GENERAL

To ensure that the towing device is ready for operation at all times, it must be lubricated and inspected on a regular basis so that defects may be found before they result in serious damage, equipment failure, or injury to personnel. Table 4 contains systematic instructions on lubrications, inspections, adjustments, and corrections to be performed by Unit Maintenance to keep your equipment in good operating condition and ready for its primary mission.

EXPLANATION OF TABLE ENTRIES

1. **Item Number (Item No.) Column.** Numbers in this column are for reference. When completing DA Form 5988 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault. Item numbers also appear in the order you must perform checks and services for the interval listed.

2. **Interval Column.** This column tells you when you must perform the procedure in the procedure column.

   a. Semiannual procedures must be done once every six months.

   b. Annual procedures must be done once each year.

3. **Location, Item to Check/Service Column.** This column identifies the location and the item to be checked or serviced.

NOTE

The WARNINGS and CAUTIONS appearing in your PMCS table should always be observed. WARNINGS and CAUTIONS appear before applicable procedures. These WARNINGS and CAUTIONS must be observed to prevent serious injury to yourself and others or to prevent your equipment from being damaged.

4. **Procedure Column.** This column gives the procedure you must perform to check or service the item listed in the Item to Check/Service column to know if the equipment is ready or available for its intended mission or for operation. You must perform the procedure at the time stated in the interval column.

5. **Not Fully Mission Capable if: Column.** Information in this column tells you what fault will keep your equipment from being capable of performing its primary mission. If you make check and service procedures that show faults listed in this column, the equipment is not mission-capable. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

GENERAL PMCS PROCEDURES FOR THE XM20 FWTRD

1. Always perform PMCS in the same order so it gets to be a habit. Once you've had some practice, you'll spot anything wrong in a hurry. If any deficiency is discovered, perform the appropriate troubleshooting task in Chapter 4. If any component or system is not serviceable, or if the given service does not correct the deficiency, notify your supervisor.

2. Before performing preventive maintenance, read all the checks required for the applicable interval and prepare all tools needed to make all checks. Have several clean rags (Item 10, WP 0085 00) handy. Perform ALL inspections at the applicable interval.

    a. **Keep It Clean.** Dirt, grease, oil, and debris get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (Item 14, WP 0085 00) on all metal surfaces. Use detergent (Item 4, WP 0085 00) and water when you clean rubber, plastic, and painted surfaces.

    b. **Deterioration, Rust, and Corrosion.**

        (1) Be alert for deterioration of plastic and rubber materials. Report it to your supervisor.

        (2) Check metal parts for rust and corrosion. If any bare metal or corrosion exists, clean and apply a light coat of lubricating oil (Item 9, WP 0085 00). Report it to your supervisor.

    c. **Bolts, Nuts, and Screws.** Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition. You can't try them all with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find one you think is loose, tighten it.

    d. **Welds.** Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.

    e. **Electric Wires and Connectors.** Look for cracked or broken insulation, break wires, and loose or broken connectors. Tighten loose connectors and ensure that the wires are in good condition.

    f. **Fluid Leakage.** It is necessary for you to know how fluid leakage affects the status of your towing device. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your equipment. Learn and be familiar with them, and remember - when in doubt, notify your supervisor.

GENERAL PMCS PROCEDURES FOR THE XM20 FWTRD - Continued

Leakage Definitions

Class I	Leakage indicated by wetness or discoloration, but not great enough to form drops.
Class II	Leakage great enough to form drops, but not enough to cause drops to drip from the item being checked/inspected.
Class III	Leakage great enough to form drops that fall from the item being checked/inspected.

CAUTION

Operation is allowable with Class I and Class II leakage. WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR. When operating with Class I or Class II leaks, check components more frequently. Class III leaks must be reported immediately to your supervisor. Failure to do this will result in damage to vehicle and/or components.

PMCS INITIAL SETUP

1. **General**

   a. This paragraph lists tools, materials, and personnel required for PMCS and lubrication.

   b. No mandatory replacement parts are required while performing unit PMCS.

