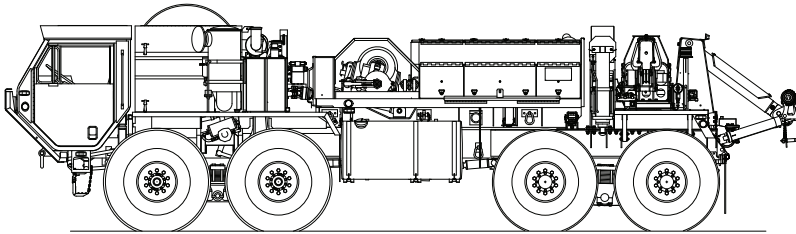


***TM 9-2320-431-10-2**

**TECHNICAL MANUAL
OPERATOR'S MANUAL
FOR**

**TRUCK, WRECKER, 8X8
M984A1
NSN 2320-01-195-7641 (EIC B2B)**



*SUPERSEDURE NOTICE - TM 9-2320-431-10-1 and TM 9-2320-431-10-2 dated 15 June 2009; supersedes TM 9-2320-279-10-2, dated 15 Jun 87, including all changes.
DISTRIBUTION STATEMENT A - Approved for public release; distribution is unlimited.

**HEADQUARTERS, DEPARTMENT OF THE ARMY
15 JUNE 2009**

WARNING SUMMARY

GENERAL SAFETY CAUTION/WARNING SUMMARY

- This list summarizes critical warnings. They are repeated here to let you know how important they are.
- Study these warnings carefully.
- They can save your life and the lives of personnel you work with.
- If there is any doubt about handling tools, materials, equipment, and procedures, see TB 43-0216, Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment.

Table 1. Warning Icons Used In This Manual.





WARNING ICON	DESCRIPTION
	<p><u>AIR PRESSURE</u> - human hand blocking air gun shows the need to reduce air pressure before use, or debris may injure user and/or damage equipment.</p>
	<p><u>BIOLOGICAL</u> - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.</p>
	<p><u>CHEMICAL</u> - drops of liquid on hand show that the material will cause burns or irritation to human skin or tissue.</p>
	<p><u>CRYOGENIC</u> - hand in block of ice shows that the material is extremely cold and can injure human skin and tissue.</p>

Table 1. Warning Icons Used In This Manual. - Continued




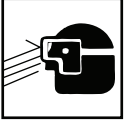

WARNING ICON	DESCRIPTION
	<p><u>ELECTRICAL</u> - electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.</p>
	<p><u>EXPLOSION</u> - rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.</p>
	<p><u>EXTREMELY COLD SURFACE</u> - hand touching object with ice formed on both shows that surface is extremely cold and can damage human tissue.</p>
	<p><u>EYE PROTECTION</u> - person with goggles shows that the material will injure the eyes.</p>
	<p><u>FIRE</u> - flame shows that material may ignite and cause burns.</p>

Table 1. Warning Icons Used In This Manual. - Continued






WARNING ICON	DESCRIPTION
	<p><u>FIRE EXTINGUISHER</u> - fire extinguisher shows that material may ignite and a fire extinguisher should be within easy reach.</p>
	<p><u>HEAVY OBJECT</u> - human figure stooping over heavy object shows physical injury potential for improper lifting technique, and/or aid of assistant(s) and/or lifting device (as required).</p>
	<p><u>HEAVY PARTS</u> - hand with heavy object on top shows that heavy parts can crush and harm.</p>
	<p><u>HEAVY PARTS</u> - foot with heavy object on top shows that heavy parts can crush and harm.</p>
	<p><u>HEAVY PARTS</u> - moving heavy object pinning human figure against stationary object shows that heavy, moving parts/objects present a danger to life or limb.</p>

Table 1. Warning Icons Used In This Manual.






WARNING ICON	DESCRIPTION
	<p><u>HEAVY PARTS</u> - heavy object on human figure shows that heavy parts present a danger to life or limb.</p>
	<p><u>HOT AREA</u> - hand over object radiating heats shows that part is hot and can burn.</p>
	<p><u>MOVING PARTS</u> - hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.</p>
	<p><u>PRESSURE/TENSION HAZARD</u> - human body being impacted by rotating projectile shows that equipment is under pressure or tension presenting a danger to life or limb if pressure or tension is not carefully released.</p>
	<p><u>PROJECTILE HAZARD</u> - human body with object passing through it shows that a projectile hazard exists.</p>

Table 1. Warning Icons Used In This Manual.






WARNING ICON	DESCRIPTION
	<p><u>RADIATION</u> - three circular wedges show that the material emits radioactive energy and can injure human tissue.</p>
	<p><u>ROLLOVER HAZARD</u> - vehicle indicating direction of human figure shows that vehicle may roll over if conditions are not avoided, presenting a danger to life or limb.</p>
	<p><u>RUN OVER HAZARD</u> - vehicle running over human body shows hazard.</p>
	<p><u>SHARP OBJECT</u> - pointed object in hand shows that a sharp object presents a danger to life or limb.</p>
	<p><u>SKIN IRRITATION</u> - hand radiating shows that material can cause skin irritation.</p>

Table 1. Warning Icons Used In This Manual.








WARNING ICON	DESCRIPTION
	<p><u>SLICK FLOOR</u> - wavy line on floor with legs prone shows that slick floor presents a danger of falling.</p>
	<p><u>STEAM HAZARD</u> - human engulfed in steam cloud shows steam hazard exists that could injure/burn human tissue.</p>
	<p><u>TIRE BLOWOUT</u> - tire with hole shows that an over or under inflated tire may rupture, presenting a danger to life or limb.</p>
	<p><u>VAPOR</u> - human figure in a cloud shows that material vapors present a danger to life or health.</p>
	<p><u>WARNING/CAUTION</u> - triangle with exclamation point within shows that a WARNING or CAUTION is present that indicates a potential hazard, which may cause injury or death to personnel (warning), or damage to equipment (caution).</p>

Table 1. Warning Icons Used In This Manual.

WARNING ICON	DESCRIPTION
	<p><u>WIRE CABLE/ROPE</u> - human hand with frayed wire cable/rope running across shows injury to unprotected (bare) hands may result.</p>
	<p><u>EAR PROTECTION</u> - headphones over ears show that noise level will harm ears.</p>

FOR INFORMATION ON FIRST AID:

Reference FM 4-25.11. (Volume 2, WP 0200)

WARNING



MODIFICATION HAZARD

- Unauthorized modifications to, alterations to, or installations on this equipment are prohibited and are in violation of AR 750-10.
- Failure to comply may result in injury or death to personnel or damage to equipment.

WARNING



HIGH-PRESSURE HYDRAULIC SYSTEM

- Hydraulic systems can cause serious injuries if high-pressure lines or equipment fails.
- Never work on hydraulic systems or equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and can give first aid.
- Never disconnect any hydraulic hose or part while the engine is running. Allow several minutes to elapse after shutting off engine, to allow pressure to relieve itself, before attempting to remove hoses. Failure to comply may result in injury to personnel.
- The HEMTT vehicles contain hydraulic systems operating at oil pressures up to 3,000 psi (20 685 kPa) and 3,200 psi (22 064 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



ELECTRICAL SYSTEM

- Remove all jewelry, such as rings, ID tags, bracelets, etc. If jewelry or tools contact electrical circuits, a direct short may result. Failure to comply may result in serious injury or death to personnel.
- Do not smoke, use open flame, make sparks or other ignition sources around batteries. A battery giving off gas could explode. Failure to comply may result in serious injury or death to personnel.
- Be careful when working on or with electrical equipment. Do not be misled by the term "low voltage". Voltages as low as 50 volts can cause death. For artificial respiration, refer to FM 4-25.11.
- When working inside the vehicle with power off, be sure to ground every capacitor likely to hold a dangerous voltage potential.

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

WARNING



SOLVENT CLEANING COMPOUND

- Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in a well-ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid of skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.
- The flashpoint for Type II solvent cleaning compound is 141 to 198°F (61 to 92°C), and Type III is 200 to 241°F (93 to 116°C).
- Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.
- Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.
- Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.
- Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particles may cause injury.

WARNING**POLYURETHANE COATING (CARC)**

- Eye and hearing protection must be worn at all times when using power tools for grinding, cutting, sawing, and drilling. Failure to do so may result in injury to personnel. Chemical Agent Resistant Coating (CARC) paint contains isocyanate which is highly irritating to skin and respiratory system. High concentrations of isocyanate can produce symptoms of itching and reddening of skin, a burning sensation in the throat and nose, and watering of the eyes. In extreme concentrations, isocyanate can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention.
- The following precautions must be taken whenever using CARC paint:
- Protective equipment (gloves, goggles, ventilation mask) must be worn when using CARC paint.
- NEVER cut CARC-coated materials without high-efficiency, air-purifying respirators in use.
- 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.
- Use only in well-ventilated area. Check with local environmental office for methods and locations approved for painting in accordance with local and state environmental regulations.
- 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.

WARNING



ADHESIVE

- Adhesive, solvents and sealing compounds can burn easily and are harmful causing immediate bonding on contact with eyes, skin, or clothing and gives off harmful vapors.
- If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.
- If adhesive gets in your eyes, try to keep them open; flush them with water for 15 minutes and get immediate medical attention.
- Wear protective goggles and use in a well-ventilated area.
- Keep away from open fire and use in well-ventilated area to avoid injury or death.

WARNING



FLAMMABLE LIQUID AND COMBUSTIBLE VAPOR

- Gasoline, fuel oil, lubricating oil, grease, paint, paint thinner, cleaning solvents, and other combustible liquids present a serious fire hazard.
- Combustible liquids must ALWAYS be stored in their approved containers and designated compartments or deck storage locations.
- Ensure exhaust and ventilation fans are operating while using cleaning solvents or paint products.
- Never store or charge batteries in a confined space without ventilation or near electrical equipment.
- Fuel is very flammable and can explode easily.
- To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel.
- Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.

- When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE.
- Starting fluid is toxic and flammable. Do not store in cab and do not breathe fumes. Do not puncture or burn containers. Dispose of container following manufacturer's recommendations on the container.

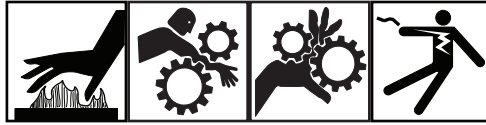
WARNING



LIFTING OPERATIONS This section is applicable to all lifting operations regardless of lifting equipment (crane, LHS, etc.) used.

- All personnel must stand clear during lifting operations. A swinging or shifting load may cause injury or death to personnel.
- Never crawl under equipment when performing maintenance unless equipment is securely blocked. Failure to comply may cause injury or death to personnel.
- Keep clear of equipment when it is being raised or lowered. Failure to comply may cause injury or death to personnel.
- Do not work on any item supported only by lift jacks or hoist. Always use blocks or proper stands to support the item prior to any work. Failure to comply may result in injury or death to personnel.
- Do not lift a load greater than the rated load capacity of the crane or materiel handling equipment. Failure to comply may result in injury or death to personnel or damage to equipment.
- Do not allow heavy components to swing while hanging by lifting device. Failure to comply may cause injury or death to personnel.
- Any part or component that weighs between 50 lbs (23 kg) and 75 lbs (34 kg) must be removed with the aid of an assistant. Any part or component that weighs over 75 lbs (34 kg) must be removed with the aid of an assistant and a lifting device. Failure to comply may cause injury or death to personnel.
- Ensure all chains, hooks, and slings are in good condition and are of correct capacity. Ensure hooks are positioned correctly. Failure to comply may result in injury or death to personnel.

WARNING



MOVING MACHINERY

- Use extreme care when operating or working near moving machinery including running engine, rotating shafts, and other moving parts. Failure to comply may result in injury or death to personnel.
- Use extreme care when measuring voltage while engine is running. Avoid contact with rotating fan blade and hot engine parts. Failure to comply may result in injury or death to personnel.

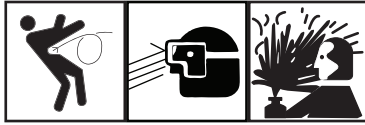
WARNING



HEAVY-DUTY WINCH OPERATION

- All personnel must stand clear during winching operations from possible snapping cable or shifting load. Failure to comply may result in injury or death to personnel.
- When hooking up for winching operations, position throat (open part) of hook upward in case overloading straightens out hook. Failure to comply may result in injury or death to personnel.
- The cable drum requires a minimum of three or four wraps of wire rope (cable) for safety. Failure to comply may result in injury or death to personnel.
- Be careful when handling the winch cable. Ensure cut ends are taped. Ensure cut ends of cable on winch assembly are securely fastened down. Failure to comply may result in injury or death to personnel.
- Always wear leather gloves when handling winch cable. Failure to comply may result in injury or death to personnel.

WARNING



PARTS UNDER PRESSURE

- Wear safety goggles and use caution when removing or installing springs, snap rings, retaining rings, and other parts under spring tension. These parts can act as projectiles. Failure to comply may result in injury or death to personnel.
- The radiator is very hot and pressurized during vehicle operation. Let radiator cool before removing cap. Failure to do so can result in serious burns.
- During pressure tests, ensure air pressure is drained to 0 psi (0 kPa) before taking off any components. If pressure is not released, plates or line could blow off and harm personnel. Do not drain air from tank with any part of body in air spray path. Skin embolisms and/or debris in eyes can occur from released pressure.
- High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.
- Stand clear of trajectory area during deflation or personal injury or death may result.
- Lock-ring is under tension. If lock-ring breaks loose it could cause injury to personnel. Keep hands and fingers away from lock-ring when removing.
- Never adjust relief valve so that personnel must stand on strongback to operate latch.
- If there is any residual pressure in tank when relief valve is open, personnel may lose their balance and fall. Failure to comply may result in injury or death to personnel.
- 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.
- Use extreme care when 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. Eye

protection is required during all grinding operations. Failure to comply may result in serious injury to personnel.

- Failure to relieve tank pressure may result in sudden, unexpected loss of pressure. Failure to comply may result in personal injury or death.
- Do not remove the radiator cap when the engine is hot, as steam and hot coolant can escape. Failure to comply may result in personal injury or death.

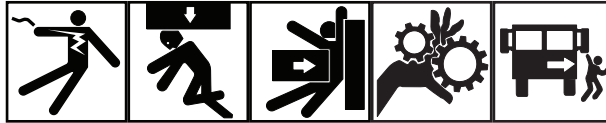
WARNING



HEAVY PARTS

Any part or component that weigh over 50 lbs (23 kg) must be removed with the aid of an assistant and a lifting device. Failure to comply may result in personal injury or death.

WARNING



CRANE SYSTEM

- Always refer to the range diagram BEFORE making any lift. It is extremely important that the crane is properly leveled to prevent overstressing.
- Do not operate crane unless outriggers are set up. Always chock front wheels when using outriggers. Failure to comply may result in injury or death to personnel.
- When using crane on any vehicle, park vehicle clear of all overhead powerlines. If operating crane under power lines, do not allow vehicle to contact high-voltage connections. Failure to comply will result in death to personnel.
- Do not stand under crane. Failure to comply may result in injury or death to personnel.
- Refuse to work with worn, frayed, or damaged wire rope. Always wear heavy gloves when handling winch cables; never let cable run

through hands. Frayed cables can cut. Never operate winch with less than five wraps of cable on winch drum. Failure to comply may result in injury or death to personnel.

- When using crane on any vehicle, park vehicle clear of all overhead power lines. Do not operate crane near overhead power lines. Failure to comply may result in injury or death to personnel.
- Boom has a 370 degree rotation and is mechanically stopped at five degrees on either side of the left outrigger beam. Swing operations must be slowed no later than 15 degrees prior to contacting the stop.
- Keep boom clear of electrical powerlines and other obstacles. Do not operate crane near overhead powerlines. Failure to comply will result in death to personnel.
- Avoid quick, jerking, winch operation. Keep other personnel well away from vehicles involved in winching operations. A snapped cable or shifting load can cause serious injury or death.
- If possible, keep one hand away from equipment to reduce the hazard of current flowing through vital organs of the body.
- Keep fingers clear of top of lift-hook. Failure to comply could result in personnel injury.

WARNING



CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH

- Carbon monoxide does not have color or smell and can cause death.
- Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling and coma. Brain damage or death can result from heavy exposure.
- Carbon monoxide is in exhaust fumes of fuel-burning heaters and internal combustion engines.
- Carbon monoxide can become dangerously concentrated under conditions of no ventilation.
- Precautions must be followed to ensure crew safety when the personnel heater or engine of any vehicle is operated for any purpose. Failure to comply may result in injury or death to personnel.

- DO NOT operate vehicle engine in a closed place unless the place has proper ventilation. Failure to comply may result in injury or death to personnel.
- DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes. Failure to comply may result in injury or death to personnel.
- BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either odor or exposure symptoms are present, IMMEDIATELY VENTILATE personnel compartments. If symptoms continue, remove affected crew to fresh air and keep warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give artificial respiration and get immediate medical attention. For artificial respiration, refer to FM 4-25.11 . Failure to comply may result in injury or death to personnel.
- BE AWARE that the gas particulate filter unit or the field protection mask for nuclear-biological-chemical protection WILL NOT offer safety from carbon monoxide poisoning.

WARNING



EXTREME HEAT

If required to remain inside the vehicle during extreme heat, occupants should follow the water intake, work/rest cycle, and other heat stress preventive medicine measures contained in FM 21-10, Field Hygiene and Sanitation.

WARNING



CABLES

- Always wear heavy gloves when handling winch cables; never let cable run through hands. Frayed cables can cut. Failure to comply may result in injury or death to personnel.

- Never operate winch with less than five wraps of cable on winch drum. Frayed cables can cut. Failure to comply may result in injury or death to personnel.

WARNING



LEAD-ACID BATTERIES

- Wear proper eye protection when working around batteries. Failure to comply may result in injury or death to personnel.
- Use extreme care not to short out battery terminals. Remove all jewelry such as rings, ID tags, bracelets, etc. prior to working on or around vehicle. Jewelry and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Failure to comply may result in injury or death to personnel.
- Batteries produce explosive gases. Do not smoke or use open flame near batteries. Do not allow hot, sparking, or glowing objects near batteries. If batteries are giving off gases, presence of a heat, flame, or spark may cause fire and/or explosion. Failure to comply may result in injury or death to personnel.
- Battery electrolyte is harmful to skin, and eyes. Avoid battery electrolyte contact with skin, eyes, or clothing. If battery electrolyte spills, take immediate action to stop burning effects:

WARNING



NBC

- NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel.

- The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-11.4) is used, and prescribed safety measures and decontamination procedures (FM 3-11.5) are followed.
- The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

WARNING



TIRE OPERATION

- Operating a vehicle with a tire in an overinflated or underinflated condition, or with a questionable defect, may lead to premature tire failure. Ensure tire has proper tire pressure. Failure to comply may result in injury or death to personnel.
- When inflating tires mounted on the vehicle, all personnel must remain out of trajectory of the side ring and lock-ring as shown by the areas indicated. Failure to follow proper procedures may result in serious injury or death to personnel.
- Cracked, broken, bent or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated or damage or personal injury or death may result.
- No heat shall be applied to a multi-piece wheel or wheel component or damage or injury or death may result.
- Failure to place wheel/tire assembly in safety cage prior to initial inflation could result in serious injury or death to personnel.
- When a wheel/tire is in a restraining device, do not rest or lean any part of body or equipment on or against the restraining device, or injury or death could result.
- While changing tires or while performing tire maintenance, stay out of the trajectory path. Failure to comply may result in injury or death to personnel.
- Always use an inflation hose with an in-line gauge and a clip-on chuck when inflating tires. The gauge and valve must be mounted a minimum of 10 feet (3.10 m) away from air chuck.

- High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.
- Tire is heavy. Brace tire to ensure tire will not fall over on you or on others.

WARNING



VEHICLE OPERATION

- Speed limits posted on curves reflect speeds that are considered safe for automobiles. Heavy trucks with a high center of gravity can roll over at these speed limits. Use caution and reduce your speed below the posted limit before entering a curve. Failure to comply may result in vehicle crash and injury to personnel.
- Use caution and reduce your speed below the posted limit before entering a curve. Failure to comply may result in vehicle crash and injury to personnel.
- Always use seatbelts when operating vehicle. Failure to use seatbelt can result in serious injury or death in case of accident.
- Operation at speeds over 15 mph (24 kph) on paved roads can be achieved when the operator determines that the vehicle being towed and the terrain allow safe operation.
- Under no condition can speeds over 35 mph (55 kph) on paved road and 15 mph (24 kph) off-road be allowed. Loss of control can cause serious injury or death. Excessive speed can cause damage to vehicle being towed.

WARNING



BRAKES

- Ensure all personnel are clear from front of truck before performing brake stall check. Be ready to apply service brake. Operator must

remain in cab while performing this check. Failure to comply could result in personnel injury.

- Never use parking brake for normal braking or wheels will lock up causing severe skid. Skidding vehicle may result in serious personal injury or death.
- Engine must be shut OFF and parking brake set before performing PMCS walkaround. Failure to comply may result in injury or death to personnel.

WARNING



BURNS

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

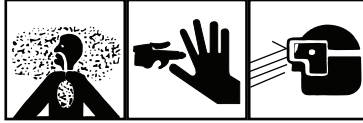
WARNING



HEARING PROTECTION

- Excessive noise levels are present any time the heavy-duty winch or crane is operating.
- Wear single hearing protection (earplugs or equivalent) while working around equipment while it is running. Failure to do so could result in damage to your hearing.
- Seek medical aid should you suspect a hearing problem.

WARNING



COMPRESSED AIR

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

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE:

TM 9-2320-431-10-1 and TM 9-2320-431-10-2 dated 15 June 2009 supersedes TM 9-2320-279-10-1, 21 Nov 86 and 10-2, 15 Jun 87 including all changes. Zero in the Change No." column indicates an original page or work package.

Date of issue for the original manual is:

Original 15 June 2009

TOTAL NUMBER OF VOLUMES IS 2, TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 280 AND TOTAL NUMBER OF WORK PACKAGES IS 203, CONSISTING OF THE FOLLOWING:

Page/WP No.	Change No.	Page/WP No.	Change No.
Volume 2		WP 0155 (6 pages)	0
Front Cover	0	WP 0156 (4 pages)	0
Warning Summary	0	WP 0157 (4 pages)	0
i-xxii	0	WP 0158 (4 pages)	0
Chp 3 - Troubleshooting		WP 0159 (8 pages)	0
Procedures		WP 0160 (4 pages)	0
WP 0136 (8 pages)	0	WP 0161 (6 pages)	0
WP 0137 (8 pages)	0	WP 0162 (4 pages)	0
WP 0138 (6 pages)	0	WP 0163 (6 pages)	0
WP 0139 (4 pages)	0	WP 0164 (4 pages)	0
WP 0140 (6 pages)	0	WP 0165 (6 pages)	0
WP 0141 (6 pages)	0	WP 0166 (6 pages)	0
WP 0142 (4 pages)	0	WP 0167 (4 pages)	0
WP 0143 (4 pages)	0	WP 0168 (10 pages)	0
WP 0144 (6 pages)	0	WP 0169 (8 pages)	0
WP 0145 (6 pages)	0	WP 0170 (4 pages)	0
WP 0146 (6 pages)	0	WP 0171 (4 pages)	0
WP 0147 (4 pages)	0	WP 0172 (4 pages)	0
WP 0148 (4 pages)	0	WP 0173 (4 pages)	0
WP 0149 (4 pages)	0	WP 0174 (4 pages)	0
WP 0150 (4 pages)	0	WP 0175 (2 pages)	0
WP 0151 (4 pages)	0	WP 0176 (2 pages)	0
WP 0152 (4 pages)	0	WP 0177 (6 pages)	0
WP 0153 (10 pages)	0	WP 0178 (4 pages)	0
WP 0154 (4 pages)	0	WP 0179 (4 pages)	0

Page/WP No.	Change No.	Page/WP No.	Change No.
WP 0180 (2 pages)	0	WP 0191 (2 pages)	0
Chp 4 - Preventive Maintenance Checks and Services (PMCS)	0	WP 0192 (20 pages)	0
WP 0181 (4 pages)	0	WP 0193 (2 pages)	0
WP 0182 (40 pages)	0	WP 0194 (6 pages)	0
WP 0183 (46 pages)	0	WP 0195 (8 pages)	0
WP 0184 (66 pages)	0	WP 0196 (6 pages)	0
WP 0185 (74 pages)	0	WP 0197 (4 pages)	0
WP 0186 (42 pages)	0	WP 0198 (2 pages)	0
WP 0187 (18 pages)	0	WP 0199 (2 pages)	0
Chp 5 - Maintenance Instructions	0	Chp 6 - Supporting Information	0
WP 0188 (16 pages)	0	WP 0200 (8 pages)	0
WP 0189 (4 pages)	0	WP 0201 (32 pages)	0
WP 0190 (6 pages)	0	WP 0202 (6 pages)	0
		WP 0203 (10 pages)	0

**HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 JUNE 2009**

TECHNICAL MANUAL

**OPERATOR'S MANUAL
TRUCK, WRECKER, 8X8
M984A1 (NSN 2320-01-195-7641)**

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TABLE OF CONTENTS

	<u>WP Sequence No.</u>
	<u>Page No.</u>
Chapter 3 - Troubleshooting Procedures	
BUZZER SOUNDS AND AIR INDICATOR IS LIT.....	WP 0136
Figure 1.	0136-1
Figure 2.	0136-2
Figure 3.	0136-3
Figure 4.	0136-5
Figure 5.	0136-6
Figure 6.	0136-7
WINDSHIELD WASHER WILL NOT OPERATE.....	WP 0137
Figure 1.	0137-2
Figure 2.	0137-4
Figure 3.	0137-5
Figure 4.	0137-6
Figure 5.	0137-7
Figure 6.	0137-8
AIR SYSTEM LOSES PRESSURE DURING OPERATION.....	WP 0138
Figure 1.	0138-2
Figure 2.	0138-3
Figure 3.	0138-4
Figure 4.	0138-5
TRAILER BRAKE DOES NOT APPLY WHEN SERVICE BRAKE TREADLE OR PARKING BRAKE IS USED.....	WP 0139

	<u>WP Sequence No.</u>
	<u>Page No.</u>
Figure 1.	0139-2
Figure 2.	0139-3
AIR HORN WILL NOT OPERATE.....	WP 0140
Figure 1.	0140-2
Figure 2.	0140-3
Figure 3.	0140-4
ARCTIC ENGINE HEATER FAILS TO OPERATE.....	WP 0141
Figure 1.	0141-2
Figure 2.	0141-3
Figure 3.	0141-5
ONE OR MORE LIGHTING CIRCUITS NOT OPERATING.....	WP 0142
Figure 1.	0142-2
Figure 2.	0142-3
FAILS TO CRANK WHEN ENGINE START SWITCH IS TURNED TO START POSITION.....	WP 0143
Figure 1.	0143-1
Figure 2.	0143-2
CRANKS BUT FAILS TO START.....	WP 0144
Figure 1.	0144-2
Figure 2.	0144-3
Figure 3.	0144-4
Figure 4.	0144-5
STARTS OR RUNS ROUGHLY AFTER PROPER WARM-UP, DOES NOT MAKE FULL POWER, OR MAKES EXCESSIVE EXHAUST SMOKE.....	WP 0145

	<u>Page No.</u>	<u>WP Sequence No.</u>
Figure 1.	0145-2	
Figure 2.	0145-4	
Figure 3.	0145-5	
ENGINE OVERHEATS.....		WP 0146
Figure 1.	0146-2	
Figure 2.	0146-4	
LOW OIL PRESSURE GAUGE INDICATION.....		WP 0147
Figure 1.	0147-2	
EXCESSIVE OIL CONSUMPTION.....		WP 0148
Figure 1.	0148-2	
HEAVY-DUTY WINCH WILL NOT OPERATE IN REMOTE CONTROL.....		WP 0149
Figure 1.	0149-2	
Figure 2.	0149-3	
Figure 3.	0149-4	
WINCH CABLE WILL NOT REEL OUT OR IN, OR OPERATES SLOWLY IN REMOTE CONTROL.....		WP 0150
Figure 1.	0150-2	
Figure 2.	0150-3	
Figure 3.	0150-4	
HEAVY-DUTY WINCH WILL NOT OPERATE IN MANUAL CONTROL.....		WP 0151
Figure 1.	0151-2	
Figure 2.	0151-3	
Figure 3.	0151-4	
WINCH CABLE WILL NOT REEL OUT OR IN, OR OPERATES SLOWLY IN MANUAL CONTROL.....		WP 0152

	<u>WP Sequence No.</u>
	<u>Page No.</u>
Figure 1.	0152-2
Figure 2.	0152-3
Figure 3.	0152-4
CONTROLS (REMOTE OR MANUAL) STICKING IN ENGAGED POSITION.....	WP 0153
Figure 1.	0153-2
Figure 2.	0153-3
Figure 3.	0153-5
Figure 4.	0153-6
Figure 5.	0153-7
Figure 6.	0153-8
Figure 7.	0153-9
Figure 8.	0153-10
HYDRAULIC SYSTEM OPERATES TOO SLOW, TOO FAST, WITH JERKY MOVEMENTS; OR ONE OR MORE HYDRAULICS CIRCUITS WILL NOT OPERATE.....	WP 0154
Figure 1.	0154-2
Figure 2.	0154-3
BOOM OPERATION ABNORMAL WHEN TELESCOPING IN OR OUT.....	WP 0155
Figure 1.	0155-2
Figure 2.	0155-3
Figure 3.	0155-4
Figure 4.	0155-4
BOOM RAISES OR LOWERS SLOWLY.....	WP 0156
Figure 1.	0156-2

	<u>Page No.</u>	<u>WP Sequence No.</u>
Figure 2.	0156-3	
BOOM WILL NOT RAISE OR LOWER.....		WP 0157
Figure 1.	0157-2	
BOOM WILL NOT TELESCOPE IN OR OUT.....		WP 0158
Figure 1.	0158-2	
CRANE CONTROLS STICKING IN ENGAGED POSITION.....		WP 0159
Figure 1.	0159-2	
Figure 2.	0159-4	
Figure 3.	0159-6	
Figure 4.	0159-7	
Figure 5.	0159-8	
CRANE WILL NOT OPERATE, OR OPERATES ABNORMALLY.....		WP 0160
Figure 1.	0160-2	
Figure 2.	0160-3	
Figure 3.	0160-4	
HOIST OPERATION SLOW OR ABNORMAL WHEN LIFTING OR LOWERING LOAD.....		WP 0161
Figure 1.	0161-2	
Figure 2.	0161-3	
Figure 3.	0161-4	
Figure 4.	0161-5	
Figure 5.	0161-6	
HOIST WILL NOT LIFT LOAD.....		WP 0162
Figure 1.	0162-2	

	<u>WP Sequence No.</u>	
	<u>Page No.</u>	
Figure 2.	0162-3	
MAST RAISES OR LOWERS ABNORMALLY.....		WP 0163
Figure 1.	0163-2	
Figure 2.	0163-4	
MAST RAISES OR LOWERS SLOWLY.....		WP 0164
Figure 1.	0164-2	
Figure 2.	0164-3	
OUTRIGGER OPERATION SLOW OR ABNORMAL.....		WP 0165
Figure 1.	0165-2	
Figure 2.	0165-3	
Figure 3.	0165-4	
Figure 4.	0165-5	
Figure 5.	0165-6	
SWING OPERATION ABNORMAL IN BOTH DIRECTIONS.....		WP 0166
Figure 1.	0166-2	
Figure 2.	0166-3	
Figure 3.	0166-4	
Figure 4.	0166-5	
Figure 5.	0166-6	
SWING OPERATION ABNORMAL IN ONLY ONE DIRECTION.....		WP 0167
Figure 1.	0167-2	
Figure 2.	0167-3	
Figure 3.	0167-4	
CONTROLS STICKING IN ENGAGED POSITION.....		WP 0168

	<u>Page No.</u>	<u>WP Sequence No.</u>
Figure 1.	0168-2	
Figure 2.	0168-4	
Figure 3.	0168-6	
Figure 4.	0168-7	
Figure 5.	0168-8	
RETRIEVAL CYLINDERS RAISE OR LOWER SLOWLY.....		WP 0169
Figure 1.	0169-2	
Figure 2.	0169-4	
Figure 3.	0169-6	
Figure 4.	0169-7	
RETRIEVAL SYSTEM WILL NOT OPERATE.....		WP 0170
Figure 1.	0170-2	
Figure 2.	0170-3	
Figure 3.	0170-4	
SELF-RECOVERY WINCH DOES NOT WORK.....		WP 0171
Figure 1.	0171-2	
Figure 2.	0171-3	
UNUSUALLY NOISY WHEN OPERATING.....		WP 0172
Figure 1.	0172-2	
Figure 2.	0172-3	
VEHICLE IS HARD TO STEER, SHIMMIES, WANDERS, OR PULLS TO ONE SIDE.....		WP 0173
Figure 1.	0173-2	
Figure 2.	0173-3	

	<u>WP Sequence No.</u>
	<u>Page No.</u>
VEHICLE STEERING SLOW TO RESPOND OR INTERMITTENT.....	WP 0174
Figure 1.	0174-2
Figure 2.	0174-3
UNUSUALLY NOISY WHEN OPERATING.....	WP 0175
Figure 1.	0175-1
SLOW OR DIFFICULT ENGAGEMENT.....	WP 0176
Figure 1.	0176-1
TRANSFER CASE SHIFT LEVER WILL NOT SHIFT.....	WP 0177
Figure 1.	0177-2
Figure 2.	0177-3
Figure 3.	0177-4
Figure 4.	0177-5
TRANS TEMP GAUGE INDICATES OVERHEATING DURING NORMAL OPERATION.....	WP 0178
Figure 1.	0178-2
Figure 2.	0178-3
WHEEL WOBBLES.....	WP 0179
Figure 1.	0179-2
Figure 2.	0179-3
TIRES WORN UNEVENLY OR EXCESSIVELY.....	WP 0180
Figure 1.	0180-2
Chapter 4 - Preventive Maintenance Checks and Services (PMCS)	
INTRODUCTION - PREVENTIVE MAINTENANCE	WP 0181
Figure 1.	0181-3

WP Sequence No.
Page No.

BEFORE - PREVENTIVE MAINTENANCE.....	WP 0182
Table 1. PMCS - BEFORE.....	0182-1
Figure 1.	0182-5
Figure 2.	0182-7
Figure 3.	0182-9
Figure 4.	0182-10
Figure 5.	0182-13
Figure 6.	0182-14
Figure 7.	0182-16
Figure 8.	0182-19
Figure 9.	0182-22
Figure 10.	0182-24
Figure 11.	0182-25
Figure 12.	0182-27
Figure 13.	0182-30
Figure 14.	0182-33
Figure 15.	0182-35
Figure 16.	0182-37
Figure 17.	0182-38
Figure 18.	0182-39
DURING - PREVENTIVE MAINTENANCE.....	WP 0183
Table 1. PMCS - DURING.....	0183-1
Figure 1.	0183-2
Figure 2.	0183-5

	<u>WP Sequence No.</u>
	<u>Page No.</u>
Figure 3.	0183-6
Figure 4.	0183-7
Figure 5.	0183-8
Figure 6.	0183-10
Figure 7.	0183-11
Figure 8.	0183-12
Figure 9.	0183-13
Figure 10.	0183-14
Figure 11.	0183-15
Figure 12.	0183-17
Figure 13.	0183-20
Figure 14.	0183-22
Figure 15.	0183-23
Figure 16.	0183-24
Figure 17.	0183-25
Figure 18.	0183-26
Figure 19.	0183-28
Figure 20.	0183-30
Figure 21.	0183-31
Figure 22.	0183-32
Figure 23.	0183-34
Figure 24.	0183-35
Figure 25.	0183-38
Figure 26.	0183-39

WP Sequence No.
Page No.

Figure 27.	0183-41
Figure 28.	0183-42
Figure 29.	0183-44
Figure 30.	0183-45
AFTER - PREVENTIVE MAINTENANCE	WP 0184
Table 1. PMCS - AFTER.....	0184-1
Figure 1.	0184-5
Figure 2.	0184-7
Figure 3.	0184-8
Figure 4.	0184-10
Figure 5.	0184-12
Figure 6.	0184-14
Figure 7.	0184-16
Figure 8.	0184-17
Figure 9.	0184-18
Figure 10.	0184-19
Figure 11.	0184-21
Figure 12.	0184-22
Figure 13.	0184-25
Figure 14.	0184-25
Figure 15.	0184-27
Figure 16.	0184-29
Figure 17.	0184-30
Figure 18.	0184-32

	<u>WP Sequence No.</u>
	<u>Page No.</u>
Figure 19.	0184-33
Figure 20.	0184-34
Figure 21.	0184-36
Figure 22.	0184-37
Figure 23.	0184-39
Figure 24.	0184-42
Figure 25.	0184-44
Figure 26.	0184-45
Figure 27.	0184-46
Figure 28.	0184-47
Figure 29.	0184-48
Figure 30.	0184-50
Figure 31.	0184-52
Figure 32.	0184-53
Figure 33.	0184-54
Figure 34.	0184-56
Figure 35.	0184-57
Figure 36.	0184-60
Figure 37.	0184-61
Figure 38.	0184-63
Figure 39.	0184-64
WEEKLY - PREVENTIVE MAINTENANCE.....	WP 0185
Table 1. PMCS - WEEKLY.....	0185-1
Figure 1.	0185-4

	<u>WP Sequence No.</u>
	<u>Page No.</u>
Figure 2.	0185-6
Figure 3.	0185-7
Figure 4.	0185-9
Figure 5.	0185-10
Figure 6.	0185-12
Figure 7.	0185-13
Figure 8.	0185-14
Figure 9.	0185-15
Figure 10.	0185-17
Figure 11.	0185-18
Figure 12.	0185-20
Figure 13.	0185-21
Figure 14.	0185-22
Figure 15.	0185-24
Figure 16.	0185-25
Figure 17.	0185-26
Figure 18.	0185-27
Figure 19.	0185-29
Figure 20.	0185-31
Figure 21.	0185-32
Figure 22.	0185-33
Figure 23.	0185-34
Figure 24.	0185-35
Figure 25.	0185-36

	<u>WP Sequence No.</u>
	<u>Page No.</u>
Figure 26.	0185-37
Figure 27.	0185-39
Figure 28.	0185-40
Figure 29.	0185-42
Figure 30.	0185-45
Figure 31.	0185-47
Figure 32.	0185-48
Figure 33.	0185-49
Figure 34.	0185-50
Figure 35.	0185-51
Figure 36.	0185-53
Figure 37.	0185-55
Figure 38.	0185-56
Figure 39.	0185-57
Figure 40.	0185-59
Figure 41.	0185-60
Figure 42.	0185-63
Figure 43.	0185-64
Figure 44.	0185-66
Figure 45.	0185-67
Figure 46.	0185-69
Figure 47.	0185-71
Figure 48.	0185-72
Figure 49.	0185-73

	<u>Page No.</u>	<u>WP Sequence No.</u>
SEMIANNUAL - PREVENTIVE MAINTENANCE.....		WP 0186
Table 1. PMCS- SEMIANNUAL.....	0186-1	
Figure 1.	0186-3	
Figure 2.	0186-6	
Figure 3.	0186-8	
Figure 4.	0186-10	
Figure 5.	0186-11	
Figure 6.	0186-13	
Figure 7.	0186-14	
Figure 8.	0186-15	
Figure 9.	0186-16	
Figure 10.	0186-17	
Figure 11.	0186-18	
Figure 12.	0186-19	
Figure 13.	0186-20	
Figure 14.	0186-21	
Figure 15.	0186-22	
Figure 16.	0186-24	
Figure 17.	0186-25	
Figure 18.	0186-26	
Figure 19.	0186-27	
Figure 20.	0186-28	
Figure 21.	0186-29	
Figure 22.	0186-30	

	<u>Page No.</u>	<u>WP Sequence No.</u>
Figure 23.	0186-31	
Figure 24.	0186-32	
Figure 25.	0186-33	
Figure 26.	0186-34	
Figure 27.	0186-35	
Figure 28.	0186-36	
Figure 29.	0186-38	
Figure 30.	0186-39	
Figure 31.	0186-40	
MONTHLY - PREVENTIVE MAINTENANCE.....		WP 0187
Table 1. PMCS - MONTHLY.....	0187-1	
Figure 1.	0187-4	
Figure 2.	0187-5	
Figure 3.	0187-6	
Figure 4.	0187-7	
Figure 5.	0187-8	
Figure 6.	0187-9	
Figure 7.	0187-9	
Figure 8.	0187-10	
Figure 9.	0187-11	
Figure 10.	0187-13	
Figure 11.	0187-15	
Figure 12.	0187-16	

Chapter 5 - Maintenance Instructions

LUBRICATION INSTRUCTIONS.....		WP 0188
Table 1. Engine Lubrication.....	0188-2	
Table 2. Transmission and Transfer Case Lubrication.....	0188-3	
Table 3. Axle Lubrication.....	0188-4	
Table 4. Hydraulic Reservoir Servicing.....	0188-6	
Table 5. Radiator Servicing.....	0188-7	
Table 6. Self-Recovery Winch Lubrication.....	0188-9	
Table 7. Heavy-Duty Winch Lubrication.....	0188-10	
Table 8. Material Handling Crane Lubrication.....	0188-11	
Table 9. Oil Can Point Lubrication.....	0188-12	
Table 10. Miscellaneous Lubrication Points.....	0188-13	
Table 11. Vehicle Cleaning.....	0188-14	
CLOSE/OPEN HEATER VALVES.....		WP 0189
Figure 1.	0189-2	
Figure 2.	0189-3	
PRE/POST TOWING PROCEDURE (FRONT LIFT ONLY).....		WP 0190
Figure 1.	0190-2	
Figure 2.	0190-3	
Figure 3.	0190-4	
Figure 4.	0190-5	
CLEAN VEHICLE.....		WP 0191
Figure 1.	0191-1	
Figure 2.	0191-2	

	<u>WP Sequence No.</u>
	<u>Page No.</u>
CHANGE WHEEL AND TIRE ASSEMBLY.....	WP 0192
Figure 1.	0192-2
Figure 2.	0192-3
Figure 3.	0192-4
Figure 4.	0192-4
Figure 5.	0192-5
Figure 6.	0192-5
Figure 7.	0192-6
Figure 8.	0192-7
Figure 9.	0192-8
Figure 10.	0192-8
Figure 11.	0192-9
Figure 12.	0192-10
Figure 13.	0192-11
Figure 14.	0192-12
Figure 15.	0192-13
Figure 16.	0192-13
Figure 17.	0192-14
Figure 18.	0192-15
Figure 19.	0192-16
Figure 20.	0192-17
Figure 21.	0192-18
Figure 22.	0192-19
CLEAN FUEL TANK STRAINER.....	WP 0193

	<u>Page No.</u>	<u>WP Sequence No.</u>
Figure 1.	0193-1	
Figure 2.	0193-2	
SERVICE AIR CLEANER ELEMENT.....		WP 0194
Figure 1.	0194-1	
Figure 2.	0194-2	
Figure 3.	0194-3	
Figure 4.	0194-4	
Figure 5.	0194-5	
Figure 6.	0194-5	
Figure 7.	0194-6	
SERVICE TIRES.....		WP 0195
Figure 1.	0195-2	
Figure 2.	0195-3	
Figure 3.	0195-4	
Figure 4.	0195-5	
Figure 5.	0195-7	
OPEN/CLOSE BATTERY BOX.....		WP 0196
Figure 1.	0196-3	
Figure 2.	0196-5	
OPEN/CLOSE ENGINE COVERS AND ENGINE SIDE PANEL REMOVAL/INSTALLATION.....		WP 0197
Figure 1.	0197-1	
Figure 2.	0197-2	
Figure 3.	0197-3	

	<u>WP Sequence No.</u>	
	<u>Page No.</u>	
Figure 4.	0197-3	
1.5 IN. (38 MM) SPACER ASSEMBLY.....		WP 0198
Figure 1.	0198-1	
3 IN. (76 MM) SPACER ASSEMBLY.....		WP 0199
Figure 1.	0199-1	
Chapter 6 - Supporting Information		
REFERENCES.....		WP 0200
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS.....		WP 0201
Table 1. List of Usable On Codes.....	0201-2	
Table 2. Components of End Item.....	0201-2	
Table 3. Basic Issue Items.....	0201-4	
ADDITIONAL AUTHORIZATION LIST (AAL).....		WP 0202
Table 1. List of Usable On Codes.....	0202-1	
Table 2. Additional Authorization List.....	0202-2	
EXPENDABLE AND DURABLE ITEMS LIST.....		WP 0203
Table 1. Expendable and Durable Items List.....	0203-1	

CHAPTER 3
TROUBLESHOOTING
PROCEDURES

**OPERATOR MAINTENANCE
BUZZER SOUNDS AND AIR INDICATOR IS LIT**

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1, WP 0056)

Wheels chocked. (Volume 1, WP 0100)

**TROUBLESHOOTING PROCEDURE
BUZZER SOUNDS AND AIR INDICATOR IS LIT**

TEST 1 - Is air pressure greater than 75 psi (517 kPa)?

1. Start engine, (Volume 1, WP 0044) and allow air pressure to build.
2. Check air pressure.

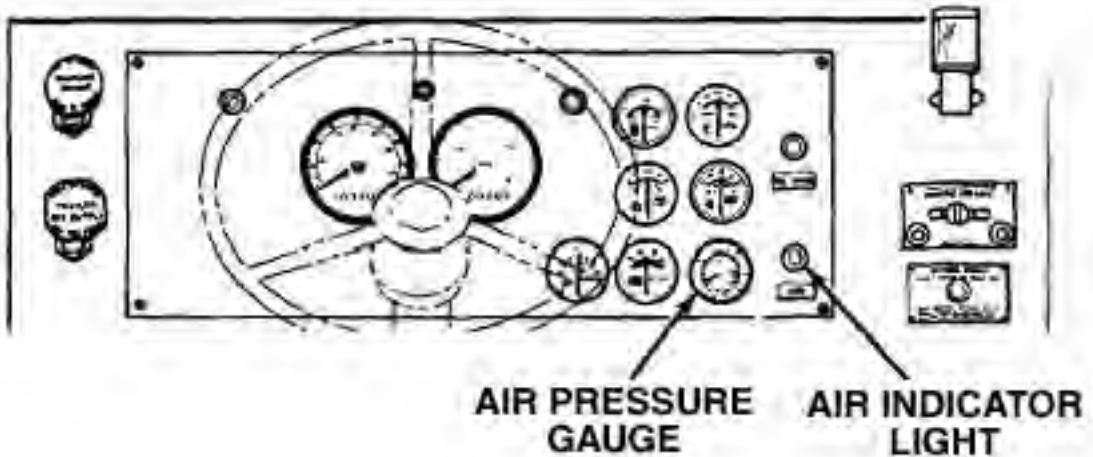


Figure 1.

3. Turn engine OFF. (Volume 1, WP 0057)

CONDITION/INDICATION

Is air pressure greater than 75 psi (517 kPa)?

DECISION

No - Test 2 - Are any petcock valves open?

Yes - Notify Supervisor.

TEST 2 - Are any petcock valves open?

1. Check if any air reservoir petcock valves are open. If valve(s) open, close petcock(s).



Figure 2.

CONDITION/INDICATION

Are any petcock valves open?

DECISION

Petcock(s) open - Test 6 - Does buzzer stop, and air indicator light extinguish?

Petcock's closed - Test 3 - Is trailer air supply control in correct position?

TEST 3 - Is trailer air supply control in correct position?

1. Check that trailer air supply control is pulled out (OFF position) if no trailer is coupled, and pushed in (ON position) if trailer is coupled.
2. If trailer air control is found in an incorrect position, set to correct position.

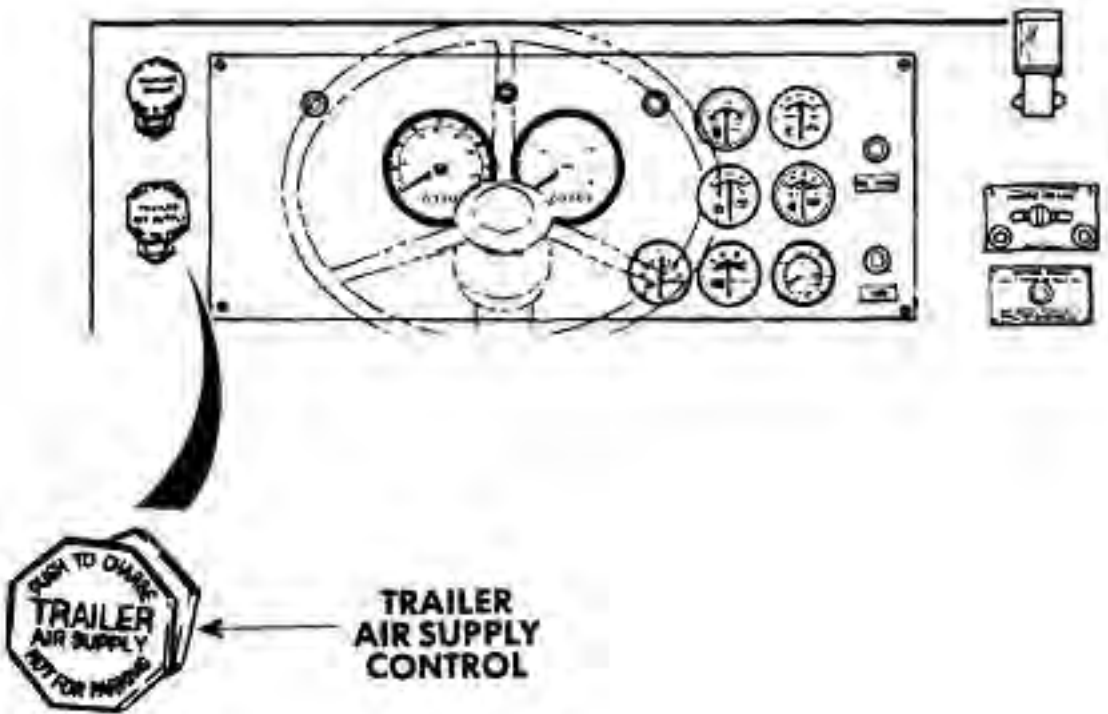


Figure 3.

CONDITION/INDICATION

Is trailer air supply control in correct position?

DECISION

No - Test 6 - Does buzzer stop, and air indicator light extinguish?

Yes - Test 4 - Does air reservoir, hoses, lines, fittings, and/or connectors leak?

TEST 4 - Does air reservoir, hoses, lines, fittings, and/or connectors leak?

1. Check air reservoir, hoses, lines, fittings, and/or connectors for leaks. Tighten any leaks found.

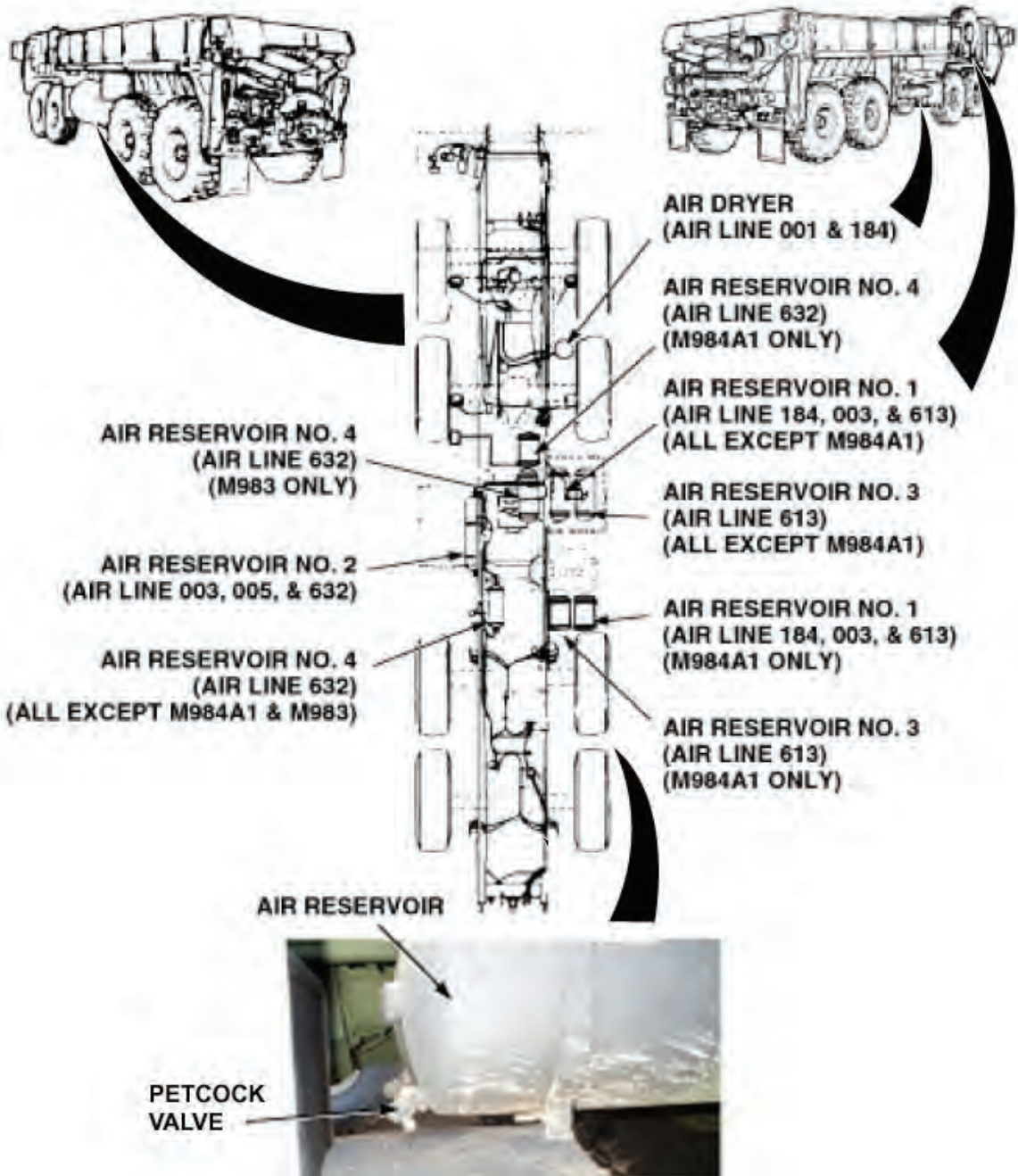


Figure 4.

CONDITION/INDICATION

Does air reservoir, hoses, lines, fittings, and/or connectors leak?

DECISION

Air reservoir, hoses, lines and/or connectors leak. - Notify Supervisor. Test 6 - Does buzzer stop, and air indicator light extinguish? Notify Supervisor.

Air reservoir, hoses, lines, fittings, and/or connectors OK - Test 5 - Does buzzer sound, and air indicator light illuminate when trailer is disconnected?

TEST 5 - Does buzzer sound, and air indicator light illuminate when trailer is disconnected?

1. If trailer is coupled, disconnect trailer from vehicle.

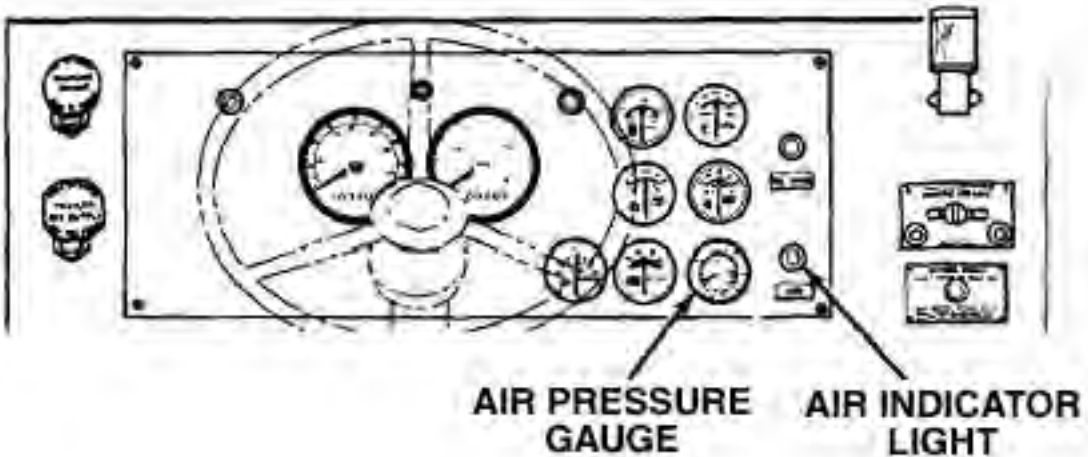


Figure 5.

2. Start engine, (Volume 1, WP 0044) and allow air pressure to build.
3. Check if buzzer continues to sound, and if air indicator light is illuminated.
4. Turn engine off. (Volume 1, WP 0057)

CONDITION/INDICATION

Does buzzer sound, and air indicator light illuminate when trailer is disconnected?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

TEST 6 - Does buzzer stop, and air indicator light extinguish?

1. Start engine, (Volume 1, WP 0044) and allow air pressure to build.

2. Check that buzzer does not sound, and air indicator light is off.

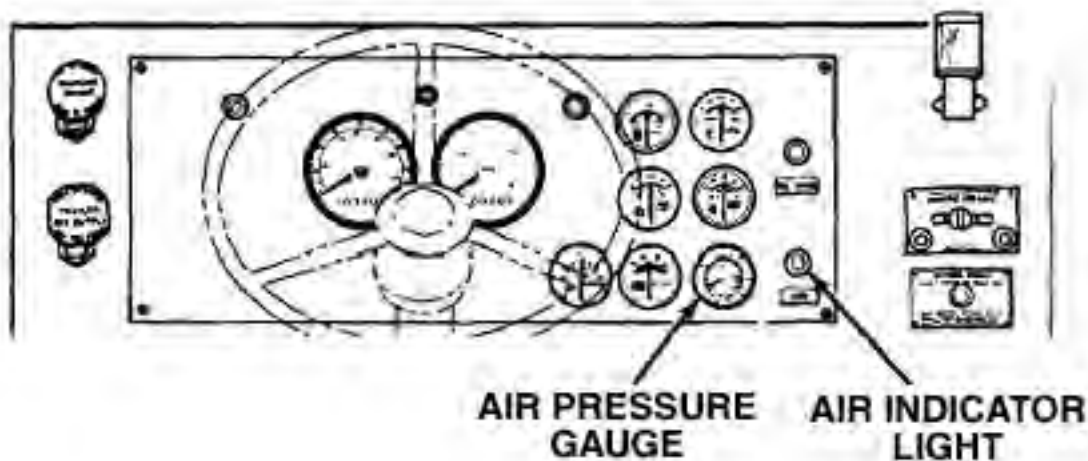


Figure 6.

3. Turn engine off. (Volume 1, WP 0057)

CONDITION/INDICATION

Does buzzer stop, and air indicator light extinguish?

DECISION

No - Notify Supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
WINDSHIELD WASHER WILL NOT OPERATE**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
WINDSHIELD WASHER WILL NOT OPERATE**

TEST 1 - Is washer fluid reservoir free from damage or cracks?

1. Check washer fluid reservoir for cracks and/or damage.



WINDSHIELD
WASHER
RESERVOIR

Figure 1.

CONDITION/INDICATION

Is washer fluid reservoir free from damage or cracks?

DECISION

No - Notify Supervisor.

Yes - Test 2 - Is washer fluid present in washer fluid reservoir?

TEST 2 - Is washer fluid present in washer fluid reservoir?**CAUTION**

Do not fill windshield washer reservoir with water when temperatures are likely to be 32°F (0°C) or less. If water freezes, reservoir can crack or break.

1. Check washer fluid level in reservoir. if low, fill windshield washer reservoir.



WINDSHIELD
WASHER
RESERVOIR

Figure 2.

CONDITION/INDICATION

Is washer fluid present in washer fluid reservoir?

DECISION

No - Test 6 - Does the windshield washer operate?

Yes - Test 3 - Are all hoses securely attached to reservoir?

TEST 3 - Are all hoses securely attached to reservoir?

1. Check that all hoses are securely attached to reservoir. If loose hoses are found, attach to reservoir.

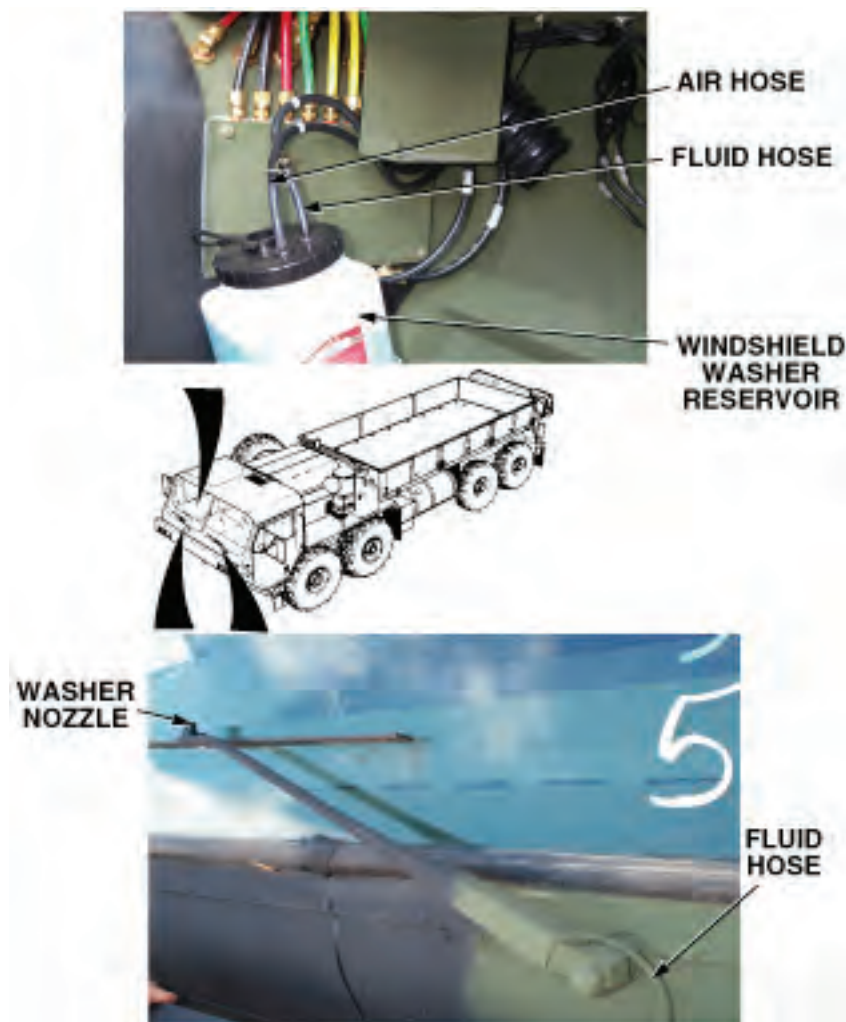


Figure 3.

CONDITION/INDICATION

Are all hoses securely attached to reservoir?

DECISION

No - Test 6 - Does the windshield washer operate?

Yes - Test 4 - Are hoses free of cracks or damage?

TEST 4 - Are hoses free of cracks or damage?

1. Check if hoses are cracked or damaged.



Figure 4.

CONDITION/INDICATION

Are hoses free of cracks or damage?

DECISION

No - Notify Supervisor.

Yes - Test 5 - Are washer spray openings free of debris?

TEST 5 - Are washer spray openings free of debris?

1. Check washer spray openings on wipers for clogs.

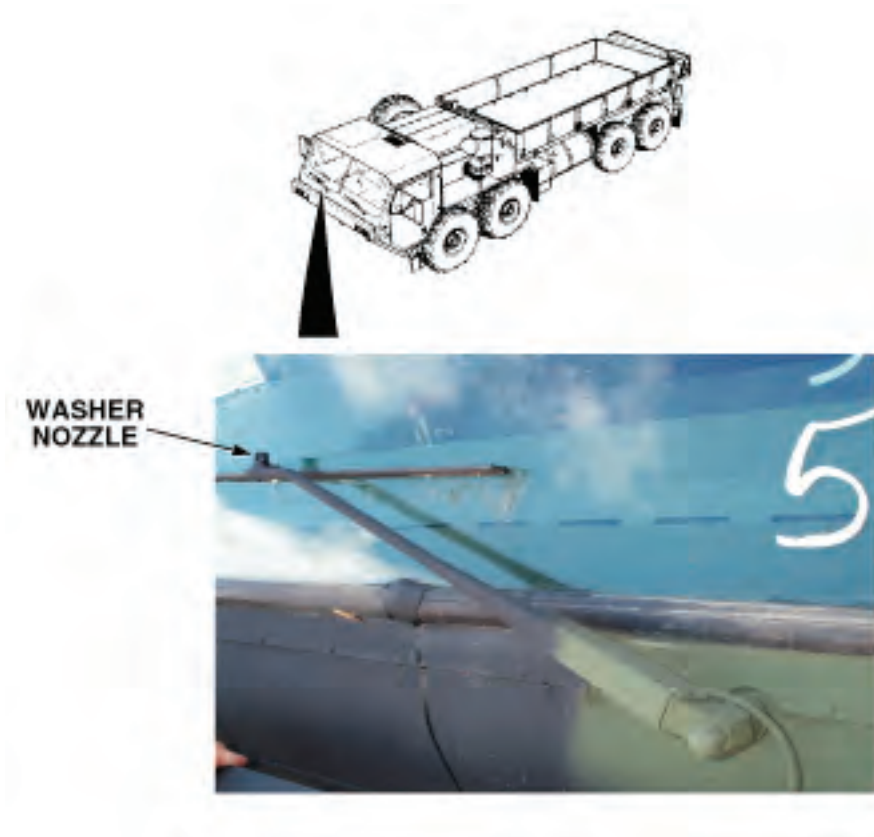


Figure 5.

2. If openings are clogged, clear washer spray opening using pin, wire, or similar item.

CONDITION/INDICATION

Are washer spray openings free of debris?

DECISION

No - Test 6 - Does the windshield washer operate?

Yes - Notify Supervisor.

TEST 6 - Does the windshield washer operate?

1. Start engine, (Volume 1, WP 0044) and allow air pressure to build.
2. Check windshield washer for proper operation.

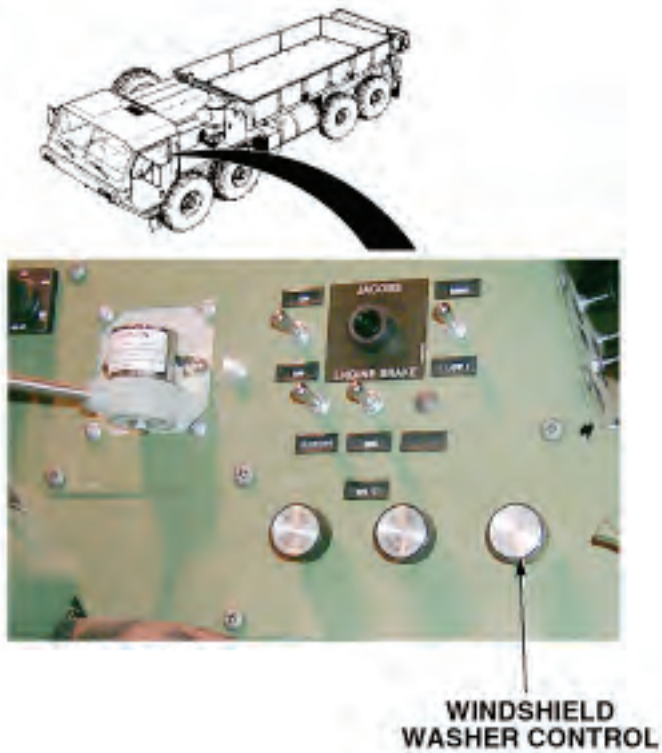


Figure 6.

CONDITION/INDICATION

Does the windshield washer operate?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
AIR SYSTEM LOSES PRESSURE DURING OPERATION**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - ContinuedParking brakes applied. (Volume 1,
WP 0056)Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
AIR SYSTEM LOSES PRESSURE DURING OPERATION**

TEST 1 - Are any petcock valves open?**WARNING**

Vehicles air system is pressurized, be sure to wear proper eye protection and keep face away from drain valves while draining air reservoirs. Open air drain valves slowly to prevent sudden blast of air. Failure to comply may result in injury to personnel.

1. Check to make sure all four air reservoir petcock valves are closed.



Figure 1.

CONDITION/INDICATION

Are any petcock valves open?

DECISION

Petcock(s) open - Test 5 - Does air system lose pressure during operation?

Petcocks closed - Test 2 - Is trailer air supply control in correct position?

TEST 2 - Is trailer air supply control in correct position?

1. Check if trailer air supply control is pulled out (OFF position) if no trailer is coupled, and pushed in (ON position) if trailer is coupled.

2. If trailer air control is found in an incorrect position, set to correct position.

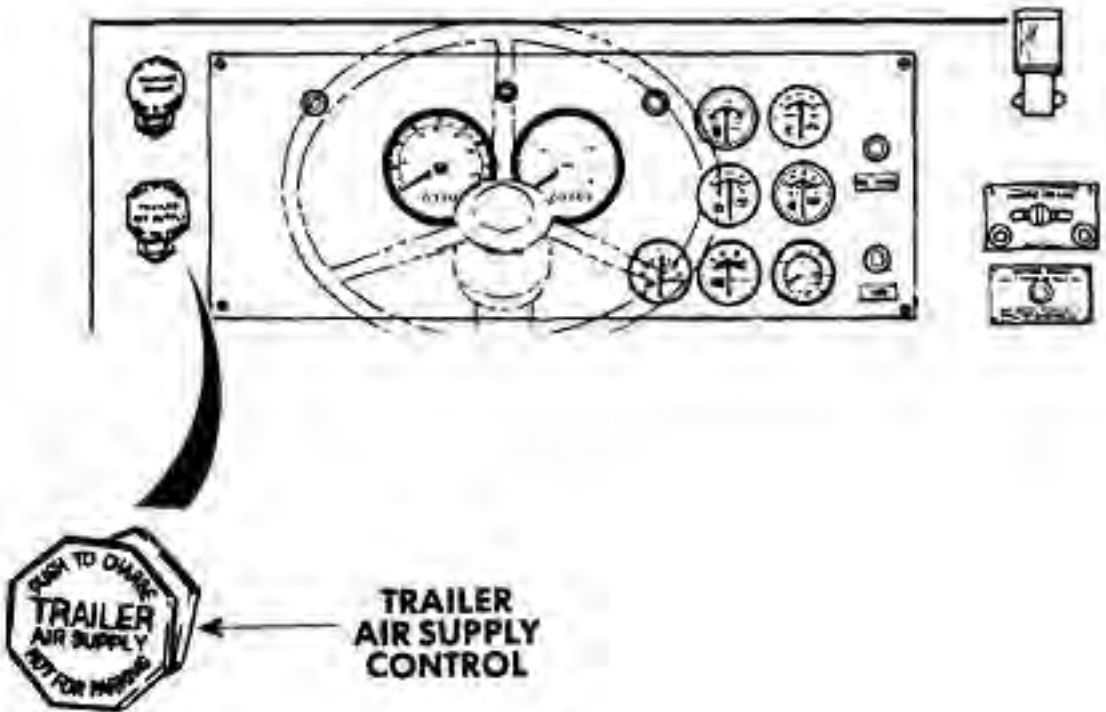


Figure 2.

CONDITION/INDICATION

Is trailer air supply control in correct position?

DECISION

No - Test 5 - Does air system lose pressure during operation?

Yes - Test 3 - Does air pressure reach 120 psi (827 kPa) with engine accelerated?

TEST 3 - Does air pressure reach 120 psi (827 kPa) with engine accelerated?

1. Start engine. (Volume 1, WP 0044)
2. Accelerate engine and check if air pressure reaches 120 psi (827 kPa).

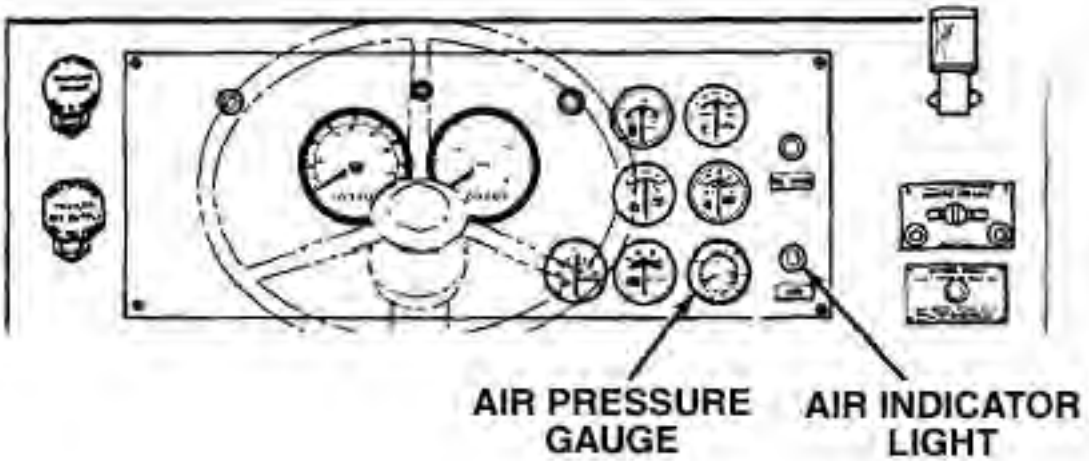


Figure 3.

CONDITION/INDICATION

Does air pressure reach 120 psi (827 kPa) with engine accelerated?

DECISION

No - Notify Supervisor.

Yes - Test 4 - Are air leaks present?

TEST 4 - Are air leaks present?

1. Turn engine off. (Volume 1, WP 0057)
2. Press service brake treadle completely down, and have crew member check for air leaks.

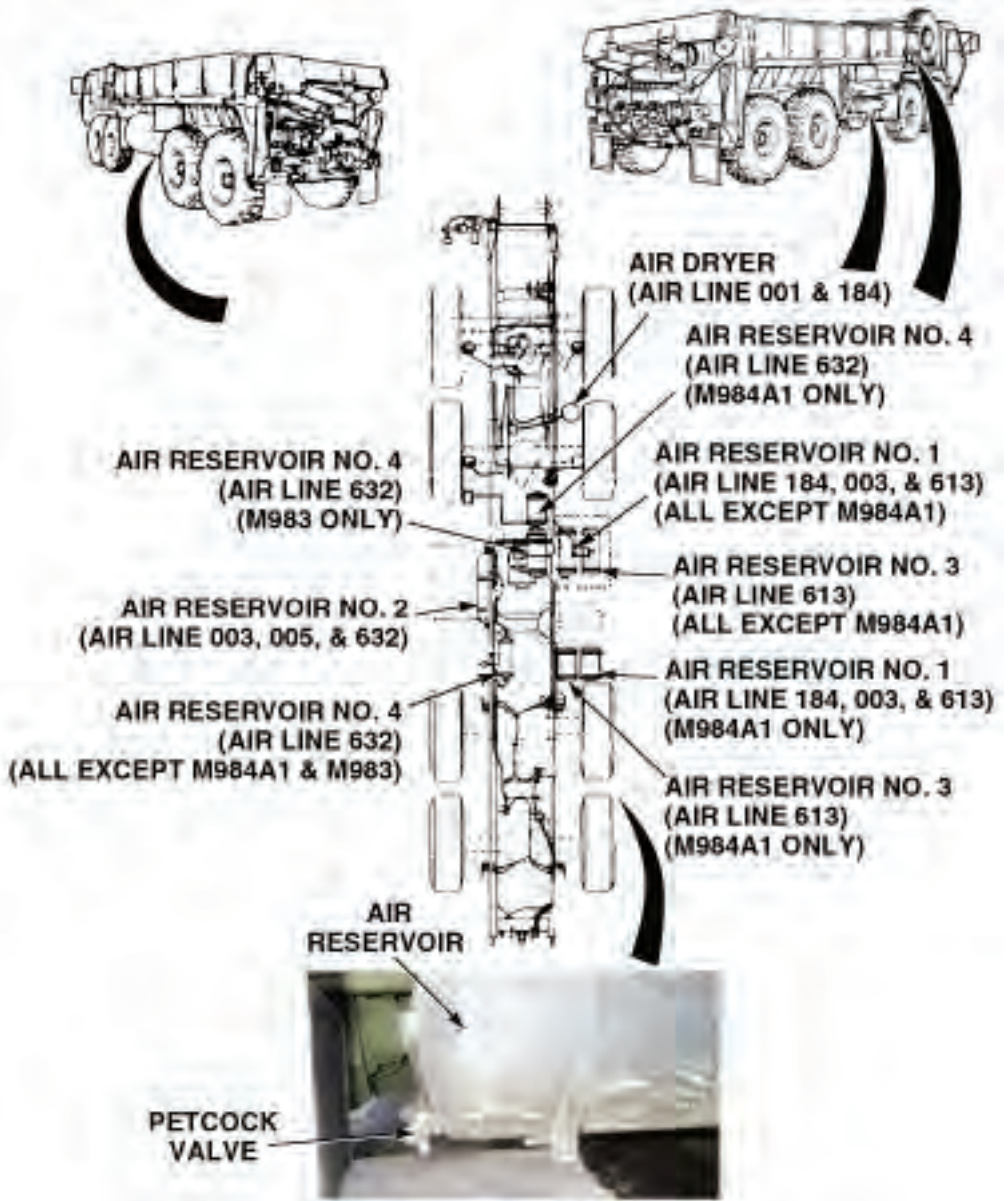


Figure 4.

3. If leaky fitting(s) found, tighten fittings.

CONDITION/INDICATION

Are air leaks present?

DECISION

Air leaks found - Notify Supervisor.

No air leaks found - Test 5 - Does air system lose pressure during operation?

TEST 5 - Does air system lose pressure during operation?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.
3. Observe and note air pressure.

CONDITION/INDICATION

Does air system lose pressure during operation?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
TRAILER BRAKE DOES NOT APPLY WHEN SERVICE BRAKE TREADLE OR
PARKING BRAKE IS USED**

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE

**TRAILER BRAKE DOES NOT APPLY WHEN SERVICE BRAKE TREADLE OR
PARKING BRAKE IS USED**

TEST 1 - Are intervehicular air hoses securely and correctly connected?

1. Check that intervehicular air hoses are secure and correctly connected. If not, reconnect correctly.

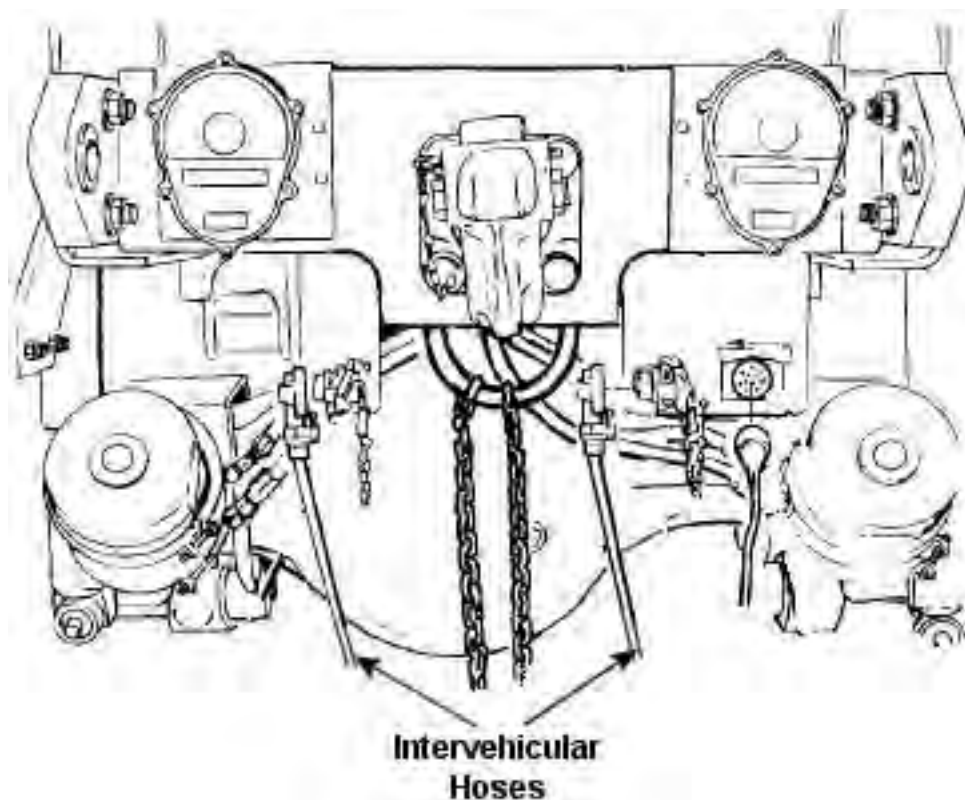


Figure 1.

CONDITION/INDICATION

Are intervehicular air hoses securely and correctly connected?

DECISION

No - Test 3 - Do trailer brakes apply when service brake treadle or parking brake is used?

Yes - Test 2 - Is trailer air supply control pushed in (ON position)?

TEST 2 - Is trailer air supply control pushed in (ON position)?

1. Check if trailer air supply control is pushed in (ON position).

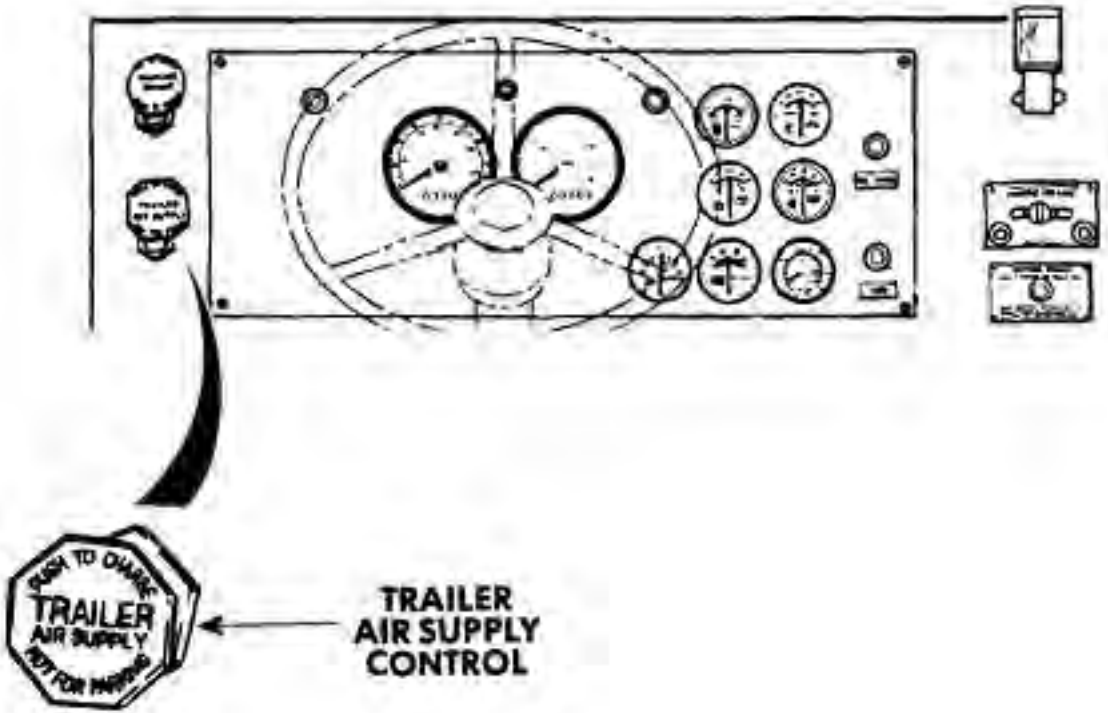


Figure 2.

2. If trailer air supply control is found pulled out (OFF position), push in.

CONDITION/INDICATION

Is trailer air supply control pushed in (ON position)?

DECISION

No - Test 3 - Do trailer brakes apply when service brake treadle or parking brake is used?

Yes - Notify Supervisor.

TEST 3 - Do trailer brakes apply when service brake treadle or parking brake is used?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.
3. Note trailer brake operations.

CONDITION/INDICATION

Do trailer brakes apply when service brake treadle or parking brake is used?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
AIR HORN WILL NOT OPERATE**

INITIAL SETUP:**Equipment Condition**

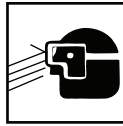
Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
AIR HORN WILL NOT OPERATE**

TEST 1 - Are air hoses tight?**WARNING**

Caution the hose connections could be under pressure be sure to wear eye protection to avoid personal injury.

1. Check air hose connections for tightness. Tighten any loose hose connections found.

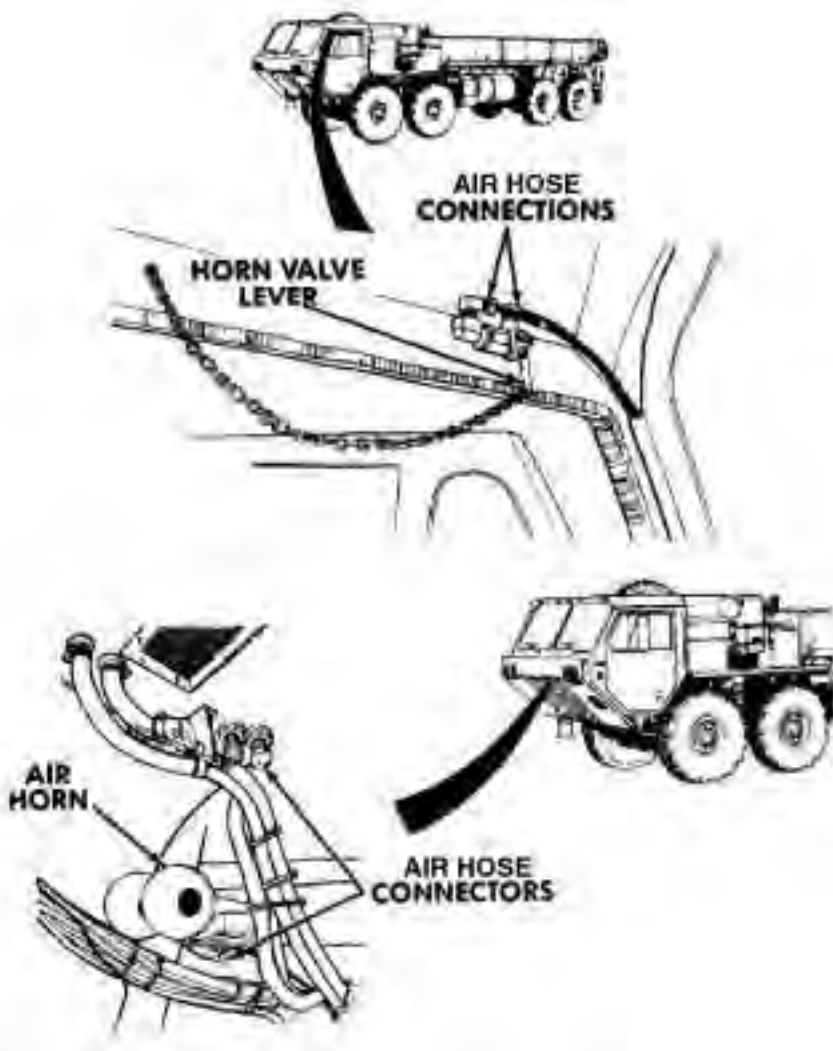


Figure 1.

CONDITION/INDICATION

Are air hoses tight?

DECISION

Connections loose - Test 3 - Does air horn operate?

Connections OK - Test 2 - Does horn valve lever move freely?

TEST 2 - Does horn valve lever move freely?

1. Check horn valve lever for freedom of movement.

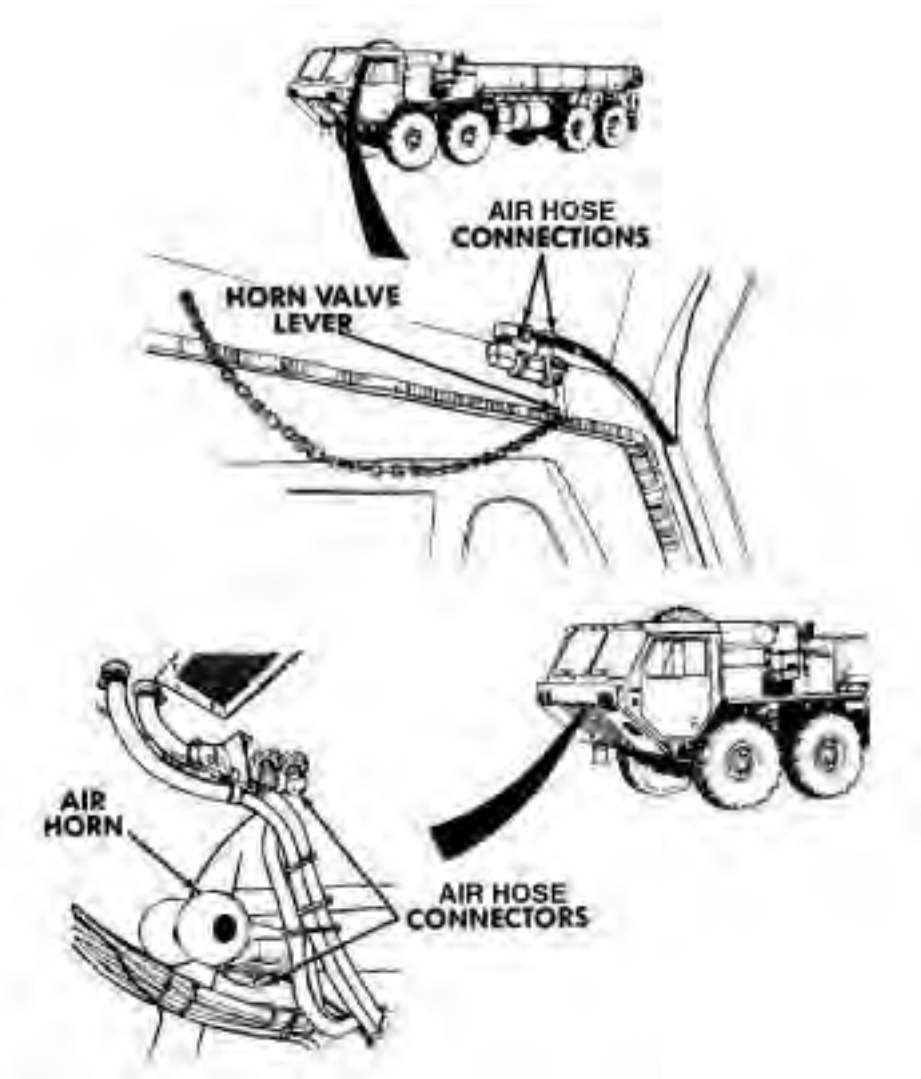


Figure 2.

CONDITION/INDICATION

Does horn valve lever move freely?

DECISION

No - Notify Supervisor.

Yes - Test 3 - Does air horn operate?

TEST 3 - Does air horn operate?

1. Start engine, (Volume 1, WP 0044) and allow air pressure to build.
2. Check air horn for proper operation.

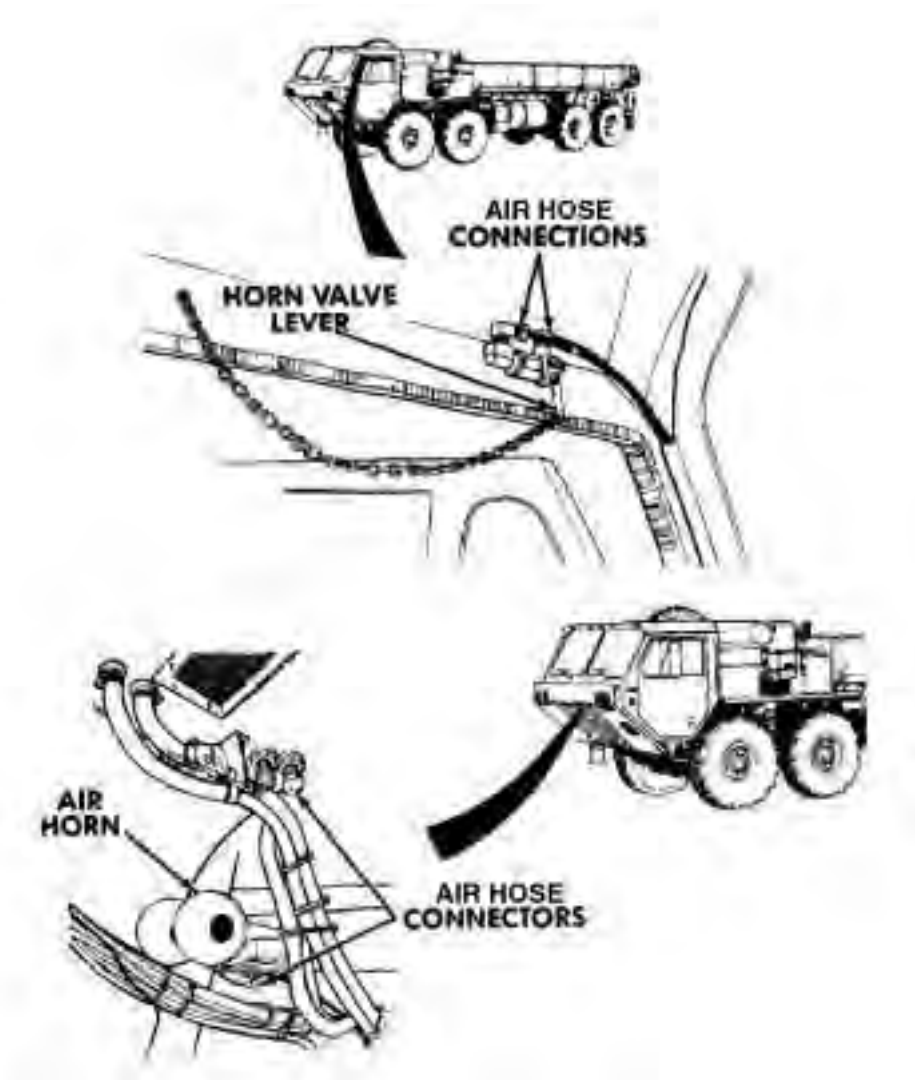


Figure 3.

3. Turn engine off. (Volume 1, WP 0057)

CONDITION/INDICATION

Does air horn operate?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ARCTIC ENGINE HEATER FAILS TO OPERATE**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
ARCTIC ENGINE HEATER FAILS TO OPERATE**

TEST 1 - Is fuel present in fuel tank?

1. Turn engine start switch ON. (Volume 1, WP 0023)
2. Check fuel gauge for presence of fuel.



Figure 1.

3. Turn engine start switch OFF.
4. Add fuel to fuel tank if no fuel present.

CONDITION/INDICATION

Is fuel present in fuel tank?

DECISION

No - Test 3 - Does arctic heater operate?

Yes - Test 2 - Are arctic heater intake port and exhaust tube free from blockage?

TEST 2 - Are arctic heater intake port and exhaust tube free from blockage?

1. Inspect arctic heater inlet port and exhaust tube for foreign objects and obstructions. Remove any items found.

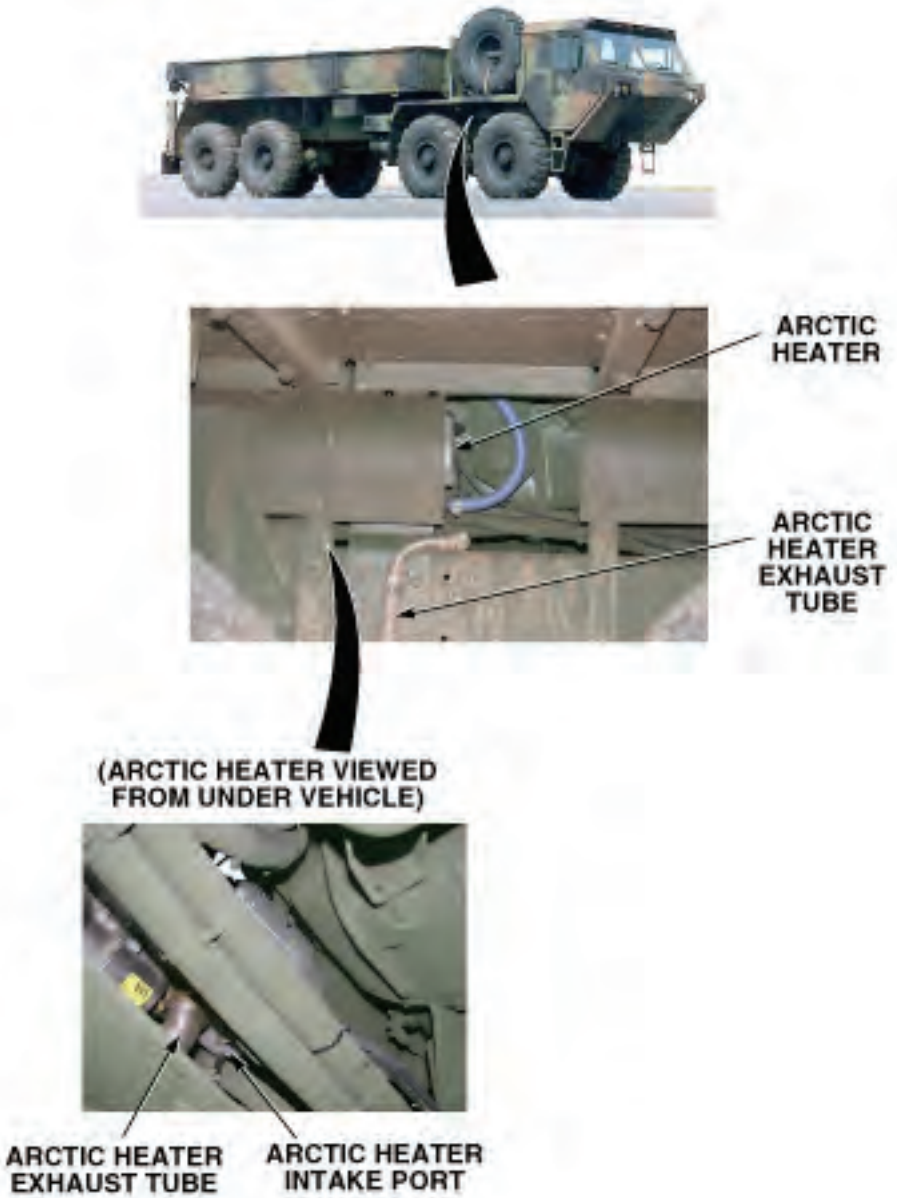


Figure 2.

CONDITION/INDICATION

Are arctic heater intake port and exhaust tube free from blockage?

DECISION

-
Continue - Test 3 - Does arctic heater operate?

TEST 3 - Does arctic heater operate?**CAUTION**

Do not attempt to operate arctic heater if arctic heater fails to start, or shutdown occurs during normal operation. System shutdown may indicate an arctic heater system fault. Failure to comply may cause system lockout.

CAUTION

Do not operate arctic heater if arctic heater indicator light flashes during normal operation. Arctic heater indicator light flashing indicates an arctic heater system fault. Failure to comply may cause system lockout.

NOTE

If arctic heater does not operate, arctic heater may be in lockout mode due to, either too many overheat occurrences (code 15), or too many start attempts (code 50). Arctic heater lockout mode (code 50) is activated if arctic heater fails to start after 20 successive start attempts (10 start cycles in succession).

NOTE

The arctic heater will attempt to start two times per start cycle. After the second failed start attempt, the arctic heater will not operate until the arctic heater on/off switch is turned off, then back on.

NOTE

Audible clicking from the arctic heater fuel metering pump may indicate that the arctic heater fuel system isn't primed. If audible clicking is heard from the arctic heater fuel metering pump, repeat steps (1) through (4) four times, or until arctic heater starts. Do not attempt to start arctic heater more than five times. The arctic heater should prime itself within nine start attempts.

1. Turn arctic heater ON. (Volume 1, WP 0079)
2. Observe arctic heater indicator light for steady illumination.
3. Observe arctic heater for proper operation.



Figure 3.

4. Turn arctic heater on/off switch OFF.

CONDITION/INDICATION

Does arctic heater operate?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ONE OR MORE LIGHTING CIRCUITS NOT OPERATING**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
ONE OR MORE LIGHTING CIRCUITS NOT OPERATING**

TEST 1 - Is the lighting system control in the ON or OPERATING position?

1. Check if lighting system control is ON or in OPERATING position.

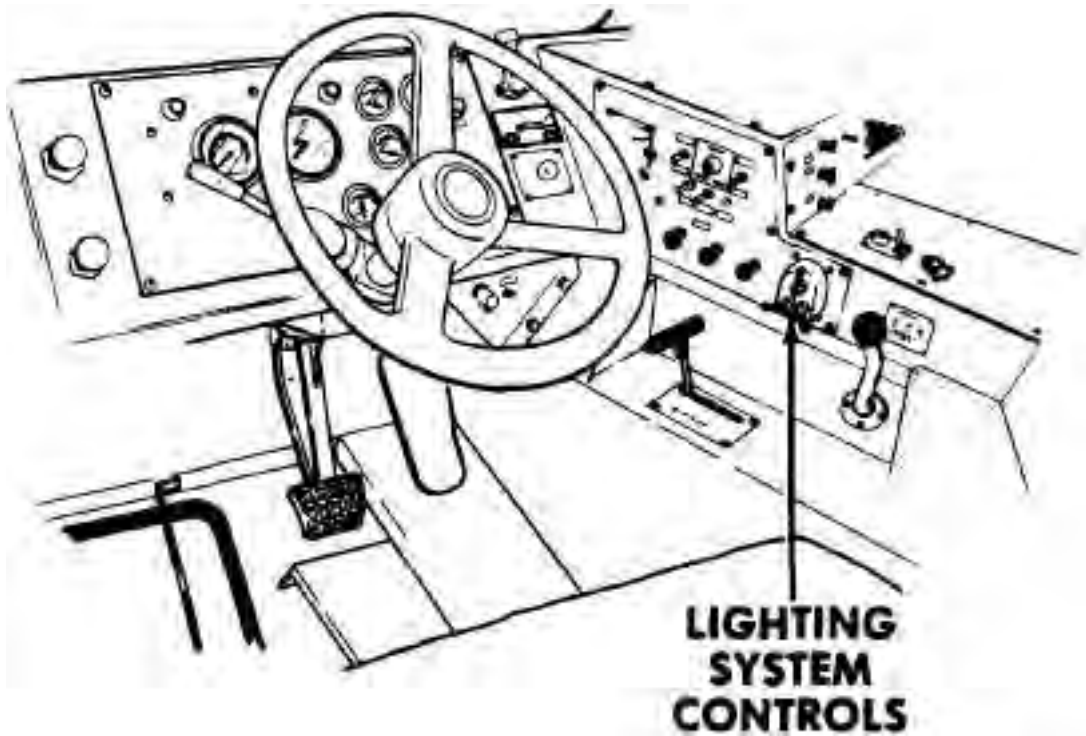


Figure 1.

CONDITION/INDICATION

Is the lighting system control in the ON or OPERATING position?

DECISION

No - Test 3 - Do all lighting circuits operate properly?

Yes - Notify Supervisor.

TEST 2 - Is intervehicular connection secure and/or connected correctly?

