DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

WARRANTY PROGRAM

FOR

M977 SERIES, 8X8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

M977, NSN 2320-01-097-0260
M977, NSN 2320-01-099-6426
M978, NSN 2320-01-097-0249
M978, NSN 2320-01-100-7672
M983, NSN 2320-01-097-0247
M994A1, NSN 2320-01-195-7641
M985, NSN 2320-01-097-0261
M985, NSN 2320-01-100-7673
M985E1, NSN 2320-01-194-7032
M1120, NSN 2320-01-472-2731
M1120, NSN 2320-01-471-1326

Contract Number DAAE07-95-C-X057

Contract Number DAAE07-97-D-X010

Headquarters, Department of the Army, Washington, DC

15 August 2000

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

1. General. This bulletin provides implementation instructions for the Warranty on the HEMTT. It contains instructions for obtaining services and/or supplies covered under warranty. This bulletin also describes methods of processing warranty claims. For additional warranty information on the HEMTT or any U.S. Army Tank-Automotive and Armaments Command (TACOM) equipment, contact your local Warranty Control Office/ Officer (WARCO) or TACOM Logistics Assistance Representative (LAR). If your WARCO or TACOM LAR is not available or if additional information is required, contact TACOM. The number to call is DSN 786-7194, COMMERCIAL (810) 574-7194. The caller should be prepared to provide: (1) name, (2), DSN and commercial telephone numbers, (3) complete unit designation, (4) identification of the vehicle to include serial number(s), (5) a brief description of the problem and (6) the contract number (see paragraph 3a).

2. Explanation of Terms.

a. Abuse. The improper use, maintenance, repair or handing of warranted items that may cause the warranty of

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* This Technical Bulletin supersedes TB 9-2320-279-14, dated 15 December 1998.

those items to become void (for example, not following service intervals, using the vehicle for other than what is intended).

b. Acceptance. The execution of the acceptance block and signing of DD Form 250, by the authorized Government representative, unless end items are placed in storage in which case acceptance shall mean date of shipment from storage facility as reflected on DD Form 1149 or DD Form 1348-1.

c. Acceptance Date. The date an item of equipment is accepted into the Army's inventory by the execution of the acceptance block and signing of a DD Form 250 or approved acceptance document, by an authorized representative of the Government.

d. Contractor. The supplier of equipment who enters into an agreement directly with the Government to furnish supplies.

e. Correction. The elimination of a defect.

f. Defect. Any condition or characteristic in any supplies furnished by the contractor that does not otherwise function or threatens not to function as intended.

g. Failure. A part, component, or end item that fails to perform its intended use.

h. Manufacturer's Recall.

(1) Safety Recall. An item is recalled to repair or replace a defective part or assembly which may affect safety.

(2) Service Recall. An item is recalled to repair or replace a defective part(s) or assembly which does not affect the safe use of this item.

i. Owning Unit. The Army unit authorized to operate, maintain and use the equipment.

j. Reimbursement. A written provision in this warranty in which the Using/Support Unit may make the necessary repairs, with or without prior approval from the contractor, and the Government will be reimbursed for the repair parts and labor costs.

k. Repair. A maintenance action required to restore an item to serviceable condition without affecting the warranty.

l. Supplies. The end item and all assemblies/parts furnished by the contractor.

m. Supporting Repair Facility. The repair activity authorized to accomplish warrantable repairs at the appropriate level of maintenance identified in the Maintenance Allocation Chart.

n. WARCO. Serves as the intermediary between the troops owning the equipment and the local dealer, contractor or manufacturer. All warranty claim actions will be processed through the WARCO.

o. Warranty. A written agreement between a contractor and the Government which outlines the rights and obligations of both parties for defective supplies.

p. Warranty Claim. Action started by the equipment user for authorized warranty repair reimbursement.

q. Warranty Expiration Date. The date the warranty is no longer valid. This date will be thirteen (13) months from the contractor shipment date. This warranty period covers the basic 12 months plus one additional month for shipping time.

r. Warranty Period. Time during which the warranty is in effect. Normally measured as the maximum number of years, months, days, miles, or hours used.

s. Warranty Start Date. The day of shipment is put into effect (Contractor Shipment Date).

