM 9-2320-364-20).
- Install self recovery winch (SRW) rear tension guide, (if equipped),(TM 9-2320-364-20).
- Lubricate CHU, (TM 9-2320-364-10).

END OF TASK

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
- Adapter, Mechanical Puller (Item 4, Appendix F)
- Connector Remover (Item 42, Appendix F)
- Puller Kit, Universal (Item 174, Appendix F)
- Wrench, Combination, 1-1/4 in. (Item 256, Appendix F)
- Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
- Wrench Set, Socket 3/4 in. Drive (Item 274, Appendix F)
- Wrench, Torque (0 to 44 lb-ft [0-60 N·m]) (Item 276, Appendix F)
- Wrench, Torque (0 to 175 lb-ft [0-237 N·m]) (Item 277, Appendix F)
- Wrench, Torque (0 to 600 lb-ft [0-814 N·m]) (Item 278, Appendix F)

Materials/Parts
- Cable Ties (Item 9, Appendix B)
- Compound, Antiseize (Item 14, Appendix B)
- Compound, Corrosion Preventative (Item 15, Appendix B)
- Sealing Compound (Item 61, Appendix B)
- Tags, Identification (Item 72, Appendix B)
- Locknut (2) (Item 176, Appendix E)
- Locknut (Item 210, Appendix E)
- Lockwasher (2) (Item 252, Appendix E)
- Lockwasher (Item 256, Appendix E)
- Lockwasher (Item 258, Appendix E)
- Lockwasher (Item 280, Appendix E)
- Lockwasher (3) (Item 281, Appendix E)
- Lockwasher (2) (Item 283, Appendix E)
- Lockwasher (4) (Item 284, Appendix E)
- Lockwasher (Item 286, Appendix E)

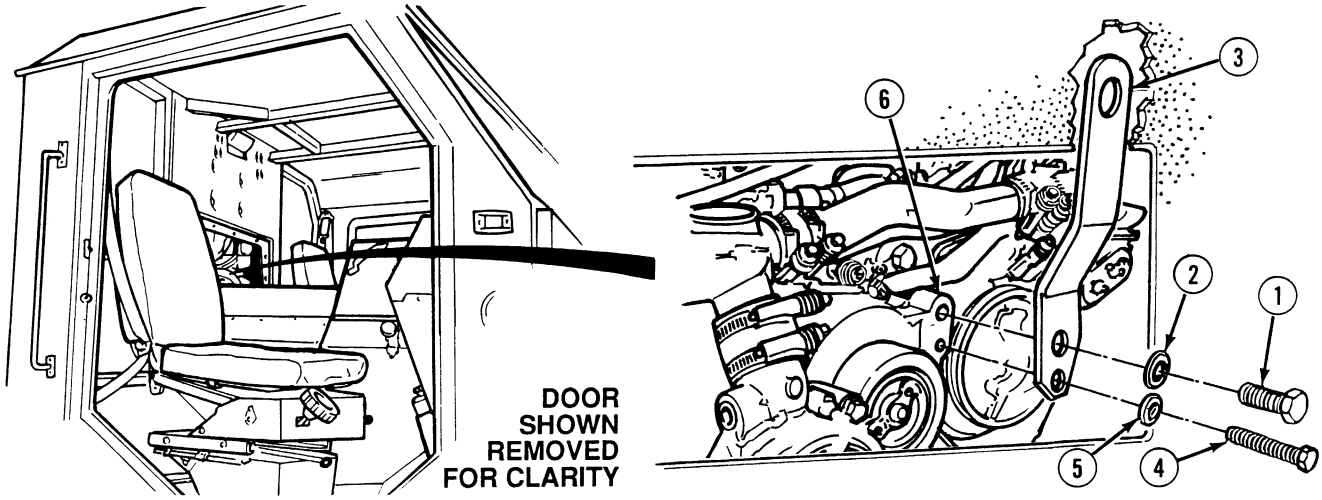
Materials/Parts (Cont)
- Lockwasher (Item 288, Appendix E)
- Packing, Preformed (2) (Item 355, Appendix E)

Personnel Required
- Two

Equipment Conditions
- Engine OFF (in truck only), (TM 9-2320-364-10)
- Wheels chocked (in truck only), (TM 9-2320-364-20)
- Cooling system drained (in truck only), (TM 9-2320-364-20)
- Convert DDEC II cab assembly to DDEC III cab assembly (in truck only), (para. 18-15)
- Right rocker cover removed, (TM 9-2320-364-20)
- Left rocker cover removed, (TM 9-2320-364-20)
- Secondary fuel filter removed, (TM 9-2320-364-20)
- Batteries disconnected (in truck only), (TM 9-2320-364-20)
- Left side noise panel removed (in truck only), (TM 9-2320-364-20)
- Right side noise panel removed (in truck only), (TM 9-2320-364-20)
- Left front noise panel removed (in truck only), (TM 9-2320-364-20)
- Electronic control box (ECB) right access panel removed (in truck only), (TM 9-2320-364-20)
- Left front splash guard removed (in truck only), (TM 9-2320-364-20)
- Cab engine access panel removed (in truck only), (TM 9-2320-364-20)
- Right front fender skirt removed (in truck only), (TM 9-2320-364-20)

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

a. Installation.

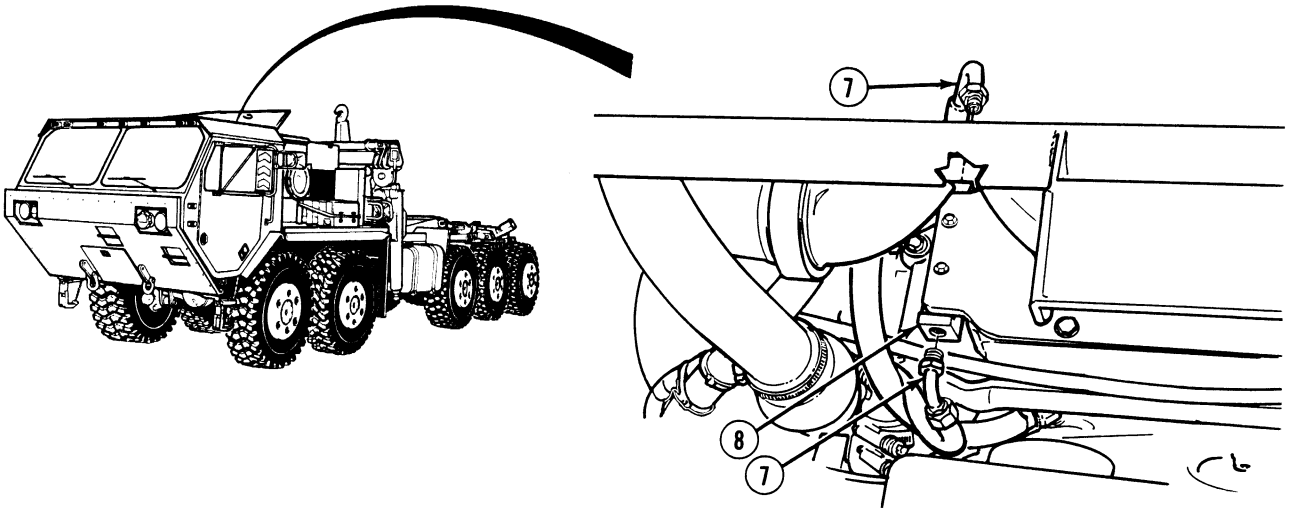


NOTE

- This task is written to be performed on a DDEC II engine in truck. Conversion is same for when engine is installed on stand unless noted.
- Remove cable ties as required.
- Tag and mark all screws, washers, and hardware during removal.
- Tag and mark wires and connectors prior to removal.
- Items not discarded must be retained and used during installation.
- The DDEC II ECM, which is removed as part of this conversion, should be returned to the supply system for credit. All other parts which are not reused can be discarded.

(1) Remove screw (1) and lockwasher (2) from engine lifting bracket (3). Discard lockwasher.

(2) Remove screw (4), lockwasher (5), and engine lifting bracket (3) from front balance cover (6). Discard lockwasher.



WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.

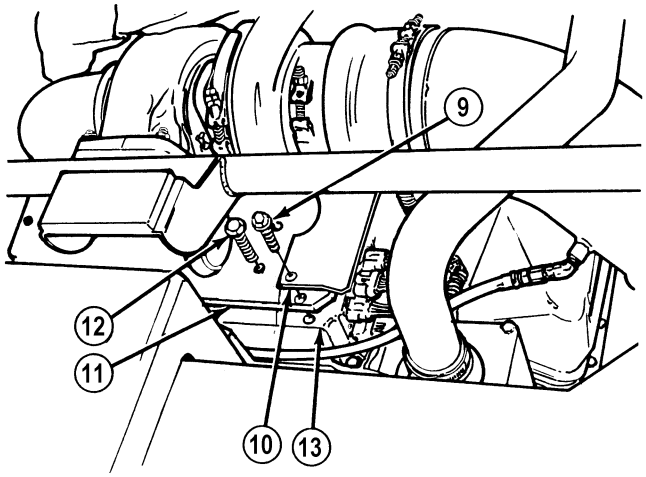
NOTE

Tag and mark all hoses prior to removal.

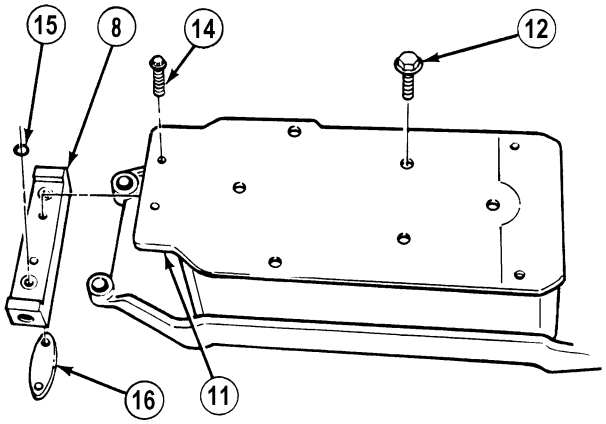
(3) Remove two fuel lines (7) from plastic fitting block (8).

(4) Remove two lockscrews (9) and shield (10) from engine cold plate (11). Discard lockscrews.

(5) Remove six lockscrews (12) and engine cold plate (11) from electronic control module (13). Discard lockscrews.



(6) Remove two screws (14), plastic fitting block (8), two preformed packings (15), and plate (16) from engine cold plate (11). Discard preformed packings.



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

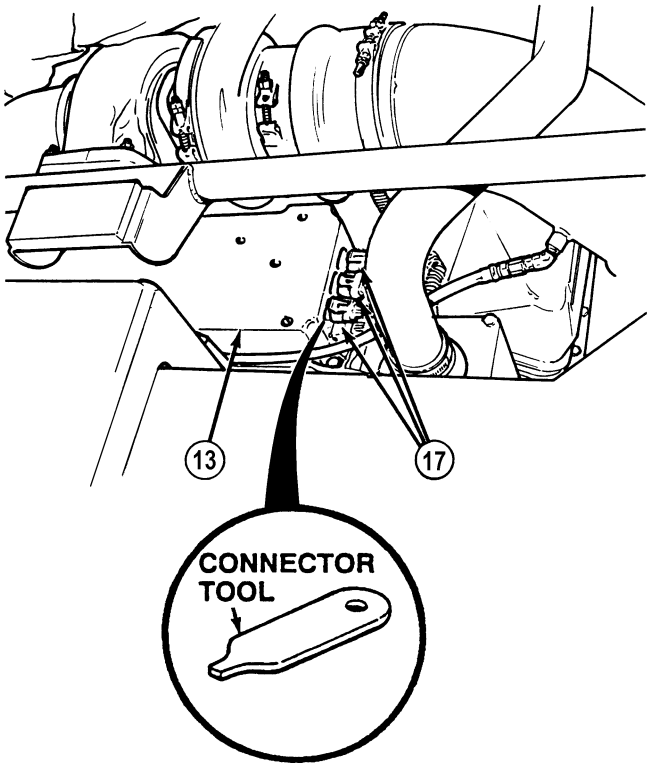
CAUTION

Use caution while removing connectors from ECM. The ECM has plastic retainers that may break if connectors are not properly removed.

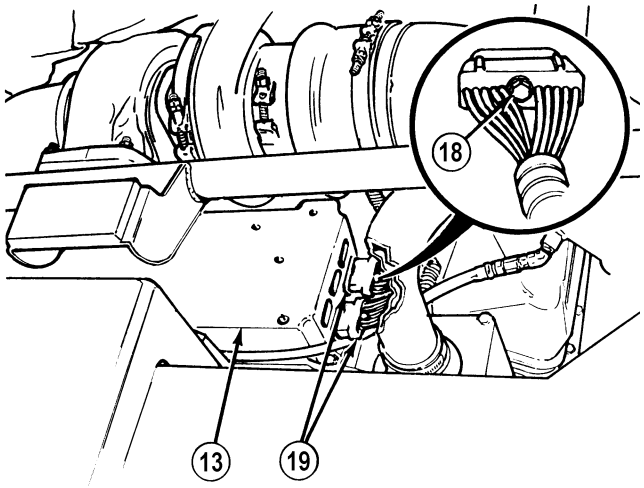
NOTE

Connectors are removed by gently prying up on locking tab with connector tool and pulling connector out.

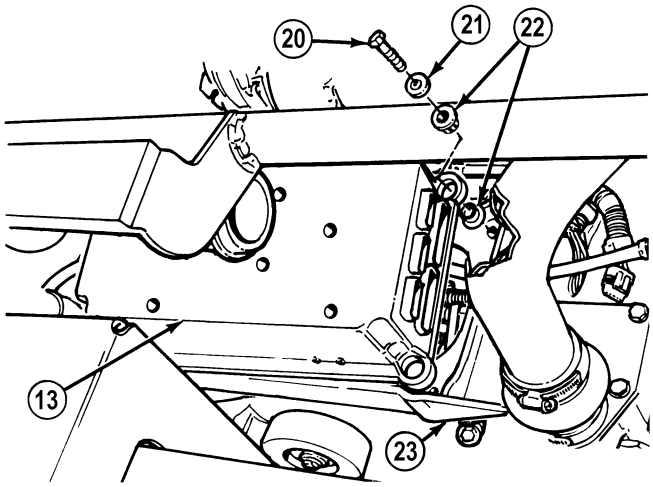
(7) Using connector tool, remove three wiring harness connectors (17) from ECM (13).



(8) Loosen two screws (18) and remove wiring harness connectors (19) from ECM (13).



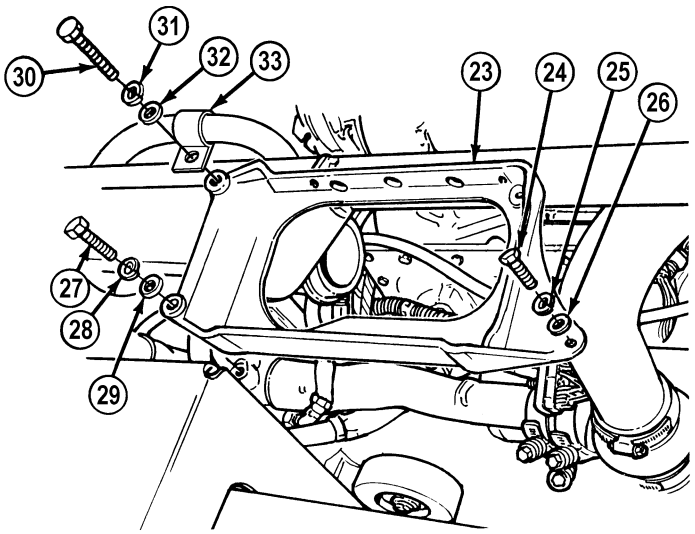
(9) Remove four screws (20), washers (21), eight mounts (22), and ECM (13) from ECM mounting bracket (23).



(10) Remove screw (24), lockwasher (25), and washer (26) from ECM mounting bracket (23). Discard lockwasher and screw.

(11) Remove screw (27), lockwasher (28), and washer (29) from ECM mounting bracket (23). Discard lockwasher.

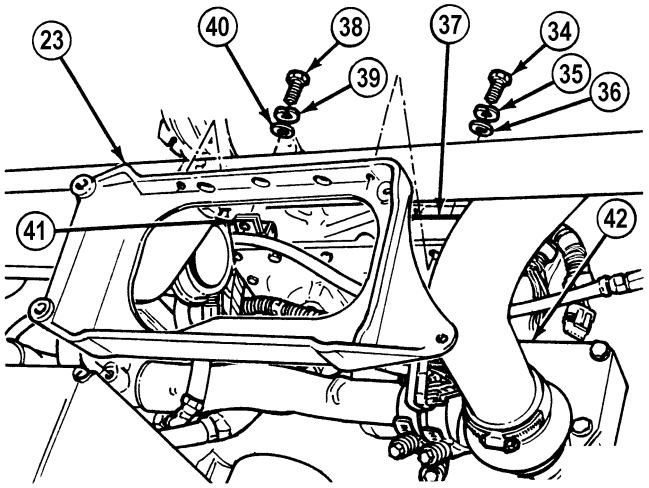
(12) Remove screw (30), lockwasher (31), washer (32), and fuel line clamp (33) from ECM mounting bracket (23). Discard lockwasher.



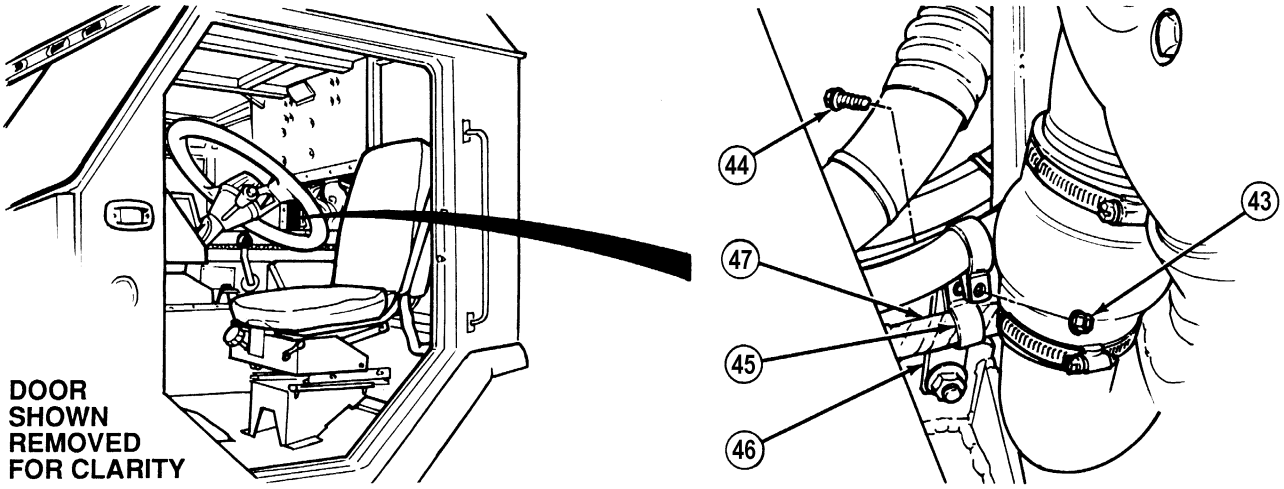
(13) Remove screw (34), lockwasher (35), washer (36), and turbo boost sensor bracket (37) from ECM mounting bracket (23). Discard lockwasher.

(14) Remove screw (38), lockwasher (39), washer (40), and turbo oil line clamp (41) from ECM mounting bracket (23). Discard lockwasher.

(15) Remove ECM mounting bracket (23) from engine (42).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

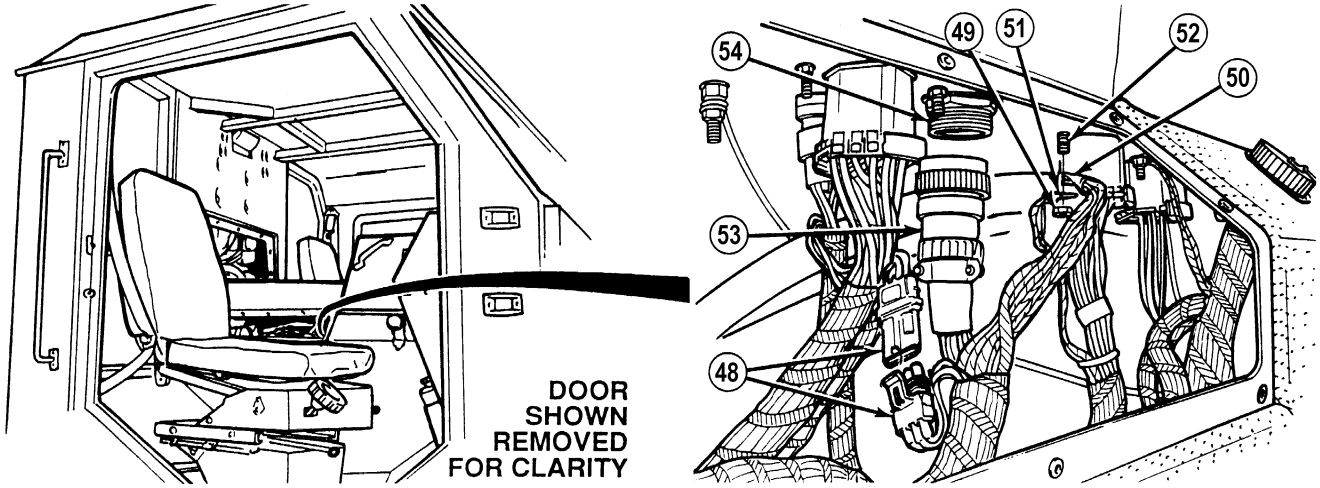


NOTE

If engine is installed in stand, go to Step (27).

(16) Remove locknut (43), screw (44), and cushion clip (45) from bracket (46). Discard locknut.

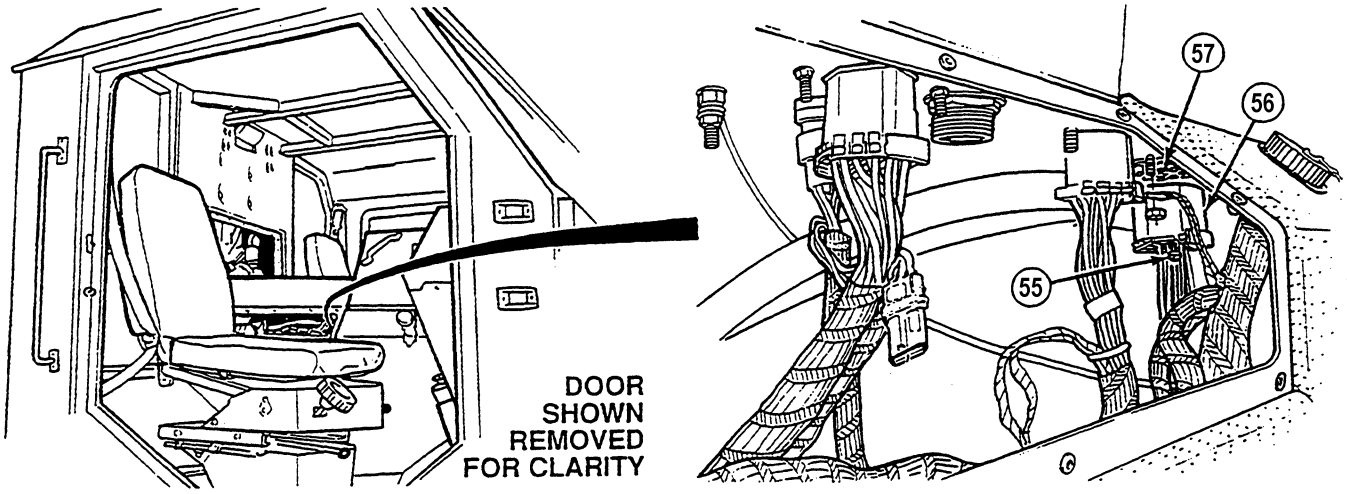
(17) Remove engine wire harness (47) from cushion clip (45).



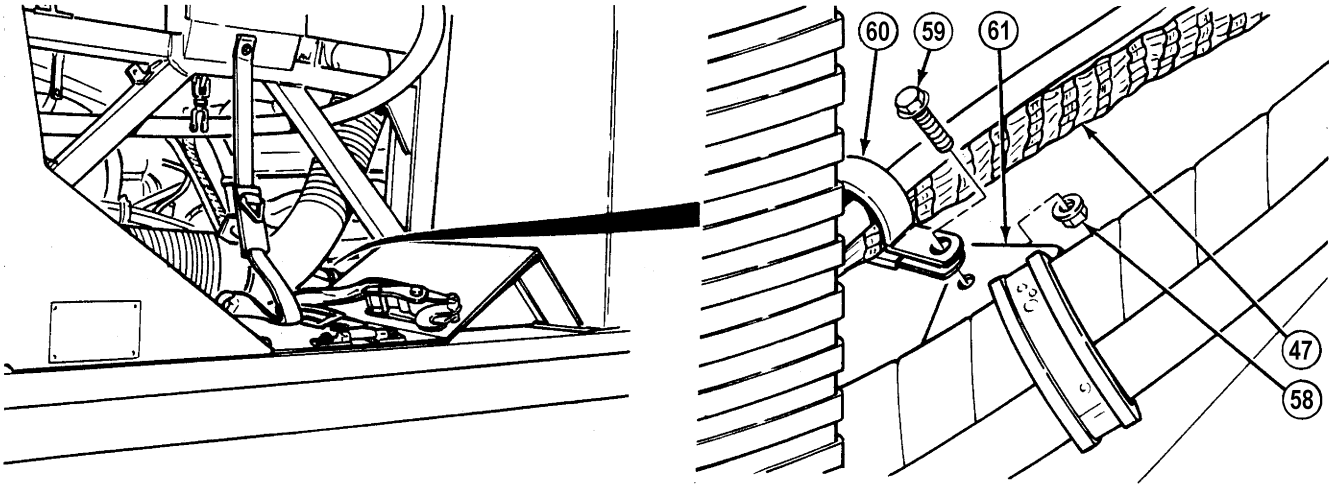
(18) Disconnect MC118 connector (48).

(19) Remove locknut (49) and shield wires (50) and (51) from stud (52). Discard locknut.

(20) Disconnect MC11 connector (53) from bulkhead connector (54).



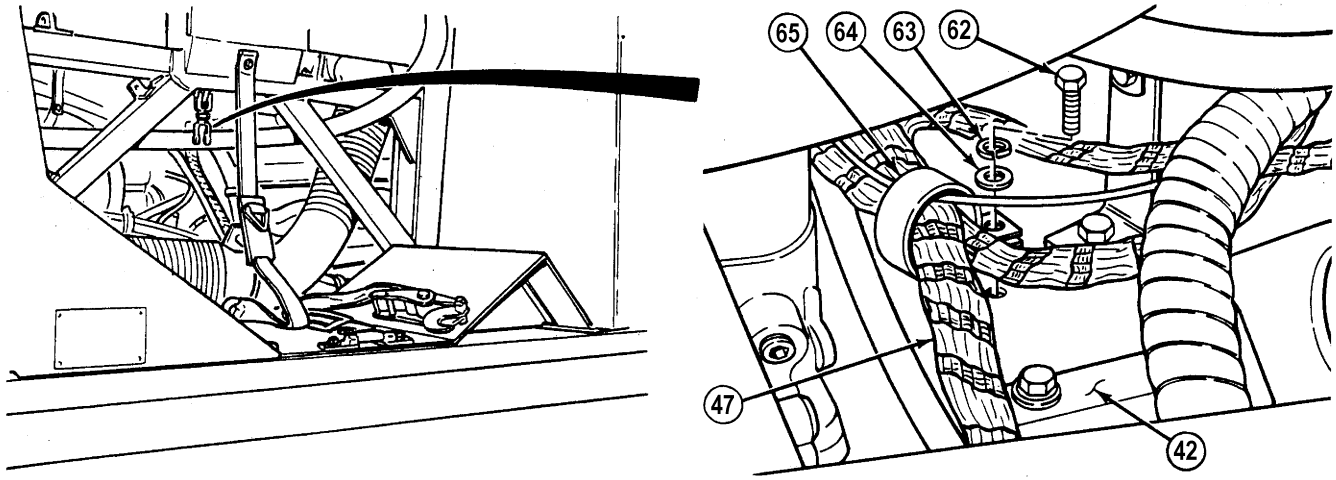
(21) Loosen screw (55) and disconnect MC21 connector (56) from bulkhead connector (57).



(22) Remove locknut (58), screw (59), and cushion clip (60) from bracket (61). Discard locknut.