1. If trailer lights are the problem, make sure cable is securely connected.

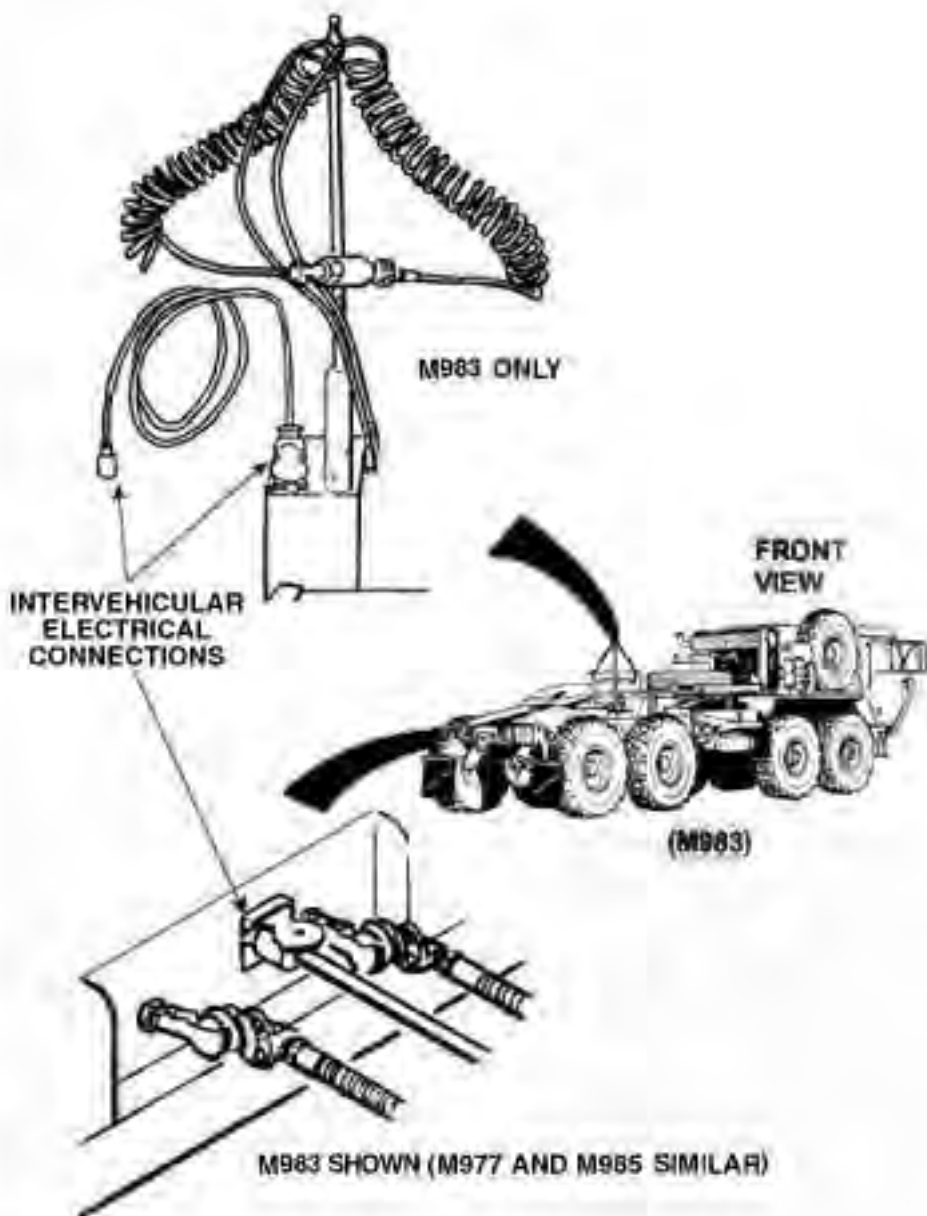


Figure 2.

CONDITION/INDICATION

Is intervehicular connection secure and/or connected correctly?

DECISION

Intervehicular cable loose. - Test 3 - Do all lighting circuits operate properly? Notify Supervisor.

Intervehicular connection OK. - Notify Supervisor.

TEST 3 - Do all lighting circuits operate properly?

1. Check for proper operation of dome lights. (Volume 1, WP 0087)
2. Check for proper operation of panel lights. (Volume 1, WP 0088)
3. Check for proper operation of service drive lights. (Volume 1, WP 0090)
4. Check for proper operation of parking lights. (Volume 1, WP 0089)
5. Check for proper operation of clearance lights. (Volume 1, WP 0092)
6. Check for proper operation of stoplight. (Volume 1, WP 0091)
7. Check for proper operation of worklights. (Volume 1, WP 0095)
8. Check for proper operation of beacon lights. (Volume 1, WP 0096)
9. Check for proper operation of blackout drive lights. (Volume 1, WP 0093)
10. Check for proper operation of blackout marker lights. (Volume 1, WP 0094)
11. Check for proper operation of turn signal lights. (Volume 1, WP 0098)

CONDITION/INDICATION

Do all lighting circuits operate properly?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
FAILS TO CRANK WHEN ENGINE START SWITCH IS TURNED TO START POSITION

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1, WP 0056)

Wheels chocked. (Volume 1, WP 0100)

TROUBLESHOOTING PROCEDURE

FAILS TO CRANK WHEN ENGINE START SWITCH IS TURNED TO START POSITION

TEST 1 - Is transmission range selector in neutral (N)?

1. Verify range selector is in neutral (N) position. If not in neutral (N), shift it to neutral (N).

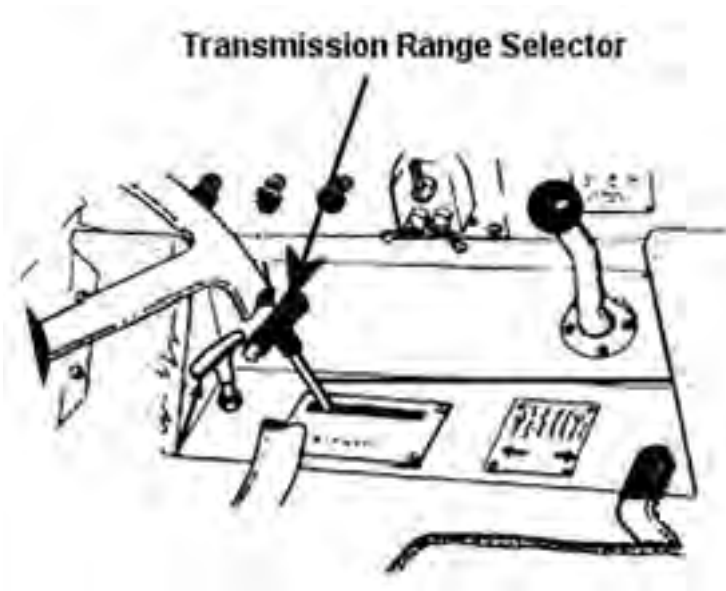


Figure 1.

CONDITION/INDICATION

Is transmission range selector in neutral (N)?

DECISION

No - Test 3 - Does engine crank when engine start switch is turned to start position?

Yes - Test 2 - Are battery cable connections clean, tight, and free from damage?

TEST 2 - Are battery cable connections clean, tight, and free from damage?

1. Remove battery box cover. (WP 0196)
2. Check battery cable connections for dirt, corrosion and/or looseness.

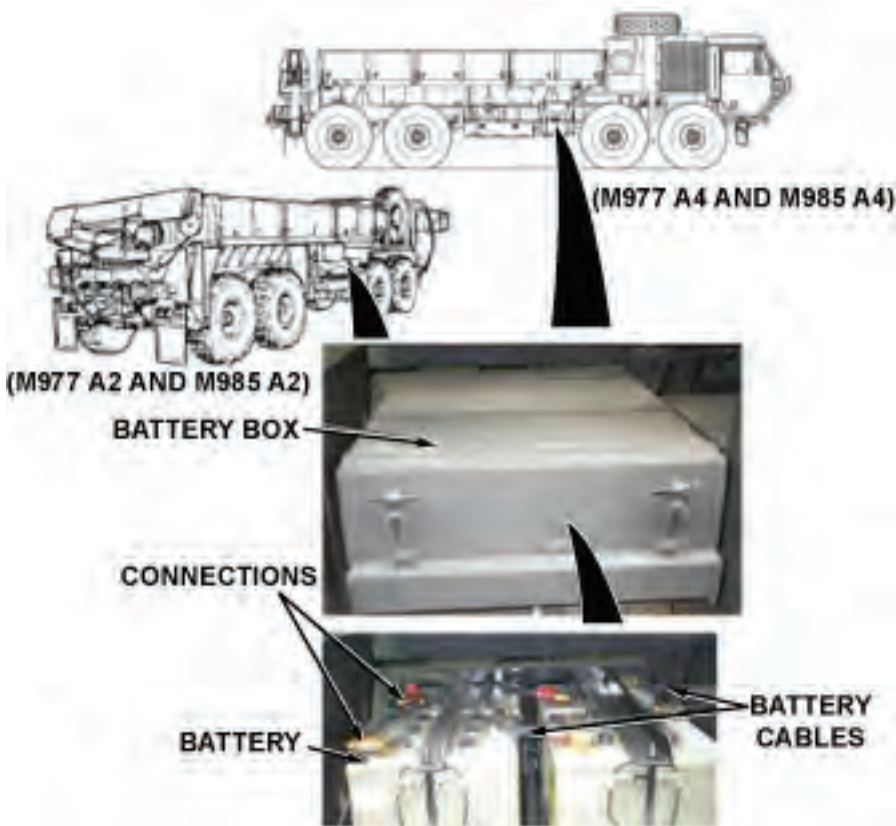


Figure 2.

3. Check battery cables for damage.

CONDITION/INDICATION

Are battery cable connections clean, tight, and free from damage?

DECISION

No - Notify Supervisor.

Yes - Test 3 - Does engine crank when engine start switch is turned to start position?

TEST 3 - Does engine crank when engine start switch is turned to start position?

1. Install battery box cover. (WP 0196)
2. Attempt to start engine. (Volume 1, WP 0044)

CONDITION/INDICATION

Does engine crank when engine start switch is turned to start position?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
CRANKS BUT FAILS TO START**

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
CRANKS BUT FAILS TO START**

TEST 1 - Does fuel gauge indicate the presence of fuel?

1. Turn engine start switch ON. (Volume 1, WP 0023)
2. Check fuel gauge for indication of fuel presence.



Figure 1.

3. Turn engine start switch OFF. (Volume 1, WP 0023)
4. If fuel gauge indicated no fuel present, add fuel to fuel tank.

CONDITION/INDICATION

Does fuel gauge indicate the presence of fuel?

DECISION

No - Test 5 - Does engine start?

Yes - Test 2 - Is there fuel present in fuel tank?

TEST 2 - Is there fuel present in fuel tank?

1. Remove fuel tank cap and filter screen from fuel tank.

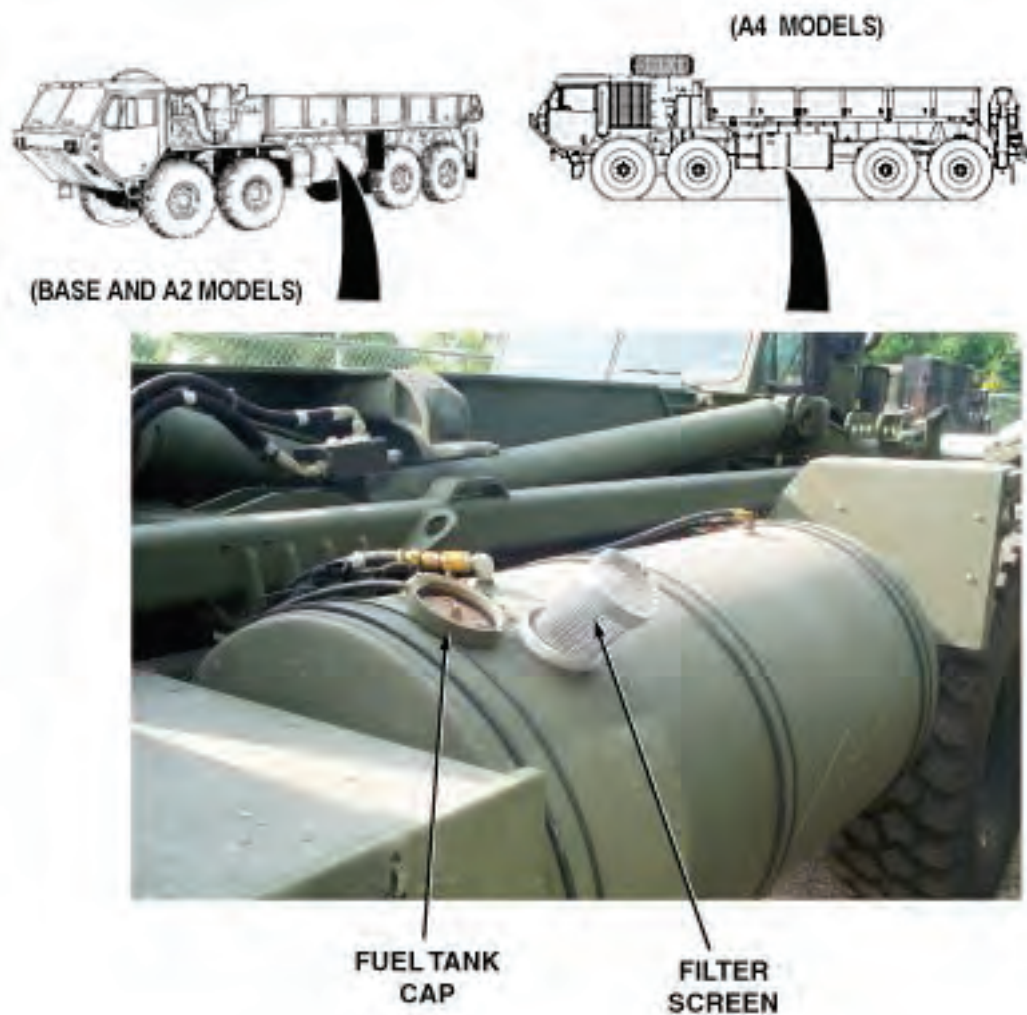


Figure 2.

2. Check fuel tank for presence of fuel.
3. Add fuel to fuel tank if no fuel was present.
4. Replace filter screen and fuel tank cap on fuel tank.

CONDITION/INDICATION

Is there fuel present in fuel tank?

DECISION

No - Test 5 - Does engine start?
Yes - Test 3 - Is air filter restricted?

TEST 3 - Is air filter restricted?

1. Attempt to start engine and note indication on air filter restriction indicator.



Figure 3.

CONDITION/INDICATION

Is air filter restricted?

DECISION

Restricted - Test 4 - Does air filter restriction indicator showed yellow and/or VACUUM INCHES H₂O window shows less than 18 after servicing air filter??

Not Restricted - Test 5 - Does engine start?

TEST 4 - Does air filter restriction indicator showed yellow and/or VACUUM INCHES H2O window shows less than 18 after servicing air filter??

1. Service air filter. (WP 0194)
2. Attempt to start engine and note indication on air filter restriction indicator.



Figure 4.

CONDITION/INDICATION

Does air filter restriction indicator showed yellow and/or VACUUM INCHES H2O window shows less than 18 after servicing air filter??

DECISION

Restricted - Notify Supervisor.

Not Restricted - Test 5 - Does engine start?

TEST 5 - Does engine start?

1. Attempt to start engine. (Volume 1, WP 0044)

CONDITION/INDICATION

Does engine start?

DECISION

- No. - Notify Supervisor.
- Yes. - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
STARTS OR RUNS ROUGHLY AFTER PROPER WARM-UP, DOES NOT MAKE FULL
POWER, OR MAKES EXCESSIVE EXHAUST SMOKE

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE**STARTS OR RUNS ROUGHLY AFTER PROPER WARM-UP, DOES NOT MAKE FULL**
POWER, OR MAKES EXCESSIVE EXHAUST SMOKE**TEST 1 - Is PTO engaged?**

1. Start engine and allow engine to reach normal operating temperature. (Volume 1, WP 0044)
2. Check PTO ENGAGE switch and PTO ENGAGE indicator to make sure that PTO is disengaged. Light should be off.

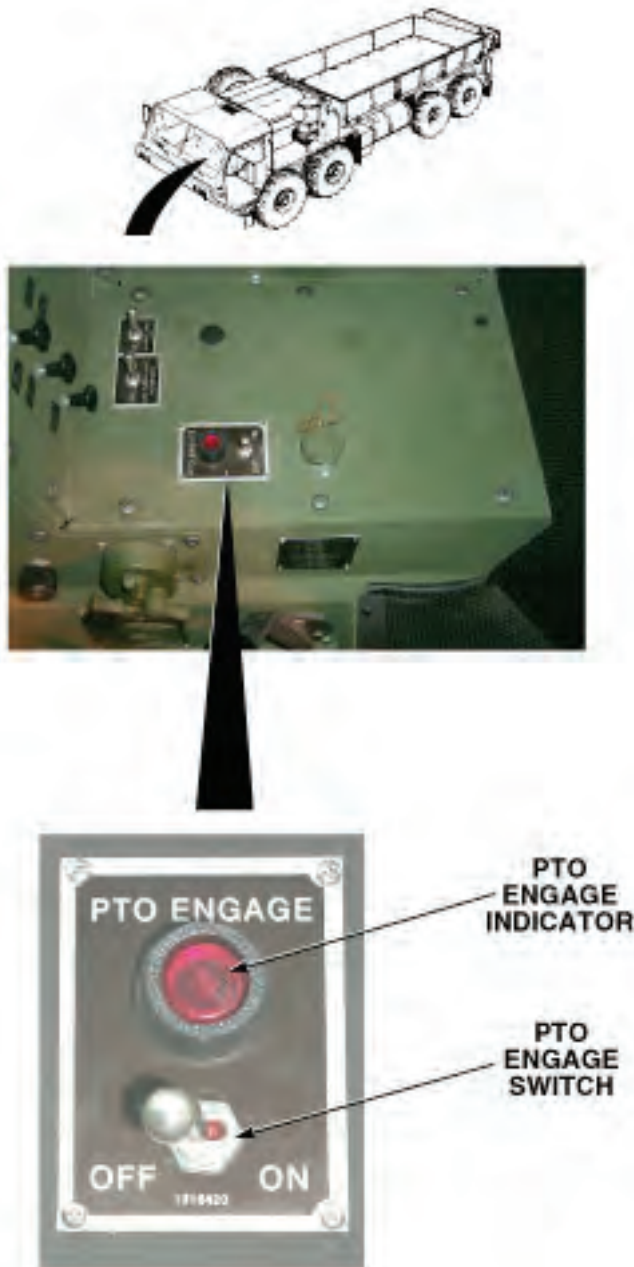


Figure 1.

CONDITION/INDICATION

Is PTO engaged?

DECISION

PTO engaged. - Test 4 - Does engine start or run roughly after proper warm-up, and/or does not make full power or makes excessive exhaust smoke?

PTO disengaged. - Test 2 - Does air filter restriction indicator show red and/or VACUUM INCHES H2O window show 18 or more after being reset?

TEST 2 - Does air filter restriction indicator show red and/or VACUUM INCHES H2O window show 18 or more after being reset?

1. Reset air filter restriction indicator.
2. Start engine. (Volume 1, WP 0044)
3. Check if air filter restriction indicator is red and/or VACUUM INCHES H2O window shows 18 or more.



Figure 2.

CONDITION/INDICATION

Does air filter restriction indicator show red and/or VACUUM INCHES H₂O window show 18 or more after being reset?

DECISION

Restricted. - Test 3 - Does air filter restriction indicator show red and/or VACUUM INCHES H₂O window show 18 or more after being cleaned?

Not restricted. - Test 4 - Does engine start or run roughly after proper warm-up, and/or does not make full power or makes excessive exhaust smoke?

TEST 3 - Does air filter restriction indicator show red and/or VACUUM INCHES H2O window show 18 or more after being cleaned?

1. Turn engine OFF. (Volume 1, WP 0057)
2. Clean air filter. (WP 0194)
3. Start engine. (Volume 1, WP 0044)
4. Check if air filter restriction indicator is red and/or VACUUM INCHES H2O window shows 18 or more.



Figure 3.

CONDITION/INDICATION

Does air filter restriction indicator show red and/or VACUUM INCHES H2O window show 18 or more after being cleaned?

DECISION

Restricted. - Notify Supervisor.

Not restricted. - Test 4 - Does engine start or run roughly after proper warm-up, and/or does not make full power or makes excessive exhaust smoke?

TEST 4 - Does engine start or run roughly after proper warm-up, and/or does not make full power or makes excessive exhaust smoke?

1. Test drive vehicle.

CONDITION/INDICATION

Does engine start or run roughly after proper warm-up, and/or does not make full power or makes excessive exhaust smoke?

DECISION

Runs rough. - Notify Supervisor.

Runs normal. - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE ENGINE OVERHEATS

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE ENGINE OVERHEATS

TEST 1 - Are right-side radiator hoses and housing free from leaks?

WARNING



Radiator coolant hoses are very hot and pressurized during vehicle operation. Allow radiator to cool prior to checking hoses. Failure to comply may result in injury or death to personnel.

1. Open driver and passenger side engine covers. (WP 0197)
2. Check upper and lower radiator hoses and housing for leaks.
3. Check that all clamps are tight and secure.

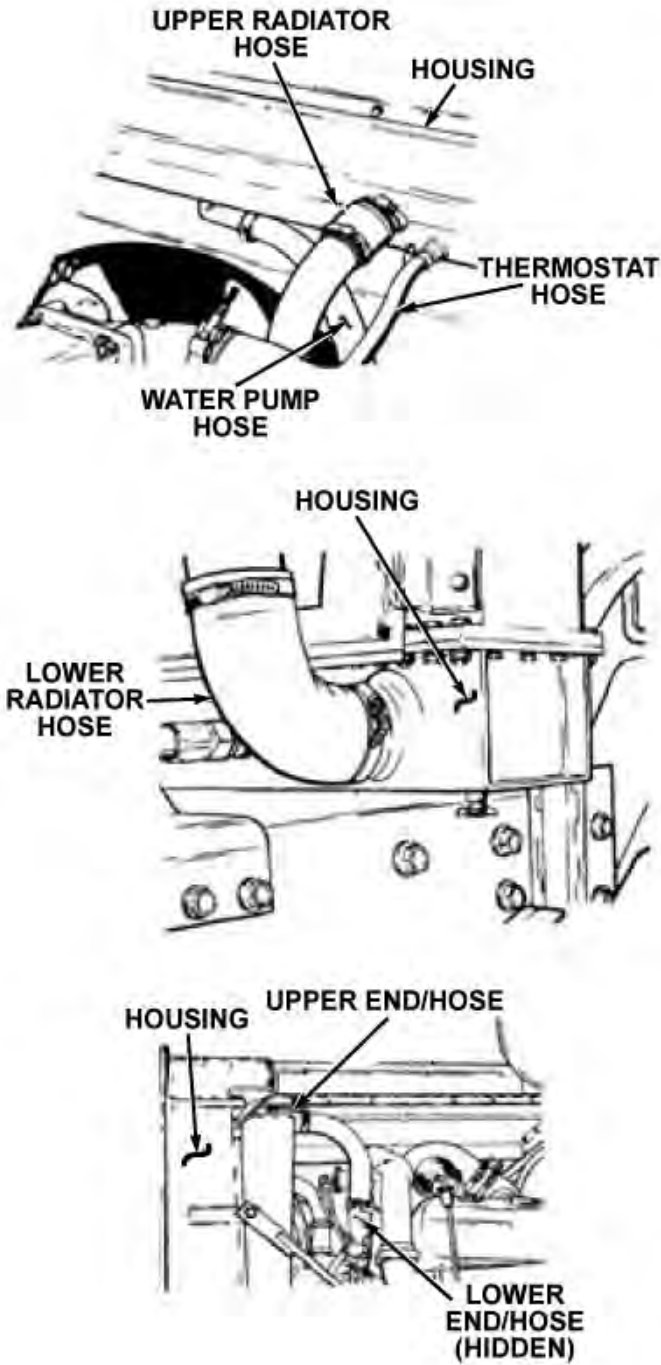


Figure 1.

CONDITION/INDICATION

Are right-side radiator hoses and housing free from leaks?

DECISION

Radiator hoses and/or housing damaged. - Notify Supervisor. Test 2 - Does engine overheat? Notify Supervisor.

Radiator hoses and/or housing free from damage and/or leaks. - Notify Supervisor.

TEST 2 - Does engine overheat?

1. Close driver and passenger side engine covers. (WP 0197)
2. Start engine. (Volume 1, WP 0044)

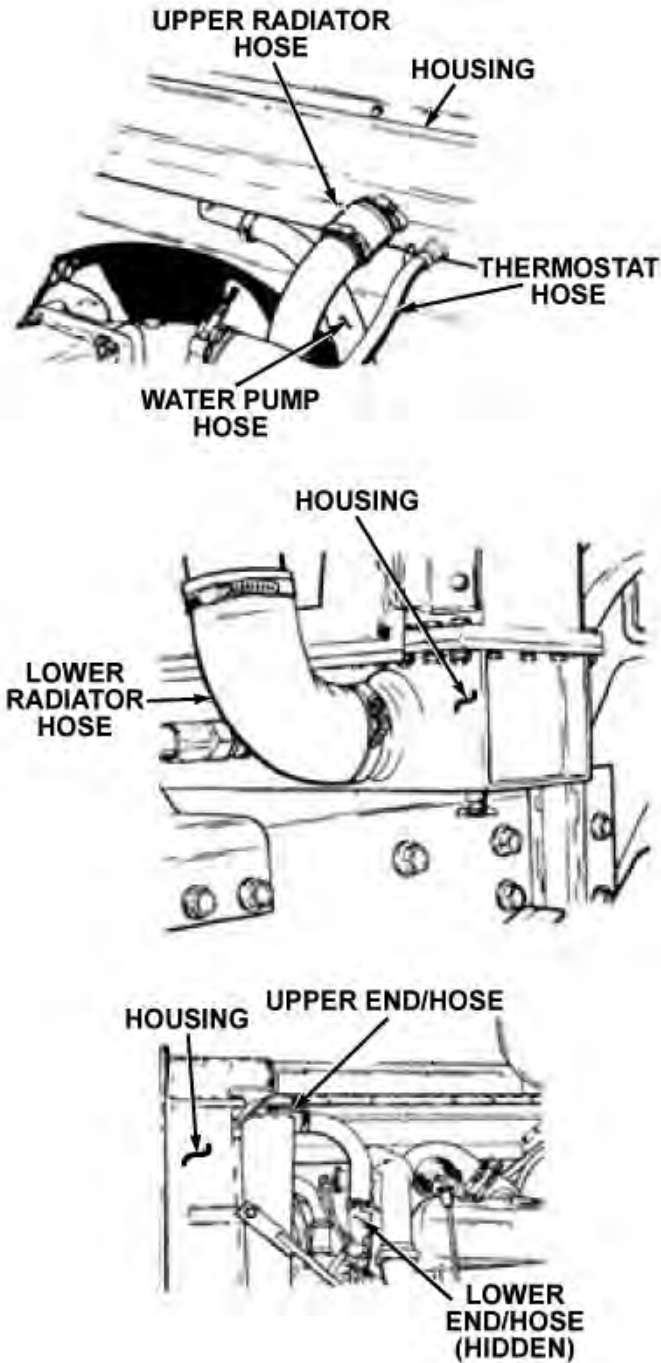


Figure 2.

3. Test drive vehicle.

CONDITION/INDICATION

Does engine overheat?

DECISION

Engine overheats - Notify Supervisor.

Engine OK - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
LOW OIL PRESSURE GAUGE INDICATION**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
LOW OIL PRESSURE GAUGE INDICATION**

TEST 1 - Is engine oil level low?

1. Check engine oil level. (WP 0184)

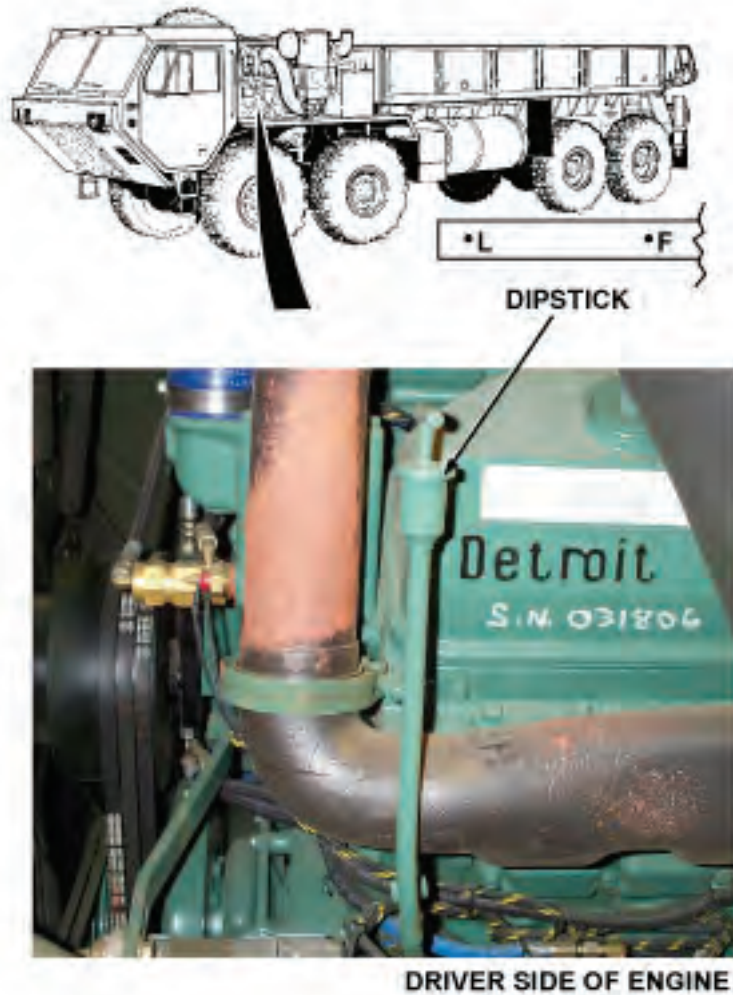


Figure 1.

2. If oil level is low, fill oil to proper level. (WP 0184)

CONDITION/INDICATION

Is engine oil level low?

DECISION

-
Continue - Test 2 - Is engine oil pressure still low?

TEST 2 - Is engine oil pressure still low?

1. Start engine and allow engine to reach operating temperature. (Volume 1, WP 0044)
2. Check OIL PRESS gauge. Gauge should read as follows:
 - At idle, oil pressure can go as low as 5 psi (34 kPa).
 - Normal operation range is 40 psi to 60 psi (276 to 414 kPa) between engine speeds 1800 to 2100 rpm. Minimum for safe operation is 30 psi (207 kPa).

CONDITION/INDICATION

Is engine oil pressure still low?

DECISION

Oil pressure low. - Notify Supervisor.
Oil pressure OK. - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE EXCESSIVE OIL CONSUMPTION

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

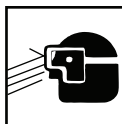
Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE EXCESSIVE OIL CONSUMPTION

TEST 1 - Are engine oil lines loose?

WARNING



Caution the oil lines could be under pressure be sure to wear the proper eye protection to avoid personal injury.

1. Open driver and passenger side engine covers. (WP 0197)

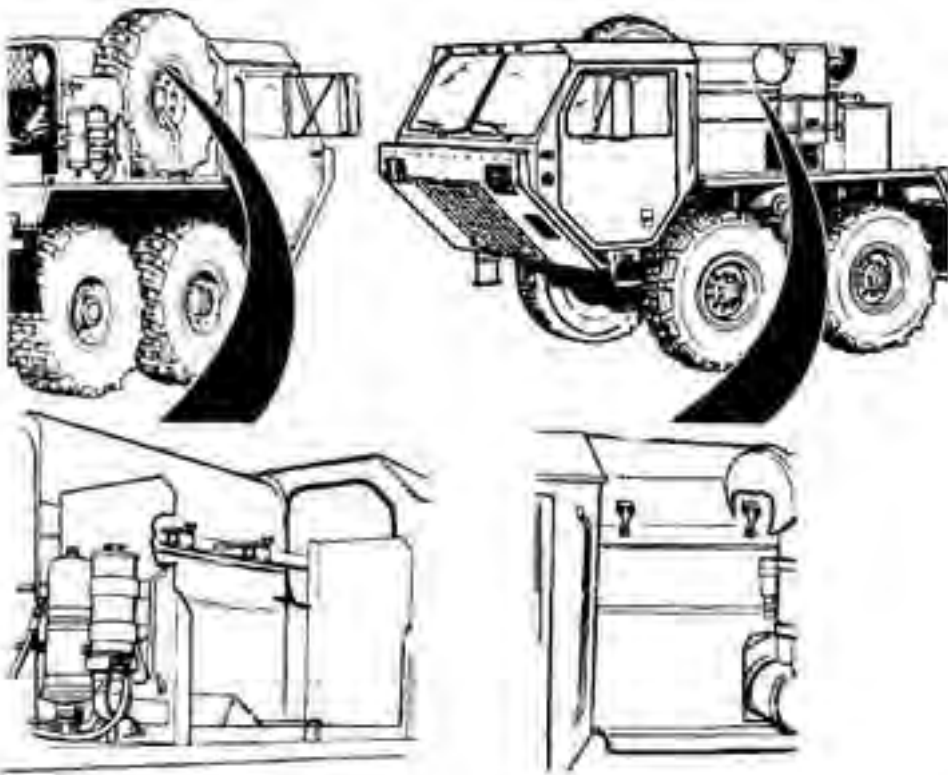


Figure 1.

2. Check for loose engine oil lines or damaged components.

CONDITION/INDICATION

Are engine oil lines loose?

DECISION

Lines Loose - Notify Supervisor.

Lines OK - Test 2 - Are any engine oil leaks present?

TEST 2 - Are any engine oil leaks present?

1. Tighten any loose fittings/components if found.
2. Visually check for engine oil leaks.

CONDITION/INDICATION

Are any engine oil leaks present?

DECISION

Leaks found. - Notify Supervisor.

No leaks found. - Notify Supervisor.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
HEAVY-DUTY WINCH WILL NOT OPERATE IN REMOTE CONTROL**

INITIAL SETUP:**Equipment Condition**

Vehicle setup for heavy-duty winch operations using remote control.
(Volume 1, WP 0043)

**TROUBLESHOOTING PROCEDURE
HEAVY-DUTY WINCH WILL NOT OPERATE IN REMOTE CONTROL**

TEST 1 - Are all electrical switches in the correct positions?**NOTE**

Common problems with heavy-duty winch that may be found are:

1. Slow or abnormal operation.
2. Winch will not pull required load.

Common causes of problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Controls malfunction (remote and manual).

Report all problems to organizational maintenance.

1. Check that all electrical switches are set in correct position. (Volume 1, WP 0043)

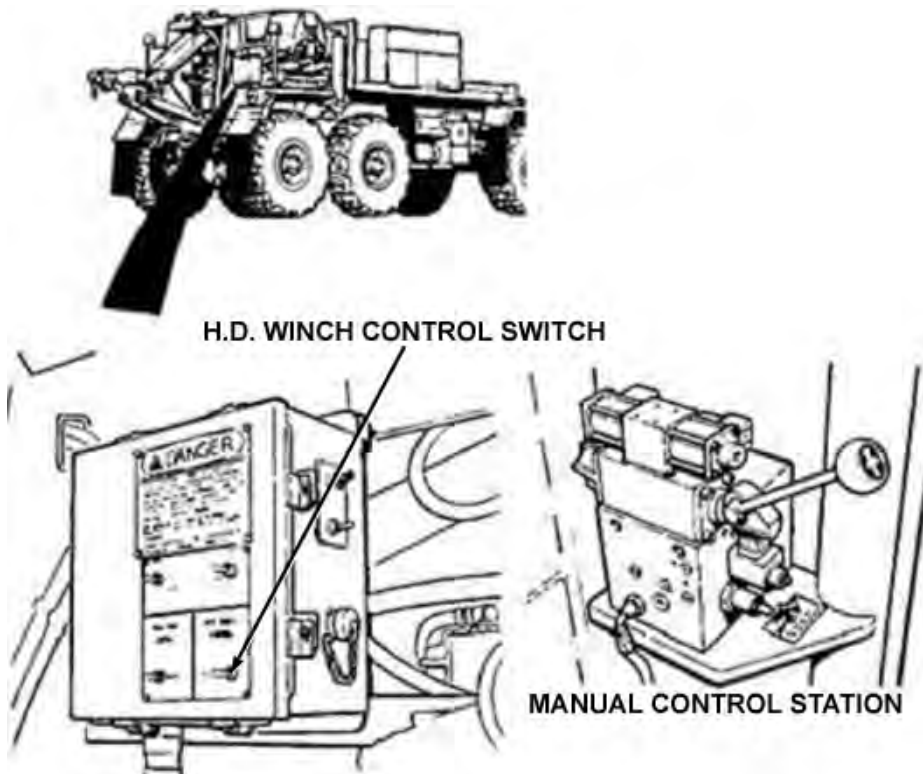


Figure 1.

CONDITION/INDICATION

Are all electrical switches in the correct positions?

DECISION

No - Test 3 - Does heavy-duty winch operate in remote control?

Yes - Test 2 - Does winch operate in and out with H.D. WINCH CONTROL set to manual.

TEST 2 - Does winch operate in and out with H.D. WINCH CONTROL set to manual.

1. Set H.D. WINCH CONTROL to manual. (Volume 1, WP 0043)

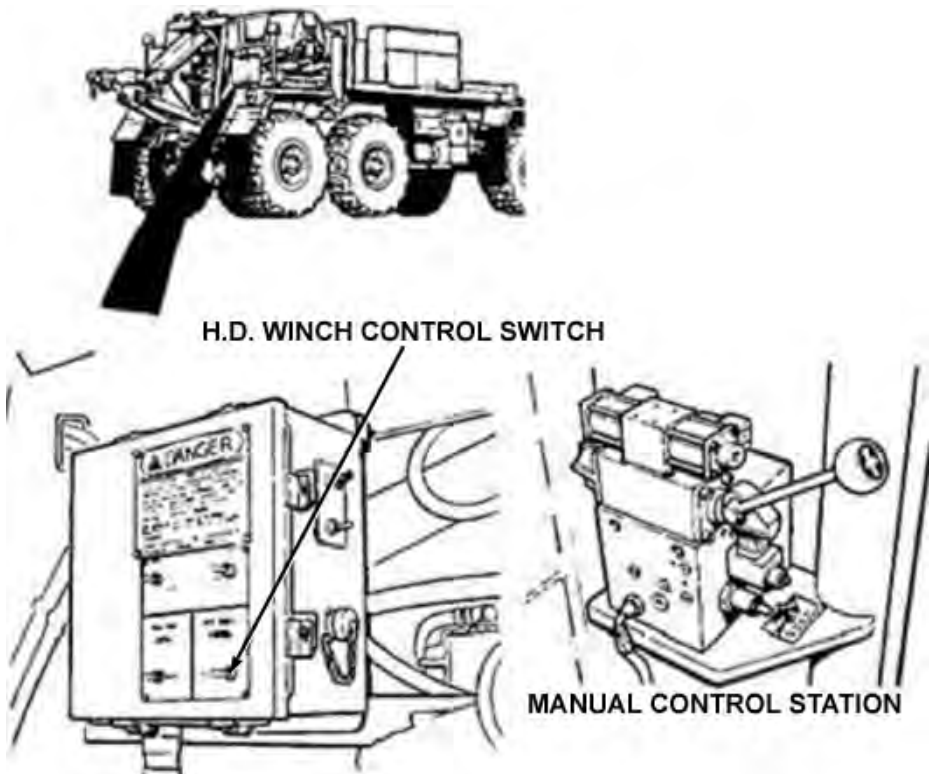


Figure 2.

2. Operate winch OUT and IN (Volume 1, WP 0043) from manual control station.

CONDITION/INDICATION

Does winch operate in and out with H.D. WINCH CONTROL set to manual.

DECISION

No - Notify supervisor.
Yes - Notify supervisor.

TEST 3 - Does heavy-duty winch operate in remote control?

1. Operate heavy-duty winch out and in. (Volume 1, WP 0043)

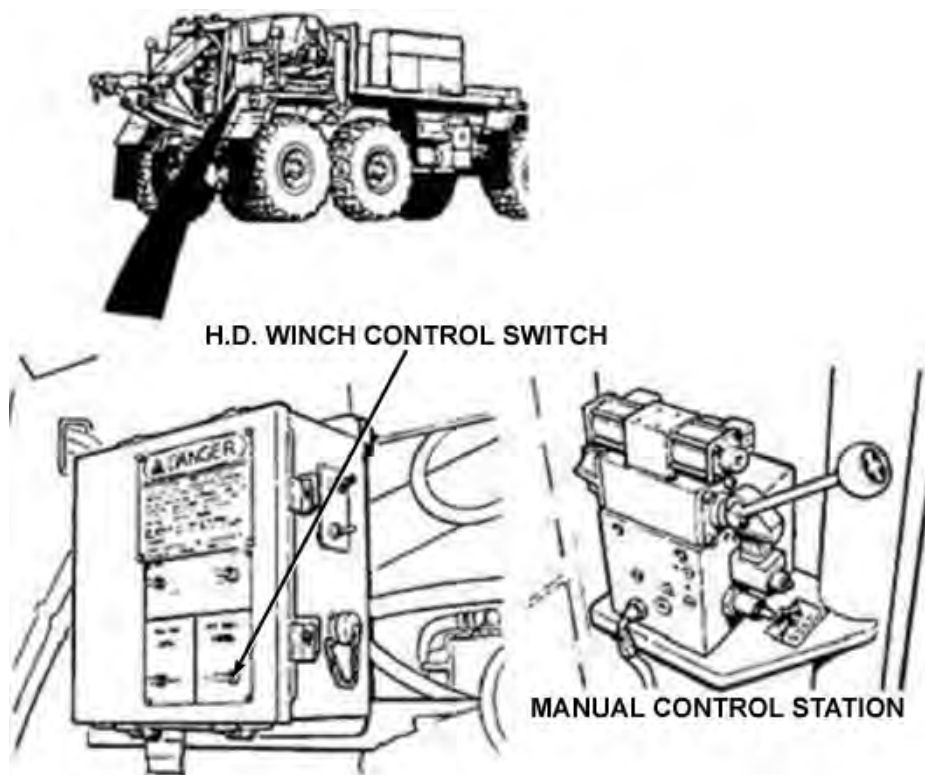


Figure 3.

CONDITION/INDICATION

Does heavy-duty winch operate in remote control?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
WINCH CABLE WILL NOT REEL OUT OR IN, OR OPERATES SLOWLY IN REMOTE
CONTROL**

INITIAL SETUP:

Equipment Condition

Vehicle setup for heavy-duty winch operations using remote control.
(Volume 1, WP 0043)

TROUBLESHOOTING PROCEDURE

WINCH CABLE WILL NOT REEL OUT OR IN, OR OPERATES SLOWLY IN REMOTE CONTROL

TEST 1 - Does winch operate normally IN and OUT with H.D. WINCH CONTROL set to manual?

NOTE

Common problems with heavy-duty winch that may be found are:

1. Slow or abnormal operation.
2. Winch will not pull required load.

Common causes of problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Controls malfunction (remote and manual).

Report all problems to organizational maintenance.

1. Set H.D. WINCH CONTROL to manual. (Volume 1, WP 0043)

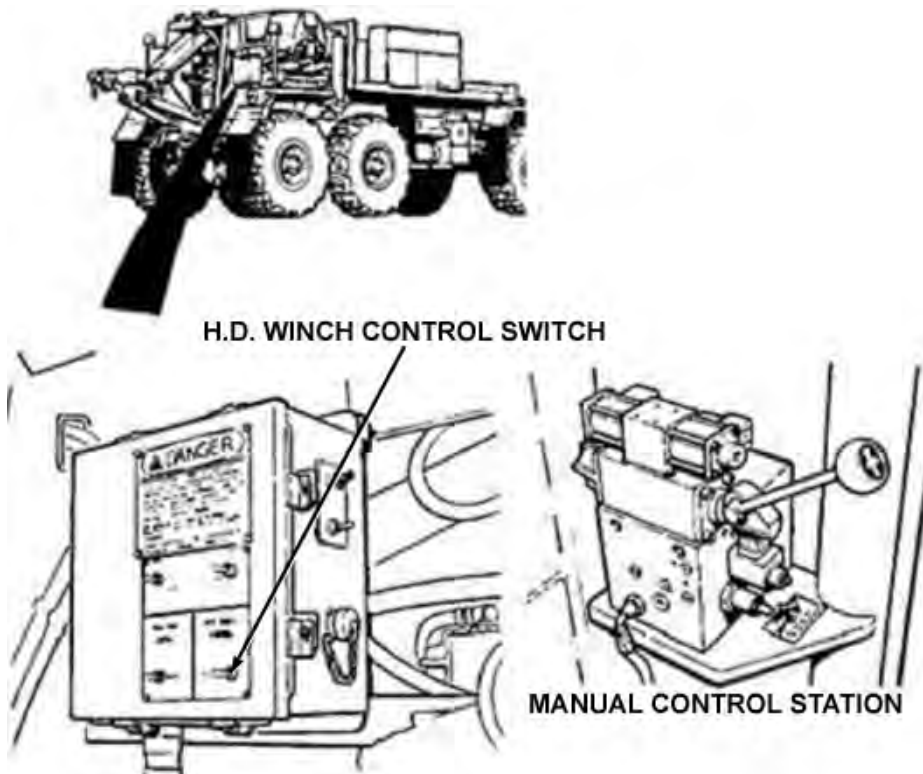


Figure 1.

- Operate winch OUT and IN (Volume 1, WP 0043) from manual control station.

CONDITION/INDICATION

Does winch operate normally IN and OUT with H.D. WINCH CONTROL set to manual?

DECISION

No - Test 2 - Does winch operate normally after warming hydraulic fluid for 20 minutes?

Yes - Notify Supervisor.

TEST 2 - Does winch operate normally after warming hydraulic fluid for 20 minutes?

NOTE

If outside temperature is 0°F (-17°C) hydraulic fluid may not flow easily.

- Operate engine (Volume 1, WP 0044) for 20 minutes with PTO ENGAGE switch set to ON to bring hydraulic fluid up to operating temperature.

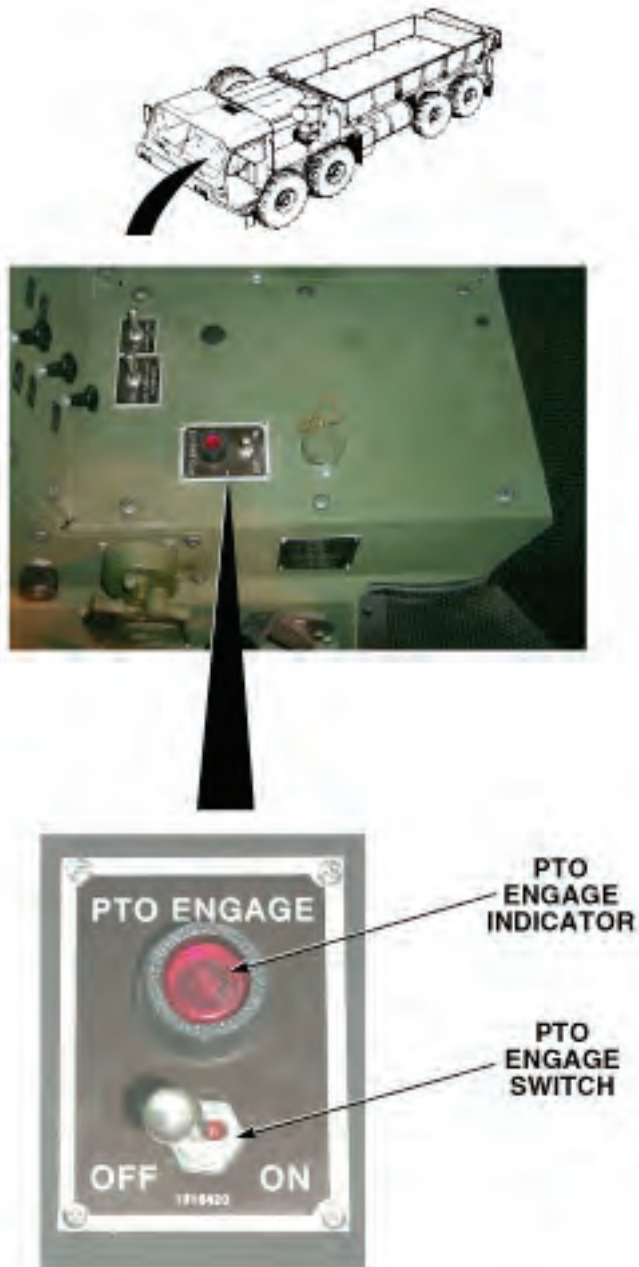


Figure 2.

CONDITION/INDICATION

Does winch operate normally after warming hydraulic fluid for 20 minutes?

DECISION

No - Test 3 - Does winch operate normally after cycling mast?

Yes - Problem corrected.

TEST 3 - Does winch operate normally after cycling mast?

1. Lower crane to stowed position. (Volume 1, WP 0106)

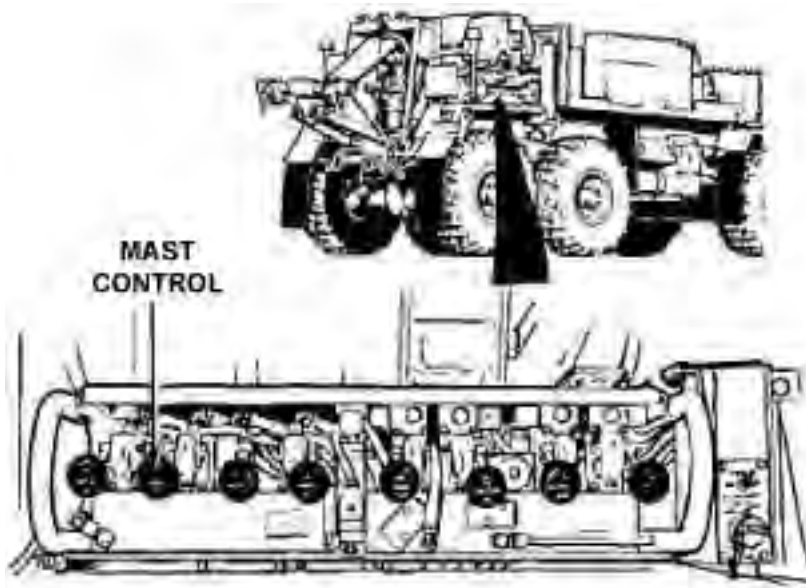


Figure 3.

2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

CONDITION/INDICATION

Does winch operate normally after cycling mast?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
HEAVY-DUTY WINCH WILL NOT OPERATE IN MANUAL CONTROL**

INITIAL SETUP:

Equipment Condition

Vehicle setup for heavy-duty winch operations using manual control.
(Volume 1, WP 0043)

**TROUBLESHOOTING PROCEDURE
HEAVY-DUTY WINCH WILL NOT OPERATE IN MANUAL CONTROL**

TEST 1 - Are all electrical switches in correct positions?

NOTE

Common problems with heavy-duty winch that may be found are:

1. Slow or abnormal operation.
2. Winch will not pull required load.

Common causes of problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Controls malfunction (remote and manual).

Report all problems to organizational maintenance.

1. Check that all electrical switches are set in correct position. (Volume 1, WP 0043)

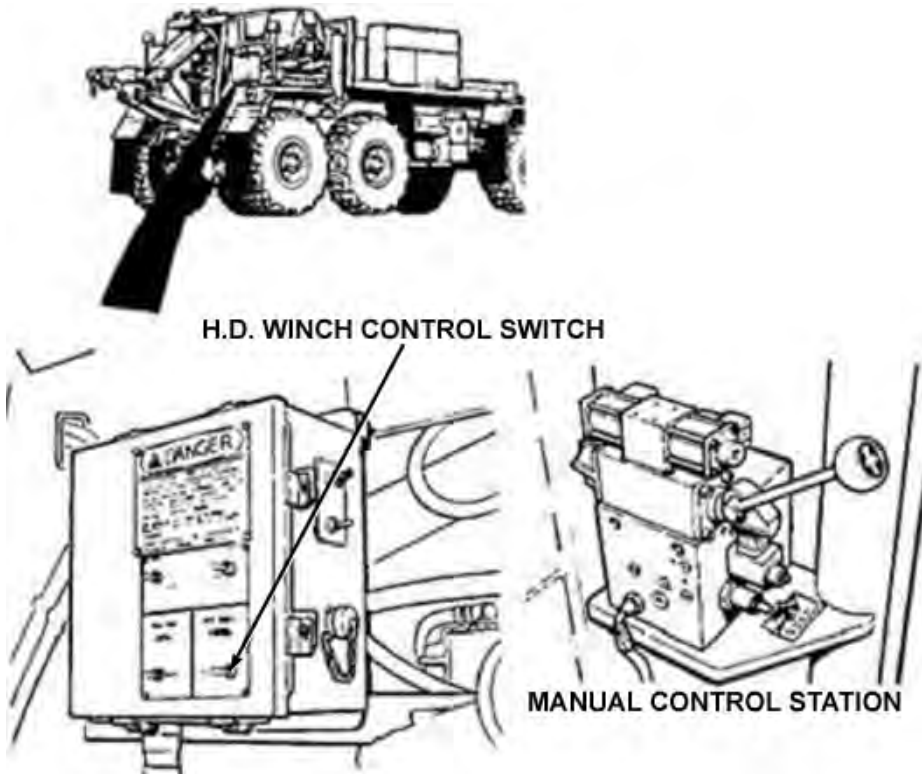


Figure 1.

CONDITION/INDICATION

Are all electrical switches in correct positions?

DECISION

No - Test 3 - Does heavy-duty winch operate in manual control?

Yes - Test 2 - Does winch operate in and out with H.D. WINCH CONTROL set to remote?

TEST 2 - Does winch operate in and out with H.D. WINCH CONTROL set to remote?

1. Set H.D. WINCH CONTROL to remote. (Volume 1, WP 0043)

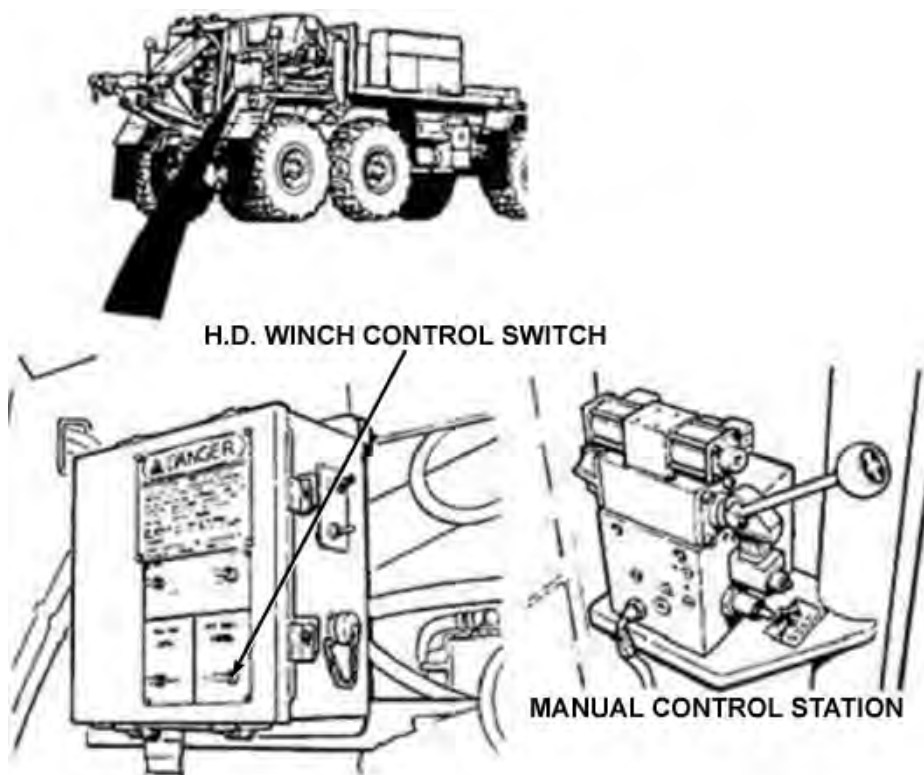


Figure 2.

2. Operate winch OUT and IN (Volume 1, WP 0043) from remote control station.

CONDITION/INDICATION

Does winch operate in and out with H.D. WINCH CONTROL set to remote?

DECISION

No - Notify supervisor.
Yes - Notify supervisor.

TEST 3 - Does heavy-duty winch operate in manual control?

1. Operate heavy-duty winch out and in. (Volume 1, WP 0043)

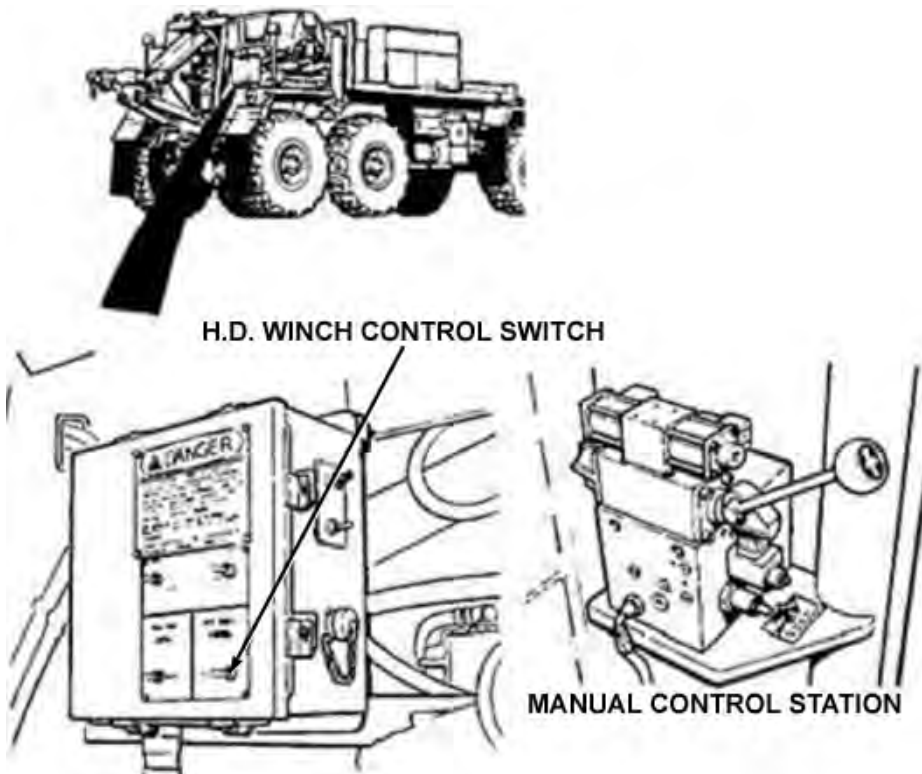


Figure 3.

CONDITION/INDICATION

Does heavy-duty winch operate in manual control?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
WINCH CABLE WILL NOT REEL OUT OR IN, OR OPERATES SLOWLY IN MANUAL
CONTROL**

INITIAL SETUP:

Equipment Condition

Vehicle setup for heavy-duty winch operations using manual control.
(Volume 1, WP 0043)

TROUBLESHOOTING PROCEDURE

WINCH CABLE WILL NOT REEL OUT OR IN, OR OPERATES SLOWLY IN MANUAL CONTROL

TEST 1 - Does winch operate normally IN and OUT with H.D. WINCH CONTROL set to remote?

NOTE

Common problems with heavy-duty winch that may be found are:

1. Slow or abnormal operation.
2. Winch will not pull required load.

Common causes of problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Controls malfunction (remote and manual).

Report all problems to organizational maintenance.

1. Set H.D. WINCH CONTROL to remote. (Volume 1, WP 0043)

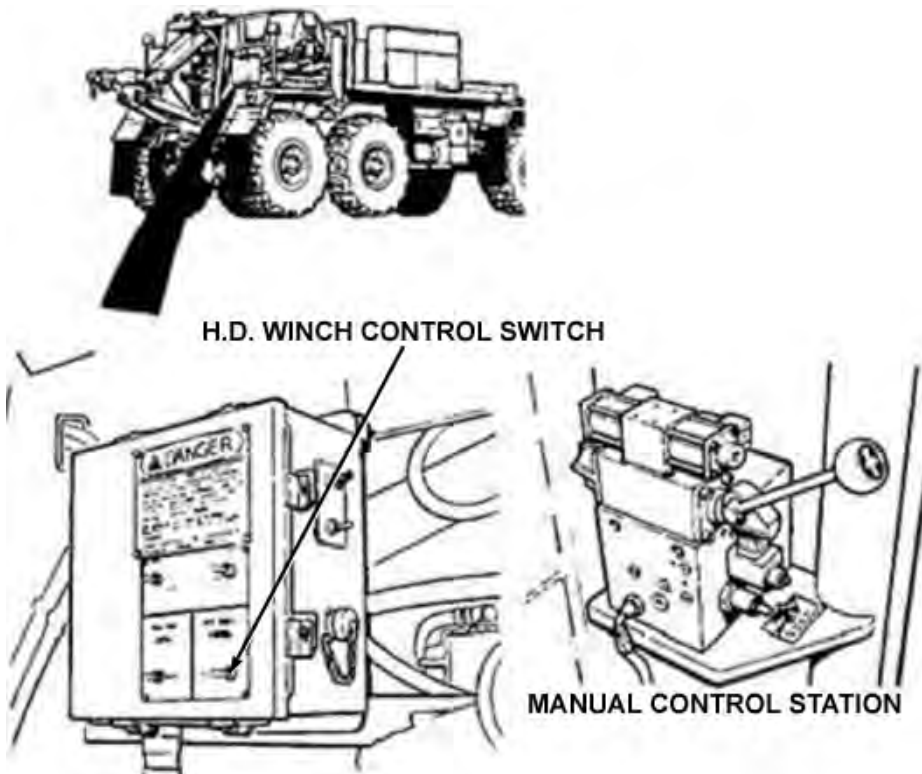


Figure 1.

2. Operate winch OUT and IN (Volume 1, WP 0043) from remote control station.

CONDITION/INDICATION

Does winch operate normally IN and OUT with H.D. WINCH CONTROL set to remote?

DECISION

No - Test 2 - Does winch operate normally after warming hydraulic fluid for 20 minutes?

Yes - Notify Supervisor.

TEST 2 - Does winch operate normally after warming hydraulic fluid for 20 minutes?

NOTE

If outside temperature is 0°F (-17°C) hydraulic fluid may not flow easily.

1. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO ENGAGE switch set to ON to bring hydraulic fluid up to operating temperature.

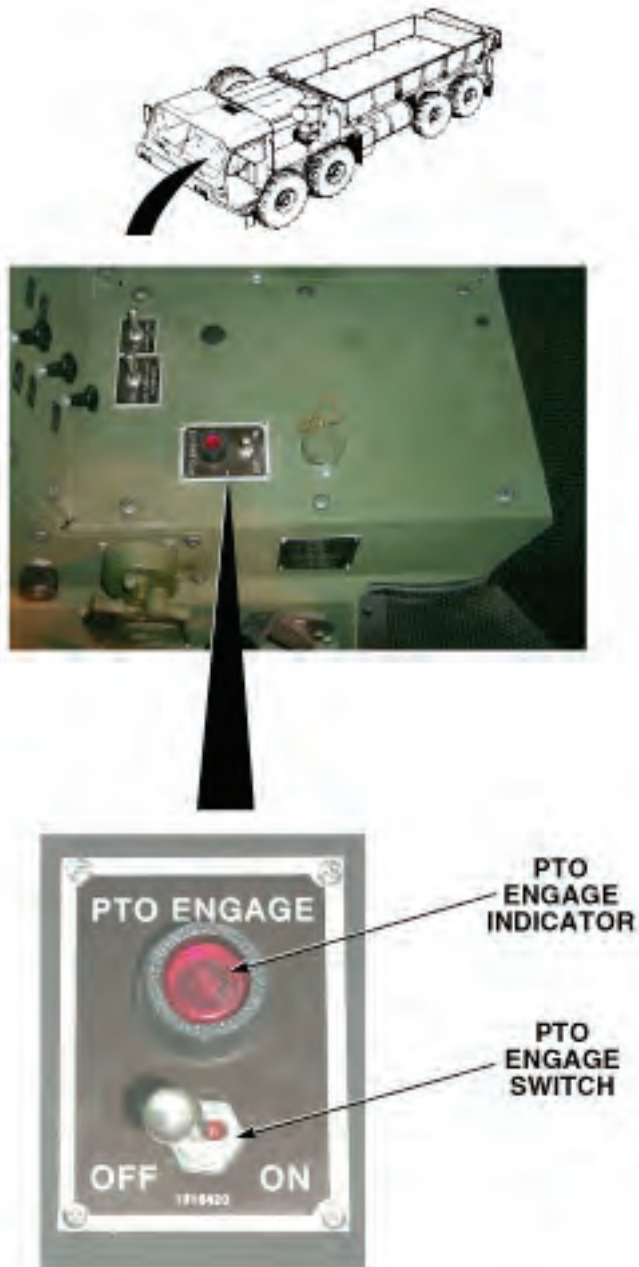


Figure 2.

CONDITION/INDICATION

Does winch operate normally after warming hydraulic fluid for 20 minutes?

DECISION

No - Test 3 - Does winch operate normally after cycling mast?

Yes - Problem corrected.

TEST 3 - Does winch operate normally after cycling mast?

1. Lower crane to stowed position. (Volume 1, WP 0106)

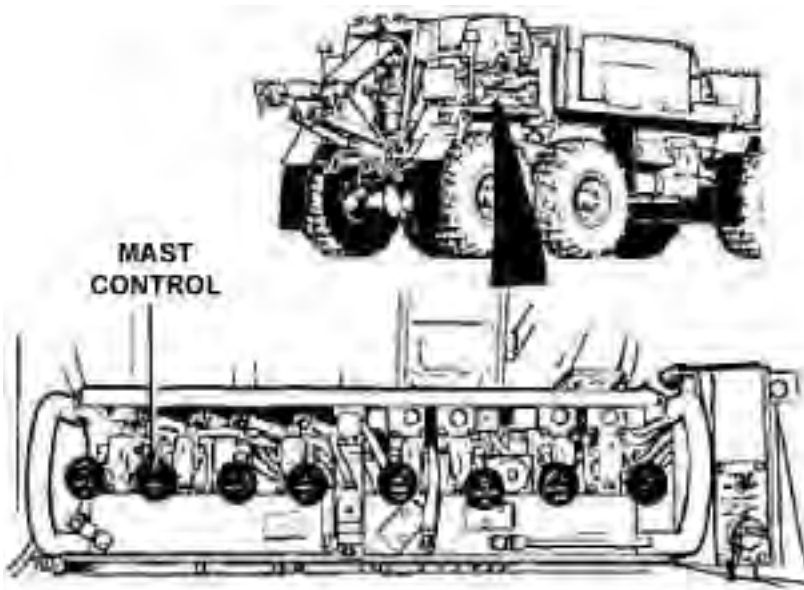


Figure 3.

2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

CONDITION/INDICATION

Does winch operate normally after cycling mast?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE CONTROLS (REMOTE OR MANUAL) STICKING IN ENGAGED POSITION

INITIAL SETUP:

Equipment Condition

Vehicle setup for heavy-duty winch operations. (Volume 1, WP 0043)

TROUBLESHOOTING PROCEDURE CONTROLS (REMOTE OR MANUAL) STICKING IN ENGAGED POSITION

TEST 1 - Is hydraulic fluid below normal operating temperature?

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

NOTE

Common problems with heavy-duty winch that may be found are:

1. Slow or abnormal operation.
2. Winch will not pull required load.

Common causes of problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Controls malfunction (remote and manual).

Report all problems to organizational maintenance.

NOTE

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may not flow easily.

1. Check if outside temperature is 0°F (-17°C) or lower.



HYDRAULIC
RESERVOIR

Figure 1.

CONDITION/INDICATION

Is hydraulic fluid below normal operating temperature?

DECISION

No - Test 4 - Do winch controls operate normally?

Yes - Test 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

TEST 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

NOTE

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may not flow easily.

1. Set PTO ENGAGE switch to ON. (Volume 1, WP 0043)

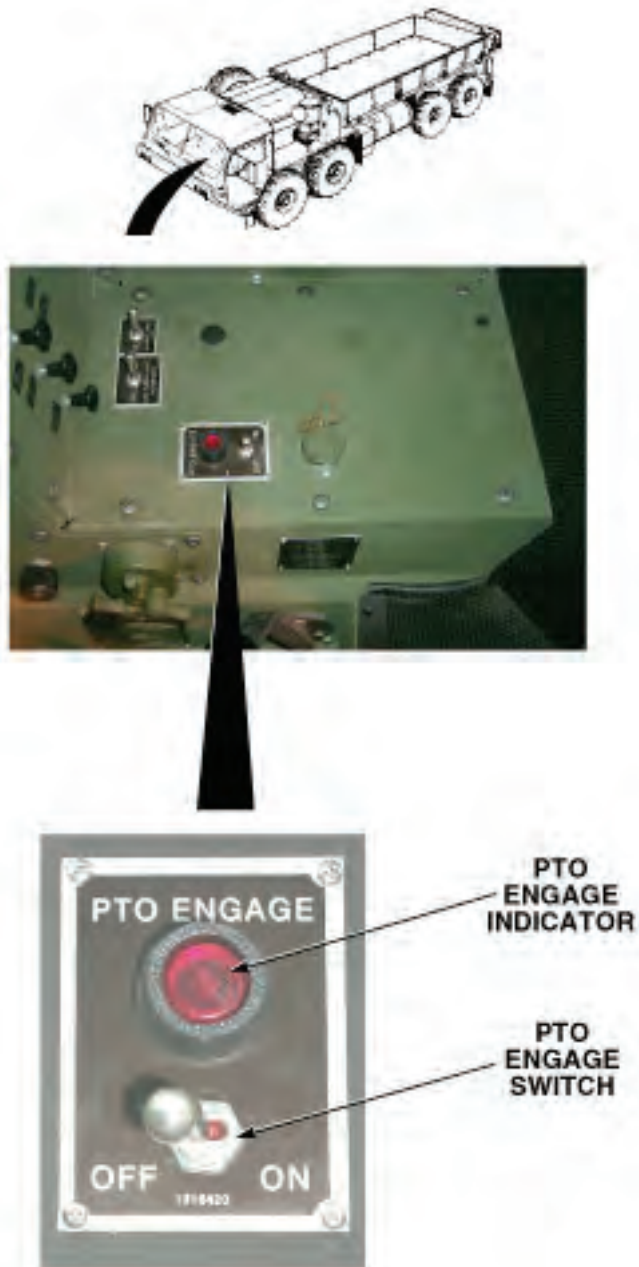


Figure 2.

2. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO enabled to bring hydraulic fluid up to operating temperature.
3. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

DECISION

No - Test 3 - Does hydraulic fluid reach normal operating temperature after cycling mast control down?

Yes - Test 4 - Do winch controls operate normally?

TEST 3 - Does hydraulic fluid reach normal operating temperature after cycling mast control down?**WARNING**

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. If raised, lower crane to stowed position. (Volume 1, WP 0106)

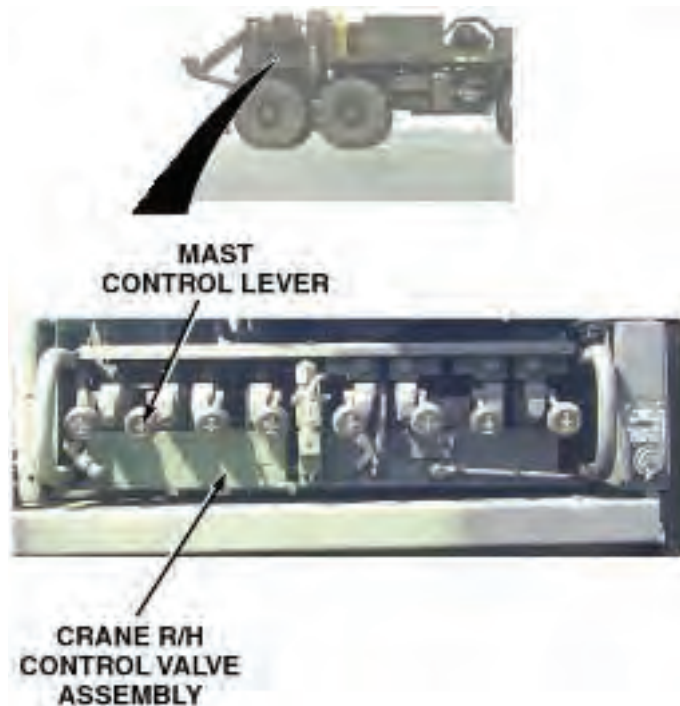


Figure 3.

2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.
3. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after cycling mast control down?

DECISION

No - Notify supervisor.

Yes - Test 4 - Do winch controls operate normally?

TEST 4 - Do winch controls operate normally?

1. Operate heavy-duty winch manual controls, observe heavy-duty winch control operation. (Volume 1, WP 0043)

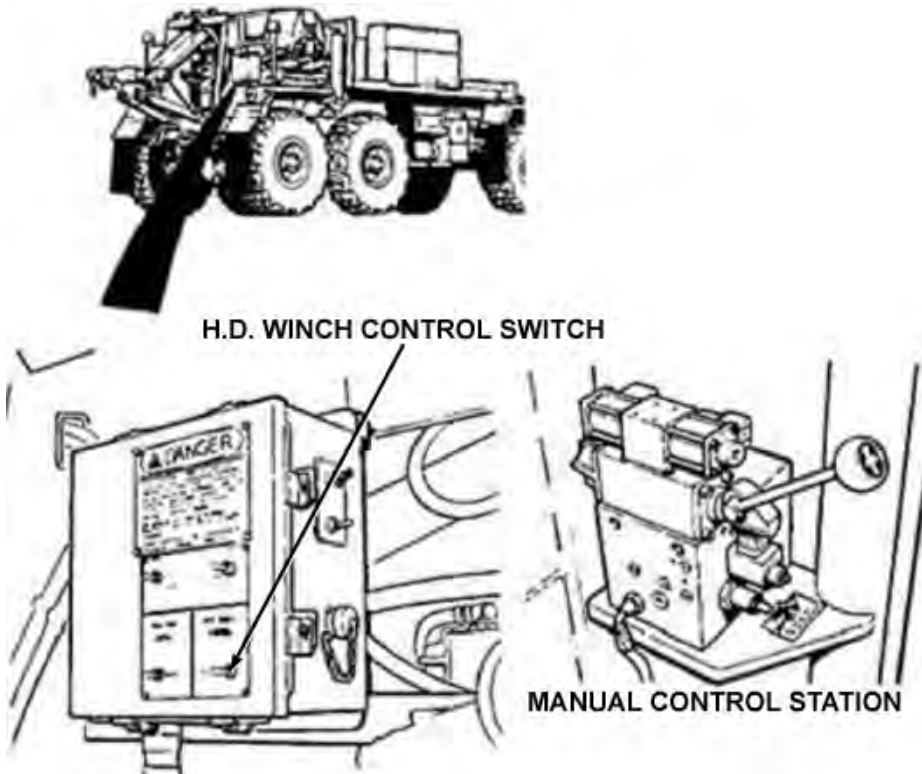


Figure 4.

CONDITION/INDICATION

Do winch controls operate normally?

DECISION

No - Test 6 - Hydraulic fluid overheated.

Yes - Problem corrected.

TEST 5 - Do controls stick in engaged position after running engine for 20 minutes?

WARNING



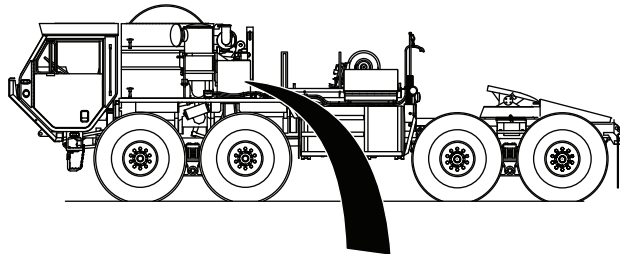
Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir.

Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

NOTE

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may be below operating temperature. Operating system with PTO end hydraulic pump engaged should warm hydraulic fluid to an operating temperature.

1. Pull selector valve out. (Volume 1, WP 0043)
2. Set PTO ENGAGE switch to ON. (Volume 1, WP 0043)
3. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO enabled to bring hydraulic fluid up to operating temperature.
4. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.



**HYDRAULIC
RESERVOIR**

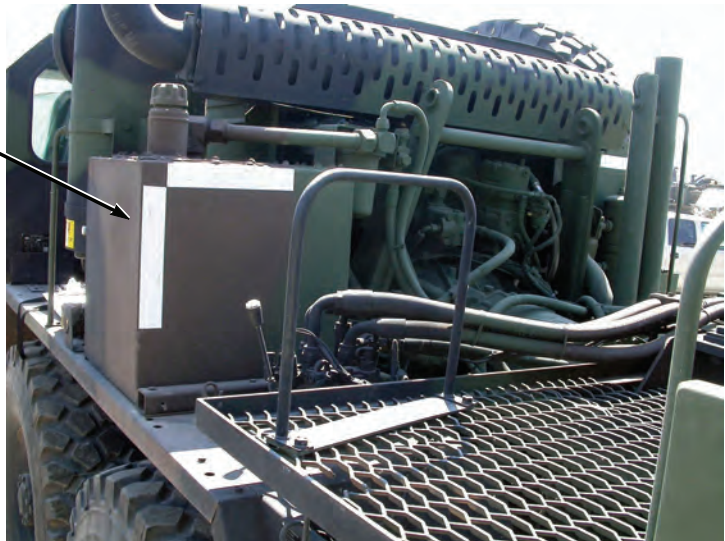
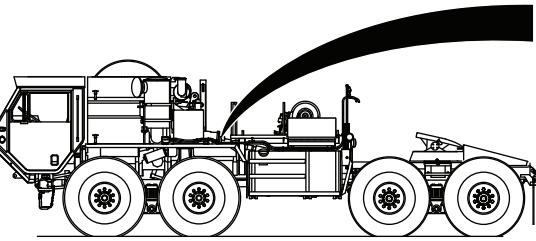


Figure 5.

5.

6.



**MANUAL CONTROL
STATION**

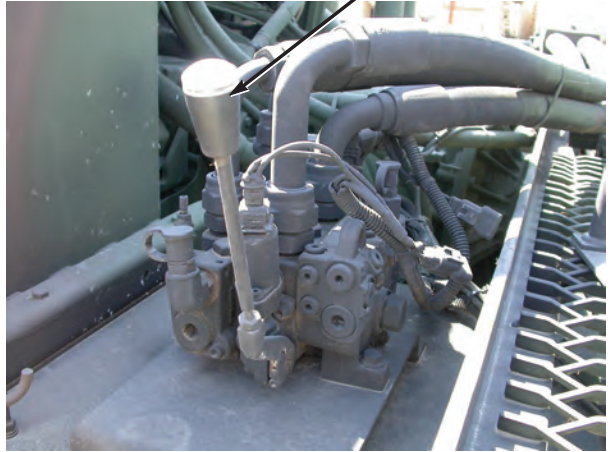


Figure 6.

CONDITION/INDICATION

Do controls stick in engaged position after running engine for 20 minutes?

DECISION

No - Test 6 - Hydraulic fluid overheated.
Yes - Problem corrected.

TEST 6 - Hydraulic fluid overheated.

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Set PTO ENGAGE switch to OFF.
2. Shut off engine. (Volume 1, WP 0057)
3. Allow hydraulic oil to cool.



**HYDRAULIC
RESERVOIR**

Figure 7.

CONDITION/INDICATION

Hydraulic fluid overheated.

DECISION

-

Continue - Test 7 - Do winch controls operate normally?

TEST 7 - Do winch controls operate normally?

1. Start engine. (Volume 1, WP 0044)
2. Prepare vehicle for heavy-duty winch operation. (Volume 1, WP 0043)

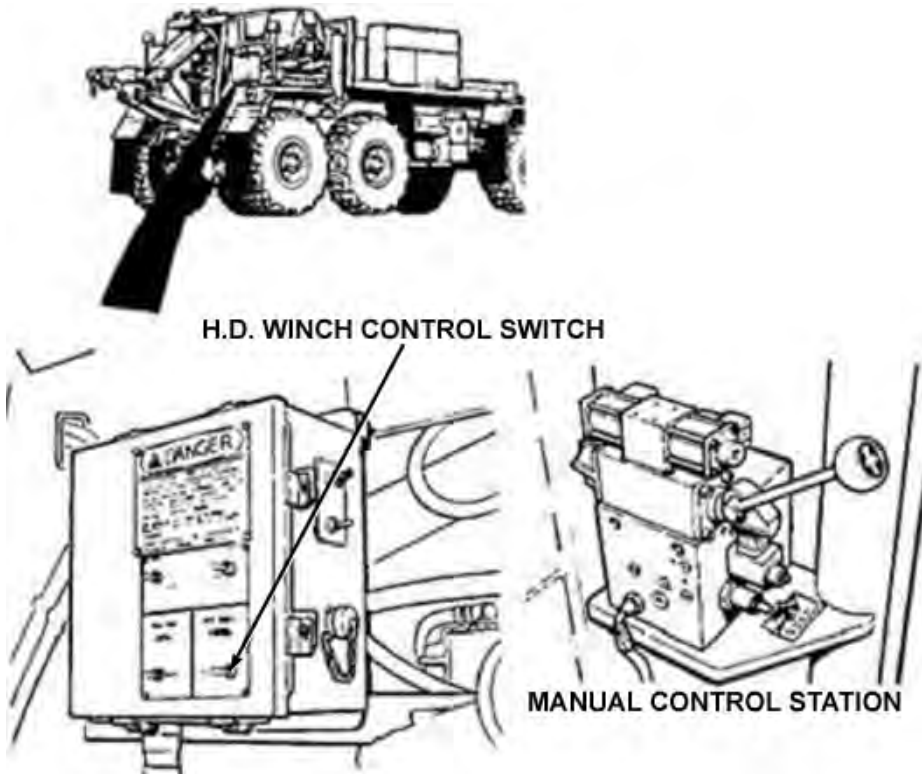


Figure 8.

3. Operate heavy-duty winch controls, observe heavy-duty winch control operation. (Volume 1, WP 0043)

CONDITION/INDICATION

Do winch controls operate normally?

DECISION

No - Notify Supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
HYDRAULIC SYSTEM OPERATES TOO SLOW, TOO FAST, WITH JERKY
MOVEMENTS; OR ONE OR MORE HYDRAULICS CIRCUITS WILL NOT OPERATE

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE

HYDRAULIC SYSTEM OPERATES TOO SLOW, TOO FAST, WITH JERKY
MOVEMENTS; OR ONE OR MORE HYDRAULICS CIRCUITS WILL NOT OPERATE

TEST 1 - Is hydraulic fluid level within normal operating range?

1. Check hydraulic fluid level. If low, add hydraulic fluid. (WP 0184)

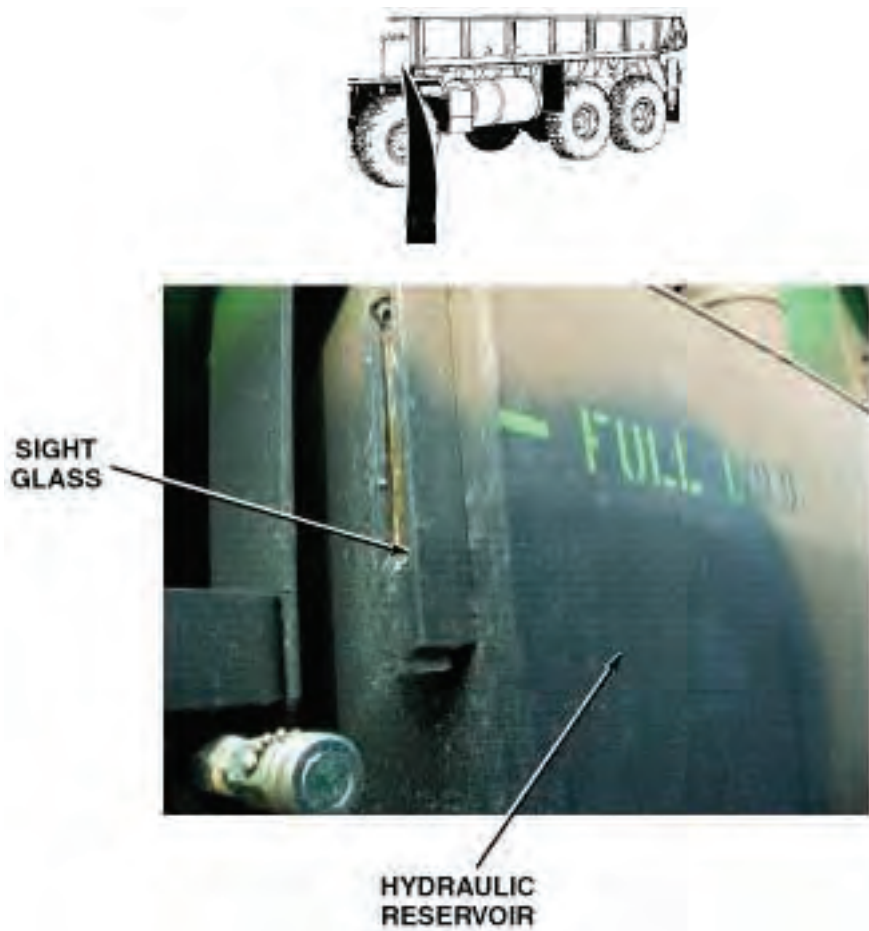


Figure 1.

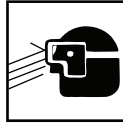
CONDITION/INDICATION

Is hydraulic fluid level within normal operating range?

DECISION

No - Test 3 - Do all hydraulic systems operate properly?

Yes - Test 2 - Are hydraulic hoses and connections free from leaks and/or damage?

TEST 2 - Are hydraulic hoses and connections free from leaks and/or damage?**WARNING**

Caution the hydraulic system maybe under pressure be sure to wear the proper eye protection to avoid personal injury.

1. Check hydraulic hoses and connections for leaks and/or damage.

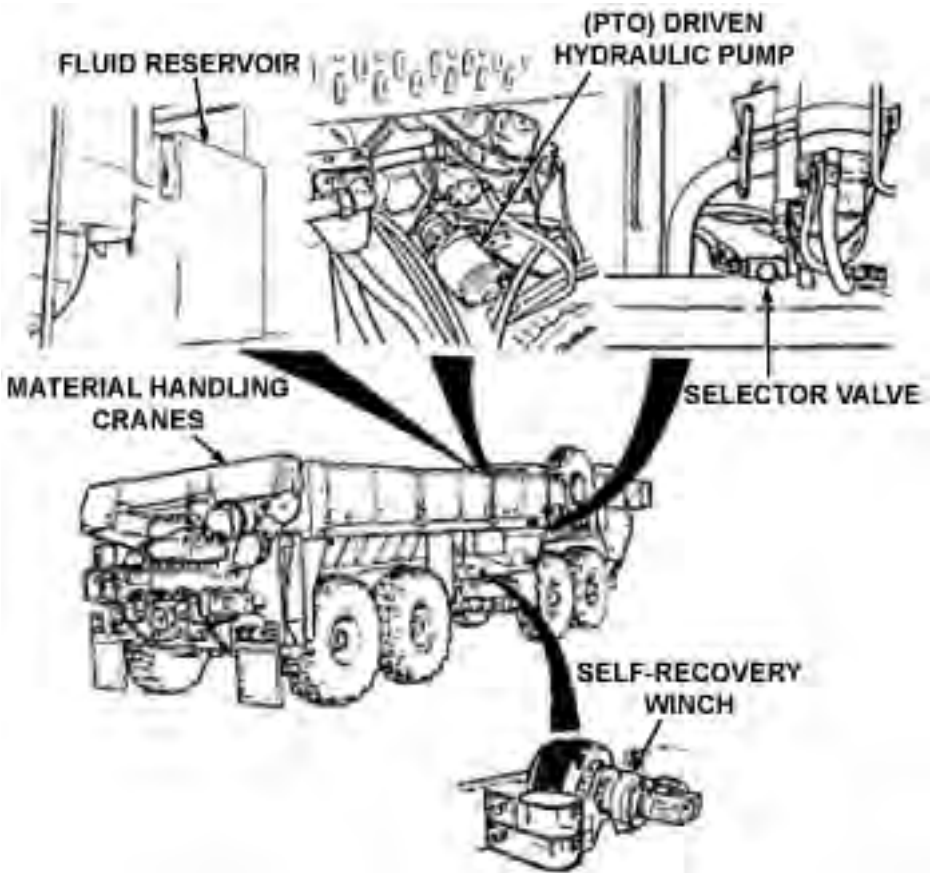


Figure 2.

2. Attempt to tighten loose hose(s) and/or connection(s).

CONDITION/INDICATION

Are hydraulic hoses and connections free from leaks and/or damage?

DECISION

Hydraulic hose or connection damaged. - Notify Supervisor. Test 3 - Do all hydraulic systems operate properly? Notify Supervisor.

Hydraulic hoses and connections OK. - Notify Supervisor.

TEST 3 - Do all hydraulic systems operate properly?

1. Start engine. (Volume 1, WP 0044)
2. Operate hydraulic systems to check for proper operation.

CONDITION/INDICATION

Do all hydraulic systems operate properly?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
BOOM OPERATION ABNORMAL WHEN TELESCOPING IN OR OUT**

INITIAL SETUP:**Equipment Condition**

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
BOOM OPERATION ABNORMAL WHEN TELESCOPING IN OR OUT**

TEST 1 - Is POWER ON/OFF switch set to ON position?**NOTE****Common problems that crane operators may see are:**

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Ensure POWER ON/OFF switch is set to ON position. If switch found in OFF position, turn switch to ON. (Volume 1, WP 0106)

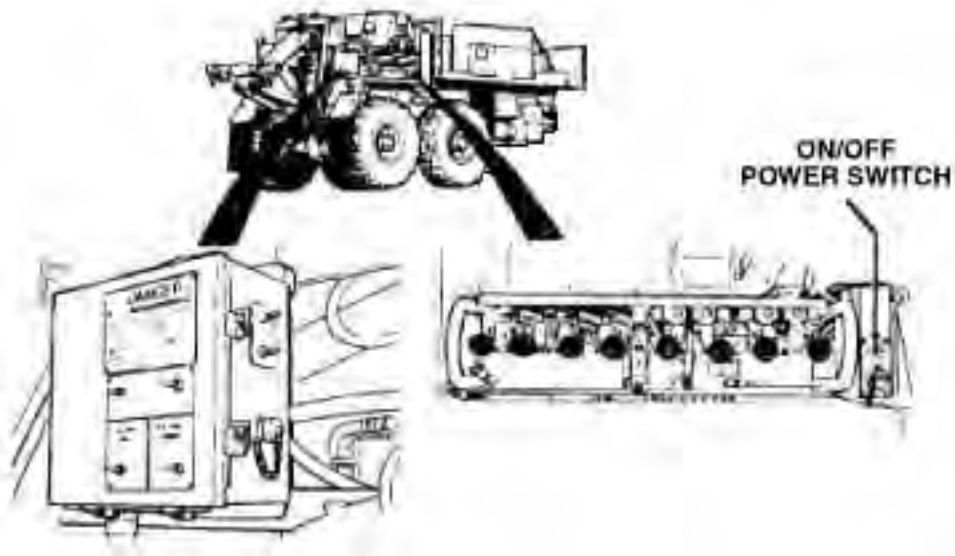


Figure 1.

CONDITION/INDICATION

Is POWER ON/OFF switch set to ON position?

DECISION

No - Test 4 - Does boom operate normally when telescoping in or out?

Yes - Test 2 - Are boom sections properly lubricated?

TEST 2 - Are boom sections properly lubricated?

1. Inspect boom sections for proper lubrication.

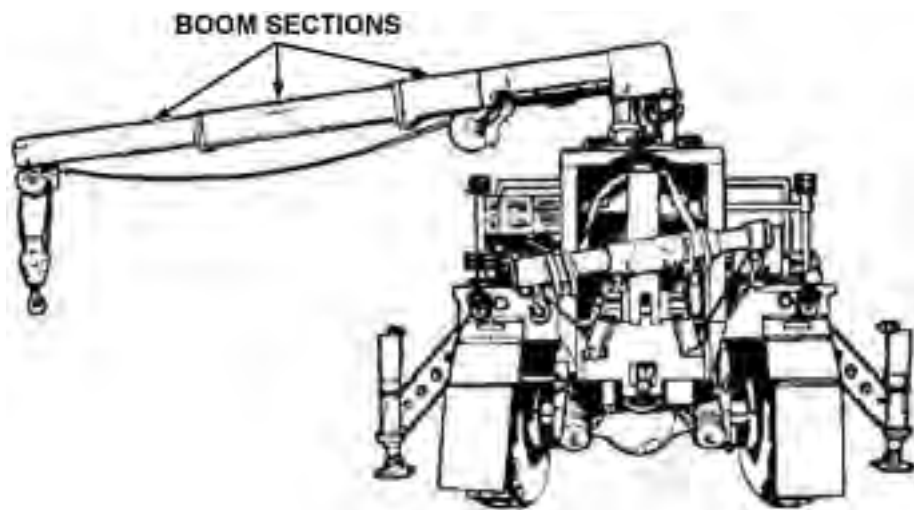


Figure 2.

CONDITION/INDICATION

Are boom sections properly lubricated?

DECISION

No - Lubricate boom sections.

Yes - Test 3 - Are cylinders free from trapped air after telescoping boom in and out several times?

TEST 3 - Are cylinders free from trapped air after telescoping boom in and out several times?

1. Lower boom below horizontal position. (Volume 1, WP 0106)



Figure 3.

2. Fully TELESCOPE boom IN and OUT several times to remove air from cylinders. (Volume 1, WP 0106)

CONDITION/INDICATION

Are cylinders free from trapped air after telescoping boom in and out several times?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

TEST 4 - Does boom operate normally when telescoping in or out?

1. Verify proper operation of boom telescoping. (Volume 1, WP 0106)



Figure 4.

CONDITION/INDICATION

Does boom operate normally when telescoping in or out?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE BOOM RAISES OR LOWERS SLOWLY

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

TROUBLESHOOTING PROCEDURE BOOM RAISES OR LOWERS SLOWLY

TEST 1 - Does boom raise or lower normally after running engine for 20 minutes with PTO engaged?

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

If outside temperature is 0°F (-17°C), hydraulic fluid may not flow easily.

1. Start engine. (Volume 1, WP 0044)
2. Set PTO ENGAGE switch to ON. (Volume 1, WP 0106)

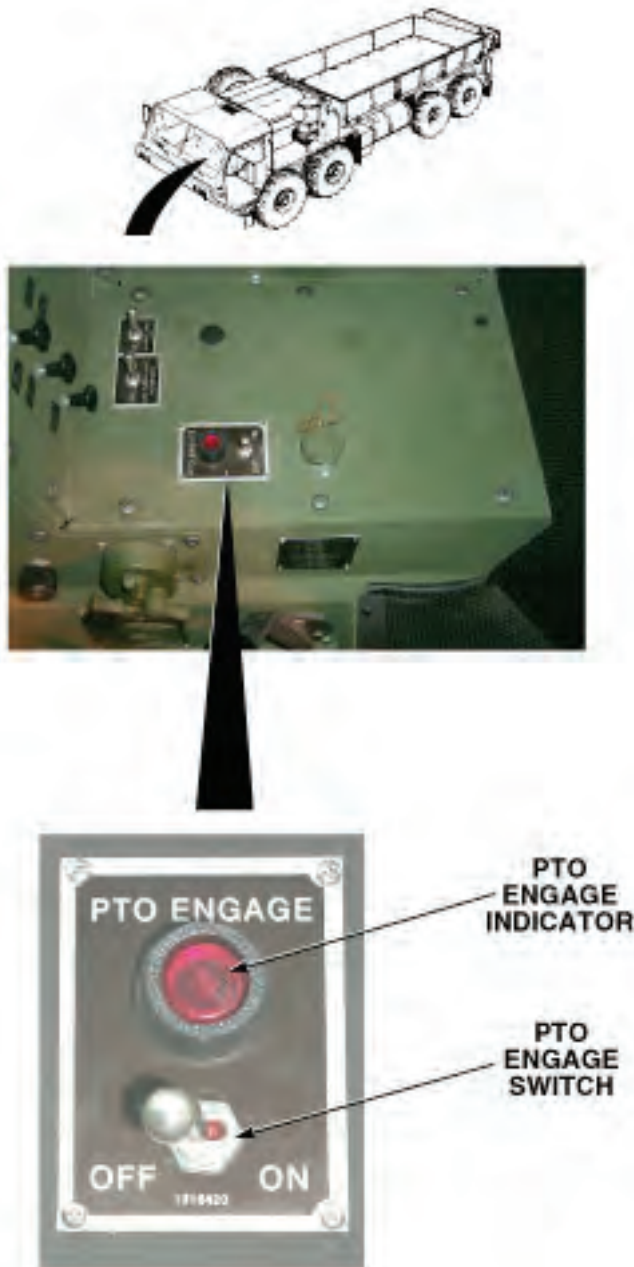


Figure 1.

3. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO enabled to bring hydraulic fluid up to operating temperature.
4. Attempt to raise or lower boom. (Volume 1, WP 0106)

CONDITION/INDICATION

Does boom raise or lower normally after running engine for 20 minutes with PTO engaged?

DECISION

No - Test 2 - Does boom raise or lower normally after cycling mast?

Yes - Problem corrected.

TEST 2 - Does boom raise or lower normally after cycling mast?

1. Lower crane to stowed position. (Volume 1, WP 0106)
2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

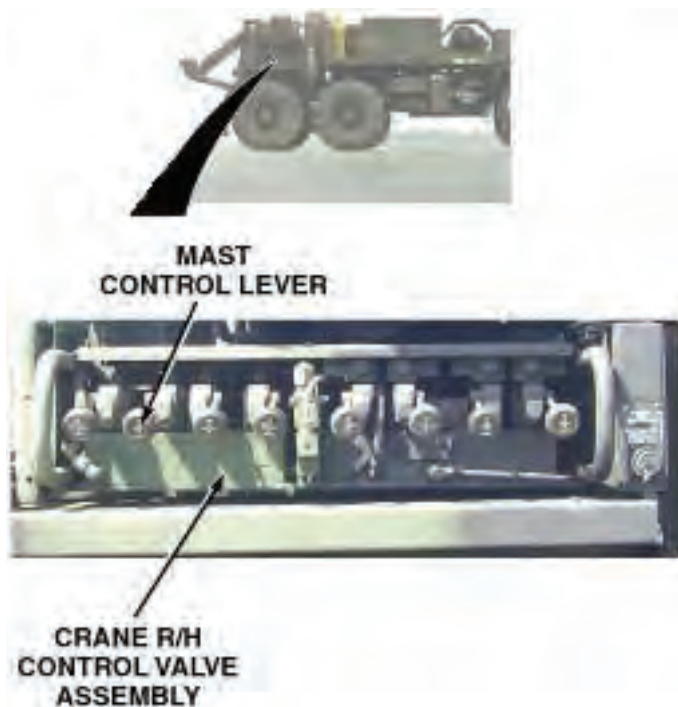


Figure 2.

3. Raise crane to operating position. (Volume 1, WP 0106)
4. Raise and lower boom. (Volume 1, WP 0106)

CONDITION/INDICATION

Does boom raise or lower normally after cycling mast?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
BOOM WILL NOT RAISE OR LOWER**

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
BOOM WILL NOT RAISE OR LOWER**

TEST 1 - Does boom operate after checking for overloading?

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Check that load is not over load limit. If load is found to be over limit, reduce weight to below load limit.

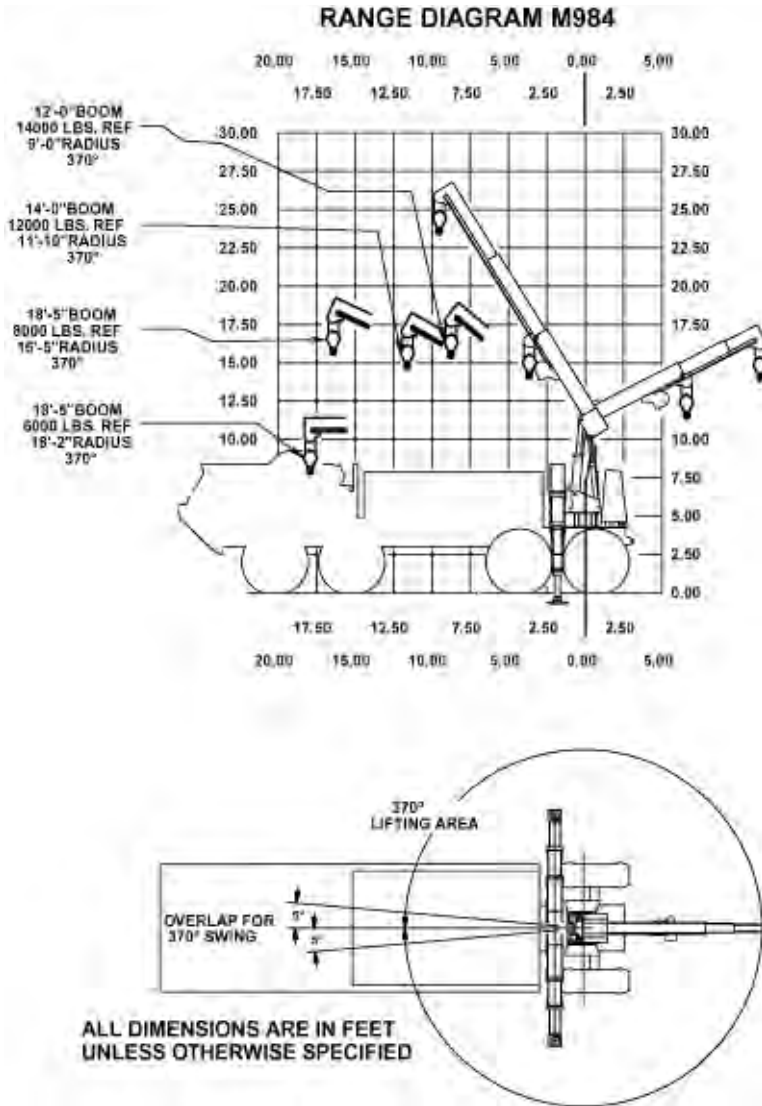


Figure 1.

2. Raise and lower boom. (Volume 1, WP 0106)

CONDITION/INDICATION

Does boom operate after checking for overloading?

DECISION

- No - Notify supervisor.
- Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
BOOM WILL NOT TELESCOPE IN OR OUT**

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
BOOM WILL NOT TELESCOPE IN OR OUT**

TEST 1 - Does boom telescope in or out after checking for overloaded condition?

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Check that load is not over load limit. If load is found to be over limit, reduce weight to below load limit.

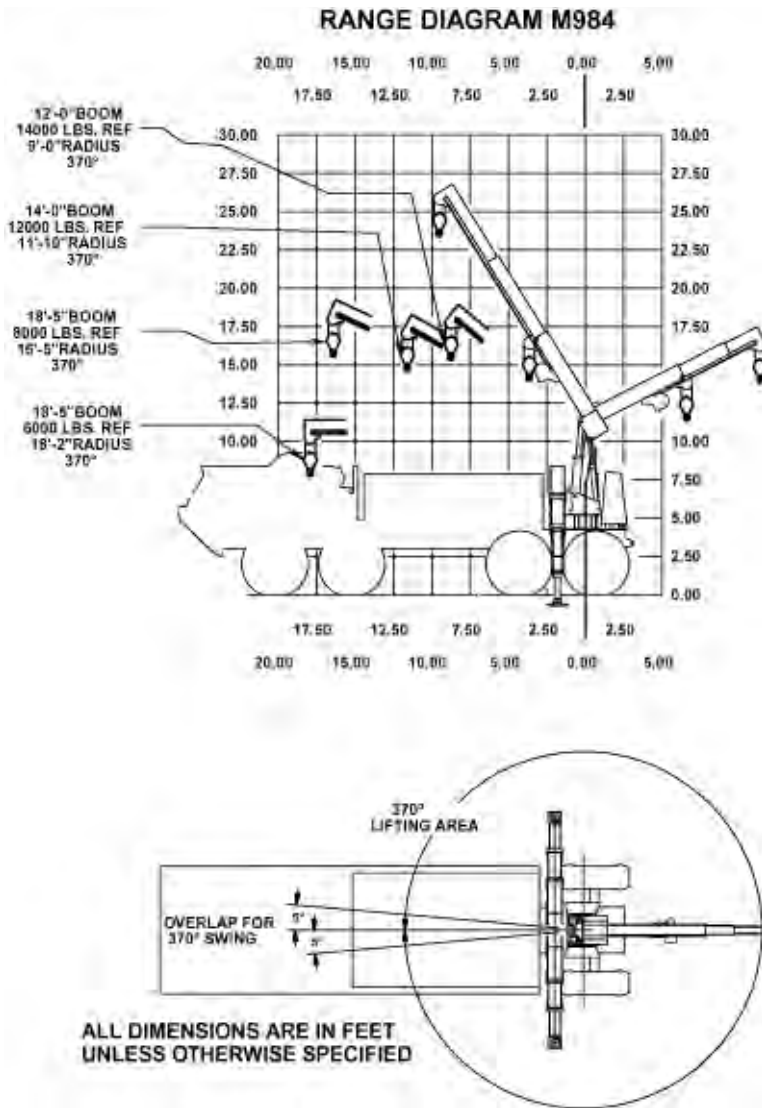


Figure 1.