3. Coverage-Specific

a. This bulletin applies to the following:

Noun	Model	NSN	Cage
Truck, Cargo w/winch	M977	2320-01-097-0260	45152
Truck, Cargo w/o winch	M977	2320-01-099-6426	45152
Truck, Tank, Fuel, w/winch	M978	2320-01-097-0249	45152
Truck, Tank, Fuel, w/o winch	M978	2320-01-100-7672	45152
Truck, Tractor, w/winch, w/o crane	M983	2320-01-097-0247	45152
Truck, Wrecker-Recovery	M984A1	2320-01-195-7641	45152
Truck, Cargo, w/winch	M985	2320-01-097-0261	45152
Truck, Cargo, w/o winch	M985	2320-01-100-7673	45152
Truck, Cargo, w/winch	M985E1	2320-01-194-7032	45152
Truck, Cargo, w/winch	M1120	2320-01-472-2731	45152
Truck, Cargo, w/o winch	M1120	2320-01-471-1326	45152

The item is manufactured by Oshkosh Truck Corporation, under contract #DAAE07-95-C-X057/X010. Inquiries to Oshkosh can be made by calling (920) 235-9151, ext 2681, or FAX (920) 233-9607.

b. The contractor warrants the supplies are free from defects in design, material, and workmanship for a period of thirteen (13) months from warranty start date.

c. If a Safety Recall defect occurs during the vehicle warranty period, the contractor agrees to extend the terms of the warranty to the time required to make necessary safety defect corrections. Also, if the contractor or his supplier(s) provide a greater warranty for the supplies furnished, the contractor will provide the greater warranty to the Government.

d. If a defect/failure is caused by or falls within any of the following categories, it is not considered warrantable and a claim should not be initiated:

(1) Misuse or negligence

(2) Accidents

(3) Improper operation

(4) Improper storage

(5) Improper transport

(6) Improper or insufficient maintenance

(7) Improper alterations or repairs

(8) Defect/failure discovered or occurring after warranty expiration date.

(9) Fair wear and tear items (brake shoes, pads, armatures, brushes, etc.).

e. In addition to the 13 month warranty, the vehicles will be warranted for a total service life of 10 years including extended periods in a corrosion hazard military environment. During this 10 year service life, there will be no damage caused by corrosion requiring repair or replacement of parts. No actions beyond normal washing or replacement of accident damaged paint shall be necessary to maintain the corrosive protection in place.

f. This 13 month warranty is extended up to nine (9) months from date of acceptance if the vehicle is put into Government storage before use. In this case, the warranty starts when the vehicle is either taken out of storage or until nine (9) months from the warranty start date shown on the warranty data plate, whichever occurs first. Refer to Appendix A and TM 9-2320-279-20 for vehicle storage.

4. Contractor Responsibilities.

a. When the owning unit has directed the contractor to correct the supplies, the contractor will furnish all material required to correct the defective supplies. Repairs and parts shall be initiated/provided within ten (10) working days after receipt of written claim notification. Furthermore, the contractor will provide a copy of the work order to owning unit upon completion of repair.

b. When the contractor receives written notification requiring contractor repair, they will have the option:

(1) to correct the supplies in the field, or

(2) return the vehicle or parts to the contractors designated facility for correction.

When the contractor corrects the supplies all labor involved shall be borne by the contractor. Additionally, the contractor shall arrange and bear all transportation costs of the supplies to its facility and return to user.

c. The contractor, within five (5) working days of receiving such notice, shall notify the warranty claimant by telephone as to the method of correction, date(s) work is to be performed and by whom.

5. Government Responsibilities. The Major Subordinate Command for the HEMTT is the U.S. Army Tank-Automotive and Armaments Command (TACOM), Warren, MI 48397-5000. TACOM is responsible for managing and implementing the warranty. Warranty claims will be reported to:

Commander
U.S. Army Tank-Automotive and
Armaments Command
ATTN: AMSTA-LC-CIPWN
Warren, MI 48397-5000
Telephone: (DSN) 786-7194
Commercial: (810) 574-7194

a. TACOM will:

(1) Verify, review, process and if valid and complete, submit claims (reimbursable and/or disputes) to the contractor.

(2) Reject claims that are not valid and send them back to the local WARCO with a short explanation of why the claim is rejected.

(3) Request additional information for incomplete claims.

(4) Provide warranty claim acknowledgment/ close-out letters and/or parts/assemblies disposition instructions to the local WARCO.

(5) Insure the contractor performs in accordance to the terms of the contract.

b. Equipment owning unit will:

(1) Identify defects/failures and verify the defects/failures are warrantable.

(2) Submit warranty claims, using DA Form 2407 or DA Form 2407-1 through channels to the supporting repair facility.

(3) Tag and retain (IAW DA PAM 738-750 and this TB) parts, pieces of parts and/or assemblies removed at the owning unit level and as a result of a warrantable defect/failure and/or correction.

c. Supporting repair facility will:

(1) Identify defects/failures as warrantable (if owning unit has not already identified them). Verify defects/failures are warrantable.

(2) Review, process and submit valid warranty claims to the local WARCO if the DA Form 2407 is complete and correctly filled out.