2. **Tools**

   a. Drain pan.

   b. General mechanic’s tool kit (Item 1, WP 0081 00, Section III).

   c. Shop equipment, Common No. 1 (Item 2, WP 0081 00, Section III).

   d. Prime mover, as required for specific tasks.

PMCS INITIAL SETUP - Continued

3. **Materials**

   a. Corrosion preventive (Item 3, WP 0085 00).

   b. Detergent (Item 4, WP 0085 00).

   c. Lubricating oil, OE/HDO 15W (Item 9, WP 0085 00).

   d. Rags (Item 10, WP 0085 00).

   e. Dry cleaning solvent (Item 14, WP 0085 00).

   f. Sealing compound (Item 12, WP 0085 00).

4. **Personnel**

   a. Driver/Operator.

   b. Unit Maintenance Mechanic.

LUBRICATION DATA

Lubricate in accordance with WP 0039 00.

Table 4. Unit Preventative Maintenance Checks and Services (PMCS) For The XM20 Fifth Wheel Towing Device

Item No.	Interval	Location Item To Check/ Service	Procedure	Not Fully Mission Capable If:
			WARNING  **Unless otherwise specified, perform all lubrication and preventative maintenance checks with fifth wheel towing device on level ground and uncoupled. Failure to follow this warning may result in injury or death to personnel.** **Be sure to wear the proper eye protection to avoid personal injury when you are doing Unit Preventative Maintenance Checks and Services (PMCS).** **NOTE** Perform all Operator PMCS, (WP 0005 00) as appropriate, while performing item No. 2 checks. Operate through all hydraulic functions to detect malfunctions.	
1	Semi-annual	Brake Air System	Check all air hoses for leaks, kinks, cracks, and missing mounting clamps	Leaks, kinks, or cracks evident.
2	Semi-annual	Hydraulic lines	Check all hydraulic hoses for leaks, kinks, bends, cracks, and missing mounting hardware. Ensure rubber shield around hoses is present and serviceable.	Leaks, kinks, or cracks evident. Shield is missing or unserviceable.
3	Annual	Hydraulic Fluid	Change hydraulic fluid (WP 0056 00)	
4	Annual Valve	Boom Safety	Position main frame 2 inches (5.1 cm) above a suitable support device. With all power OFF, operate BOOM valve lever to extend and retract positions.	Main frame contacts support device.

Table 4. Unit Preventative Maintenance Checks and Services (PMCS) for the XM20 Fifth Wheel Towing Device - continued.

Item No.	Interval	Location Item To Check/ Service	Procedure	Not Fully Mission Capable If:
5	Annual Valve	Mast Safety	Position main frame 2 inches (5.1 cm) above a suitable support device. With all power OFF, operate MAST valve lever to extend and retract positions.	Main frame contacts support device.
6	Annual	Cam Valve	Fifth wheel towing device in coupling position. MAST EXTEND until cam valve roller contacts cam plate on left boom.	Travel does not stop automatically.

UNIT PREVENTATIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

For the XM1250 TDRT and XM1234 HMRT

GENERAL

To insure that the TDRT/HMRT is ready for operation at all times, It must be inspected on a regular basis so that defects may be found before they result in serious damage, equipment failure, or injury to personnel. This section contains systematic instructions on inspections, adjustments, and corrections to be performed by the operator/crew.

While performing PMCS, read and follow all safety instructions in the warning summary at the front of this manual. Keep in mind all warnings and cautions throughout PMCS.

SERVICE INTERVALS

Perform PMCS, found in Table 5, at the following intervals:

M	• Monthly – once every month – 1,000 Miles
S	• Semiannual – once every 6 months- 6,000 miles
A	• Annual –once each year- 12,000 miles
T	• Triennial- every 3 years- 36,000 miles
MI	• Mileage- at the indicated mileage

REPORTING REPAIRS

All defects that the operator cannot fix must be reported on a DA Form 2404, Equipment Inspection and Maintenance Worksheet, or an electronic DA Form 5988E, if available, immediately after completing PMCS. If a serious problem is found, immediately report it to your supervisor. Remember, record any corrective actions taken.