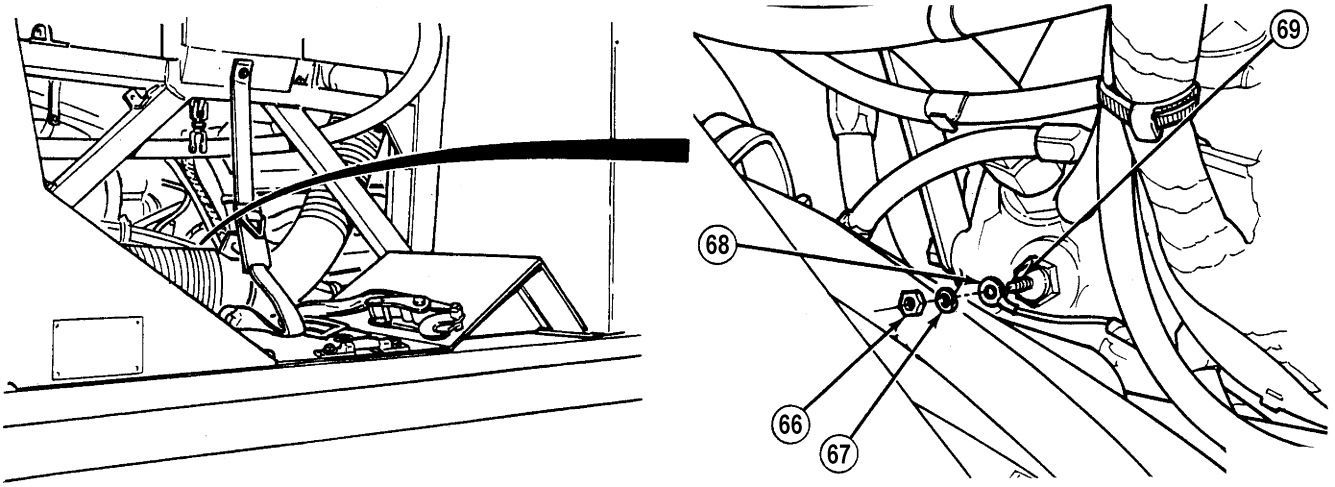
(23) Remove engine wire harness (47) from cushion clip (60).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

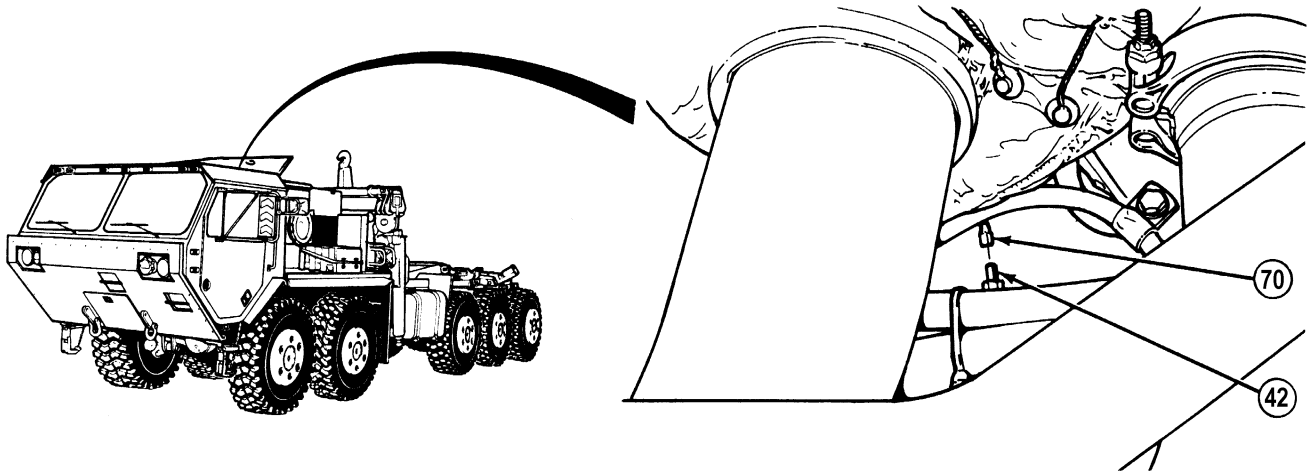


(24) Remove screw (62), lockwasher (63), washer (64), and cushion clip (65) from engine (42). Discard lockwasher.

(25) Remove engine wire harness (47) from cushion clip (65).



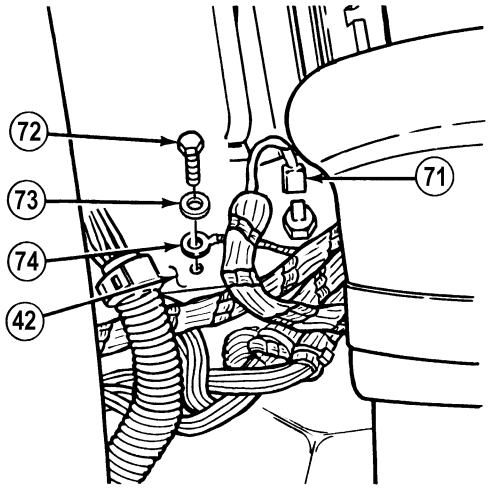
(26) Remove nut (66), lockwasher (67), and wire 1449 (68) from transmission oil temperature sending unit (69). Discard lockwasher.



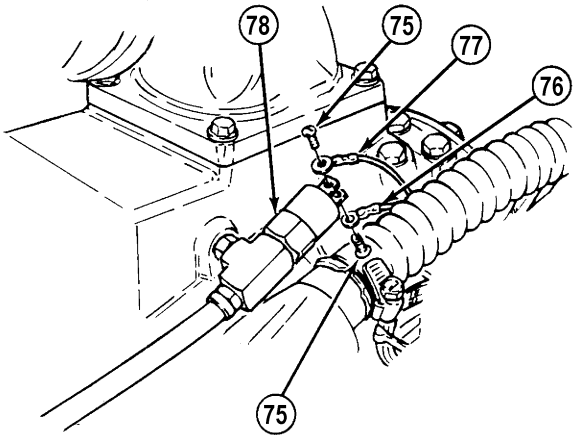
(27) Remove wire 1715 (70) from engine (42).

(28) Remove wire 1716 (71) from engine (42).

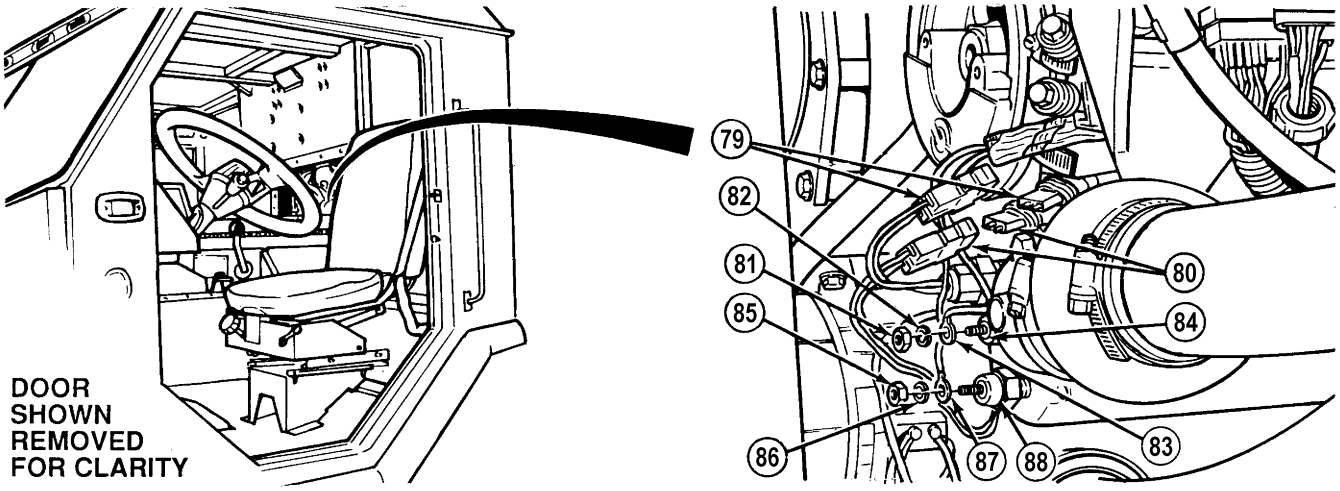
(29) Remove screw (72), washer (73), and shield wire (74) from engine (42).



(30) Remove two screws (75), wire 1955 (76), and wire 1957 (77) from pressure switch (78).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

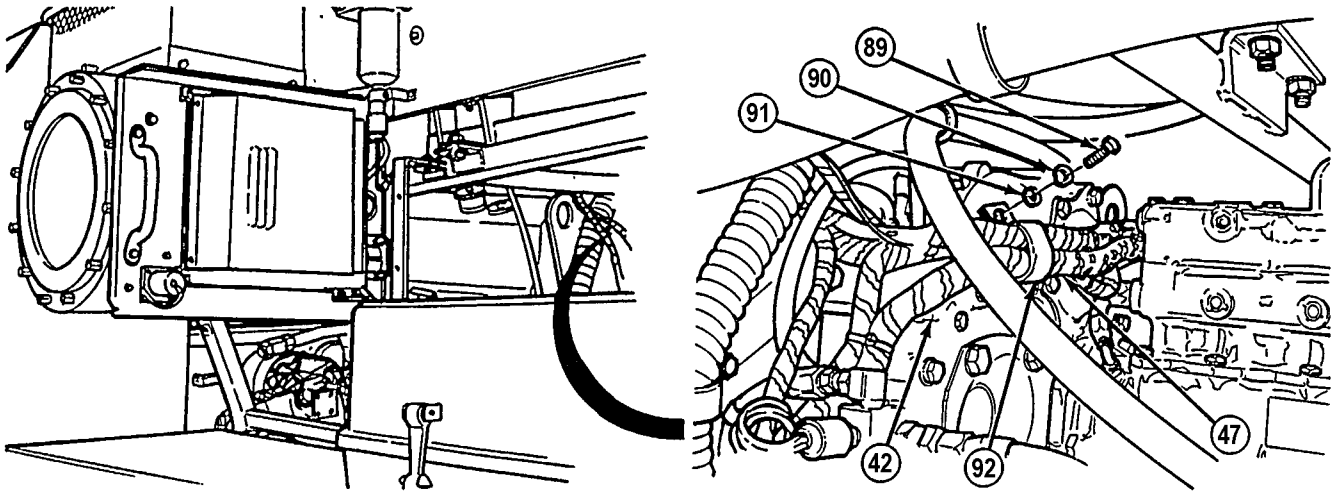


(31) Disconnect MC61 connector (79).

(32) Disconnect MC128 connector (80).

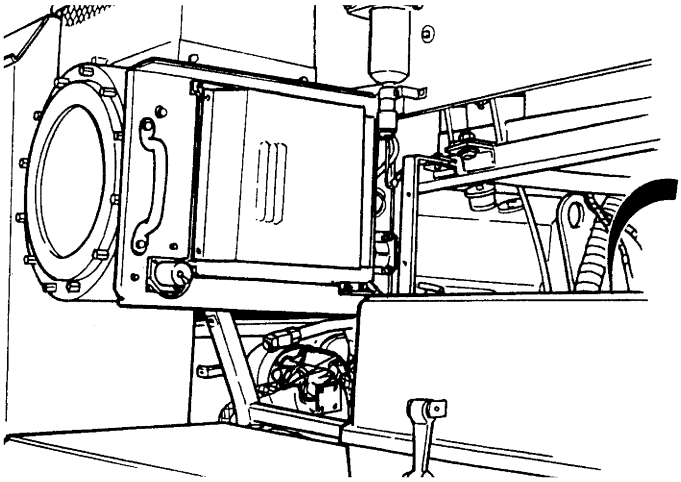
(33) Remove nut (81), lockwasher (82), and wire 1147 (83) from temperature sending unit (84). Discard lockwasher.

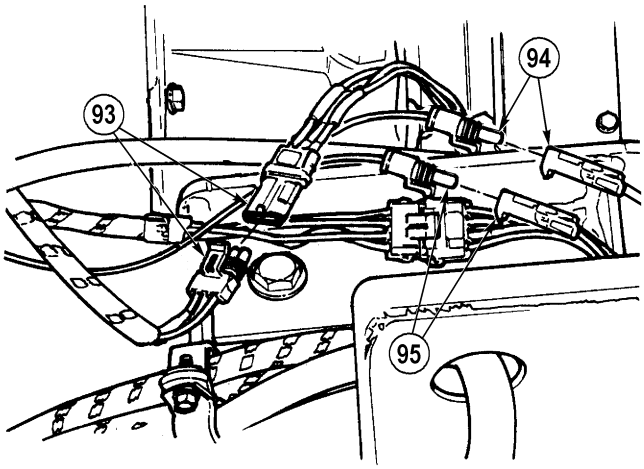
(34) Remove nut (85), lockwasher (86), and wire 1320 (87) from temperature sending unit (88). Discard lockwasher.



(35) Remove screw (89), lockwasher (90), washer (91), and cushion clip (92) from engine (42). Discard lockwasher.

(36) Remove engine wire harness (47) from cushion clip (92).





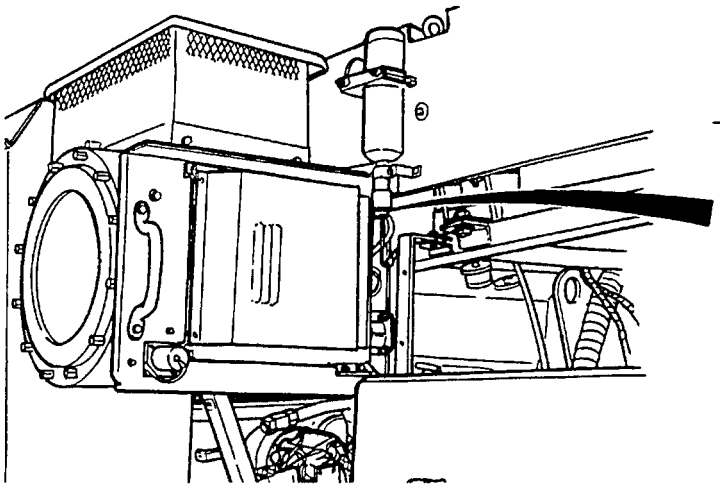
(37) Disconnect MC63 connector (93).

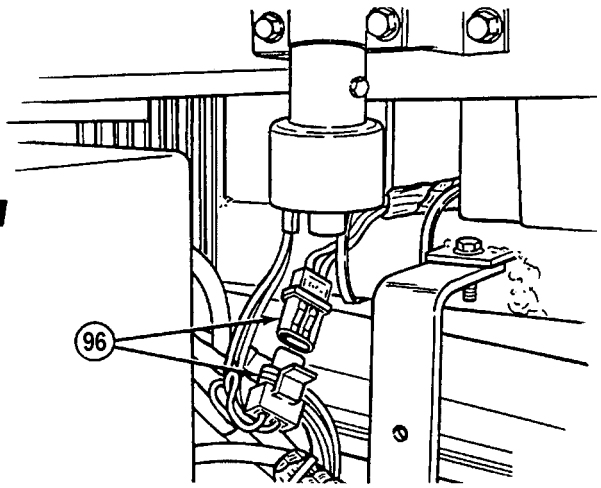
(38) Disconnect MC95 connector (94).

NOTE

Perform Step (39) if truck is equipped with a 200-amp alternator.

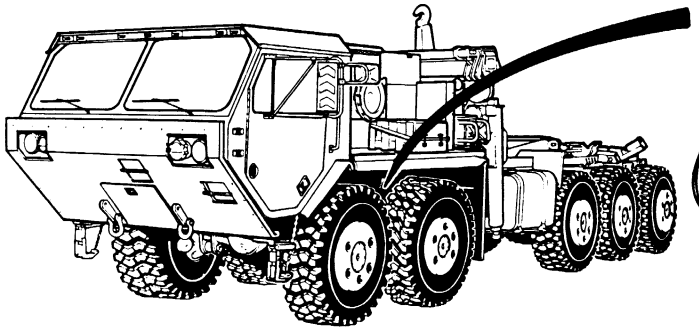
(39) Disconnect MC60 connector (95).

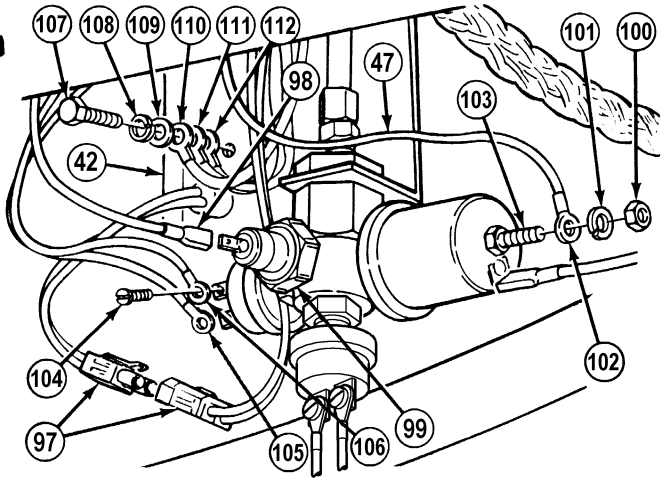




(40) Disconnect MC23 connector (96).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).





(41) Disconnect MC56 connector (97).

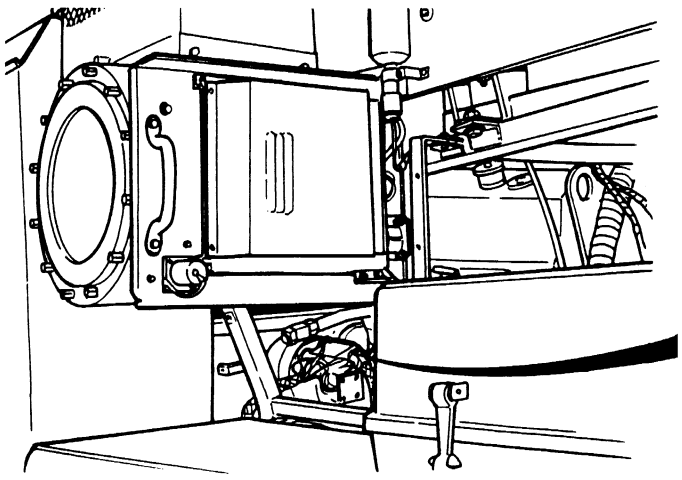
(42) Remove wire 1032 (98) from engine oil switch (99).

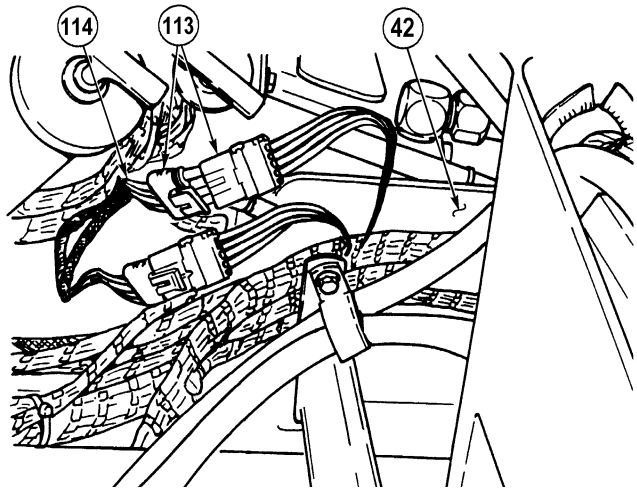
(43) Remove nut (100), lockwasher (101), and wire 1113 (102) from engine oil sending unit stud (103). Discard lockwasher.

(44) Remove two screws (104) and wires 1871 (105) and 1517 (106) from engine oil switch (99).

(45) Remove screw (107), lockwasher (108), washer (109), wire 1435 (110), and shield wires (111) and (112) from engine (42). Discard lockwasher.

(46) Remove engine wire harness (47) from engine (42).



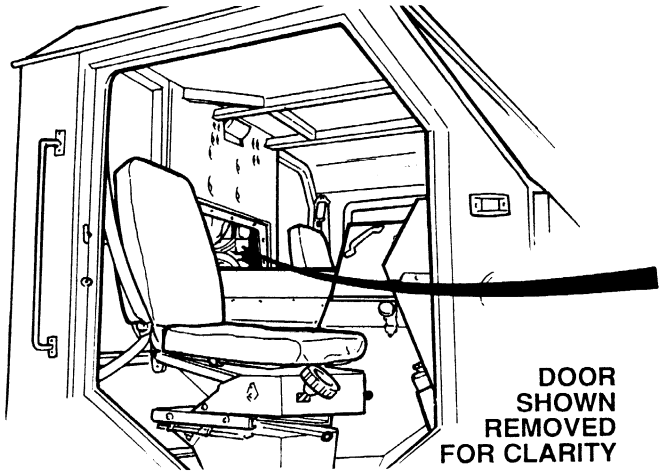


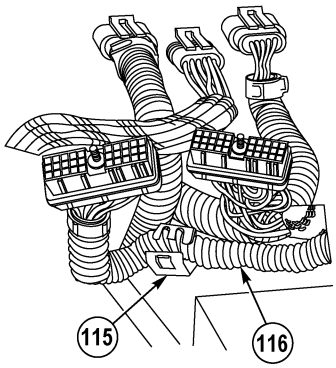
NOTE

DDEC II battery power wire harness has a 4-pin MC62 connector on one end and a straight 6-pin MC17 connector from ECM on remaining end.

(47) Disconnect MC62 connector (113).

(48) Remove DDEC II battery power wire harness (114) from engine (42).



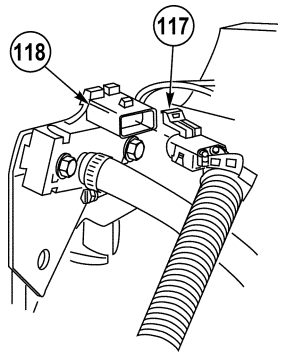


(49) Open clip (115) and remove DDEC II wire harness (116) from clip (115).

NOTE

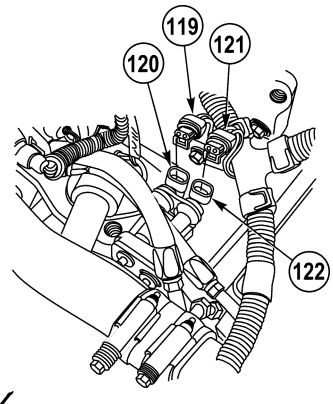
Connectors are removed by gently prying up on tab and pulling connector apart.

(50) Disconnect connector (117) from turbo boost sensor (118).

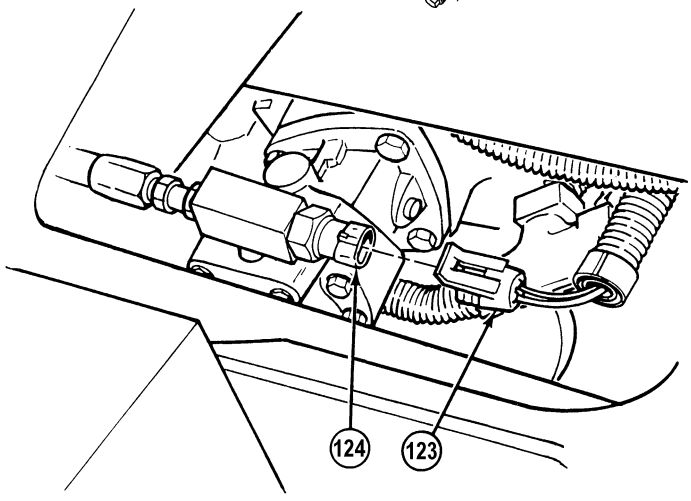


(51) Disconnect connector (119) from TRS sensor (120).

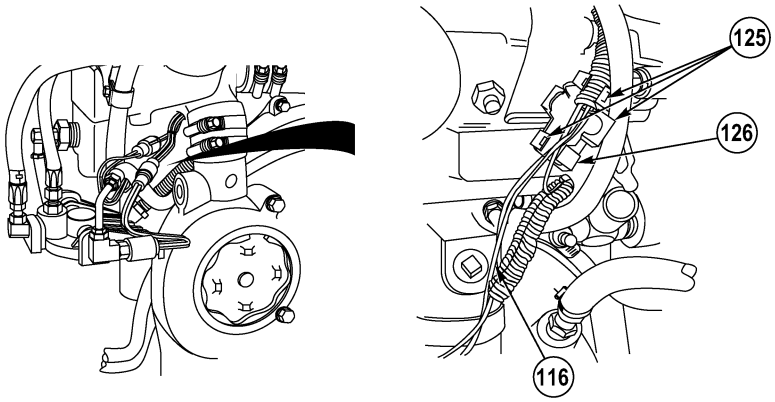
(52) Disconnect connector (121) from SRS sensor (122).



(53) Disconnect connector (123) from fuel temperature sensor (124).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

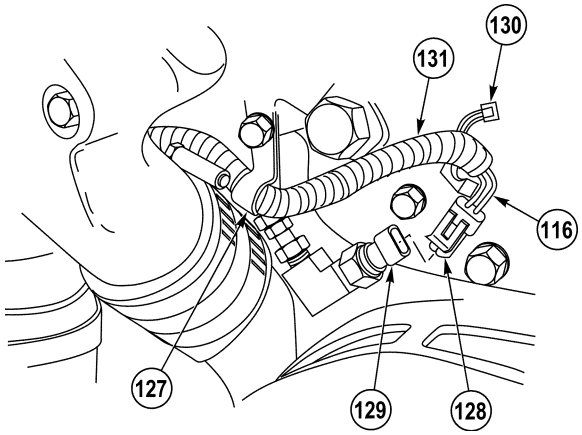


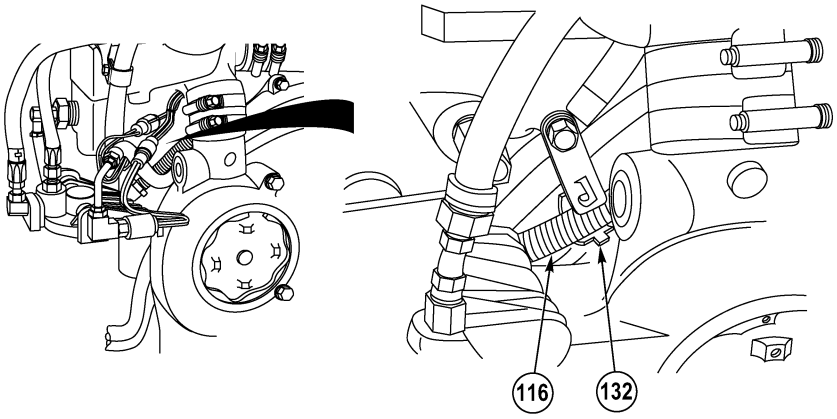
(54) Open three clips (125) and remove tee (126) from DDEC II wire harness (116).

(55) Open clip (127) and remove DDEC II wire harness (116) from clip (127).

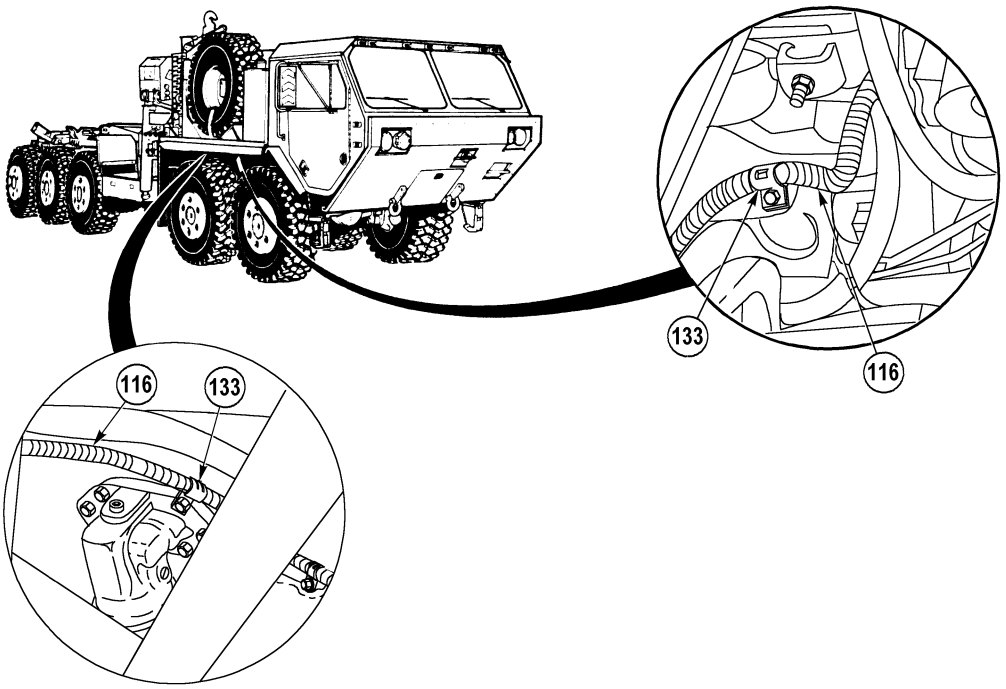
(56) Disconnect connector (128) from oil temperature sensor (129).

(57) Remove clip (130) and wire loom (131) from oil temperature sender portion of DDEC II wire harness (116).

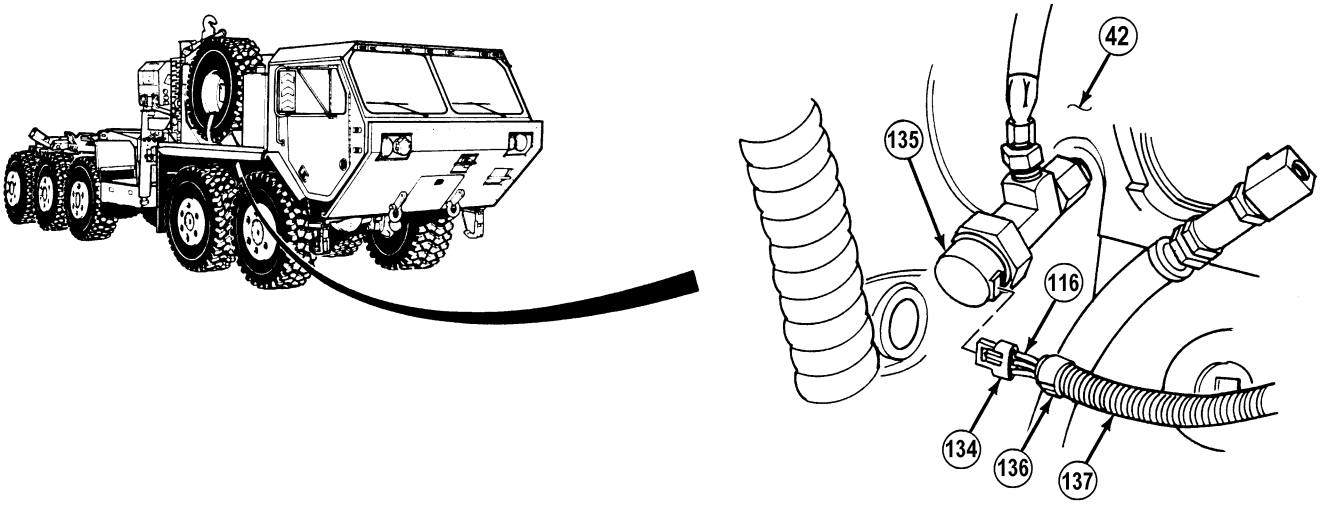




(58) Open clip (132) and remove DDEC II wire harness (116) from clip (132).



(59) Open two clips (133) and remove DDEC II wire harness (116) from clips (133).



NOTE

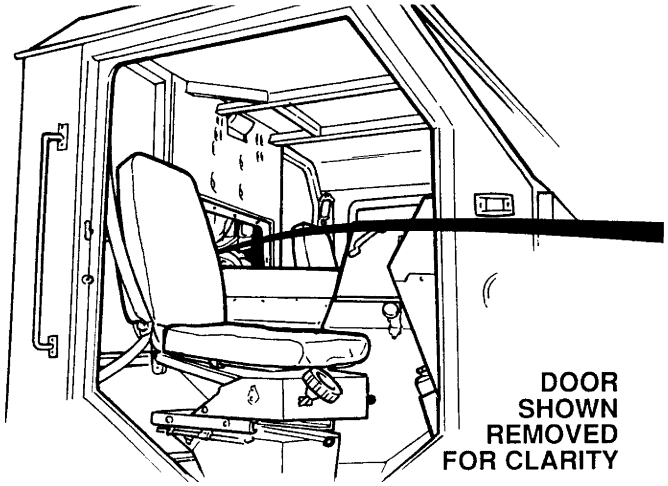
Connectors are removed by gently prying up on tab and pulling apart connectors.

