C4

CHANGE
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., *15 July 1997*

LUBRICATION ORDER
FOR

CARRIER, PERSONNEL, FULL TRACKED, ARMORED, M113A2
2350-01-068-4077
CARRIER, COMMAND POST, LIGHT TRACKED, M577A2
2350-01-068-4089
CARRIER, MORTAR, 107-MM, M30; SELF-PROPELLED, M106A2
2350-01-069-6931
CARRIER, MORTAR, 81-MM, M29A1; SELF-PROPELLED, M125A2
2350-01-068-4087
CARRIER, SMOKE GENERATOR, FULL TRACKED, M1059
2350-01-203-0188
CARRIER, MORTAR, 120-MM, SELF-PROPELLED, M1064
2350-01-3383116
CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM, M1068
2350-01-354-5657

LO 9-2350-261-12, 10 July 1990, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the page.
3. Added or revised illustrations are indicated by a pointing hand adjacent to the illustration.

Remove Pages	*Insert Pages*
CARD 1 and CARD 2	CARD 1 and CARD 2
CARD 7 and CARD 8	CARD 7 and CARD 8
CARD 19 and CARD 20	CARD 19 and CARD 20
CARD 29 and CARD 30	CARD 29 and CARD 30

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

Approved for public release; distribution is unlimited.

By Order of the Secretary of the Army:

DENNIS REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
03776

DISTRIBUTION:

To be distributed in accordance with the initial distribution number (IDN) 371685 requirements for LO 9-2350-261-12.

C3

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D. C., *28 January 1994*

LUBRICATION ORDER
FOR

CARRIER, PERSONNEL, FULL TRACKED, ARMORED, M113A2
2350-01-068-4077

CARRIER, COMMAND POST, LIGHT TRACKED, M577A2
2350-01-068-4089

CARRIER, MORTAR, 107-MM, M30; SELF-PROPELLED, M106A2
2350-01-069-6931

CARRIER, MORTAR, 81-MM, M29A1; SELF-PROPELLED, M125A2
2350-01-068-4087

CARRIER, SMOKE GENERATOR, FULL TRACKED, M1059
2350-01-203-0188

CARRIER, MORTAR, 120-MM, SELF-PROPELLED, M1064
2350-01-338-3116

CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM, M1068
2350-01-354-5657

LO 9-2350-261-12, 10 July 1990, is changed as follows:

1. Title is changed to reflect added new item of equipment, Carrier, Standardized Integrated Command Post System, M1068.
2. Remove old pages and insert new pages as indicated below.
3. New or changed material is indicated by a vertical bar in the margin of the page.
4. Added or revised illustrations are indicated by a pointing hand adjacent to the illustration.

Remove Pages	*Insert Pages*
CARD 1 and CARD 2	CARD 1 and CARD 2
CARD 1 of 32 and CARD 2 of 32	CARD 1 of 32 and CARD 2 of 32
CARD 7 of 32 and CARD 8 of 32	CARD 7 of 32 and CARD) 8 of 32
CARD 13 of 32 and CARD 14 of 32	CARD 13 of 32 and CARD 14 of 32
CARD 15 of 32 and CARD 16 of 32	CARD 15 of 32 and CARD 16 of 32
CARD 31 of 32 and CARD 32 of 32	CARD 31 of 32 and CARD 32 of 32

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

By Order of the secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Offical:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
06119

DISTRIBUTION:

To be distributed in accordance with DA Form 12-37-E. Block 1685, requirements for LO 9-2350-261-12

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D. C., *23 March 1992*

TECHNICAL MANUAL
LUBRICATION ORDER
FOR

CARRIER, PERSONNEL, FULL TRACKED, ARMORED M113A2
2350-01-068-4077
CARRIER, COMMAND POST, LIGHT TRACKED, M577A2
2350-01-068-4089
CARRIER, MORTAR, 107-MM, M30; SELF-PROPELLED, M106A2
2350-01-069-6931
CARRIER, MORTAR, 81-MM, M29A1; SELF-PROPELLED, M125A2
2350-01-068-4087
CARRIER, SMOKE GENERATOR, FULL TRACKED, M1059
2350-01-203-0188
CARRIER, MORTAR, 120-MM, M121; SELF-PROPELLED, M1064
2350-01-338-3116

LO 9-2350-261-12, 10 July 1990, is changed as follows:

1. Remove old cards and insert new cards as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the card.
3. Added or revised illustrations are indicated by a pointing hand adjacent to the illustration.

Remove Pages	*Insert Pages*
Card 1 and Card 2	Card 1 and Card 2

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

By Order of the Secretary of the Army

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administatwe Assistant to the
Secretary of the Army

Distribution: 00618

To be distributed in accordance with DA Form 12–37–E, Block 1685, Operator, Unit maintenance requirements for LO 9–2350–261–12.

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., *26 August 1991*

This copy is a reprint which includes current pages from Change 1.

LUBRICATION ORDER
CARRIER, PERSONNEL, FULL TRACKED, ARMORED, M113A2
2350-01-068-4077
CARRIER, COMMAND POST, LIGHT TRACKED, M577A2
2350-01-068-4089
CARRIER, MORTAR 107-MM, M30; SELF-PROPELLED, M106A2
2350-01-069-6931
CARRIER, MORTAR, 81-MM, M29A1; SELF-PROPELLED, M125A2
2350-01-068-4087
CARRIER, SMOKE GENERATOR, FULL TRACKED, M1059
2350-01-203-0188

TM 9-2350-261-12, 10 July 1990, iS changed as follows:

1. **Remove old pages and insert new pages aS indicated below.**
2. **New or changed material is indicated by a vertical bar in the margin of the page.**
3. **Added or revised illustration are indicated by a pointing hand adjacent to the illustration.**

Remove Pages	*Insert Pages*
1 of 32 thru 4 of 32	1 of 32 thru 4 of 32
7 of 32 thru 10 of 32	7 of 32 thru 10 of 32
17 of 32 thru 22 of 32	17 of 32 thru 22 of 32
25 of 32 and 26 of 32	25 of 32 and 26 of 32
29 of 32 thru 32 of 32	29 of 32 thru 32 of 32

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

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

PATRICIA P. HICKERSON
Brigadier General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-37-E, Block 1685, Operator and Unit Maintenance Requirements for LO 9-2350-261-12.

CARRIER, PERSONNEL, FULL TRACKED, ARMORED, M113A2:
2350-01-068-4077
CARRIER, COMMAND POST, LIGHT, TRACKED, M577A2:
2350-01-068-4089
CARRIER, MORTAR, 107-MM, SELF-PROPELLED, M106A2:
2350-01-069-6931
CARRIER, MORTAR, 81-MM, SELF-PROPELLED, M125A2:
2350-01-068-4087
CARRIER, SMOKE GENERATOR, FULL TRACKED, M1059:
2350-01-203-0188
CARRIER, MORTAR, 120-MM, SELF-PROPELLED, M1064:
2350-01-338-3116
CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM, M1068:
2350-01-354-5657

Reference: TM 9-2350-261-10; TM 9-2350-261-20; TM 11-7010-256-12&P; PAM 738-750 ; IL 9100SL; TB 43-0211; FOR ARCTIC OPERATIONS, FM 9-207; FOR DESERT OPERATIONS, FM 90-3; FOR MOUNTAIN OPERATIONS, FM 90-6

REPORTING OF ERRORS

You can improve this publication by calling attention to errors, recommending improvements and by stating your reasons for the recommendations. Your letter or DA Form 2028, Recommended Changes to Publications and Blank Forms, should be mailed directly to Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-AC-NML, Rock Island, IL 61201-9948. A reply will be furnished directly to you.

Intervals (on-condition or hard time) and the related man-hour times are based on normal operation. The man-hour time specified is the time you need to do all the services prescribed for a particular interval. Hard time intervals will be indicated by one of the following symbols as appropriate: Daily (D), Weekly (W), Monthly (M), Semiannually (S), and Annually (A). On-condition (OC) oil sample intervals shall be applied unless changed by the Army Oil Analysis Program (AOAP) Laboratory. Change the hard time interval if lubricants are contaminated or if you are operating equipment under adverse operating conditions, including longer-than-usual operating hours. The hard time intervals may be extended during periods of low

Distribution Notice:
Approved for public release; distribution is unlimited.

activity if adequate preservation precautions are taken. Hard time intervals will be applied to oil changes in the event AOAP Laboratory support is not available.

NOTE

Hard time intervals will always apply to oil filter elements.

On-condition (OC) AOAP Laboratory deter-mined oil change intervals shall be applied instead of hard time intervals such as hourly, calendar, or mileage, unless otherwise notified. The services will be required when directed by an Army Oil Analysis Program (AOAP) Laboratory which has analyzed the oil for serviceability.

WARNING

Dry cleaning solvent PD-680 is toxic and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes and clothes, and do not breathe vapors. Keep away from heat and flame. Never smoke when using solvent; the flash point for Type I dry cleaning solvent is 100°F (380C) and for Type II is 138°F (500°C). Failure to do so may result in injury or death.

Clean fittings before lubricating. Clean parts with dry cleaning solvent, PD-680, Type III. Dry before lubricating.

Level of maintenance. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following symbols as appropriate: Operator/Crew (C); and Unit Maintenance (O). Unless specifically identified, all procedures apply to M113A2, M577A2, M106A2, M125A2, M1059, M1064, and M1068 carriers.

NOTE

Park carrier on level ground to check oil levels. Check/lubricate all oil and grease fitting points after washing or fording.

ARMY OIL ANALYSIS PROGRAM (AOAP)

AOAP is an effective maintenance diagnostic tool and not a maintenance substitute. TB 43-0211 must not be interpreted to mean AOAP minimizes, in any way, the need to employ good maintenance practices and strong maintenance disciplines.

SAMPLING REQUIREMENTS

Samples may be taken without WARMING a component to operating temperature if the equipment has been operated within the last 30 days. If the equipment has not been operated within the last 30 days, the components must be brought to operating temperature. These requisites apply to both routine and special sampling. Oil samples must not be taken immediately after oil is added. When oil sampling valve is not available to take oil sample, use a vampire pump.

SAMPLING PROCEDURES

1. Perform DAILY operation checks and services.

NOTE

DO NOT ADD OIL immediately prior to taking oil samples. When operation checks and services indicate the need to replenish oil levels WAIT until after taking samples. New oil added immediately prior to taking samples or before pro-longed operation of components will adversely effect oil analysis results.

2. Obtain two sample bottles (NSN 8125-01-082-9697) and two DA Form 2026s from the unit AOAP monitor.

3. Start engine (TM 9-2350-261-10). If required (refer to Sampling Requirements), operate carrier to bring engine and transmission up to normal operating temperatures.

4. Stop carrier and lock steering levers (TM 9-2350-261-10).

5. Place range selector in N position and keep engine running.
6. Remove driver's power plant access panel (TM 9-2350-261-10).
7. With engine running remove dust caps from engine and transmission oil sampling valves.
8. Open sample valve on engine oil filter and drain a small amount of oil into a container to clear valve of grit and contamination. (Properly dispose of container and oil upon completion of sample taking.) Fill sampling bottle to the neck shoulder and seal it. Attach DA Form 2026 to sample bottle.
9. Close oil sample valve and install dust cap.
10. Take oil sample from transmission in the same manner (steps 7 thru 9).
11. Stop engine (TM 9-2350-261-10).
12. Install driver's compartment power plant access panel and secure carrier.
13. Deliver sample bottles to the unit AOAP monitor.