GENERAL PMCS PROCEDURES

WARNING

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

Be sure to wear the proper eye protection when working with solvents to avoid personal injuries.

CAUTION

- **Do not use high-pressure water or steam to clean HMRT. use only low-pressure water and bristled brushes. Be especially careful when cleaning electrical system components to include lighting. Damage or impaired operation will result if this caution is not observed.**

- **Dielectric grease must be used on all electrical plug-ins, pins and contact points to prevent corrosion.**

Keep equipment clean. Dirt, oil, and debris may cover up a serious problem. Clean as you work and as needed. Use approved solvents on all metal surfaces. use soap and water on rubber, plastic, and painted surfaces. Spot paint as required to prevent corrosion.

GENERAL PMCS PROCEDURES (Cont.)

While performing specific PMCS procedures, inspect the following components:

Bolts, Nuts, and Screws. Ensure that they are not loose, missing, bent, or broken. Tighten any that are loose.

Welds. Inspect for gaps where parts are welded together. Check for loose or chipped paint, rust, and cracks. Report bad welds to Direct Support maintenance.

Electrical Conduit, Wires, and Connectors. Inspect for cracked or broken insulation, bare wires, and loose or broken connectors. Report loose connections and faulty wiring to your supervisor. Use dielectric grease on all pins and connectors.

Hose, Lines, and Fittings. Inspect for wear, damage, and leaks. Ensure that clamps and fittings are tight. If a component is broken or worn, correct the problem if authorized by the Maintenance Allocation Chart (MAC) (Appendix B). Report any damage, leaks, or loose fittings and clamps to your supervisor.

Check that components are adequately lubricated in accordance with Appendix C.

SPECIFIC PMCS PROCEDURES

Unit PMCS is provided in Table 5. Always perform PMCS in the order listed. Once it becomes a habit, anything that is not right can be spotted in a minute. PMCS is a good tool for learning about the semitrailer. Times to perform good PMCS will decrease as you become more familiar with its operation.

Before performing PMCS, read all the checks required for the applicable interval and prepare all the tools needed. Have several clean rags handy. Perform all inspections at the applicable interval.

The column headings in Table 5. are defined as follows:

Item No. Provides a logical sequence for PMCS to be performed and is used as a source of item numbers for the “TM ITEM NO.” column when recording PMCS results on DA Form 2404. Item numbers also appear in the order that you must perform checks and services for the intervals listed.

Interval. Specifies the interval at which PMCS is to be performed.

Item To Check/Service. Lists the system and common name of items that are to be inspected. Included in this column are specific servicing, inspection, replacement, or adjustment procedures to be followed.

Procedure. Provides the procedure that must be performed to check or service the item. Carefully follow these instructions. If you do not have the tools, have Unit maintenance perform the work.

Equipment Not Ready/Available If: Explains when the semitrailer is nonmission-capable.

NOTE

Mission requirements, urgency, safety, and common sense should be considered in determining NMC status of the semitrailer.

Table 5. Unit Preventative Maintenance Checks and Services (PMCS) for the XM1250 Tilt Deck Recovery Trailer (TDRT) and XM1234 High Mobility Recovery Trailer (HMRT)

Item No.	Interval M S A T MI	Location / Item To Check/ Service	Procedure	Not Fully Mission Capable If:
			NOTE • **Perform Operator/Crew PMCS prior to, or in conjunction with Unit PMCS if there is a delay between daily operation of the equipment and the Unit PMCS or regular operator is not assisting/participating.** • **Clean axle and suspension system with low-pressure water and fiber brush to allow for careful inspection.**	
1	M S A T MI First 1000	Suspension Initial Torque	Torque Suspension Nuts to the following In-service dry torque values: 1-1/8" - 12 UNF 880 lb-ft (1193 Nm) 3/4 " - 16 UNF 300 lb-ft (407 Nm) 5/8" – 18 UNF 180 lb-ft (244 Nm) **NOTE** **New replacement installations/hardware should have wet (oiled) fasteners. The following wet torque values apply:** **1-1/8" - 12 UNF 670 lb-ft (908 Nm)** **3/4 " - 16 UNF 220 lb-ft (298 Nm)** **5/8" – 18 UNF 130 lb-ft (176 Nm)** **If fastener sizes other than those listed here are to be torqued refer to the Torque Table Supplement for those values.**	Torque service requirements/schedule are not met.NMC if nuts, bolts, are damaged.