2. Operate crane by telescoping boom IN and OUT. (Volume 1, WP 0106)

CONDITION/INDICATION

Does boom telescope in or out after checking for overloaded condition?

DECISION

- No - Notify supervisor.
- Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE CRANE CONTROLS STICKING IN ENGAGED POSITION

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

TROUBLESHOOTING PROCEDURE CRANE CONTROLS STICKING IN ENGAGED POSITION

TEST 1 - Is hydraulic fluid at normal operating temperature?

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

NOTE

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may not flow easily.

1. Check hydraulic fluid temperature at reservoir.



HYDRAULIC
RESERVOIR

Figure 1.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature?

DECISION

Hydraulic fluid is below normal operating temperature. - Test 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged? Test 4 - Is hydraulic fluid overheated?

Hydraulic fluid is at normal operating temperature. - Test 5 - Do crane controls operate normally after hydraulic fluid is at normal operating temperature?

TEST 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

WARNING

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir.

Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Set PTO ENGAGE switch to ON. (Volume 1, WP 0106)

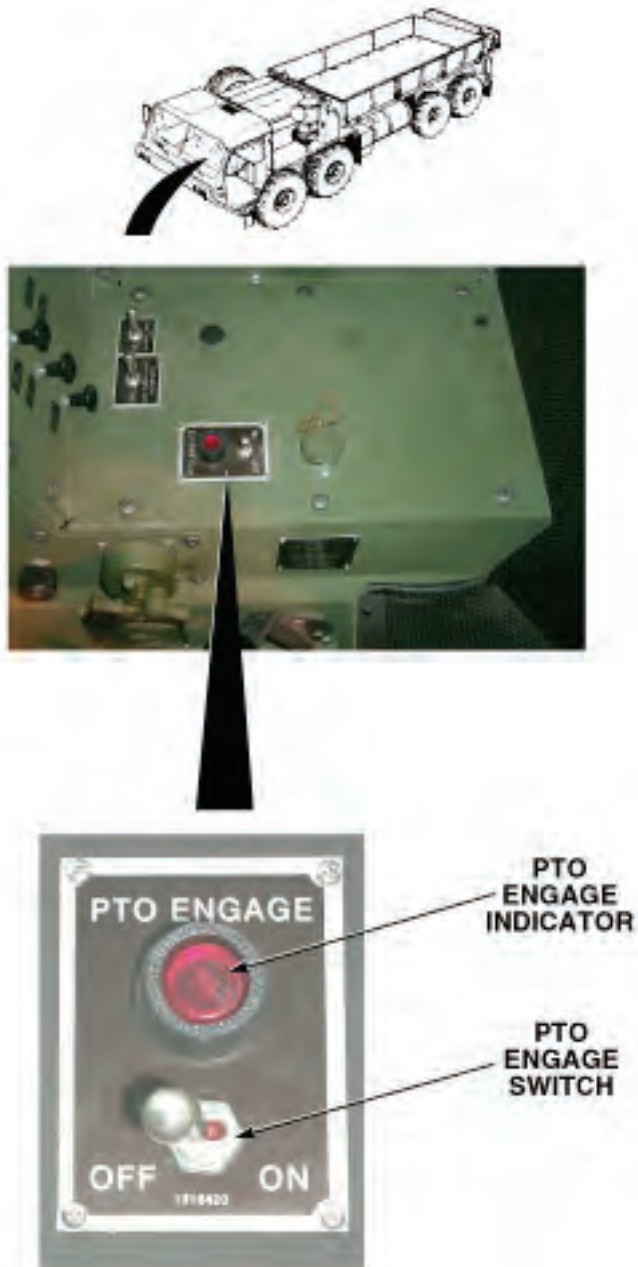


Figure 2.

2. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO enabled to bring hydraulic fluid up to operating temperature.
3. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

DECISION

Hydraulic fluid is below normal operating temperature. - Test 3 - Does hydraulic fluid reach normal operating temperature after cycling mast control down? Test 4 - Is hydraulic fluid overheated?

Hydraulic fluid is at normal operating temperature. - Test 5 - Do crane controls operate normally after hydraulic fluid is at normal operating temperature?

TEST 3 - Does hydraulic fluid reach normal operating temperature after cycling mast control down?**WARNING**

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Lower crane to stowed position. (Volume 1, WP 0106)
2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

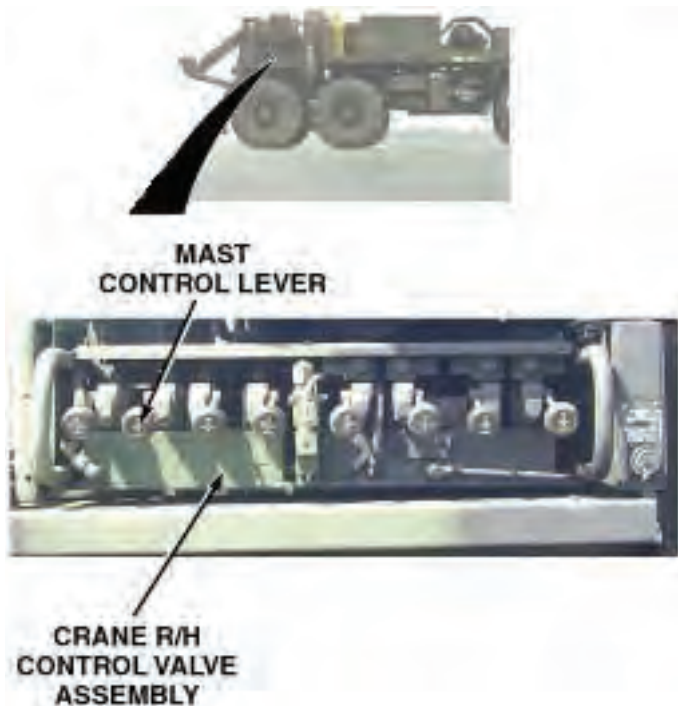


Figure 3.

3. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after cycling mast control down?

DECISION

Hydraulic fluid is below normal operating temperature. - Notify Supervisor. Test 4 - Is hydraulic fluid overheated?

Hydraulic fluid is at normal operating temperature. - Test 5 - Do crane controls operate normally after hydraulic fluid is at normal operating temperature?

TEST 4 - Is hydraulic fluid overheated?**WARNING**

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Shut off engine. (Volume 1, WP 0057)
2. Allow hydraulic oil to cool. (Volume 1, WP 0057)



**HYDRAULIC
RESERVOIR**

Figure 4.

CONDITION/INDICATION

Is hydraulic fluid overheated?

DECISION

-

Continue - Test 5 - Do crane controls operate normally after hydraulic fluid is at normal operating temperature?

TEST 5 - Do crane controls operate normally after hydraulic fluid is at normal operating temperature?

1. If off, start engine. (Volume 1, WP 0044)
2. Prepare vehicle for crane operation. (Volume 1, WP 0106)

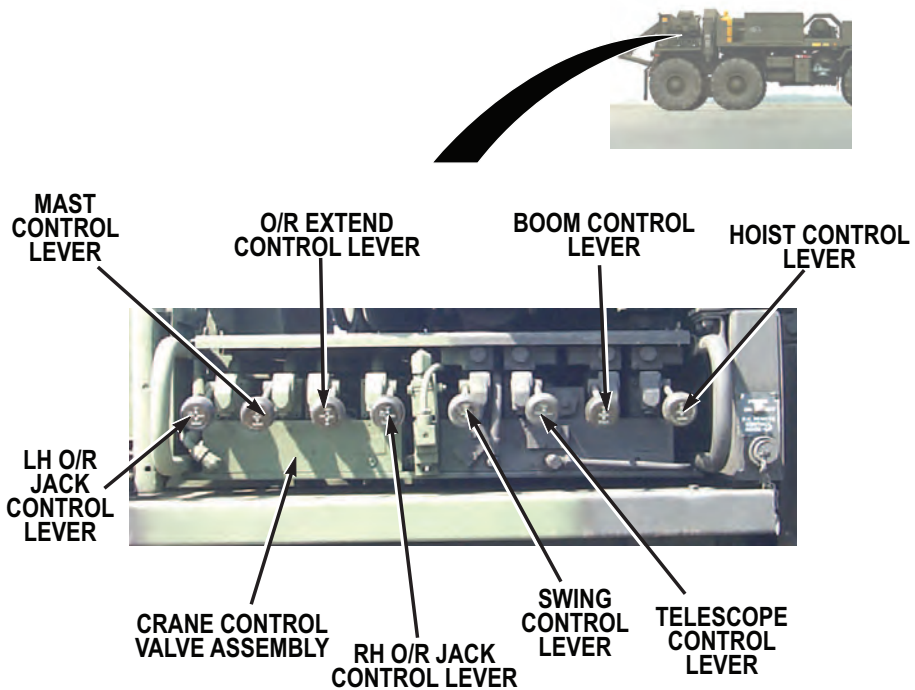


Figure 5.

- Operate crane controls. (Volume 1, WP 0106)

CONDITION/INDICATION

Do crane controls operate normally after hydraulic fluid is at normal operating temperature?

DECISION

- No - Notify supervisor.
- Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
CRANE WILL NOT OPERATE, OR OPERATES ABNORMALLY**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - ContinuedParking brakes applied. (Volume 1,
WP 0056)Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
CRANE WILL NOT OPERATE, OR OPERATES ABNORMALLY**

TEST 1 - Is electrical connector on solenoid tight?**NOTE****Common problems that crane operators may see are:**

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Check that electrical connector on solenoid valve is tight. If connector is loose, tighten.

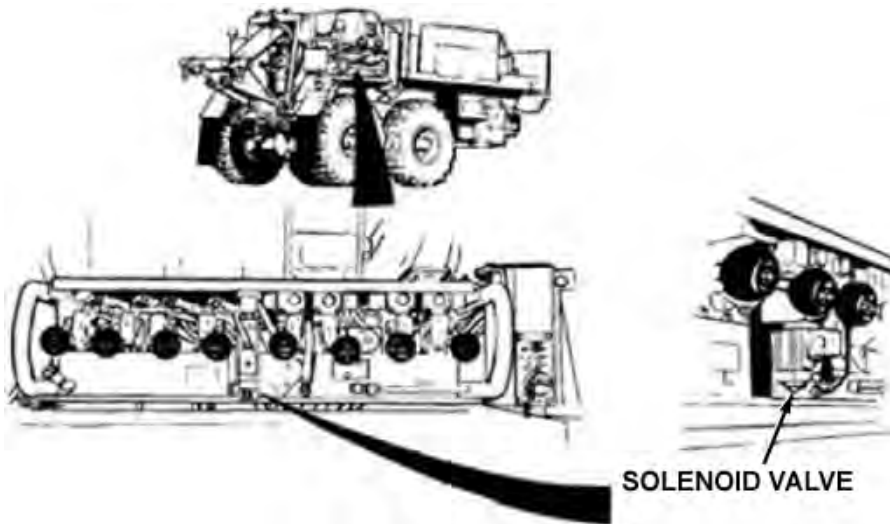


Figure 1.

CONDITION/INDICATION

Is electrical connector on solenoid tight?

DECISION

No - Test 3 - Does crane operate normally?

Yes - Test 2 - Does solenoid valve operate when power switch is set to ON?

TEST 2 - Does solenoid valve operate when power switch is set to ON?

1. Check solenoid for proper operation when power is turned to ON position. (Volume 1, WP 0106) If solenoid is faulty, place a screwdriver in slot on front of solenoid to hold solenoid closed (Volume 1, WP 0134) until mission can be completed.

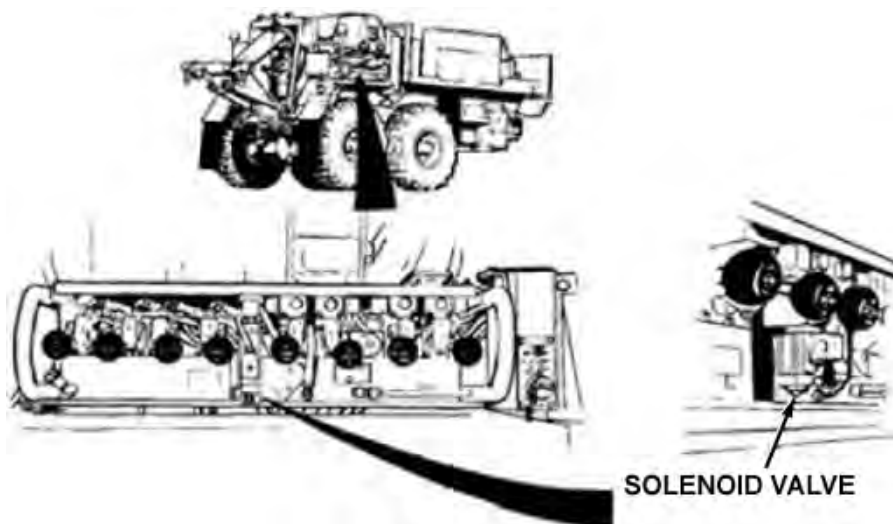


Figure 2.

CONDITION/INDICATION

Does solenoid valve operate when power switch is set to ON?

DECISION

No - Perform crane emergency hydraulic procedure. (Volume 1, WP 0134)

Yes - Notify Supervisor.

TEST 3 - Does crane operate normally?

1. Prepare vehicle for crane operation. (Volume 1, WP 0106)

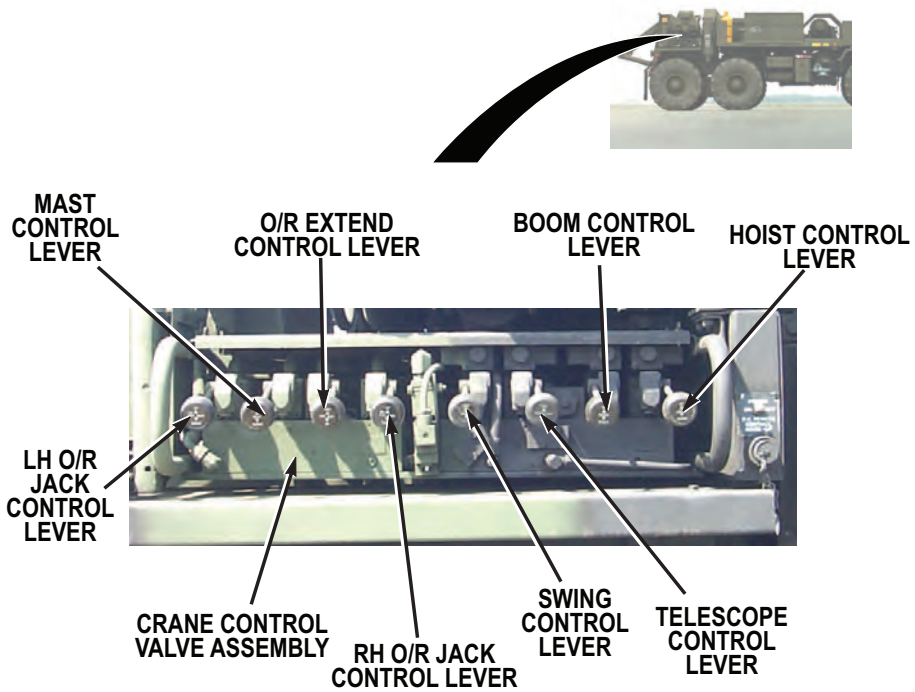


Figure 3.

- Operate crane. (Volume 1, WP 0106)

CONDITION/INDICATION

Does crane operate normally?

DECISION

No - Notify supervisor.
 Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
HOIST OPERATION SLOW OR ABNORMAL WHEN LIFTING OR LOWERING LOAD

INITIAL SETUP:**Equipment Condition**

Vehicle setup for crane operations.
(Volume 1, WP 0106)

TROUBLESHOOTING PROCEDURE
HOIST OPERATION SLOW OR ABNORMAL WHEN LIFTING OR LOWERING LOAD

TEST 1 - Does hoist operate normally after removing air from motor?**CAUTION**

Be sure to keep tension on cable. If tension is not maintained, cable may get tangled on drum.

NOTE**Common problems that crane operators may see are:**

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Set load down (Volume 1, WP 0106) and disconnect load hook.
2. Reel cable in and out several times to remove air from hoist motor.



Figure 1.

CONDITION/INDICATION

Does hoist operate normally after removing air from motor?

DECISION

- No - Test 2 - Is hydraulic fluid at normal operating temperature?
Yes - Test 5 - Does hoist operate normally?

TEST 2 - Is hydraulic fluid at normal operating temperature?**WARNING**

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

NOTE

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may not flow easily.

1. Check hydraulic fluid temperature at reservoir.



HYDRAULIC
RESERVOIR

Figure 2.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature?

DECISION

No - Test 3 - Is hydraulic fluid at normal operating temperature after running engine for 20 minutes with PTO engaged?

Yes - Test 5 - Does hoist operate normally?

TEST 3 - Is hydraulic fluid at normal operating temperature after running engine for 20 minutes with PTO engaged?**WARNING**

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Lower crane to stowed position. (Volume 1, WP 0106)
2. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO engaged to bring hydraulic fluid up to operating temperature.
3. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.



**HYDRAULIC
RESERVOIR**

Figure 3.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature after running engine for 20 minutes with PTO engaged?

DECISION

No - Test 4 - Is hydraulic fluid at normal operating temperature after cycling mast control down?

Yes - Test 5 - Does hoist operate normally?

TEST 4 - Is hydraulic fluid at normal operating temperature after cycling mast control down?

1. Ensure crane is lowered to stowed position. (Volume 1, WP 0106)
2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

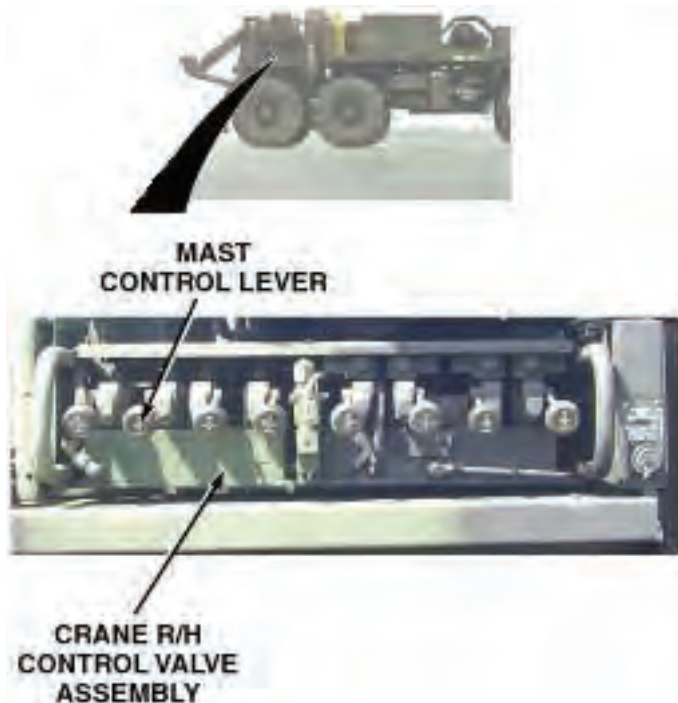


Figure 4.

3. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature after cycling mast control down?

DECISION

No - Notify Supervisor.

Yes - Test 5 - Does hoist operate normally?

TEST 5 - Does hoist operate normally?

1. If stowed, raise crane to operating position. (Volume 1, WP 0106)
2. Operate hoist. (Volume 1, WP 0106)



Figure 5.

CONDITION/INDICATION

Does hoist operate normally?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
HOIST WILL NOT LIFT LOAD**

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
HOIST WILL NOT LIFT LOAD**

TEST 1 - Is load within allowable limits?

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Check that load is not over load limit. If load is found to be over-limit, reduce weight to below load limit.

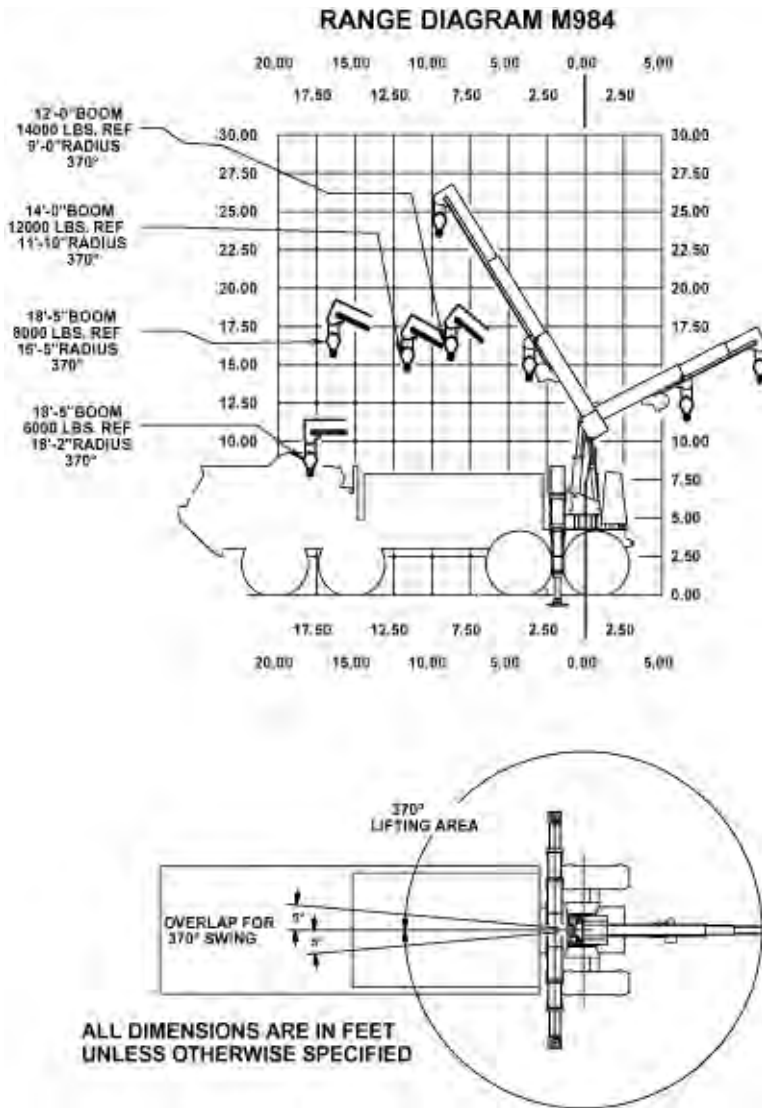


Figure 1.

CONDITION/INDICATION

Is load within allowable limits?

DECISION

No - Test 2 - Does hoist lift load?

Yes - Notify Supervisor.

TEST 2 - Does hoist lift load?

1. Operate hoist up and down. (Volume 1, WP 0106)

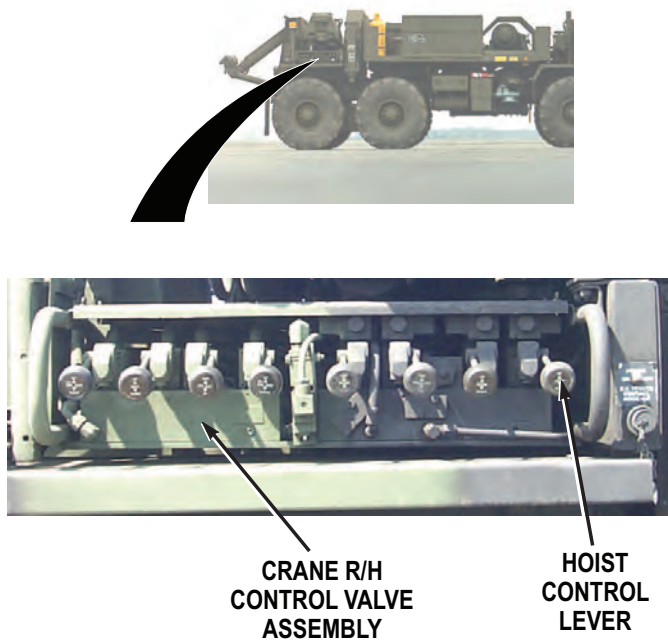


Figure 2.

CONDITION/INDICATION

Does hoist lift load?

DECISION

No - Notify supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
MAST RAISES OR LOWERS ABNORMALLY**

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
MAST RAISES OR LOWERS ABNORMALLY**

TEST 1 - Does mast raise and lower normally after cycling mast up and down to remove trapped air?

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Fully raise and lower mast (Volume 1, WP 0106) several times to remove air from cylinders.

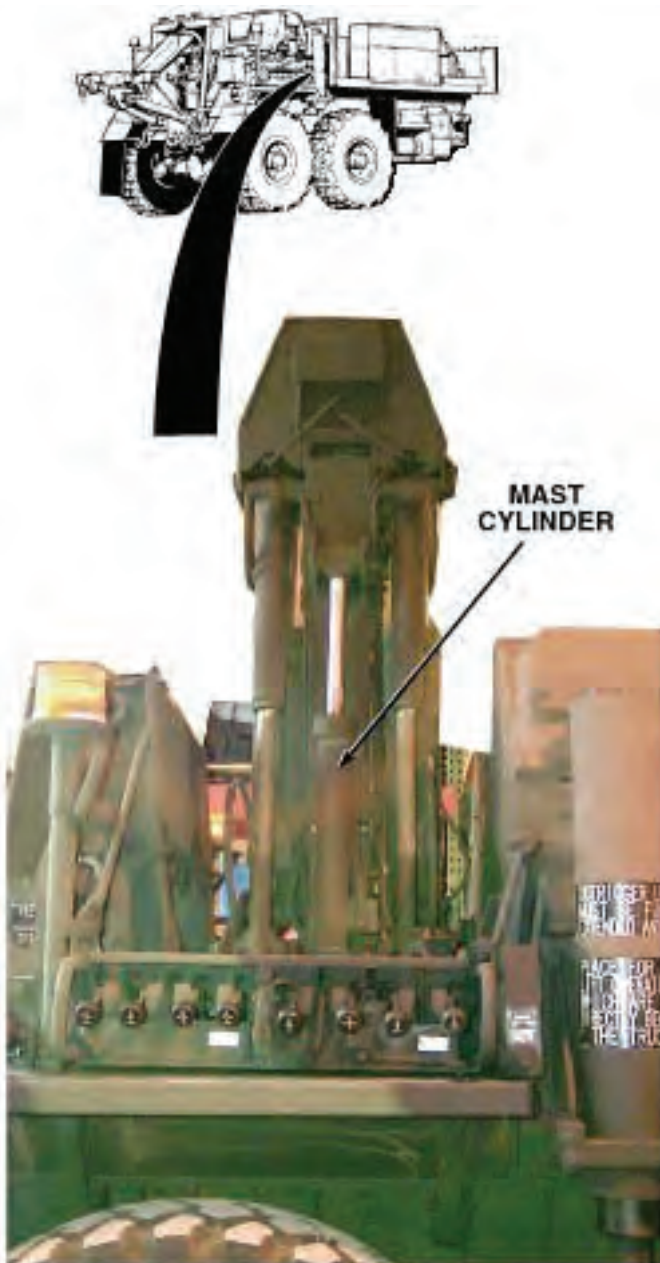


Figure 1.

CONDITION/INDICATION

Does mast raise and lower normally after cycling mast up and down to remove trapped air?

DECISION

- Notify supervisor. Test 2 - Does mast operate normally after leaving mast in fully raised position overnight?

Yes - Problem corrected.

- Notify supervisor. Test 2 - Does mast operate normally after leaving mast in fully raised position overnight?

No - Problem corrected.

TEST 2 - Does mast operate normally after leaving mast in fully raised position overnight?

1. Raise boom to vertical position.

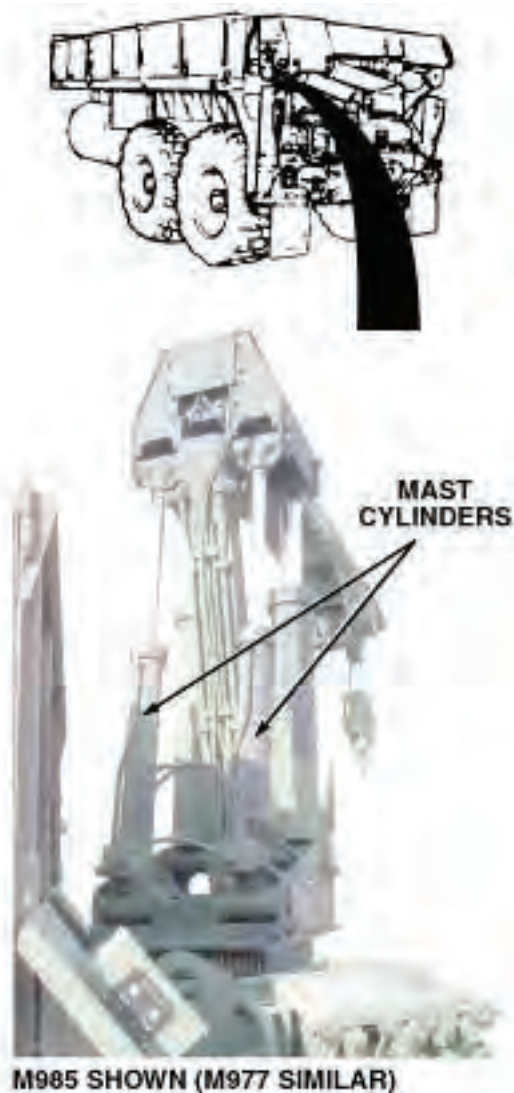


Figure 2.

2. Fully raise mast.
3. Shut down operation and leave mast in raised position overnight.
4. Start engine. (Volume 1, WP 0044)
5. Prepare vehicle for crane operations.

NOTE

When starting operations, operate mast control down (not up) first. Operating controls UP could force air back into cylinders.

6. Lower and raise mast.

CONDITION/INDICATION

Does mast operate normally after leaving mast in fully raised position overnight?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
MAST RAISES OR LOWERS SLOWLY**

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
MAST RAISES OR LOWERS SLOWLY**

TEST 1 - Does mast raise and lower normally after running engine for 20 minutes with PTO engaged?

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

If outside temperature is 0°F (-17°C), hydraulic fluid may not flow easily.

1. If loaded, set load down and disconnect load hook.
2. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO ENGAGE switch set to ON to bring hydraulic fluid up to operating temperature.

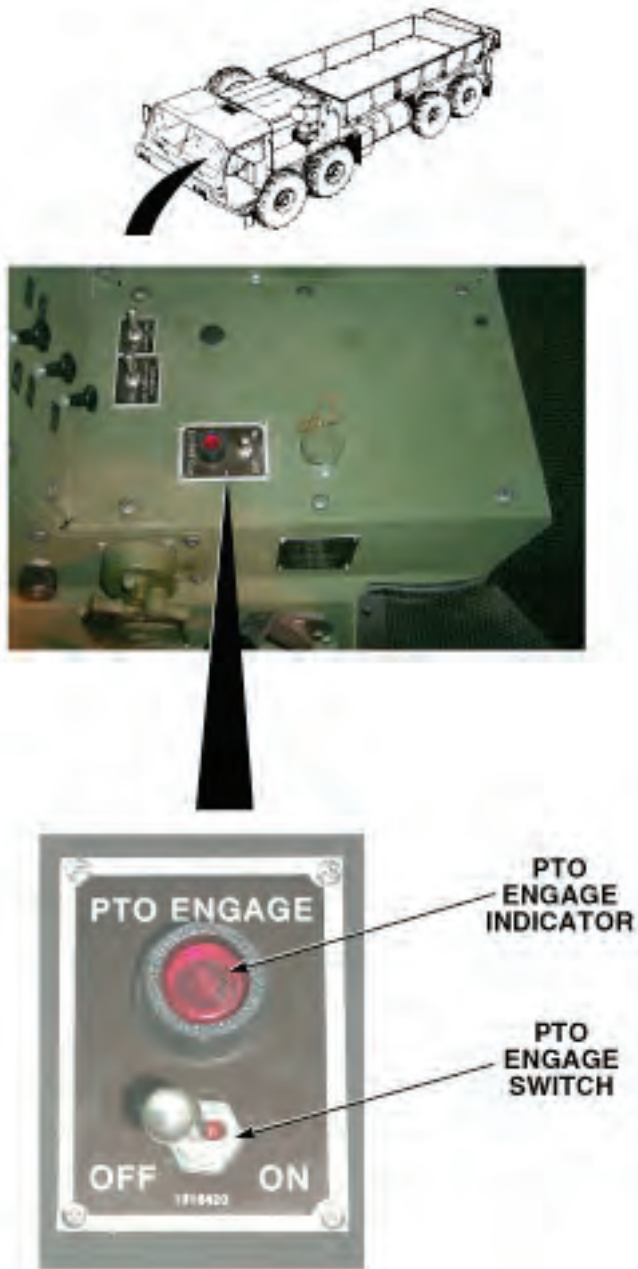


Figure 1.

3. Raise and lower mast. (Volume 1, WP 0106)

CONDITION/INDICATION

Does mast raise and lower normally after running engine for 20 minutes with PTO engaged?

DECISION

No - Test 2 - Does mast raise and lower normally after cycling mast?

Yes - Problem corrected.

TEST 2 - Does mast raise and lower normally after cycling mast?

1. Lower crane to stowed position. (Volume 1, WP 0106)
2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

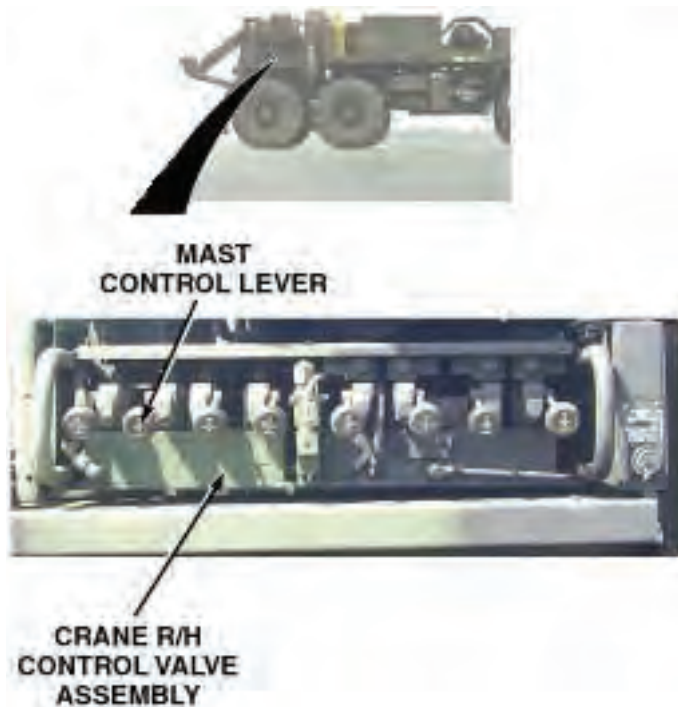


Figure 2.

3. Raise and lower mast. (Volume 1, WP 0106)

CONDITION/INDICATION

Does mast raise and lower normally after cycling mast?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE OUTRIGGER OPERATION SLOW OR ABNORMAL

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

TROUBLESHOOTING PROCEDURE OUTRIGGER OPERATION SLOW OR ABNORMAL

TEST 1 - Is hydraulic fluid at normal operating temperature?

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may not flow easily.

1. Check hydraulic fluid temperature at reservoir.



HYDRAULIC
RESERVOIR

Figure 1.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature?

DECISION

No - Test 2 - Is hydraulic fluid at normal operating temperature after running engine for 20 minutes with PTO engaged?

Yes - Test 4 - Do outriggers operate normally?

TEST 2 - Is hydraulic fluid at normal operating temperature after running engine for 20 minutes with PTO engaged?

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Start engine. (Volume 1, WP 0044)
2. Set PTO ENGAGE switch to ON. (Volume 1, WP 0106)

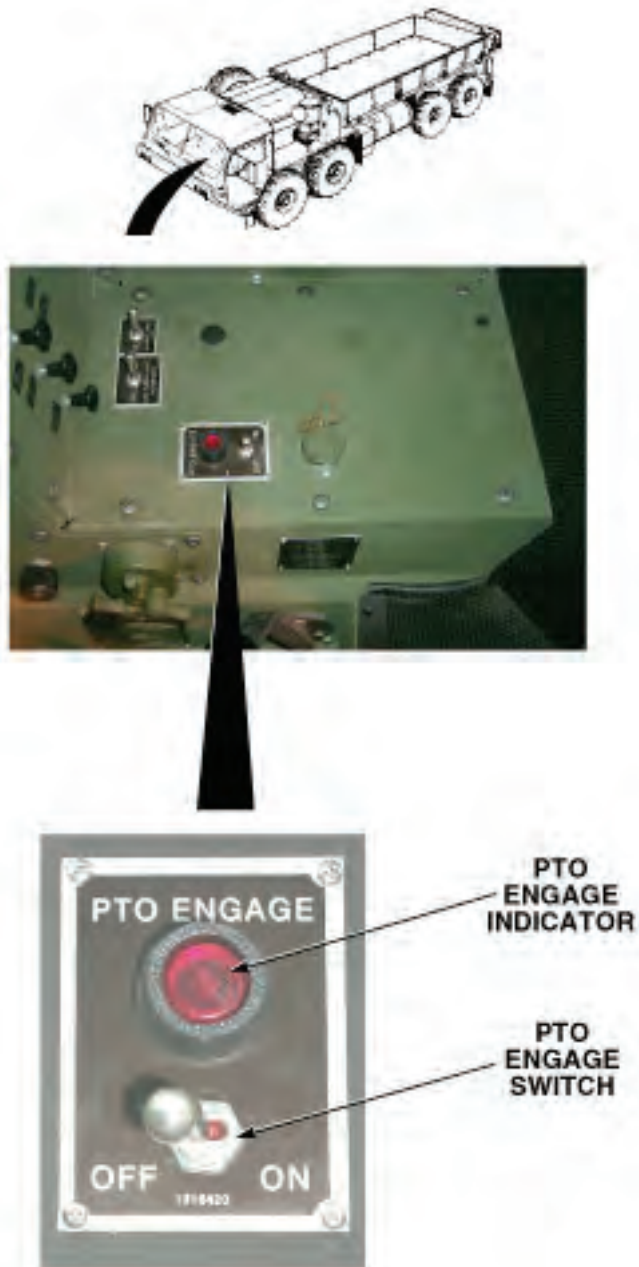


Figure 2.

3. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO enabled to bring hydraulic fluid up to operating temperature.
4. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature after running engine for 20 minutes with PTO engaged?

DECISION

No - Test 3 - Is hydraulic fluid at normal operating temperature normal operating temperature after cycling mast control down?

Yes - Test 4 - Do outriggers operate normally?

TEST 3 - Is hydraulic fluid at normal operating temperature normal operating temperature after cycling mast control down?

1. Ensure crane is lowered to stowed position. (Volume 1, WP 0106)
2. Operate MAST control DOWN. (Volume 1, WP 0106) Hold MAST control DOWN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

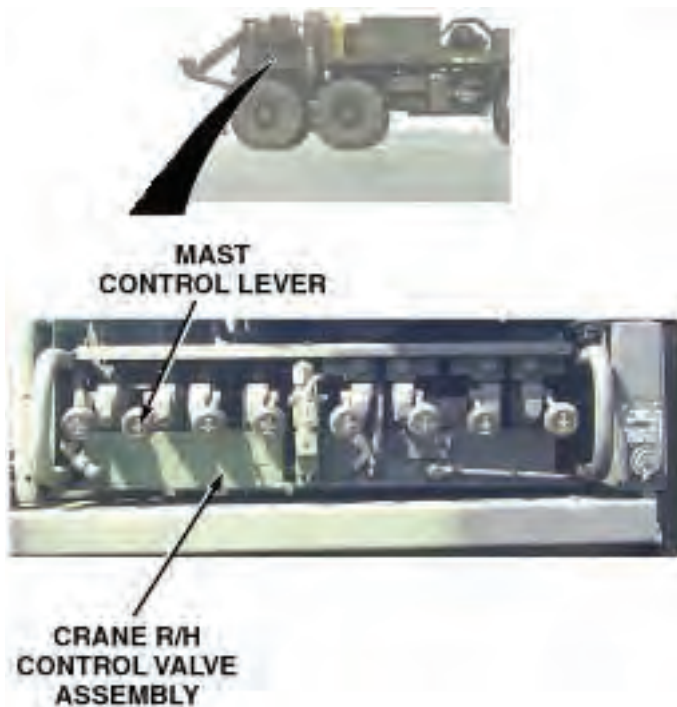


Figure 3.

3. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature normal operating temperature after cycling mast control down?

DECISION

No - Notify Supervisor.

Yes - Test 4 - Do outriggers operate normally?

TEST 4 - Do outriggers operate normally?

1. Ensure crane is lowered to stowed position. (Volume 1, WP 0106)
2. Operate outrigger. (Volume 1, WP 0106)

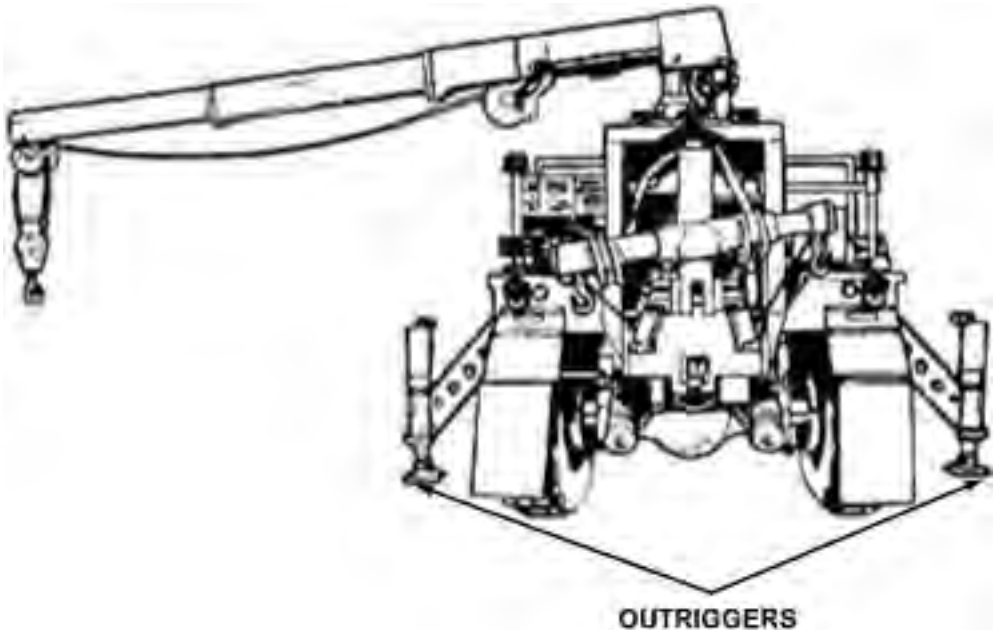


Figure 4.

CONDITION/INDICATION

Do outriggers operate normally?

DECISION

No - Test 5 - Do outriggers operate normally after purging cylinders of air?

Yes - Problem corrected.

TEST 5 - Do outriggers operate normally after purging cylinders of air?

1. Fully let out and draw back outriggers (Volume 1, WP 0106) several times to remove air from cylinders.

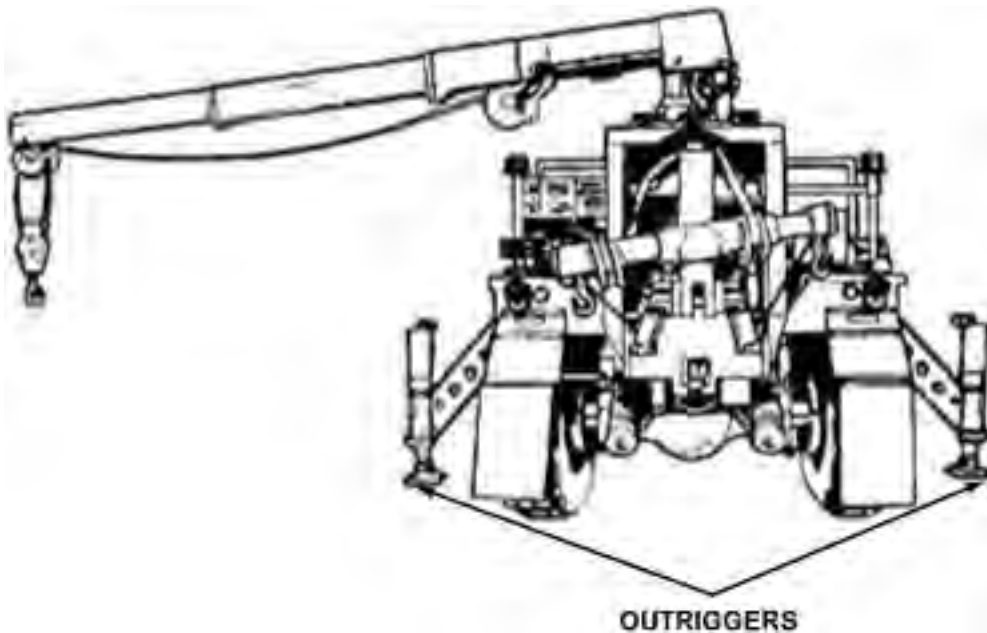


Figure 5.

2. Operate outriggers (Volume 1, WP 0106)

CONDITION/INDICATION

Do outriggers operate normally after purging cylinders of air?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
SWING OPERATION ABNORMAL IN BOTH DIRECTIONS**

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
SWING OPERATION ABNORMAL IN BOTH DIRECTIONS**

TEST 1 - Are control levers returned to neutral properly?

NOTE

Common problems that crane operators may see are:

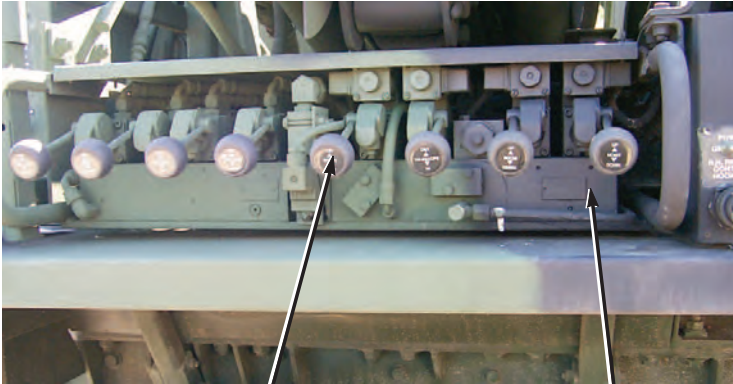
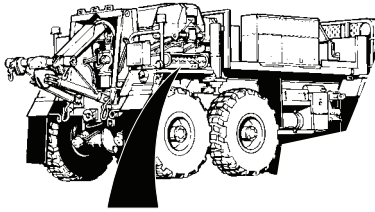
1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Verify that abnormal operation is not due to sharp movement of controls to NEUTRAL position.



**SWING CONTROL
LEVER**

**RIGHT HAND CONTROL
VALVE ASSEMBLY**

Figure 1.

2. Feather control lever to NEUTRAL (Volume 1, WP 0106) to maintain smooth stopping action.

CONDITION/INDICATION

Are control levers returned to neutral properly?

DECISION

No - Test 2 - Is vehicle level?
 Yes - Problem corrected.

TEST 2 - Is vehicle level?

1. Check if vehicle is level.



Figure 2.

CONDITION/INDICATION

Is vehicle level?

DECISION

- Level vehicle. (Volume 1, WP 0106)Level vehicle.
- Yes - Test 3 - Is turntable bearing properly lubricated?
- Level vehicle. (Volume 1, WP 0106)Level vehicle.
- No - Test 3 - Is turntable bearing properly lubricated?

TEST 3 - Is turntable bearing properly lubricated?

1. Check turntable bearing for proper lubrication.

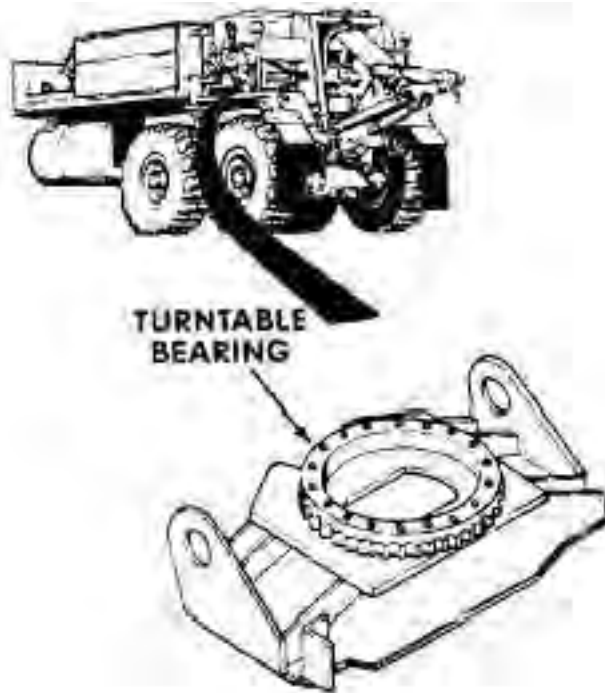


Figure 3.

2. If improperly lubricated, rotate turntable 360 degrees (Volume 1, WP 0106) in both directions several times, and lubricate turntable bearing. (WP 0186)

CONDITION/INDICATION

Is turntable bearing properly lubricated?

DECISION

- Test 5 - Does swing operate normally?
- Yes - Test 4 - Is load within allowable limit?
- Test 5 - Does swing operate normally?
- No - Test 4 - Is load within allowable limit?

TEST 4 - Is load within allowable limit?

1. Verify that load is below weight limit.

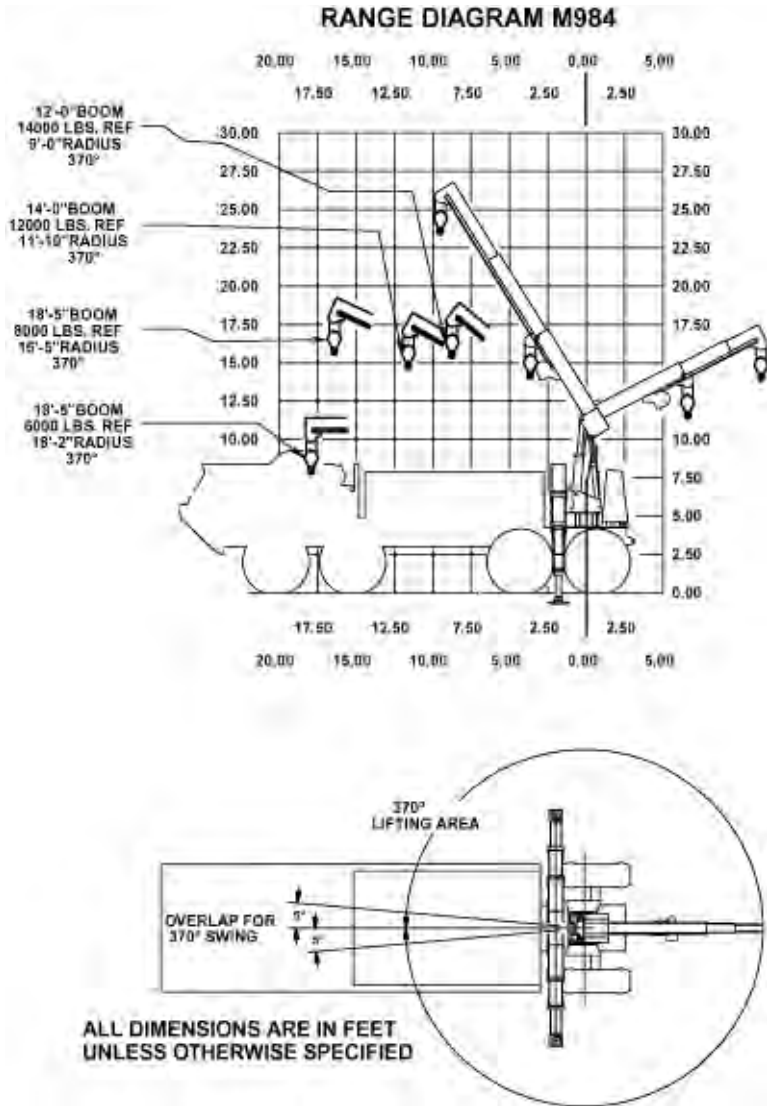


Figure 4.

- If above weight limit, remove weight to decrease it to below the limit.

CONDITION/INDICATION

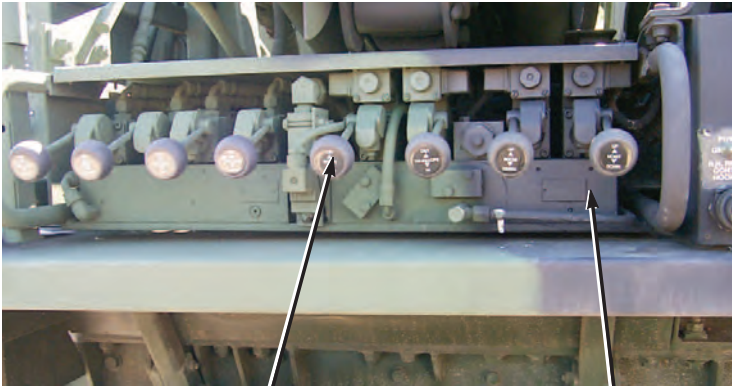
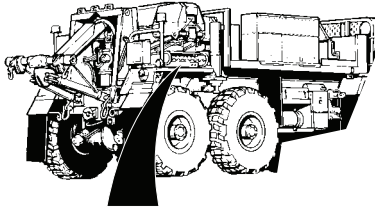
Is load within allowable limit?

DECISION

No - Test 5 - Does swing operate normally?
 Yes - Notify Supervisor.

TEST 5 - Does swing operate normally?

1. Operate crane (Volume 1, WP 0106) to verify proper operation of swing.



SWING CONTROL
LEVER

RIGHT HAND CONTROL
VALVE ASSEMBLY

Figure 5.

CONDITION/INDICATION

Does swing operate normally?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
SWING OPERATION ABNORMAL IN ONLY ONE DIRECTION**

INITIAL SETUP:

Equipment Condition

Vehicle setup for crane operations.
(Volume 1, WP 0106)

**TROUBLESHOOTING PROCEDURE
SWING OPERATION ABNORMAL IN ONLY ONE DIRECTION**

TEST 1 - Is vehicle level?

NOTE

Common problems that crane operators may see are:

1. Slow or abnormal operation.
2. Crane will not pick up load.

Common causes of problems are:

1. Cold hydraulic oil (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two craning functions at the same time (slow operation).
4. Load too heavy (will not pick up load).
5. Air in cylinder or hoist motor (abnormal operation).

Report all problems to field level maintenance.

1. Check if vehicle is level.



Figure 1.

CONDITION/INDICATION

Is vehicle level?

DECISION

Vehicle not level. - Level vehicle.

Vehicle level. - Test 2 - Is turntable bearing properly lubricated?

TEST 2 - Is turntable bearing properly lubricated?

1. Check turntable bearing for proper lubrication.

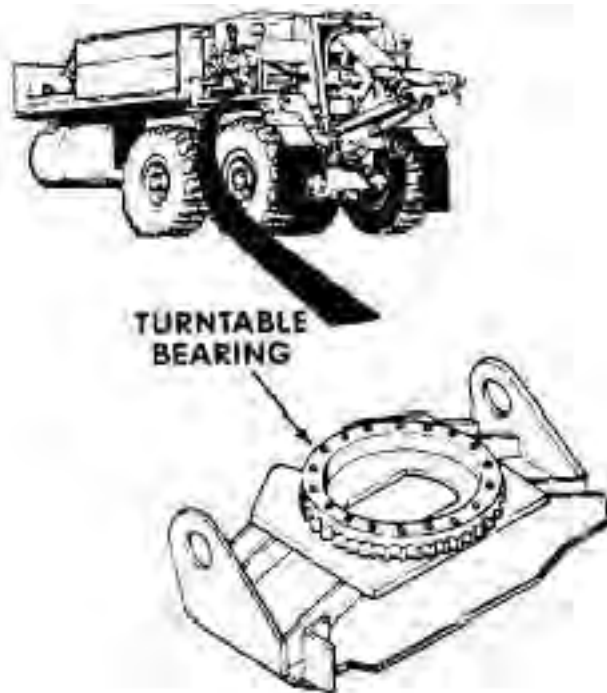


Figure 2.

2. If improperly lubricated, rotate turntable 360 degrees (Volume 1, WP 0106) in both directions several times, and lubricate turntable bearing. (WP 0186).

CONDITION/INDICATION

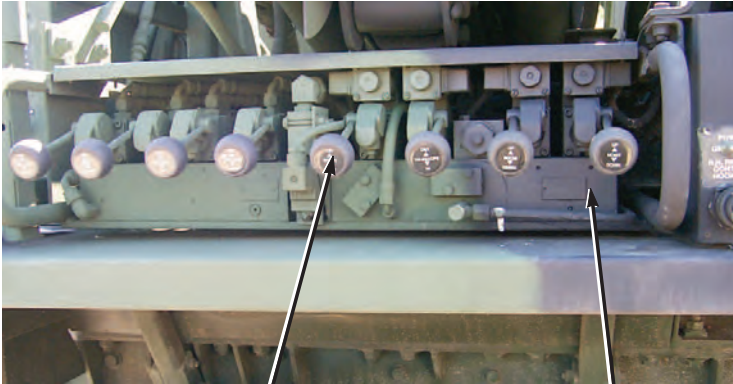
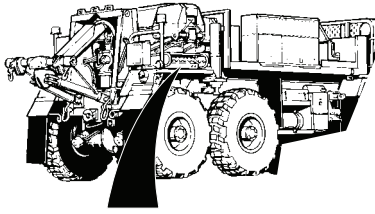
Is turntable bearing properly lubricated?

DECISION

- Test 3 - Does swing operate normally?
- Yes - Test 3 - Does swing operate normally?
- Test 3 - Does swing operate normally?
- No - Test 3 - Does swing operate normally?

TEST 3 - Does swing operate normally?

1. Operate crane (Volume 1, WP 0106) to verify proper operation of swing.



**SWING CONTROL
LEVER**

**RIGHT HAND CONTROL
VALVE ASSEMBLY**

Figure 3.

CONDITION/INDICATION

Does swing operate normally?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE CONTROLS STICKING IN ENGAGED POSITION

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1, WP 0056)

Wheels chocked. (Volume 1, WP 0100)

TROUBLESHOOTING PROCEDURE CONTROLS STICKING IN ENGAGED POSITION

TEST 1 - Is hydraulic fluid at normal operating temperature?

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

NOTE

Common problems with retrieval system that may be found are:

1. Slow or abnormal operation.
2. Will not lift disabled vehicle.
3. Will not hold disabled vehicle in raised position.

Common causes of problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two retrieval functions at the same time (slow operation).
4. Low hydraulic fluid.

Report all problems to organizational maintenance.

NOTE

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may not flow easily.

1. Check hydraulic fluid temperature at reservoir.



HYDRAULIC
RESERVOIR

Figure 1.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature?

DECISION

Hydraulic fluid is below normal operating temperature. - Test 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes? Test 4 - Hydraulic fluid overheated.

Hydraulic fluid is at normal operating temperature. - Test 5 - Do retrieval controls operate normally?

TEST 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes?

WARNING

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir.

Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Start engine. (Volume 1, WP 0044)
2. Set PTO ENGAGE switch to ON. (Volume 1, WP 0059)

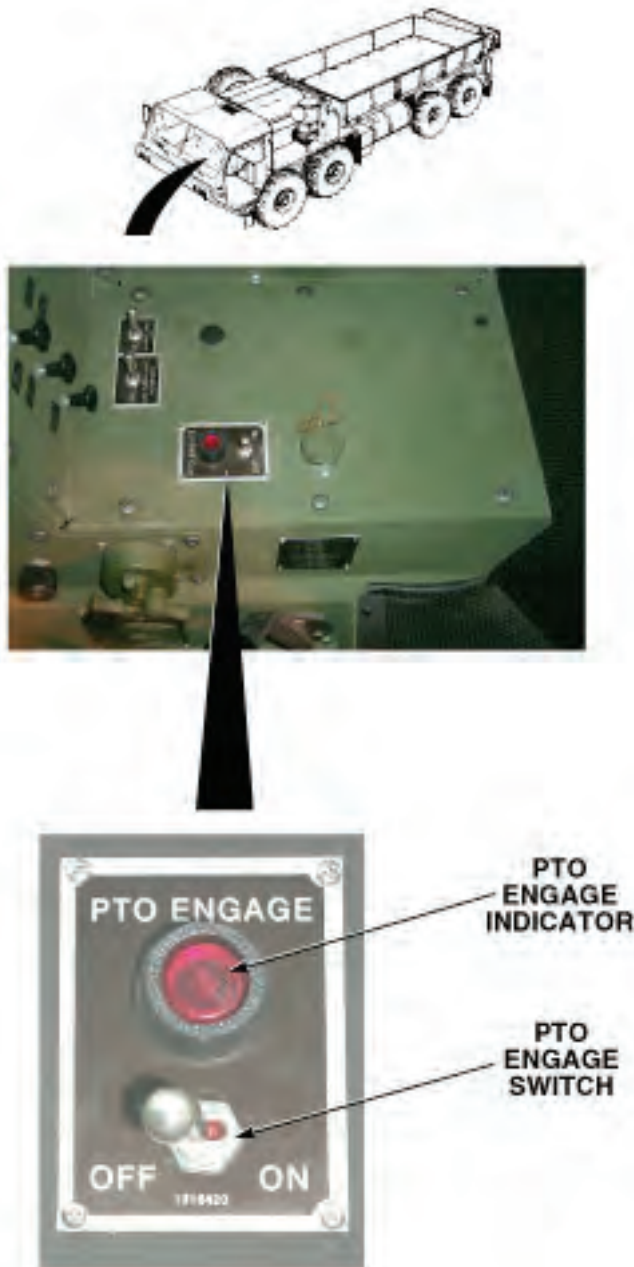


Figure 2.

3. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO enabled to bring hydraulic fluid up to operating temperature.
4. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes?

DECISION

Hydraulic fluid is below normal operating temperature. - Test 3 - Does hydraulic fluid reach normal operating temperature after cycling lift cylinder control? Test 4 - Hydraulic fluid overheated.

Hydraulic fluid is at normal operating temperature. - Test 5 - Do retrieval controls operate normally?

TEST 3 - Does hydraulic fluid reach normal operating temperature after cycling lift cylinder control?**WARNING**

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Operate LIFT CYLINDER control IN. (Volume 1, WP 0059) Hold LIFT CYLINDER control IN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

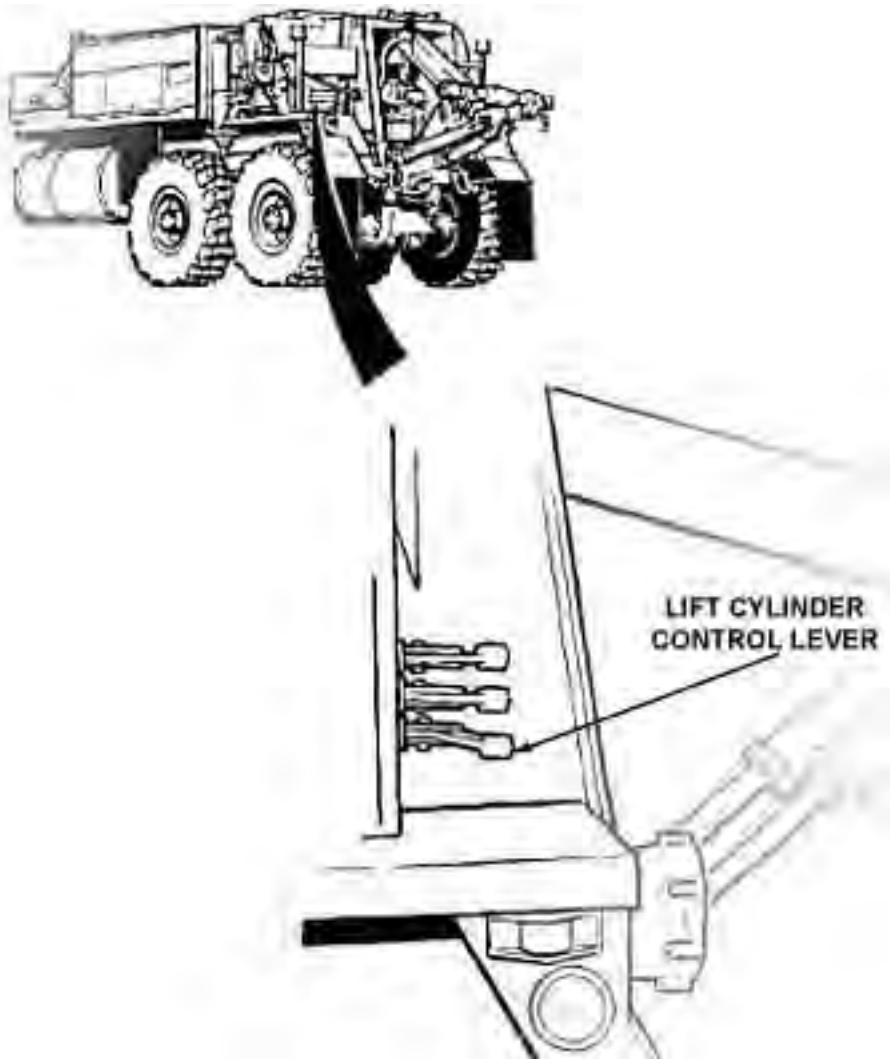


Figure 3.

2. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after cycling lift cylinder control?

DECISION

Hydraulic fluid is below normal operating temperature. - Notify supervisor. Test 4 - Hydraulic fluid overheated.

Hydraulic fluid is at normal operating temperature. - Test 5 - Do retrieval controls operate normally?

TEST 4 - Hydraulic fluid overheated.

1. Set PTO ENGAGE switch to OFF.

WARNING

Some models of fuel tanks have a socket head pipe plug. Others have a fusible socket head pipe plug. Fusible socket head pipe plug must be used with non-vented tank cap. Failure to comply may result in injury or death to personnel and damage to equipment. Refer to TM 9-2320-315-14&P for proper identification of parts.

2. Shut off engine. (Volume 1, WP 0057)



**HYDRAULIC
RESERVOIR**

Figure 4.

3. Allow hydraulic oil to cool.

CONDITION/INDICATION

Hydraulic fluid overheated.

DECISION

Continue - Test 5 - Do retrieval controls operate normally?

TEST 5 - Do retrieval controls operate normally?

1. If off, start engine. (Volume 1, WP 0044)
2. Prepare vehicle for retrieval system operation. (Volume 1, WP 0059)
3. Operate retrieval system controls. (Volume 1, WP 0059)

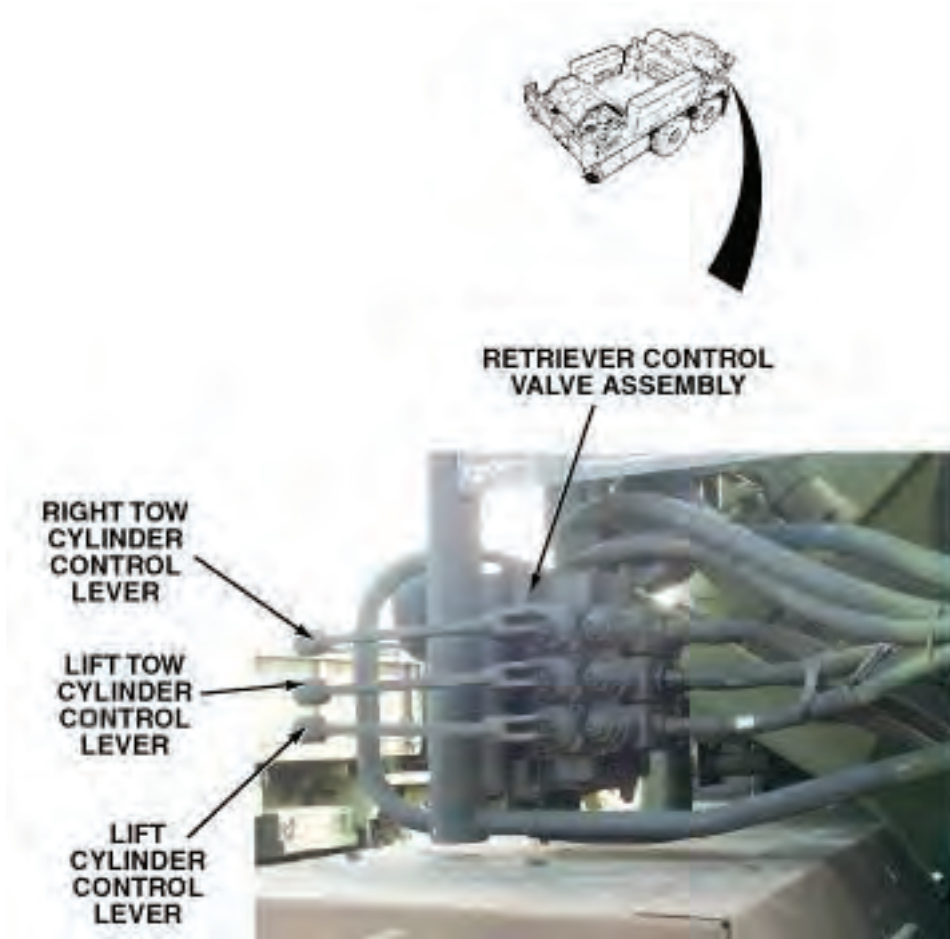


Figure 5.

CONDITION/INDICATION

Do retrieval controls operate normally?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
RETRIEVAL CYLINDERS RAISE OR LOWER SLOWLY**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1, WP 0056)

Wheels chocked. (Volume 1, WP 0100)

**TROUBLESHOOTING PROCEDURE
RETRIEVAL CYLINDERS RAISE OR LOWER SLOWLY**

TEST 1 - Is hydraulic fluid at normal operating temperature?**NOTE**

Common problems with retrieval system that may be found are:

1. Slow or abnormal operation.
2. Will not lift disabled vehicle.
3. Will not hold disabled vehicle in raised position.

Common causes of the problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two retrieval functions at the same time (slow operation).
4. Low hydraulic fluid.

Report all problems to field level maintenance.

1. Check hydraulic fluid temperature at reservoir.



Figure 1.

WARNING



Some models of fuel tanks have a socket head pipe plug. Others have a fusible socket head pipe plug. Fusible socket head pipe plug must be used with non-vented tank cap. Failure to comply may result in injury or death to personnel and damage to equipment. Refer to TM 9-2320-315-14&P for proper identification of parts.

NOTE

If outside temperature is 0°F (-17°C) or lower, hydraulic fluid may not flow easily.

2.

CONDITION/INDICATION

Is hydraulic fluid at normal operating temperature?

DECISION

No - Test 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

Yes - Test 4 - Do the retrieval cylinders operate normally?

TEST 2 - Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

WARNING



Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Start engine. (Volume 1, WP 0044)
2. Set PTO ENGAGE switch to ON. (Volume 1, WP 0059)

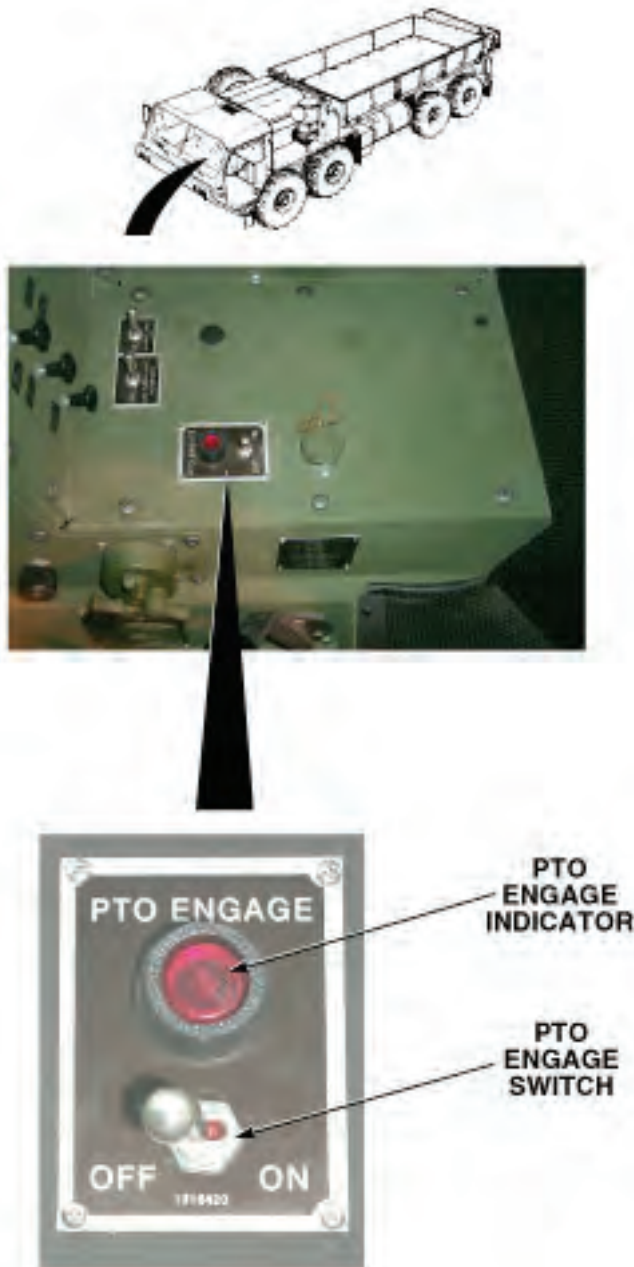


Figure 2.

3. Operate engine (Volume 1, WP 0044) for 20 minutes with PTO enabled to bring hydraulic fluid up to operating temperature.
4. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after running engine for 20 minutes with PTO engaged?

DECISION

No - Test 3 - Does hydraulic fluid reach normal operating temperature after cycling lift cylinder control?

Yes - Test 4 - Do the retrieval cylinders operate normally?

TEST 3 - Does hydraulic fluid reach normal operating temperature after cycling lift cylinder control?**WARNING**

Reservoir may be very hot. Use care when placing hand near reservoir. Reservoir can become hot enough to cause serious burns. Be careful not to touch the reservoir with bare hands or allow body to contact reservoir. Use gloves and insulated pads as necessary. Failure to comply may result in injury or death to personnel.

1. Operate LIFT CYLINDER control IN. (Volume 1, WP 0059) Hold LIFT CYLINDER control IN for approximately 30 seconds, then return control to NEUTRAL position. Repeat procedure several times until hydraulic fluid is warmed.

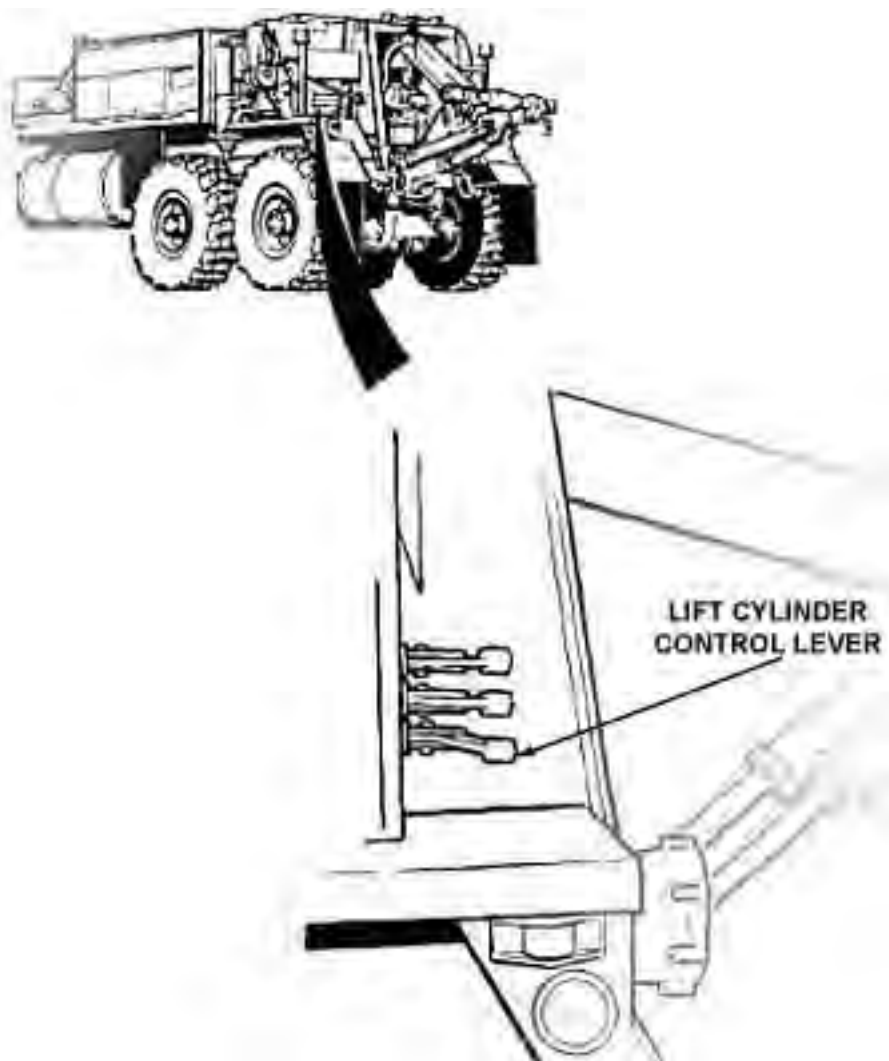


Figure 3.

2. Check hydraulic fluid temperature at reservoir. Reservoir should be warm.

CONDITION/INDICATION

Does hydraulic fluid reach normal operating temperature after cycling lift cylinder control?

DECISION

No - Notify Supervisor.

Yes - Test 4 - Do the retrieval cylinders operate normally?

TEST 4 - Do the retrieval cylinders operate normally?

1. If off, start engine. (Volume 1, WP 0044)
2. Prepare vehicle for retrieval system operation. (Volume 1, WP 0059)
3. Operate retrieval system controls. (Volume 1, WP 0059)

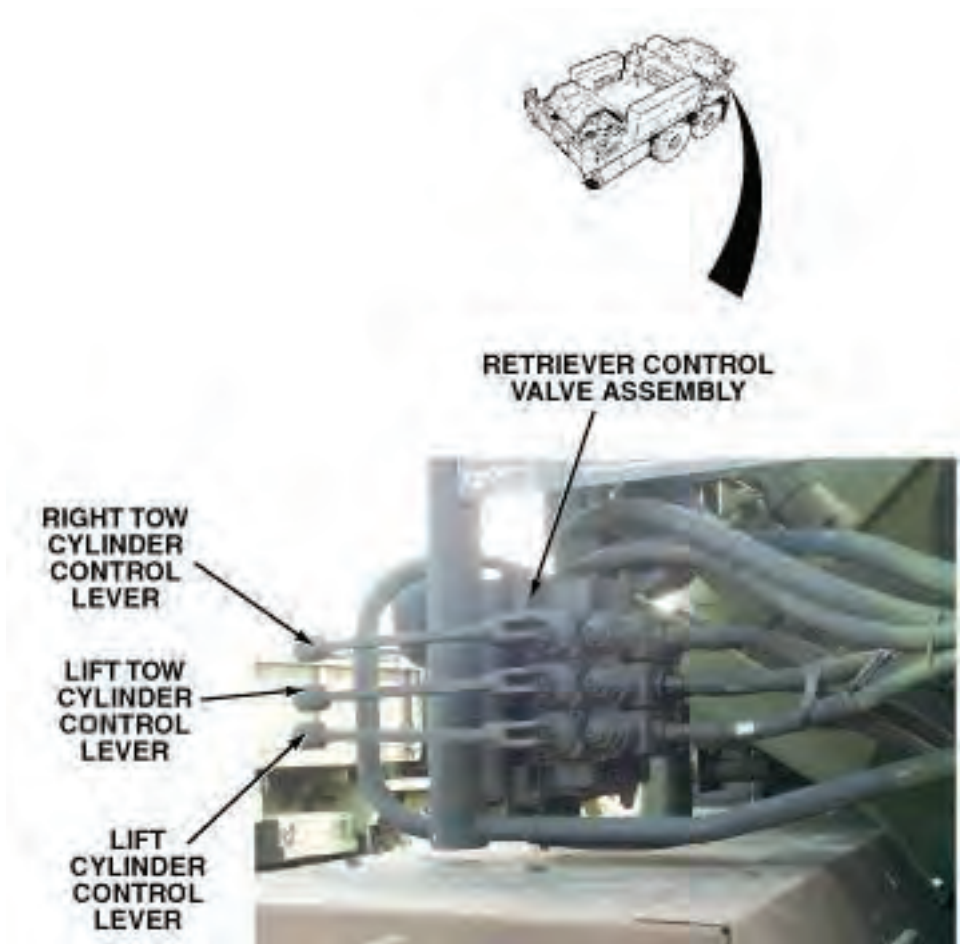


Figure 4.

CONDITION/INDICATION

Do the retrieval cylinders operate normally?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
RETRIEVAL SYSTEM WILL NOT OPERATE**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1, WP 0056)

Wheels chocked. (Volume 1, WP 0100)

**TROUBLESHOOTING PROCEDURE
RETRIEVAL SYSTEM WILL NOT OPERATE**

TEST 1 - Are electrical connections tight?**NOTE**

Common problems with retrieval system that may be found are:

1. Slow or abnormal operation.
2. Will not lift disabled vehicle.
3. Will not hold disabled vehicle in raised position.

Common causes of problems are:

1. Cold hydraulic fluid (slow operation).
2. Low engine speed (slow or abnormal operation).
3. Operating two retrieval functions at the same time (slow operation).
4. Low hydraulic fluid.

Report all problems to field level maintenance.

1. Check that all electrical connections on solenoid valve are tight. If loose, tighten.

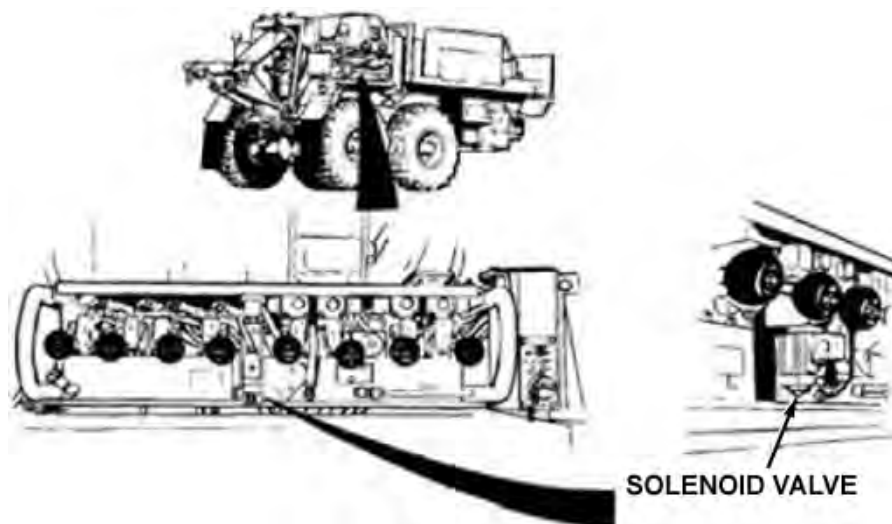


Figure 1.

CONDITION/INDICATION

Are electrical connections tight?

DECISION

No - Test 3 - Does retrieval system operate normally?

Yes - Test 2 - Does solenoid valve operate when power switch is set to ON?

TEST 2 - Does solenoid valve operate when power switch is set to ON?

1. Check solenoid for proper operation when power is turned to ON position. (Volume 1, WP 0059) If solenoid is faulty, place a screwdriver in slot on front of solenoid to hold solenoid closed (Volume 1, WP 0134) until mission can be completed.

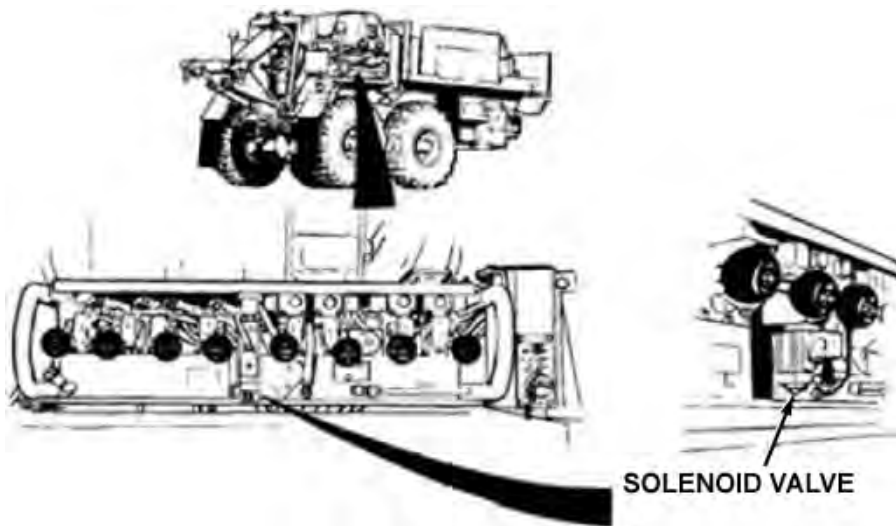


Figure 2.

CONDITION/INDICATION

Does solenoid valve operate when power switch is set to ON?

DECISION

No - Notify Supervisor.

Yes - Notify Supervisor.

TEST 3 - Does retrieval system operate normally?

1. Prepare vehicle for retrieval system operation. (Volume 1, WP 0059)

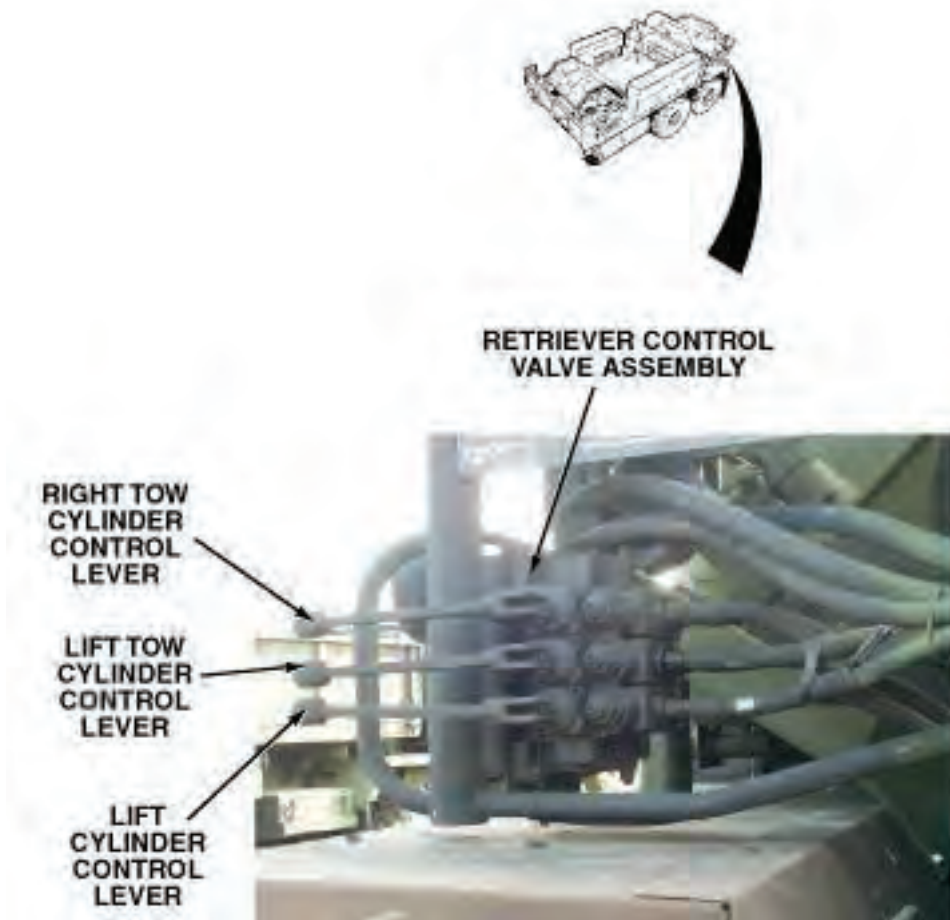


Figure 3.

2. Operate retrieval system controls. (Volume 1, WP 0059)

CONDITION/INDICATION

Does retrieval system operate normally?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
SELF-RECOVERY WINCH DOES NOT WORK**

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
SELF-RECOVERY WINCH DOES NOT WORK**

TEST 1 - Is hydraulic fluid level within normal operating range?

1. Check hydraulic fluid level. If low, add hydraulic fluid. (WP 0184)

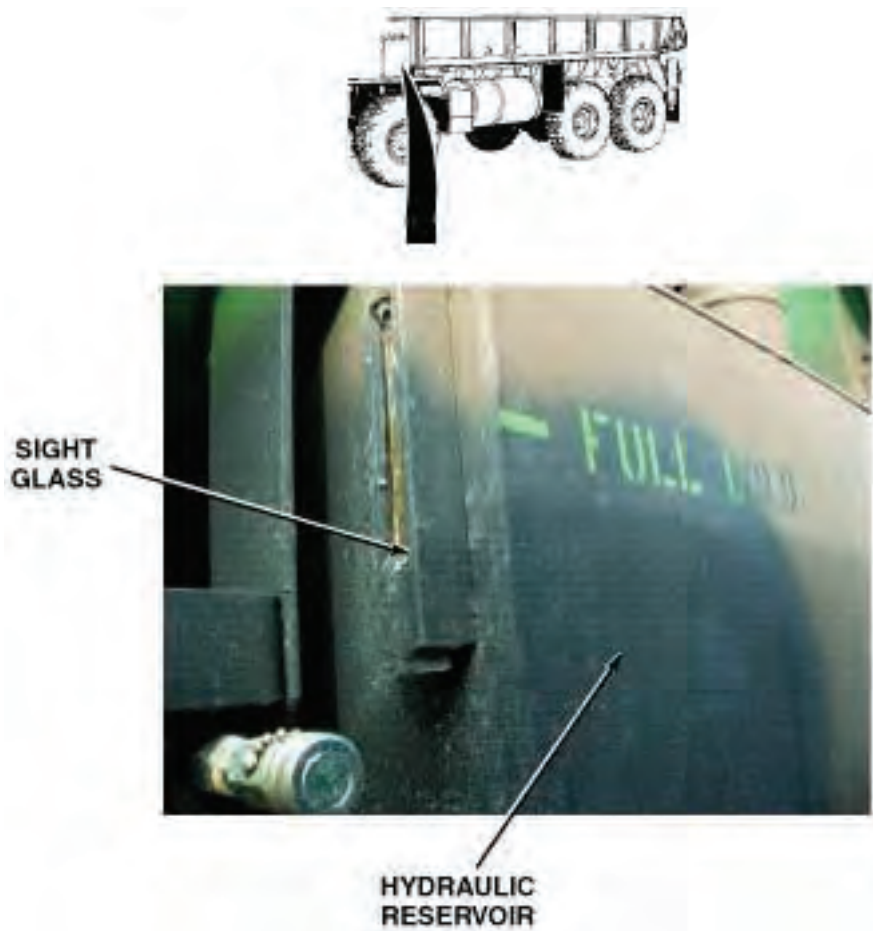


Figure 1.

CONDITION/INDICATION

Is hydraulic fluid level within normal operating range?

DECISION

No - Test 3 - Does self-recovery winch operate properly?

Yes - Test 2 - Is self-recovery winch shift linkage free from debris and damage?

TEST 2 - Is self-recovery winch shift linkage free from debris and damage?

1. Check self-recovery winch shift linkage for debris and damage. If debris found, clean shift linkage. (WP 0191)



Figure 2.

CONDITION/INDICATION

Is self-recovery winch shift linkage free from debris and damage?

DECISION

Linkage damaged. - Notify Supervisor. Test 3 - Does self-recovery winch operate properly? Notify Supervisor.

Linkage OK. - Notify Supervisor.

TEST 3 - Does self-recovery winch operate properly?

1. Start engine. (Volume 1, WP 0044)
2. Check operation of self-recovery winch. (Volume 1, WP 0115)

CONDITION/INDICATION

Does self-recovery winch operate properly?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

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**OPERATOR MAINTENANCE
UNUSUALLY NOISY WHEN OPERATING**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
UNUSUALLY NOISY WHEN OPERATING****TEST 1 - Is self-recovery winch cable free of twists, tangles, or binding?**

1. Check if self-recovery winch cable is twisted, tangled, or causing drum to bind. If cable is tangled, pay out or take up cable as necessary to straighten.

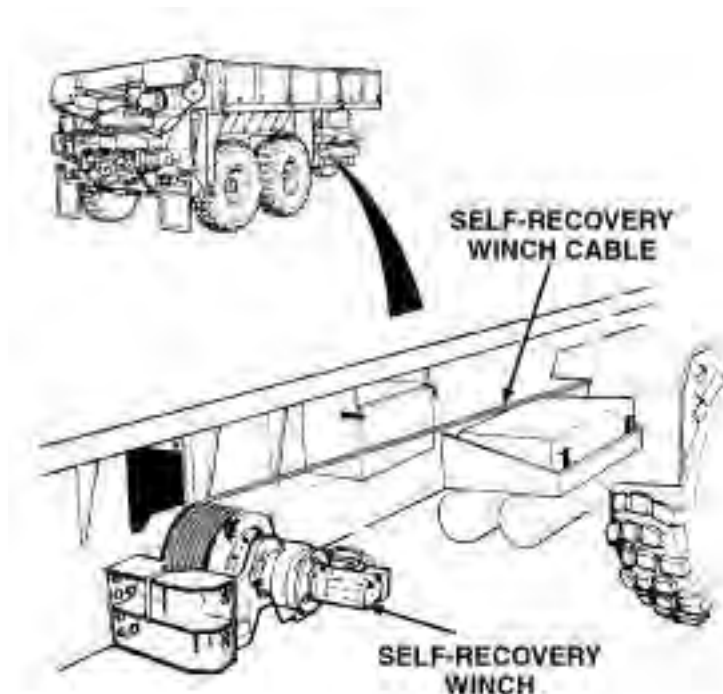


Figure 1.

CONDITION/INDICATION

Is self-recovery winch cable free of twists, tangles, or binding?

DECISION

No - Notify supervisor.

Yes - Test 2 - Is self-recovery winch free of unusual noise when operating?

TEST 2 - Is self-recovery winch free of unusual noise when operating?

1. Start engine. (Volume 1, WP 0044)



Figure 2.

2. Operate self-recovery winch, and listen for unusual noise. (Volume 1, WP 0115)

CONDITION/INDICATION

Is self-recovery winch free of unusual noise when operating?

DECISION

No - Notify supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
VEHICLE IS HARD TO STEER, SHIMMIES, WANDERS, OR PULLS TO ONE SIDE

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - ContinuedParking brakes applied. (Volume 1,
WP 0056)Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE**VEHICLE IS HARD TO STEER, SHIMMIES, WANDERS, OR PULLS TO ONE SIDE****TEST 1 - Are tires inflated to proper pressure for road condition?****WARNING**

Tire air pressure must be checked properly. Failure to comply may result in injury or death to personnel.

NOTE

- Inflate tires only when they are cool. Inflate to proper pressure for road condition.
 - Tire tread is non-directional. Vehicle operation is not affected by direction of traction bars.
1. Check tires for proper inflation. (WP 0182)

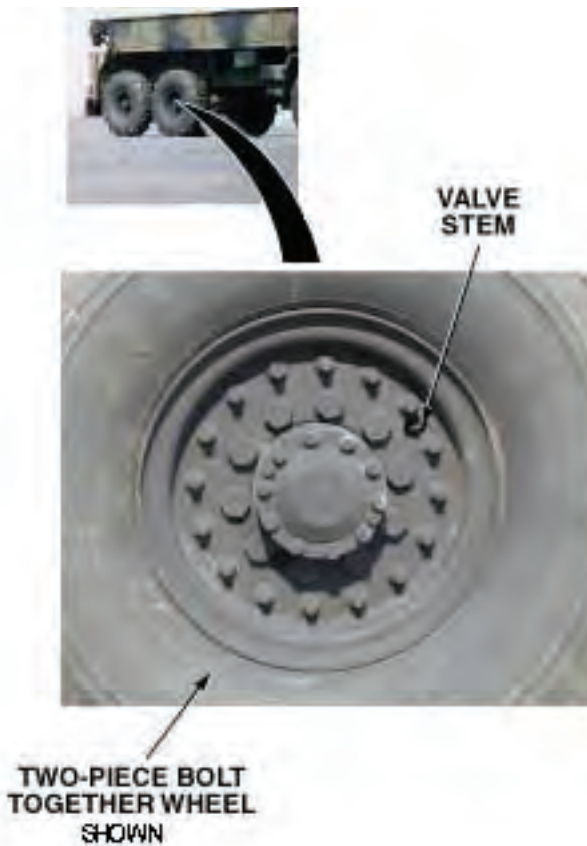


Figure 1.

2. If tires are improperly inflated, inflate or deflate tires to proper pressure.

CONDITION/INDICATION

Are tires inflated to proper pressure for road condition?

DECISION

Improperly inflated - Test 3 - Is vehicle hard to steer; or does it shimmy, wander, or pull to one side?

Inflation OK - Test 2 - Are wheels free of loose, missing, or broken lugnuts?

TEST 2 - Are wheels free of loose, missing, or broken lugnuts?

1. Check for loose, missing, or broken lugnuts.



Figure 2.

CONDITION/INDICATION

Are wheels free of loose, missing, or broken lugnuts?

DECISION

No - Tighten and/or replace loose, missing, or damaged lugnut(s). (WP 0192)

Yes - Notify Supervisor.

TEST 3 - Is vehicle hard to steer; or does it shimmy, wander, or pull to one side?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.

CONDITION/INDICATION

Is vehicle hard to steer; or does it shimmy, wander, or pull to one side?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
VEHICLE STEERING SLOW TO RESPOND OR INTERMITTENT**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE**VEHICLE STEERING SLOW TO RESPOND OR INTERMITTENT****TEST 1 - Is hydraulic fluid low?**

1. Check for low hydraulic fluid. (WP 0184)
2. If fluid level is low, add hydraulic fluid. (WP 0184)

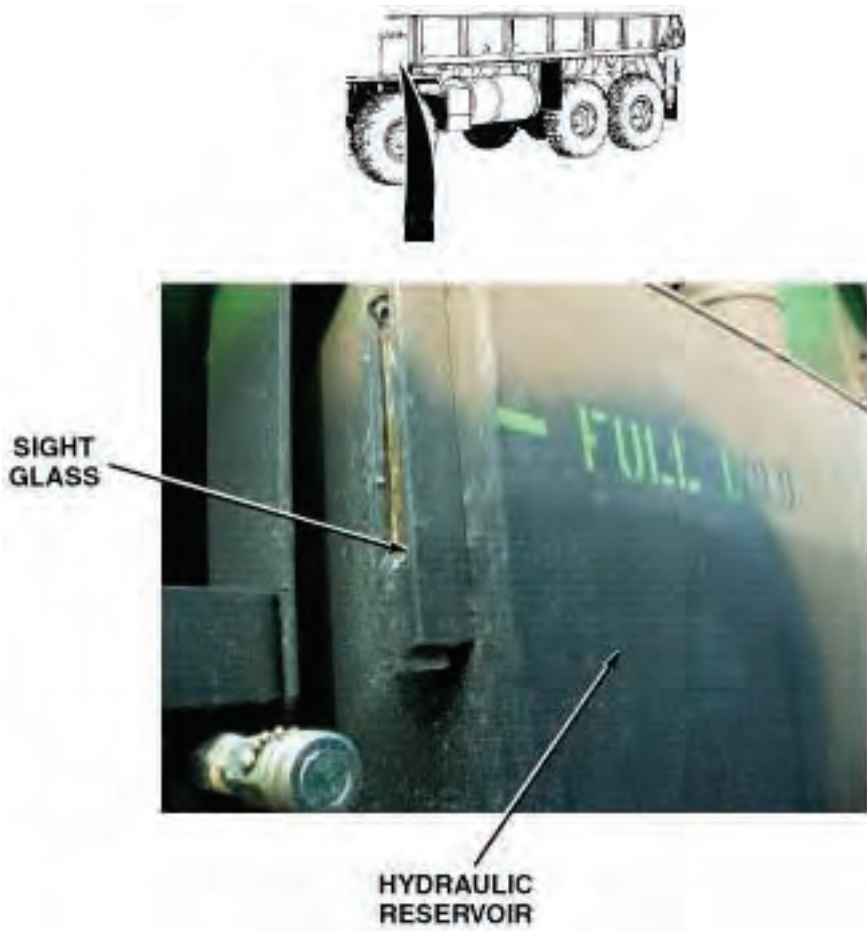


Figure 1.

CONDITION/INDICATION

Is hydraulic fluid low?

DECISION

Fluid level low - Test 3 - Is steering slow to respond or intermittent?

Fluid level OK - Test 2 - Are there any leaking or damaged hydraulic fittings or lines?

TEST 2 - Are there any leaking or damaged hydraulic fittings or lines?

WARNING



Vehicles air system is pressurized, be sure to wear proper eye protection and keep face away from drain valves while draining air reservoirs. Open air drain valves slowly to prevent sudden blast of air. Failure to comply may result in injury to personnel.

1. Check for leaking or damaged hydraulic lines and/or fittings.

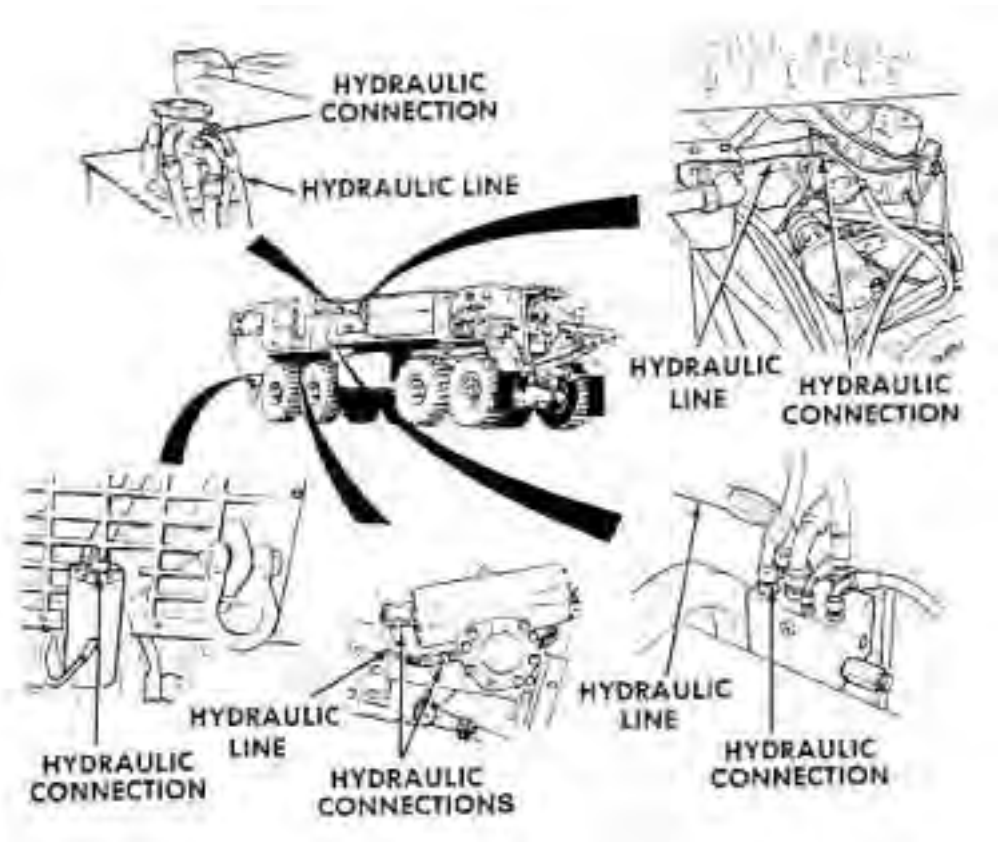


Figure 2.