NOTE
For location of nearest AOAP Laboratory and complete information about AOAP, refer to TB 43-0210.

LUBRICATION TABLE

The lubrication table on cards 4 and 5 summarizes the types of lubricants and quantities used on the carrier. Charts A thru E, referred to in the table, are located at the back of this Lubrication Order.

KEY

LUBRICANT	CAPACITIES	EXPECTED TEMPERATURE	INTERVALS
OE/HDO Lubricating Oil, ICE (MIL-L-2104) OEA Lubricating Oil, ICE, Arctic (MIL-L-46167)		SEE CHART A	OC —On Condition Service When Directed by AOAP Laboratory
Engine	18 qt. (17.1 L)		
Transfer Gearcase	2.5 qt. (2.4 L)		
Differential	20 qt. (19.0 L)		
Final Drives	3.5 qt. (3.3 L)		D — Daily
Fan Gearbox	1 pt. (.47 L)		
Ramp Wire Rope	As Required		W — Weekly
Oil Can Points	As Required		
Transmission	16 qt. (15.2 L)	SEE CHART B	M — Monthly
GAA Grease, Automotive and Artillery (MIL-G-10924)		GAA (G-403) ALL TEMPERATURES	S — Semiannually 150 Hours, or 1500 Miles
Towing Pintle & Steering Control Lever	As Required		
Universal Joint	As Required		A — Annually 300 Hours, or 3000 Miles
Road & Idler Wheel Bearings	As Required		
Road & Idler Wheel Support Arm Bearings	As Required		
FRH Hydraulic Fluid, Rust Inhibited, Fire Resistant, Synthetic Hydrocarbon Base (MIL-H-46170)		SEE CHART C	
Pivot Steer System	1 pt. (.47 L)		
Ramp System	2 qt. (1.9 L)		

LUBRICATION ORDER LO 9-2350-261-12

10 JULY 1990

(Supersedes LO 9-2350-261-12, July 1985)

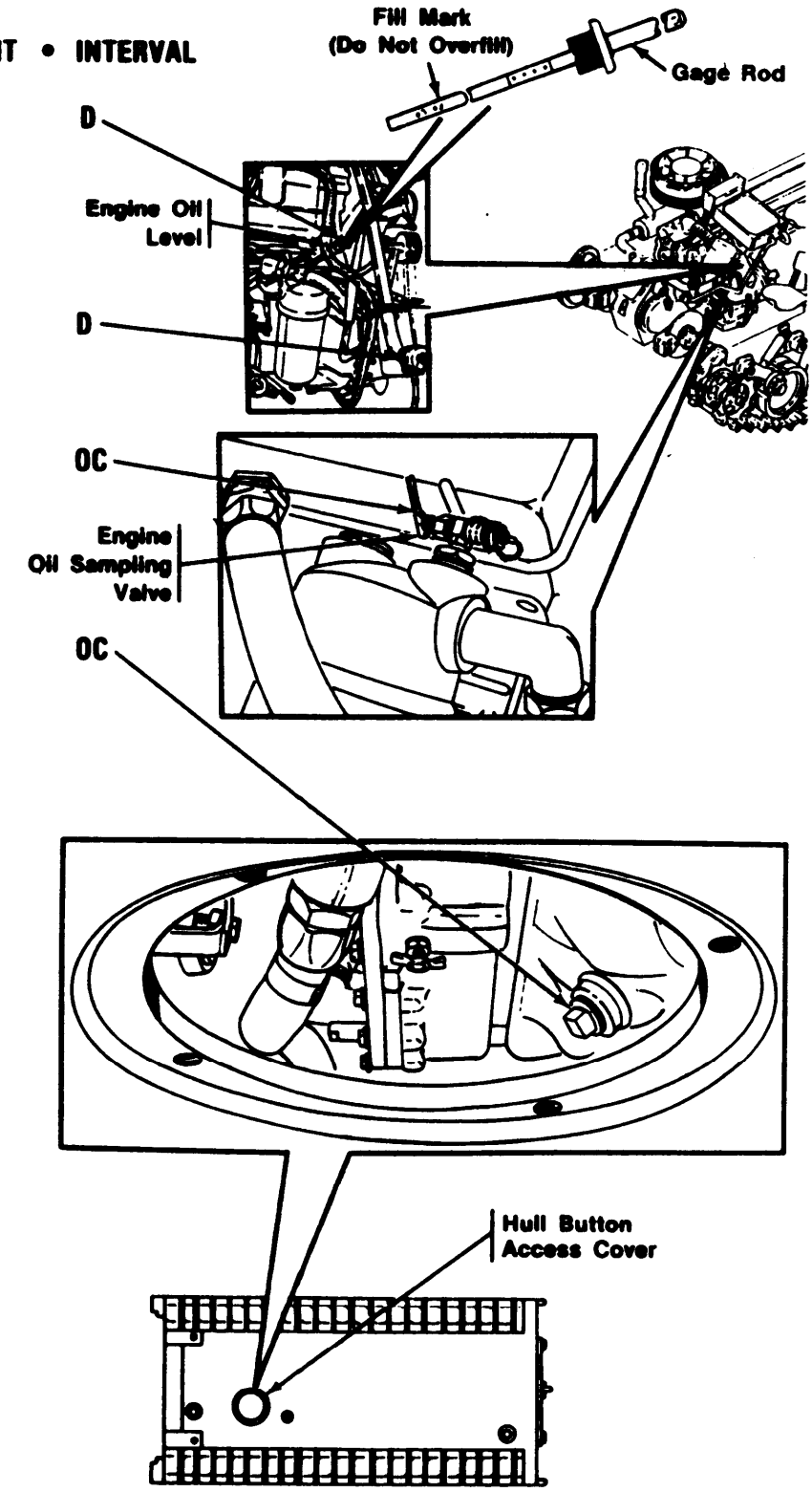
KEY

LUBRICANT	CAPACITIES	EXPECTED TEMPERATURE	INTERVALS
GIA (MIL-G-23827) Grease, Aircraft and Instrument, Gear and Actuator Screw		GIA (G-354) ALL TEMPERATURES	**OC** — On Condition Service When Directed by AOAP Laboratory
Tachometer and Speedometer Shaft	As Required		
CW-II (VV-L-751) Lubricating Oil: Chain, Wire Rope, and Exposed Gear		SEE CHART D	**D** — Daily
GO (MIL-L-2105) Lubricating Oil, Gear Multipurpose			**W** — Weekly
Ramp Wire Rope	As Required		**M** — Monthly
PL-S (VV-L-800) Lubricating Oil, General Purpose, Preservative, Water Displacing, Low Temperature		SEE CHART E	**S** — Semiannually 150 Hours, or 1500 Miles
PL-M (MIL-L-3150) Lubricating Oil, Preservative, Medium Machine Gun Mount & Bipod Assembly	As Required		
CLP (MIL-L-63460) Lubricant, Cleaner and Preservative, For Weapons and Weapon Systems	As Required	**CLP** (S-758) ALL TEMPERATURES	**A** — Annually 300 Hours, or 3000 Miles

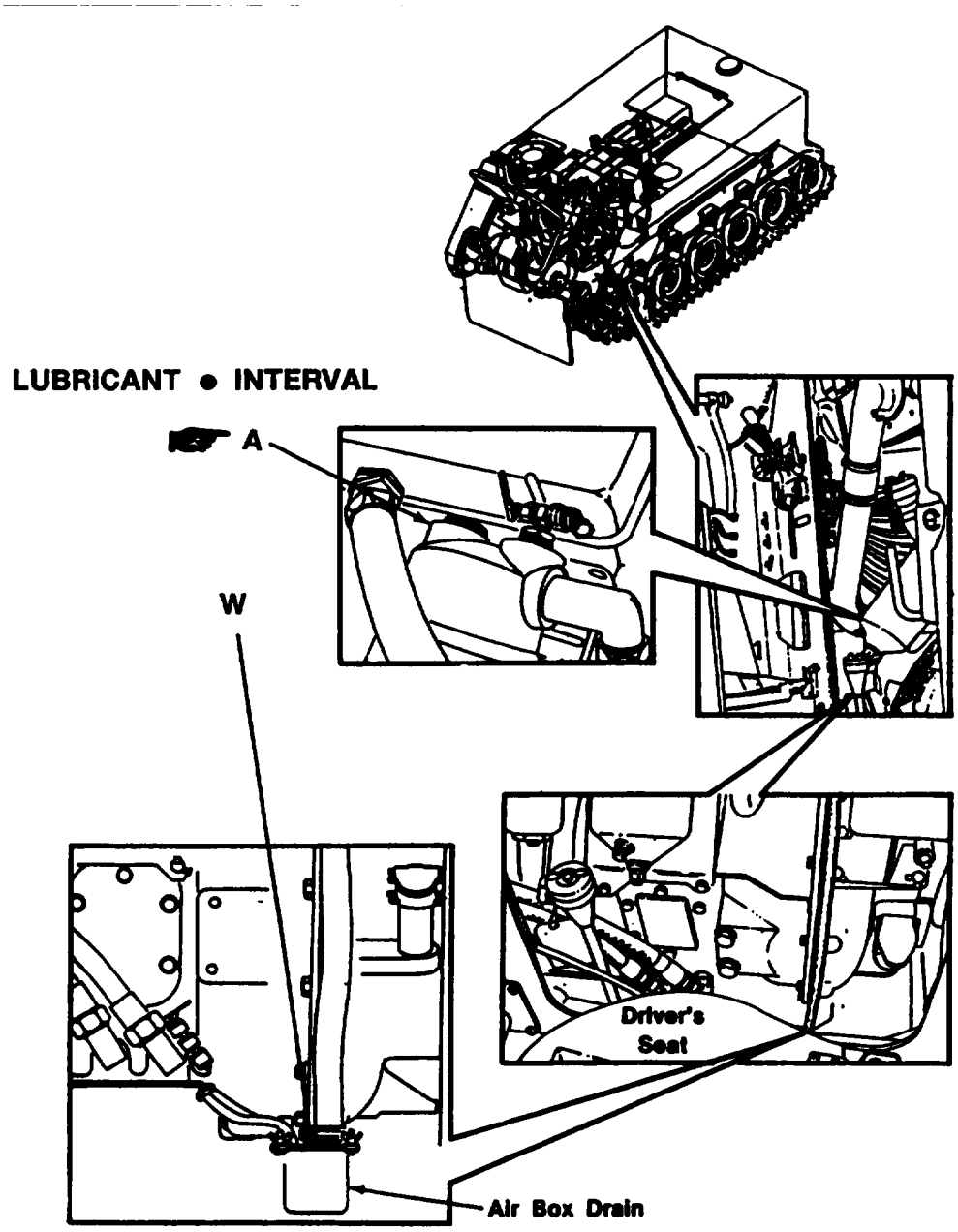
KEY NOTES:

1. **DEXTRON II** may be used when expected temperatures are above -40°F (-40°C). For temperatures below -40°F (-40°C) use OEA meeting specification MIL-L-46167.