(3) Reject invalid warranty claims or request additional information for incomplete and incorrect claims.

(4) Coordinate with the owning unit and decide which option for repair is desired to correct the warrantable defect/failure.

(5) Depending on which repair option was chosen (Government or contract repair) provide labor/parts required to accomplish the warrantable repairs.

(6) Tag and retain (IAW DA PAM 738-750 and this TB) all parts, pieces or parts and/or assemblies removed as a result of warrantable defect/failure and/or correction.

d. Local WARCO will:

(1) Verify, administer and process warranty claims to the TACOM WARCO (IAW DA PAM 738-750 and this TB).

(2) Act as a liaison between owning unit, the contractor, supporting repair facility and TACOM.

(3) Notify the owning units of all warranty claim acknowledgments/close-outs, information and/or instructions received from TACOM or the contractor.

(4) Act as a liaison between local dealers and the Army.

e. Alterations/Modifications. Alterations/modifications shall not be applied unless authorized by TACOM.

f. Army Oil Analysis Program (AOAP). The manufacturer's lubrication and service intervals must be followed. Only after the warranty has expired will AOAP apply to this equipment, unless oil sample results indicate the oil and filter of an assembly should be changed PRIOR to the manufacturer's service interval. Sampling intervals for AOAP will be published in TB 43-0210 (if applicable).

6. Warranty Data Plate.

a. All vehicles will have a warranty data plate. The contractor is required to mount his data plate within clear view of the operator.

b. When the vehicle is received, the owning unit should locate the warranty data plate and check the warranty start date with date shown on the applicable DD Form 250 or DD Form 1149. If these dates differ, disregard the data plate. The date shown on the DD Form 250 or DD Form 1149 is the date to be used as a warranty start date.

7. Claim Procedures.

a. The procedures for reporting warranty claims are found in DA PAM 738-750 and this bulletin. Responsibilities of the MACOM are found in AR 700-139. All Warranty Claim Actions are processed on DA Form 2407 and DA Form 2407-1. It is very important to fill in the blocks on the forms as accurately as possible.

b. The contractor shall be notified in writing within 30 days, utilizing DA Form 2407 by the local Warranty Control Office/Officer (WARCO) following the discovery of a defect in supplies which requires contractor repair and/or replacement parts. This shall constitute formal notification of a warranty claim and initiate the time period for contractor responsibilities and action under the warranty. This notification shall include, but not be limited to furnishing of the equipment serial number, operating hours, part number or NSN of the defective part and circumstances surrounding the defect(s). At this time, the contractor will further be informed whether the owning unit has elected: (1) to correct the defect themselves, or; (2) to direct the contractor to correct the defect. Upon completion of contractor repair, forward completed warranty claims (Information Only) to TACOM. Additionally, the local WARCO will forward claims to TACOM utilizing DA Form 2407 for any warrantable repairs (parts and/or labor) accomplished by the owning unit which requires contractor reimbursement to the Government.

c. The contractor shall reimburse the Government for the cost of labor and/or replacement parts involved in the Government correction of the defect. The Government's Maintenance Allocation Chart (MAC) determines the times. Additionally, the cost of replacement parts obtained through the Government's supply channels will be determined by the amount identified in the contractor's current commercial dealer net price or Army Master Data File (AMDF) price, whichever is less. Furthermore, the owning unit may direct

the contractor to provide the replacement parts that prove to be defective within the warranty period, without costs to the Government, directly to their location or F.O.B., U.S. Port of Embarkation for OCONUS. The contractor shall furnish replacement parts within ten (10) working days after receipt of written claim notification. Warranty claims for reimbursement, where repair labor costs and replacement parts costs combined do not exceed $150.00 for any one failure will not be submitted to TACOM.

d. Identification of Failed Items. Failed warranty items shall be tagged/identified to prevent improper repair or use. Documents that describe the use of DA Form 2402 Exchange Tag and DA Form 2407 Maintenance Request shall be referenced. Items requiring special handling, storage or shipment during the processing of claims shall be identified.

e. Disposition. The repair activity shall retain defective supplies for thirty (30) days following receipt of acknowledgment of warranty claim from TACOM or contractor. If receipt of acknowledgment is not received, inquiries should be made to TACOM through your local WARCO. If receipt of acknowledgment is received but no instructions are forthcoming within thirty (30) days of receipt, supplies may be disposed.

f. Invalid Warranty Claims. When supplies are inspected by the contractor and found to be non-warrantable due to abuse or improper maintenance, or the supplies are found to be serviceable, the repair activity submitting the claim will be required to make reimbursement for contractor services. All failed items returned for warranty claim action will be monitored by TACOM. Additionally, regarding contractor repair, the local WARCO must stipulate at the time of request for services that either no non-warranty work be done or be prepared to pay for such work.