2. If loose hydraulic fluid fittings are found, tighten fittings.

CONDITION/INDICATION

Are there any leaking or damaged hydraulic fittings or lines?

DECISION

Hydraulic lines damaged or leaking. - Ensure fittings are tightened and notify supervisor of faulty hydraulic lines. Tighten loose fittings. (Test 3 - Is steering slow to respond or intermittent?) Notify Supervisor.

No leaks, damaged lines or loose fittings found. - Notify Supervisor.

TEST 3 - Is steering slow to respond or intermittent?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.

CONDITION/INDICATION

Is steering slow to respond or intermittent?

DECISION

Steering faulty - Notify Supervisor.

Steering OK - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE UNUSUALLY NOISY WHEN OPERATING

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1, WP 0056)

Wheels chocked. (Volume 1, WP 0100)

TROUBLESHOOTING PROCEDURE UNUSUALLY NOISY WHEN OPERATING

TEST 1 - Is transmission/transfer case free from unusual noise while operating?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.



Figure 1.

CONDITION/INDICATION

Is transmission/transfer case free from unusual noise while operating?

DECISION

No - Notify supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

OPERATOR MAINTENANCE SLOW OR DIFFICULT ENGAGEMENT

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1, WP 0056)

Wheels chocked. (Volume 1, WP 0100)

TROUBLESHOOTING PROCEDURE SLOW OR DIFFICULT ENGAGEMENT

TEST 1 - Does transmission and/or transfer case engage normally?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.



Figure 1.

CONDITION/INDICATION

Does transmission and/or transfer case engage normally?

DECISION

No - Notify Supervisor.

Yes - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
TRANSFER CASE SHIFT LEVER WILL NOT SHIFT**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE**TRANSFER CASE SHIFT LEVER WILL NOT SHIFT****TEST 1 - Does transfer case shift lever shift when transmission is shifted from Neutral (N) to Drive (D)?**

1. Start engine (Volume 1, WP 0044)
2. Move transmission range selector from Neutral (N) to Drive (D). Apply throttle to roll vehicle slightly, and shift transmission from (D) to (N). As vehicle stops, shift TRANSFER CASE shift lever.

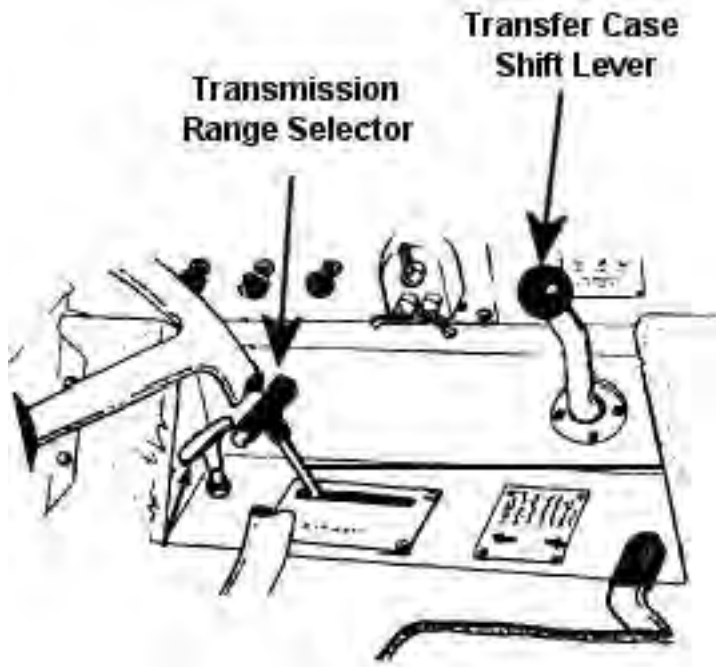


Figure 1.

CONDITION/INDICATION

Does transfer case shift lever shift when transmission is shifted from Neutral (N) to Drive (D)?

DECISION

No - Test 2 - Does transfer case shift lever shift when transmission is shifted from Neutral (N) to Reverse (R)?

Yes - Problem corrected.

TEST 2 - Does transfer case shift lever shift when transmission is shifted from Neutral (N) to Reverse (R)?

1. Move transmission range selector from Neutral (N) to Reverse (R). Apply throttle to roll vehicle slightly and shift transmission from R to N. As vehicle stops, shift TRANSFER CASE shift lever.

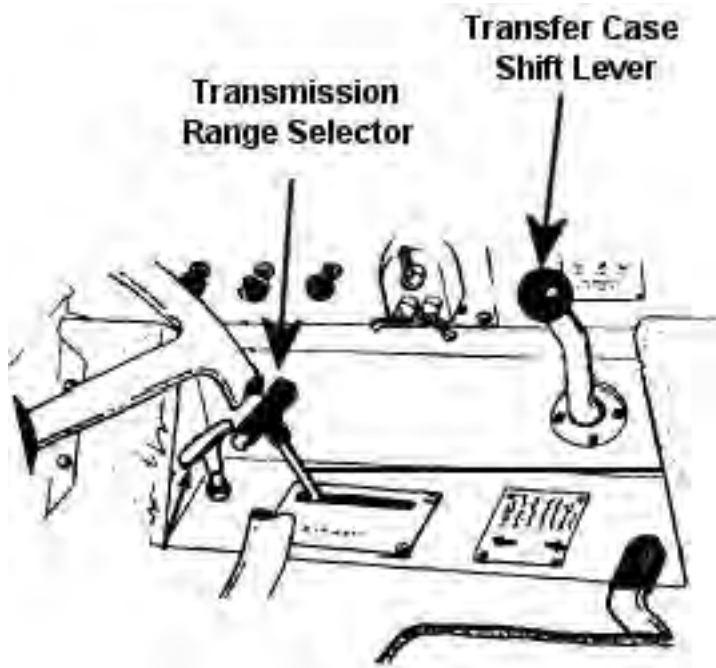


Figure 2.

CONDITION/INDICATION

Does transfer case shift lever shift when transmission is shifted from Neutral (N) to Reverse (R)?

DECISION

No - Test 3 - Is shift cable free of mud and debris?
Yes - Problem corrected.

TEST 3 - Is shift cable free of mud and debris?

1. Turn engine OFF. (Volume 1, WP 0057)
2. Check shift cable for mud and/or debris.

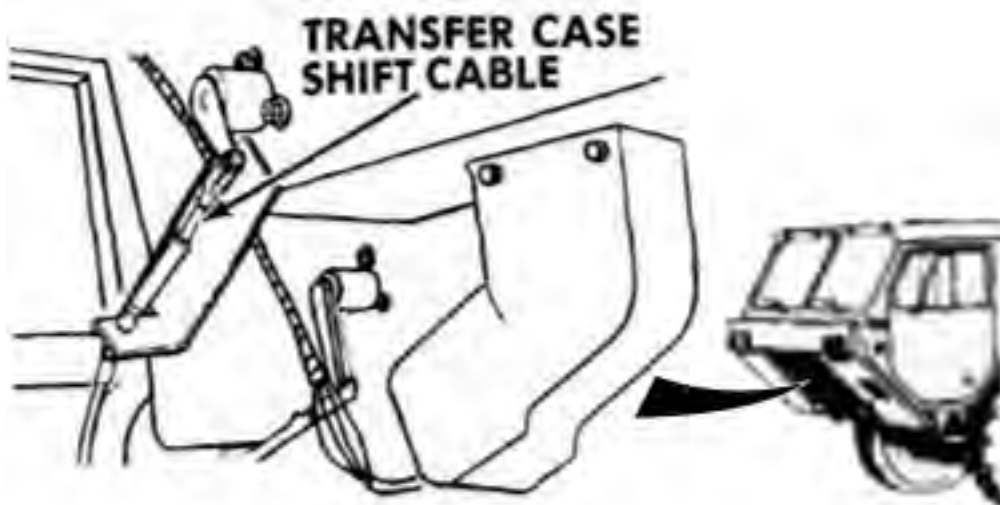


Figure 3.

3. If needed, clean shift cable. (WP 0191)

CONDITION/INDICATION

Is shift cable free of mud and debris?

DECISION

Dirty - Test 4 - Does transfer case shift lever shift normally?
Clean - Notify Supervisor.

TEST 4 - Does transfer case shift lever shift normally?

1. Start engine. (Volume 1, WP 0044)
 - a. Test drive vehicle.
2. Attempt to shift transfer case. (Volume 1, WP 0048)

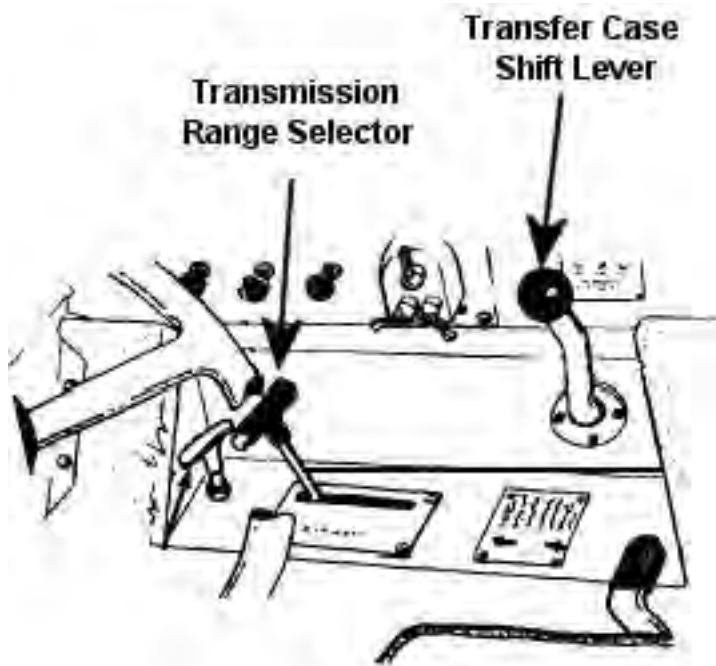


Figure 4.

3. Turn engine OFF. (Volume 1, WP 0057)

CONDITION/INDICATION

Does transfer case shift lever shift normally?

DECISION

No - Notify Supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TRANS TEMP GAUGE INDICATES OVERHEATING DURING NORMAL OPERATION

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

TROUBLESHOOTING PROCEDURE**TRANS TEMP GAUGE INDICATES OVERHEATING DURING NORMAL OPERATION****TEST 1 - Is transmission fluid at proper operating level?**

1. Check transmission fluid level. (WP 0184)

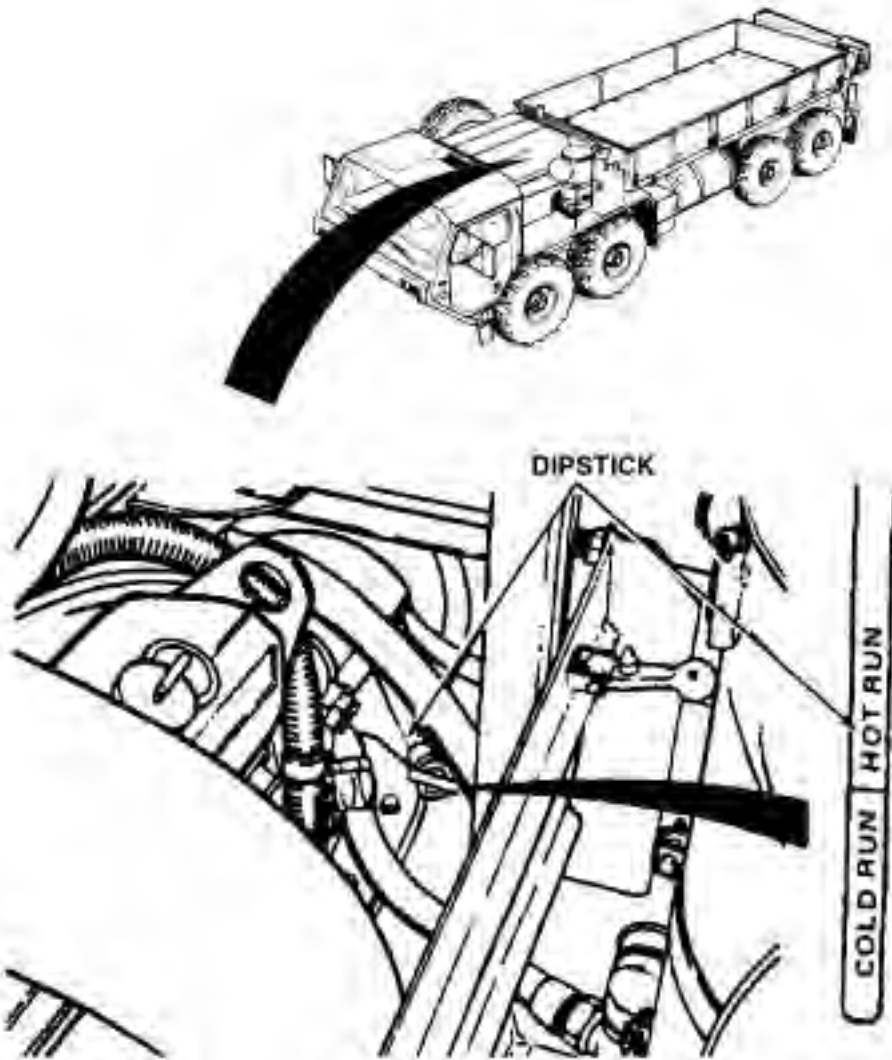


Figure 1.

2. If transmission fluid is low, add transmission fluid. (WP 0184)

CONDITION/INDICATION

Is transmission fluid at proper operating level?

DECISION

Transmission fluid was high. - Notify Supervisor. Test 2 - Does TRANS TEMP gauge indicate overheating during normal operation?

Transmission fluid was at proper level. - Notify Supervisor.

TEST 2 - Does TRANS TEMP gauge indicate overheating during normal operation?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.

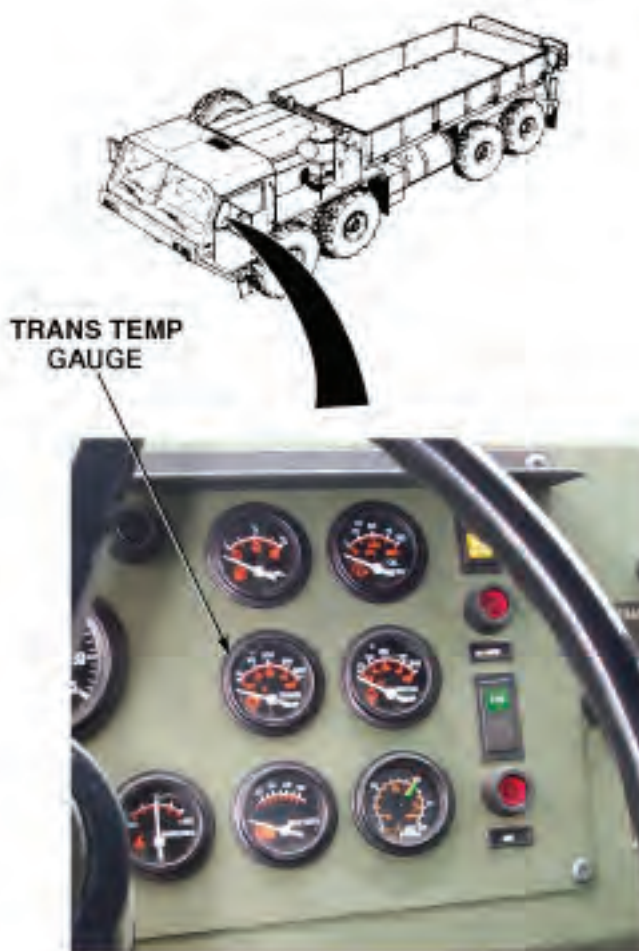


Figure 2.

CONDITION/INDICATION

Does TRANS TEMP gauge indicate overheating during normal operation?

DECISION

Overheating - Notify Supervisor.

Correct temperature - Problem corrected.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
WHEEL WOBBLES**

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Parking brakes applied. (Volume 1,
WP 0056)

Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
WHEEL WOBBLES**

TEST 1 - Are any lugnuts loose, missing or broken?

1. Check wheels for loose, missing or broken lugnuts.



Figure 1.

CONDITION/INDICATION

Are any lugnuts loose, missing or broken?

DECISION

No - Tighten or replace lugnut(s). (WP 0192)

Yes - Test 2 - Are any of the wheels bent?

TEST 2 - Are any of the wheels bent?

1. Check to see if any of the wheels are bent.



Figure 2.

CONDITION/INDICATION

Are any of the wheels bent?

DECISION

Wheel bent - Replace damaged wheel(s). (WP 0192)

Wheels OK - Notify Supervisor.

TEST 3 - Do any of the wheels wobble?

1. Start engine. (Volume 1, WP 0044)
2. Test drive vehicle.

CONDITION/INDICATION

Do any of the wheels wobble?

DECISION

Wheel wobbles - Notify Supervisor.

Wheel OK - Notify Supervisor.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
TIRES WORN UNEVENLY OR EXCESSIVELY**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - ContinuedParking brakes applied. (Volume 1,
WP 0056)Wheels chocked. (Volume 1,
WP 0100)

**TROUBLESHOOTING PROCEDURE
TIRES WORN UNEVENLY OR EXCESSIVELY**

TEST 1 - Are tires inflated to proper pressure for road condition?**WARNING**

Tire air pressure must be checked properly. Failure to comply may result in injury or death to personnel.

NOTE

- Inflate tires only when they are cool. Inflate to proper pressure for road condition.
 - Tire tread is non-directional. Vehicle operation is not affected by direction of traction bars.
1. Check tires for proper inflation. (WP 0185)

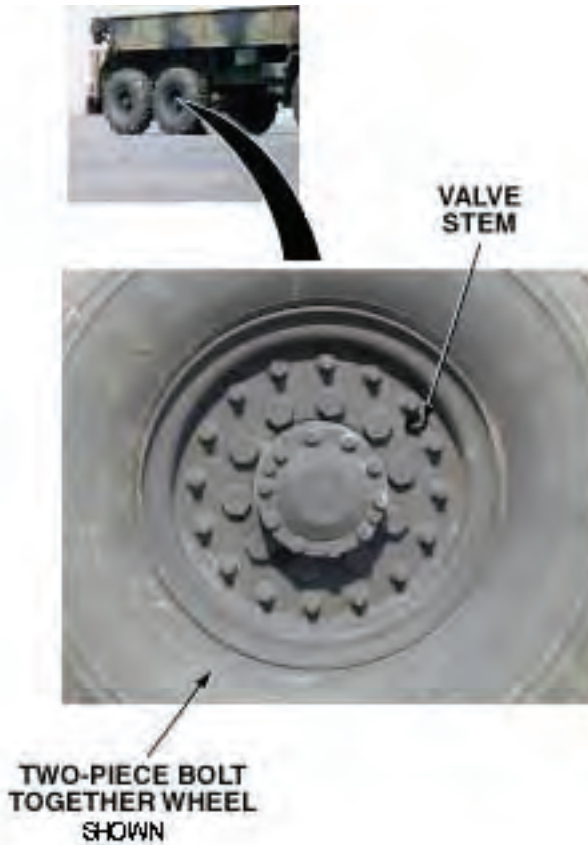


Figure 1.

2. If tires are improperly inflated, inflate or deflate to proper pressure.

CONDITION/INDICATION

Are tires inflated to proper pressure for road condition?

DECISION

Improperly inflated - Notify Supervisor.

Inflation OK - Notify Supervisor.

END OF WORK PACKAGE

CHAPTER 4

PREVENTIVE
MAINTENANCE
CHECKS AND
SERVICES (PMCS)

OPERATOR MAINTENANCE INTRODUCTION - PREVENTIVE MAINTENANCE

PMCS INTRODUCTION

This section contains PMCS requirements for HEMTT series vehicles. The PMCS tables contain checks and services necessary to ensure that the vehicle is ready for operation. Using PMCS tables, perform maintenance at specified intervals.

MAINTENANCE FORMS AND RECORDS

Every mission begins and ends with paperwork. There is not much of it, but it must be kept up. The filled out forms and records have several uses. They are a permanent record of services, repairs, and modifications made on the vehicle; they are reports to unit maintenance and to your Commander; and they serve as a checklist to find out what is wrong with the vehicle after its last use, and whether those faults have been fixed. For the information needed on forms and records, refer to DA PAM 750-8. (WP 0200)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

- Do the before (B) PREVENTIVE MAINTENANCE just before operating vehicle. Pay attention to the CAUTIONS and WARNINGS.
- Do the during (D) PREVENTIVE MAINTENANCE while vehicle and/or its component systems are in operation. Pay attention to the CAUTIONS and WARNINGS.
- Do the after (A) PREVENTIVE MAINTENANCE right after operating vehicle. Pay attention to the CAUTIONS and WARNINGS.
- Do the (W) PREVENTIVE MAINTENANCE weekly. Pay attention to the CAUTIONS and WARNINGS.
- Do the (M) PREVENTIVE MAINTENANCE once a month. Pay attention to the CAUTIONS and WARNINGS.
- Do the (S) PREVENTIVE MAINTENANCE once every six months. Pay attention to the CAUTIONS and WARNINGS.
- If something does not work, troubleshoot and notify the supervisor.
- Always do PREVENTIVE MAINTENANCE in the same order until it gets to be habit. Once practiced, problems can be spotted in a hurry.
- If something looks wrong and cannot be fixed right then, write it on DA Form 2404 (WP 0200) or DA Form 5988-E. (WP 0200) If something seems seriously wrong, report it to field level maintenance RIGHT NOW.
- When doing PREVENTIVE MAINTENANCE, take along the tools needed and a rag or two to make all the checks.

GENERAL MAINTENANCE PROCEDURE

- **Cleanliness:** Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use solvent cleaning compound (WP 0203, Table 1, Item 6, 7, 8, 9, 10, 11) on all metal surfaces and soapy water on rubber.
- **Bolts, Nuts, and Screws:** Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition and tighten or replace as necessary. They cannot all be checked with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads.
- **Welds:** Look for loose or chipped paint, rust, or gaps where parts are welded together. If a bad weld is found, have it repaired.
- **Electric Wires and Connectors:** Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and make sure wires are in good shape.
- **Hydraulic Lines and Fittings:** Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots show leaks, of course, but a stain around a fitting or connector can indicate a leak. If a connector or fitting is loose, tighten it. If something is broken or worn out, repair or replace per applicable procedure.
- **Damage is defined as:** Any conditions that affect safety or would render the vehicle unserviceable for mission requirements.

FLUID LEAKAGE

It is necessary to know how fluid leakage affects the status of fuel, oil, coolant, and the hydraulic systems. The following are definitions of types/classes of leakage necessary to know in order to determine the status of the vehicle.

NOTE

Equipment operation is allowable with minor leakage (Class I or II). Consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify the supervisor. When operating with Class I or II leaks, continue to check fluid levels as required in the PMCS. Class III leaks should be repaired per applicable procedure.

Class I : Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

Class II: Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

Class III: Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Prior to performing your PMCS, check with your PLL clerk to verify that the latest publications are being used.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Listed below are the sections of the PMCS.

PMCS - BEFORE (WP 0182)

PMCS - DURING (WP 0183)

PMCS - AFTER (WP 0184)

PMCS - WEEKLY (WP 0185)

PMCS - MONTHLY (WP 0187)

PMCS - SEMIANNUAL (WP 0186)

Vehicles designated or dispatched to transport Class A or B ammunition, explosives, poisons, or radioactive yellow III materials over public highways require more stringent inspections.

Daily Walk Around PMCS Diagram. This routing diagram will be of help to complete the B, D, or A PMCS. It shows the vehicle PMCS routing track, which matches the sequence of PMCS to be performed.

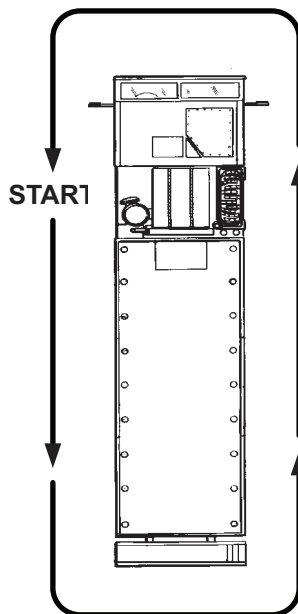


Figure 1.

END OF WORK PACKAGE

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**OPERATOR MAINTENANCE
BEFORE - PREVENTIVE MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Gloves, Leather (WP 0202, Table 2)

Table 1. PMCS - BEFORE

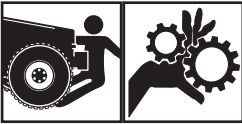

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>Do not start engine or move vehicle when personnel are under vehicle or working on brake lines. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p>  <p>Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in injury or death to personnel.</p>	

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">NOTE</p> <p>Perform Operator's Before, After, and Weekly PMCS checks if:</p> <ul style="list-style-type: none"> • You are the assigned driver but have not operated the vehicle since the last weekly inspection. • You are operating the vehicle for the first time. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Clean all lubrication points with cleaning compound, solvent and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated. • Always refer to lubrication instructions (WP 0188) to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as 	

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
1	Before	Driver Side Exterior	<p>prescribed in lubrication instructions. (WP 0188)</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Diesel engine slobber is an inherent condition of diesel engines. When diesel engines are allowed to idle for prolonged periods of time, this characteristic may be interpreted as a Class III leak. Check engine oil level. If there is any doubt, contact your supervisor or field level maintenance. • If leakage is detected, further investigation is needed to determine the location and cause of the leak. If there is any doubt, contact your supervisor or field level maintenance. <p>1. Check underneath entire length of driver side of vehicle for fluid and air leaks.</p>	Any fuel leak, Class III leak (other than fuel), or air lines/fittings leaking or damaged.

Table 1. PMCS - BEFORE - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>2. Visually check driver side of vehicle for obvious damage that would impair operation.</p> <p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • During normal vehicle operation, cooling system can become very hot. Allow cooling system to cool prior to servicing. Failure to comply may result in injury to personnel. • Use extreme care when removing radiator cap. Sudden release of pressure can cause a steam flash. Slowly loosen radiator cap to the first stop to relieve pressure before removing radiator cap completely. Failure to comply may result in injury to personnel. • Use a clean, thick waste cloth or like material to remove radiator cap. 	<p>Any damage that would impair operation.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
2	Before	Radiator	<p>Avoid using gloves. If hot water soaks through gloves, personnel could be burned. Failure to comply may result in injury to personnel.</p> <p>Remove radiator cap and check radiator coolant level. Coolant level should be up to bottom of filler neck. If fluid level is low, fill to appropriate level.</p>	Coolant is low.

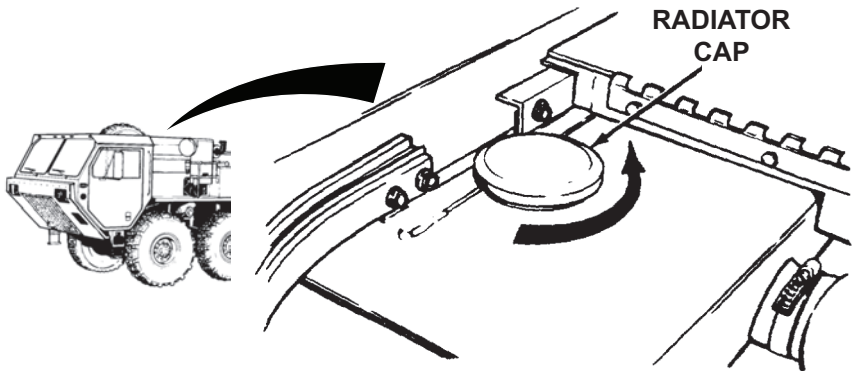


Figure 1.

WARNING



Do not operate a vehicle with a tire in an over-inflated or un-

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
3	Before	Driver Side Tires	<p>der-inflated condition, or with a questionable defect. Failure to comply may result in injury or death to personnel and damage to equipment.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • A tire is bad or in need of repair if the bead, sidewall, and tread areas show signs of damage. • Remember that this process requires you to make judgment calls and the goal is to safely maintain equipment in top quality conditions. <p>Check for correct air pressure on each driver side tire and service tire (WP 0195) as required.</p>	Tire missing, deflated, or un-serviceable.
4	Before	Engine	<ol style="list-style-type: none"> 1. Check engine oil level on dipstick. 	

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

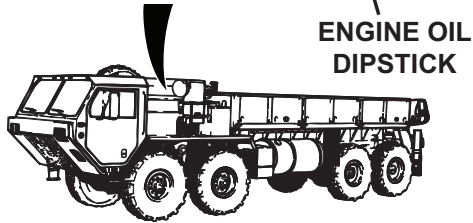
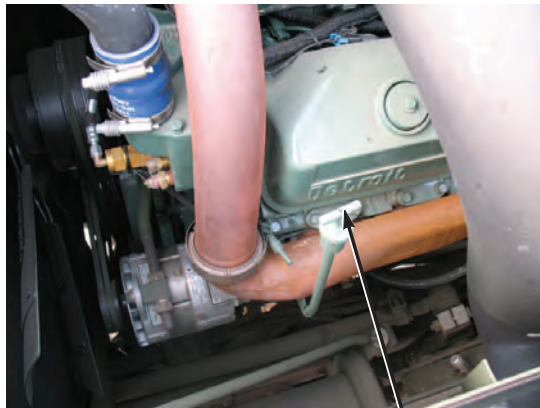


Figure 2.

NOTE

Engine oil level should be between L (low) and F (full) mark on dipstick.

- a. Add engine oil as required. (WP 0188)

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
5	Before	Rear of Vehicle	<p>b. Drain excess engine oil as required, or notify field level maintenance.</p> <p>Visually check rear of vehicle for obvious damage that would impair operation.</p>	Any damage that would impair operation.
6	Before	Retrieval System, Support Assembly, Hydraulic Filter	<p>1. Check hydraulic filters for leaks.</p> <p>2. Check support assembly for secure mounting or obvious damage.</p>	Class III leak present.

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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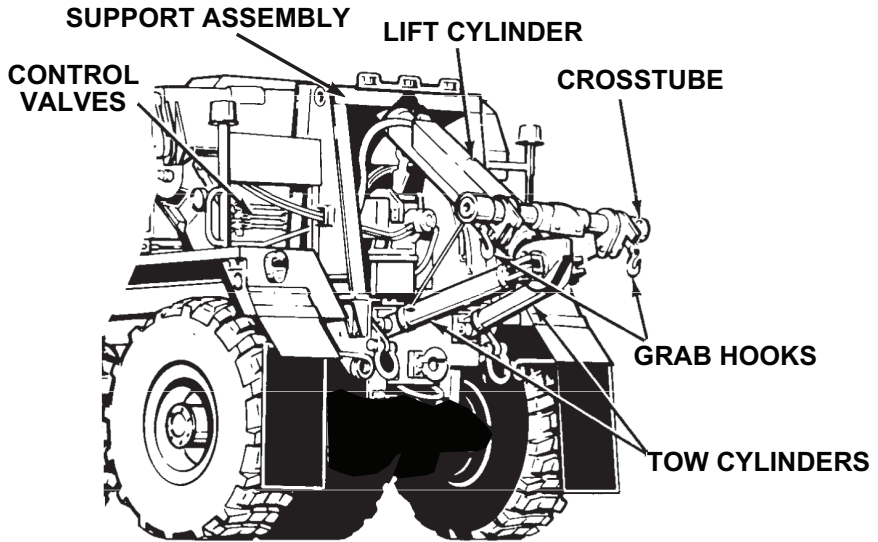


Figure 3.

NOTE

Retrieval cylinder (tow and lift) thermal relief valves (located on crosstube end of cylinders) can discharge small amounts of oil as part of normal operation.

3. Check lift cylinder and hoses, driver side and passenger side tow cylinders and hoses, crosstube, and control valves for leaks and obvious damage.

Class III leak present.

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
7	Before	Self-Recovery Winch (SRW)	1. Inspect self-recovery winch for obvious damage.	Self-recovery winch unserviceable.

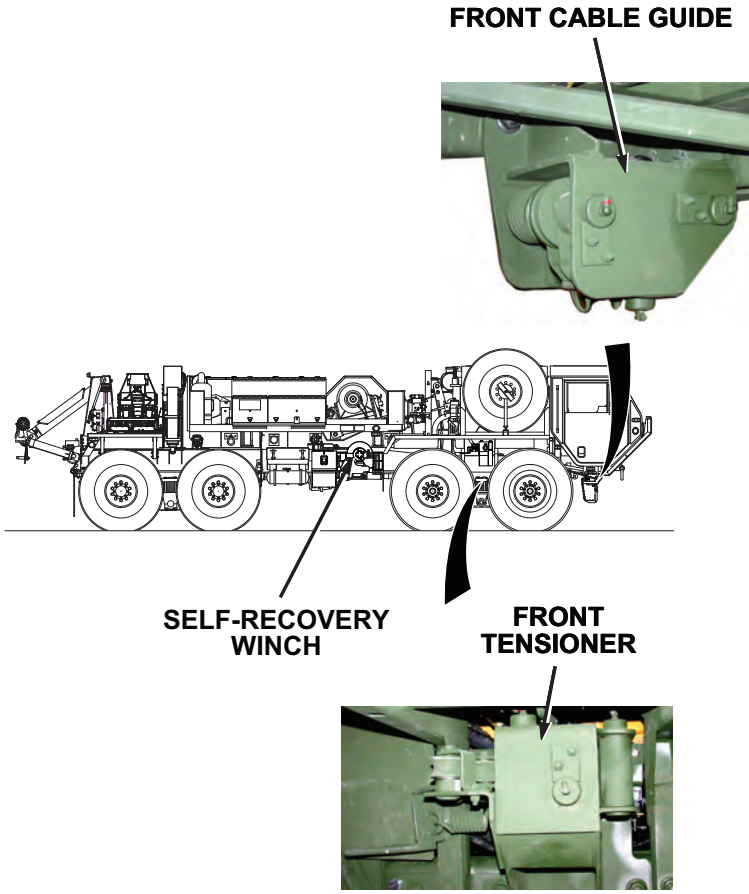


Figure 4.

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
8	Before	Wheel Chocks	<p>2. Inspect front cable guide for any loose or missing parts and any obvious damage.</p> <p>3. Inspect front tensioner for loose or missing parts and any obvious damage.</p> <p>Ensure vehicle is equipped with four wheel chocks.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Diesel engine slobber is an inherent condition of diesel engines. When diesel engines are allowed to idle for prolonged periods of time, this characteristic may be interpreted as a Class III leak. Check engine oil level. If there is any doubt, contact your 	<p>Front cable guide has loose or missing parts, or is unserviceable.</p> <p>Front tensioner has loose or missing parts, or is unserviceable.</p> <p>Vehicle is equipped with less than four wheel chocks.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
9	Before	Passenger Side Exterior	<p>supervisor or field level maintenance.</p> <ul style="list-style-type: none"> • If leakage is detected, further investigation is needed to determine the location and cause of the leak. If there is any doubt, contact your supervisor or field level maintenance. <ol style="list-style-type: none"> 1. Check underneath entire length of driver side of vehicle for fluid and air leaks. 2. Visually check driver side of vehicle for obvious damage that would impair operation. 3. Check for missing or damaged fire extinguisher mounted on top of stowage box: 	<p>Any fuel leak, Class III leak (other than fuel), or air lines/fittings leaking or damaged.</p> <p>Any damage that would impair operation.</p> <p>Fire extinguisher missing or damaged.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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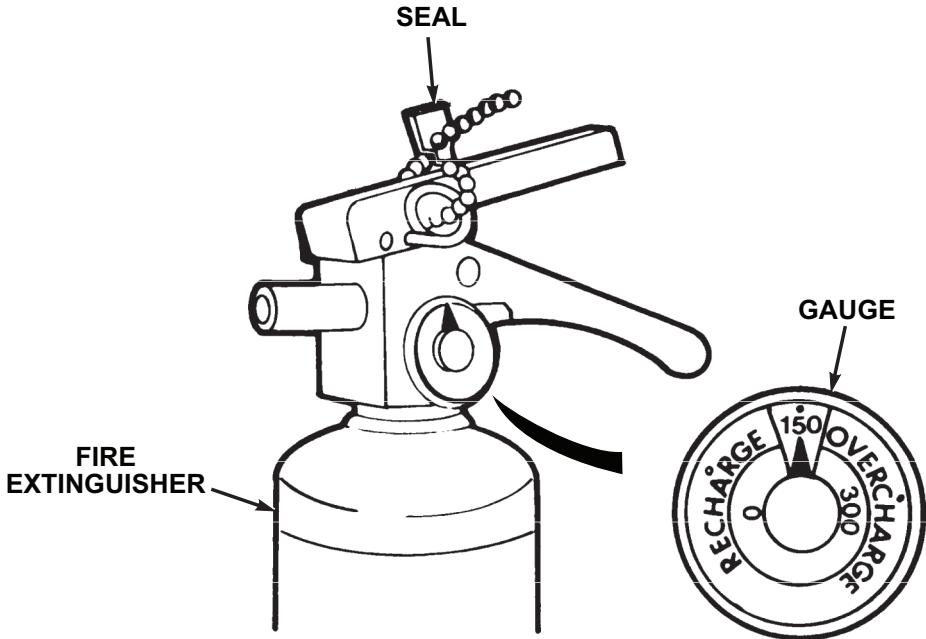


Figure 5.

		<ol style="list-style-type: none"> a. Check gauge for proper pressure. b. Ensure fire extinguisher mounting is secure. 	<p>Pressure gauge needle in RECHARGE area.</p>
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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
10	Before	FRONT BRAKE APPLICATION Control	<p>c. Check for damaged or missing seal.</p> <ol style="list-style-type: none"> 1. Check control box for damage that may preclude use. 2. Ensure FRONT BRAKE APPLICATION control is pulled out. 	<p>Seal broken or missing.</p> <p>Damaged to the extent that it cannot be used.</p> <p>Unable to pull FRONT BRAKE APPLICATION control out/ release front brakes.</p>

FRONT BRAKE APPLICATION CONTROL

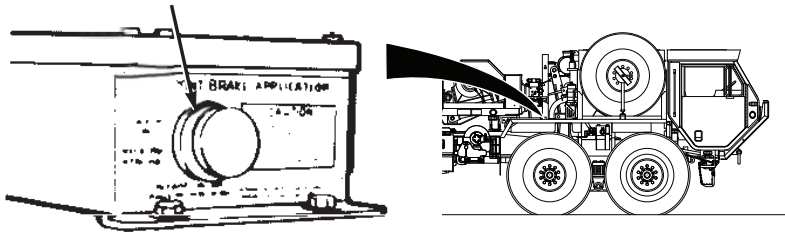


Figure 6.

Table 1. PMCS - BEFORE - Continued

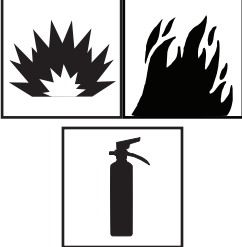
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
11	Before	Fuel/ Water	<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Fuel is very flammable and can explode easily. Keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited when engine is hot. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Drain fuel into suitable container. • Operation of vehicle with malfunctioning fuel/water separator may violate AR 385-55. (WP 0200) <p>1. Check for level of water in bowl of fuel/water separator. If there is</p>	

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
		Separator	water, turn thumb nut on bottom of bowl to open contaminant drain valve. Keep drain open until only pure fuel is flowing out of drain tube. Close drain valve by turning thumb nut.	

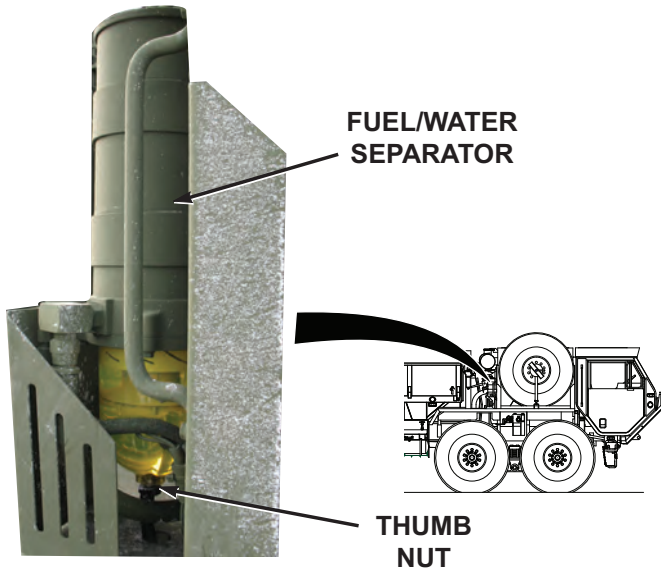


Figure 7.

		2. Check fuel/water separator for leaks and damage.	Any fuel leaking.
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Table 1. PMCS - BEFORE - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
12	Before	Passenger Side Tires	<p style="text-align: center;">WARNING</p>  <p>Do not operate a vehicle with a tire in an over-inflated or under-inflated condition, or with a questionable defect. Failure to comply may result in injury or death to personnel and damage to equipment.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Remember that a tire in storage (spare) can be flat but not look like it. The HEMTT tire sidewalls can support the wheel. Don't be fooled. • A tire is bad or in need of repair if the bead, sidewall, and tread areas show signs of damage. • Remember that this process requires you to make judgment calls and the goal is to safely maintain equipment in top quality conditions. <p>1. Check for correct air pressure on each passenger side tire</p>	Tire missing, deflating

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				or excessively worn.

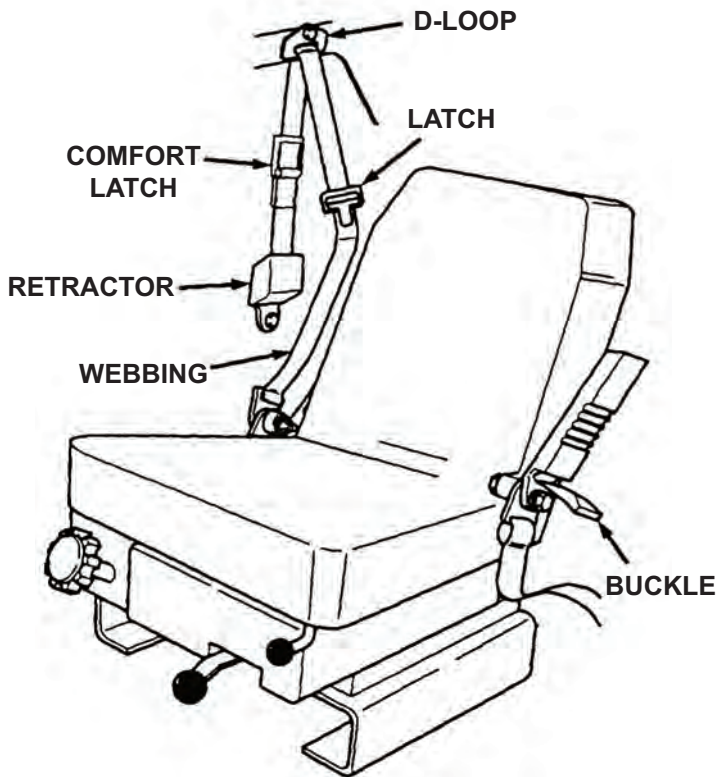


Figure 8.

- b. Check D-loop for free rotation, deformation, cracks, or damage.

D-loop does not rotate freely or is deformed,

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>c. Check comfort latch for proper operation, cracks, or damage.</p> <p>d. Check latch and buckle for wear, deformation, damage, or broken casing.</p> <p>e. Check latch and buckle for proper operation.</p>	<p>cracked, or broken.</p> <p>Comfort latch is broken, or does not lock in place easily, and does not release by tugging down on webbing.</p> <p>Molded plastic around buckle/latch is deformed, cracked, or broken.</p> <p>Buckle/latch do not engage with a solid sounding "click" and/or do not release freely when button on buckle is pushed.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<ul style="list-style-type: none"> f. Check that retractor is not locked up, and pays out/reels in webbing properly. g. Check all seat belt mounting hardware for looseness and other damage. <p>2. Check four-point seat belt system as follows:</p> <ul style="list-style-type: none"> a. Check seat belt strap webbing wear, tears, fraying, etc. 	<p>Retractor does not operate properly or retractor cover is cracked/broken.</p> <p>Seat belt hardware is loose, missing, rusted, corroded, or damaged.</p> <p>Webbing is cut, frayed or excessively worn.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

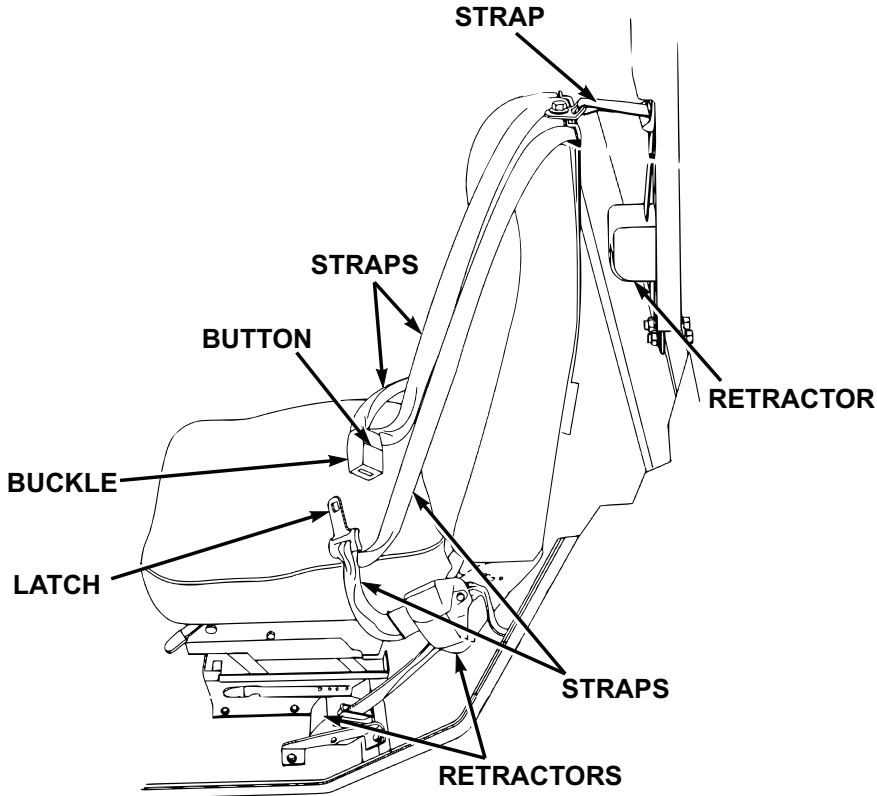


Figure 9.

		<p>b. Check latch and buckle for proper operation, wear, deformation, damage, and broken casing.</p>	<p>Buckle/latch does not engage with a solid-sounding "click" and/or does not</p>
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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
14	Before	Seats	<p>c. Check all seat belt retractors are not locked up and pay out/reel in webbing straps properly.</p> <p>d. Check all seat belt mounting hardware for looseness and other damage.</p> <p>Check operation of seat adjusting mechanisms. (Volume 1, WP 0025)</p>	<p>release freely when button is pushed. Molded plastic around buckle/latch is deformed, cracked, or broken.</p> <p>Retractor(s) do not operate properly, or retractor cover(s) are cracked/ broken.</p> <p>Hardware is loose, missing, rusted, corroded, or damaged.</p> <p>Seat adjustment mechanism broken or missing.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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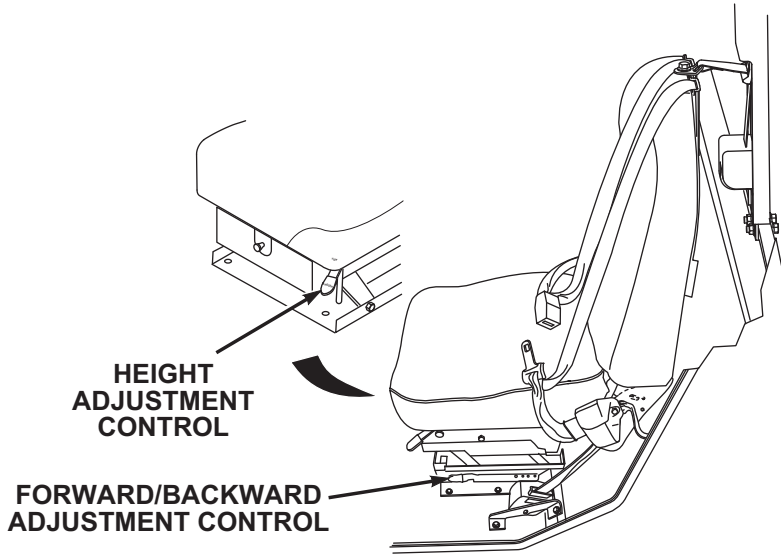


Figure 10.

15	Before	Fire Extinguisher (cab)	1. Check for missing or damaged fire extinguisher.	Fire extinguisher missing or damaged.
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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

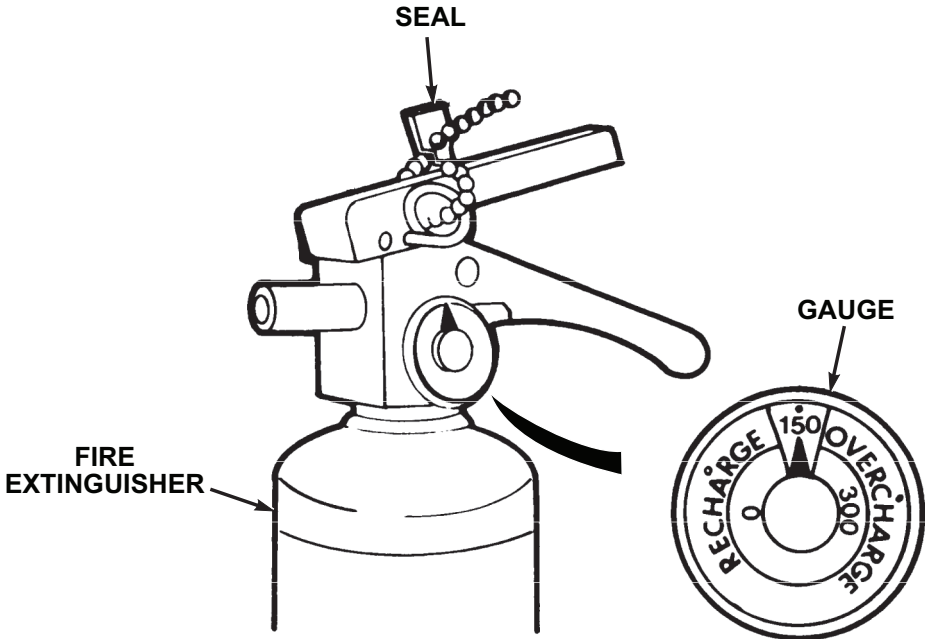


Figure 11.

		<ol style="list-style-type: none"> 2. Check gauge for proper pressure of about 150 psi (1034 kPa). 3. Ensure fire extinguisher mounting is secure. 	<p>Pressure gauge needle in RECHARGE area.</p>
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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>4. Check for damaged or missing seal.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Complete all start engine (Volume 1, WP 0044) procedures, and comply with all notes, cautions, and warnings within that procedure before completing the PMCS checks below. • Once all start engine (Volume 1, WP 0044) procedures are completed, engine should be kept running for the remaining PMCS checks. 	<p>Seal broken or missing.</p>
16	Before	Engine	<p>Start engine. (Volume 1, WP 0044)</p> <p style="text-align: center;">NOTE</p> <p>Check the instruments listed below for damage, operation, and condition.</p>	<p>Engine fails to start.</p>
17	Before	Instruments	<p>1. Engine OIL PRESS gauge.</p>	<p>Engine OIL PRESS gauge is in-operative.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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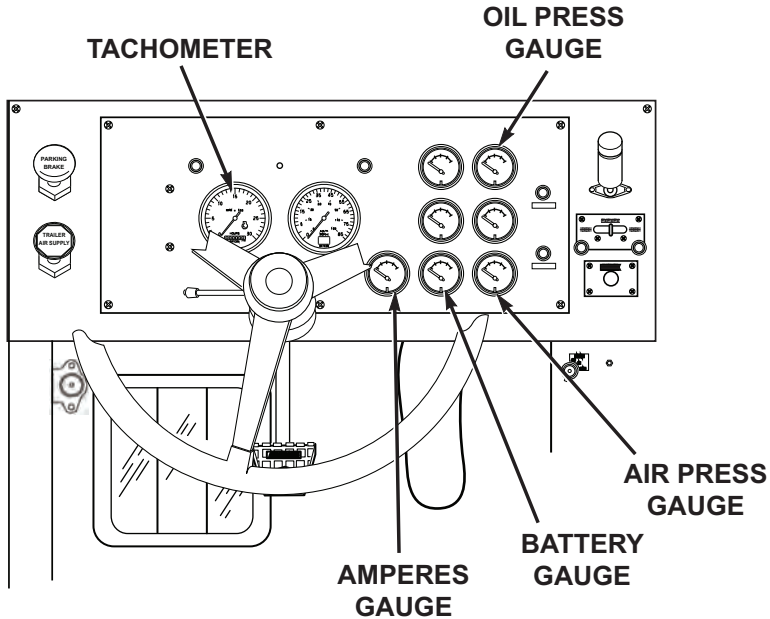


Figure 12.

		<p>2. Tachometer.</p>	<p>Tachometer is inoperative or indicates less than 700 rpm or more than 725 rpm at idle after engine has been properly warmed up (start en-</p>
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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>3. BATTERY gauge.</p> <p>4. AMPERES gauge.</p> <p style="text-align: center;">NOTE</p> <p>Air pressure buzzer will sound anytime low air indicator is illuminated. Ensure low air indicator and buzzer activate when air pressure falls below 60 to 75 psi (414 to 517 kPa) in either front or rear air system.</p>	<p>gine (Volume 1, WP 0044) procedure completed).</p> <p>BATTERY gauge is inoperative, or indicates less than 24 VDC or more than 30 VDC with engine running.</p> <p>AMPERES gauge is inoperative, or shows a negative reading with engine running.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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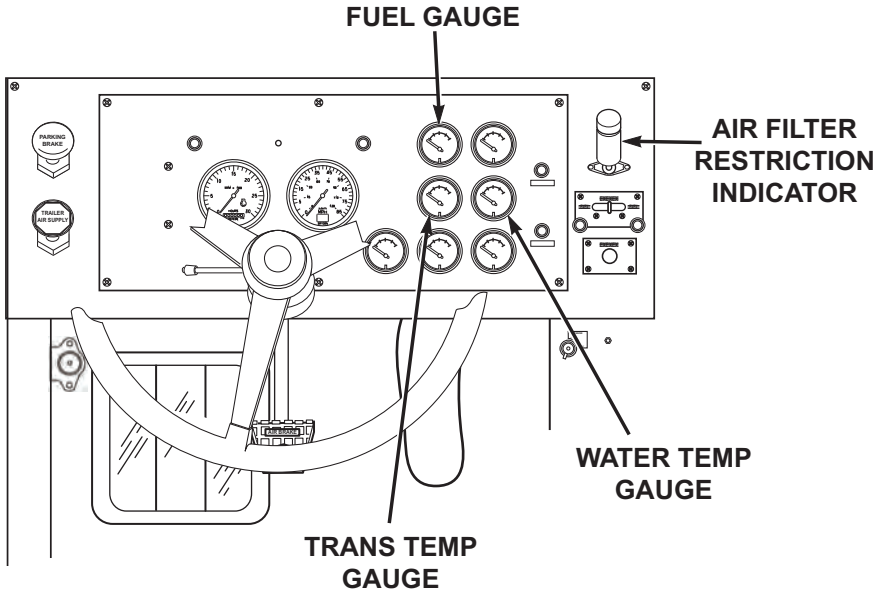


Figure 13.

NOTE

Several minutes are required for engine to warm up so an accurate reading can be taken.

7. WATER TEMP gauge.

WATER TEMP gauge is inoperative, or indicates less than

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">NOTE</p> <p>Transmission may not reach 160°F (71°C) oil temperature at idle for several minutes.</p> <p>8. TRANS TEMP gauge.</p> <p>9. FUEL gauge.</p>	<p>140°F (60°C) or more than 230°F (110°C) after engine has been properly warmed up (start engine (Volume 1, WP 0044) procedure completed).</p> <p>TRANS TEMP gauge indicates more than 250°F (121°C).</p> <p>FUEL gauge is inoperative, or indicates less than the required amount of fuel needed</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
18	Before	TRANSFER CASE Shift Lever and TRACTION CONTROL lever	<p style="text-align: center;">CAUTION</p> <p>Vehicle must be parked when making this check. Failure to comply may result in damage to equipment. Transfer case will be damaged if shifted while vehicle is moving.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Engine must be running to perform this check. • Transmission must be in N (neutral) to perform this check. <p>1. TRANSFER CASE Shift Lever - Check operation: (Volume 1, WP 0048)</p>	to complete the mission.

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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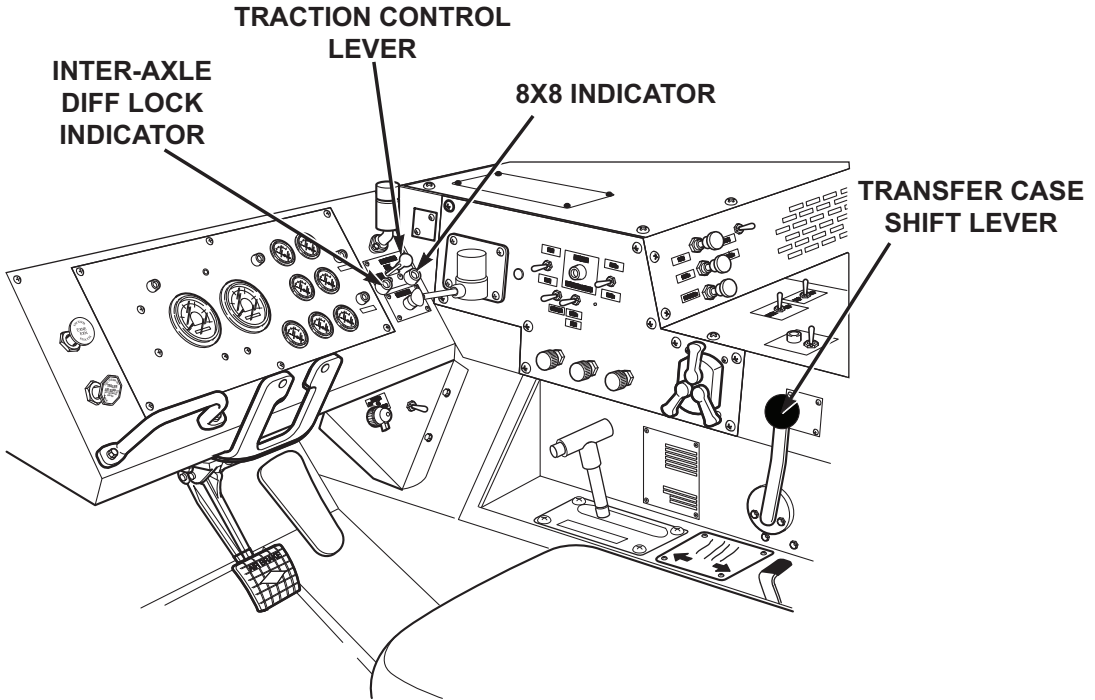


Figure 14.

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- a. Set transfer case shift lever to each range position.
- b. Transfer case shift lever should move freely through all range positions.

TRANSFER CASE shift lever inoperable or binds between

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
19	Before	Engine Retarder/ Brake	<p>2. TRACTION CONTROL Lever - Check operation: (Volume 1, WP 0023)</p> <p>a. TRACTION CONTROL lever should slide smoothly, and interact with transfer case shift lever to show correct indications on dash panel.</p> <p style="text-align: center;">NOTE</p> <p>Engine must be running to perform this check.</p> <p>1. Check engine retarder/brake for proper operation (Volume 1, WP 0049) (vehicle stationary) using the following procedures:</p> <p>a. Pull out PARKING BRAKE control.</p>	<p>range de-tents.</p> <p>TRACTION CONTROL lever or indicators inoperable.</p>

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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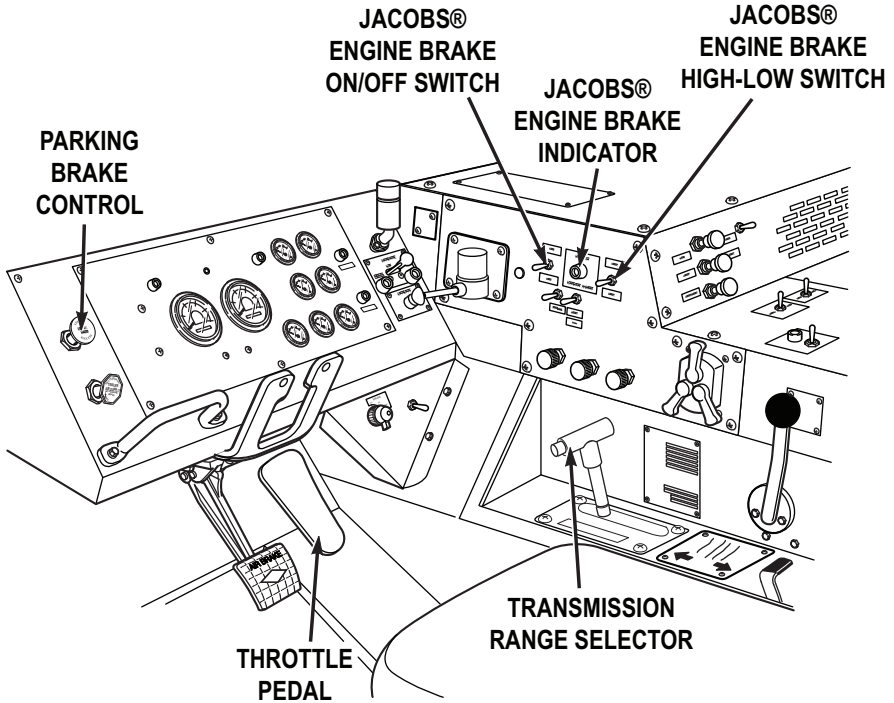


Figure 15.

		<p>b. Set transmission range selector to N (neutral) position.</p> <p>c. Apply throttle pedal and increase engine speed to 1900-2100 rpm for several seconds to allow</p>	
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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>transmission to upshift to at least 2 (2nd gear range).</p> <p>d. Set JACOBS ® ENGINE BRAKE ON/OFF switch to ON position, JACOBS ® ENGINE BRAKE indicator light will come on.</p> <p>e. Release throttle pedal and listen for engine "popping" or "chattering" sounds that indicate engine retarder/ brake is engaged and operating.</p> <p style="text-align: center;">NOTE</p> <p>Engine must be running to perform this check.</p>	
20	Before	Steering	<p>1. Check vehicle steering for proper operation:</p> <p>a. Turn steering wheel from full left to full right, back to full left.</p> <p style="text-align: center;">NOTE</p> <p>Engine must be running to perform this check.</p>	Steering inoperable or binds.
21	Before	PTO Switch	Set PTO ENGAGE switch to ON position. Indicator light will illuminate.	PTO ENGAGE switch and/or indicator

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				does not operate.

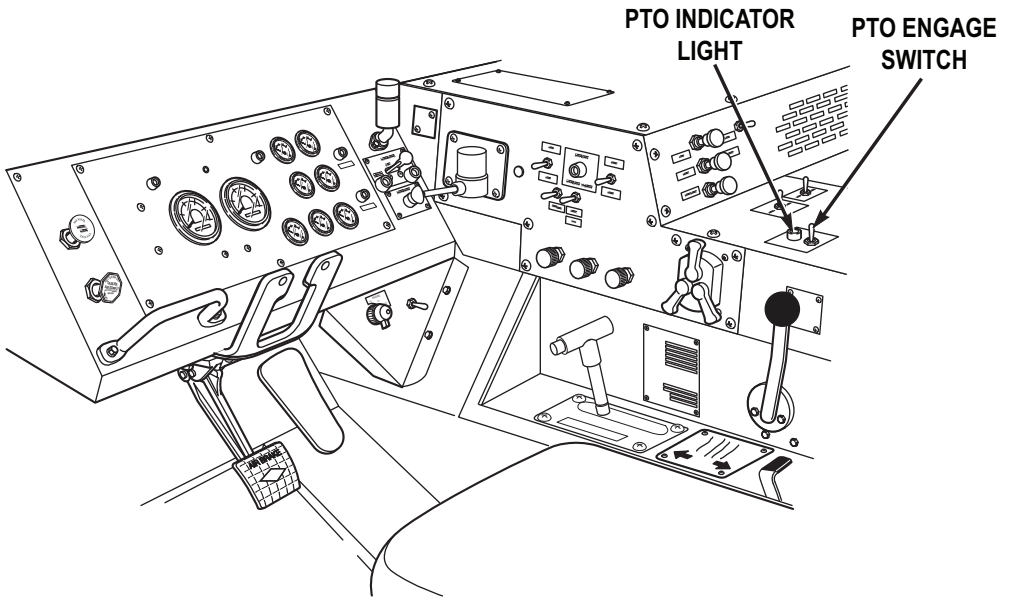


Figure 16.

22	Before	WIPER/ Washer Controls	<p style="text-align: center;">NOTE</p> <p>Operation of vehicle with malfunctioning windshield wiper may violate AR 385-55. (WP 0200)</p> <p>1. Check WIPER controls (driver and passenger side) for proper operation. (Volume 1, WP 0038)</p>
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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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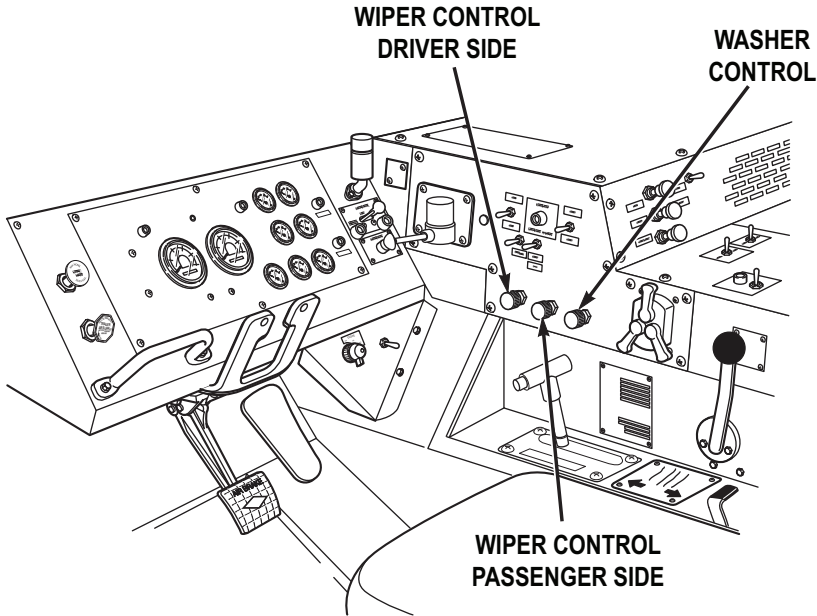


Figure 17.

2. Check windshield washer control for proper operation. (Volume 1, WP 0038)

NOTE

- Engine must be running to perform this check.
- Operation of vehicle with malfunctioning windshield wiper may

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
23	Before	Parking Brake Control	violate AR 385-55. (WP 0200) 1. Check PARKING BRAKE control for proper operation: (Volume 1, WP 0045)	

PARKING BRAKE CONTROL

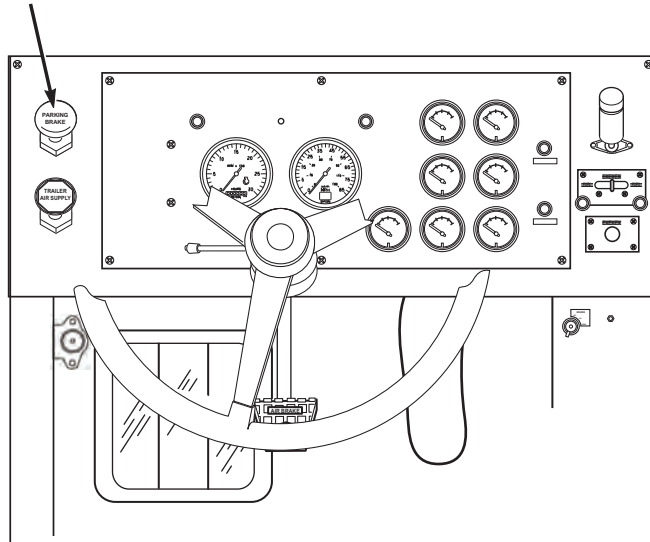


Figure 18.

- a. With vehicle at idle and service brake pedal engaged, (Volume 1, WP 0046) set transmission range selector to D (drive). (Volume 1, WP 0048)

Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
24	Before	Engine	<p>b. Apply (pull out) PARKING BRAKE control. (Volume 1, WP 0045)</p> <p>c. Release service brake pedal. (Volume 1, WP 0046)</p> <p>d. Set transmission range selector to N (neutral). (Volume 1, WP 0048)</p> <p style="text-align: center;">NOTE</p> <p>Operator may continue on with mission if vehicle requires no servicing.</p> <p>Shut OFF engine (Volume 1, WP 0057) (as required).</p>	<p>Vehicle moves with PARKING BRAKE control applied (pulled out).</p>

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
DURING - PREVENTIVE MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Gloves, Leather (WP 0202, Table 2)

Table 1. PMCS - DURING


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
1	During	Engine	<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in injury or death to personnel.</p> <p>Check and/or listen for excessive smoke, unusual noise, rough running, and misfiring.</p> <p style="text-align: center;">NOTE</p> <p>Check trailer handbrake control lever only if a trailer is hooked up to vehicle.</p>	<p>Engine has excessive smoke, unusual noise, runs rough, or misfires.</p>

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
2	During	Trailer Handbrake Control Lever	Check trailer handbrake control lever for proper operation. (Volume 1, WP 0047)	Control lever does not apply trailer brakes.

TRAILER HANDBRAKE CONTROL LEVER

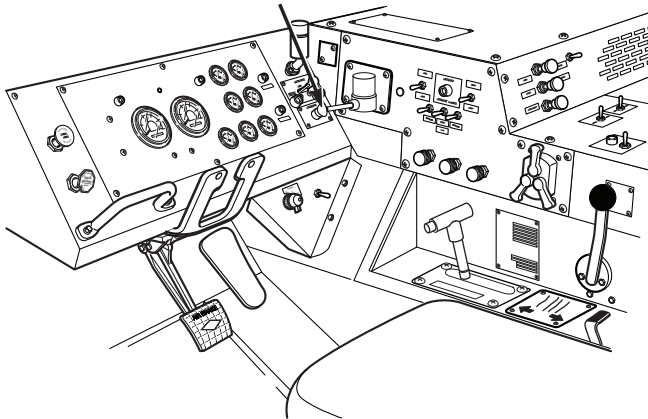


Figure 1.

Listen for actuation. If none, refer to applicable trailer operator's manual.

NOTE

During operation, all gauges should maintain the proper readings listed in the PMCS BEFORE checks. (WP 0182)

Table 1. PMCS - DURING - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
3	During	Instruments	Monitor all gauges, indicators, and warning lights for proper reading and operation while operating vehicle.	Gauges, indicators, and warning lights do not read/operate properly.
4	During	Transmission	Check transmission for proper operation. (Volume 1, WP 0048)	Transmission slips or will not shift.
5	During	Steering	Be alert for any unusual noise, binding, or difficulty in steering during operation.	Steering binds or is unresponsive.
6	During	Service Brakes	Be alert for chatter, noise, and side pull.	Service brakes do not operate properly.
<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Keep hands clear of heavy-duty winch cable. Failure to comply may result in injury or death to personnel.</p>				

Table 1. PMCS - DURING - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
7	During	Heavy-Duty Winch	<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Always wear protective gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel. • Never operate winch with less than five wraps of cable on winch drum. Failure to comply may result in injury or death to personnel. <p>Check cable of winch for kinks, frays, and breaks.</p>	Evidence of kinks, frays, or breaks.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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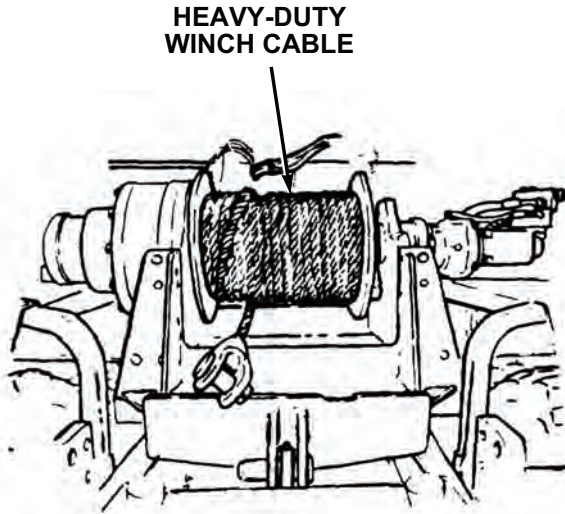


Figure 2.

8	During	Retrieval System	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • PMCS for retrieval system should only be performed when retrieval system is required for mission. • Engine must be running to perform this check. <p>Check operation of retrieval system as follows:</p> <ol style="list-style-type: none"> 1. Start engine. (Volume 1, WP 0044)
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Set PTO ENGAGE switch to ON position. PTO indicator light will illuminate.	

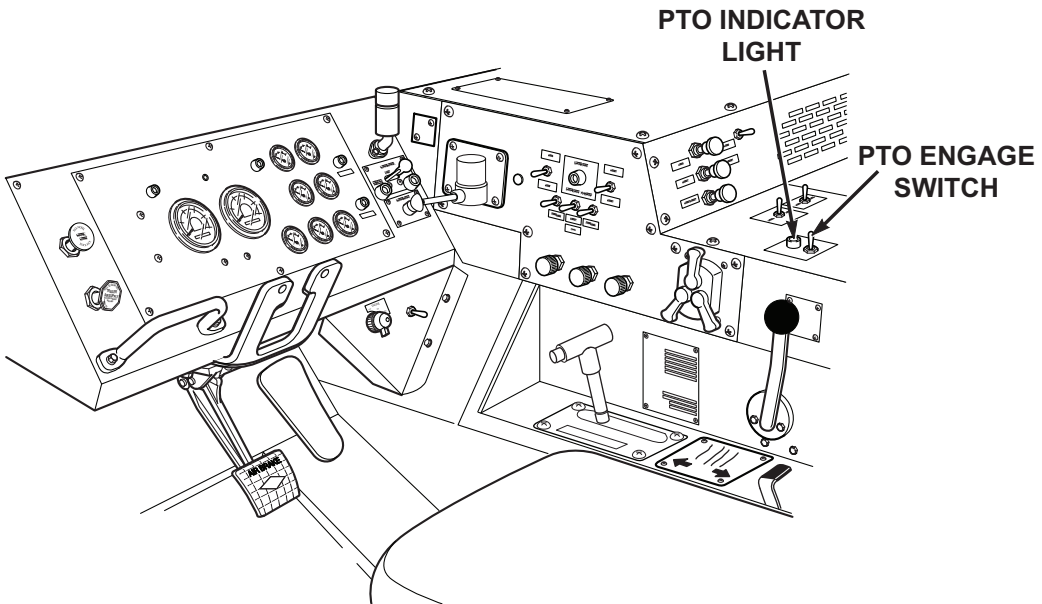


Figure 3.

			3. Set ON/OFF POWER switch to ON position.	
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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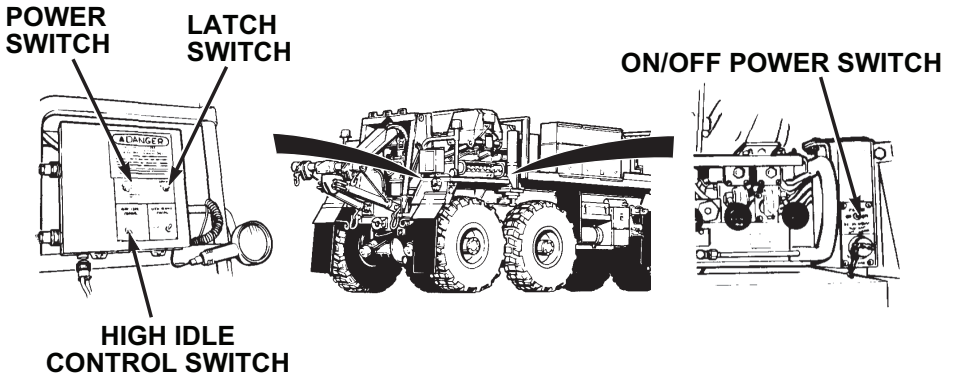


Figure 4.

4. Set POWER switch to ON position.
5. Set HIGH IDLE CONTROL switch to CONTINUOUS.

WARNING



Excessive noise levels are present any time the heavy-duty winch, crane, or retrieval system is operating. Wear single hearing protection (earplugs or equivalent) while working around equipment when it is running. Failure to

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>comply may result in injury or death to personnel. Seek medical aid should you suspect a hearing problem.</p> <p>6. Push and release LATCH switch. Engine speed should increase to approximately 1500 rpm.</p> <p>7. Operate retrieval system control levers. Check for proper operation of levers and cylinders.</p>	<p>Engine speed does not increase to 1500 rpm.</p> <p>Retrieval system does not operate.</p>

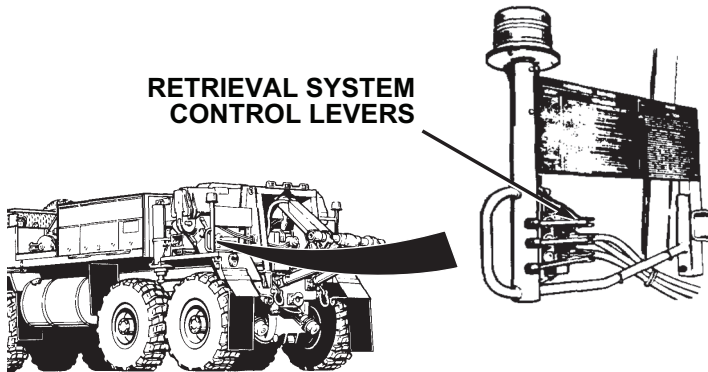


Figure 5.

Table 1. PMCS - DURING - Continued



Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Keep hands clear of heavy-duty winch cable. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Always wear protective gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel. • Never operate winch with less than five wraps of cable on winch drum. Failure to comply may result in injury or death to personnel. 	

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
9	During	Heavy-Duty Winch	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • PMCS for heavy-duty winch should only be performed when retrieval system is required for mission. • Engine must be running to perform this check. <p>1. Check heavy-duty winch remote control and cable for proper operation, (Volume 1, WP 0043) obvious damage, missing parts, binding, and excessive looseness.</p>	Controls malfunction, bind, or do not respond.

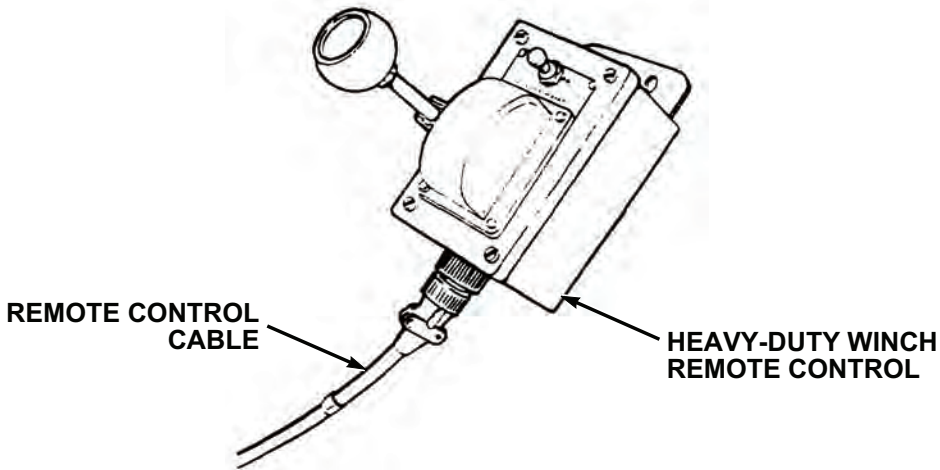


Figure 6.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Check forward winch control and high idle switch for proper operation, (Volume 1, WP 0043) obvious damage, missing parts, binding, and excessive looseness.	Controls malfunction, bind, or do not respond.

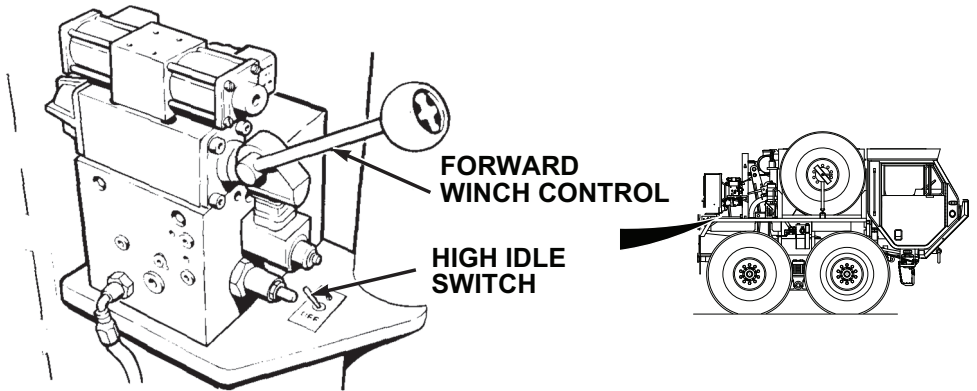


Figure 7.

		3. Check that winch cable clevis pin is secure and in place.	Clevis pin missing.
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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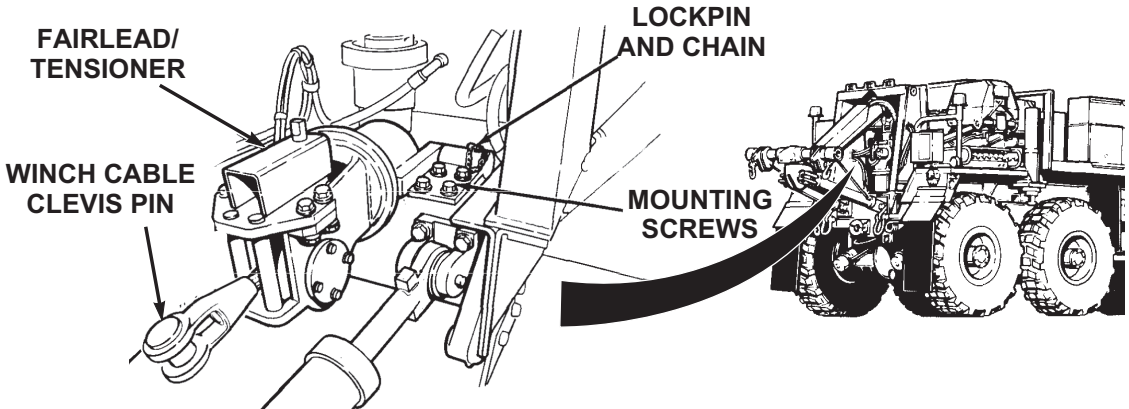


Figure 8.

		<ol style="list-style-type: none"> 4. Check fairlead/tensioner for obvious damage, and that fairlead/tensioner can be swiveled and placed in both stowed and operational positions. 5. Check that fairlead/tensioner mounting screws are secure. 6. Check for missing or damaged fairlead/tensioner lockpin and chain. 7. Push in FRONT BRAKE APPLICATION control and 	<p>Fairlead/tensioner will not swivel, cannot be raised or lowered.</p> <p>Mounting screws loose or missing.</p> <p>Has one missing or broken lockpin.</p>
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			check operation. Check housing for looseness and damage.	

FRONT BRAKE APPLICATION CONTROL

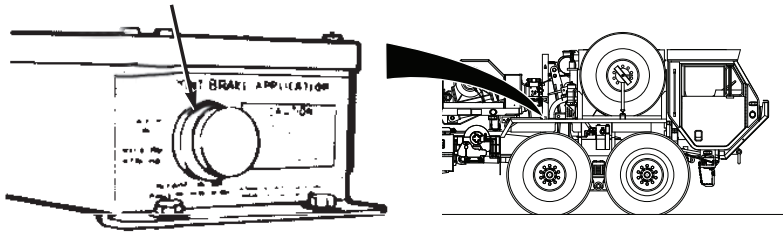


Figure 9.

10	During	Material Handling Crane	<ol style="list-style-type: none"> 1. Check crane for loose nuts and screws, hydraulic leaks, damage to hydraulic hoses and lines, and obvious damage. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • PMCS for material handling crane should only be performed when material handling crane is required for mission. • Engine must be running to perform this check. <ol style="list-style-type: none"> 1. Check that crane hydraulic system is operable as follows: 	Class III leak present or damage to hoses, lines, or fittings.
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			a. Set PTO ENGAGE switch to ON position. PTO indicator light will illuminate.	

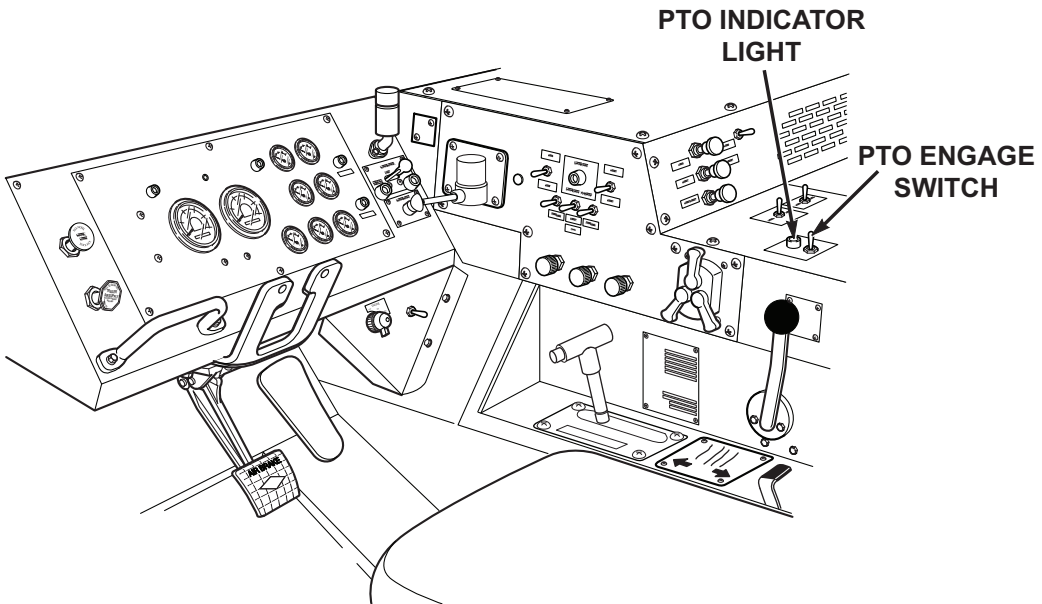


Figure 10.

			b. Set ON/OFF POWER switch to ON position.	
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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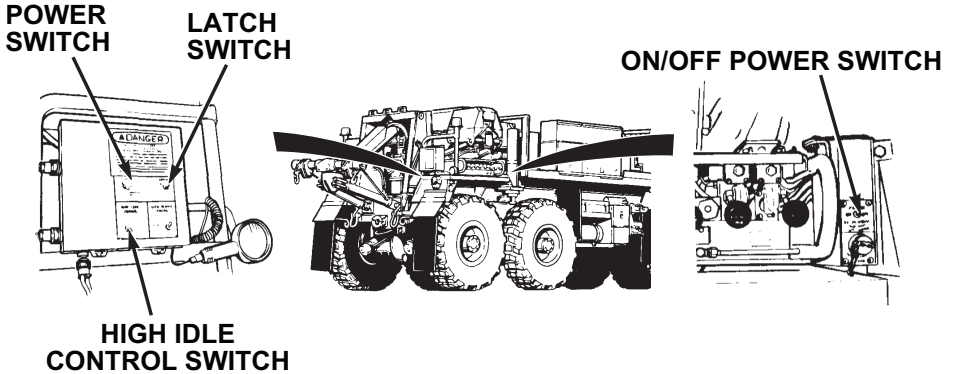


Figure 11.

- c. Set POWER switch to ON position.
- d. Set HIGH IDLE CONTROL switch to CONTINUOUS.

WARNING



Excessive noise levels are present any time the heavy-duty winch, crane, or retrieval system is operating. Wear single hearing protection (earplugs or equivalent) while working around equipment when it is running. Failure to

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>comply may result in injury or death to personnel. Seek medical aid should you suspect a hearing problem.</p> <p>e. Push and release LATCH switch. Engine speed should increase to approximately 1500 rpm.</p> <p>1. Check crane manual control levers as follows:</p>	

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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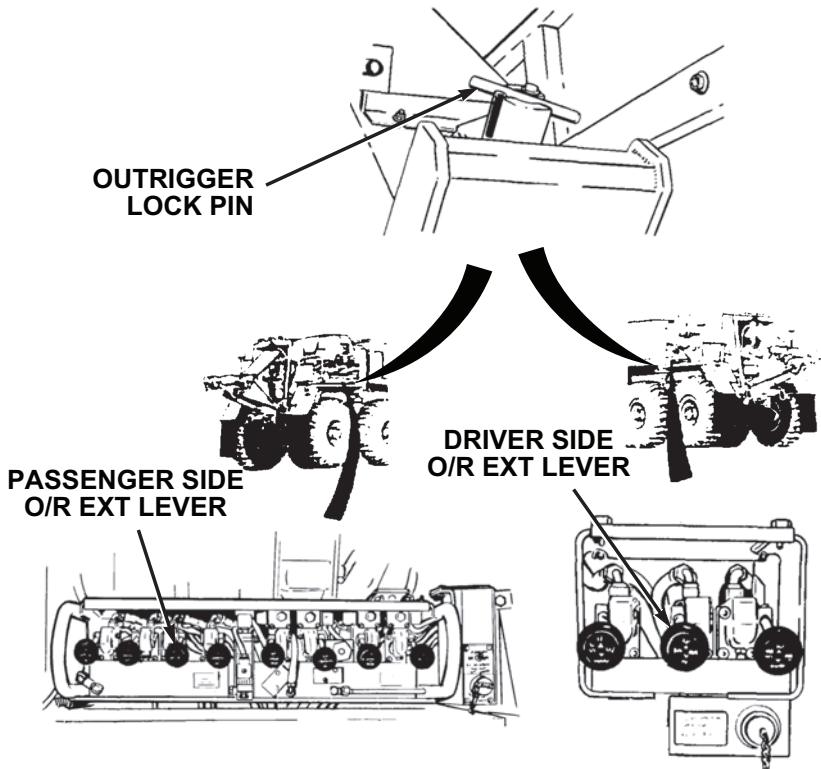


Figure 12.

Table 1. PMCS - DURING - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Stand clear of outrigger beams while operating levers. Failure to comply may result in injury or death to personnel. • Do not operate crane unless outriggers are firmly in place or vehicle could turn over. Failure to comply may result in injury or death to personnel. • Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Operate control levers with light, even pressure. Moving lever slightly will cause slow movement of crane. Moving lever to full 	

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>travel will cause faster movement of crane.</p> <ul style="list-style-type: none"> • Outrigger beams will come out slower with light pressure on lever. Pushing lever to full travel will cause fast movement. <ol style="list-style-type: none"> a. Move passenger side O/R EXT lever to IN position briefly. Move driver side O/R EXT lever to IN position briefly. b. Place both outrigger lockpins in unlock position. c. Check each control separately for malfunction, proper response, obvious damage, missing parts, binding, and extreme looseness. d. Move passenger side O/R EXT lever to OUT position until passenger side outrigger is completely out. 	<p>Controls malfunction, bind, or do not respond.</p> <p>Outrigger beam does not come out.</p>

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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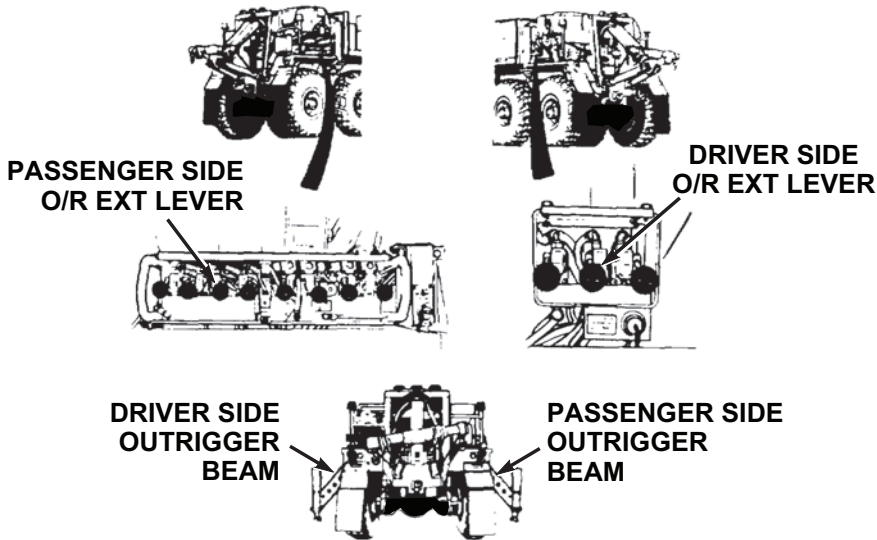


Figure 13.

		<p>e. Move driver side O/R EXT lever to OUT position until driver side outrigger is completely out.</p> <p>f. Set up outrigger pads. Check that two retaining pins are attached to each outrigger pad.</p>	<p>Outrigger beam does not come out.</p> <p>Retaining pin missing from either end.</p>
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Table 1. PMCS - DURING - Continued

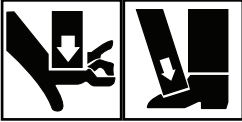
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>Keep hands and feet clear of outrigger jack cylinders. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">NOTE</p> <p>Adjust outrigger pad position as required so rod end will lower into pad socket.</p> <p>g. Move LH O/R JACK control lever to DOWN position and lower outrigger jack until rod end is firmly seated in outrigger pad. Install retaining pins.</p>	<p>Outrigger jack cylinder will not come out or will not lower completely into pad.</p>

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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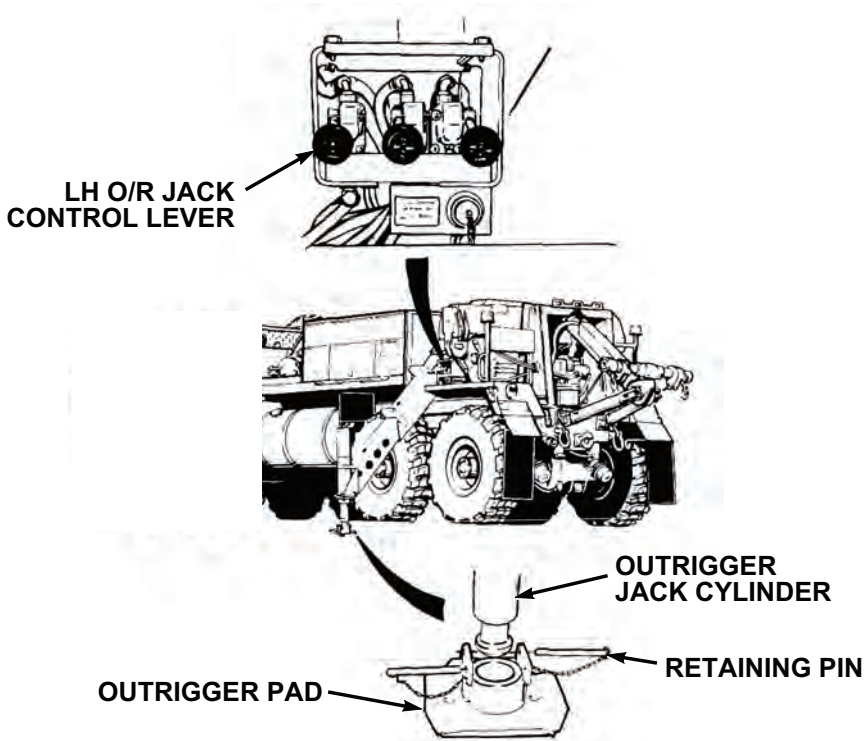


Figure 14.

- h. Move RH O/R JACK control lever to DOWN position and lower outrigger jack until rod end is firmly seated in outrigger pad. Install retaining pins.

Outrigger jack cylinder will not come out or will not lower completely into pad.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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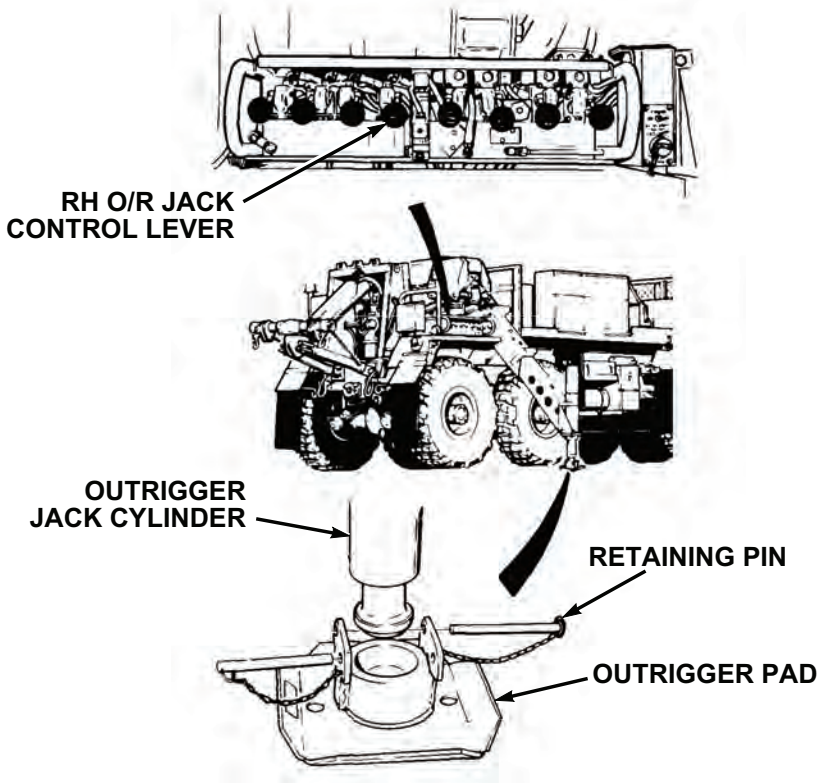


Figure 15.

- i. Check that outrigger jack cylinder on each side of vehicle is out and down.

Crane hydraulic system does not operate.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

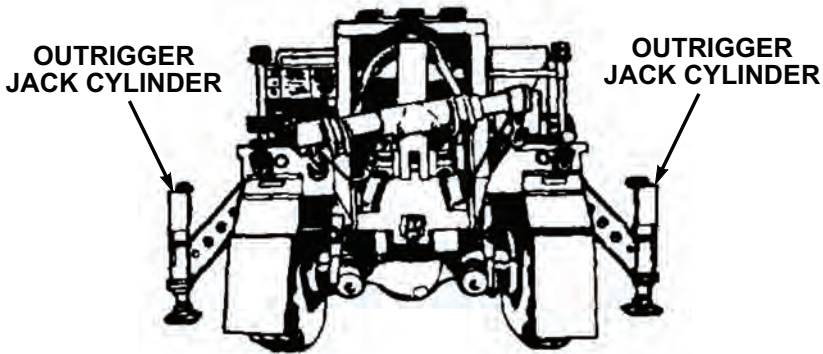


Figure 16.

- j. Seat outriggers.
- k. Raise boom to operating position.

WARNING



Do not operate crane unless outriggers are firmly in place or vehicle could turn over. Failure to comply may result in injury or death to personnel.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">CAUTION</p> <p>Do not let cable unwind and become slack or cable may get tangled on drum.</p> <p>(1) Move HOIST control lever to DOWN position until hook block rests on fender.</p>	

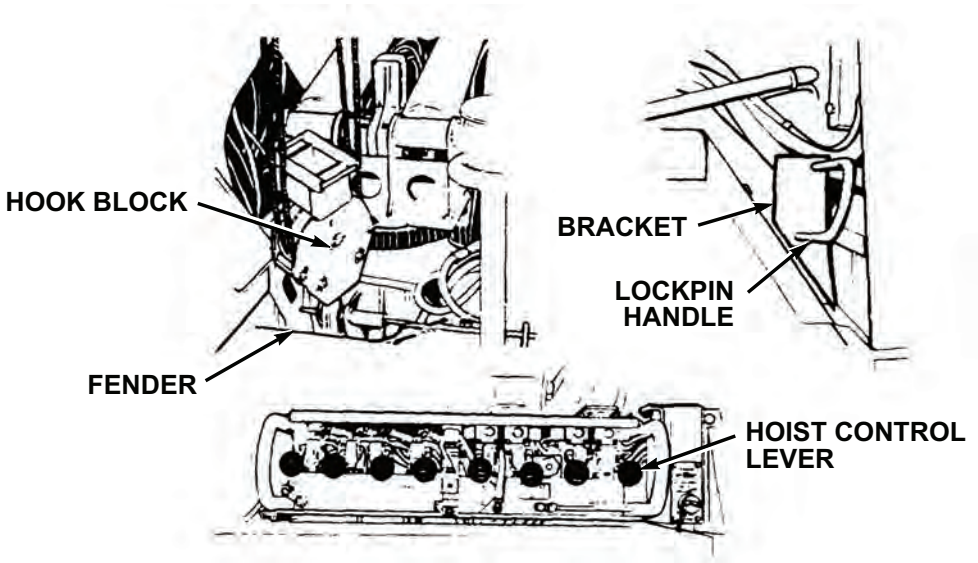
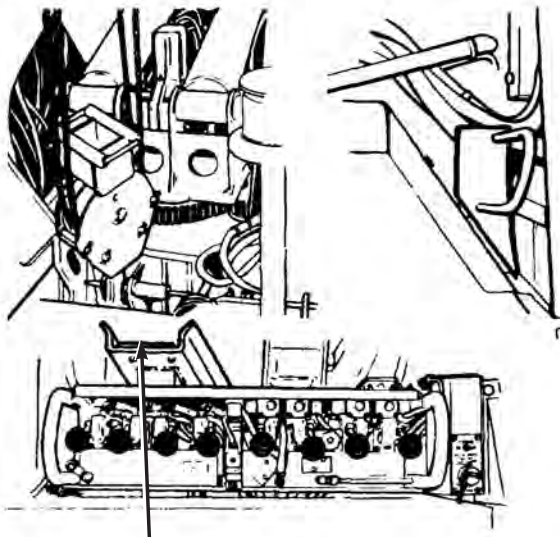


Figure 17.

			<p>(2) Pull and turn lockpin handle so handle end rests on bracket to unstow hook block.</p>	
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			(3) Check hook block for cracks. (4) Check hook block stowage guide wear plate for excessive wear.	Hook block is cracked.



**HOOK BLOCK STOWAGE
GUIDE WEAR PLATE**

Figure 18.

Table 1. PMCS - DURING - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Do not hit outrigger leg with hook block.</p> <p>(5) Move BOOM control lever to UP position until hook is five to six feet (1.5 to 1.8 m) above driver side rear fender and boom is approximately 45° above horizontal.</p>	<p>Boom does not raise.</p>

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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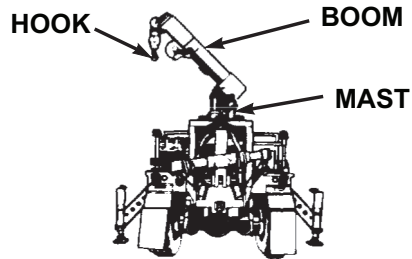
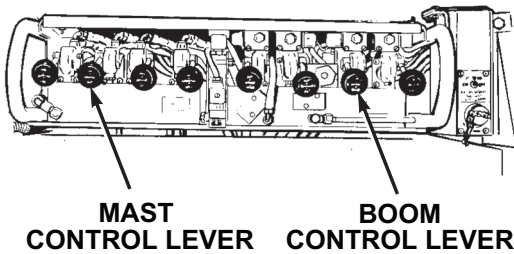


Figure 19.