	LUBRICANT	• INTERVAL
ENGINE OIL LEVEL (Check Level) (See NOTES 3 & 9) (C)	OE/HDO	D
ENGINE OIL FILL (See NOTES 1, 2 & 3) (C)	OE/HDO	D
ENGINE OIL SAMPLE (See NOTES 4 & 5) (O)	-	OC
ENGINE OIL DRAIN (See NOTES 7 & 8) (O)	-	OC



TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.3
OC	0.5



ENGINE OIL FILTER (See NOTE 6) (0)
AIR BOX DRAIN (See NOTE 10) (C)

TOTAL MAN-HR	
INTERVAL	MAN-HR
W	0.2
A	0.3

NOTES

1. Do NOT mix OE/HDO-15W40 with single grade lubricants.
2. Complete oil change with filters is required when converting from OE/HDO 15W40 to OEA (PE-30-1) to OE/HDO 15W40 or OEA; OEA to OE/HDO 15W40: etc.) in accordance with Temperature Key Chart.

CAUTION

Engine can be damaged if filled above F (FULL) mark.

NOTE

Park carrier on level ground to check oil levels. Check/lubricate all oil and grease fitting points after washing or fording.

3. ENGINE OIL LEVEL. Before starting engine, check for oil level between F and L marks on gage rod. Oil level should not *RS be above F (FULL) mark or below L (LOW) mark. *RE
4. FREQUENCY OF AOAP SAMPLE. Every 60 days, obtain a sample of engine oil and send to the nearest AOAP Laboratory. For additional reference see TB 43-0210 and TM 9-2300-422-23&P. Routine samples are to be submitted at prescribed intervals. Samples should be taken as near the prescribed interval as possible. If sampling at the prescribed interval is not possible, a 10 percent variance before or after the scheduled interval date, or miles for sampling is permissible. The need for On-condition oil changes will be determined by the AOAP Laboratory.
5. HARD TIME INTERVAL. If AOAP Laboratory support is not available, drain oil and change filter element/gasket every 1500 miles or annually. The hard time interval may be shortened if you are operating the equipment under adverse conditions.
6. ENGINE OIL FILTER. Filter element will be replaced each time an engine oil change is required (TM 9-2350-261-20). The filter element will be changed on hard time interval. When the AOAP laboratory identifies to replace the oil, reset the hard time interval for the filter element.

WARNING

Hot parts can burn you. Use care when you work near hot power unit.

NOTE

Drain oil only when hot after engine operation. Allow oil to drain thoroughly.

Visual inspection of engine oil should not be justification to replace oil. Modern detergent engine oils, especially in diesel engines, may appear dark/black in color due to additives.

7. ENGINE OIL DRAIN AND FILTER ELEMENT REPLACEMENT.
   a. Remove hull bottom access cover (TM 9-2350-261 -20).
   b. Place a suitable container under engine oil pan.
   c. Remove plug from engine oil pan and drain oil into container.
   d. Inspect plug and oil for metallic particles. If metal chips are found. notify direct support maintenance.
   e. Clean and install drain plug in engine oil pan.
   f. Remove the driver's access panel (TM 9-2350-261 -10).
   g. Remove drain plug, filter cover, gasket. and filter element.

NOTES (cont)

WARNING

Dry cleaning solvent bums easily, can cause skin rash, and can give off harmful vapors. To avoid injury, keep away from open fire and use in well-ventilated area. Wear protective clothing and rubber gloves.

h. Clean inside of cover with dry cleaning solvent (PD-680, Type II).

i. Install new filter element and gasket. Install filter cover. Make sure gasket is not crimped and forms a tight seal. Install drain plug.

j. Fill engine with approximately 18 quarts of OE/HDO or OEA, as listed above, to bring level between F and L marks on gage rod.

8. OPERATIONAL CHECK

a. Start engine (TM 9-2350-261-10) and check for oil leaks at filter and drain plug with engine running. Stop engine.

b. Inspect hull bottom access cover and replace if damaged (TM 9-2350-261-20).

c. Install hull bottom access cover (TM 9-2350-261-20).

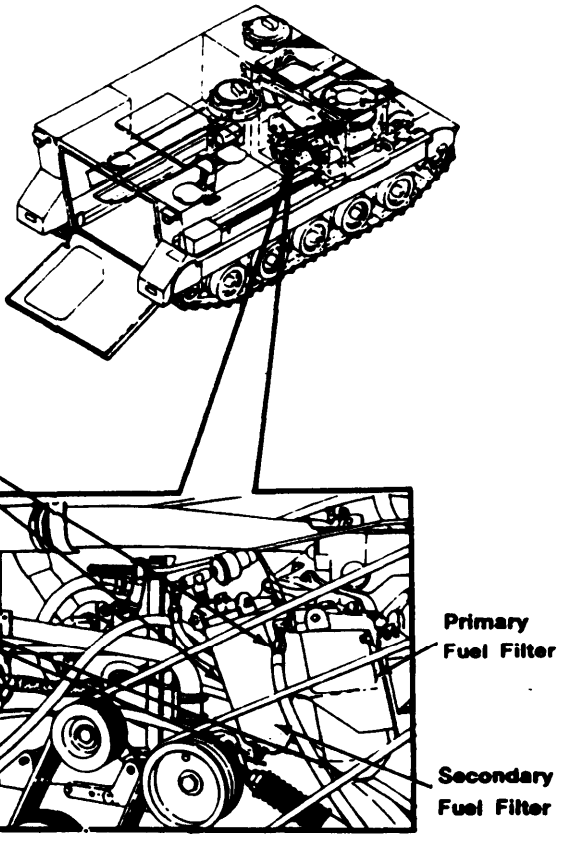
d. Install the driver's access panel (TM 9-2350-261-20).

9. PRESERVATION OIL. If engine has been filled with preservation oil (MIL-L-21260, Grade PE 30-1) by the manufacturer or at the time of overhaul, leave this oil in engine until first scheduled oil change. Maintain operating oil level by adding required quantity of applicable oil (OE/HDO or OEA). When first scheduled oil change is made, refill engine with applicable grade of oil (OE/HDO or OEA). See NOTES 6 and 7.

WARNING

Dry cleaning solvent burns easily, can cause skin rash, and can give off harmful vapors. To avoid injury, keep away from open fire and use in well-ventilated area. Wear protective clothing and rubber gloves.

10. AIR BOX DRAIN AND AIR BOX RECEPTACLE. Weekly, remove engine access cover and empty receptacle. To remove receptacle, remove two thumbscrews and lower receptacle slowly. Empty receptacle and remove element. Clean element and inside of receptacle with dry cleaning solvent (PD-680, Type II and install TM 9-2350-261-20).



LUBRICANT ● INTERVAL

FUEL FILTER CHANGE (2 places) (See NOTE 2) (O) - A

FUEL FILTER DRAIN (2 places) (See NOTE 1) (C) - D

TOTAL MAN-HR	
INTERVAL	MAN-HR
A	0.3
D	0.3

NOTES

WARNING

Fuel is flammable. Always use in area with good air flow, away from heat or flames. Do not breathe fumes. If fuel gets on hands, wash them. If fuel gets in eyes, flush with water and get medical help. Keep fire extinguisher nearby.

1. FUEL FILTER DRAIN. Before operation, drain water and sediment from primary and secondary fuel filters as follows:
   a. Remove rear power plant access panels (TM 9-2350-261-10).
   b. Place suitable container under primary fuel filter. Open drain cock and drain water and sediment from primary fuel filter. When clean fuel starts to drain out, close drain cock.
   c. Repeat step b. for secondary fuel filter.
   d. Check for fuel leaks at primary and secondary fuel filters while engine is running. If leak is found, notify unit maintenance.
2. FUEL FILTER CHANGE. Annually or every 1,500 miles, replace fuel filter elements as follows:
   a. With engine stopped and master switch OFF, place suitable container under fuel filters and drain filters.
   b. Remove primary filter shell first and then secondary fuel filter shell Clean inside of shells and install new elements into shells.
   c. Pre-fill primary and secondary shells with fuel and install shells.
   d. Install rear power plant access panels (TM 9-2350-261-10). If engine will not start or hesitates, the problem may be trapped air. Drain fuel filters (see NOTE 1).

LUBRICATION ORDER

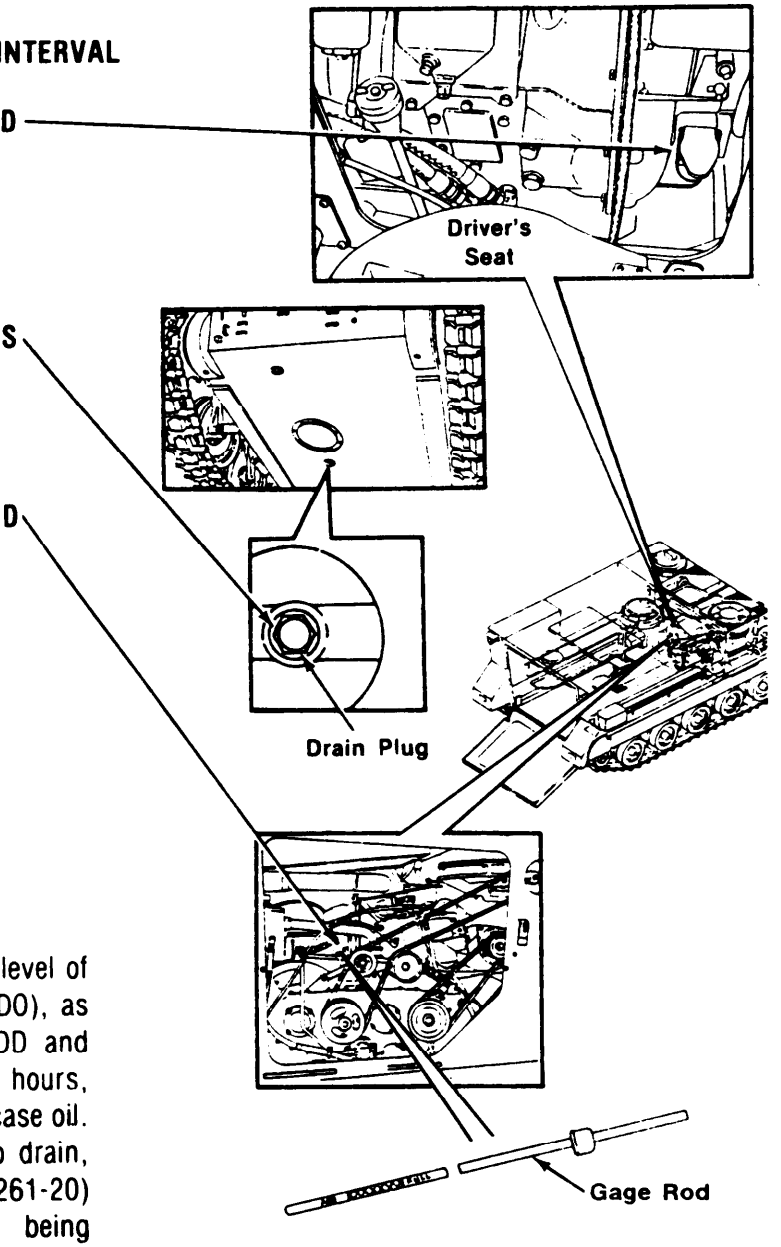
LO 9-2350-261-12

10 JULY 1990

(Supersedes LO 9-2350-261-12, July 1985)

	LUBRICANT	• INTERVAL
TRANSFER GEARCASE FILL (See NOTE 1) (C)	OE/HDO	D
TRANSFER GEARCASE DRAIN (See NOTE 1) (O)	-	S
TRANSFER GEARCASE (Check Level) (See NOTE 1) (C)	OE/HDO	D