Table 5. Unit Preventative Maintenance Checks and Services (PMCS) for the XM1250 Tilt Deck Recovery Trailer (TDRT) and XM1234 High Mobility Recovery Trailer (HMRT)

Item No.	Interval M S A T MI	Location / Item To Check/ Service	Procedure	Not Fully Mission Capable If:
2	M S A T MI Every 6,000	Landing Legs (TDRT)	Check that the landing leg assist springs are properly in place and that they are not damaged or missing. Check that the locating pins are not damaged and their "R" clips are not missing. With the FWTRD connected to the TDRT, Lift and lower the legs to check for smooth operation.	Springs, pins are missing or damaged. Legs do not lift or lower smoothly.
			NOTE **While this applies to both the TDRT and HMRT, be aware that the HMRT has more connections to inspect due to the modular axle assembly. Be sure to carefully inspect the connections for the trailer you are using.**	
3	M S A T MI Every 6000	Main Electrical Harness and all Electrical Connections	Check the condition of electrical harness for wear, frayed insulation, corrosion, and that connectors are secured. Use corrosion preventive compounds (dielectric) on all electrical contacts.	Harness is worn through, corroded, or unsecured. Electrical Connections are loose or corroded.
4	M S A T MI Every 6000	Suspension	a. Check serviceability of suspension hardware. Check for wear and damage. Notify Unit support	Threads are worn or hardware damaged.
			b. Torque suspension nuts to the following in-service DRY torque values: 1-1/8" - 12 UNF 880 lb-ft (1193 Nm) 3/4 " - 16 UNF 300 lb-ft (407 Nm) 5/8" – 18 UNF 180 lb-ft (244 Nm)	Threads are worn or hardware damaged.
			c. New replacement installations/hardware should have wet (oiled) fasteners. The following wet torque values apply: 1-1/8" - 12 UNF 670 lb-ft (908 Nm) 3/4 " - 16 UNF 220 lb-ft (298 Nm) 5/8" – 18 UNF 130 lb-ft (176 Nm)	Suspension nuts not torqued.

Table 5. Unit Preventative Maintenance Checks and Services (PMCS) for the XM1250 Tilt Deck Recovery Trailer (TDRT) and XM1234 High Mobility Recovery Trailer (HMRT)

Item No.	Interval M S A T MI	Location / Item To Check/ Service	Procedure	Not Fully Mission Capable If:
5	M S A T MI Every 6,000	Lift Axle Torque Arm (TDRT)	Check the torque for the bolts securing the top mounting plate of the lift axle torque arm. Torque to the following DRY value: 1/2" – 20 UNF 120 lb-ft (162 Nm)	Torque arm mounting plate bolts not torqued.
6	M S A T MI Every 6,000	Leaf Springs and Attaching Parts	a. Check for missing or damaged hangers, end caps, spring seats, adjustment plates, and hardware. b. Check for the following: 1. One or more of the leaves in any spring assembly are broken. 2. Any leaf or portion of any leaf in any spring assembly is missing or broken. 3. Any broken main leaf in a spring assembly. **NOTE** **The three bottom leaves of each spring pack are the main leaves in each pack.**	Leaf spring attachments or hardware is missing. Leaf or leaves are not replaced. Leaf is missing or separated. Main leaf is not replaced.
7	M S A T MI Every 6000	Hubodometer	Check hubodometer bracket and gage for looseness and missing hardware. Torque gage nut to 15 lb-ft (20.3 Nm) max. **CAUTION** • **Do not use paints or solvents on hubodometer polycarbonate face.** • **Do not stand on hubodometer.** **NOTE** **If hubodometer has a bent or stripped stud, case damage, improper bracket, or hardware or case tampering, it will not perform properly.**	