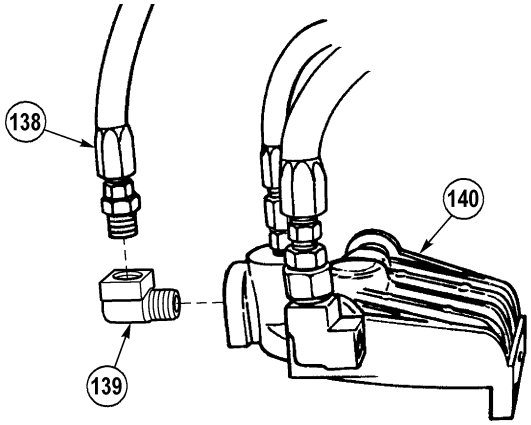
(60) Disconnect connector (134) from DDEC engine oil pressure sensor (135).

(61) Remove clip (136) and loom (137) from DDEC oil pressure sensor portion of DDEC II wire harness (116).

(62) Remove DDEC II wire harness (116) from engine (42).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).



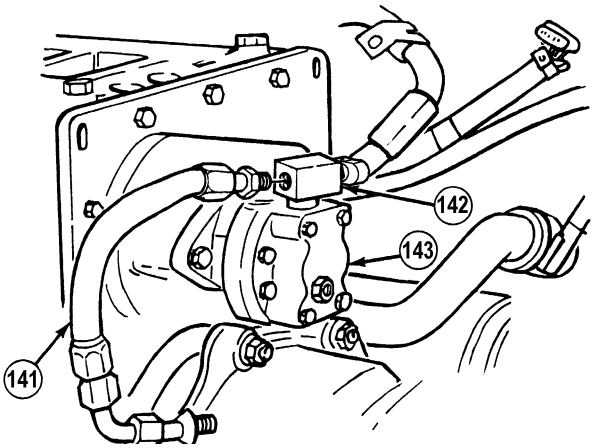


WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.

(63) Remove fuel line (138) from elbow (139) on fuel filter head (140).

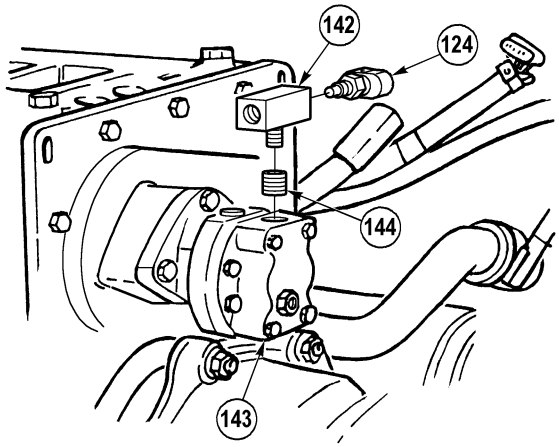
(64) Remove elbow (139) from fuel filter head (140).



NOTE

Note position and location of tee prior to removal.

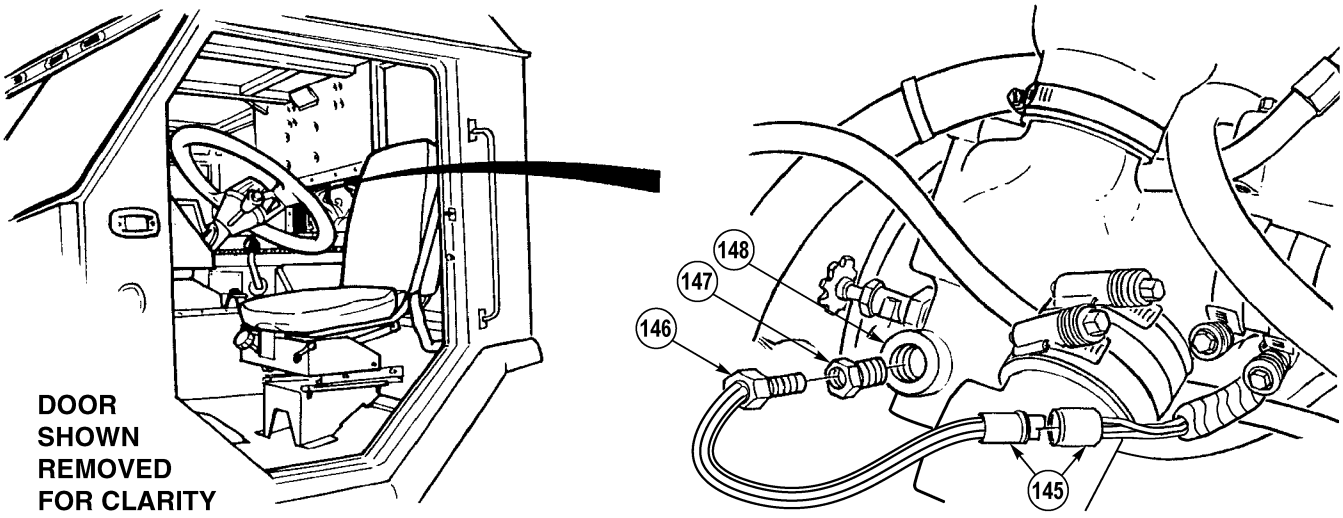
(65) Remove hose (141) from tee (142) on fuel pump (143).



(66) Remove fuel temperature sensor (124) from tee (142).

(67) Remove tee (142) from fuel pipe bushing (144). Discard tee.

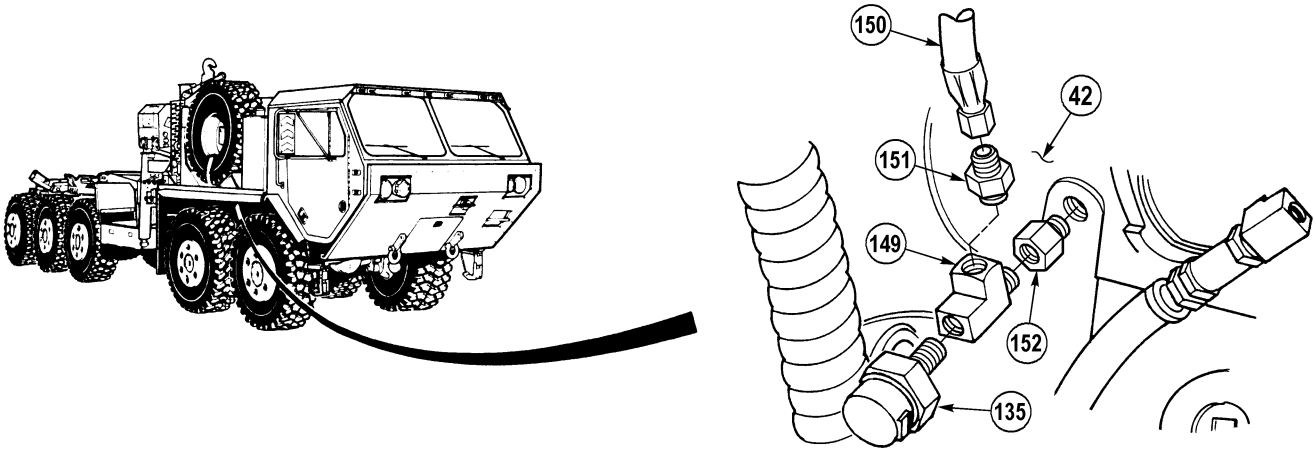
(68) Remove pipe bushing (144) from fuel pump (143). Discard pipe bushing.



(69) Disconnect MC71 connector (145).

(70) Remove STE/ICE sensor (146) from bushing reducer (147).

(71) Remove bushing reducer (147) from thermostat housing (148).



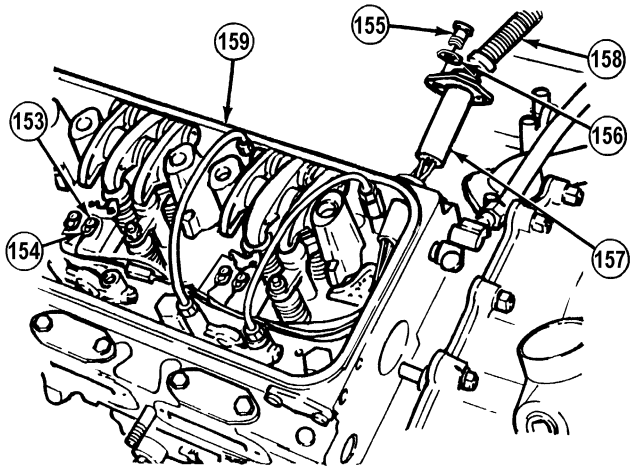
(72) Remove DDEC engine oil pressure sensor (135) from tee (149).

(73) Remove hose (150) from adapter (151).

(74) Remove adapter (151) from tee (149).

(75) Remove tee (149) and reducer (152) from engine (42).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

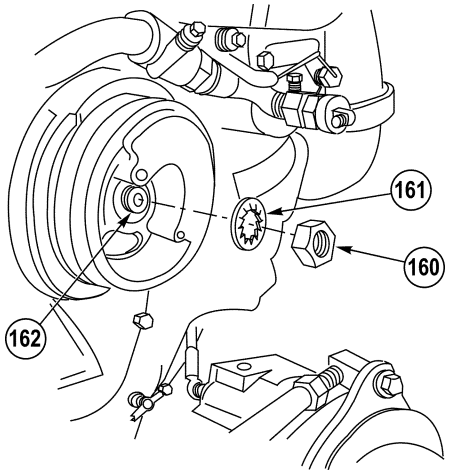


NOTE

- Wire terminal retaining screws are designed to be loosened, not removed.
- All eight injector wire harness terminal retaining screws are loosened the same way.
- Right side and left side injector wire harnesses are removed the same way. Right side shown.

(76) Loosen wire terminal retaining screws (153) on fuel injectors (154).

(77) Remove two screws (155), washers (156), flange with gasket (157), and wire harness (158) from cylinder head (159). Discard gasket.

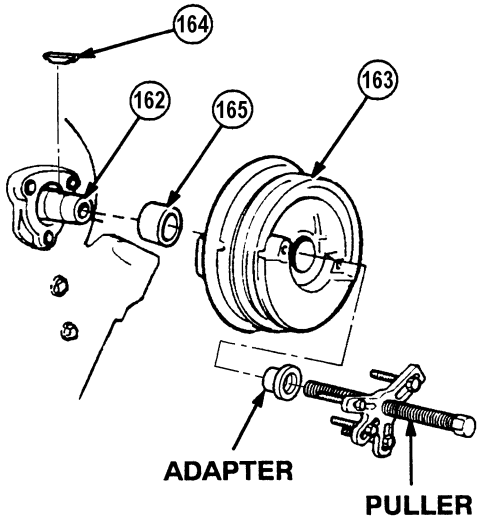


NOTE

One screw and washer was removed in Step (29).

(78) Perform Steps (76) and (77) for left side harness.

(79) Remove nut (160) and lockwasher (161) from left side camshaft (162). Discard lockwasher.



(80) Using puller and adapter, remove camshaft from balance pulley (163) from left camshaft (162).

NOTE

Perform Step (81) if key or spacer are damaged.

(81) Remove key (164) and spacer (165) from end of left camshaft (162).

WARNING

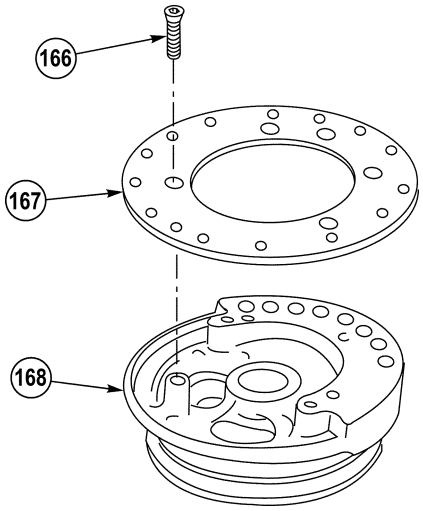
Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Two alignment pins on pulse wheel must be installed in alignment holes on back of camshaft pulley.
- DDEC II engines have a 13 tooth pulse wheel; DDEC III engines have a 36 tooth pulse wheel.

(82) Apply sealing compound to threads of four screws (166).

(83) Install DDEC III speed sensor pulse wheel (167) on front balance pulley (168) with four screws (166). Tighten to 60 to 84 lb-in (7 to 10 N·m).

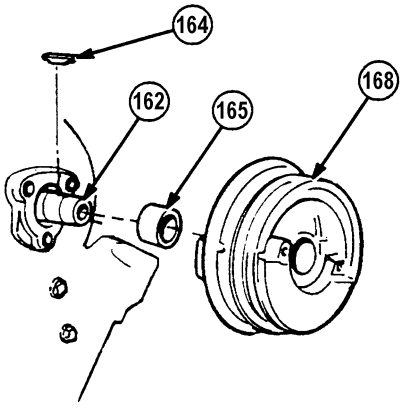


NOTE

Perform Step (84) if spacer or key was damaged.

(84) Install spacer (165) and key (164) on end of left camshaft (162).

(85) Position front balance pulley (168) on left camshaft (162).

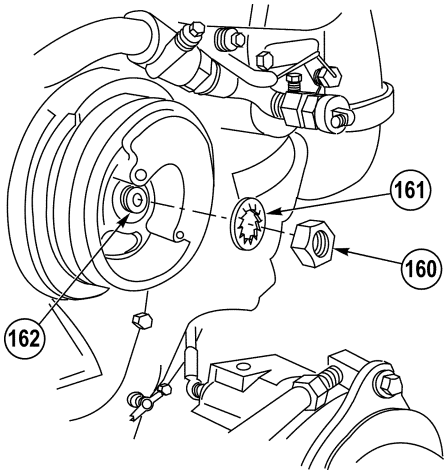


18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

NOTE

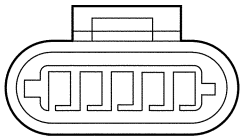
Pry bar positioned in hydraulic pump driveshaft yoke on crankshaft pulley will prevent camshaft pulley from turning.

(86) Install lockwasher (161) and nut (160) on left camshaft (162). Tighten to 300 to 325 lb-ft (407 to 441 N·m).

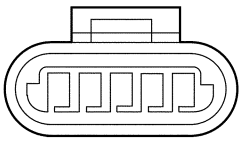


NOTE

- Right side and left side injector harness are installed the same way. Right side shown.
- Right side harness has black connector, left side has gray connector. Left side harness is longer.



FUEL INJECTOR HARNESS LEFT SIDE CONNECTOR



FUEL INJECTOR HARNESS RIGHT SIDE CONNECTOR

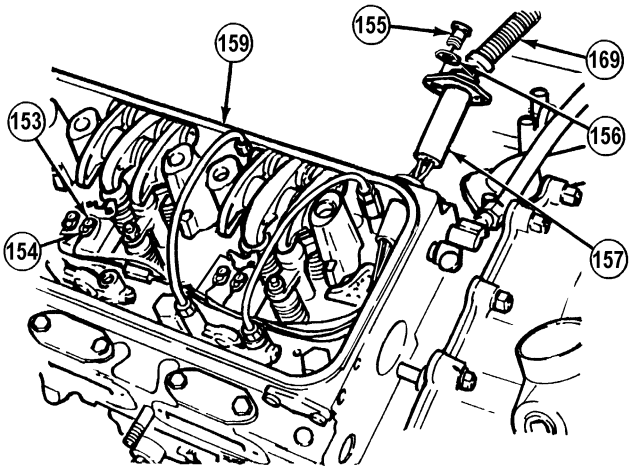
(87) Install fuel injector wire harness (169) and flange with gasket (157) on cylinder head (159) with two washers (156) and screws (155).

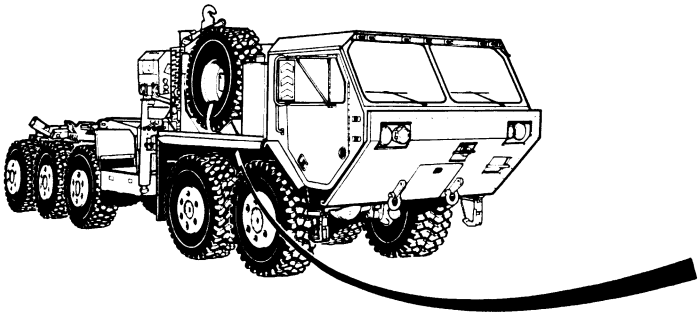
(88) Connect wire terminals to fuel inlet block on fuel injector (154) and tighten retaining screws (153).

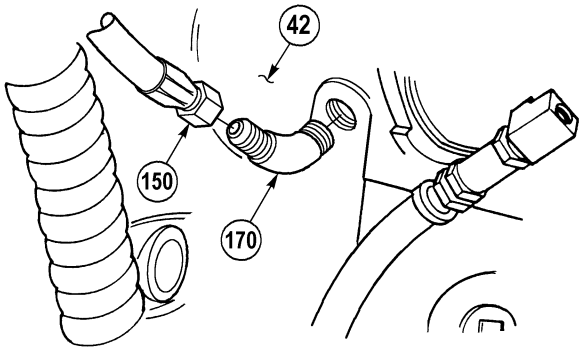
NOTE

Only install one screw and washer in fuel injector harness towards front of engine. Remaining screw and washer will be installed in Step (150).

(89) Perform Steps (87) and (88) for left side harness.







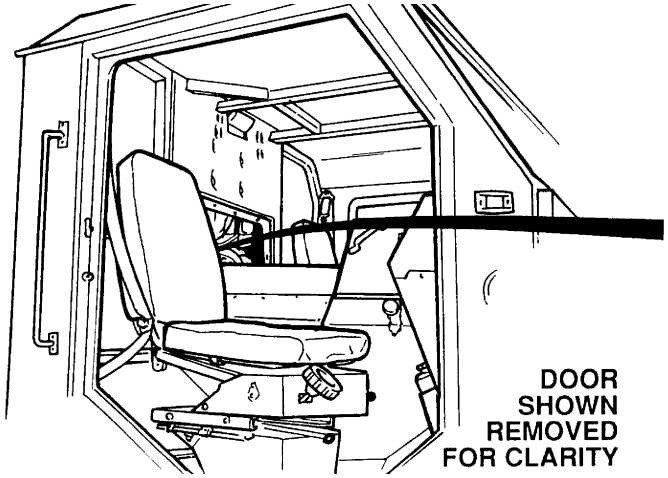
WARNING

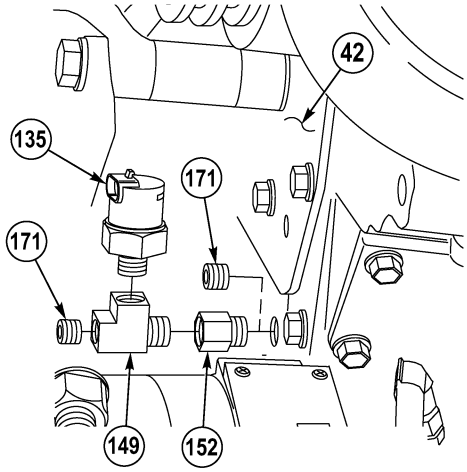
Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(90) Apply sealing compound to threads of elbow (170).

(91) Install elbow (170) in engine (42).

(92) Install hose (150) on elbow (170).





(93) Remove plug (171) from engine (42).

WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(94) Apply sealing compound to threads of DDEC engine oil pressure sensor (135), tee (149), plug (171), and reducer (152).

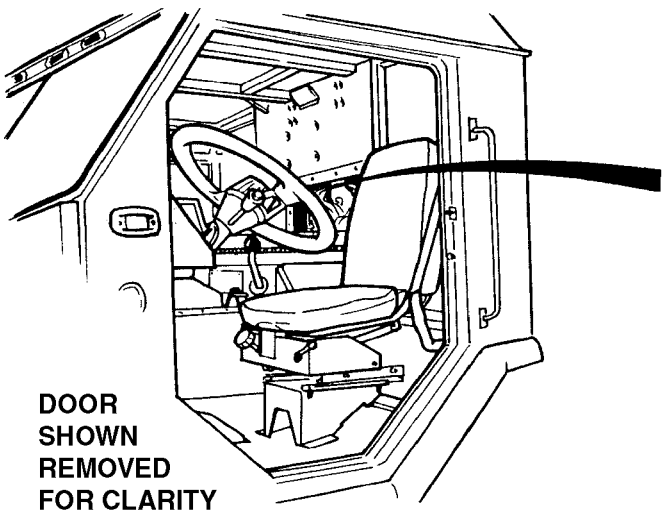
(95) Install reducer (152) in engine (42).

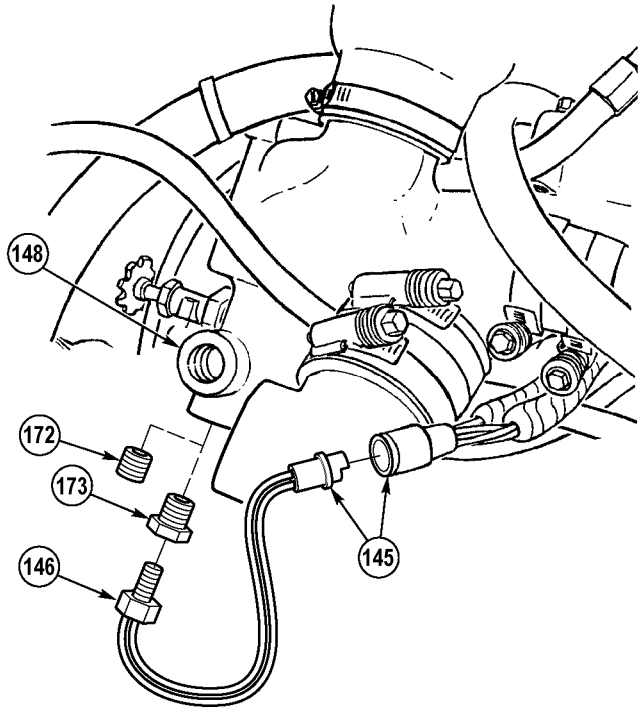
(96) Install tee (149) in reducer (152).

(97) Install DDEC engine oil pressure sensor (135) on tee (149).

(98) Install plug (171) in tee (149).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).





(99) Remove plug (172) from thermostat housing (148).

WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(100) Apply sealing compound to threads of bushing reducer (173).

(101) Install bushing reducer (173) in thermostat housing (148).

(102) Apply sealing compound to threads of STE\ICE sensor (146).

(103) Install STE\ICE sensor (146) in bushing reducer (173).

(104) Connector MC71 connector (145).

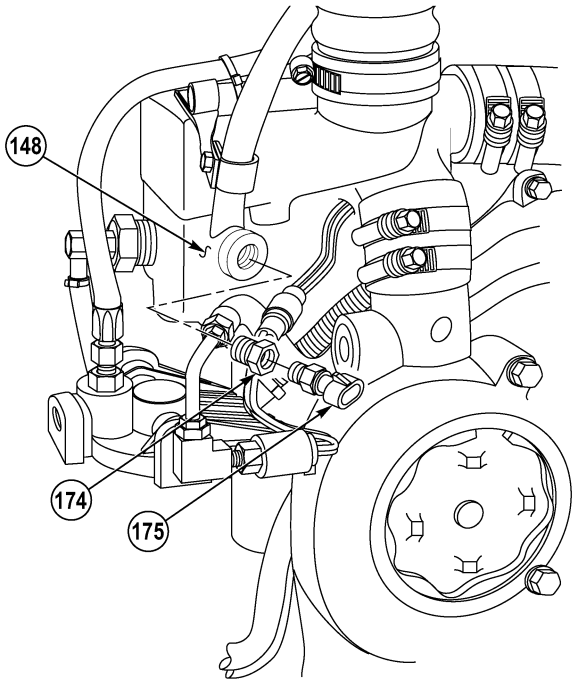
WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(105) Apply sealing compound to threads of bushing reducer (174) and coolant temperature sensor (175).

(106) Install bushing reducer (174) in right thermostat housing (148).

(107) Install coolant temperature sensor (175) in bushing reducer (174).



WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

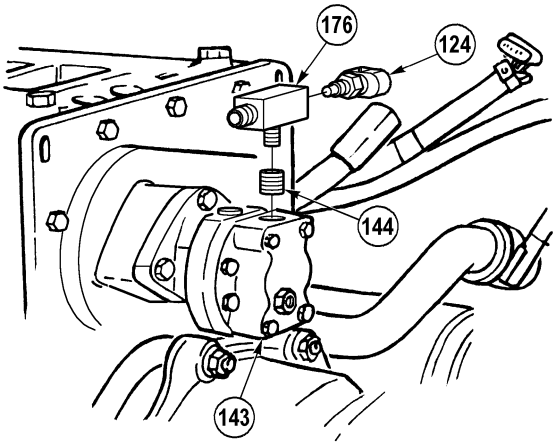
(108) Apply sealing compound to threads of pipe bushing (144), tee (176), and fuel temperature sensor (124).

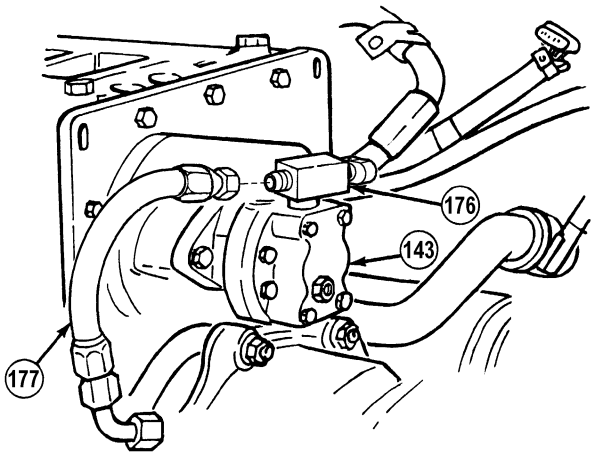
(109) Install pipe bushing (144) in fuel pump (143).

(110) Install tee (176) in pipe bushing (144).

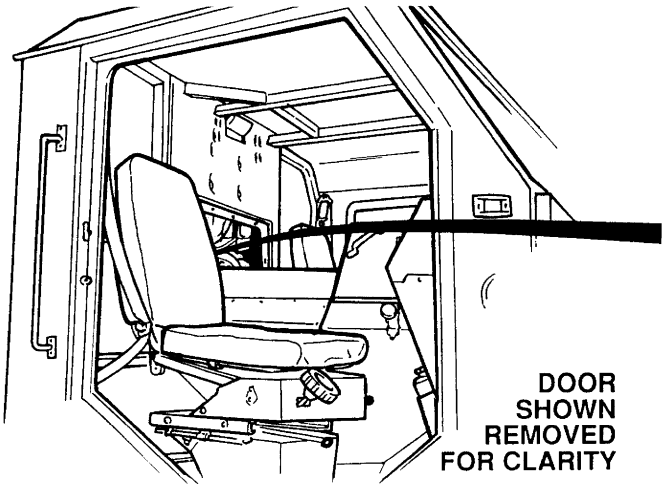
(111) Install fuel temperature sensor (124) in tee (176).

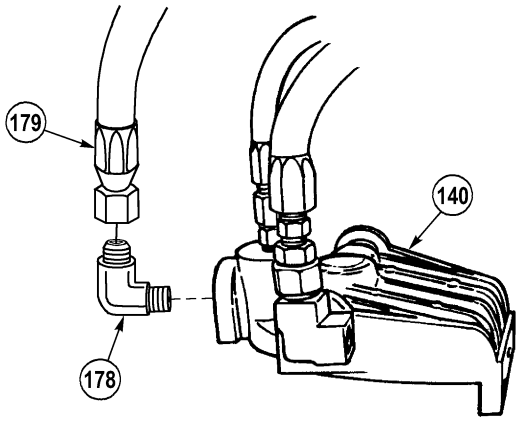
(112) Install hose (177) on tee (176) of fuel pump (143).





18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).





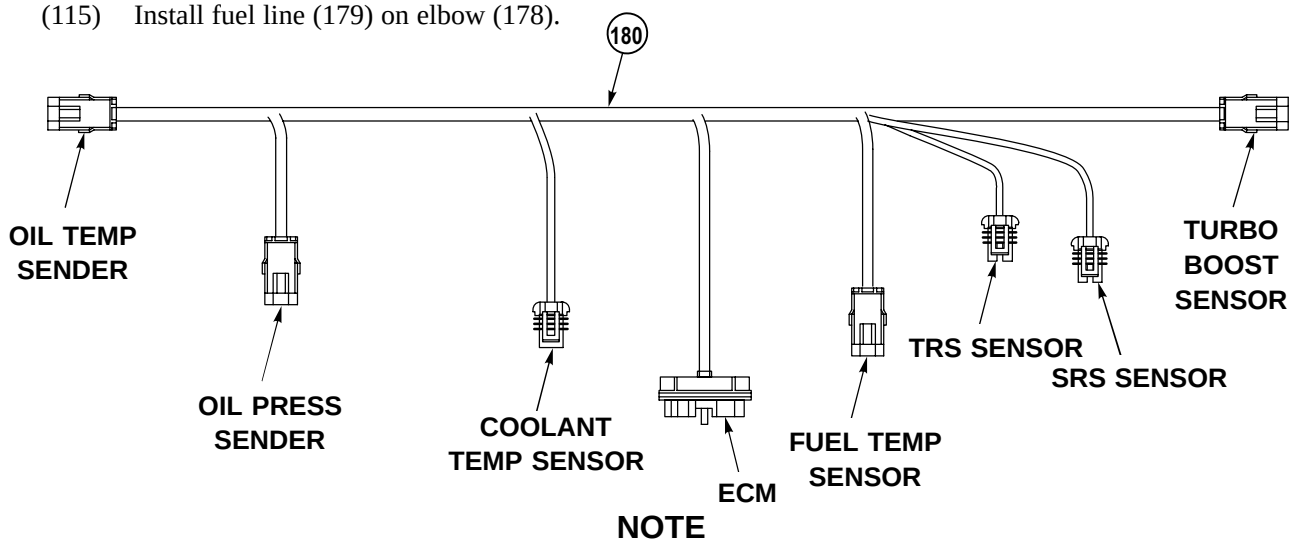
WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(113) Apply sealing compound to threads of elbow (178).