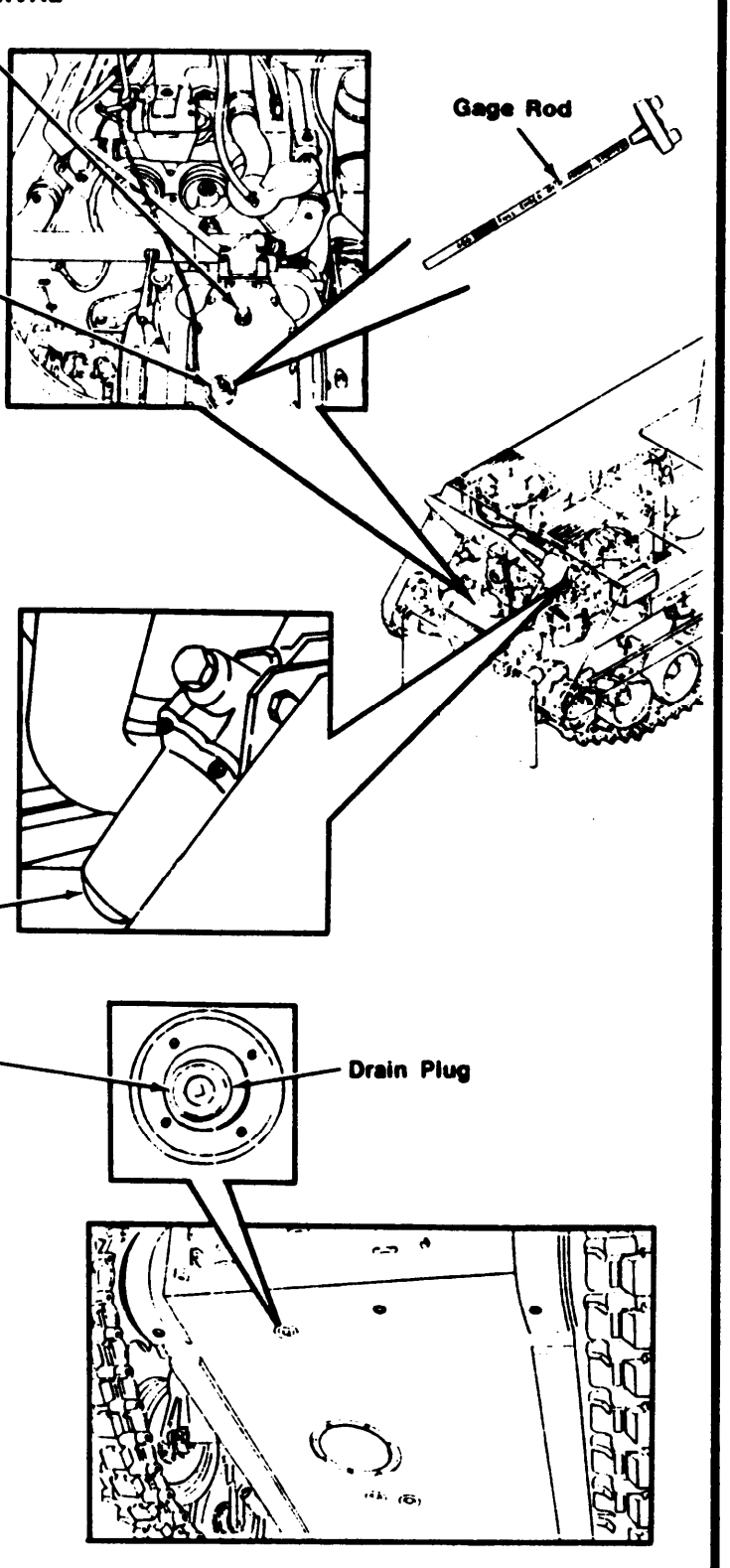
TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.2
S	0.5



NOTES

1. TRANSFER GEARCASE. Daily, check level of oil in transfer gearcase. Add oil (OE/HDO), as needed, to bring oil level between ADD and FULL marks on gage rod. Every 150 hours, 1500 miles, or semiannually, drain gearcase oil. Drain only when hot after operation. To drain, remove the hull drain plug (TM 9-2350-261-20) and gearcase drain plug. Check oil being drained for metallic particles. If metal chips are found in oil, notify direct support maintenance. Drain at least 15 minutes. Fill transfer gearcase with approximately 2-1/2 quarts oil (OE/HDO). Make sure gearcase filler cap is closed. Start engine and operate for 1 minute. Stop engine and check oil level. Level should be between FULL and ADD markson gage rod. Install hull drain plug securely.

	LUBRICANT	• INTERVAL
DIFFERENTIAL BREATHER REMOVE, CLEAN, DRY, AND INSTALL (See NOTE 1) (O)		S
DIFFERENTIAL FILL AND LEVEL (Check Level) (See NOTE 2) (O)	OE/HDO	D
DIFFERENTIAL OIL FILTER (See NOTE 3) (O)	-	S
DIFFERENTIAL DRAIN (See NOTE 2) (O)	-	S



TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.2
S	0.2

NOTES

WARNING

Solvent burns easily, can cause skin rash, and can give off harmful vapors. To avoid injury, keep away from open fire and use in well-ventilated area. Wear protective clothing and rubber gloves.

1. DIFFERENTIAL BREATHER. Every 150 hours, 1500 miles, or semiannually, remove and clean breather with dry cleaning solvent (PD-680, Type II). Dry and install breather (TM 9-2350-261 -20).

NOTE

Do not use AOAP on differential. There are metal particles in brake shoe material that can give a false reading.

2. DIFFERENTIAL. Before operation, check differential oil level to be sure there is enough oil for warmup operation. Add oil only if level is below safe range. Add oil (OE/HDO) as needed. Drain differential every 100 hours, 1500 miles, or semiannually. Drain only when hot after operation. To drain, remove front hull drain plug (TM 9-2350-261-20) and differential drain plug. Check differential drain plug for metallic particles. If metal chips are found, notify direct support maintenance.

3. DIFFERENTIAL OIL FILTER. Filter is to be cleaned each time a differential oil change is required. Clean differential oil filter every 150 hours, 1500 miles, or semiannually, as follows:

   a. Remove four nuts, flat washers, and screws securing filter body on head, and remove body (TM 9-2350-261 -20).

   b. Remove element.

WARNING

Dry cleaning solvent burns easily, can cause skin rash, and can give off harmful vapors. To avoid injury, keep away from open fire and use in well-ventilated area. Wear protective clothing and rubber gloves.

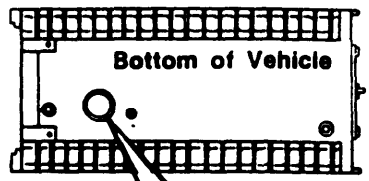
   c. Clean housing and element with dry cleaning solvent (PD-680, Type II) and install element and housing.

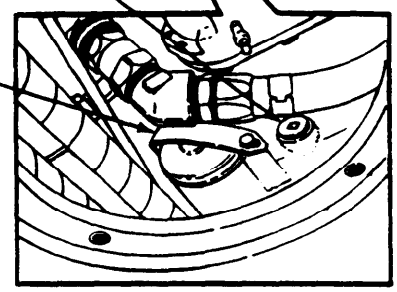
   d. If element or preformed packings are unserviceable, install new packings and element, using differential oil filter kit.

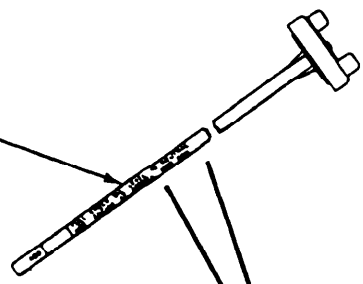
   e. Install element and body on head, and secure with four screws, flat washers, and nuts. Tighten nuts to 4 to 6 pound-feet torque.

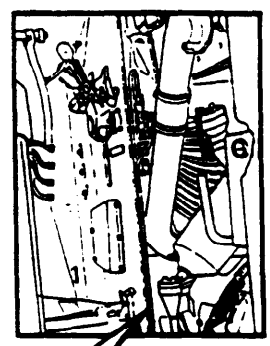
   f. Fill differential and check for oil leaks at filter with engine running.

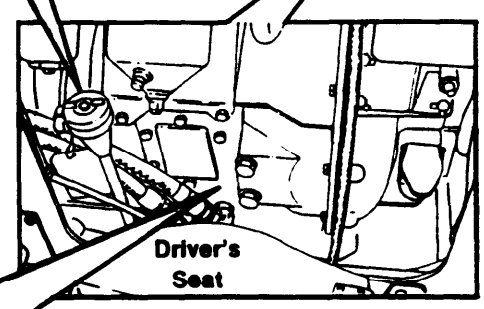
	LUBRICANT	INTERVAL
TRANSMISSION DRAIN (See NOTES 2, 4, 5, 7, 8 & 9) (O)	-	OC
TRANSMISSION OIL FILTER (See NOTE 6) (O)	-	S
TRANSMISSION FILL AND LEVEL (Check Level) (See NOTES 1 & 3) (C)	OE/HDO	D

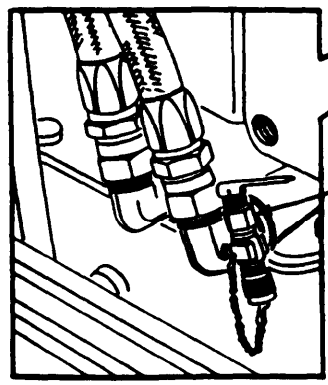






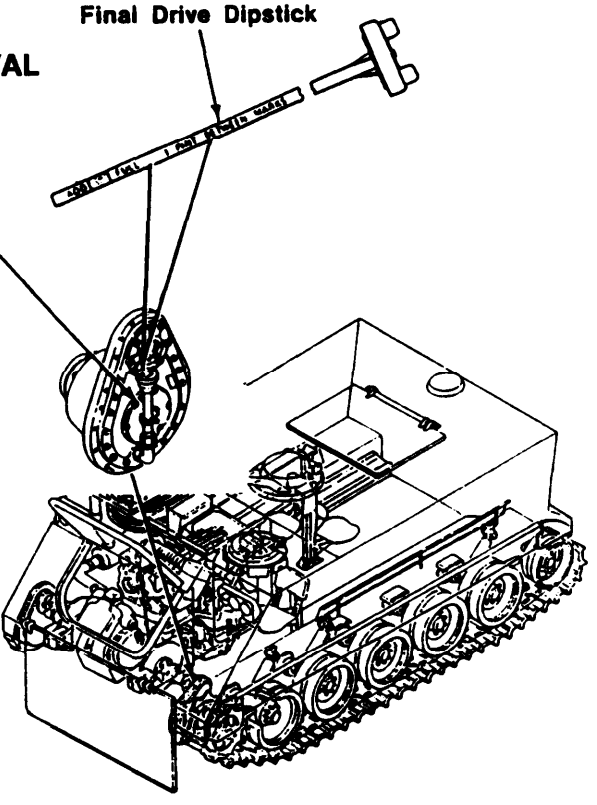


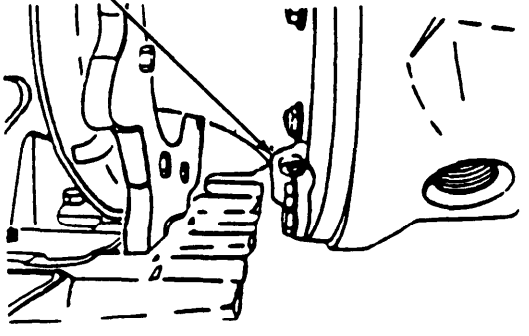




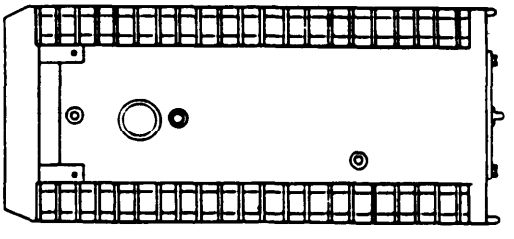
TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.2
OC	0.5
S	0.5

	LUBRICANT	INTERVAL
FINAL DRIVE FILL AND LEVEL (Check Level) (See NOTE 10) (C)	OE/HDO	D
FINAL DRIVE DRAIN (See NOTE 11) (O)		S





TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.2
S	0.5



Bottom of Vehicle

NOTES

1. Do NOT mix OE/HDO 15W40 with single grade lubricants.
2. Complete oil change with filters is required when converting from OE/HDO 15W40 to OEA (or OEA to OE/HDO 15W40) in accordance with Temperature Key Chart.