8. Reimbursement for Army Repair. In the event that the repair activity should receive any reimbursement from the contractor, the monies must be forwarded to the following address: Defense Accounting Office, DAOTACOM, ATTN: DFAS-IN/EM-BED, TACOM, Warren, Michigan 48397-5000.

9. Claim Denial/Disputes. All denials or disputes will be handled by TACOM.

10. Reporting. Reporting or recording action on a failed item shall be specified in DA PAM 738-750. Contractor or Repair Activity unique forms shall not be used.

11. Storage/Shipment/Handling.

a. Storage. See paragraph 3f and TM 9-2320-279-20.

b. Shipment See paragraph 4b and 7c.

c. Handling. See paragraph 4b and 7c.

Appendix A. VEHICLE STORAGE

1. Purpose. A vehicle storage report (Figure 1) must be partially prepared for each newly delivered vehicle placed in Government storage and completed when each vehicle is removed form storage and placed in service. The preparation of this report is an important aspect of vehicle warranty terms between the Government and Oshkosh. It must be prepared properly and submitted in a timely manner (within 45 days from receipt of vehicle) so the Government can fully realize the intended warranty benefits.

2. Use of Vehicle Storage Report. Oshkosh will provide blank report forms to the Government representative prior to vehicle removal from the plant. The forms will be filled in for each vehicle shipped from Oshkosh and distributed as follows:

a. Part I is completed by the Oshkosh Government representative when the vehicle leaves Oshkosh for the storage facility.

b. Part II is completed by the depot representative when the vehicle is placed in storage, with copies made and distributed as follows:

(1) One to Oshkosh -
ATTN: Warranty Administration
P.O. Box 2566
Oshkosh, WI 54903-2566

(2) One to vehicle

(3) One to depot file.

(4) One to - Commander, USA TACOM
ATTN: AMSTA-LC-AH
Warren, MI 48397-5000

c. Part III is completed by the depot representative when the vehicle is removed from storage, with copies made and distributed as follows:

(1) One to Oshkosh -
ATTN: Warranty Administration
P.O. Box 2566
Oshkosh, WI 54903-2566

(2) One to vehicle.

(3) One to - Commander, USA TACOM
ATTN: AMSTA-LC-CHH
Warren, MI 48397-5000

(4) One to - Commander, USA TACOM
ATTN: AMSTA-LC-AH
Warren, MI 48397-5000

(5) One to depot file.

VEHICLE STORAGE REPORT

Truck, Cargo w/winch M977
Truck, Cargo, w/o winch M977
Truck, Tank, Fuel w/winch M978
Truck, Tank, Fuel w/o winch M978
Truck, Tractor, w/winch, w/o Crane M983
Truck, Wrecker-Recovery M984A1
Truck, Cargo, w/winch M985
Truck, Cargo w/o winch M985
Truck, Cargo, w/ winch M985E1
Truck, Cargo, w/ winch M1120
Truck, Cargo, w/o winch M1120

(CONTRACT DAAE07-95-C-XO57)
(CONTRACT DAAE07-97-D-XO10)

1. VEHICLE DATA _____
   a. CHASSIS SERIAL NO.: _____
   b. DD FORM 250 ACCEPTANCE DATE: _____
   c. DD FORM 250 SHIPMENT DATE:
2. DEPOT STORAGE ENTRY DATA _____
   a. LOCATION: _____
   b. STORAGE DATE: _____
   c. VEHICLE MILEAGE: _____
   d. DATE REPORT FORWARDED TO OSHKOSH: _____
   e. DEPOT REPRESENTATIVE SIGNATURE:
3. DEPOT STORAGE REMOVAL DATA _____
   a. REMOVAL DATE: _____
   b. VEHICLE MILEAGE: _____
   c. FINAL DESTINATION: _____
   d. DATE REPORT FORWARDED TO OSHKOSH: _____
   e. DEPOT REPRESENTATIVE SIGNATURE:

Figure 1

3. Preparation for Storage or Shipment Introduction.

a. Instructions in this section apply to the vehicle to make it available for use upon receipt after shipment. The storage instructions apply to vehicles being taken out of service for a period up to one year with exercise. If vehicles are inactive for more than one year, they will use extended storage procedures.

b. Refer to AR 750-1 for detailed administrative storage instructions.

c. Refer to TB 9-2300-422-20 for security procedures.

d. Refer to Appendix "A" for storage and maintenance of prepositioned material configured to unit sets instructions.