(114) Install elbow (178) on fuel filter head (140).

(115) Install fuel line (179) on elbow (178).



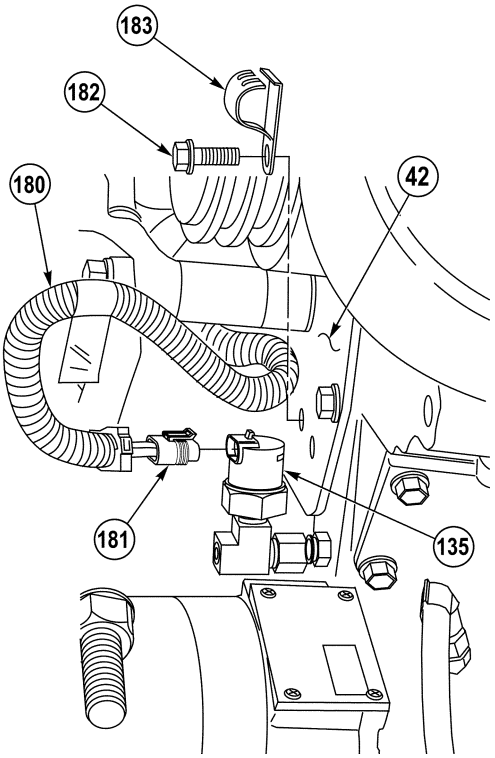
NOTE

- Evenly distribute any slack in harness.
- Extra clip on DDEC III wire harness may be removed.

(116) Position DDEC III wire harness (180) on engine.

(117) Connect connector (181) on oil pressure sensor (135).

(118) Remove screw (182) from engine (42).



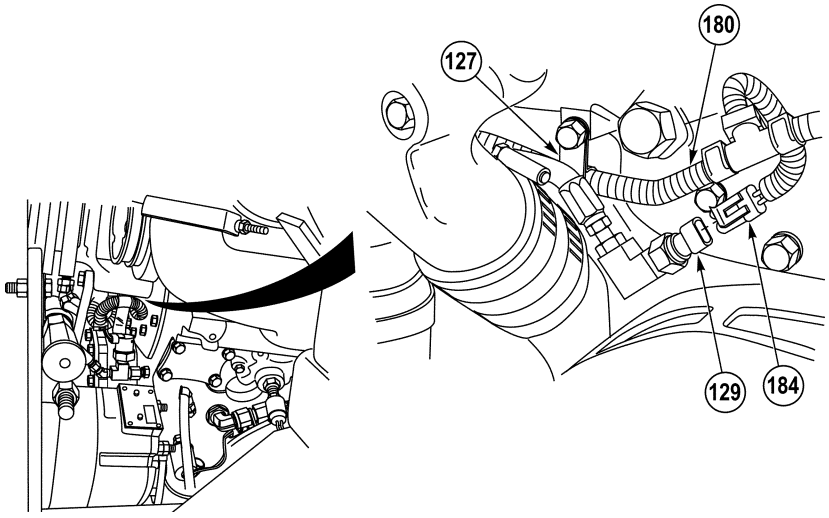
WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(119) Apply sealing compound to threads of screw (182).

(120) Install DDEC III wire harness (180) in clip (183) and close clip.

(121) Install clip (183) on engine (42) with screw (182). Tighten to 30 to 35 lb-ft (41 to 47 N·m)

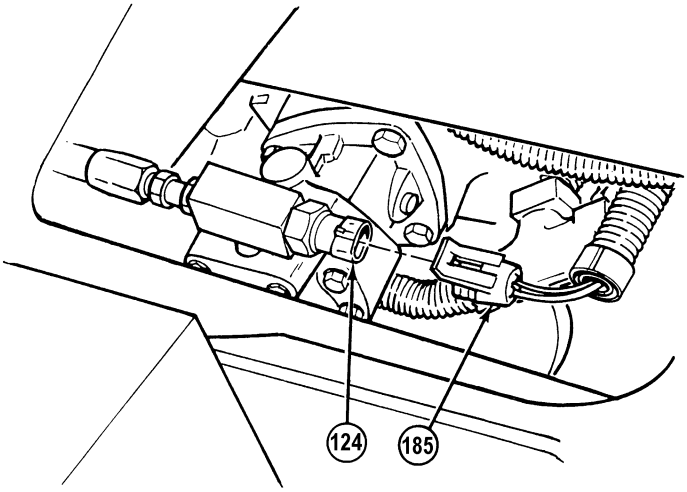


(122) Install DDEC III wire harness (180) in clip (127) and close clip.

(123) Connect connector (184) on oil temperature sensor (129).

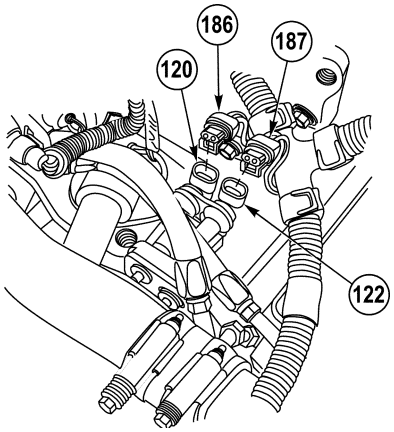
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

(124) Connect connector (185) on fuel temperature sensor (124).

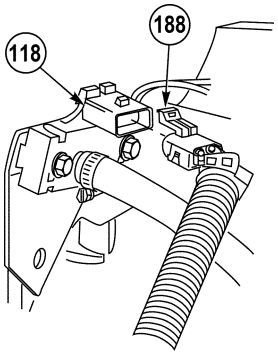


(125) Connect connector (186) on TRS sensor (120).

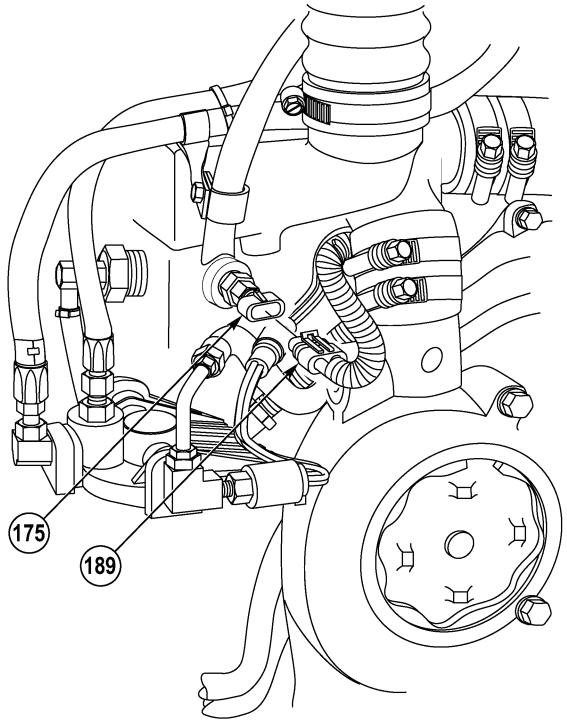
(126) Connect connector (187) on SRS sensor (122).



(127) Connect connector (188) on turbo boost sensor (118).

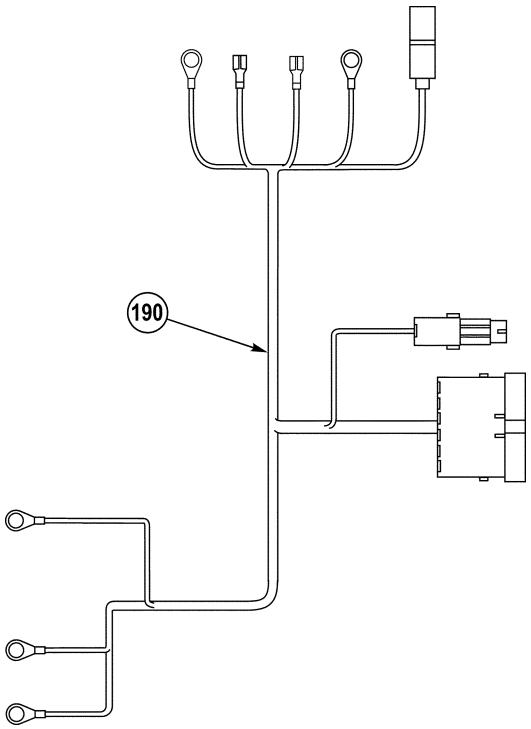


(128) Connect connector (189) on coolant temperature sensor (175).

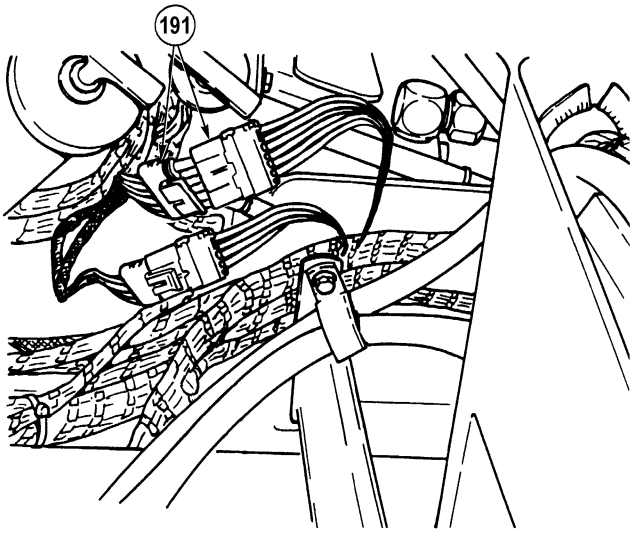


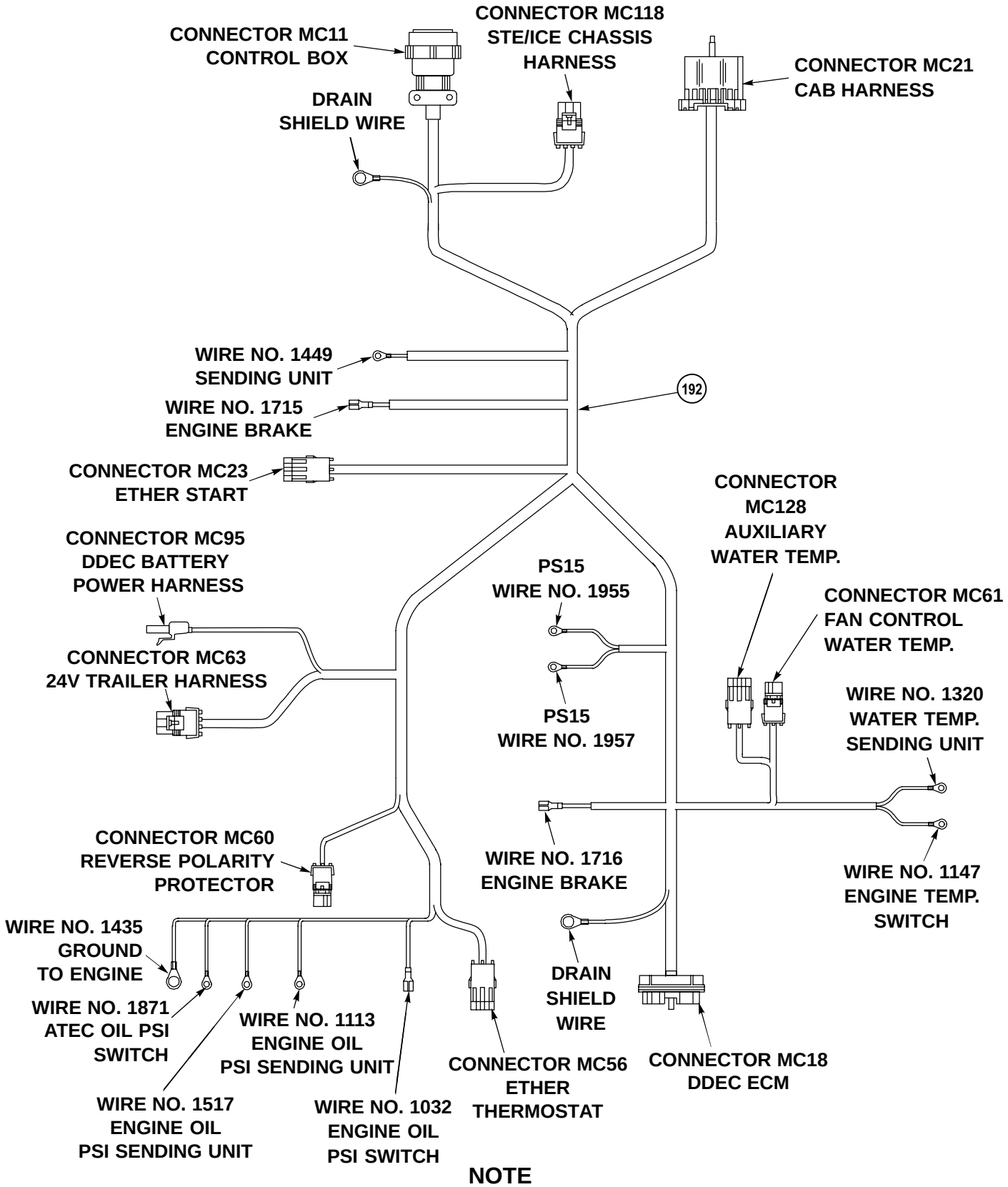
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

(129) Position DDEC III battery power wire harness (190) on engine.



(130) Connect 6 pin MC62 connector (191).



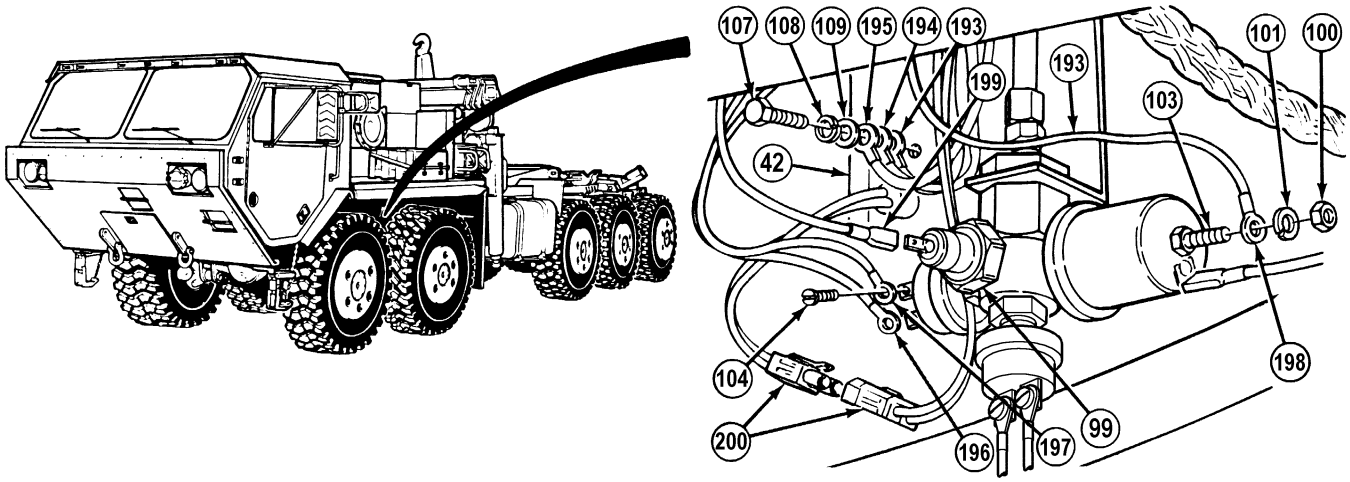


NOTE

- Evenly distribute any slack in harness and install cable ties as required.
- To ease installation of engine wire harness, start at cab electronic control box (in truck only).

(131) Position engine wire harness (192) on engine.

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).



(132) Install shield wires (193) and (194), wire 1435 (195), washer (109), lockwasher (108), and screw (107) on engine (42).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear safety goggles\glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush with large amounts of water for at least 15 minutes and get immediate medical attention.

(133) Coat screw (107) with corrosion preventative compound.

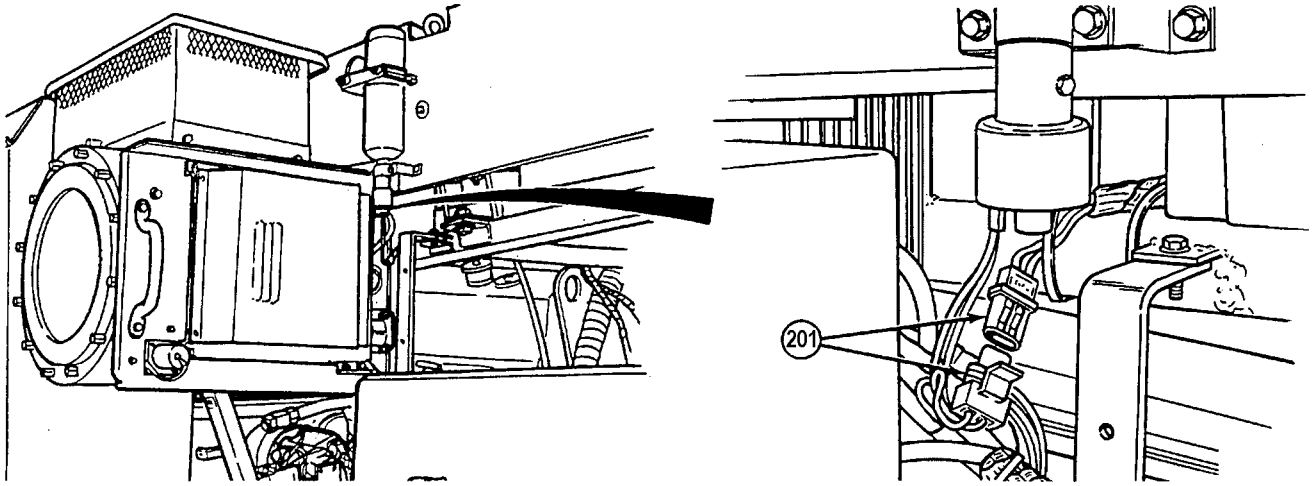
(134) Install wire 1871 (196) and 1517 (197) and two screws (104) on engine oil switch (99).

(135) Coat two screws (104) with corrosion preventative compound.

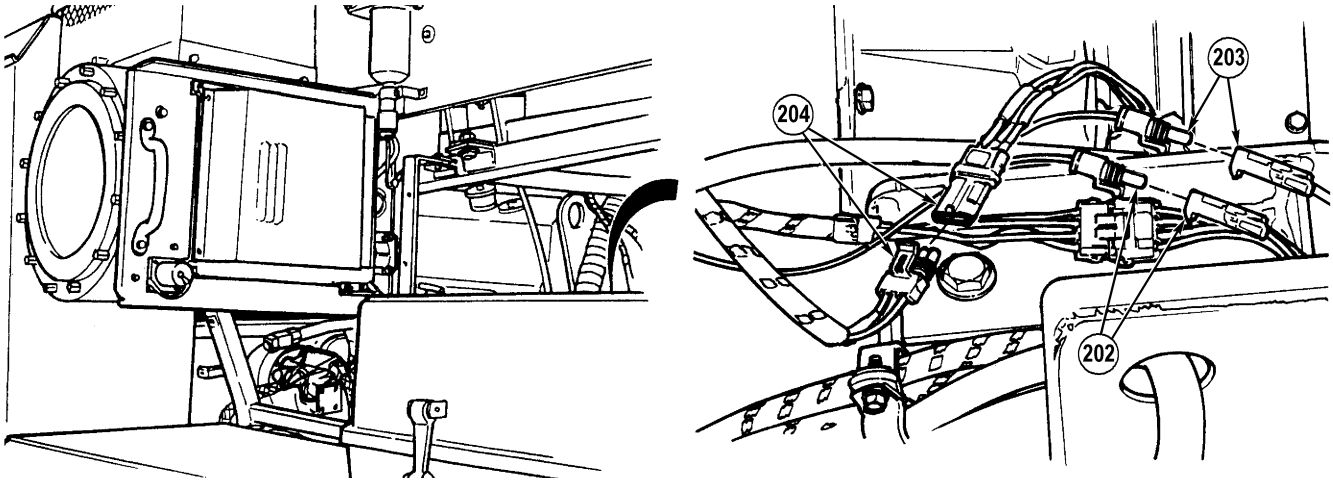
(136) Install wire 1113 (198), lockwasher (101), and nut (100) on engine oil sending unit stud (103).

(137) Install wire 1032 (199) on engine oil switch (99).

(138) Connect MC56 connector (200).



(139) Connect MC23 connector (201).



NOTE

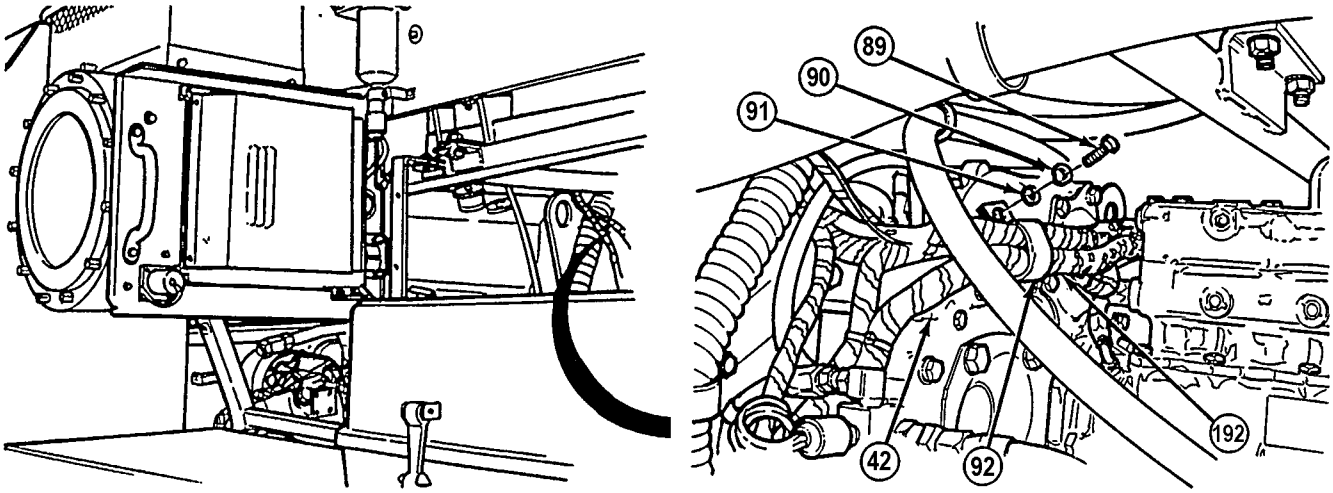
Perform Step (140) if truck is equipped with 200-amp alternator.

(140) Connect MC60 connector (202).

(141) Connect MC95 connector (203).

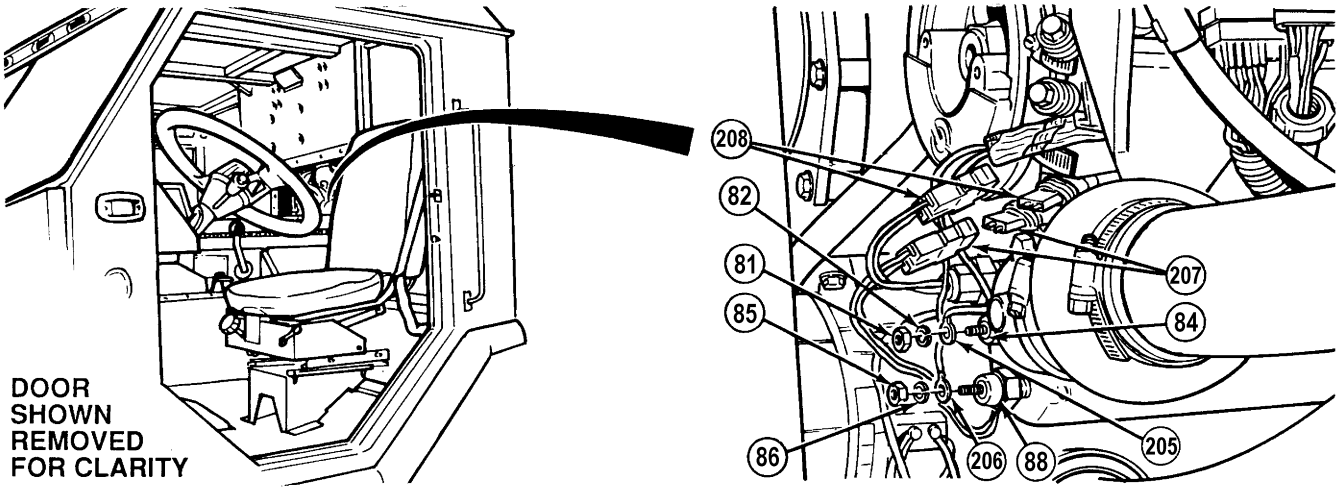
(142) Connect MC63 connector (204).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).



(143) Position engine wire harness (192) in cushion clip (92).

(144) Install cushion clip (92), washer (91), lockwasher (90), and screw (89) on engine (42).



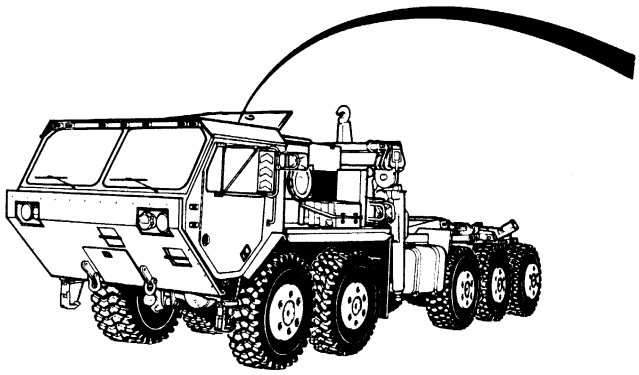
(145) Install wire 1147 (205), lockwasher (82), and nut (81) on temperature sending unit (84).

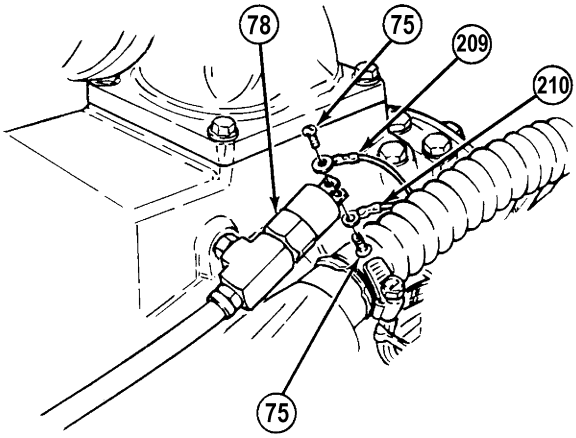
(146) Install wire 1320 (206), lockwasher (86), and nut (85) on temperature sending unit (88).

(147) Connect MC128 connector (207).

(148) Connect MC61 connector (208).

(149) Install wire 1957 (209) and wire 1955 (210) on pressure switch (78) with two screws (75).

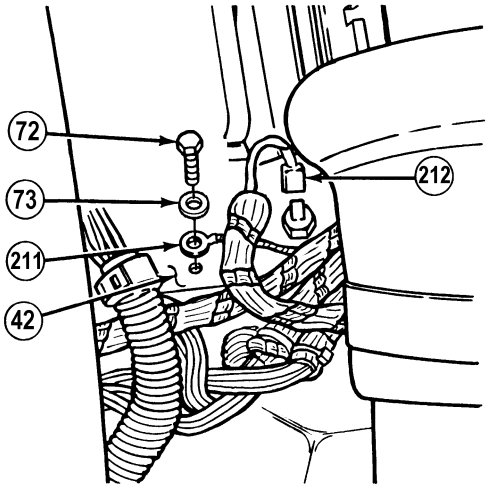




(150) Install shield wire (211), washer (73), and screw (72) on engine (42).

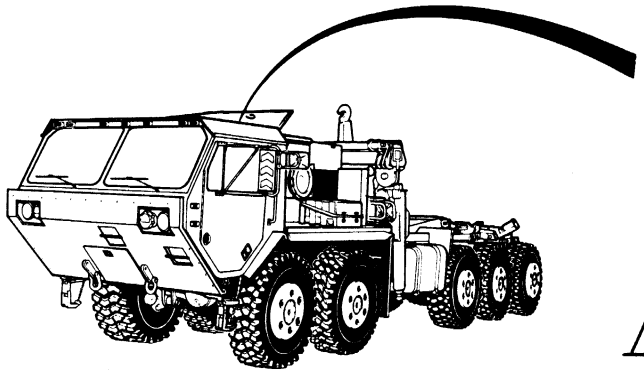
WARNING

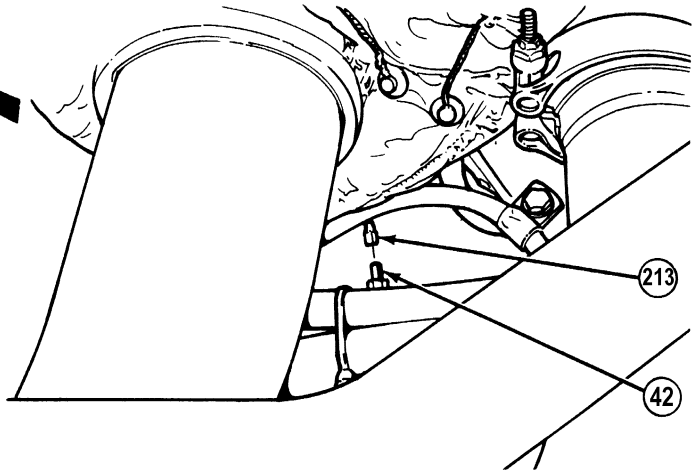
Corrosion compound contains alkali. Do not get in eyes; wear safety goggles/glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush with large amounts of water for at least 15 minutes and get immediate attention.



(151) Coat screw (72) with corrosion preventative compound.