NOTE

Park carrier on level ground to check oil levels. Check/lubricate all oil and grease fitting points after washing or fording.

CAUTION

Transmission can be damaged if filled above FULL mark. Check transmission oil level before operation. Transmission oil level should not be above FULL marks on gage rod.

3. TRANSMISSION OIL LEVEL. Before operation, check transmission oil level. Remove driver's access panel (TM 9-2350-261-10). Add oil (OE/HDO), as needed, to bring oil level between ADD and FULL marks on gage rod. With engine disconnect engaged, start and run engine at 800 rpm for 3 to 5 minutes with shift lever in 2-3 and brakes locked to allow transmission oil to reach normal operating temperature. With engine idling, move shift lever through all ranges to assure complete circulation. Return shift lever to N, and check transmission oil level with engine operating at 1500 rpm.
4. FREQUENCY OF AOAP SAMPLE: Every 60 days, obtain a sample of transmission oil and send to the nearest AOAP Laboratory. For additional reference see TB 43-0210 and TM 9-2300-422-23&P. Routine samples are to be submitted at prescribed intervals. Samples should be taken as near the prescribed interval as possible. If sampling at the prescribed interval is not always possible, a 10 percent variance, before or after the scheduled interval date or miles for sampling, is permissible. The need for on-condition oil changes will be determined by the AOAP Laboratory. Hard time intervals will always apply to the transmission oil filter element.
5. HARD TIME INTERVAL. If AOAP Laboratory support is not available, drain transmission every 150 hours, 1500 miles, or semiannually. Drain only when hot after operation.
6. TRANSMISSION OIL FILTER. Replace filter element (TM 9-2350-261-20) each time a transmission oil change is required. The filter element will be changed on a hard time interval. When the AOAP laboratory identifies to replace the oil, reset the hard time interval for the filter element.

NOTE

Visual inspection of transmission oil should not be justification to replace oil. Modern detergent transmission oils may appear dark in color due to additives.

7. TRANSMISSION OIL DRAIN AND FILTER ELEMENT REPLACEMENT.

NOTE

Drain oil only when hot after operation. Allow oil to drain thoroughly for 1 hour, if time permits.

a. Remove hull bottom access cover (TM 9-2350-261-20).
b. Place suitable container under transmission drain plug.
c. Remove plug from transmission and drain oil into container. Allow oil to drain thoroughly for 1 hour, if time permits.
d. Inspect plug and oil for metallic paflicles. If metal chips are found, notify direct support maintenance.

NOTES (cont)

e. Clean and install drain plug in the transmission.

f. Remove element, clean cavity with dry cleaning solvent (PD-680, Type II) and install new element. After filling transmission, check for oil leaks at filter with engine running.

g. Fill transmission with approximately 16 quarts (refill capacity) of OE/HDO or OEA (Card 15) to bring level between FULL and ADD marks on gage rod.

8. OPERATIONAL CHECK.

a. Start engine (TM 9-2350-261-10) and check for oil leaks at transmission filter cover and drain plug. Recheck oil level.

b. Inspect hull bottom access cover, and replace if damaged (TM 9-2350-261-20).

c. Install the bottom access cover (TM 9-2350-261-20).

d. Install the driver's access panel TM 9-2350-261-10).

9. TRANSMISSION OIL FLUSH PROCEDURE. Use the following procedure when changing oil grade or when oil is contaminated:

NOTE
Transmission oil must be flushed when changing oil grades.

a. Operate carrier until coolant reaches normal operating temperature.

NOTE
Do not change transmission oil filter at this time.

b. Drain transmission oil.

c. Fill transmission with new grade oil.

d. Operate transmission in 1-3 range with engine idling for 5-6 minutes.

e. Drain oil and change transmission oil filter.

f. Fill transmission with new grade oil.

g. Check oil level.

10. FINAL DRIVES. Weekly (W), check oil in both final drives for level between ADD and FULL marks on gage rod. Add applicable OE/HDO or OEA, in accordance with Temperature Key Chart, as required.

NOTE
Drain only when hot after operation.

11. FINAL DRIVE OIL DRAIN. Drain final drives every 1500 miles, or semiannually.

a. Place suitable container under final drive housing.

b. Remove drain plugs from final drive housing and drain oil into container (TM 9-2350-261-20).

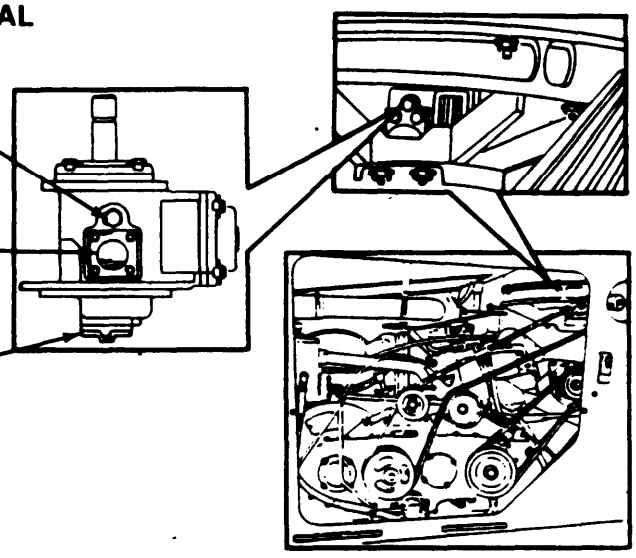
c. Inspect drain plugs and oil for metallic particles. If metal chips are found, notify direct support maintenance.

d. Clean and install drain plug (TM 9-2350-261-20).

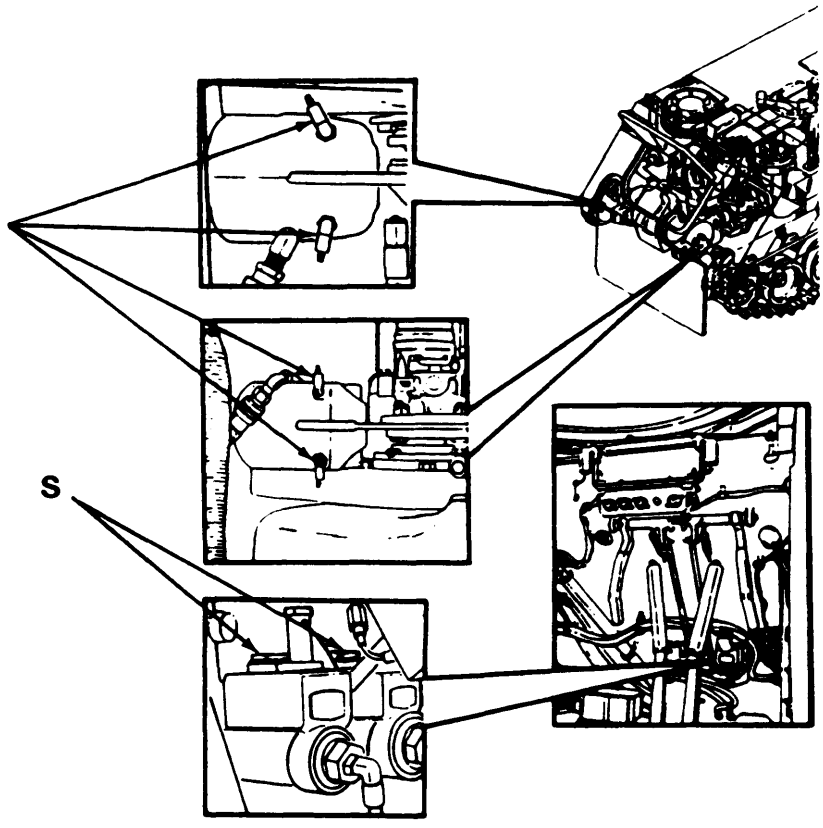
e. Fill each final drive with OE/HDO or OEA, as applicable, adding proper amount to bring level between FULL and ADD marks on gage rod. Each final drive takes approximately 3-1/2 quarts.

NOTE
Do not substitute hydraulic fluid for OE/HDO or OEA. Red dye has been added to some final drives to help detect leaks.

	LUBRICANT	INTERVAL
FAN GEARBOX FILL (See NOTE 1) (O)	OE/HDO	S
FAN GEARBOX CHECK LEVEL (C)	OE/HDO	D
FAN GEARBOX OIL DRAIN (See NOTE 2) (O)	-	S



PIVOT STEER BLEEDER VALVES (See NOTE 4) (O)	DO NOT LUBRICATE	
PIVOT STEER MASTER CYLINDER (See NOTES 3 & 4) (O)	FRH	S



TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.2
S	0.3

NOTES

1. FAN GEARBOX. Daily check fan gearbox oil level. Add OE/HDO or OEA, as needed, to bring oil level to center of sight glass.
2. FAN GEARBOX OIL DRAIN. Drain fan gearbox every 1500 miles or semiannually, as follows:

NOTE

Drain oil only when hot after operation.

a. Place suitable container under fan gearbox drain.
b. Remove drain plug and preformed packing from gearbox housing and drain oil into container. Discard packing.
c. Check drain plug and oil for metallic particles and foreign matter. If metal chips are found, notify unit maintenance.
d. Clean drain plug and apply antiseize compound (TM 9-2350-261-20).
e. Lubricate new preformed packing with OE/HDO prior to installing.
f. Install drain plug with new preformed packing in gearbox housing.
g. Fill gearbox with approximately 10 ounces of OE/HDO to bring the level to center of sight glass.

WARNING

Fire resistant hydraulic (FRH) fluid may contain Tricresyl Phosphate which, if taken internally, can produce paralysis. Hydraulic fluid may be absorbed through the skin. Wear long sleeves, gloves, goggles, and face shield. If FRH gets in eyes, wash them immediately and get medical aid immediately. If FRH gets on your skin, thoroughly wash with soap and water. Wash hands thoroughly prior to eating or smoking. Application of these measures is considered an effective control of the hazard.