4. Preparation for Storage or Shipment.

a. Perform all Unit Preventive Maintenance Checks and Services (PMCS).

b. Correct all deficiencies noted during inspection if facilities are available. If repairs required are beyond the scope of Unit Maintenance, refer the deficiencies to Direct or General Support Maintenance.

c. Instructions pertaining to Basic Issue Items (BII) and Components of End Items (COEI) storage locations are covered in Appendix B of TM 9-2320-279-10.

d. Remove rust and corrosion, and scrape any flaked and peeling paint. Dry all surfaces to be painted and coated with preservatives. Refer to TM 9-247: Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Material and Related Materials Including Chemicals.

e. Repaint surface, as required, to prevent against deterioration. Refer to TM 43-0209 Painting Instructions for Field Use, Color, Marking, and Camouflage Painting of Military Vehicles.

5. Storage Maintenance Procedures.

a. Before placing a vehicle in storage, perform the following tasks:

(1) Clean the exterior, interior of cab, engine, and undercarriage. Wash any oil, grease, or mud from tires.

(2) Conduct a visual inspection of the vehicle.

WARNING

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

Check lubricant levels and tire pressures. Correct any discrepancies.

(3) Completely lubricate the chassis and all ancillary equipment in accordance with LO 9-2320-279-12.

(4) Check the coolant level. Test the coolant to ensure that the cooling system is protected against corrosion and temperatures down to -30°F (-34°C). Add antifreeze or corrosion inhibitors compatible with ethylene glycol base antifreeze if cooling system is not adequately protected (TM 750-651).

(5) Ensure the fuel tank contains at least 20 gallons (75.7 L) of treated fuel. The fuel should be treated with Biobor JF (MIL-S-53021) or equivalent as a fungus inhibitor. The addition of 3 teaspoons of Biobor to 20 gallons of fuel will provide adequate protection against fungus growth. When storing a vehicle in freezing conditions, the addition of 3 ounces (88.7 ml) of isopropyl alcohol (MIL-A-10-428) to 20 gallons of diesel fuel will help prevent fuel line freeze up.

(6) All fuel that is added to the vehicle during storage must be treated. While in storage, there must always be at least 20 gallons (75.7 L) of treated fuel in the vehicle's fuel tank.

(7) Check condition of engine air cleaner. Service if necessary (TM 9-2320-279-20).

(8) Coat all exposed unpainted surfaces such as crane valve spools, hydraulic cylinders, axle ball sockets, drive shafts, and shift cables with grease.

CAUTION

Do not allow baking soda to enter the batteries or damage to the batteries will result.

(9) Clean batteries and battery cables with a baking soda solution and rinse with fresh water. Add water to battery electrolyte if necessary. Check the specific gravity of the batteries regularly. Keep the batteries fully charged and clean (TM 9-6150-200-14).

(10) Protect spare tire from direct sunlight.

(11) If possible, store vehicles close together, out of direct sunlight, and away from electrical or generating equipment.

(12) Park vehicle to allow access for inspection, maintenance, and exercising.

Ensure tires are not resting on surface containing grease or oil. Failure to comply may result in damage to tires.

(13) Park vehicle so tires are not resting on surfaces containing grease or oil.

The alternator drains the batteries at all times. Batteries will discharge during storage if not disconnected.

(14) Disconnect batteries (TM 9-2320-279-20).

b. While vehicle is in storage, perform the following tasks monthly:

(1) Connect batteries (TM 9-2320-279-20).

(2) If engine is run every 30 days or less, use lubricating oil OE/HDO (MIL-L-2104). If engine is not run every 30 days or less, use preservative lubricating oil (MIL-L-21260C, Grade 2) and change oil filter or warranty will not be maintained (LO 9-2320-279-12).

(3) Conduct visual inspection of the vehicle. Check for oil leaks, lubricant levels, battery, electrolyte, coolant level, and tire pressures. Correct any discrepancies.

(4) Inspect oil can points. Lubricate if necessary (LO 9-2320-279-12).

(5) Shift transfer case to neutral, start engine, and idle for 10 minutes. After 10 minutes of engine idle, operate engine for 5 minutes at 1500 rpm or until the engine water temperature reaches 180°F (82°C). Shift the transmission slowly through all gear selector positions. Return the transmission to neutral and the transfer case to high range.

(6) Move vehicle 30 feet (9 m) forward and reverse.

(7) Idle engine 10 minutes before shutdown.

(8) Check grease coating on all chromium plated and unpainted surfaces. If grease was wiped from chromium plated or unpainted surfaces when vehicle was moved, recoat these surfaces.

(9) Disconnect batteries (TM 9-2320-279-20). If batteries are not going to be charged for over 30 days, remove batteries from vehicle (TM 9-2320-279-20) and keep fully charged (TM 9-6150-200-14.

c. While vehicle is in storage, perform the following tasks quarterly:

(1) Perform all monthly tasks

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(2) Exercise all ancillary equipment (TM 9-2320-279-20). While operating winches or crane, lubricate wire rope (LO 9-2320-279-12).