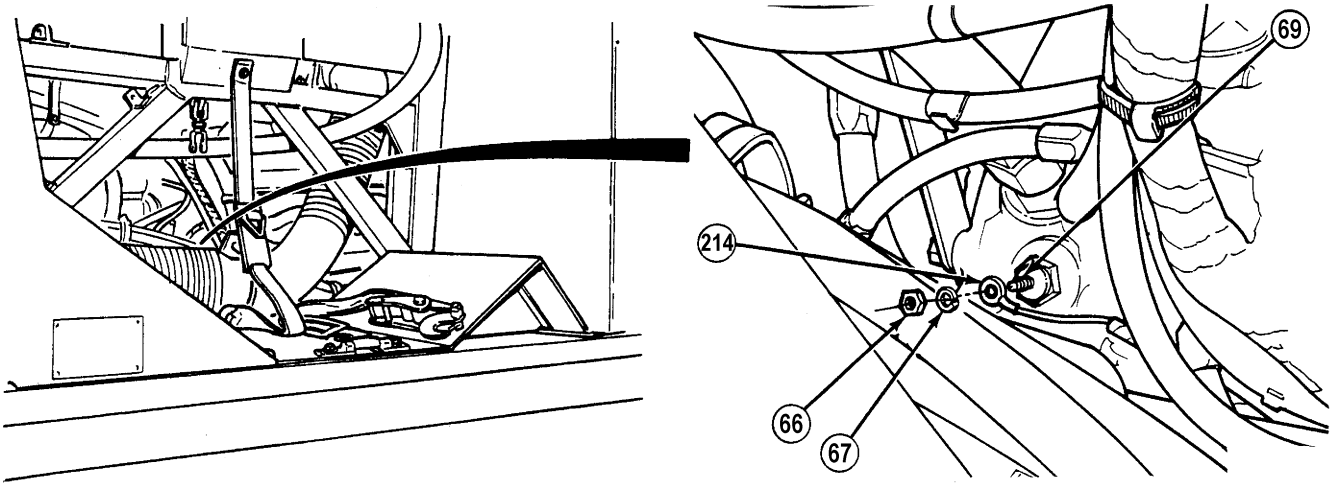
(152) Install wire 1716 (212) on engine (42).





(153) Install wire 1715 (213) on engine (42).

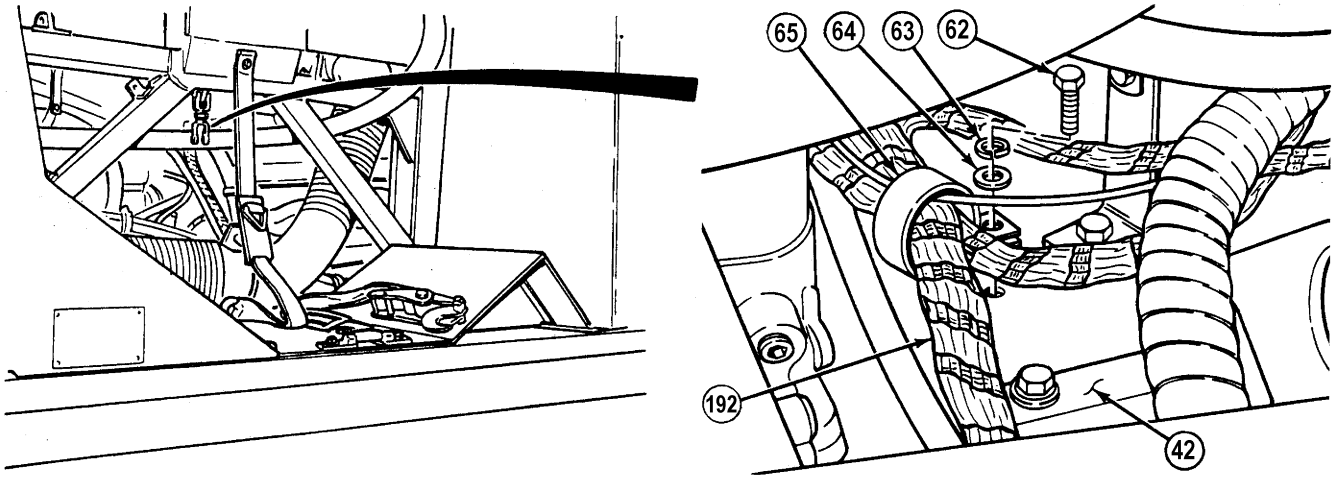
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).



NOTE

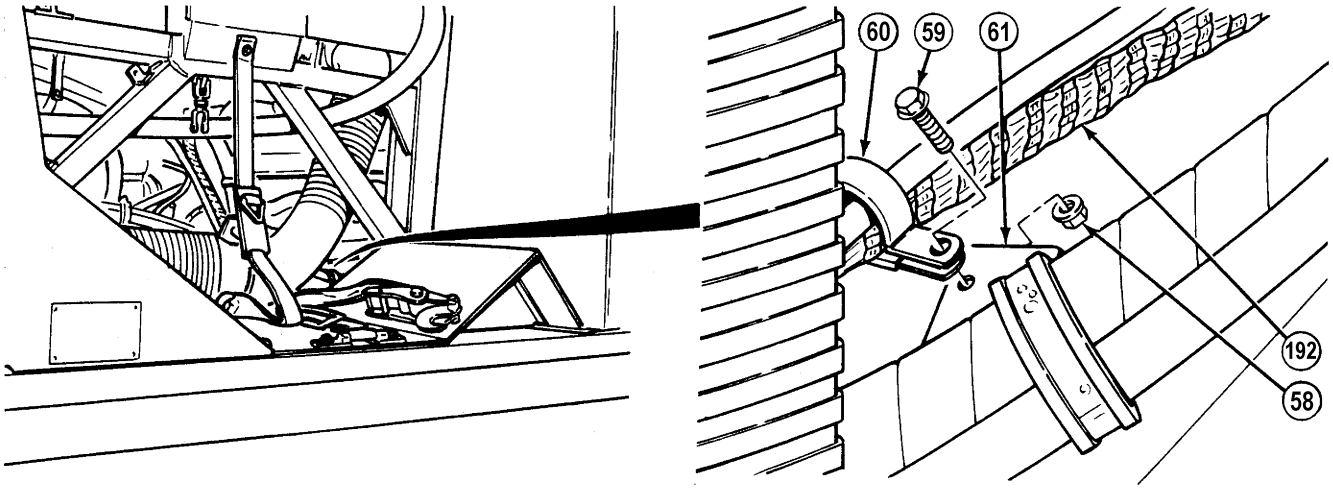
If engine is installed in stand, go to Step (165).

(154) Install wire 1449 (214), lockwasher (67), and nut (66) on transmission oil temperature sending unit (69).



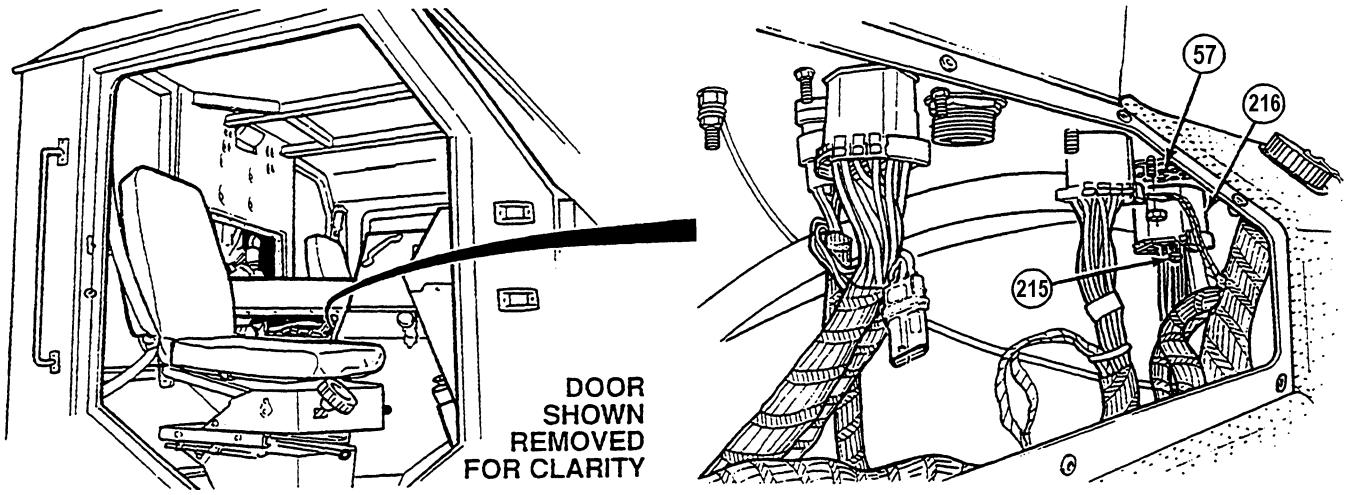
(155) Position engine wire harness (192) in cushion clip (65).

(156) Install cushion clip (65), washer (64), lockwasher (63), and screw (62) on engine (42).



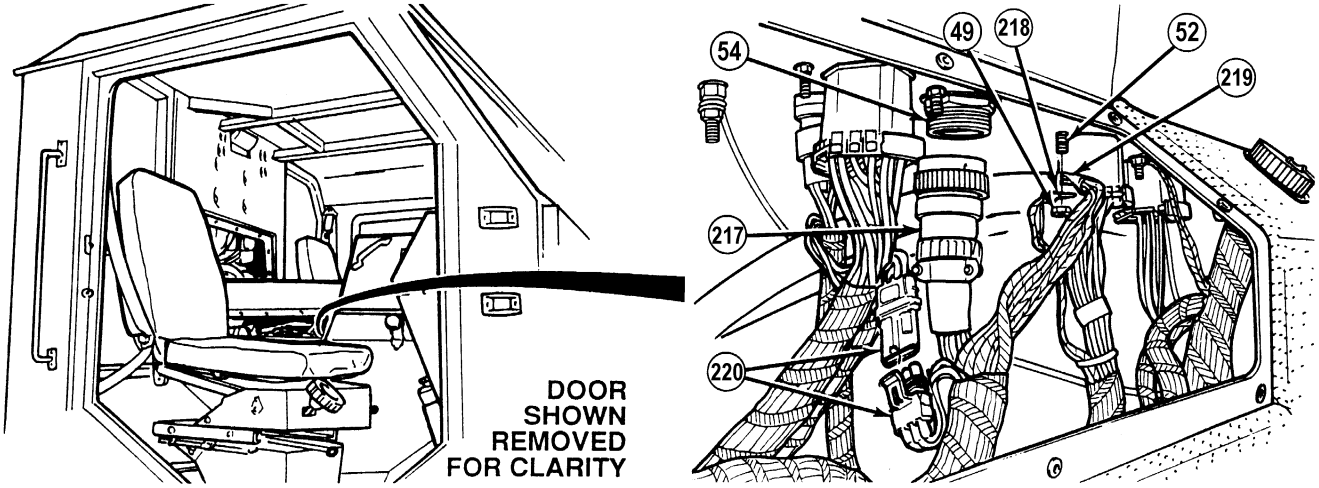
(157) Position engine wire harness (192) in cushion clip (60).

(158) Install cushion clip (60), screw (59), and locknut (58) on bracket (61).



(159) Connect MC21 connector (215) to bulkhead connector (57). Tighten screw (216).

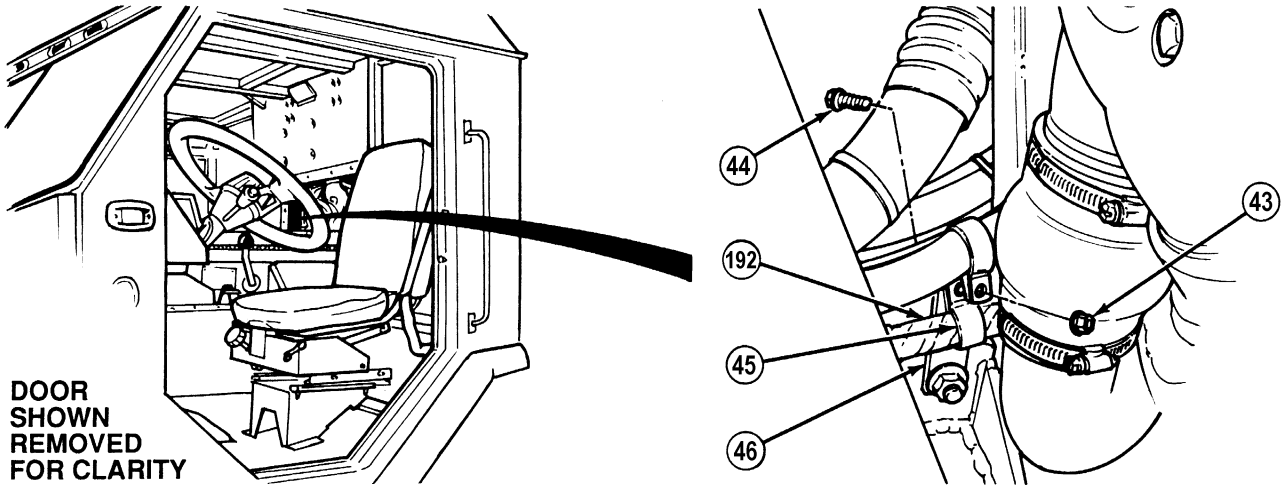
18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).



(160) Connect MC11 connector (217) to bulkhead connector (54).

(161) Install shield wires (218) and (219) and locknut (49) on stud (52).

(162) Connect MC118 connector (220).



(163) Position engine wire harness (192) in cushion clip (45).

(164) Install screw (44), cushion clip (45), and locknut (43) on bracket (46).

(165) Position four isolators (221) on ECM (222).

(166) Install ECM (222) on ECM bracket (223) with four isolators (224) and screws (225). Tighten screws to 60 to 84 lb-in (7 to 9 N·m).

(167) Install communication protective cover (226) on ECM (222).

WARNING

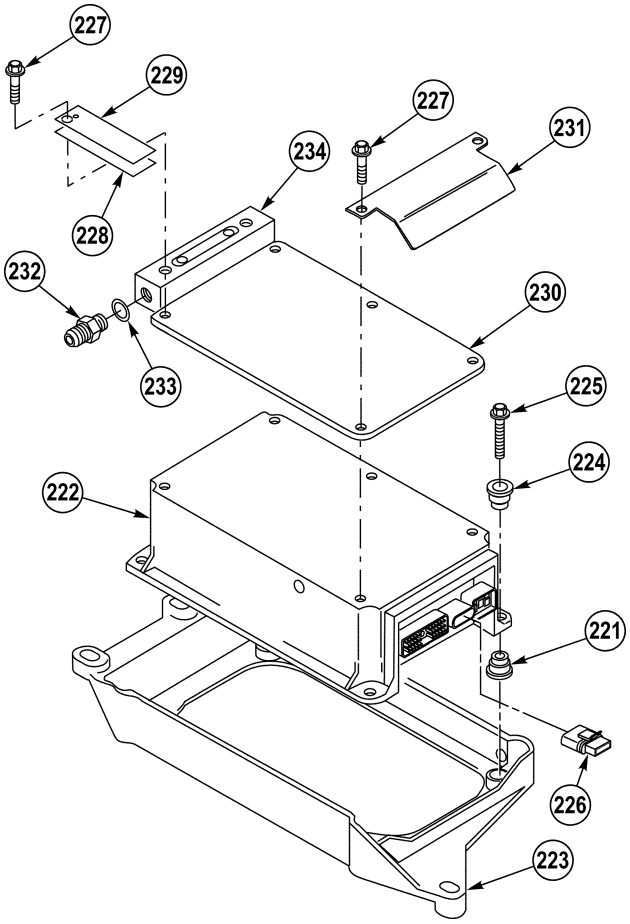
Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(168) Coat threads of five screws (227) with antiseize compound.

(169) Remove backing (228) from DDEC III data plate (229).

(170) Install engine cold plate (230), heat shield (231), and DDEC III data plate (229) on ECM (222) with five screws (227). Tighten five screws to 180 lb-in (20 N·m).

(171) Install two fittings (232) and preformed packings (233) on fitting (234).



18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

NOTE

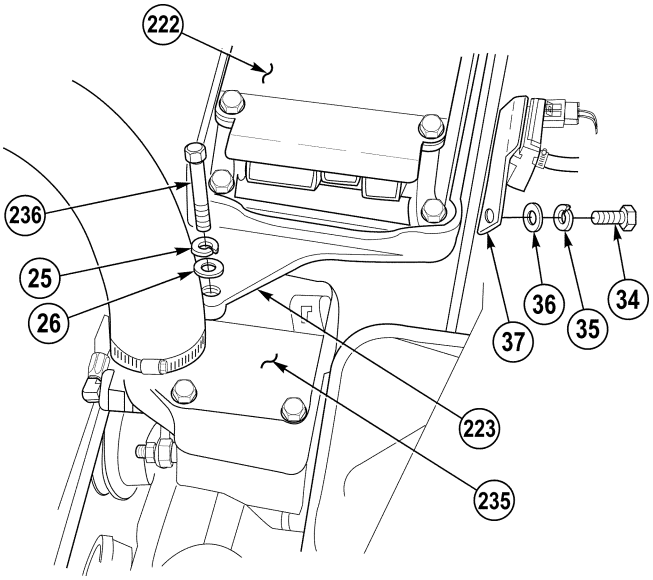
Left injector wire harness should be positioned under ECM bracket.

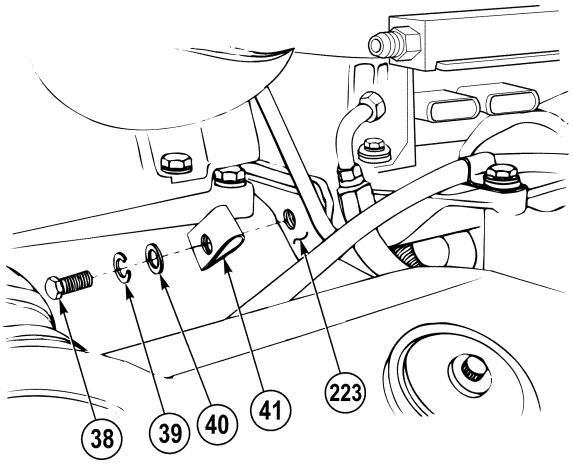
(172) Position ECM (222) and ECM bracket (223) on thermostat housing (235).

(173) Position turbo boost sensor bracket (37) on ECM bracket (223) with washer (36), lockwasher (35) and screw (34). Do not tighten screw.

(174) Position washer (26), lockwasher (25) and screw (236) and ECM bracket (223). Do not tighten screw.

(175) Position clip (41), washer (40), lockwasher (39) and screw (38) on ECM bracket (223). Do not tighten screw.





(176) Position clip (33), washer (32), lockwasher (31) and screw (237) on ECM bracket (223). Do not tighten screw.

(177) Position washer (29), lockwasher (28), and screw (27) on ECM bracket (223). Do not tighten screw.

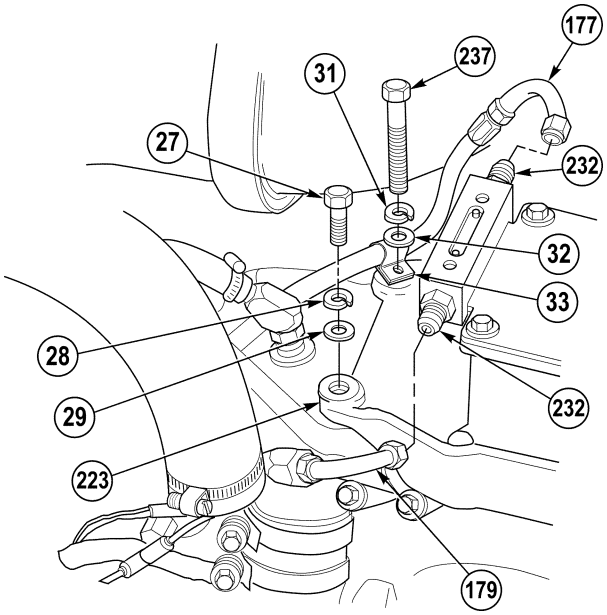
CAUTION

Screws connecting bracket to blower must be tightened first to prevent damage to housing.

(178) Tighten two screws (34) and (38) to 120 to 156 lb-in (14 to 18 N·m).

(179) Tighten three screws (236), (237) and (27) to 17 to 20 lb-ft (23 to 27 N·m).

(180) Install two fuel lines (177) and (179) on fittings (232).

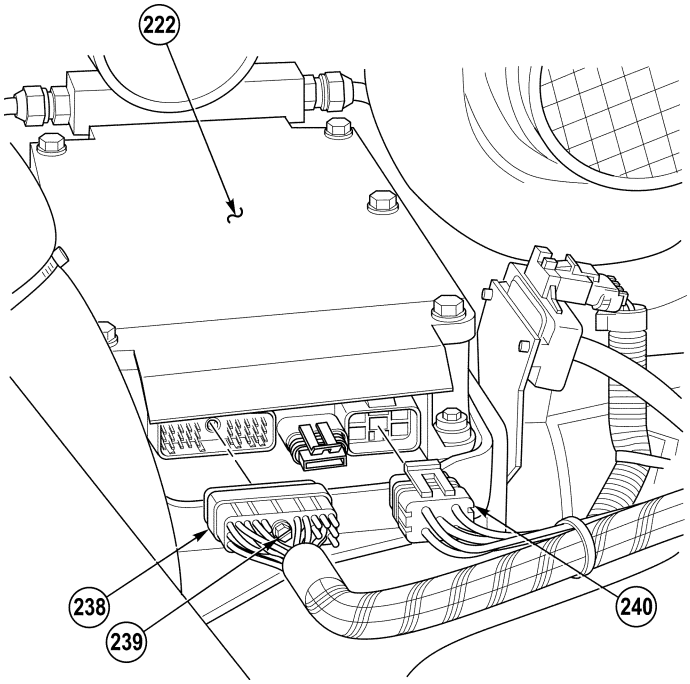


CAUTION

Use caution while installing connectors from ECM. The ECM has plastic retainers that may break if connectors are not properly installed.

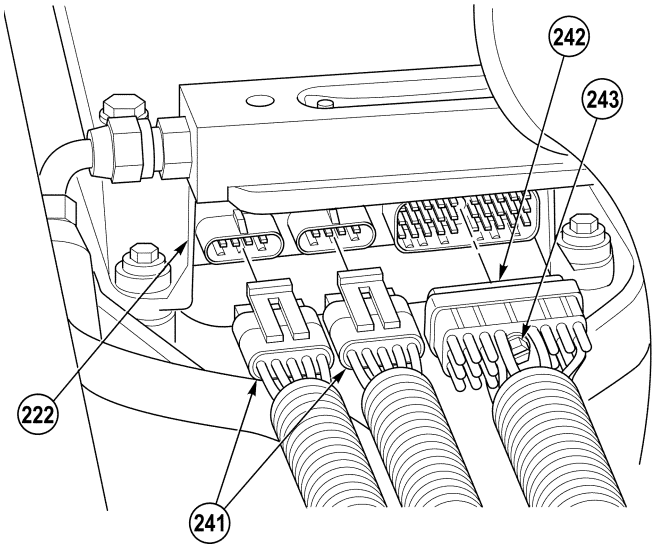
NOTE

- Ensure locking tangs are locked in place when installing wiring harness connectors.
- ECM wiring harnesses are designed to be installed in only one location.



(181) Connect chassis wire harness connector (238) to left side of ECM (222) and tighten screw (239).

(182) Connect power wire harness connector (240) to left side of ECM (222).



(183) Connect two injector wiring harness connectors (241) to right side of ECM (222).

(184) Connect engine wiring harness connector (242) to right side of ECM (222) and tighten screw (243).

18-14. CONVERT DDEC II ENGINE ASSEMBLY TO DDEC III ENGINE ASSEMBLY (CONT).

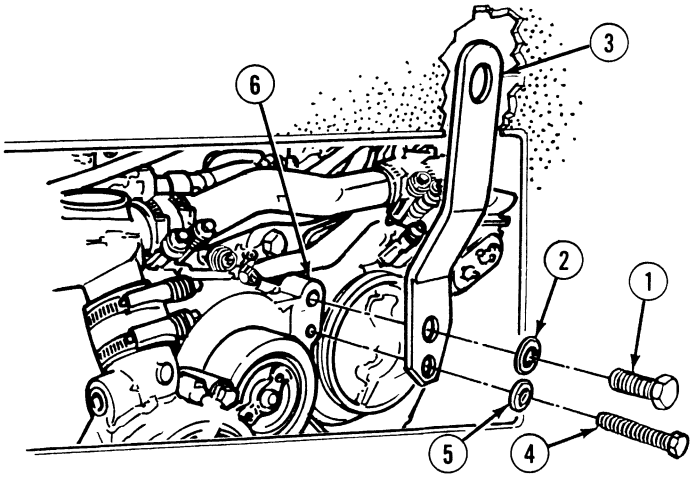
(185) Position engine lifting bracket (3) on front balance cover (6) with lockwashers (2) and (5) and screws (4) and (1).

(186) Tighten screw (1) on engine lifting bracket (3) to 71 to 75 lb-ft (96 to 102 N·m).

(187) Tighten screw (4) on engine lifting bracket (3) to 53 to 56 lb-ft (72 to 76 N·m).

(188) Tighten screw (1) on engine lifting bracket (3) to 103 to 110 lb-ft (140 to 149 N·m).

(189) Tighten screw (4) on engine lifting bracket (3) to 71 to 75 lb-ft (96 to 102 N·m).



b. Follow-On Maintenance:

- Install secondary fuel filter, (TM 9-2320-364-20).
- Install left rocker cover, (TM 9-2320-364-20).
- Install right rocker cover, (TM 9-2320-364-20).
- Fill cooling system, (in truck only), (TM 9-2320-364-20).
- Connect batteries, (in truck only), (TM 9-2320-364-20).
- Start engine, (in truck only), (TM 9-2320-364-10).
- Check for leaks, (in truck only), (TM 9-2320-364-10).
- Shut off engine, (in truck only), (TM 9-2320-364-10).
- Close engine cover, (in truck only), (TM 9-2320-364-10).
- Install right front fender skirt, (in truck only), (TM 9-2320-364-20).
- Install cab engine access panel, (in truck only), (TM 9-2320-364-20).
- Install left front splash guard, (in truck only), (TM 9-2320-364-20).
- Install electronic control box (ECB) right access panel, (in truck only), (TM 9-2320-364-20).
- Install left front noise panel, (in truck only), (TM 9-2320-364-20).
- Install right side noise panel, (in truck only), (TM 9-2320-364-20).
- Install left side noise panel, (in truck only), (TM 9-2320-364-20).
- Remove wheel chocks, (in truck only), (TM 9-2320-364-20).

18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 241, Appendix F)
DDEC Repair Kit (Item 44, Appendix F)
Goggles, Industrial (Item 83, Appendix F)
Gun, Heat (Item 87, Appendix F)
Weatherpac crimper (Item 250, Appendix F)
Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

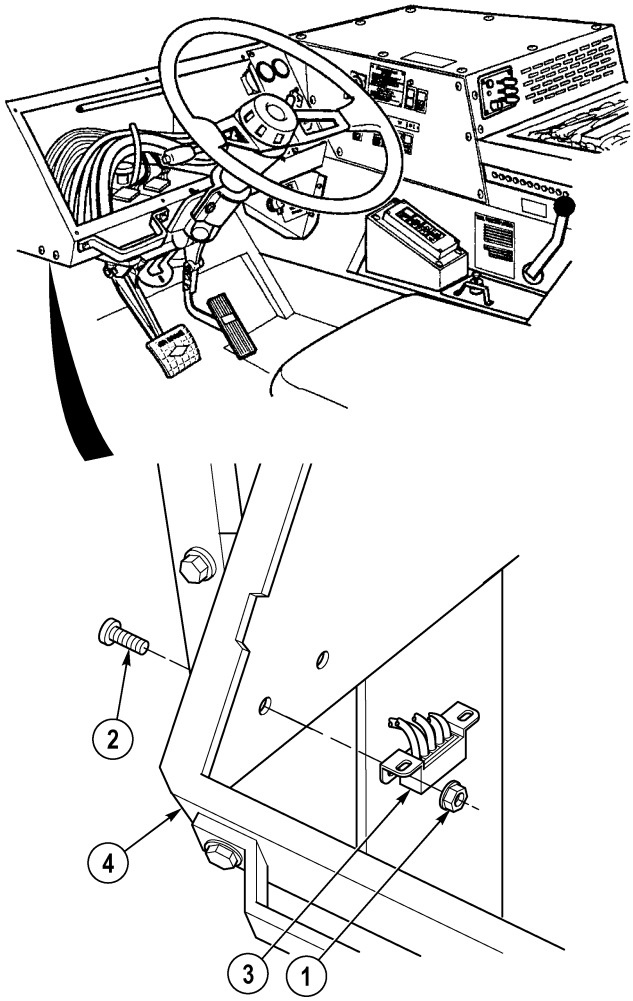
Materials/Parts
Cable Ties (Item 9, Appendix B)
Compound, Corrosion Prevention (Item 15, Appendix B)
Heatshrink (Item 29, Appendix B)
Heatshrink (Item 30, Appendix B)
Tags, Identification (Item 72, Appendix B)
Locknut (11) (Item 174, Appendix E)
Lockwasher (Item 294, Appendix E)
Lockwasher (Item 251, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10).
Wheels chocked, (TM 9-2320-364-10).
Batteries disconnected, (TM 9-2320-364-20).
Left side noise panel removed, (TM 9-2320-364-20).
Left fender front skirt removed, (TM 9-2320-364-20).
Electronic Control Box (ECB) cover removed, (TM 9-2320-364-20).
Cab engine access panel removed, (TM 9-2320-364-20).
Instrument panel removed, (TM 9-2320-364-20).

18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

a. Installation.

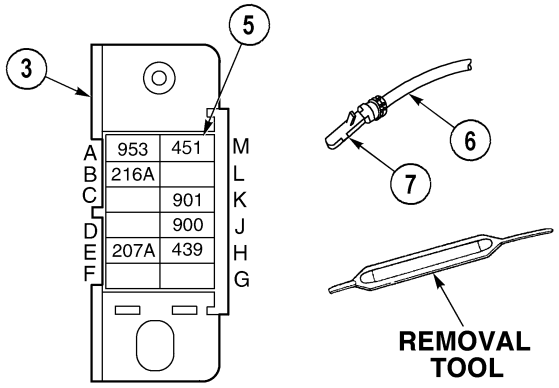
(1) Remove two locknuts (1), screws (2), and MC13 diagnostic connector (3) from dash (4). Discard locknuts.



(2) Insert removal tool in position M (5) on MC13 connector (3) until seated.

(3) Remove wire 451 (6) from position M (5) of MC13 connector (3) and remove tool.

(4) Cut off terminal (7) from end of wire 451 (6).