CAUTION

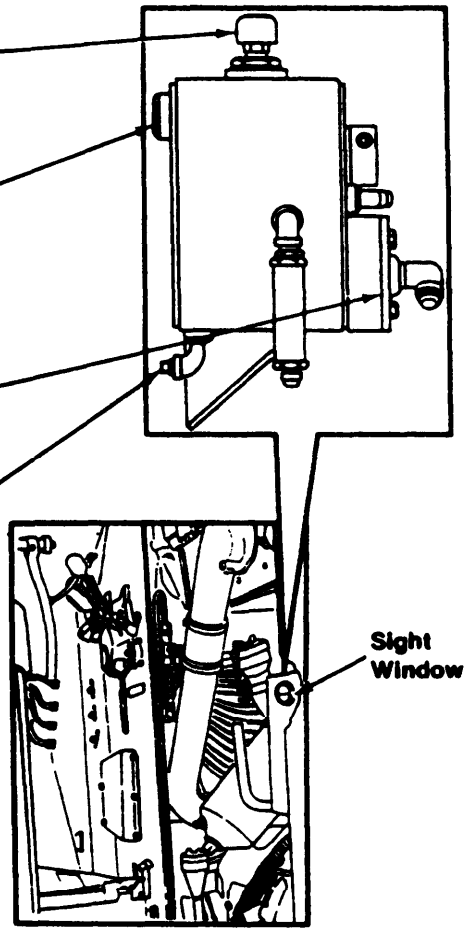
Use only FRH hydraulic fluid. Do not mix different types of hydraulic fluids. Do NOT overfill.

CAUTION

Do NOT grease pivot steer bleeder valves.

3. PIVOT STEER SYSTEM. Remove plugs and check fluid level in both master cylinders every 150 hours, 1500 miles, or semiannually (TM 9-2350-261-20). Add fluid, as required, to bring fluid within 1/2 to 3/4 inch from top of cylinder.
4. PIVOT STEER FLUSH. Flush pivot steer system, when hydraulic fluid is contaminated or when fluid type is changed, as follows:
   a. Remove fill plugs, open bleeder valves, and drain hydraulic fluid into a suitable container.
   b. Close bleeder valves and fill pivot steer system with hydraulic fluid.
   c. Bleed pivot steer system and add hydraulic fluid as needed. Install fill plugs.
   d. Move pivot steer levers back and forth several times.
   e. Remove fill plugs, open bleeder valves, and drain hydraulic fluid into suitable container.
   f. Close bleeder valves and fill pivot steer system with new hydraulic fluid.
   g. Bleed pivot steer system and add hydraulic fluid as needed. Install fill plugs.
   h. Test pivot steer system.

	LUBRICANT	INTERVAL
HYDRAULIC TANK FILL AND BREATHER (See NOTE 1) (C)	FRH	D
HYDRAULIC TANK CHECK LEVEL (See NOTE 1) (C)	FRH	D
HYDRAULIC TANK FILTER (See NOTE 2) (O)	FRH	S
HYDRAULIC TANK DRAIN (See NOTE 2) (O)	FRH	S



TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.2
S	1.0

NOTES

WARNING

Fire resistant hydraulic (FRH) fluid may contain Tricresyl Phosphate which, if taken internally, can produce paralysis. Hydraulic fluid may be absorbed through the skin. Wear long sleeves, gloves, goggles, and face shield. If FRH gets in eyes, wash them immediately and get medical aid immediately. If FRH gets on your skin, thoroughly wash with soap and water. Wash hands thoroughly prior to eating or smoking. Application of these measures is considered an effective control of the hazard.

CAUTION

Use only FRH hydraulic fluid. Do not mix different types of fluid. Do NOT overfill.

1, HYDRAULIC SYSTEM TANK. With ramp down and carrier on level ground, check hydraulic fluid level. Fluid level should be halfway in sight glass. To add hydraulic fluid, remove fill plug and preformed packing from top of tank. Add hydraulic fluid as needed. Install fill plug and new preformed packing.

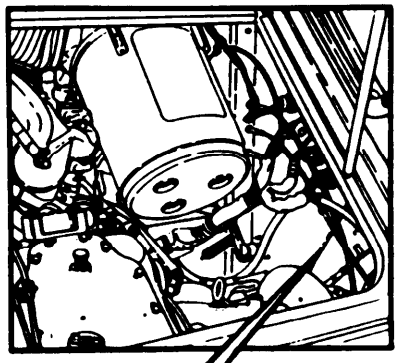
WARNING

Dry cleaning solvent burns easily, can cause skin rash, and can give off harmful vapors. To avoid injury, keep away from open fire and use in well-ventilated area. Wear protective clothing and rubber gloves.

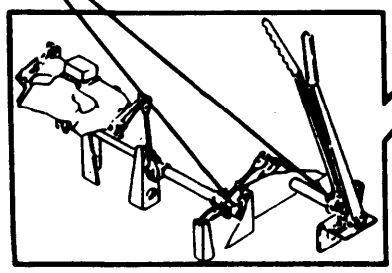
CAUTION

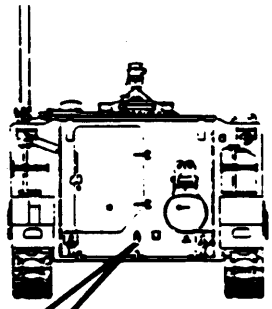
Do NOT use compressed air to dry filter, Damage will result.

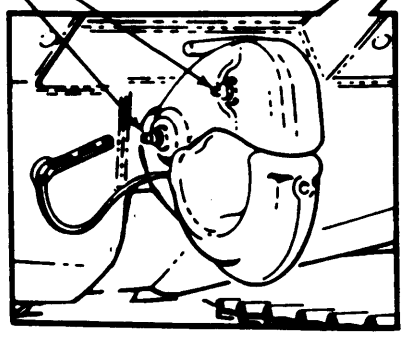
2. HYDRAULIC TANK DRAIN. Drain hydraulic system tank and service strainer every 1500 miles, semiannually, or when hydraulic fluid type is changed. Drain hydraulic system tank as follows:
   a. Lower ramp (TM 9-2350-261-10).
   b. Place suitable container of at least 2 gallon capacity under drain elbow on bottom of tank, and remove plug.
   c. Disconnect hose at filter adapter elbow. Remove four machine bolts and key washers that secure filter adapter to tank. Discard key washers. Remove filter and preformed packing from adapter. Discard packing. Wash adapter thoroughly in cleaning solvent (PD-680, Type II).
   d. Clean interior of tank through the adapter opening with dry cleaning solvent (PD-680, Type II) and clean cloth.
   e. Install new filter and packing on adapter. Secure adapter to tank with four new key washers and four machine bolts. Connect hose to adapter elbow.
   f. Fill tank with FRH fluid (2 quarts) to bring level between MAX and MIN marks.
   g. Operate ramp and check for leaks.



	LUBRICANT	INTERVAL
STEERING CONTROL LEVER (See NOTE 1) (O)	GAA	S
TOWING PINTLE (See NOTE 2) (O)	GAA	S







TOTAL MAN-HR	
INTERVAL	MAN-HR
S	0.2

NOTES

1. STEERING CONTROL LEVER. Every 150 hours, 1500 miles, or semiannually, lubricate steering control lever shaft bearing with GAA.

NOTE

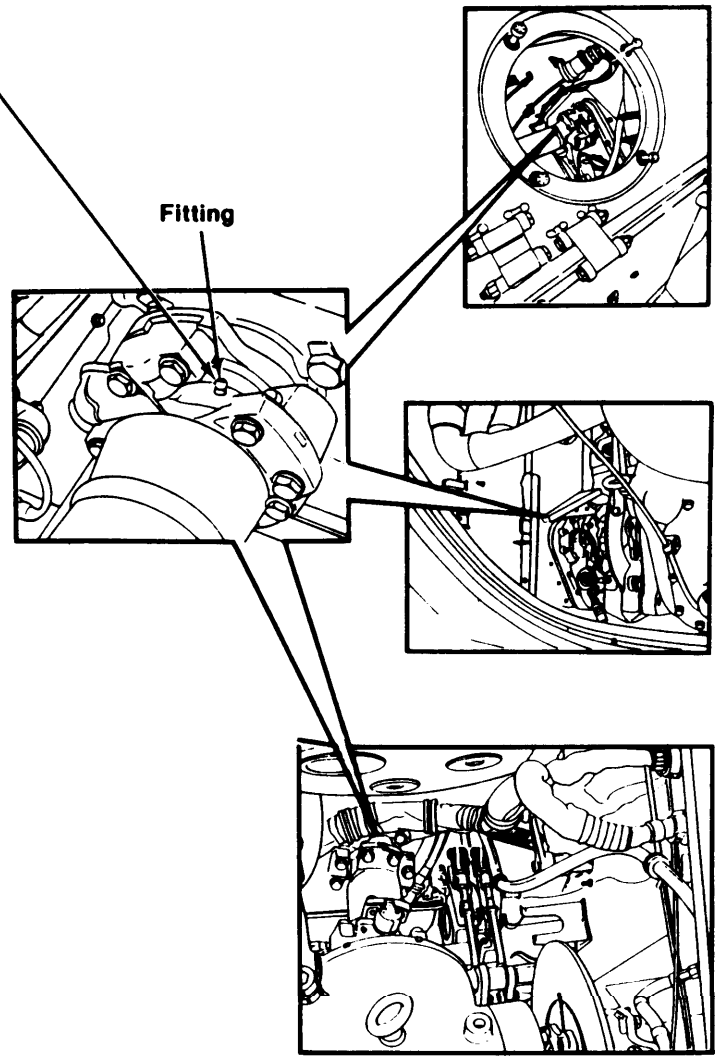
Late model towing pintles do not have grease fittings and do not require lubrication.

2. TOWING PINTLE. Every 1500 miles or semiannually, lubricate pintle through two fittings with GAA.

LO 9-2350-261-12

(Supersedes LO 9-2350-261-12, July 1985)

	LUBRICANT	INTERVAL
UNIVERSAL JOINT (See NOTE 1) (0)	GAA	S



TOTAL MAN-HR	
INTERVAL	MAN-HR
S	0.2

NOTES

WARNING

Dry cleaning solvent burns easily, can cause skin rash, and can give off harmful vapors. To avoid injury, keep away from open fire and use in well-ventilated area. Wear protective clothing and rubber gloves.

1. UNIVERSAL JOINTS. Every 150 hours, 1500 miles, or semiannually, lubricate all universal joints and propeller shaft bearings with grease (GAA) (6 places). Each universal joint spider has two fittings, but only one of each pair of fittings requires lubrication. Clean fittings with dry cleaning solvent (PD-680, Type II) prior to lubrication. Check /lubricate grease fitting points after washing or fording.

NOTE

When grease fitting will not accept GAA, notify unit maintenance.