Table 5. Unit Preventative Maintenance Checks and Services (PMCS) for the XM1250 Tilt Deck Recovery Trailer (TDRT) and XM1234 High Mobility Recovery Trailer (HMRT)

Item No.	Interval M S A T MI	Location / Item To Check/ Service	Procedure	Not Fully Mission Capable If:
8	M S A T MI Every 6,000	Hub Caps	Check hub caps (4- HMRT, 6-TDRT) for leaks, damage, and missing hardware. Torque nuts to 15 lb-ft (20.3 Nm) max **NOTE** **Inside of hub caps should have a light coat of grease. Do not plug vent hole.**	
			WARNING • **No disassembly of air brake chamber is authorized. Before any work is performed on the spring brake system, chock the wheel front and rear to prevent semitrailer movement. When inspecting or caging air brake chambers, do not position yourself in front of, or in line with the chamber. Serious injury or death may occur if this warning is not followed.** • **Discarded air brake chambers must be safely and properly disposed of. They should be disarmed prior to disposal to prevent present and future injury.**	
9	M S A T MI Every 6,000	Air Brake Chamber	Clean and visually inspect clamp bands, castings (case), and fasteners for looseness, damage, and missing hardware or leaking air.	Hardware is loose or missing or castings are damaged or leaking air.
10	M S A T MI Every ? 36,000	Brake Drums	Check drums for cracking, heat discoloration, grooving, elongated bolt holes, out-of-round or worn beyond re-bore limit on drum. Notify Direct Support maintenance concerning wear, re-boring and out-of-round conditions.	Drum is cracked, severely overheated, has elongated holes or is out of round.

Table 5. Unit Preventative Maintenance Checks and Services (PMCS) for the XM1250 Tilt Deck Recovery Trailer (TDRT) and XM1234 High Mobility Recovery Trailer (HMRT)

Item No.	Interval M S A T MI	Location: Item To Check/ Service	Procedure	Not Fully Mission Capable If:
11	M S A T MI Every ? 36,000	ABS Sensors (TDRT)	**CAUTION** **Tap sensor to tone ring using a wood rod only. A metal rod will damage components.** Check that sensor pick-ups are lightly touching tone ring, or have a gap of no more than 0.040 in. (1.02 mm) between the tone ring and pick-up end.	
12	M S A T MI Every ? 36,000	Brake Systems	a. Check brake lining thickness, springs, anchor pins, bushings, and rollers for damage and wear. **WARNING** **Do not allow brake lining to wear to the point that rivets touch the drum. This condition can cause brake failure, injury to personnel and damage to equipment.** **CAUTION** **To ensure a balanced braking system, both brake assemblies on an axle end should have like repairs accomplished at the same time.** b. See WP 0039 00 for lubrication points.	Linings are worn to limit. Springs, anchor pins, bushings, and rollers are damaged or worn.
13	M S A T MI Every ? 36,000	“S” Cams	Check for wear and damage to spline, bushings, cam lobes, and retaining brackets. Replace bushings.	Damage/wear affects operation.

Table 5. Unit Preventative Maintenance Checks and Services (PMCS) for the XM1250 Tilt Deck Recovery Trailer (TDRT) and XM1234 High Mobility Recovery Trailer (HMRT)

Item No.	Interval M S A T MI	Location: Item To Check/ Service	Procedure	Not Fully Mission Capable If:
			WARNING • **The triennial (3 years) 36,000 miles check/services is based on normal operation. Conditions identified such as hot brake drums, leakage/seepage of spindle/hub grease, brake lock-up, wheel end noise/damage, and impact damage will require inspection and repair be performed when the incident occurs, not at service interval. Failure to comply can cause injury to personnel and damage to the equipment.** • **A hot brake can cause serious burns. Exercise extreme caution before attempting to touch brake drum after use. Slowly move hand toward drum. If drum is overheated, radiated heat will be felt before actually touching the drum.**	
14	M S A T MI Every ? 36,000	Hubs	Clean and check hubs for wear and damage, including tone rings. Replace hub with tone ring if damaged or worn.	Hub or tone ring is worn or damaged.