		<p>(6) Move MAST control lever to UP position until the mast is fully erect and the cylinders are fully extended. Use BOOM control lever UP simultaneously as required to maintain the boom at approximately 45° above horizontal until the mast is fully erect. Hold the MAST control lever to UP position for two to three seconds after mast is fully erect to ensure cylinders are fully filled with oil.</p> <p>I. Rotate and telescope boom;</p>	<p>Mast cylinder does not raise completely before stopping.</p>
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Table 1. PMCS - DURING - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. • Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">CAUTION</p> <p>Boom must be above vehicle sides for clearance.</p> <p>(1) Move swing control lever to CW position to move boom clockwise.</p>	<p>Boom does not turn clockwise.</p>

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

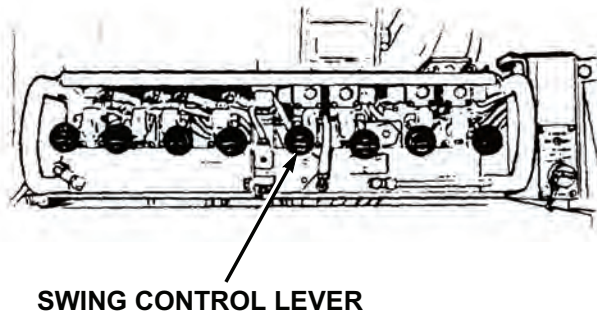


Figure 20.

- (2) Move swing control lever to CCW position to move boom counterclockwise.

Boom does not turn counterclockwise.

CAUTION

Keep hook block at least one ft. (30 cm) from end of boom. If hook block hits end of boom, cable or hook block damage may occur and crane will lose power. Wait six seconds for power to return and check crane for damage.

NOTE

- TELESCOPE and HOIST levers should be operated at the same time.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<ul style="list-style-type: none"> Crane movement from one lever may be slower than the other when operating two levers together. <p>(3) Move TELESCOPE control lever to OUT position to extend boom while moving hoist control lever to DOWN position to pay out cable.</p>	<p>Extensions do not come out.</p>

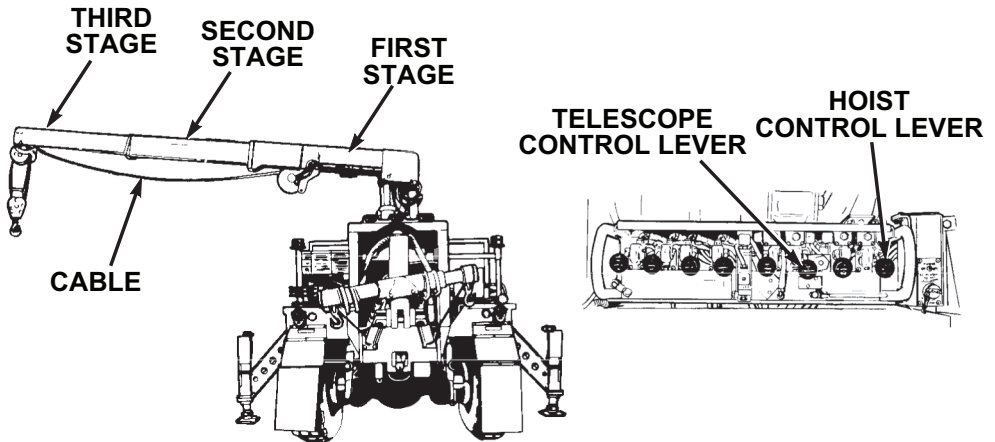



Figure 21.

		<p>(4) Check first, second, and third stages of boom for broken welds or obvious damage.</p>	<p>There are any broken welds or obvious dam-</p>
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Always wear protective gloves when checking hoist cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel.</p> <p>(5) Check cable on hoist for kinks, frays, or breaks.</p>	<p>age to boom.</p> <p>Evidence of kinks, frays, or breaks.</p>

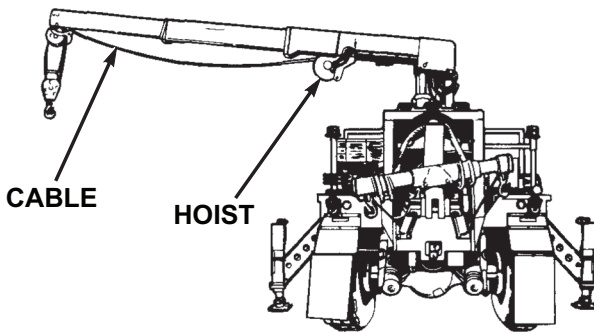


Figure 22.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>(6) Check all hoses, fittings, valves, and cylinders for signs of leaks.</p> <p>(7) Check for cracked or broken welds.</p> <p>(8) Check turntable bearing screws for obvious looseness.</p>	<p>Class III leak present.</p> <p>Cracked or broken welds are present.</p> <p>One or more turntable bearing screws are loose.</p>

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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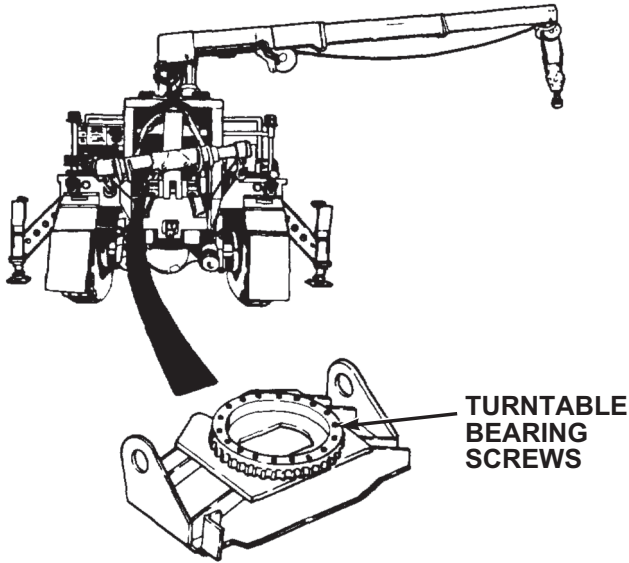


Figure 23.

CAUTION

Do not let cable become slack or cable may get tangled on drum.

- (9) Move HOIST control lever in UP position to reel in cable.

Cable does not reel in.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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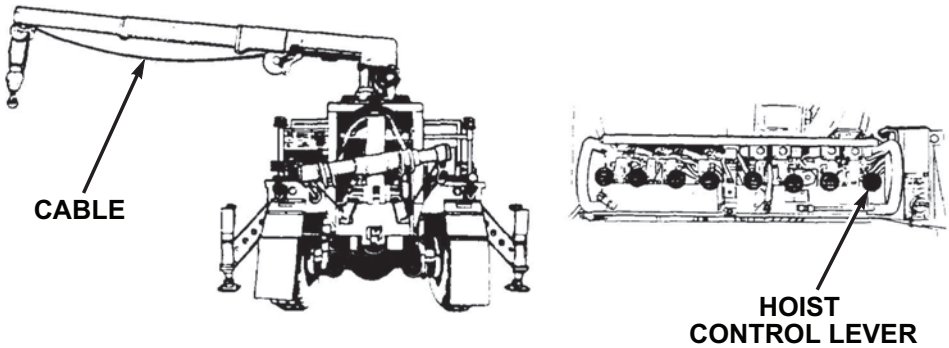


Figure 24.

		<p>(10) Move HOIST control lever in DOWN position to pay out cable.</p> <p>NOTE</p> <p>PMCS for remote control unit should only be performed when remote control unit is used/required for mission.</p> <p>2. Check crane remote control levers as follows:</p> <p>a. Set up REMOTE CONTROL UNIT passenger side.</p>	<p>Cable does not pay out.</p>
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Table 1. PMCS - DURING - Continued



Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. • Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">WARNING</p>  <p>If electrical power fails during crane operation, move switch on remote control unit to SHUTDOWN position. Fail-</p>	

Table 1. PMCS - DURING - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>ure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Crane must be above vehicle sides for clearance.</p> <p style="text-align: center;">NOTE</p> <p>Operate control levers with light, even pressure. Moving lever slightly will cause slow movement of crane. Moving lever to full travel will cause faster movement of crane.</p> <ul style="list-style-type: none"> b. Check control levers for malfunction, proper response, obvious damage, missing parts, binding, and extreme looseness. c. Rotate and telescope boom. <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may</p>	<p>Controls malfunction, bind, or do not respond.</p>

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>result in injury or death to personnel.</p> <p>(1) Move SWING control lever to CW position to turn boom clockwise.</p>	<p>Boom does not turn clockwise.</p>

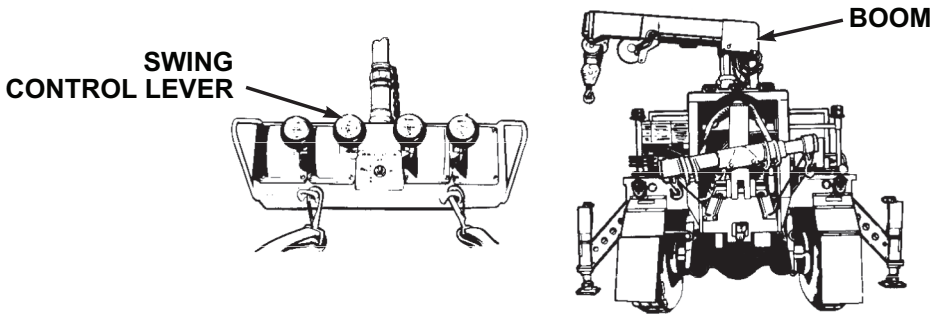


Figure 25.


			<p>(2) Move SWING control lever to CCW position to turn boom counterclockwise.</p> <p>WARNING</p>  <p>When using crane on any vehicle, park vehicle clear of all overhead electrical lines.</p>	<p>Boom does not turn counterclockwise.</p>
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Do not let cable become slack or cable may get tangled on drum.</p> <p>(3) Move HOIST control lever to UP position to take up cable. Move BOOM control lever to UP position to raise boom.</p>	<p>Cable does not reel in or boom does not raise.</p>

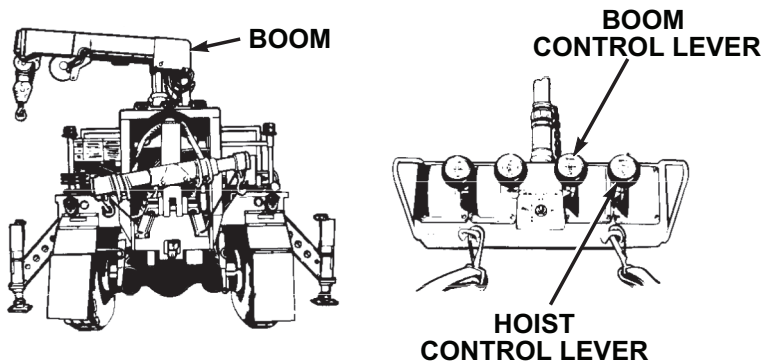


Figure 26.

			<p>(4) Move HOIST control lever to DOWN position to pay out cable. Move</p>	<p>Cable does not pay out or boom</p>
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			DOWN position to pay out cable.	

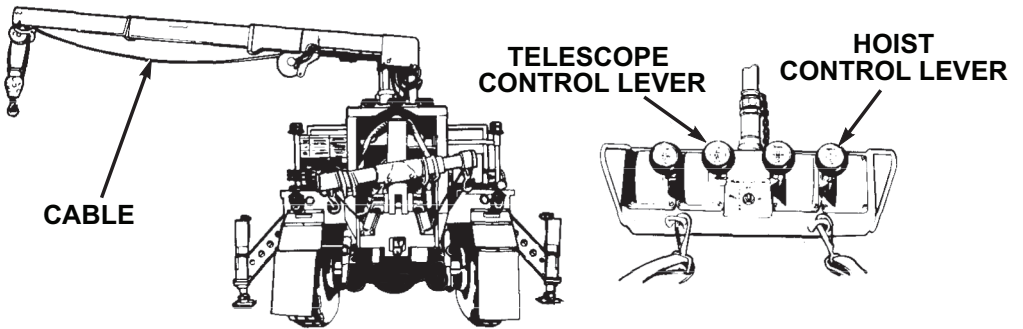


Figure 27.

		(6) Move HOIST control lever in UP position to reel in cable.	Cable will not reel in.
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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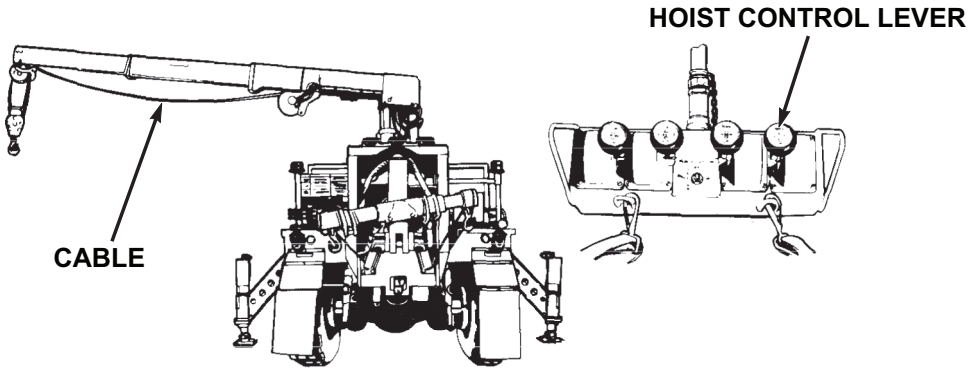


Figure 28.

		<p>(7) Check that crane and ENGINE HIGH IDLE do not operate when REMOTE CONTROL UNIT is in MHC-SHUTDOWN position. Notify organizational maintenance if crane and ENGINE HIGH IDLE operates when in MHC-SHUTDOWN position.</p> <p>(8) Shut off remote control switches.</p> <p>(9) Disconnect remote control, passenger side.</p>	<p>Crane will operate, and engine speed will increase to 1500 rpm.</p>
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
11	During	Equipment Body	<p>(10) Check operation of driver side remote control station.</p> <p>(11) Connect remote control to driver side remote control station.</p> <p>(12) Check operation of crane remote control levers.</p> <p>(13) Shut off remote control switches.</p> <p>(14) Disconnect and stow REMOTE CONTROL UNIT.</p> <p>(15) Shut down material handling crane. (Volume 1, WP 0106)</p> <p>1. Check utility chains and pallet sling for any obvious damage.</p>	Chain links, shackles or hooks cracked or broken.

Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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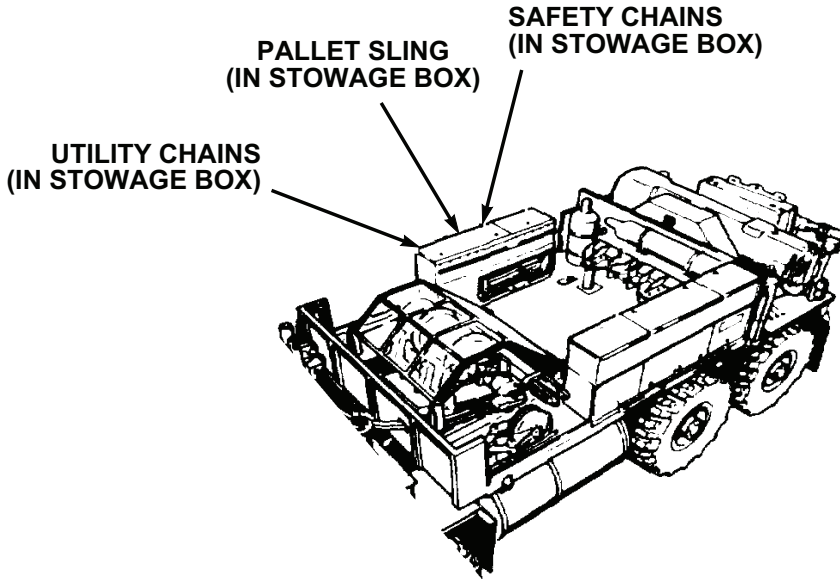


Figure 29.

12	During	Self-Recovery	<p>2. Check safety chains for obvious damage.</p> <p>NOTE</p> <p>PMCS for SRW should only be performed when SRW is required for mission.</p> <p>Check SRW control for proper operation. (Volume 1, WP 0115)</p>	Chain links, shackles, or hooks cracked or broken.
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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
		Winch (SRW)		

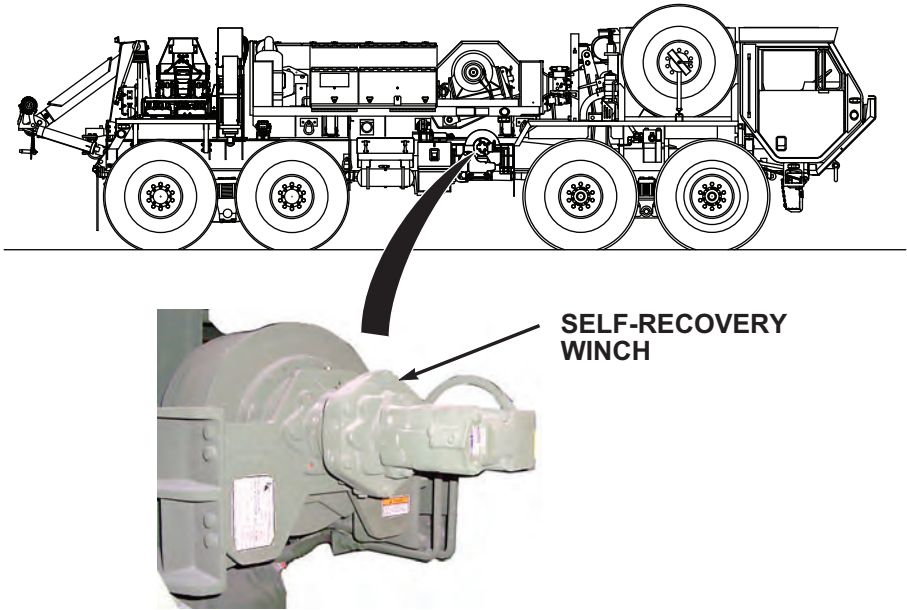


Figure 30.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
AFTER - PREVENTIVE MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Gloves, Leather (WP 0202, Table 2)

Table 1. PMCS - AFTER

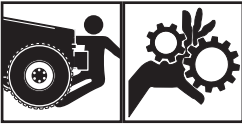

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>Do not start engine or move vehicle when personnel are under vehicle or working on brake lines. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p>  <p>Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in injury or death to personnel.</p>	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">NOTE</p> <p>Perform Operator's Before, After, and Weekly PMCS checks if:</p> <ul style="list-style-type: none"> • You are the assigned driver but have not operated the vehicle since the last weekly inspection. • You are operating the vehicle for the first time. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Clean all lubrication points with cleaning compound, solvent and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated. • Always refer to lubrication instructions (WP 0188) to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as 	

Table 1. PMCS - AFTER - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
1	After	Underneath Vehicle	<p>prescribed in lubrication instructions. (WP 0188)</p> <ol style="list-style-type: none"> 1. Check entire underside of vehicle for fluid and air leaks. 2. Check entire underside of vehicle for signs of fluid leakage (fuel, oil, and coolant). <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Prolonged contact with lubricating oil may cause skin rash. Immediately wash skin and clothing that come in contact with lubricating oil thoroughly and remove saturated clothing. Keep area well-ventilated to keep fumes at a minimum. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Do not fill hydraulic reservoir past FULL COLD mark. Fail-</p>	<p>Any fuel, Class III leak, or air lines/fittings leaking or damaged.</p> <p>Any fuel leak. Class III leak of any other fluid.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
2	After	Hydraulic Fluid Reservoir	<p>ure to comply may result in damage to equipment.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Hydraulic oil expands when heated, which may give the operator false (high) fluid level readings if the vehicle has been recently operated. • If possible, wait until hydraulic reservoir is completely cooled down (minimum of 2 hours) prior to adding hydraulic oil, otherwise fill reservoir to FULL COLD mark. <p>1. Check that hydraulic fluid level in sight glass on hydraulic fluid reservoir is at FULL COLD mark (may be above FULL COLD mark if vehicle has been recently operated). If low, add hydraulic oil to FULL COLD mark:</p>	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

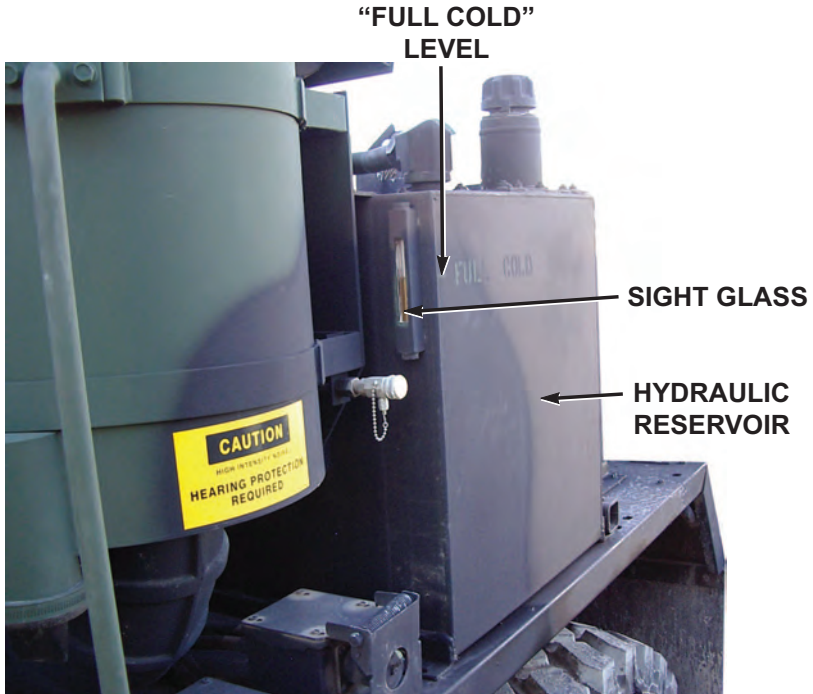


Figure 1.

- a. Remove cap from hydraulic reservoir.
- b. Fill hydraulic reservoir with lubricating oil (WP 0188, Table 4) until sight glass reads at FULL COLD mark.
- c. Install cap on hydraulic reservoir.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
3	After	Driver Side Wheels	<ol style="list-style-type: none"> 2. Check appearance of hydraulic fluid in sight glass. Make sure it is clear and not milky or foamy. 1. Check wheels for broken, cracked, and bent surfaces. 2. Check lugnuts and wheel studs for obvious looseness and damage. If loose, tighten and report to maintenance as soon as practical. 	<p>Fluid appears milky or foamy.</p> <p>Wheel is broken, cracked, or bent.</p> <p>Two or more lugnuts or studs on the same wheel are missing, broken, or bent.</p>
4	After	Driver Side Shock Absorbers	Check driver side shock absorbers for leaks and damage.	Damaged or Class III leak present.
5	After	60-Ton Tackle Block	Check 60-Ton tackle block for any obvious damage.	60-Ton tackle block is broken or missing.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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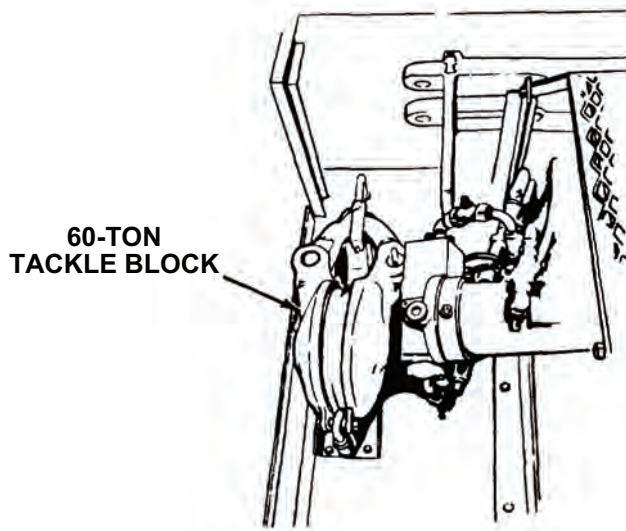


Figure 2.

6	After	Equipment Body, Towing Adapters	1. Check that towing adapters are properly secured and have no obvious damage.	Towing adapters are worn or broken.
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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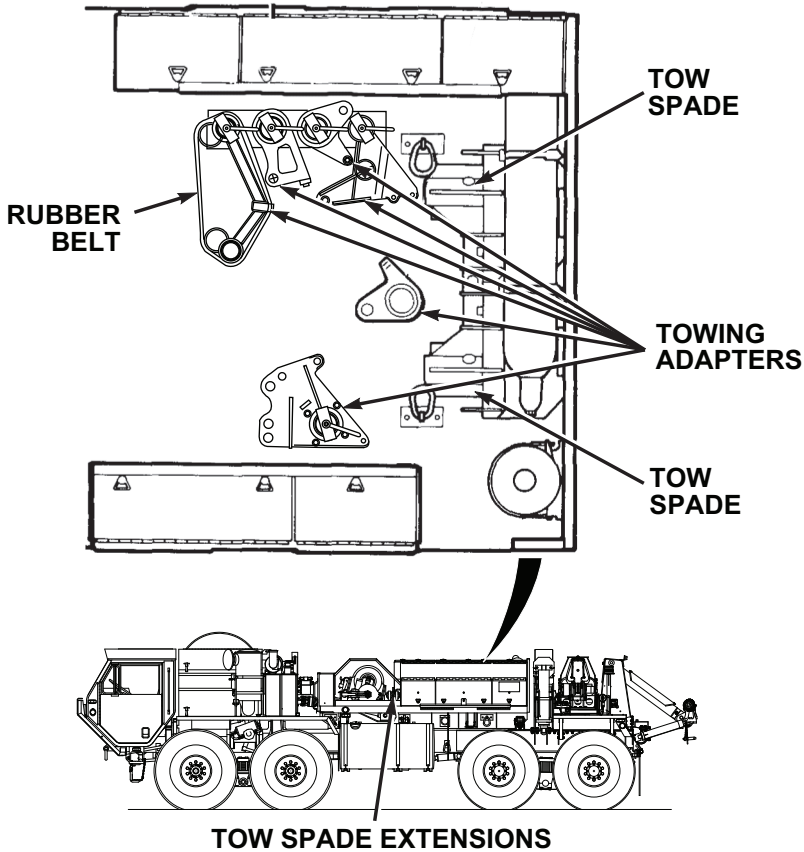


Figure 3.

2. Check that tow spades are properly secured and have no obvious damage.

Tow spades are worn or broken.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
7	After	Oxygen Tank and Acetylene Tank	<p>3. Check that tow spade extensions are properly secured and have no obvious damage.</p> <p>4. Check that the width of rubber belt is not cut more than two in. (50 mm) or belt is not worn more than two of the four plies across the entire width of the belt.</p> <p>Check that oxygen tank and acetylene tank are properly mounted and securely fastened.</p>	Belt is cut more than two in. (50 mm) or worn more than two of the four plies across the width of the belt.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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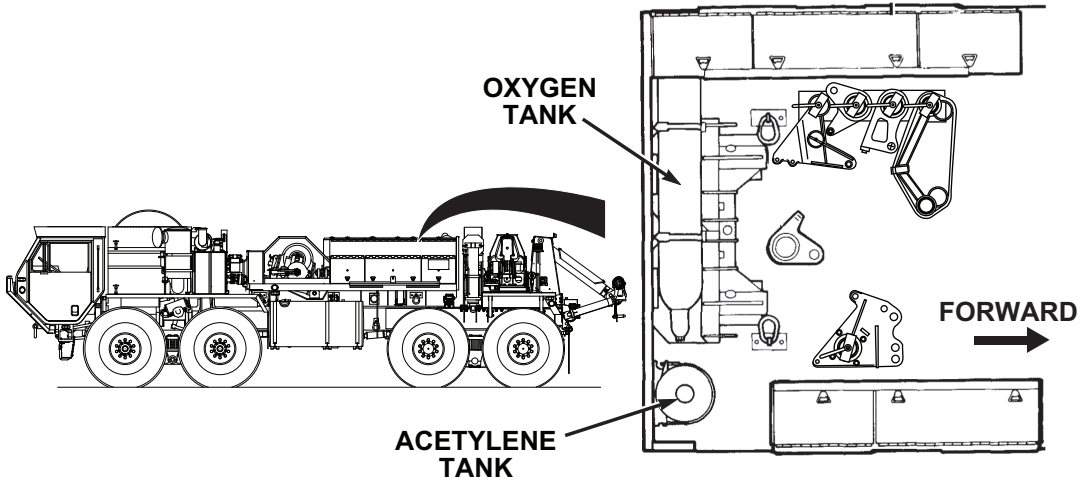


Figure 4.

8	After	Crane Control Knobs	Check all crane control knobs to make sure information on knobs is legible.	Information on crane control knobs is not legible.
9	After	Rear Exterior	Check rear of vehicle for obvious damage that would impair operation.	Any damage that would impair operation.
10	After	Towing Gladhands	Check for presence and condition of towing gladhands and rubber grommets.	

Table 1. PMCS - AFTER - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
11	After	Passenger side Wheels	<ol style="list-style-type: none"> 1. Check wheels for broken, cracked, and bent surfaces. 2. Check lugnuts and wheel studs for obvious looseness and damage. If loose, tighten and report to maintenance as soon as practical. 	<p>Wheel is broken, cracked, or bent.</p> <p>Two or more lugnuts or studs on the same wheel are missing, broken, or bent.</p>
12	After	Passenger Side Shock Absorbers	<p>Check passenger side shock absorbers for leaks and damage.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Vehicles air system is pressurized, be sure to wear proper eye protection and keep face away from drain valves while draining air reservoirs. Open air drain valves slowly to prevent sudden blast of air. Failure to comply may result in injury to personnel.</p>	<p>Damaged or Class III leak present.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
13	After	Air Reservoirs	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Only drain air reservoirs that are located under the passenger side battery box. • The M983 has three air reservoirs under the battery box, all other models have two. <p>1. Drain only air reservoirs under battery box as follows:</p>	

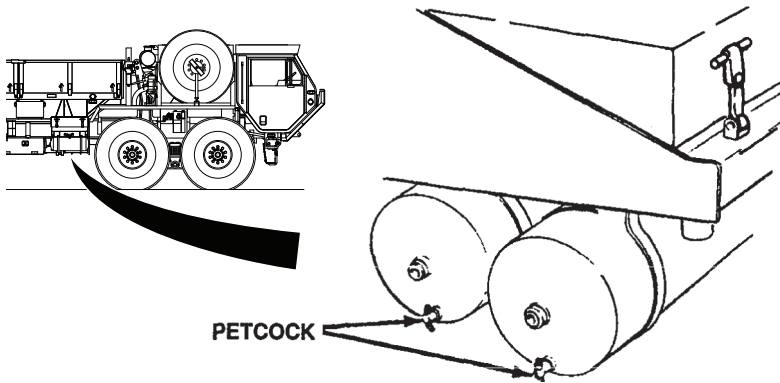


Figure 5.

- a. Turn petcock on bottom of reservoir to open position.
- b. Let condensation drain off.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
14	After	Transmission	<p>c. Turn petcock on bottom of reservoir to closed position.</p> <p style="text-align: center;">CAUTION</p> <p>Clean around end of fill tube prior to removing dipstick. This will aid in preventing dirt or foreign matter from entering the transmission and causing damage.</p> <p style="text-align: center;">NOTE</p> <p>Vehicle is parked (Volume 1, WP 0056) on a flat, level surface.</p> <p>Engine is at idle.</p> <p>Transmission is at normal operating temperature, 160-200°F (71-93°C).</p> <p>1. With engine running, check transmission fluid level on dipstick:</p>	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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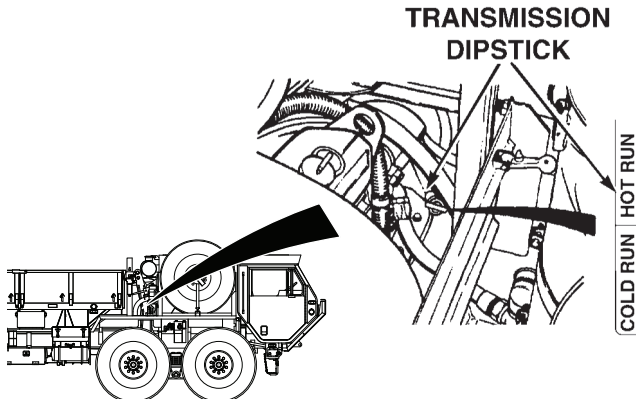


Figure 6.

NOTE

Fluid level should be between HOT FULL and HOT ADD marks.

2. Add OE/HDO (WP 0188, Table 2) as required or notify field level maintenance if overfull.

1. Check spare tire for cuts, gouges, cracks, or scratches. Remove any sharp objects.

15	After	Spare Tire/ Wheel	<p>NOTE</p> <p>Fluid level should be between HOT FULL and HOT ADD marks.</p> <p>2. Add OE/HDO (WP 0188, Table 2) as required or notify field level maintenance if overfull.</p> <p>1. Check spare tire for cuts, gouges, cracks, or scratches. Remove any sharp objects.</p>	Tire has cuts, gouges, or cracks that could result in tire failure. Tire is missing or
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
16	After	Exterior of Cab	<ol style="list-style-type: none"> 2. Check wheel for broken, cracked, and bent surfaces. 3. Check lugnuts and wheel studs for obvious looseness and damage. 1. Visually inspect cab and components for damage. <p style="text-align: center;">NOTE</p> <p>Operation of vehicle with broken/missing mirrors may violate AR 385-55. (WP 0200)</p>	<p>unserviceable.</p> <p>Wheel is broken, cracked, or bent.</p> <p>Two or more lugnuts or studs are missing, broken, or bent.</p> <p>Any component is damaged that would impair vehicle mission.</p>
17	After	Mirrors	Check condition of mirrors.	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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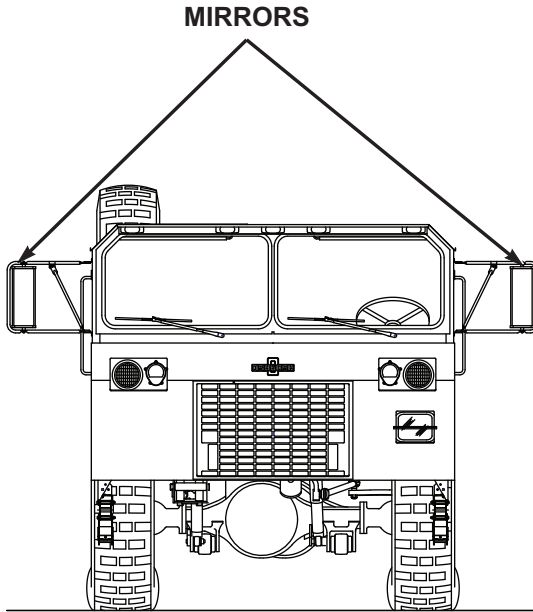


Figure 7.

NOTE

Operation of vehicle with damaged or missing windshield may violate AR 385-55. (WP 0200)

18

After

Windshield and Wiper Arms/Blades

1. Check windshield glass for presence and condition.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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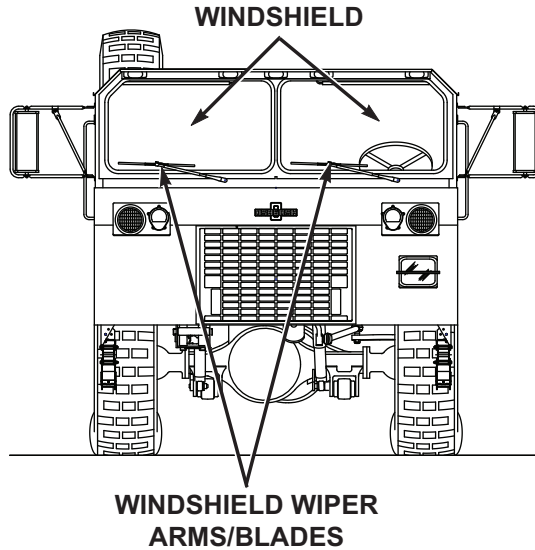


Figure 8.

19	After	Fan Switch	<p style="text-align: center;">NOTE</p> <p>Operation of vehicle with damaged wiper arms/blades may violate AR 385-55. (WP 0200)</p> <p>2. Check condition of wiper arms and blades.</p> <p>Check fan control switch for proper operation (Volume 1, WP 0039) in LO and HI positions.</p>	
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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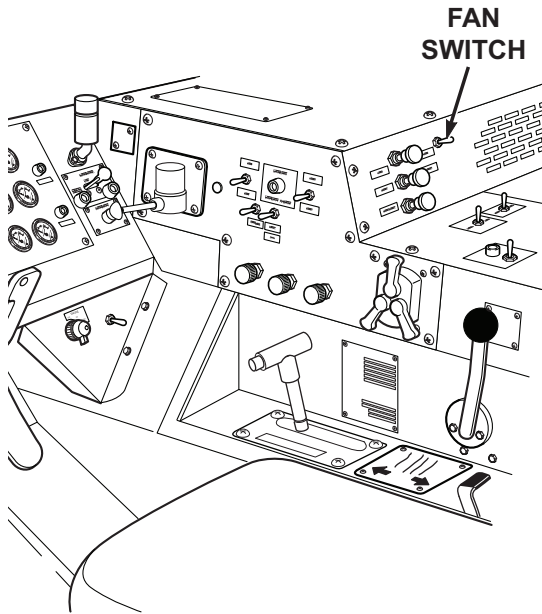


Figure 9.

NOTE

Operation of vehicle with malfunctioning windshield wiper may violate AR 385-55. (WP 0200)

20	After	WIPER/ Washer Controls	<ol style="list-style-type: none"> 1. Check WIPER controls (driver and passenger side) for proper operation. (Volume 1, WP 0038) 	
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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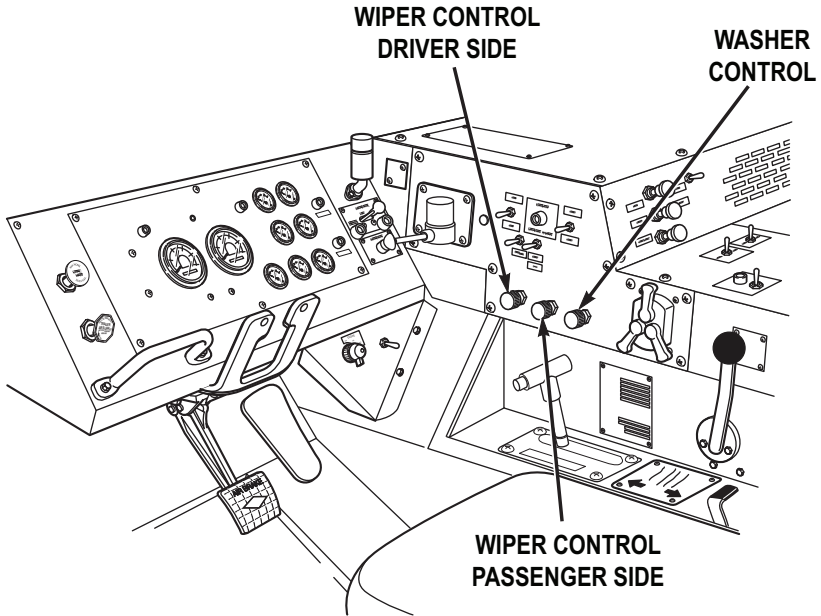


Figure 10.

21	After	<p>Horns</p> <ol style="list-style-type: none"> 2. Check windshield washer control for proper operation. <p>NOTE</p> <p>Operation of vehicle with malfunctioning horn may violate AR AR 385-55. (WP 0200)</p> <p>Check both horns (air and electric) for proper operation.</p>
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
22	After	Turn Signal Control And Indicators	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Light checks will require assistance. • Operation of vehicle with malfunctioning turn signal control may violate AR 385-55. (WP 0200) <p>1. Check turn signal control for proper operation. (Volume 1, WP 0021)</p>	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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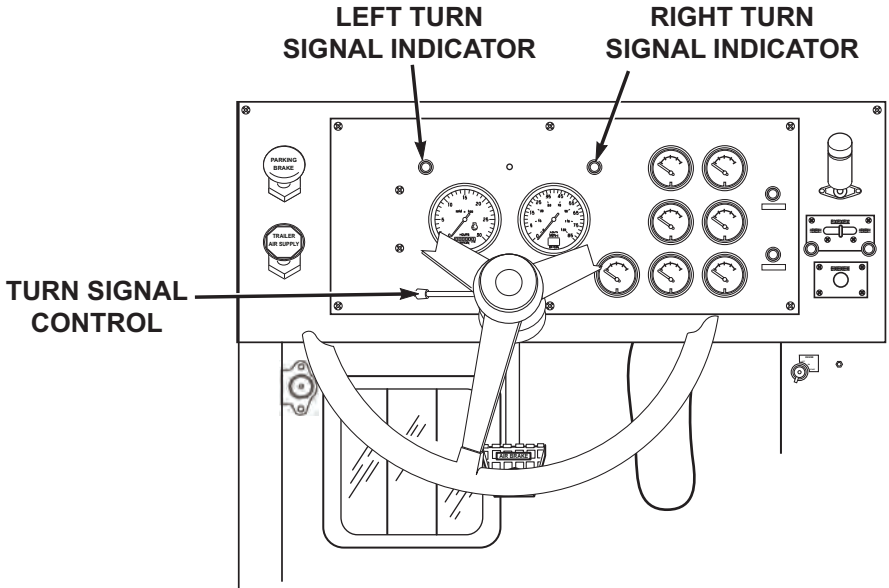


Figure 11.

2. Check turn signal indicators for proper operation. (Volume 1, WP 0023)

NOTE

- Light checks will require assistance.
- Operation of vehicle with malfunctioning emergency flasher control may violate AR 385-55. (WP 0200)

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
23	After	Emergency Flasher Control	Check emergency flasher control for proper operation. (Volume 1, WP 0021)	

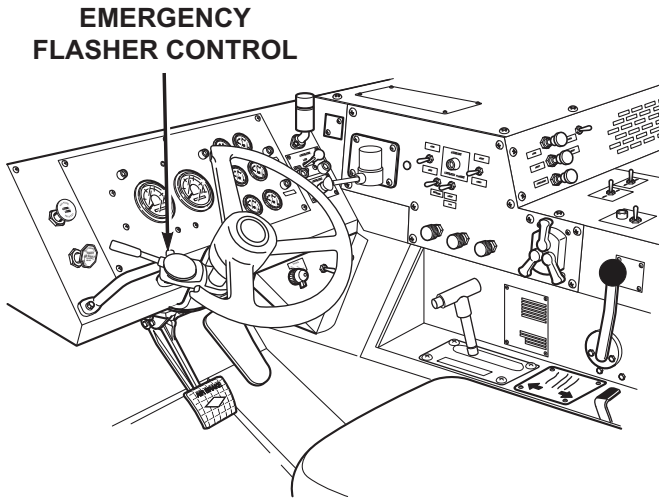


Figure 12.

NOTE

- Light checks will require assistance.
- Operation of vehicle with malfunctioning service lights may violate AR 385-55. (WP 0200)

Table 1. PMCS - AFTER - Continued



Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
24	After	Lights	<p>Check headlights, clearance lights, turn signals, and brake lights for proper operation.</p> <p style="text-align: center;">NOTE</p> <p>Operation of vehicle with malfunctioning beacon light may violate AR 385-55. (WP 0200)</p>	
25	After	Portable Beacon Light (If equipped)	<p>Remove beacon light from glove box and check for proper operation. (Volume 1, WP 0097)</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Keep hands clear of heavy-duty winch cable. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Always wear protective gloves when handling 	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
26	After	Heavy-Duty Winch (if used)	<p>winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel.</p> <ul style="list-style-type: none"> • Never operate winch with less than five wraps of cable on winch drum. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">NOTE</p> <p>Complete this PMCS procedure only if heavy-duty winch was used during mission.</p> <ol style="list-style-type: none"> 1. Check for evidence of bent or crushed hydraulic hoses or leakage at any threaded coupling or quick disconnect. 	Class III leak present. Lines or fittings are damaged.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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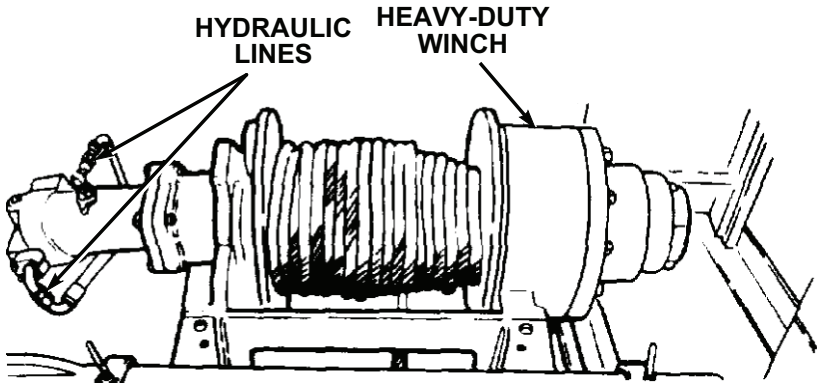


Figure 13.

		<p>2. Check that winch cable clevis pin is secure and in place.</p>	<p>Clevis pin missing.</p>
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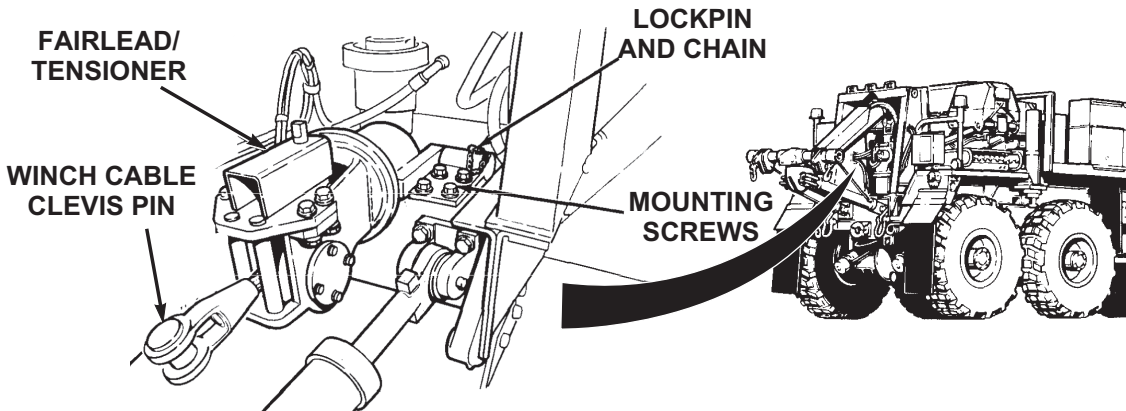


Figure 14.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>3. Check fairlead/tensioner for obvious damage, and that fairlead/tensioner can be swiveled and placed in both stowed and operational positions.</p> <p>4. Check that fairlead/tensioner mounting screws are secure.</p> <p>5. Check for missing or damaged fairlead/tensioner lockpin and chain.</p> <p style="text-align: center;">NOTE</p> <p>This procedure is a two soldier task.</p> <p>6. Pay out heavy-duty winch cable (Volume 1, WP 0043) and check cable of winch for kinks, frays, or breaks.</p>	<p>Fairlead/tensioner will not swivel, cannot be raised or lowered.</p> <p>Mounting screws loose or missing.</p> <p>Has one missing or broken lockpin.</p> <p>Evidence of kinks, frays, or breaks.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

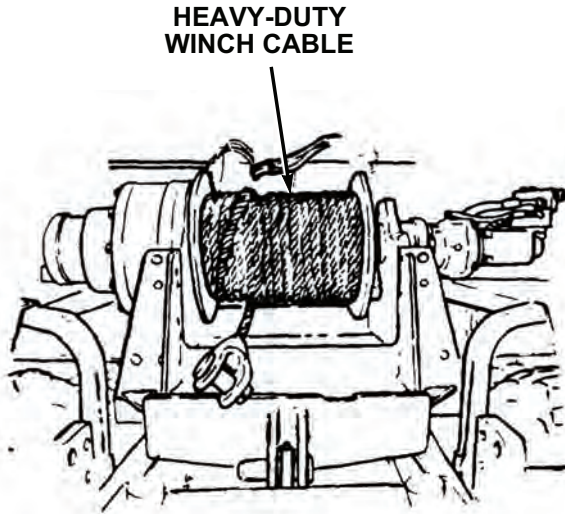


Figure 15.

NOTE

This procedure is a two soldier task.

7. Clean and lubricate heavy-duty winch cable with OE/HDO. (WP 0188)

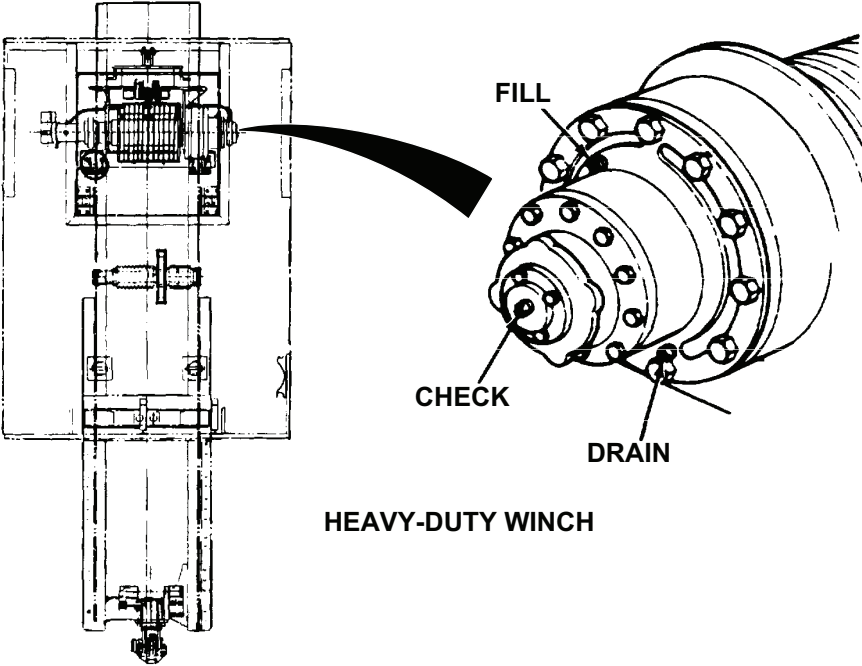
NOTE

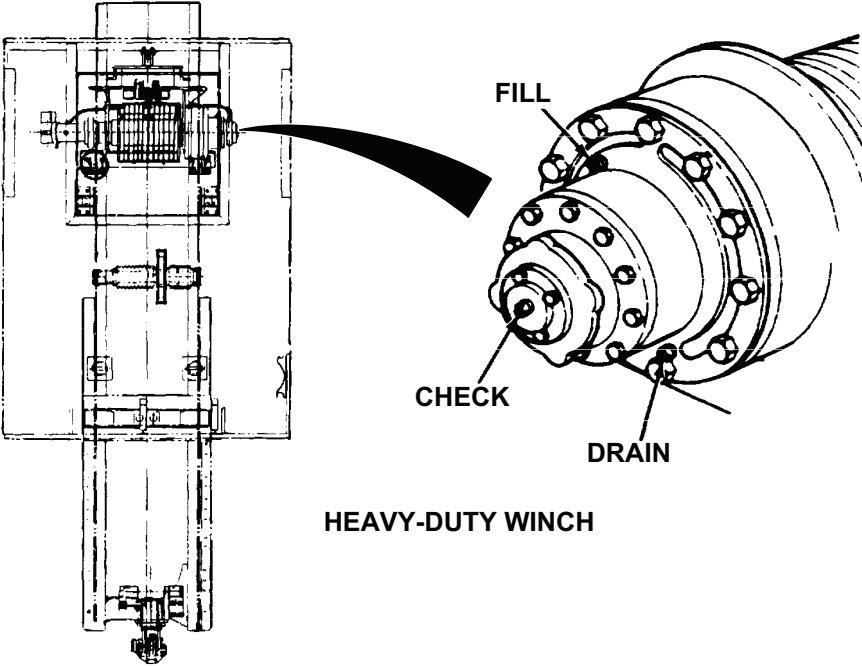
Lubricate heavy-duty snatch block center shaft only after each use.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>8. Lubricate heavy-duty snatch block center shaft (one fitting) with GAA (one fitting). (WP 0188)</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Complete drain and refill of heavy-duty winch drum gearbox after first 10 hours of heavy-duty winch operation. • After initial 10 hour drain and refill this procedure becomes an annual requirement. <p>9. Drain and refill heavy-duty winch drum gearbox with lubricant appropriate to operating environment). (WP 0188)</p>	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
 <p data-bbox="554 1001 831 1037">HEAVY-DUTY WINCH</p>				



HEAVY-DUTY WINCH

Figure 16.

NOTE

- Complete this PMCS procedure only if retrieval system was used during mission.
- Retrieval cylinder thermal relief valves (located on crosstube end of cylinders) can discharge

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
27	After	Retrieval System (if used)	<p>small amounts of oil as part of normal operation.</p> <ol style="list-style-type: none"> 1. Check lift cylinder and hoses, driver side and passenger side tow cylinders and hoses, crosstube, and control valves for leaks and obvious damage. 	Any Class III leaks are found.

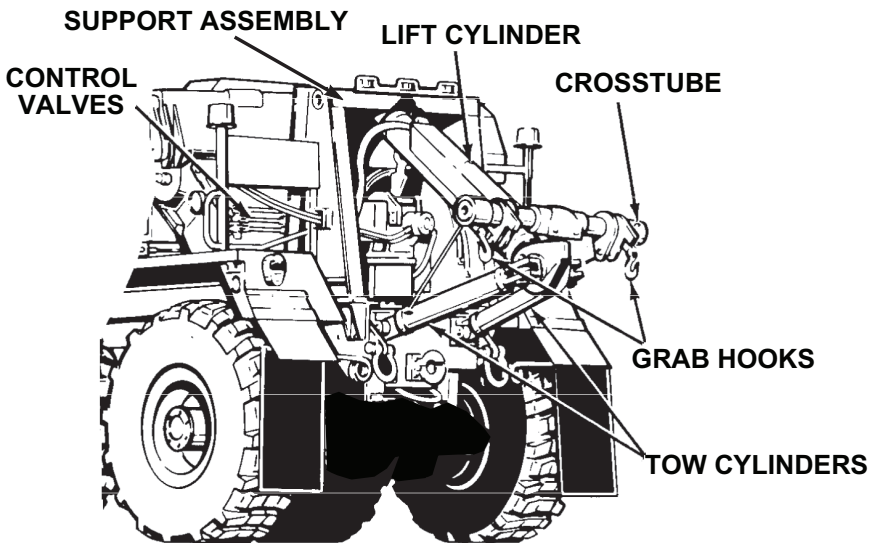


Figure 17.

NOTE

When properly installed, cotter pins should be toward outside of vehicle.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>2. Check grab hooks for damaged or missing cotter pins.</p> <p style="text-align: center;">NOTE</p> <p>PMCS for retrieval system should only be performed when retrieval system is required for mission.</p> <p>3. Check operation of retrieval system as follows:</p> <ul style="list-style-type: none"> a. Start engine. (Volume 1, WP 0044) b. Set PTO ENGAGE switch to ON position. PTO indicator light will illuminate. 	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

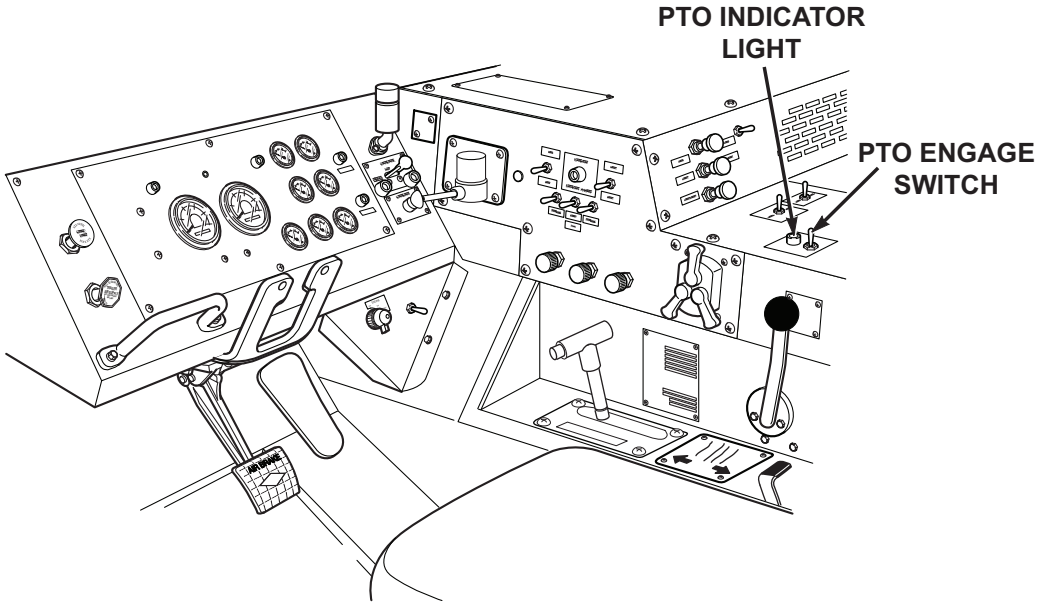


Figure 18.

- c. Set ON/OFF POWER switch to ON position.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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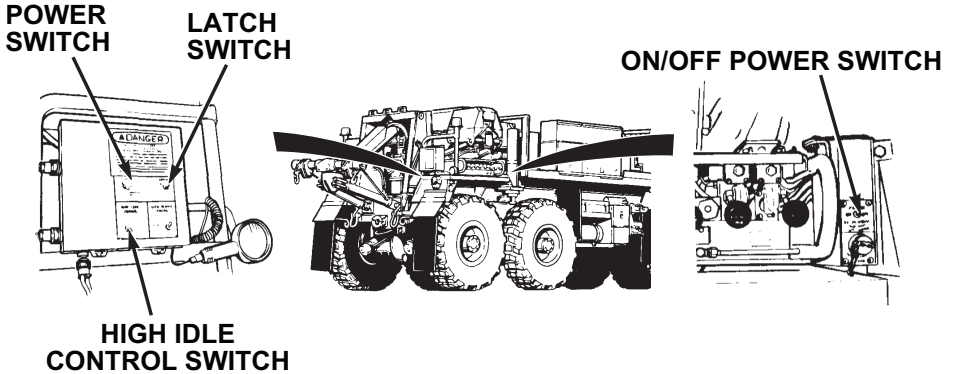


Figure 19.

- d. Set POWER switch to ON position.
- e. Set HIGH IDLE CONTROL switch to CONTINUOUS.

WARNING



Excessive noise levels are present any time the heavy-duty winch, crane, or retrieval system is operating. Wear single hearing protection (earplugs or equivalent) while working around equipment when it is running. Failure to

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>comply may result in injury or death to personnel. Seek medical aid should you suspect a hearing problem.</p> <p>f. Push and release LATCH switch. Engine speed should increase to approximately 1500 RPM.</p> <p>g. Operate retrieval system control levers (Volume 1, WP 0030) and check for proper operation of both levers and cylinders.</p>	<p>Engine speed does not increase to 1500 RPM.</p> <p>Retrieval system does not operate.</p>

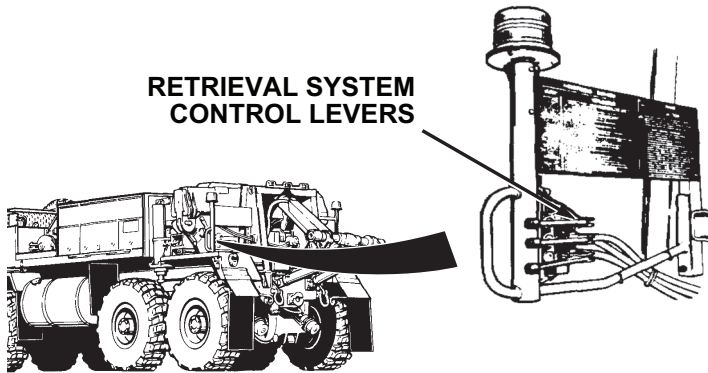


Figure 20.

NOTE

Complete this PMCS procedure only if material handling

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
28	After	Material Handling Crane (if used)	<p>crane was used during mission.</p> <ol style="list-style-type: none"> 1. Inspect crane for loose nuts and screws, hydraulic leaks, damage to hydraulic hoses and lines, and obvious damage. <p style="text-align: center;">NOTE</p> <p>For more information on material handling crane operating instructions, refer to grove crane operation (manual control) procedures. (Volume 1, WP 0106)</p> <ol style="list-style-type: none"> 2. Check that crane hydraulic system is operable as follows: <ol style="list-style-type: none"> a. Start engine. (Volume 1, WP 0044) b. Set PTO ENGAGE switch to ON position. PTO indicator light will illuminate. 	Class III leak or damaged hoses, lines, or fittings.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

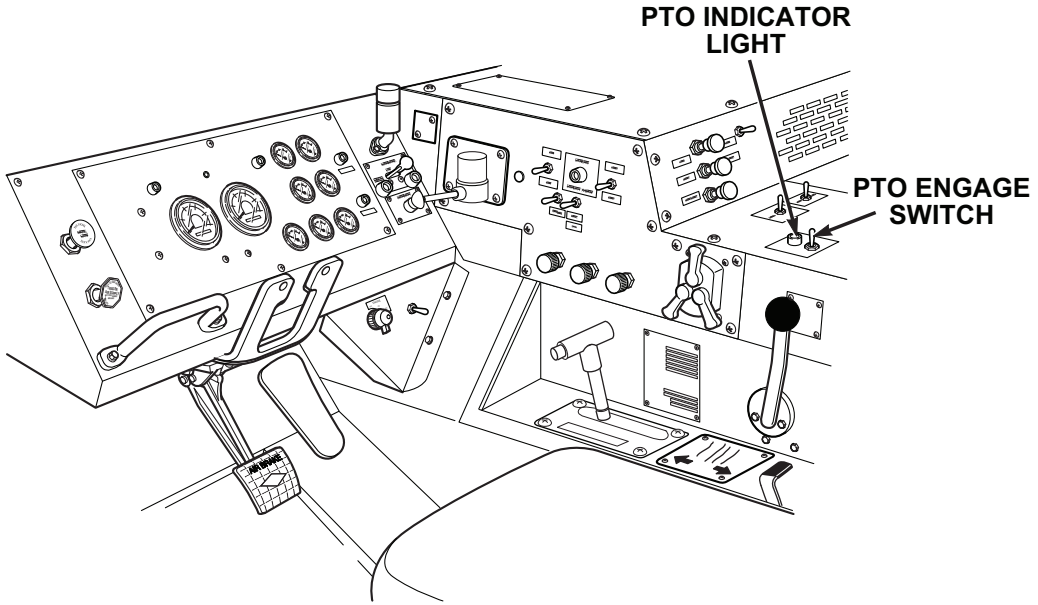


Figure 21.

- | | | | |
|--|--|--|--|
| | | | <ul style="list-style-type: none"> c. Set ON/OFF POWER switch to ON position. |
|--|--|--|--|

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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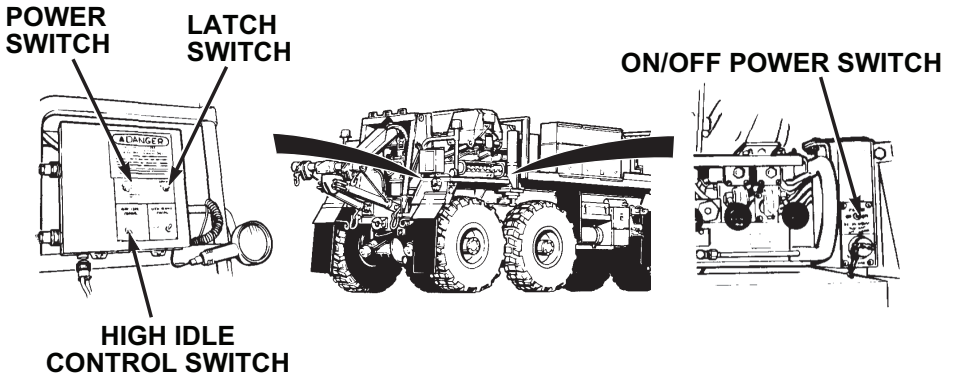


Figure 22.

- d. Set HIGH IDLE CONTROL switch to CONTINUOUS.

WARNING



Excessive noise levels are present any time the heavy-duty winch, crane, or retrieval system is operating. Wear single hearing protection (earplugs or equivalent) while working around equipment when it is running. Failure to comply may result in injury or death to personnel. Seek

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>medical aid should you suspect a hearing problem.</p> <p>e. Push and release LATCH switch. Engine speed should increase to approximately 1500 rpm.</p> <p>3. Check crane manual control levers as follows:</p>	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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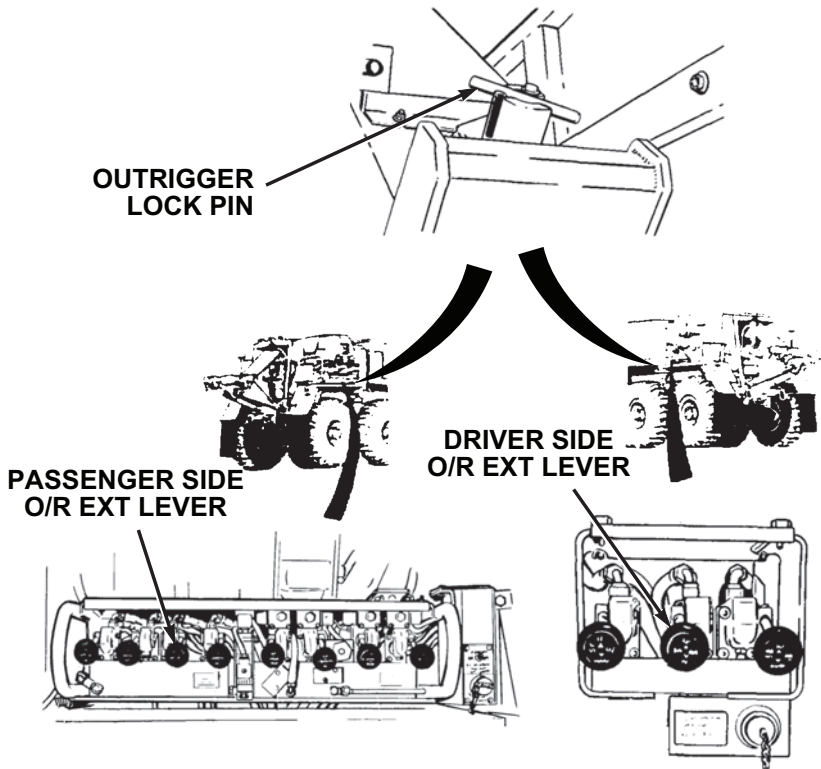


Figure 23.

Table 1. PMCS - AFTER - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Stand clear of outrigger beams while operating levers. Failure to comply may result in injury or death to personnel. • Do not operate crane unless outriggers are firmly in place or vehicle could turn over. Failure to comply may result in injury or death to personnel. • Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Operate control levers with light, even pressure. Moving lever slightly will cause slow movement of crane. Moving lever to full 	

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>travel will cause faster movement of crane.</p> <ul style="list-style-type: none"> • Outrigger beams will come out slower with light pressure on lever. Pushing lever to full travel will cause fast movement. <ol style="list-style-type: none"> a. Move passenger side O/R EXT lever to IN position briefly. Move driver side O/R EXT lever to IN position briefly. b. Place both outrigger lockpins in unlock position. c. Check each control separately for malfunction, proper response, obvious damage, missing parts, binding, and extreme looseness. d. Move right O/R EXT lever to OUT position until right outrigger is completely out. 	<p>Controls malfunction, bind, or do not respond.</p> <p>Outrigger beam does not come out.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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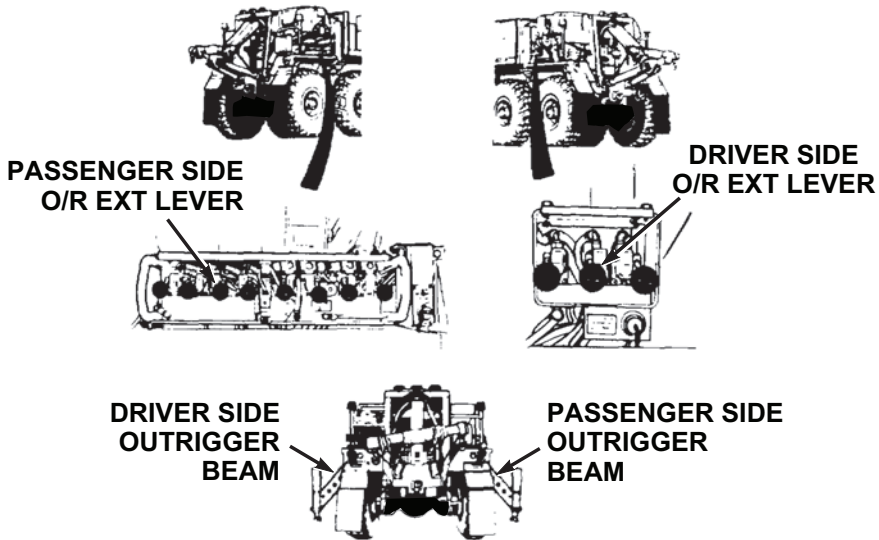


Figure 24.

		<p>e. Move left O/R EXT lever to OUT position until left outrigger is completely out.</p> <p>f. Set up outrigger pads. Check that two retaining pins are attached to each outrigger pad.</p>	<p>Outrigger beam does not come out.</p> <p>Retaining pin missing from either end.</p>
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Table 1. PMCS - AFTER - Continued

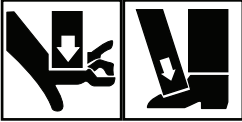
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>Keep hands and feet clear of outrigger jack cylinders. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">NOTE</p> <p>Adjust outrigger pad position as required so rod end will lower into pad socket.</p> <p>g. Move LH O/R JACK control lever to DOWN position and lower outrigger jack until rod end is firmly seated in outrigger pad. Install retaining pins.</p>	<p>Outrigger jack cylinder will not come out or will not lower completely into pad.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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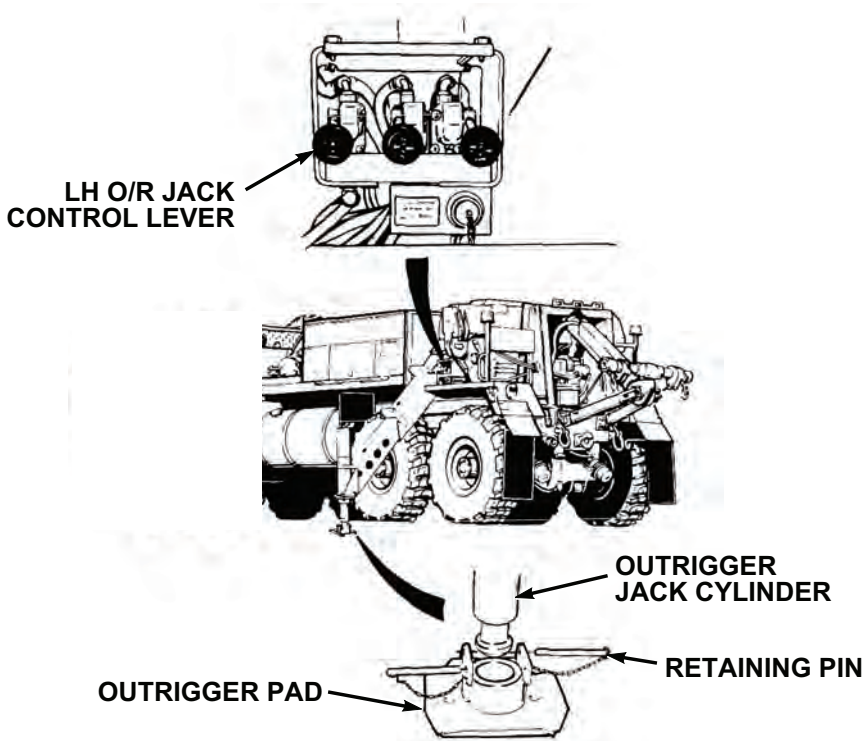


Figure 25.

- h. Move RH O/R JACK control lever to DOWN position and lower outrigger jack until rod end is firmly seated in outrigger pad. Install retaining pins.

Outrigger jack cylinder will not come out or will not lower completely into pad.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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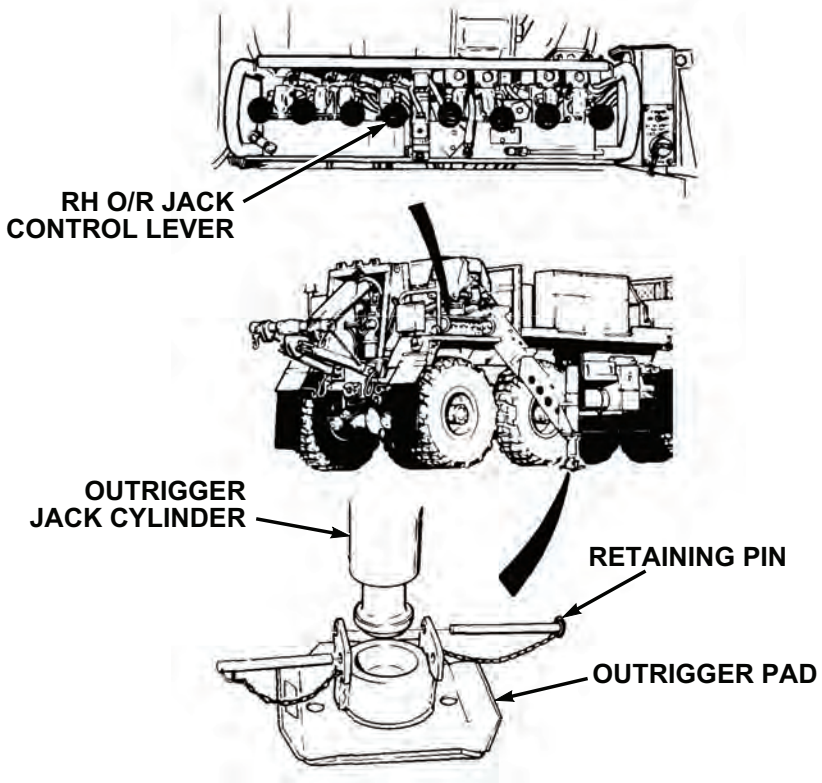


Figure 26.

- i. Check that outrigger jack cylinder on each side of vehicle is out and down.

Crane hydraulic system does not operate.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

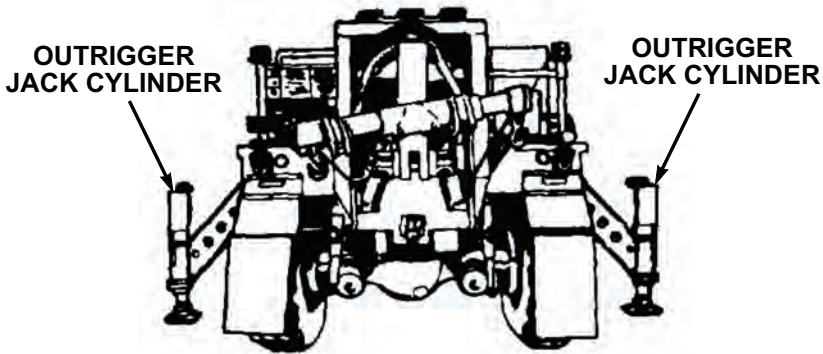


Figure 27.

- j. Seat outriggers.
- k. Raise boom to operating position. (Volume 1, WP 0106)

WARNING



Do not operate crane unless outriggers are firmly in place or vehicle could turn over. Failure to comply may result in injury or death to personnel.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">CAUTION</p> <p>Do not let cable unwind and become slack, or cable may get tangled on drum.</p> <p>(1) Move HOIST control lever to DOWN position until hook block rests on fender.</p>	

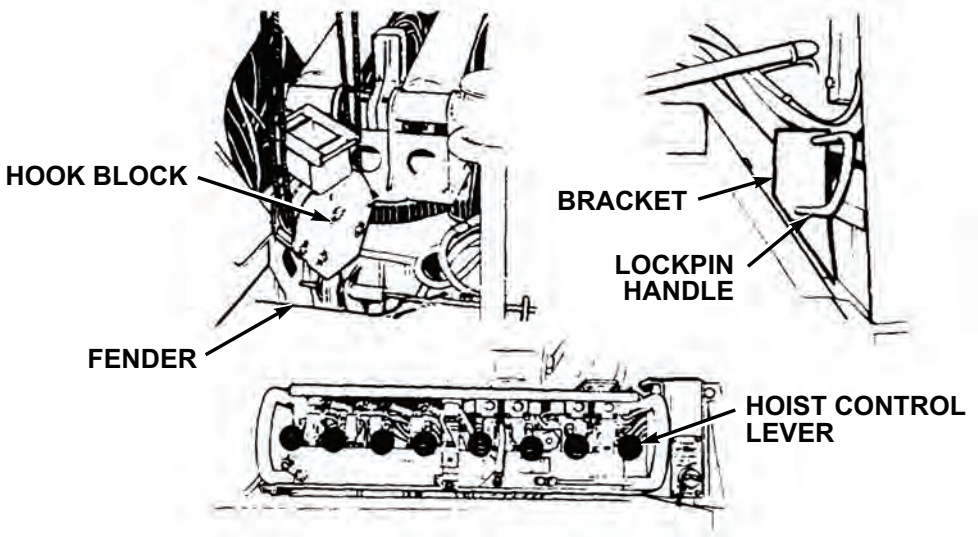
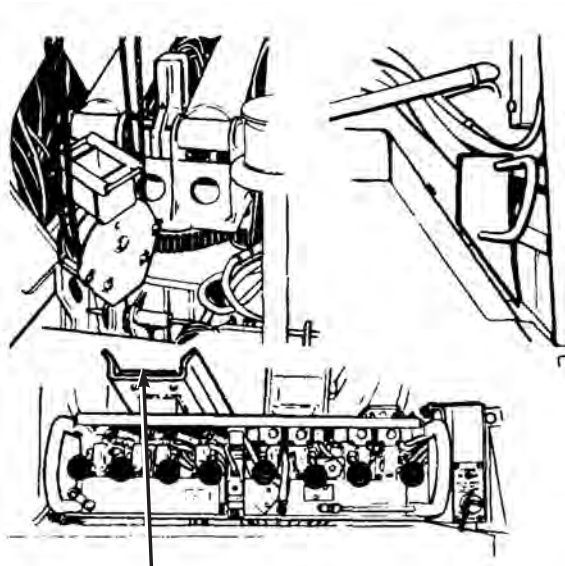


Figure 28.

			<p>(2) Pull and turn lockpin handle so handle end rests on bracket to unstow hook block.</p>	
--	--	--	--	--

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			(3) Check hook block for cracks. (4) Check hook block stowage guide wear plate for excessive wear.	Hook block is cracked.



**HOOK BLOCK STOWAGE
GUIDE WEAR PLATE**

Figure 29.

Table 1. PMCS - AFTER - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Do not hit outrigger leg with hook block. Failure to comply may result in damage to equipment.</p> <p>(5) Move BOOM control lever to UP position until hook is five to six feet (1.5 to 1.8 m) above driver side rear fender, and boom is approximately 45° above horizontal.</p>	<p>Boom does not raise.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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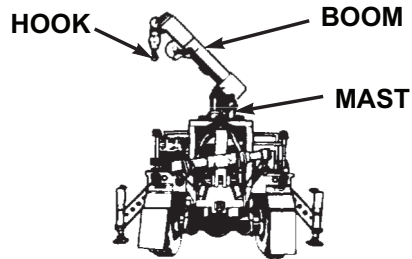
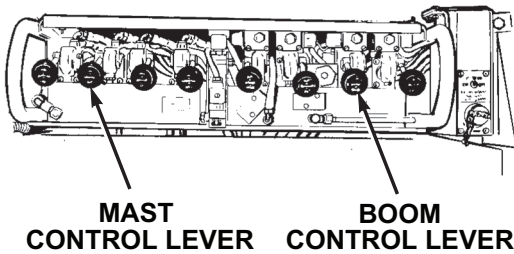


Figure 30.

		<p>(6) Move MAST control lever to UP position until the mast is fully erect and the cylinders are fully extended. Use BOOM control lever UP simultaneously as required to maintain the boom at approximately 45° above horizontal until the mast is fully erect. Hold the MAST control lever to UP position for two to three seconds after mast is fully erect to ensure cylinders are fully filled with oil.</p> <p>I. Rotate and telescope boom;</p>	<p>Mast cylinder does not raise completely before stopping.</p>
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Table 1. PMCS - AFTER - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. • Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">CAUTION</p> <p>Boom must be above vehicle sides for clearance.</p> <p>(1) Move swing control lever to CW position to move boom clockwise.</p>	<p>Boom does not turn clockwise.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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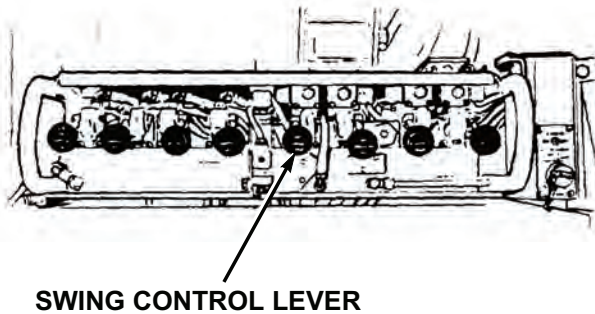


Figure 31.

- (2) Move swing control lever to CCW position to move boom counterclockwise.

Boom does not turn counterclockwise.

CAUTION

Keep hook block at least 1 ft. (30 cm) from end of boom. If hook block hits end of boom cable or hook block damage may occur and crane will lose power. Wait six seconds for power to return and check crane for damage.

NOTE

- TELESCOPE and HOIST levers should be operated at the same time.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<ul style="list-style-type: none"> Crane movement from one lever may be slower than the other when operating two levers together. <p>(3) Move TELESCOPE control lever to OUT position to extend boom while moving hoist control lever to DOWN position to pay out cable.</p>	<p>Extensions do not come out.</p>

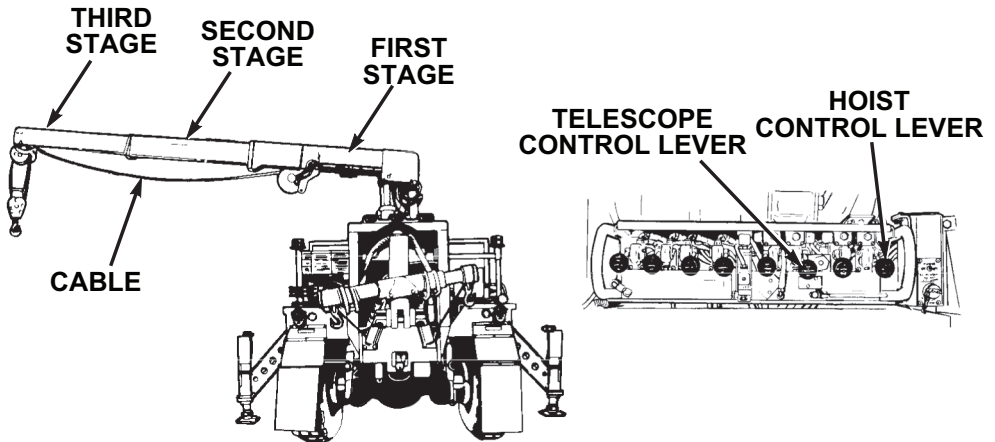



Figure 32.

			<p>(4) Check first, second, and third stages of boom for broken welds or obvious damage.</p>	<p>There are broken welds or obvious dam-</p>
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Always wear protective gloves when checking hoist cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel.</p> <p>(5) Check cable on hoist for kinks, frays, or breaks.</p>	<p>age to boom.</p> <p>Evidence of kinks, frays, or breaks.</p>

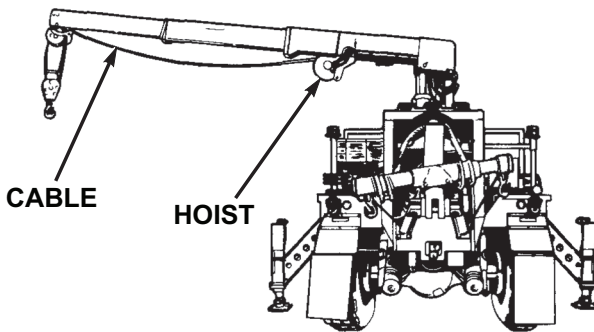


Figure 33.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>(6) Check all hoses, fittings, valves, and cylinders for signs of leaks.</p> <p>(7) Check for cracked or broken welds.</p> <p>(8) Inspect turntable bearing screws for obvious looseness.</p>	<p>Class III leak present.</p> <p>Cracked or broken welds are present.</p> <p>One or more turntable bearing screws are loose.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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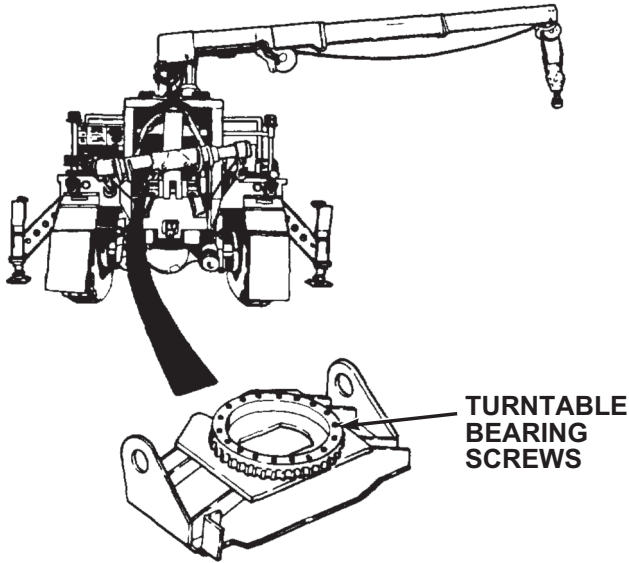


Figure 34.

CAUTION

Do not let cable become slack or cable may get tangled on drum.

- (9) Move HOIST control lever to UP position to reel in cable.

Cable does not reel in.

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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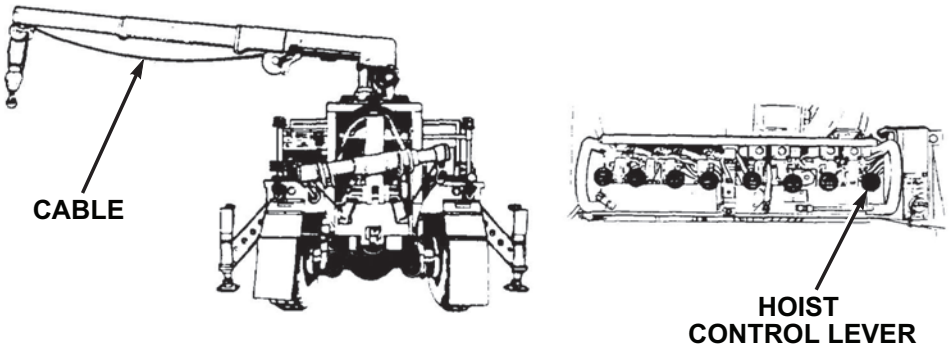


Figure 35.

		<p>(10) Move HOIST control lever to DOWN position to pay out cable.</p> <p>NOTE</p> <p>For more information on material handling crane remote control operating instructions, refer to grove crane operation (remote control) procedures. (Volume 1, WP 0107)</p> <p>4. Check crane remote control levers as follows:</p> <p>a. Set up REMOTE CONTROL UNIT passenger side.</p>	<p>Cable does not pay out.</p>
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Table 1. PMCS - AFTER - Continued



Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. • Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">WARNING</p>  <p>If electrical power fails during crane operation, move switch on remote control unit to SHUTDOWN position. Fail-</p>	

Table 1. PMCS - AFTER - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>ure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Crane must be above vehicle sides for clearance.</p> <p style="text-align: center;">NOTE</p> <p>Operate control levers with light, even pressure. Moving lever slightly will cause slow movement of crane. Moving lever to full travel will cause faster movement of crane.</p> <p>b. Check control levers for malfunction, proper response, obvious damage, missing parts, binding, and extreme looseness.</p> <p>c. Rotate and telescope boom.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may</p>	<p>Controls malfunction, bind, or do not respond.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>result in injury or death to personnel.</p> <p>(1) Move SWING control lever to CW position to turn boom clockwise.</p>	<p>Boom does not turn clockwise.</p>

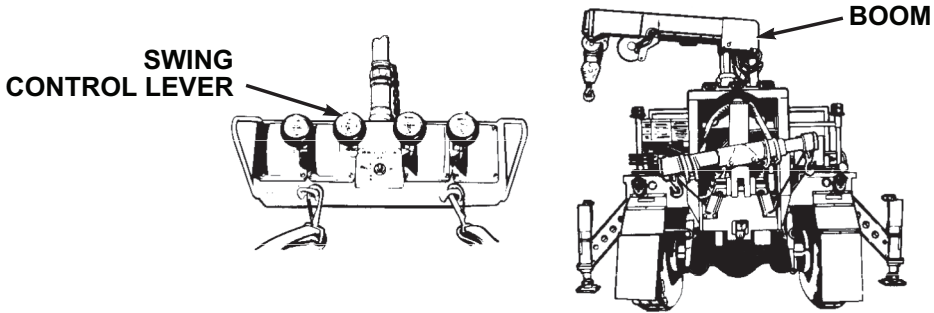


Figure 36.


			<p>(2) Move SWING control lever to CCW position to turn boom counterclockwise.</p> <p>WARNING</p>  <p>When using crane on any vehicle, park vehicle clear of all overhead electrical lines.</p>	<p>Boom does not turn counterclockwise.</p>
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Do not let cable become slack or cable may get tangled on drum.</p> <p>(3) Move HOIST control lever to UP position to take up cable. Move BOOM control lever to UP position to raise boom.</p>	<p>Cable does not reel in or boom does not raise.</p>

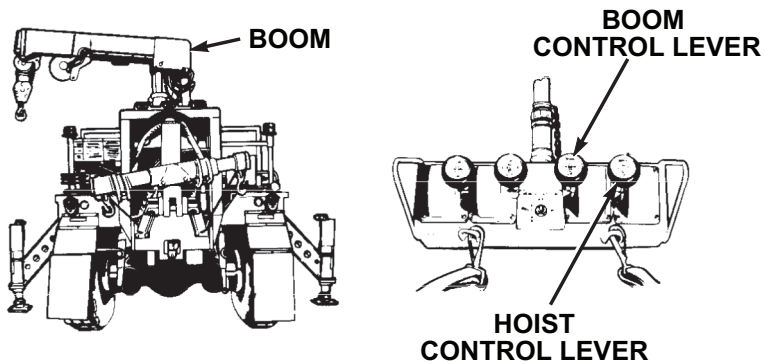


Figure 37.

			<p>(4) Move HOIST control lever to DOWN position to pay out cable. Move</p>	<p>Cable does not pay out or boom</p>
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>BOOM control lever to DOWN position to lower boom to horizontal position.</p> <p>CAUTION</p> <ul style="list-style-type: none"> Keep hook block at least 1 ft. (30 cm) from end of boom. If hook block hits end of boom it may damage cable or hook block and crane will lose power. Wait six seconds for power and check crane for damage. Do not let cable become slack or cable may get tangled on drum. <p>NOTE</p> <ul style="list-style-type: none"> TELESCOPE and HOIST levers should be operated at the same time. Crane movement from one lever may be slower than the other when operating two levers together. <p>(5) Move TELESCOPE control lever to OUT position, while moving HOIST control lever to</p>	<p>does not lower.</p> <p>Extensions will not come out or cable will not pay out.</p>

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			DOWN position to pay out cable.	

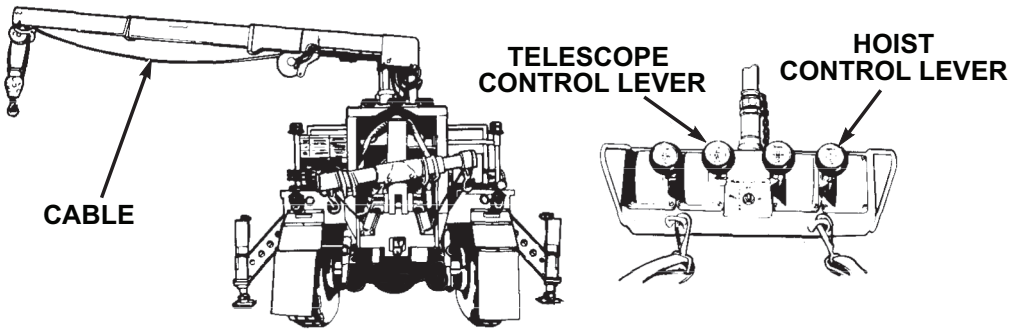


Figure 38.

		(6) Move HOIST control lever in UP position to reel in cable.	Cable will not reel in.
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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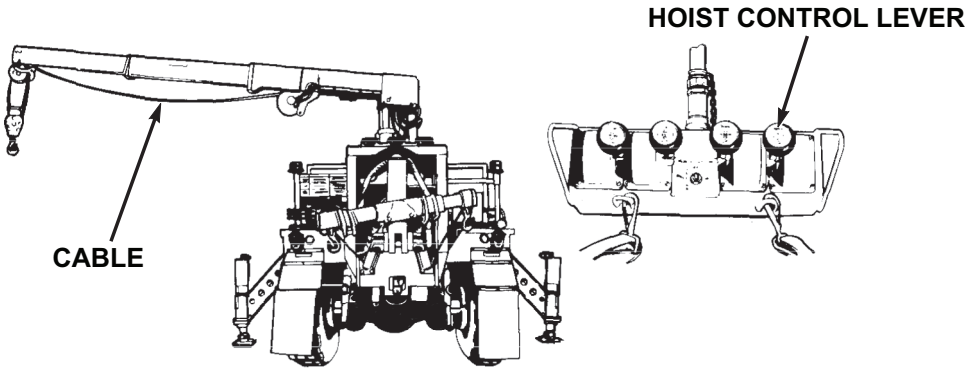


Figure 39.

		<p>(7) Check that crane and ENGINE HIGH IDLE do not operate when REMOTE CONTROL UNIT is in MHC-SHUTDOWN position. Notify organizational maintenance if crane and ENGINE HIGH IDLE operates when in MHC-SHUTDOWN position.</p> <p>(8) Shut off remote control switches.</p> <p>(9) Disconnect remote control, passenger side.</p> <p>(10) Check operation of left remote control stations.</p>	<p>Crane will operate and engine speed will increase to 1500 rpm.</p>
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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>(11)Connect remote control to left remote control station.</p> <p>(12)Check operation of crane remote control levers.</p> <p>(13)Shut off remote control switches.</p> <p>(14)Disconnect and stow REMOTE CONTROL UNIT.</p> <p>(15)Shut down material handling crane.</p> <p>5. Check all hoses, fittings, valves, and cylinders for signs of leaks and damage.</p> <p>6. Check for cracked or broken welds.</p>	<p>Any Class III leak present.</p> <p>Cracked or broken welds.</p>

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
WEEKLY - PREVENTIVE MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Gloves, Leather (WP 0202, Table 2)

Table 1. PMCS - WEEKLY

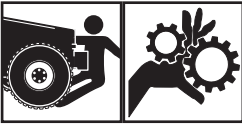

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>Do not start engine or move vehicle when personnel are under vehicle or working on brake lines. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p>  <p>Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in injury or death to personnel.</p>	

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">NOTE</p> <p>Perform Operator's Before, After, and Weekly PMCS checks if:</p> <ul style="list-style-type: none"> • You are the assigned driver but have not operated the vehicle since the last weekly inspection. • You are operating the vehicle for the first time. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions. • Clean all lubrication points with cleaning compound, solvent and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated. • Always refer to lubrication instructions (WP 0188) to ensure equipment has correct lubricants appropriate to operating environment (expected continuous 	

Table 1. PMCS - WEEKLY - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in lubrication instructions. (WP 0188)</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Do not operate a vehicle with a tire in an over-inflated or under-inflated condition, or with a questionable defect. Failure to comply may result in injury or death to personnel and damage to equipment.</p>	
1	Weekly	Driver Side Tires	Check tires for correct air pressure.	
2	Weekly	Propeller Shafts and U-Joints	1. Check propeller shafts and U-joints for excessive movement, obvious damage, and loose, missing or broken nuts and screws.	Propeller shaft or U-Joint has excessive movement, obvious damage, or one or more nuts or screws are loose, miss-

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				ing, or damaged.

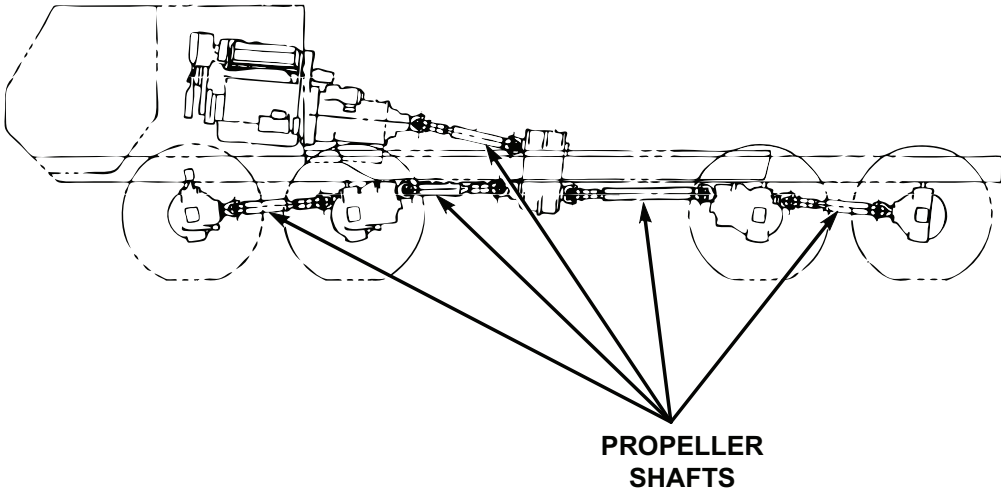


Figure 1.

NOTE

- When vehicle is operating under severe conditions, lubricate propeller shafts and universal joints every 50 hours of vehicle operation.
 - Complete Step 2 only if vehicle is operating under severe conditions.
2. Lubricate all propeller shafts, transmission to transfer case

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
3	Weekly	Axle Breathers	<p>propeller shaft, and U-joints with GAA (WP 0188) as required (refer to operator's semiannual PMCS table (item no. 2) for procedures. (WP 0186)</p> <p>Check four axle breathers for damage and free movement of vent caps on breather body.</p>	<p>Any axle breather caps are damaged or vent caps do not move freely on breather body.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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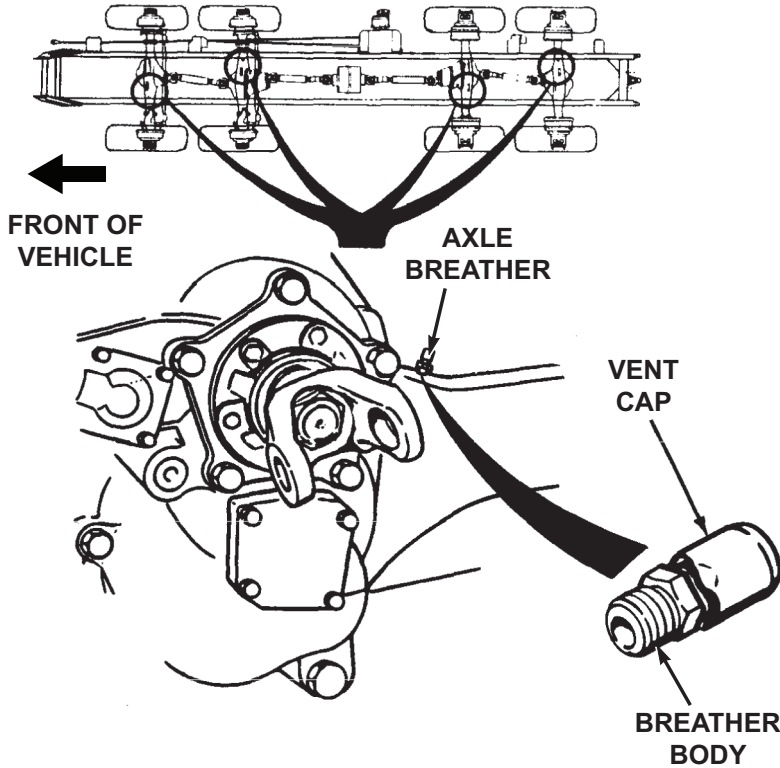


Figure 2.

4	Weekly	Drive Belts, Fan, and Pulleys	<ol style="list-style-type: none"> 1. Check drive belts for cracking, fraying, and breaks. Check for tightness. Play should be about 1/2 in. (13 mm). 	Any drive belt is broken, cracked to the belt fiber, has more than one crack
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				(1/8 in. in depth or 50% of belt thickness), has frays more than 2 in. long or excessive play.

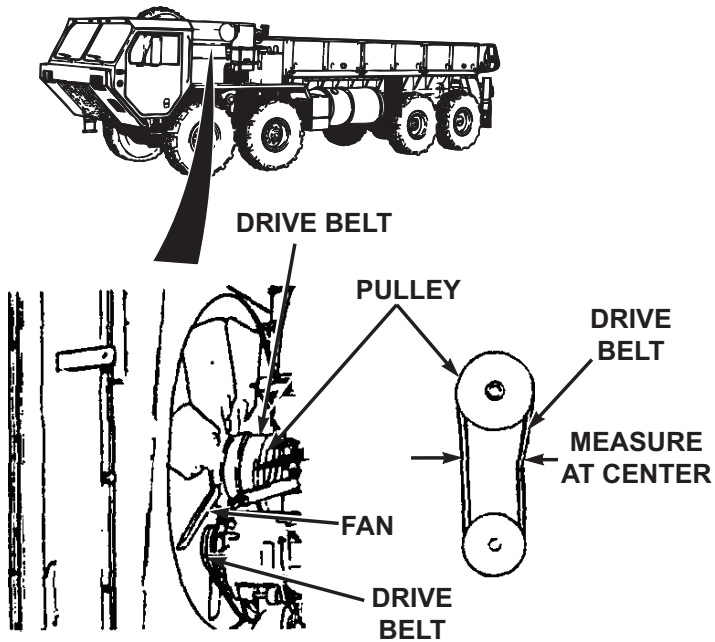


Figure 3.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
5	Weekly	Exhaust System	<p>2. Check condition of fan for broken or cracked blades.</p> <p>3. Check for bent or damaged pulley.</p> <p style="text-align: center;">NOTE</p> <p>Operation of vehicle with any exhaust leaks may violate AR 385-55. (WP 0200)</p> <p>Check exhaust pipe, muffler, heatshield, tailpipe, raincap, clamps, and mounting for obvious damage, looseness, exhaust leak, and carbon buildup.</p>	<p>Fan damaged or un-serviceable.</p> <p>Pulley damaged or un-serviceable.</p> <p>Exhaust pipe between turbocharger and exhaust manifold leaks. Any exhaust pipe missing or damaged.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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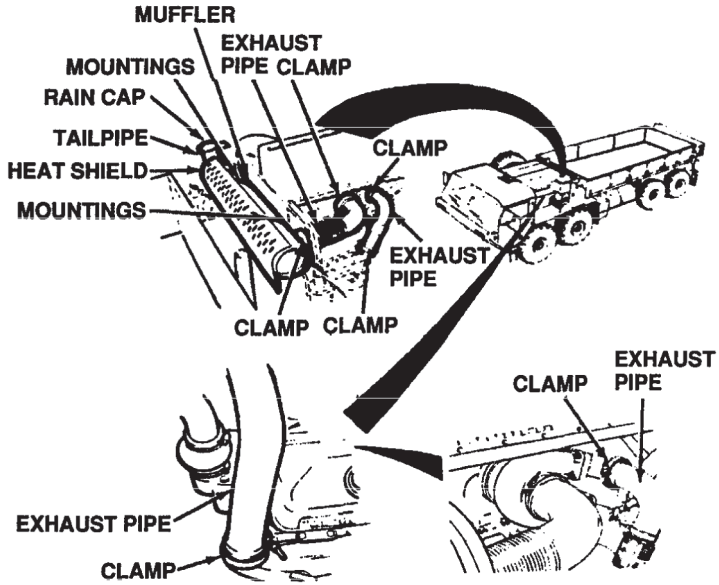


Figure 4.