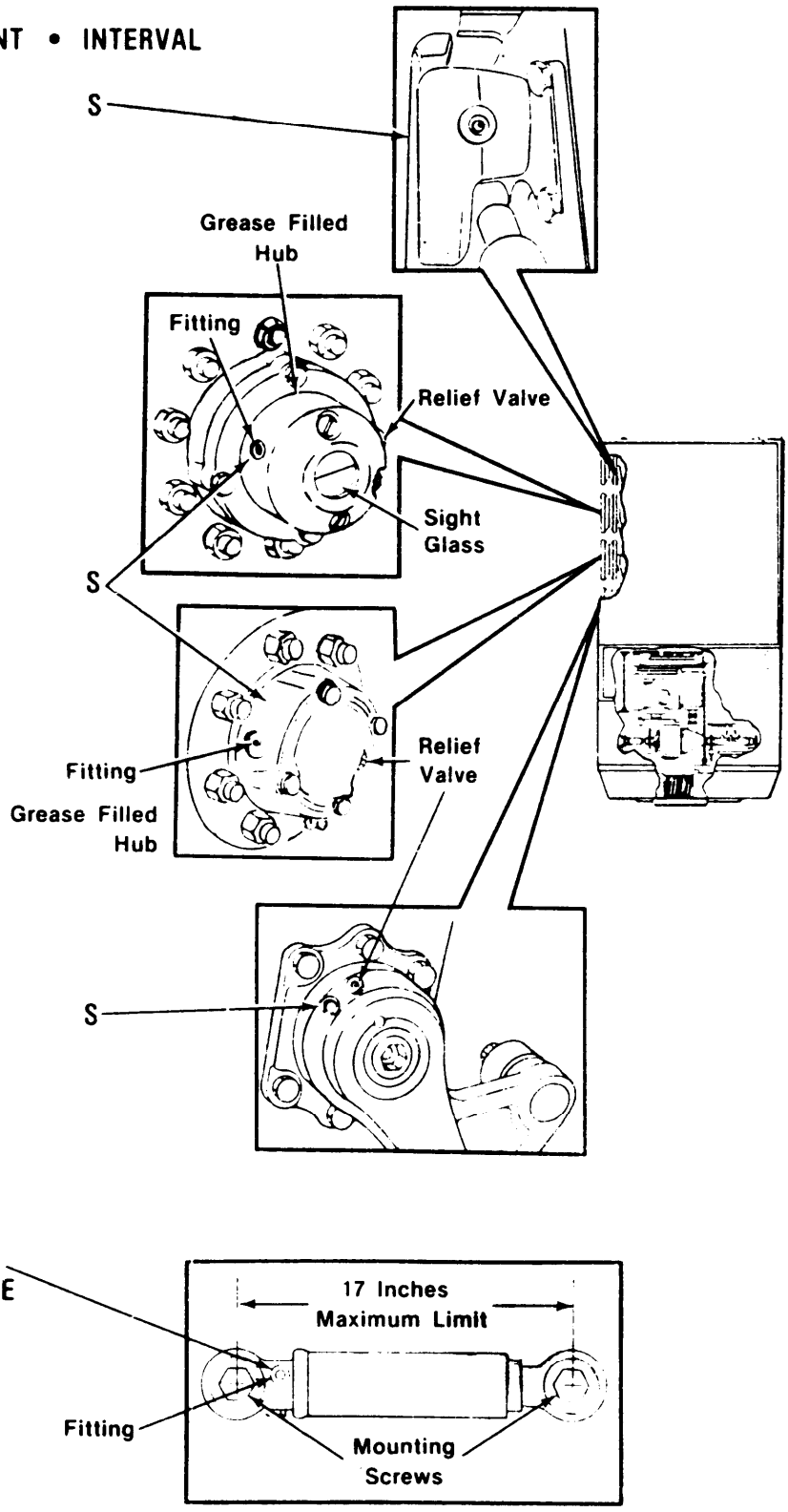
LUBRICANT • INTERVAL

IDLER WHEEL SUPPORT ARM BEARINGS (2 places) (See NOTES 1 & 4) (C) — **GAA** — **S**

ROAD WHEEL AND IDLER WHEEL HUB BEARINGS (12 places) (See NOTES 2 & 4) (C) — **GAA** — **S**

ROAD WHEEL SUPPORT ARM BEARINGS (10 places) (See NOTES 3 & 4) (C) — **GAA** — **S**

TRACK ADJUSTER (See NOTE 5) (C) — **DO NOT LUBRICATE**



TOTAL MAN-HR	
INTERVAL	**MAN-HR**
S	**1.4**

NOTES

1. IDLER WHEEL SUPPORT ARM BEARINGS. Lubricate every 150 hours, 1500 miles, or semi annually using grease gun with flexible adapter. Fill arms with GAA lubricant until lubricant escapes through relief valve.
2. ROAD WHEEL AND IDLER WHEEL HUB BEARINGS. Lubricate every 150 hours, 1500 miles, or semiannually using grease gun with flexible adapter. Fill hubs with GAA lubricant until lubricant escapes through relief valve. If you see bubbles in grease or if grease looks milky, report it to unit maintenance.
3. ROAD WHEEL SUPPORT ARM BEARINGS. Lubricate every 150 hours, 1500 miles, or semiannually using grease gun with flexible adapter. Fill support arms with GAA lubricant until lubricant escapes through relief valve. If support arm has plugs installed, remove plugs and install grease fitting and relief valve. Fill support arms with GAA lubricant until lubricant escapes through relief valve. Remove grease fitting and relief valve and install plugs.

WARNING

Dry cleaning solvent burns easily, can cause skin rash, and can give off harmful vapors. To avoid injury, keep away from open fire and use in well-ventilated area. Wear protective clothing and rubber gloves.

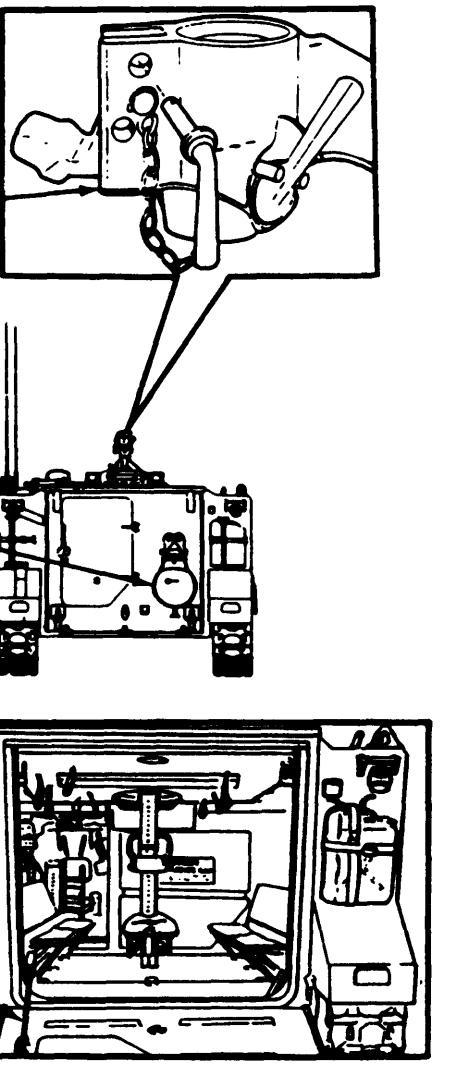
4. Clean fittings with dry cleaning solvent (PD-680, Type II) prior to lubrication. Check and lubricate grease fitting points after washing or fording.

NOTE

When grease fitting will not accept GM, notify unit maintenance.

5. TRACK ADJUSTER. Add or release GAA lubricant only to adjust track tension (TM 9-2350-261-10).

	LUBRICANT	INTERVAL
MACHINE GUN MOUNT (See NOTE 1) (C)	PL	S
TOW CABLE (See NOTE 2) (C)	OE/HDO	S
RAMP WIRE ROPE (See NOTE 3) (C)	CW-11	S



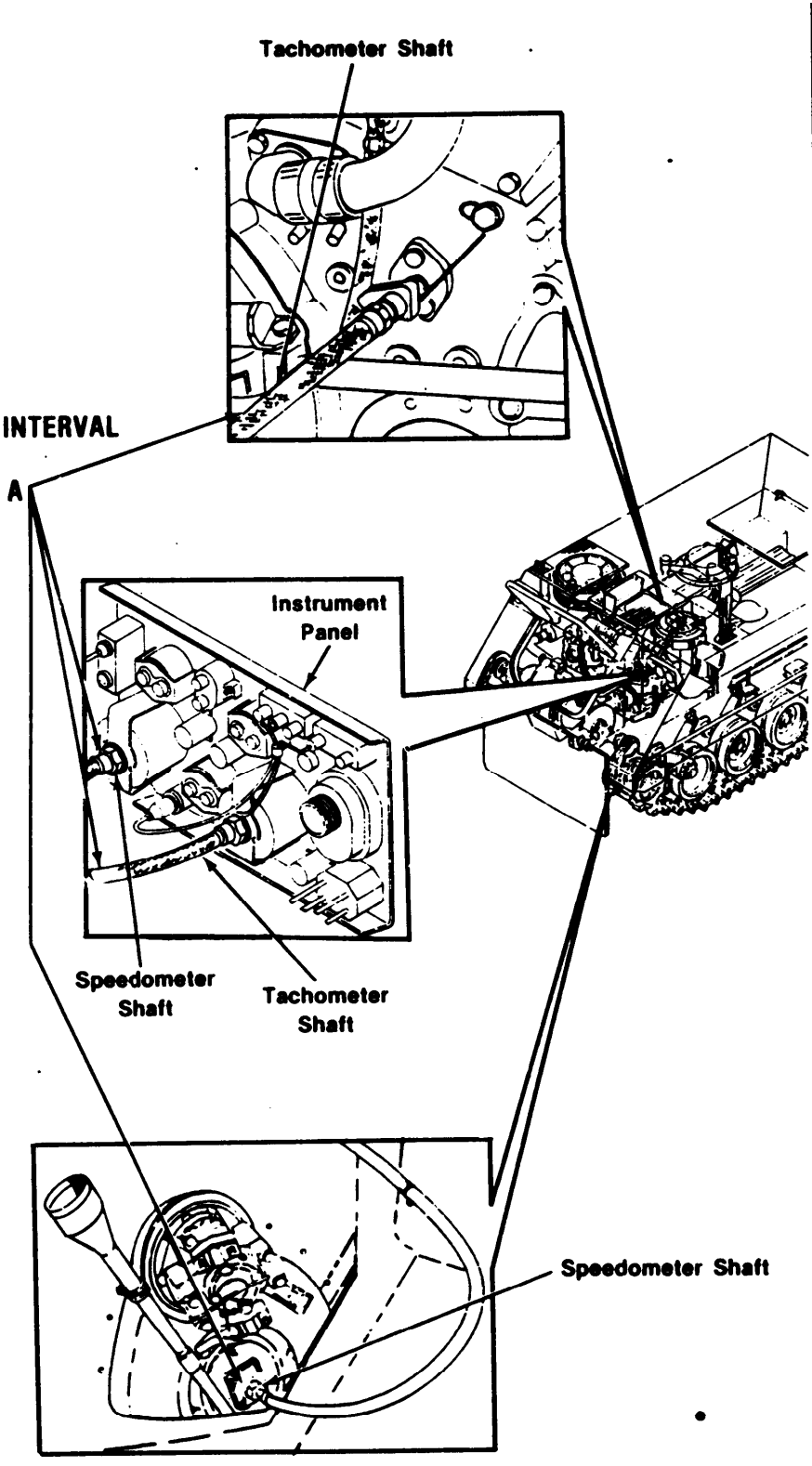
TOTAL MAN-HR	
INTERVAL	MAN-HR
S	1.0

NOTES

WARNING

Dry cleaning solvent bums easily, can cause skin **rash, and can give off harmful vapors. To avoid** injury, keep away from open **fire and use in** well-ventilated area. **Wear protective clothing and rubber gloves.**

1. MACHINE GUN MOUNT. Every 1500 miles or semiannually, clean with dry cleaning solvent (PD-680, Type II) and lubricate all moving parts with PL-M or PL-S, as appropriate.
2. TOW CABLE. Every 1500 miles or semiannually and after each use, clean cable with wire brush and oil. Wipe off excess oil.
3. RAMP WIRE ROPE. Every 1500 miles or semiannually, lower ramp and clean exposed portion of wire rope with OE/HDO. Wipe off excess oil and coat with oil (CW-11). Remove rear floor plate (TM 9-2350-261-20), raise ramp, and clean concealed portion of wire rope with OE/HDO. Wipe off excess oil and coat with CW-11. Report frayed or damaged wire rope to unit maintenance.