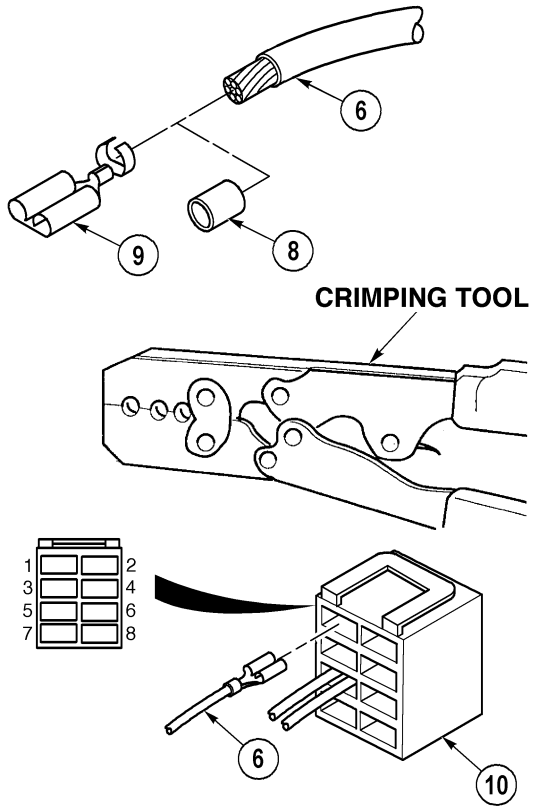


(5) Remove .25 in. (.6 cm) of insulation (8) from end of wire 451 (6).

(6) Position terminal (9) in crimping tool.

(7) Position wire (6) in terminal (9) and crimp terminal to wire.

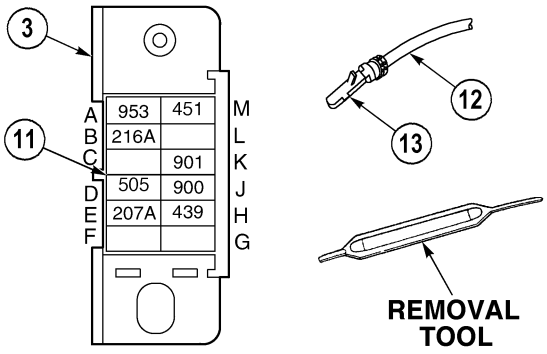
(8) Install wire 451 (6) in position 1 on S17 connector (10) on kit harness.



(9) Install removal tool in position D (11) on MC13 connector (3) until seated.

(10) Remove wire 505 (12) from position D (11) of MC13 connector (3) and remove tool.

(11) Cut off terminal (13) from end of wire 505 (12).



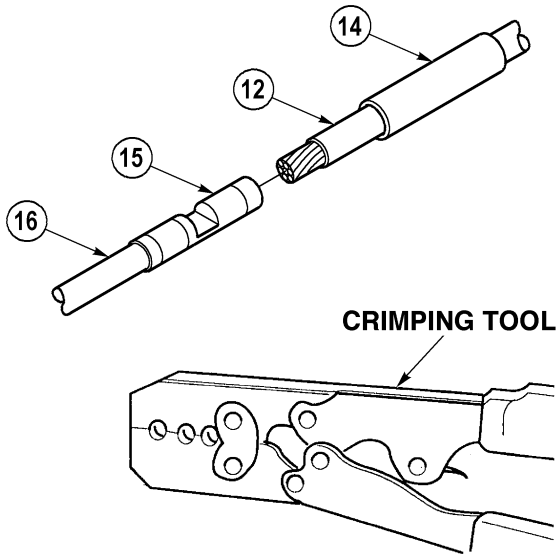
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

(12) Position heat shrink (14) over wire 505 (12).

(13) Remove .25 in. (.6 cm) of insulation from end of wire 505 (12).

(14) Install end of wire 505 (12) in butt splice (15) on wire 953 (16) of kit harness and crimp using crimping tool.

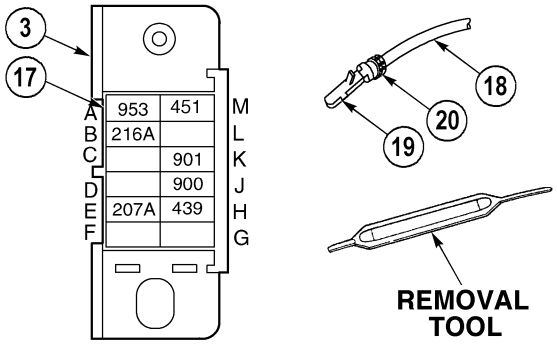
(15) Position heat shrink (14) over butt splice (15) and heat using heat gun.



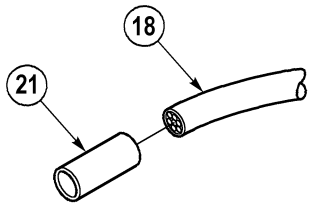
(16) Insert removal tool in position A (17) of M13 connector (3) until seated.

(17) Remove wire 435 (18) from position A (17) on MC13 connector (3) and removal tool.

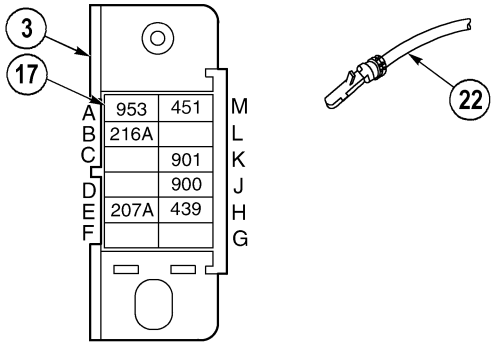
(18) Cut off terminal (19) and wire seal (20) from end of wire 435 (18). Discard terminal and wire seal.



(19) Install heat shrink (21) over end of wire 435 (18) and seal using heat gun.



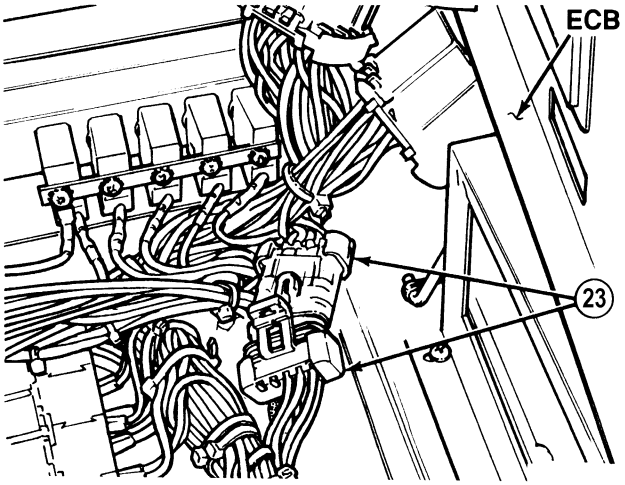
(20) Install wire 953 (22) of kit harness in position A (17) of MC13 connector (3).



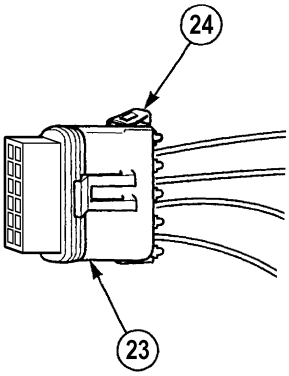
NOTE

Disconnect connector by prying up on tabs and gently pulling apart connector.

(21) Disconnect MC106 connector (23).



(22) Unlatch and open two secondary locks (24) on MC106 connector (23).



WARNING

Tip of removal tool is very sharp. Use caution when using tool. Failure to comply may result in injury to personnel.

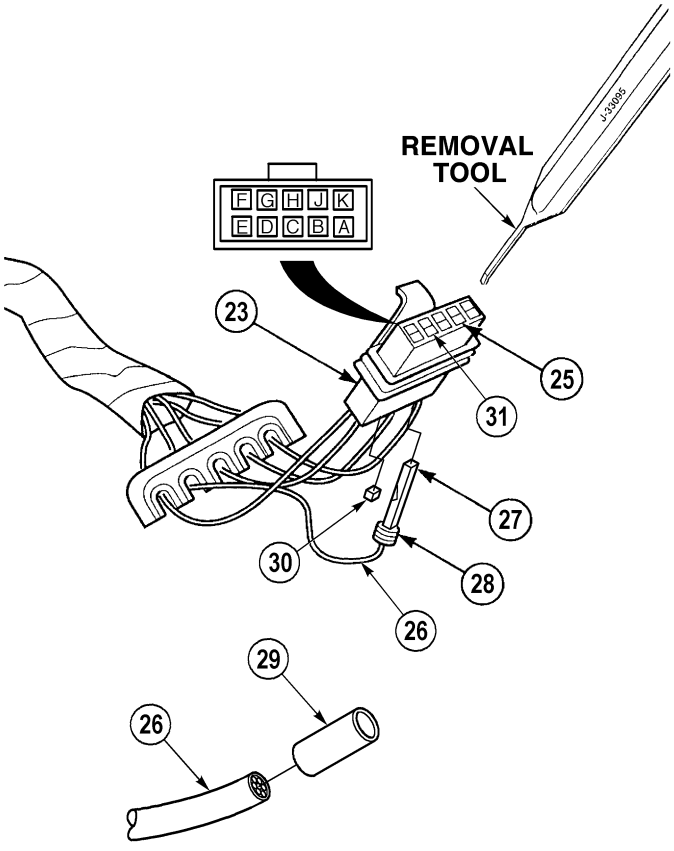
(23) Insert removal tool into position B (25) on MC106 connector (23) until seated.

(24) Pull wire 505 (26) back through MC106 connector (23) and remove tool.

(25) Cut terminal (27) and wire seal (28) from end of wire 505 (26). Discard terminal and seal.

(26) Install heat shrink (29) over end of wire 505 (26) and seal using heat gun.

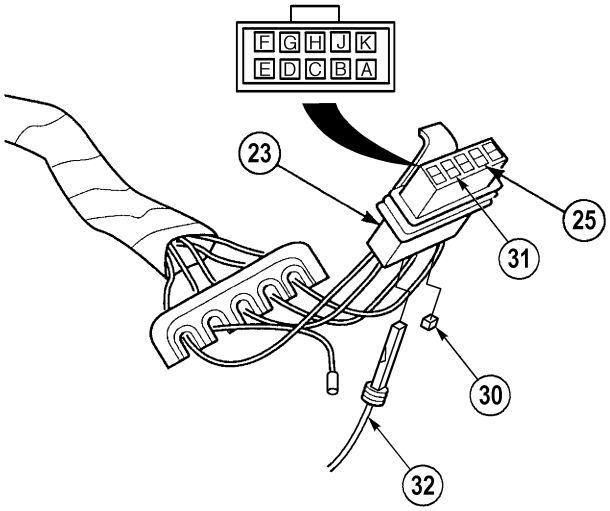
(27) Remove plug (30) from position D (31) on MC106 connector (23).



18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

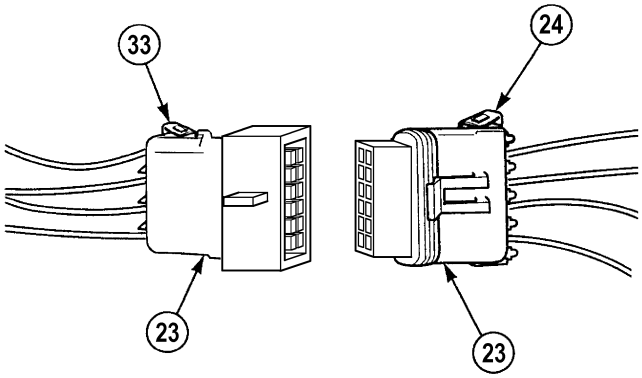
(28) Install plug (30) in position B (25) on MC106 connector (23).

(29) Install wire 953 (32) of kit harness in position D (31) on MC106 connector (23) until seated.



(30) Close two secondary locks (24) on MC106 connector (23).

(31) Unlatch and open two secondary locks (33) on MC106 connector (23).



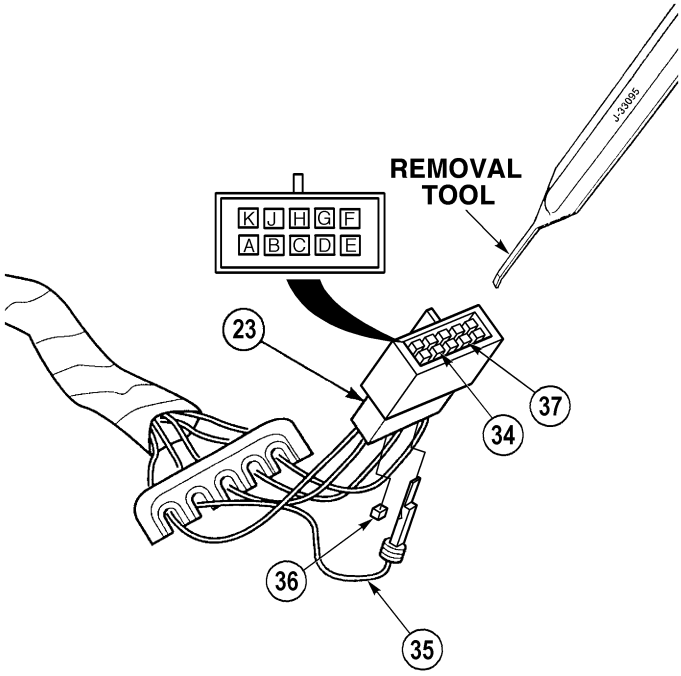
WARNING

Tip of removal tool is very sharp. Use caution when using tool. Failure to comply may result in injury to personnel.

(32) Insert removal tool into position B (34) on MC106 connector (23) until seated.

(33) Pull wire 505 (35) back through MC106 connector (23) and remove tool.

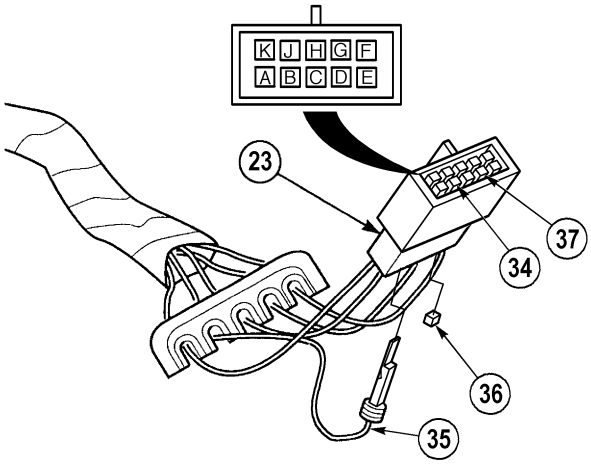
(34) Remove plug (36) from position D (37) on MC106 connector (23).



(35) Install plug (36) in position B (34) on MC106 connector (23).

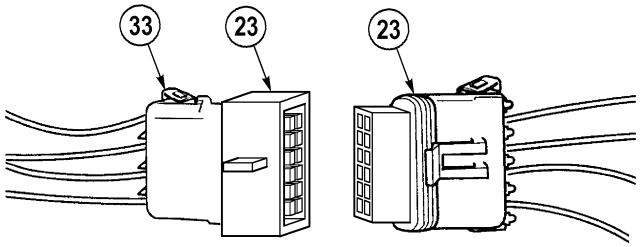
(36) Mark wire 505 (35) as wire 953.

(37) Install wire 953 (35) in position D (37) on MC106 connector (23) until seated.



(38) Close secondary locks (33) on MC106 connector (23).

(39) Connect MC106 connector (23).



(40) Disconnect MC102 connector (38) from DDEC 6.8k resistor (39).

(41) Unlatch and open two secondary locks (40) on MC102 connector (38).

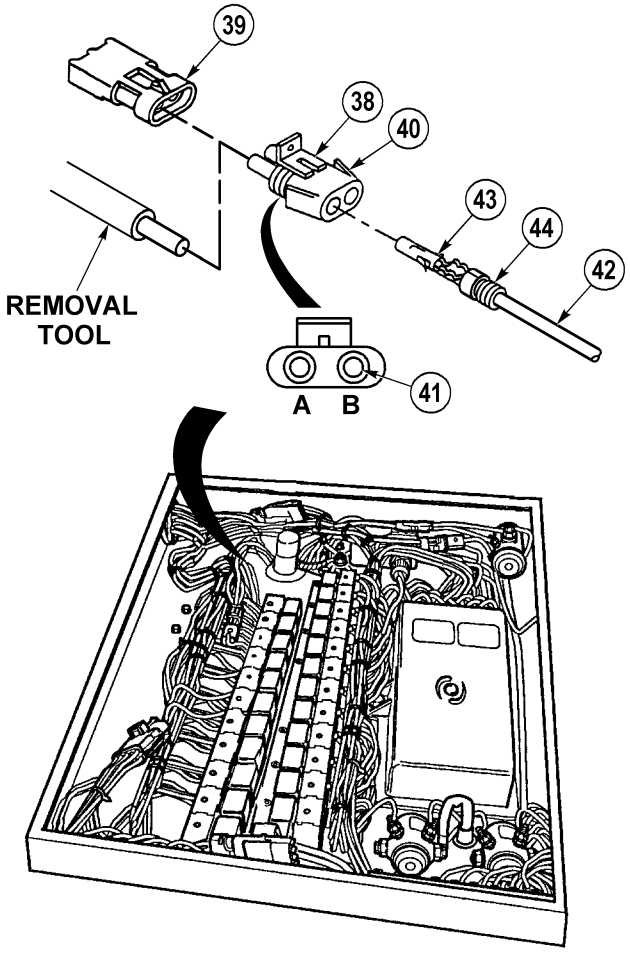
WARNING

Tip of removal tool is very sharp. Use caution when using tool. Failure to comply may result in injury to personnel.

(42) Insert removal tool into position B (41) on MC102 connector (38) until fully seated.

(43) Remove wire 1435 (42) back through MC102 connector (38) and remove tool.

(44) Cut terminal (43) and wire seal (44) from end of wire 1435 (42). Discard terminal and seal.



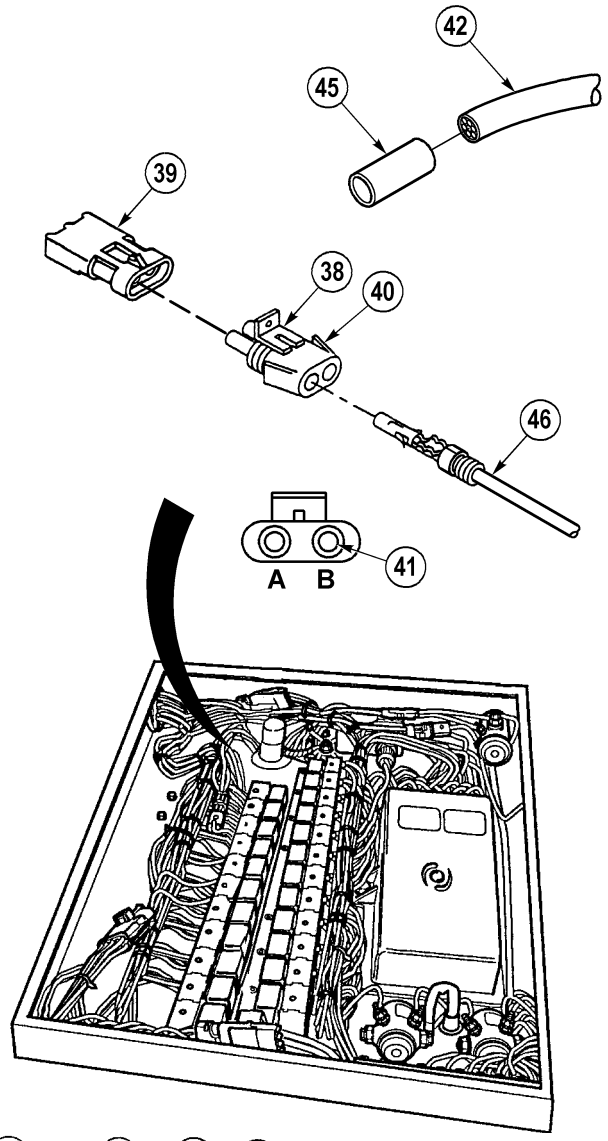
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

(45) Install heat shrink (45) over end of wire 1435 (42) and seal using heat gun.

(46) Install wire 953 (46) of kit harness in position B (41) on MC102 connector (38).

(47) Close two secondary locks (40) on MC102 connector (38).

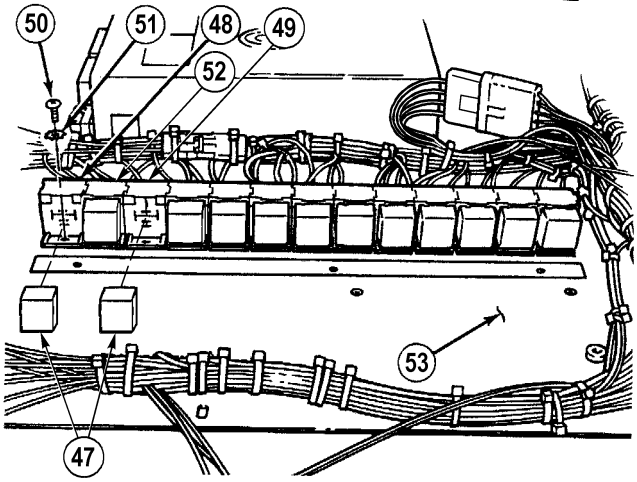
(48) Connect MC102 connector (38) on DDEC 6.8k resistor (39).



(49) Remove two 24 volt relays (47) from relay sockets R24 (48) and R22 (49).

(50) Remove screw (50) and lockwasher (51) from relay socket R24 (48). Discard lockwasher.

(51) Remove relay sockets R24 (48), R23 (52) and R22 (49) from ECB (53).



NOTE

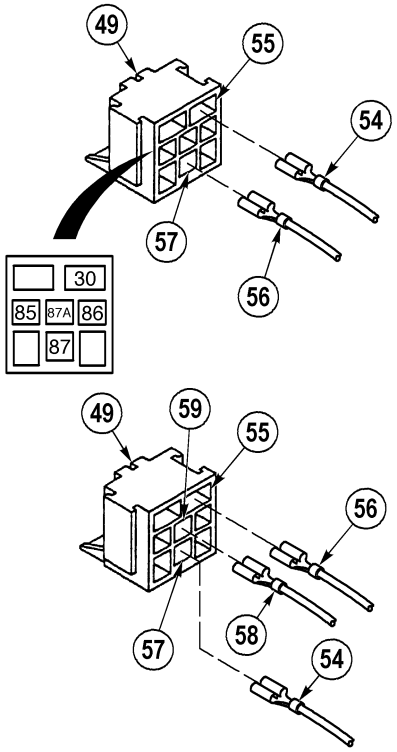
Tag and mark wires prior to removal.

(52) Remove wire 510 (54) from position 30 (55) on relay socket R22 (49).

(53) Remove wire 510 (56) from position 87 (57) and install in position 30 (55) on relay socket R22 (49).

(54) Install wire 510 (54) in position 87 (57) on relay socket R22 (49).

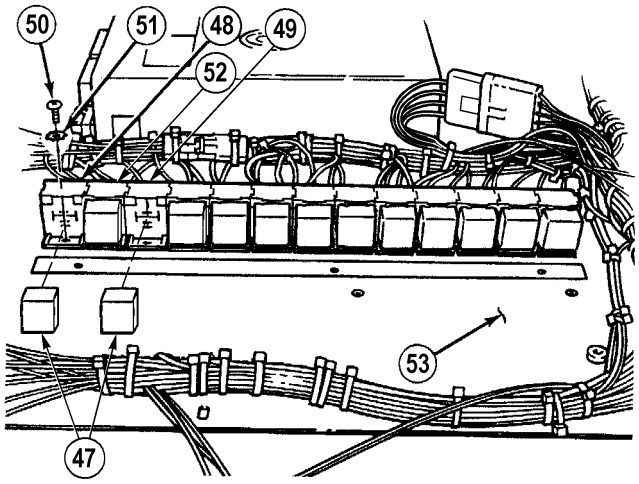
(55) Install wire 953 (58) from kit harness in position 87A (59) on relay socket R22 (49).



(56) Position relay sockets R22 (49), R23 (52) and R24 (48) in ECB (53).

(57) Install screw (50) and lockwasher (51) in relay socket R24 (48).

(58) Install two 24 volt relays (47) in relay sockets R24 (48) and R22 (49).



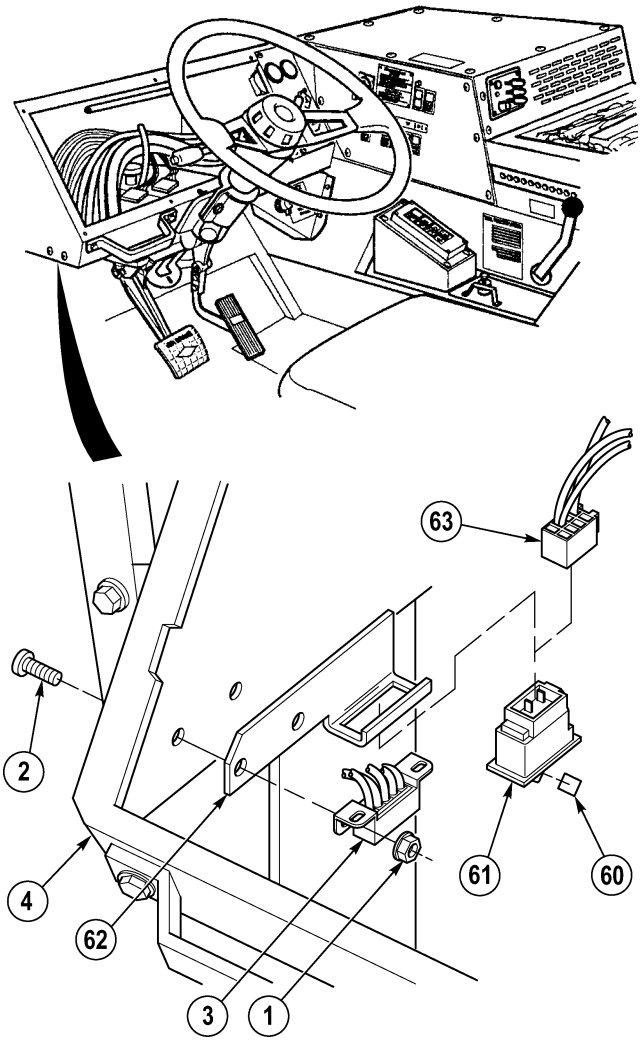
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

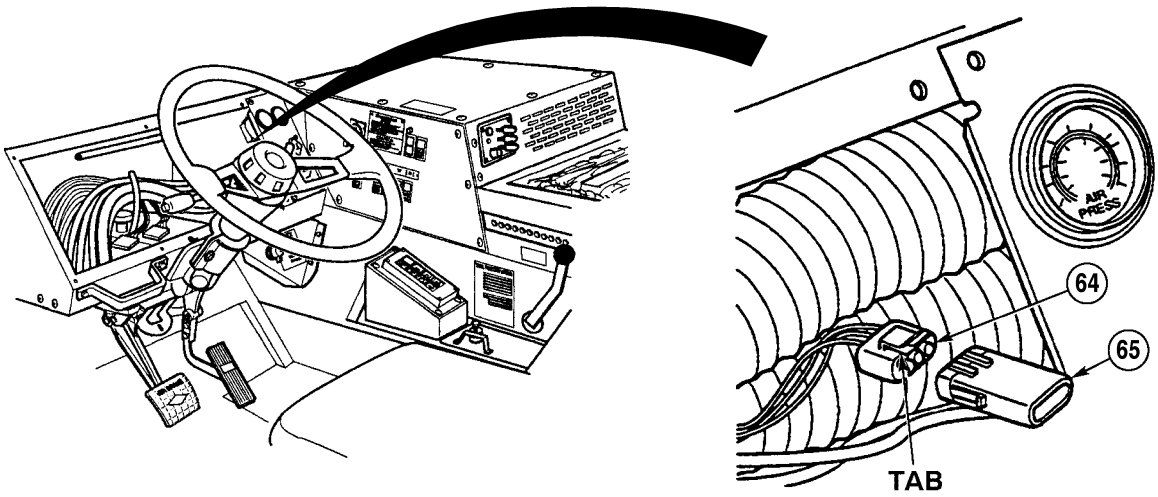
(59) Install appliqué (60) on diagnostic request switch (61).

(60) Install diagnostic request switch (61) on bracket (62).

(61) Install S17 connector (63) on rear of diagnostic request switch (61).

(62) Install bracket (62), MC13 diagnostic connector (3) on dash (4) with two screws (2) and locknuts (1).





NOTE

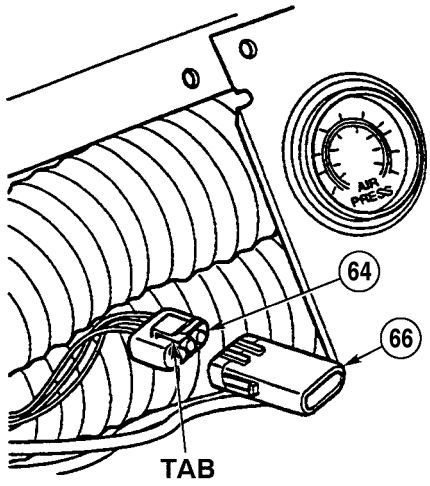
Connector is disconnected by gently pulling up on tab on connector.

(63) Disconnect MC38 connector (64) from vernier control (65).

CAUTION

Vernier controls for DDEC II and DDEC III are not interchangeable. Installation of wrong part will cause high idle speed to be either too high or too low, which may result in serious engine damage.

(64) Connect MC38 connector (64) to DDEC III vernier control (66).