(3) Drive vehicle at least 1/4 mile (0.4 km). While driving shift transmission through all gear ranges.

d. While vehicle is in storage, perform the following tasks yearly:

(1) Perform all quarterly tasks.

(2) Clean the exterior, interior of cab, engine, and undercarriage. Wash any oil and grease from tires.

Do not allow the baking soda solution to enter the batteries or damage to the batteries will result.

(3) Clean batteries and battery cables with a baking soda solution and rinse with fresh water. Add water to battery electrolyte if necessary. Check the specific gravity of the batteries regularly. Keep the batteries fully charged and clean (TM 9-6150-200-14).

(4) Completely lubricate the chassis and all ancillary equipment in accordance with LO 9-2320-279-12.

(5) Check the coolant level. Test the coolant to ensure that the cooling system is protected against corrosion and temperatures down to -30°F (-34°C). Add antifreeze or corrosion inhibitors compatible with ethylene glycol base antifreeze if cooling system is not adequately protected (TB 750-651).

(6) Change engine oil and oil filter. Change fuel filters (LO 9-2320-279-12).

e. Extended storage (vehicle inactive).

CAUTION

When vehicle is to remain inactive for more than 12 months, extended storage procedures must be performed to prevent damage due to rust, corrosion or organic growth in the fluids.

NOTE

When vehicle is to remain inactive for more than 12 months, extended storage procedures must be performed to maintain the vehicle warranty.

(1) Completely lubricate the chassis and all ancillary equipment in accordance with LO 9-2320-279-12.

(2) Engine extended storage.

(a) Change oil and filter (LO 9-2320-279-12). Add preservative lubricating oil (MIL-L-21260C, Grade 2).

(b) Seal off turbocharger inlet and outlet connections with moisture resistant tape.

(3) Transmission extended storage.

(a) Drain oil (LO 9-2320-279-12).

(b) Add 2 quarts (1.9 L) of VCI-329 vapor corrosion inhibitor (MIL-P-46002) or equivalent and then fill transmission to operating level with transmission fluid. Add 1 teaspoon of Biobor JF (MIL-S-53021) or equivalent as a fungus inhibitor for each three gallons (11 L) of oil in the system.

(c) Run the engine for approximately five minutes at 1500 rpm with the transmission in neutral (N).

(d) Drive the vehicle. Make sure the transmission shifts through all ranges.

(e) Continue running the engine at 1500 rpm with the transmission in neutral until normal operating temperature is

CAUTION

Do not allow transmission oil temperature to exceed 225°F (107°C) or damage to transmission may result.

reached.

(f) If normal operating temperature is less than 225°F (107°C), shift the transmission to forward range and stall the converter. Do not exceed 225°F (107°C). Idle engine for approximately five minutes with transmission in neutral (N).

WARNING

Ensure transmission is cool before proceeding. Failure to comply may result in injury to personnel.

(g) As soon as transmission is cool enough to touch, seal all openings and the breather with moisture-proof tape.

(h) Coat all exposed, unpainted surfaces with preservative grease such as petrolatum (MIL-C-11796, Class 2).

(4) Crane extended storage.

(a) Coat all unpainted surfaces with corrosion preventative compound (MIL-C-11796) or equivalent.

(b) Clean and touch up all paint defects to prevent rusting.

(c) Apply liberal amounts of grease to the solenoid valve button.

(d) Unwind hoist cable from drum, clean and lube with recommended lubricant (MIL-L-2104), rewind on drum.

CAUTION

To avoid overfilling, drain oil (equal to amount being added) before installing additive or damage to equipment may result.

(e) Add vendor recommended percentage of VCI-326 (MIL-P-46002) or equivalent as a vapor corrosion

inhibitor to crane swing drive [2 fl oz, (60 ml)] and hoist gearboxes [0.8 fl oz, (24 ml)]. Operate crane to allow additive to coat all moving parts.

(5) Axle extended storage.

CAUTION

To avoid overfilling, drain oil before installing additive or damage to equipment may result.

(a) Drain amount of oil from axle that is equal to quantity of additive being added.

(b) Add VCI-326 vapor corrosion inhibitor (MIL-P-46002) or equivalent to:

No. 1 Axle - 1.8 pt (0.8 L) All Models
No. 2 Axle - 2.2 pt (1 L) All Models
No. 3 Axle - 2.1 pt (1 L) M977, M978, M985, M985E1
No. 3 Axle - 2.4 pt (1.2 L) M983
No. 3 Axle - 2.2 pt (1 L) M984A1
No. 4 Axle - 1.7 pt (0.8 L) M977, M978, M985, M985E1
No. 4 Axle - 1.6 pt (0.73 L) M983
No. 4 Axle - 2.2 pt (1.1 L) M984A1

(c) Drive vehicle approximately 1 mile (1.6 km) to mix additive.