6	Weekly	Air Intake System/ Ether Starting Aid	1. Squeeze air cleaner dust cap to remove excess dirt from canister.	
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

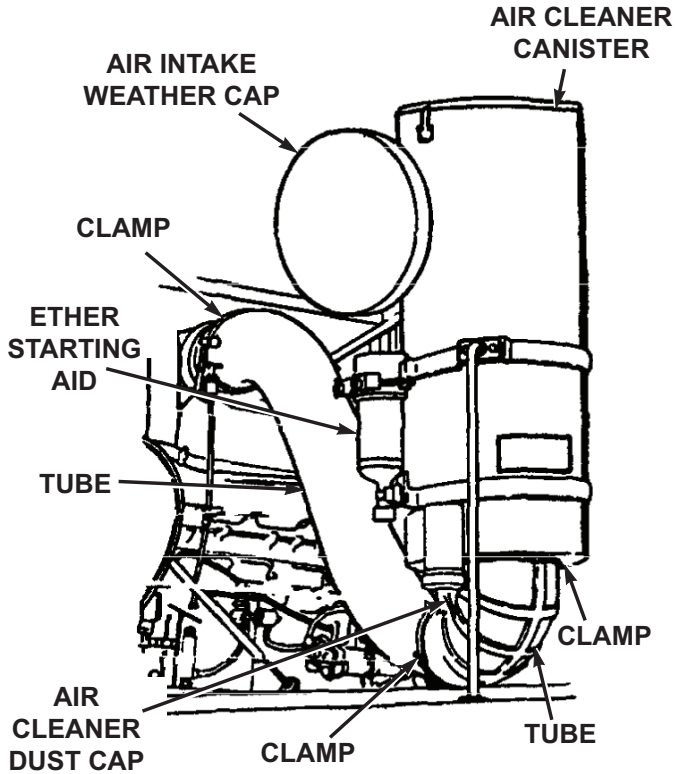


Figure 5.

2. Check that air intake weather cap is secure on air cleaner canister.

NOTE

Ether starting aid cartridges will be removed and solenoid

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
7	Weekly	Fuel Tank	<p>valve will be capped in tropical environment.</p> <p>3. Check ether starting aid for damage and missing hardware.</p> <p>4. Check air intake system for loose or damaged clamps and damage to tube.</p> <p>Check fuel tank, fuel hoses, fuel tank connections, and fuel tank socket head pipe plug for leaks and/or damage.</p>	<p>Air intake system has missing or inoperable clamps, or damage to tube.</p> <p>Any fuel leak.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

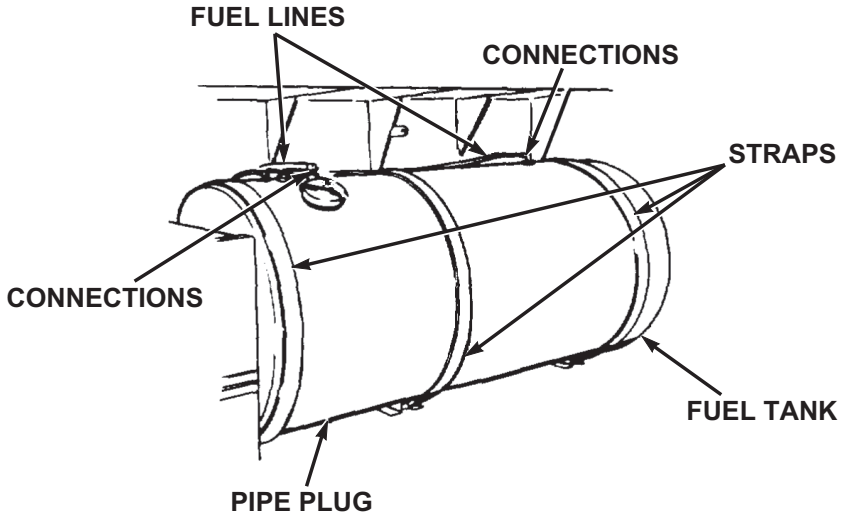


Figure 6.

8	Weekly	Fuel Tank Strainer	Check fuel tank strainer for clogs or damage. If strainer is clogged, clean strainer.	
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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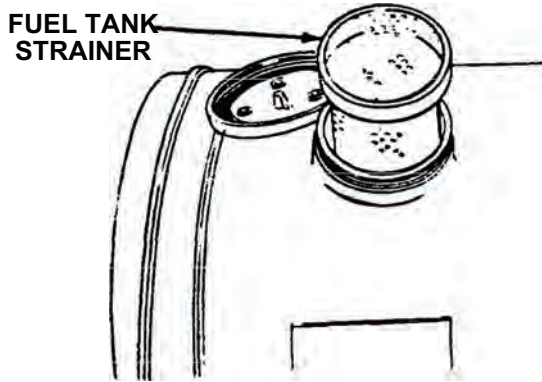
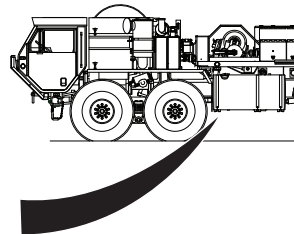


Figure 7.

9	Weekly	Hydraulic Pump	Check hydraulic pump for loose screws, leaks, and damage. Check for loose hose fittings.	Any Class III leak present or any mounting screw is loose or missing.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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HYDRAULIC PUMP

Figure 8.

10	Weekly	Hydraulic Hoses	<p>Check all hydraulic hose routing for obvious damage to hydraulic hoses, chaffing, and leaks.</p> <p style="text-align: center;">NOTE</p> <p>Operation of vehicle with missing or equipment body</p>	<p>Class III leak present. Chaffing or obvious damage to hydraulic hose present.</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
11	Weekly	Equipment Body Mount	mount may violate AR 385-55. (WP 0200) 1. Check four equipment body mounts and pins (both driver and passenger side) for broken chains, missing pins, or other damage.	Body mount damaged, pin missing, or pin chains broken.

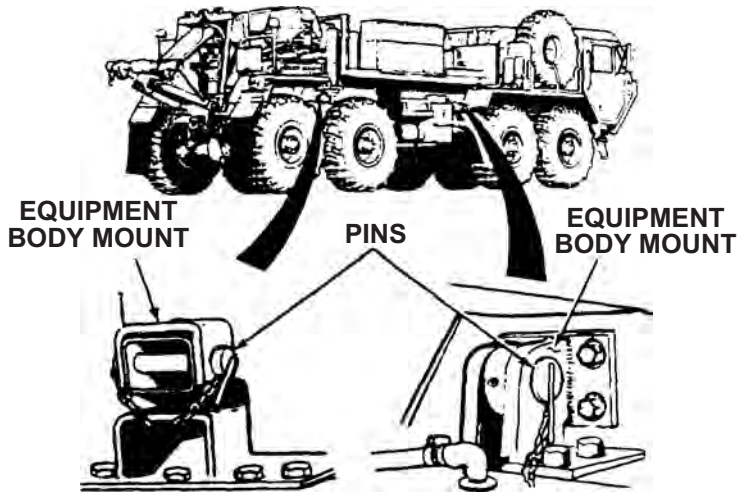


Figure 9.

12	Weekly	60-Ton Tackle Block	2. Lubricate four body mounts with GAA. (WP 0188, Table 10) Check to ensure 60-ton tackle block is present and serviceable.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
13	Weekly	Equipment Body	<ol style="list-style-type: none"> 1. Check utility chains and pallet sling for any obvious damage. 2. Check safety chains for obvious damage. 	<p>Chain links, shackles or hooks cracked or broken.</p> <p>Chain links, shackles or hooks cracked or broken.</p>
14	Weekly	Stowage Boxes	<ol style="list-style-type: none"> 1. Check all stowage boxes/ compartments for missing hardware and other obvious damage. 2. Check inside all stowage boxes/ compartments for torn or damaged seals, water in bottom of stowage box/compartment, or other obvious damage. 	
15	Weekly	Rear Spring/ Parking Brake Chambers	Check rear spring/parking brake chambers to ensure dust covers are in place and secure.	
16	Weekly	Towing Shackles	Check towing shackles for serviceability.	
17	Weekly	Pintle Hook	1. Check pintle hook for looseness and damaged locking mechanism of locking pin.	Pintle hook loose or locking mechanism

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				damaged/ unserviceable.

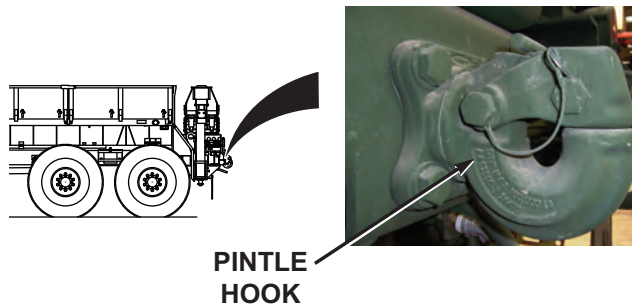
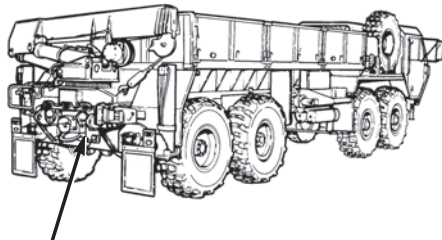


Figure 10.

18	Weekly	Rear Lifting Shackles	2. Clean pintle hook and coat with GAA. (WP 0188, Table 10) Check rear lifting shackles for serviceability.
19	Weekly	Inter-vehicle Connector	Check inter-vehicle connector seal and cable for damage.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:



**INTER-VEHICLE
ELECTRICAL
CONNECTOR**

Figure 11.

WARNING



Do not operate a vehicle with a tire in an over-inflated or under-inflated condition, or with a questionable defect. Failure to comply may result in injury or death to personnel and damage to equipment.

NOTE

Inspection of passenger side tires includes spare tire.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
20	Weekly	Passenger Side Tires	Check tires for correct air pressure.	
21	Weekly	Chock Blocks	Check that chock blocks are present in top center stowage box.	
22	Weekly	Wrecker Vise	Check vise for secure mounting.	
<p>NOTE</p> <p>Operation of vehicle with damaged/malfunctioning air compressor may violate AR 385-55. (WP 0200)</p>				
23	Weekly	Air Compressor	Check air compressor for loose screws, damaged mounting flange and air hoses, and loose fittings/connections.	Screws missing, mounting flange broken, air hoses damaged or fittings/connections loose.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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Figure 12.

24	Weekly	Secondary Fuel Filter	Check secondary fuel filter for leaks or damage.	Any fuel leak.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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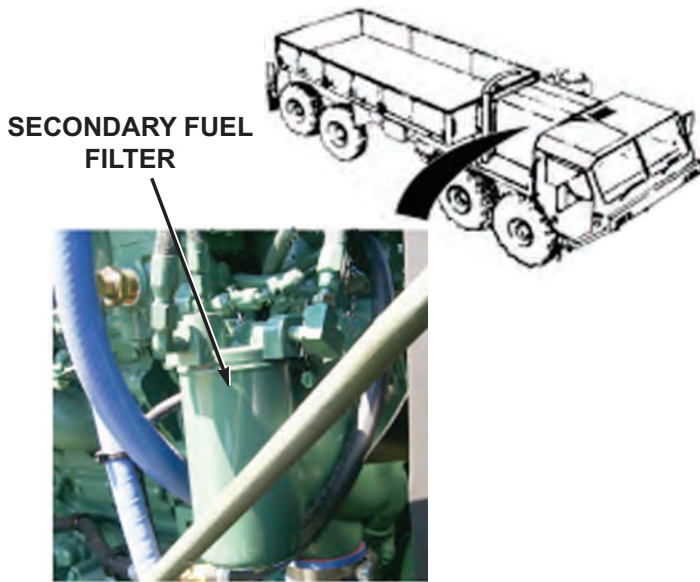


Figure 13.

25	Weekly	Turbocharger Oil Line	Check turbocharger oil line and fittings from rear of engine for signs of leaks and damage.	Any Class III leak present.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

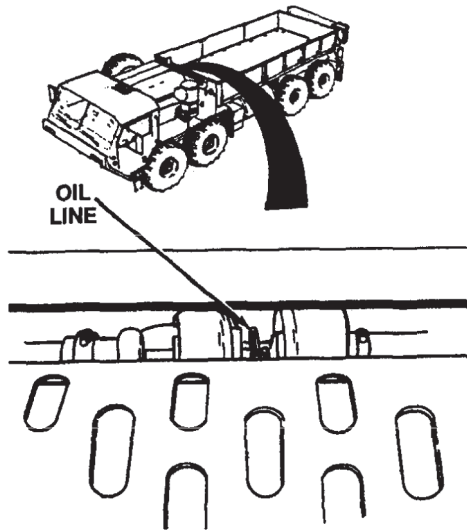


Figure 14.

WARNING



Wear proper eye and skin protection when working around batteries. Do not smoke, have open flames, or

Table 1. PMCS - WEEKLY - Continued

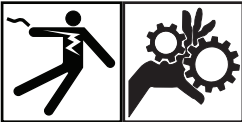
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
26	Weekly	Batteries	<p>make sparks around batteries, especially if caps are off. Batteries can explode. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Remove all jewelry such as rings, ID tags, bracelets, etc. prior to working on or around vehicle. Jewelry and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Failure to comply may result in injury or death to personnel.</p> <p>1. Check battery box for damage.</p>	Cracks or holes in battery box.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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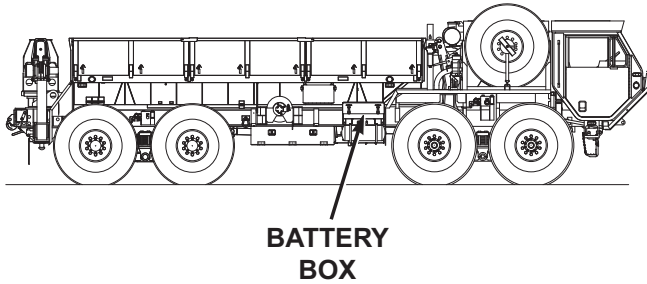


Figure 15.

27	Weekly	Spare Tire Davit And Carrier	<ol style="list-style-type: none"> 2. Check battery cables for presence, frays, splits, and looseness. 3. Check for loose, missing, or damaged batteries and corroded or burnt battery terminals. <p>Check spare tire davit and carrier for damage, missing parts.</p>	<p>Battery cables missing, frayed, split, or loose.</p> <p>One or more batteries missing, cracked, or unserviceable. Any battery terminal corroded or burnt. Any hold down not secure.</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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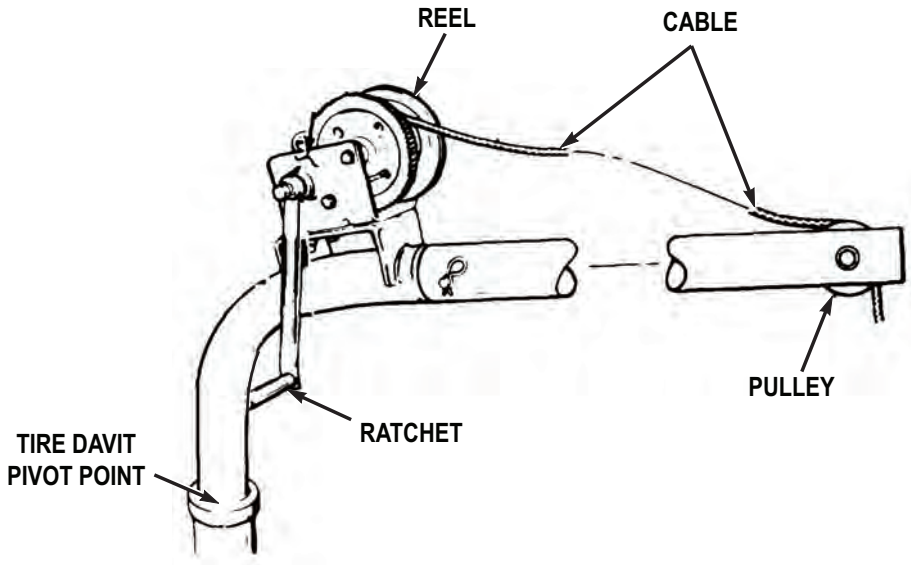


Figure 16.

28	Weekly	Spare Tire Retainer	Check spare tire retainer correctly seated and locking handle tight.	
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

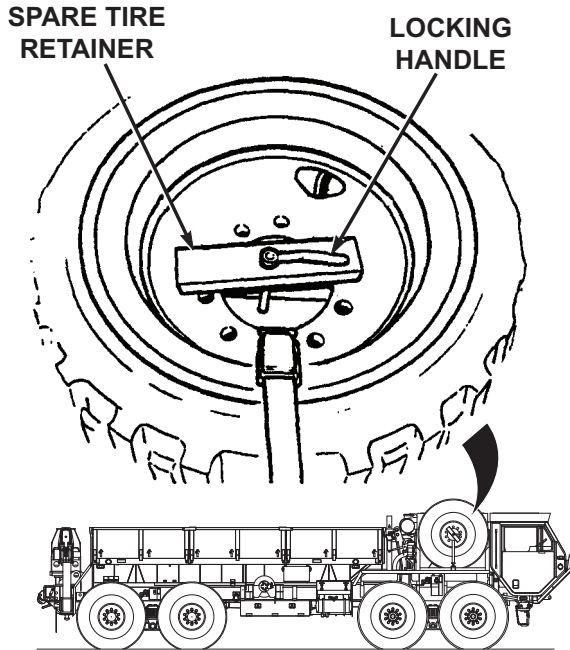


Figure 17.

29	Weekly	Air Dryer	Check air dryer for loose screws and connections.	
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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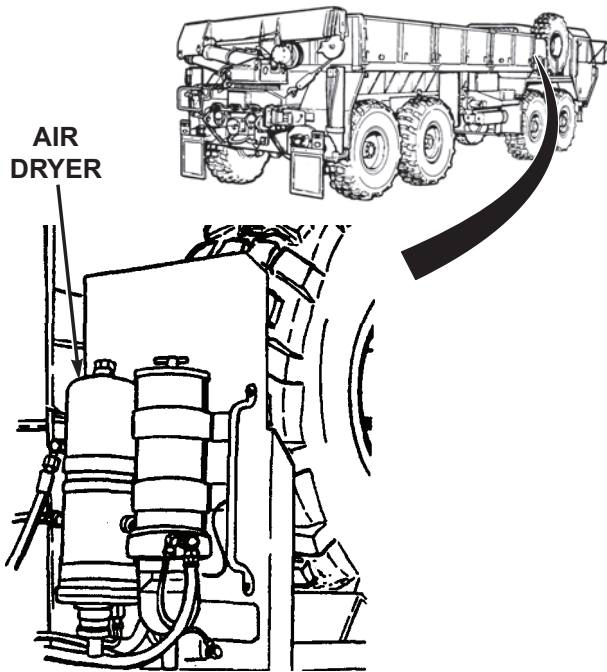


Figure 18.

30	Weekly	Air Lines and Hoses	<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Pressurize air system prior to performing this check.</p> <p>Check routing, for obvious damage to air lines and hoses. Check for leaks.</p>	Any leaks or damage to air lines, hoses, or fit-
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
31	Weekly	Doors, Handles, and Windows	<p style="text-align: center;">NOTE</p> <p>Operation of vehicle with damaged doors or windows may violate AR 385-55. (WP 0200)</p> <p>Check condition and operation of door, handles, and windows. (Volume 1, WP 0020)</p>	things are found.
32	Weekly	Cab Temperature Controls	<p style="text-align: center;">NOTE</p> <p>Start Engine. (Volume 1, WP 0044) Engine must be running for remaining PMCS checks.</p> <p>1. Check cab temperature controls for proper for proper operation: (Volume 1, WP 0039)</p>	

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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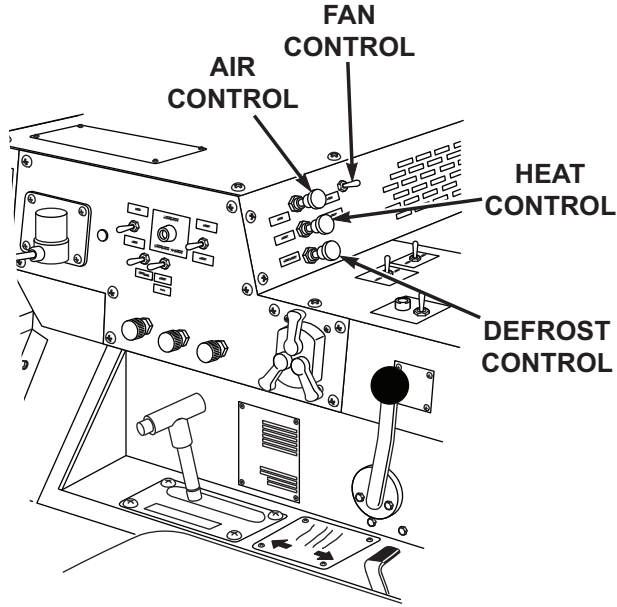


Figure 19.

		<ul style="list-style-type: none"> a. Check AIR control. b. Check HEAT control. c. Check DEFROST control. d. Check FAN control. 	
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Table 1. PMCS - WEEKLY - Continued



Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Keep hands clear of heavy-duty winch cable. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Always wear protective gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel. • Never operate winch with less than five wraps of cable on winch drum. Failure to comply may result in injury or death to personnel. 	

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
33	Weekly	Heavy-Duty Winch	1. Check for evidence of bent or crushed hydraulic hoses or leakage at any threaded coupling or quick disconnect.	Class III leak present. Lines or fittings are damaged.

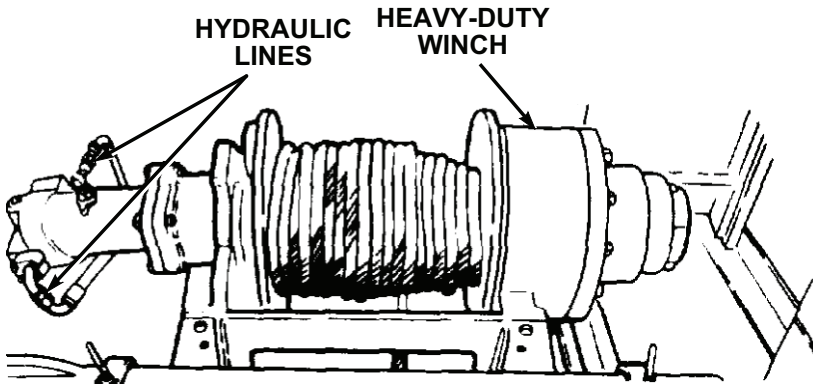


Figure 20.

		2. Check pressure roller for obvious damage.	Pressure roller un-serviceable.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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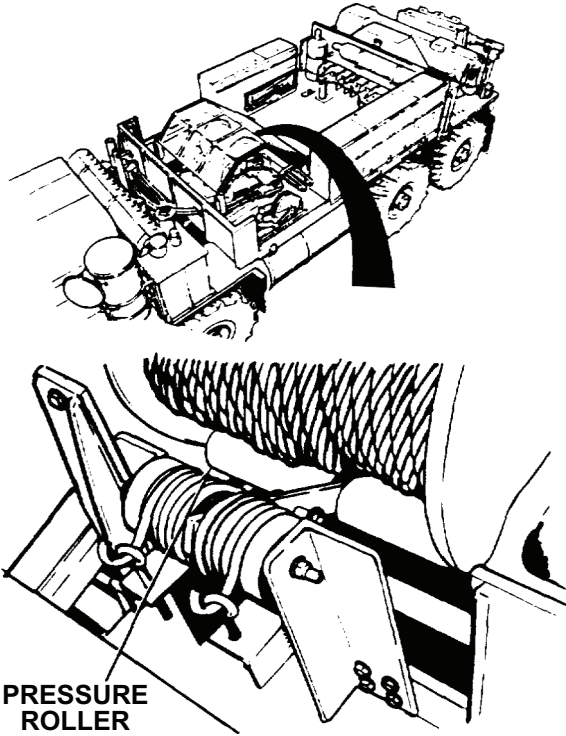


Figure 21.

		<p>3. Check that winch cable clevis pin is secure and in place.</p>	<p>Clevis pin missing.</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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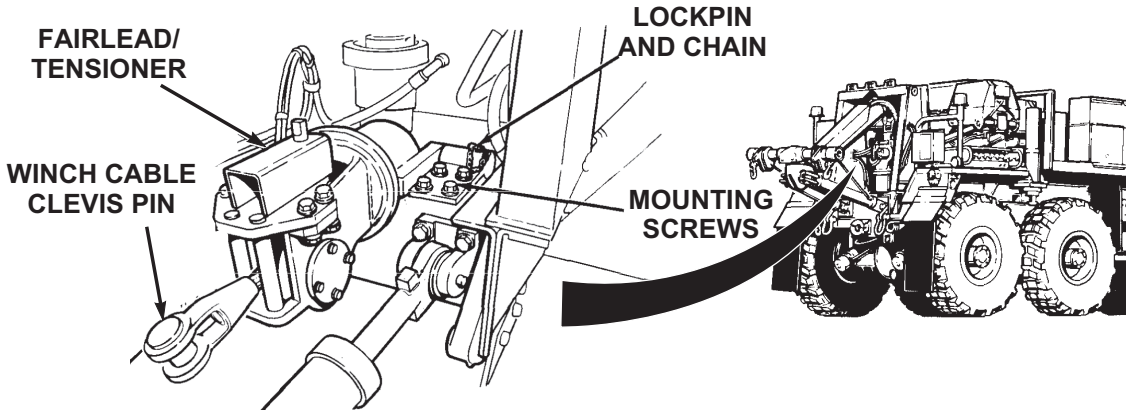


Figure 22.

		<ol style="list-style-type: none"> 4. Check fairlead/tensioner for obvious damage, and that fairlead/tensioner can be swiveled and placed in both stowed and operational positions. 5. Check that fairlead/tensioner mounting screws are secure. 6. Check for missing or damaged fairlead/tensioner lockpin and chain. 	<p>Fairlead/tensioner will not swivel, cannot be raised or lowered.</p> <p>Mounting screws loose or missing.</p> <p>Has one missing or broken lockpin.</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			7. Check cable guide for obvious damage. Check bellows for cuts and tears.	

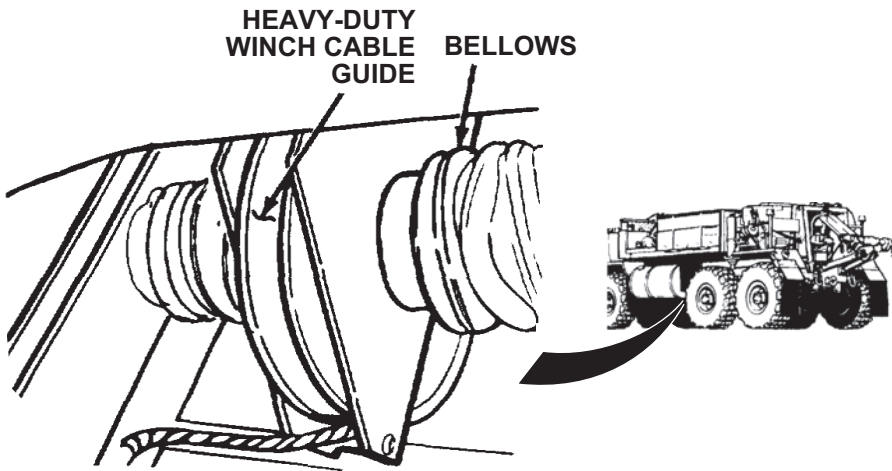


Figure 23.

		8. Check heavy-duty winch remote control and cable for proper operation (Volume 1, WP 0043) obvious damage, missing parts, binding, and excessive looseness.	Controls malfunction, bind, or do not respond.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

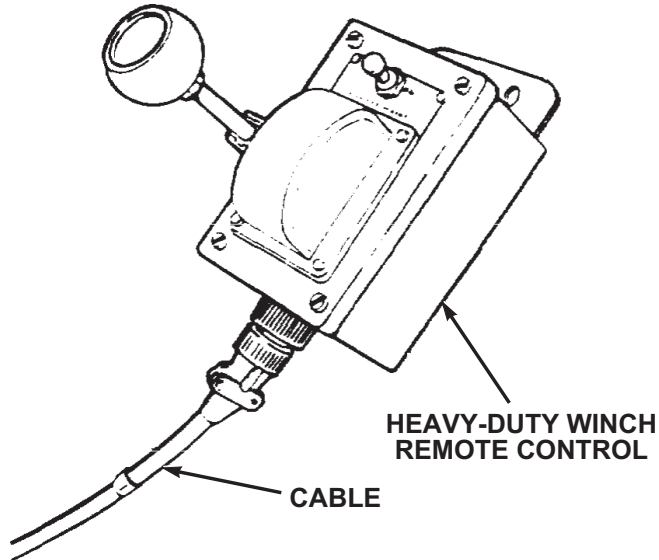


Figure 24.

- | | | | |
|--|--|--|--|
| | | | <p>9. Check forward winch control for proper operation, obvious damage, missing parts, binding, and excessive looseness.</p> |
|--|--|--|--|

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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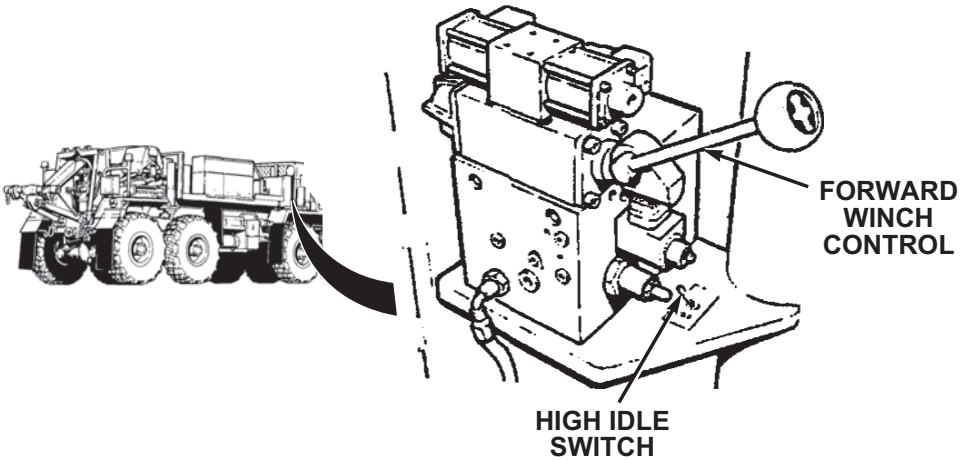


Figure 25.

		<p>10. Check high idle switch for proper operation, obvious damage, missing parts, binding, and excessive looseness. (Volume 1, WP 0043)</p> <p>11. Unwind heavy-duty winch cable (Volume 1, WP 0043) and check cable of winch for kinks, frays, or breaks.</p>	<p>Control malfunctions, binds, or does not respond.</p> <p>Evidence of kinks, frays, or breaks.</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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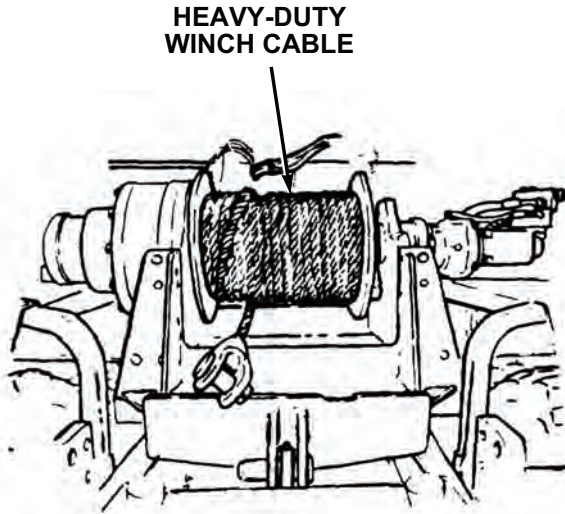


Figure 26.

34	Weekly	Material Handling Crane	<p style="text-align: center;">NOTE</p> <p>This procedure is a two soldier task.</p> <ol style="list-style-type: none"> 12. Clean and lubricate heavy-duty winch cable with OE/HDO. (WP 0188) 1. Inspect crane for loose nuts and screws, hydraulic leaks, damage to hydraulic hoses and lines, and obvious damage. 	Class III leak present or damaged hoses, lines, or fittings.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">NOTE</p> <p>For more information on material handling crane operating instructions, refer to grove crane operation (manual control) procedures. (Volume 1, WP 0106)</p> <ol style="list-style-type: none"> 2. Check that crane hydraulic system is operable as follows: <ol style="list-style-type: none"> a. Start engine. (Volume 1, WP 0044) b. Set PTO ENGAGE switch to ON position. PTO indicator light will illuminate. 	

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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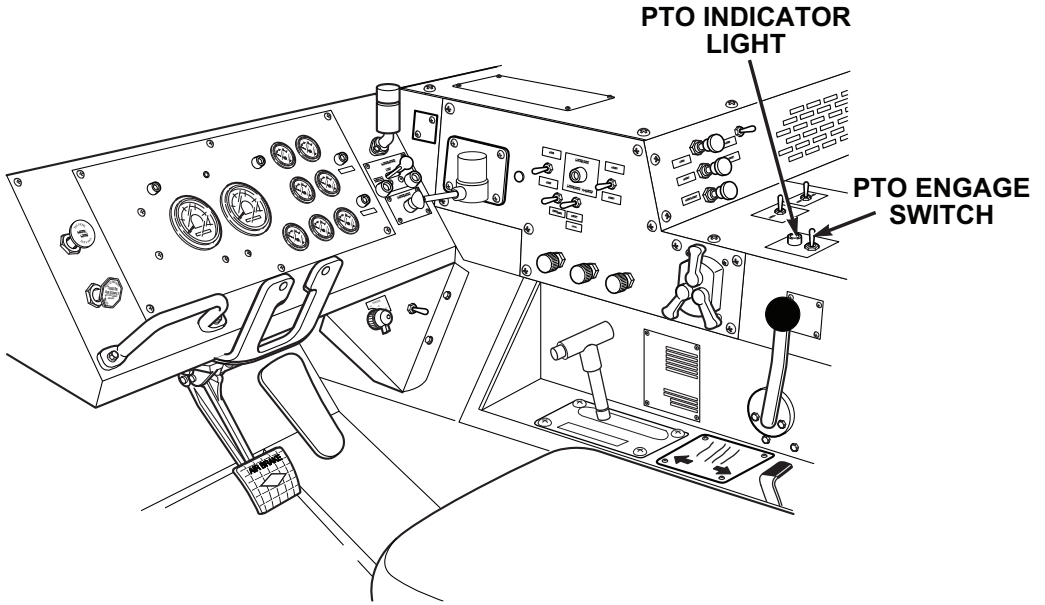


Figure 27.

- | | | | |
|--|--|---|--|
| | | <p>c. Set ON/OFF POWER switch to ON position.</p> | |
|--|--|---|--|

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

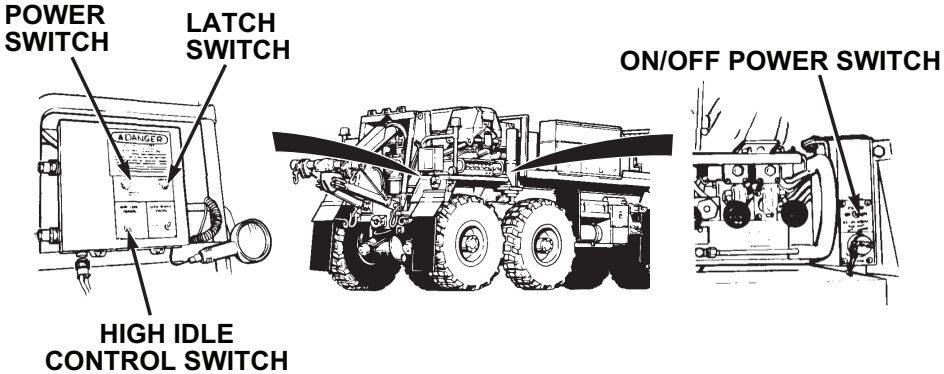


Figure 28.

- d. Set HIGH IDLE CONTROL switch to CONTINUOUS.

WARNING



Excessive noise levels are present any time the heavy-duty winch, crane, or retrieval system is operating. Wear single hearing protection (earplugs or equivalent) while working around equipment when it is running. Failure to comply may result in injury or death to personnel. Seek

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>medical aid should you suspect a hearing problem.</p> <ul style="list-style-type: none"> e. Push and release LATCH switch. Engine speed should increase to approximately 1500 rpm. <p>3. Check crane manual control levers as follows:</p>	

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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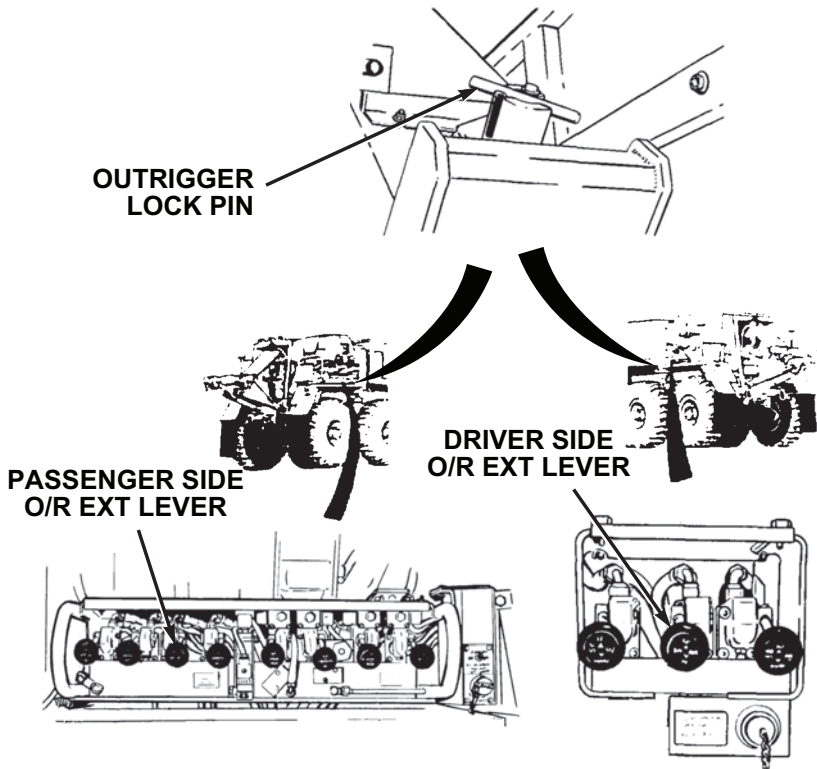


Figure 29.

Table 1. PMCS - WEEKLY - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Stand clear of outrigger beams while operating levers. Failure to comply may result in injury or death to personnel. • Do not operate crane unless outriggers are firmly in place or vehicle could turn over. Failure to comply may result in injury or death to personnel. • Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Operate control levers with light, even pressure. Moving lever slightly will cause slow movement of crane. Moving lever to full 	

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>travel will cause faster movement of crane.</p> <ul style="list-style-type: none"> • Outrigger beams will come out slower with light pressure on lever. Pushing lever to full travel will cause fast movement. <ol style="list-style-type: none"> a. Move passenger side O/R EXT lever to IN position briefly. Move driver side O/R EXT lever to IN position briefly. b. Place both outrigger lockpins in unlock position. c. Check each control separately for malfunction, proper response, obvious damage, missing parts, binding, and extreme looseness. d. Move right O/R EXT lever to OUT position until right outrigger is completely out. 	<p>Controls malfunction, bind, or do not respond.</p> <p>Outrigger beam does not come out.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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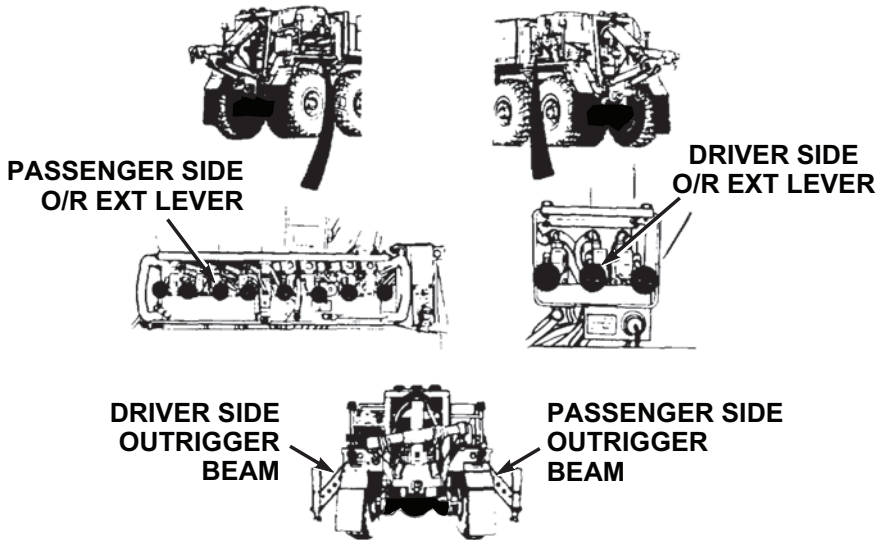


Figure 30.

		<p>e. Move left O/R EXT lever to OUT position until left outrigger is completely out.</p> <p>f. Set up outrigger pads. Check that two retaining pins are attached to each outrigger pad.</p>	<p>Outrigger beam does not come out.</p> <p>Retaining pin missing from either end.</p>
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Table 1. PMCS - WEEKLY - Continued

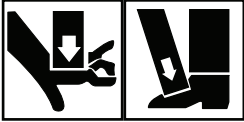
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>Keep hands and feet clear of outrigger jack cylinders. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">NOTE</p> <p>Adjust outrigger pad position as required so rod end will lower into pad socket.</p> <p>g. Move LH O/R JACK control lever to DOWN position and lower outrigger jack until rod end is firmly seated in outrigger pad. Install retaining pins.</p>	<p>Outrigger jack cylinder will not come out or will not lower completely into pad.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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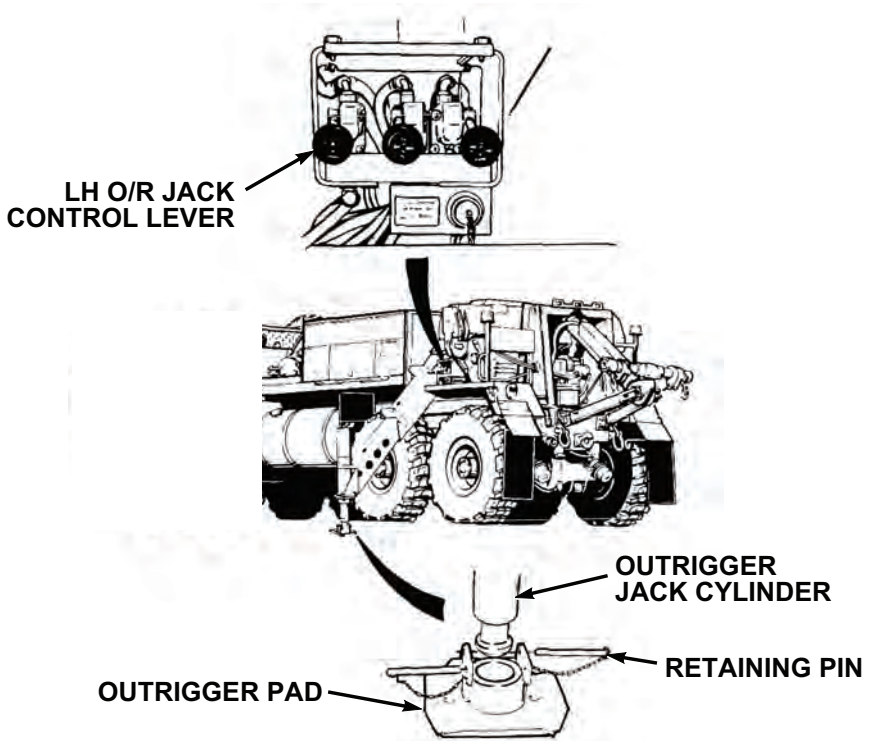


Figure 31.

- h. Move RH O/R JACK control lever to DOWN position and lower outrigger jack until rod end is firmly seated in outrigger pad. Install retaining pins.

Outrigger jack cylinder will not come out or will not lower completely into pad.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

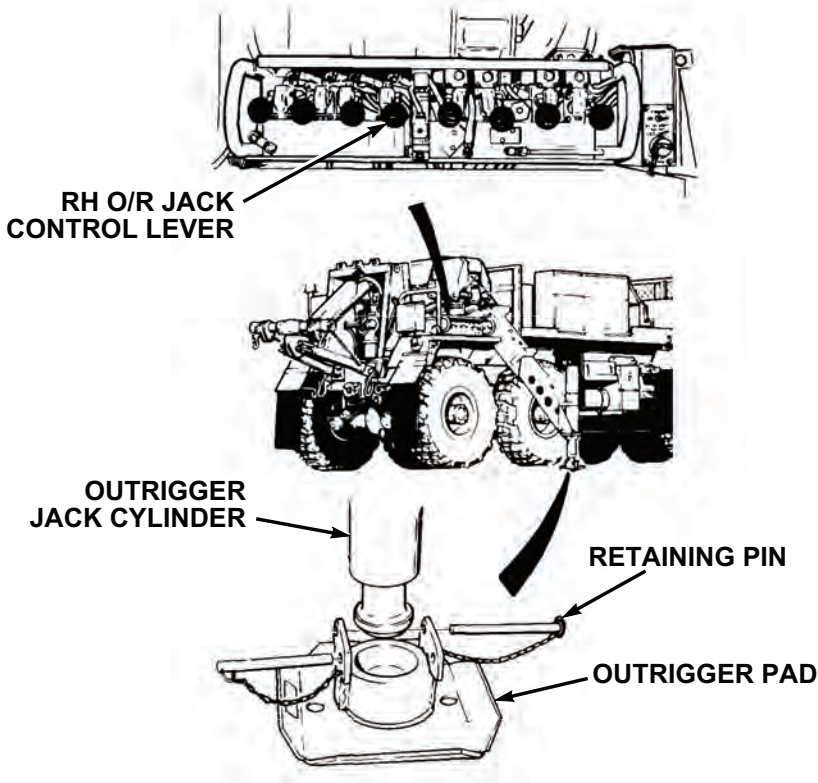


Figure 32.

- i. Check that outrigger jack cylinder on each side of vehicle is out and down.

Crane hydraulic system does not operate.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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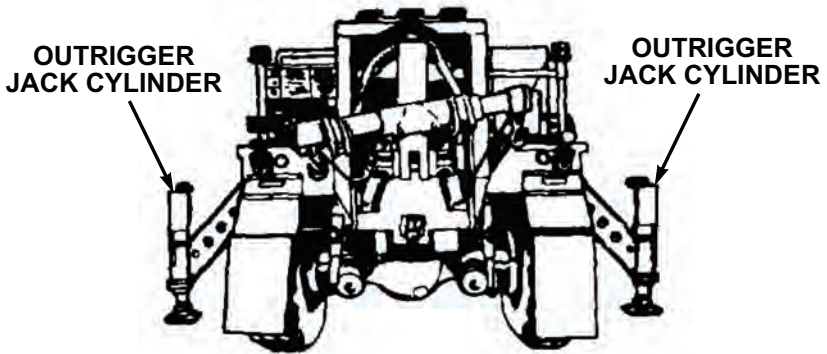


Figure 33.

- j. Seat outriggers.
- k. Raise boom to operating position. (Volume 1, WP 0106)

WARNING



Do not operate crane unless outriggers are firmly in place or vehicle could turn over. Failure to comply may result in injury or death to personnel.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">CAUTION</p> <p>Do not let cable unwind and become slack, or cable may get tangled on drum.</p> <p>(1) Move HOIST control lever to DOWN position until hook block rests on fender.</p>	

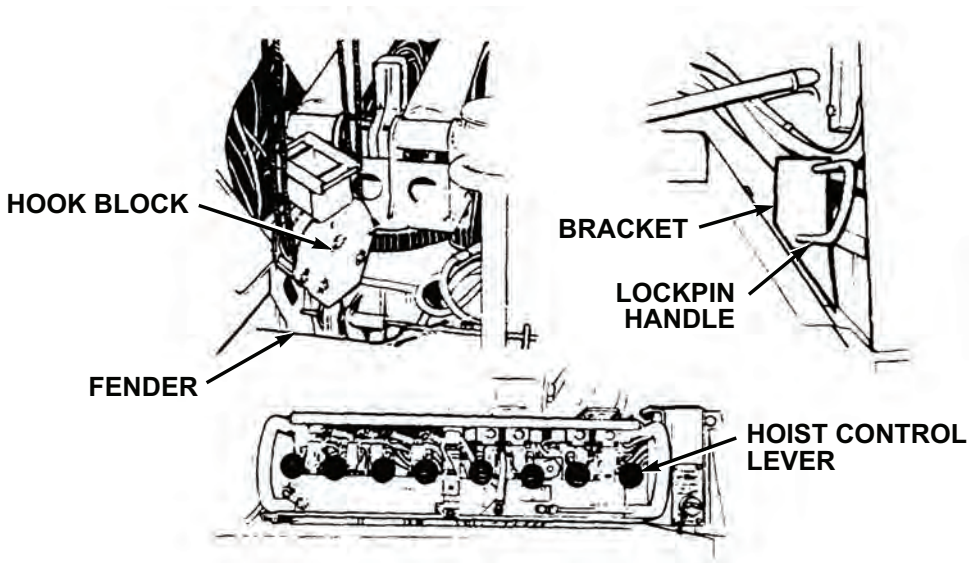
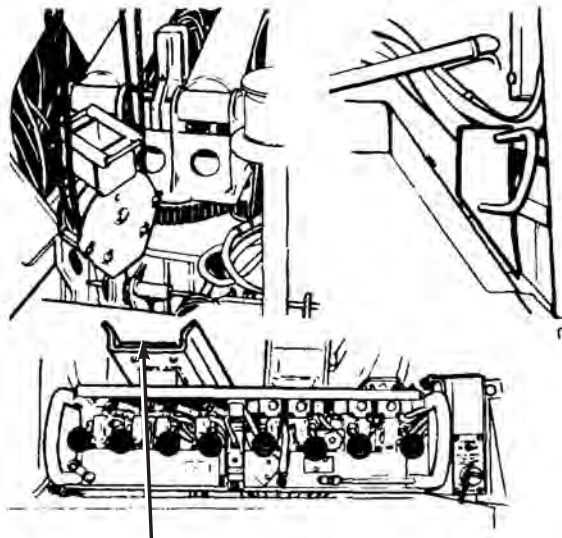


Figure 34.

			<p>(2) Pull and turn lockpin handle so handle end rests on bracket to unstow hook block.</p>	
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			(3) Check hook block for cracks. (4) Check hook block stowage guide wear plate for excessive wear.	Hook block is cracked.



**HOOK BLOCK STOWAGE
GUIDE WEAR PLATE**

Figure 35.

Table 1. PMCS - WEEKLY - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Do not hit outrigger leg with hook block. Failure to comply may result in damage to equipment.</p> <p>(5) Move BOOM control lever to UP position until hook is five to six feet (1.5 to 1.8 m) above driver side rear fender, and boom is approximately 45° above horizontal.</p>	<p>Boom does not raise.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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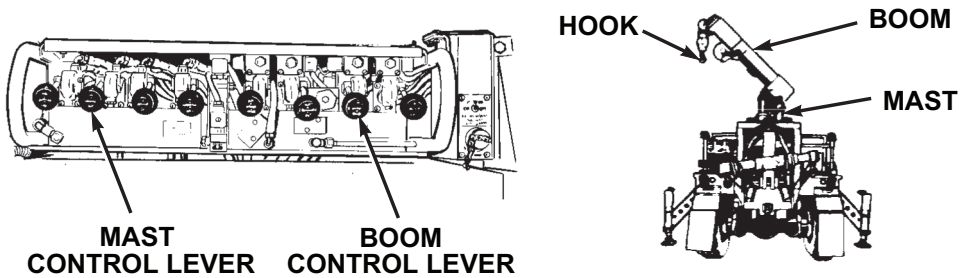


Figure 36.

		<p>(6) Move MAST control lever to UP position until the mast is fully erect and the cylinders are fully extended. Use BOOM control lever UP simultaneously as required to maintain the boom at approximately 45° above horizontal until the mast is fully erect. Hold the MAST control lever to UP position for two to three seconds after mast is fully erect to ensure cylinders are fully filled with oil.</p> <p>I. Rotate and telescope boom;</p>	<p>Mast cylinder does not raise completely before stopping.</p>
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Table 1. PMCS - WEEKLY - Continued


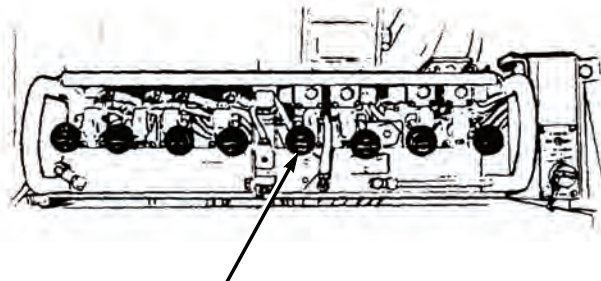
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. • Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">CAUTION</p> <p>Boom must be above vehicle sides for clearance.</p> <p>(1) Move swing control lever to CW position to move boom clockwise.</p>	<p>Boom does not turn clockwise.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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SWING CONTROL LEVER

Figure 37.

- (2) Move swing control lever to CCW position to move boom counterclockwise.

Boom does not turn counterclockwise.

CAUTION

Keep hook block at least one ft. (30 cm) from end of boom. If hook block hits end of boom cable or hook block damage may occur and crane will lose power. Wait six seconds for power to return and check crane for damage.

NOTE

- TELESCOPE and HOIST levers should be operated at the same time.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<ul style="list-style-type: none"> Crane movement from one lever may be slower than the other when operating two levers together. <p>(3) Move TELESCOPE control lever to OUT position to extend boom while moving hoist control lever to DOWN position to pay out cable.</p>	<p>Extensions do not come out.</p>

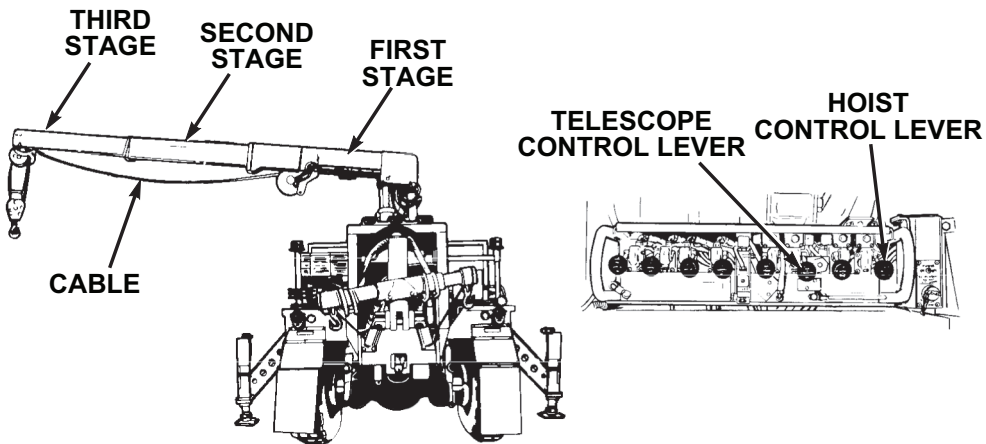



Figure 38.

			<p>(4) Check first, second, and third stages of boom for broken welds or obvious damage.</p>	<p>There are broken welds or obvious dam-</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Always wear protective gloves when checking hoist cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel.</p> <p>(5) Check cable on hoist for kinks, frays, or breaks.</p>	<p>age to boom.</p> <p>Evidence of kinks, frays, or breaks.</p>

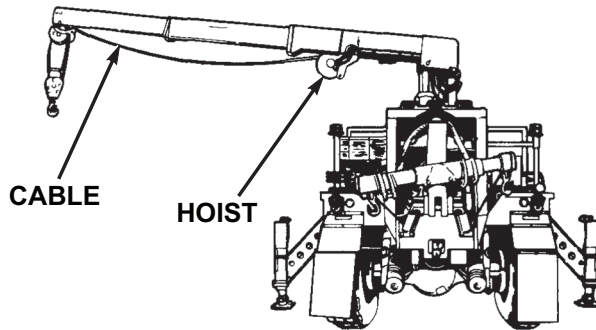


Figure 39.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>(6) Check all hoses, fittings, valves, and cylinders for signs of leaks.</p> <p>(7) Check for cracked or broken welds.</p> <p>(8) Inspect turntable bearing screws for obvious looseness.</p>	<p>Class III leak present.</p> <p>Cracked or broken welds are present.</p> <p>One or more turntable bearing screws are loose.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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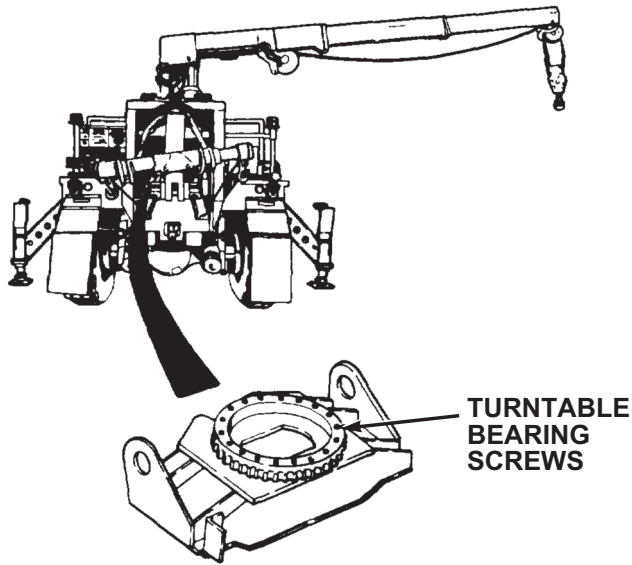


Figure 40.

CAUTION

Do not let cable become slack or cable may get tangled on drum.

- (9) Move HOIST control lever to UP position to reel in cable.

Cable does not reel in.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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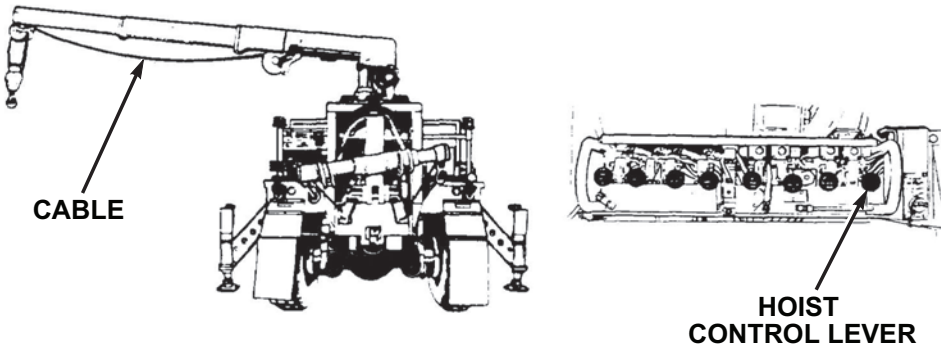


Figure 41.

		<p>(10) Move HOIST control lever to DOWN position to pay out cable.</p> <p>NOTE</p> <p>For more information on material handling crane remote-control operating instructions, refer to grove crane operation (remote-control) procedures. (Volume 1, WP 0107)</p> <p>4. Check crane remote control levers as follows:</p> <p>a. Set up REMOTE CONTROL UNIT passenger side.</p>	<p>Cable does not pay out.</p>
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Table 1. PMCS - WEEKLY - Continued



Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • When using crane on any vehicle, park vehicle clear of all overhead electrical lines. Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel. • Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may result in injury or death to personnel. <p style="text-align: center;">WARNING</p>  <p>If electrical power fails during crane operation, move switch on remote control unit to SHUTDOWN position. Fail-</p>	

Table 1. PMCS - WEEKLY - Continued


Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>ure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Crane must be above vehicle sides for clearance.</p> <p style="text-align: center;">NOTE</p> <p>Operate control levers with light, even pressure. Moving lever slightly will cause slow movement of crane. Moving lever to full travel will cause faster movement of crane.</p> <p>b. Check control levers for malfunction, proper response, obvious damage, missing parts, binding, and extreme looseness.</p> <p>c. Rotate and telescope boom.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Ensure area is clear of personnel prior to moving SWING lever. Boom should be swung slowly enough so crane operator has complete control. Failure to comply may</p>	<p>Controls malfunction, bind, or do not respond.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>result in injury or death to personnel.</p> <p>(1) Move SWING control lever to CW position to turn boom clockwise.</p>	<p>Boom does not turn clockwise.</p>

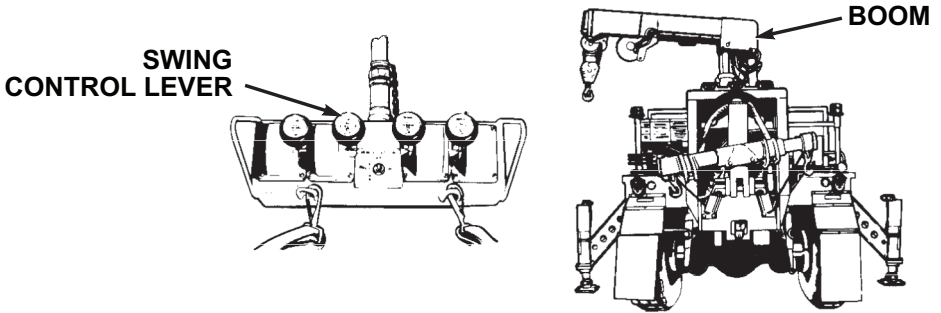


Figure 42.


			<p>(2) Move SWING control lever to CCW position to turn boom counterclockwise.</p> <p>WARNING</p>  <p>When using crane on any vehicle, park vehicle clear of all overhead electrical lines.</p>	<p>Boom does not turn counterclockwise.</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>Keep boom clear of all electrical lines and other obstacles while operating crane. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">CAUTION</p> <p>Do not let cable become slack or cable may get tangled on drum.</p> <p>(3) Move HOIST control lever to UP position to take up cable. Move BOOM control lever to UP position to raise boom.</p>	<p>Cable does not reel in or boom does not raise.</p>

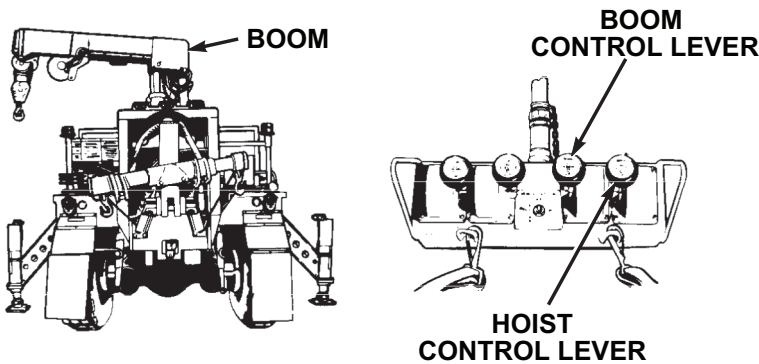


Figure 43.

			<p>(4) Move HOIST control lever to DOWN position to pay out cable. Move</p>	<p>Cable does not pay out or boom</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			DOWN position to pay out cable.	

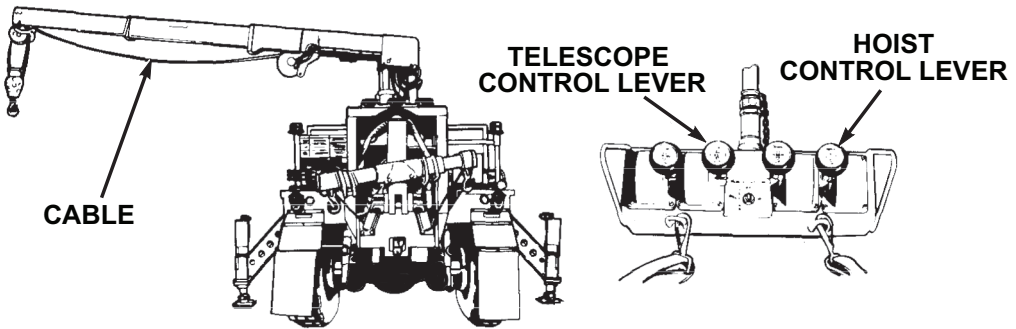


Figure 44.

			(6) Move HOIST control lever in UP position to reel in cable.	Cable will not reel in.
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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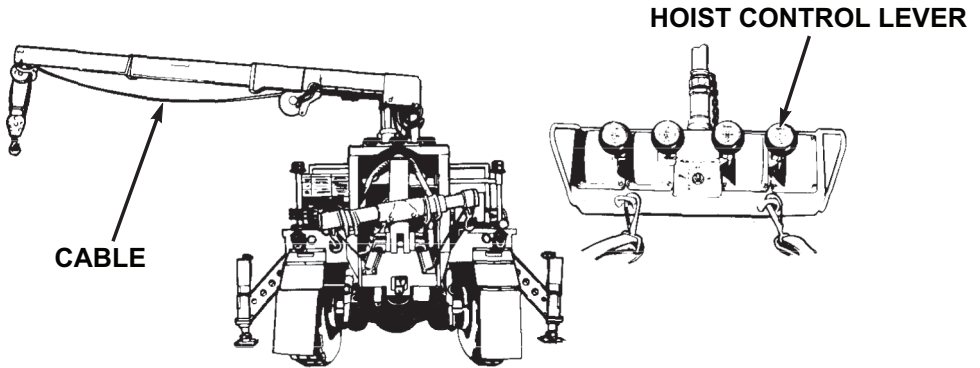


Figure 45.

		<p>(7) Check that crane and ENGINE HIGH IDLE do not operate when REMOTE CONTROL UNIT is in MHC-SHUTDOWN position. Notify organizational maintenance if crane and ENGINE HIGH IDLE operates when in MHC-SHUTDOWN position.</p> <p>(8) Shut off remote control switches.</p> <p>(9) Disconnect remote control, passenger side.</p> <p>(10) Check operation of left remote control stations.</p>	<p>Crane will operate and engine speed will increase to 1500 rpm.</p>
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>(11)Connect remote control to left remote control station.</p> <p>(12)Check operation of crane remote control levers.</p> <p>(13)Shut off remote control switches.</p> <p>(14)Disconnect and stow REMOTE CONTROL UNIT.</p> <p>(15)Shut down material handling crane. (Volume 1, WP 0106)</p> <p>5. Check all hoses, fittings, valves, and cylinders for signs of leaks and damage.</p> <p>6. Check for cracked or broken welds.</p> <p style="text-align: center;">NOTE</p> <p>Retrieval cylinder thermal relief valves (located on cross-tube end of cylinders) can discharge small amounts of oil as part of normal operation.</p>	<p>Any Class III leak present.</p> <p>Cracked or broken welds.</p>

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
35	Weekly	Retrieval System	1. Check lift cylinder and hoses, driver side and passenger side tow cylinders and hoses, crosstube, and control valves for leaks and obvious damage.	Any Class III leaks are found.

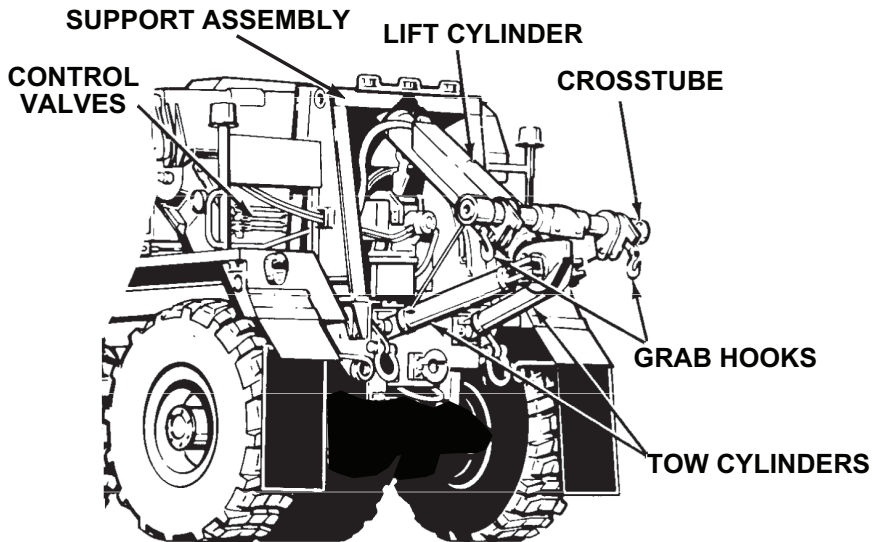


Figure 46.

NOTE

When properly installed, cotter pins should be toward outside of vehicle.

2. Check grab hooks for damaged or missing cotter pins.

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">NOTE</p> <p>PMCS for retrieval system should only be performed when retrieval system is required for mission.</p> <p>3. Check operation of retrieval system as follows:</p> <ul style="list-style-type: none"> a. Start engine. (Volume 1, WP 0044) b. Set PTO ENGAGE switch to ON position. PTO indicator light will illuminate. 	

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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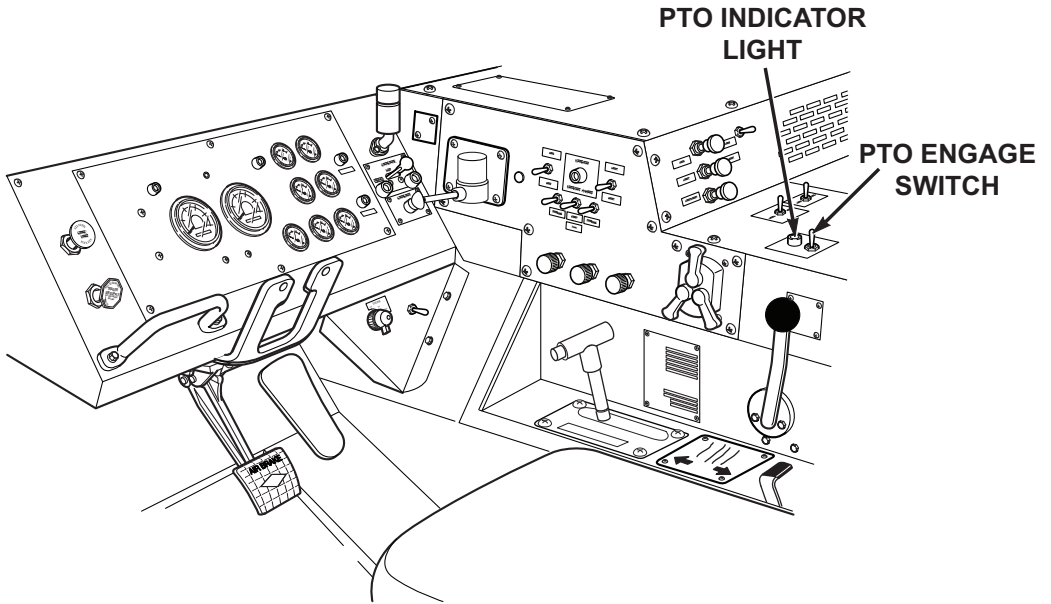


Figure 47.

- | | | |
|--|--|---|
| | | <p>c. Set ON/OFF POWER switch to ON position.</p> |
|--|--|---|

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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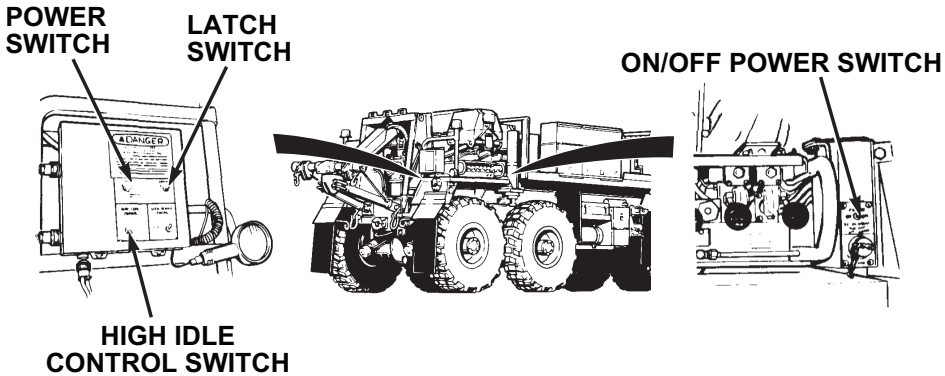


Figure 48.

- d. Set POWER switch to ON position.
- e. Set HIGH IDLE CONTROL switch to CONTINUOUS.

WARNING



Excessive noise levels are present any time the heavy-duty winch, crane, or retrieval system is operating. Wear single hearing protection (earplugs or equivalent) while working around equipment when it is running. Failure to

Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>comply may result in injury or death to personnel. Seek medical aid should you suspect a hearing problem.</p> <p>f. Push and release LATCH switch. Engine speed should increase to approximately 1500 RPM.</p> <p>g. Operate retrieval system control levers (Volume 1, WP 0030) and check for proper operation of both levers and cylinders.</p>	<p>Engine speed does not increase to 1500 RPM.</p> <p>Retrieval system does not operate.</p>

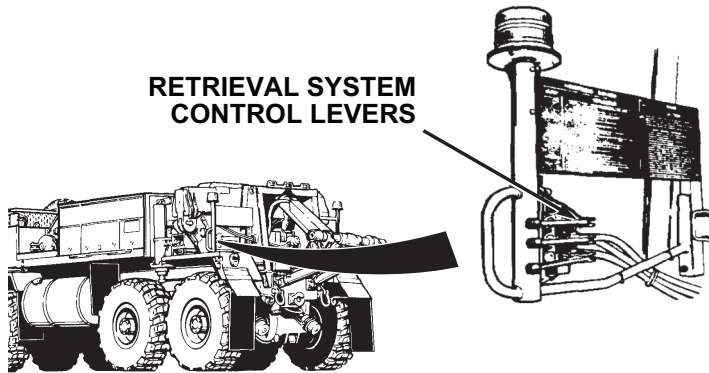


Figure 49.

36	Weekly	Work Lights and Rear	Check operation of work lights (Volume 1, WP 0095) and rear beacon lights. (Volume 1, WP 0096)
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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
		Beacon Lights		

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
SEMIANNUAL - PREVENTIVE MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Gloves, Leather (WP 0202, Table 2)

Table 1. PMCS- SEMIANNUAL

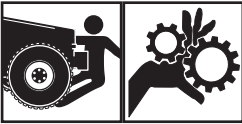

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p align="center">WARNING</p>  <p>Do not start engine or move vehicle when personnel are under vehicle or working on brake lines. Failure to comply may result in injury or death to personnel.</p> <p align="center">WARNING</p>  <p>Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in injury or death to personnel.</p>	

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
1	Semian nual	Brake System	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions. • Clean all lubrication points with cleaning compound, solvent and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated. • Always refer to lubrication instructions (WP 0188) to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in lubrication instructions. (WP 0188) <p>Lubricate axles No. 1, No. 2, No. 3, and No. 4 brake camshafts and slack</p>	Fitting will not purge old lubricant

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			adjusters (four fittings per axle) with GAA. (WP 0188, Table 10)	out of component.

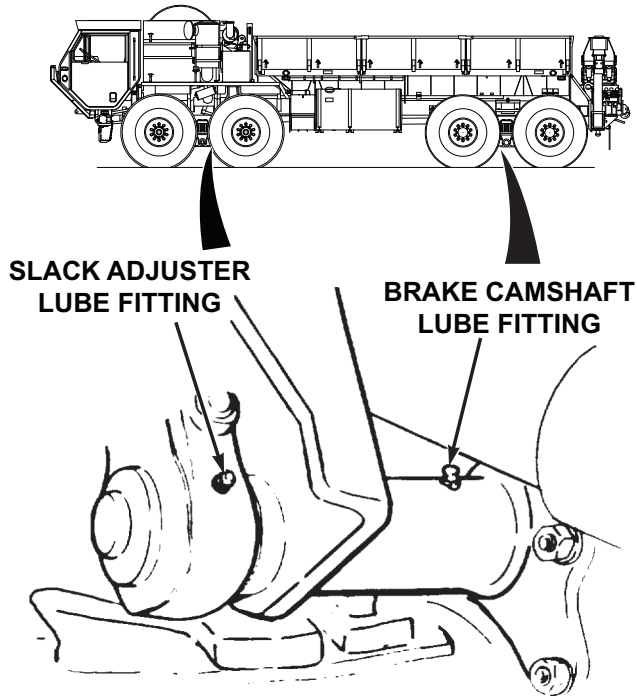


Figure 1.

NOTE

- When vehicle is operating under severe conditions, lubricate propeller shafts and universal joints every 50 hours of vehicle operation.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<ul style="list-style-type: none"> • Use the proper lubricant to purge all four bearing seals of each universal joint. This flushes abrasive contaminants from each bearing and assures all four bearings are filled properly. Pop the seals, these seals are made to be popped. • If any seals fail to purge, move propeller shaft from side-to-side while applying gun pressure. This allows greater clearance on thrust end of bearing that is not purging. If seals still do not purge, rock vehicle by releasing the parking brake, start engine, put transmission in D (drive) or R (reverse), and allow vehicle to roll. This removes the windup in the drive line and allows for a greater clearance on the thrust end of the universal joint. • Because of the design of the universal joint seal, there will occasionally be one or more bearing seals of a joint that may not purge. If this occurs, notify field level maintenance. 	

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
2	Semian nual	Propeller Shafts and U-Joints	<ul style="list-style-type: none"> • Universal joint may have one or two grease fittings. If there are two grease fittings, either fitting can be greased. It is not necessary to grease both fittings. <ol style="list-style-type: none"> 1. Lubricate all axle propeller shafts, transmission to transfer case propeller shaft, and U-joints with GAA: (WP 0188, Table 10) 	Fitting will not purge old lubricant out of component.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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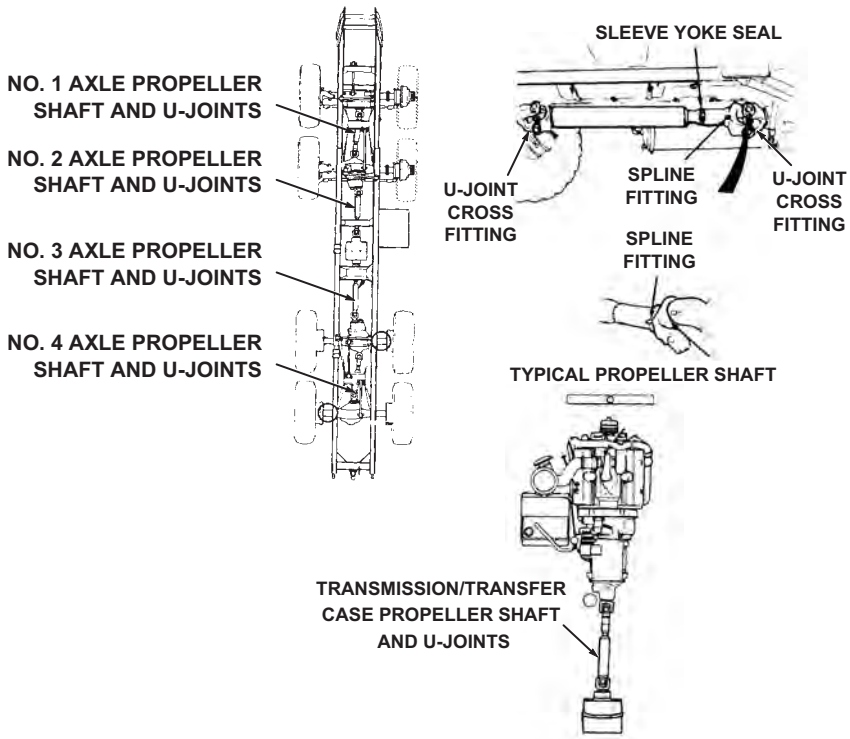


Figure 2.

		<p>a. Complete the following when lubricating the spline end of the propeller shafts:</p> <p>(1) Apply GAA (WP 0188, Table 10) to spline fitting</p>	<p>Fitting will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
3	Semian nual	Steering System	<p>until lubricant appears at pressure relief hole.</p> <p>(2) Cover pressure relief hole with finger and continue adding grease until it appears at sleeve yoke seal.</p> <p>1. Lubricate intergear link with GAA. (WP 0188, Table 10)</p>	<p>Fitting will not purge old lubricant out of component.</p>

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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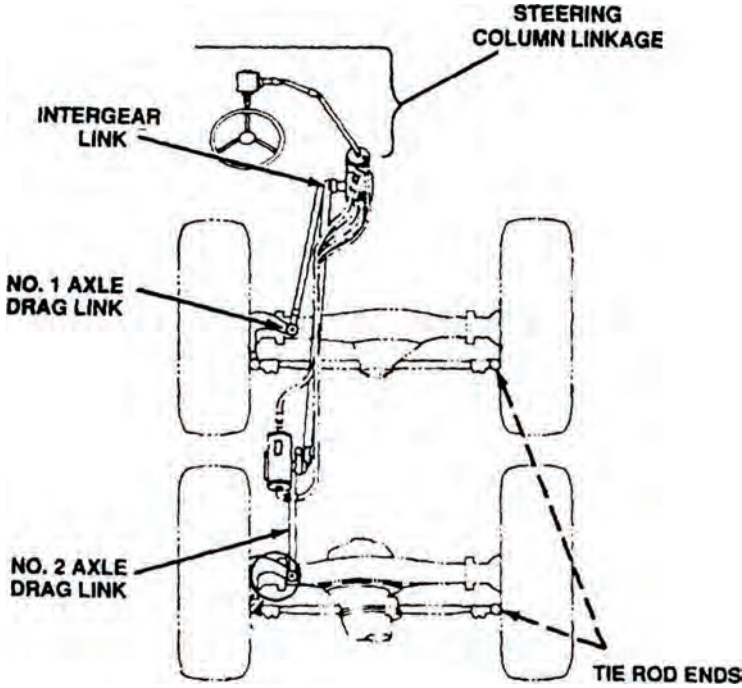


Figure 3.

		<ol style="list-style-type: none"> 2. Lubricate No. 1 axle drag link with GAA. (WP 0188, Table 10) 3. Lubricate No. 2 axle drag link with GAA. (WP 0188, Table 10) 	<p>Fitting will not purge old lubricant out of component.</p> <p>Fitting will not purge old lubricant</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p>4. Lubricate tie rod ends with GAA. (WP 0188, Table 10)</p> <p>5. Lubricate steering linkage U-joints and shafts with GAA. (WP 0188)</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • The top trunnion bearing should be given 10 to 12 strokes with a grease gun through existing fitting. • The plug below the bottom should temporarily be removed and a grease fitting installed. The lower trunnion bearing should be lubricated with 10 to 12 strokes from a grease gun. The grease fitting should then be removed and the plug reinstalled. <p>6. Lubricate No. 1 and No. 2 axle trunnion bearings with GAA. (WP 0188, Table 10)</p>	<p>out of component.</p> <p>Fitting will not purge old lubricant out of component.</p> <p>Fitting will not purge old lubricant out of component.</p>

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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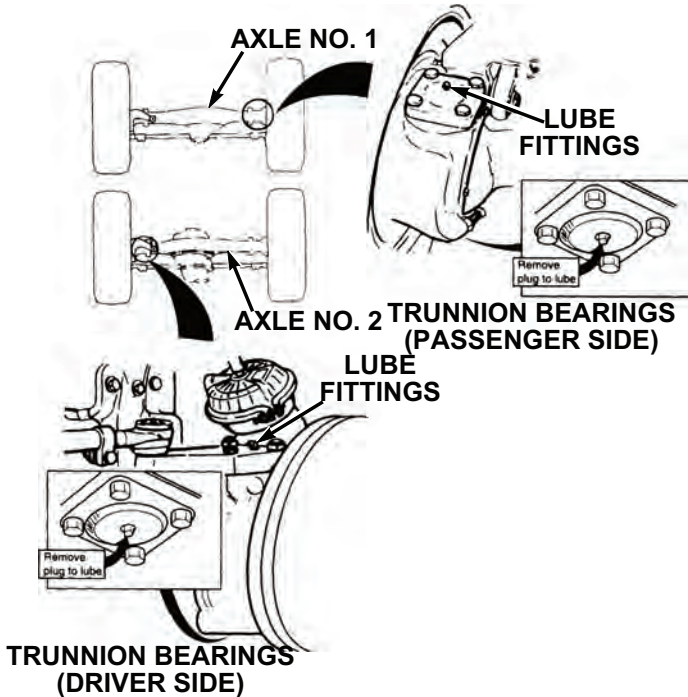


Figure 4.

4	Semianual	Spring Hanger	1. Lubricate spring hanger pivot points (one fitting per spring) with GAA. (WP 0188, Table 10)	Fitting will not purge old lubricant out of component.
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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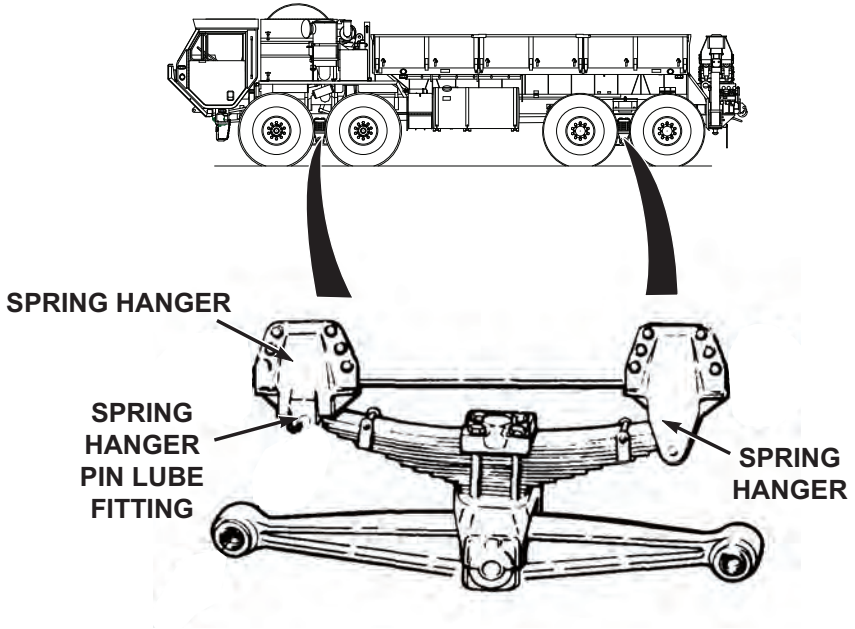


Figure 5.

	<ol style="list-style-type: none"> 2. If spring hanger pin does not accept grease, perform the following: <ol style="list-style-type: none"> a. Relieve load on spring hanger pin by jacking up vehicle at frame rails, as close to spring hanger pin as possible. b. Lubricate spring hanger pin pivot.
--	--

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
5	Semian nual	Battery Electrical System	<p>c. If springer hanger pin still fails to take grease, notify field level maintenance to remove spring hanger pin and replace as necessary.</p> <p style="text-align: center;">NOTE</p> <p>Vehicle may be equipped with either a slave receptacle incorporated in bottom rear of battery box, or separate unit on driver side front fender.</p> <p>Coat slave receptacle with corrosion preventive compound.</p>	

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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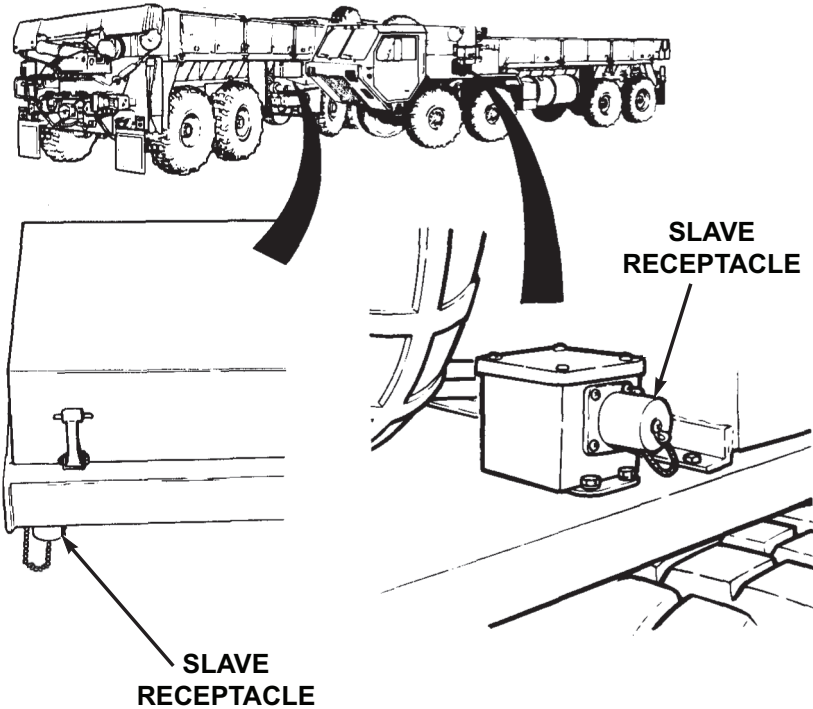


Figure 6.

6	Semianual	Mirror Assemblies	Lubricate mirror assembly swivel joints with GAA. (WP 0188, Table 10)	
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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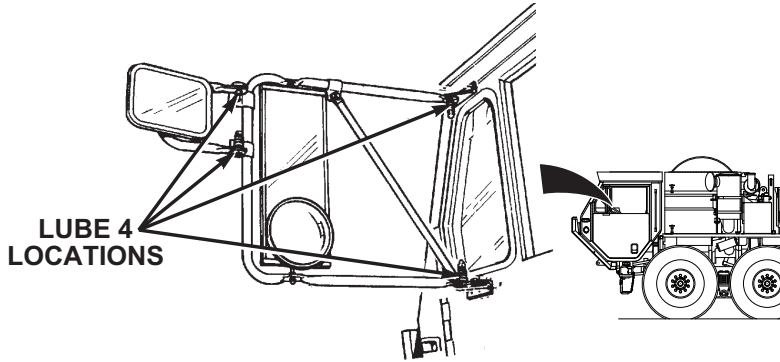


Figure 7.

7	Semianual	Wrecker Body Support Assembly Lubrication Points	Lubricate wrecker body support assembly (four fittings) with GAA. (WP 0188, Table 10)	Fitting will not purge old lubricant out of component.
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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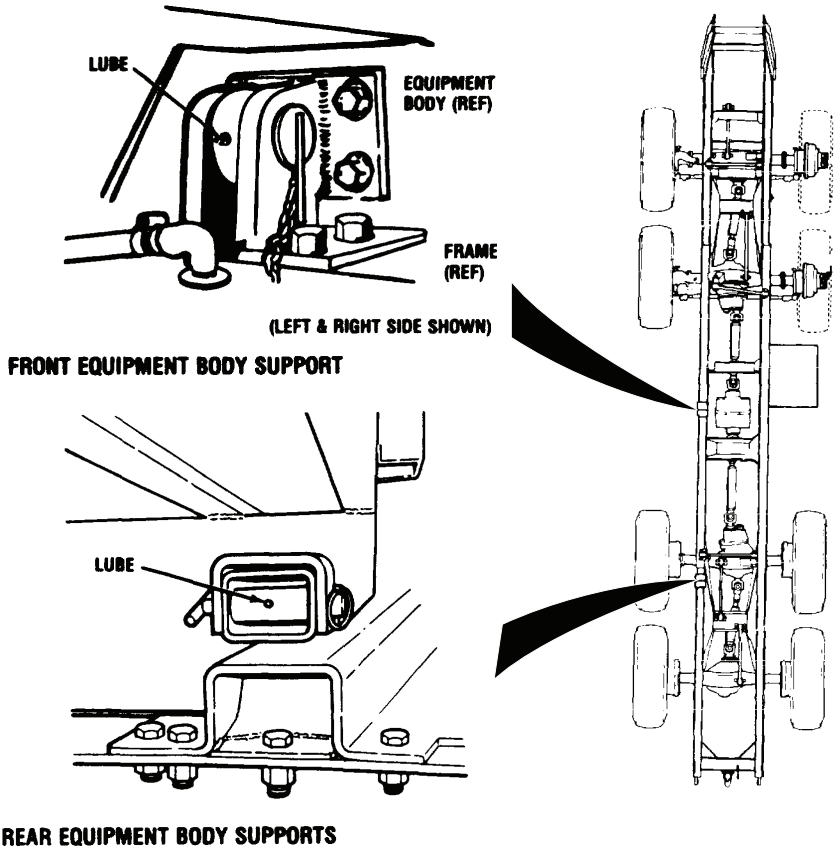


Figure 8.

8

Semian-
nual

Heavy-
Duty
Winch

1. Lubricate winch mounts (three fittings) with GAA. (WP 0188, Table 10)

Fitting will not purge old lubricant out of component.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

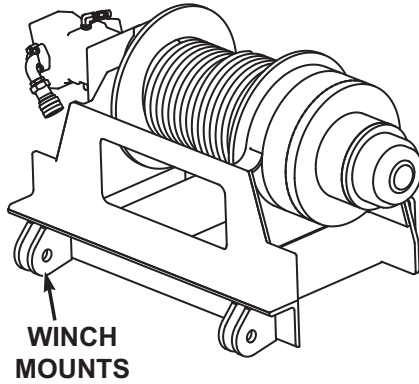
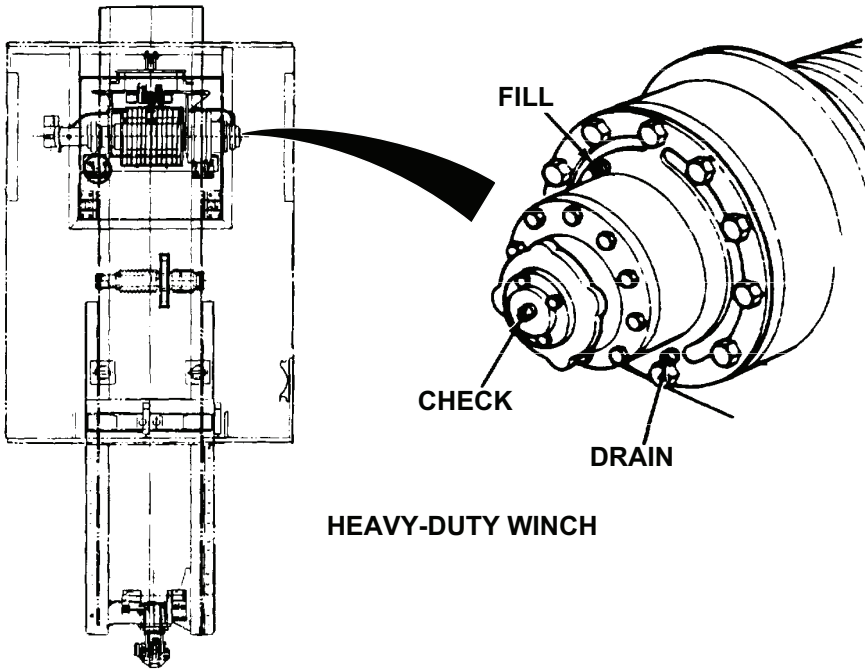


Figure 9.

		<ol style="list-style-type: none"> 2. Check level of heavy-duty winch drum gearbox and fill with GO (WP 0188, Table 7) as required.
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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HEAVY-DUTY WINCH

Figure 10.

	<p>3. Lubricate fairlead tensioner (two fittings) with GAA. (WP 0188, Table 7)</p>	<p>Fittings will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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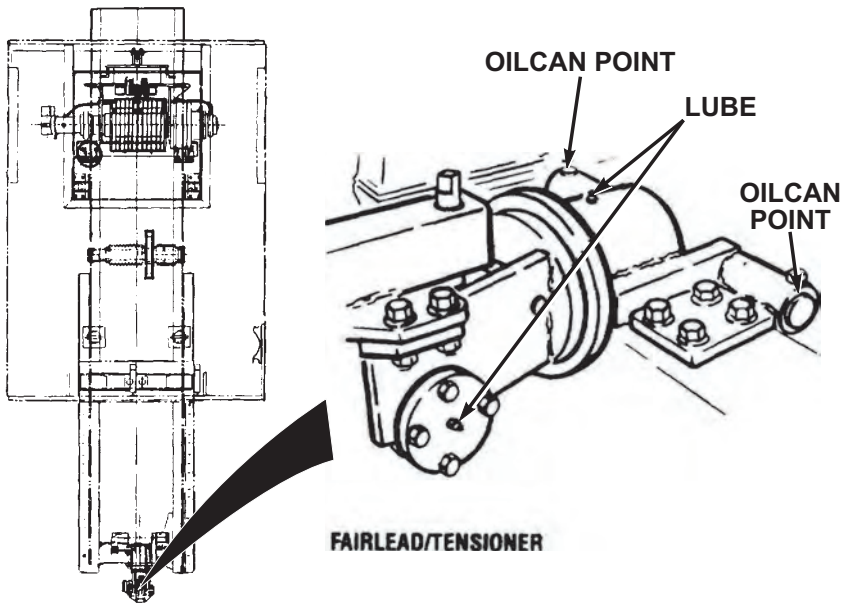


Figure 11.

		<ol style="list-style-type: none"> 4. Lubricate fairlead pivot point with OE/HDO. (WP 0188, Table 9) 5. Lubricate fairlead/tensioner sheave with OE/HDO. (WP 0188, Table 9) 6. Lubricate cable guide assembly (1 fitting) with GAA. (WP 0188, Table 7) 	<p>Fitting will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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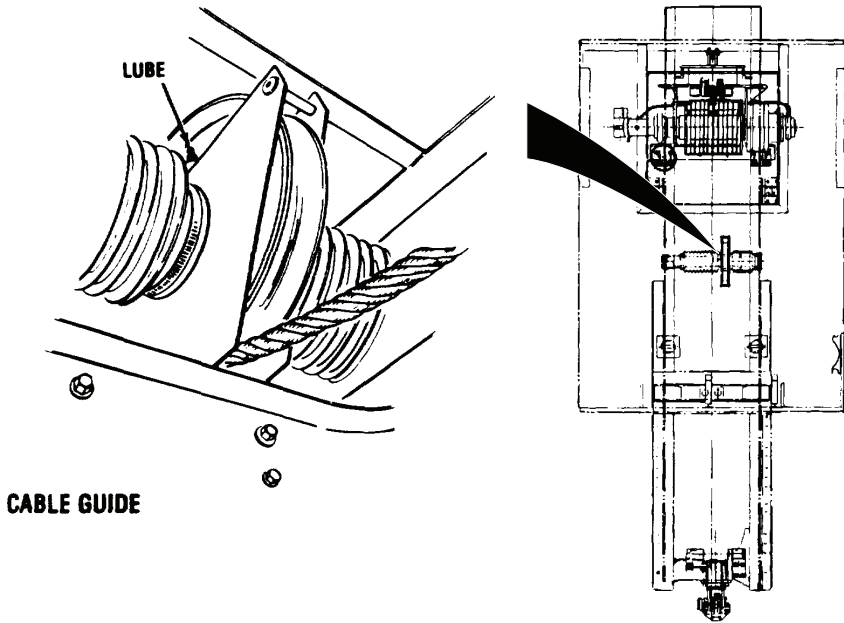


Figure 12.

		<p>7. Lubricate heavy-duty snatch block center shaft (one fitting) with GAA. (WP 0188, Table 7)</p>	<p>Fitting will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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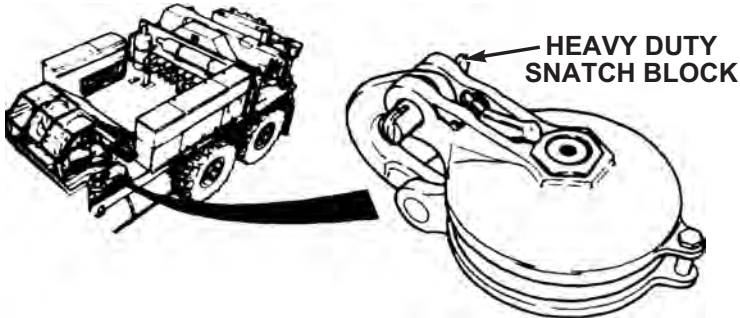


Figure 13.

9	Semian nual	Pintle Hook	<p>8. Lubricate heavy-duty snatch block locking jaws with GO (WP 0188, Table 7)</p> <p style="text-align: center;">NOTE</p> <p>Pintle hook plate lubrication fitting can be on any side.</p> <p>1. Lubricate pintle hook (3 fittings) with GAA. (WP 0188, Table 10)</p>	Fitting will not purge old lubricant out of component.
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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Figure 14.