18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

WARNING

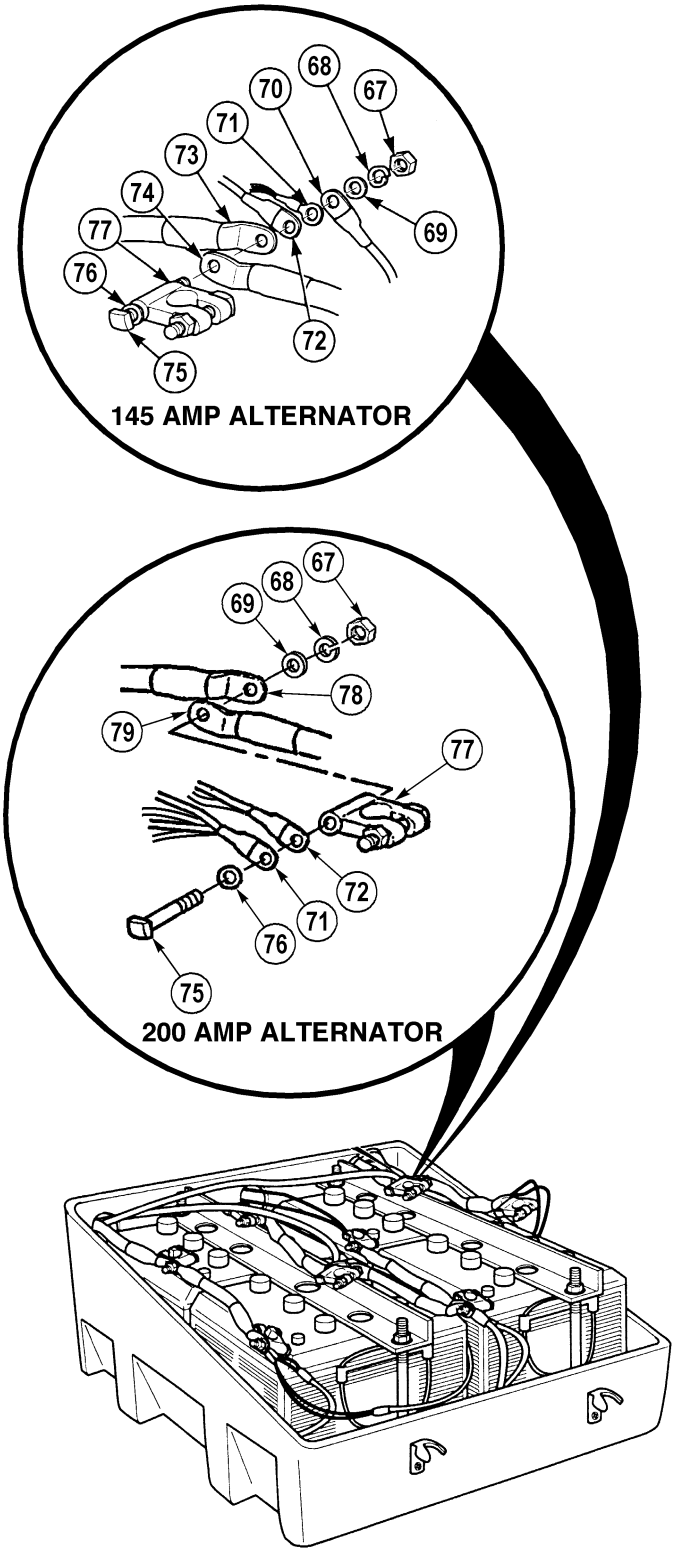
Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

NOTE

- Perform Step (65) for trucks equipped with 145 amp alternator.
- Perform Step (66) for trucks equipped with 200 amp alternator.

(65) Remove nut (67), lockwasher (68), washer (69), wire 1275 (70), wire 150/150 (71), wire 208/209 (72), cable (73), cable (74), screw (75), and washer (76) from negative terminal (77). Discard lockwasher.

(66) Remove nut (67), lockwasher (68), washer (69), cable 1138 (78), cable 1137 (79), wire 208/209 (72), wire 150/150 (71), screw (75), and washer (76) from negative terminal (77). Discard lockwasher.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

(67) Position wire 151/953 (80) of DDEC II to DDEC III kit harness through hole (81) in battery box (82).

NOTE

- Perform Steps (68) and (69) for trucks equipped with 200 amp alternator.
- Perform Steps (70) and (71) for trucks equipped with 145 amp alternator.

(68) Position screw (75), washer (76), cable 1137 (79), cable 1138 (78), wire 208/209 (72), wire 150/150 (71), wire 151/953 (83), washer (69), lockwasher (68), and nut (67) on negative terminal (77).

(69) Tighten nut (67) to 12 to 16 lb-ft (16 to 22 N·m).

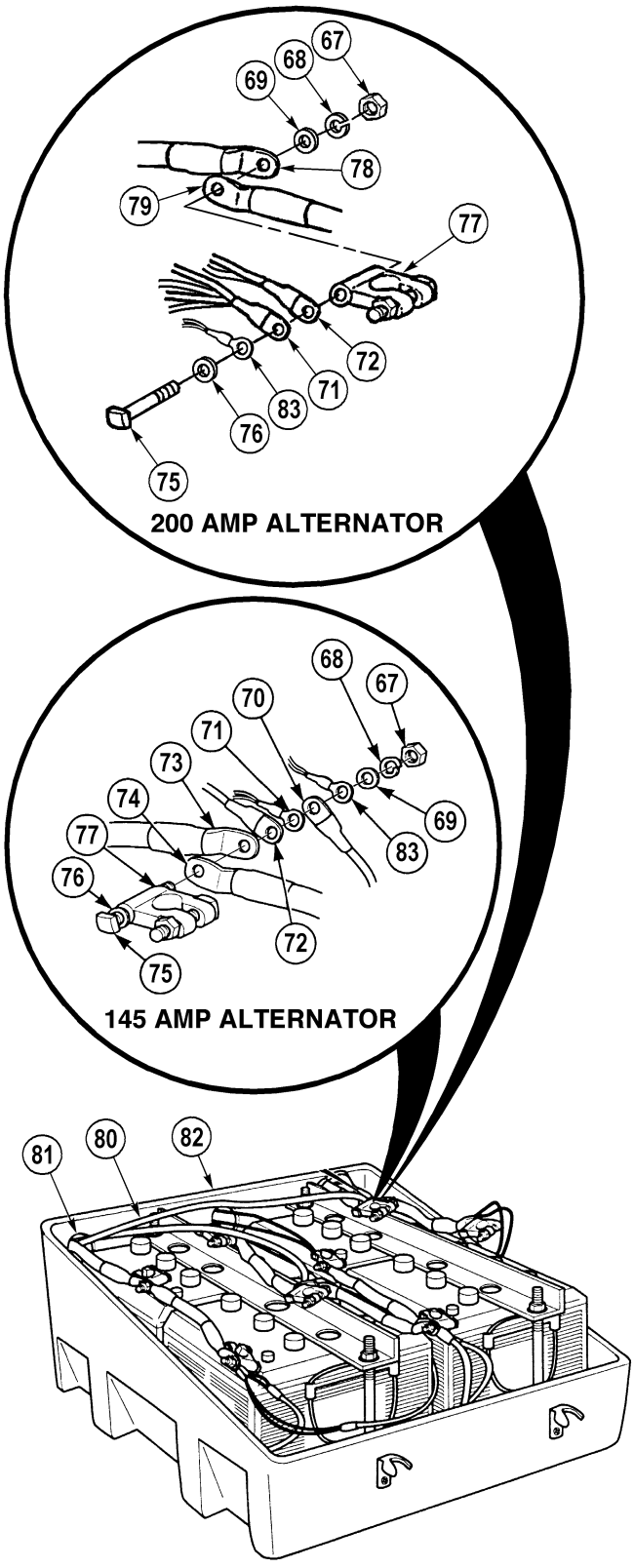
(70) Position washer (76), screw (75), cable (74), cable (73), wire 208/209 (72), wire 150/150 (71), wire 1275 (70), wire 151/953 (83), washer (69), lockwasher (68), and nut (67) on negative terminal (77).

(71) Tighten nut (67) to 12 to 16 lb-ft (16 to 22 N·m).

WARNING

Corrosion compound contains alkali. Do not get in eyes; wear goggles/safety glasses when using. Avoid contact with skin. In case of contact, immediately wash area with soap and water. If eyes are contacted, flush eyes with large amounts of water at least 15 minutes and get immediate medical attention.

(72) Apply corrosion preventative compound to terminal (77).

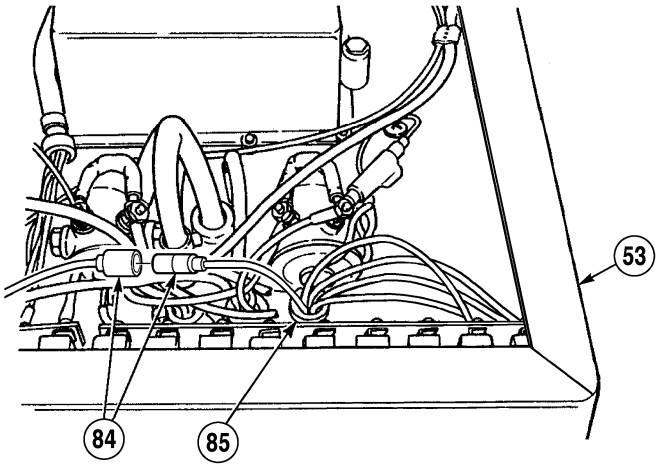


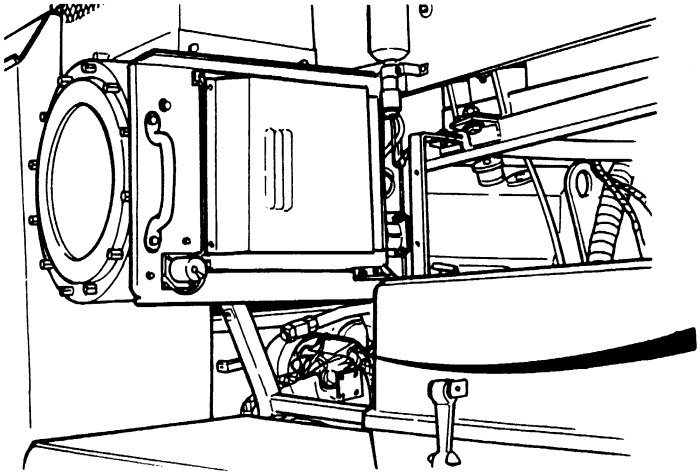
18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

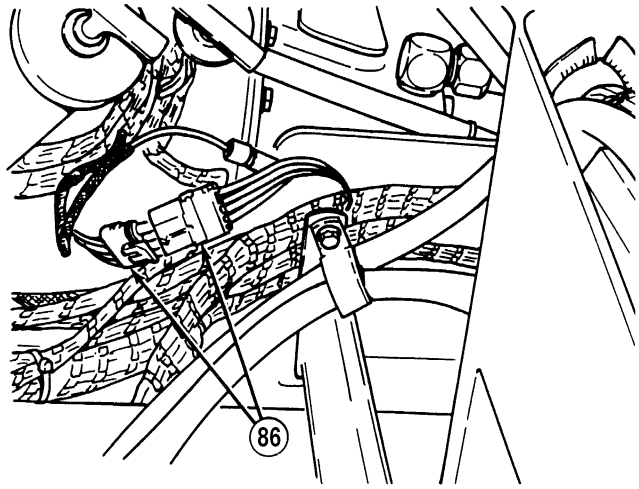
(73) Position DDEC II to DDEC III kit harness along existing harness to cab.

(74) Push MC14 connector (84) through grommet (85) on ECB (53).

(75) Connect MC14 connector (84).







NOTE

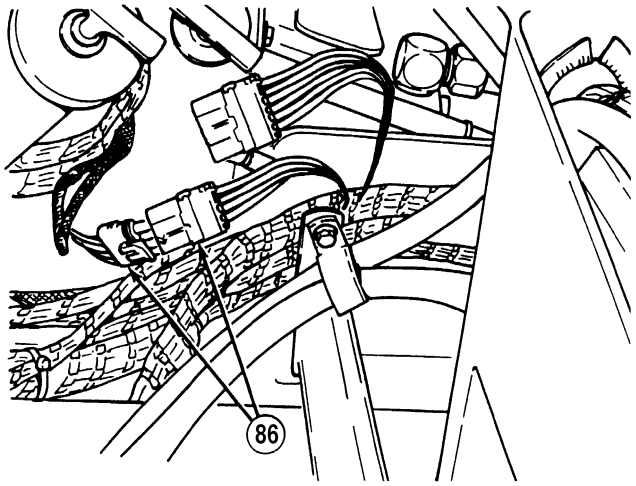
Disconnect connector by prying up on tabs and gently pulling apart connector.

(76) Disconnect 4 pin MC62 connector (86).

NOTE

Install cable ties as required.

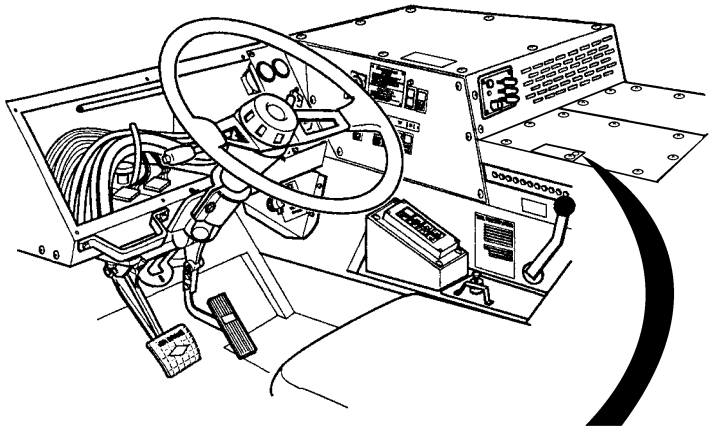
(77) Connect 4 pin MC62 connector (86) from DDEC II to DDEC III kit wiring harness.

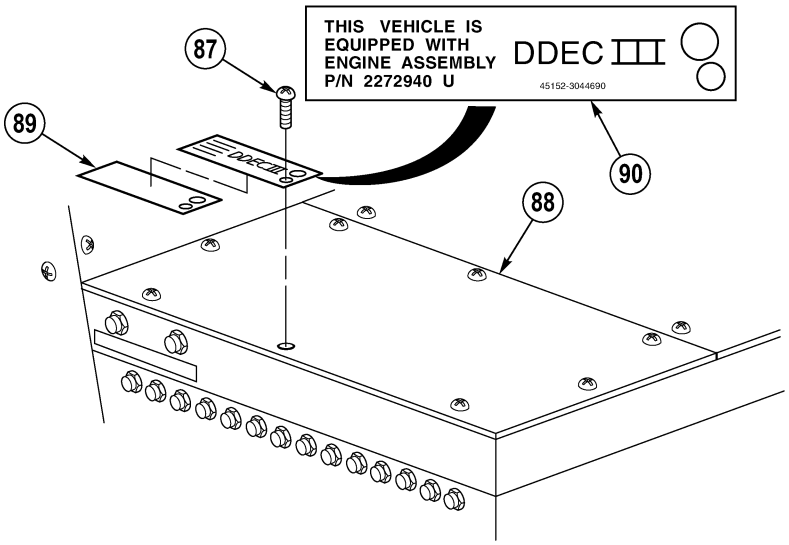


(78) Remove screw (87) from electronic control box cover (88).

(79) Remove backing (89) from DDEC II data plate (90).

(80) Install DDEC III data plate (90) on electronic control box cover (88) with screw (87).



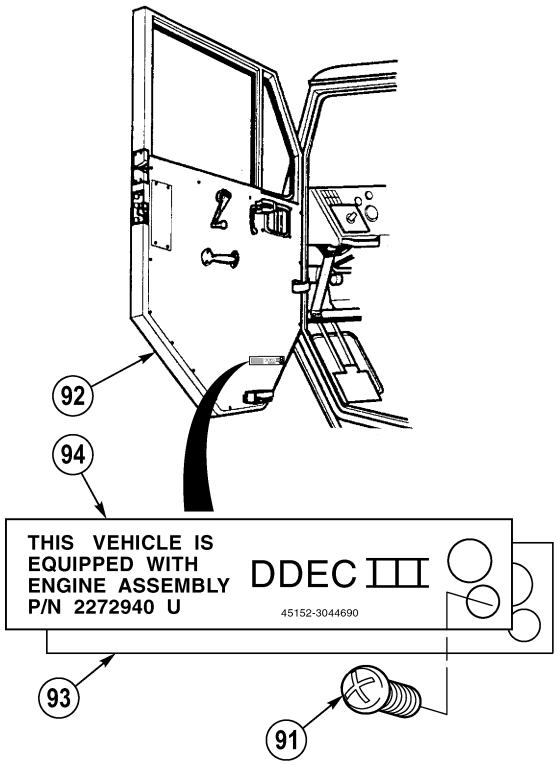


18-15. CONVERT DDEC II CAB ASSEMBLY TO DDEC III CAB ASSEMBLY (CONT).

(81) Remove screw (91) from cab door (92).

(82) Remove backing (93) from DDEC III data plate (94).

(83) Install DDEC III data plate (94) on left side cab door (92) with screw (91).



b. Follow-On Maintenance:

- Install instrument panel, (TM 9-2320-364-20).
- Install cab engine access panel, (TM 9-2320-364-20).
- Install Electronic Control Box (ECB) cover, (TM 9-2320-364-20).
- Install left fender front skirt, (TM 9-2320-364-20).
- Install left side noise panel, (TM 9-2320-364-20).
- Connect batteries, (TM 9-2320-364-20).
- Start engine, (TM 9-2320-364-10).
- Shut off engine, (TM 9-2320-364-10).
- Remove wheels chocks, (TM 9-2320-364-10).

CHAPTER 19

CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL (CBR) EQUIPMENT MAINTENANCE

Para **Contents** **Page**

19-1 Direct Support CBR Equipment Maintenance Introduction 19-1
19-2 Gas Particulate Filter Unit (GPFU) Kit Installation 19-2
19-3 Chemical Alarm Kit Installation 19-8
19-4 Decontamination Kit Installation 19-14

19-1. DIRECT SUPPORT CBR EQUIPMENT MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for installing CBR components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

19-2. GAS PARTICULATE FILTER UNIT (GPFU) KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Locknut (4) (Item 176, Appendix E)
Lockwasher (2) (Item 282, Appendix E)
Screw, Self-Locking (Item 553, Appendix E)
Screw, Self-Tapping (2) (Item 561, Appendix E)

Personnel Required
Two

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Installation.

(1) Remove eight screws (1) and heater control access panel (2) from panel (3).

(2) Remove blank cover (4) from switch panel (5).

(3) Install applique (6) on ON/OFF rocker switch (7).

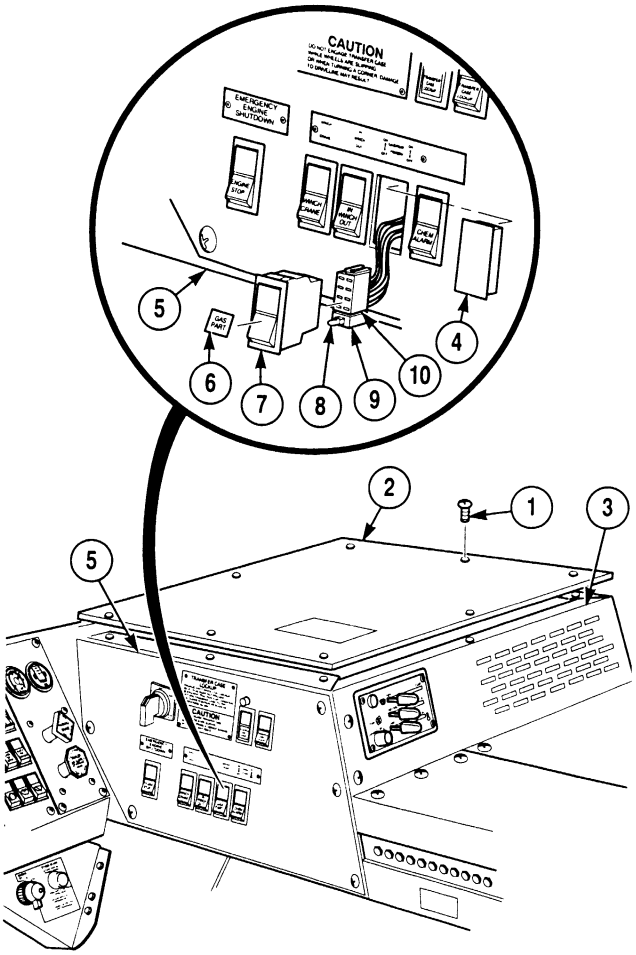
(4) Install ON/OFF rocker switch (7) on switch panel (5).

(5) Install lamp (8) on connector (9).

(6) Install connector (9) on ON/OFF rocker switch (7).

(7) Connect S19 connector (10) to ON/OFF rocker switch (7).

(8) Install heater control access panel (2) on panel (3) with eight screws (1).



(9) Remove eight screws (11) and ECB cover (12) from ECB (13).

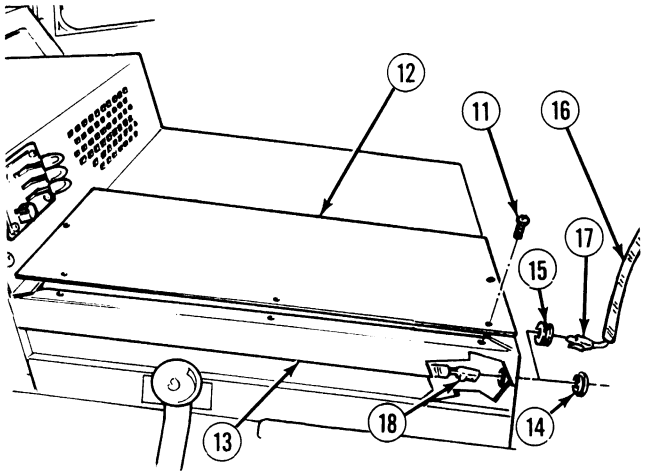
(10) Remove plastic hole plug (14) from ECB (13).

(11) Install grommet (15) on ECB (13).

(12) Install GPFU wire harness (16) through grommet (15).

(13) Connect connector (17) to MC58 connector (18).

(14) Install ECB cover (12) on ECB (13) with eight screws (11).



(15) Remove screw (19) from roof support (20).

(16) Install bracket (22) on roof support (20) with screw (19).

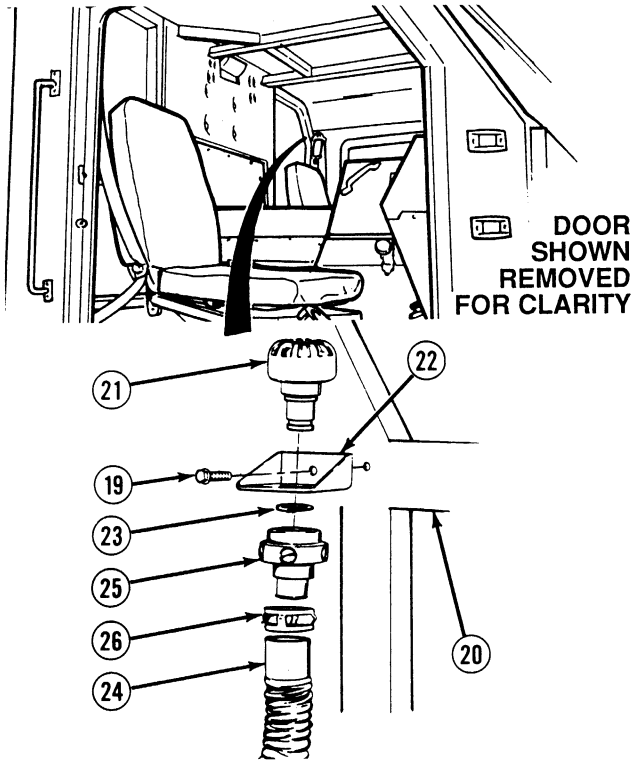
WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(17) Install orifice connector assembly (21) to bracket (22) with retaining ring (23).

(18) Install hose (24) to quick release coupling (25) with hose clamp (26).

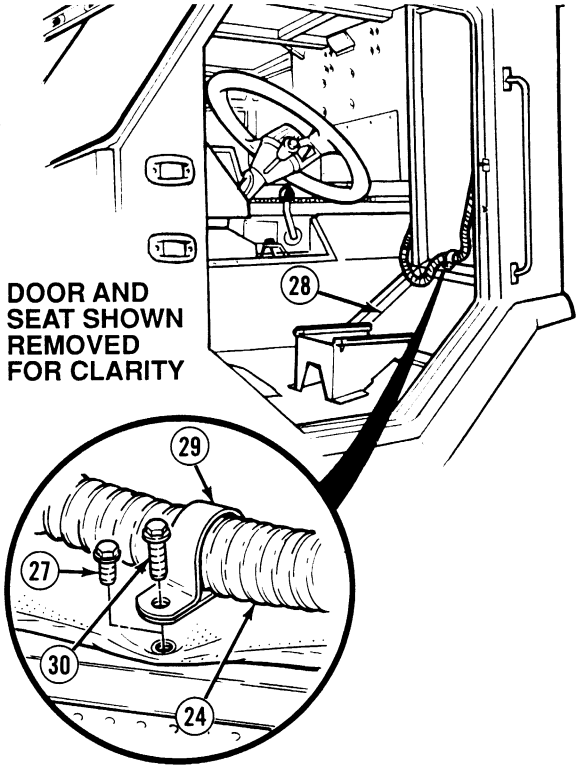
(19) Install quick release coupling (25) on orifice connector assembly (21).



19-2. GAS PARTICULATE FILTER UNIT (GPFU) KIT INSTALLATION (CONT).

(20) Remove screw (27) from cab body (28). Discard screw.

(21) Install hose (24) to cab body (28) with cushion clip (29) and screw (30).



(22) Remove two screws (31) from roof support (20).

(23) Install bracket (22) to bracket (32) with screw (33), lockwasher (34) and nut (35).

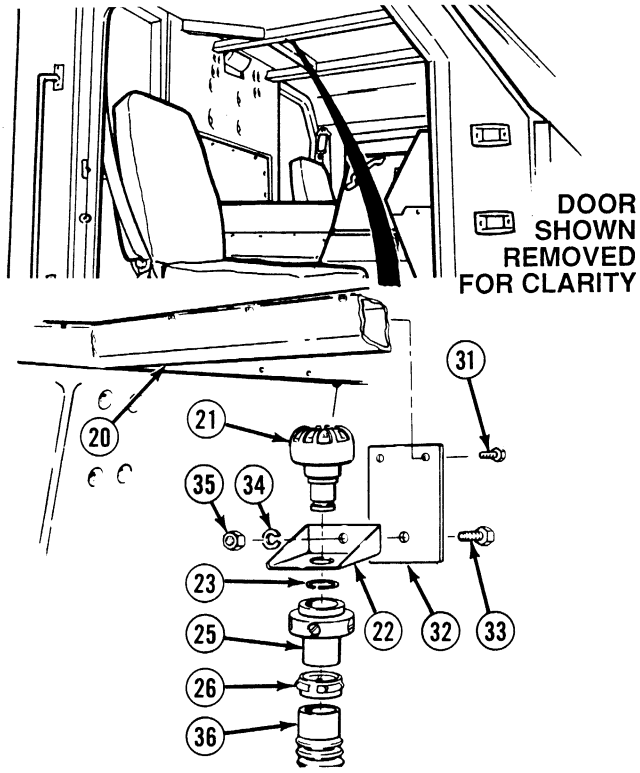
WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(24) Install orifice connector assembly (21) to bracket (22) with retaining ring (23).

(25) Install hose (36) to quick release coupling (25) with hose clamp (26).

(26) Install quick release coupling (25) to orifice connector assembly (21).

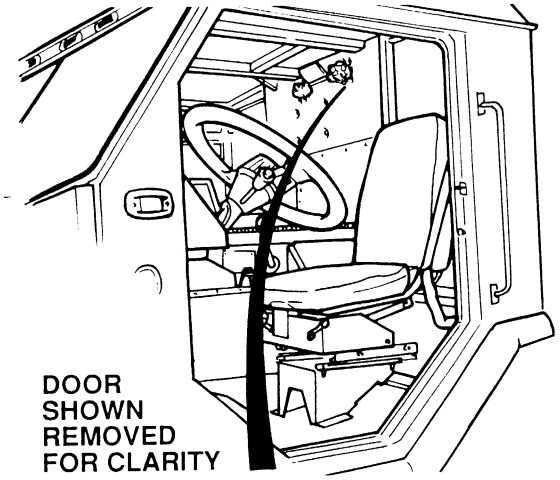


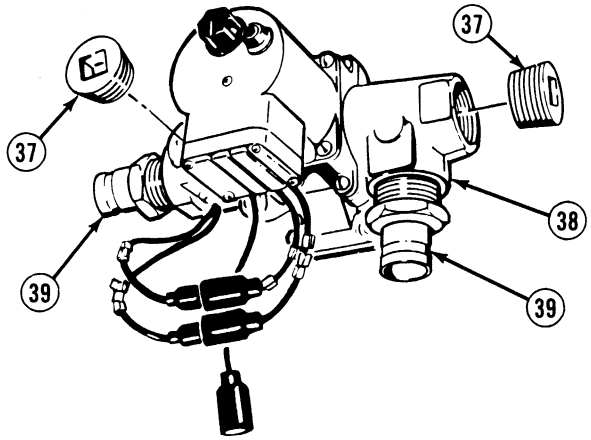
NOTE

Right and left heaters are installed in the same way. Left side shown.

(27) Install two plugs (37) to left air heater assembly (38).

(28) Install two straight pipe adapters (39) to left air heater assembly (38).





NOTE

Washers may fall from cab wall when screws and locknuts are removed.

(29) With the aid of an assistant, remove four screws (40) and locknuts (41) from cab wall (28). Discard locknuts.

(30) Install left air heater (38) to cab wall (28) with four screws (40) washers (42) and locknuts (41).

(31) Repeat Steps (27) through (30) for the right air heater.

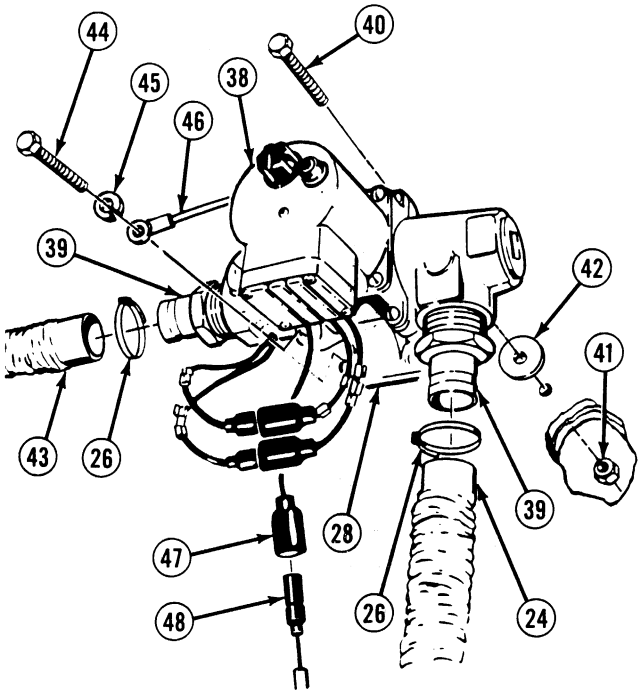
(32) Install hose (24) to left air heater (38) and pipe adapter (39) with hose clamp (26).