(6) Self-recovery winch extended storage.

None required.

(7) Transfer case extended storage.

CAUTION

To avoid overfilling, drain oil before installing additive or damage to equipment may result.

(a) Drain amount of oil from case that is equal to quantity of additive being added.

(b) Add 0.5 (0.25 L) VCI-326 vapor corrosion inhibitor (MIL-P-46002) or equivalent to transfer case.

(c) If vehicle can be driven, drive vehicle approximately 1 mile (1.61 km) to mix additives. If vehicle cannot be driven, shift transfer case to neutral, start engine with parking brakes applied and shift transmission manually through all gear selections.

WARNING

Ensure transfer case is cool before proceeding. Failure to comply may result in injury to personnel.

(d) When transfer case is cool enough to touch by hand, seal breather with moisture proof tape.

(e) Coat all exposed unpainted surfaces with preservative grease, such as petrolatum (MIL-C-11796, Grade 2) or equivalent.

(8) Main hydraulic and steering hydraulic systems extended storage for M984A1.

CAUTION

To avoid overfilling, drain oil before installing additive or damage to equipment may result.

(a) Drain amount of oil from main hydraulic reservoir that is equal to the quantity of additive being added.

(b) Add 9 qt (8.5 L) VCI-326 vapor corrosion inhibitor (MIL-P-46002) or equivalent to main hydraulic reservoir.

(c) Operate all hydraulic equipment and steering system.

Model M984A1

HD winch - winch out approximately ten feet of cable, then winch in. Repeat procedure twice.

Crane - completely cycle each crane function two times.

Retrieval system - completely extend and retract each cylinder two times.

Self-recovery winch - winch out approximately six feet of cable, then winch in. Repeat cycle two times.

Steering system - turn steering wheel to full right turn and then full left turn. Repeat this cycle three times.

(9) Main hydraulic and steering hydraulic systems extended storage.

All models except M984A1.

CAUTION

To avoid overfilling, drain oil before installing additive or damage to equipment may result.

(a) Drain amount of oil from main hydraulic reservoir that is equal to the quantity of additive being added.

(b) Add 6 qt (5.7 L) VCI-326 vapor corrosion inhibitor (MIL-P-46002) or equivalent to main hydraulic reservoir.

(c) Operate all hydraulic equipment and steering system.

All models except M984A1

Crane (if equipped) - completely cycle each crane function two times.

Self-recovery winch - winch out approximately six feet of cable, then winch in. Repeat cycle two times.

WARNING

Do not operate pump without fuel in tank. Explosion with personal injury or death or damage to equipment may result.

Tanker - if fuel is in tank, use pump to drain or recirculate fuel for a minimum of one minute. If no fuel is in tank, do not operate pump.

Steering system - turn steering wheel to full right turn and then full left turn. Repeat this cycle three times.

(10) Fuel system extended storage.

(a) Drain fuel tank.

(b) Change all fuel filters.

(c) Ensure the fuel tank contains at least 20 gallons (75.7 L) of treated fuel. The fuel should be treated with Biobor JF (MIL-S-53021) or equivalent as a fungus inhibitor. The addition of 3 teaspoons of Biobor to 20 gallons of fuel will provide adequate protection against fungus growth. When storing a vehicle in freezing conditions, the addition of 3 ounces (88.7 ml) of isopropyl alcohol (MIL-A-10-428) to 20 gallons of diesel fuel will help prevent fuel line freeze up.

(d) Run engine 5 minutes to circulate clean treated fuel throughout the fuel system.

(e) All fuel that is added to the vehicle during storage must be treated. While in storage, there must always be at least 20 gallons (75.7 L) of treated fuel in the vehicle's fuel tank.

(f) Cap off fuel system.

(11) Battery extended storage (more than 30 days with no charging).

Remove batteries from vehicle (TM 9-2320-279-20) and keep fully charged (TM 9-6150-200-14).

(12) Check the coolant level. Test the coolant to ensure that the cooling system is protected against corrosion and temperatures down to -30°F (-34°C). Add antifreeze or corrosion inhibitors compatible with ethylene glycol base antifreeze if cooling system is not adequately protected (TB 750-651).

f. When removing vehicle form storage, perform the following tasks:

(1) Install batteries (TM 9-2320-279-20).

WARNING

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

(2) Conduct a visual inspection of the vehicle and remove moisture proof tape from engine, transmission, transfer case and fuel system. Check lubricant levels and tire pressures. Correct any discrepancies.