10	Semian nual	Retrieval Assembly	<ol style="list-style-type: none"> Lubricate retrieval assembly (four fittings) with GAA. (WP 0188, Table 10) 	Fittings will not purge old lubricant out of component.
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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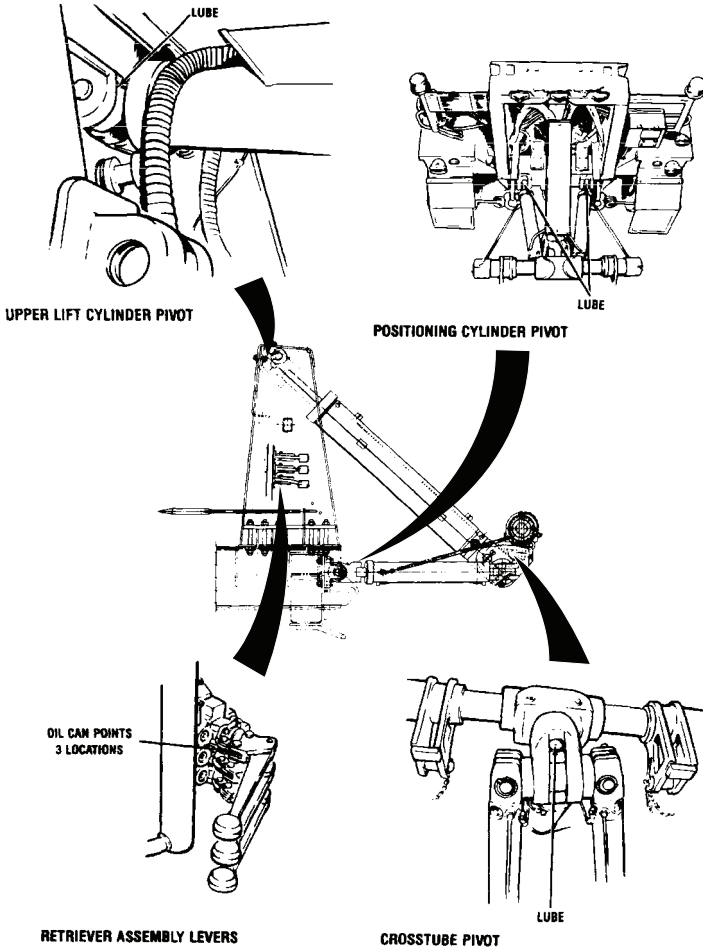


Figure 15.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
11	Semianual	Crane (Grove)	<p>2. Lubricate control lever pivot points with OE/HDO. (WP 0188, Table 9)</p> <p style="text-align: center;">NOTE</p> <p>Always check grove crane for damaged parts and excessive wear during lubrication.</p> <p>1. Lubricate grove crane:</p>	

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

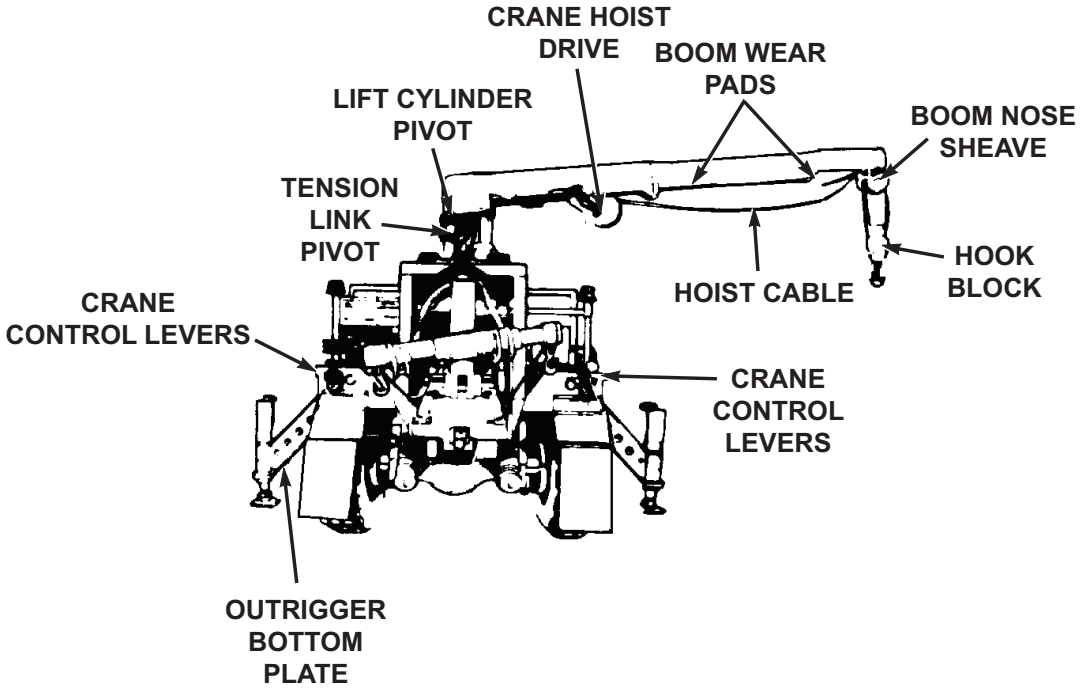


Figure 16.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

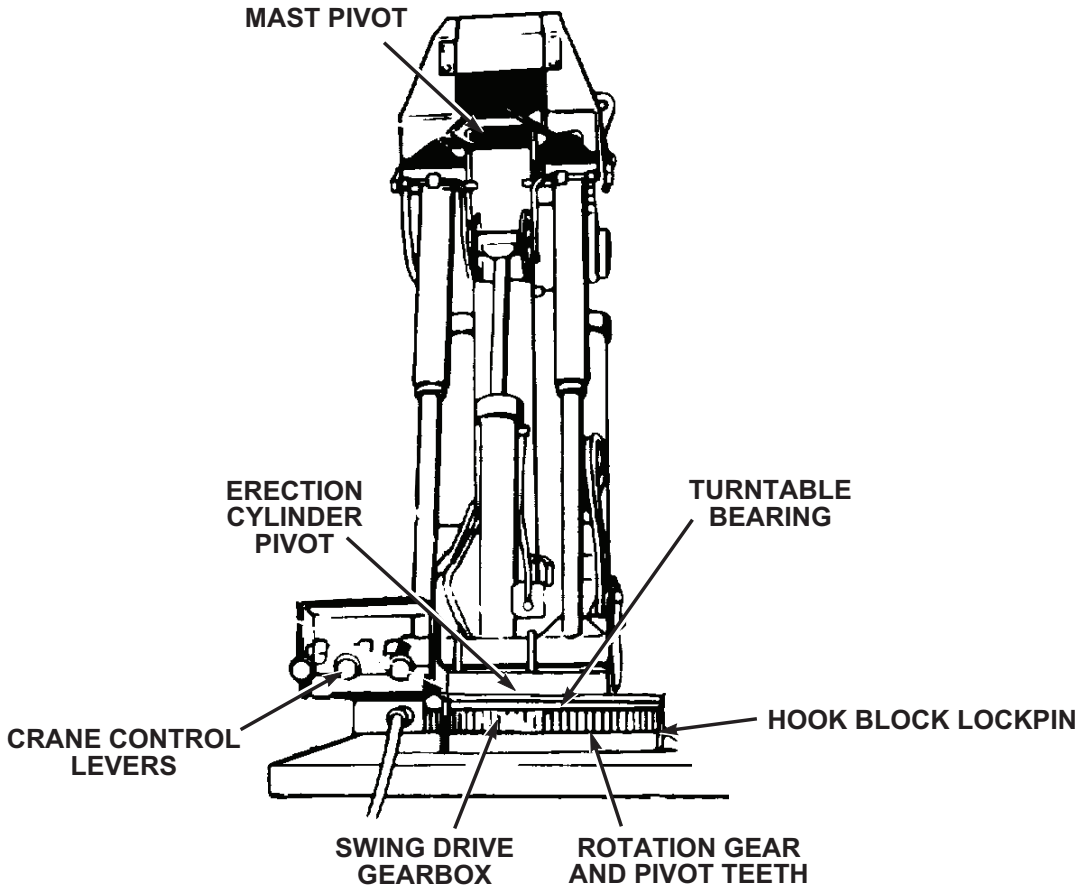


Figure 17.

		<p>a. Lubricate pivot points at both ends of lift cylinders (eight</p>	<p>Fitting will not purge old lubricant</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			fittings) with GAA. (WP 0188, Table 8)	out of component.

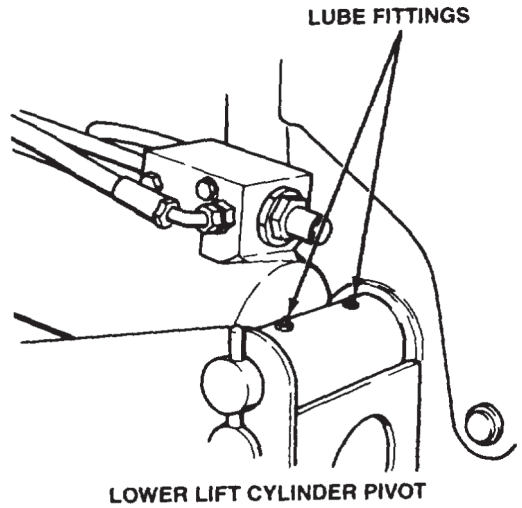
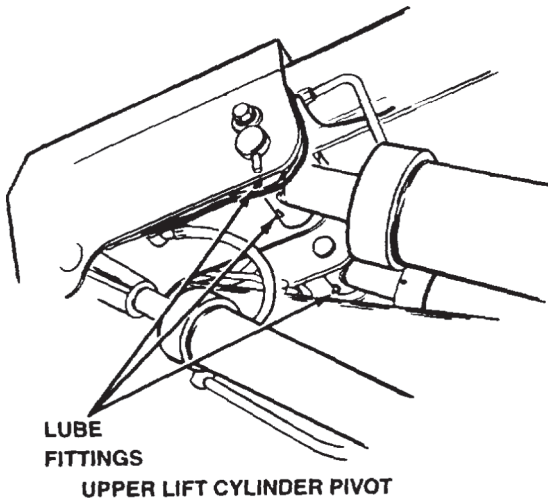


Figure 18.

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b. Lubricate pivots at both ends of tension link (eight fittings) with GAA. (WP 0188, Table 8)

Fitting will not purge old lubricant out of component.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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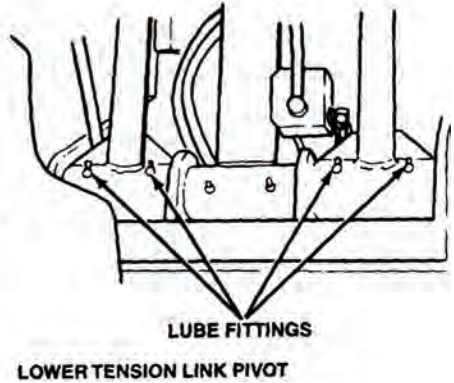
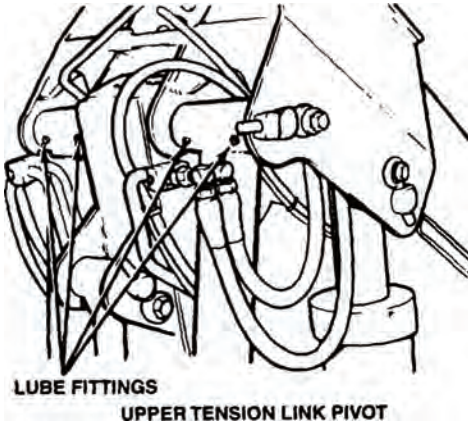


Figure 19.

		<p>c. Lubricate both ends of mast pivot (four fittings) with GAA. (WP 0188, Table 8)</p>	<p>Fitting will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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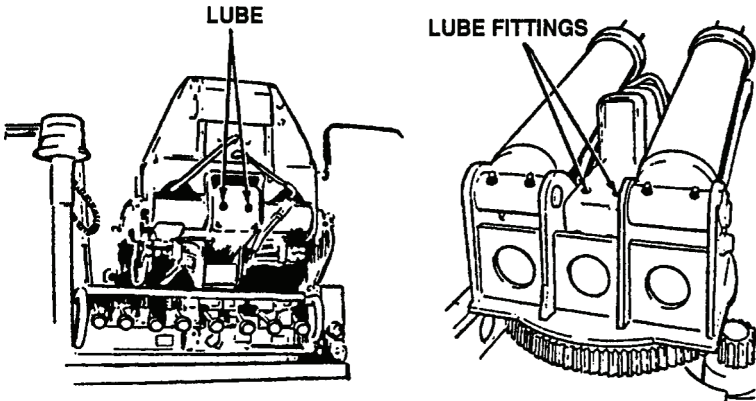


Figure 20.

		<p>d. Lubricate pivot on lower end of erection cylinder (two fittings) with GAA. (WP 0188, Table 8)</p>	<p>Fitting will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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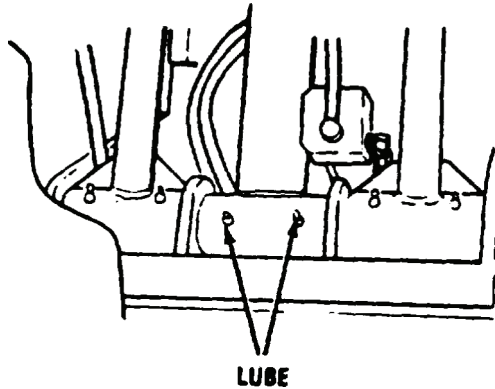


Figure 21.

NOTE

- Always re-lubricate rotation gear and pinion teeth after high pressure wash.
 - Clean and lubricate exposed rotation gears often when cranes are operating in sandy/dusty environment.
- e. Check and lubricate rotation gear and pinion teeth with light coating of GAA. (WP 0188, Table 8)

Gear teeth broken or missing.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

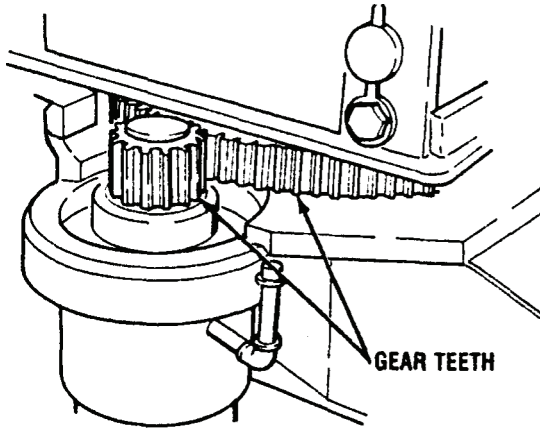


Figure 22.

NOTE

Raise crane mast until lube fitting comes into view. Turn and lubricate turntable every 90° until you have turned the turntable 360°, then rotate crane a full 360° to spread lubricant.

- f. Lubricate turntable bearing (one fitting) with GAA. (WP 0188, Table 8)

Fitting will not purge old lubricant out of component.

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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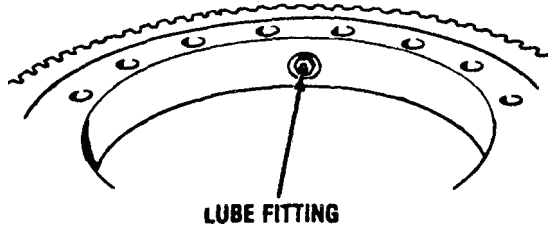


Figure 23.

NOTE

- g. Clean and lubricate sliding surfaces of outrigger bottom plates with GAA. (WP 0188, Table 8)
- h. Lubricate hook block lockpin with OE/HDO. (WP 0188, Table 9)

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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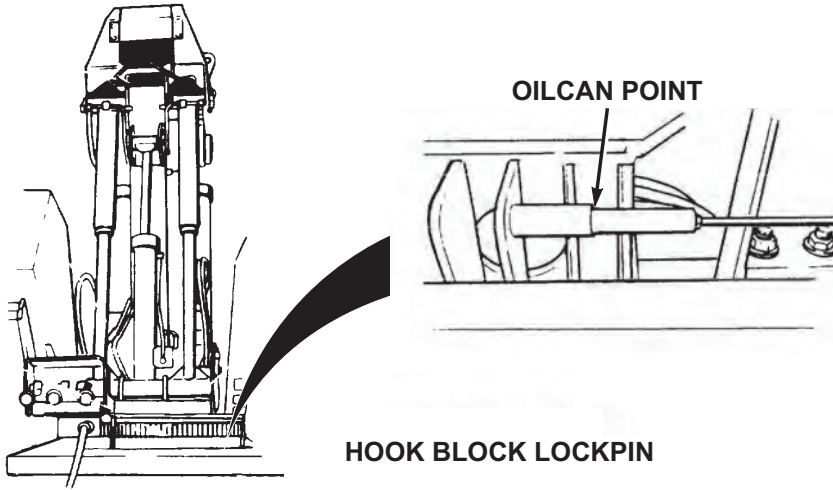


Figure 24.

		<p>i. Lubricate hook block sheave bushing (two fittings) with GAA. (WP 0188, Table 8)</p>	<p>Fitting will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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**LUBE FITTINGS
(ONE ON EACH SIDE)**

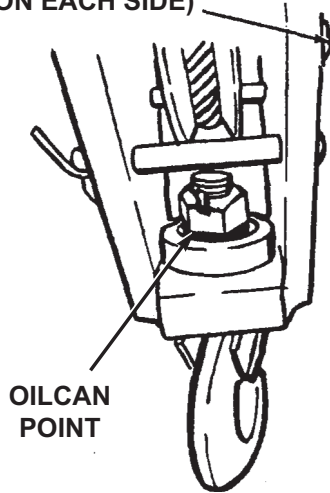


Figure 25.

		<ul style="list-style-type: none"> j. Lubricate hook block clevis pivot point with OE/HDO. (WP 0188, Table 9) k. Lubricate boom nose sheave bushing (two fittings - one on each side) with GAA. (WP 0188, Table 8) 	<p>Fitting will not purge old lubricant out of component.</p>
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

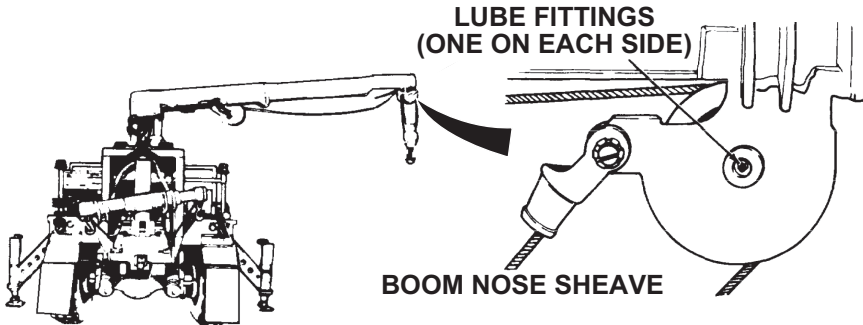


Figure 26.

NOTE

Clean and lubricate outrigger bottom plate often when cranes are operating in sandy/dusty environment.

- I. Clean and lubricate sliding surfaces of outrigger bottom plates with GAA. (WP 0188, Table 8)

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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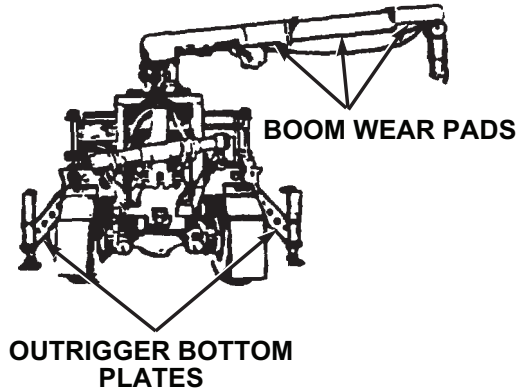


Figure 27.

12	Semian nual	Vise Assembly	<p style="text-align: center;">NOTE</p> <p>Clean and lubricate boom wear pads often when cranes are operating in sandy/dusty environment.</p> <p>m. Clean and lubricate boom wear pads with GAA. (WP 0188, Table 8)</p> <p>1. Lubricate vise assembly (one fitting) with GAA. (WP 0188, Table 10)</p>	Fitting will not purge old lubricant out of component.
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

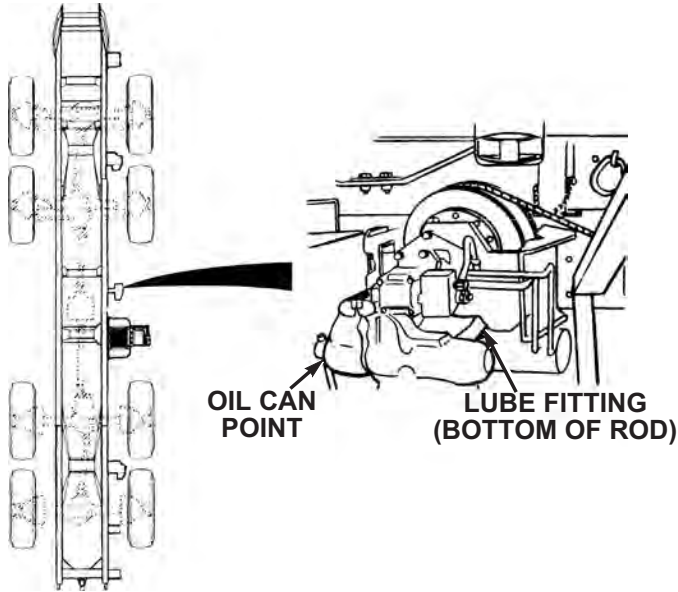


Figure 28.

- Lubricate vise adjustment screw with OE/HDO. (WP 0188, Table 9)

WARNING



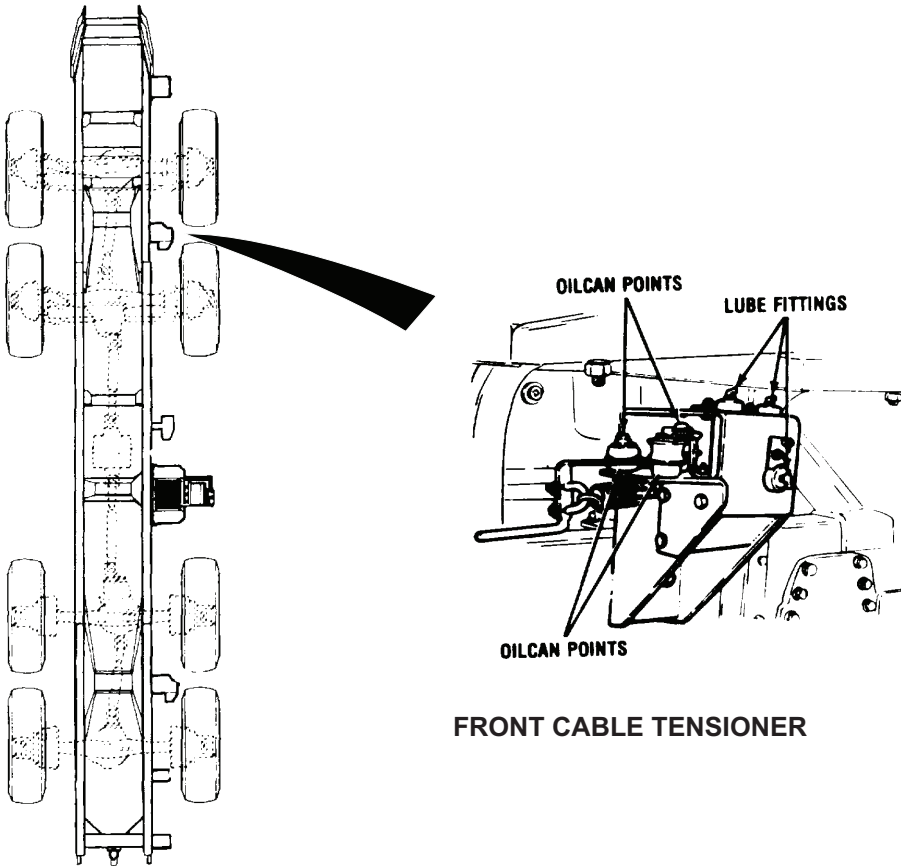
Always wear protective gloves when checking hoist cable. Never let cable run

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
13	Semianual	Crane Hoist Cable	<p>through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel.</p> <ol style="list-style-type: none"> <li data-bbox="543 607 937 693">1. Unreel crane hoist cable and check hoist cable for kinks, broken strands, and wear. <li data-bbox="543 760 962 846">2. Clean and lubricate hoist cable with OE/HDO. (WP 0188, Table 8) 	<p>Kinks, broken strands, or wear present.</p> <p>Kinks, broken strands, or wear present.</p>
14	Semianual	Self-Recovery Winch	<ol style="list-style-type: none"> <li data-bbox="543 915 950 1001">1. Unreel, (Volume 1, WP 0115) clean, and lubricate cable with OE/HDO. (WP 0188, Table 9) <li data-bbox="543 1033 966 1119">2. Lubricate front cable tensioner rollers (three fittings) with GAA. (WP 0188, Table 10) 	<p>Fitting will not purge old lubricant out of component.</p>

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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FRONT CABLE TENSIONER

Figure 29.

3. Lubricate pivot points and pressure rollers with OE/HDO. (WP 0188, Table 9)

Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			4. Lubricate front cable guide (four fittings) with GAA. (WP 0188, Table 10)	Fitting will not purge old lubricant out of component.

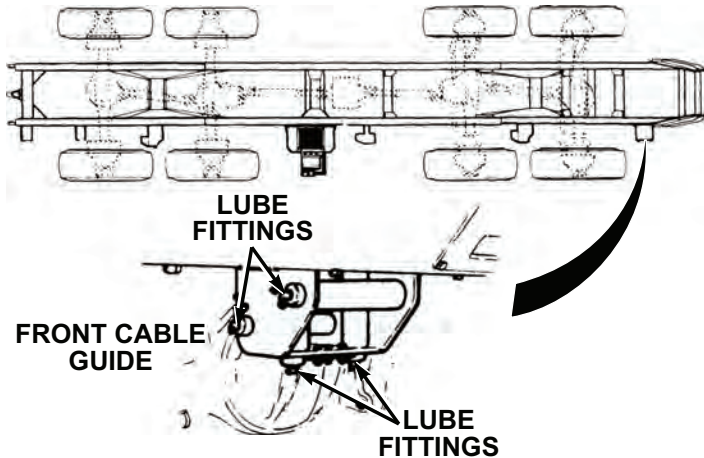


Figure 30.

15	Semian nual	Spare Tire Davit	1. Lubricate tire davit pivot point with light coating of GAA. (WP 0188, Table 10)
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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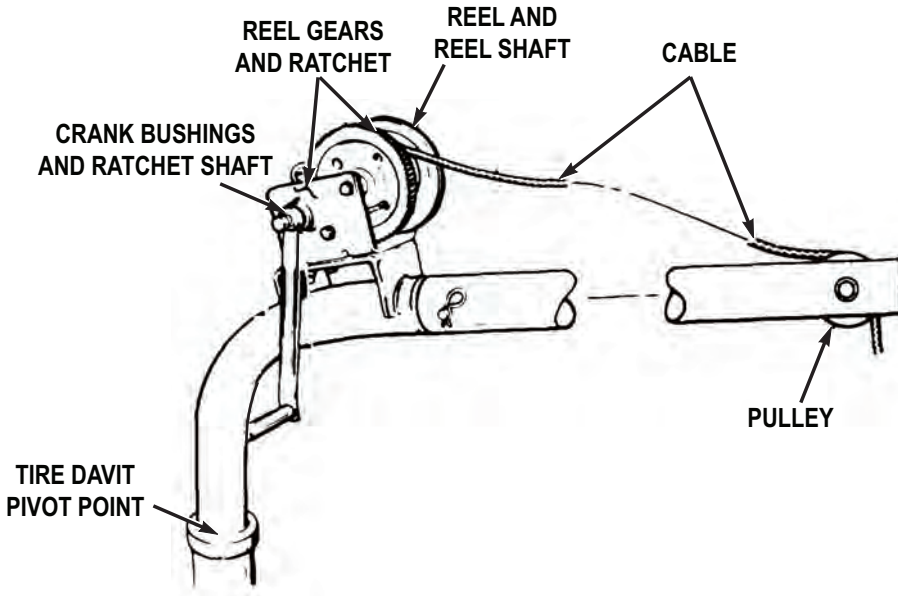


Figure 31.

		<ol style="list-style-type: none"> 2. Lubricate reel gears and ratchet with light coating of GAA. (WP 0188, Table 10) 3. Lubricate crank bushings and ratchet shaft with OE/HDO. (WP 0188, Table 9) 4. Lubricate reel and reel shaft with OE/HDO. (WP 0188, Table 9) 5. Lubricate cable with OE/HDO. (WP 0188, Table 9)
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Table 1. PMCS- SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			6. Lubricate pulley with OE/HDO. (WP 0188, Table 9)	

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
MONTHLY - PREVENTIVE MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Gloves, Leather (WP 0202, Table 2)

Table 1. PMCS - MONTHLY

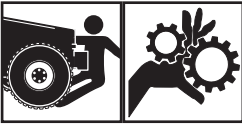

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			<p style="text-align: center;">WARNING</p>  <p>Do not start engine or move vehicle when personnel are under vehicle or working on brake lines. Failure to comply may result in injury or death to personnel.</p> <p style="text-align: center;">WARNING</p>  <p>Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in injury or death to personnel.</p>	

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
1	Monthly	Damage And	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions. • Clean all lubrication points with cleaning compound, solvent and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated. • Always refer to lubrication instructions (WP 0188) to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in lubrication instructions. (WP 0188) 	Any broken, cracked, bent frame
			Check entire vehicle for obvious damage and/or corrosion.	

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
2	Monthly	Corrosion Check Lubricate Oilcan Points	<ol style="list-style-type: none"> 1. Lubricate cabin door latching mechanisms and hinges with OE/HDO. (WP 0188) 2. Lubricate all side panel and engine cover hinges, locks, and latches with OE/HDO. (WP 0188) <p style="text-align: center;">NOTE</p> <p>Steady illumination of the arctic engine heater indicator light indicates proper operation.</p>	rails, cross-members, or screws are found.
3	Monthly	Arctic Engine Heater	<ol style="list-style-type: none"> 1. Position arctic engine heater ON/OFF switch to ON position, indicator light will illuminate. 	

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

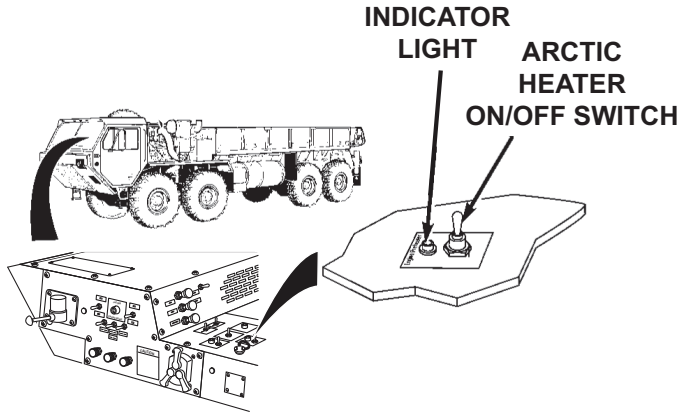


Figure 1.

2. Visually check all fuel lines for leaks, cuts, loose clamps, and other obvious damage.

Any Class III leak.

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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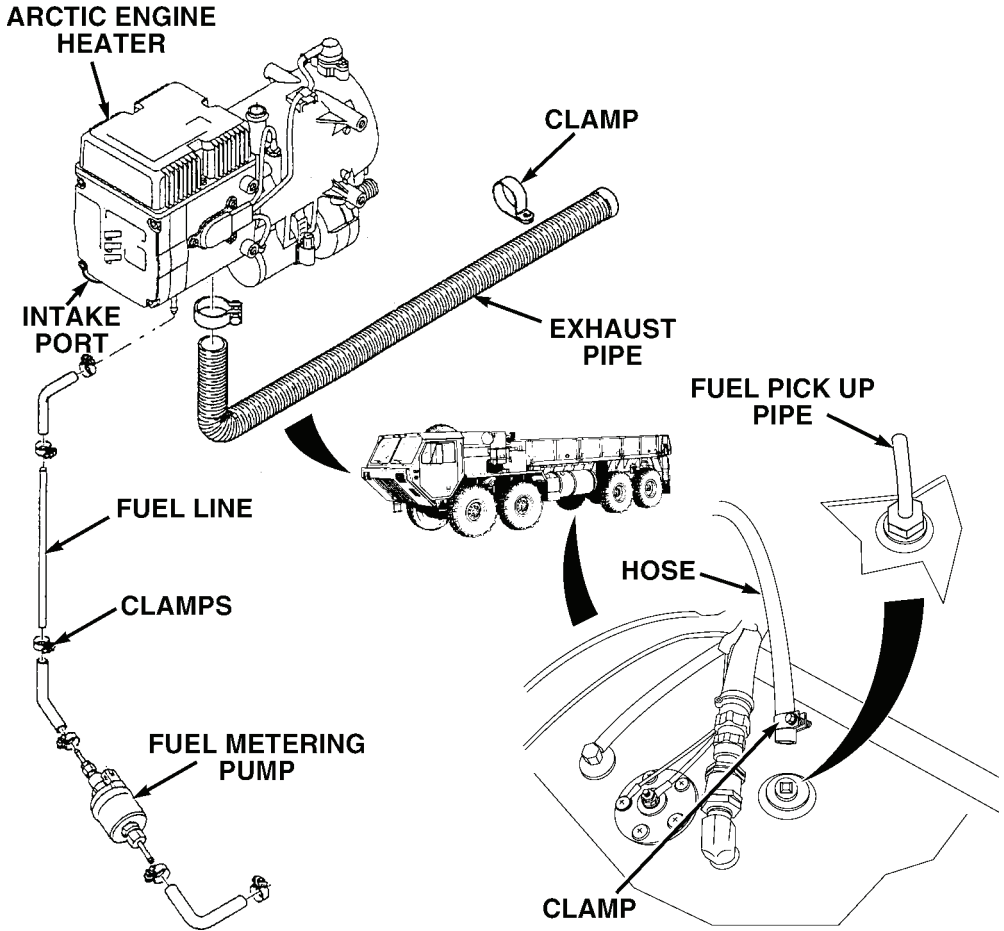


Figure 2.

3. Visually check intake port and exhaust pipe for blockage.

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			4. Check water pump for unusual noise.	

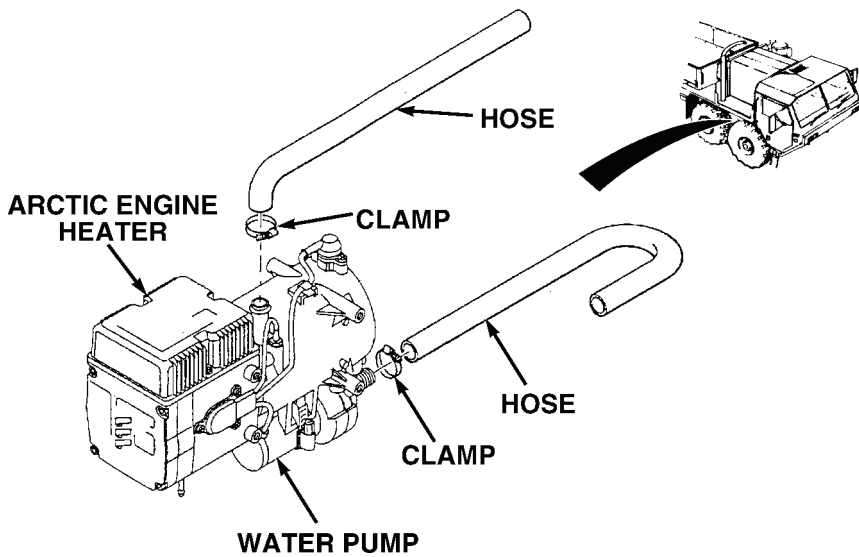


Figure 3.

			5. Check coolant hoses at arctic engine heater for leaks, cuts, loose hose clamps, and other obvious damage.	Any Class III leak.
			6. Check coolant hoses and fittings at passenger side of engine for leaks, cuts, loose hose clamps, and other obvious damage.	Any Class III leak.

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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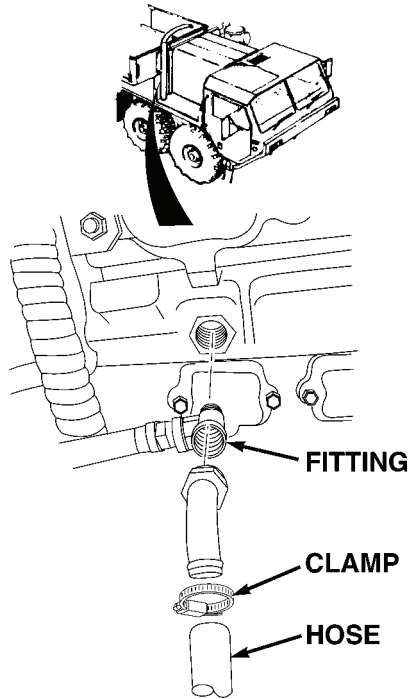


Figure 4.

- | | | | |
|--|--|--|----------------------------|
| | | <p>7. Check coolant hoses and fittings at passenger side of engine for leaks, cuts, loose hose clamps, and other obvious damage.</p> | <p>Any Class III leak.</p> |
|--|--|--|----------------------------|

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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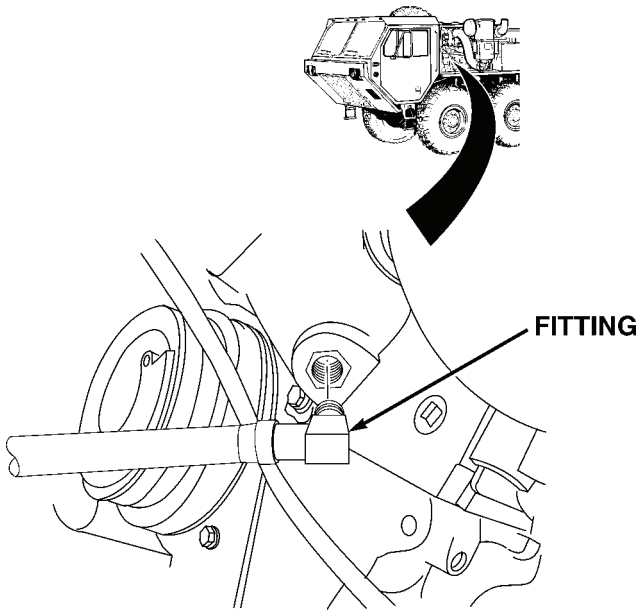


Figure 5.

4	Monthly	Heavy-Duty Winch Rear Attachment Fitting	<p>8. Run arctic engine heater for a minimum of 15 minutes at least once a month.</p> <p>Lubricate rear attachment fitting with GAA. (WP 0188)</p>	Fitting will not purge old lubricant out of component.
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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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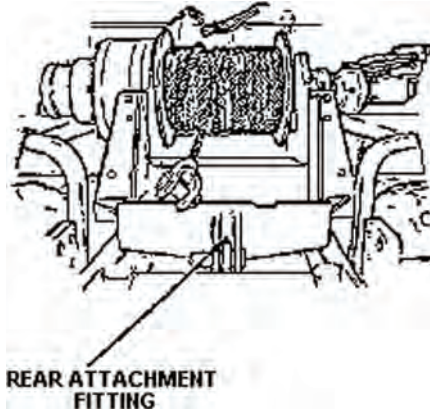


Figure 6.

5	Monthly	Crane Control Levers	Lubricate crane control lever pivots with OE/HDO. (WP 0188)	
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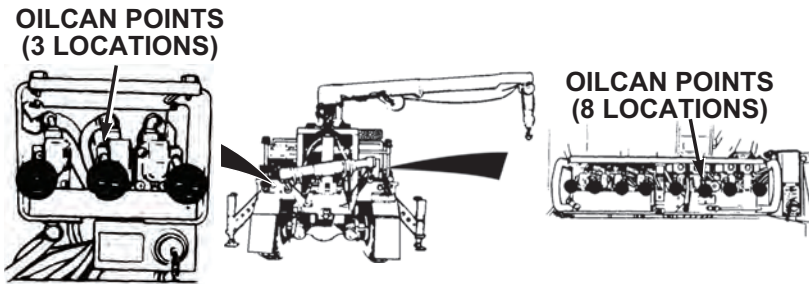


Figure 7.

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
6	Monthly	Heavy-Duty Snatch Block	Lubricate heavy-duty snatch block swivel and safety latch with OE/HDO. (WP 0188)	

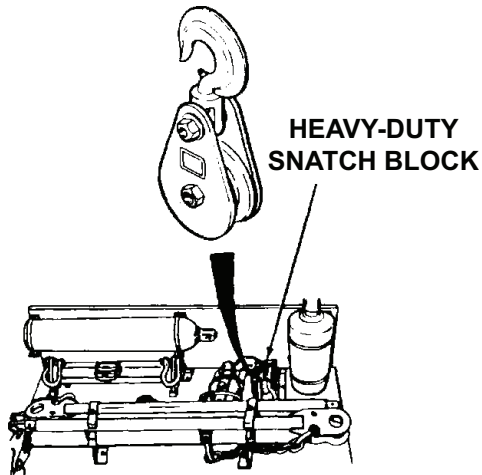


Figure 8.

7	Monthly	Stowage Boxes	Check all vehicle stowage boxes for missing hardware and other obvious damage.	
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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

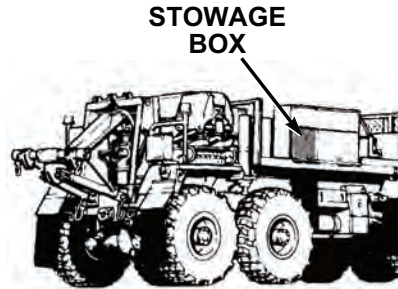


Figure 9.

WARNING



- Always wear protective gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in injury or death to personnel.
- Never operate winch with less than five wraps of cable on winch drum. Failure to comply may result in injury or death to personnel.

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
8	Monthly	Self-Recovery Winch (SRW)	<ol style="list-style-type: none"> 1. Check winch cable for kinks, frays, and breaks. 2. Check self-recovery winch (SRW) lever (Volume 1, WP 0022) for proper operation in both directions. 	Self-recovery winch (SRW) lever does not function.

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

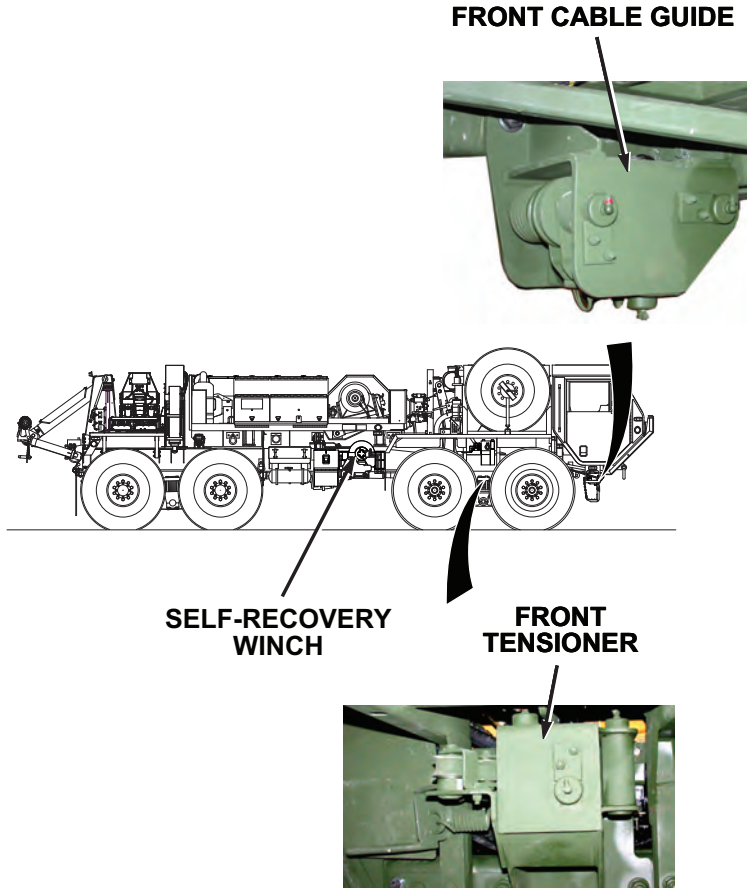


Figure 10.

3. Inspect front cable guide for any loose or missing parts and any obvious damage.

Front cable guide has loose/missing parts or

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
9	Monthly	Gas Particulate Filter Unit (GPFU)	<p>4. Inspect front tensioner for loose or missing parts and any obvious damage.</p> <p style="text-align: center;">NOTE</p> <p>Gas particulate filter unit must be in operation (Volume 1, WP 0080) to perform the following checks.</p> <p>1. Check heater for unusual loud noise or improper operation.</p>	<p>is unserviceable.</p> <p>Front tensioner has loose/missing parts or is unserviceable.</p> <p>Heater does not operate/operates abnormally and GPFU is required for mission.</p>

Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
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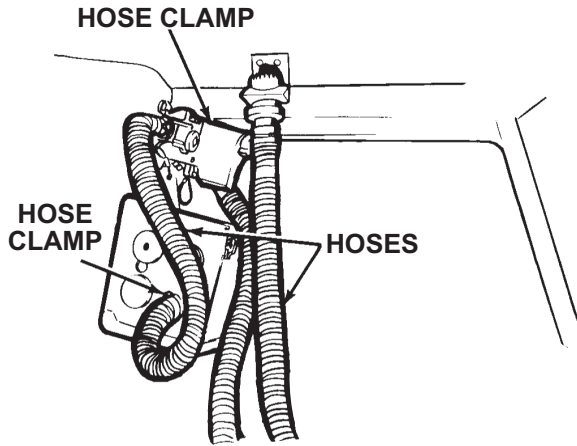


Figure 11.

		<ol style="list-style-type: none"> 2. Disconnect two air duct breakaway sockets from mount and feel for airflow. 3. Turn heater control knob clockwise to make sure indicator light illuminates. 4. Check hoses for cuts, tears, and other obvious damage. 	<p>No airflow or not enough airflow and GPFU is required for mission.</p> <p>Heater is inoperative and GPFU is required for mission.</p> <p>Hoses cut, torn, or damaged and GPFU</p>
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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
10	Monthly	Rifle Stowage Mount	<ol style="list-style-type: none"> 1. Check that mounting screws on top mount and lower mount are not broken or missing. 5. Make sure hose clamps are secure. 	<p>is required for mission.</p> <p>Clamps loose and GPFU is required for mission.</p>

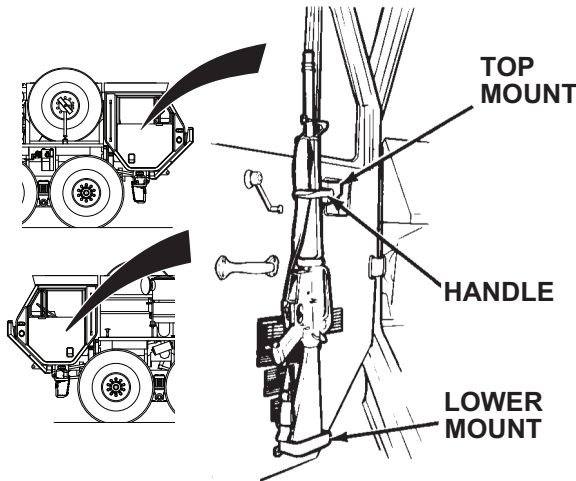


Figure 12.

		<ol style="list-style-type: none"> 2. Check handle for excessive looseness or binding.
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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
11	Monthly	Machine Gun Operator's Platform Support	Check machine gun operator's platform support for loose, broken, or missing mounting screws.	
12	Monthly	Machine Gun Operator's Platform	Check machine gun operator's platform for cracks, loose or broken leg, missing or broken tie down strap.	
13	Monthly	Ring Mount	Check machine gun mounts for loose, broken, or missing mounting screws.	
14	Monthly	M-13 Decontamination Unit	Refer to TM 3-4230-214-12&P (WP 0200) for M-13 Decontamination Unit PMCS.	
15	Monthly	M-8 Chemical Alarm	Refer to TM 3-6665-225-12 (WP 0200) for M-8 Chemical Alarm PMCS.	
16	Monthly	Radio	Refer to TM 11-5820-498-12 (WP 0200) for radio PMCS.	

END OF WORK PACKAGE

CHAPTER 5
MAINTENANCE
INSTRUCTIONS

OPERATOR MAINTENANCE LUBRICATION INSTRUCTIONS

INITIAL SETUP:

Not Applicable

WARNING



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

NOTE

- The lowest level of maintenance authorized to lubricate a specific point is indicated by where that lubrication point falls within the PMCS tables. Operator/crew are only authorized to lubricate those points within the operator PMCS tables. Field level maintenance personnel are authorized to lubricate all points regardless of which tables (operator or field level) those lubrication points are listed.
- Refer to PMCS tables for specific lubrication points and localized views.
- Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions.
- Clean all lubrication points with cleaning compound, solvent and allow to dry prior to servicing.
- When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated.
- After a thorough high pressure washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

- If vehicle fords water obstacle, service all lubrication points below fording depth and check submerged gearboxes for presence of water.
- Ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in these lubrication instructions.

Table 1. Engine Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Desert Conditions	Interval
Engine Oil (with filter change)	30 qt. (28.38 L)	OE/ HDO-15W/40 MIL-PRF-2104	OE/ HDO-15W/40 MIL-PRF-2104 or OEA MIL-PRF-46167 (Notes 1, 2, and 3)	OE/ HDO-15W/40 MIL-PRF-2104 or OEA MIL-PRF-46167 (Notes 1, 2, and 3)	OE/ HDO-40 MIL-PRF-2104	A-Annual (1 year)
Engine Oil (without filter change)	28 qt. (26.49 L)	OE/ HDO-15W/40 MIL-PRF-2104	OE/ HDO-15W/40 MIL-PRF-2104 or OEA MIL-PRF-46167 (Notes 1, 2, and 3)	OE/ HDO-15W/40 MIL-PRF-2104 or OEA MIL-PRF-46167 (Notes 1, 2, and 3)	OE/ HDO-40 MIL-PRF-2104	A-Annual (1 year)

Table 1. Engine Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Desert Conditions	Interval
<p>NOTE</p> <ol style="list-style-type: none"> 1. After changing to OEA, drain one pint (0.5 L) of oil from the oil sampling valve. 2. OEA must be used when temperatures are consistently below 0°F (-18°C). 3. OE/HDO-15W/40 must be used when temperatures are consistently above 0°F (-18°C). 						

Table 2. Transmission and Transfer Case Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Transmission Oil	31 qt. (29.33 L)	OE/HDO-15W/40 MIL-PRF-2104	OE/HDO-15W/40 MIL-PRF-2104 (Note 2)	OE/HDO-15W/40 MIL-PRF-2104 (Note 2)	A-Annual (1 year)
Transfer Case	5 qt. (4.73 L)	OE/HDO-40 MIL-PRF-2104	OE/HDO-40 MIL-PRF-2104 or OEA MIL-PRF-46167 (Notes 1 and 2)	OE/HDO-40 MIL-PRF-2104 or OEA MIL-PRF-46167 (Notes 1 and 2)	A-Annual (1 year)

Table 2. Transmission and Transfer Case Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
All Other Transmission and Transfer Case Lubrication Points	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 2)	GAA MIL-PRF-10924 (Note 2)	As Required (Note 3)

NOTE

1. OE/HDO-40 must be used when temperatures are consistently above 0°F (-18°C).
2. Refer to FM 9-207 (WP 0200) for arctic operation.
3. Refer to PMCS tables for specific lubrication intervals.

Table 3. Axle Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Axle 1	17.5 qt. (16.56 L)	GO-85W/140 MIL-PRF-2105	GO-85W/140 MIL-PRF-2105 or GO-80W/90 MIL-PRF-2105 (Notes 1 and 3)	GO-80W/90 MIL-PRF-2105 or GO-75 MIL-PRF-2105 (Notes 2 and 3)	B-Biennial (2 Years) (Note 4)

Table 3. Axle Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Axle 2 (and Power Divider)	21.5 qt. (20.34 L)	GO-85W/140 MIL-PRF-2105	GO-85W/140 MIL-PRF-2105 or GO-80W/90 MIL-PRF-2105 (Notes 1 and 3)	GO-80W/90 MIL-PRF-2105 or GO-75 MIL-PRF-2105 (Notes 2 and 3)	B-Biennial (2 Years) (Note 4)
Axle 3 (and Power Divider)	21.5 qt. (20.34 L)	GO-85W/140 MIL-PRF-2105	GO-85W/140 MIL-PRF-2105 or GO-80W/90 MIL-PRF-2105 (Notes 1 and 3)	GO-80W/90 MIL-PRF-2105 or GO-75 MIL-PRF-2105 (Notes 2 and 3)	B-Biennial (2 Years) (Note 4)
Oil Lubed Wheel Bearings	N/A	GO-85W/140 MIL-PRF-2105	GO-85W/140 MIL-PRF-2105 or GO-80W/90 MIL-PRF-2105 (Notes 1 and 3)	GO-80W/90 MIL-PRF-2105 or GO-75 MIL-PRF-2105 (Notes 2 and 3)	B-Biennial (2 Years)
All Other Axle Lubrication Points	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 3)	GAA MIL-PRF-10924 (Note 3)	As Required (Note 5)

Table 3. Axle Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
<p>NOTE</p> <ol style="list-style-type: none"> 1. GO-85W/140 must be used when temperatures are consistently above 30°F (-1°C). 2. GO-85W/90 must be used when temperatures are consistently above -15°F (-26°C). 3. Refer to FM 9-207 (WP 0200) for arctic operation. 4. An initial lubrication change on new or rebuilt axles should occur between 500 mi. (805 km) and 1,000 miles (1 609 km). Refer to Field Level Annual PMCS for more information. 5. Refer to PMCS tables for specific lubrication intervals. 					

Table 4. Hydraulic Reservoir Servicing.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Hydraulic Reservoir	180 qt. (170.28 L)	OE/HDO-10 MIL-PRF-2104 or OE/HDO-30 MIL-PRF-2104 (Note 1)	OE/HDO-10 MIL-PRF-2104 (Note 2)	OEA MIL-PRF-46167 (Notes 2 and 3)	A-Annual (1 year)
<p>NOTE</p> <ol style="list-style-type: none"> 1. OE/HDO-30 must be used only when temperatures are consistently above 60°F (16°C). 2. Refer to FM 9-207 (WP 0200) for arctic operation. 					

Table 4. Hydraulic Reservoir Servicing. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
3. OEA must be used when temperatures are consistently below 0°F (-18°C).					

Table 5. Radiator Servicing.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Antifreeze (CID A-A-52624) (Note 1)	80 qt. (75.68 L)	80 qt. (75.68 L) 50% Ethylene Glycol Type IC (Recycled) (Notes 1 and 2)	80 qt. (75.68 L) 50% Ethylene Glycol Type IC (Recycled) (Notes 1 and 2)	80 qt. (75.68 L) 60% Ethylene Glycol Arctic Type IB (Recycled) (Notes 1, 2, and 3)	A-Annual (1 year) (Note 4)
Antifreeze (CID A-A-52624) (Note 1)	80 qt. (75.68 L)	40 qt. (37.84 L) 100% Ethylene Glycol Type IA (Recycled) plus 40 qt. (37.84 L) water (Notes 1 and 5)	40 qt. (37.84 L) 100% Ethylene Glycol Type IA (Recycled) plus 40 qt. (37.84 L) water (Notes 1 and 5)	48 qt. (45.41 L) 100% Ethylene Glycol Type IA (Recycled) plus 32 qt. (30.27 L) water (Notes 1, 3, and 6)	A-Annual (1 year) (Note 4)

Table 5. Radiator Servicing. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Antifreeze (CID A-A-52624) (Note 1)	80 qt. (75.68 L)	40 qt. (37.84 L) 100% Propylene Glycol Type IIA (virgin) plus 40 qt. (37.84 L) water (Notes 1 and 7)	40 qt. (37.84 L) 100% Propylene Glycol Type IIA (virgin) plus 40 qt. (37.84 L) water (Notes 1 and 7)	48 qt. (45.41 L) 100% Propylene Glycol Type IIA (virgin) plus 32 qt. (30.27 L) water (Notes 1, 3, and 8)	A-Annual (1 year) (Note 4)
Corrosion Inhibitor (Note 1)	2.4 qt. (2.27 L)	(Note 1)	(Note 1)	(Notes 1 and 3)	As Required

Table 5. Radiator Servicing. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
<p>NOTE</p> <ol style="list-style-type: none"> 1. Refer to TB 750-651 (WP 0200) for more information on antifreeze and additives used in the HEMTT series vehicle engine cooling system, and TM 750-254 (WP 0200) for detailed instructions for draining, cleaning, and flushing cooling systems of tactical vehicles. 2. Type 1C (normal) and Type 1B (arctic) antifreeze is premixed, and DOES NOT REQUIRE the addition of water. Never add water or inhibitor to Type 1B antifreeze. 3. Refer to FM 9-207 (WP 0200) for arctic operation. 4. Engine coolant contaminant level is checked annually. Engine coolant does not need to be changed until it fails check. 5. A mixture of 50% Ethylene Glycol (EG) antifreeze to 50% water will provide freeze protection down to -34°F (-37°C). 6. A mixture of 50% Propylene Glycol (PG) antifreeze to 50% water will provide freeze protection down to -27°F (-33°C). 7. A mixture of 60% Ethylene Glycol (EG) antifreeze to 40% water will provide freeze protection down to -62°F (-52°C). 8. A mixture of 60% Propylene Glycol (PG) antifreeze to 40% water will provide freeze protection down to -56°F (-49°C). 					

Table 6. Self-Recovery Winch Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Self-Recovery Winch Gearbox (Note 1)	2 qt. (1.89 L)	GO-85W/140 MIL-PRF-2105	GO-75 MIL-PRF-2105 or GO-80W/90	GO-75 MIL-PRF-2105 (Note 2)	A-Annual (1 year)

Table 6. Self-Recovery Winch Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
			MIL-PRF-2105 (Note 2)		
Winch Cable	As Required	OE/HDO-30 MIL-PRF-2104	OE/HDO-10 MIL-PRF-2104 (Note 1)	OEA MIL-PRF-46167 (Note 1)	S-Semiannual (WP 0186) (6 Months)
All Other Self-Recovery Winch Lubrication Points	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 2)	GAA MIL-PRF-10924 (Note 2)	As Required (Note 3)

NOTE

1. Pre-lubricated from manufacturer.
2. Refer to FM 9-207 (WP 0200) for arctic operation.
3. Refer to PMCS tables for specific lubrication intervals.

Table 7. Heavy-Duty Winch Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Winch Gearbox	12 qt. (11.35 L)	GO-85W/140 MIL-PRF-2105	GO-75 MIL-PRF-2105 or GO-80W/90	GO-75 MIL-PRF-2105 (Note 1)	A-Annual (1 year)

Table 7. Heavy-Duty Winch Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
			MIL-PRF-2105 (Note 1)		
Winch Cable	As Required	OE/HDO-30 MIL-PRF-2104	OE/HDO-10 MIL-PRF-2104 (Note 1)	OEA MIL-PRF-46167 (Note 1)	S-Semiannual (WP 0186) (6 Months)
All Other Winch Lubrication Points	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	As Required (Note 2)
NOTE					
<ol style="list-style-type: none"> 1. Refer to FM 9-207 (WP 0200) for arctic operation. 2. Refer to PMCS tables for specific lubrication intervals. 					

Table 8. Material Handling Crane Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Crane Swing Drive Gearbox	2.5 pt. (1.18 L)	GO-80W/90 MIL-PRF-2105	GO-80W/90 MIL-PRF-2105 (Note 1)	GO-75 MIL-PRF-2104 (Note 1)	A-Annual (1 year) (Note 2)
Crane Hoist	1 pt. (0.47 L)	GO-80W/90	GO-80W/90 MIL-PRF-2105	GO-75 MIL-PRF-2104	A-Annual (1 year)

Table 8. Material Handling Crane Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
		MIL-PRF-2105	(Note 1)	(Note 1)	
Hoist Cable	As Required	OE/HDO-30 MIL-PRF-2104	OE/HDO-10 MIL-PRF-2104 (Note 1)	OEA MIL-PRF-46167 (Note 1)	S-Semiannual (WP 0186) (6 Months)
All Other Crane Lubrication Points	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	As Required (Note 3)

NOTE

1. Refer to FM 9-207 (WP 0200) for arctic operation.
2. Check level and add fluid as necessary. Currently there is no requirement to drain/fill crane swing drive gearbox.
3. Refer to PMCS tables for specific lubrication intervals.

Table 9. Oil Can Point Lubrication.

Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Intervals
As Required	OE/HDO-30 MIL-PRF-2104	OE/HDO-10 MIL-PRF-2104 (Note 1)	OEA MIL-PRF-46167 (Note 1)	As Required (Note 2)

Table 9. Oil Can Point Lubrication. - Continued

Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Intervals
<p>NOTE</p> <p>1. Refer to FM 9-207 (WP 0200) for arctic operation.</p> <p>2. Refer to PMCS tables for specific oilcan lubrication intervals.</p>				

Table 10. Miscellaneous Lubrication Points.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Engine Throttle Lever	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	A-Annual (1 year)
Pintle Hook	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	W-Weekly (WP 0185) S-Semiannual (WP 0186) (6 Months) (service fittings)
Propeller Driver Shafts and U-Joints	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0186) (6 Months) (Note 2)
Retrieval System	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924	GAA MIL-PRF-10924	S-Semiannual (WP 0186)

Table 10. Miscellaneous Lubrication Points. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
			(Note 1)	(Note 1)	(6 Months)
Spare Tire Davit	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0186) (6 Months)
Spring Hanger Pins	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0186) (6 Months)
Steering System	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0186) (6 Months)
Vise Assembly	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0186) (6 Months)
Wrecker Body Roll Mounts	As Required	GAA MIL-PRF-10924	GAA MIL-PRF-10924 (Note 1)	GAA MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0186) (6 Months)

Table 11. Vehicle Cleaning.

Item	Capacities	Expected Temperature	Intervals
Cleaning Compound, Solvent (Note 1)	As Required	SD All Temperatures (Note 2)	As Required

Table 11. Vehicle Cleaning. - Continued

Item	Capacities	Expected Temperature	Intervals
<p style="text-align: center;">NOTE</p> <ol style="list-style-type: none">1. After a thorough high pressure washing, lubricate all grease fittings and oil can points outside and underneath vehicle.2. Refer to FM 9-207 (WP 0200) for arctic operation.			

END OF WORK PACKAGE

OPERATOR MAINTENANCE CLOSE/OPEN HEATER VALVES

INITIAL SETUP:

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Wheels chocked. (Volume 1,
WP 0100)
Open passenger side engine cover.
(WP 0197)

CLOSE HEATER VALVES

NOTE

- Closing two heater valves will improve efficiency of air conditioning kit.
 - Closing two heater valves will disable cabin heat.
 - Two heater valve knobs are located on front passenger side of engine, the bottom valve is located approximately 18 in. (46 cm) below the top valve.
1. Turn two heater valve knobs (1) counterclockwise to close.

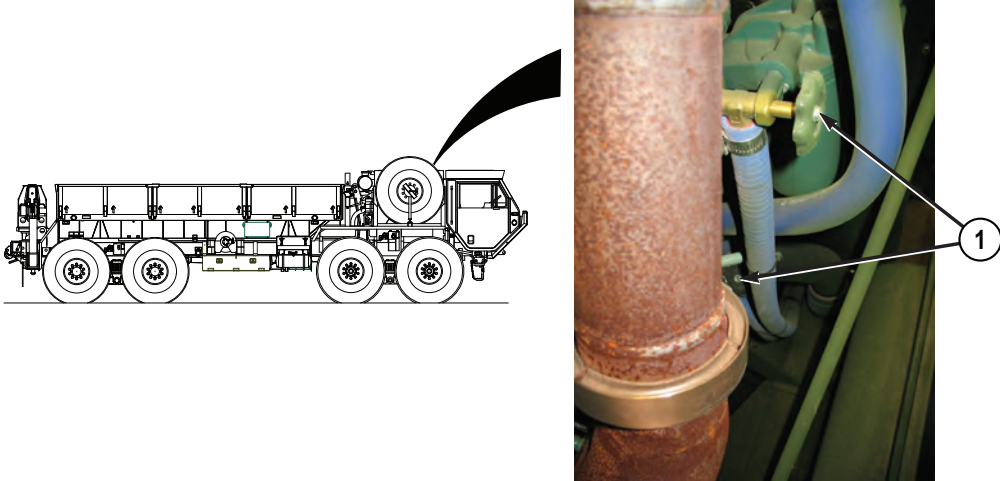
CLOSE HEATER VALVES - Continued

Figure 1.

END OF TASK**OPEN HEATER VALVES****NOTE**

- Opening two heater valves will diminish efficiency of air conditioning kit.
- Opening two heater valves will enable cabin heat.
- Two heater valve knobs are located on front passenger side of engine, the bottom valve is located approximately 18 in. (46 cm) below the top valve.

1. Turn two heater valve knobs (1) clockwise to close.

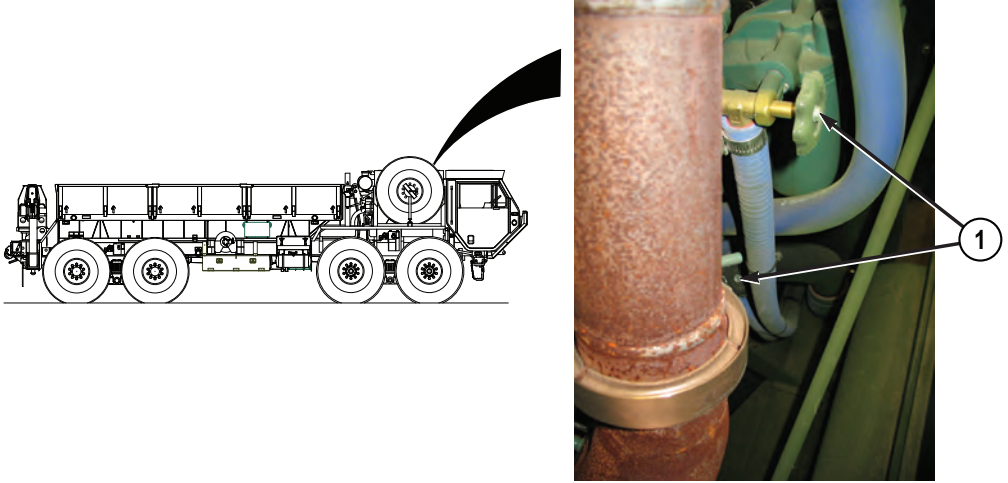
OPEN HEATER VALVES - Continued

Figure 2.

END OF TASK**FOLLOW-ON MAINTENANCE**

1. Close passenger side engine cover. (WP 0197)
2. Remove wheel chocks.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
PRE/POST TOWING PROCEDURE (FRONT LIFT ONLY)**

INITIAL SETUP:**Tools and Special Tools**

Chain, 8 ft. (supplied by wrecker)
Chain, 7 ft. (supplied by wrecker)
(WP 0201, Table 3, Item 22)

Equipment Condition

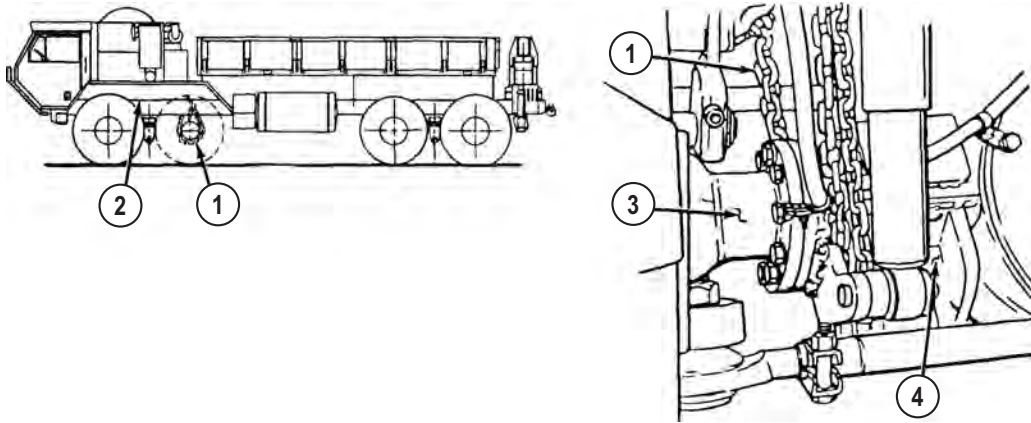
Engine OFF. (Volume 1, WP 0057)

PREPARE VEHICLE FOR TOWING**CAUTION**

When installing axle restraint chains, route chains so hoses or lines are not between frame and chain or axle and chain. Failure to comply may result in damage to equipment.

NOTE

- This procedure is applicable to preparation for towing a HEMTT series vehicle from the front ONLY (refer to tow HEMTT-front lift (Volume 1, WP 0060) for further information).
 - If disabled vehicle is either a BASE or A2 model HEMTT series vehicle (refer to data plate on inside of driver side door), complete Step (1).
 - If disabled vehicle is an A4 model HEMTT series vehicle (refer to data plate on inside of driver side door), skip to Step (2).
1. Perform the following on disabled vehicle:
 - a. Remove propeller shaft between transfer case and No. 3 axle.
 - b. Install axle restraint chains (1):

PREPARE VEHICLE FOR TOWING - Continued*Figure 1.***NOTE**

- Axle restraint chains are installed the same way, driver side shown.
- No. 2 axle should be restrained with chains on both sides of vehicle.

- (1) Route axle restraint chain (1) over frame rail (2) and around axle (3) beside walking beam (4).
- (2) Hook axle restraint chain (1) back into itself.
- (3) Repeat Steps (1) and (2) for opposite side of No. 2 axle (3).

CAUTION

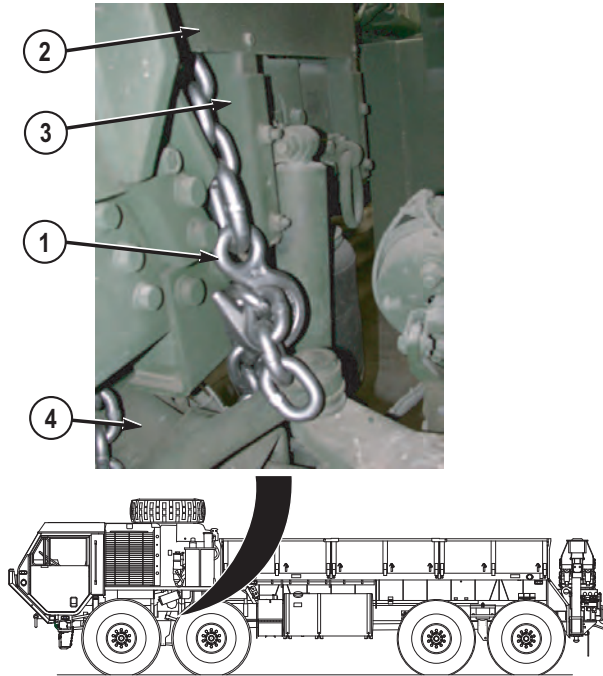
When installing axle restraint chains, route chain around frame rail and axle only. Do not wrap chain around lateral torque rod, shock absorber, shift cables, etc. as they could be crushed. Route chains so hoses or lines are not between frame and chain or axle and chain. Failure to comply may result in damage to equipment.

NOTE

- This procedure is applicable to preparation for towing a HEMTT series vehicle from the front ONLY (refer to tow HEMTT-front lift (Volume 1, WP 0060) for further information).
- If disabled vehicle is an A4 model HEMTT series vehicle (refer to data plate on inside of driver side door), complete Step (2).

PREPARE VEHICLE FOR TOWING - Continued

2. Perform the following on disabled vehicle:
 - a. Remove propeller shaft between transfer case and No. 3 axle.
 - b. Install axle restraint chains (1):

*Figure 2.***NOTE**

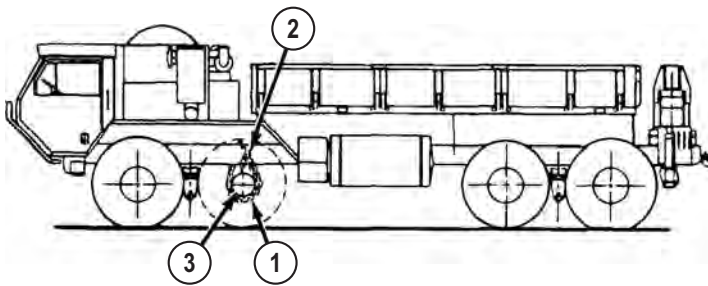
- Axle restraint chains are installed the same way, driver side shown.
 - No. 2 axle should be restrained with chains on both sides of vehicle.
- (1) Route axle restraint chain (1) under engine shroud (2), over frame rail (3), and around axle (4).
 - (2) Hook axle restraint chain (1) back into itself as shown.
 - (3) Repeat Steps (1) and (2) for opposite side of No. 2 axle (3).

END OF TASK

POST TOWING PROCEDURE**NOTE**

- This post towing procedure is applicable to a HEMTT series vehicle that has been towed from the front ONLY (refer to tow HEMTT-front lift (Volume 1, WP 0060) for further information).
- If disabled vehicle is either a BASE or A2 model HEMTT series vehicle (refer to data plate on inside of driver side door), complete Step (1).
- If disabled vehicle is an A4 model HEMTT series vehicle (refer to data plate on inside of driver side door), skip to Step (2).

1. Perform the following to disabled vehicle:
 - a. Remove two axle restraint chains (1) from around frame rails (2) and No. 2 axle (3).

*Figure 3.*

- b. Return two axle restraint chains (1) to wrecker stowage.
- c. Install propeller shaft between transfer case and No. 3 axle.

NOTE

- This post towing procedure is applicable to a HEMTT series vehicle that has been towed from the front ONLY (refer to tow HEMTT-front lift (Volume 1, WP 0060) for further information).
- If disabled vehicle is an A4 model HEMTT series vehicle (refer to data plate on inside of driver side door), complete Step (2).

2. Perform the following to disabled vehicle:
 - a. Remove two axle restraint chains (1) from under engine shroud (2), around frame rail (3), and No. 2 axle (4).

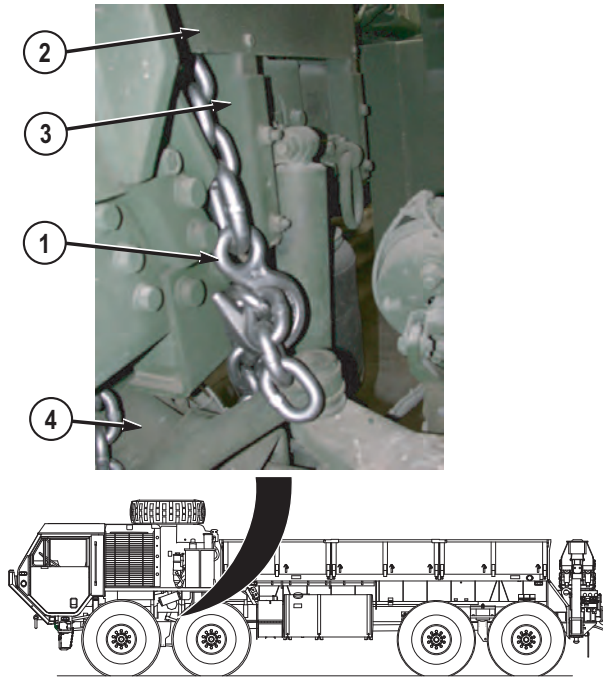
POST TOWING PROCEDURE - Continued

Figure 4.

- b. Return two axle restraint chains (1) to wrecker stowage.
- c. Install propeller shaft between transfer case and No. 3 axle.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE CLEAN VEHICLE

INITIAL SETUP:

Materials/Parts

Rag, Wiping (WP 0203, Table 1,
Item 50)

Equipment Condition

Engine OFF. (Volume 1, WP 0057)
Wheels chocked. (Volume 1,
WP 0100)

CLEAN EXTERIOR

CAUTION

Do not wipe dirt off vehicle when vehicle is dry. Dirt, stones, or debris may scratch and damage vehicle.

NOTE

After a thorough high pressure washing, lubricate all grease fittings and oil can points outside and underneath vehicle (refer to lubrication instructions (WP 0188) for more information).

1. Wash vehicle often with cool or warm water. Do not use strong detergent or abrasives.

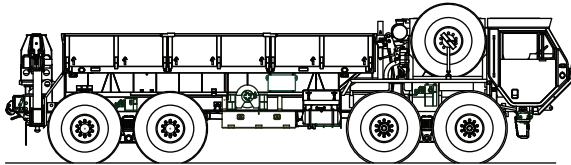


Figure 1.

2. While cleaning vehicle, look closely for rust, corrosion, bare metal, or other damage. Report any damage to Field Level Maintenance.

END OF TASK

CLEAN INTERIOR

1. Remove loose dirt and dust from cab interior components (1).
2. Clean seat cushions (2) and seatbelts (3) with warm soapy water. Do not use abrasives or solvents.

CLEAN INTERIOR - Continued

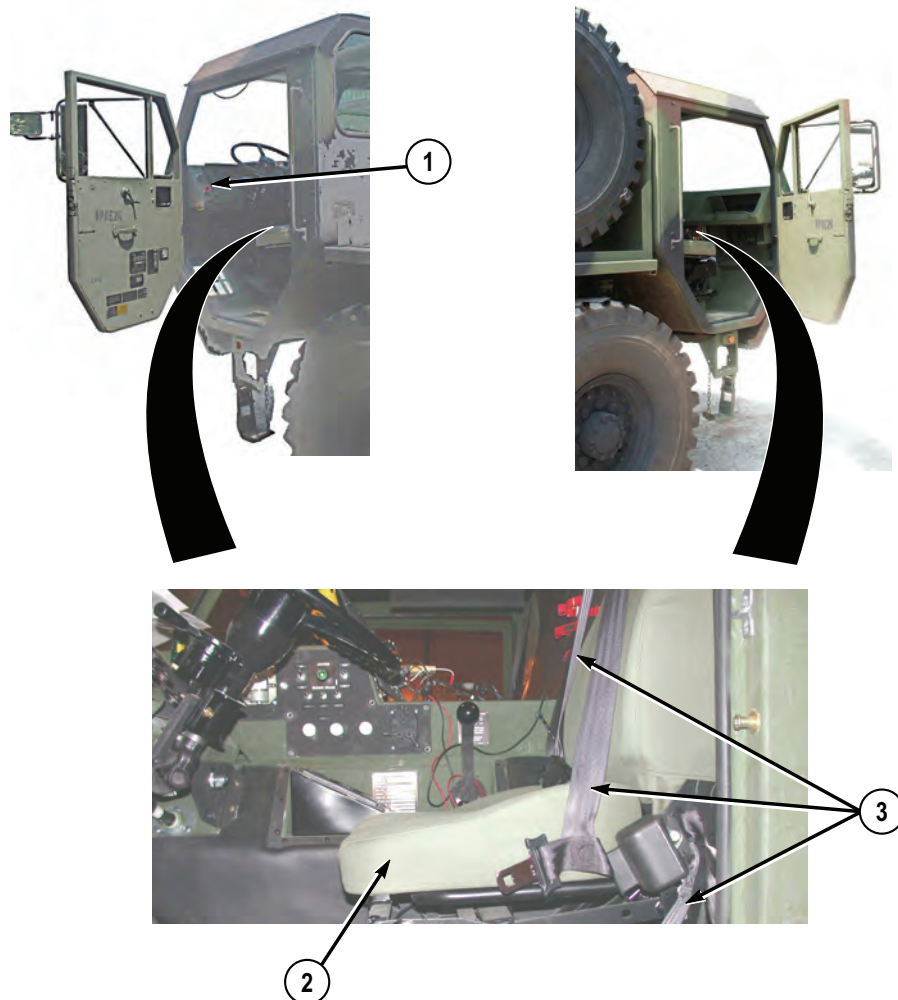


Figure 2.

3. Wipe seat cushions (2) and seatbelts (3) dry.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE CHANGE WHEEL AND TIRE ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Chocks, Wheel (2) (WP 0201, Table 3, Item 27)
 Extension, Handle (WP 0201, Table 3, Item 39)
 Handle, Wrench (WP 0201, Table 3, Item 41)
 Jack, 12-ton, With Handle (WP 0201, Table 3, Item 52)
 Jack, Base Plate (WP 0201, Table 3, Item 66)

Tools and Special Tools - Continued

Warning Device Set, Triangular (WP 0201, Table 3, Item 68)
 Wrench, Wheel Lugnut (WP 0201, Table 3, Item 99)
 Wrench, Adjustable (WP 0201, Table 3, Item 95)

Personnel Required

Operator and Assistant - - - (2)

PREPARE VEHICLE

1. Shut off engine. (Volume 1, WP 0057)

WARNING

Park vehicle in safe area, out of traffic, where there is no danger to personnel changing tire assembly. Park vehicle on hard level ground. Failure to comply may result in injury or death to personnel.

2. Turn on emergency flashers. (Volume 1, WP 0099)
3. Set up emergency marker kit, as necessary. (Volume 1, WP 0128)

END OF TASK**SET UP TIRE DAVIT WINCH**

1. Remove hoist arm (1) from mounting bracket (2).

SET UP TIRE DAVIT WINCH - Continued

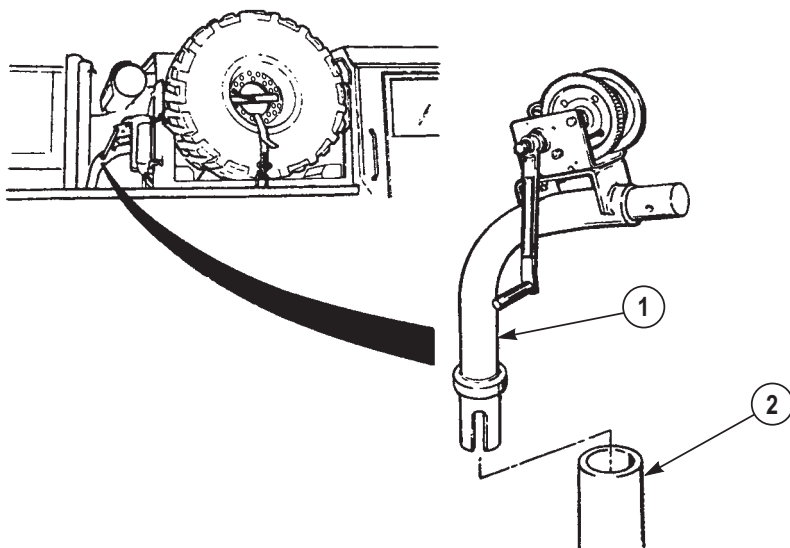
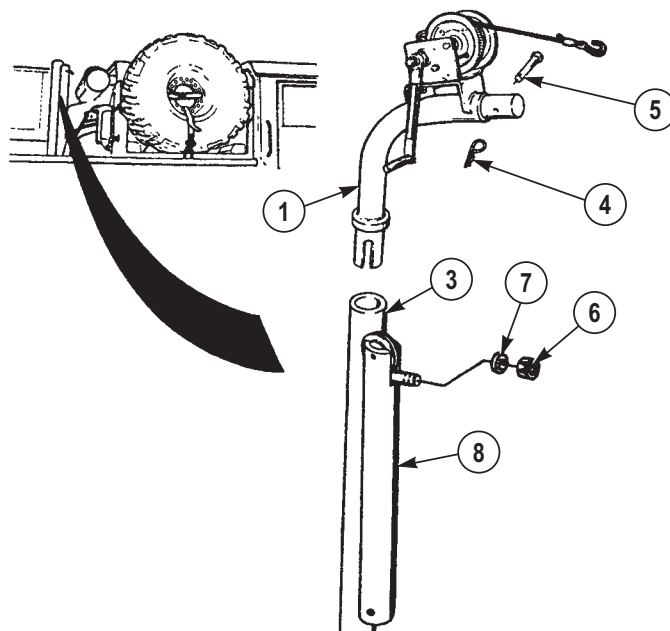


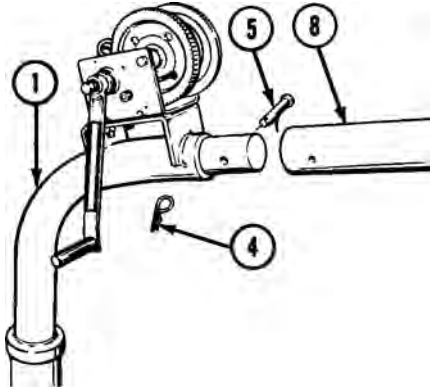
Figure 1.

2. Install hoist arm (1) in mount (3).

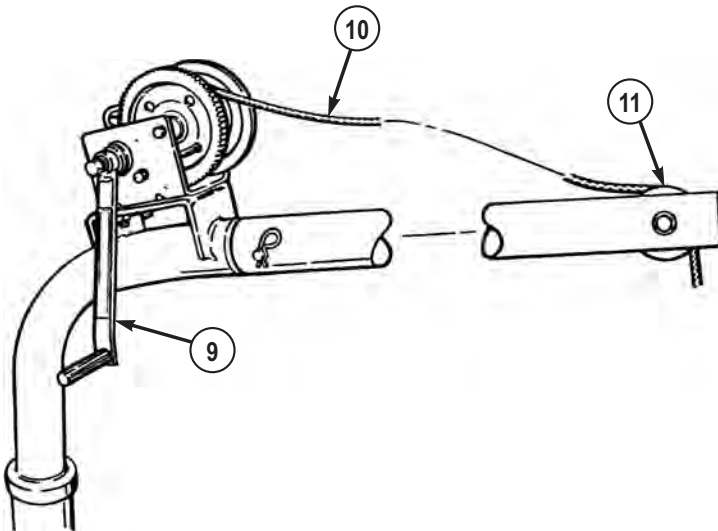
SET UP TIRE DAVIT WINCH - Continued

*Figure 2.*

3. Remove and keep safety pin (4) and pin (5) from hoist arm (1).
4. Remove nut (6), washer, and extension (8) from mount (3).
5. Install extension (8) in hoist arm (1).

SET UP TIRE DAVIT WINCH - Continued*Figure 3.*

6. Line up holes in extension (8) and hoist arm (1).
7. Install pin (5) and safety pin (4).
8. Turn hand crank (9) CCW and route cable (10) over end of pulley (11).

*Figure 4.***END OF TASK**

REMOVE SPARE WHEEL AND TIRE ASSEMBLY

1. Remove two wheel chocks (1) from under spare wheel and tire assembly (2).

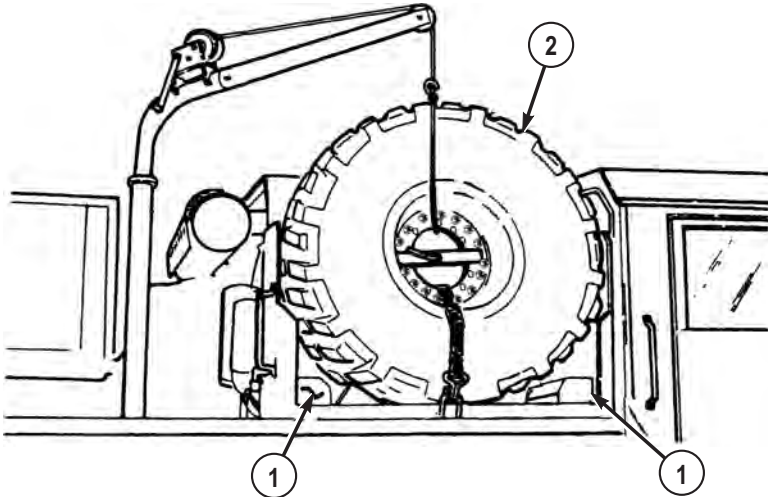


Figure 5.

2. Install two wheel chocks (Volume 1, WP 0100) (1) on wheel and tire assembly (3) that is across from flat wheel and tire assembly (4).

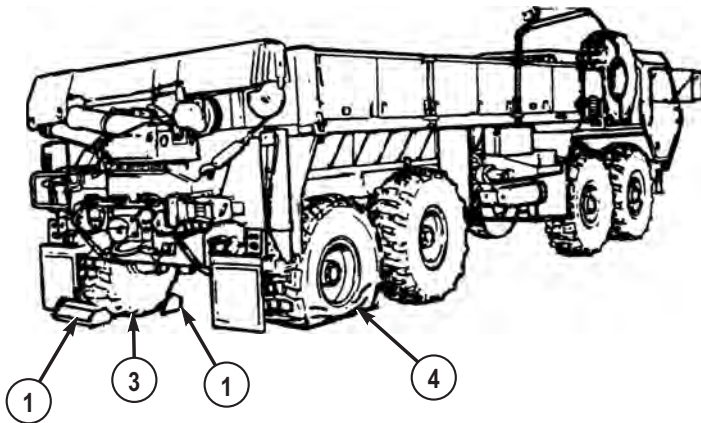
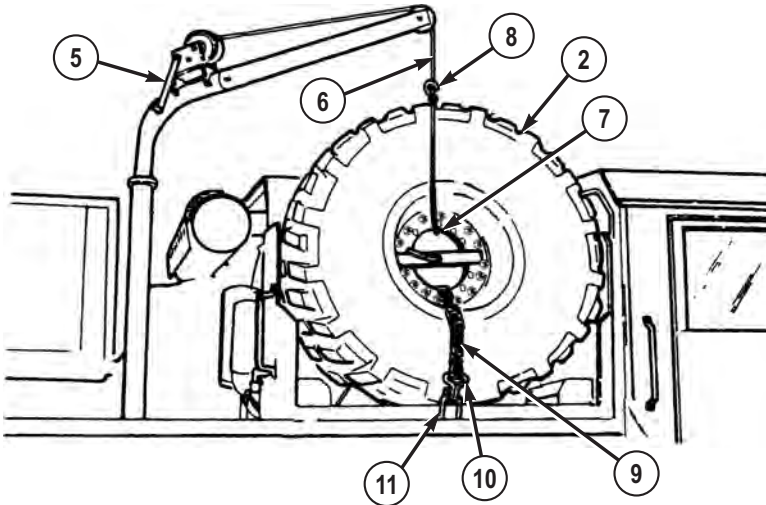
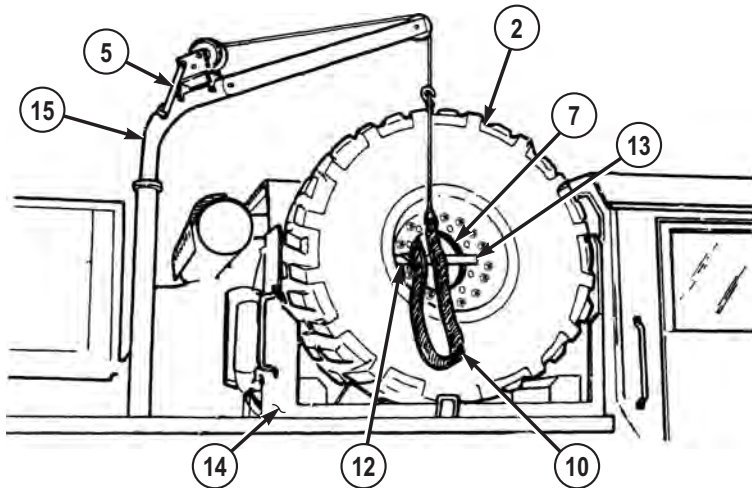


Figure 6.

3. Turn hand crank (5) counterclockwise to let out enough cable (6) to push through hole in wheel (7) and wrap around spare wheel and tire assembly (2).

REMOVE SPARE WHEEL AND TIRE ASSEMBLY - Continued*Figure 7.*

4. Wrap cable (6) through hole in wheel (7) and around spare wheel and tire assembly (2), and secure with hook (8).
5. Turn hand crank (5) clockwise to put light tension on cable (6).
6. Release clamp (9), and disconnect tie down strap (10) from bracket (11) on both sides of spare wheel and tire assembly (2).
7. Hook tie down strap (10) on hole in wheel (7) on both sides of spare wheel and tire assembly (2).

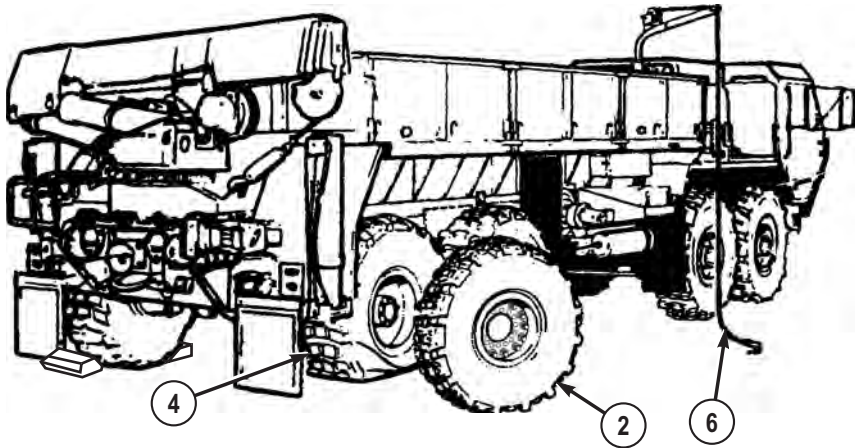
REMOVE SPARE WHEEL AND TIRE ASSEMBLY - Continued*Figure 8.*

8. Turn lever (12) counterclockwise.
9. Remove lever (12) and holddown plate (13). Set aside lever (12) and holddown plate (13) for later use.

NOTE

Stand on passenger side front fender to operate tire davit winch while other assistant stands on ground near second axle to guide wheel and tire assembly down.

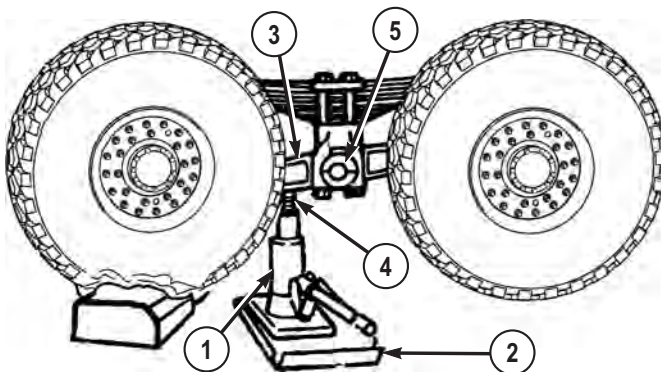
10. Turn hand crank (5) clockwise to lift spare wheel and tire assembly (2) just above carrier (14).
11. Swing hoist arm (15) so spare wheel and tire assembly (2) is clear of vehicle, while assistant pulls on tie down strap (10) to guide spare wheel and tire assembly out of carrier (14).
12. Turn hand crank (5) counterclockwise to lower spare wheel and tire assembly (2) to ground, while assistant holds spare wheel and tire assembly (2) steady with tie down strap (10).
13. Remove tie down strap (10).
14. Push spare wheel and tire assembly (2) against vehicle.

REMOVE SPARE WHEEL AND TIRE ASSEMBLY - Continued*Figure 9.*

15. Remove cable (6) from spare wheel and tire assembly (2), and roll spare wheel and tire assembly (2) next to axle of flat wheel and tire assembly (4).
16. Check spare wheel and tire assembly (2) air pressure and service as required. (WP 0195)

END OF TASK**REMOVE WHEEL AND TIRE ASSEMBLY**

1. Remove jack (1) and jack base plate (2) from stowage.

*Figure 10.*

REMOVE WHEEL AND TIRE ASSEMBLY - Continued**NOTE**

It may be necessary to place wheel chock under flat wheel and tire assembly to get jack and jack base plate under equalizing beam.

2. Position jack (1) and jack base plate (2) under equalizing beam (3).
3. Unscrew jack ram (4) until it touches equalizing beam (3) approximately 4 to 5 in. (102 to 127 mm) from beam center pivot point (5).

NOTE

Studs and lugnuts on driver side of vehicle have left-hand threads. Rotate lugnuts clockwise to loosen, counterclockwise to tighten. Studs and lugnuts on passenger side of vehicle have right-hand threads. Rotate lugnuts counterclockwise to loosen, clockwise to tighten.

4. Loosen 10 lugnuts (6) until they turn easily.

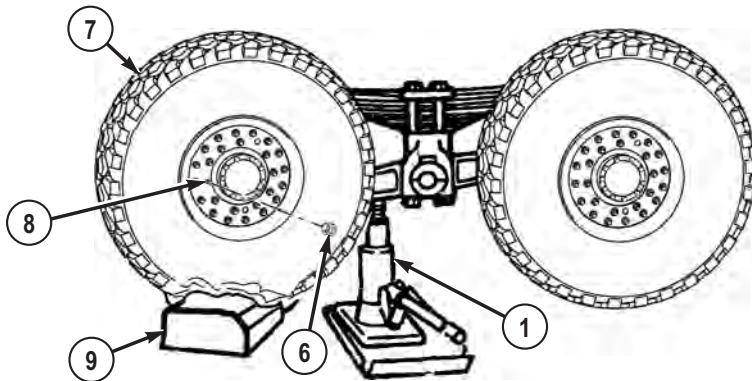


Figure 11.

NOTE

If chock was used to help position jack, wheel and tire assembly does not have to be clear of chock.

5. Raise jack (1) until flat wheel and tire assembly (7) can be removed.
6. Remove 10 lugnuts (6) from studs (8) and set lugnuts (6) aside.

NOTE

If wheel chock was not used to position jack, skip to Step (8).

7. Remove wheel chock (9) and return it to vehicle stowage.

REMOVE WHEEL AND TIRE ASSEMBLY - Continued

8. Using jack (1), lower vehicle until flat wheel and tire assembly (7) is just touching ground.
9. Tilt top of flat wheel and tire assembly (7) forward, while assistant raises jack (1) slightly. Wheel and tire assembly (7) should move forward.
10. Repeat Steps (8) and (9) to walk flat wheel and tire assembly (7) off studs (8).
11. Remove flat wheel and tire assembly (7) and lean flat wheel and tire assembly against vehicle.

END OF TASK**INSTALL WHEEL AND TIRE ASSEMBLY****NOTE**

Tire tread is non-directional. Vehicle operation is not affected by direction of traction bars.

1. With aid of an assistant, roll wheel and tire assembly (1) up to axle (2).

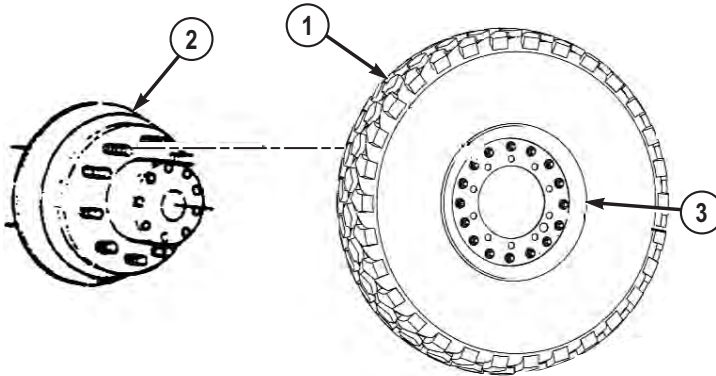


Figure 12.

NOTE

Check that spare wheel and tire assembly wheel dish is in same position as flat wheel and tire assembly wheel dish. Deep side of wheel dish will face toward vehicle on four front wheels. Deep side of wheel dish will face away from vehicle on four rear wheels except M984A. All eight wheels on M984A are installed with deep side of wheel dish facing toward vehicle.

INSTALL WHEEL AND TIRE ASSEMBLY - Continued

2. Make sure deep side of spare wheel and tire assembly wheel dish (3) is in same position as flat/shredded wheel and tire assembly wheel dish when flat/shredded wheel and tire assembly was removed.

NOTE

- Tire valve stem extension must be removed to reposition wheel and tire assembly valve stem extension.
 - It may be necessary to reposition valve stem to accomplish installation of valve stem extension.
3. Make sure wheel and tire assembly valve stem (4) is pointing out, away from vehicle.

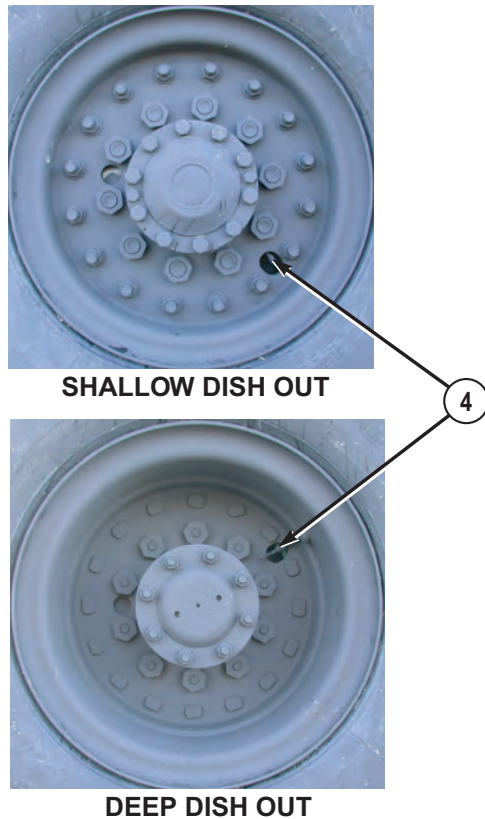
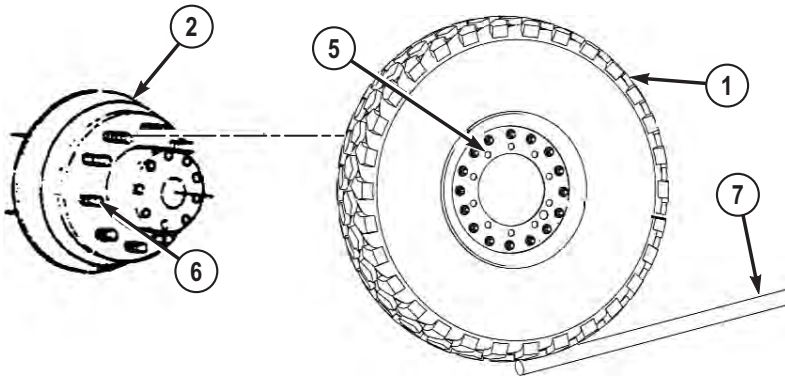


Figure 13.

4. Line up holes in rim (5) of wheel and tire assembly (1) with studs (6) on axle (2).

INSTALL WHEEL AND TIRE ASSEMBLY - Continued*Figure 14.***WARNING**

Wheel/tire assembly weighs 540 lbs (245 kg). Do not attempt to lift or move wheel/tire assembly without the aid of an assistant and a lifting device. Failure to comply may result in injury or death to personnel.

5. Lean top of wheel and tire assembly (1) against studs (6) and axle (2).

NOTE

Install a lugnut on top stud, and hand-tighten to hold wheel and tire assembly in place.

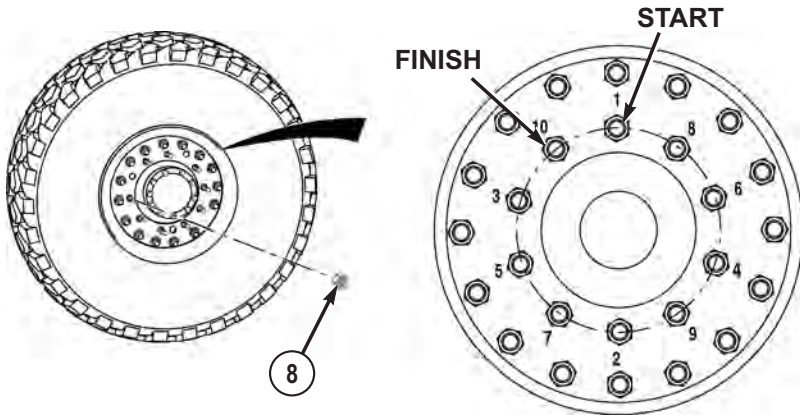
6. Using handle extension (7), slide spare wheel and tire assembly onto studs (6) while assistant raises vehicle with jack. Bottom of wheel and tire assembly (1) should swing toward axle (2).
7. Assistant lowers vehicle until wheel and tire assembly (1) just touches ground.
8. Repeat Steps (5) through (7) until wheel and tire assembly (1) is seated on axle (2) and studs (6).

NOTE

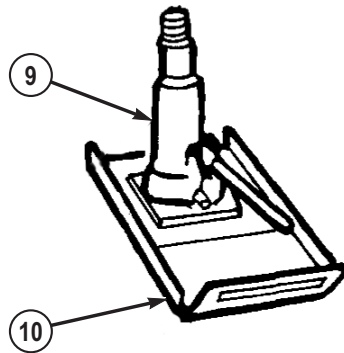
- Studs and lugnuts on driver side of vehicle have left-hand threads. Rotate lugnuts counterclockwise to tighten.

INSTALL WHEEL AND TIRE ASSEMBLY - Continued

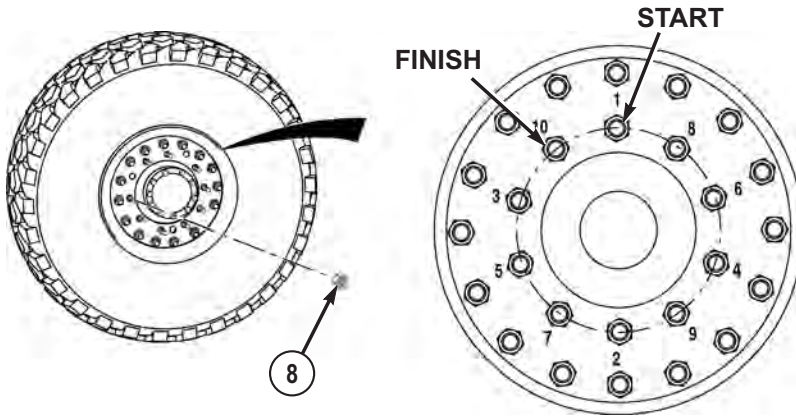
- Studs and lugnuts on passenger side of vehicle have right-hand threads. Rotate lugnuts clockwise to tighten.
9. Install and tighten 10 lugnuts (8) in order shown using wheel lugnut wrench.

*Figure 15.*

10. Assistant lowers jack (9) until vehicle weight is fully supported by suspension system.
11. Remove jack (9) and jack base plate (10) from under vehicle.

*Figure 16.*

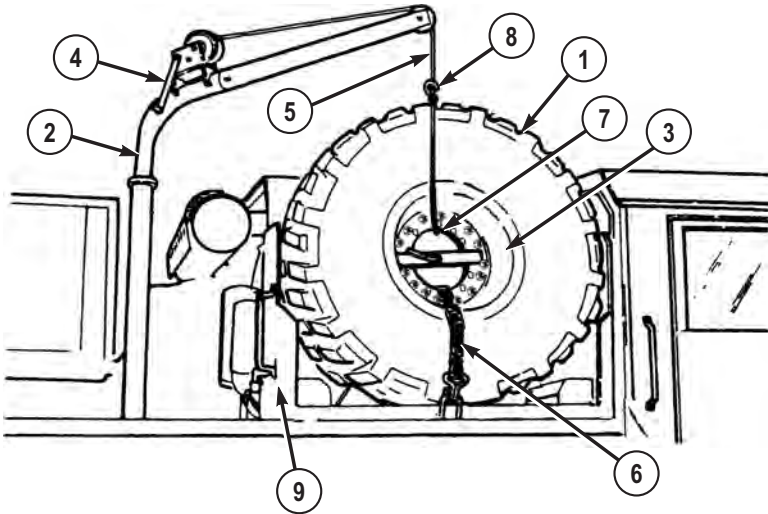
12. Tighten 10 lugnuts (8) in order shown until they no longer tighten.