(33) Install hose (43) to left air heater (38) and pipe adapter (39) with hose clamp (26)

(34) Remove screw (44) and lockwasher (45) from left air heater (38). Discard lockwasher.

(35) Install wire 1435 (46) to left air heater (38) with lockwasher (45) and screw (44).

(36) Connect input wire (47) on left air heater (38) to wire 1708 (48) connector.



19-2. GAS PARTICULATE FILTER UNIT (GPFU) KIT INSTALLATION (CONT).

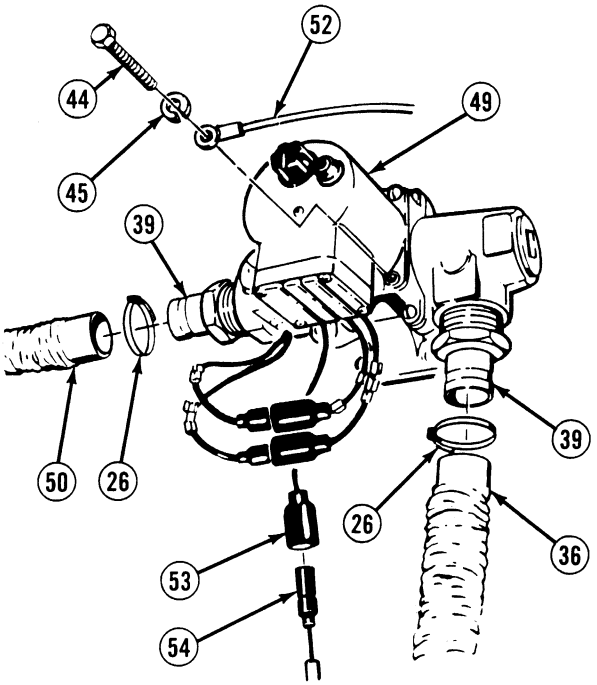
(37) Install hose (36) to pipe adapter (39) with hose clamp (26).

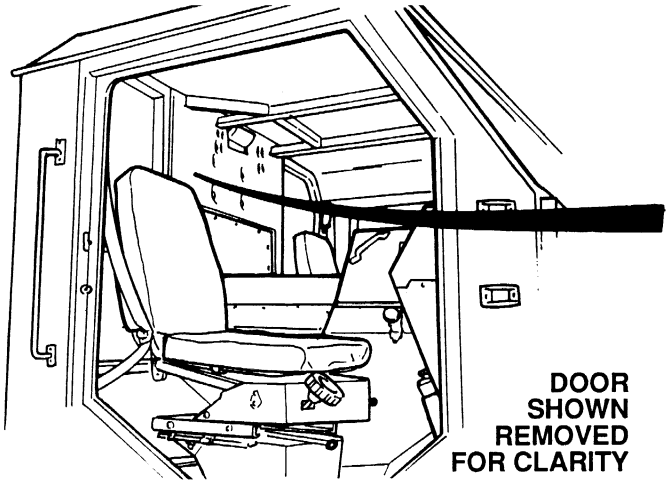
(38) Install hose (50) to pipe adapter (39) with hose clamp (26).

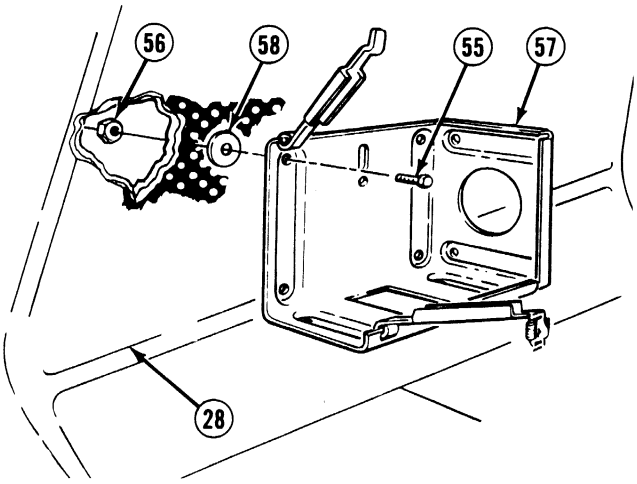
(39) Remove screw (44) and lockwasher (45) from right air heater (49). Discard lockwasher.

(40) Install wire 1435 (52) to right air heater (49) with lockwasher (45) and screw (44).

(41) Connect input wire (53) on right air heater (49) to wire 1710 (54) connector.







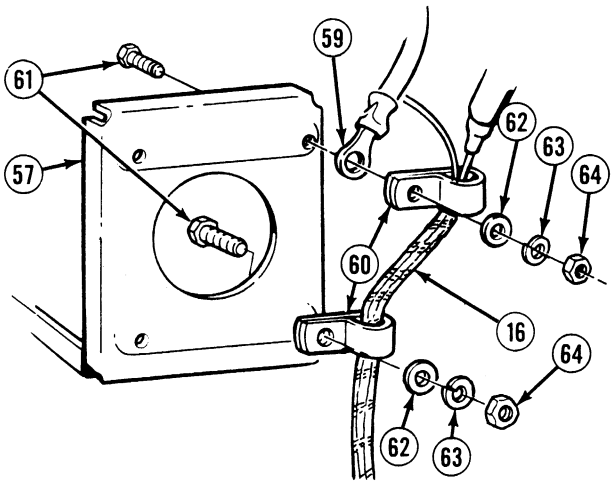
NOTE

Washers may fall from cab wall when screws and locknuts are removed.

(42) With the aid of an assistant, remove four screws (55) and locknuts (56) from cab wall (28). Discard locknuts.

(43) Install filter unit frame (57) to cab wall (28) with four screws (55), washers (58) and locknuts (56).

(44) Install wire 1435 (59), two cushion clips (60) and wire harness (16) to filter unit frame (57) with two screws (61), washers (62), lockwashers (63) and nuts (64).

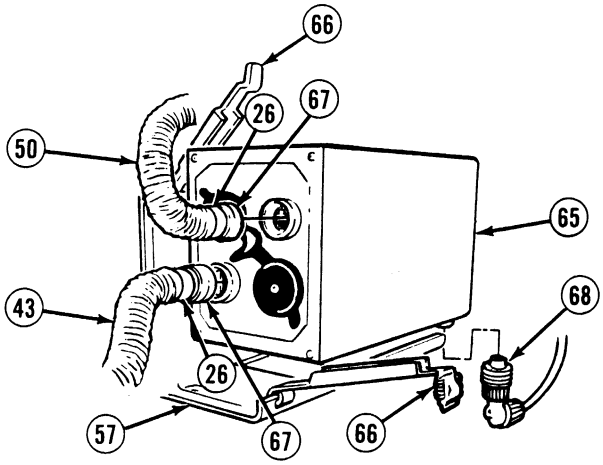


(45) Install filter unit (65) to filter unit frame (57) and tighten clamps (66).

(46) Install two plugs (67) to hoses (43) and (50) with two clamps (26).

(47) Install hoses (43) and (50) to filter unit (65).

(48) Connect connector (68) to filter unit (65).



b. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

19-3. CHEMICAL ALARM KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

INITIAL SETUP

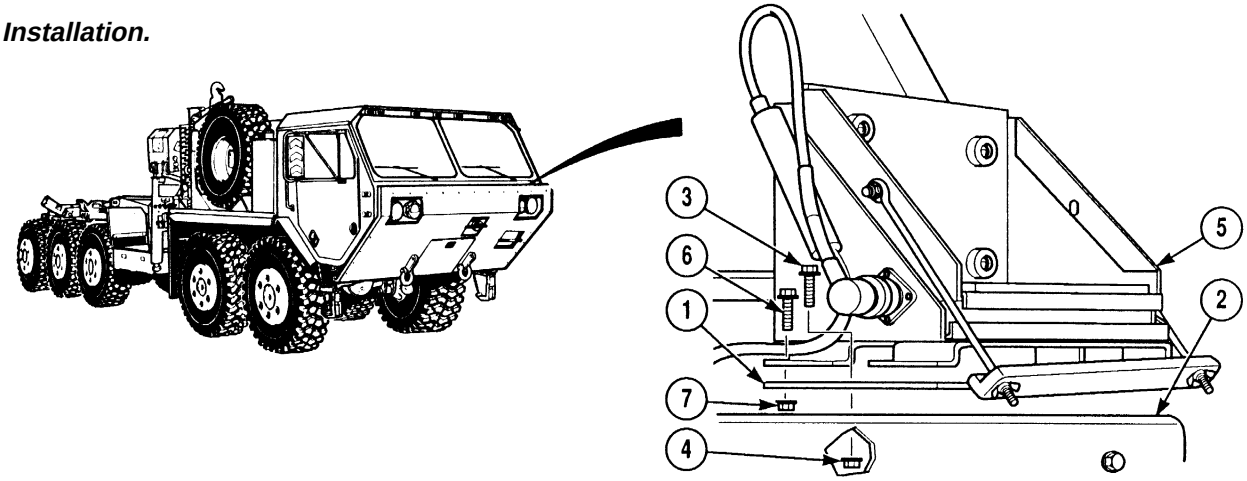
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)
Gloves, Chemical Oil Protective
(Item 81, Appendix F)
Goggles, Industrial (Item 83, Appendix F)

Materials/Parts
Solvent, Drycleaning (Item 68, Appendix B)

Materials/Parts
Locknut (10) (Item 176, Appendix E)
Locknut (2) (Item 210, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Batteries disconnected, (TM 9-2320-364-20)

a. Installation.



(1) Install bracket (1) on skid plate (2) with two screws (3) and locknuts (4).

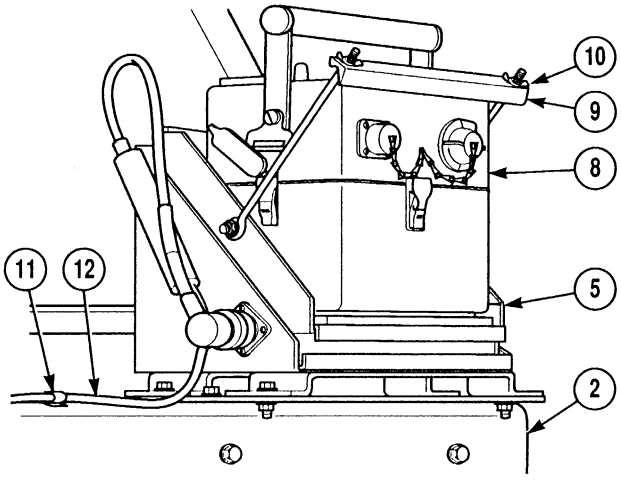
(2) Install mount (5) on bracket (1) with four screws (6) and locknuts (7).

(3) Position chemical detector (8) on mount (5).

(4) Position holder (9) on chemical detector (8) and tighten two nuts (10).

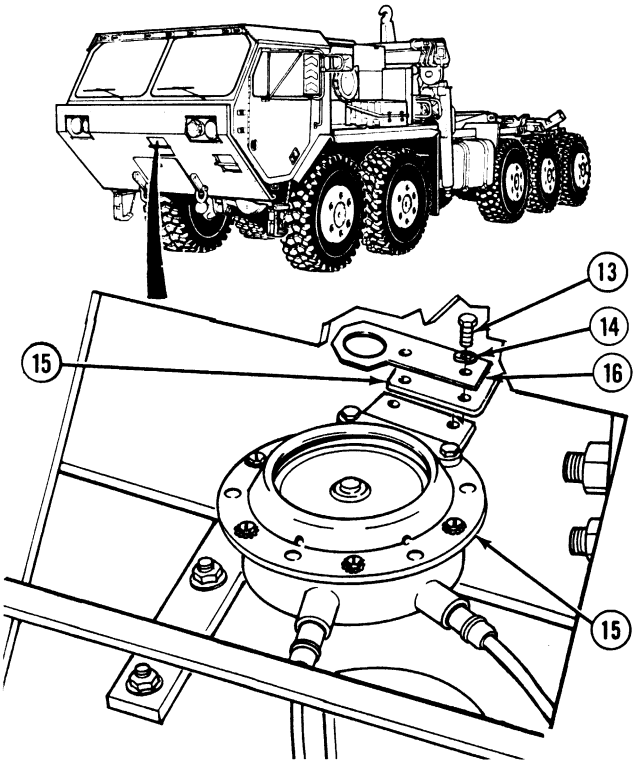
(5) Install three clips (11) on skid plate (2).

(6) Route power input cable (12) along upper edge of skid plate (2) and secure with two clips (11).



(7) Remove two screws (13) and lockwashers (14) from horn mounting bracket (15). Discard lockwashers.

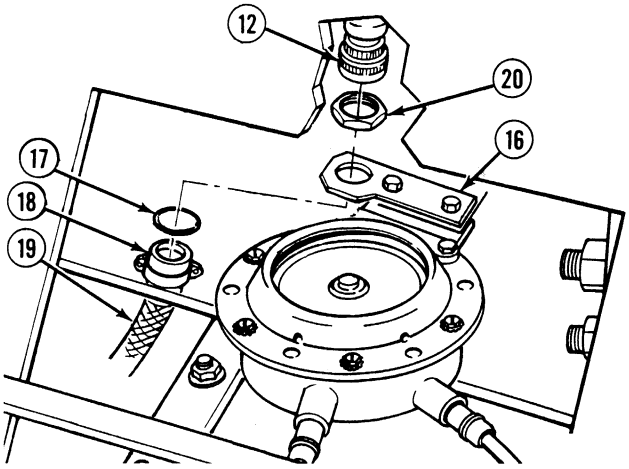
(8) Install bracket (16) on horn mounting bracket (15) with two screws (13) and lockwashers (14).



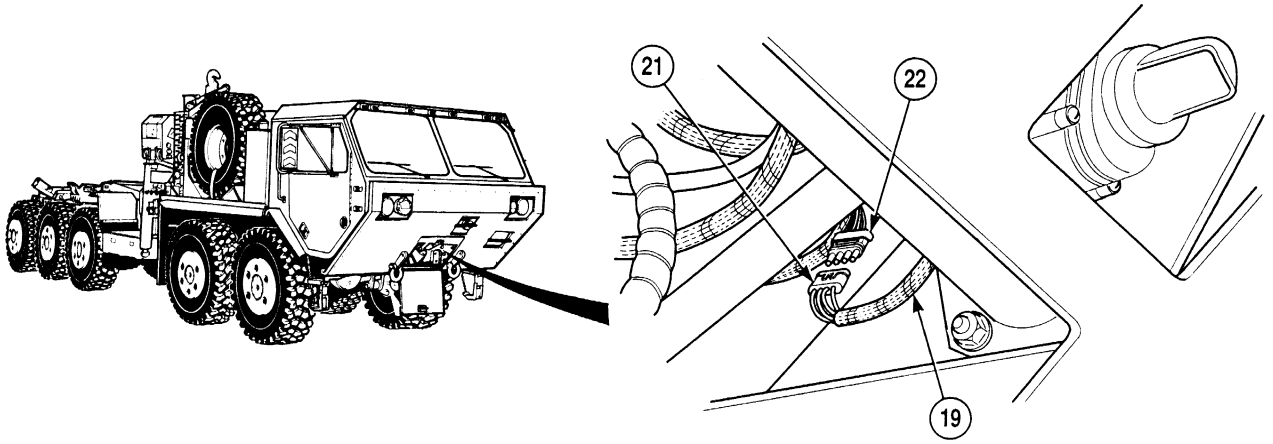
(9) Install preformed packing (17) on bulkhead connector (18).

(10) Install chemical alarm wire harness (19) and bulkhead connector (18) to bracket (16) with locking nut (20).

(11) Connect power input cable (12) to bulkhead connector (18).



19-3. CHEMICAL ALARM KIT INSTALLATION (CONT).



(12) Connect chemical alarm wire harness (19) connector (21) to MC103 connector (22).

(13) Remove eight screws (23) and heater control access panel (24) from panel (25).

(14) Remove blank cover (26) from switch panel (27).

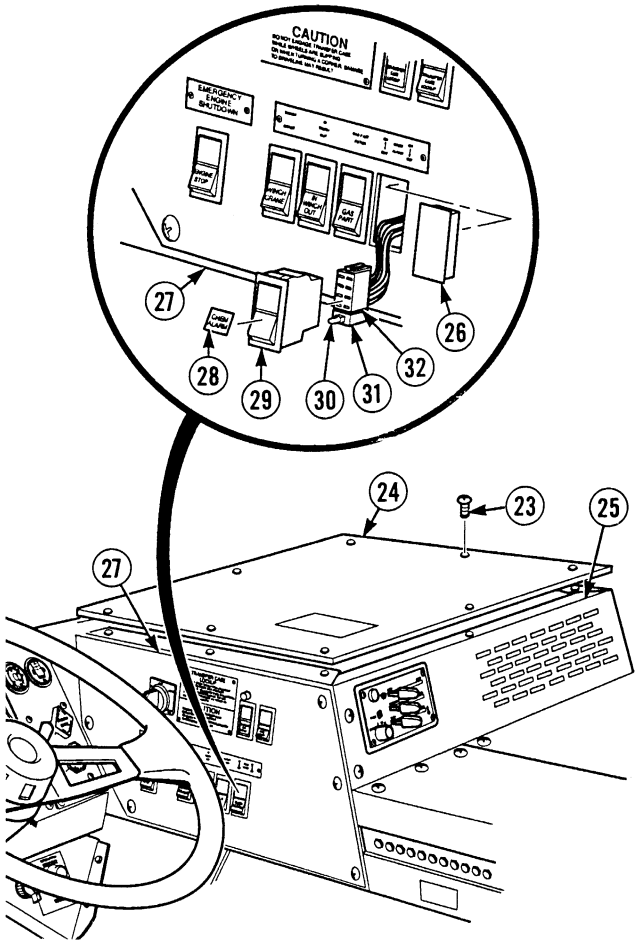
(15) Install applique (28) to ON/OFF rocker switch (29).

(16) Install ON/OFF rocker switch (29) to switch panel (27).

(17) Install lamp (30) to connector (31).

(18) Install connector (31) to ON/OFF rocker switch (29).

(19) Connect S20 connector (32) to ON/OFF rocker switch (29).



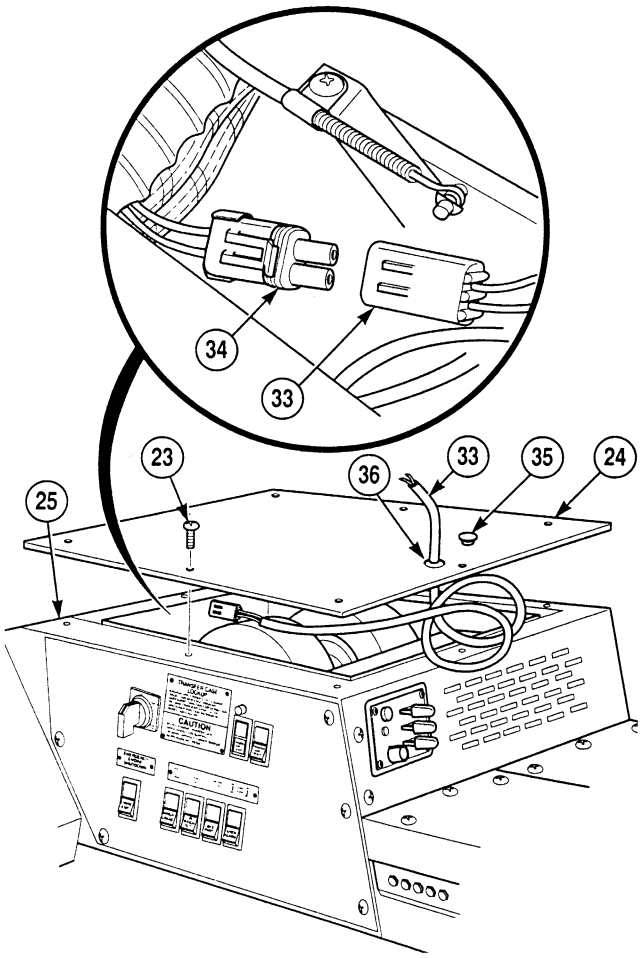
(20) Connect chemical alarm wiring harness (33) to MC104 connector (34).

(21) Remove plastic hole plug (35) from heater control access panel (24).

(22) Install grommet (36) to heater control access panel (24).

(23) Install chemical alarm wiring harness (33) through grommet (36).

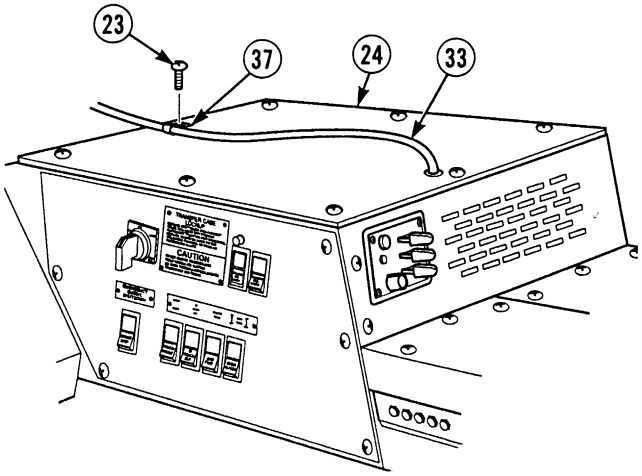
(24) Install heater control access panel (24) to panel (25) with seven screws (23).



NOTE

Approximately 44 in. (112 cm) of the chemical alarm wiring harness must protrude from the heater control access panel in order for the harness to reach the chemical alarm.

(25) Secure chemical alarm wiring harness (33) to heater control access panel (24) with cushion clip (37) and screw (23).



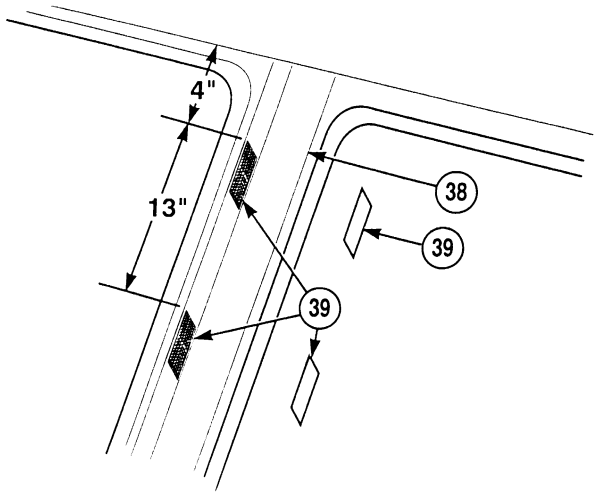
19-3. CHEMICAL ALARM KIT INSTALLATION (CONT).

WARNING

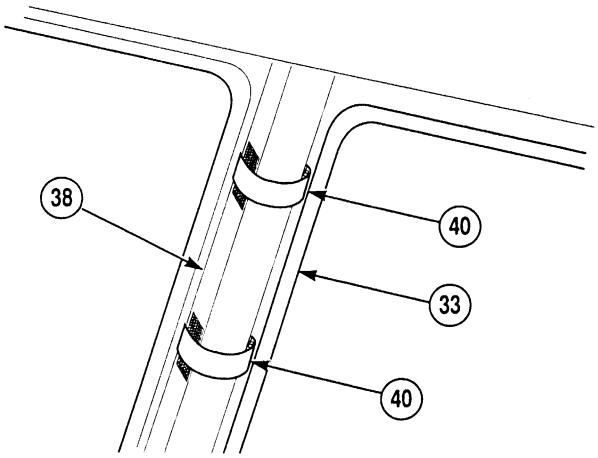
- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140 degrees F (60 degrees C) and Type III Drycleaning Solvent is 200 degrees F (93 degrees C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

(26) Clean two areas on center support tube (38) with drycleaning solvent.

(27) Install four velcro strips (39) to center support tube (38).



(28) Secure chemical alarm wiring harness (33) to support tube (38) with two velcro strips (40).



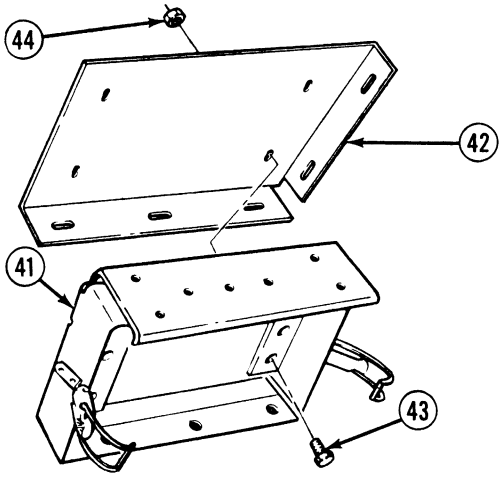
(29) Install alarm mount (41) to alarm bracket (42) with four screws (43) and locknuts (44).

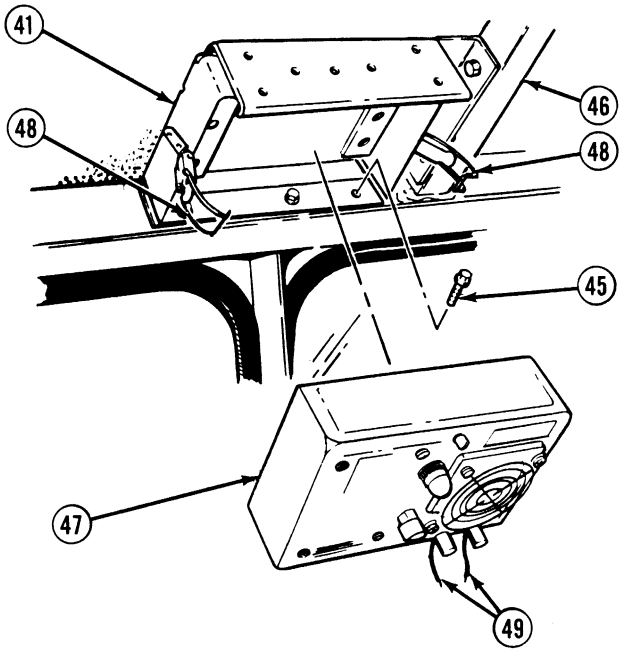
(30) Remove five screws (45) from cab roof supports (46).

(31) Install alarm mount (41) and alarm bracket (42) to cab roof supports (46) with five screws (45).

(32) Install alarm (47) to alarm mount (41) with two clamps (48).

(33) Connect two chemical alarm wire harness wires (49) to alarm (47).





b. Follow-On Maintenance:

- Connect batteries, (TM 9-2320-364-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

19-4. DECONTAMINATION KIT INSTALLATION.

This task covers:

a. Installation b. Follow-On Maintenance

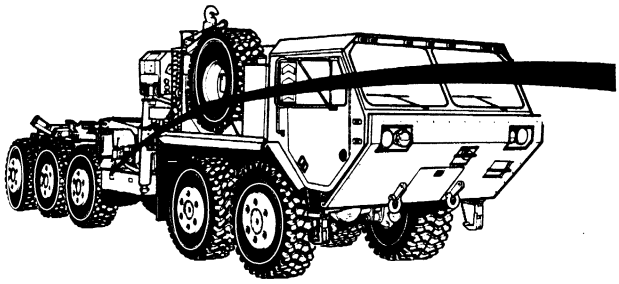
INITIAL SETUP

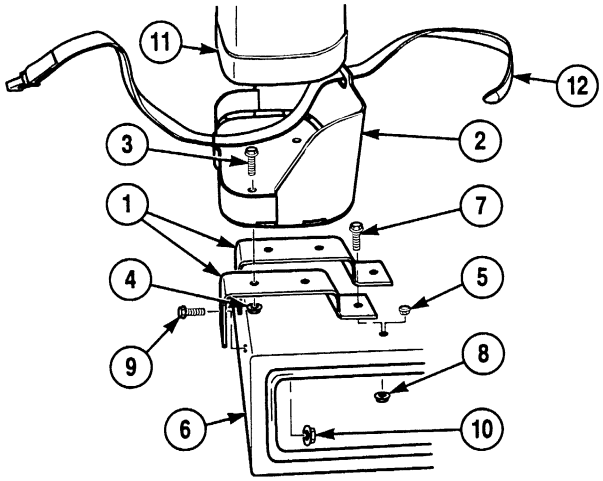
Tools and Special Tools
Tool Kit, General Mechanic's
(Item 240, Appendix F)

Materials/Parts
Locknuts (8) (Item 210, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Parking brake applied, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Installation.





(1) Install two lower support brackets (1) on bracket assembly (2) with four screws (3) and locknuts (4).

(2) Remove four hole plugs (5) from stowage box (6).

(3) Position bracket assembly (2) on stowage box (6).

(4) Position two screws (7) and locknuts (8) in lower brackets (2) and stowage box (6).

(5) Position two screws (9) and locknuts (10) in lower brackets (2) and stowage box (6).

(6) Tighten four locknuts (10) and (8).

(7) Install decontamination apparatus (11) in bracket assembly (2) and tighten strap (12).

b. Follow-On Maintenance:

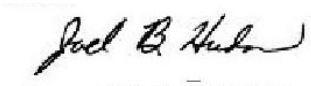
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

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
9911816

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☆ U.S. GOVERNMENT PRINTING OFFICE: 1997 545-010/60527

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter=10 Millimeters=0.01 Meters=0.3937 Inches
1 Meter=100 Centimeters=1000 Millimeters=39.37 Inches
1 Kilometer=1000 Meters=0.621 Miles

WEIGHTS
1 Gram=0.001 Kilograms=1000 Milligrams=0.035 Ounces
1 Kilogram=1000 Grams=2.2 Lb
1 Metric Ton=1000 Kilograms=1 Megagram=1.1 Short Tons

LIQUID MEASURE
1 Milliliter=0.001 Liters=0.0338 Fluid Ounces
1 Liter=1000 Milliliters=33.82 Fluid Ounces

SQUARE MEASURE
1 Sq Centimeter=100 Sq Millimeters=0.155 Sq Inches
1 Sq Meter=10,000 Sq Centimeters=10.76 Sq Feet
1 Sq Kilometer=1,000,000 Sq Meters=0.386 Sq Miles

CUBIC MEASURE
1 Cu Centimeter=1000 Cu Millimeters=0.06 Cu Inches
1 Cu Meter=1,000,000 Cu Centimeters=35.31 Cu Feet

TEMPERATURE
5/9 (°F − 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° + 32 = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621