(3) Lubricate the chassis, ancillary equipment, and oil can points

MAINTENANCE PROCEDURES FOR STORAGE OF GOVERNMENT VEHICLES AND TRAILERS

SCOPE: To ensure maintenance has been performed on Government vehicles and trailers shipped in place or provided as Government property.

GENERAL: The OTC Property Administrator will coordinate with the OTC Mfg-QA Department to ensure that the maintenance of Government property is being performed. Forms OTCGP004.A and OTCGP004.B will be used to record maintenance performed. The individual performing the inspection and maintenance will indicate on the forms it has been performed with the use of their badge number.

NOTE: This maintenance will not be performed when the temperature is zero degrees Fahrenheit or below. (Not including wind chill.)

As soon as the temperature is above 0°F, the maintenance activity resumes where it left off; i.e. the activities scheduled on "0°F and below" days are not cancelled, they are delayed. The Traffic Department will review and adjust the schedule of required maintenance as necessary to allow for the number of days of no maintenance.

PROCEDURE: The inspection and maintenance will be performed as follows:

A. VEHICLE MAINTENANCE PROCEDURE

45 WORKING DAYS

1. Conduct visual inspection of vehicle for deterioration, paint corrosion, loose parts, oil leaks, broken equipment, tires, and general condition of the vehicle.
2. Check engine oil and transmission fluid levels, and fill as needed.
3. Check radiator for coolant level. If additional anti-freeze mixture is added to the vehicle, check and record the concentration level.
4. Check batteries for corrosion, voltage, and level of fluid IAW QC Procedure 226. If voltage is low, battery is charged to the proper level.
5. Shift transfer case into neutral, start engine and idle for ten minutes. After ten minutes of engine idle, operate engine for five minutes at 1500 RPM or until the engine water temperature reaches 180 degrees Fahrenheit. Shift the transmission slowly through all gear selector positions. Then return the transmission to neutral and the transfer case to high range.
6. Drive the vehicle 1.8 miles.
7. Idle engine an additional ten minutes before shutdown. Re-check for fluid leaks.
8. Extend and retract the 20k self-recovery winch cable to a length of 10-15 feet. Verify free wheel operation, hydraulics and electrical functions.
9. Check grease coating on all chromium plated and unpainted surfaces. If grease was wiped from chromium plates and unpainted surfaces when vehicle was moved, re-coat those surfaces.
10. Check air tanks for moisture; drain as needed.
11. Verify all lighting systems are operable during vehicle operation. Replace bulbs and switches as necessary.
12. Verify dash gauges are operable during vehicle operation. Replace gauges as necessary. (Excludes transmission temperature gauge/reading).
13. Note items checked and maintenance problems encountered on Truck Preventive Maintenance Record Form OTCGP004.A.

MAINTENANCE PROCEDURES FOR STORAGE OF GOVERNMENT VEHICLES AND TRAILERS (Cont'd)

A. VEHICLE MAINTENANCE PROCEDURE (cont'd)

14. Note corrective action completed for any of the maintenance problems by inserting badge number and date in the far right column.

15. Also, note if any loss, damage or destruction is found. Complete Form OTCGP008, as required, and forward the form to the OTC GPA as indicated.

B. VEHICLE MAINTENANCE PROCEDURE (cont'd)

90 WORKING DAYS

1. Perform all 45 day exercises, as well as:

2. Extend and retract the 60k self-recovery winch cable to a length of 20-25 feet. Verify free wheel operation, and hydraulic and electrical functions. (M984A1s only).

3. Extend and retract the 55k recovery winch cable to a length of 10-15 feet. Verify free wheel operation, air systems, hydraulics and electrical functions. (HET's only).

4. Set up crane for operations; exercise each directional controller three times in each direction. Function-test the crane and verify each function IAW labeled valves. Return all equipment to stowed position.

5. Extend and retract the wrecker recovery boom system. Cycle each of the three cylinders two times in each direction. Verify hydraulic and electrical functions. (M984A1s only).

6. Engage PTO for ten seconds at engine idle; verify operation of hydraulics. (M978 tankers only).

7. Verify air pressure in all tires, including spare. Inflate as necessary. (Non-CTI trucks only).

8. Set the central tire inflation controller to the lowest control setting. Cycle the CTI system through all settings, checking pneumatic and electrical functions.

By Order of the Secretary of the Army:

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

Official:

JOEL B. HUDSON

Administrative Assistant to the
Secretary of the Army
0021701

DISTRIBUTION: To be distributed in accordance with the Initial Distribution Number (IDN) 381062, requirements for TB 9-2320-279-14.

PIN: 077079-000