INSTALL WHEEL AND TIRE ASSEMBLY - Continued*Figure 17.*

13. Return all tools and equipment to proper stowage boxes.
14. Return vehicle to field level maintenance and have lugnuts (8) tightened to torque requirements as soon as possible.

END OF TASK**STOW FLAT WHEEL AND TIRE ASSEMBLY**

1. Roll flat wheel and tire assembly (1) under hoist arm (2) so deep side of wheel dish (3) is facing out and away from vehicle.

STOW FLAT WHEEL AND TIRE ASSEMBLY - Continued*Figure 18.***NOTE**

Assistant stands on passenger side front fender to operate tire davit winch while other assistant stands on ground near second axle to guide wheel and tire assembly into carrier.

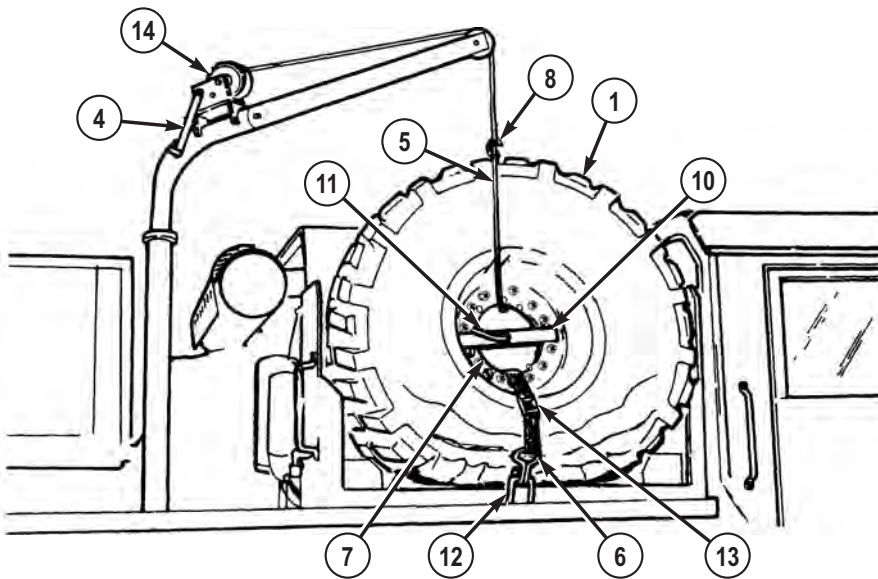
2. Turn hand crank (4) counterclockwise to let out cable (5).
3. Pull tie down strap (6) through hole in wheel (7), and hook ends to hole on both sides of wheel.
4. Hook ends of tie down strap (6) to both sides of hole in wheel (7).
5. Pull cable (5) through hole in wheel (7) and secure hook (8) back into cable as shown.

WARNING

Inner wheel weighs 105 lbs (48 kg). Do not attempt to lift or move inner wheel without the aid of an assistant and a lifting device. Failure to comply may result in injury or death to personnel.

STOW FLAT WHEEL AND TIRE ASSEMBLY - Continued

6. Turn hand crank (4) clockwise to raise flat wheel and tire assembly (1) just above carrier (9) while assistant holds tie down strap (6) to steady wheel and tire assembly (1).
7. Swing hoist arm (2) so flat wheel and tire assembly (1) is over carrier (9) while assistant guides wheel and tire assembly with tie down strap (6).
8. Turn hand crank (4) counterclockwise to lower flat wheel and tire assembly (1) into carrier (9).
9. Remove tie down strap (6).
10. Hold flat wheel and tire assembly (1) steady, while assistant installs holddown plate (10).

*Figure 19.*

11. Install lever (11) and turn clockwise to tighten.
12. Slide tie down strap (6) through hole in wheel (7).
13. Connect tie down strap (6) to outside holddown bracket (12), while assistant connects tie down strap to inside holddown bracket.
14. Pull latch (13) down and lock to secure flat wheel and tire assembly (1).
15. Turn hand crank (4) counterclockwise to loosen cable (5).
16. Remove hook (8) and cable (5) from wheel and tire assembly (1).

STOW FLAT WHEEL AND TIRE ASSEMBLY - Continued

17. Turn hand crank (4) clockwise and wind cable (5) fully onto reel (14).

END OF TASK**STOW TIRE DAVIT WINCH**

1. Remove safety pin (1) and pin (2) from extension (3).

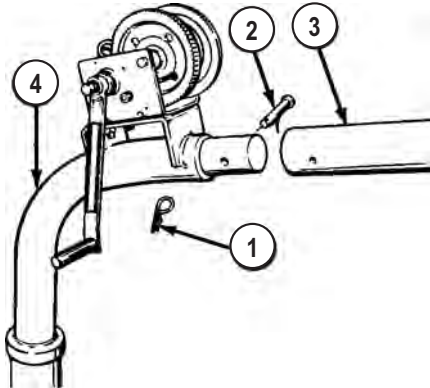
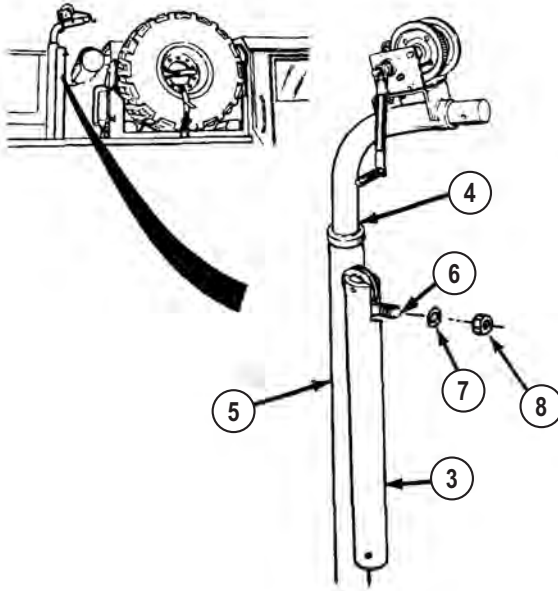


Figure 20.

2. Pull extension (3) from hoist arm (4).
3. Install extension (3) on mount (5).

STOW TIRE DAVIT WINCH - Continued

*Figure 21.*

4. Slide top of extension (3) over stud (6).
5. Secure extension (3) with washer (7) and nut (8).
6. Pull hoist arm (4) from mount (5).
7. Put hoist arm (4) into mounting bracket (9).

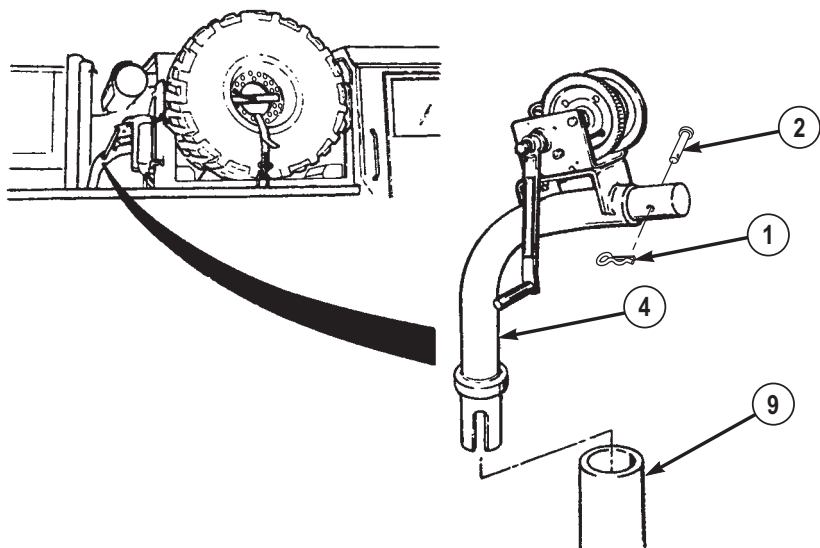
STOW TIRE DAVIT WINCH - Continued

Figure 22.

8. Install pin (10) through hoist arm (4).
9. Secure pin (10) with safety pin (11).
10. Pick up and stow emergency marker kit (as necessary).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE CLEAN FUEL TANK STRAINER

INITIAL SETUP:

Materials/Parts

Rag, Wiping (WP 0203, Table 1, Item 50)

Equipment Condition

Engine OFF. (Volume 1, WP 0057)
Wheels chocked. (Volume 1, WP 0100)

REMOVE/CLEAN FUEL TANK STRAINER

WARNING



Fuel is very flammable and can explode easily. 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 when engine is hot. When working with fuel, post signs that read **NO SMOKING WITHIN 50 FEET OF VEHICLE**. Failure to comply may result in injury or death to personnel.

1. Wipe off dirt from fuel filler cap (1).

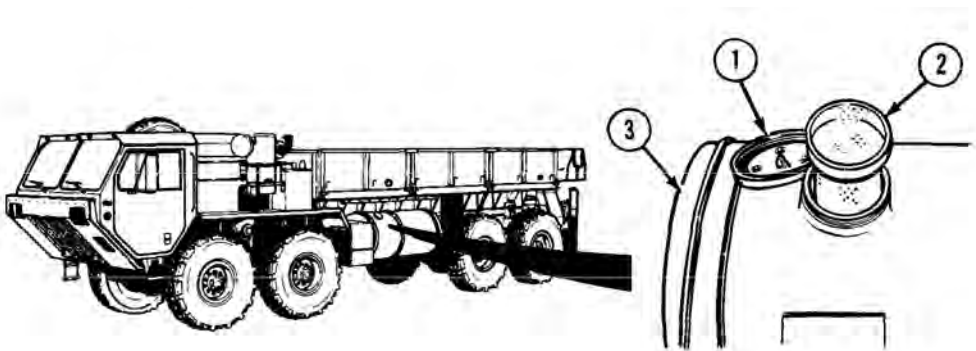


Figure 1.

2. Remove fuel filler cap (1).

REMOVE/CLEAN FUEL TANK STRAINER - Continued

3. Pull strainer (2) out of fuel tank (3).
4. Clean strainer (2) with clean dry rag.

END OF TASK**INSTALL FUEL TANK STRAINER**

1. Put strainer (2) in fuel tank (3).

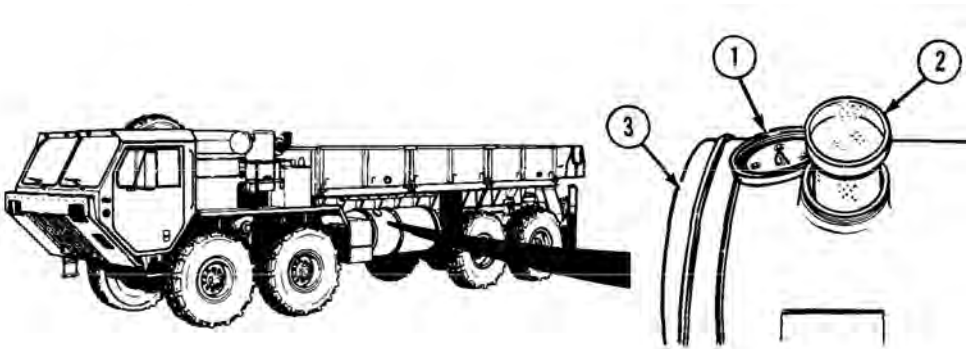


Figure 2.

2. Install and tighten fuel filler cap (1).

END OF TASK**FOLLOW-ON MAINTENANCE**

1. Remove wheel chocks.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
SERVICE AIR CLEANER ELEMENT**

INITIAL SETUP:**Tools and Special Tools**

Ladder (WP 0201, Table 2, Item 4)

Equipment Condition

Engine OFF. (Volume 1, WP 0057)

Wheels chocked. (Volume 1,
WP 0100)**Materials/Parts**Rag, Wiping (WP 0203, Table 1,
Item 50)

REMOVE AIR CLEANER ELEMENT

1. Lift up three levers (1).

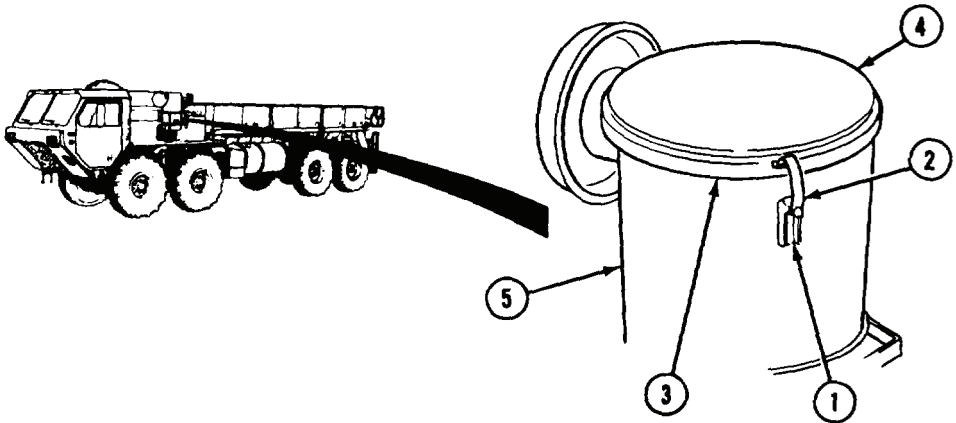
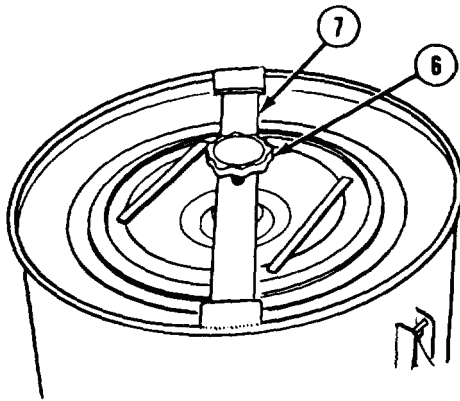


Figure 1.

2. Unhook three latches (2) from cover groove (3).
3. Remove cover (4) from canister (5).
4. Unscrew knob (6) until retaining bar (7) is loose.

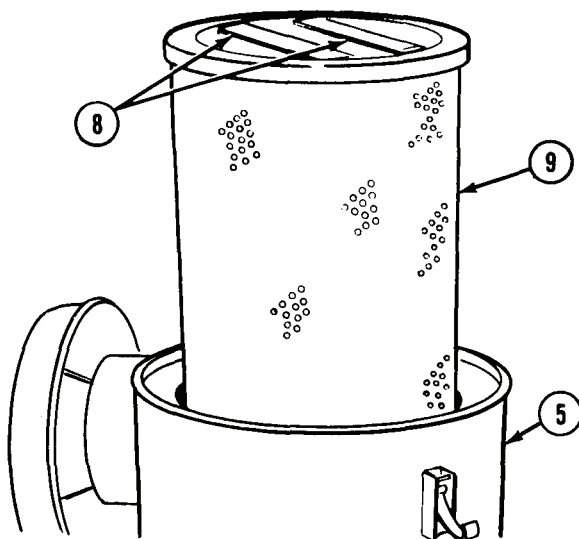
REMOVE AIR CLEANER ELEMENT - Continued*Figure 2.*

5. Remove knob (6) and retaining bar (7).

CAUTION

Do not remove secondary filter element. Dirt and debris can fall into canister and cause damage to engine.

6. Take hold of handles (8) and remove primary element (9) from canister (5).

REMOVE AIR CLEANER ELEMENT - Continued*Figure 3.***END OF TASK****CLEAN AIR CLEANER ELEMENT****NOTE**

Notify field level maintenance if primary filter element is damaged or cannot be cleaned by tapping.

1. Tap side of primary element (9) lightly against hand.

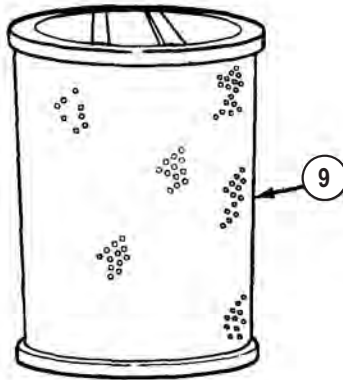
CLEAN AIR CLEANER ELEMENT - Continued

Figure 4.

2. Dump out dirt and dust from primary element (9).
3. Wipe primary element (9) with clean rag.

END OF TASK**INSTALL AIR CLEANER ELEMENT**

1. Install primary element (9) in air cleaner canister (5).

INSTALL AIR CLEANER ELEMENT - Continued

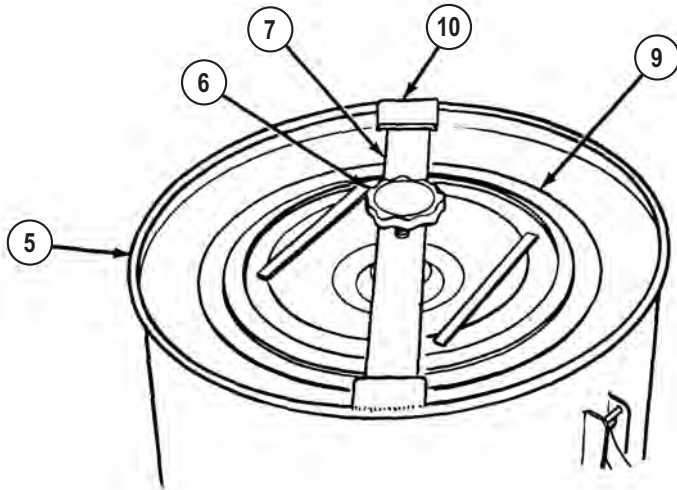


Figure 5.

2. Position knob (6) and retaining bar (7) over primary element (9). Make sure ends of retaining bar are in tabs (10).
3. Tighten knob (6) to secure primary element (9).
4. Put cover (4) on top of air cleaner canister (5).

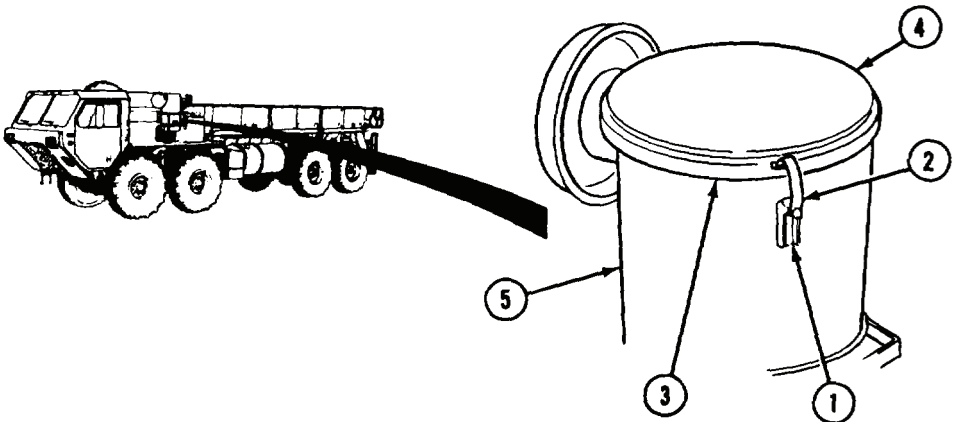


Figure 6.

INSTALL AIR CLEANER ELEMENT - Continued

5. Put three latches (2) in cover groove (3).
6. Push three levers (1) down to secure cover (4).
7. Start engine. (Volume 1, WP 0044)
8. Push button (11) to reset air cleaner restriction indicator (12). If indicator window (13) shows VACUUM INCHES H₂O below 20, continue with vehicle operation but notify Field Level Maintenance as soon as possible. If indicator window shows VACUUM INCHES H₂O above 20, notify Field Level Maintenance.

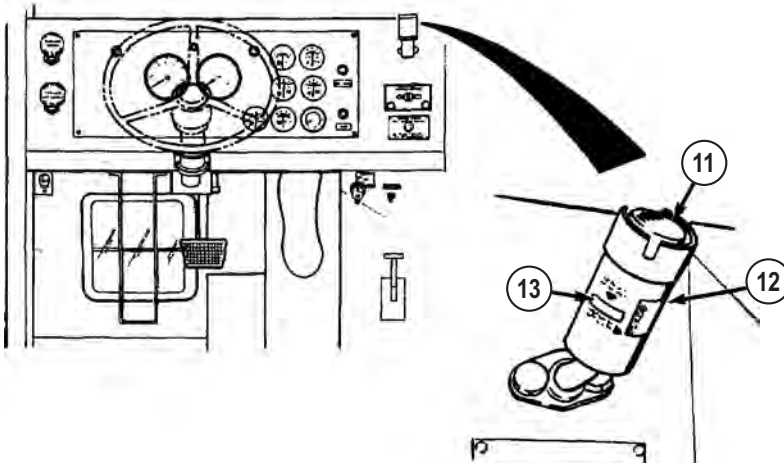


Figure 7.

9. Shut OFF engine. (Volume 1, WP 0057)

END OF TASK**FOLLOW-ON MAINTENANCE**

1. Remove wheel chocks.

END OF WORK PACKAGE

OPERATOR MAINTENANCE SERVICE TIRES

INITIAL SETUP:

Tools and Special Tools

Gauge, Tire Pressure (WP 0201,
Table 3, Item 36)

Tools and Special Tools - Continued

Gauge, Tire Pressure (WP 0201,
Table 3, Item 51)
Hose: Air, Pneumatic (WP 0201,
Table 3, Item 48)

Equipment Condition

Engine OFF. (Volume 1, WP 0057)
Wheels chocked. (Volume 1,
WP 0100)

CHECK TIRE PRESSURE

WARNING



Failure to comply with these procedures may result in faulty positioning of the tire and/or rim parts and cause the assembly to burst with explosive force. Never mount or use damaged tires or rims. Failure to comply may result in injury or death to personnel.

NOTE

There are two types of air pressure gauges. One is a separate handheld gauge. The other is a combined pressure gauge/inflation hose.

Both may be used to check air pressure in tire.

ALWAYS use combined pressure gauge/inflation hose to inflate tire.

1. Check tire air pressure with tire pressure gauge.
2. Ensure tires have correct air pressure for road conditions and driving speed .

END OF TASK

INFLATE TIRE

1. Remove air hose (1) from stowage and connect air hose (1) to quick disconnect coupling (2) by pushing back sleeve (3).

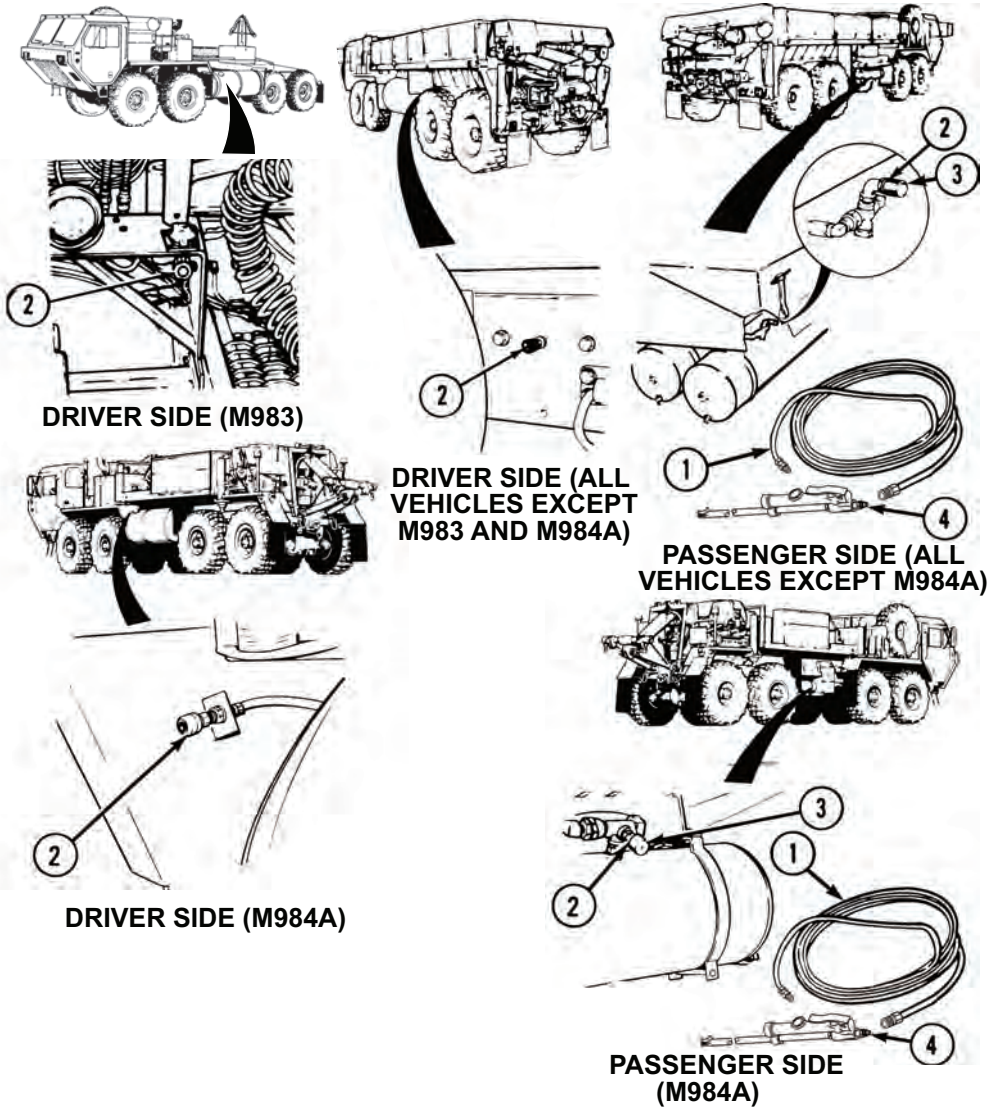


Figure 1.

2. Connect combined pressure gauge/inflation hose (4) to air hose (1).
3. Start engine. (Volume 1, WP 0044)

INFLATE TIRE - Continued

4. Remove valve stem cap (5) from valve stem (6).

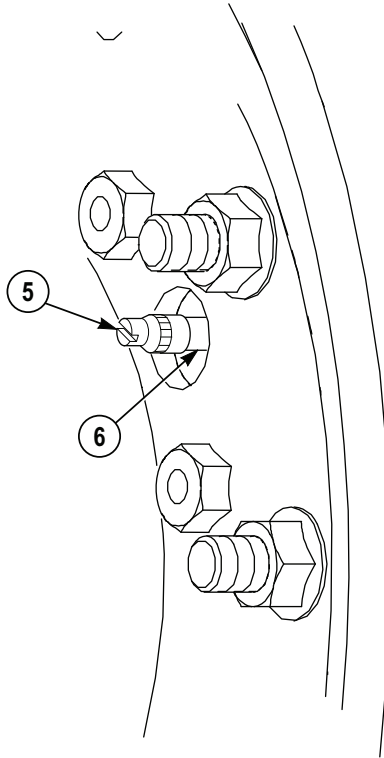


Figure 2.

WARNING

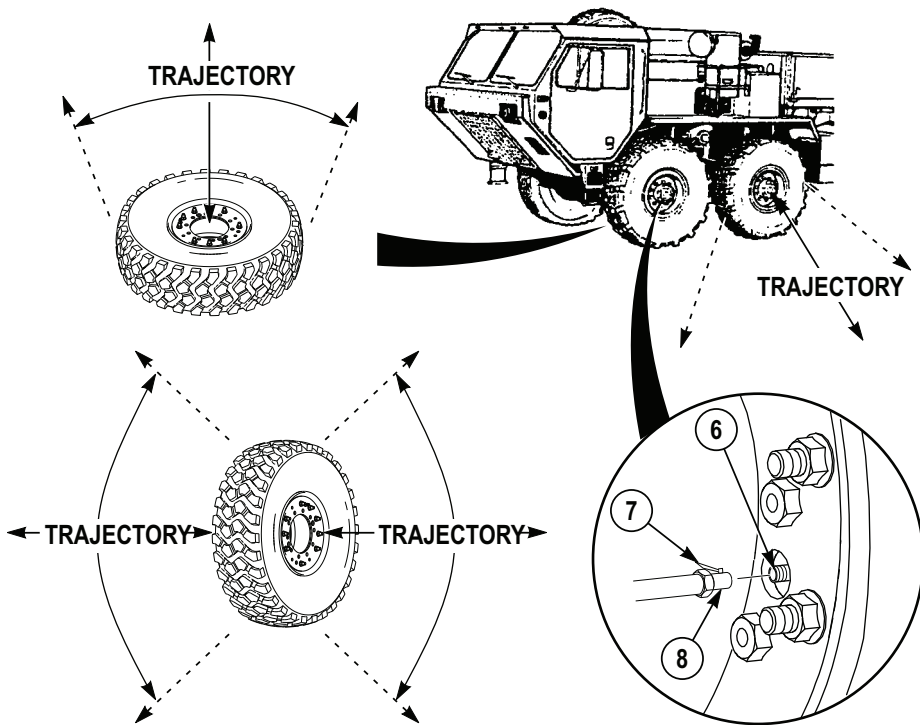
Prior to inflating or deflating tire, stand clear of trajectory area. Failure to comply may result in injury or death to personnel.

NOTE

- Trajectory area as shown applies to all wheel/tire assemblies.
- Air chuck must clamp securely with no leaks or air pressure gauge readings will be inaccurate.

INFLATE TIRE - Continued

- There are two types of air pressure gauges. One is a separate handheld gauge used on vehicle serial number 51130 and below. The other is a combined pressure gauge/inflation hose.
 - Both may be used to check air pressure in tire.
 - ALWAYS use combined pressure gauge/inflation hose to inflate tire.
5. Push latch handle (7) inward, while pushing air chuck (8) onto valve stem (6). Release latch handle (7) and immediately step out of the trajectory area and read tire air pressure gauge.

*Figure 3.*

INFLATE TIRE - Continued

WARNING



Prior to inflating or deflating tire, stand clear of trajectory area. Failure to comply may result in injury or death to personnel.

NOTE

Trajectory area as shown applies to all wheel/tire assemblies.

6. Inflate or deflate until proper pressure is attained. Press latch handle (7) and pull air chuck (8) from valve stem (6). Install valve stem cap (5).

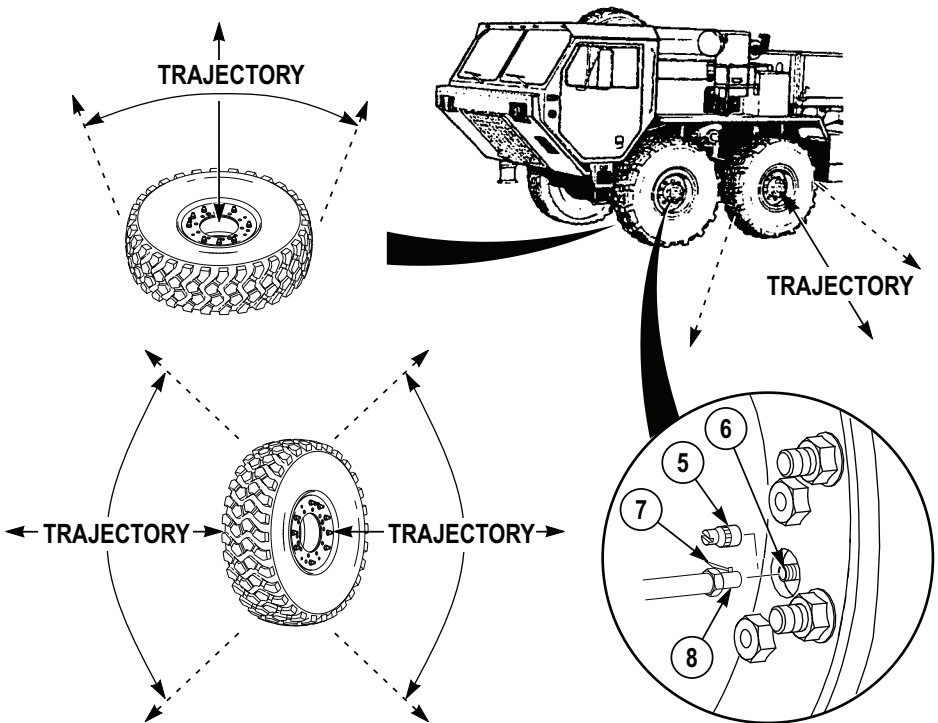


Figure 4.

7. Shut OFF engine. (Volume 1, WP 0057)

INFLATE TIRE - Continued**WARNING**

Hold end of air line when disconnecting from quick-disconnect coupling.
Air line is under pressure and can be ejected at a high rate of speed.
Failure to comply may result in injury or death to personnel.

8. Remove combined pressure gauge/inflation hose (4) from air hose (1).

INFLATE TIRE - Continued

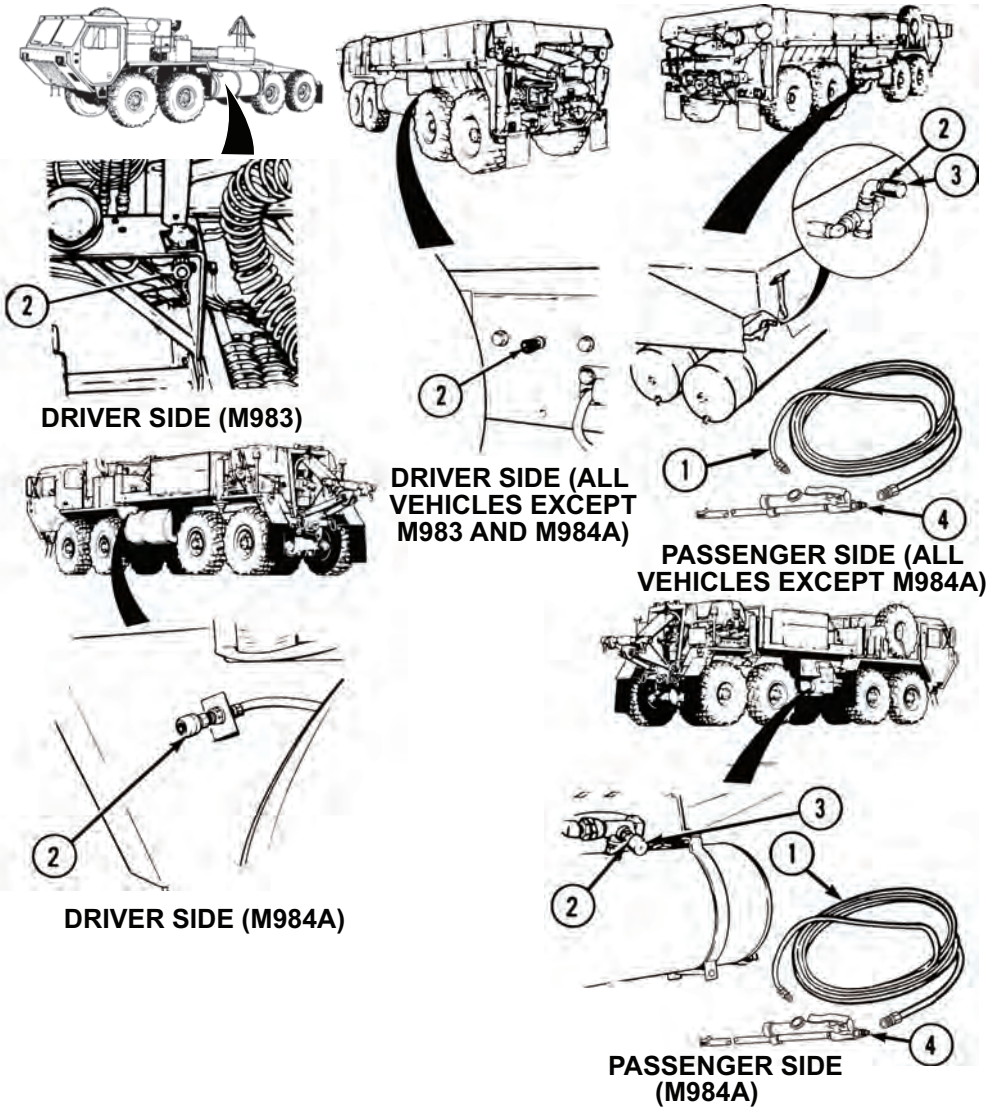


Figure 5.

9. Hold end of air hose (1) and push sleeve (3) back and remove air hose (1) from quick-disconnect coupling (2).
10. Stow air hose (1) and combined pressure gauge/inflation hose (4).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Remove wheel chocks. (Volume 1, WP 0100)

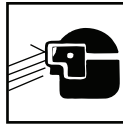
END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPEN/CLOSE BATTERY BOX**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

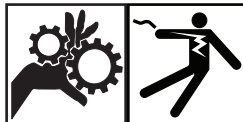
Wheels chocked. (Volume 1,
WP 0100)

OPEN BATTERY BOX**WARNING**

Wear proper eye protection when working around batteries. Failure to comply may result in injury or death to personnel.

WARNING

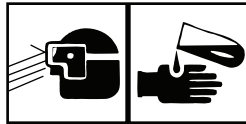
Batteries produce explosive gases. Do not smoke or use open flame near batteries. Do not allow hot, sparking, or glowing objects near batteries. If batteries are giving off gases, presence of a heat, flame, or spark may cause fire and/or explosion. Failure to comply may result in injury or death to personnel.

WARNING

Use extreme care not to short out battery terminals. Remove all jewelry such as rings, ID tags, bracelets, etc. prior to working on or around

OPEN BATTERY BOX - Continued

vehicle. Jewelry and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Failure to comply may result in injury or death to personnel.

WARNING

LEAD-ACID BATTERIES - Avoid battery electrolyte contact with skin, eyes, or clothing. If battery electrolyte spills, take immediate action to stop burning effects:

- External - If battery electrolyte contacts skin, immediately flush effected area with cold running water to remove all acid. Failure to comply may result in injury or death to personnel.
- Eyes - If battery electrolyte contacts eyes, immediately flush eyes with cold water for 15 minutes and seek immediate medical attention. **IMPORTANT** - If only one eye is affected, ensure the affected eye is always (during both flushing and transport) kept lower (the lower the better) than unaffected eye. This will help keep affected eye from draining into (and contaminating) the unaffected eye. Failure to comply may result in injury or death to personnel.
- Internal - If battery electrolyte is ingested (swallowed), drink large amounts of water or milk. Follow with milk of magnesia, a beaten egg, or vegetable oil and seek immediate medical attention. Failure to comply may result in injury or death to personnel.
- Clothing or vehicle - Immediately flush area with cold water and neutralize battery electrolyte with baking soda or household ammonia solution. Failure to comply may result in injury or death to personnel.

1. Disconnect two rubber hooks (1).

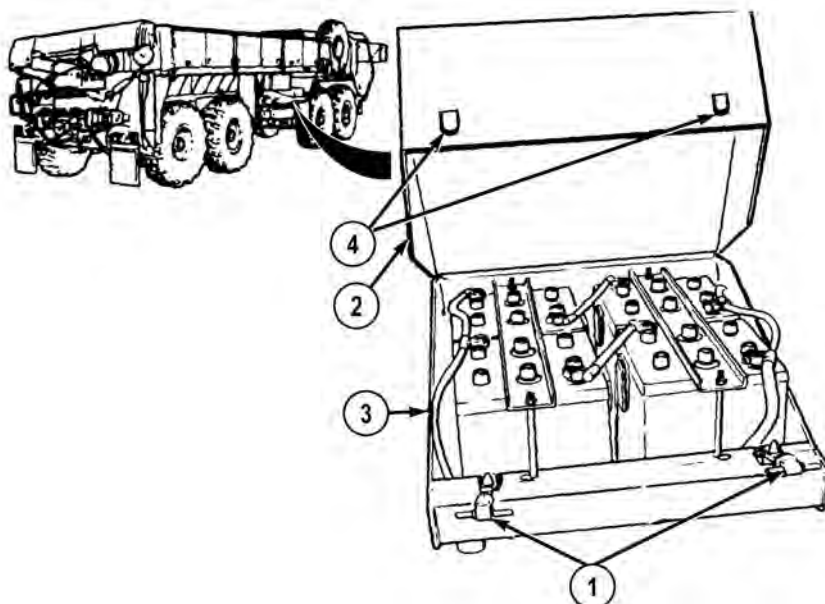
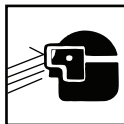
OPEN BATTERY BOX - Continued

Figure 1.

2. Slide cover (2) up and out.
3. Hold cover (2) in place or remove cover.

END OF TASK**CLOSE BATTERY BOX****WARNING**

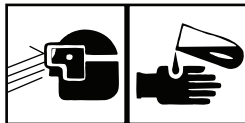
Wear proper eye protection when working around batteries. Failure to comply may result in injury or death to personnel.

CLOSE BATTERY BOX - Continued**WARNING**

Batteries produce explosive gases. Do not smoke or use open flame near batteries. Do not allow hot, sparking, or glowing objects near batteries. If batteries are giving off gases, presence of a heat, flame, or spark may cause fire and/or explosion. Failure to comply may result in injury or death to personnel.

WARNING

Use extreme care not to short out battery terminals. Remove all jewelry such as rings, ID tags, bracelets, etc. prior to working on or around vehicle. Jewelry and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Failure to comply may result in injury or death to personnel.

WARNING

LEAD-ACID BATTERIES - Avoid battery electrolyte contact with skin, eyes, or clothing. If battery electrolyte spills, take immediate action to stop burning effects:

- External - If battery electrolyte contacts skin, immediately flush effected area with cold running water to remove all acid. Failure to comply may result in injury or death to personnel.
- Eyes - If battery electrolyte contacts eyes, immediately flush eyes with cold water for 15 minutes and seek immediate medical attention. **IMPORTANT** - If only one eye is affected, ensure the affected eye is always (during both flushing and transport) kept lower (the lower the better) than unaffected eye. This will help keep affected eye from

CLOSE BATTERY BOX - Continued

draining into (and contaminating) the unaffected eye. Failure to comply may result in injury or death to personnel.

- Internal - If battery electrolyte is ingested (swallowed), drink large amounts of water or milk. Follow with milk of magnesia, a beaten egg, or vegetable oil and seek immediate medical attention. Failure to comply may result in injury or death to personnel.
- Clothing or vehicle - Immediately flush area with cold water and neutralize battery electrolyte with baking soda or household ammonia solution. Failure to comply may result in injury or death to personnel.

1. Slide cover (2) on battery box (3).

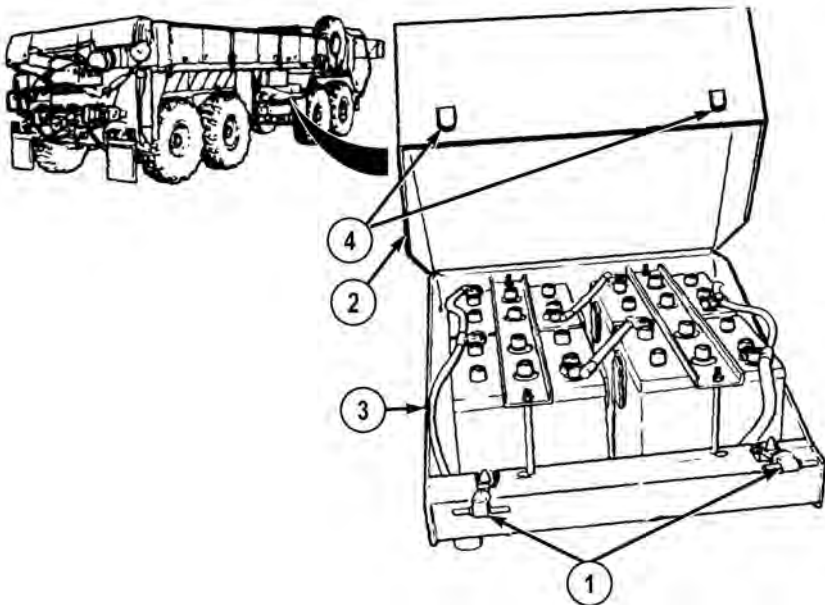


Figure 2.

2. Align rubber hooks (1) and brackets (4).
3. Connect rubber hooks (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Remove wheel chocks. (Volume 1, WP 0100)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
**OPEN/CLOSE ENGINE COVERS AND ENGINE SIDE PANEL REMOVAL/
INSTALLATION**

INITIAL SETUP:**Equipment Condition**

Engine OFF. (Volume 1, WP 0057)

Equipment Condition - Continued

Wheels chocked. (Volume 1,
WP 0100)
Spare tire removed (if removing
passenger side engine panel).
(WP 0192)

OPEN ENGINE COVERS

1. Pull top rubber hooks (1) up and out.

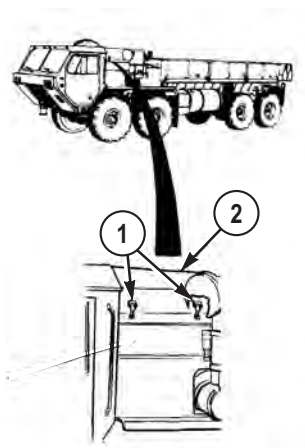


Figure 1.

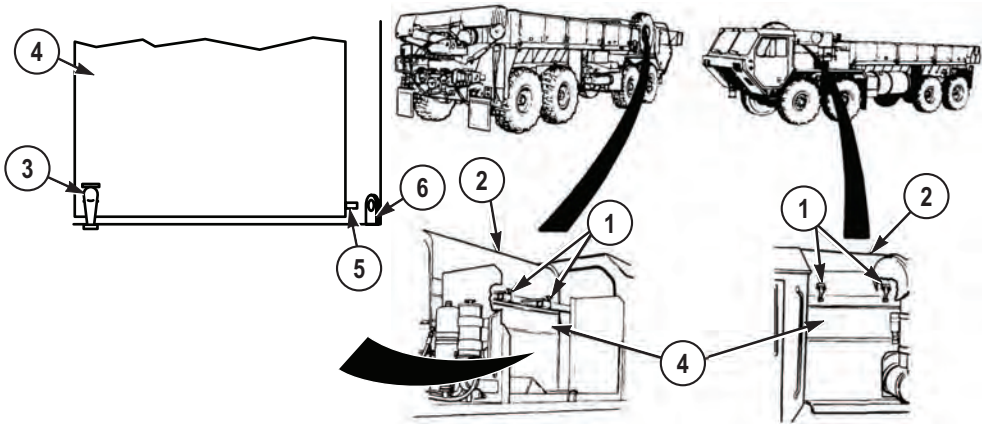
2. Lift hood (2) slowly until hood (2) lies on top of engine compartment.

END OF TASK

ENGINE SIDE PANELS REMOVAL**NOTE**

- Driver side and passenger side engine side panels are removed the same way, except where noted.
- Passenger side engine side panel removal shown.

1. Pull bottom rubber hook (3) up and out.

*Figure 2.*

2. Slide engine side panel (4) toward rear of vehicle so stud (5) clears mount (6).
3. Lift and remove engine side panel (4) from vehicle.

END OF TASK**ENGINE SIDE PANELS INSTALLATION**

1. Lift and install engine side panel (4) on vehicle.

ENGINE SIDE PANELS INSTALLATION - Continued

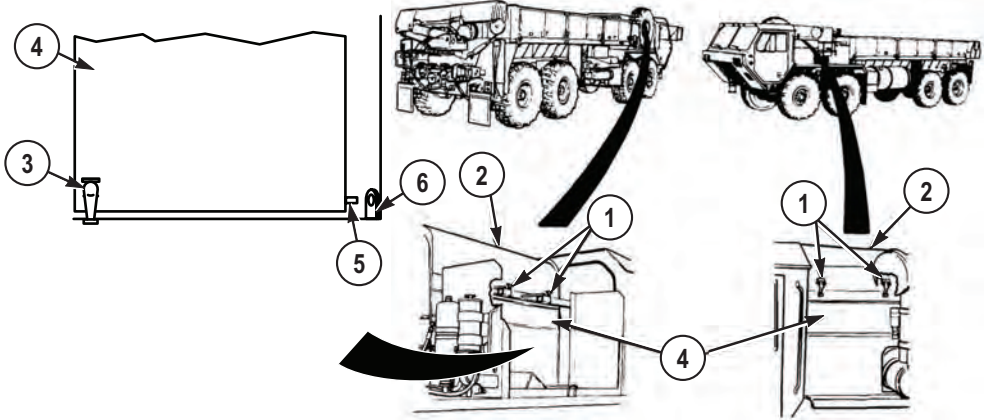


Figure 3.

2. Slide engine side panel (4) toward front of vehicle so stud (5) inserts into mount (6).
3. Pull bottom rubber hook (3) up and connect to engine side panel (4).

END OF TASK

CLOSE ENGINE COVERS

1. Pull hood (2) forward.

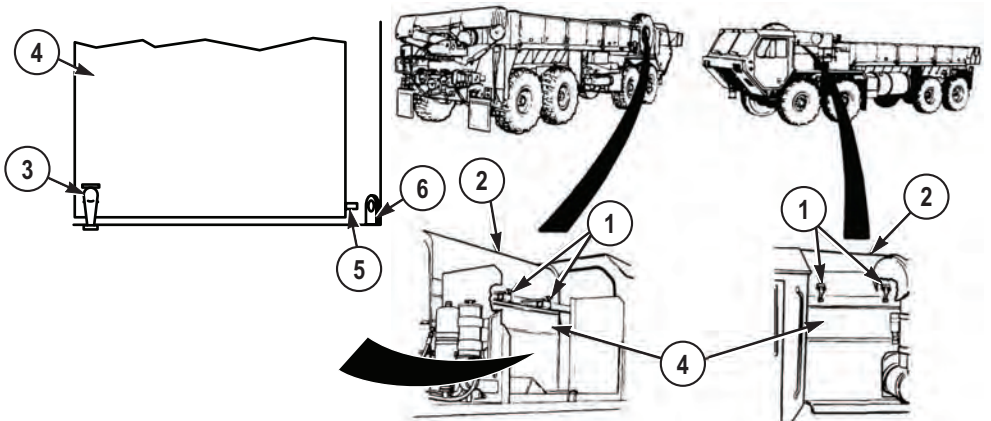


Figure 4.

CLOSE ENGINE COVERS - Continued

2. Push in engine side panel (4) and lower hood (2).
3. Pull top rubber hooks (1) up and connect to hood (2).

END OF TASK**FOLLOW-ON MAINTENANCE**

1. Stow spare tire (if removed). (WP 0192)
2. Remove wheel chocks. (Volume 1, WP 0100)

END OF WORK PACKAGE

OPERATOR MAINTENANCE 1.5 IN. (38 MM) SPACER ASSEMBLY

INITIAL SETUP:

Equipment Condition

Wheels chocked. (Volume 1,
WP 0100)

ASSEMBLY

1. Fit two spacer weldments (1) together and insert two pins (2 and 3).

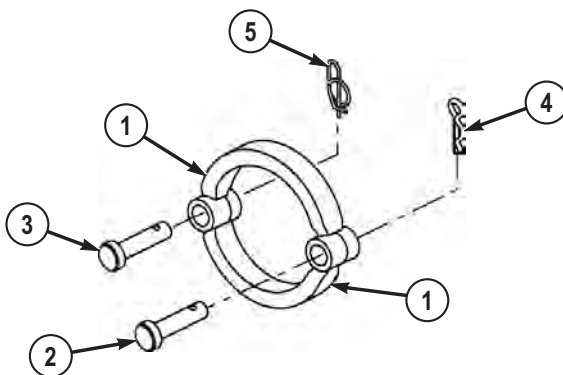


Figure 1.

2. Secure pin (2) with cotter pin (4).
3. Secure pin (3) and with ring (5).
4. Repeat Steps (1) through (3) to assemble other spacer assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Remove wheel chocks. (Volume 1, WP 0100)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
3 IN. (76 MM) SPACER ASSEMBLY

INITIAL SETUP:**Equipment Condition**

Wheels chocked. (Volume 1,
WP 0100)

ASSEMBLY

1. Install two spring pins (1) on one side of two pins (2 and 3).

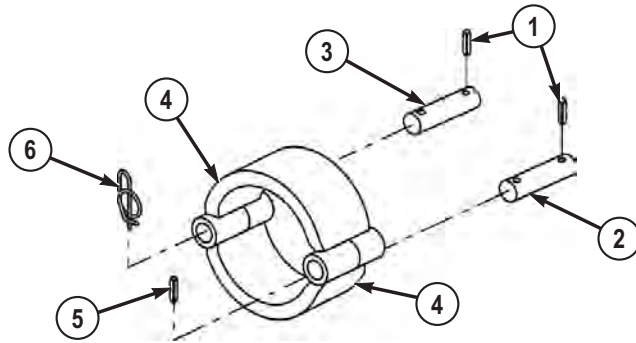


Figure 1.

2. Fit two spacer weldments (4) together and insert two pins (2 and 3).
3. Secure pin (2) with spring pin (5).
4. Secure pin (3) and with rue ring (6).
5. Repeat Steps (1) through (4) to assemble other spacer assembly.

END OF TASK**FOLLOW-ON MAINTENANCE**

1. Remove wheel chocks. (Volume 1, WP 0100)

END OF WORK PACKAGE

CHAPTER 6

SUPPORTING
INFORMATION

FIELD MAINTENANCE REFERENCES

SCOPE

This work package lists all pamphlets, forms, field manuals, technical manuals, and other publications referenced in this manual. Also, those publications that should be consulted for additional information about vehicle operations are listed.

DEPARTMENT OF ARMY PAMPHLETS

The following indexes should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms
DA PAM 25-33	User's Guide for Army Publications and Forms
DA PAM 710-2-1	Using Unit Supply System (Manual Procedures)
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual

FORMS

DA FORM 2028	Recommended Changes to Publications and Blank Forms
DA FORM 2062	Hand Receipt
DA FORM 2401	Organization Control Record for Equipment
DA FORM 2402	Maintenance Tag
DA FORM 2404	Equipment Inspection and Maintenance Worksheet
DA FORM 2407	Maintenance Request
DA FORM 2407-1	Maintenance Request Continuation Sheet
DA FORM 2408	Equipment Log Assembly (Records)
DA FORM 2408-9	Equipment Control Record
DA FORM 5988-E	Equipment Inspection Maintenance Worksheet (EGA)
DD FORM 250	Material Inspection and Receiving Report
DD FORM 314	Preventive Maintenance Schedule and Record
DD FORM 1149	Requisition and Invoice/Shipping Document
DD FORM 1348-1	DOD Single Line Item Release/Receipt Document

FORMS - Continued

DD FORM 1397	Processing and Deprocessing Record for Shipment, Storage, and Issue of Vehicles and Spare Engines
DD FORM 2282	Reinspection Decal Convention for Safe Containers
OPTIONAL FORM 346	U.S. Government Motor Vehicle Operator Identification Card
STANDARD FORM 91	Motor Vehicle Accident Report
STANDARD FORM 364	Report of Discrepancy (ROD)
STANDARD FORM 368	Product Quality Deficiency Report
STANDARD FORM 4895	Equipment Preservation Data Sheet (EPDS)

FIELD MANUALS

FM 3-6	Field Behavior of NBC Agents (Including Smoke and Incendiaries)
FM 3-11.3	Multiservice Tactics, Techniques, and Procedures For Chemical, Biological, Radiological, and Nuclear Decontamination Avoidance {MCWP 3-37.2A, NTTP 3-11.25, AFTTP(I) 3-2.56}
FM 3-11.4	Multiservice Tactics, Techniques, and Procedures For Nuclear, Biological, and Chemical (NBC) Protection {MCWP 3-37.2; NTTP 3-11.27; AFTTP (I) 3-2.46} (This Item is included on EM 0205)
FM 3-11.5	Multiservice Tactics, Techniques, and Procedures For Chemical, Biological, Radiological, and Nuclear Decontamination {MCWP 3-37.3; NTTP 3-11.26; AFTTP(I) 3-2.60}
FM 4-25.11	First Aid
FM 4-30.31	Recovery and Battle Damage Assessment and Repair
FM 5-100-15	Corps Engineer Operations
FM 5-125	Rigging Techniques, Procedures, and Applications
FM 9-207	Operation and Maintenance of Ordnance Materiel in Cold Weather
FM 10-16	General Fabric Repair
FM 10-67-1	Concepts and Equipment of Petroleum Operations
FM 20-3	Camouflage, Concealment, and Decoys
FM 21-10	Field Hygiene and Sanitation
FM 21-305	Manual for the Wheeled Vehicle Driver
FM 31-70	Basic Cold Weather Manual

FIELD MANUALS - Continued

FM 31-71	Northern Operations
FM 55-21	Railway Operating and Safety Rules
FM 55-30	Army Motor Transport Units and Operations
FM 90-3	Desert Operations
FM 90-13	River Crossing Operations

TECHNICAL BULLETINS

TB ORD 1030	Manufacture of Data Plates
TB 5-5420-234-15	Warranty Program for Common Bridge Transporter (CBT)
TB 9-2300-281-35	Standards for Oversea Shipment or Domestic Issue of Special Purpose Vehicles, Combat, Tactical, Construction, and Selected Industrial and Troop Support US Army Tank-Automotive Materiel Readiness Command Managed Items
TB 9-2300-422-20	Security of Tactical Wheeled Vehicles
TB 43-0001-62-SERIES	Equipment Improvement Report and Maintenance Digest for Tank, Automotive, and Armament Equipment
TB 43-0142	Safety Inspection and Testing of Lifting Devices
TB 43-0209	Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment, and Materials Handling Equipment
TB 43-0212	Purging, Cleaning, and Coating Interior Ferrous and Terne Sheet Vehicle Fuel Tanks
TB 43-0216	Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment
TB 750-651	Use of Antifreeze Solutions, Antifreeze Extender, Cleaning Compounds and Test Kit in Engine Cooling Systems
TB 9-289	Reconditioning of Type I and Type II Reusable Metal Containers

TECHNICAL MANUALS

TM 3-4230-214-12&P	Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Decontamination Apparatus
TM 3-4240-280-10	Operator's Manual for Mask, Chemical-Biological: Aircraft, ABC-M24 and Accessories and Mask, Chemical-Biological, Tank, M25A1 and Accessories (Reprinted W/Basic Incl C1-2) (This item is included on EM 0045)
TM 3-6665-225-12	Operator's and Organizational Maintenance Manual: for Alarm Chemical
TM 5-1940-277-10	Operator's Manual for Boat, Bridge Erection, Twin Jet, Aluminum Hull, Models USCSBMK 1 (NSN 1940-01-105-5728) and USCSBMK 2 (1940-01-218-9165)

TECHNICAL MANUALS - Continued

TM 5-2090-202-12&P	Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Cradle, Bridge Erection Boat, Twin Jet, Aluminum Hull (NSN 2090-01-106-9789)
TM 5-5420-208-12&P	Operator and Unit Maintenance Manual Including Repair Parts and Special Tools List for Cargo Pallet, Ribbon Bridge Transporter (NSN 5420-01-006-7436)
TM 5-5420-209-12	Operator's and Unit Maintenance Manual for Improved Float Bridge (Ribbon Bridge)
TM 5-5420-277-14&P	Operator's, Unit, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Cradle, Boat, Improved, M14, (NSN 3990-01-442-1914)
TM 9-214	Inspection, Care and Maintenance of Antifriction Bearings
TM 9-243	Use and Care of Hand Tools and Measuring Tools
TM 9-1005-245-13&P	Operator's, Unit, and Direct Support Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Machine Gun Mounts and Combinations for Tactical/Armored Vehicles
TM 9-1440-600-10	Operator's Manual, Launching Station, M901 Guided Missile, Semitrailer Mount
TM 9-2320-279-10HR	Hand Receipt Covering Contents Of Components Of End Item (COEI), Basic Issue Items (BII), And Additional Authorization List (AAL) for M977 Series, 8x8 Heavy Expanded Mobility Tactical Trucks
TM 9-2330-357-14&P	Operator's, Organizational, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) For Semitrailer, Flatbed, Radar Set and Launching Station M860A1 (NSN 2330-01-117-3280) (This Item Is Included On EM 0049)
TM 9-2330-385-14	Operator's, Unit, Direct Support and General Support Maintenance Manual for Palletized Load System Trailer (PLST) Model M1076 (NSN 2330-01-303-5197)
TM 9-2330-385-24P	Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Trailer, Palletized Load System (PLST) Model M1076 (NSN 2330-01-303-5197)
TM 9-2320-279-20	Maintenance Instructions for Organizational Maintenance, M977 Series, 8x8 Heavy Expanded Mobility Tactical Trucks
TM 9-2320-279-34	Maintenance Instructions, Direct Support and General Support for M977 Series, 8x8 Heavy Expanded Mobility Tactical Trucks
TM 9-2610-200-14	Operator's, Unit, Direct Support, and General Support Maintenance Manual for Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes
TM 9-3990-206-14&P	Operator's Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Palletized Load System (PLS) Flatrack Model M1077/ M1077A1

TECHNICAL MANUALS - Continued

TM 9-3990-260-14&P	Operator's, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) For Container Roll-In/Out Platform (CROP) Model M3 (NSN 3990-01-442-2751); Container Roll-In/Out Platform (CROP) Model M3A1 (3990-01-450-5671) (This Item is Included on EM 0038 and EM 0052)
TM 9-2330-366-14&P	Operator's, Organizational, Direct Support, and General Support Maintenance Including Repair Parts and Special Tools Lists For Semitrailer, Lowbed, 12-Ton, XM974 (NSN 2330-01-116-0288)
TM 9-4910-571-12&P	Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Simplified Test Equipment for Internal Combustion Engines (STE/ICE-R)
TM 9-4910-783-13&P	Operator's, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Standard Automotive Test Set (SATS)
TM 9-4940-468-13	Operator's, Unit, and Direct Support Maintenance Manual for Tool Outfit, Hydraulic Systems Test and Repair Unit (HSTRU)
TM 9-4940-568-10	Operator's Maintenance Manual for Forward Repair System (FRS)
TM 9-6115-465-24P	Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools List) for Generator Set, Diesel Engine-Driven, Tactical
TM 9-6140-200-14	Operator's, Unit, Direct Support and General Support Maintenance Manual for Lead-Acid Storage Batteries
TM 9-8000	Principles of Automotive Vehicles
TM 11-5820-498-12	Operator's and Organizational Maintenance Manual: Radio Sets
TM 11-5820-498-35	Direct Support, General Support, and Depot Maintenance Manual for Radio Sets
TM 38-250	Preparing Hazardous Materials for Military Air Shipments
TM 43-0139	Painting Instructions for Army Materiel
TM 55-2200-001-12	Transportability Guidance for Application of Blocking, Bracing and Tie Down Materials for Rail Transport
TM 55-2320-279-14	Transportability Guidance Heavy Expanded Mobility Tactical Truck (HEMTT)
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command)
TM 750-244-6	Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-Automotive Command)
TM 750-254	Cooling Systems: Tactical Vehicles

TECHNICAL MANUALS - Continued

TM 5-2330-378-14&P	Operator's, Unit, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Semitrailer, Lowbed: 40-Ton Construction Equipment Transporter, M870 (CCE) (CMI/Load King Model 403LF), and M870A1
TM 5-2330-325-14&P	Operator's, Unit, and Direct Support Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Trailer, Medium Heavy Equipment Transporter (MHET), 40-Ton, M870A3
TM 9-2330-213-14&P	Operator's, Unit, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) For Trailer, Chassis: 1-1/2-Ton, 2-Wheel M103A1 (NSN 2330-00-835-8629) M103A3 (NSN 2330-00-141-8052) Trailer, Cargo: 1-1/2-Ton, 2-Wheel M105A1 (NSN 2330-00-835-8631) M105A2 (NSN 2330-00-141-8050) M105A2C (NSN 2330-00-542-5689) Trailer, Tank, Water: 1-1/2-Ton, 2-Wheel, 400-Gallon M107A1 (NSN 2330-00-835-8633) M107A2 (NSN 2330-00-141-8049) M107A2C (NSN 2330-00-542-5688) Trailer, Van, Shop: Folding Sides, 1-1/2-Ton, 2-Wheel M448 (NSN 2330-00-631-5692)
TM 9-2330-231-14&P	Technical Manual Operator's, Organizational, Direct Support, And General Support Maintenance (Including Repair Parts and Special Tools List) Trailer, Ammunition: 1 1/2-Ton, 2-Wheel, M332 (NSN 2330-00-200-1785)
TM 9-2330-368-14&P	Operators, Organizational, Including Repair Parts and Special Tools List For Trailer, Ammunition, Heavy Expanded Mobility, 11-Ton, M989 (NSN 2330-01-109-4258)

MISCELLANEOUS PUBLICATIONS

AR 70-1	Army Acquisition Policy
AR 200-1	Environmental Protection and Enhancement
AR 385-55	Prevention of Motor Vehicle Accidents
AR 700-138	Army Logistics Readiness and Sustainability
AR 700-139	Army Warranty Program
AR 702-7	Product Quality Deficiency Report Program
AR 750-1	Army Materiel Maintenance Policy
AR 750-10	Army Modification Program
CTA 8-100	Army Medical Department Expendable/Durable Items
CTA 50-970	Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items)

MISCELLANEOUS PUBLICATIONS - Continued

GPM 94-02	Maintenance Advisory for Purging all Fuel Tankers using a Biodegradable Purging Solution
SB 725-92-1	US Army Missile Command Nonexpendable Reusable Shipping and Storage Containers
TC 9-237	Welding Theory and Application
TC 9-510	Metal Body Repair and Related Operations
TO 00-25-234	General Shop Practice Requirements for Repair, Maintenance, and Test of Electronic Equipment

END OF WORK PACKAGE

OPERATOR MAINTENANCE COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

INTRODUCTION

Scope

This work package lists COEI and BII for the HEMTT series vehicles to help you inventory items required for safe and efficient operation.

General

The Components of End Item and Basic Issue Items Lists are divided into the following lists:

Components of End Item (COEI) This listing is for informational purposes only and is not authority for requisition replacements. These items are part of the HEMTT series vehicle. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII) These are the minimum essential items required to place the HEMTT series vehicle in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the vehicle during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on your authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Entries in the COEI List and BII List

The following provides an explanation of columns found in the tabular listings:

Item Number. Gives you the reference number of the item listed.

National Stock Number (NSN) and Illustration. Identifies the stock number of the item to be used for requisitioning purposes and provides an illustration of the item.

Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this entry. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. These codes are identified below:

INTRODUCTION - Continued

Table 1. List of Usable On Codes

Code	Used On
H40	M984A1 Wrecker with winch

Column (5) - U/I Unit of Issue (U/I) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) - Qty. Indicates the quantity required.

COMPONENTS OF END ITEM

Table 2. Components of End Item



(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
1	2590-01-180-0996 	BASE ASSEMBLY, OUTRIGGER: Pad (Located: One each mounted on driver side and passenger side outrigger jack cylinder) 1354640W(45152)	H40	EA	2
2	6150-01-184-1901 	CABLE AND CONDUIT ASSEMBLY, ELECTRICAL: Crane (Located in passenger side equipment body, bottom stowage box) 2-198-6-00061(12361)	H40	EA	1

Table 2. Components of End Item - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
3	6150-01-231-6662 	CABLE ASSEMBLY, POWER, ELECTRICAL: HD Winch (Located in passenger side equipment body, bottom forward stowage box) 1491030(45152)	H40	EA	1
4	2540-01-166-1384 	LADDER, VEHICLE BOARDING (Located over battery box on passenger side of vehicle) 1766590W(45152)	H40	EA	1
5	2520-01-188-5129 	RECEIVER- TRANSMITTER, HYDRAULIC CONTROL: Crane RCU (Located in passenger side cargo body, bottom forward stowage box) 2-198-6-00053(12361)	H40	EA	1
6	2590-01-217-8317 	STATION, WINCH CONTROL: HD Winch (Located in passenger side equipment body, bottom forward stowage box) 1437940U(45152)	H40	EA	1

Table 2. Components of End Item - Continued


(1)	(2)	(3)	(4)	(5)	(6)
Illus No.	National Stock Number (NSN)	Description, Part Number/(CAGEC)	Usable On Code	U/I	Qty Rqr
7	2540-01-217-8312 	TOW BAR, MOTOR VEHICLE: Tow Spade Assembly (Located in equipment body) 1444560U(45152)	H40	EA	1

Table 3. Basic Issue Items


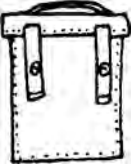
(1)	(2)	(3)	(4)	(5)	(6)
Illus No.	National Stock Number (NSN)	Description, Part Number/(CAGEC)	Usable On Code	U/I	Qty Rqr
1	5110-00-293-2336 	AXE, SINGLE BIT (Located on pioneer tool bracket) 6150925(19207)	H40	EA	1
2	8105-01-353-2497 	BAG, TEXTILE: Pamphlet (Located in cabin in glove box forward of passenger/ crew seat) 1362710(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
3	5340-01-236-2109 	BAND, RETAINING: Acetylene Tank (Located on acetylene tank in equipment body) 1454420W(45152)	H40	EA	2
4	5340-01-182-9527 	BAND, RETAINING: Oxygen Tank (Located on oxygen tank in equipment body) 1374630W(45152)	H40	EA	2
5	5120-00-224-1372 	BAR, PINCH (Located in driver side tool box) 15840(79202)	H40	EA	1
6	5120-00-293-0665 	BAR, WRECKING (Located in driver side tool box) 11873(96508)	H40	EA	1

Table 3. Basic Issue Items - Continued




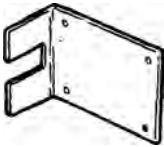
(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
7	7510-00-889-3494 	BINDER, LOOSE-LEAF (Located on passenger side of cab in glove box) 11677003(19207)	H40	EA	1
8	3940-01-163-2319 	BLOCK, TACKLE: 20 TON (Located in driver side equipment body, top center stowage box) 168400(75535)	H40	EA	1
9	3940-01-230-0294 	BLOCK, TACKLE: 60 Ton (Located in driver side equipment body) 6250-08(95975)	H40	EA	1
10	5340-01-211-6107 	BRACKET, ANGLE: Steering Lock (Located in passenger side equipment body, bottom stowage box) 1358410(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued

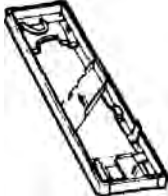

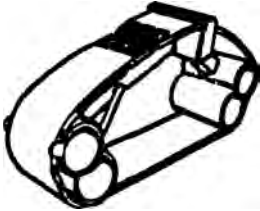
(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
11	2540-00-409-8891 	BRACKET ASSEMBLY, TOOL: Pioneer (Located in passenger side equipment body storage box) MS53053-1(96906)	H40	EA	1
12	2540-01-246-5218 	BRACKET, TOW HOOK: Extension Assembly (Located on crosstube of retrieval system) 1543440W(45152)	H40	EA	2
13	2540-01-246-8013 	BRACKET, TOW HOOK: (LH) Lift Adapter (Located/mounted on equipment body) 1531180U(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued


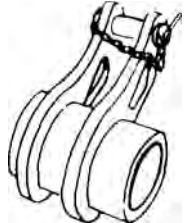
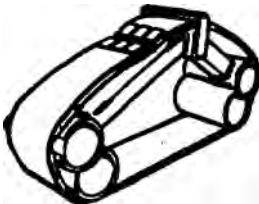
(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
14	2540-01-226-3373 	BRACKET, TOW HOOK: (LH) Lift Adapter (Located/mounted on equipment body) 1497260W(45152)	H40	EA	1
15	2540-01-226-5266 	BRACKET, TOW HOOK: (RH) Lift Adapter (Located/ mounted on equipment body) 1497250W(45152)	H40	EA	1
16	2540-01-246-7770 	BRACKET, TOW HOOK: (RH) Lift Adapter (Located/ mounted on equipment body) 1531170U(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued




(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
17	2540-01-246-5219 	BRACKET, TOW HOOK: (RH) Lift Adapter (Located/ mounted on equipment body) 1532170W(45152)	H40	EA	1
18	2540-01-246-8012 	BRACKET, TOW HOOK: (LH) Lift Adapter (Located/mounted on equipment body) 1532180W(45152)	H40	EA	1
19	6150-01-022-6004 	CABLE ASSEMBLY, POWER, ELECTRICAL: NATO (Located in driver side tool box) 11682336-1(19207)	H40	EA	1

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
20	6150-01-180-6035 	CABLE ASSEMBLY, POWER, ELECTRICAL: Worklamp (Located in driver side equipment body, bottom forward storage box) 1419770U(45152)	H40	EA	1
21	4010-01-229-7769 	CHAIN: 8 ft. (Located in driver side equipment body, forward storage box) 1340930(45152)	H40	EA	1
22	4010-01-200-1506 	CHAIN ASSEMBLY, SINGLE LEG: 7 ft. Limp Home (Located in driver side tool box) 1452490(45152)		EA	1
23	4010-01-200-1506 	CHAIN ASSEMBLY, SINGLE LEG: 7 ft. Limp Home (Located in passenger side equipment body, top forward storage box) 1452490(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
24	4010-01-250-5428 	CHAIN ASSEMBLY, SINGLE LEG: 12 ft. 022-4712(80535)	H40	EA	4
25	4010-01-249-0548 	CHAIN ASSEMBLY, SINGLE LEG: 14 ft. Utility (Located in passenger side equipment body, top forward stowage box) 0044-9973(96508)	H40	EA	1
26	5110-00-221-1075 	CHISEL, BLACKSMITH'S (Located in passenger side equipment body, bottom forward stowage box) MS16882-2(96906)	H40	EA	1
27	2540-01-165-6136 	CHOCK, WHEEL- TRACK (Located in driver side equipment body, top center stowage box) CS-2540-0067(16236)	H40	EA	4

Table 3. Basic Issue Items - Continued



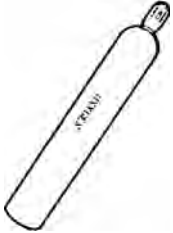
(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
28	5120-00-224-1390 	CROWBAR (Located on front passenger side fender) 10501985(56161)	H40	EA	1
29	8120-00-268-3360 	CYLINDER, COMPRESSED GAS, ACETYLENE (Located in rear of equipment body) MIL-C-3701-4(81349)	H40	CY	1
30	8120-00-357-7992 	CYLINDER, COMPRESSED GAS, OXYGEN (Located in rear of equipment body) C901/1-15(81348)	H40	CY	1

Table 3. Basic Issue Items - Continued



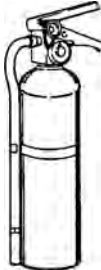
(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
31	2540-01-226-7138 	EXTENSION ASSEMBLY (LH) (Located on crosstube of retrieval system) 1447200W(45152)	H40	EA	1
32	3040-01-224-5497 	EXTENSION ASSEMBLY (RH) (Located on crosstube of retrieval system) 1447190W(45152)	H40	EA	1
33	4210-01-460-9083 	EXTINGUISHER, FIRE (Mounted to passenger side stowage box) 36250(99539)	H40	EA	1

Table 3. Basic Issue Items - Continued


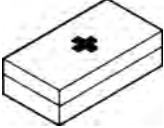

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
34	4210-01-133-9053 	EXTINGUISHER, FIRE: 2.7 lbs, 10 BC (Located in cabin to right of driver's seat) 429101(03670)	H40	EA	1
35	6545-00-922-1200 	FIRST AID KIT, GENERAL PURPOSE (Located in cabin in glove box forward of passenger/crew seat) SCC-6545- ILVOL2(64616)	H40	EA	1
36	4910-01-003-9599 	GAUGE, TIRE PRESSURE, SELF- CONTAINED (Located in cabin in glove box forward of passenger/ crew seat) 61-J2-1506(94894)	H40	EA	2

Table 3. Basic Issue Items - Continued




(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
37	5120-01-526-1378 	HAMMER, HAND: 6 lbs (Located in passenger side equipment body, bottom forward stowage box) 1362600(45152)	H40	EA	1
38	5120-00-900-6098 	HAMMER, HAND: 12 lbs Sledge (Located in passenger side equipment body, bottom forward stowage box) 1362570(45152)	H40	EA	1
39	5340-01-209-7841 	HANDLE, EXTENSION (for lug wrench) (Located in passenger side equipment body, bottom forward stowage box) 1347720(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued




(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
40	5120-00-288-6574 	HANDLE, PICK- MATTOCK (Located on pioneer tool bracket) 10501973(56161)	H40	EA	1
41	5120-01-233-9508 	HANDLE, SOCKET WRENCH: Wheel Lugnut (Located in passenger side equipment body, bottom forward stowage box) ORR301(66784)	H40	EA	1
42	2590-01-226-3351 	HOOK ASSEMBLY, TOW: (LH) Lift Adapter (Located/mounted on equipment body) 1481890W(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued

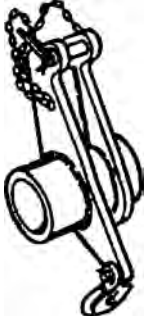

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
43	2540-01-226-3350 	HOOK ASSEMBLY, TOW: (RH) Lift Adapter (Located/mounted on equipment body) 1481880W(45152)	H40	EA	1
44	2590-01-226-3349 	HOOK ASSEMBLY, TOW: (LH) Lift Adapter (Located/mounted on equipment body) 1481840W(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued




(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
45	2540-01-226-7139 	HOOK ASSEMBLY, TOW: (RH) Lift Adapter (Located/mounted on equipment body) 1481830W(45152)	H40	EA	1
46	4030-01-234-0032 	HOOK, GRAB: Clevis 450-3815(80535)	H40	EA	2
47	4720-00-356-8571 	HOSE ASSEMBLY, NONMETALLIC: Acetylene 25 ft. (Located in passenger side equipment body, top rear stowage box) 21-1108(13699)	H40	EA	1

Table 3. Basic Issue Items - Continued



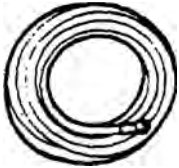

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
48	4720-01-558-6415 	HOSE ASSEMBLY, NONMETALLIC: Air 50 ft. 2155210U(45152)	H40	EA	2
49	4720-01-254-0189 	HOSE ASSEMBLY, NONMETALLIC: Inter- Vehicular (Located in tool box) MS39325-9-140- B(96906)	H40	EA	2
50	4720-00-356-8572 	HOSE ASSEMBLY, NONMETALLIC: Oxygen (Located in passenger side equipment body, top rear stowage box) ZZ-H-461(81348)	H40	EA	1
51	4910-01-386-4300 	INFLATOR-GAUGE, PNEUMATIC TIRE (Located in cabin in glove box forward of passenger/crew seat) I-405M(63900)	H40	EA	2

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
52	5120-01-146-8096 	JACK, HYDRAULIC, HAND: 12 Ton with Handle (Located in driver side tool box) EBJ-12GC(26952)	H40	EA	1
53	6220-01-250-5190 	LIGHT, WARNING: Beacon (Located on passenger side of cab in glove box) 3145661(45152)	H40	EA	1
54	5120-00-243-2395 	MATTOCK: Pick (Located on pioneer tool bracket) 11677022(19207)	H40	EA	1
55	5310-01-063-8970 	NUT, PLAIN, HEXAGON: 38-16 G5 ZY 434AX145152	H40	EA	4

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
56	5310-01-081-8244 	NUT, SELF-LOCKING, HEXAGON: .50-13 G8 60860AX45152	H40	EA	4
57	5340-00-158-3807 	PADLOCK: With Chain (for stowage boxes) AA59487-2SC(58536)	H40	EA	5
58	5340-00-158-3805 	PADLOCK: Without Chain (for steering column) (Located in steering column lock bracket under dash) AA59487-2S(58536)	H40	EA	1
59	5315-01-515-6848 	PIN, COTTER: Hairpin 1533610(45152)	H40	EA	4

Table 3. Basic Issue Items - Continued






(1)	(2)	(3)	(4)	(5)	(6)
Illus No.	National Stock Number (NSN)	Description, Part Number/(CAGEC)	Usable On Code	U/I	Qty Rqr
60	5315-01-259-0313 	PIN, LOCK: Hairpin, Cotter 21-0796652	H40	EA	2
61	5315-01-250-4676 	PIN, QUICK RELEASE: Extension (Located on extension tow adapter of retrieval system crosstube) 1543800U(45152)	H40	EA	2
62	5315-01-257-7801 	PIN, QUICK RELEASE: Hitch Pin (Located on fairlead lift bar) 30-18(96652)	H40	EA	1
63	5315-01-258-8581 	PIN, SHOULDER, HEADED: Quick Release 1536450U(45152)	H40	EA	1
64	5315-01-257-4512 	PIN, SHOULDER, HEADED: Tow Adapter (Located in driver side equipment body, top rear stowage box) 1532880(45152)	H40	EA	2

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
65	5315-01-257-7802 	PIN, SHOULDER, HEADED: Tow Adapter (Located in passenger side equipment body, top rear stowage box) 1532890(45152)	H40	EA	2
66	2540-01-165-5987 	PLATE, BASE, JACK (Located in driver side toolbox) 2540V0730(16236)	H40	EA	1
67	5120-01-480-0640 	PLIERS, SLIP JOINT: 10 in. Adjustable (Located in passenger side equipment body, bottom forward stowage box - part of tool roll) 1350150(45152)	H40	EA	1
68	9905-01-480-0644 	REFLECTOR SET, HIGHWAY WARNING, TRIANGULAR (Located in cabin mounted under glove box forward of passenger/crew seat) 6432GBX(45152)	H40	SE	1

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
69	4820-01-079-8235 	REGULATOR, COMPRESSED GAS: Oxygen (Located in passenger side equipment body, top rear stowage box) 0781-3905(63026)	H40	EA	1
70	5140-01-167-1541 	ROLL, TOOLS AND ACCESSORIES (Located in passenger side equipment body, bottom forward stowage box) 1350190(45152)	H40	EA	1
71	5140-01-227-9604 	ROLL, TOOLS AND ACCESSORIES: Welding Kit (Located in passenger side equipment body, top rear stowage box) 1478710(45152)	H40	EA	1
72	5305-01-167-9408 	SCREW, CAP, HEXAGON HEAD: . 50-13 X 2.00 128131A(45152)	H40	EA	4

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
73	5305-01-056-5448 	SCREW, CAP, HEXAGON HEAD: Capscrew 0.38-16 X 0.75 (Located in passenger side equipment body, forward bottom storage box) 501BO1(45152)	H40	EA	4
74	5120-01-398-8053 	SCREWDRIVER, CROSS TIP: Phillips No. 3 (Located in passenger side equipment body, bottom forward storage box - part of tool roll) SDFP56(96508)	H40	EA	1
75	5120-00-293-3309 	SCREWDRIVER, FLAT TIP: No. 6 (Located in passenger side equipment body, bottom forward storage box - part of tool roll) 66-110(03914)	H40	EA	1
76	4030-00-377-1397 	SHACKLE: Anchor, Limp Home (Located in passenger side equipment body, bottom forward storage box) RR-C-271 TY4AGRBCL2SZ 1.000(81348)	H40	EA	1

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
77	4030-01-316-1552 	SHACKLE: Towing: (Located on front and rear towing eyes) RR-C-271D TYIVAGRACL1 3/8 IN(81348)	H40	EA	4
78	5120-01-515-7117 	SHOVEL, HAND (Located on pioneer tool bracket) 3453866(45152)	H40	EA	1
79	3940-01-209-6008 	SLING AND WIRE ROPE ASSEMBLY SET (Located in driver side equipment body, top forward stowage box) AC 2000 00331(28620)	H40	EA	1
80	3940-01-270-3389 	SLING, MULTIPLE LEG: 16 ft. Safety Chain (Located in passenger side equipment body, top forward stowage box) 1482010(45152)	H40	EA	2

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
81	5365-01-257-4399 	SPACER, SLEEVE: Tube 4 in. long (Located in driver side equipment body, top rear stowage box) 1531110(45152)	H40	EA	2
82	5365-01-257-4400 	SPACER, SLEEVE: Tube 5 in. long (Located in driver side equipment body, top rear stowage box) 1531120(45152)	H40	EA	2
83	5340-00-543-3398 	STRAP, WEBBING: 1 in. x 12 in. (Located: Three (3) in driver side equipment body, bottom rear stowage box. One (1) on wrecking bar, front passenger side fender) 8690462(19207)	H40	EA	4
84	5340-01-209-7806 	STRAP, WEBBING: 1 in. x 16 in. (Located on pioneer tool bracket) 1376380(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued


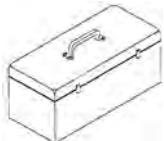
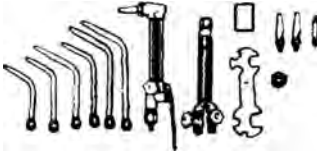

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
85	5340-00-753-3744 	STRAP, WEBBING: 1 in. x 36 in. 8690473(19207)	H40	EA	8
86	5180-00-754-0661 	TOOL KIT, WELDER'S (Located in passenger side equipment body, top rear stowage box - holds torch set) SC5180-90- N39(50980)	H40	EA	1
87	3433-00-294-6743 	TORCH SET, TYPE 2 (Located in passenger side equipment body, top rear stowage box) MIL-T-13880(81349)	H40	SE	1
88	2540-01-254-5029 	TOW BAR, MOTOR VEHICLE: Fairlead Lift Bar (Located/mounted on retrieval system frame, rear of vehicle) 1567820W(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued





(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
89	6220-01-558-7997 	TOW LIGHT ASSEMBLY: Emergency (Located in driver side equipment body, bottom center storage box) 3421169(45152)	H40	EA	1
90	4820-00-551-1094 	VALVE, REGULATING, FLUID PRESSURE: Acetylene (Located in passenger side equipment body, top rear storage box) UL252- TYPE-1(80204)	H40	EA	1
91	5120-00-243-9072 	WISE, BENCH AND PIPE: 6 in. SWIVEL BASE (Located on passenger side frame, under self-recovery winch) 1362540(45152)	H40	EA	1
92	5310-00-080-6004 	WASHER, FLAT (Located on oxygen tank strap in equipment body) MS27183-14(96906)	H40	EA	2

Table 3. Basic Issue Items - Continued

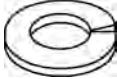



(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
93	5310-00-637-9541 	WASHER, LOCK (Located on acetylene tank straps) 4700-5(75906)	H40	EA	2
94	2590-01-222-5437 	WIRE AND PLUG, ELECTRICAL: Tow Light Cable (Located in driver side equipment body, forward bottom storage box) CS-2590- SV-0705(16236)	H40	EA	1
95	5120-01-436-2924 	WRENCH, ADJUSTABLE: 8 in. (Located in passenger side equipment body, bottom forward storage box - part of tool roll) AC18(96508)	H40	EA	1
96	5120-00-264-3796 	WRENCH, ADJUSTABLE: 12 in. (Located in passenger side equipment body, bottom forward storage box - part of tool roll) 120405A(45152)	H40	EA	1

Table 3. Basic Issue Items - Continued


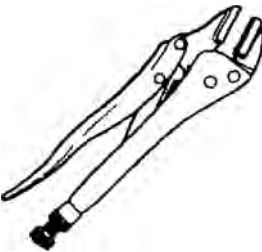

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
97	5120-01-522-0827 	WRENCH, PLIER: 8-1/2 in. Curved Jaw (Located in passenger side equipment body, bottom forward stowage box - part of tool roll) 1362660(45152)	H40	EA	1
98	5120-00-277-4244 	WRENCH, PLIER: 10 in. Flat Jaw (Located in passenger side equipment body, bottom forward stowage box - part of tool roll) 01GS(77243)	H40	EA	1

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
99	5120-01-070-8386 	WRENCH, SOCKET: Wheel Nut (Located in passenger side equipment body, bottom forward stowage box) 1048-TR(45152)	H40	EA	1

END OF WORK PACKAGE

OPERATOR MAINTENANCE ADDITIONAL AUTHORIZATION LIST (AAL)

Introduction

Scope

This work package lists additional authorization items that are needed to operate and maintain the HEMTT Series Vehicles.

General

This list identifies items that do not have to accompany the HEMTT Series Vehicles and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanation of Columns in the AAL

Column (1) - National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) - Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (3) - Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Table 1. List of Usable On Codes

Code	Used On
H40	M984A1 Wrecker with winch

Column (4) - U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number.

Column (5) - Qty Recm. Indicates the quantity recommended.

Table 2. Additional Authorization List

(1) National Stock Number (NSN)	(2) Description, Part Number/ (CAGEC)	(3) Usable On Code	(4) U/I	(5) Qty Recom
8415-00-250-2 531	APRON, WELDER'S KK-C-450(81348)	H40	EA	1
4910-00-347-9 703	BAR ASSEMBLY, HOISTING 8690061(52793)	H40	EA	1
2510-00-741-7 585	BOARD GROUND JACK 7417585(19207)	H40	EA	2
7240-00-242-6 153	CAN, WATER, MILITARY 11655980(19207)	H40	EA	1
2540-01-152-7 813	CHAIN, TIRE, EMERGENCY 2624-10-8(46156)	H40	PR	2
3439-00-270-6 047	CLEANER SET, WELDING AND CUTTING TIPS MIL-C-17223(81349)	H40	SE	1
4230-01-220-3 221	DECONTAMINATION KIT, INDIVIDUAL EQUIPMENT 5705588(19207)	H40	EA	1
5130-01-400-0 129	EXTENSION, SOCKET WRENCH: IMPACT 3/4 in. DRIVE, 13 in. LONG 07569(1CV05)	H40	EA	1
4240-01-220-6 373	GAS PARTICULATE KIT 3SK663(45152)	H40	KT	1
8415-00-634-4 658	GLOVES, LEATHER 37G2940(90142)	H40	PR	2

Table 2. Additional Authorization List - Continued

(1) National Stock Number (NSN)	(2) Description, Part Number/ (CAGEC)	(3) Usable On Code	(4) U/I	(5) Qty Recom
2990-01-509-1 954	HEATER, COOLANT, ENGINE: ARCTIC 3460259(45152)	H40	EA	1
1055-01-137-4 441	HOIST ATTACHMENT: LAUNCH PAD CONTAINER, MLRS ONLY 11508999(18876)	H40	EA	1
4030-01-234-0 032	HOOK, GRAB: CLEVIS 450-3815(80535)	H40	EA	2
4720-01-341-4 912	HOSE ASSEMBLY 1759750U(45152)	H40	EA	1
5895-01-506-4 503	INSTALLATION KIT, ELECTRONIC EQUIPMENT: C4ISR 3418900(45152)	H40	EA	1
1005-01-519-2 126	INSTALLATION KIT: MOUNTING, MACHINE GUN 1301740UW/OR45152	H40	KT	1
6665-01-220-3 220	KIT, CHEMICAL ALARM 5705589(19207)	H40	KT	1
4930-01-028-1 442	LUBRICATING GUN, HAND: GREASE 3133414(10001)	H40	EA	1
5120-00-892-5 709	MIRROR, INSPECTION UH1487(11676)	H40	EA	1
1005-01-266-1 233	MOUNT, RIFLE: INSTALLATION 5705590(19207)	H40	EA	1

Table 2. Additional Authorization List - Continued

(1) National Stock Number (NSN)	(2) Description, Part Number/ (CAGEC)	(3) Usable On Code	(4) U/I	(5) Qty Recom
5120-00-197-9 473	PUNCH, BLACKSMITH'S: 17 in. 647008(60903)	H40	EA	1
7240-00-222-3 084	SAFETY CAN: FUEL A-A-1702(58536)	H40	EA	1
4030-01-316-1 552	SHACKLE: TOWING (used with tow bar, 10 ton) 1307540(45152)	H40	EA	2
4230-00-540-0 623	SHIELD: FACE A-A-1994(58536)	H40	EA	1
8415-00-164-0 513	SLEEVES, WELDERS KK-C-450(81348)	H40	PR	1
3940-01-209-6 008	SLING AND WIRE ROPE ASSEMBLY SET AC 2000 00331(28620)	H40	EA	1
3940-00-040-2 297	SLING, MULTIPLE LEG 8330151(19207)	H40	EA	1
3940-01-270-3 389	SLING, MULTIPLE LEG: 16 FT. SAFETY CHAIN 1482010(45152)	H40	EA	1
5130-01-400-0 164	SOCKET, SOCKET WRENCH (3/4 in. drive, 1 3/4 in. hex, impact) J07528L(1CV05)	H40	EA	1
7240-00-177-6 154	SPOUT, CAN, FLEXIBLE 11677020(19207)	H40	EA	1

Table 2. Additional Authorization List - Continued

(1) National Stock Number (NSN)	(2) Description, Part Number/ (CAGEC)	(3) Usable On Code	(4) U/I	(5) Qty Recom
3990-01-204-3 009	TIE DOWN, CARGO, VEHICLE MIL-PRF-71224-1(OHK26)	H40	EA	8
2540-00-378-2 012	TOW BAR, MOTOR VEHICLE: 10 tonShould be used in conjunction with two (2) safety chains: 16 ft. NSN: 3940-01-270-3389, P/N: 1482010, C/C: 45152. 8383802(19207)	H40	EA	1
5120-00-423-6 728	WRENCH, ADJUSTABLE: 15 in. 6187328(19207)	H40	EA	1
5102-00-449-8 084	WRENCH, ADJUSTABLE: 24 in. AC124(72368)	H40	EA	1
5130-01-428-3 751	WRENCH, IMPACT, PNEUMATIC 1789100U(45152)	H40	EA	1
5120-00-277-1 462	WRENCH, PIPE: 24 in. TKCX1D(19204)	H40	EA	1

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
EXPENDABLE AND DURABLE ITEMS LIST**

Introduction

Scope

This work package lists expendable supplies and materials that are needed to operate and maintain the HEMTT Series Vehicles. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Entries in the Expendable/Durable Items List

Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (Expendable/Durable Items List)).

Level. This column identifies the lowest level of maintenance that requires the listed item.

- C -- Operator/Crew
- O -- Unit/AMC
- F -- Direct Support/ASB
- H -- General Support
- D -- Depot

National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Item Name, Description, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

(U/I). Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List

(1)	(2)	(3)	(4)	(5)
Item No.	Level	National Stock Number (NSN)	Item Name, Description, Part Number/ (CAGEC)	U/I

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
			Antifreeze, Arctic Type	
1	C	6850-01-464-9096	Antifreeze, Arctic Type 55-gal drum A-A-52624 (58536)	DR
			Antifreeze, Permanent, Glycol, Inhibited	
2	C	6850-01-464-9125	Antifreeze, Permanent, Glycol, Inhibited 1-gal container AA52624 (58536)	GL
3	C	6850-00-464-9137	Antifreeze, Permanent, Glycol, Inhibited 5-gal container MILA46153 (81349)	CO
4	C	6850-01-464-9152	Antifreeze, Permanent, Glycol, Inhibited 55-gal drum A-A-52624 TY I RECYCLED (58536)	DR
			Cleaner, Lubricant	
5	C	9150-01-079-6124	Cleaner, Lubricant A, 4 oz bottle w/ extender tube MIL-PRF-63460 (81349)	BT
			Cleaning Compound, Solvent	
6	C	6850-01-474-2319	Cleaning Compound, Solvent 1 gallon can MIL-PRF-680 Type II (81349)	GL
7	C	6850-01-474-2317	Cleaning Compound, Solvent 5 gallon can MIL-PRF-680 Type II (81349)	CO

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
8	C	6850-01-474-2316	Cleaning Compound, Solvent 55 gallon drum MIL-PRF-680 Type II (81349)	DR
9	C	6850-01-474-2318	Cleaning Compound, Solvent 1 gallon can MIL-PRF-680 Type III (81349)	GL
10	C	6850-01-474-2320	Cleaning Compound, Solvent 5 gallon can MIL-PRF-680 Type III (81349)	BX
11	C	6850-01-474-2321	Cleaning Compound, Solvent 55 gallon drum MIL-PRF-680 Type III (81349)	DR
			Compound, Cleaning Windshield	
12	C	6850-00-926-2275	Compound, Cleaning Windshield 1-pt can 0854-000 (0FTT5)	BX
			Fuel, DF-1, Winter	
13	C	9140-01-413-7511	Fuel, DF-1, Winter Bulk VV-F-800 (81348)	GL
14	C	9140-00-286-5286	Fuel, DF-1, Winter Bulk ASTM D 975 (81346)	GL
15	C	9140-00-286-5287	Fuel, DF-1, Winter 5-gal can ASTM D 975 (81346)	CN
16	C	9140-00-286-5288	Fuel, DF-1, Winter 55-gal drum, 16 gauge ASTM D 975 (81346)	DR
17	C	9140-00-286-5289	Fuel, DF-1, Winter 55-gal drum, 18 gauge ASTM D 975 (81346)	DR

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
			Fuel	
18	C	9130-01-031-5816	Fuel, JP8 Bulk MILT83133 GR JP8 (81349)	GL
19	C	9140-01-412-1311	Fuel, DF-2, Regular Bulk VV-F-800 (81348)	GL
20	C	9140-00-286-5294	Fuel, DF-2, Regular Bulk ASTM D 975 (81346)	GL
21	C	9140-00-286-5295	Fuel, DF-2, Regular 5-gal can ASTM D 975 (81346)	CN
22	C	9140-00-286-5296	Fuel, DF-2, Regular 55-gal drum, 16 gauge ASTM D 975 (81346)	DR
23	C	9140-00-286-5297	Fuel, DF-2, Regular 55-gal drum, 18 gauge ASTM D 975 (81346)	DR
			Grease, Automotive and Artillery GAA	
24	C	9150-01-197-7688	Grease, Automotive and Artillery GAA 2-1/2 oz tube M-10924-A (81349)	TU
25	C	9150-01-197-7693	Grease, Automotive and Artillery GAA 14-oz cartridge M-10924-B (81349)	CA
26	C	9150-01-197-7690	Grease, Automotive and Artillery GAA 1-lb can M-10924-C (81349)	CN

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
27	C	9150-01-197-7 689	Grease, Automotive and Artillery GAA 5-lb can M-10924-D (81349)	CN
28	C	9150-01-197-7 692	Grease, Automotive and Artillery GAA 35-lb can M-10924-E (81349)	CN
			Oil, Lubricating Gear, GO 75 (MIL-L-2105)	
29	C	9150-01-035-5 390	Oil, Lubricating Gear, GO 75 (MIL-L-2105) 1-qt can M2105-1-75W (81349)	QT
30	C	9150-01-035-5 391	Oil, Lubricating Gear, GO 75 5-gal can MIL-PRF-2105 (81349)	CN
			Oil, Lubricating Gear, GO 80W/90 (MIL-L-2105C)	
31	C	9150-01-035-5 393	Oil, Lubricating Gear, GO 80W/90 (MIL-L-2105C) 5-gal can J2360 (81343)	CN
			Oil, Lubricating OEA Ice, Subzero	
32	C	9150-00-403-2 372	Oil, Lubricating OEA Ice, Subzero 1-qt can EMERY3908D (33358)	QT
33	C	9150-00-402-2 372	Oil, Lubricating OEA Ice, Subzero 5-gal can MIL-PRF-46167 (81349)	CN

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
34	C	9150-00-491-7197	Oil, Lubricating OEA Ice, Subzero 55-gal drum, 16 gauge MIL-PRF-46167 (81349)	DR
			Oil, Lubricating OE/HDO 10	
35	C	9150-01-518-9471	Oil, Lubricating OE/HDO 10 1-qt can M2104-1-10W (81349)	QT
36	C	9150-00-186-6668	Oil, Lubricating OE/HDO 10 5-gal can M2104-3-10W (81349)	CN
37	C	9150-00-191-2772	Oil, Lubricating OE/HDO 10 55-gal drum, 18 gauge M2104-4-10W (98308)	DR
			Oil, Lubricating OE/HDO 30, (SAE 30)	
38	C	9150-01-496-1962	Oil, Lubricating OE/HDO 30, (SAE 30) Bulk M2104-2-30W (81349)	GL
39	C	9150-00-186-6681	Oil, Lubricating OE/HDO 30, (SAE 30) 1-qt can M2104-3-30W (81349)	QT
40	C	9150-00-188-9858	Oil, Lubricating OE/HDO 30, (SAE 30) 5-gal can MIL-PRF-2104 (81349)	CN
41	C	9150-01-433-7978	Oil, Lubricating OE/HDO 30, (SAE 30) 55-gal can M2104-4-30W (81349)	DR
42	C	9150-01-433-7978	Oil, Lubricating OE/HDO 30, (SAE 30) 55-gal drum, 18 gauge M2104-4-30W (81349)	DR

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
			Oil, Lubricating OE/HDO 50	
43	C	9150-00-188-9865	Oil, Lubricating OE/HDO 50 5-gal drum BRAYC0423H (98308)	CN
			Oil, Lubricating Gear, GO 85W/140	
44	C	9150-01-035-5396	Oil, Lubricating Gear, GO 85W/140 55-gallon drum J2360 (81343)	DR
45	C	9150-01-035-5395	Oil, Lubricating Gear, GO 85W/140 5-gallon can J2360 (81343)	CN
			Oil, Lubricating, Internal Combustion Engine, Tactical Service OE/HDO 15W/40 (MIL-L-2104)	
46	C	9150-01-421-1432	Oil, Lubricating, Internal Combustion Engine, Tactical Service OE/HDO 15W/40 (MIL-L-2104) 55-gal drum, 18 gauge M2104-5-15W40 (81349)	DR
47	C	9150-01-518-9477	Oil, Lubricating, Internal Combustion Engine, Tactical Service OE/HDO 15W/40 (MIL-L-2104) 1-quart can M2104-1-15W40 (81349)	QT
48	C	9150-01-421-1427	Oil, Lubricating, Internal Combustion Engine, Tactical Service OE/HDO 15W/40 (MIL-L-2104) 24-quart box MIL-PRF-2104 (81349)	QT

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
			Oil, Lubricating, OE/HDO 40	
49	C	9150-00-188-9862	Oil, Lubricating, OE/HDO 40 55-gal drum MIL-PRF-2104 (81349)	DR
			Rag, Wiping	
50	C	7920-00-205-1711	Rag, Wiping 50-pound bale 7920-00-205-1711 (80244)	BE
			Rope	
51	C	4020-00-968-1357	Rope, Fibrous MIL-R-17343 (81349)	RL
			Oil, Lubricating, Preventative	
52	C	9150-01-293-7696	Oil, Lubricating, Preventative 5-gal drum MIL-L-21260C (81349)	CN
53	C	9150-01-438-6079	Oil, Lubricating, Preventative 55-gallon drum J2363 (81349)	DR
			Preventative, Rust MIL-C-16173 Texaco Type "L"	
54	C	8030-00-062-5866	Preventative, Rust MIL-C-16173 Texaco Type "L" 1-gallon can MIL-C-16173 (81349)	GL
55	C	8030-00-231-2345	Preventative, Rust MIL-C-16173 Texaco Type "L" 1-gallon can MIL-C-16173 (81349)	GL

Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
56	C	8030-00-244-1293	Preventative, Rust MIL-C-16173 Texaco Type "L" 5-gallon can MIL-PRF-16173 (81349)	CN
57	C	8030-00-244-129	Preventative, Rust MIL-C-16173 Texaco Type "L" 55-gallon drum; 18 gauge MIL-PRF-16173 (81349)	DR
58	C	8030-00-837-6557	Preventative, Rust MIL-C-16173 Texaco Type "L" 1-pint can 230-1313P1 (49956)	PT
59	C	8030-00-231-2344	Preventative, Rust MIL-C-16173 Texaco Type "L" 5-gallon can MIL-R-10036 (81349)	CN

END OF WORK PACKAGE

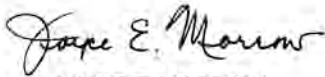
RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 310-1; the proponent agency is the US Army Adjutant General Center.						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: (Forward to proponent of publication or form) (Include ZIP Code)						FROM: (Activity and location) (Include ZIP Code)	
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER						DATE	TITLE
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Exact wording of recommended change must be given)</i>	
* Reference to line numbers within the paragraph or subparagraph.							
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

TO: <i>(Forward to proponent of publication or form) (Include ZIP Code)</i>				FROM: <i>(Activity and location) (Include ZIP Code)</i>			DATE	
PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS								
PUBLICATION/FORM NUMBER				DATE		TITLE		
PAGE NO.	COLM NO.	LINE NO.	FEDERAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPOTED	RECOMMENDED ACTION
PART III - REMARKS <i>(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)</i>								
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE	

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:



JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0817005

DISTRIBUTION: To be distributed in accordance with the initial distribution requirements for IDN: 380265, requirements for TM 9-2320-431-10-2.

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

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

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

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

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

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
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

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
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