LUBRICANT	INTERVAL
TACHOMETER AND SPEEDOMETER SHAFTS (See NOTE 1) (0)	GIA A

TOTAL MAN-HR	
INTERVAL	MAN-HR
A	0.5

NOTES

1. TACHOMETER AND SPEEDOMETER SHAFTS. Annually, disconnect shafts at both ends (TM 9-2350-261-20), remove slotted washers from drive ends of cores, and remove cores from instrument panel end of shafts. Clean and lubricate cores with GIA. Insert cores in shafts. Install slotted washers, and connect both ends of shafts. If tachometer adapter has a grease fitting, lubricate sparingly with GIA.

2. OIL CAN POINTS. Every 1500 miles, semiannually, or as required, Lubricate ramp hinges; ramp door hinges; power plant door hinges; trim vane hinges and latches; driver's, commander's and cargo hatch hinges; control linkage pins and shafts, and seat control. Lubricate air box heater air motor. Use OE/HDO or OEA, as appropriate.

3. LUBRICATED AT TIME OF ASSEMBLY. Coat ends of suspension torsion bar; idler wheel support arm spindle and bearings; steering control linkage bearing surfaces and pins; and towing pintle shaft with GAA or GIA as specified during assembly. Late model towing pintles do not have grease fittings and do not require lubrication. Pack new support arm and idler hub before assembly.

CHART A - LUBRICANTS FOR ENGINE APPLICATIONS**

LUBRICANT	EXPECTED TEMPERATURE																		
°F	-70	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60	+70	+80	+90	+100	+120
°C	-57	-51	-46	-40	-34	-29	-23	-18	-12	-7	-1	+4	+10	+16	+21	+27	+32	+38	+49
OE/HDO (MIL-L-2104)	Lubricating Oil, ICE																		
OEA (MIL-L-46167)	Lubricating Oil, ICE, Arctic																		
OE/HDO-15/40 (0-1236)								———	———	———	———	———	———	———	———	———	———	———	
OEA* (0-183)		———	———	———	———	———	———	———	———	———	———	———							

*If OEA lubricant is required to meet the low expected-temperature range, OEA lubricant is to be used in lieu of OE/HDO lubricant for all expected temperatures where OE/HDO is specified.

**Engine applications include: engine, transfer gearcase, differential, final drives, fan gearbox, ramp wire rope, oil can points.

CHART B - LUBRICANTS FOR TRANSMISSION APPLICATIONS

LUBRICANT	EXPECTED TEMPERATURE
°F	-70 -60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60 +70 +80 +90 +100 +120
°C	-57 -51 -46 -40 -34 -29 -23 -18 -12 -7 -1 +4 +10 +16 +21 +27 +32 +38 +49
OE/HDO (MIL-L-2104)	Lubricating Oil, ICE, Tactical
OEA (MIL-L-46167)	Lubricating Oil, ICE, Arctic
OE/HDO-15/40 (0-1236)	———
OEA* (0-183)	———

*If OEA lubricant is required to meet the low expected-temperature range, OEA lubricant is to be used in lieu of OE/HDO-15/40 lubricant for all expected temperatures where OE/HDO-15/40 is specified.

CHART C - FLUIDS FOR HYDRAULIC SYSTEM APPLICATIONS

LUBRICANT	EXPECTED TEMPERATURE
°F	-70 -60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60 +70 +80 +90 +100 +120
°C	-57 -51 -46 -40 -34 -29 -23 -18 -12 -7 -1 +4 +10 +16 +21 +27 +32 +38 +49
FRH (MIL-H-46170)	Hydraulic Fluid, Rust Inhibited Fire Resistant, Synthetic Hydrocarbon Base
FRH	———

*U.S.GOVERNMENT PRINTING OFFICE: 1997 0-418-283 (40011)
054499-004

CHART D - LUBRICANTS FOR EXPOSED GEAR, CHAIN AND WIRE ROPE APPLICATIONS

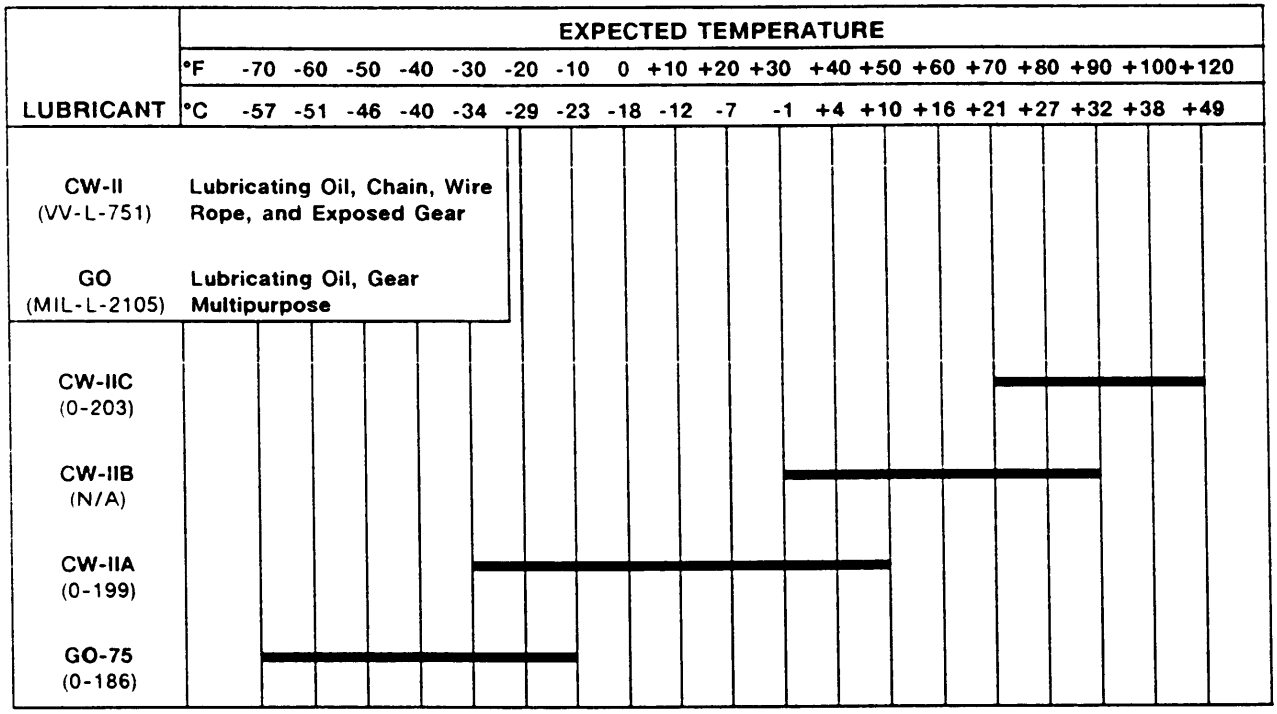
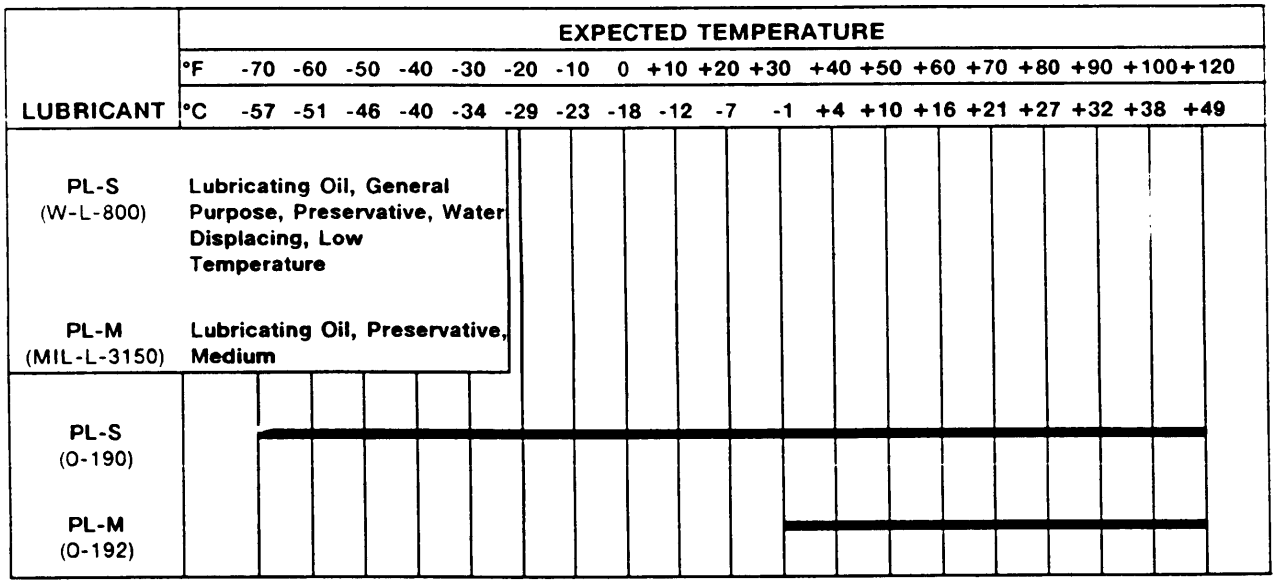


CHART E - LUBRICANTS FOR GENERAL PURPOSE APPLICATIONS



A copy of this lubrication order will remain with the equipment at all times: instructions contained herein are mandatory.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the Secretary of the Army

DISTRIBUTION: To be distributed in accor-

requirements for
LO 9-2350-261-12.

U.S. GOVERNMENT PRINTING OFFICE: 1995 0 - 390-882 (22605)

PIN: 054499-003

TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE:

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ▸ ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. 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

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

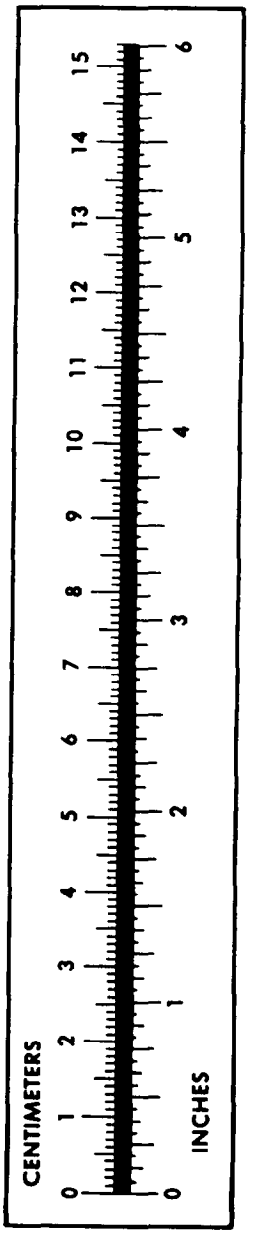
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



PIN: 054499-004